HS18120736 Cover Page

ALS WO# HS18120736

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HS18120736 Wet Chem Raw Data

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WorkOrder: HS18120736

LHAAP-58

Bhate Environmental Associates, Inc.

Marcia Olive
445 Union Blvd Ste 129
Lakewood CO 80228

28-Jan-2019

HS18120736 LHAAP58 Final

ALS WO# HS18120736

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
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January 04, 2019

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

Work Order: **HS18120736**

Laboratory Results for: **LHAAP-58**

Dear Marcia,

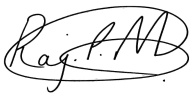
ALS Environmental received 9 sample(s) on Dec 13, 2018 for the analysis presented in the following report.

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

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

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

Sincerely,



Generated By: JUMOKE.LAWAL
RJ Modashia
Project Manager

ALS Houston, US Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Work Order: HS18120736

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS18120736-01	03WW01_121218	Groundwater		12-Dec-2018 08:20	13-Dec-2018 09:35	☐
HS18120736-02	35AWW08_121218	Groundwater		12-Dec-2018 09:10	13-Dec-2018 09:35	☐
HS18120736-03	35AWW10_121218	Groundwater		12-Dec-2018 10:30	13-Dec-2018 09:35	☐
HS18120736-04	35AWW10_121218_a	Groundwater		12-Dec-2018 10:30	13-Dec-2018 09:35	☐
HS18120736-05	35AWW16_121218	Groundwater		12-Dec-2018 11:50	13-Dec-2018 09:35	☐
HS18120736-06	35AWW15_121218	Groundwater		12-Dec-2018 12:40	13-Dec-2018 09:35	☐
HS18120736-07	35AWW05_121218	Groundwater		12-Dec-2018 13:35	13-Dec-2018 09:35	☐
HS18120736-08	35AWW09_121118	Water		11-Dec-2018 11:30	13-Dec-2018 09:35	☐
HS18120736-09	Trip Blank	Water	ALS 112818-39	12-Dec-2018 00:00	13-Dec-2018 09:35	☐

ALS Houston, US Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc. **CASE NARRATIVE**
Project: LHAAP-58
Work Order: HS18120736

Work Order Comments

- The analyses for RSK-175 Dissolved Gases and CO2 were subcontracted to ALS Environmental in Simi Valley, CA. Final Report attached.

  The analyses for Ferrous Iron and Volatile Fatty Acids were subcontracted to ALS Environmental in Rochester, NY. Final Report attached.

  The analysis for TOC was subcontracted to ALS Environmental in Kelso, WA. Final Report attached.

  The analyses for DHC/DHB were subcontracted to Microbial Insights in Knoxville, TN. Final Report attached.

GCMS Volatiles by Method SW8260

Batch ID: R329822

Sample ID: 35AWW08_121218 (HS18120736-02)

- Lowest practical dilution for sample HS18120736-02. Sample is very foamy.

Sample ID: HS18120927-05MS

- MS and MSD are for an unrelated sample.

Batch ID: R329894

Sample ID: HS18120913-03MS

- MS and MSD are for an unrelated sample.

Metals by Method SW6020

Batch ID: 135804

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

Batch ID: 135805

Sample ID: HS18120927-08MS

- MS and MSD are for an unrelated sample.

WetChemistry by Method E376.1

Batch ID: R330126

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

WetChemistry by Method SW9056

Batch ID: R329941

Sample ID: 35AWW10_121218_a (HS18120736-04MS)

- The MS and/or MSD recovery was outside of the control limits; however, the result in the parent sample is greater than 4x the spike amount. (Sulfate)

ALS Houston, US Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Work Order: HS18120736

CASE NARRATIVE

WetChemistry by Method SM2320B

Batch ID: R329695

Sample ID: 03WW01_121218 (HS18120736-01)

- Dilution performed due to sample matrix.

Sample ID: 35AWW08_121218 (HS18120736-02)

- Dilution performed due to sample matrix.

WetChemistry by Method E365.3

Batch ID: 135984

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

ALS Houston, US Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 03WW01_121218
Collection Date: 12-Dec-2018 08:20

ANALYTICAL REPORT
WorkOrder:HS18120736
Lab ID:HS18120736-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:09
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Dec-2018 20:09
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	22-Dec-2018 20:09
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:09
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Dec-2018 20:09
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Dec-2018 20:09
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:09
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	22-Dec-2018 20:09
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	22-Dec-2018 20:09
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	22-Dec-2018 20:09
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:09
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Dec-2018 20:09
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Dec-2018 20:09
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	22-Dec-2018 20:09
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Dec-2018 20:09
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	22-Dec-2018 20:09
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:09
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	22-Dec-2018 20:09
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:09
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	22-Dec-2018 20:09
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Dec-2018 20:09
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	22-Dec-2018 20:09
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:09
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	22-Dec-2018 20:09
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	22-Dec-2018 20:09
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:09
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	22-Dec-2018 20:09
Acetone	**25**		**0.40**	**2.0**	**2.0**	**UG/L**	1	22-Dec-2018 20:09
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Dec-2018 20:09
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	22-Dec-2018 20:09
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Dec-2018 20:09
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Dec-2018 20:09
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	22-Dec-2018 20:09
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	22-Dec-2018 20:09
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	22-Dec-2018 20:09
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	22-Dec-2018 20:09
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:09
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:09
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	22-Dec-2018 20:09

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

ALS Houston, US Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 03WW01_121218
Collection Date: 12-Dec-2018 08:20

ANALYTICAL REPORT
WorkOrder:HS18120736
Lab ID:HS18120736-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Dec-2018 20:09
cis-1,2-Dichloroethene	**22**		**0.20**	**0.50**	**1.0**	**UG/L**	1	22-Dec-2018 20:09
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	22-Dec-2018 20:09
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:09
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Dec-2018 20:09
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:09
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:09
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	22-Dec-2018 20:09
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:09
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	22-Dec-2018 20:09
Methylene chloride	0.50	U	0.40	0.50	2.0	UG/L	1	22-Dec-2018 20:09
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	22-Dec-2018 20:09
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:09
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:09
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:09
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:09
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:09
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:09
Tetrachloroethene	**15**		**0.30**	**0.50**	**1.0**	**UG/L**	1	22-Dec-2018 20:09
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Dec-2018 20:09
trans-1,2-Dichloroethene	**0.62**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	22-Dec-2018 20:09
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Dec-2018 20:09
Trichloroethene	**5.7**		**0.20**	**0.50**	**1.0**	**UG/L**	1	22-Dec-2018 20:09
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:09
Vinyl chloride	**7.6**		**0.20**	**0.50**	**1.0**	**UG/L**	1	22-Dec-2018 20:09
Surr: 1,2-Dichloroethane-d4	*94.9*			**0**	*81-118*	*%REC*	*1*	*22-Dec-2018 20:09*
Surr: 4-Bromofluorobenzene	*99.0*			**0**	*85-114*	*%REC*	*1*	*22-Dec-2018 20:09*
Surr: Dibromofluoromethane	*90.2*			**0**	*80-119*	*%REC*	*1*	*22-Dec-2018 20:09*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*1*	*22-Dec-2018 20:09*
ICP-MS METALS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 19-Dec-2018		Analyst: JCJ
Iron	**32.9**		**0.0120**	**0.100**	**0.200**	**mg/L**	1	21-Dec-2018 21:37
Manganese	**4.82**		**0.0350**	**0.0500**	**0.250**	**mg/L**	50	24-Dec-2018 13:38
DISSOLVED METALS BY SW6020A		**Method:SW6020 (dissolved)**				Prep:SW3010A / 19-Dec-2018		Analyst: JCJ
Iron	**32.1**		**0.0120**	**0.100**	**0.200**	**mg/L**	1	21-Dec-2018 23:51
Manganese	**4.22**		**0.0350**	**0.0500**	**0.250**	**mg/L**	50	24-Dec-2018 14:02
PHOSPHORUS BY E365.3		**Method:E365.3**				Prep:E365.3 / 24-Dec-2018		Analyst: MZD
Phosphorus, Total (As P)	**3.05**		**0.200**	**0.400**	**0.500**	**mg/L**	1	24-Dec-2018 17:00
SULFIDE BY E376.1		**Method:E376.1**						Analyst: KVL
Sulfide	1.00	U	1.00	1.00	1.00	mg/L	1	19-Dec-2018 19:00

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

ALS Houston, US Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 03WW01_121218
Collection Date: 12-Dec-2018 08:20

ANALYTICAL REPORT
WorkOrder:HS18120736
Lab ID:HS18120736-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
ALKALINITY BY SM2320B		**Method:SM2320B**						Analyst: AJH
Alkalinity, Total (As CaCO3)	**862**		**25.0**	**25.0**	**25.0**	**mg/L**	5	20-Dec-2018 23:12
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KMU
Chloride	**336**		**10.0**	**25.0**	**25.0**	**mg/L**	50	13-Dec-2018 19:39
Nitrogen, Nitrate (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	13-Dec-2018 20:37
Nitrogen, Nitrite (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	13-Dec-2018 20:37
Sulfate	**42.8**		**0.200**	**0.500**	**0.500**	**mg/L**	1	13-Dec-2018 20:37
SUBCONTRACT ANALYSIS - DHC/DHB		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	19-Dec-2018 16:09
SUBCONTRACT ANALYSIS - FERROUS IRON		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	04-Jan-2019 10:12
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	28-Dec-2018 10:40
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	28-Dec-2018 10:25
SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	04-Jan-2019 10:12

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

ALS Houston, US Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW08_121218
Collection Date: 12-Dec-2018 09:10

ANALYTICAL REPORT
WorkOrder:HS18120736
Lab ID:HS18120736-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	5.0	U	3.0	5.0	10	UG/L	10	22-Dec-2018 19:44
1,1,1-Trichloroethane	5.0	U	2.0	5.0	10	UG/L	10	22-Dec-2018 19:44
1,1,2,2-Tetrachloroethane	5.0	U	5.0	5.0	10	UG/L	10	22-Dec-2018 19:44
1,1,2-Trichloroethane	5.0	U	3.0	5.0	10	UG/L	10	22-Dec-2018 19:44
1,1-Dichloroethane	5.0	U	2.0	5.0	10	UG/L	10	22-Dec-2018 19:44
1,1-Dichloroethene	5.0	U	2.0	5.0	10	UG/L	10	22-Dec-2018 19:44
1,1-Dichloropropene	5.0	U	3.0	5.0	10	UG/L	10	22-Dec-2018 19:44
1,2,3-Trichlorobenzene	5.0	U	4.0	5.0	10	UG/L	10	22-Dec-2018 19:44
1,2,3-Trichloropropane	5.0	U	5.0	5.0	10	UG/L	10	22-Dec-2018 19:44
1,2,4-Trichlorobenzene	5.0	U	5.0	5.0	10	UG/L	10	22-Dec-2018 19:44
1,2,4-Trimethylbenzene	5.0	U	3.0	5.0	10	UG/L	10	22-Dec-2018 19:44
1,2-Dibromo-3-chloropropane	5.0	U	2.0	5.0	10	UG/L	10	22-Dec-2018 19:44
1,2-Dibromoethane	5.0	U	2.0	5.0	10	UG/L	10	22-Dec-2018 19:44
1,2-Dichlorobenzene	5.0	U	5.0	5.0	10	UG/L	10	22-Dec-2018 19:44
1,2-Dichloroethane	5.0	U	2.0	5.0	10	UG/L	10	22-Dec-2018 19:44
1,2-Dichloropropane	5.0	U	5.0	5.0	10	UG/L	10	22-Dec-2018 19:44
1,3,5-Trimethylbenzene	5.0	U	3.0	5.0	10	UG/L	10	22-Dec-2018 19:44
1,3-Dichlorobenzene	5.0	U	4.0	5.0	10	UG/L	10	22-Dec-2018 19:44
1,3-Dichloropropane	5.0	U	3.0	5.0	10	UG/L	10	22-Dec-2018 19:44
1,4-Dichlorobenzene	5.0	U	4.0	5.0	10	UG/L	10	22-Dec-2018 19:44
2,2-Dichloropropane	5.0	U	2.0	5.0	10	UG/L	10	22-Dec-2018 19:44
2-Butanone	10	U	5.0	10	20	UG/L	10	22-Dec-2018 19:44
2-Chlorotoluene	5.0	U	3.0	5.0	10	UG/L	10	22-Dec-2018 19:44
2-Hexanone	10	U	10	10	20	UG/L	10	22-Dec-2018 19:44
4-Chlorotoluene	5.0	U	4.0	5.0	10	UG/L	10	22-Dec-2018 19:44
4-Isopropyltoluene	5.0	U	3.0	5.0	10	UG/L	10	22-Dec-2018 19:44
4-Methyl-2-pentanone	10	U	7.0	10	20	UG/L	10	22-Dec-2018 19:44
Acetone	**76**		**4.0**	**20**	**20**	**UG/L**	10	22-Dec-2018 19:44
Benzene	5.0	U	2.0	5.0	10	UG/L	10	22-Dec-2018 19:44
Bromobenzene	5.0	U	4.0	5.0	10	UG/L	10	22-Dec-2018 19:44
Bromochloromethane	5.0	U	2.0	5.0	10	UG/L	10	22-Dec-2018 19:44
Bromodichloromethane	5.0	U	2.0	5.0	10	UG/L	10	22-Dec-2018 19:44
Bromoform	5.0	U	4.0	5.0	10	UG/L	10	22-Dec-2018 19:44
Bromomethane	5.0	U	4.0	5.0	10	UG/L	10	22-Dec-2018 19:44
Carbon disulfide	10	U	6.0	10	20	UG/L	10	22-Dec-2018 19:44
Carbon tetrachloride	5.0	U	5.0	5.0	10	UG/L	10	22-Dec-2018 19:44
Chlorobenzene	5.0	U	3.0	5.0	10	UG/L	10	22-Dec-2018 19:44
Chloroethane	5.0	U	3.0	5.0	10	UG/L	10	22-Dec-2018 19:44
Chloroform	5.0	U	2.0	5.0	10	UG/L	10	22-Dec-2018 19:44

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

ALS Houston, US Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW08_121218
Collection Date: 12-Dec-2018 09:10

ANALYTICAL REPORT
WorkOrder:HS18120736
Lab ID:HS18120736-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	5.0	U	2.0	5.0	10	UG/L	10	22-Dec-2018 19:44
cis-1,2-Dichloroethene	**8.9**	J	**2.0**	**5.0**	**10**	**UG/L**	10	22-Dec-2018 19:44
cis-1,3-Dichloropropene	5.0	U	1.0	5.0	10	UG/L	10	22-Dec-2018 19:44
Dibromochloromethane	5.0	U	3.0	5.0	10	UG/L	10	22-Dec-2018 19:44
Dibromomethane	5.0	U	2.0	5.0	10	UG/L	10	22-Dec-2018 19:44
Dichlorodifluoromethane	5.0	U	3.0	5.0	10	UG/L	10	22-Dec-2018 19:44
Ethylbenzene	5.0	U	3.0	5.0	10	UG/L	10	22-Dec-2018 19:44
Hexachlorobutadiene	10	U	10	10	10	UG/L	10	22-Dec-2018 19:44
Isopropylbenzene	5.0	U	3.0	5.0	10	UG/L	10	22-Dec-2018 19:44
m,p-Xylene	10	U	5.0	10	20	UG/L	10	22-Dec-2018 19:44
Methylene chloride	5.0	U	4.0	5.0	20	UG/L	10	22-Dec-2018 19:44
n-Butylbenzene	5.0	U	4.0	5.0	10	UG/L	10	22-Dec-2018 19:44
n-Propylbenzene	5.0	U	3.0	5.0	10	UG/L	10	22-Dec-2018 19:44
Naphthalene	5.0	U	3.0	5.0	10	UG/L	10	22-Dec-2018 19:44
o-Xylene	5.0	U	3.0	5.0	10	UG/L	10	22-Dec-2018 19:44
sec-Butylbenzene	5.0	U	3.0	5.0	10	UG/L	10	22-Dec-2018 19:44
Styrene	5.0	U	3.0	5.0	10	UG/L	10	22-Dec-2018 19:44
tert-Butylbenzene	5.0	U	3.0	5.0	10	UG/L	10	22-Dec-2018 19:44
Tetrachloroethene	5.0	U	3.0	5.0	10	UG/L	10	22-Dec-2018 19:44
Toluene	5.0	U	2.0	5.0	10	UG/L	10	22-Dec-2018 19:44
trans-1,2-Dichloroethene	5.0	U	2.0	5.0	10	UG/L	10	22-Dec-2018 19:44
trans-1,3-Dichloropropene	5.0	U	2.0	5.0	10	UG/L	10	22-Dec-2018 19:44
Trichloroethene	**12**		**2.0**	**5.0**	**10**	**UG/L**	10	22-Dec-2018 19:44
Trichlorofluoromethane	5.0	U	3.0	5.0	10	UG/L	10	22-Dec-2018 19:44
Vinyl chloride	5.0	U	2.0	5.0	10	UG/L	10	22-Dec-2018 19:44
Surr: 1,2-Dichloroethane-d4	*95.4*			**0**	*81-118*	*%REC*	*10*	*22-Dec-2018 19:44*
Surr: 4-Bromofluorobenzene	*97.4*			**0**	*85-114*	*%REC*	*10*	*22-Dec-2018 19:44*
Surr: Dibromofluoromethane	*91.6*			**0**	*80-119*	*%REC*	*10*	*22-Dec-2018 19:44*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*10*	*22-Dec-2018 19:44*
ICP-MS METALS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 19-Dec-2018		Analyst: JCJ
Arsenic	**0.0593**		**0.00400**	**0.0100**	**0.0200**	**mg/L**	10	21-Dec-2018 21:39
Iron	**39.9**		**0.120**	**1.00**	**2.00**	**mg/L**	10	21-Dec-2018 21:39
Manganese	**9.01**		**0.00700**	**0.0100**	**0.0500**	**mg/L**	10	21-Dec-2018 21:39
DISSOLVED METALS BY SW6020A		**Method:SW6020 (dissolved)**				Prep:SW3010A / 19-Dec-2018		Analyst: JCJ
Iron	**38.2**		**0.120**	**1.00**	**2.00**	**mg/L**	10	21-Dec-2018 23:53
Manganese	**8.96**		**0.00700**	**0.0100**	**0.0500**	**mg/L**	10	21-Dec-2018 23:53
PHOSPHORUS BY E365.3		**Method:E365.3**				Prep:E365.3 / 24-Dec-2018		Analyst: MZD
Phosphorus, Total (As P)	**2.43**		**0.200**	**0.400**	**0.500**	**mg/L**	1	24-Dec-2018 17:00

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

ALS Houston, US Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW08_121218
Collection Date: 12-Dec-2018 09:10

ANALYTICAL REPORT
WorkOrder:HS18120736
Lab ID:HS18120736-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SULFIDE BY E376.1		**Method:E376.1**						Analyst: KVL
Sulfide	1.00	U	1.00	1.00	1.00	mg/L	1	19-Dec-2018 19:00
ALKALINITY BY SM2320B		**Method:SM2320B**						Analyst: AJH
Alkalinity, Total (As CaCO3)	**3,420**		**50.0**	**50.0**	**50.0**	**mg/L**	10	20-Dec-2018 23:18
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KMU
Chloride	**2,240**		**10.0**	**25.0**	**25.0**	**mg/L**	50	13-Dec-2018 20:08
Nitrogen, Nitrate (As N)	**0.147**	J	**0.0600**	**0.200**	**0.200**	**mg/L**	2	13-Dec-2018 19:53
Nitrogen, Nitrite (As N)	0.200	U	0.0600	0.200	0.200	mg/L	2	13-Dec-2018 19:53
Sulfate	**4.76**		**0.400**	**1.00**	**1.00**	**mg/L**	2	13-Dec-2018 19:53
SUBCONTRACT ANALYSIS - DHC/DHB		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	19-Dec-2018 16:09
SUBCONTRACT ANALYSIS - FERROUS IRON		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	04-Jan-2019 10:12
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	28-Dec-2018 10:40
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	28-Dec-2018 10:25
SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	04-Jan-2019 10:12

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

ALS Houston, US Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW10_121218
Collection Date: 12-Dec-2018 10:30

ANALYTICAL REPORT
WorkOrder:HS18120736
Lab ID:HS18120736-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:33
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Dec-2018 20:33
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	22-Dec-2018 20:33
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:33
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Dec-2018 20:33
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Dec-2018 20:33
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:33
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	22-Dec-2018 20:33
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	22-Dec-2018 20:33
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	22-Dec-2018 20:33
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:33
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Dec-2018 20:33
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Dec-2018 20:33
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	22-Dec-2018 20:33
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Dec-2018 20:33
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	22-Dec-2018 20:33
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:33
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	22-Dec-2018 20:33
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:33
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	22-Dec-2018 20:33
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Dec-2018 20:33
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	22-Dec-2018 20:33
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:33
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	22-Dec-2018 20:33
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	22-Dec-2018 20:33
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:33
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	22-Dec-2018 20:33
Acetone	2.0	U	0.40	2.0	2.0	UG/L	1	22-Dec-2018 20:33
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Dec-2018 20:33
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	22-Dec-2018 20:33
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Dec-2018 20:33
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Dec-2018 20:33
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	22-Dec-2018 20:33
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	22-Dec-2018 20:33
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	22-Dec-2018 20:33
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	22-Dec-2018 20:33
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:33
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:33
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	22-Dec-2018 20:33

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

ALS Houston, US Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW10_121218
Collection Date: 12-Dec-2018 10:30

ANALYTICAL REPORT
WorkOrder:HS18120736
Lab ID:HS18120736-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Dec-2018 20:33
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Dec-2018 20:33
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	22-Dec-2018 20:33
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:33
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Dec-2018 20:33
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:33
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:33
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	22-Dec-2018 20:33
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:33
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	22-Dec-2018 20:33
Methylene chloride	0.50	U	0.40	0.50	2.0	UG/L	1	22-Dec-2018 20:33
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	22-Dec-2018 20:33
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:33
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:33
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:33
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:33
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:33
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:33
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:33
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Dec-2018 20:33
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Dec-2018 20:33
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Dec-2018 20:33
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Dec-2018 20:33
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:33
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	22-Dec-2018 20:33
Surr: 1,2-Dichloroethane-d4	*97.5*			**0**	*81-118*	*%REC*	*1*	*22-Dec-2018 20:33*
Surr: 4-Bromofluorobenzene	*97.1*			**0**	*85-114*	*%REC*	*1*	*22-Dec-2018 20:33*
Surr: Dibromofluoromethane	*92.5*			**0**	*80-119*	*%REC*	*1*	*22-Dec-2018 20:33*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*1*	*22-Dec-2018 20:33*
ICP-MS METALS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 19-Dec-2018		Analyst: JCJ
Iron	**0.340**		**0.0120**	**0.100**	**0.200**	**mg/L**	1	21-Dec-2018 21:41
Manganese	**0.0474**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	21-Dec-2018 21:41
DISSOLVED METALS BY SW6020A		**Method:SW6020 (dissolved)**				Prep:SW3010A / 19-Dec-2018		Analyst: JCJ
Iron	**0.332**		**0.0120**	**0.100**	**0.200**	**mg/L**	1	21-Dec-2018 23:55
Manganese	**0.0512**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	21-Dec-2018 23:55
PHOSPHORUS BY E365.3		**Method:E365.3**				Prep:E365.3 / 24-Dec-2018		Analyst: MZD
Phosphorus, Total (As P)	**0.244**		**0.0200**	**0.0400**	**0.0500**	**mg/L**	1	24-Dec-2018 17:00
SULFIDE BY E376.1		**Method:E376.1**						Analyst: KVL
Sulfide	1.00	U	1.00	1.00	1.00	mg/L	1	19-Dec-2018 19:00

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

ALS Houston, US Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW10_121218
Collection Date: 12-Dec-2018 10:30

ANALYTICAL REPORT
WorkOrder:HS18120736
Lab ID:HS18120736-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
ALKALINITY BY SM2320B		**Method:SM2320B**						Analyst: AJH
Alkalinity, Total (As CaCO3)	**50.4**		**5.00**	**5.00**	**5.00**	**mg/L**	1	20-Dec-2018 23:39
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KMU
Chloride	**4.83**		**0.200**	**0.500**	**0.500**	**mg/L**	1	13-Dec-2018 16:56
Nitrogen, Nitrate (As N)	**0.131**		**0.0300**	**0.100**	**0.100**	**mg/L**	1	13-Dec-2018 16:56
Nitrogen, Nitrite (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	13-Dec-2018 16:56
Sulfate	**50.3**		**0.200**	**0.500**	**0.500**	**mg/L**	1	13-Dec-2018 16:56
SUBCONTRACT ANALYSIS - DHC/DHB		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	19-Dec-2018 16:09
SUBCONTRACT ANALYSIS - FERROUS IRON		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	04-Jan-2019 10:12
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	28-Dec-2018 10:40
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	28-Dec-2018 10:25
SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	04-Jan-2019 10:12

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

ALS Houston, US Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW10_121218_a
Collection Date: 12-Dec-2018 10:30

ANALYTICAL REPORT
WorkOrder:HS18120736
Lab ID:HS18120736-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:58
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Dec-2018 20:58
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	22-Dec-2018 20:58
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:58
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Dec-2018 20:58
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Dec-2018 20:58
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:58
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	22-Dec-2018 20:58
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	22-Dec-2018 20:58
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	22-Dec-2018 20:58
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:58
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Dec-2018 20:58
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Dec-2018 20:58
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	22-Dec-2018 20:58
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Dec-2018 20:58
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	22-Dec-2018 20:58
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:58
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	22-Dec-2018 20:58
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:58
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	22-Dec-2018 20:58
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Dec-2018 20:58
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	22-Dec-2018 20:58
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:58
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	22-Dec-2018 20:58
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	22-Dec-2018 20:58
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:58
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	22-Dec-2018 20:58
Acetone	2.0	U	0.40	2.0	2.0	UG/L	1	22-Dec-2018 20:58
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Dec-2018 20:58
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	22-Dec-2018 20:58
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Dec-2018 20:58
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Dec-2018 20:58
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	22-Dec-2018 20:58
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	22-Dec-2018 20:58
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	22-Dec-2018 20:58
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	22-Dec-2018 20:58
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:58
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:58
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	22-Dec-2018 20:58

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

ALS Houston, US Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW10_121218_a
Collection Date: 12-Dec-2018 10:30

ANALYTICAL REPORT
WorkOrder:HS18120736
Lab ID:HS18120736-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Dec-2018 20:58
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Dec-2018 20:58
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	22-Dec-2018 20:58
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:58
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Dec-2018 20:58
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:58
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:58
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	22-Dec-2018 20:58
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:58
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	22-Dec-2018 20:58
Methylene chloride	0.50	U	0.40	0.50	2.0	UG/L	1	22-Dec-2018 20:58
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	22-Dec-2018 20:58
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:58
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:58
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:58
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:58
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:58
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:58
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:58
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Dec-2018 20:58
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Dec-2018 20:58
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Dec-2018 20:58
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Dec-2018 20:58
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Dec-2018 20:58
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	22-Dec-2018 20:58
Surr: 1,2-Dichloroethane-d4	*96.3*			**0**	*81-118*	*%REC*	*1*	*22-Dec-2018 20:58*
Surr: 4-Bromofluorobenzene	*97.2*			**0**	*85-114*	*%REC*	*1*	*22-Dec-2018 20:58*
Surr: Dibromofluoromethane	*91.5*			**0**	*80-119*	*%REC*	*1*	*22-Dec-2018 20:58*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*1*	*22-Dec-2018 20:58*
ICP-MS METALS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 19-Dec-2018		Analyst: JCJ
Iron	**0.166**	J	**0.0120**	**0.100**	**0.200**	**mg/L**	1	21-Dec-2018 21:44
Manganese	**0.0530**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	21-Dec-2018 21:44
DISSOLVED METALS BY SW6020A		**Method:SW6020 (dissolved)**				Prep:SW3010A / 19-Dec-2018		Analyst: JCJ
Iron	**0.227**		**0.0120**	**0.100**	**0.200**	**mg/L**	1	21-Dec-2018 23:58
Manganese	**0.0567**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	21-Dec-2018 23:58
PHOSPHORUS BY E365.3		**Method:E365.3**				Prep:E365.3 / 24-Dec-2018		Analyst: MZD
Phosphorus, Total (As P)	**0.253**		**0.0200**	**0.0400**	**0.0500**	**mg/L**	1	24-Dec-2018 17:00
SULFIDE BY E376.1		**Method:E376.1**						Analyst: KVL
Sulfide	1.00	U	1.00	1.00	1.00	mg/L	1	19-Dec-2018 19:00

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

ALS Houston, US Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW10_121218_a
Collection Date: 12-Dec-2018 10:30

ANALYTICAL REPORT
WorkOrder:HS18120736
Lab ID:HS18120736-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
ALKALINITY BY SM2320B		**Method:SM2320B**						Analyst: AJH
Alkalinity, Total (As CaCO3)	**55.1**		**5.00**	**5.00**	**5.00**	**mg/L**	1	20-Dec-2018 23:45
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KMU
Chloride	**5.17**		**0.200**	**0.500**	**0.500**	**mg/L**	1	13-Dec-2018 17:25
Nitrogen, Nitrate (As N)	**0.159**		**0.0300**	**0.100**	**0.100**	**mg/L**	1	13-Dec-2018 17:25
Nitrogen, Nitrite (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	13-Dec-2018 17:25
Sulfate	**53.4**		**0.200**	**0.500**	**0.500**	**mg/L**	1	13-Dec-2018 17:25
SUBCONTRACT ANALYSIS - FERROUS IRON		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	04-Jan-2019 10:12
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	28-Dec-2018 10:40
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	28-Dec-2018 10:25
SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	04-Jan-2019 10:12

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

ALS Houston, US Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW16_121218
Collection Date: 12-Dec-2018 11:50

ANALYTICAL REPORT
WorkOrder:HS18120736
Lab ID:HS18120736-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 12:20
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 12:20
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 12:20
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 12:20
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 12:20
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 12:20
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 12:20
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 12:20
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 12:20
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 12:20
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 12:20
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 12:20
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 12:20
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 12:20
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 12:20
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 12:20
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 12:20
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 12:20
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 12:20
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 12:20
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 12:20
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Dec-2018 12:20
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 12:20
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	24-Dec-2018 12:20
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 12:20
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 12:20
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	24-Dec-2018 12:20
Acetone	2.0	U	0.40	2.0	2.0	UG/L	1	24-Dec-2018 12:20
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 12:20
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 12:20
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 12:20
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 12:20
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 12:20
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 12:20
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	24-Dec-2018 12:20
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 12:20
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 12:20
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 12:20
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 12:20

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

ALS Houston, US Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW16_121218
Collection Date: 12-Dec-2018 11:50

ANALYTICAL REPORT
WorkOrder:HS18120736
Lab ID:HS18120736-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 12:20
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 12:20
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Dec-2018 12:20
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 12:20
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 12:20
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 12:20
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 12:20
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	24-Dec-2018 12:20
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 12:20
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Dec-2018 12:20
Methylene chloride	0.50	U	0.40	0.50	2.0	UG/L	1	24-Dec-2018 12:20
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 12:20
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 12:20
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 12:20
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 12:20
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 12:20
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 12:20
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 12:20
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 12:20
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 12:20
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 12:20
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 12:20
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 12:20
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 12:20
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 12:20
Surr: 1,2-Dichloroethane-d4	*96.6*			**0**	*81-118*	*%REC*	*1*	*24-Dec-2018 12:20*
Surr: 4-Bromofluorobenzene	*97.8*			**0**	*85-114*	*%REC*	*1*	*24-Dec-2018 12:20*
Surr: Dibromofluoromethane	*89.9*			**0**	*80-119*	*%REC*	*1*	*24-Dec-2018 12:20*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*1*	*24-Dec-2018 12:20*

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

ALS Houston, US Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW15_121218
Collection Date: 12-Dec-2018 12:40

ANALYTICAL REPORT
WorkOrder:HS18120736
Lab ID:HS18120736-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 12:45
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 12:45
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 12:45
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 12:45
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 12:45
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 12:45
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 12:45
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 12:45
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 12:45
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 12:45
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 12:45
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 12:45
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 12:45
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 12:45
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 12:45
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 12:45
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 12:45
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 12:45
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 12:45
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 12:45
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 12:45
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Dec-2018 12:45
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 12:45
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	24-Dec-2018 12:45
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 12:45
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 12:45
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	24-Dec-2018 12:45
Acetone	**1.9**	J	**0.40**	**2.0**	**2.0**	**UG/L**	1	24-Dec-2018 12:45
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 12:45
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 12:45
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 12:45
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 12:45
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 12:45
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 12:45
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	24-Dec-2018 12:45
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 12:45
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 12:45
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 12:45
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 12:45

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

ALS Houston, US Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW15_121218
Collection Date: 12-Dec-2018 12:40

ANALYTICAL REPORT
WorkOrder:HS18120736
Lab ID:HS18120736-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 12:45
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 12:45
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Dec-2018 12:45
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 12:45
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 12:45
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 12:45
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 12:45
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	24-Dec-2018 12:45
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 12:45
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Dec-2018 12:45
Methylene chloride	0.50	U	0.40	0.50	2.0	UG/L	1	24-Dec-2018 12:45
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 12:45
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 12:45
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 12:45
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 12:45
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 12:45
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 12:45
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 12:45
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 12:45
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 12:45
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 12:45
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 12:45
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 12:45
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 12:45
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 12:45
Surr: 1,2-Dichloroethane-d4	*96.6*			**0**	*81-118*	*%REC*	*1*	*24-Dec-2018 12:45*
Surr: 4-Bromofluorobenzene	*98.6*			**0**	*85-114*	*%REC*	*1*	*24-Dec-2018 12:45*
Surr: Dibromofluoromethane	*90.6*			**0**	*80-119*	*%REC*	*1*	*24-Dec-2018 12:45*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*1*	*24-Dec-2018 12:45*

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

ALS Houston, US Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW05_121218
Collection Date: 12-Dec-2018 13:35

ANALYTICAL REPORT
WorkOrder:HS18120736
Lab ID:HS18120736-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 13:10
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 13:10
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 13:10
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 13:10
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 13:10
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 13:10
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 13:10
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 13:10
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 13:10
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 13:10
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 13:10
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 13:10
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 13:10
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 13:10
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 13:10
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 13:10
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 13:10
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 13:10
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 13:10
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 13:10
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 13:10
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Dec-2018 13:10
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 13:10
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	24-Dec-2018 13:10
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 13:10
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 13:10
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	24-Dec-2018 13:10
Acetone	2.0	U	0.40	2.0	2.0	UG/L	1	24-Dec-2018 13:10
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 13:10
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 13:10
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 13:10
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 13:10
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 13:10
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 13:10
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	24-Dec-2018 13:10
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 13:10
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 13:10
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 13:10
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 13:10

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

ALS Houston, US Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW05_121218
Collection Date: 12-Dec-2018 13:35

ANALYTICAL REPORT
WorkOrder:HS18120736
Lab ID:HS18120736-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 13:10
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 13:10
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Dec-2018 13:10
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 13:10
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 13:10
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 13:10
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 13:10
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	24-Dec-2018 13:10
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 13:10
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Dec-2018 13:10
Methylene chloride	0.50	U	0.40	0.50	2.0	UG/L	1	24-Dec-2018 13:10
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 13:10
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 13:10
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 13:10
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 13:10
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 13:10
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 13:10
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 13:10
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 13:10
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 13:10
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 13:10
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 13:10
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 13:10
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 13:10
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 13:10
Surr: 1,2-Dichloroethane-d4	*95.6*			**0**	*81-118*	*%REC*	*1*	*24-Dec-2018 13:10*
Surr: 4-Bromofluorobenzene	*98.1*			**0**	*85-114*	*%REC*	*1*	*24-Dec-2018 13:10*
Surr: Dibromofluoromethane	*89.6*			**0**	*80-119*	*%REC*	*1*	*24-Dec-2018 13:10*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*1*	*24-Dec-2018 13:10*

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

ALS Houston, US Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW09_121118
Collection Date: 11-Dec-2018 11:30

ANALYTICAL REPORT
WorkOrder:HS18120736
Lab ID:HS18120736-08
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 19-Dec-2018		Analyst: JCJ
Arsenic	**0.000964**	J	**0.000400**	**0.00100**	**0.00200**	**mg/L**	1	21-Dec-2018 21:46

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

ALS Houston, US Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: Trip Blank
Collection Date: 12-Dec-2018 00:00

ANALYTICAL REPORT
WorkOrder:HS18120736
Lab ID:HS18120736-09
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 11:31
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 11:31
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 11:31
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 11:31
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 11:31
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 11:31
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 11:31
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 11:31
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 11:31
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 11:31
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 11:31
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 11:31
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 11:31
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 11:31
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 11:31
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 11:31
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 11:31
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 11:31
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 11:31
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 11:31
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 11:31
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Dec-2018 11:31
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 11:31
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	24-Dec-2018 11:31
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 11:31
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 11:31
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	24-Dec-2018 11:31
Acetone	2.0	U	0.40	2.0	2.0	UG/L	1	24-Dec-2018 11:31
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 11:31
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 11:31
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 11:31
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 11:31
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 11:31
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 11:31
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	24-Dec-2018 11:31
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 11:31
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 11:31
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 11:31
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 11:31

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

ALS Houston, US Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: Trip Blank
Collection Date: 12-Dec-2018 00:00

ANALYTICAL REPORT
WorkOrder:HS18120736
Lab ID:HS18120736-09
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 11:31
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 11:31
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Dec-2018 11:31
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 11:31
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 11:31
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 11:31
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 11:31
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	24-Dec-2018 11:31
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 11:31
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Dec-2018 11:31
Methylene chloride	0.50	U	0.40	0.50	2.0	UG/L	1	24-Dec-2018 11:31
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 11:31
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 11:31
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 11:31
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 11:31
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 11:31
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 11:31
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 11:31
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 11:31
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 11:31
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 11:31
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 11:31
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 11:31
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 11:31
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 11:31
Surr: 1,2-Dichloroethane-d4	*95.7*			**0**	*81-118*	*%REC*	*1*	*24-Dec-2018 11:31*
Surr: 4-Bromofluorobenzene	*98.7*			**0**	*85-114*	*%REC*	*1*	*24-Dec-2018 11:31*
Surr: Dibromofluoromethane	*89.9*			**0**	*80-119*	*%REC*	*1*	*24-Dec-2018 11:31*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*1*	*24-Dec-2018 11:31*

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

WEIGHT LOG

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120736

Batch ID: 135804 **Method:** ICP-MS METALS BY SW6020A **Prep:** 3010A

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS18120736-01	1	10	10 (mL)	1
HS18120736-02	1	10	10 (mL)	1
HS18120736-03	1	10	10 (mL)	1
HS18120736-04	1	10	10 (mL)	1
HS18120736-08	1	10	10 (mL)	1

Batch ID: 135805 **Method:** DISSOLVED METALS BY SW6020A **Prep:** 3010A DISS

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS18120736-01	1	10	10 (mL)	1
HS18120736-02	1	10	10 (mL)	1
HS18120736-03	1	10	10 (mL)	1
HS18120736-04	1	10	10 (mL)	1

Batch ID: 135984 **Method:** PHOSPHORUS BY E365.3 **Prep:** P_TW_PR

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS18120736-01	1	5	50 (mL)	10
HS18120736-02	1	5	50 (mL)	10
HS18120736-03	1	50	50 (mL)	1
HS18120736-04	1	50	50 (mL)	1

ALS Houston, US Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120736

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID 135804	**Test Name :** ICP-MS METALS BY SW6020A			**Matrix:** Water		
HS18120736-08	35AWW09_121118	11 Dec 2018 11:30		19 Dec 2018 13:00	21 Dec 2018 21:46	1
Batch ID 135804	**Test Name :** ICP-MS METALS BY SW6020A			**Matrix:** Groundwater		
HS18120736-01	03WW01_121218	12 Dec 2018 08:20		19 Dec 2018 13:00	24 Dec 2018 13:38	50
HS18120736-01	03WW01_121218	12 Dec 2018 08:20		19 Dec 2018 13:00	21 Dec 2018 21:37	1
HS18120736-02	35AWW08_121218	12 Dec 2018 09:10		19 Dec 2018 13:00	21 Dec 2018 21:39	10
HS18120736-03	35AWW10_121218	12 Dec 2018 10:30		19 Dec 2018 13:00	21 Dec 2018 21:41	1
HS18120736-04	35AWW10_121218_a	12 Dec 2018 10:30		19 Dec 2018 13:00	21 Dec 2018 21:44	1
Batch ID 135805	**Test Name :** DISSOLVED METALS BY SW6020A			**Matrix:** Groundwater		
HS18120736-01	03WW01_121218	12 Dec 2018 08:20		19 Dec 2018 13:00	24 Dec 2018 14:02	50
HS18120736-01	03WW01_121218	12 Dec 2018 08:20		19 Dec 2018 13:00	21 Dec 2018 23:51	1
HS18120736-02	35AWW08_121218	12 Dec 2018 09:10		19 Dec 2018 13:00	21 Dec 2018 23:53	10
HS18120736-03	35AWW10_121218	12 Dec 2018 10:30		19 Dec 2018 13:00	21 Dec 2018 23:55	1
HS18120736-04	35AWW10_121218_a	12 Dec 2018 10:30		19 Dec 2018 13:00	21 Dec 2018 23:58	1
Batch ID 135984	**Test Name :** PHOSPHORUS BY E365.3			**Matrix:** Groundwater		
HS18120736-01	03WW01_121218	12 Dec 2018 08:20		24 Dec 2018 12:00	24 Dec 2018 17:00	1
HS18120736-02	35AWW08_121218	12 Dec 2018 09:10		24 Dec 2018 12:00	24 Dec 2018 17:00	1
HS18120736-03	35AWW10_121218	12 Dec 2018 10:30		24 Dec 2018 12:00	24 Dec 2018 17:00	1
HS18120736-04	35AWW10_121218_a	12 Dec 2018 10:30		24 Dec 2018 12:00	24 Dec 2018 17:00	1
Batch ID R329596	**Test Name :** SUBCONTRACT ANALYSIS - DHC/DHB			**Matrix:** Groundwater		
HS18120736-01	03WW01_121218	12 Dec 2018 08:20			19 Dec 2018 16:09	1
HS18120736-02	35AWW08_121218	12 Dec 2018 09:10			19 Dec 2018 16:09	1
HS18120736-03	35AWW10_121218	12 Dec 2018 10:30			19 Dec 2018 16:09	1
Batch ID R329695	**Test Name :** ALKALINITY BY SM2320B			**Matrix:** Groundwater		
HS18120736-01	03WW01_121218	12 Dec 2018 08:20			20 Dec 2018 23:12	5
HS18120736-02	35AWW08_121218	12 Dec 2018 09:10			20 Dec 2018 23:18	10
HS18120736-03	35AWW10_121218	12 Dec 2018 10:30			20 Dec 2018 23:39	1
HS18120736-04	35AWW10_121218_a	12 Dec 2018 10:30			20 Dec 2018 23:45	1
Batch ID R329822	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C			**Matrix:** Groundwater		
HS18120736-01	03WW01_121218	12 Dec 2018 08:20			22 Dec 2018 20:09	1
HS18120736-02	35AWW08_121218	12 Dec 2018 09:10			22 Dec 2018 19:44	10
HS18120736-03	35AWW10_121218	12 Dec 2018 10:30			22 Dec 2018 20:33	1
HS18120736-04	35AWW10_121218_a	12 Dec 2018 10:30			22 Dec 2018 20:58	1
Batch ID R329894	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C			**Matrix:** Water		
HS18120736-09	Trip Blank	12 Dec 2018 00:00			24 Dec 2018 11:31	1

ALS Houston, US Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120736

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID R329894	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS18120736-05	35AWW16_121218	12 Dec 2018 11:50			24 Dec 2018 12:20	1
HS18120736-06	35AWW15_121218	12 Dec 2018 12:40			24 Dec 2018 12:45	1
HS18120736-07	35AWW05_121218	12 Dec 2018 13:35			24 Dec 2018 13:10	1
Batch ID R329941	**Test Name :** ANIONS BY SW9056A				**Matrix:** Groundwater	
HS18120736-01	03WW01_121218	12 Dec 2018 08:20			13 Dec 2018 20:37	1
HS18120736-01	03WW01_121218	12 Dec 2018 08:20			13 Dec 2018 19:39	50
HS18120736-02	35AWW08_121218	12 Dec 2018 09:10			13 Dec 2018 20:08	50
HS18120736-02	35AWW08_121218	12 Dec 2018 09:10			13 Dec 2018 19:53	2
HS18120736-03	35AWW10_121218	12 Dec 2018 10:30			13 Dec 2018 16:56	1
HS18120736-04	35AWW10_121218_a	12 Dec 2018 10:30			13 Dec 2018 17:25	1
Batch ID R330084	**Test Name :** SUBCONTRACT ANALYSIS - TOC ANALYSIS				**Matrix:** Groundwater	
HS18120736-01	03WW01_121218	12 Dec 2018 08:20			28 Dec 2018 10:25	1
HS18120736-02	35AWW08_121218	12 Dec 2018 09:10			28 Dec 2018 10:25	1
HS18120736-03	35AWW10_121218	12 Dec 2018 10:30			28 Dec 2018 10:25	1
HS18120736-04	35AWW10_121218_a	12 Dec 2018 10:30			28 Dec 2018 10:25	1
Batch ID R330087	**Test Name :** SUBCONTRACT ANALYSIS - RSK				**Matrix:** Groundwater	
HS18120736-01	03WW01_121218	12 Dec 2018 08:20			28 Dec 2018 10:40	1
HS18120736-02	35AWW08_121218	12 Dec 2018 09:10			28 Dec 2018 10:40	1
HS18120736-03	35AWW10_121218	12 Dec 2018 10:30			28 Dec 2018 10:40	1
HS18120736-04	35AWW10_121218_a	12 Dec 2018 10:30			28 Dec 2018 10:40	1
Batch ID R330126	**Test Name :** SULFIDE BY E376.1				**Matrix:** Groundwater	
HS18120736-01	03WW01_121218	12 Dec 2018 08:20			19 Dec 2018 19:00	1
HS18120736-02	35AWW08_121218	12 Dec 2018 09:10			19 Dec 2018 19:00	1
HS18120736-03	35AWW10_121218	12 Dec 2018 10:30			19 Dec 2018 19:00	1
HS18120736-04	35AWW10_121218_a	12 Dec 2018 10:30			19 Dec 2018 19:00	1
Batch ID R330453	**Test Name :** SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS				**Matrix:** Groundwater	
HS18120736-01	03WW01_121218	12 Dec 2018 08:20			04 Jan 2019 10:12	1
HS18120736-01	03WW01_121218	12 Dec 2018 08:20			04 Jan 2019 10:12	1
HS18120736-02	35AWW08_121218	12 Dec 2018 09:10			04 Jan 2019 10:12	1
HS18120736-02	35AWW08_121218	12 Dec 2018 09:10			04 Jan 2019 10:12	1
HS18120736-03	35AWW10_121218	12 Dec 2018 10:30			04 Jan 2019 10:12	1
HS18120736-03	35AWW10_121218	12 Dec 2018 10:30			04 Jan 2019 10:12	1
HS18120736-04	35AWW10_121218_a	12 Dec 2018 10:30			04 Jan 2019 10:12	1
HS18120736-04	35AWW10_121218_a	12 Dec 2018 10:30			04 Jan 2019 10:12	1

ALS Houston, US Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120736

QC BATCH REPORT

Batch ID: 135804 **Instrument: ICPMS04** **Method: SW6020**

MBLK Sample ID: **MBLK-135804** Units: **mg/L** Analysis Date: **21-Dec-2018 21:07**
Client ID: Run ID: **ICPMS04_329719** SeqNo: **4879116** PrepDate: **19-Dec-2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.00100	0.00200								U
Iron	0.100	0.200								U
Manganese	0.00100	0.00500								U

LCS Sample ID: **LCS-135804** Units: **mg/L** Analysis Date: **21-Dec-2018 21:10**
Client ID: Run ID: **ICPMS04_329719** SeqNo: **4879117** PrepDate: **19-Dec-2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.04962	0.00200	0.05	0	99.2	80 - 120				
Iron	4.811	0.200	5	0	96.2	80 - 120				
Manganese	0.04729	0.00500	0.05	0	94.6	80 - 120				

MS Sample ID: **HS18120913-04MS** Units: **mg/L** Analysis Date: **21-Dec-2018 22:12**
Client ID: Run ID: **ICPMS04_329719** SeqNo: **4879142** PrepDate: **19-Dec-2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05079	0.00200	0.05	0.000056	101	80 - 120				
Iron	15.56	0.200	5	10.76	96.0	80 - 120				
Manganese	0.1135	0.00500	0.05	0.06587	95.3	80 - 120				

MSD Sample ID: **HS18120913-04MSD** Units: **mg/L** Analysis Date: **21-Dec-2018 22:14**
Client ID: Run ID: **ICPMS04_329719** SeqNo: **4879143** PrepDate: **19-Dec-2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.04889	0.00200	0.05	0.000056	97.7	80 - 120	0.05079	3.81	20	
Iron	15.34	0.200	5	10.76	91.6	80 - 120	15.56	1.43	20	
Manganese	0.1084	0.00500	0.05	0.06587	85.0	80 - 120	0.1135	4.65	20	

ALS Houston, US Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120736

QC BATCH REPORT

Batch ID: 135804 **Instrument: ICPMS04** **Method: SW6020**

PDS Sample ID: **HS18120913-04PDS** Units: **mg/L** Analysis Date: **21-Dec-2018 22:17**
Client ID: Run ID: **ICPMS04_329719** SeqNo: **4879144** PrepDate: **19-Dec-2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.1074	0.00200	0.1	0.000056	107	75 - 125				
Iron	22.17	0.200	10	10.76	114	75 - 125				
Manganese	0.1632	0.00500	0.1	0.06587	97.3	75 - 125				

SD Sample ID: **HS18120913-04SD** Units: **mg/L** Analysis Date: **21-Dec-2018 22:10**
Client ID: Run ID: **ICPMS04_329719** SeqNo: **4879141** PrepDate: **19-Dec-2018** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Arsenic	0.00500	0.0100					0.000056	0	10	U
Iron	11.5	1.00					10.76	6.85	10	
Manganese	0.06612	0.0250					0.06587	0.376	10	

The following samples were analyzed in this batch: HS18120736-01 HS18120736-02 HS18120736-03 HS18120736-04 HS18120736-08

ALS Houston, US Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120736

QC BATCH REPORT

Batch ID: 135805 **Instrument: ICPMS04** **Method: SW6020 (dissolved) (DISSOLVED)**

MBLK Sample ID: **MBLK-135805** Units: **mg/L** Analysis Date: **21-Dec-2018 23:24**
Client ID: Run ID: **ICPMS04_329719** SeqNo: **4879287** PrepDate: **19-Dec-2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Iron	0.100	0.200								U
Manganese	0.00100	0.00500								U

LCS Sample ID: **LCS-135805** Units: **mg/L** Analysis Date: **21-Dec-2018 23:26**
Client ID: Run ID: **ICPMS04_329719** SeqNo: **4879288** PrepDate: **19-Dec-2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Iron	4.612	0.200	5	0	92.2	80 - 120				
Manganese	0.04744	0.00500	0.05	0	94.9	80 - 120				

MS Sample ID: **HS18120927-08MS** Units: **mg/L** Analysis Date: **22-Dec-2018 00:45**
Client ID: Run ID: **ICPMS04_329719** SeqNo: **4879323** PrepDate: **19-Dec-2018** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Iron	4.965	2.00	5	0.101	97.3	75 - 125				
Manganese	0.04104	0.0500	0.05	0.004999	72.1	75 - 125				JS

MSD Sample ID: **HS18120927-08MSD** Units: **mg/L** Analysis Date: **22-Dec-2018 00:47**
Client ID: Run ID: **ICPMS04_329719** SeqNo: **4879324** PrepDate: **19-Dec-2018** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Iron	4.346	2.00	5	0.101	84.9	75 - 125	4.965	13.3	20	
Manganese	0.03526	0.0500	0.05	0.004999	60.5	75 - 125	0.04104	0	20	JS

PDS Sample ID: **HS18120927-08PDS** Units: **mg/L** Analysis Date: **22-Dec-2018 00:50**
Client ID: Run ID: **ICPMS04_329719** SeqNo: **4879325** PrepDate: **19-Dec-2018** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Iron	99.19	2.00	100	0	99.2	75 - 125				
Manganese	1.104	0.0500	1	0	110	75 - 125				

ALS Houston, US Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120736

QC BATCH REPORT

Batch ID: 135805 **Instrument: ICPMS04** **Method: SW6020 (dissolved) (DISSOLVED)**

SD Sample ID: **HS18120927-08SD** Units: **mg/L** Analysis Date: **22-Dec-2018 00:43**
Client ID: Run ID: **ICPMS04_329719** SeqNo: **4879322** PrepDate: **19-Dec-2018** DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Iron	0.6201	10.0					0.101	0	10	J
Manganese	0.0500	0.250					0.004999	0	10	U

The following samples were analyzed in this batch: HS18120736-01 HS18120736-02 HS18120736-03 HS18120736-04

ALS Houston, US Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120736

QC BATCH REPORT

Batch ID: R329822 **Instrument: VOA9** **Method: SW8260**

MBLK Sample ID: **VBLKW-181222** Units: **UG/L** Analysis Date: **22-Dec-2018 12:18**
Client ID: Run ID: **VOA9_329822** SeqNo: **4879626** PrepDate: DF: **1**

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

ALS Houston, US Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120736

QC BATCH REPORT

Batch ID: R329822 **Instrument: VOA9** **Method: SW8260**

MBLK Sample ID: **VBLKW-181222** Units: **UG/L** Analysis Date: **22-Dec-2018 12:18**
Client ID: Run ID: **VOA9_329822** SeqNo: **4879626** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	1.0	2.0								U
Carbon tetrachloride	0.50	1.0								U
Chlorobenzene	0.50	1.0								U
Chloroethane	0.50	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	0.50	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	0.50	1.0								U
Ethylbenzene	0.50	1.0								U
Hexachlorobutadiene	1.0	1.0								U
Isopropylbenzene	0.50	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	0.50	2.0								U
Naphthalene	0.50	1.0								U
n-Butylbenzene	0.50	1.0								U
n-Propylbenzene	0.50	1.0								U
o-Xylene	0.50	1.0								U
sec-Butylbenzene	0.50	1.0								U
Styrene	0.50	1.0								U
tert-Butylbenzene	0.50	1.0								U
Tetrachloroethene	0.50	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	0.50	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*46.45*	*1.0*	*50*	*0*	*92.9*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*49.25*	*1.0*	*50*	*0*	*98.5*	*85 - 114*				
Surr: Dibromofluoromethane	*43.49*	*1.0*	*50*	*0*	*87.0*	*80 - 119*				
Surr: Toluene-d8	*52.33*	*1.0*	*50*	*0*	*105*	*89 - 112*				

ALS Houston, US Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120736

QC BATCH REPORT

Batch ID: R329822 **Instrument: VOA9** **Method: SW8260**

LCS Sample ID: **VLCSW-1812022** Units: **UG/L** Analysis Date: **22-Dec-2018 11:28**
Client ID: Run ID: **VOA9_329822** SeqNo: **4879625** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.87	1.0	20	0	99.3	78 - 124				
1,1,1-Trichloroethane	20.02	1.0	20	0	100	74 - 131				
1,1,2,2-Tetrachloroethane	20	1.0	20	0	100	71 - 121				
1,1,2-Trichloroethane	20.26	1.0	20	0	101	80 - 119				
1,1-Dichloroethane	20.14	1.0	20	0	101	77 - 125				
1,1-Dichloroethene	19.53	1.0	20	0	97.6	71 - 131				
1,1-Dichloropropene	19.53	1.0	20	0	97.7	78 - 125				
1,2,3-Trichlorobenzene	19.73	1.0	20	0	98.6	69 - 129				
1,2,3-Trichloropropane	20.19	1.0	20	0	101	73 - 122				
1,2,4-Trichlorobenzene	19.84	1.0	20	0	99.2	69 - 130				
1,2,4-Trimethylbenzene	20.42	1.0	20	0	102	76 - 124				
1,2-Dibromo-3-chloropropane	19.13	1.0	20	0	95.7	62 - 128				
1,2-Dibromoethane	21.02	1.0	20	0	105	77 - 121				
1,2-Dichlorobenzene	19.5	1.0	20	0	97.5	80 - 119				
1,2-Dichloroethane	20.5	1.0	20	0	102	73 - 128				
1,2-Dichloropropane	20.11	1.0	20	0	101	78 - 122				
1,3,5-Trimethylbenzene	20.15	1.0	20	0	101	75 - 124				
1,3-Dichlorobenzene	19.53	1.0	20	0	97.6	80 - 119				
1,3-Dichloropropane	20.44	1.0	20	0	102	80 - 119				
1,4-Dichlorobenzene	19.13	1.0	20	0	95.6	79 - 118				
2,2-Dichloropropane	20.92	1.0	20	0	105	60 - 139				
2-Butanone	41.9	2.0	40	0	105	56 - 143				
2-Chlorotoluene	19.88	1.0	20	0	99.4	79 - 122				
2-Hexanone	43.82	2.0	40	0	110	57 - 139				
4-Chlorotoluene	20.23	1.0	20	0	101	78 - 122				
4-Isopropyltoluene	19.72	1.0	20	0	98.6	77 - 127				
4-Methyl-2-pentanone	42.54	2.0	40	0	106	67 - 130				
Acetone	43.87	2.0	40	0	110	39 - 160				
Benzene	20.07	1.0	20	0	100	79 - 120				
Bromobenzene	19.97	1.0	20	0	99.9	80 - 120				
Bromochloromethane	21.98	1.0	20	0	110	78 - 123				
Bromodichloromethane	20.39	1.0	20	0	102	79 - 125				
Bromoform	18.95	1.0	20	0	94.7	66 - 130				
Bromomethane	22.74	1.0	20	0	114	53 - 141				

ALS Houston, US Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120736

QC BATCH REPORT

Batch ID: R329822 **Instrument: VOA9** **Method: SW8260**

LCS Sample ID: **VLCSW-1812022** Units: **UG/L** Analysis Date: **22-Dec-2018 11:28**
Client ID: Run ID: **VOA9_329822** SeqNo: **4879625** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	39.56	2.0	40	0	98.9	64 - 133				
Carbon tetrachloride	18.79	1.0	20	0	94.0	72 - 136				
Chlorobenzene	19.95	1.0	20	0	99.7	82 - 118				
Chloroethane	20.2	1.0	20	0	101	60 - 138				
Chloroform	20.18	1.0	20	0	101	79 - 124				
Chloromethane	23.38	1.0	20	0	117	50 - 139				
cis-1,2-Dichloroethene	20.59	1.0	20	0	103	78 - 123				
cis-1,3-Dichloropropene	19.44	1.0	20	0	97.2	75 - 124				
Dibromochloromethane	19.36	1.0	20	0	96.8	74 - 126				
Dibromomethane	20.44	1.0	20	0	102	79 - 123				
Dichlorodifluoromethane	19.68	1.0	20	0	98.4	32 - 152				
Ethylbenzene	20.1	1.0	20	0	100	79 - 121				
Hexachlorobutadiene	17.05	1.0	20	0	85.3	66 - 134				
Isopropylbenzene	20.34	1.0	20	0	102	72 - 131				
m,p-Xylene	40.53	2.0	40	0	101	80 - 121				
Methylene chloride	20.32	2.0	20	0	102	74 - 124				
Naphthalene	19.84	1.0	20	0	99.2	61 - 128				
n-Butylbenzene	18.85	1.0	20	0	94.3	75 - 128				
n-Propylbenzene	19.99	1.0	20	0	99.9	76 - 126				
o-Xylene	20.62	1.0	20	0	103	78 - 122				
sec-Butylbenzene	19.13	1.0	20	0	95.7	77 - 126				
Styrene	21.44	1.0	20	0	107	78 - 123				
tert-Butylbenzene	19.61	1.0	20	0	98.0	78 - 124				
Tetrachloroethene	18.88	1.0	20	0	94.4	74 - 129				
Toluene	20.38	1.0	20	0	102	80 - 121				
trans-1,2-Dichloroethene	20.25	1.0	20	0	101	75 - 124				
trans-1,3-Dichloropropene	19.15	1.0	20	0	95.8	73 - 127				
Trichloroethene	19.86	1.0	20	0	99.3	79 - 123				
Trichlorofluoromethane	20.19	1.0	20	0	101	65 - 141				
Vinyl chloride	20.43	1.0	20	0	102	58 - 137				
Surr: 1,2-Dichloroethane-d4	*52.97*	*1.0*	*50*	*0*	*106*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.27*	*1.0*	*50*	*0*	*103*	*85 - 114*				
Surr: Dibromofluoromethane	*51.52*	*1.0*	*50*	*0*	*103*	*80 - 119*				
Surr: Toluene-d8	*51.18*	*1.0*	*50*	*0*	*102*	*89 - 112*				

ALS Houston, US Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120736

QC BATCH REPORT

Batch ID: R329822 **Instrument: VOA9** **Method: SW8260**

MS Sample ID: **HS18120927-05MS** Units: **UG/L** Analysis Date: **22-Dec-2018 13:57**
Client ID: Run ID: **VOA9_329822** SeqNo: **4879630** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	24.94	1.0	20	0	125	78 - 124				S
1,1,1-Trichloroethane	24.67	1.0	20	0	123	74 - 131				
1,1,2,2-Tetrachloroethane	25.5	1.0	20	0	128	71 - 121				S
1,1,2-Trichloroethane	25.56	1.0	20	0	128	80 - 119				S
1,1-Dichloroethane	23.44	1.0	20	0	117	77 - 125				
1,1-Dichloroethene	23.44	1.0	20	0	117	71 - 131				
1,1-Dichloropropene	26.44	1.0	20	0	132	78 - 125				S
1,2,3-Trichlorobenzene	24.93	1.0	20	0	125	69 - 129				
1,2,3-Trichloropropane	24.99	1.0	20	0	125	73 - 122				S
1,2,4-Trichlorobenzene	25.55	1.0	20	0	128	69 - 130				
1,2,4-Trimethylbenzene	27.34	1.0	20	0	137	76 - 124				S
1,2-Dibromo-3-chloropropane	23.87	1.0	20	0	119	62 - 128				
1,2-Dibromoethane	26.09	1.0	20	0	130	77 - 121				S
1,2-Dichlorobenzene	25.3	1.0	20	0	126	80 - 119				S
1,2-Dichloroethane	25.88	1.0	20	0	129	73 - 128				S
1,2-Dichloropropane	25.49	1.0	20	0	127	78 - 122				S
1,3,5-Trimethylbenzene	27.67	1.0	20	0	138	75 - 124				S
1,3-Dichlorobenzene	25.27	1.0	20	0	126	80 - 119				S
1,3-Dichloropropane	25.9	1.0	20	0	130	80 - 119				S
1,4-Dichlorobenzene	24.68	1.0	20	0	123	79 - 118				S
2,2-Dichloropropane	24.7	1.0	20	0	124	60 - 139				
2-Butanone	45.06	2.0	40	0	113	56 - 143				
2-Chlorotoluene	26.48	1.0	20	0	132	79 - 122				S
2-Hexanone	54.57	2.0	40	0	136	57 - 139				
4-Chlorotoluene	26.53	1.0	20	0	133	78 - 122				S
4-Isopropyltoluene	27.81	1.0	20	0	139	77 - 127				S
4-Methyl-2-pentanone	53.91	2.0	40	0	135	67 - 130				S
Acetone	52.06	2.0	40	6.812	113	39 - 160				
Benzene	25.77	1.0	20	0	129	79 - 120				S
Bromobenzene	25.72	1.0	20	0	129	80 - 120				S
Bromochloromethane	24.92	1.0	20	0	125	78 - 123				S
Bromodichloromethane	25.52	1.0	20	0	128	79 - 125				S
Bromoform	23.45	1.0	20	0	117	66 - 130				
Bromomethane	16.37	1.0	20	0	81.9	53 - 141				

ALS Houston, US Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120736

QC BATCH REPORT

Batch ID: R329822 **Instrument: VOA9** **Method: SW8260**

MS Sample ID: **HS18120927-05MS** Units: **UG/L** Analysis Date: **22-Dec-2018 13:57**
Client ID: Run ID: **VOA9_329822** SeqNo: **4879630** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Carbon disulfide	45.7	2.0	40	0	114	64 - 133			
Carbon tetrachloride	25.64	1.0	20	0	128	72 - 136			
Chlorobenzene	25.89	1.0	20	0	129	82 - 118			S
Chloroethane	22.14	1.0	20	0	111	60 - 138			
Chloroform	23.42	1.0	20	0	117	79 - 124			
Chloromethane	20.56	1.0	20	0	103	50 - 139			
cis-1,2-Dichloroethene	23.51	1.0	20	0	118	78 - 123			
cis-1,3-Dichloropropene	23.36	1.0	20	0	117	75 - 124			
Dibromochloromethane	23.95	1.0	20	0	120	74 - 126			
Dibromomethane	25.5	1.0	20	0	128	79 - 123			S
Dichlorodifluoromethane	16.85	1.0	20	0	84.2	32 - 152			
Ethylbenzene	27.26	1.0	20	0	136	79 - 121			S
Hexachlorobutadiene	24.09	1.0	20	0	120	66 - 134			
Isopropylbenzene	27.98	1.0	20	0	140	72 - 131			S
m,p-Xylene	53.93	2.0	40	0	135	80 - 121			S
Methylene chloride	23.1	2.0	20	0	116	74 - 124			
Naphthalene	25.12	1.0	20	0	126	61 - 128			
n-Butylbenzene	27.37	1.0	20	0	137	75 - 128			S
n-Propylbenzene	27.85	1.0	20	0	139	76 - 126			S
o-Xylene	26.88	1.0	20	0	134	78 - 122			S
sec-Butylbenzene	28.04	1.0	20	0	140	77 - 126			S
Styrene	27.63	1.0	20	0	138	78 - 123			S
tert-Butylbenzene	27.8	1.0	20	0	139	78 - 124			S
Tetrachloroethene	28.12	1.0	20	0	141	74 - 129			S
Toluene	26.71	1.0	20	0	134	80 - 121			S
trans-1,2-Dichloroethene	23.68	1.0	20	0	118	75 - 124			
trans-1,3-Dichloropropene	23.44	1.0	20	0	117	73 - 127			
Trichloroethene	26.02	1.0	20	0	130	79 - 123			S
Trichlorofluoromethane	24.22	1.0	20	0	121	65 - 141			
Vinyl chloride	20.68	1.0	20	0	103	58 - 137			
Surr: 1,2-Dichloroethane-d4	*45.51*	*1.0*	*50*	*0*	*91.0*	*81 - 118*			
Surr: 4-Bromofluorobenzene	*51.18*	*1.0*	*50*	*0*	*102*	*85 - 114*			
Surr: Dibromofluoromethane	*45.09*	*1.0*	*50*	*0*	*90.2*	*80 - 119*			
Surr: Toluene-d8	*52.7*	*1.0*	*50*	*0*	*105*	*89 - 112*			

ALS Houston, US Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120736

QC BATCH REPORT

Batch ID: R329822 **Instrument: VOA9** **Method: SW8260**

MSD Sample ID: **HS18120927-05MSD** Units: **UG/L** Analysis Date: **22-Dec-2018 14:22**
Client ID: Run ID: **VOA9_329822** SeqNo: **4879631** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	24.81	1.0	20	0	124	78 - 124	24.94	0.537	20	S
1,1,1-Trichloroethane	24.22	1.0	20	0	121	74 - 131	24.67	1.83	20	
1,1,2,2-Tetrachloroethane	25.11	1.0	20	0	126	71 - 121	25.5	1.53	20	S
1,1,2-Trichloroethane	25.73	1.0	20	0	129	80 - 119	25.56	0.693	20	S
1,1-Dichloroethane	22.92	1.0	20	0	115	77 - 125	23.44	2.23	20	
1,1-Dichloroethene	23.05	1.0	20	0	115	71 - 131	23.44	1.65	20	
1,1-Dichloropropene	26.07	1.0	20	0	130	78 - 125	26.44	1.41	20	S
1,2,3-Trichlorobenzene	24.88	1.0	20	0	124	69 - 129	24.93	0.208	20	
1,2,3-Trichloropropane	25.58	1.0	20	0	128	73 - 122	24.99	2.31	20	S
1,2,4-Trichlorobenzene	25.4	1.0	20	0	127	69 - 130	25.55	0.618	20	
1,2,4-Trimethylbenzene	26.9	1.0	20	0	134	76 - 124	27.34	1.63	20	S
1,2-Dibromo-3-chloropropane	24.32	1.0	20	0	122	62 - 128	23.87	1.85	20	
1,2-Dibromoethane	26.14	1.0	20	0	131	77 - 121	26.09	0.214	20	S
1,2-Dichlorobenzene	24.94	1.0	20	0	125	80 - 119	25.3	1.43	20	S
1,2-Dichloroethane	25.87	1.0	20	0	129	73 - 128	25.88	0.0205	20	S
1,2-Dichloropropane	25.02	1.0	20	0	125	78 - 122	25.49	1.88	20	S
1,3,5-Trimethylbenzene	26.82	1.0	20	0	134	75 - 124	27.67	3.09	20	S
1,3-Dichlorobenzene	25.3	1.0	20	0	127	80 - 119	25.27	0.137	20	S
1,3-Dichloropropane	26.06	1.0	20	0	130	80 - 119	25.9	0.606	20	S
1,4-Dichlorobenzene	24.32	1.0	20	0	122	79 - 118	24.68	1.46	20	S
2,2-Dichloropropane	23.83	1.0	20	0	119	60 - 139	24.7	3.59	20	
2-Butanone	46.98	2.0	40	0	117	56 - 143	45.06	4.16	20	
2-Chlorotoluene	25.84	1.0	20	0	129	79 - 122	26.48	2.46	20	S
2-Hexanone	56.56	2.0	40	0	141	57 - 139	54.57	3.58	20	S
4-Chlorotoluene	26.05	1.0	20	0	130	78 - 122	26.53	1.82	20	S
4-Isopropyltoluene	27.31	1.0	20	0	137	77 - 127	27.81	1.81	20	S
4-Methyl-2-pentanone	55.54	2.0	40	0	139	67 - 130	53.91	2.99	20	S
Acetone	52.78	2.0	40	6.812	115	39 - 160	52.06	1.37	20	
Benzene	25.56	1.0	20	0	128	79 - 120	25.77	0.822	20	S
Bromobenzene	25.33	1.0	20	0	127	80 - 120	25.72	1.53	20	S
Bromochloromethane	24.65	1.0	20	0	123	78 - 123	24.92	1.07	20	S
Bromodichloromethane	25.17	1.0	20	0	126	79 - 125	25.52	1.37	20	S
Bromoform	23.77	1.0	20	0	119	66 - 130	23.45	1.36	20	
Bromomethane	18.44	1.0	20	0	92.2	53 - 141	16.37	11.9	20	

ALS Houston, US Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120736

QC BATCH REPORT

Batch ID: R329822 **Instrument: VOA9** **Method: SW8260**

MSD Sample ID: **HS18120927-05MSD** Units: **UG/L** Analysis Date: **22-Dec-2018 14:22**
Client ID: Run ID: **VOA9_329822** SeqNo: **4879631** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Carbon disulfide	44.61	2.0	40	0	112	64 - 133	45.7	2.42	20	
Carbon tetrachloride	25.1	1.0	20	0	125	72 - 136	25.64	2.16	20	
Chlorobenzene	25.62	1.0	20	0	128	82 - 118	25.89	1.05	20	S
Chloroethane	22	1.0	20	0	110	60 - 138	22.14	0.629	20	
Chloroform	23.15	1.0	20	0	116	79 - 124	23.42	1.16	20	
Chloromethane	19.72	1.0	20	0	98.6	50 - 139	20.56	4.16	20	
cis-1,2-Dichloroethene	23.07	1.0	20	0	115	78 - 123	23.51	1.89	20	
cis-1,3-Dichloropropene	23.25	1.0	20	0	116	75 - 124	23.36	0.462	20	
Dibromochloromethane	24.41	1.0	20	0	122	74 - 126	23.95	1.89	20	
Dibromomethane	25.3	1.0	20	0	127	79 - 123	25.5	0.79	20	S
Dichlorodifluoromethane	16.44	1.0	20	0	82.2	32 - 152	16.85	2.48	20	
Ethylbenzene	26.44	1.0	20	0	132	79 - 121	27.26	3.02	20	S
Hexachlorobutadiene	23.96	1.0	20	0	120	66 - 134	24.09	0.547	20	
Isopropylbenzene	27.49	1.0	20	0	137	72 - 131	27.98	1.77	20	S
m,p-Xylene	53.51	2.0	40	0	134	80 - 121	53.93	0.773	20	S
Methylene chloride	22.8	2.0	20	0	114	74 - 124	23.1	1.33	20	
Naphthalene	25.31	1.0	20	0	127	61 - 128	25.12	0.763	20	
n-Butylbenzene	26.56	1.0	20	0	133	75 - 128	27.37	2.98	20	S
n-Propylbenzene	27.1	1.0	20	0	135	76 - 126	27.85	2.72	20	S
o-Xylene	26.52	1.0	20	0	133	78 - 122	26.88	1.37	20	S
sec-Butylbenzene	27.23	1.0	20	0	136	77 - 126	28.04	2.91	20	S
Styrene	27.22	1.0	20	0	136	78 - 123	27.63	1.5	20	S
tert-Butylbenzene	27.28	1.0	20	0	136	78 - 124	27.8	1.89	20	S
Tetrachloroethene	26.71	1.0	20	0	134	74 - 129	28.12	5.15	20	S
Toluene	26.58	1.0	20	0	133	80 - 121	26.71	0.494	20	S
trans-1,2-Dichloroethene	23.03	1.0	20	0	115	75 - 124	23.68	2.76	20	
trans-1,3-Dichloropropene	23.2	1.0	20	0	116	73 - 127	23.44	1.01	20	
Trichloroethene	25.49	1.0	20	0	127	79 - 123	26.02	2.05	20	S
Trichlorofluoromethane	22.99	1.0	20	0	115	65 - 141	24.22	5.19	20	
Vinyl chloride	20.82	1.0	20	0	104	58 - 137	20.68	0.689	20	
Surr: 1,2-Dichloroethane-d4	*45.77*	*1.0*	*50*	*0*	*91.5*	*81 - 118*	*45.51*	*0.576*	*20*	
Surr: 4-Bromofluorobenzene	*51.8*	*1.0*	*50*	*0*	*104*	*85 - 114*	*51.18*	*1.21*	*20*	
Surr: Dibromofluoromethane	*44.56*	*1.0*	*50*	*0*	*89.1*	*80 - 119*	*45.09*	*1.2*	*20*	
Surr: Toluene-d8	*52.97*	*1.0*	*50*	*0*	*106*	*89 - 112*	*52.7*	*0.504*	*20*	

ALS Houston, US Date: 04-Jan-19

Client:	Bhate Environmental Associates, Inc.
Project:	LHAAP-58
WorkOrder:	HS18120736

QC BATCH REPORT

Batch ID:	**R329822**	**Instrument:**	**VOA9**	**Method:**	**SW8260**

The following samples were analyzed in this batch:	HS18120736-01	HS18120736-02	HS18120736-03	HS18120736-04

ALS Houston, US Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120736

QC BATCH REPORT

Batch ID: R329894 **Instrument: VOA9** **Method: SW8260**

MBLK Sample ID: **VBLKW-181224** Units: **UG/L** Analysis Date: **24-Dec-2018 11:06**
Client ID: Run ID: **VOA9_329894** SeqNo: **4881347** PrepDate: DF: **1**

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

ALS Houston, US Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120736

QC BATCH REPORT

Batch ID: R329894 **Instrument: VOA9** **Method: SW8260**

MBLK Sample ID: **VBLKW-181224** Units: **UG/L** Analysis Date: **24-Dec-2018 11:06**
Client ID: Run ID: **VOA9_329894** SeqNo: **4881347** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	1.0	2.0								U
Carbon tetrachloride	0.50	1.0								U
Chlorobenzene	0.50	1.0								U
Chloroethane	0.50	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	0.50	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	0.50	1.0								U
Ethylbenzene	0.50	1.0								U
Hexachlorobutadiene	1.0	1.0								U
Isopropylbenzene	0.50	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	0.50	2.0								U
Naphthalene	0.50	1.0								U
n-Butylbenzene	0.50	1.0								U
n-Propylbenzene	0.50	1.0								U
o-Xylene	0.50	1.0								U
sec-Butylbenzene	0.50	1.0								U
Styrene	0.50	1.0								U
tert-Butylbenzene	0.50	1.0								U
Tetrachloroethene	0.50	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	0.50	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*47.4*	*1.0*	*50*	*0*	*94.8*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*48.2*	*1.0*	*50*	*0*	*96.4*	*85 - 114*				
Surr: Dibromofluoromethane	*44.37*	*1.0*	*50*	*0*	*88.7*	*80 - 119*				
Surr: Toluene-d8	*52.27*	*1.0*	*50*	*0*	*105*	*89 - 112*				

ALS Houston, US Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120736

QC BATCH REPORT

Batch ID: R329894 **Instrument: VOA9** **Method: SW8260**

LCS Sample ID: **VLCSW-1812024** Units: **UG/L** Analysis Date: **24-Dec-2018 10:17**
Client ID: Run ID: **VOA9_329894** SeqNo: **4881346** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	20.16	1.0	20	0	101	78 - 124				
1,1,1-Trichloroethane	21.11	1.0	20	0	106	74 - 131				
1,1,2,2-Tetrachloroethane	20.07	1.0	20	0	100	71 - 121				
1,1,2-Trichloroethane	21.18	1.0	20	0	106	80 - 119				
1,1-Dichloroethane	21.09	1.0	20	0	105	77 - 125				
1,1-Dichloroethene	20.42	1.0	20	0	102	71 - 131				
1,1-Dichloropropene	20.99	1.0	20	0	105	78 - 125				
1,2,3-Trichlorobenzene	20.31	1.0	20	0	102	69 - 129				
1,2,3-Trichloropropane	20.24	1.0	20	0	101	73 - 122				
1,2,4-Trichlorobenzene	21.21	1.0	20	0	106	69 - 130				
1,2,4-Trimethylbenzene	22.29	1.0	20	0	111	76 - 124				
1,2-Dibromo-3-chloropropane	18.25	1.0	20	0	91.2	62 - 128				
1,2-Dibromoethane	21.18	1.0	20	0	106	77 - 121				
1,2-Dichlorobenzene	20.6	1.0	20	0	103	80 - 119				
1,2-Dichloroethane	21.54	1.0	20	0	108	73 - 128				
1,2-Dichloropropane	20.78	1.0	20	0	104	78 - 122				
1,3,5-Trimethylbenzene	22.13	1.0	20	0	111	75 - 124				
1,3-Dichlorobenzene	20.97	1.0	20	0	105	80 - 119				
1,3-Dichloropropane	21.09	1.0	20	0	105	80 - 119				
1,4-Dichlorobenzene	20.29	1.0	20	0	101	79 - 118				
2,2-Dichloropropane	22	1.0	20	0	110	60 - 139				
2-Butanone	38.79	2.0	40	0	97.0	56 - 143				
2-Chlorotoluene	21.45	1.0	20	0	107	79 - 122				
2-Hexanone	40.62	2.0	40	0	102	57 - 139				
4-Chlorotoluene	21.76	1.0	20	0	109	78 - 122				
4-Isopropyltoluene	22.33	1.0	20	0	112	77 - 127				
4-Methyl-2-pentanone	40.91	2.0	40	0	102	67 - 130				
Acetone	40.17	2.0	40	0	100	39 - 160				
Benzene	21.12	1.0	20	0	106	79 - 120				
Bromobenzene	20.81	1.0	20	0	104	80 - 120				
Bromochloromethane	21.94	1.0	20	0	110	78 - 123				
Bromodichloromethane	21.19	1.0	20	0	106	79 - 125				
Bromoform	18.69	1.0	20	0	93.4	66 - 130				
Bromomethane	23.72	1.0	20	0	119	53 - 141				

ALS Houston, US Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120736

QC BATCH REPORT

Batch ID: R329894 **Instrument: VOA9** **Method: SW8260**

LCS Sample ID: **VLCSW-1812024** Units: **UG/L** Analysis Date: **24-Dec-2018 10:17**
Client ID: Run ID: **VOA9_329894** SeqNo: **4881346** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	41.71	2.0	40	0	104	64 - 133				
Carbon tetrachloride	20.11	1.0	20	0	101	72 - 136				
Chlorobenzene	21	1.0	20	0	105	82 - 118				
Chloroethane	21.28	1.0	20	0	106	60 - 138				
Chloroform	21	1.0	20	0	105	79 - 124				
Chloromethane	24	1.0	20	0	120	50 - 139				
cis-1,2-Dichloroethene	21.07	1.0	20	0	105	78 - 123				
cis-1,3-Dichloropropene	19.85	1.0	20	0	99.2	75 - 124				
Dibromochloromethane	19.36	1.0	20	0	96.8	74 - 126				
Dibromomethane	21.38	1.0	20	0	107	79 - 123				
Dichlorodifluoromethane	20.2	1.0	20	0	101	32 - 152				
Ethylbenzene	21.65	1.0	20	0	108	79 - 121				
Hexachlorobutadiene	19.46	1.0	20	0	97.3	66 - 134				
Isopropylbenzene	22.24	1.0	20	0	111	72 - 131				
m,p-Xylene	43.9	2.0	40	0	110	80 - 121				
Methylene chloride	21.23	2.0	20	0	106	74 - 124				
Naphthalene	19.59	1.0	20	0	98.0	61 - 128				
n-Butylbenzene	22.04	1.0	20	0	110	75 - 128				
n-Propylbenzene	22.34	1.0	20	0	112	76 - 126				
o-Xylene	21.97	1.0	20	0	110	78 - 122				
sec-Butylbenzene	22.08	1.0	20	0	110	77 - 126				
Styrene	22.39	1.0	20	0	112	78 - 123				
tert-Butylbenzene	22.16	1.0	20	0	111	78 - 124				
Tetrachloroethene	20.33	1.0	20	0	102	74 - 129				
Toluene	21.58	1.0	20	0	108	80 - 121				
trans-1,2-Dichloroethene	21.03	1.0	20	0	105	75 - 124				
trans-1,3-Dichloropropene	19.56	1.0	20	0	97.8	73 - 127				
Trichloroethene	20.92	1.0	20	0	105	79 - 123				
Trichlorofluoromethane	21.1	1.0	20	0	105	65 - 141				
Vinyl chloride	21.62	1.0	20	0	108	58 - 137				
Surr: 1,2-Dichloroethane-d4	*52.09*	*1.0*	*50*	*0*	*104*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.83*	*1.0*	*50*	*0*	*104*	*85 - 114*				
Surr: Dibromofluoromethane	*50.79*	*1.0*	*50*	*0*	*102*	*80 - 119*				
Surr: Toluene-d8	*50.79*	*1.0*	*50*	*0*	*102*	*89 - 112*				

ALS Houston, US Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120736

QC BATCH REPORT

Batch ID: R329894 **Instrument: VOA9** **Method: SW8260**

MS Sample ID: **HS18120913-03MS** Units: **UG/L** Analysis Date: **24-Dec-2018 15:14**
Client ID: Run ID: **VOA9_329894** SeqNo: **4881357** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	23.21	1.0	20	0	116	78 - 124				
1,1,1-Trichloroethane	22.95	1.0	20	0	115	74 - 131				
1,1,2,2-Tetrachloroethane	24.2	1.0	20	0	121	71 - 121				S
1,1,2-Trichloroethane	25.3	1.0	20	0	127	80 - 119				S
1,1-Dichloroethane	22.71	1.0	20	0	114	77 - 125				
1,1-Dichloroethene	23.04	1.0	20	0	115	71 - 131				
1,1-Dichloropropene	25.45	1.0	20	0	127	78 - 125				S
1,2,3-Trichlorobenzene	22.1	1.0	20	0	111	69 - 129				
1,2,3-Trichloropropane	23.35	1.0	20	0	117	73 - 122				
1,2,4-Trichlorobenzene	22.37	1.0	20	0	112	69 - 130				
1,2,4-Trimethylbenzene	25.22	1.0	20	0	126	76 - 124				S
1,2-Dibromo-3-chloropropane	20.81	1.0	20	0	104	62 - 128				
1,2-Dibromoethane	25.44	1.0	20	0	127	77 - 121				S
1,2-Dichlorobenzene	23.76	1.0	20	0	119	80 - 119				
1,2-Dichloroethane	25.48	1.0	20	0	127	73 - 128				
1,2-Dichloropropane	24.78	1.0	20	0	124	78 - 122				S
1,3,5-Trimethylbenzene	25.58	1.0	20	0	128	75 - 124				S
1,3-Dichlorobenzene	23.33	1.0	20	0	117	80 - 119				
1,3-Dichloropropane	24.94	1.0	20	0	125	80 - 119				S
1,4-Dichlorobenzene	23.26	1.0	20	0	116	79 - 118				
2,2-Dichloropropane	22.8	1.0	20	0	114	60 - 139				
2-Butanone	45.46	2.0	40	0	114	56 - 143				
2-Chlorotoluene	24.95	1.0	20	0	125	79 - 122				S
2-Hexanone	52.86	2.0	40	0	132	57 - 139				
4-Chlorotoluene	25.12	1.0	20	0	126	78 - 122				S
4-Isopropyltoluene	25.22	1.0	20	0	126	77 - 127				
4-Methyl-2-pentanone	51.36	2.0	40	0	128	67 - 130				
Acetone	51.25	2.0	40	0	128	39 - 160				
Benzene	25.09	1.0	20	0	125	79 - 120				S
Bromobenzene	23.78	1.0	20	0	119	80 - 120				
Bromochloromethane	24.02	1.0	20	0	120	78 - 123				
Bromodichloromethane	24.47	1.0	20	0	122	79 - 125				
Bromoform	21.34	1.0	20	0	107	66 - 130				
Bromomethane	24.97	1.0	20	0	125	53 - 141				

ALS Houston, US Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120736

QC BATCH REPORT

Batch ID: R329894 **Instrument: VOA9** **Method: SW8260**

MS Sample ID: **HS18120913-03MS** Units: **UG/L** Analysis Date: **24-Dec-2018 15:14**
Client ID: Run ID: **VOA9_329894** SeqNo: **4881357** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Carbon disulfide	43.18	2.0	40	0	108	64 - 133			
Carbon tetrachloride	23.76	1.0	20	0	119	72 - 136			
Chlorobenzene	24.99	1.0	20	0	125	82 - 118			S
Chloroethane	21.76	1.0	20	0	109	60 - 138			
Chloroform	22.96	1.0	20	0	115	79 - 124			
Chloromethane	22.1	1.0	20	0	111	50 - 139			
cis-1,2-Dichloroethene	24.28	1.0	20	0	121	78 - 123			
cis-1,3-Dichloropropene	21.7	1.0	20	0	109	75 - 124			
Dibromochloromethane	22.33	1.0	20	0	112	74 - 126			
Dibromomethane	25.07	1.0	20	0	125	79 - 123			S
Dichlorodifluoromethane	14.71	1.0	20	0	73.6	32 - 152			
Ethylbenzene	25.65	1.0	20	0	128	79 - 121			S
Hexachlorobutadiene	19.31	1.0	20	0	96.5	66 - 134			
Isopropylbenzene	26.47	1.0	20	0	132	72 - 131			S
m,p-Xylene	51.94	2.0	40	0	130	80 - 121			S
Methylene chloride	22.91	2.0	20	0	115	74 - 124			
Naphthalene	22.43	1.0	20	0	112	61 - 128			
n-Butylbenzene	24.46	1.0	20	0	122	75 - 128			
n-Propylbenzene	25.91	1.0	20	0	130	76 - 126			S
o-Xylene	25.64	1.0	20	0	128	78 - 122			S
sec-Butylbenzene	25.41	1.0	20	0	127	77 - 126			S
Styrene	26.3	1.0	20	0	131	78 - 123			S
tert-Butylbenzene	25.39	1.0	20	0	127	78 - 124			S
Tetrachloroethene	24.22	1.0	20	0	121	74 - 129			
Toluene	26.12	1.0	20	0	131	80 - 121			S
trans-1,2-Dichloroethene	23.07	1.0	20	0	115	75 - 124			
trans-1,3-Dichloropropene	21.38	1.0	20	0	107	73 - 127			
Trichloroethene	26.19	1.0	20	0	131	79 - 123			S
Trichlorofluoromethane	22.5	1.0	20	0	113	65 - 141			
Vinyl chloride	21.27	1.0	20	0	106	58 - 137			
Surr: 1,2-Dichloroethane-d4	*47.14*	*1.0*	*50*	*0*	*94.3*	*81 - 118*			
Surr: 4-Bromofluorobenzene	*51.68*	*1.0*	*50*	*0*	*103*	*85 - 114*			
Surr: Dibromofluoromethane	*45.74*	*1.0*	*50*	*0*	*91.5*	*80 - 119*			
Surr: Toluene-d8	*53.29*	*1.0*	*50*	*0*	*107*	*89 - 112*			

ALS Houston, US Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120736

QC BATCH REPORT

Batch ID: R329894 **Instrument: VOA9** **Method: SW8260**

MSD Sample ID: **HS18120913-03MSD** Units: **UG/L** Analysis Date: **24-Dec-2018 15:39**
Client ID: Run ID: **VOA9_329894** SeqNo: **4881358** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	23.48	1.0	20	0	117	78 - 124	23.21	1.12	20	
1,1,1-Trichloroethane	23.85	1.0	20	0	119	74 - 131	22.95	3.86	20	
1,1,2,2-Tetrachloroethane	25.53	1.0	20	0	128	71 - 121	24.2	5.32	20	S
1,1,2-Trichloroethane	25.33	1.0	20	0	127	80 - 119	25.3	0.11	20	S
1,1-Dichloroethane	23.23	1.0	20	0	116	77 - 125	22.71	2.24	20	
1,1-Dichloroethene	23.12	1.0	20	0	116	71 - 131	23.04	0.317	20	
1,1-Dichloropropene	25.23	1.0	20	0	126	78 - 125	25.45	0.901	20	S
1,2,3-Trichlorobenzene	23.31	1.0	20	0	117	69 - 129	22.1	5.31	20	
1,2,3-Trichloropropane	24.69	1.0	20	0	123	73 - 122	23.35	5.58	20	S
1,2,4-Trichlorobenzene	23.66	1.0	20	0	118	69 - 130	22.37	5.62	20	
1,2,4-Trimethylbenzene	26.26	1.0	20	0	131	76 - 124	25.22	4.02	20	S
1,2-Dibromo-3-chloropropane	22.44	1.0	20	0	112	62 - 128	20.81	7.53	20	
1,2-Dibromoethane	25.59	1.0	20	0	128	77 - 121	25.44	0.588	20	S
1,2-Dichlorobenzene	24.61	1.0	20	0	123	80 - 119	23.76	3.52	20	S
1,2-Dichloroethane	25.75	1.0	20	0	129	73 - 128	25.48	1.02	20	S
1,2-Dichloropropane	24.75	1.0	20	0	124	78 - 122	24.78	0.143	20	S
1,3,5-Trimethylbenzene	26.32	1.0	20	0	132	75 - 124	25.58	2.86	20	S
1,3-Dichlorobenzene	24.37	1.0	20	0	122	80 - 119	23.33	4.36	20	S
1,3-Dichloropropane	25.46	1.0	20	0	127	80 - 119	24.94	2.04	20	S
1,4-Dichlorobenzene	23.85	1.0	20	0	119	79 - 118	23.26	2.5	20	S
2,2-Dichloropropane	22.69	1.0	20	0	113	60 - 139	22.8	0.477	20	
2-Butanone	48.23	2.0	40	0	121	56 - 143	45.46	5.92	20	
2-Chlorotoluene	25.59	1.0	20	0	128	79 - 122	24.95	2.53	20	S
2-Hexanone	54.29	2.0	40	0	136	57 - 139	52.86	2.68	20	
4-Chlorotoluene	25.92	1.0	20	0	130	78 - 122	25.12	3.12	20	S
4-Isopropyltoluene	26.15	1.0	20	0	131	77 - 127	25.22	3.63	20	S
4-Methyl-2-pentanone	53.35	2.0	40	0	133	67 - 130	51.36	3.81	20	S
Acetone	56.13	2.0	40	0	140	39 - 160	51.25	9.1	20	
Benzene	25.56	1.0	20	0	128	79 - 120	25.09	1.85	20	S
Bromobenzene	24.7	1.0	20	0	123	80 - 120	23.78	3.78	20	S
Bromochloromethane	24.56	1.0	20	0	123	78 - 123	24.02	2.24	20	
Bromodichloromethane	24.72	1.0	20	0	124	79 - 125	24.47	1.04	20	
Bromoform	21.74	1.0	20	0	109	66 - 130	21.34	1.83	20	
Bromomethane	24.74	1.0	20	0	124	53 - 141	24.97	0.929	20	

ALS Houston, US Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120736

QC BATCH REPORT

Batch ID: R329894 **Instrument: VOA9** **Method: SW8260**

MSD Sample ID: **HS18120913-03MSD** Units: **UG/L** Analysis Date: **24-Dec-2018 15:39**
Client ID: Run ID: **VOA9_329894** SeqNo: **4881358** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Carbon disulfide	43.81	2.0	40	0	110	64 - 133	43.18	1.44	20	
Carbon tetrachloride	23.83	1.0	20	0	119	72 - 136	23.76	0.262	20	
Chlorobenzene	25.13	1.0	20	0	126	82 - 118	24.99	0.573	20	S
Chloroethane	22.25	1.0	20	0	111	60 - 138	21.76	2.2	20	
Chloroform	23.5	1.0	20	0	118	79 - 124	22.96	2.35	20	
Chloromethane	22.78	1.0	20	0	114	50 - 139	22.1	3.04	20	
cis-1,2-Dichloroethene	23.76	1.0	20	0	119	78 - 123	24.28	2.17	20	
cis-1,3-Dichloropropene	22.27	1.0	20	0	111	75 - 124	21.7	2.58	20	
Dibromochloromethane	22.83	1.0	20	0	114	74 - 126	22.33	2.25	20	
Dibromomethane	25.35	1.0	20	0	127	79 - 123	25.07	1.12	20	S
Dichlorodifluoromethane	15.5	1.0	20	0	77.5	32 - 152	14.71	5.21	20	
Ethylbenzene	25.77	1.0	20	0	129	79 - 121	25.65	0.469	20	S
Hexachlorobutadiene	19.88	1.0	20	0	99.4	66 - 134	19.31	2.89	20	
Isopropylbenzene	26.75	1.0	20	0	134	72 - 131	26.47	1.03	20	S
m,p-Xylene	52.36	2.0	40	0	131	80 - 121	51.94	0.81	20	S
Methylene chloride	23.35	2.0	20	0	117	74 - 124	22.91	1.88	20	
Naphthalene	23.92	1.0	20	0	120	61 - 128	22.43	6.43	20	
n-Butylbenzene	25.47	1.0	20	0	127	75 - 128	24.46	4.06	20	
n-Propylbenzene	26.51	1.0	20	0	133	76 - 126	25.91	2.27	20	S
o-Xylene	26.1	1.0	20	0	130	78 - 122	25.64	1.78	20	S
sec-Butylbenzene	26.21	1.0	20	0	131	77 - 126	25.41	3.1	20	S
Styrene	26.53	1.0	20	0	133	78 - 123	26.3	0.883	20	S
tert-Butylbenzene	26.17	1.0	20	0	131	78 - 124	25.39	3	20	S
Tetrachloroethene	24.34	1.0	20	0	122	74 - 129	24.22	0.488	20	
Toluene	25.86	1.0	20	0	129	80 - 121	26.12	0.978	20	S
trans-1,2-Dichloroethene	23.18	1.0	20	0	116	75 - 124	23.07	0.473	20	
trans-1,3-Dichloropropene	21.86	1.0	20	0	109	73 - 127	21.38	2.21	20	
Trichloroethene	25.67	1.0	20	0	128	79 - 123	26.19	2	20	S
Trichlorofluoromethane	22.74	1.0	20	0	114	65 - 141	22.5	1.05	20	
Vinyl chloride	21.67	1.0	20	0	108	58 - 137	21.27	1.89	20	
Surr: 1,2-Dichloroethane-d4	*47.33*	*1.0*	*50*	*0*	*94.7*	*81 - 118*	*47.14*	*0.404*	*20*	
Surr: 4-Bromofluorobenzene	*51.76*	*1.0*	*50*	*0*	*104*	*85 - 114*	*51.68*	*0.153*	*20*	
Surr: Dibromofluoromethane	*45.85*	*1.0*	*50*	*0*	*91.7*	*80 - 119*	*45.74*	*0.237*	*20*	
Surr: Toluene-d8	*53.06*	*1.0*	*50*	*0*	*106*	*89 - 112*	*53.29*	*0.432*	*20*	

ALS Houston, US Date: 04-Jan-19

Client:	Bhate Environmental Associates, Inc.
Project:	LHAAP-58
WorkOrder:	HS18120736

QC BATCH REPORT

Batch ID:	**R329894**	**Instrument:**	**VOA9**	**Method:**	**SW8260**

The following samples were analyzed in this batch:	HS18120736-05	HS18120736-06	HS18120736-07	HS18120736-09

ALS Houston, US Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120736

QC BATCH REPORT

Batch ID: 135984 **Instrument: UV-2450** **Method: E365.3**

MBLK Sample ID: **MBLK-135984** Units: **mg/L** Analysis Date: **24-Dec-2018 17:00**
Client ID: Run ID: **UV-2450_329862** SeqNo: **4880483** PrepDate: **24-Dec-2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total (As P)	0.0400	0.0500								U

LCS Sample ID: **LCS-135984** Units: **mg/L** Analysis Date: **24-Dec-2018 17:00**
Client ID: Run ID: **UV-2450_329862** SeqNo: **4880482** PrepDate: **24-Dec-2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total (As P)	0.232	0.0500	0.25	0	92.8	80 - 120				

MS Sample ID: **HS18120973-02MS** Units: **mg/L** Analysis Date: **24-Dec-2018 17:00**
Client ID: Run ID: **UV-2450_329862** SeqNo: **4880480** PrepDate: **24-Dec-2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total (As P)	0.24	0.0500	0.25	0.009	92.4	80 - 120				

MSD Sample ID: **HS18120973-02MSD** Units: **mg/L** Analysis Date: **24-Dec-2018 17:00**
Client ID: Run ID: **UV-2450_329862** SeqNo: **4880481** PrepDate: **24-Dec-2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total (As P)	0.241	0.0500	0.25	0.009	92.8	80 - 120	0.24	0.416	20	

The following samples were analyzed in this batch: HS18120736-01 HS18120736-02 HS18120736-03 HS18120736-04

ALS Houston, US Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120736

QC BATCH REPORT

Batch ID: R329695 **Instrument: ManTech01** **Method: SM2320B**

MBLK Sample ID: **WBLKW1-181220** Units: **mg/L** Analysis Date: **20-Dec-2018 20:45**
Client ID: Run ID: **ManTech01_329695** SeqNo: **4876171** PrepDate: DF: **1**

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

LCS Sample ID: **LCS1-181220** Units: **mg/L** Analysis Date: **20-Dec-2018 20:54**
Client ID: Run ID: **ManTech01_329695** SeqNo: **4876172** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)	1061	5.00	1000	0	106	85 - 115				

LCSD Sample ID: **LCSD1-181220** Units: **mg/L** Analysis Date: **20-Dec-2018 21:04**
Client ID: Run ID: **ManTech01_329695** SeqNo: **4876173** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)	1057	5.00	1000	0	106	85 - 115	1061	0.378	20	

DUP Sample ID: **HS18120927-05DUP** Units: **mg/L** Analysis Date: **20-Dec-2018 23:05**
Client ID: Run ID: **ManTech01_329695** SeqNo: **4876188** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)	650.2	5.00					647.6	0.402	20	

The following samples were analyzed in this batch: HS18120736-01 HS18120736-02 HS18120736-03 HS18120736-04

ALS Houston, US Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120736

QC BATCH REPORT

Batch ID: R329941 **Instrument: ICS2100** **Method: SW9056**

MBLK Sample ID: **WBLKW1-121318** Units: **mg/L** Analysis Date: **13-Dec-2018 16:12**
Client ID: Run ID: **ICS2100_329941** SeqNo: **4882213** PrepDate: DF: **1**

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

LCS Sample ID: **WLCSW1-121318** Units: **mg/L** Analysis Date: **13-Dec-2018 16:26**
Client ID: Run ID: **ICS2100_329941** SeqNo: **4882214** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.85	0.500	20	0	99.3	80 - 120				
Nitrogen, Nitrate (As N)	3.84	0.100	4	0	96.0	80 - 120				
Nitrogen, Nitrite (As N)	4.228	0.100	4	0	106	80 - 120				
Sulfate	19.9	0.500	20	0	99.5	80 - 120				

LCSD Sample ID: **WLCSDW1-121318** Units: **mg/L** Analysis Date: **13-Dec-2018 16:41**
Client ID: Run ID: **ICS2100_329941** SeqNo: **4882215** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.71	0.500	20	0	98.5	80 - 120	19.85	0.733	20	
Nitrogen, Nitrate (As N)	3.794	0.100	4	0	94.8	80 - 120	3.84	1.21	20	
Nitrogen, Nitrite (As N)	4.204	0.100	4	0	105	80 - 120	4.228	0.569	20	
Sulfate	19.69	0.500	20	0	98.4	80 - 120	19.9	1.05	20	

MS Sample ID: **HS18120757-02MS** Units: **mg/L** Analysis Date: **13-Dec-2018 21:21**
Client ID: Run ID: **ICS2100_329941** SeqNo: **4882229** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	12.25	0.500	10	2.107	101	80 - 120				
Nitrogen, Nitrate (As N)	2.063	0.100	2	0.181	94.1	80 - 120				
Nitrogen, Nitrite (As N)	2.117	0.100	2	0	106	80 - 120				
Sulfate	11.2	0.500	10	1.268	99.4	80 - 120				

ALS Houston, US Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120736

QC BATCH REPORT

Batch ID: R329941 **Instrument: ICS2100** **Method: SW9056**

MS Sample ID: **HS18120736-04MS** Units: **mg/L** Analysis Date: **13-Dec-2018 17:39**
Client ID: **35AWW10_121218_a** Run ID: **ICS2100_329941** SeqNo: **4882219** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	14.57	0.500	10	5.166	94.0	80 - 120				
Nitrogen, Nitrate (As N)	1.884	0.100	2	0.159	86.2	80 - 120				
Nitrogen, Nitrite (As N)	1.988	0.100	2	0	99.4	80 - 120				
Sulfate	60.18	0.500	10	53.42	67.6	80 - 120				SO

MSD Sample ID: **HS18120757-02MSD** Units: **mg/L** Analysis Date: **13-Dec-2018 21:35**
Client ID: Run ID: **ICS2100_329941** SeqNo: **4882230** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	12.31	0.500	10	2.107	102	80 - 120	12.25	0.448	20	
Nitrogen, Nitrate (As N)	2.069	0.100	2	0.181	94.4	80 - 120	2.063	0.29	20	
Nitrogen, Nitrite (As N)	2.129	0.100	2	0	106	80 - 120	2.117	0.565	20	
Sulfate	11.22	0.500	10	1.268	99.5	80 - 120	11.2	0.143	20	

MSD Sample ID: **HS18120736-04MSD** Units: **mg/L** Analysis Date: **13-Dec-2018 17:54**
Client ID: **35AWW10_121218_a** Run ID: **ICS2100_329941** SeqNo: **4882220** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	14.97	0.500	10	5.166	98.0	80 - 120	14.57	2.68	20	
Nitrogen, Nitrate (As N)	1.942	0.100	2	0.159	89.2	80 - 120	1.884	3.03	20	
Nitrogen, Nitrite (As N)	2.047	0.100	2	0	102	80 - 120	1.988	2.92	20	
Sulfate	61.63	0.500	10	53.42	82.1	80 - 120	60.18	2.38	20	O

The following samples were analyzed in this batch: HS18120736-01 HS18120736-02 HS18120736-03 HS18120736-04

ALS Houston, US Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120736

QC BATCH REPORT

Batch ID: R330126 **Instrument: WetChem_HS** **Method: E376.1**

MBLK Sample ID: **MBLK-R330126** Units: **mg/L** Analysis Date: **19-Dec-2018 19:00**
Client ID: Run ID: **WetChem_HS_330126** SeqNo: **4885930** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide	1.00	1.00								U

LCS Sample ID: **LCS-R330126** Units: **mg/L** Analysis Date: **19-Dec-2018 19:00**
Client ID: Run ID: **WetChem_HS_330126** SeqNo: **4885929** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide	22.52	1.00	25	0	90.1	80 - 120				

LCSD Sample ID: **LCSD-R330126** Units: **mg/L** Analysis Date: **19-Dec-2018 19:00**
Client ID: Run ID: **WetChem_HS_330126** SeqNo: **4885928** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide	22.12	1.00	25	0	88.5	80 - 120	22.52	1.79	20	

MS Sample ID: **HS18120736-04MS** Units: **mg/L** Analysis Date: **19-Dec-2018 19:00**
Client ID: **35AWW10_121218_a** Run ID: **WetChem_HS_330126** SeqNo: **4885931** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide	28.12	1.00	25	0.12	112	80 - 120				

The following samples were analyzed in this batch: HS18120736-01 HS18120736-02 HS18120736-03 HS18120736-04

ALS Houston, US Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: **HS18120736**

QUALIFIERS, ACRONYMS, UNITS

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

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

Unit Reported	Description
mg/L	Milligrams per Liter

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	88-0356	27-Mar-2019
Texas	T10470231-18-21	30-Apr-2019
North Dakota	R193 2018-2019	30-Apr-2019
Illinois	004438	29-Jun-2019
Louisiana	03087	30-Jun-2019
Kentucky	123043 - 2018	30-Apr-2019
Kansas	E-10352 2018-2019	31-Jul-2019
Oklahoma	2018-156	31-Aug-2019

ALS Houston, US Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Work Order: HS18120736

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS18120736-01	03WW01_121218	Login	12/13/2018 11:24:17 AM	JRM	WET287
HS18120736-01	03WW01_121218	Login	12/13/2018 11:24:17 AM	JRM	WET287
HS18120736-01	03WW01_121218	Login	12/13/2018 11:24:17 AM	JRM	WET303
HS18120736-01	03WW01_121218	Login	12/13/2018 11:24:17 AM	JRM	MET038
HS18120736-01	03WW01_121218	Login	12/13/2018 11:24:17 AM	JRM	MET038
HS18120736-01	03WW01_121218	Login	12/13/2018 11:24:17 AM	JRM	VOA032
HS18120736-01	03WW01_121218	Login	12/13/2018 11:24:17 AM	JRM	Sub
HS18120736-01	03WW01_121218	Login	12/13/2018 11:24:17 AM	JRM	Sub
HS18120736-01	03WW01_121218	Login	12/13/2018 11:24:17 AM	JRM	Sub
HS18120736-02	35AWW08_121218	Login	12/13/2018 11:24:17 AM	JRM	WET287
HS18120736-02	35AWW08_121218	Login	12/13/2018 11:24:17 AM	JRM	WET287
HS18120736-02	35AWW08_121218	Login	12/13/2018 11:24:17 AM	JRM	WET303
HS18120736-02	35AWW08_121218	Login	12/13/2018 11:24:17 AM	JRM	MET038
HS18120736-02	35AWW08_121218	Login	12/13/2018 11:24:17 AM	JRM	MET038
HS18120736-02	35AWW08_121218	Login	12/13/2018 11:24:17 AM	JRM	VOA032
HS18120736-02	35AWW08_121218	Login	12/13/2018 11:24:17 AM	JRM	Sub
HS18120736-02	35AWW08_121218	Login	12/13/2018 11:24:17 AM	JRM	Sub
HS18120736-02	35AWW08_121218	Login	12/13/2018 11:24:17 AM	JRM	Sub
HS18120736-04	35AWW10_121218_a	Login	12/13/2018 11:24:17 AM	JRM	WET287
HS18120736-04	35AWW10_121218_a	Login	12/13/2018 11:24:17 AM	JRM	WET287
HS18120736-04	35AWW10_121218_a	Login	12/13/2018 11:24:17 AM	JRM	WET303
HS18120736-04	35AWW10_121218_a	Login	12/13/2018 11:24:17 AM	JRM	MET038
HS18120736-04	35AWW10_121218_a	Login	12/13/2018 11:24:17 AM	JRM	MET038
HS18120736-04	35AWW10_121218_a	Login	12/13/2018 11:24:17 AM	JRM	VOA032
HS18120736-04	35AWW10_121218_a	Login	12/13/2018 11:24:17 AM	JRM	Sub
HS18120736-04	35AWW10_121218_a	Login	12/13/2018 11:24:17 AM	JRM	Sub
HS18120736-04	35AWW10_121218_a	Login	12/13/2018 11:24:17 AM	JRM	Sub
HS18120736-05	35AWW16_121218	Login	12/13/2018 11:24:17 AM	JRM	VOA032
HS18120736-09	Trip Blank	Login	12/13/2018 11:24:17 AM	JRM	VOA032
HS18120736-03	35AWW10_121218	Login	12/13/2018 11:25:32 AM	JML	WET343
HS18120736-03	35AWW10_121218	Login	12/13/2018 11:25:32 AM	JML	Sub
HS18120736-03	35AWW10_121218	Login	12/13/2018 11:25:32 AM	JML	WET343
HS18120736-03	35AWW10_121218	Login	12/13/2018 11:25:32 AM	JML	WET343
HS18120736-03	35AWW10_121218	Login	12/13/2018 11:25:32 AM	JML	MET043
HS18120736-03	35AWW10_121218	Login	12/13/2018 11:25:32 AM	JML	MET043
HS18120736-03	35AWW10_121218	Login	12/13/2018 11:25:32 AM	JML	VOA156
HS18120736-03	35AWW10_121218	Login	12/13/2018 11:25:32 AM	JML	Sub
HS18120736-03	35AWW10_121218	Login	12/13/2018 11:25:32 AM	JML	Sub
HS18120736-03	35AWW10_121218	Login	12/13/2018 11:25:32 AM	JML	Sub

ALS Houston, US Date: 04-Jan-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Work Order: HS18120736

SAMPLE TRACKING

HS18120736-03	35AWW10_121218	Login	12/13/2018 11:25:32 AM	JML	Sub
HS18120736-06	35AWW15_121218	Login	12/13/2018 11:25:32 AM	JML	VOA156
HS18120736-07	35AWW05_121218	Login	12/13/2018 11:25:32 AM	JML	VOA156
HS18120736-08	35AWW09_121118	Login	12/13/2018 11:33:25 AM	JML	MET043

ALS Houston, US Date: 04-Jan-19

Sample Receipt Checklist

Client Name: Bhate Environmental
Work Order: HS18120736
Date/Time Received: **13-Dec-2018 09:35**
Received by: **PMG**

Checklist completed by: *Jared R. Makan* eSignature 13-Dec-2018 Date
Reviewed by: *RJ Modashia* eSignature 13-Dec-2018 Date

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

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
TX1005 solids received in hermetically sealed vials?	Yes ☐	No ☐	N/A ☑
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	1.6c/2.0c UC/C	IR11	
Cooler(s)/Kit(s):	44098		
Date/Time sample(s) sent to storage:	12/13/2018 12:00		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☑	N/A ☐
pH adjusted?	Yes ☑	No ☐	N/A ☐
pH adjusted by:	Si Ma		

Login Notes: Sample pH>2 (6) for 35AWW08. Metals (Total & Diss) preserved with 0.25ml HNO3 (Acid lot # 308055508). Total Phosphorous preserved with 0.5ml H2SO4 (Acid lot # 300107019-10) Samples preserved 12/13/18 at 10:40am. Sample pH=1 after preservation.

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

bhate

1608 13th Avenue South, Suite 300
Birmingham Alabama 35205
Tel: 205-918-4000
Fax: 205-918-4050

Chain of Custody and Analytical Request

Page: ____ of ____

Project/Phase No: NWO1312.0150

COC Number(1): ____

LIMS Number: ____

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / Site 58

Client Name:

Collected by: Scott Beesinger

Sample Analysis Requested (5) / Quality Assurance Samples (6)

Field Sample ID (30 Characters Max)	ERPIMS LOCID (15 Characters Max)	Date Collected (dd-mmm-yyyy)	Time Collected (Military) (hhmm)	Sample Depth (beginning - ending)	SA Code (2)	Sample Number (3)	Sample Matrix (4)	Number of containers	VOC	MEE	TOC	Carbon Dioxide	Total Phosphorous	Total Manganese & Iron	Dissolved Manganese & Iron	Sulfide	Arsenic	Anions/Alkalinity	Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
03WW01_121218		12 Dec 2018	0820	-	N		WG	14	X	X	X	X	X	X	X	X		X				
35AWW08_121218		12 Dec 2018	0910	-	N		WG	15	X	X	X	X	X	X	X	X	X	X				
35AWW10_121218		12 Dec 2018	1030	-	N		WG	14	X	X	X	X	X	X	X	X		X				
35AWW10_121218_a		12 Dec 2018	1030		FD		WG	14	X	X	X	X	X	X	X	X		X				
35AWW16_121218		12 Dec 2018	1150		N		WG	3	X													
35AWW15_121218		12 Dec 2018	1240	-	N		WG	3	X													
35AWW05_121218		12 Dec 2018	1335	-	N		WG	3	X													
35AWW09_121118		11 Dec 2018	1130	-	N		WG	1									X					
Trip Blank		12 Dec 2018		-	TB		W	3	X													
				-																		
				-																		

COMMENTS:

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1. Scott Beesinger	12/12/18	1430	1. NA	12/13/18	09:35
2.			2.		
3.			3.		

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: ____ Shipped ____ No.:

Method of Shipment: ____

Fed Ex Airbill Number:

Analytical Lab: ALS 10450 Stancliff Rd. Suite 210 Houston, TX 77099 (281) 530-5656

ATTN: SONIA WEST Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01)

2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-c) Sample, FD = Field Duplicate (-a) Samples, FR = Field Replicate (-b) Samples, EB = Equipment Blank (-d) Samples, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-e)

3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)

4.) Matrix Codes: GS = Soil Gas, WG = Groundwater, WS = Surface Water, SO = Soil, SE = Sediment, SL = Sludge, SS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blanks

5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each.

6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 10109901 in the Equipment Blank Lot Control

44093 u/c 1.6
IRA 11 c/f + -0.4

HS18120736

Bhate Environmental Associates, Inc.
LHAAP-58

00946594

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

44098

CUSTODY SEAL

Date: 12/12/18 Time: 1430
Name: Scott Beesinger
Company: BHATE

Seal Broken By:
Date: 12/13/18

44098 DEC 13 2018

Must Deliver Next Business Day
Time and Tempature Sensitive!

44098

ORIGIN ID:SGRA (303) 597-2450
SCOTT BEESINER
BHATE ENVIRONMENTAL ASSOCIATES
1203-B EAST GRAND AVE. PMB202

MARSHALL, TX 75670
UNITED STATES US

SHIP DATE: 04DEC18
ACTWGT: 1.00 LB MAN
CAD: 300130/CAFE3211
DIMS: 26x14x14 IN

TO **CLIENT SERVICES**
ALS LABORATORY GROUP
10450 STANCLIFF ROAD
SUITE 210
HOUSTON TX 77099
(281) 530-5656
REF: LHAAP-58-BD 62565-RJ

DMA:

FedEx Express

FedEx TRK# 0221 4380 9535 2813

THU - 13 DEC 10:30A
PRIORITY OVERNIGHT

AB SGRA

77099
TX-US
IAH

FID 162706 120CC18 0GGA 553C1/F1FF/8C8A

ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
Kelso, WA 98626
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www.alsglobal.com

December 28, 2018 **Analytical Report for Service Request No:** K1812272

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

RE: HS18120736 / HS18120736

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory December 14, 2018
For your reference, these analyses have been assigned our service request number **K1812272.**

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

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

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

for Kelley Lovejoy
Project Manager

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

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Acronyms

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

Inorganic Data Qualifiers

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

Metals Data Qualifiers

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

Organic Data Qualifiers

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

Additional Petroleum Hydrocarbon Specific Qualifiers

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

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

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

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

Case Narrative

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577- 7222 Fax (360)636-1 068
www.alsglobal.com

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

Client: ALS Environmental - US
Project: HS18120736
Sample Matrix: Ground Water

Service Request: K1812272
Date Received: 12/14/2018

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier IV validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt:

Four ground water samples were received for analysis at ALS Environmental on 12/14/2018. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4ºC upon receipt at the laboratory.

General Chemistry:

No significant anomalies were noted with this analysis.

Approved by Noe D. Oaxaca Date 12/28/2018

Chain of Custody

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577- 7222 Fax (360)636-1 068
www.alsglobal.com

HS18120736

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

Subcontract Chain of Custody

COC ID: 10432

SUBCONTRACT TO:

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

Phone: +1 360 501 3312

CUSTOMER INFORMATION:

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

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS18120736
TSR:	Danielle Winnings

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS18120736-01**	**03WW01_121218**	**Groundwater**	**12 Dec 2018 08:20**
	TOC Analysis for DOD Level IV			28 Dec 2018
2.	**HS18120736-02**	**35AWW08_121218**	**Groundwater**	**12 Dec 2018 09:10**
	TOC Analysis for DOD Level IV			28 Dec 2018
3.	**HS18120736-03**	**35AWW10_121218**	**Groundwater**	**12 Dec 2018 10:30**
	TOC Analysis for DOD Level IV			28 Dec 2018
4.	**HS18120736-04**	**35AWW10_121218_a**	**Groundwater**	**12 Dec 2018 10:30**
	TOC Analysis for DOD Level IV			28 Dec 2018

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

QC Level: DOD IV (DoD Data Package)

Relinquished By: R Cisneros Date/Time: 12/13/18 1800

Received By: Date/Time: 12/14/18 0950

Cooler ID(s): Temperature(s):

K1812272 00946605

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

Purchase Order

PO: HS18120736

VENDOR:

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

Phone: +1 360 501 3312

CUSTOMER INFORMATION:

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

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	10432
TSR:	Danielle Winnings

Item	Catalog No	Unit Price	Quantity	Ext Price
1. TOC Analysis for DOD Level IV	NA	$9.00	4	$36.00

Order Total: $36.00

RIGHT SOLUTIONS | RIGHT PARTNER

00946606

PC KL

Cooler Receipt and Preservation Form

Client ALS/Houston Service Request K18 12772

Received: 12/14/18 Opened: 12/14/18 By: [illegible] Unloaded: 12/14/18 By: [illegible]

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

Raw Cooler Temp	Corrected Cooler Temp	Raw Temp Blank	Corrected Temp Blank	Corr. Factor	Thermometer ID	Cooler/COC ID NA	Tracking Number NA	Filed
0.2	0.1	1.8	1.7	-0.1	381	10432	4380 9535 6340	
						10419		
						10429		

4. Packing material: *Inserts* (*Baggies*) (*Bubble Wrap*) *Gel Packs* (*Wet Ice*) *Dry Ice* *Sleeves* _____
5. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
6. Were samples received in good condition (temperature, unbroken)? *Indicate in the table below.* NA (Y) N
   If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*
7. Were all sample labels complete (i.e analysis, preservation, etc.)? NA (Y) N
8. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA (Y) N
9. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
10. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* (NA) Y N
11. Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N
12. Was C12/Res negative? (NA) Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

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

Notes, Discrepancies, & Resolutions: _____

General Chemistry

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577- 7222 Fax (360)636-1 068
www.alsglobal.com

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	K1812272
Project:	HS18120736/HS18120736	**Date Collected:**	12/12/18
Sample Matrix:	Ground Water	**Date Received:**	12/14/18
Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Carbon, Total Organic

Sample Name	Lab Code	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
03WW01_121218	K1812272-001	**42.2**	2.0	0.8	0.3	4	12/22/18 00:42	
35AWW08_121218	K1812272-002	**392**	50	20	7	100	12/22/18 03:06	
35AWW10_121218	K1812272-003	**3.97**	0.50	0.20	0.07	1	12/22/18 03:38	
35AWW10_121218_a	K1812272-004	**4.03**	0.50	0.20	0.07	1	12/22/18 04:09	
Method Blank	K1812272-MB	ND U	0.50	0.20	0.07	1	12/21/18 11:06	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K1812272
Project:	HS18120736/HS18120736	**Date Analyzed:**	12/21/18
Sample Matrix:	Ground Water	**Date Extracted:**	NA

Lab Control Sample Summary
Carbon, Total Organic

Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	619810

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1812272-LCS	20.3	21.9	93	83-117

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US **Service Request:** K1812272
Project: HS18120736/HS18120736

Continuing Calibration Verification (CCV) Summary

Carbon, Total Organic

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

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	619810	KQ1818709-28	12/21/18 05:13	25.0	24.3	97	90-110
CCV2	619810	KQ1818709-29	12/21/18 10:33	25.0	24.0	96	90-110
CCV3	619810	KQ1818709-30	12/21/18 15:37	25.0	23.7	95	90-110
CCV4	619810	KQ1818709-31	12/21/18 21:13	25.0	23.6	94	90-110
CCV5	619810	KQ1818709-32	12/22/18 02:33	25.0	23.6	95	90-110
CCV6	619810	KQ1818709-33	12/22/18 07:36	25.0	23.9	95	90-110

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US **Service Request:**K1812272
Project: HS18120736/HS18120736

Continuing Calibration Blank (CCB) Summary
Carbon, Total Organic

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

	Analysis Lot	Lab Code	Date Analyzed	LOQ	LOD	MDL	Result	Q
CCB1	619810	KQ1818709-34	12/21/18 05:30	0.50	0.20	0.07	ND	U
CCB2	619810	KQ1818709-35	12/21/18 10:49	0.50	0.20	0.07	ND	U
CCB3	619810	KQ1818709-36	12/21/18 15:54	0.50	0.20	0.07	ND	U
CCB4	619810	KQ1818709-37	12/21/18 21:29	0.50	0.20	0.07	ND	U
CCB5	619810	KQ1818709-38	12/22/18 02:49	0.50	0.20	0.07	ND	U
CCB6	619810	KQ1818709-39	12/22/18 07:53	0.50	0.20	0.07	ND	U

Raw Data

ALS Environmental—Kelso Laboratory
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General Chemistry

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Work Request # (Original) K18/1658, 1888, 2001, 1625, 1728, 1789, 1849, 1831, 2101, 2154,
1928, 2278, 2279, 2272, 1745, 1747, 2416

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

Date Analyzed: 12/20/18

Analyst: CLS

Run # TOC 619808, 619810
DOC 620105

Analysis: TOC/DOC

DATA QUALITY REPORT
INORGANICS

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

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

COMMENTS:

1789-2, 3, 4, 5, 8, 1849-4, 2416-35 RPD not within acceptance limits. The sample results are less than 5x the MRL.
RA 2154-1, 2154-5 - over diluted.
1831-2, 1745-1 RPD not within acceptance limits - samples contain sediment - non homogeneous.

Final Approved by: _____ Date: 12/26/18

DQREPORT

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** CSETHE **Analysis Lot:** 619808 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K1811625-001	Carbon, Total Organic	N/A		Ground Water	4.25 mg/L	10 ml	8.5 mg/L	2	0.2	1.0			12/20/18 16:31	N	I
K1811625-003	Carbon, Total Organic	N/A		Ground Water	4.47 mg/L	10 ml	4.47 mg/L	1	0.07	0.50			12/20/18 17:51	N	I
K1811658-004	Carbon, Total Organic	N/A		Water	3.83 mg/L	10 ml	3.83 mg/L	1	0.07	0.50			12/20/18 13:18	N	II
K1811728-001	Carbon, Total Organic	N/A		Reagent Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/20/18 18:54	N	I
K1811728-002	Carbon, Total Organic	N/A		Reagent Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/20/18 19:26	N	I
K1811789-002	Carbon, Total Organic	N/A		Ground Water	0.51 mg/L	10 ml	0.51 mg/L	1	0.07	0.50			12/20/18 19:58	N	IV
K1811789-003	Carbon, Total Organic	N/A		Ground Water	0.74 mg/L	10 ml	0.74 mg/L	1	0.07	0.50			12/20/18 22:39	N	IV
K1811789-004	Carbon, Total Organic	N/A		Ground Water	0.16 mg/L	10 ml	0.16 mg/L J	1	0.07	0.50			12/20/18 23:42	N	IV
K1811789-005	Carbon, Total Organic	N/A		Ground Water	0.77 mg/L	10 ml	0.77 mg/L	1	0.07	0.50			12/21/18 00:45	N	IV
K1811789-006	Carbon, Total Organic	N/A		Ground Water	0.55 mg/L	10 ml	0.55 mg/L	1	0.07	0.50			12/21/18 01:48	N	IV
K1811789-008	Carbon, Total Organic	N/A		Ground Water	0.39 mg/L	10 ml	0.39 mg/L J	1	0.07	0.50			12/21/18 02:51	N	IV
K1811831-002	Carbon, Total Organic	N/A		Water	6.74 mg/L	10 ml	6.74 mg/L	1	0.07	0.50			12/21/18 08:25	N	II
K1811849-001	Carbon, Total Organic	N/A		Water	1.24 mg/L	10 ml	1.24 mg/L	1	0.07	0.50			12/21/18 04:25	N	II
K1811849-002	Carbon, Total Organic	N/A		Water	8.22 mg/L	10 ml	32.9 mg/L	4	0.3	2.0			12/21/18 05:46	N	II
K1811849-003	Carbon, Total Organic	N/A		Water	7.74 mg/L	10 ml	31.0 mg/L	4	0.3	2.0			12/21/18 06:18	N	II
K1811849-004	Carbon, Total Organic	N/A		Water	1.09 mg/L	10 ml	1.09 mg/L	1	0.07	0.50			12/21/18 06:50	N	II
K1811849-005	Carbon, Total Organic	N/A		Water	5.34 mg/L	10 ml	5.34 mg/L	1	0.07	0.50			12/21/18 07:22	N	II
K1811888-002	Carbon, Total Organic	N/A		Water	2.74 mg/L	10 ml	2.74 mg/L	1	0.07	0.50			12/20/18 14:22	N	IV
K1812001-001	Carbon, Total Organic	N/A		Water	6.94 mg/L	10 ml	69.4 mg/L	10	0.7	5.0			12/20/18 14:54	N	IV
KQ1818705-01	Carbon, Total Organic	DUP	K1811658-004	Water	3.91 mg/L	10 ml	3.91 mg/L	1	0.07	0.50		2	12/20/18 13:18	N	II
KQ1818705-02	Carbon, Total Organic	DUP	K1811888-002	Water	2.73 mg/L	10 ml	2.73 mg/L	1	0.07	0.50		<1	12/20/18 14:22	N	IV
KQ1818705-03	Carbon, Total Organic	MS	K1812001-001	Water	31.62 mg/L	10 ml	316 mg/L	10	0.7	5.0	99		12/20/18 15:25	N	IV
KQ1818705-04	Carbon, Total Organic	DUP	K1812001-001	Water	6.88 mg/L	10 ml	68.8 mg/L	10	0.7	5.0		<1	12/20/18 14:54	N	IV
KQ1818705-05	Carbon, Total Organic	MS	K1811625-001	Ground Water	29.15 mg/L	10 ml	58.3 mg/L	2	0.2	1.0	100		12/20/18 17:03	N	I
KQ1818705-06	Carbon, Total Organic	DUP	K1811625-001	Ground Water	3.84 mg/L	10 ml	7.7 mg/L	2	0.2	1.0		10	12/20/18 16:31	N	I
KQ1818705-07	Carbon, Total Organic	DUP	K1811625-003	Ground Water	4.23 mg/L	10 ml	4.23 mg/L	1	0.07	0.50		6	12/20/18 17:51	N	I
KQ1818705-08	Carbon, Total Organic	DUP	K1811728-001	Reagent Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50		NC	12/20/18 18:54	N	I
KQ1818705-09	Carbon, Total Organic	DUP	K1811728-002	Reagent Water	0.80 mg/L	10 ml	0.80 mg/L	1	0.07	0.50		NC	12/20/18 19:26	N	I

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

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** CSETHE **Analysis Lot:** 619808 **Method/Testcode:** 9060/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ1818705-10	Carbon, Total Organic	MS	K1811789-002	Ground Water	25.21 mg/L	10 ml	25.2 mg/L	1	0.07	0.50	99		12/20/18 21:01	N	IV
KQ1818705-11	Carbon, Total Organic	DUP	K1811789-002	Ground Water	0.26 mg/L	10 ml	0.26 mg/L J	1	0.07	0.50		66*	12/20/18 19:58	N	IV
KQ1818705-12	Carbon, Total Organic	TRP	K1811789-002	Ground Water	0.22 mg/L	10 ml	0.22 mg/L J	1	0.07	0.50		48*	12/20/18 19:58	N	IV
KQ1818705-13	Carbon, Total Organic	QUAD	K1811789-002	Ground Water	0.23 mg/L	10 ml	0.23 mg/L J	1	0.07	0.50		45*	12/20/18 19:58	N	IV
KQ1818705-14	Carbon, Total Organic	DUP	K1811789-003	Ground Water	0.60 mg/L	10 ml	0.60 mg/L	1	0.07	0.50		21*	12/20/18 22:39	N	IV
KQ1818705-15	Carbon, Total Organic	TRP	K1811789-003	Ground Water	0.58 mg/L	10 ml	0.58 mg/L	1	0.07	0.50		14	12/20/18 22:39	N	IV
KQ1818705-16	Carbon, Total Organic	QUAD	K1811789-003	Ground Water	0.52 mg/L	10 ml	0.52 mg/L	1	0.07	0.50		16	12/20/18 22:39	N	IV
KQ1818705-17	Carbon, Total Organic	DUP	K1811789-004	Ground Water	1.01 mg/L	10 ml	1.01 mg/L	1	0.07	0.50		146*	12/20/18 23:42	N	IV
KQ1818705-18	Carbon, Total Organic	TRP	K1811789-004	Ground Water	0.19 mg/L	10 ml	0.19 mg/L J	1	0.07	0.50		106*	12/20/18 23:42	N	IV
KQ1818705-19	Carbon, Total Organic	QUAD	K1811789-004	Ground Water	0.07 mg/L	10 ml	0.07 mg/L J	1	0.07	0.50		122*	12/20/18 23:42	N	IV
KQ1818705-20	Carbon, Total Organic	DUP	K1811789-005	Ground Water	0.58 mg/L	10 ml	0.58 mg/L	1	0.07	0.50		27*	12/21/18 00:45	N	IV
KQ1818705-21	Carbon, Total Organic	TRP	K1811789-005	Ground Water	0.57 mg/L	10 ml	0.57 mg/L	1	0.07	0.50		17	12/21/18 00:45	N	IV
KQ1818705-22	Carbon, Total Organic	QUAD	K1811789-005	Ground Water	0.61 mg/L	10 ml	0.61 mg/L	1	0.07	0.50		14	12/21/18 00:45	N	IV
KQ1818705-23	Carbon, Total Organic	DUP	K1811789-006	Ground Water	0.53 mg/L	10 ml	0.53 mg/L	1	0.07	0.50		3	12/21/18 01:48	N	IV
KQ1818705-24	Carbon, Total Organic	TRP	K1811789-006	Ground Water	0.50 mg/L	10 ml	0.50 mg/L	1	0.07	0.50		5	12/21/18 01:48	N	IV
KQ1818705-25	Carbon, Total Organic	QUAD	K1811789-006	Ground Water	0.54 mg/L	10 ml	0.54 mg/L	1	0.07	0.50		4	12/21/18 01:48	N	IV
KQ1818705-26	Carbon, Total Organic	DUP	K1811789-008	Ground Water	0.34 mg/L	10 ml	0.34 mg/L J	1	0.07	0.50		16	12/21/18 02:51	N	IV
KQ1818705-27	Carbon, Total Organic	TRP	K1811789-008	Ground Water	0.20 mg/L	10 ml	0.20 mg/L J	1	0.07	0.50		31*	12/21/18 02:51	N	IV
KQ1818705-28	Carbon, Total Organic	QUAD	K1811789-008	Ground Water	0.26 mg/L	10 ml	0.26 mg/L J	1	0.07	0.50		28*	12/21/18 02:51	N	IV
KQ1818705-29	Carbon, Total Organic	MS	K1811849-001	Water	25.43 mg/L	10 ml	25.4 mg/L	1	0.07	0.50	97		12/21/18 04:57	N	II
KQ1818705-30	Carbon, Total Organic	DUP	K1811849-001	Water	1.25 mg/L	10 ml	1.25 mg/L	1	0.07	0.50		1	12/21/18 04:25	N	II
KQ1818705-31	Carbon, Total Organic	DUP	K1811849-002	Water	8.05 mg/L	10 ml	32.2 mg/L	4	0.3	2.0		2	12/21/18 05:46	N	II
KQ1818705-32	Carbon, Total Organic	DUP	K1811849-003	Water	7.59 mg/L	10 ml	30.3 mg/L	4	0.3	2.0		2	12/21/18 06:18	N	II
KQ1818705-33	Carbon, Total Organic	DUP	K1811849-004	Water	0.86 mg/L	10 ml	0.86 mg/L	1	0.07	0.50		24*	12/21/18 06:50	N	II
KQ1818705-34	Carbon, Total Organic	DUP	K1811849-005	Water	5.16 mg/L	10 ml	5.16 mg/L	1	0.07	0.50		3	12/21/18 07:22	N	II
KQ1818705-35	Carbon, Total Organic	MS	K1811831-002	Water	31.00 mg/L	10 ml	31.0 mg/L	1	0.07	0.50	97		12/21/18 08:57	N	II

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

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** CSETHE **Analysis Lot:** 619808 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ1818705-36	Carbon, Total Organic	DUP	K1811831-002	Water	6.02 mg/L	10 ml	6.02 mg/L	1	0.07	0.50		11*	12/21/18 08:25	N	II
KQ1818705-37	Carbon, Total Organic	MB		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/20/18 12:29	N	II
KQ1818705-37	Carbon, Total Organic	MB		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/20/18 12:29	N	II
KQ1818705-38	Carbon, Total Organic	LCS		Water	20.64 mg/L	10 ml	20.6 mg/L	1	0.07	0.50	94		12/20/18 12:46	N	II
KQ1818705-38	Carbon, Total Organic	LCS		Water	20.64 mg/L	10 ml	20.6 mg/L	1	0.07	0.50	94		12/20/18 12:46	N	II
KQ1818705-39	Carbon, Total Organic	MB		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/20/18 22:06	N	II
KQ1818705-39	Carbon, Total Organic	MB		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/20/18 22:06	N	II
KQ1818705-40	Carbon, Total Organic	LCS		Water	20.62 mg/L	10 ml	20.6 mg/L	1	0.07	0.50	94		12/20/18 22:23	N	II
KQ1818705-40	Carbon, Total Organic	LCS		Water	20.62 mg/L	10 ml	20.6 mg/L	1	0.07	0.50	94		12/20/18 22:23	N	II
KQ1818705-41	Carbon, Total Organic	CCV		Water	24.08 mg/L	10 ml	24.1 mg/L	1			96		12/20/18 11:56	N	II
KQ1818705-41	Carbon, Total Organic	CCV		Water	24.08 mg/L	10 ml	24.1 mg/L	1			96		12/20/18 11:56	N	II
KQ1818705-42	Carbon, Total Organic	CCV		Water	24.01 mg/L	10 ml	24.0 mg/L	1			96		12/20/18 15:58	N	II
KQ1818705-42	Carbon, Total Organic	CCV		Water	24.01 mg/L	10 ml	24.0 mg/L	1			96		12/20/18 15:58	N	II
KQ1818705-43	Carbon, Total Organic	CCV		Water	24.07 mg/L	10 ml	24.1 mg/L	1			96		12/20/18 21:33	N	II
KQ1818705-43	Carbon, Total Organic	CCV		Water	24.07 mg/L	10 ml	24.1 mg/L	1			96		12/20/18 21:33	N	II
KQ1818705-44	Carbon, Total Organic	CCV		Water	24.26 mg/L	10 ml	24.3 mg/L	1			97		12/21/18 05:13	N	II
KQ1818705-44	Carbon, Total Organic	CCV		Water	24.26 mg/L	10 ml	24.3 mg/L	1			97		12/21/18 05:13	N	II
KQ1818705-45	Carbon, Total Organic	CCV		Water	24.05 mg/L	10 ml	24.0 mg/L	1			96		12/21/18 10:33	N	II
KQ1818705-45	Carbon, Total Organic	CCV		Water	24.05 mg/L	10 ml	24.0 mg/L	1			96		12/21/18 10:33	N	II
KQ1818705-46	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/20/18 12:13	N	II
KQ1818705-46	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/20/18 12:13	N	II
KQ1818705-47	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/20/18 16:14	N	II
KQ1818705-47	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/20/18 16:14	N	II
KQ1818705-48	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/20/18 21:50	N	II
KQ1818705-48	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/20/18 21:50	N	II
KQ1818705-49	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/21/18 05:30	N	II
KQ1818705-49	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/21/18 05:30	N	II
KQ1818705-50	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/21/18 10:49	N	II
KQ1818705-50	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/21/18 10:49	N	II

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

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** CSETHE **Analysis Lot:** 619810 **Method/Testcode:** 415.1/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K1811745-001	Carbon, Total Organic	N/A		Water	1.55 mg/L	10 ml	1.55 mg/L	1	0.07	0.50			12/22/18 05:13	N	IV
K1811747-001	Carbon, Total Organic	N/A		Water	4.71 mg/L	10 ml	4.71 mg/L	1	0.07	0.50			12/22/18 06:48	N	IV
K1811928-001	Carbon, Total Organic	N/A		Drinking Water	0.10 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/21/18 17:14	N	II
K1812101-001	Carbon, Total Organic	N/A		Water	16.05 mg/L	10 ml	16.0 mg/L	1	0.07	0.50			12/21/18 09:45	N	IV
K1812154-001	Carbon, Total Organic	N/A		Ground Water	0.19 mg/L	10 ml	10 mg/L J	50	4	25			12/21/18 11:39	N	IV
K1812154-002	Carbon, Total Organic	N/A		Ground Water	1.67 mg/L	10 ml	1.67 mg/L	1	0.07	0.50			12/21/18 12:59	N	IV
K1812154-003	Carbon, Total Organic	N/A		Ground Water	2.17 mg/L	10 ml	2.17 mg/L	1	0.07	0.50			12/21/18 14:02	N	IV
K1812154-004	Carbon, Total Organic	N/A		Ground Water	17.57 mg/L	10 ml	879 mg/L	50	4	25			12/21/18 14:34	N	IV
K1812154-005	Carbon, Total Organic	N/A		Ground Water	0.16 mg/L	10 ml	3 mg/L J	20	2	10			12/21/18 16:10	N	IV
K1812272-001	Carbon, Total Organic	N/A		Ground Water	10.54 mg/L	10 ml	42.2 mg/L	4	0.3	2.0			12/22/18 00:42	N	IV
K1812272-002	Carbon, Total Organic	N/A		Ground Water	3.92 mg/L	10 ml	392 mg/L	100	7	50			12/22/18 03:06	N	IV
K1812272-003	Carbon, Total Organic	N/A		Ground Water	3.97 mg/L	10 ml	3.97 mg/L	1	0.07	0.50			12/22/18 03:38	N	IV
K1812272-004	Carbon, Total Organic	N/A		Ground Water	4.03 mg/L	10 ml	4.03 mg/L	1	0.07	0.50			12/22/18 04:09	N	IV
K1812278-001	Carbon, Total Organic	N/A		Ground Water	13.71 mg/L	10 ml	685 mg/L	50	4	25			12/21/18 18:19	N	IV
K1812278-002	Carbon, Total Organic	N/A		Ground Water	14.02 mg/L	10 ml	701 mg/L	50	4	25			12/21/18 22:19	N	IV
K1812278-003	Carbon, Total Organic	N/A		Ground Water	1.13 mg/L	10 ml	4.5 mg/L	4	0.3	2.0			12/21/18 20:41	N	IV
K1812279-001	Carbon, Total Organic	N/A		Water	24.72 mg/L	10 ml	24.7 mg/L	1	0.07	0.50			12/21/18 23:22	N	IV
KQ1818709-01	Carbon, Total Organic	MS	K1812101-001	Water	40.70 mg/L	10 ml	40.7 mg/L	1	0.07	0.50	99		12/21/18 10:16	N	IV
KQ1818709-02	Carbon, Total Organic	DUP	K1812101-001	Water	16.03 mg/L	10 ml	16.0 mg/L	1	0.07	0.50		<1	12/21/18 09:45	N	IV
KQ1818709-03	Carbon, Total Organic	MS	K1812154-001	Ground Water	24.33 mg/L	10 ml	1220 mg/L	50	4	25	97		12/21/18 12:11	N	IV
KQ1818709-04	Carbon, Total Organic	DUP	K1812154-001	Ground Water	0.00 mg/L	10 ml	25 mg/L U	50	4	25		NC	12/21/18 11:39	N	IV
KQ1818709-05	Carbon, Total Organic	DUP	K1812154-002	Ground Water	1.52 mg/L	10 ml	1.52 mg/L	1	0.07	0.50		9	12/21/18 12:59	N	IV
KQ1818709-06	Carbon, Total Organic	DUP	K1812154-003	Ground Water	2.18 mg/L	10 ml	2.18 mg/L	1	0.07	0.50		<1	12/21/18 14:02	N	IV
KQ1818709-07	Carbon, Total Organic	DUP	K1812154-004	Ground Water	17.56 mg/L	10 ml	878 mg/L	50	4	25		<1	12/21/18 14:34	N	IV
KQ1818709-08	Carbon, Total Organic	DUP	K1812154-005	Ground Water	0.00 mg/L	10 ml	10 mg/L U	20	2	10		NC	12/21/18 16:10	N	IV
KQ1818709-09	Carbon, Total Organic	MS	K1811928-001	Drinking Water	24.48 mg/L	10 ml	24.5 mg/L	1	0.07	0.50	98		12/21/18 17:46	N	II

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

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** CSETHE **Analysis Lot:** 619810 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ1818709-10	Carbon, Total Organic	DUP	K1811928-001	Drinking Water	0.01 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50		NC	12/21/18 17:14	N	II
KQ1818709-11	Carbon, Total Organic	MS	K1812278-001	Ground Water	38.12 mg/L	10 ml	1910 mg/L	50	4	25	98		12/21/18 19:22	N	IV
KQ1818709-12	Carbon, Total Organic	DUP	K1812278-001	Ground Water	13.53 mg/L	10 ml	677 mg/L	50	4	25		1	12/21/18 18:19	N	IV
KQ1818709-13	Carbon, Total Organic	DUP	K1812278-002	Ground Water	13.66 mg/L	10 ml	683 mg/L	50	4	25		3	12/21/18 22:19	N	IV
KQ1818709-14	Carbon, Total Organic	DUP	K1812278-003	Ground Water	1.15 mg/L	10 ml	4.6 mg/L	4	0.3	2.0		1	12/21/18 20:41	N	IV
KQ1818709-15	Carbon, Total Organic	MS	K1812279-001	Water	48.60 mg/L	10 ml	48.6 mg/L	1	0.07	0.50	96		12/21/18 23:54	N	IV
KQ1818709-16	Carbon, Total Organic	DUP	K1812279-001	Water	24.96 mg/L	10 ml	25.0 mg/L	1	0.07	0.50		<1	12/21/18 23:22	N	IV
KQ1818709-17	Carbon, Total Organic	MS	K1812272-001	Ground Water	36.01 mg/L	10 ml	144 mg/L	4	0.3	2.0	102		12/22/18 01:14	N	IV
KQ1818709-18	Carbon, Total Organic	DUP	K1812272-001	Ground Water	10.47 mg/L	10 ml	41.9 mg/L	4	0.3	2.0		<1	12/22/18 00:42	N	IV
KQ1818709-19	Carbon, Total Organic	DUP	K1812272-002	Ground Water	3.78 mg/L	10 ml	378 mg/L	100	7	50		4	12/22/18 03:06	N	IV
KQ1818709-20	Carbon, Total Organic	DUP	K1812272-003	Ground Water	3.95 mg/L	10 ml	3.95 mg/L	1	0.07	0.50		<1	12/22/18 03:38	N	IV
KQ1818709-21	Carbon, Total Organic	DUP	K1812272-004	Ground Water	3.99 mg/L	10 ml	3.99 mg/L	1	0.07	0.50		1	12/22/18 04:09	N	IV
KQ1818709-23	Carbon, Total Organic	DUP	K1811745-001	Water	2.34 mg/L	10 ml	2.34 mg/L	1	0.07	0.50		41*	12/22/18 05:13	N	IV
KQ1818709-24	Carbon, Total Organic	MS	K1811747-001	Water	29.30 mg/L	10 ml	29.3 mg/L	1	0.07	0.50	98		12/22/18 07:20	N	IV
KQ1818709-25	Carbon, Total Organic	DUP	K1811747-001	Water	4.71 mg/L	10 ml	4.71 mg/L	1	0.07	0.50		<1	12/22/18 06:48	N	IV
KQ1818709-26	Carbon, Total Organic	MB		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/21/18 11:06	N	IV
KQ1818709-26	Carbon, Total Organic	MB		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/21/18 11:06	N	IV
KQ1818709-27	Carbon, Total Organic	LCS		Water	20.26 mg/L	10 ml	20.3 mg/L	1	0.07	0.50	93		12/21/18 11:22	N	IV
KQ1818709-27	Carbon, Total Organic	LCS		Water	20.26 mg/L	10 ml	20.3 mg/L	1	0.07	0.50	93		12/21/18 11:22	N	IV
KQ1818709-28	Carbon, Total Organic	CCV		Water	24.26 mg/L	10 ml	24.3 mg/L	1			97		12/21/18 05:13	N	IV
KQ1818709-28	Carbon, Total Organic	CCV		Water	24.26 mg/L	10 ml	24.3 mg/L	1			97		12/21/18 05:13	N	IV
KQ1818709-29	Carbon, Total Organic	CCV		Water	24.05 mg/L	10 ml	24.0 mg/L	1			96		12/21/18 10:33	N	IV
KQ1818709-29	Carbon, Total Organic	CCV		Water	24.05 mg/L	10 ml	24.0 mg/L	1			96		12/21/18 10:33	N	IV
KQ1818709-30	Carbon, Total Organic	CCV		Water	23.72 mg/L	10 ml	23.7 mg/L	1			95		12/21/18 15:37	N	IV
KQ1818709-30	Carbon, Total Organic	CCV		Water	23.72 mg/L	10 ml	23.7 mg/L	1			95		12/21/18 15:37	N	IV
KQ1818709-31	Carbon, Total Organic	CCV		Water	23.55 mg/L	10 ml	23.6 mg/L	1			94		12/21/18 21:13	N	IV
KQ1818709-31	Carbon, Total Organic	CCV		Water	23.55 mg/L	10 ml	23.6 mg/L	1			94		12/21/18 21:13	N	IV
KQ1818709-32	Carbon, Total Organic	CCV		Water	23.63 mg/L	10 ml	23.6 mg/L	1			94		12/22/18 02:33	N	IV
KQ1818709-32	Carbon, Total Organic	CCV		Water	23.63 mg/L	10 ml	23.6 mg/L	1			94		12/22/18 02:33	N	IV
KQ1818709-33	Carbon, Total Organic	CCV		Water	23.86 mg/L	10 ml	23.9 mg/L	1			96		12/22/18 07:36	N	IV
KQ1818709-33	Carbon, Total Organic	CCV		Water	23.86 mg/L	10 ml	23.9 mg/L	1			96		12/22/18 07:36	N	IV

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

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** CSETHE **Analysis Lot:** 619810 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ1818709-34	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/21/18 05:30	N	IV
KQ1818709-34	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/21/18 05:30	N	IV
KQ1818709-35	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/21/18 10:49	N	IV
KQ1818709-35	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/21/18 10:49	N	IV
KQ1818709-36	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/21/18 15:54	N	IV
KQ1818709-36	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/21/18 15:54	N	IV
KQ1818709-37	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/21/18 21:29	N	IV
KQ1818709-37	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/21/18 21:29	N	IV
KQ1818709-38	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/22/18 02:49	N	IV
KQ1818709-38	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/22/18 02:49	N	IV
KQ1818709-39	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/22/18 07:53	N	IV
KQ1818709-39	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/22/18 07:53	N	IV
KQ1818709-40	Carbon, Total Organic	MS	K1811745-001	Water	26.18 mg/L	10 ml	26.2 mg/L	1	0.07	0.50	99		12/22/18 05:45	N	IV
KQ1818709-41	Carbon, Total Organic	DMS	K1811745-001	Water	25.64 mg/L	10 ml	25.6 mg/L	1	0.07	0.50	96		12/22/18 05:45	N	IV

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

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** CSETHE **Analysis Lot:** 620105 **Method/Testcode:** SM 5310 C/TOC D

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K1812416-035	Carbon, Dissolved Organic (DOC)	N/A		Water	1.24 mg/L	10 ml	1.24 mg/L	1	0.07	0.50			12/22/18 08:10	N	II
KQ1818712-01	Carbon, Dissolved Organic (DOC)	MS	K1812416-035	Water	24.33 mg/L	10 ml	24.3 mg/L	1	0.07	0.50	92		12/22/18 08:41	N	II
KQ1818712-02	Carbon, Dissolved Organic (DOC)	DUP	K1812416-035	Water	1.48 mg/L	10 ml	1.48 mg/L	1	0.07	0.50		18*	12/22/18 08:10	N	II
KQ1818712-03	Carbon, Dissolved Organic (DOC)	MB		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/21/18 21:46	N	II
KQ1818712-04	Carbon, Dissolved Organic (DOC)	LCS		Water	19.23 mg/L	10 ml	19.2 mg/L	1	0.07	0.50	88		12/21/18 22:02	N	II
KQ1818712-05	Carbon, Dissolved Organic (DOC)	CCV		Water	23.55 mg/L	10 ml	23.6 mg/L	1			94		12/21/18 21:13	N	II
KQ1818712-06	Carbon, Dissolved Organic (DOC)	CCV		Water	23.63 mg/L	10 ml	23.6 mg/L	1			94		12/22/18 02:33	N	II
KQ1818712-07	Carbon, Dissolved Organic (DOC)	CCV		Water	23.86 mg/L	10 ml	23.9 mg/L	1			96		12/22/18 07:36	N	II
KQ1818712-08	Carbon, Dissolved Organic (DOC)	CCV		Water	23.93 mg/L	10 ml	23.9 mg/L	1			96		12/22/18 08:58	N	II
KQ1818712-09	Carbon, Dissolved Organic (DOC)	CCB		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/21/18 21:29	N	II
KQ1818712-10	Carbon, Dissolved Organic (DOC)	CCB		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/22/18 02:49	N	II
KQ1818712-11	Carbon, Dissolved Organic (DOC)	CCB		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/22/18 07:53	N	II
KQ1818712-12	Carbon, Dissolved Organic (DOC)	CCB		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/22/18 09:14	N	II

CES 12/26/18

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

StarLIMS Run: 619808, 619810, 620105

Analysis: TOC

Method: SM 5310 C, 9060, 415.1

CCV: 11-GEN-05-73F 50 ppm LCS: 11-GEN-05-73C 21.9 ppm

ICAL Date: 11/26/18

ICAL ID: 11-GEN-05-72J

ICS ID: 11-GEN-05-73B

ICS TV: 25.0 ppm ICS % R < 1

Spike ID: 11-GEN-05-70O 0.05 ml of 5000 ppm stock ---> 10.0 ml = 25.0 ppm x dilution factor

Sodium Persulfate: 11-GEN-05-73J

21 % H3PO4: 11-GEN-05-73I

Equipment ID: K-TOC-03

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

FILTER ID: NA

Analyzed By: CES	Date Analyzed: 12/20/18
Reviewed By:	Date Reviewed: 12/26/18

TOC: 619808, 619810
DOC: 620105

Schedule: 12202018

Version: 9
Instrument: Fusion1
Last Saved by: Fusion1 (Fusion1)
Last Saved on: 2018/12/21 10:33 - Friday

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps
(Clean)	Clean	Clean		1
D	Sample	RB	Extended Reaction 021711 (Extended Reaction 021711)	1
(Clean)	Clean	Clean		1
D	Sample	RB	Extended Reaction 021711 (Extended Reaction 021711)	1
(Clean)	Clean	Clean		1
D	Sample	RB	Extended Reaction 021711 (Extended Reaction 021711)	1
(Blank)	Blank	Reagent/Acid Blank		1
D	Sample	RB	Extended Reaction 021711 (Extended Reaction 021711)	1
B	Check Standard	[TOC] CCV 021711 [25 ppm]	Extended Reaction 021711 (Extended Reaction 021711)	1
D	Check Standard	[TOC] CCB 021711 [0.0 ppm]	Extended Reaction 021711 (Extended Reaction 021711)	1
1	Sample	MB1	Extended Reaction 021711 (Extended Reaction 021711)	1
2	Check Standard	[TOC] LCS ER [21.9 ppm]	Extended Reaction 021711 (Extended Reaction 021711)	1
3	Sample	ICS	Extended Reaction 021711 (Extended Reaction 021711)	1
4	Sample	K1811658-004.01	Extended Reaction 021711 (Extended Reaction 021711)	2
5	Sample	RB	Extended Reaction 021711 (Extended Reaction 021711)	2
6	Sample	K1811888-002.01	Extended Reaction 021711 (Extended Reaction 021711)	2
7	Sample	K1812001-001.01 10x	Extended Reaction 021711 (Extended Reaction 021711)	2
8	Sample	K1812001-001.01 ms 10x	Extended Reaction 021711 (Extended Reaction 021711)	1
9	Sample	RB	Extended Reaction 021711 (Extended Reaction 021711)	1
B	Check Standard	[TOC] CCV 021711 [25 ppm]	Extended Reaction 021711 (Extended Reaction 021711)	1
D	Check Standard	[TOC] CCB 021711 [0.0 ppm]	Extended Reaction 021711 (Extended Reaction 021711)	1
10	Sample	K1811625-001.03 2x	Extended Reaction 021711 (Extended Reaction 021711)	2
11	Sample	K1811625-001.03 ms 2x	Extended Reaction 021711 (Extended Reaction 021711)	1
12	Sample	RB	Extended Reaction 021711 (Extended Reaction 021711)	2
13	Sample	K1811625-003.03	Extended Reaction 021711 (Extended Reaction 021711)	2
14	Sample	RB	Extended Reaction 021711 (Extended Reaction 021711)	2
15	Sample	K1811728-001	Extended Reaction 021711 (Extended Reaction 021711)	2
16	Sample	K1811728-002	Extended Reaction 021711 (Extended Reaction 021711)	2
17	Sample	K1811789-002.08	Extended Reaction 021711 (Extended Reaction 021711)	4
18	Sample	K1811789-002.08 ms	Extended Reaction 021711 (Extended Reaction 021711)	1
19	Sample	RB	Extended Reaction 021711 (Extended Reaction 021711)	1
B	Check Standard	[TOC] CCV 021711 [25 ppm]	Extended Reaction 021711 (Extended Reaction 021711)	1
D	Check Standard	[TOC] CCB 021711 [0.0 ppm]	Extended Reaction 021711 (Extended Reaction 021711)	1
20	Sample	MB2	Extended Reaction 021711 (Extended Reaction 021711)	1
2	Check Standard	[TOC] LCS ER [21.9 ppm]	Extended Reaction 021711 (Extended Reaction 021711)	1
21	Sample	K1811789-003.08	Extended Reaction 021711 (Extended Reaction 021711)	4
22	Sample	K1811789-004.08	Extended Reaction 021711 (Extended Reaction 021711)	4
23	Sample	K1811789-005.08	Extended Reaction 021711 (Extended Reaction 021711)	4
24	Sample	K1811789-006.08	Extended Reaction 021711 (Extended Reaction 021711)	4
25	Sample	K1811789-008.08	Extended Reaction 021711 (Extended Reaction 021711)	4
26	Sample	RB	Extended Reaction 021711 (Extended Reaction 021711)	2
27	Sample	K1811849-001.04	Extended Reaction 021711 (Extended Reaction 021711)	2
28	Sample	K1811849-001.04 ms	Extended Reaction 021711 (Extended Reaction 021711)	1
B	Check Standard	[TOC] CCV 021711 [25 ppm]	Extended Reaction 021711 (Extended Reaction 021711)	1
D	Check Standard	[TOC] CCB 021711 [0.0 ppm]	Extended Reaction 021711 (Extended Reaction 021711)	1
29	Sample	K1811849-002.04 4x	Extended Reaction 021711 (Extended Reaction 021711)	2
30	Sample	K1811849-003.04 4x	Extended Reaction 021711 (Extended Reaction 021711)	2
31	Sample	K1811849-004.04	Extended Reaction 021711 (Extended Reaction 021711)	2
32	Sample	K1811849-005.04	Extended Reaction 021711 (Extended Reaction 021711)	2
33	Sample	RB	Extended Reaction 021711 (Extended Reaction 021711)	2
34	Sample	K1811831-002.01	Extended Reaction 021711 (Extended Reaction 021711)	2
35	Sample	K1811831-002.01 ms	Extended Reaction 021711 (Extended Reaction 021711)	1
36	Sample	RB	Extended Reaction 021711 (Extended Reaction 021711)	2
37	Sample	K1812101-001.02	Extended Reaction 021711 (Extended Reaction 021711)	2

Schedule: 12202018

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Page
38	Sample	K1812101-001.02 ms	Extended Reaction 021711 (Extended Reaction 021711)	11
39	Check Standard	[TOC] CCB 021711 [0.0 ppm]	Extended Reaction 021711 (Extended Reaction 021711)	11
40	Check Standard	[TOC] CCB 021711 [0.0 ppm]	Extended Reaction 021711 (Extended Reaction 021711)	11
41	Sample	K1812154-001.01 ms 50x	Extended Reaction 021711 (Extended Reaction 021711)	11
42	Sample	RB	Extended Reaction 021711 (Extended Reaction 021711)	12
43	Sample	K1812154-002.01	Extended Reaction 021711 (Extended Reaction 021711)	12
44	Sample	RB	Extended Reaction 021711 (Extended Reaction 021711)	12
45	Sample	K1812154-003.01	Extended Reaction 021711 (Extended Reaction 021711)	12
46	Sample	K1812154-004.01 dup	Extended Reaction 021711 (Extended Reaction 021711)	12
47	Sample	RB	Extended Reaction 021711 (Extended Reaction 021711)	12
48	Check Standard	[TOC] CCV 021711 [25 ppm]	Extended Reaction 021711 (Extended Reaction 021711)	11
49	Check Standard	[TOC] CCB 021711 [0.0 ppm]	Extended Reaction 021711 (Extended Reaction 021711)	11
50	Sample	K1812154-005.01 dup	Extended Reaction 021711 (Extended Reaction 021711)	12
51	Sample	RB	Extended Reaction 021711 (Extended Reaction 021711)	12
52	Sample	K1811825-001.01 ms	Extended Reaction 021711 (Extended Reaction 021711)	11
53	Sample	RB	Extended Reaction 021711 (Extended Reaction 021711)	11
54	Sample	K1812276-001.01 50x	Extended Reaction 021711 (Extended Reaction 021711)	12
55	Sample	RB	Extended Reaction 021711 (Extended Reaction 021711)	12
56	Sample	K1812275-001.01 ms 50x	Extended Reaction 021711 (Extended Reaction 021711)	11
57	Sample	K1812276-002.02 dup	Extended Reaction 021711 (Extended Reaction 021711)	12
58	Check Standard	[TOC] CCV 021711 [25 ppm]	Extended Reaction 021711 (Extended Reaction 021711)	11
59	Check Standard	[TOC] CCB 021711 [0.0 ppm]	Extended Reaction 021711 (Extended Reaction 021711)	11
60	Sample	K1812276-003.01 dup	Extended Reaction 021711 (Extended Reaction 021711)	12
61	Sample	RB	Extended Reaction 021711 (Extended Reaction 021711)	12
62	Sample	K1812276-004.02	Extended Reaction 021711 (Extended Reaction 021711)	12
63	Sample	K1812276-001.02 ms	Extended Reaction 021711 (Extended Reaction 021711)	11
64	Sample	RB	Extended Reaction 021711 (Extended Reaction 021711)	12
65	Sample	K1812272-001.01 dup	Extended Reaction 021711 (Extended Reaction 021711)	12
66	Sample	K1812273-001.01 ms 4x	Extended Reaction 021711 (Extended Reaction 021711)	11
67	Sample	RB	Extended Reaction 021711 (Extended Reaction 021711)	14
68	Check Standard	[TOC] CCV 021711 [25 ppm]	Extended Reaction 021711 (Extended Reaction 021711)	11
69	Check Standard	[TOC] CCB 021711 [0.0 ppm]	Extended Reaction 021711 (Extended Reaction 021711)	11
70	Sample	K1812273-002.01 10x	Extended Reaction 021711 (Extended Reaction 021711)	12
71	Sample	K1812273-003.01	Extended Reaction 021711 (Extended Reaction 021711)	12
72	Sample	RB	Extended Reaction 021711 (Extended Reaction 021711)	12
73	Sample	K1811745-001.02 ms	Extended Reaction 021711 (Extended Reaction 021711)	12
74	Sample	RB	Extended Reaction 021711 (Extended Reaction 021711)	12
75	Sample	K1811747-001.02	Extended Reaction 021711 (Extended Reaction 021711)	12
76	Sample	K1811748-001.02 dup	Extended Reaction 021711 (Extended Reaction 021711)	12
77	Check Standard	[TOC] CCV 021711 [25 ppm]	Extended Reaction 021711 (Extended Reaction 021711)	11
78	Check Standard	[TOC] CCB 021711 [0.0 ppm]	Extended Reaction 021711 (Extended Reaction 021711)	11
79	Sample	K1812415-001.01 dup	Extended Reaction 021711 (Extended Reaction 021711)	12
80	Sample	K1812415-002.01 ms dup	Extended Reaction 021711 (Extended Reaction 021711)	12
81	Check Standard	[TOC] CCV 021711 [25 ppm]	Extended Reaction 021711 (Extended Reaction 021711)	11
82	Check Standard	[TOC] CCB 021711 [0.0 ppm]	Extended Reaction 021711 (Extended Reaction 021711)	11

00946625

Fusion Report - 12202018
Thursday, December 20, 2018 08:21 AM

(View - Reps, Unused Reps, Meta-Data, Signature, History)
Printed on 2018/12/26 11:38 - Wednesday

Report Summary Information

Company Location:	Gen Chem Lab		
Schedule Name:	12202018	Engine Version:	1.1.5.1
Instrument Name:	Fusion1	Firmware Version:	1.2.0696
Report Version:	1 of 1	Connection:	RS232 COM1
Report Creation by Operators (schedule version):	Fusion1 (Fusion1) (v1) Fusion1 (Fusion1) (v2) Fusion1 (Fusion1) (v3) Fusion1 (Fusion1) (v5) Fusion1 (Fusion1) (v6) Fusion1 (Fusion1) (v7) Fusion1 (Fusion1) (v8) Fusion1 (Fusion1) (v9)		
Comment:			

Report Results

Sample Type: Clean — From Schedule Version 1

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2018/12/20 08:21

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	12.04	16.47	4.43	49.47	05:34
2	TC Clean	8.60	11.29	2.69	49.71	07:15
3	TC Clean	2.48	5.22	2.74	49.77	07:01
4	TC Clean	1.83	4.57	2.75	49.73	07:03

Sample Type: Sample — From Schedule Version 1

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	D	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2018/12/20 08:53

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	13.50	16.00	2.50	49.87	12:34

Dilution **Blank Contribution** **Method** **Calibration**

1:10	(TC) 17.0445 (IC) (v1201)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

Sample Type: Clean — From Schedule Version 1

	Pos	Analysis Type	Sample ID	Start Time
◈	(clean)		Clean	2018/12/20 09:09

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	10.06	13.45	3.39	49.37	07:59
2	TC Clean	5.19	7.86	2.67	49.71	07:17
3	TC Clean	3.04	5.66	2.63	49.76	07:01
4	TC Clean	1.91	4.53	2.62	49.76	07:03

Sample Type: Sample — From Schedule Version 1

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	D	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2018/12/20 09:43

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	13.36	15.83	2.47	49.86	12:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 17.0445 (IC) (v1201)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

Sample Type: Clean — From Schedule Version 1

	Pos	Analysis Type	Sample ID	Start Time
◈	(clean)		Clean	2018/12/20 10:00

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	10.15	13.24	3.09	49.44	08:00
2	TC Clean	4.75	7.44	2.69	49.80	07:17
3	TC Clean	1.82	4.43	2.62	49.83	07:02
4	TC Clean	1.43	4.08	2.65	49.84	07:02

Sample Type: Sample — From Schedule Version 2

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

◆	D	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2018/12/20 10:34

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	13.13	15.68	2.54	49.91	12:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 17.0445 (IC) (v1201)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

Sample Type: Blank (Creating v1202) From Schedule Version 3

	Pos	Analysis Type	Sample ID	Start Time
◆	(blank)		Reagent/Acid Blank	2018/12/20 10:50

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	10.18	13.18	3.00	49.42	07:58
2	TC Clean	4.60	7.15	2.55	49.76	07:16
3	TC Clean	1.96	4.47	2.51	49.84	07:03
4	TC Clean	1.49	4.08	2.59	49.85	07:01
5	Reagent Blank	5.37	8.01	2.63	49.80	08:12
6	Acid Blank	1.31	3.85	2.54	49.49	05:40

Sample Type: Sample From Schedule Version 5

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	D	TOC	RB	0.7100 ppm	0.0000 ppm	0.0000%	2018/12/20 11:40

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.7100	7.1003	22.39	25.22	2.83	49.95	12:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

Sample Type: Check Standard --> CCV 021711 From Schedule Version

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 021711 [25 ppm]	0 / infinity (NA / NA)	24.0779 ppm (PASS)	0.0000 ppm	0%	2018/12/20 11:56

	Base

Pos	Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.0779	240.7790	202.52	205.21	2.70	49.94	12:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)	50 ppmC

Sample Type: Check Standard --> CCB 021711 From Schedule Version 5

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:2	[TOC] CCB 021711 [0.0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2018/12/20 12:13

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0.0 ppm	1	0.0000	0.0000	17.20	19.92	2.72	49.96	12:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)	0 ppmC

Sample Type: Sample From Schedule Version 5

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	1	TOC	MB1	0.0000 ppm	0.0000 ppm	0.0000%	2018/12/20 12:29

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	16.53	19.20	2.67	49.98	12:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

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

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	2	TOC	21.9000	1:1	[TOC] LCS ER [21.9 ppm]	0 / infinity (NA / NA)	20.6415 ppm (PASS)	0.0000 ppm	0%	2018/12/20 12:46

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
2	TOC	21.9 ppm	1	20.6415	206.4151	176.24	178.89	2.65	49.99	12:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos 2
Success - Criteria met.	Do Nothing	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)	21.9 ppmC

Sample Type: Sample From Schedule Version 5

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	3	TOC	ICS	0.2428 ppm	0.0000 ppm	0.0000%	2018/12/20 13:02

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.2428	2.4278	18.82	21.60	2.78	50.00	12:33

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	4	TOC	K1811658-004.01	3.8703 ppm	0.0531 ppm	1.3700%	2018/12/20 13:18

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.8327	38.3274	46.26	49.03	2.77	49.98	12:27
2	TOC	3.9078	39.0782	46.84	49.59	2.76	50.00	12:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	5	TOC	RB	0.0004 ppm	0.0006 ppm	141.4200%	2018/12/20 13:50

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0008	0.0078	16.97	19.66	2.69	50.05	12:27
2	TOC	0.0000	0.0000	15.66	18.25	2.59	50.03	12:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	6	TOC	K1811888-002.01	2.7312 ppm	0.0057 ppm	0.2100%	2018/12/20 14:22

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.7352	27.3524	37.87	40.73	2.86	50.02	12:28
2	TOC	2.7271	27.2713	37.81	40.62	2.81	50.08	12:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	7	TOC	K1812001-001.01 10x	6.9117 ppm	0.0401 ppm	0.5800%	2018/12/20 14:54

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

1	TOC	6.9401	69.4013	70.02	72.80	2.79	50.07	12:25
2	TOC	6.8834	68.8336	69.58	72.19	2.61	50.09	12:22

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	8	TOC	K1812001-001.01 ms 10x	31.6218 ppm	0.0000 ppm	0.0000%	2018/12/20 15:25

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	31.6218	316.2181	258.70	261.23	2.53	50.11	12:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	9	TOC	RB	0.1048 ppm	0.0000 ppm	0.0000%	2018/12/20 15:41

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1048	1.0477	17.76	20.50	2.74	50.11	12:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

Sample Type: Check Standard --> CCV 021711 From Schedule Version 5

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 021711 [25 ppm]	0 / infinity (NA / NA)	24.0103 ppm (PASS)	0.0000 ppm	0%	2018/12/20 15:58

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.0103	240.1027	202.00	204.73	2.73	50.11	12:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)	50 ppmC

~~**Sample Type**: Check Standard --> CCB 021711 From Schedule Version~~

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:2	[TOC] CCB 021711 [0.0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2018/12/20 16:14

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0.0 ppm	1	0.0000	0.0000	17.00	19.74	2.75	50.14	12:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)	0 ppmC

Sample Type: Sample — From Schedule Version 5

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	10	TOC	K1811625-001.03 2x	4.0447 ppm	0.2857 ppm	7.0600%	2018/12/20 16:31

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.2468	42.4675	49.43	52.16	2.73	50.15	12:28
2	TOC	3.8427	38.4268	46.34	48.97	2.63	50.14	12:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	11	TOC	K1811625-001.03 ms 2x	29.1500 ppm	0.0000 ppm	0.0000%	2018/12/20 17:03

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	29.1500	291.5002	239.80	242.66	2.86	50.11	12:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	12	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2018/12/20 17:19

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	14.64	17.28	2.63	50.16	12:29
2	TOC	0.0000	0.0000	14.52	17.37	2.85	50.16	12:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	13	TOC	K1811625-003.03	4.3494 ppm	0.1702 ppm	3.9100%	2018/12/20 17:51

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.4698	44.6978	51.13	53.85	2.72	50.20	12:30
2	TOC	4.2291	42.2909	49.29	51.80	2.51	50.15	12:23

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	14	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2018/12/20 18:23

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	13.47	16.22	2.75	50.18	12:22
2	TOC	0.0000	0.0000	14.66	17.23	2.57	50.14	12:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	15	TOC	K1811728-001	0.0000 ppm	0.0000 ppm	0.0000%	2018/12/20 18:54

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	14.67	17.32	2.65	50.14	12:26
2	TOC	0.0000	0.0000	14.89	17.48	2.58	50.12	12:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	16	TOC	K1811728-002	0.3981 ppm	0.5629 ppm	141.4200%	2018/12/20 19:26

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	14.71	17.40	2.68	50.14	12:27
2	TOC	0.7961	7.9611	23.05	25.78	2.73	50.12	12:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	17	TOC	K1811789-002.08	0.3032 ppm	0.1364 ppm	44.9900%	2018/12/20 19:58

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5064	5.0636	20.83	23.42	2.59	50.08	12:28
2	TOC	0.2565	2.5651	18.92	21.63	2.71	50.14	12:25
3	TOC	0.2160	2.1596	18.61	21.36	2.75	50.13	12:2
4	TOC	0.2341	2.3415	18.75	21.38	2.63	50.14	12:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

		Analysis			Std. Dev.		

	Pos	Type	Sample ID	Result (ppmC)	(ppmC)	RSD	Start Time
◆	18	TOC	K1811789-002.08 ms	25.2126 ppm	0.0000 ppm	0.0000%	2018/12/20 21:01

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	25.2126	252.1263	209.70	212.25	2.55	50.12	12:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	19	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2018/12/20 21:17

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	16.94	19.63	2.68	50.10	12:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

Sample Type: Check Standard --> CCV 021711 From Schedule Version 5

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 021711 [25 ppm]	0 / infinity (NA / NA)	24.0674 ppm (PASS)	0.0000 ppm	0%	2018/12/20 21:33

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.0674	240.6743	202.44	205.01	2.58	50.10	12:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)	50 ppmC

Sample Type: Check Standard --> CCB 021711 From Schedule Version 5

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:2	[TOC] CCB 021711 [0.0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2018/12/20 21:50

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0.0 ppm	1	0.0000	0.0000	16.32	19.03	2.72	50.15	12:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)	0 ppmC

Sample Type: Sample From Schedule Version 5

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	20	TOC	MB2	0.0000 ppm	0.0000 ppm	0.0000%	2018/12/20 22:06

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	15.21	17.97	2.76	50.11	12:33

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

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

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	2	TOC	21.9000	1:1	[TOC] LCS ER [21.9 ppm]	0 / infinity (NA / NA)	20.6186 ppm (PASS)	0.0000 ppm	0%	2018/12/20 22:23

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
2	TOC	21.9 ppm	1	20.6186	206.1862	176.07	178.69	2.62	50.07	12:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos 2
Success - Criteria met.	Do Nothing	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)	21.9 ppmC

Sample Type: Sample From Schedule Version 5

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	21	TOC	K1811789-003.08	0.6115 ppm	0.0957 ppm	15.6500%	2018/12/20 22:39

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.7447	7.4470	22.65	25.41	2.75	50.03	12:29
2	TOC	0.6046	6.0460	21.58	24.25	2.67	49.99	12:26
3	TOC	0.5775	5.7752	21.38	23.89	2.51	49.91	12:24
4	TOC	0.5192	5.1918	20.93	23.51	2.58	49.93	12:23

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	22	TOC	K1811789-004.08	0.3582 ppm	0.4373 ppm	122.0700%	2018/12/20 23:42

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1593	1.5932	18.18	20.90	2.72	49.89	12:24

2	TOC	1.0099	10.0985	24.68	27.32	2.64	49.87	12:26
3	TOC	0.1908	1.9085	18.42	21.15	2.73	49.87	12:26
4	TOC	0.0729	0.7286	17.52	20.19	2.67	49.84	12:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	23	TOC	K1811789-005.08	0.6339 ppm	0.0893 ppm	14.0800%	2018/12/21 00:45

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.7650	7.6497	22.81	25.45	2.65	49.83	12:24
2	TOC	0.5847	5.8472	21.43	24.13	2.70	49.81	12:25
3	TOC	0.5711	5.7111	21.33	24.07	2.74	49.79	12:24
4	TOC	0.6149	6.1493	21.66	24.35	2.68	49.78	12:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	24	TOC	K1811789-006.08	0.5329 ppm	0.0218 ppm	4.1000%	2018/12/21 01:48

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5515	5.5149	21.18	23.88	2.70	49.78	12:27
2	TOC	0.5332	5.3318	21.04	23.57	2.54	49.78	12:26
3	TOC	0.5022	5.0218	20.80	23.44	2.64	49.72	12:25
4	TOC	0.5447	5.4469	21.12	23.86	2.73	49.78	12:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	25	TOC	K1811789-008.08	0.2970 ppm	0.0830 ppm	27.9500%	2018/12/21 02:51

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.3918	3.9177	19.96	22.52	2.56	49.74	12:28
2	TOC	0.3350	3.3500	19.52	22.21	2.69	49.74	12:24
3	TOC	0.2038	2.0380	18.52	21.29	2.77	49.72	12:27
4	TOC	0.2574	2.5743	18.93	21.62	2.69	49.72	12:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	26	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2018/12/21 03:54

Rep	Base			Adjusted		Baseline	Pressure	Run

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#	Analysis Type	ppm	µg	(Abs)	NDIR (Abs)	(Abs)	(psig)	Time
1	TOC	0.0000	0.0000	15.47	17.90	2.42	49.72	12:24
2	TOC	0.0000	0.0000	14.64	17.20	2.56	49.73	12:23

Dilution 1:10
Blank Contribution (TC) 16.9610 (IC) (v1202)
Method Extended Reaction 021711 (v3)
Calibration Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	27	TOC	K1811849-001.04	1.2435 ppm	0.0105 ppm	0.8400%	2018/12/21 04:25

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.2362	12.3615	26.41	29.06	2.65	49.71	12:22
2	TOC	1.2509	12.5093	26.52	29.16	2.63	49.71	12:26

Dilution 1:10
Blank Contribution (TC) 16.9610 (IC) (v1202)
Method Extended Reaction 021711 (v3)
Calibration Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	28	TOC	K1811849-001.04 ms	25.4293 ppm	0.0000 ppm	0.0000%	2018/12/21 04:57

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	25.4293	254.2925	211.36	213.95	2.59	49.70	12:30

Dilution 1:10
Blank Contribution (TC) 16.9610 (IC) (v1202)
Method Extended Reaction 021711 (v3)
Calibration Extended Reaction 021711 (v24)

Sample Type: Check Standard --> CCV 021711 From Schedule Version 5

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 021711 [25 ppm]	0 / infinity (NA / NA)	24.2565 ppm (PASS)	0.0000 ppm	0%	2018/12/21 05:13

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.2565	242.5645	203.88	206.62	2.74	49.66	12:31

Completion State Success - Criteria met.
Success Action Do Nothing
Method Extended Reaction 021711 (v3)
Calibration Extended Reaction 021711 (v24)
STD Conc - Pos B 50 ppmC

Sample Type: Check Standard --> CCB 021711 From Schedule Version 5

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:2	[TOC] CCB 021711 [0.0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2018/12/21 05:30

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0.0 ppm	1	0.0000	0.0000	16.31	19.10	2.80	49.66	12:27

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)	0 ppmC

Sample Type: Sample From Schedule Version 5

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	29	TOC	K1811849-002.04 4x	8.1359 ppm	0.1209 ppm	1.4900%	2018/12/21 05:46

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	8.2214	82.2142	79.81	82.70	2.89	49.69	12:23
2	TOC	8.0505	80.5045	78.50	81.19	2.69	49.68	12:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	30	TOC	K1811849-003.04 4x	7.6636 ppm	0.1108 ppm	1.4500%	2018/12/21 06:18

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	7.7420	77.4200	76.15	78.89	2.75	49.68	12:26
2	TOC	7.5853	75.8529	74.95	77.63	2.68	49.71	12:23

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	31	TOC	K1811849-004.04	0.9762 ppm	0.1639 ppm	16.7900%	2018/12/21 06:50

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.0921	10.9213	25.31	27.99	2.68	49.67	12:28
2	TOC	0.8603	8.6033	23.54	26.17	2.64	49.67	12:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	32	TOC	K1811849-005.04	5.2512 ppm	0.1272 ppm	2.4200%	2018/12/21 07:22

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	5.3411	53.4111	57.79	60.40	2.61	49.69	12:24
2	TOC	5.1612	51.6125	56.42	59.23	2.82	49.71	12:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	33	TOC	RB	0.3241 ppm	0.4583 ppm	141.4200%	2018/12/21 07:53

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	16.09	18.66	2.57	49.67	12:29
2	TOC	0.6482	6.4816	21.92	24.59	2.67	49.61	12:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	34	TOC	K1811831-002.01	6.3814 ppm	0.5082 ppm	7.9600%	2018/12/21 08:25

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	6.7408	67.4078	68.49	71.00	2.51	49.71	12:27
2	TOC	6.0221	60.2211	63.00	65.39	2.40	49.90	12:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

Sample Type: Sample — From Schedule Version 6

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	35	TOC	K1811831-002.01 ms	31.0037 ppm	0.0000 ppm	0.0000%	2018/12/21 08:57

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	31.0037	310.0373	253.97	256.56	2.59	49.92	12:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

Sample Type: Sample — From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	36	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2018/12/21 09:13

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	13.45	16.02	2.57	49.95	12:24
2	TOC	0.0000	0.0000	13.80	16.48	2.67	49.92	12:23

Dilution	Blank Contribution	Method	Calibration

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1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

Sample Type: Sample — From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	37	TOC	K1812101-001.02	16.0372 ppm	0.0155 ppm	0.1000%	2018/12/21 09:45

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	16.0482	160.4819	139.64	142.30	2.66	49.93	12:27
2	TOC	16.0262	160.2622	139.48	142.17	2.69	49.89	12:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	38	TOC	K1812101-001.02 ms	40.7000 ppm	0.0000 ppm	0.0000%	2018/12/21 10:16

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	40.7000	407.0004	328.10	330.64	2.54	49.86	12:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

Sample Type: Check Standard --> CCV 021711 — From Schedule Version 9

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 021711 [25 ppm]	0 / infinity (NA / NA)	24.0495 ppm (PASS)	0.0000 ppm	0%	2018/12/21 10:33

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.0495	240.4951	202.30	204.97	2.67	49.86	12:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)	50 ppmC

Sample Type: Check Standard --> CCB 021711 — From Schedule Version

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:2	[TOC] CCB 021711 [0.0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2018/12/21 10:49

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Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0.0 ppm	1	0.0000	0.0000	15.93	18.55	2.62	49.84	12:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)	0 ppmC

Sample Type: Sample — From Schedule Version 9

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	39	TOC	MB3	0.0000 ppm	0.0000 ppm	0.0000%	2018/12/21 11:06

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	14.88	17.48	2.60	50.04	12:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

Sample Type: Check Standard --> LCS ER — From Schedule Version 9

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	2	TOC	21.9000	1:1	[TOC] LCS ER [21.9 ppm]	0 / infinity (NA / NA)	20.2644 ppm (PASS)	0.0000 ppm	0%	2018/12/21 11:22

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
2	TOC	21.9 ppm	1	20.2644	202.6439	173.36	175.92	2.56	49.99	12:35

Completion State	Success Action	Method	Calibration	STD Conc - Pos 2
Success - Criteria met.	Do Nothing	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)	21.9 ppmC

Sample Type: Sample — From Schedule Version 9

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	40	TOC	K1812154-001.01 50x	0.0965 ppm	0.1365 ppm	141.4200%	2018/12/21 11:39

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1931	1.9307	18.44	21.05	2.61	49.95	12:28
2	TOC	0.0000	0.0000	16.89	19.63	2.74	49.95	12:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	41	TOC	K1812154-001.01 ms 50x	24.3267 ppm	0.0000 ppm	0.0000%	2018/12/21 12:11

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	24.3267	243.2665	202.93	205.49	2.56	49.93	12:33

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	42	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2018/12/21 12:27

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	14.90	17.47	2.57	49.92	12:27
2	TOC	0.0000	0.0000	13.95	16.42	2.47	49.95	12:21

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	43	TOC	K1812154-002.01	1.5973 ppm	0.1048 ppm	6.5600%	2018/12/21 12:59

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.6714	16.7136	29.74	32.52	2.78	49.93	12:27
2	TOC	1.5232	15.2315	28.60	31.41	2.81	49.97	12:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	44	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2018/12/21 13:31

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	14.83	17.44	2.61	49.98	12:26
2	TOC	0.0000	0.0000	13.52	16.27	2.75	49.99	12:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	45	TOC	K1812154-003.01	2.1735 ppm	0.0087 ppm	0.4000%	2018/12/21 14:02

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.1674	21.6739	33.53	36.21	2.68	49.99	12:27

2	TOC	2.1797	21.7969	33.62	36.23	2.60	49.96	12:25

Dilution: 1:10
Blank Contribution: (TC) 16.9610 (IC) (v1202)
Method: Extended Reaction 021711 (v3)
Calibration: Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	46	TOC	K1812154-004.01 50x	17.5683 ppm	0.0074 ppm	0.0400%	2018/12/21 14:34

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	17.5736	175.7357	151.30	154.08	2.77	50.00	12:27
2	TOC	17.5631	175.6311	151.22	153.86	2.64	49.96	12:28

Dilution: 1:10
Blank Contribution: (TC) 16.9610 (IC) (v1202)
Method: Extended Reaction 021711 (v3)
Calibration: Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	47	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2018/12/21 15:06

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	15.33	17.92	2.59	49.96	12:28
2	TOC	0.0000	0.0000	13.94	16.74	2.80	49.99	12:26

Dilution: 1:10
Blank Contribution: (TC) 16.9610 (IC) (v1202)
Method: Extended Reaction 021711 (v3)
Calibration: Extended Reaction 021711 (v24)

Sample Type: Check Standard --> CCV 021711 — From Schedule Version 9

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 021711 [25 ppm]	0 / infinity (NA / NA)	23.7161 ppm (PASS)	0.0000 ppm	0%	2018/12/21 15:37

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	23.7161	237.1608	199.75	202.36	2.62	50.01	12:29

Completion State: Success - Criteria met.
Success Action: Do Nothing
Method: Extended Reaction 021711 (v3)
Calibration: Extended Reaction 021711 (v24)
STD Conc - Pos B: 50 ppmC

Sample Type: Check Standard --> CCB 021711 — From Schedule Version

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:2	[TOC] CCB 021711 [0.0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2018/12/21 15:54

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0.0 ppm	1	0.0000	0.0000	15.45	17.92	2.47	50.01	12:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)	0 ppmC

Sample Type: Sample From Schedule Version 9

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	48	TOC	K1812154-005.01 20x	0.0816 ppm	0.1112 ppm	136.2200%	2018/12/21 16:10

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1602	1.6024	18.19	20.63	2.44	50.06	12:26
2	TOC	0.0030	0.0300	16.98	19.62	2.63	50.02	12:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	49	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2018/12/21 16:42

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	14.08	16.76	2.68	50.06	12:24
2	TOC	0.0000	0.0000	13.43	15.97	2.54	50.07	12:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	50	TOC	K1811928-001.01	0.0564 ppm	0.0642 ppm	113.8700%	2018/12/21 17:14

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1018	1.0177	17.74	20.38	2.64	50.07	12:24
2	TOC	0.0110	0.1098	17.05	19.66	2.62	50.06	12:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	51	TOC	K1811928-001.01 ms	24.4826 ppm	0.0000 ppm	0.0000%	2018/12/21 17:46

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	24.4826	244.8258	204.12	206.67	2.55	50.07	12:34

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	52	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2018/12/21 18:02

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	15.50	18.26	2.75	50.01	12:34

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	53	TOC	K1812278-001.01 50x	13.6190 ppm	0.1234 ppm	0.9100%	2018/12/21 18:19

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	13.7063	137.0630	121.74	124.53	2.79	49.97	12:26
2	TOC	13.5318	135.3180	120.41	123.06	2.65	49.99	12:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	54	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2018/12/21 18:50

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	14.98	17.57	2.59	50.00	12:29
2	TOC	0.0000	0.0000	14.14	16.73	2.59	49.98	12:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	55	TOC	K1812278-001.01 ms 50x	38.1173 ppm	0.0000 ppm	0.0000%	2018/12/21 19:22

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	38.1173	381.1732	308.36	311.11	2.76	50.03	12:33

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reactio 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	56	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2018/12/21 19:38

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

#	Analysis Type			(Abs)		(Abs)	(psig)	Time
1	TOC	0.0000	0.0000	15.38	18.03	2.65	50.12	12:21
2	TOC	0.0000	0.0000	13.18	15.90	2.72	50.12	12:29
3	TOC	0.0000	0.0000	13.10	15.85	2.75	50.11	12:25
4	TOC	0.0000	0.0000	13.37	15.90	2.53	50.14	12:23

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	57	TOC	K1812278-003.02 4x	1.1389 ppm	0.0119 ppm	1.0500%	2018/12/21 20:41

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.1305	11.3046	25.60	28.30	2.69	50.14	12:28
2	TOC	1.1473	11.4733	25.73	28.49	2.76	50.17	12:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

Sample Type: Check Standard --> CCV 021711 From Schedule Version 9

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 021711 [25 ppm]	0 / infinity (NA / NA)	23.5524 ppm (PASS)	0.0000 ppm	0%	2018/12/21 21:13

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	23.5524	235.5243	198.50	201.17	2.67	50.15	12:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)	50 ppmC

Sample Type: Check Standard --> CCB 021711 From Schedule Version 9

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:2	[TOC] CCB 021711 [0.0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2018/12/21 21:29

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0.0 ppm	1	0.0000	0.0000	16.23	18.82	2.59	50.15	12:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)	0 ppmC

Sample Type: Sample — From Schedule Version 9

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	58	TOC	MB4	0.0000 ppm	0.0000 ppm	0.0000%	2018/12/21 21:46

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	14.51	17.24	2.74	50.15	12:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

Sample Type: Check Standard --> LCS ER — From Schedule Version 9

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	2	TOC	21.9000	1:1	[TOC] LCS ER [21.9 ppm]	0 / infinity (NA / NA)	19.2260 ppm (PASS)	0.0000 ppm	0%	2018/12/21 22:02

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
2	TOC	21.9 ppm	1	19.2260	192.2601	165.42	168.09	2.66	50.13	12:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos 2
Success - Criteria met.	Do Nothing	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)	21.9 ppmC

Sample Type: Sample — From Schedule Version 9

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	59	TOC	K1812278-002.01 50x	13.8400 ppm	0.2571 ppm	1.8600%	2018/12/21 22:19

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	14.0218	140.2181	124.15	126.95	2.79	50.10	12:23
2	TOC	13.6582	136.5816	121.37	124.17	2.79	50.13	12:22

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	60	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2018/12/21 22:50

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	14.44	17.22	2.77	50.12	12:27
2	TOC	0.0000	0.0000	13.12	15.76	2.64	50.12	12:27

Dilution	Blank Contribution	Method	Calibration

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	61	TOC	K1812279-001.02	24.8410 ppm	0.1722 ppm	0.6900%	2018/12/21 23:22

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	24.7192	247.1921	205.93	208.61	2.68	50.12	12:24
2	TOC	24.9628	249.6278	207.79	210.56	2.77	50.10	12:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	62	TOC	K1812279-001.02 ms	48.6019 ppm	0.0000 ppm	0.0000%	2018/12/21 23:54

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	48.6019	486.0190	388.51	391.29	2.78	50.13	12:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	63	TOC	RB	0.3638 ppm	0.5145 ppm	141.4200%	2018/12/22 00:10

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.7276	7.2756	22.52	25.36	2.84	50.13	12:25
2	TOC	0.0000	0.0000	16.69	19.45	2.76	50.14	12:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	64	TOC	K1812272-001.01 4x	10.5041 ppm	0.0528 ppm	0.5000%	2018/12/22 00:42

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	10.5415	105.4147	97.55	100.17	2.62	50.14	12:27
2	TOC	10.4668	104.6678	96.98	99.78	2.81	50.13	12:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	65	TOC	K1812272-001.01 ms 4x	36.0064 ppm	0.0000 ppm	0.0000%	2018/12/22 01:14

Rep	Base			Adjusted		Baseline	Pressure	Run

#	Analysis Type	ppm	µg	(Abs)	NDIR (Abs)	(Abs)	(psig)	Time
1	TOC	36.0064	360.0644	292.22	294.86	2.64	50.13	12:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	66	TOC	RB	0.0221 ppm	0.0441 ppm	200.0000%	2018/12/22 01:30

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0883	0.8829	17.64	20.45	2.81	50.10	12:26
2	TOC	0.0000	0.0000	15.76	18.39	2.63	50.11	12:26
3	TOC	0.0000	0.0000	14.56	17.38	2.82	50.12	12:26
4	TOC	0.0000	0.0000	14.00	16.68	2.68	50.13	12:23

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

Sample Type: Check Standard --> CCV 021711 From Schedule Version 9

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 021711 [25 ppm]	0 / infinity (NA / NA)	23.6288 ppm (PASS)	0.0000 ppm	0%	2018/12/22 02:33

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	23.6288	236.2883	199.08	201.57	2.49	50.12	12:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)	50 ppmC

Sample Type: Check Standard --> CCB 021711 From Schedule Version 9

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:2	[TOC] CCB 021711 [0.0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2018/12/22 02:49

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0.0 ppm	1	0.0000	0.0000	15.09	17.75	2.66	50.13	12:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)	0 ppmC

Sample Type: Sample — From Schedule Version 9

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	67	TOC	K1812272-002.01 100x	3.8476 ppm	0.0975 ppm	2.5300%	2018/12/22 03:06

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.9166	39.1659	46.90	49.50	2.60	50.12	12:28
2	TOC	3.7787	37.7871	45.85	48.70	2.85	50.12	12:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	68	TOC	K1812272-003.01	3.9636 ppm	0.0156 ppm	0.3900%	2018/12/22 03:38

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.9747	39.7467	47.35	50.10	2.76	50.12	12:26
2	TOC	3.9526	39.5256	47.18	49.88	2.70	50.11	12:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	69	TOC	K1812272-004.01	4.0087 ppm	0.0333 ppm	0.8300%	2018/12/22 04:09

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.0322	40.3222	47.79	50.48	2.69	50.10	12:29
2	TOC	3.9851	39.8513	47.43	50.17	2.74	50.12	12:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	70	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2018/12/22 04:41

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	15.38	18.09	2.72	50.15	12:28
2	TOC	0.0000	0.0000	14.56	17.22	2.66	50.14	12:23

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	71	TOC	K1811745-001.09	1.9426 ppm	0.5604 ppm	28.8500%	2018/12/22 05:13

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

1	TOC	1.5463	15.4630	28.78	31.48	2.70	50.17	12:27
2	TOC	2.3389	23.3888	34.84	37.63	2.79	50.13	12:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	72	TOC	K1811745-001.09 ms	25.9104 ppm	0.3760 ppm	1.4500%	2018/12/22 05:45

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	26.1763	261.7631	217.07	219.81	2.74	50.12	12:24
2	TOC	25.6446	256.4457	213.00	215.81	2.81	50.13	12:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	73	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2018/12/22 06:16

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	15.93	18.61	2.68	50.12	12:23
2	TOC	0.0000	0.0000	14.21	17.02	2.81	50.10	12:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	74	TOC	K1811747-001.09	4.7084 ppm	0.0027 ppm	0.0600%	2018/12/22 06:48

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.7103	47.1034	52.97	55.91	2.94	50.11	12:24
2	TOC	4.7065	47.0655	52.94	55.63	2.69	50.12	12:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	75	TOC	K1811747-001.09 ms	29.2991 ppm	0.0000 ppm	0.0000%	2018/12/22 07:20

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	29.2991	292.9914	240.94	243.69	2.75	50.09	12:34

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

00946651

Sample Type: Check Standard --> CCV 021711 From Schedule Version 9

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 021711 [25 ppm]	0 / infinity (NA / NA)	23.8618 ppm (PASS)	0.0000 ppm	0%	2018/12/22 07:36

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	23.8618	238.6180	200.86	203.53	2.67	50.09	12:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)	50 ppmC

Sample Type: Check Standard --> CCB 021711 From Schedule Version 9

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:2	[TOC] CCB 021711 [0.0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2018/12/22 07:53

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0.0 ppm	1	0.0000	0.0000	14.88	17.69	2.81	50.09	12:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)	0 ppmC

Sample Type: Sample From Schedule Version 9

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	1	TOC	K1812416-035.01 doc	1.3602 ppm	0.1716 ppm	12.6100%	2018/12/22 08:10

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.2389	12.3890	26.43	29.31	2.88	50.08	12:27
2	TOC	1.4816	14.8155	28.29	31.38	3.09	50.10	12:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	3	TOC	K1812416-035.01 ms doc	24.3251 ppm	0.0000 ppm	0.0000%	2018/12/22 08:41

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	24.3251	243.2508	202.92	205.83	2.92	50.10	12:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 16.9610 (IC) (v1202)	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)

Sample Type: Check Standard --> CCV 021711 From Schedule Version 9

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 021711 [25 ppm]	0 / infinity (NA / NA)	23.9324 ppm (PASS)	0.0000 ppm	0%	2018/12/22 08:58

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	23.9324	239.3244	201.40	204.23	2.82	50.11	12:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)	50 ppmC

Sample Type: Check Standard --> CCB 021711 From Schedule Version 9

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:2	[TOC] CCB 021711 [0.0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2018/12/22 09:14

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0.0 ppm	1	0.0000	0.0000	16.24	18.97	2.73	50.12	12:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	Extended Reaction 021711 (v3)	Extended Reaction 021711 (v24)	0 ppmC

Meta Data Used in this Report

Blanks

Version	Reagent (Abs)	Acid (Abs)	DI IC (Abs)	DI TC (Abs)	DI TOC (Abs)	Save Time	Operator
v1201	2.2080	1.6200	0.0000	0.0000	0.0000	2018/12/17 20:18	Fusion1 (Fusion1)
v1202	1.7907	1.3090	0.0000	0.0000	0.0000	2018/12/20 11:40	Fusion1 (Fusion1)

Calibrations

Name: Extended Reaction 021711 (TOC)

Version:	v24	Calibration curve formula:	TOC: y = 7.645x + 18.448
Ver Creation:	2018/11/26 18:53	r^2 value:	TOC: r^2 = 0.99984
Comment:			
Operator:	Fusion1 (Fusion1)		
Basic Analysis Type	TOC		

Basic Analysis Type: TOC

Sample ID	Y Raw Value	X Expected	Message	End Time
0.0 ppm	19.1720	0.0000		2018/11/26 17:15
0.50 ppm	23.8410	0.5000		2018/11/26 17:31
1.00 ppm	25.1300	1.0000		2018/11/26 17:47
5.00 ppm	53.5500	5.0000		2018/11/26 18:03
10.0 ppm	95.3860	10.0000		2018/11/26 18:20
25.0 ppm	211.7220	25.0000		2018/11/26 18:36
50.0 ppm	399.8190	50.0000		2018/11/26 18:52

Methods

Name: Extended Reaction 021711 (TOC)

Version:	v3	Operator:	Gen Chem Lab (Fusion1)
Ver Creation:	2013/02/04 11:44		
Comment:			

Parameter	Value
SampleVolume	10.0 mL
Dilution	1:10
AcidVolume	0.5 ml
ReagentVolume	2.0 ml
UVReactorPrerinse	Off
UVReactorPrerinseVolume	5.0
NumberOfUVReactorPrerinses	1
ICSpargeTime	1.00 mins
DetectorSweepFlow	500 ml/min
PreSpargeTime	4.00 mins
SystemFlow	500 ml/min

Advanced Parameter	Value
NeedleRinseVolume	5.0 ml
VialPrimeVolume	2.0 ml
ICSamplePrimeVolume	2.0 ml
ICSpargeRinseVolume	12.0 ml
BaselineStabilizeTime	0.70 min
DetectorPressureFlow	150 ml/min
SyringeSpeedWaste	10
SyringeSpeedAcid	7
SyringeSpeedReagent	7
SyringeSpeedDIWater	7
NDIRPressurization	60 psig
SyringeSpeedSampleDispense	5
SyringeSpeedSampleAspirate	4
SyringeSpeedUVDispense	7
SyringeSpeedUVAspirate	5
SyringeSpeedICDispense	7
SyringeSpeedICAspirate	5
NDIRPressureStabilize	1.75 min
SampleMixing	Off
SampleMixingCycles	1

00946654

SampleMixingVolume	10.0
LowLevelFilterNDIR	Off

Acceptance / Approval

Electronic Signatures

Report Version	User Name	Acceptance	Reason	Date

Report History

Report History

Report Version	User Name	System Reason	User Reason	Date
1	Fusion1 (Fusion1)	Schedule completed	Schedule completed	2018/12/22 09:34

January 03, 2019 Service Request No:R1812085

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

Laboratory Results for: LHAAP / Site 58

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory December 13, 2018
For your reference, these analyses have been assigned our service request number **R1812085.**

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and ALS Environmental is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 7472. You may also contact me via email at Janice.Jaeger@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Janice Jaeger
Project Manager

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ALS Environmental

Client: ALS Environmental - US
Project: LHAAP / Site 58
Sample Matrix: Water

Service Request: R1812085
Date Received: 12/13/2018

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier IV, validation deliverables including all summary forms and associated raw data. Analytical procedures performed by the lab are validated in accordance with NELAC standards. Any parameters that are not included in the lab's NELAC accreditation are identified on a "Non-Certified Analytes" report in the Miscellaneous Forms Section of this report. Individual analytical results requiring further explanation are flagged with qualifiers and/or discussed below. The flags are explained in the Report Qualifiers and Definitions page in the Miscellaneous Forms section of this report.

Sample Receipt:

Four water samples were received for analysis at ALS Environmental on 12/13/2018. Any discrepancies noted upon initial sample inspection are noted on the cooler receipt and preservation form included in this data package. The samples were received in good condition and consistent with the accompanying chain of custody form. Samples are refrigerated at 0 to 6°C upon receipt at the lab except for aqueous samples designated for metals analyses, which are stored at room temperature. If any samples were received for the analysis of pH, chlorine residual, sulfite, dissolved oxygen, or ferrous iron, the samples were analyzed past their holding time expiration since these analyses are required to be analyzed within 15 minutes of sampling.

Semivoa GC:

No significant anomalies were noted with this analysis.

General Chemistry:

No significant anomalies were noted with this analysis.

Approved by _____ Date 01/03/2019

SAMPLE DETECTION SUMMARY

CLIENT ID: 03WW01_121218			Lab ID: R1812085-001			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Iron, Divalent (Ferrous Iron)	27.5		0.3	1.0	mg/L	SM 3500-Fe B.4.c

CLIENT ID: 35AWW08_121218			Lab ID: R1812085-002			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Iron, Divalent (Ferrous Iron)	21		3	10	mg/L	SM 3500-Fe B.4.c
Pyruvic Acid	0.48		0.016	0.20	mg/L	Organic Acids
Acetic Acid	120		1.0	4.0	mg/L	Organic Acids
Propionic Acid	9.5		0.19	2.0	mg/L	Organic Acids

CLIENT ID: 35AWW10_121218			Lab ID: R1812085-003			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Iron, Divalent (Ferrous Iron)	0.09	J	0.03	0.10	mg/L	SM 3500-Fe B.4.c

CLIENT ID: 35AWW10_121218_a			Lab ID: R1812085-004			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Iron, Divalent (Ferrous Iron)	0.07	J	0.03	0.10	mg/L	SM 3500-Fe B.4.c

Sample Receipt Information

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Client: ALS Environmental - US **Service Request:**R1812085
Project: LHAAP / Site 58/NWO1312.0150

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
R1812085-001	03WW01_121218	12/12/2018	0820
R1812085-002	35AWW08_121218	12/12/2018	0910
R1812085-003	35AWW10_121218	12/12/2018	1030
R1812085-004	35AWW10_121218_a	12/12/2018	1030

bhate ENVIRONMENTAL CONSTRUCTION LIMITED

1608 13th Avenue South, Suite 300
Birmingham Alabama 35205
Tel: 205-918-4000
Fax: 205-918-4050

Chain of Custody and Analytical Request

Page: of

Project/Phase No: NWO1312.0150

COC Number(1):

LIMS Number:

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / Site 58

Client Name:

Collected by: Scott Beesinger

Field Sample ID (30 Characters Max)	ERPIMS LOCID (15 Characters Max)	Date Collected (dd-mmm-yyyy)	Time Collected (Military) (hhmm)	Sample Depth (beginning - ending)	SA Code (2)	Sample Number (3)	Sample Matrix (4)	Sample Analysis Requested (5): Number of containers	VFA	Ferrous Iron	Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
03WW01_121218		12 Dec 2018	0820	-	N		WG	2	X	X				
35ANW08_121218		12 Dec 2018	0910	-	N		WG	2	X	X				
35ANW10_121218		12 Dec 2018	1030	-	N		WG	2	X	X				
35AWW10_121218_a		12 Dec 2018	1030		FD		WG	2	X	X				
				-										
				-										
				-										
				-										
				-										
				-										
				-										

Quality Assurance Samples (5)

COMMENTS:

Custody Transfers Prior to Receipt by Laboratory

	Relinquished By (Signed)	Date	Time	Received by (Signed)	Date	Time
1.	Scott Beesinger	12/18/18	1430			
2.					12-13-18	09:35
3.						

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: Shipped No.:

Method of Shipment:

Fed Ex Airbill Number:

Analytical Lab: ALS 10450 Stanciff Rd. Suite 210 Houston, TX 77099 (281) 530-5656

ATTN: SONIA WEST Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01)

2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-c) Sample, FD = Field Duplicate (-a) Samples, FR = Field Replicate (-b) Samples, EB = Equipment Blank (-d) Samples, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-e)

3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)

4.) Matrix Codes: GS = Soil Gas, WG = Groundwater, WS = Surface Water, SO = Soil, SE = Sediment, SL = Sludge, SS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blanks

5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each.

6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 10109901 in the Equipme

R1812085 5
ALS Group USA, Corp.
LHAAP / Site 58

00946664

Cooler Receipt and Preservation Check Form

R1812085 5
ALS Group USA, Corp.
LHAAP / Site 69

Project/Client Bhate Folder Number

Cooler received on 12-13-18 by: JE

COURIER: ALS UPS (FEDEX) VELOCITY CLIENT

1	Were **Custody seals** on outside of cooler?	(Y)	N
2	**Custody papers** properly completed (ink, signed)?	(Y)	N
3	Did all bottles arrive in good **condition** (unbroken)?	(Y)	N
4	Circle: (Wet Ice) **Dry Ice, Gel packs** present?	(Y)	N

5a	**Perchlorate** samples have required headspace?	Y	N	(NA)
5b	Did VOA vials, Alk,or Sulfide have sig* **bubbles**?	Y	N	(NA)
6	Where did the bottles originate? ALS/ROC (CLIENT)			
7	Soil VOA received as: Bulk Encore 5035set (NA)			

8. Temperature Readings Date: 12-13-18 Time: 10:07 ID: IR#7 (IR#10) From: (Temp Blank) Sample Bottle

Observed Temp (°C)	1.8						
Correction Factor (°C)	0						
Corrected Temp (°C)	1.8						
Temp from:Type of bottle	—						
Within 0-6°C?	(Y) N	Y N	Y N	Y N	Y N	Y N	Y N
If <0°C, were samples frozen?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed (described below) Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: R-002 by HE on 12-13-18 at 10:11
5035 samples placed in storage location: _____ by _____ on _____ at _____

Cooler Breakdown/Preservation Check**: Date: 12/13/18 Time: 1556 by: JW

9.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	(YES)	NO
10.	Did all bottle labels and tags agree with custody papers?	(YES)	NO
11.	Were correct containers used for the tests indicated?	(YES)	NO
12.	Were 5035 vials acceptable (no extra labels, not leaking)?	YES	NO
13.	Air Samples: Cassettes / Tubes Intact with MS? Canisters Pressurized Tedlar® Bags Inflated		(N/A)

pH	Lot of test paper	Reagent	Preserved? Yes	Preserved? No	Lot Received	Exp	Sample ID Adjusted	Vol. Added	Lot Added	Final pH
≥12		NaOH								
≤2		HNO_3								
≤2		H_2SO_4								
<4		$NaHSO_4$								
5-9		For 608pest			No=Notify for 3day					
Residual Chlorine (-)		For CN, Phenol, 625, 608pest, 522			If +, contact PM to add $Na_2S_2O_3$ (625, 608, CN), ascorbic (phenol).					
		$Na_2S_2O_3$								
		ZnAcetate	-	-						
		HCl	**	**						

**VOAs and 1664 Not to be tested before analysis. Otherwise, all bottles of all samples with chemical preservatives are checked (not just representatives).

Bottle lot numbers: client

Explain all Discrepancies/ Other Comments:

CLRES	BULK
DO	FLDT
HPROD	HGFB
HTR	LL3541
PH	SUB
SO3	MARRS
ALS	REV

Labels secondary reviewed by: JW
PC Secondary Review: MM 12/13/18

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

ALS Group USA, Corp.
dba ALS Environmental

Internal Chain of Custody Report

Client: ALS Laboratory Group **Service Request:** R1812085
Project: LHAAP / Site 58/NWO1312.0150

Bottle ID	Methods	Date	Time	Sample Location / User	Disposed On
R1812085-001.01					
	SM 3500-Fe B.4.c				
		12/13/2018	1611	SMO / GESMERIAN	
		12/15/2018	1334	RT000630 / DWARD	
		12/15/2018	1334	R-015 / DWARD	
R1812085-001.02					
	Organic Acids				
		12/13/2018	1611	SMO / GESMERIAN	
		12/13/2018	1611	R-002 / GESMERIAN	
		12/17/2018	0848	In Lab / BALLGEIER	
		12/17/2018	1520	R-002 / BALLGEIER	
R1812085-002.01					
	SM 3500-Fe B.4.c				
		12/13/2018	1611	SMO / GESMERIAN	
		12/15/2018	1334	RT000630 / DWARD	
		12/15/2018	1334	R-015 / DWARD	
R1812085-002.02					
	Organic Acids				
		12/13/2018	1611	SMO / GESMERIAN	
		12/13/2018	1611	R-002 / GESMERIAN	
		12/17/2018	0812	In Lab / BALLGEIER	
		12/17/2018	1520	R-002 / BALLGEIER	
R1812085-003.01					
	SM 3500-Fe B.4.c				
		12/13/2018	1611	SMO / GESMERIAN	
		12/15/2018	1334	RT000630 / DWARD	
		12/15/2018	1334	R-015 / DWARD	
R1812085-003.02					
	Organic Acids				
		12/13/2018	1611	SMO / GESMERIAN	
		12/13/2018	1611	R-002 / GESMERIAN	
		12/17/2018	0812	In Lab / BALLGEIER	
		12/17/2018	1520	R-002 / BALLGEIER	
R1812085-004.01					
	SM 3500-Fe B.4.c				
		12/13/2018	1611	SMO / GESMERIAN	
		12/15/2018	1334	RT000630 / DWARD	
		12/15/2018	1334	R-015 / DWARD	
R1812085-004.02					
	Organic Acids				
		12/13/2018	1611	SMO / GESMERIAN	

ALS Group USA, Corp.
dba ALS Environmental

Internal Chain of Custody Report

Client: ALS Laboratory Group **Service Request:** R1812085
Project: LHAAP / Site 58/NWO1312.0150

Bottle ID	Methods	Date	Time	Sample Location / User	Disposed On
	Organic Acids				
		12/13/2018	1611	R-002 / GESMERIAN	
		12/17/2018	0812	In Lab / BALLGEIER	
		12/17/2018	1520	R-002 / BALLGEIER	

Miscellaneous Forms

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Phone (585) 288-5380 Fax (585) 288-8475
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ALS Environmental

REPORT QUALIFIERS AND DEFINITIONS

U Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.

J Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).

B Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.

E Inorganics- Concentration is estimated due to the serial dilution was outside control limits.

E Organics- Concentration has exceeded the calibration range for that specific analysis.

D Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.

* Indicates that a quality control parameter has exceeded laboratory limits. Under the ñNotesò column of the Form I, this qualifier denotes analysis was performed out of Holding Time.

H Analysis was performed out of hold time for tests that have an ñimmediateò hold time criteria.

Spike was diluted out.

\+ Correlation coefficient for MSA is <0.995.

N Inorganics- Matrix spike recovery was outside laboratory limits.

N Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.

S Concentration has been determined using Method of Standard Additions (MSA).

W Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.

P Concentration >40% difference between the two GC columns.

C Confirmed by GC/MS

Q DoD reports: indicates a pesticide/Aroclor is not confirmed (Ó100% Difference between two GC columns).

X See Case Narrative for discussion.

MRL Method Reporting Limit. Also known as:
LOQ Limit of Quantitation (LOQ)
The lowest concentration at which the method analyte may be reliably quantified under the method conditions.

MDL Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier).

LOD Limit of Detection. A value at or above the MDL which has been verified to be detectable.

ND Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.

ACCREDITED IN ACCORDANCE WITH nelac

Rochester Lab ID # for State Certifications[1]

Connecticut ID # PH0556	Maine ID #NY0032	Pennsylvania ID# 68-786
Delaware Approved	New Hampshire ID # 2941	Rhode Island ID # 158
DoD ELAP #65817	New York ID # 10145	Virginia #460167
Florida ID # E87674	North Carolina #676	

[1] Analyses were performed according to our laboratoryôs NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the case narrative. Since not all analyte/method/matrix combinations are offered for state/NELAC accreditation, this report may contain results which are not accredited. For a specific list of accredited analytes, contact the laboratory or go to https://www.alsglobal.com/locations/americas/north-america/usa/new-york/rochester-environmental

ALS Laboratory Group

Acronyms

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

ALS Group USA, Corp.
dba ALS Environmental

Analyst Summary report

Client: ALS Environmental - US
Project: LHAAP / Site 58/NWO1312.0150
Service Request: R1812085

Sample Name: 03WW01_121218
Lab Code: R1812085-001
Sample Matrix: Water
Date Collected: 12/12/18
Date Received: 12/13/18

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		BALLGEIER
SM 3500-Fe B.4.c		MROGERSON

Sample Name: 35AWW08_121218
Lab Code: R1812085-002
Sample Matrix: Water
Date Collected: 12/12/18
Date Received: 12/13/18

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		BALLGEIER
SM 3500-Fe B.4.c		MROGERSON

Sample Name: 35AWW10_121218
Lab Code: R1812085-003
Sample Matrix: Water
Date Collected: 12/12/18
Date Received: 12/13/18

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		BALLGEIER
SM 3500-Fe B.4.c		MROGERSON

Sample Name: 35AWW10_121218_a
Lab Code: R1812085-004
Sample Matrix: Water
Date Collected: 12/12/18
Date Received: 12/13/18

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		BALLGEIER
SM 3500-Fe B.4.c		MROGERSON

INORGANIC PREPARATION METHODS

The preparation methods associated with this report are found in these tables unless discussed in the case narrative.

Water/Liquid Matrix

Analytical Method	Preparation Method
200.7	200.2
200.8	200.2
6010C	3005A/3010A
6020A	ILM05.3
9014 Cyanide Reactivity	SW846 Ch7, 7.3.4.2
9034 Sulfide Reactivity	SW846 Ch7, 7.3.4.2
9034 Sulfide Acid Soluble	9030B
9056A Bomb (Halogens)	5050A
9066 Manual Distillation	9065
SM 4500-CN-E Residual Cyanide	SM 4500-CN-G
SM 4500-CN-E WAD Cyanide	SM 4500-CN-I

Solid/Soil/Non-Aqueous Matrix

Analytical Method	Preparation Method
6010C	3050B
6020A	3050B
6010C TCLP (1311) extract	3005A/3010A
6010 SPLP (1312) extract	3005A/3010A
7196A	3060A
7199	3060A
9056A Halogens/Halides	5050
300.0 Anions/ 350.1/ 353.2/ SM 2320B/ SM 5210B/ 9056A Anions	DI extraction

For analytical methods not listed, the preparation method is the same as the analytical method reference.

Sample Results

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Semivolatile Organic Compounds by GC

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ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1812085
Project:	LHAAP / Site 58/NWO1312.0150	**Date Collected:**	12/12/18 08:20
Sample Matrix:	Water	**Date Received:**	12/13/18 09:35
Sample Name:	03WW01_121218	**Units:**	mg/L
Lab Code:	R1812085-001	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND U	0.20	0.10	0.016	1	12/21/18 08:20	
Acetic Acid	ND U	4.0	2.0	1.0	1	12/21/18 08:20	
Butanoic Acid (Butyric Acid)	ND U	2.0	1.0	0.32	1	12/21/18 08:20	
Lactic Acid	ND U	2.0	1.0	0.14	1	12/21/18 08:20	
Propionic Acid	ND U	2.0	1.0	0.19	1	12/21/18 08:20	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1812085
Project:	LHAAP / Site 58/NWO1312.0150	**Date Collected:**	12/12/18 09:10
Sample Matrix:	Water	**Date Received:**	12/13/18 09:35
Sample Name:	35AWW08_121218	**Units:**	mg/L
Lab Code:	R1812085-002	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	**0.48**	0.20	0.10	0.016	1	12/30/00 02:47	
Acetic Acid	**120**	4.0	2.0	1.0	1	12/30/00 02:47	
Butanoic Acid (Butyric Acid)	ND U	2.0	1.0	0.32	1	12/30/00 02:47	
Lactic Acid	ND U	2.0	1.0	0.14	1	12/30/00 02:47	
Propionic Acid	**9.5**	2.0	1.0	0.19	1	12/30/00 02:47	

ALS Group USA, Corp.
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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1812085
Project:	LHAAP / Site 58/NWO1312.0150	**Date Collected:**	12/12/18 10:30
Sample Matrix:	Water	**Date Received:**	12/13/18 09:35
Sample Name:	35AWW10_121218	**Units:**	mg/L
Lab Code:	R1812085-003	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND U	0.20	0.10	0.016	1	12/19/18 23:03	
Acetic Acid	ND U	4.0	2.0	1.0	1	12/19/18 23:03	
Butanoic Acid (Butyric Acid)	ND U	2.0	1.0	0.32	1	12/19/18 23:03	
Lactic Acid	ND U	2.0	1.0	0.14	1	12/19/18 23:03	
Propionic Acid	ND U	2.0	1.0	0.19	1	12/19/18 23:03	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1812085
Project:	LHAAP / Site 58/NWO1312.0150	**Date Collected:**	12/12/18 10:30
Sample Matrix:	Water	**Date Received:**	12/13/18 09:35
Sample Name:	35AWW10_121218_a	**Units:**	mg/L
Lab Code:	R1812085-004	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND U	0.20	0.10	0.016	1	12/19/18 23:56	
Acetic Acid	ND U	4.0	2.0	1.0	1	12/19/18 23:56	
Butanoic Acid (Butyric Acid)	ND U	2.0	1.0	0.32	1	12/19/18 23:56	
Lactic Acid	ND U	2.0	1.0	0.14	1	12/19/18 23:56	
Propionic Acid	ND U	2.0	1.0	0.19	1	12/19/18 23:56	

General Chemistry

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1812085
Project:	LHAAP / Site 58/NWO1312.0150	**Date Collected:**	12/12/18 08:20
Sample Matrix:	Water	**Date Received:**	12/13/18 09:35
Sample Name:	03WW01_121218	**Basis:**	NA
Lab Code:	R1812085-001		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Iron, Divalent (Ferrous Iron)	SM 3500-Fe B.4.c	**27.5**	mg/L	1.0	0.8	0.3	10	12/13/18 21:21	*

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1812085
Project:	LHAAP / Site 58/NWO1312.0150	**Date Collected:**	12/12/18 09:10
Sample Matrix:	Water	**Date Received:**	12/13/18 09:35
Sample Name:	35AWW08_121218	**Basis:**	NA
Lab Code:	R1812085-002		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Iron, Divalent (Ferrous Iron)	SM 3500-Fe B.4.c	**21**	mg/L	10	8	3	100	12/13/18 21:21	*

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1812085
Project:	LHAAP / Site 58/NWO1312.0150	**Date Collected:**	12/12/18 10:30
Sample Matrix:	Water	**Date Received:**	12/13/18 09:35
Sample Name:	35AWW10_121218	**Basis:**	NA
Lab Code:	R1812085-003		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Iron, Divalent (Ferrous Iron)	SM 3500-Fe B.4.c	**0.09 J**	mg/L	0.10	0.08	0.03	1	12/13/18 21:21	*

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1812085
Project:	LHAAP / Site 58/NWO1312.0150	**Date Collected:**	12/12/18 10:30
Sample Matrix:	Water	**Date Received:**	12/13/18 09:35
Sample Name:	35AWW10_121218_a	**Basis:**	NA
Lab Code:	R1812085-004		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Iron, Divalent (Ferrous Iron)	SM 3500-Fe B.4.c	**0.07 J**	mg/L	0.10	0.08	0.03	1	12/13/18 21:21	*

QC Summary Forms

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QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	R1812085
Project:	LHAAP / Site 58/NWO1312.0150	**Date Collected:**	12/12/18
Sample Matrix:	Water	**Date Received:**	12/13/18
		Date Analyzed:	12/20/18

Duplicate Matrix Spike Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Sample Name:	35AWW10_121218_a	**Units:**	mg/L
Lab Code:	R1812085-004	**Basis:**	NA
Analysis Method:	Organic Acids		

		Matrix Spike RQ1814001-08			Duplicate Matrix Spike RQ1814001-09					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	ND U	2.84	2.02	140 *	2.96	2.02	146 *	73-122	4	30
Acetic Acid	ND U	19.8	19.9	100	21.0	19.9	105	80-130	6	30
Butanoic Acid (Butyric Acid)	ND U	16.7	20.3	82 *	17.9	20.3	88	86-128	7	30
Lactic Acid	ND U	22.2	20.6	107	23.1	20.6	112	81-114	4	30
Propionic Acid	ND U	19.2	20.0	96	19.3	20.0	96	63-153	<1	30

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

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

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

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QA/QC Report

Client: ALS Environmental - US
Project: LHAAP / Site 58/NWO1312.0150
Sample Matrix: Water

Service Request: R1812085
Date Analyzed: 01/01/19 00:11

Method Blank Summary

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Sample Name: Method Blank
Lab Code: RQ1900011-03

Instrument ID:R-HPLC-05
File ID:I:\ACQUDATA\hplc05\data\123118\A0002718.D\

Analysis Method: Organic Acids

Analysis Lot:620723

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
35AWW08_121218	R1812085-002	I:\ACQUDATA\hplc05\data\123118\A0002721.D\	12/30/00 02:47
Lab Control Sample	RQ1900011-04	I:\ACQUDATA\hplc05\data\123118\A0002719.D\	01/01/19 01:04
Duplicate Lab Control Sample	RQ1900011-05	I:\ACQUDATA\hplc05\data\123118\A0002720.D\	01/01/19 01:57

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QA/QC Report

Client: ALS Environmental - US
Project: LHAAP / Site 58/NWO1312.0150
Sample Matrix: Water

Service Request: R1812085
Date Analyzed: 12/18/18 16:38

Method Blank Summary

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Sample Name: Method Blank
Lab Code: RQ1814001-01

Instrument ID:R-HPLC-05
File ID:I:\ACQUDATA\hplc05\data\121718\A0002588.D\

Analysis Method: Organic Acids

Analysis Lot:619495

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	RQ1814001-02	I:\ACQUDATA\hplc05\data\121718\A0002589.D\	12/18/18 17:35
Duplicate Lab Control Sample	RQ1814001-03	I:\ACQUDATA\hplc05\data\121718\A0002590.D\	12/18/18 18:28
35AWW10_121218	R1812085-003	I:\ACQUDATA\hplc05\data\121918\A0002617.D\	12/19/18 23:03
35AWW10_121218_a	R1812085-004	I:\ACQUDATA\hplc05\data\121918\A0002618.D\	12/19/18 23:56
35AWW10_121218_aMS	RQ1814001-08	I:\ACQUDATA\hplc05\data\121918\A0002619.D\	12/20/18 00:50
35AWW10_121218_aDMS	RQ1814001-09	I:\ACQUDATA\hplc05\data\121918\A0002620.D\	12/20/18 01:42
03WW01_121218	R1812085-001	I:\ACQUDATA\hplc05\data\121918\A0002655.D\	12/21/18 08:20

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1812085
Project:	LHAAP / Site 58/NWO1312.0150	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	mg/L
Lab Code:	RQ1814001-01	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND U	0.20	0.10	0.016	1	12/18/18 16:38	
Acetic Acid	ND U	4.0	2.0	1.0	1	12/18/18 16:38	
Butanoic Acid (Butyric Acid)	ND U	2.0	1.0	0.32	1	12/18/18 16:38	
Lactic Acid	ND U	2.0	1.0	0.14	1	12/18/18 16:38	
Propionic Acid	ND U	2.0	1.0	0.19	1	12/18/18 16:38	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1812085
Project:	LHAAP / Site 58/NWO1312.0150	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	mg/L
Lab Code:	RQ1900011-03	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND U	0.20	0.10	0.016	1	01/01/19 00:11	
Acetic Acid	ND U	4.0	2.0	1.0	1	01/01/19 00:11	
Butanoic Acid (Butyric Acid)	ND U	2.0	1.0	0.32	1	01/01/19 00:11	
Lactic Acid	ND U	2.0	1.0	0.14	1	01/01/19 00:11	
Propionic Acid	ND U	2.0	1.0	0.19	1	01/01/19 00:11	

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QA/QC Report

Client: ALS Environmental - US
Project: LHAAP / Site 58/NWO1312.0150
Sample Matrix: Water

Service Request: R1812085
Date Analyzed: 01/01/19 01:04

Lab Control Sample Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Sample Name: Lab Control Sample
Lab Code: RQ1900011-04

Instrument ID:R-HPLC-05
File ID:I:\ACQUDATA\hplc05\data\123118\A0002719.D\

Analysis Method: Organic Acids

Analysis Lot:620723

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
35AWW08_121218	R1812085-002	I:\ACQUDATA\hplc05\data\123118\A0002721.D\	12/30/00 02:47
Method Blank	RQ1900011-03	I:\ACQUDATA\hplc05\data\123118\A0002718.D\	01/01/19 00:11
Duplicate Lab Control Sample	RQ1900011-05	I:\ACQUDATA\hplc05\data\123118\A0002720.D\	01/01/19 01:57

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: LHAAP / Site 58/NWO1312.0150
Sample Matrix: Water

Service Request: R1812085
Date Analyzed: 12/18/18 17:35

Lab Control Sample Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Sample Name: Lab Control Sample
Lab Code: RQ1814001-02

Instrument ID:R-HPLC-05
File ID:I:\ACQUDATA\hplc05\data\121718\A0002589.D\

Analysis Method: Organic Acids

Analysis Lot:619495

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Method Blank	RQ1814001-01	I:\ACQUDATA\hplc05\data\121718\A0002588.D\	12/18/18 16:38
Duplicate Lab Control Sample	RQ1814001-03	I:\ACQUDATA\hplc05\data\121718\A0002590.D\	12/18/18 18:28
35AWW10_121218	R1812085-003	I:\ACQUDATA\hplc05\data\121918\A0002617.D\	12/19/18 23:03
35AWW10_121218_a	R1812085-004	I:\ACQUDATA\hplc05\data\121918\A0002618.D\	12/19/18 23:56
35AWW10_121218_aMS	RQ1814001-08	I:\ACQUDATA\hplc05\data\121918\A0002619.D\	12/20/18 00:50
35AWW10_121218_aDMS	RQ1814001-09	I:\ACQUDATA\hplc05\data\121918\A0002620.D\	12/20/18 01:42
03WW01_121218	R1812085-001	I:\ACQUDATA\hplc05\data\121918\A0002655.D\	12/21/18 08:20

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: LHAAP / Site 58/NWO1312.0150
Sample Matrix: Water

Service Request: R1812085
Date Analyzed: 12/18/18

Duplicate Lab Control Sample Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Units:mg/L
Basis:NA

		Lab Control Sample RQ1814001-02			Duplicate Lab Control Sample RQ1814001-03					
Analyte Name	**Analytical Method**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	Organic Acids	2.97	2.02	147 *	2.97	2.02	147 *	73-122	<1	30
Acetic Acid	Organic Acids	19.8	19.9	99	20.1	19.9	101	80-130	1	30
Butanoic Acid (Butyric Acid)	Organic Acids	18.0	20.3	89	18.0	20.3	88	86-128	<1	30
Lactic Acid	Organic Acids	21.3	20.6	103	21.4	20.6	104	81-114	<1	30
Propionic Acid	Organic Acids	19.2	20.0	96	18.6	20.0	93	63-153	3	30

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: LHAAP / Site 58/NWO1312.0150
Sample Matrix: Water

Service Request: R1812085
Date Analyzed: 01/01/19

Duplicate Lab Control Sample Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Units:mg/L
Basis:NA

		Lab Control Sample RQ1900011-04			Duplicate Lab Control Sample RQ1900011-05					
Analyte Name	**Analytical Method**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	Organic Acids	1.92	2.01	95	1.91	2.01	95	73-122	<1	30
Acetic Acid	Organic Acids	19.7	19.9	99	19.8	19.9	100	80-130	<1	30
Butanoic Acid (Butyric Acid)	Organic Acids	21.1	20.3	104	20.2	20.3	100	86-128	4	30
Lactic Acid	Organic Acids	20.3	20.6	99	20.3	20.6	98	81-114	<1	30
Propionic Acid	Organic Acids	19.8	20.0	99	19.0	20.0	95	63-153	4	30

General Chemistry

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1812085
Project:	LHAAP / Site 58/NWO1312.0150	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	NA
Lab Code:	R1812085-MB		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Iron, Divalent (Ferrous Iron)	SM 3500-Fe B.4.c	ND U	mg/L	0.10	0.08	0.03	1	12/13/18 21:21	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	R1812085
Project:	LHAAP / Site 58/NWO1312.0150	**Date Collected:**	12/12/18
Sample Matrix:	Water	**Date Received:**	12/13/18
		Date Analyzed:	12/13/18

Duplicate Matrix Spike Summary
Iron, Divalent (Ferrous Iron)

Sample Name:	35AWW10_121218_a	**Units:**	mg/L
Lab Code:	R1812085-004	**Basis:**	NA
Analysis Method:	SM 3500-Fe B.4.c		

		Matrix Spike R1812085-004MS			Duplicate Matrix Spike R1812085-004DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Iron, Divalent (Ferrous Iron)	0.07 J	0.51	0.40	110	0.48	0.40	102	67-129	6	20

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

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

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

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: LHAAP / Site 58/NWO1312.0150
Sample Matrix: Water

Service Request: R1812085
Date Analyzed: 12/13/18

Lab Control Sample Summary
General Chemistry Parameters

Units:mg/L
Basis:NA

Lab Control Sample
R1812085-LCS

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Iron, Divalent (Ferrous Iron)	SM 3500-Fe B.4.c	0.39	0.40	97	67-129

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US **Service Request:**R1812085
Project: LHAAP / Site 58/NWO1312.0150

Continuing Calibration Blank (CCB) Summary
Iron, Divalent (Ferrous Iron)

Analysis Method: SM 3500-Fe B.4.c **Units:**mg/L

	Analysis Lot	Lab Code	Date Analyzed	LOQ	LOD	MDL	Result	Q
CCB1	619164	RQ1813873-02	12/13/18 21:21	0.10	0.08	0.03	ND	U
CCB2	619164	RQ1813873-05	12/13/18 21:21	0.10	0.08	0.03	ND	U

ALS Group USA, Corp.
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QA/QC Report

Client: ALS Environmental - US **Service Request:** R1812085
Project: LHAAP / Site 58/NWO1312.0150

Continuing Calibration Verification (CCV) Summary

Iron, Divalent (Ferrous Iron)

Analysis Method: SM 3500-Fe B.4.c **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	619164	RQ1813873-01	12/13/18 21:21	2.00	2.04	102	90-110
CCV2	619164	RQ1813873-06	12/13/18 21:21	2.00	2.04	102	90-110

Raw Data

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
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Semivolatile Organic Compounds by GC

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1812085
Project:	LHAAP / Site 58/NWO1312.0150	**Date Collected:**	12/12/18 08:20
Sample Matrix:	Water	**Date Received:**	12/13/18 09:35
Sample Name:	03WW01_121218	**Units:**	mg/L
Lab Code:	R1812085-001	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND U	0.20	0.10	0.016	1	12/21/18 08:20	
Acetic Acid	ND U	4.0	2.0	1.0	1	12/21/18 08:20	
Butanoic Acid (Butyric Acid)	ND U	2.0	1.0	0.32	1	12/21/18 08:20	
Lactic Acid	ND U	2.0	1.0	0.14	1	12/21/18 08:20	
Propionic Acid	ND U	2.0	1.0	0.19	1	12/21/18 08:20	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1812085
Project:	LHAAP / Site 58/NWO1312.0150	**Date Collected:**	12/12/18 09:10
Sample Matrix:	Water	**Date Received:**	12/13/18 09:35
Sample Name:	35AWW08_121218	**Units:**	mg/L
Lab Code:	R1812085-002	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	**0.48**	0.20	0.10	0.016	1	12/30/00 02:47	
Acetic Acid	**120**	4.0	2.0	1.0	1	12/30/00 02:47	
Butanoic Acid (Butyric Acid)	ND U	2.0	1.0	0.32	1	12/30/00 02:47	
Lactic Acid	ND U	2.0	1.0	0.14	1	12/30/00 02:47	
Propionic Acid	**9.5**	2.0	1.0	0.19	1	12/30/00 02:47	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1812085
Project:	LHAAP / Site 58/NWO1312.0150	**Date Collected:**	12/12/18 10:30
Sample Matrix:	Water	**Date Received:**	12/13/18 09:35
Sample Name:	35AWW10_121218	**Units:**	mg/L
Lab Code:	R1812085-003	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND U	0.20	0.10	0.016	1	12/19/18 23:03	
Acetic Acid	ND U	4.0	2.0	1.0	1	12/19/18 23:03	
Butanoic Acid (Butyric Acid)	ND U	2.0	1.0	0.32	1	12/19/18 23:03	
Lactic Acid	ND U	2.0	1.0	0.14	1	12/19/18 23:03	
Propionic Acid	ND U	2.0	1.0	0.19	1	12/19/18 23:03	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1812085
Project:	LHAAP / Site 58/NWO1312.0150	**Date Collected:**	12/12/18 10:30
Sample Matrix:	Water	**Date Received:**	12/13/18 09:35
Sample Name:	35AWW10_121218_a	**Units:**	mg/L
Lab Code:	R1812085-004	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND U	0.20	0.10	0.016	1	12/19/18 23:56	
Acetic Acid	ND U	4.0	2.0	1.0	1	12/19/18 23:56	
Butanoic Acid (Butyric Acid)	ND U	2.0	1.0	0.32	1	12/19/18 23:56	
Lactic Acid	ND U	2.0	1.0	0.14	1	12/19/18 23:56	
Propionic Acid	ND U	2.0	1.0	0.19	1	12/19/18 23:56	

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002655.D
Signal(s) : dad1A.ch
Acq On : ~~30-Dec-2000, 02:48:38~~ 21-Dec-2018, 08:20:00
Operator : b.allgeier
Sample : r1812085-001
Misc :
ALS Vial : 15 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 21 10:17:07 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Fri Dec 21 10:14:14 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1) t	Formic acid	0.000	0	N.D.	ppm	d
2) T	Pyruvic acid	0.000	0	N.D.	ppm	d
3) T	Lactic Acid	0.000	0	N.D.	ppm	
4) T	Acetic Acid	0.000	0	N.D.	ppm	
5) T	Propionic Acid	0.000	0	N.D.	ppm	
6) T	Butyric Acid	0.000	0	N.D.	ppm	d

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

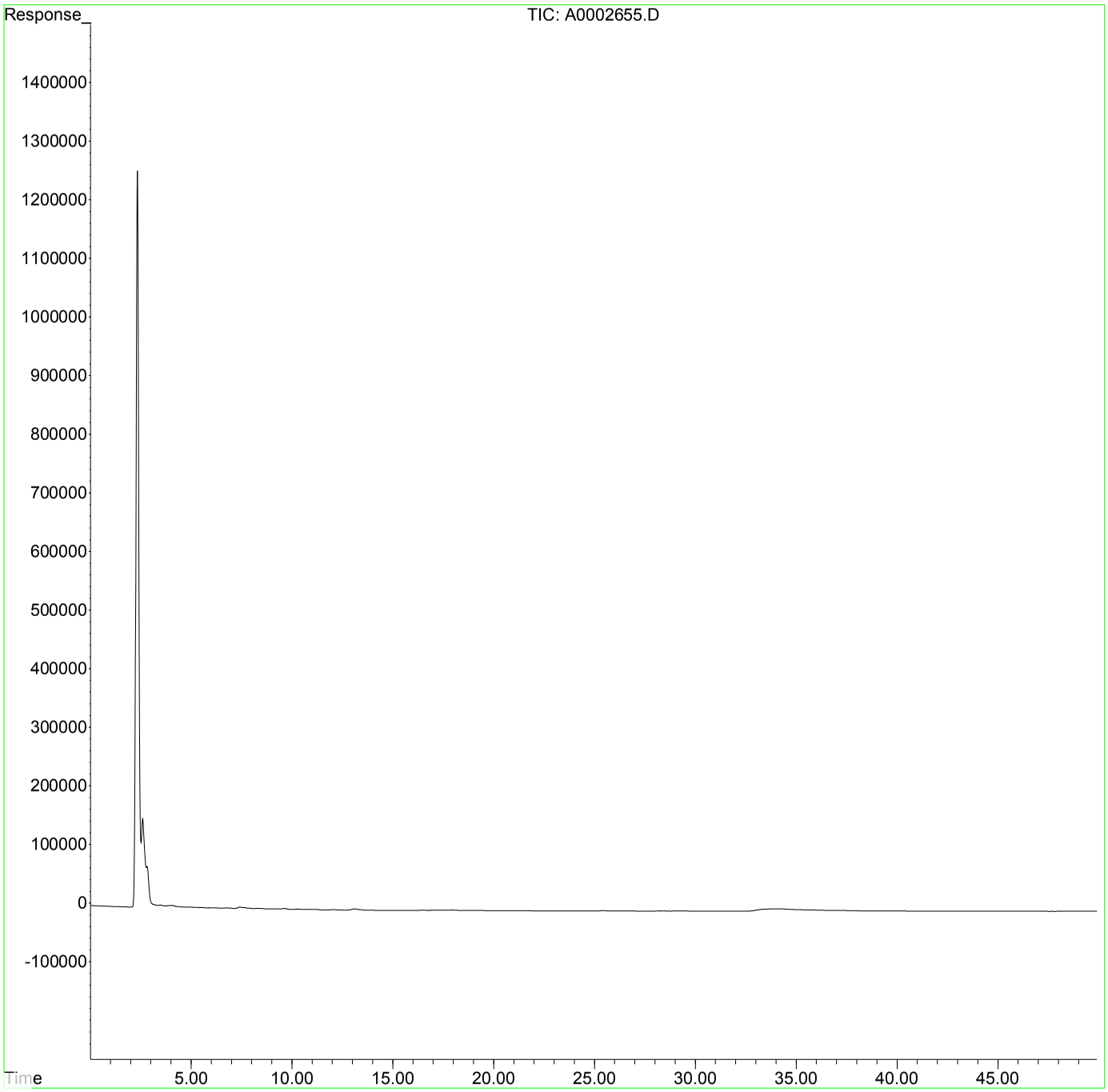
00946707

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002655.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 02:48:38
Operator : b.allgeier
Sample : r1812085-001
Misc :
ALS Vial : 15 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 21 10:17:07 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Fri Dec 21 10:14:14 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



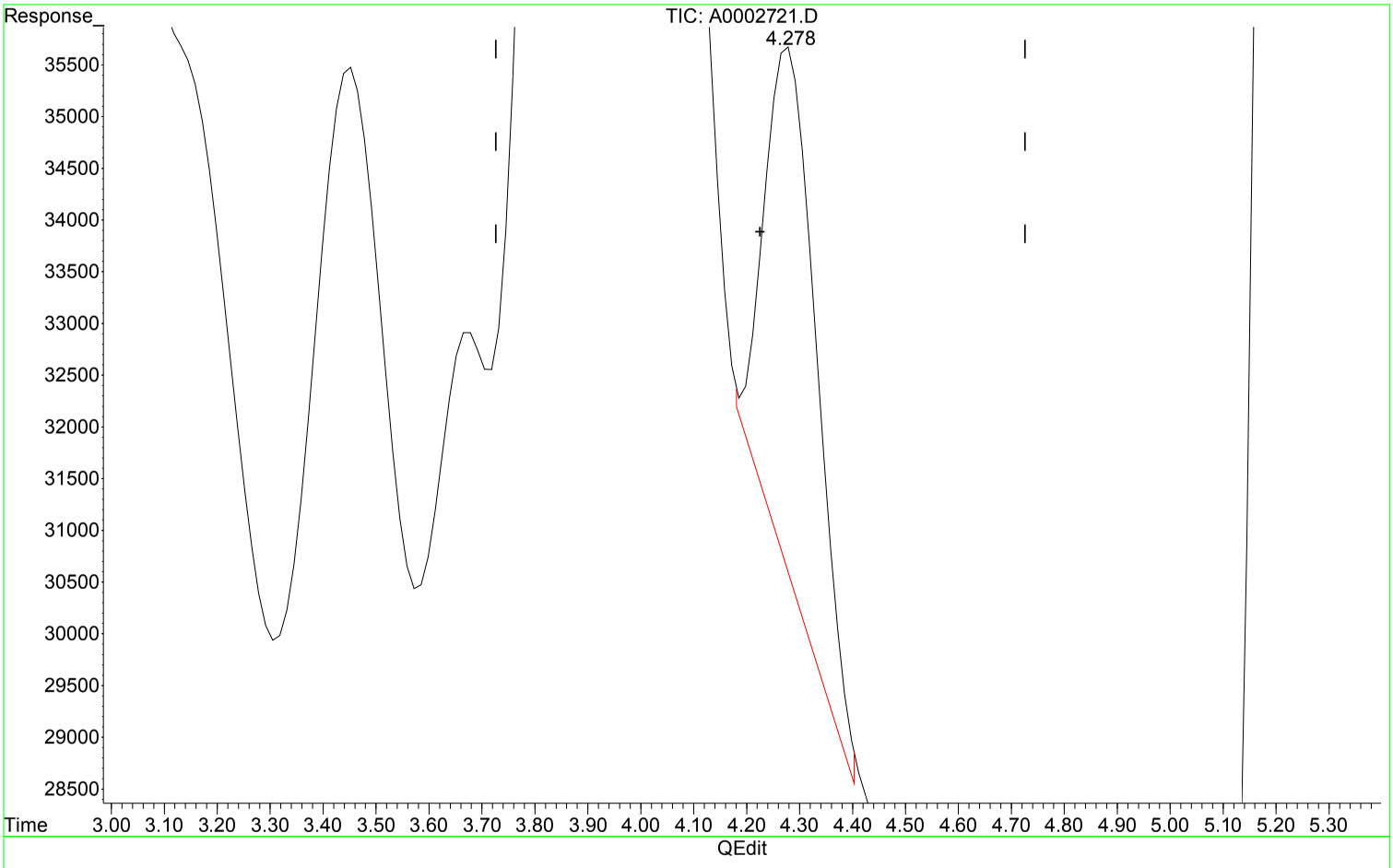
00946708

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002721.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 02:47:53
Operator : b.allgeier
Sample : r1812085-002
Misc :
ALS Vial : 14 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 11:16:31 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 11:16:09 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(2) Pyruvic acid (T)

4.278min 0.482 ppm m

response 346522

No Before

Manual Integration:

After

Poor integration.

01/02/19

(+) = Expected Retention Time

MA123118.M Wed Jan 02 11:18:10 2019

00946709

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002721.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 02:47:53
Operator : b.allgeier
Sample : r1812085-002
Misc :
ALS Vial : 14 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 11:16:31 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 11:16:09 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1) t	Formic acid	3.453	537917	5.754	ppm	
2) T	Pyruvic acid	4.278	346522	0.482	ppm	m
3) T	Lactic Acid	0.000	0	N.D.	ppm	d
4) T	Acetic Acid	5.269	7124965	122.069	ppm	
5) T	Propionic Acid	12.919	547657	9.503	ppm	
6) T	Butyric Acid	0.000	0	N.D.	ppm	

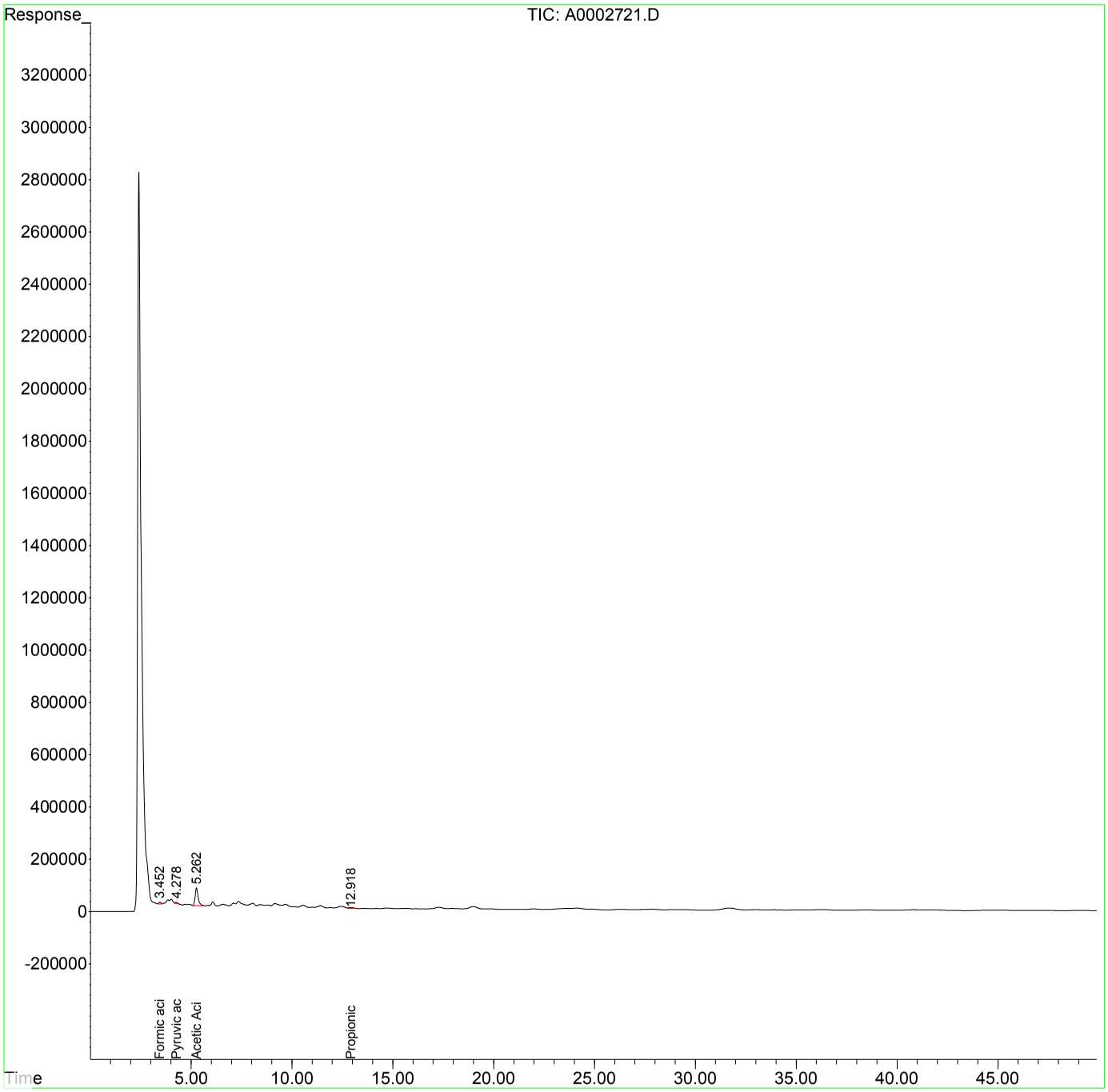
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002721.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 02:47:53
Operator : b.allgeier
Sample : r1812085-002
Misc :
ALS Vial : 14 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 11:16:31 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 11:16:09 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002617.D
Signal(s) : dad1A.ch
Acq On : 19-Dec-2018, 23:03:21
Operator : b.allgeier
Sample : r1812085-003
Misc :
ALS Vial : 17 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:29:42 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:29:23 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1) t	Formic acid	0.000	0	N.D.	ppm	
2) T	Pyruvic acid	0.000	0	N.D.	ppm	d
3) T	Lactic Acid	0.000	0	N.D.	ppm	d
4) T	Acetic Acid	0.000	0	N.D.	ppm	
5) T	Propionic Acid	0.000	0	N.D.	ppm	
6) T	Butyric Acid	0.000	0	N.D.	ppm	

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

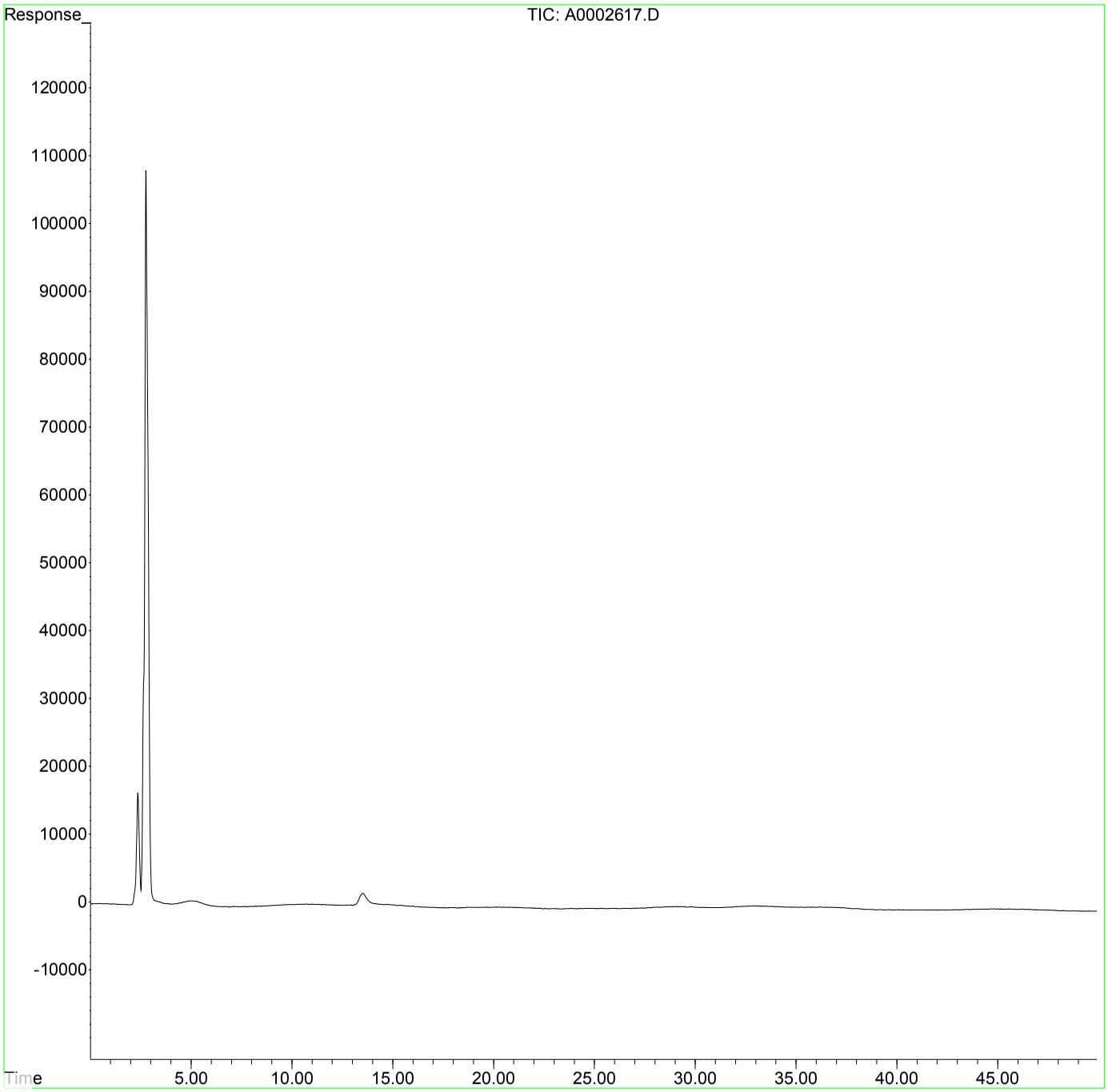
00946712

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002617.D
Signal(s) : dad1A.ch
Acq On : 19-Dec-2018, 23:03:21
Operator : b.allgeier
Sample : r1812085-003
Misc :
ALS Vial : 17 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:29:42 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:29:23 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002618.D
Signal(s) : dad1A.ch
Acq On : 19-Dec-2018, 23:56:12
Operator : b.allgeier
Sample : r1812085-004
Misc :
ALS Vial : 18 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:29:44 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:29:23 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1) t	Formic acid	0.000	0	N.D.	ppm
2) T	Pyruvic acid	0.000	0	N.D.	ppm
3) T	Lactic Acid	0.000	0	N.D.	ppm
4) T	Acetic Acid	0.000	0	N.D.	ppm
5) T	Propionic Acid	0.000	0	N.D.	ppm
6) T	Butyric Acid	0.000	0	N.D.	ppm

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

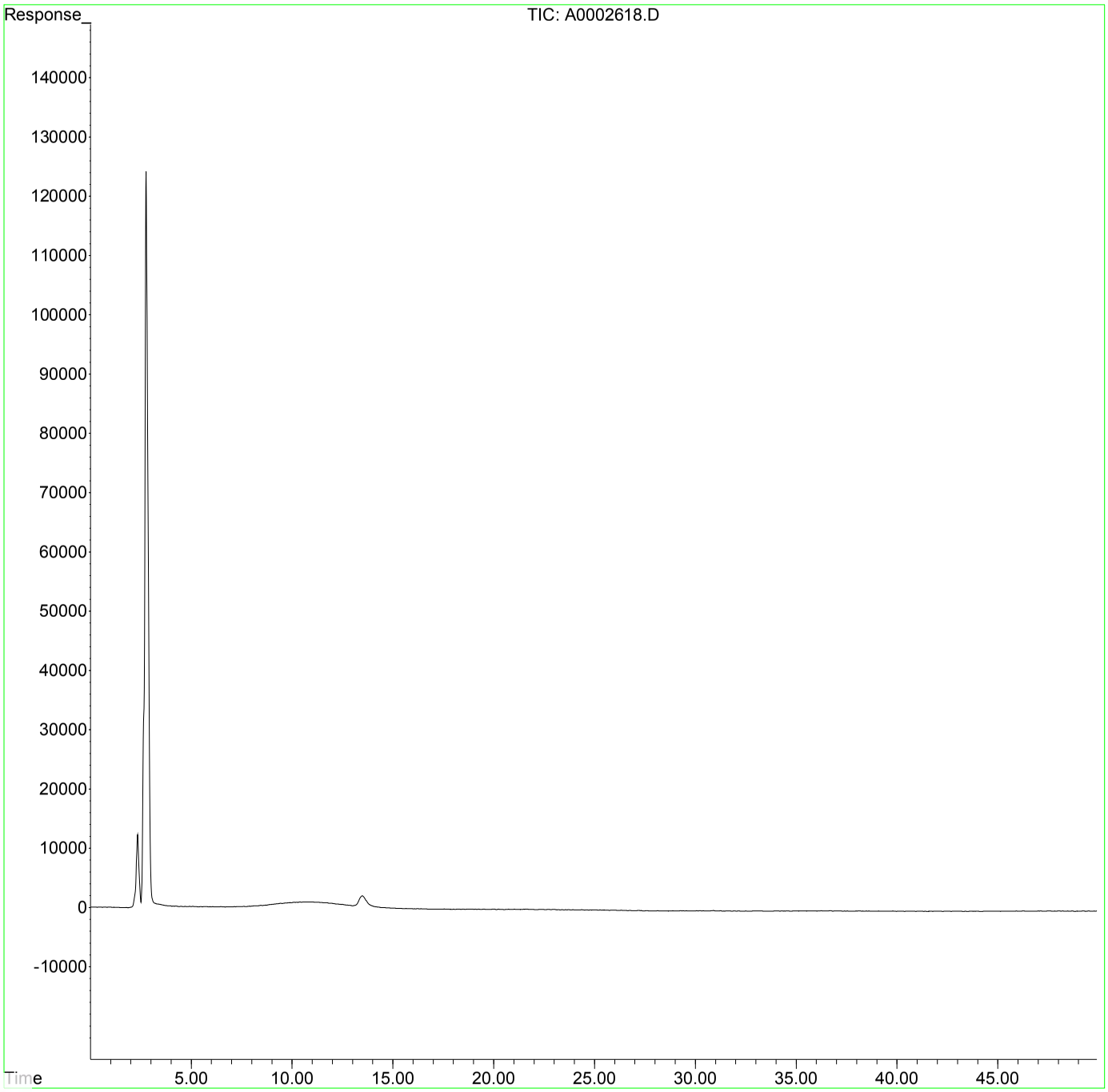
00946714

1st BA 12/21/18
2nd DM 12/26/18

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002618.D
Signal(s) : dad1A.ch
Acq On : 19-Dec-2018, 23:56:12
Operator : b.allgeier
Sample : r1812085-004
Misc :
ALS Vial : 18 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:29:44 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:29:23 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



00946715

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121718\
Data File : A0002588.D
Signal(s) : dad1A.ch
Acq On : 18-Dec-2018, 16:38:32
Operator : b.allgeier
Sample : MB
Misc :
ALS Vial : 2 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 19 10:13:55 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Wed Dec 19 10:13:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1) t	Formic acid	0.000	0	N.D.	ppm	d
2) T	Pyruvic acid	0.000	0	N.D.	ppm	
3) T	Lactic Acid	0.000	0	N.D.	ppm	
4) T	Acetic Acid	0.000	0	N.D.	ppm	
5) T	Propionic Acid	0.000	0	N.D.	ppm	
6) T	Butyric Acid	0.000	0	N.D.	ppm	

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

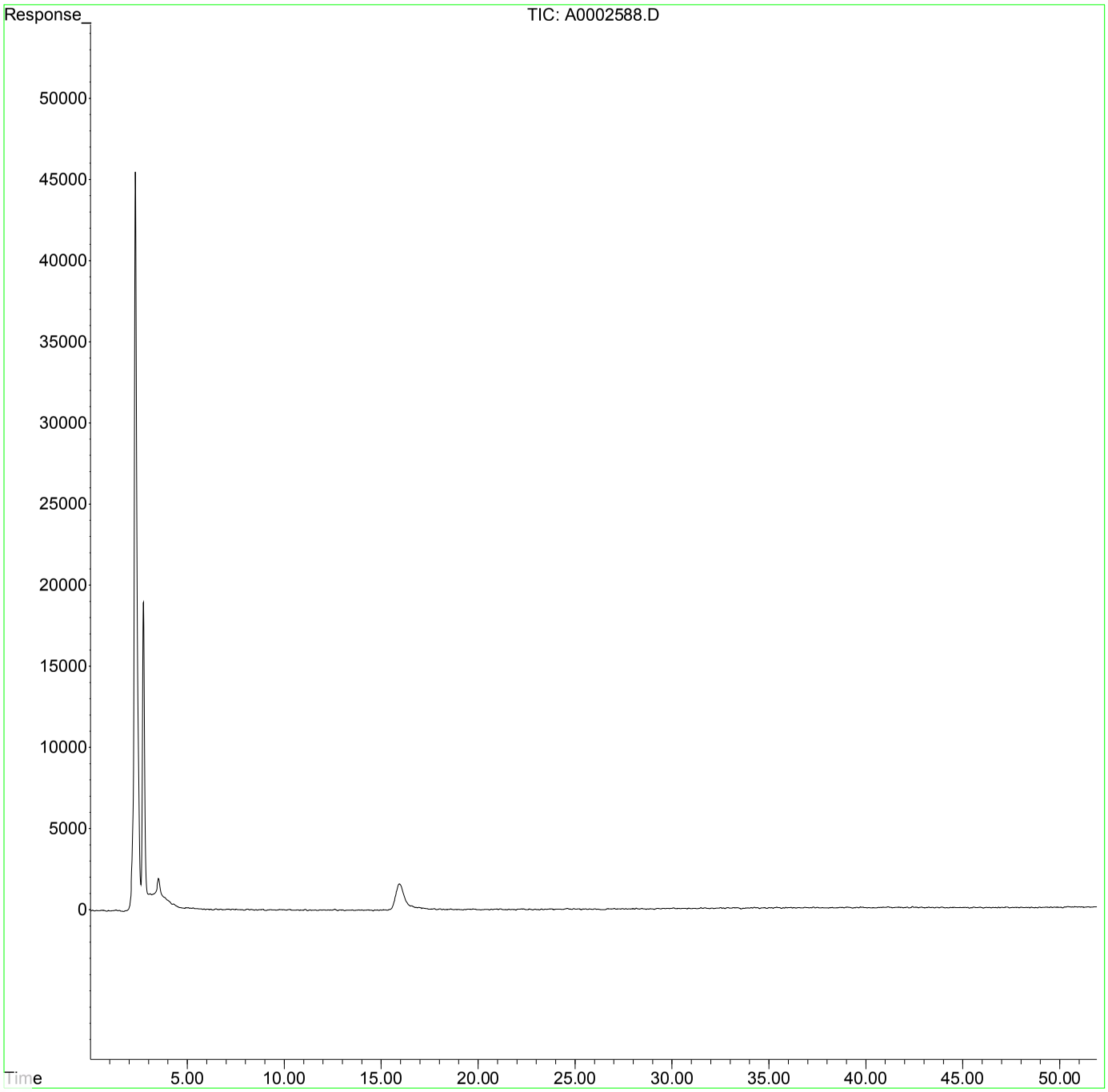
00946716

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121718\
Data File : A0002588.D
Signal(s) : dad1A.ch
Acq On : 18-Dec-2018, 16:38:32
Operator : b.allgeier
Sample : MB
Misc :
ALS Vial : 2 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 19 10:13:55 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Wed Dec 19 10:13:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002718.D
Signal(s) : dad1A.ch
Acq On : 01-Jan-2019, 00:11:33
Operator : b.allgeier
Sample : met blk
Misc :
ALS Vial : 11 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 11:16:25 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 11:16:09 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1) t	Formic acid	0.000	0	N.D.	ppm
2) T	Pyruvic acid	0.000	0	N.D.	ppm
3) T	Lactic Acid	0.000	0	N.D.	ppm
4) T	Acetic Acid	0.000	0	N.D.	ppm
5) T	Propionic Acid	0.000	0	N.D.	ppm
6) T	Butyric Acid	0.000	0	N.D.	ppm

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

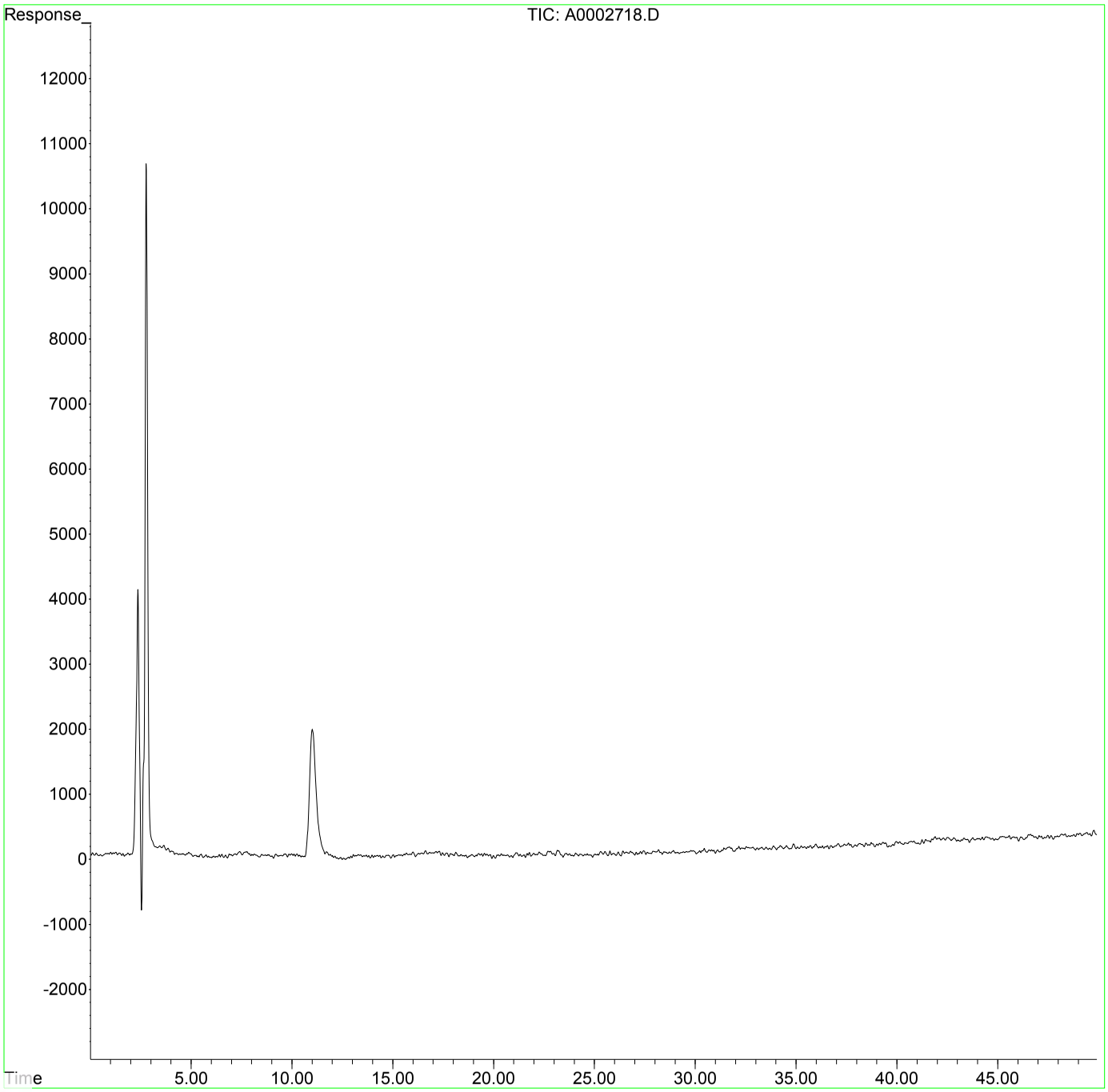
00946718

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002718.D
Signal(s) : dad1A.ch
Acq On : 01-Jan-2019, 00:11:33
Operator : b.allgeier
Sample : met blk
Misc :
ALS Vial : 11 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 11:16:25 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 11:16:09 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



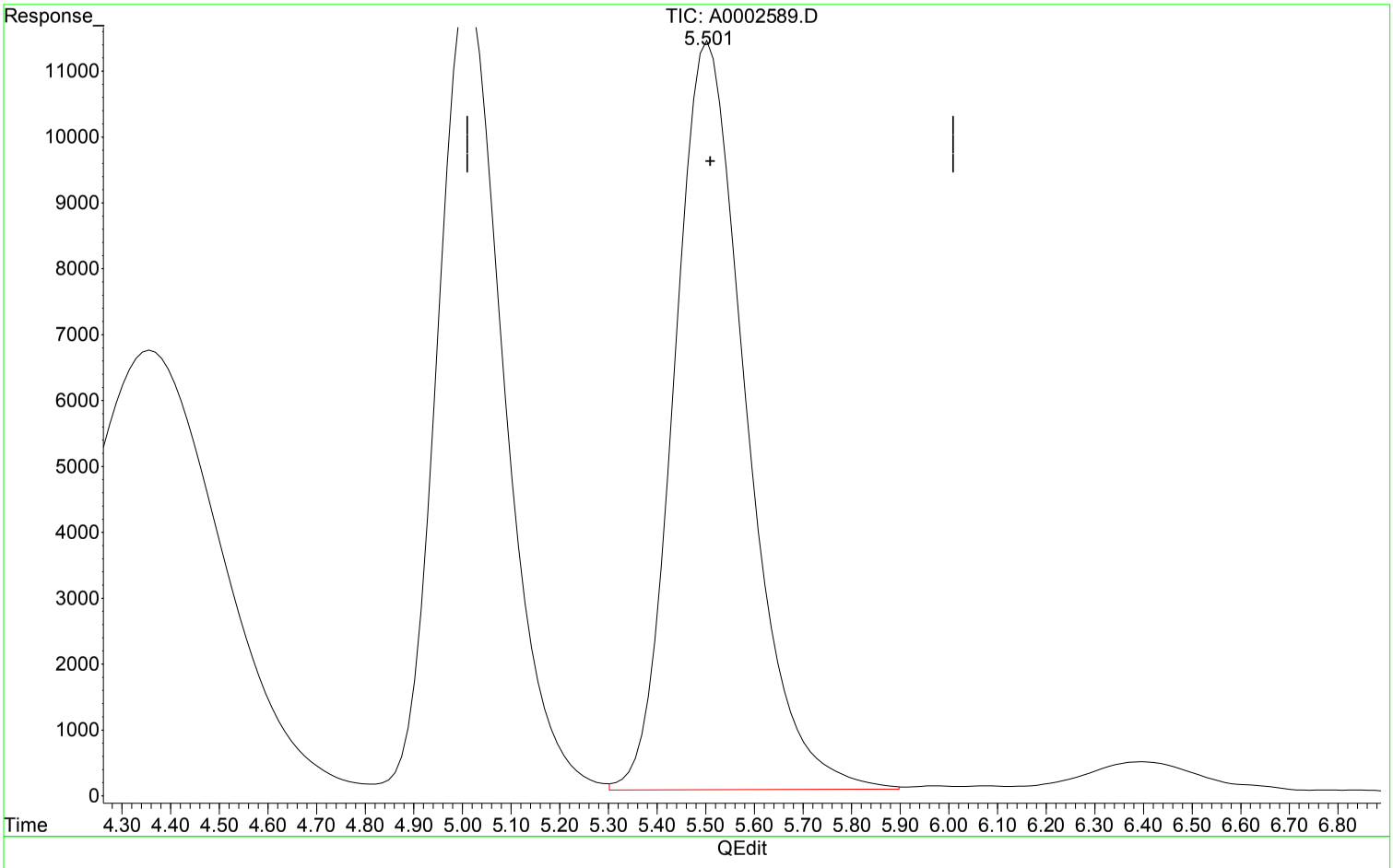
00946719

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121718\
Data File : A0002589.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 02:47:47
Operator : b.allgeier
Sample : lcs
Misc :
ALS Vial : 3 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 19 10:13:57 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Wed Dec 19 10:13:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(4) Acetic Acid (T)

5.501min 19.770 ppm m

response 1169791

Manual Integration:

After

Poor integration.

12/19/18

(+) = Expected Retention Time

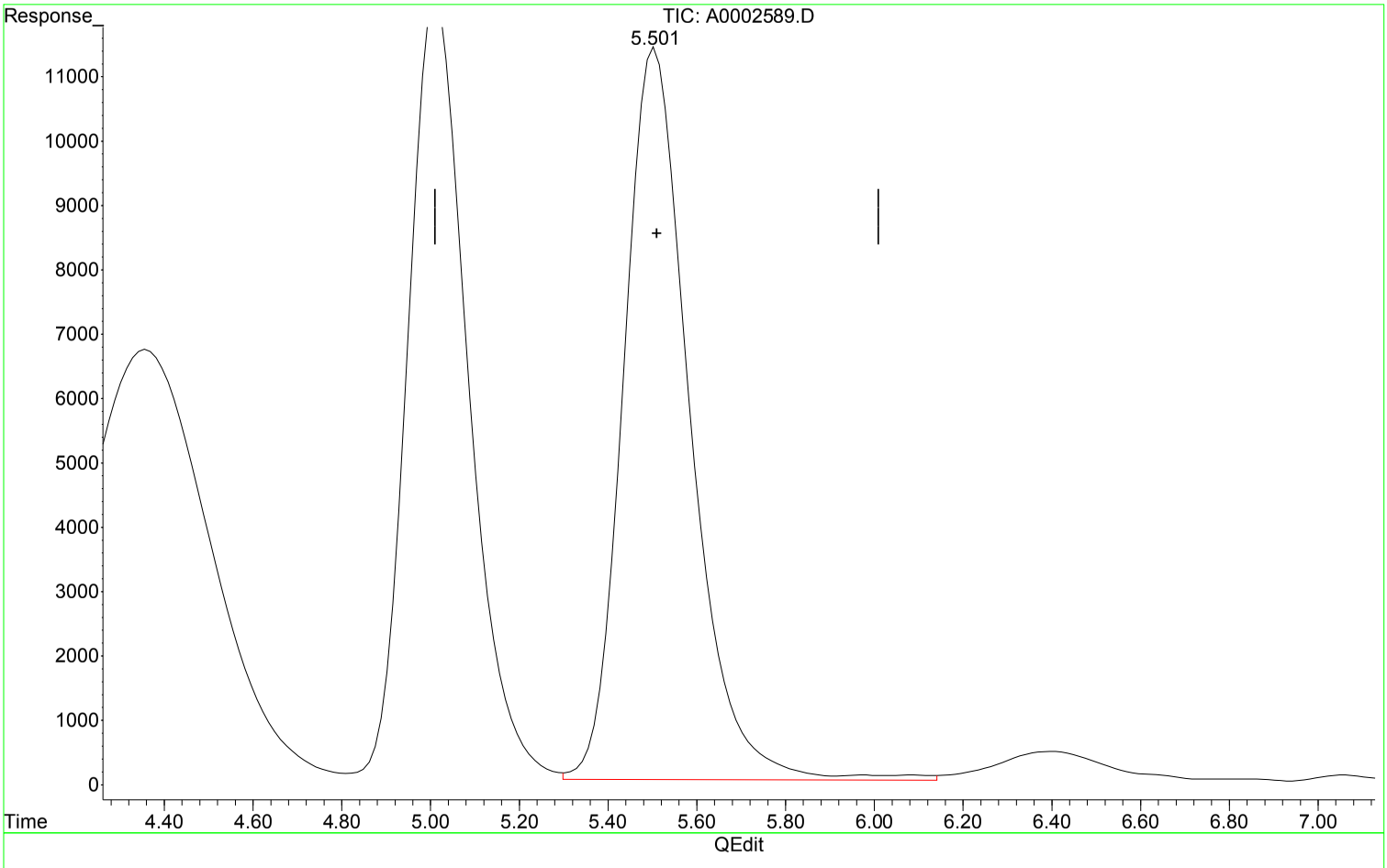
00946720

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121718\
Data File : A0002589.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 02:47:47
Operator : b.allgeier
Sample : lcs
Misc :
ALS Vial : 3 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 19 10:13:57 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Wed Dec 19 10:13:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(4) Acetic Acid (T)

5.507min 20.052 ppm

response 1186474

Manual Integration:

Before

12/19/18

(+) = Expected Retention Time

MA100418.M Wed Dec 19 10:15:19 2018

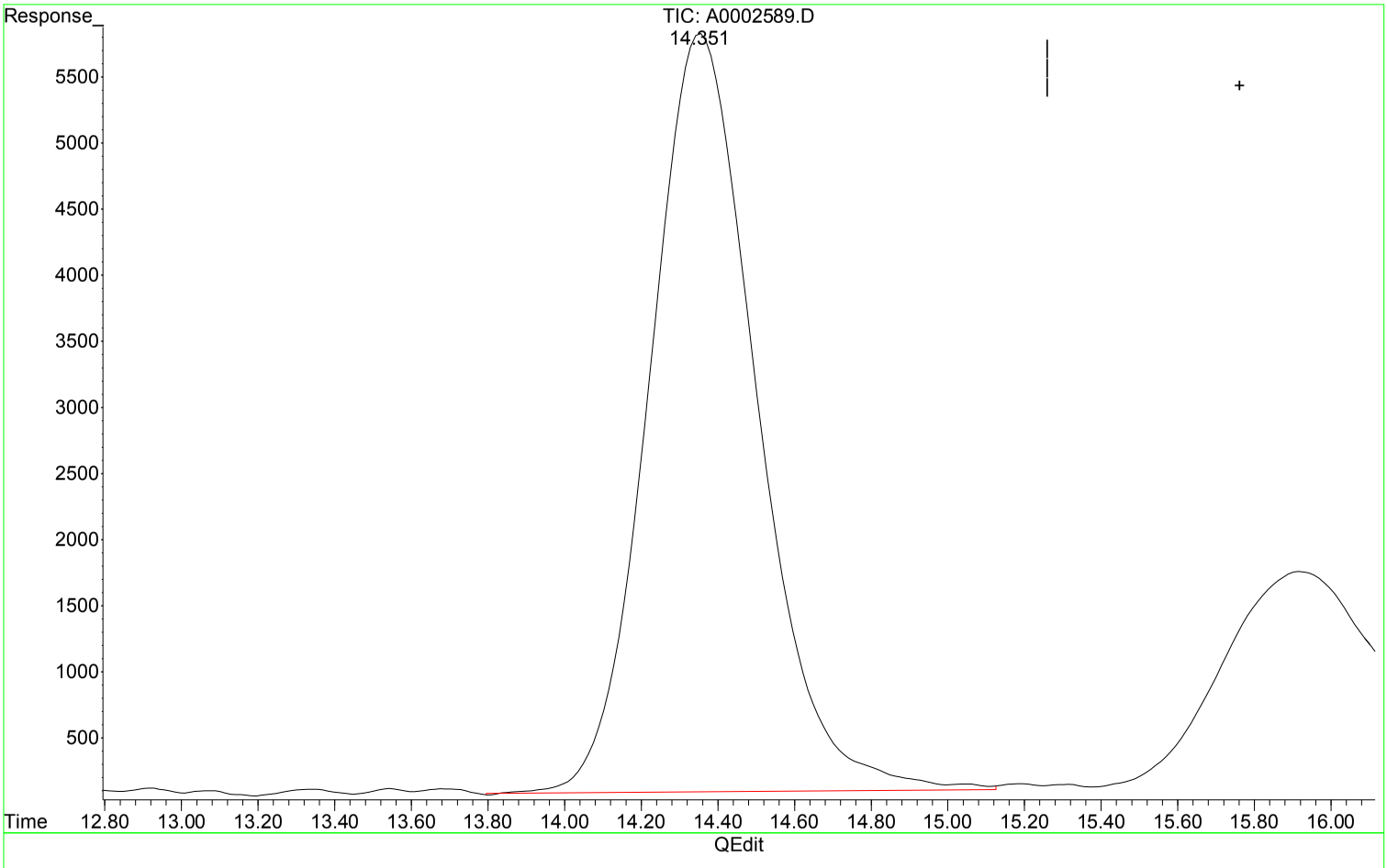
00946721

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121718\
Data File : A0002589.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 02:47:47
Operator : b.allgeier
Sample : lcs
Misc :
ALS Vial : 3 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 19 10:01:23 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Wed Dec 19 10:01:05 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(5) Propionic Acid (T)

14.351min 18.786 ppm m

response 1119471

Manual Integration:

After

Poor integration.

12/19/18

(+) = Expected Retention Time

MA100418.M Wed Dec 19 10:12:31 2018

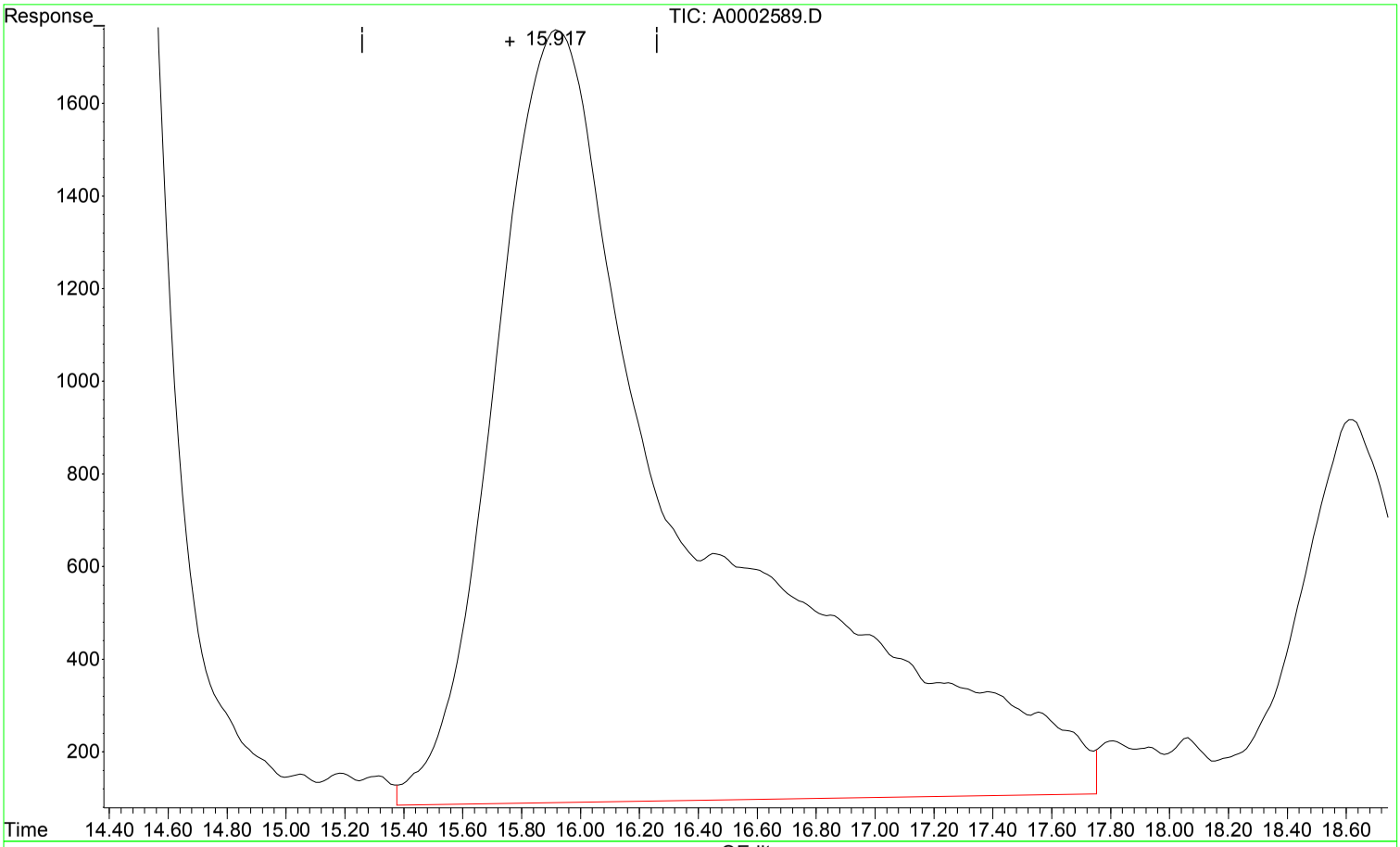
00946722

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121718\
Data File : A0002589.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 02:47:47
Operator : b.allgeier
Sample : lcs
Misc :
ALS Vial : 3 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 19 10:01:23 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Wed Dec 19 10:01:05 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(5) Propionic Acid (T)

15.925min 13.163 ppm

response 784404

Manual Integration:

Before

12/19/18

(+) = Expected Retention Time

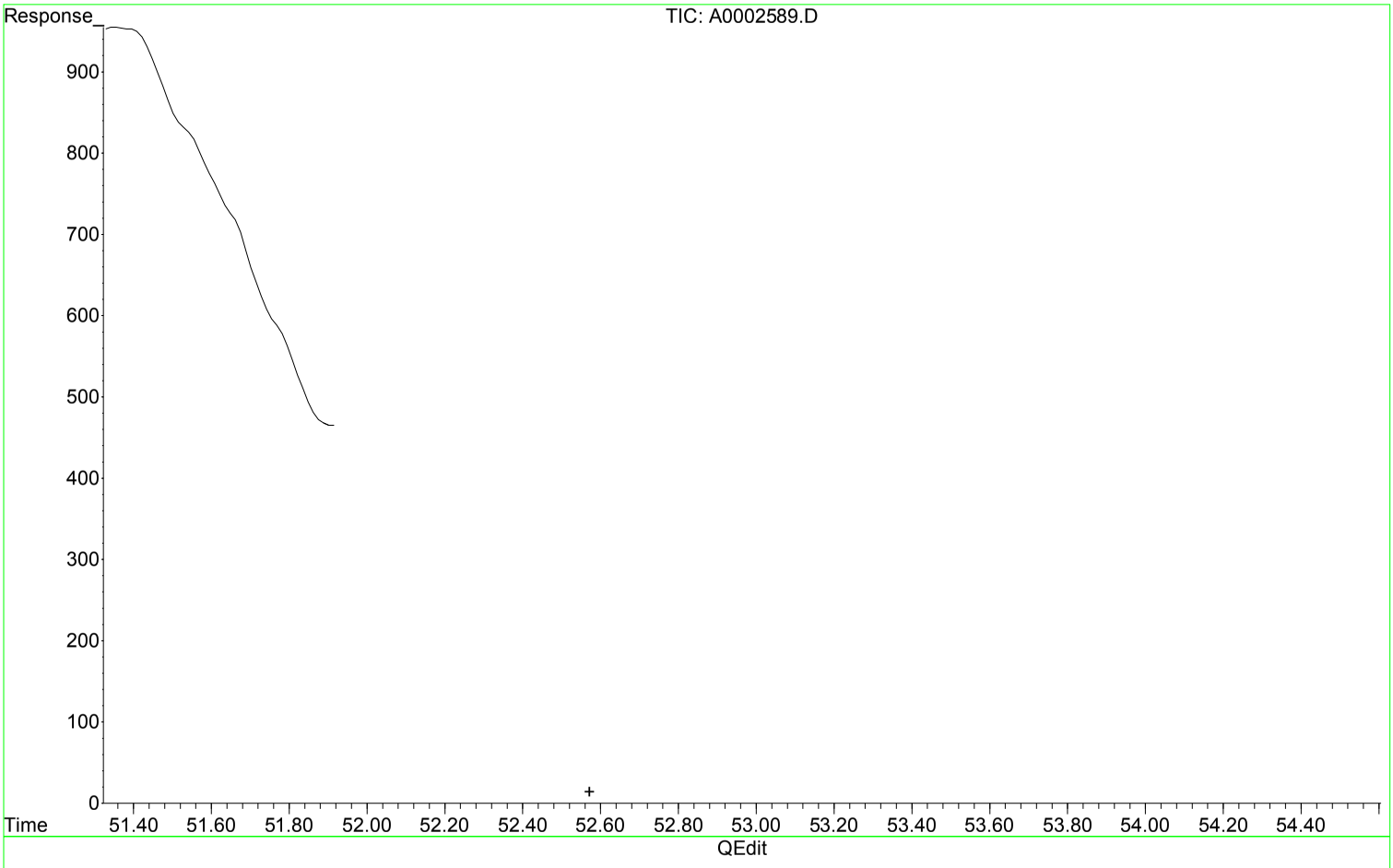
00946723

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121718\
Data File : A0002589.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 02:47:47
Operator : b.allgeier
Sample : lcs
Misc :
ALS Vial : 3 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 19 10:01:23 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Wed Dec 19 10:01:05 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(6) Butyric Acid (T)

52.572min 0.000 ppm

response 0

Manual Integration:

Before

12/19/18

(+) = Expected Retention Time

MA100418.M Wed Dec 19 10:12:42 2018

00946724

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121718\
Data File : A0002589.D
Signal(s) : dad1A.ch
Acq On : ~~30-Dec-2000, 02:47:47~~ 18-Dec-2018, 17:35:00
Operator : b.allgeier
Sample : lcs
Misc :
ALS Vial : 3 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 19 10:13:57 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Wed Dec 19 10:13:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1) t	Formic acid	3.398	1948872	20.228	ppm	
2) T	Pyruvic acid	4.361	1343905	2.967	ppm	
3) T	Lactic Acid	5.016	1147308	21.339	ppm	
4) T	Acetic Acid	5.501	1169791	19.770	ppm	m
5) T	Propionic Acid	14.358	1142782	19.177	ppm	
6) T	Butyric Acid	46.164	1132410	18.004	ppm	

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

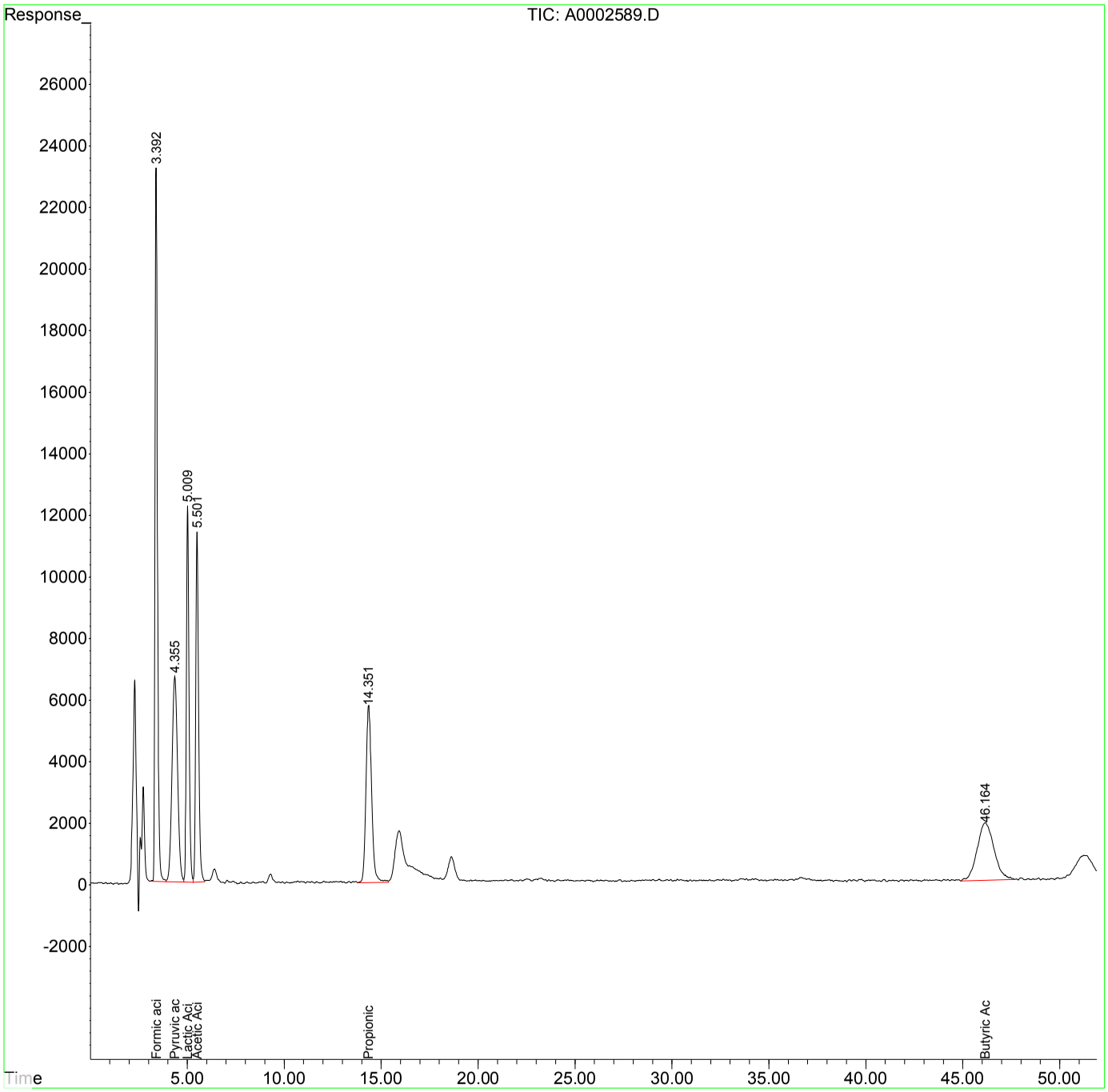
00946725

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121718\
Data File : A0002589.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 02:47:47
Operator : b.allgeier
Sample : lcs
Misc :
ALS Vial : 3 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 19 10:13:57 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Wed Dec 19 10:13:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002719.D
Signal(s) : dad1A.ch
Acq On : 01-Jan-2019, 01:04:28
Operator : b.allgeier
Sample : lcs
Misc :
ALS Vial : 12 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 11:16:27 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 11:16:09 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc Units
Target Compounds				
1) t	Formic acid	3.398	1880578	20.117 ppm
2) T	Pyruvic acid	4.225	1379930	1.919 ppm
3) T	Lactic Acid	4.838	1186595	20.333 ppm
4) T	Acetic Acid	5.279	1148685	19.680 ppm
5) T	Propionic Acid	12.885	1143195	19.836 ppm
6) T	Butyric Acid	39.339	1140518	21.079 ppm

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

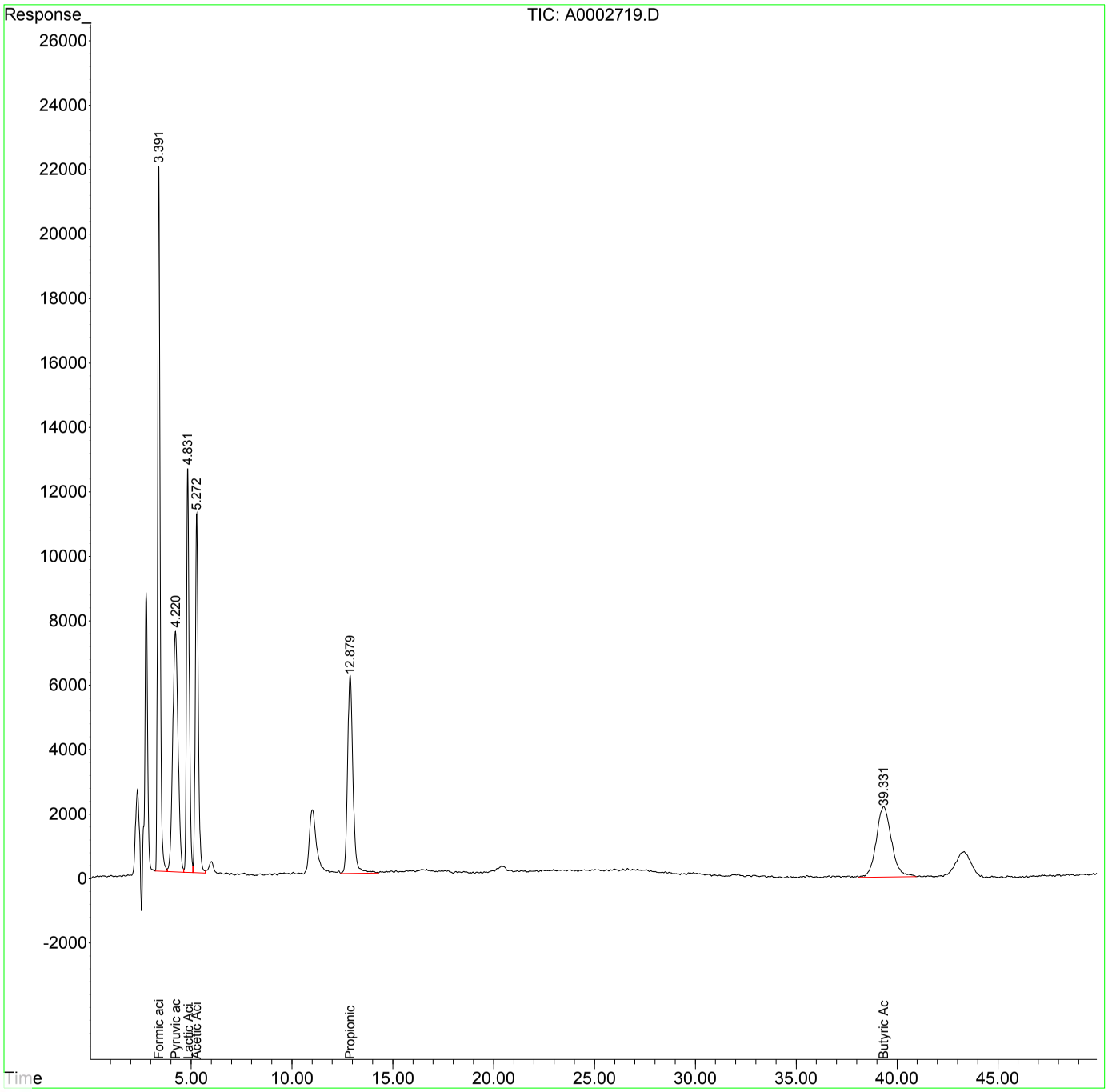
00946727

1st BA 01/02/19
2nd DM 01/03/19

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002719.D
Signal(s) : dad1A.ch
Acq On : 01-Jan-2019, 01:04:28
Operator : b.allgeier
Sample : lcs
Misc :
ALS Vial : 12 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 11:16:27 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 11:16:09 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



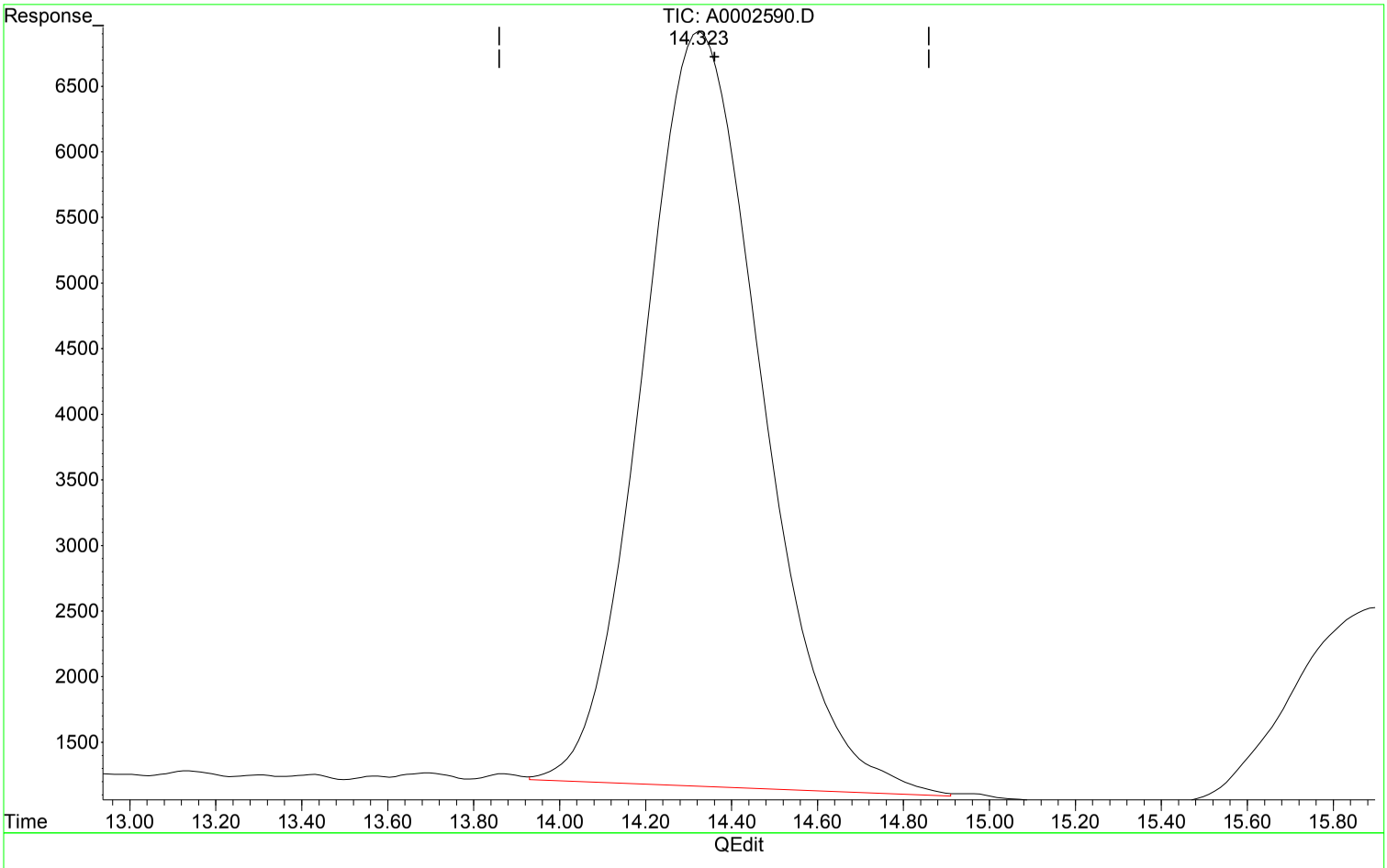
00946728

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121718\
Data File : A0002590.D
Signal(s) : dad1A.ch
Acq On : 18-Dec-2018, 18:28:31
Operator : b.allgeier
Sample : lcsd
Misc :
ALS Vial : 4 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 19 10:13:59 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Wed Dec 19 10:13:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(5) Propionic Acid (T)

14.323min 18.639 ppm m

response 1110701

Manual Integration:

After

Poor integration.

12/19/18

(+) = Expected Retention Time

MA100418.M Wed Dec 19 10:16:01 2018

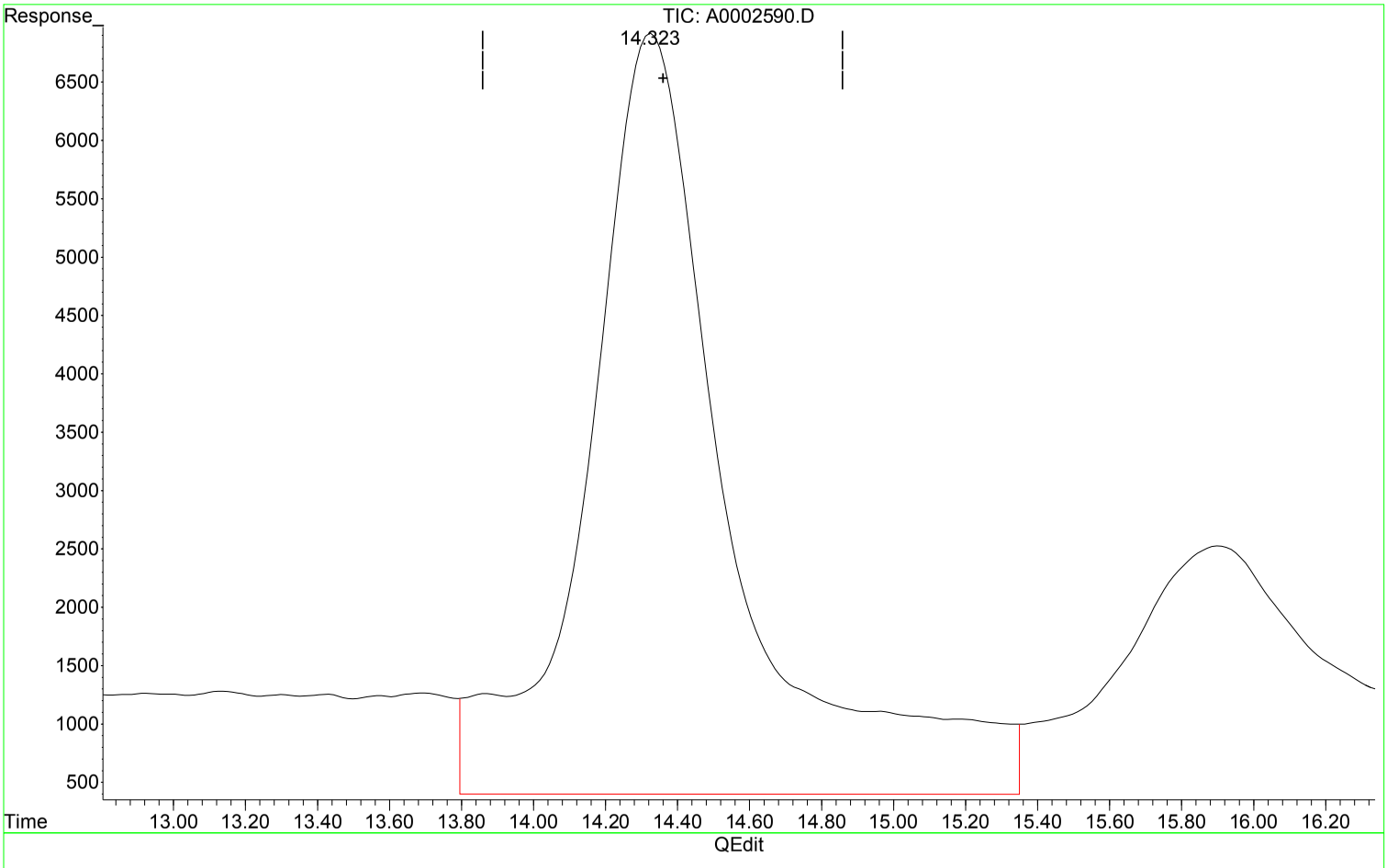
00946729

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121718\
Data File : A0002590.D
Signal(s) : dad1A.ch
Acq On : 18-Dec-2018, 18:28:31
Operator : b.allgeier
Sample : lcsd
Misc :
ALS Vial : 4 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 19 10:13:59 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Wed Dec 19 10:13:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(5) Propionic Acid (T)

14.329min 30.117 ppm

response 1794742

Manual Integration:

Before

12/19/18

(+) = Expected Retention Time

MA100418.M Wed Dec 19 10:15:55 2018

00946730

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121718\
Data File : A0002590.D
Signal(s) : dad1A.ch
Acq On : 18-Dec-2018, 18:28:31
Operator : b.allgeier
Sample : lcsd
Misc :
ALS Vial : 4 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 19 10:13:59 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Wed Dec 19 10:13:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1) t	Formic acid	3.398	1956662	20.309	ppm	
2) T	Pyruvic acid	4.359	1346166	2.972	ppm	
3) T	Lactic Acid	5.014	1149193	21.374	ppm	
4) T	Acetic Acid	5.505	1186924	20.060	ppm	
5) T	Propionic Acid	14.323	1110701	18.639	ppm	m
6) T	Butyric Acid	46.044	1131013	17.982	ppm	

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

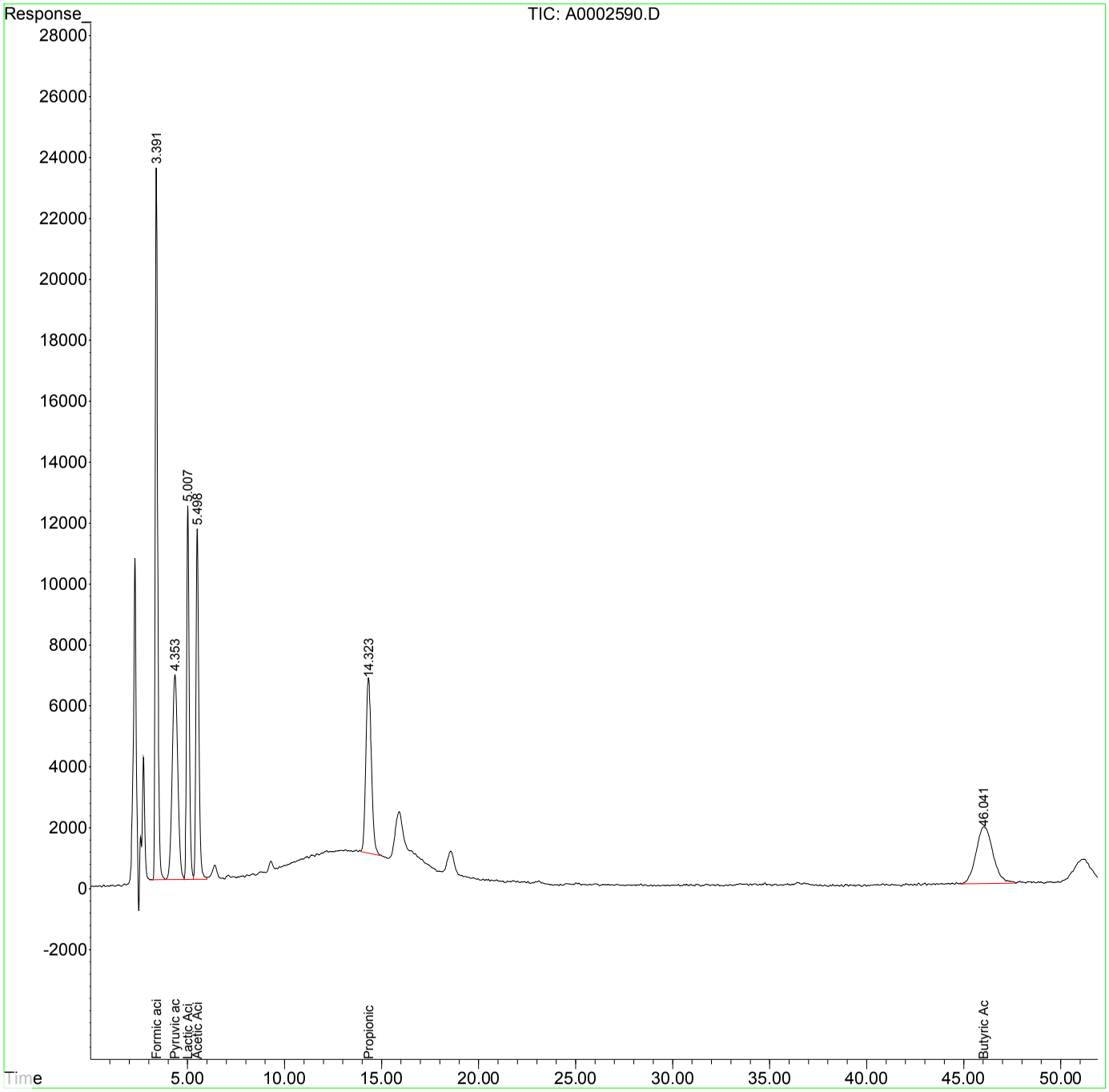
00946731

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121718\
Data File : A0002590.D
Signal(s) : dad1A.ch
Acq On : 18-Dec-2018, 18:28:31
Operator : b.allgeier
Sample : lcsd
Misc :
ALS Vial : 4 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 19 10:13:59 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Wed Dec 19 10:13:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002720.D
Signal(s) : dad1A.ch
Acq On : 01-Jan-2019, 01:57:20
Operator : b.allgeier
Sample : dlcs
Misc :
ALS Vial : 13 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 11:16:29 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 11:16:09 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc Units
Target Compounds				
1) t	Formic acid	3.398	1871563	20.021 ppm
2) T	Pyruvic acid	4.225	1376293	1.914 ppm
3) T	Lactic Acid	4.838	1184077	20.290 ppm
4) T	Acetic Acid	5.279	1156811	19.819 ppm
5) T	Propionic Acid	12.894	1094142	18.985 ppm
6) T	Butyric Acid	39.376	1094225	20.223 ppm

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

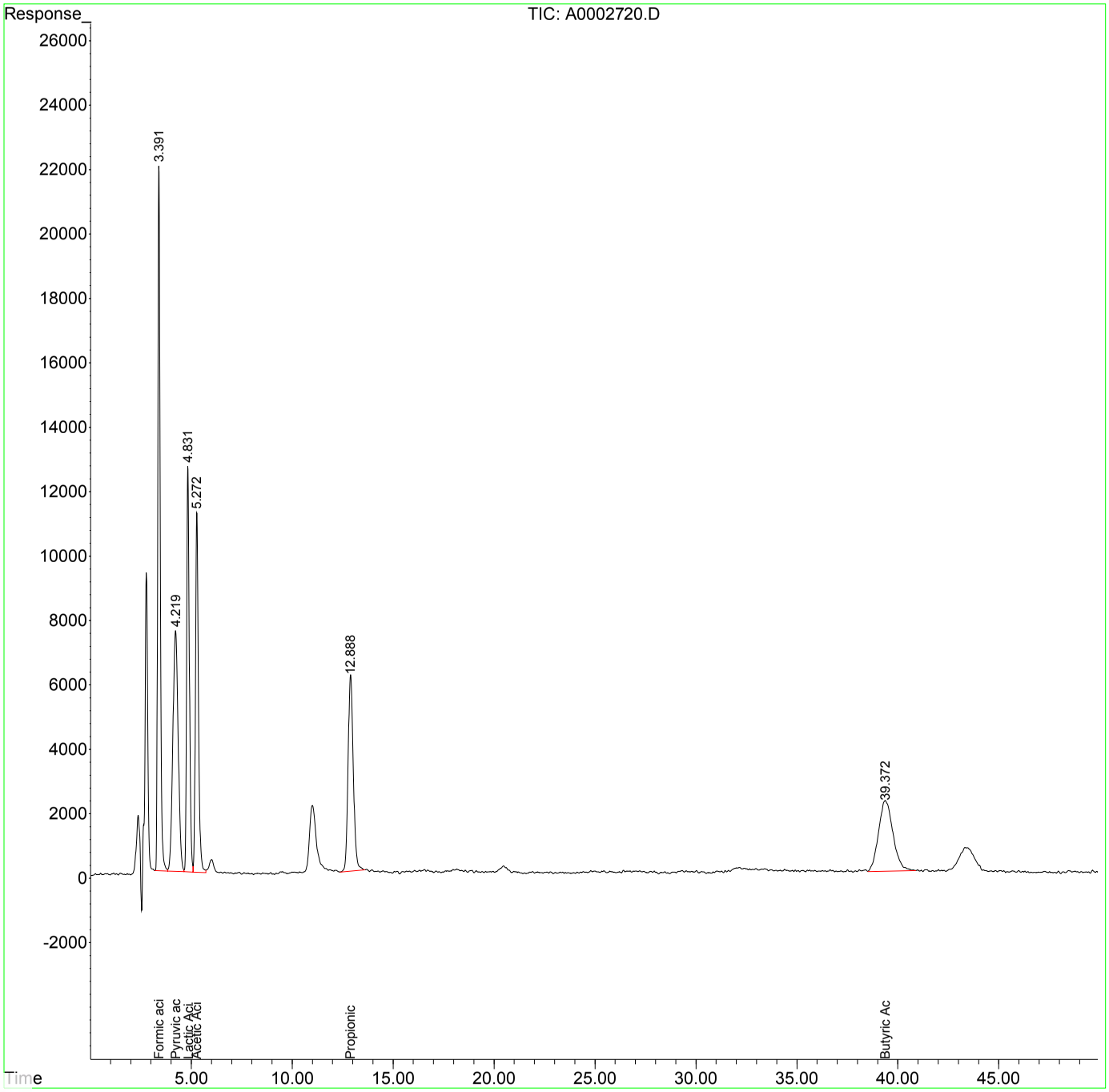
00946733

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002720.D
Signal(s) : dad1A.ch
Acq On : 01-Jan-2019, 01:57:20
Operator : b.allgeier
Sample : dlcs
Misc :
ALS Vial : 13 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 11:16:29 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 11:16:09 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

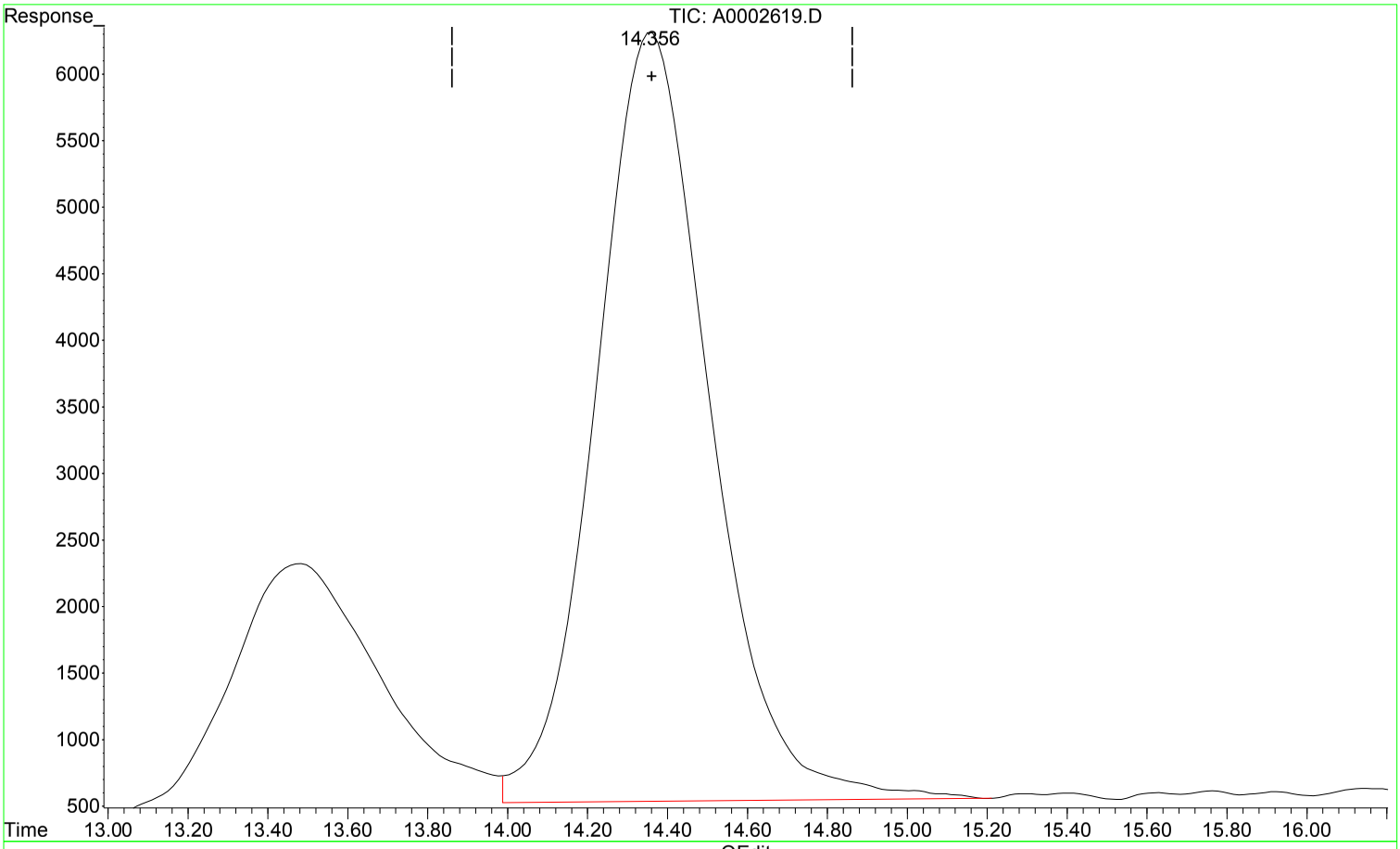


Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002619.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 00:18:26
Operator : b.allgeier
Sample : r1812085-004 ms
Misc :
ALS Vial : 19 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:29:46 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:29:23 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(5) Propionic Acid (T)

14.356min 19.149 ppm m

response 1141145

Manual Integration:

After

Poor integration.

12/20/18

(+) = Expected Retention Time

MA100418.M Thu Dec 20 09:35:55 2018

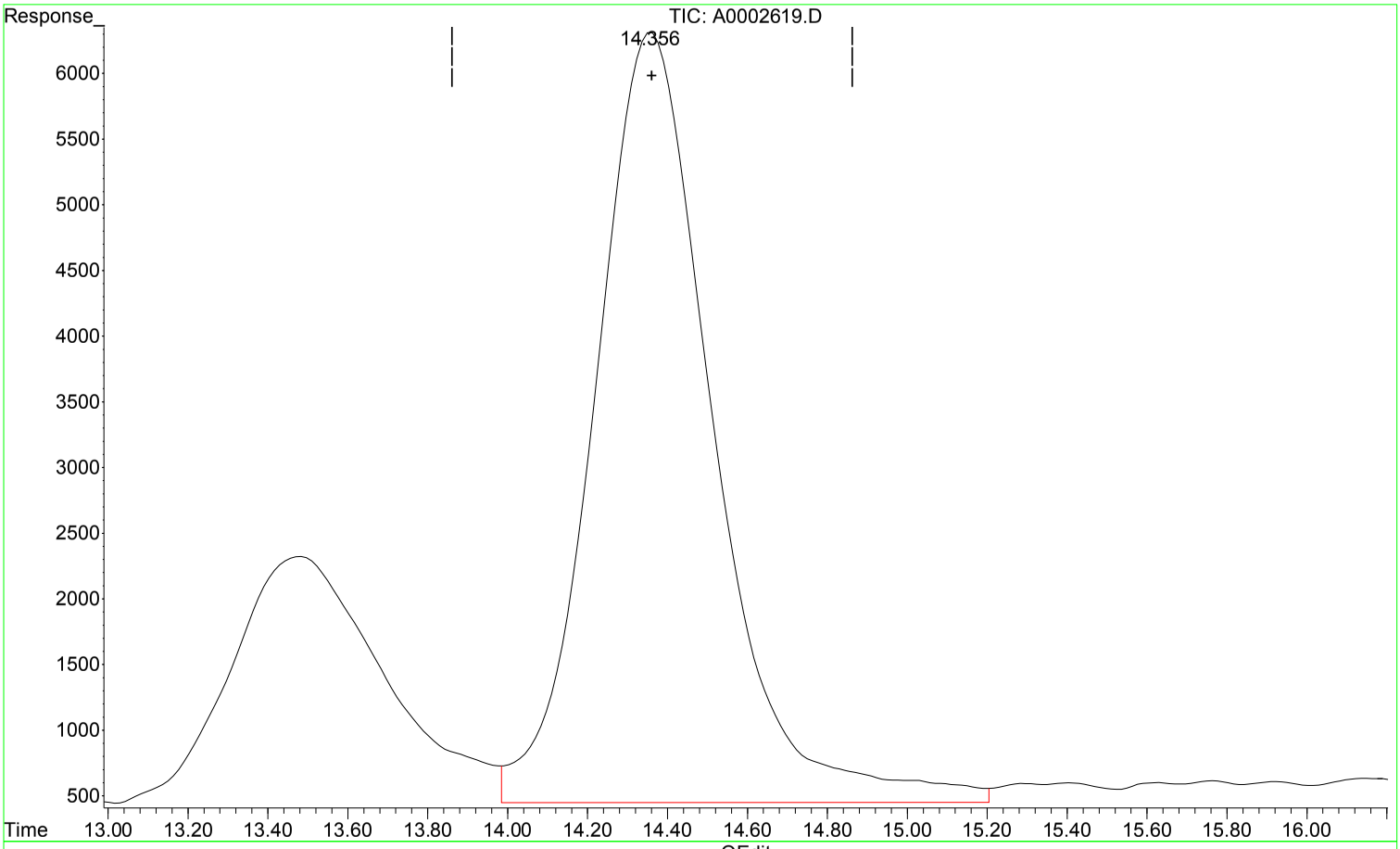
00946735

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002619.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 00:18:26
Operator : b.allgeier
Sample : r1812085-004 ms
Misc :
ALS Vial : 19 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:29:46 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:29:23 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(5) Propionic Acid (T)

14.361min 20.312 ppm

response 1210420

Manual Integration:

Before

12/20/18

(+) = Expected Retention Time

MA100418.M Thu Dec 20 09:35:47 2018

00946736

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002619.D
Signal(s) : dad1A.ch
Acq On : ~~30-Dec-2000, 00:18:26~~ 20-Dec-2018, 00:50:00
Operator : b.allgeier
Sample : r1812085-004 ms
Misc :
ALS Vial : 19 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:29:46 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:29:23 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1) t	Formic acid	3.436	1884118	19.556	ppm	
2) T	Pyruvic acid	4.401	1284292	2.835	ppm	
3) T	Lactic Acid	5.068	1190829	22.149	ppm	
4) T	Acetic Acid	5.550	1172816	19.821	ppm	
5) T	Propionic Acid	14.356	1141145	19.149	ppm	m
6) T	Butyric Acid	45.889	1047703	16.657	ppm	

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

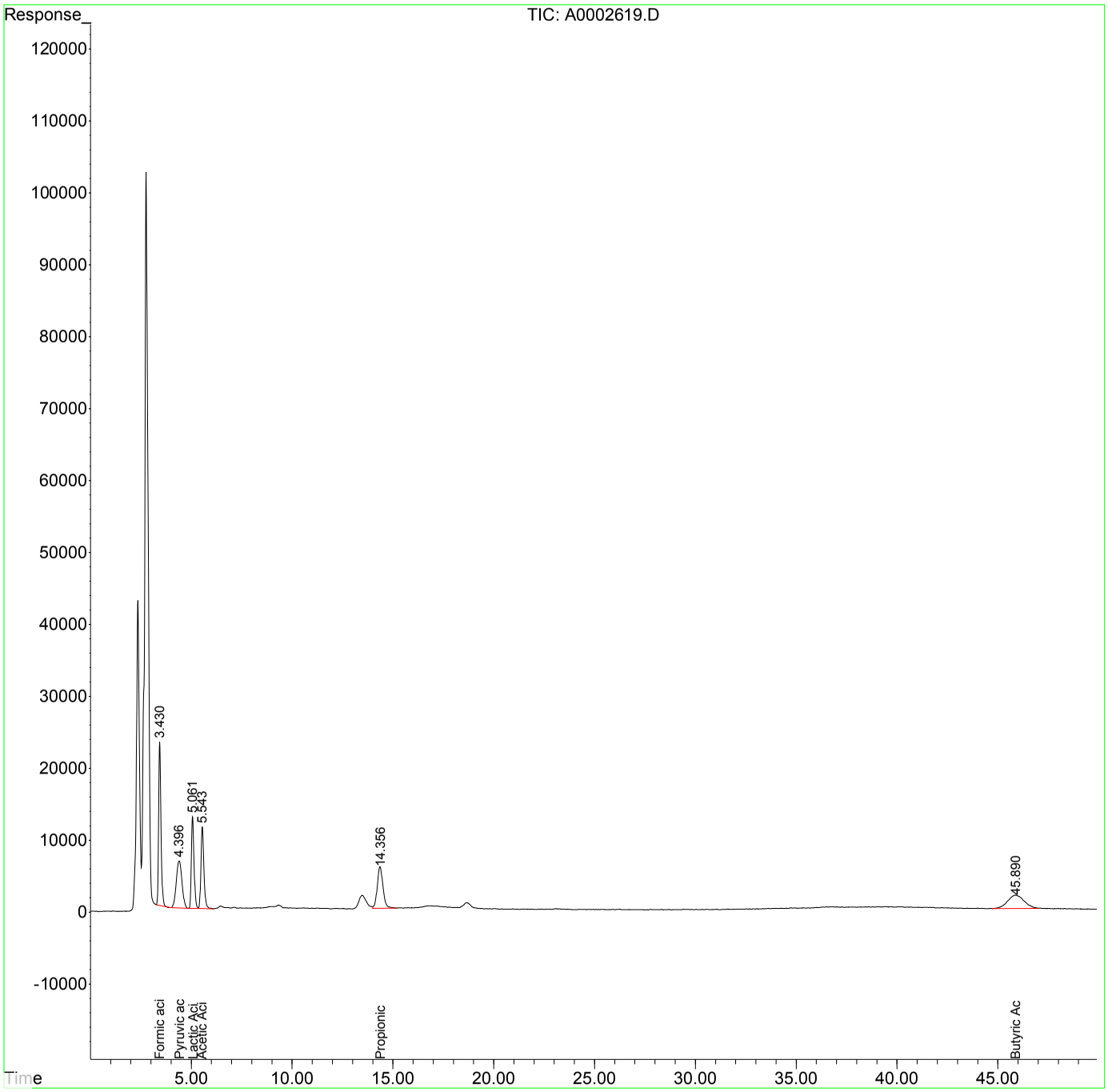
00946737

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002619.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 00:18:26
Operator : b.allgeier
Sample : r1812085-004 ms
Misc :
ALS Vial : 19 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:29:46 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:29:23 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



00946738

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002620.D
Signal(s) : dad1A.ch
Acq On : 20-Dec-2018, 01:42:07
Operator : b.allgeier
Sample : r1812085-004 msd
Misc :
ALS Vial : 20 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:29:48 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:29:23 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc Units
Target Compounds				
1) t	Formic acid	3.436	1950033	20.241 ppm
2) T	Pyruvic acid	4.401	1338679	2.956 ppm
3) T	Lactic Acid	5.066	1242914	23.118 ppm
4) T	Acetic Acid	5.548	1240321	20.962 ppm
5) T	Propionic Acid	14.361	1149813	19.295 ppm
6) T	Butyric Acid	45.935	1123619	17.864 ppm

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

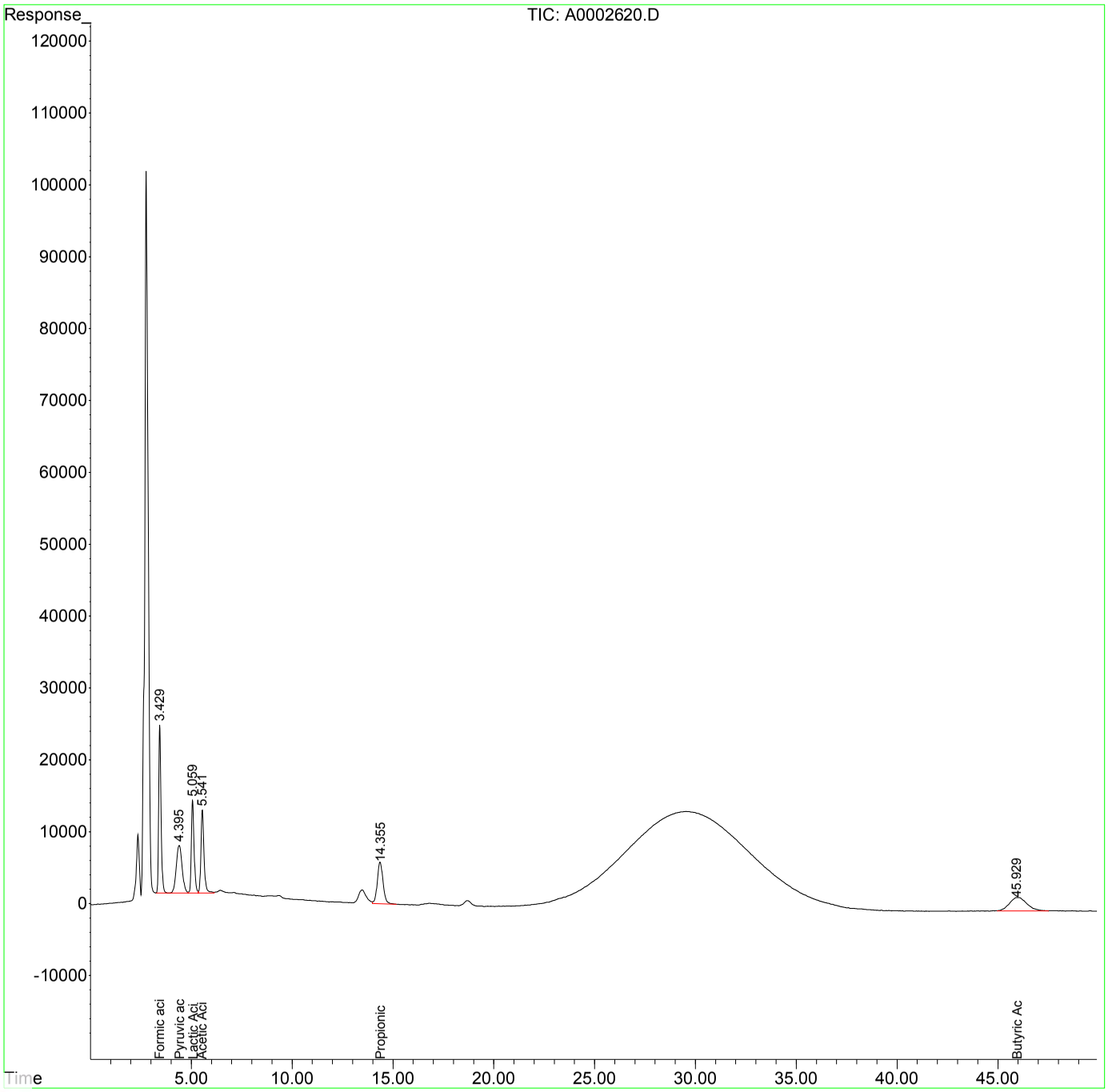
00946739

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002620.D
Signal(s) : dad1A.ch
Acq On : 20-Dec-2018, 01:42:07
Operator : b.allgeier
Sample : r1812085-004 msd
Misc :
ALS Vial : 20 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:29:48 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:29:23 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



1st BA 12/19/18
2nd DM 12/26/18

Evaluate Continuing Calibration Report

Data Path : I:\ACQUDATA\hplc05\data\121718\
Data File : A0002587.D
Signal(s) : dad1A.ch
Acq On : ~~30-Dec-2000, 02:47:53~~ 18-Dec-2018, 15:45:00
Operator : b.allgeier
Sample : CCV
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 19 10:13:53 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Wed Dec 19 10:13:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
1 t	Formic acid	96.343	97.545 E3	-1.2	101	0.00
2 T	Pyruvic acid	452.935	451.371 E3	0.3	98	0.00
3 T	Lactic Acid	53.765	58.152 E3	-8.2	107	0.00
4 T	Acetic Acid	59.169	60.054 E3	-1.5	99	0.00
5 T	Propionic Acid	59.592	58.025 E3	2.6	98	0.00
6 T	Butyric Acid	62.897	55.870 E3	11.2	95	0.00

Evaluate Continuing Calibration Report - Not Founds

(#) = Out of Range SPCC's out = 0 CCC's out = 0

00946741

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121718\
Data File : A0002587.D
Signal(s) : dad1A.ch
Acq On : ~~30-Dec-2000, 02:47:53~~ 18-Dec-2018, 15:45:00
Operator : b.allgeier
Sample : CCV
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 19 10:13:53 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Wed Dec 19 10:13:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc Units
Target Compounds				
1) t	Formic acid	3.398	4877269	50.624 ppm
2) T	Pyruvic acid	4.365	2256853	4.983 ppm
3) T	Lactic Acid	5.018	2907596	54.080 ppm
4) T	Acetic Acid	5.509	3002708	50.748 ppm
5) T	Propionic Acid	14.360	2901256	48.686 ppm
6) T	Butyric Acid	46.228	2793510	44.414 ppm

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

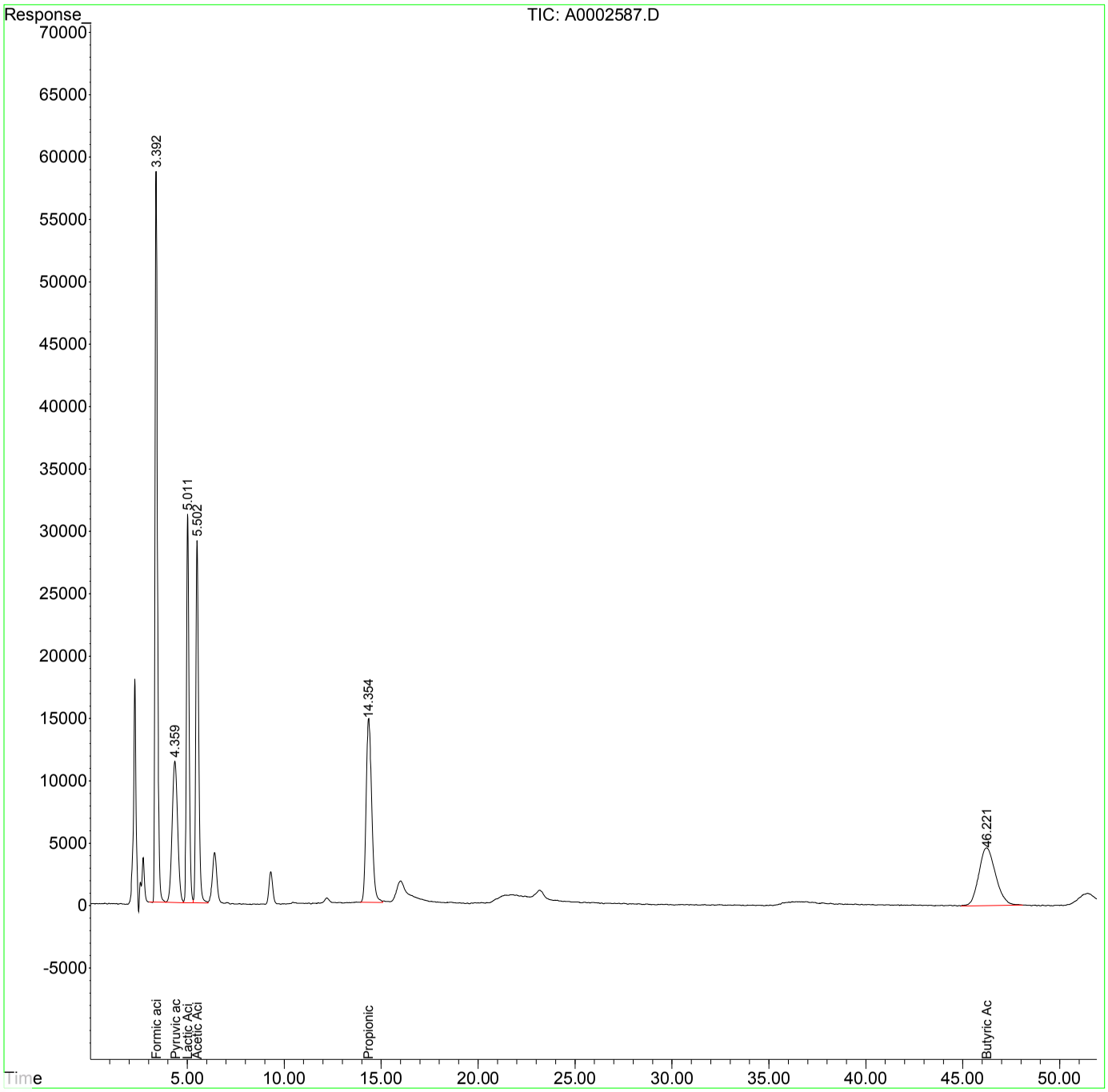
00946742

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121718\
Data File : A0002587.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 02:47:53
Operator : b.allgeier
Sample : CCV
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 19 10:13:53 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Wed Dec 19 10:13:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



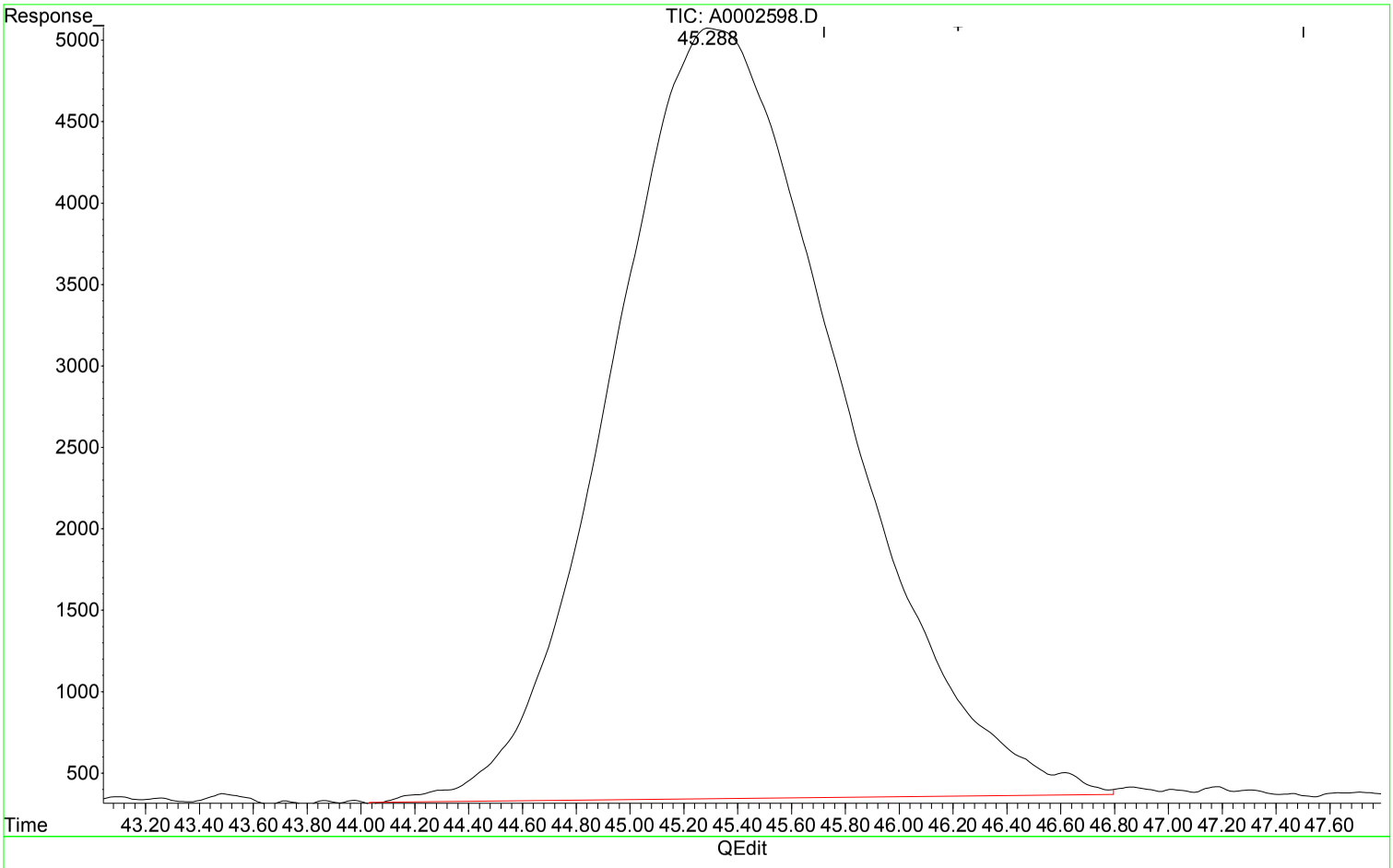
00946743

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121718\
Data File : A0002598.D
Signal(s) : dad1A.ch
Acq On : 19-Dec-2018, 01:48:07
Operator : b.allgeier
Sample : CCV
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 19 10:14:15 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Wed Dec 19 10:13:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(6) Butyric Acid (T)

45.288min 44.291 ppm m

response 2785759

Manual Integration:

After

Poor integration.

12/19/18

(+) = Expected Retention Time

MA100418.M Wed Dec 19 10:20:31 2018

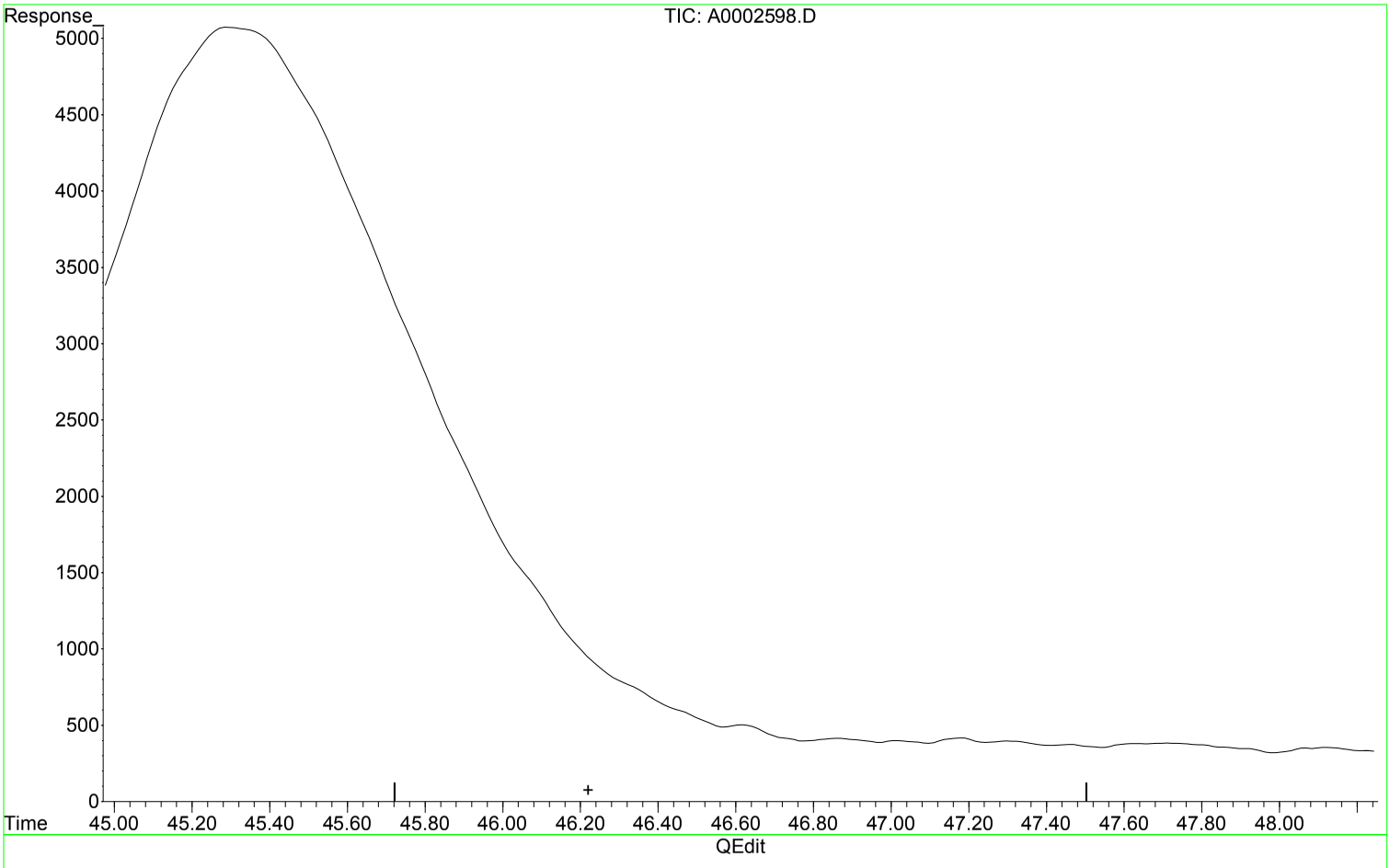
00946744

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121718\
Data File : A0002598.D
Signal(s) : dad1A.ch
Acq On : 19-Dec-2018, 01:48:07
Operator : b.allgeier
Sample : CCV
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 19 10:14:15 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Wed Dec 19 10:13:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(6) Butyric Acid (T)

46.221min 0.000 ppm

response 0

Manual Integration:

Before

12/19/18

(+) = Expected Retention Time

00946745

Evaluate Continuing Calibration Report

Data Path : I:\ACQUDATA\hplc05\data\121718\
Data File : A0002598.D
Signal(s) : dad1A.ch
Acq On : 19-Dec-2018, 01:48:07
Operator : b.allgeier
Sample : CCV
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 19 10:14:15 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Wed Dec 19 10:13:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
1 t	Formic acid	96.343	96.724 E3	-0.4	100	0.00
2 T	Pyruvic acid	452.935	445.920 E3	1.5	97	-0.03
3 T	Lactic Acid	53.765	58.468 E3	-8.7	108	-0.03
4 T	Acetic Acid	59.169	59.478 E3	-0.5	98	-0.03
5 T	Propionic Acid	59.592	58.220 E3	2.3	99	-0.17
6 T	Butyric Acid	62.897	55.715 E3	11.4	95	-0.94#

Evaluate Continuing Calibration Report - Not Founds

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121718\
Data File : A0002598.D
Signal(s) : dad1A.ch
Acq On : 19-Dec-2018, 01:48:07
Operator : b.allgeier
Sample : CCV
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 19 10:14:15 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Wed Dec 19 10:13:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1) t	Formic acid	3.392	4836188	50.198	ppm	
2) T	Pyruvic acid	4.334	2229601	4.923	ppm	
3) T	Lactic Acid	4.992	2923402	54.374	ppm	
4) T	Acetic Acid	5.480	2973916	50.261	ppm	
5) T	Propionic Acid	14.188	2911015	48.849	ppm	
6) T	Butyric Acid	45.288f	2785759	44.291	ppm	m

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

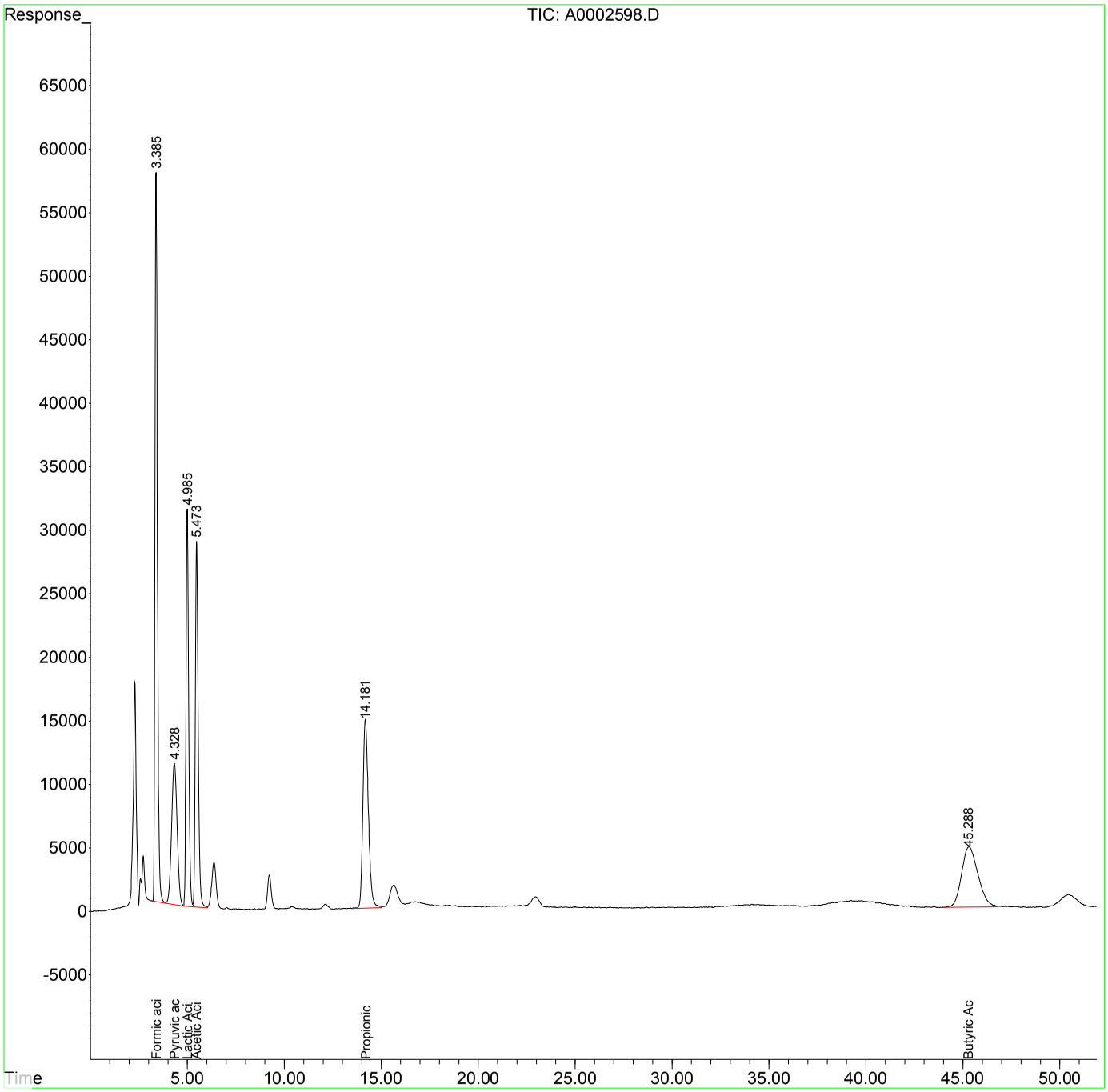
00946747

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121718\
Data File : A0002598.D
Signal(s) : dad1A.ch
Acq On : 19-Dec-2018, 01:48:07
Operator : b.allgeier
Sample : CCV
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 19 10:14:15 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Wed Dec 19 10:13:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



Evaluate Continuing Calibration Report

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002621.D
Signal(s) : dad1A.ch
Acq On : ~~30-Dec-2000, 01:28:24~~ 20-Dec-2018, 02:35:00
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:29:50 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:29:23 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
1 t	Formic acid	96.343	96.744 E3	-0.4	100	0.00
2 T	Pyruvic acid	452.935	453.830 E3	-0.2	99	0.00
3 T	Lactic Acid	53.765	58.697 E3	-9.2	108	0.00
4 T	Acetic Acid	59.169	59.940 E3	-1.3	99	0.00
5 T	Propionic Acid	59.592	58.984 E3	1.0	100	0.03
6 T	Butyric Acid	62.897	56.296 E3	10.5	96	0.16

Evaluate Continuing Calibration Report - Not Founds

(#) = Out of Range SPCC's out = 0 CCC's out = 0

00946749

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002621.D
Signal(s) : dad1A.ch
Acq On : ~~30-Dec-2000, 01:28:24~~ 20-Dec-2018, 02:35:00
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:29:50 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:29:23 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc Units
Target Compounds				
1) t	Formic acid	3.436	4837191	50.208 ppm
2) T	Pyruvic acid	4.398	2269150	5.010 ppm
3) T	Lactic Acid	5.065	2934854	54.587 ppm
4) T	Acetic Acid	5.547	2997009	50.651 ppm
5) T	Propionic Acid	14.326	2949206	49.490 ppm
6) T	Butyric Acid	45.642	2814809	44.752 ppm

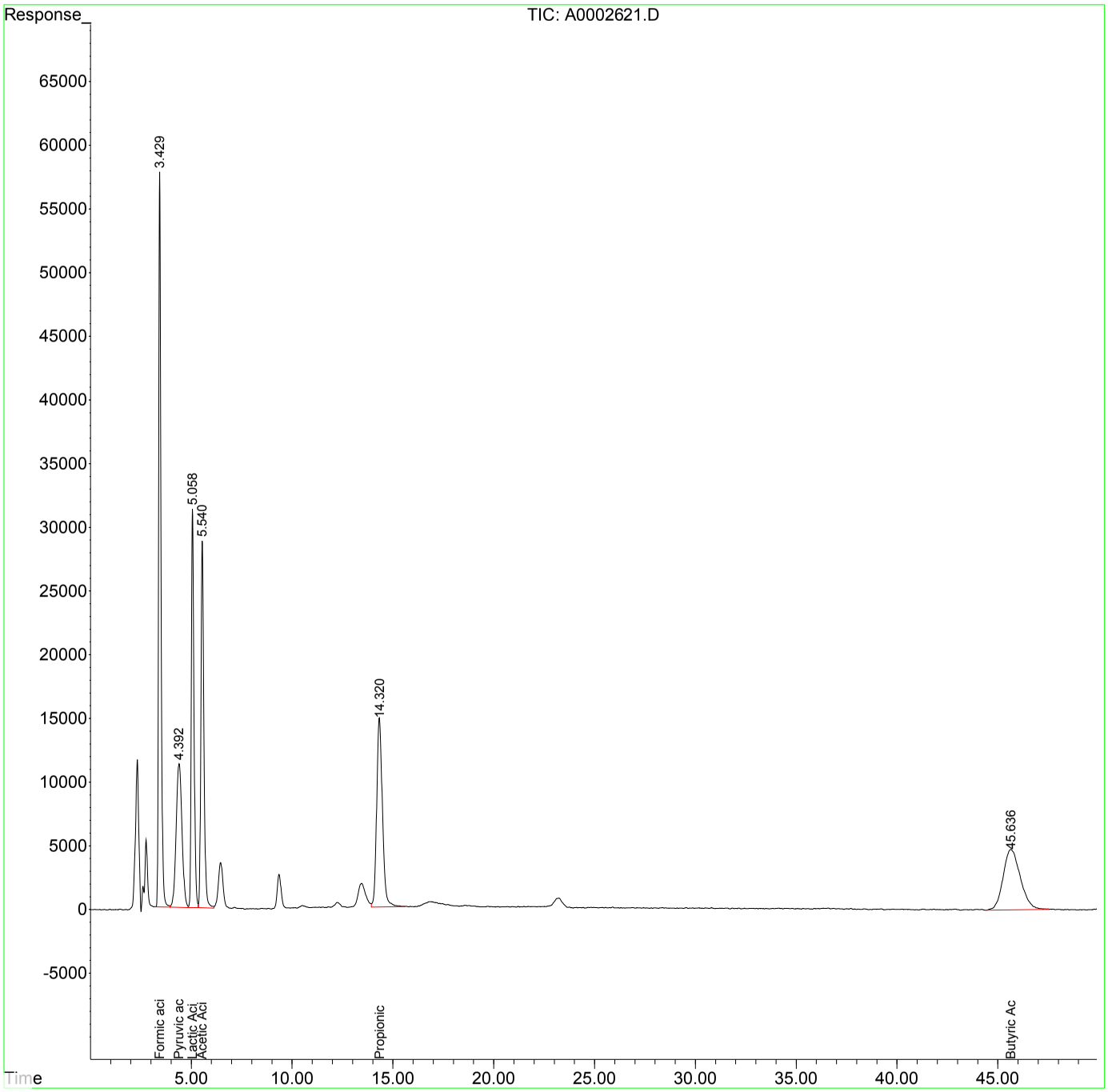
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002621.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 01:28:24
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:29:50 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:29:23 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



Evaluate Continuing Calibration Report

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002623.D
Signal(s) : dad1A.ch
Acq On : 20-Dec-2018, 04:21:02
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:30:51 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:30:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
1 t	Formic acid	96.343	96.194 E3	0.2	100	0.00
2 T	Pyruvic acid	452.935	443.729 E3	2.0	97	0.00
3 T	Lactic Acid	53.765	58.140 E3	-8.1	107	0.00
4 T	Acetic Acid	59.169	59.231 E3	-0.1	98	0.00
5 T	Propionic Acid	59.592	58.485 E3	1.9	99	0.00
6 T	Butyric Acid	62.897	55.287 E3	12.1	94	0.00

Evaluate Continuing Calibration Report - Not Founds

(#) = Out of Range SPCC's out = 0 CCC's out = 0

00946752

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002623.D
Signal(s) : dad1A.ch
Acq On : 20-Dec-2018, 04:21:02
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:30:51 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:30:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc Units
Target Compounds				
1) t	Formic acid	3.435	4809684	49.922 ppm
2) T	Pyruvic acid	4.393	2218644	4.898 ppm
3) T	Lactic Acid	5.060	2906976	54.068 ppm
4) T	Acetic Acid	5.541	2961574	50.052 ppm
5) T	Propionic Acid	14.292	2924251	49.072 ppm
6) T	Butyric Acid	45.483	2764365	43.950 ppm

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

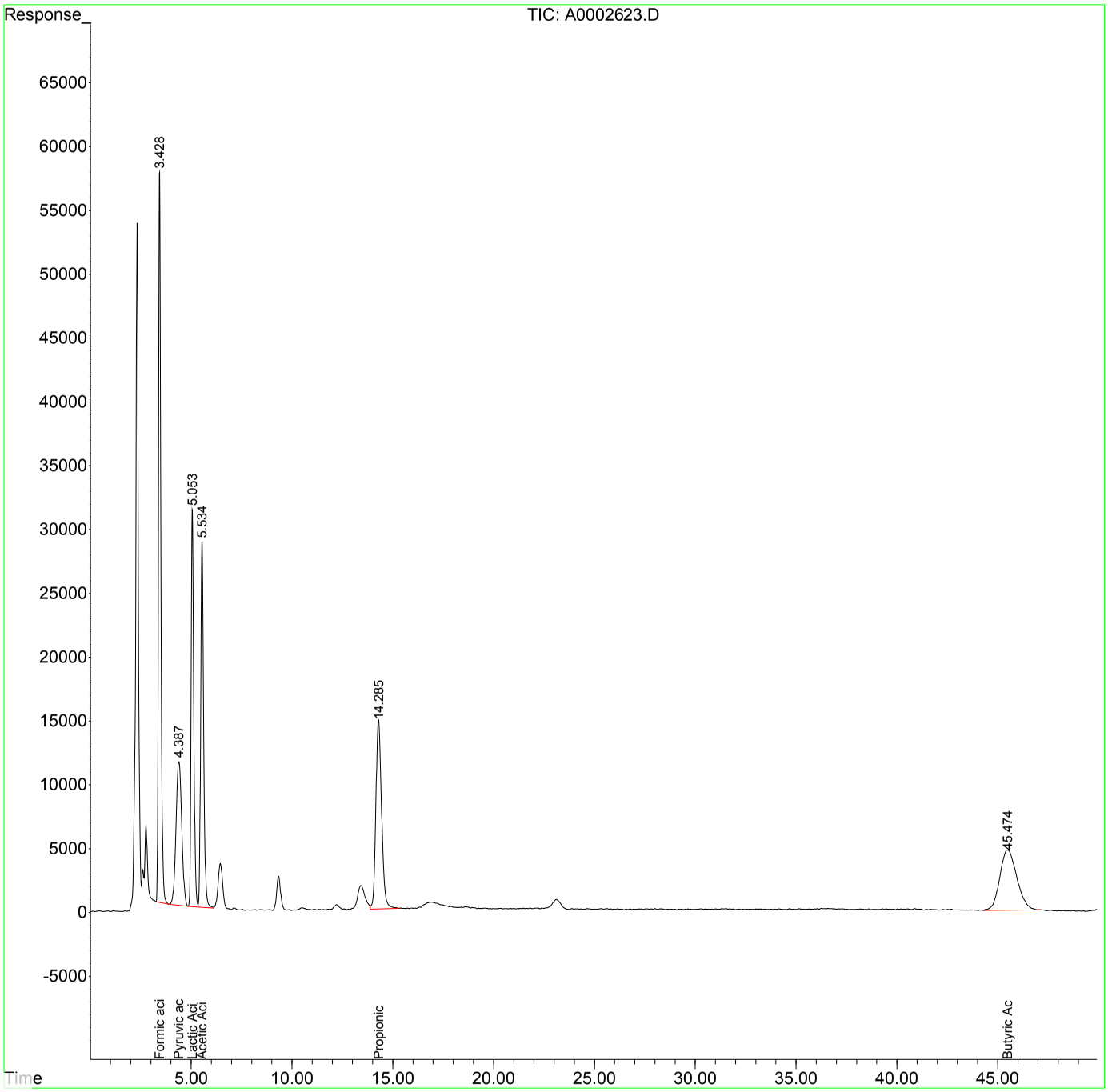
00946753

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002623.D
Signal(s) : dad1A.ch
Acq On : 20-Dec-2018, 04:21:02
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:30:51 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:30:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



Evaluate Continuing Calibration Report

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002651.D
Signal(s) : dad1A.ch
Acq On : 21-Dec-2018, 05:03:39
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 21 09:51:28 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Fri Dec 21 09:51:11 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
1 t	Formic acid	96.343	96.212 E3	0.1	100	0.00
2 T	Pyruvic acid	452.935	451.409 E3	0.3	98	0.00
3 T	Lactic Acid	53.765	60.234 E3	-12.0	111	-0.01
4 T	Acetic Acid	59.169	59.299 E3	-0.2	98	0.00
5 T	Propionic Acid	59.592	60.176 E3	-1.0	102	-0.07
6 T	Butyric Acid	62.897	55.921 E3	11.1	95	-0.32

Evaluate Continuing Calibration Report - Not Founds

(#) = Out of Range SPCC's out = 0 CCC's out = 0

00946755

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002651.D
Signal(s) : dad1A.ch
Acq On : 21-Dec-2018, 05:03:39
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 21 09:51:28 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Fri Dec 21 09:51:11 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc Units
Target Compounds				
1) t	Formic acid	3.413	4810618	49.932 ppm
2) T	Pyruvic acid	4.334	2257047	4.983 ppm
3) T	Lactic Acid	4.979	3011701	56.016 ppm
4) T	Acetic Acid	5.447	2964931	50.109 ppm
5) T	Propionic Acid	13.850	3008788	50.490 ppm
6) T	Butyric Acid	43.641	2796063	44.454 ppm

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

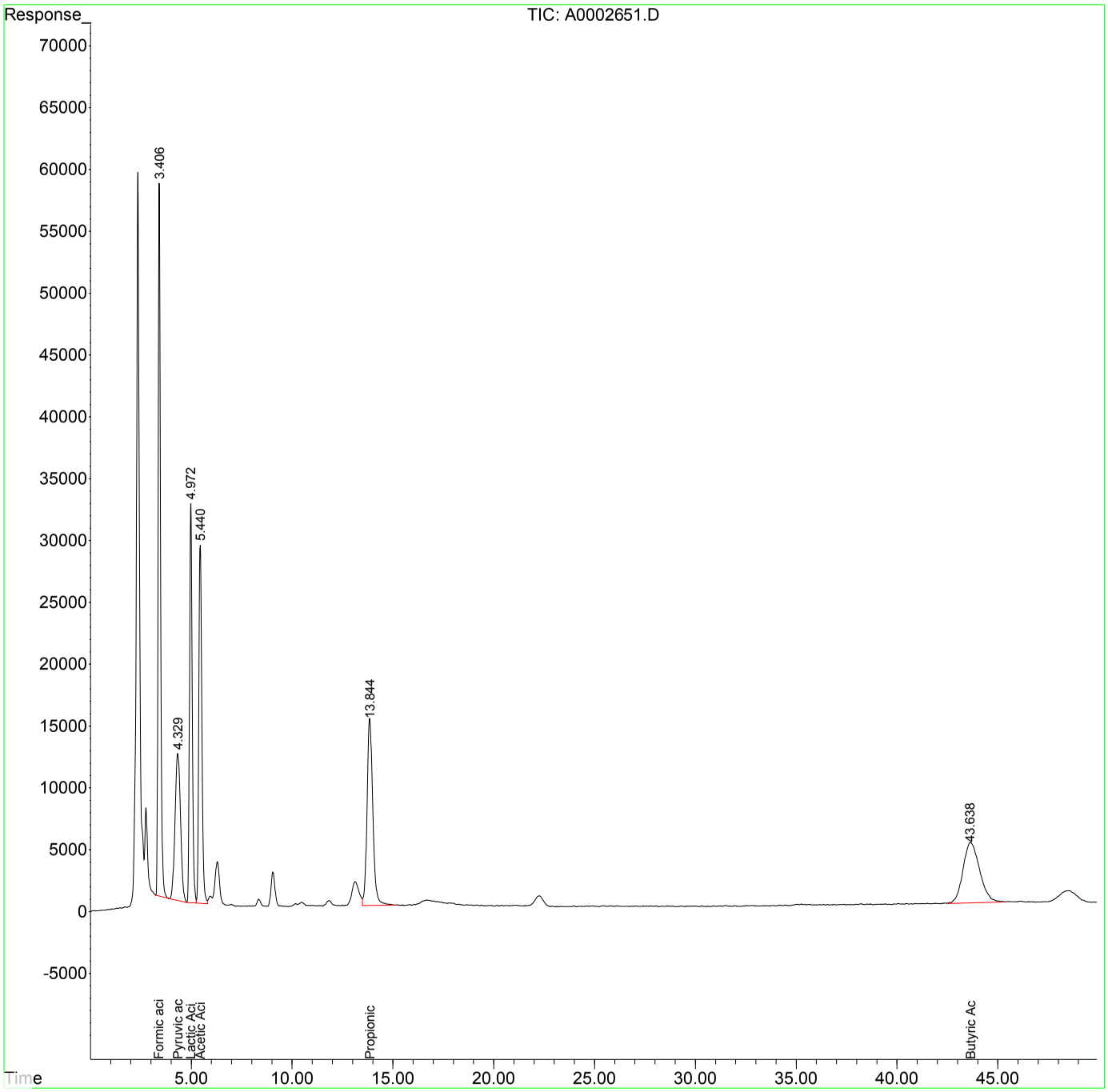
00946756

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002651.D
Signal(s) : dad1A.ch
Acq On : 21-Dec-2018, 05:03:39
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 21 09:51:28 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Fri Dec 21 09:51:11 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

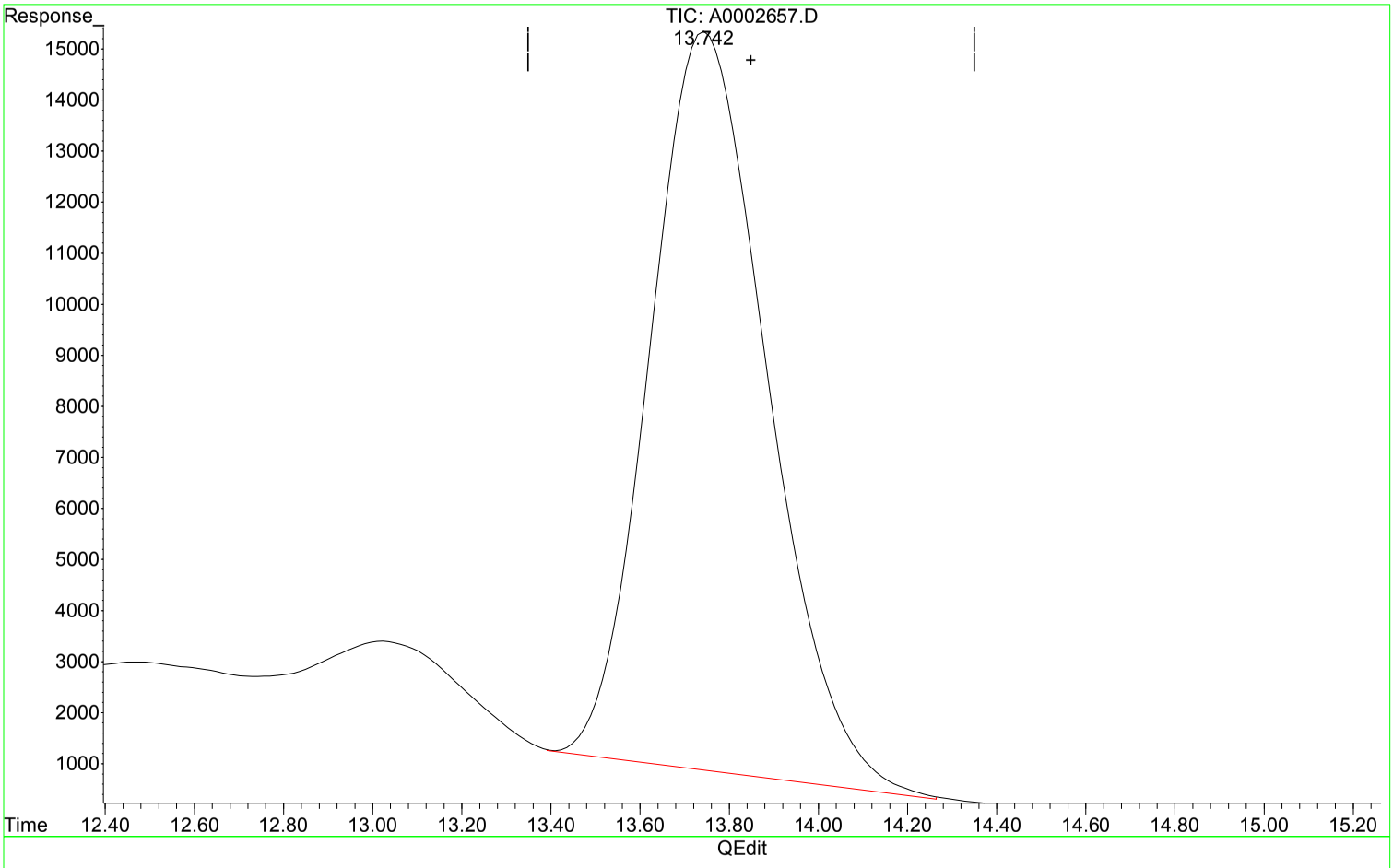


Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002657.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 00:10:32
Operator : b.allgeier
Sample : CCV
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 21 11:25:44 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Fri Dec 21 10:14:14 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(5) Propionic Acid (T)

13.742min 44.551 ppm m

response 2654877

Manual Integration:

After

Poor integration.

12/21/18

(+) = Expected Retention Time

MA100418.M Fri Dec 21 11:26:03 2018

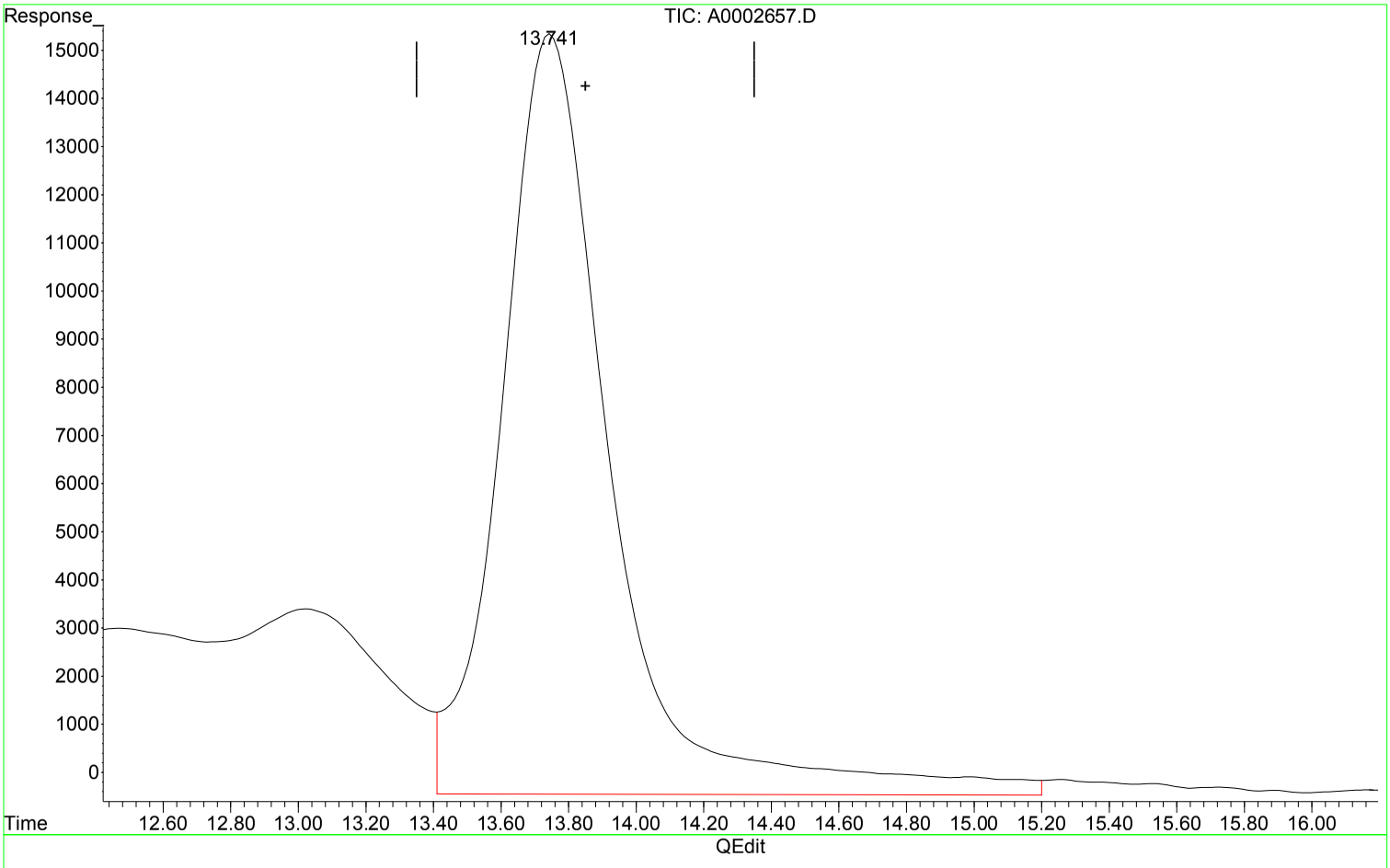
00946758

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002657.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 00:10:32
Operator : b.allgeier
Sample : CCV
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 21 11:25:44 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Fri Dec 21 10:14:14 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(5) Propionic Acid (T)

13.747min 59.660 ppm

response 3555234

Manual Integration:

Before

12/21/18

(+) = Expected Retention Time

Evaluate Continuing Calibration Report

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002657.D
Signal(s) : dad1A.ch
Acq On : ~~30-Dec-2000, 00:10:32~~ 21-Dec-2018, 09:00:00
Operator : b.allgeier
Sample : CCV
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 21 11:26:41 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Fri Dec 21 11:26:29 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
1 t	Formic acid	96.343	97.608 E3	-1.3	101	0.00
2 T	Pyruvic acid	452.935	458.020 E3	-1.1	100	0.00
3 T	Lactic Acid	53.765	60.544 E3	-12.6	112	-0.01
4 T	Acetic Acid	59.169	59.707 E3	-0.9	99	-0.02
5 T	Propionic Acid	59.592	53.194 E3	10.7	90	-0.11
6 T	Butyric Acid	62.897	55.389 E3	11.9	94	-0.46

Evaluate Continuing Calibration Report - Not Founds

(#) = Out of Range SPCC's out = 0 CCC's out = 0

00946760

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002657.D
Signal(s) : dad1A.ch
Acq On : ~~30-Dec-2000, 00:10:32~~ 21-Dec-2018, 09:00:00
Operator : b.allgeier
Sample : CCV
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 21 11:26:41 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Fri Dec 21 11:26:29 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1) t	Formic acid	3.411	4880415	50.657	ppm	
2) T	Pyruvic acid	4.326	2290098	5.056	ppm	
3) T	Lactic Acid	4.965	3027179	56.304	ppm	
4) T	Acetic Acid	5.430	2985327	50.454	ppm	
5) T	Propionic Acid	13.742	2659702	44.632	ppm	m
6) T	Butyric Acid	43.180f	2769435	44.031	ppm	

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

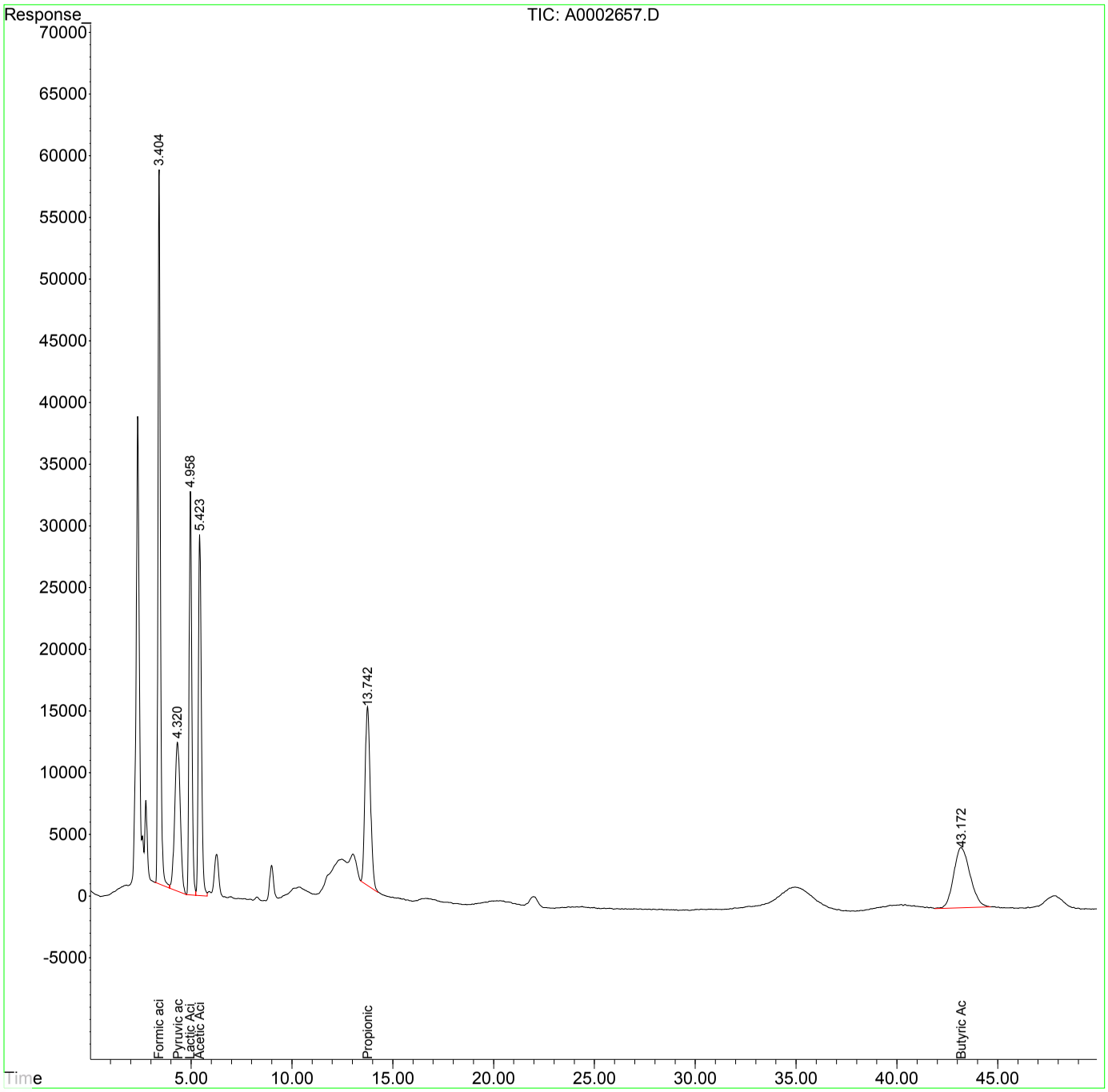
00946761

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002657.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 00:10:32
Operator : b.allgeier
Sample : CCV
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 21 11:26:41 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Fri Dec 21 11:26:29 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

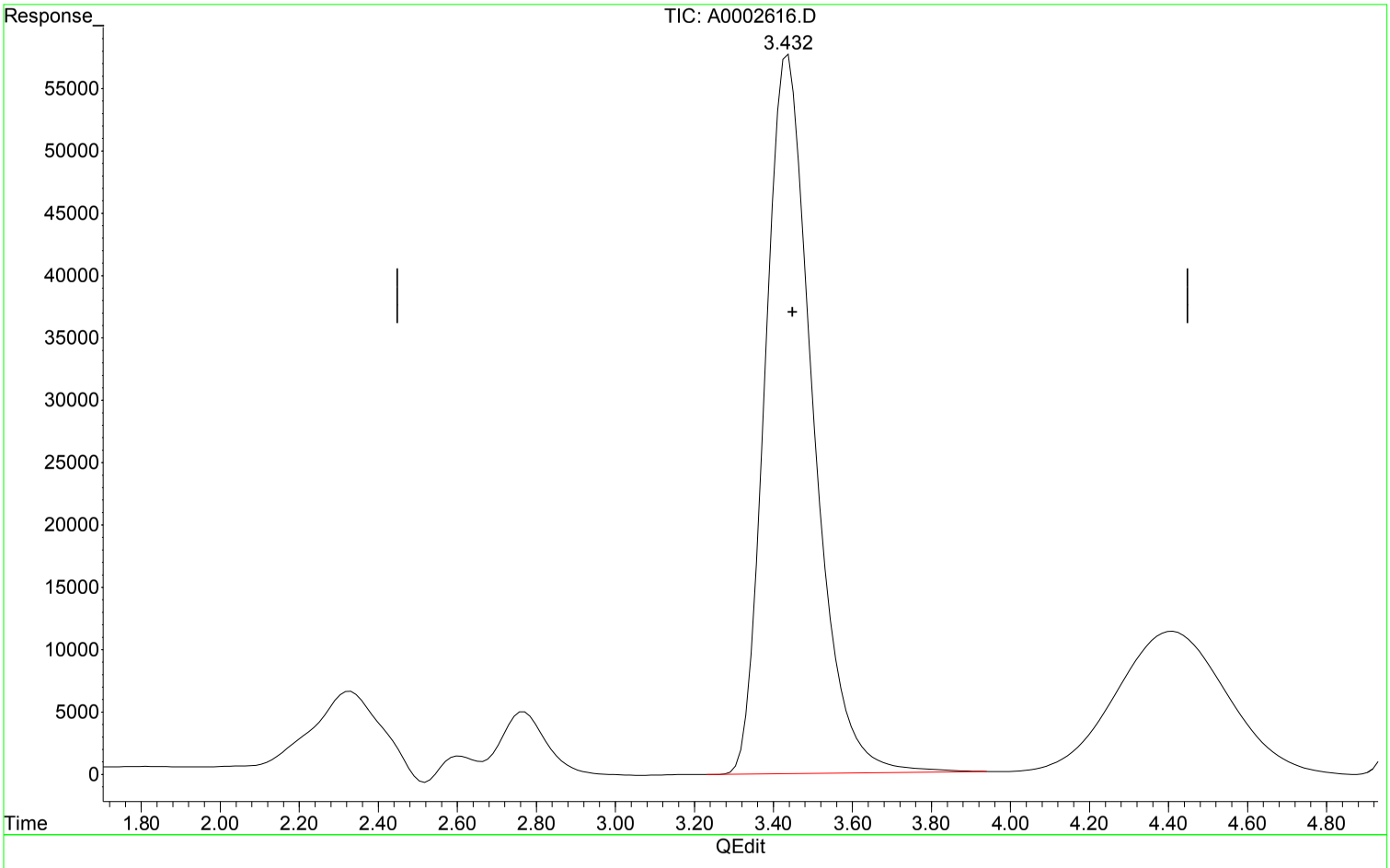


Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002616.D
Signal(s) : dad1A.ch
Acq On : 19-Dec-2018, 22:10:28
Operator : b.allgeier
Sample : CCV
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:27:48 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:27:08 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(1) Formic acid (t)

3.432min 50.416 ppm m

response 4857207

Manual Integration:

After

Poor integration.

12/20/18

(+) = Expected Retention Time

MA100418.M Thu Dec 20 09:28:10 2018

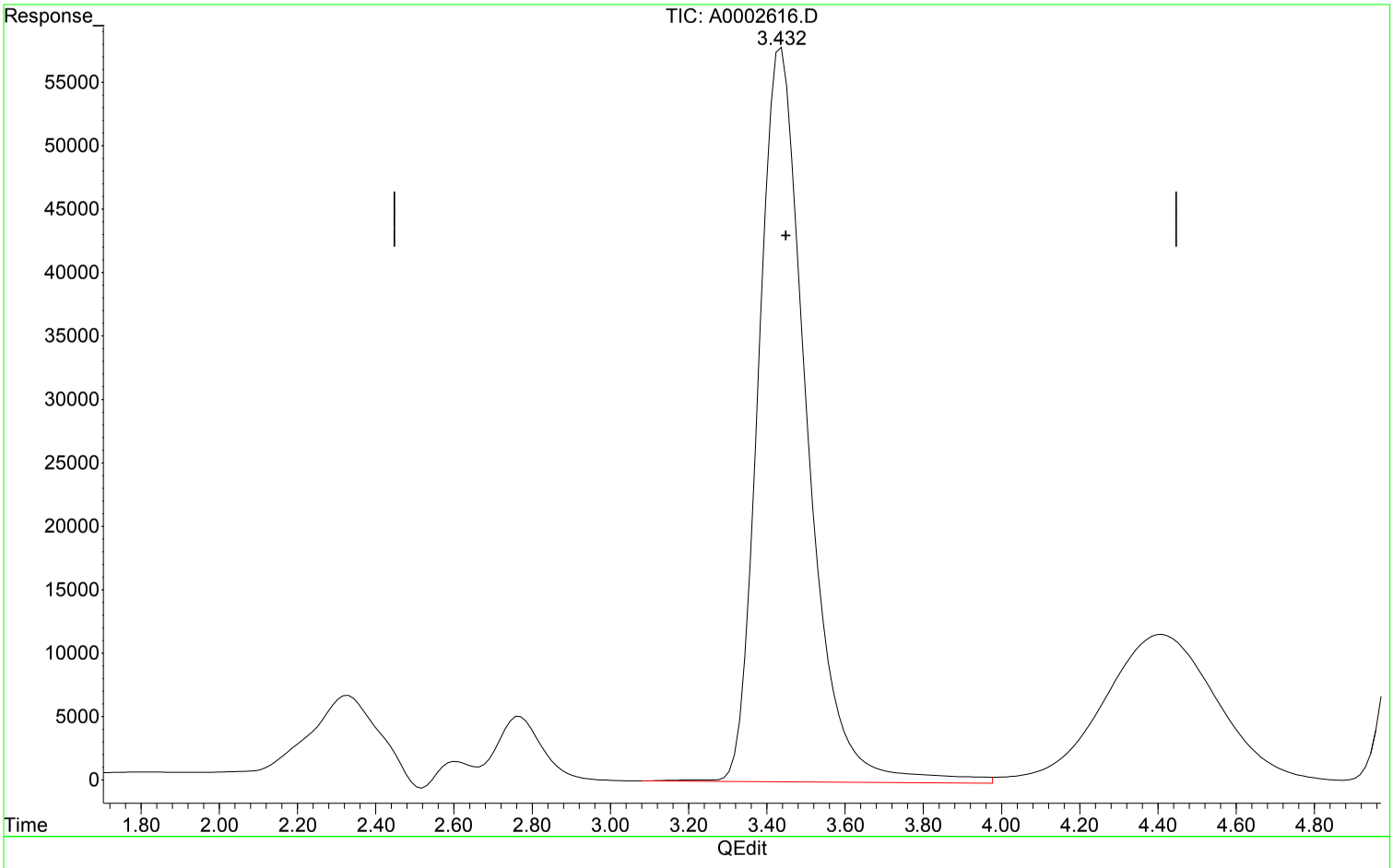
00946763

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002616.D
Signal(s) : dad1A.ch
Acq On : 19-Dec-2018, 22:10:28
Operator : b.allgeier
Sample : CCV
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:27:48 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:27:08 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(1) Formic acid (t)

3.439min 51.810 ppm

response 4991581

Manual Integration:

Before

12/20/18

(+) = Expected Retention Time

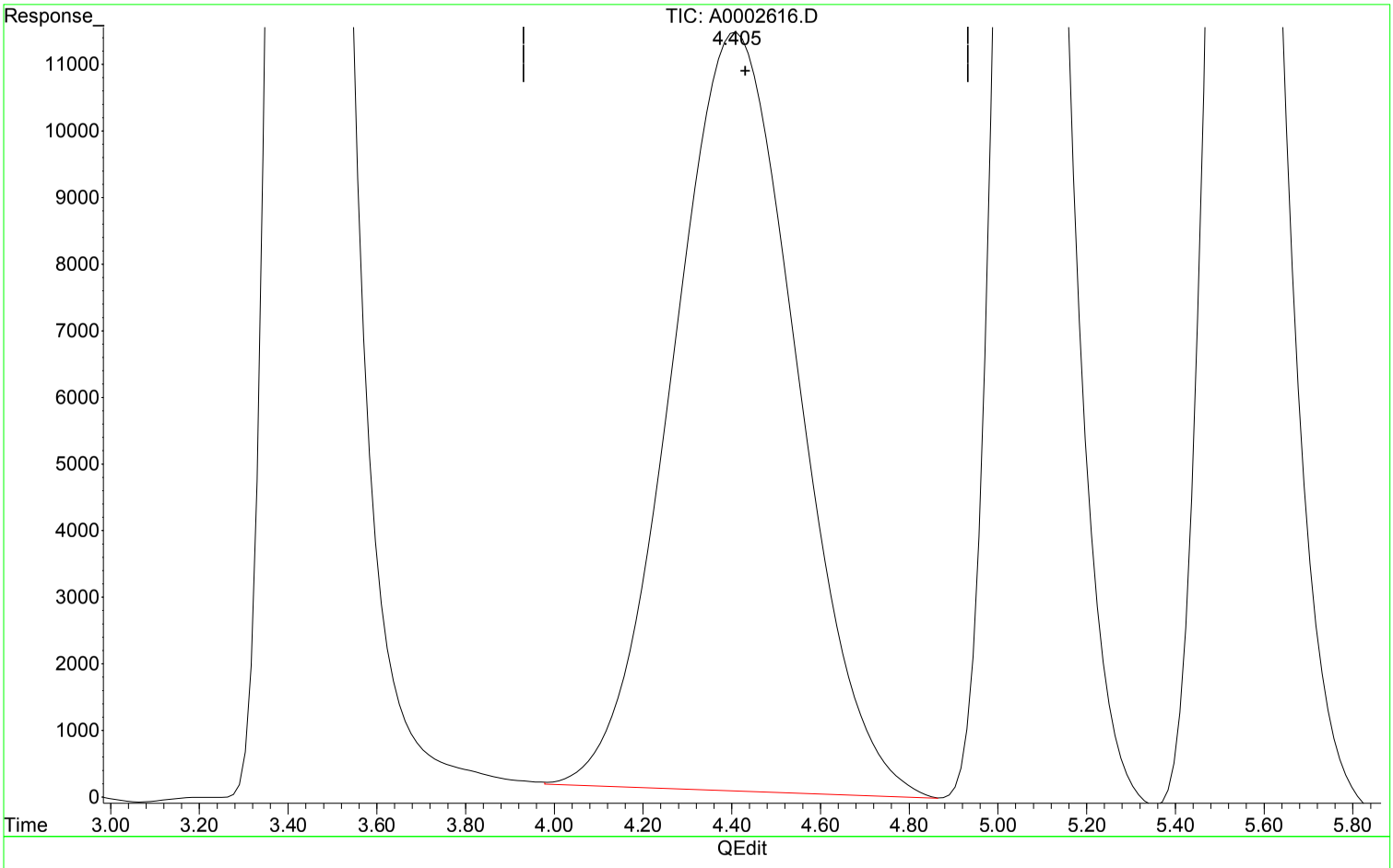
00946764

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002616.D
Signal(s) : dad1A.ch
Acq On : 19-Dec-2018, 22:10:28
Operator : b.allgeier
Sample : CCV
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:27:48 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:27:08 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(2) Pyruvic acid (T)

4.405min 4.933 ppm m

response 2234360

Manual Integration:

After

Poor integration.

12/20/18

(+) = Expected Retention Time

MA100418.M Thu Dec 20 09:28:22 2018

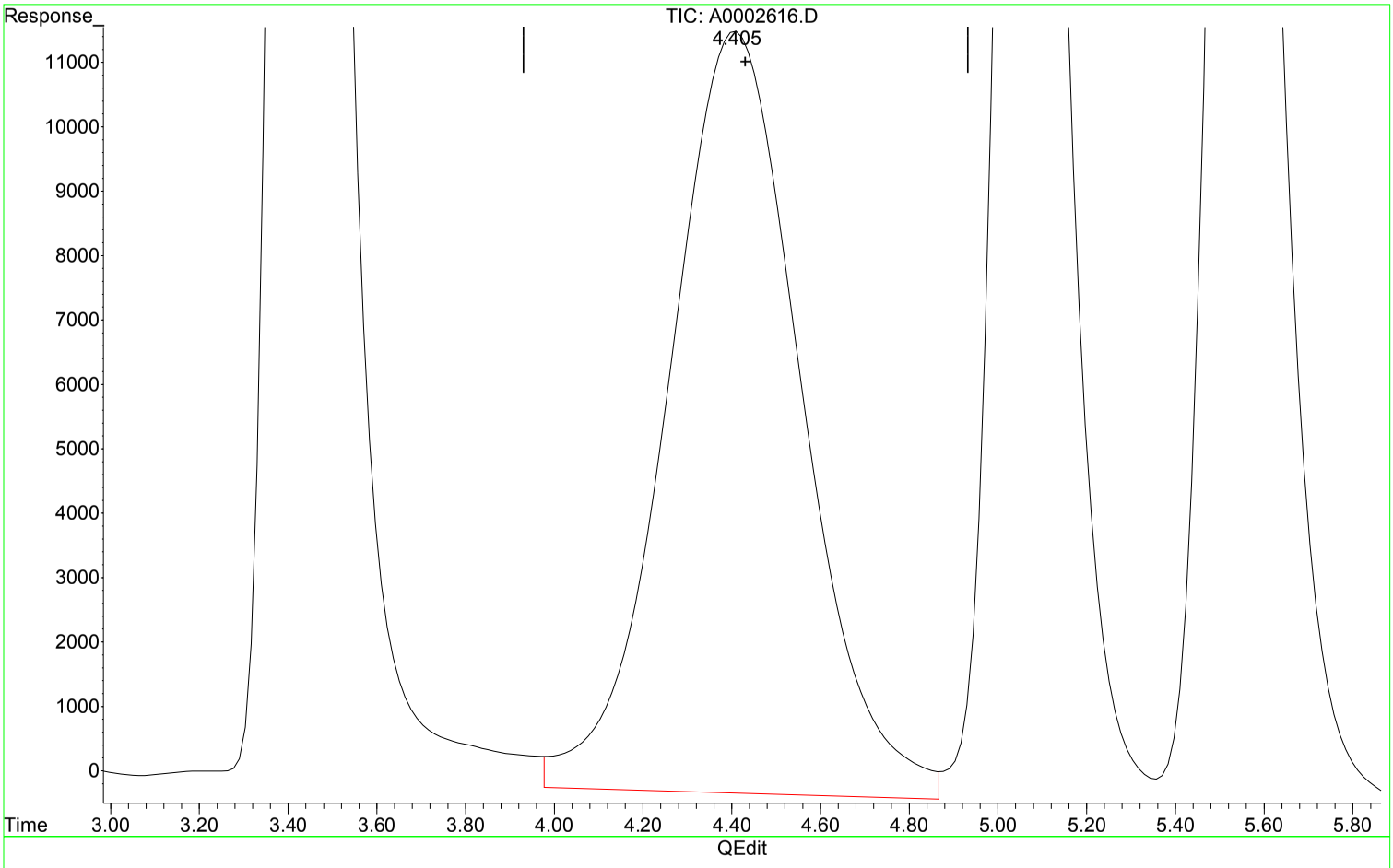
00946765

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002616.D
Signal(s) : dad1A.ch
Acq On : 19-Dec-2018, 22:10:28
Operator : b.allgeier
Sample : CCV
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:27:48 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:27:08 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(2) Pyruvic acid (T)

4.411min 5.448 ppm

response 2467745

Manual Integration:

Before

12/20/18

(+) = Expected Retention Time

MA100418.M Thu Dec 20 09:28:15 2018

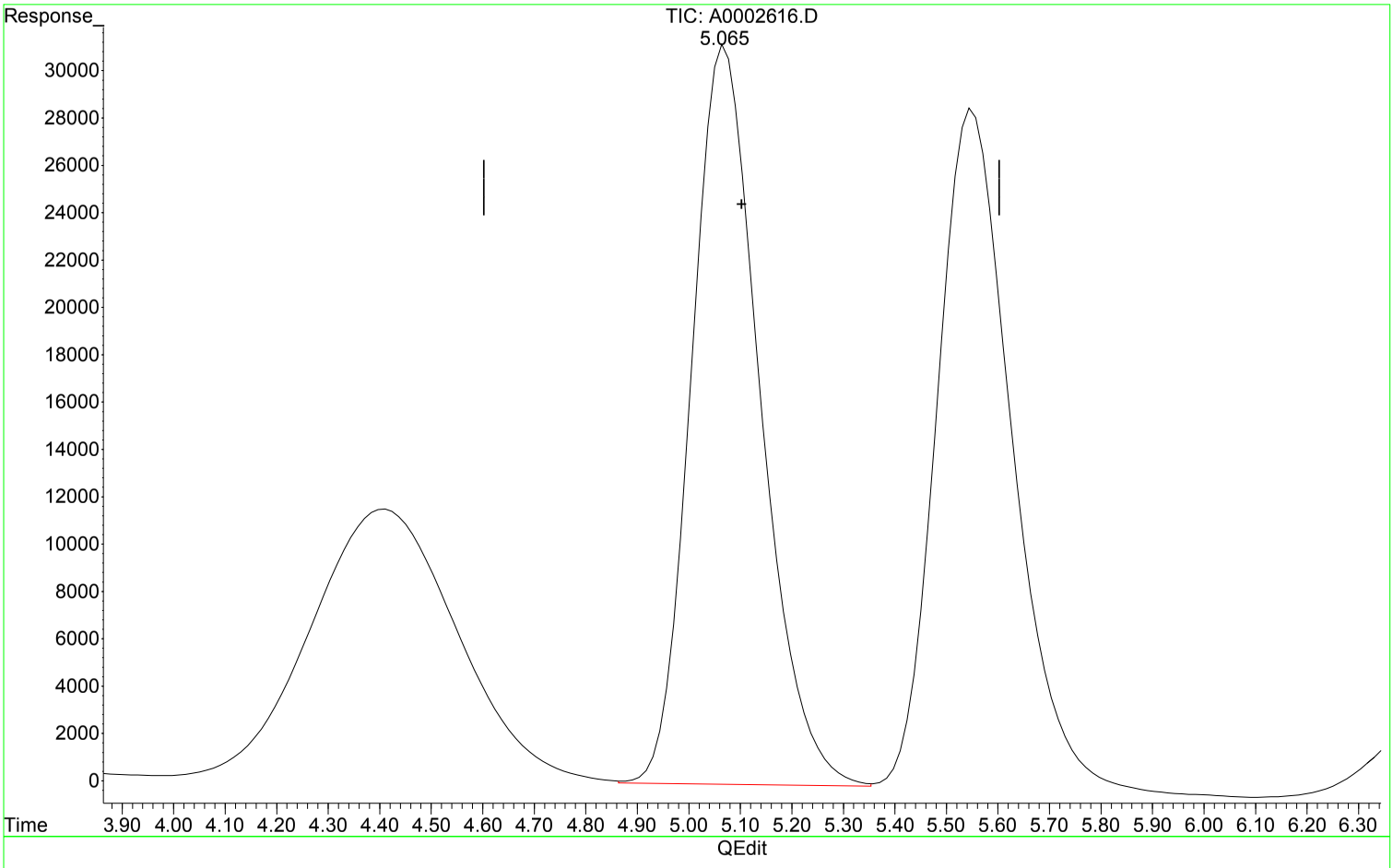
00946766

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002616.D
Signal(s) : dad1A.ch
Acq On : 19-Dec-2018, 22:10:28
Operator : b.allgeier
Sample : CCV
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:27:48 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:27:08 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(3) Lactic Acid (T)

5.065min 54.023 ppm m

response 2904540

Manual Integration:

After

Poor integration.

12/20/18

(+) = Expected Retention Time

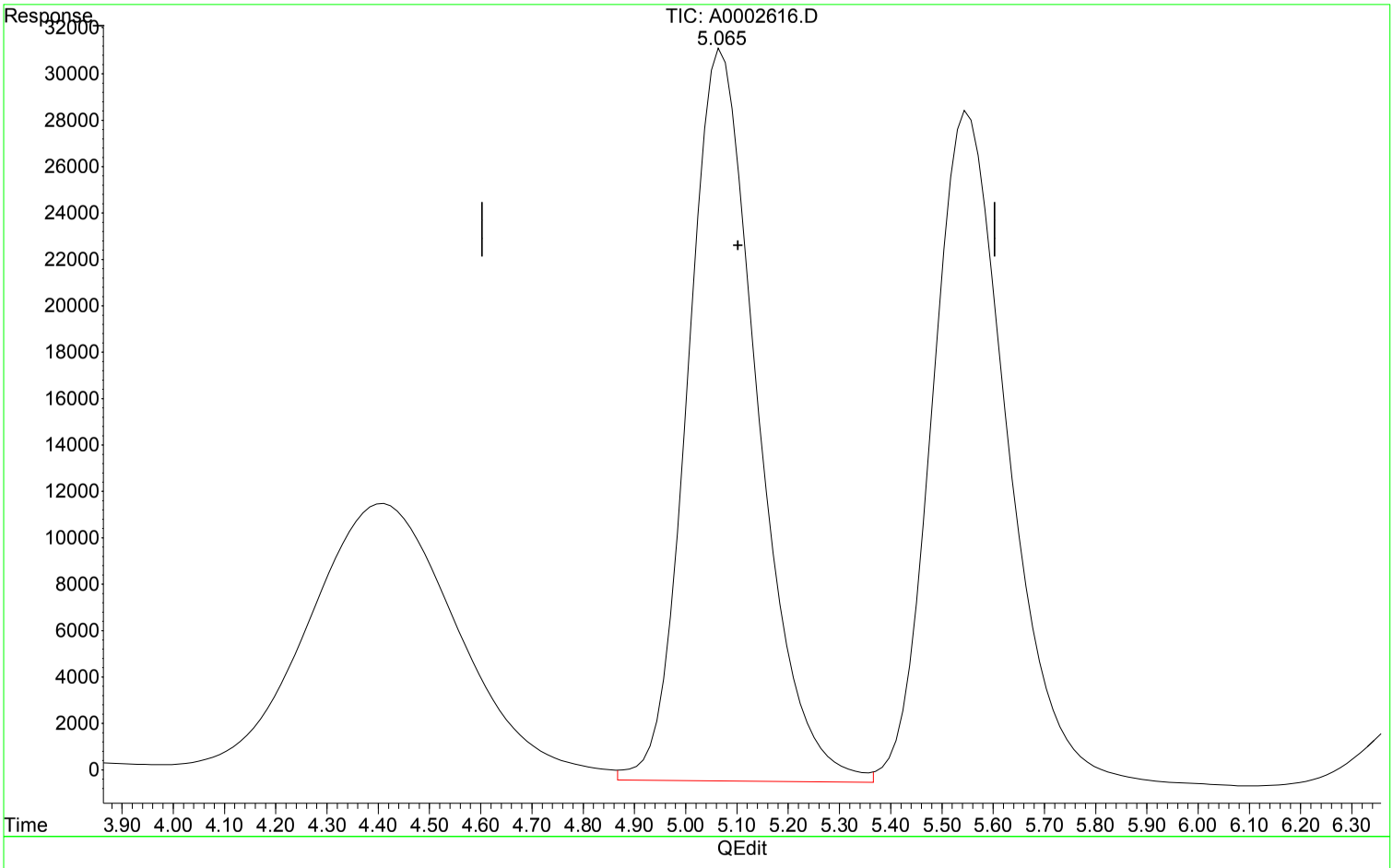
00946767

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002616.D
Signal(s) : dad1A.ch
Acq On : 19-Dec-2018, 22:10:28
Operator : b.allgeier
Sample : CCV
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:27:48 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:27:08 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(3) Lactic Acid (T)

5.072min 55.891 ppm

response 3004993

Manual Integration:

Before

12/20/18

(+) = Expected Retention Time

MA100418.M Thu Dec 20 09:28:27 2018

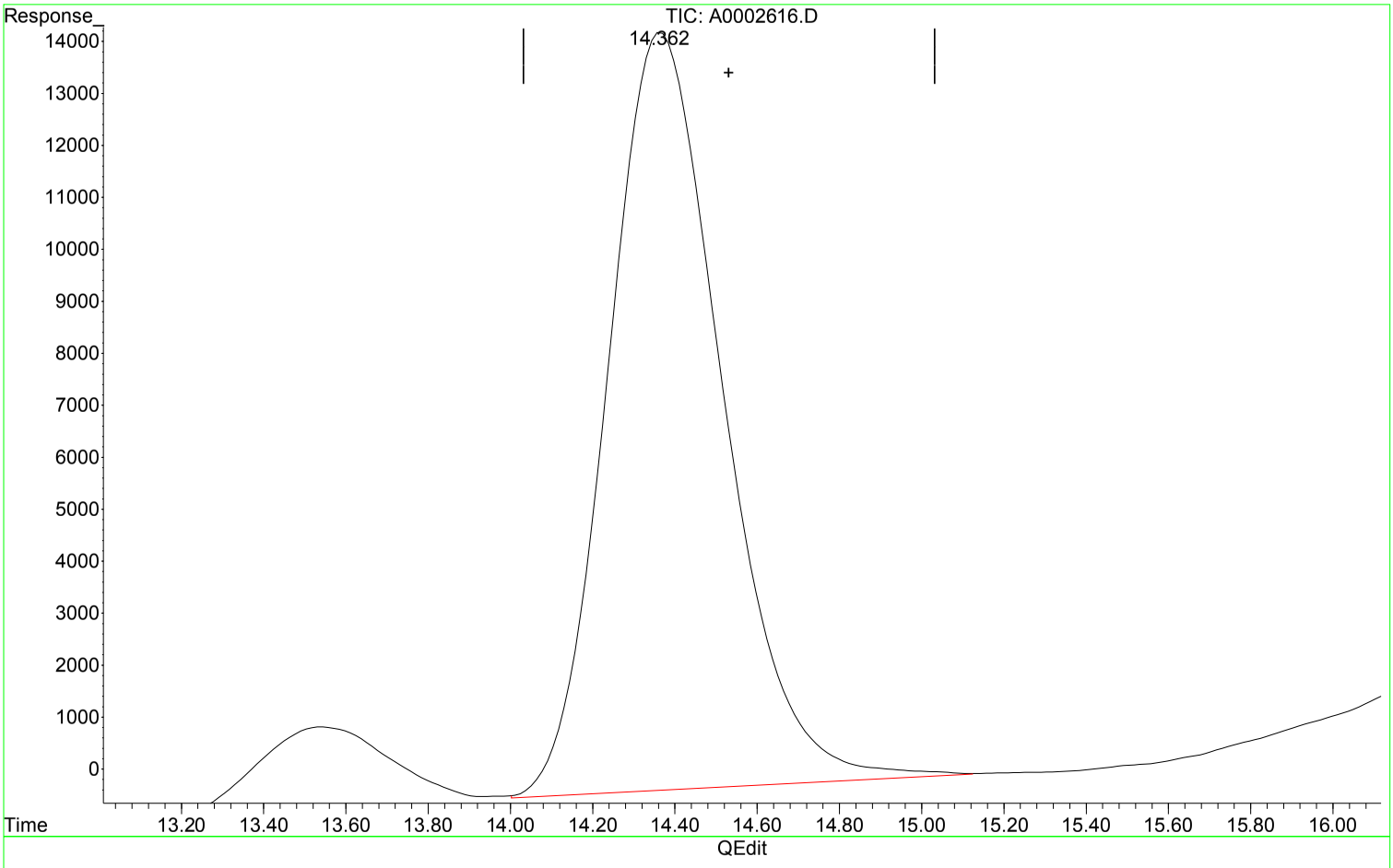
00946768

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002616.D
Signal(s) : dad1A.ch
Acq On : 19-Dec-2018, 22:10:28
Operator : b.allgeier
Sample : CCV
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:27:48 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:27:08 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(5) Propionic Acid (T)

14.362min 47.411 ppm m

response 2825301

Manual Integration:

After

Poor integration.

12/20/18

(+) = Expected Retention Time

MA100418.M Thu Dec 20 09:28:46 2018

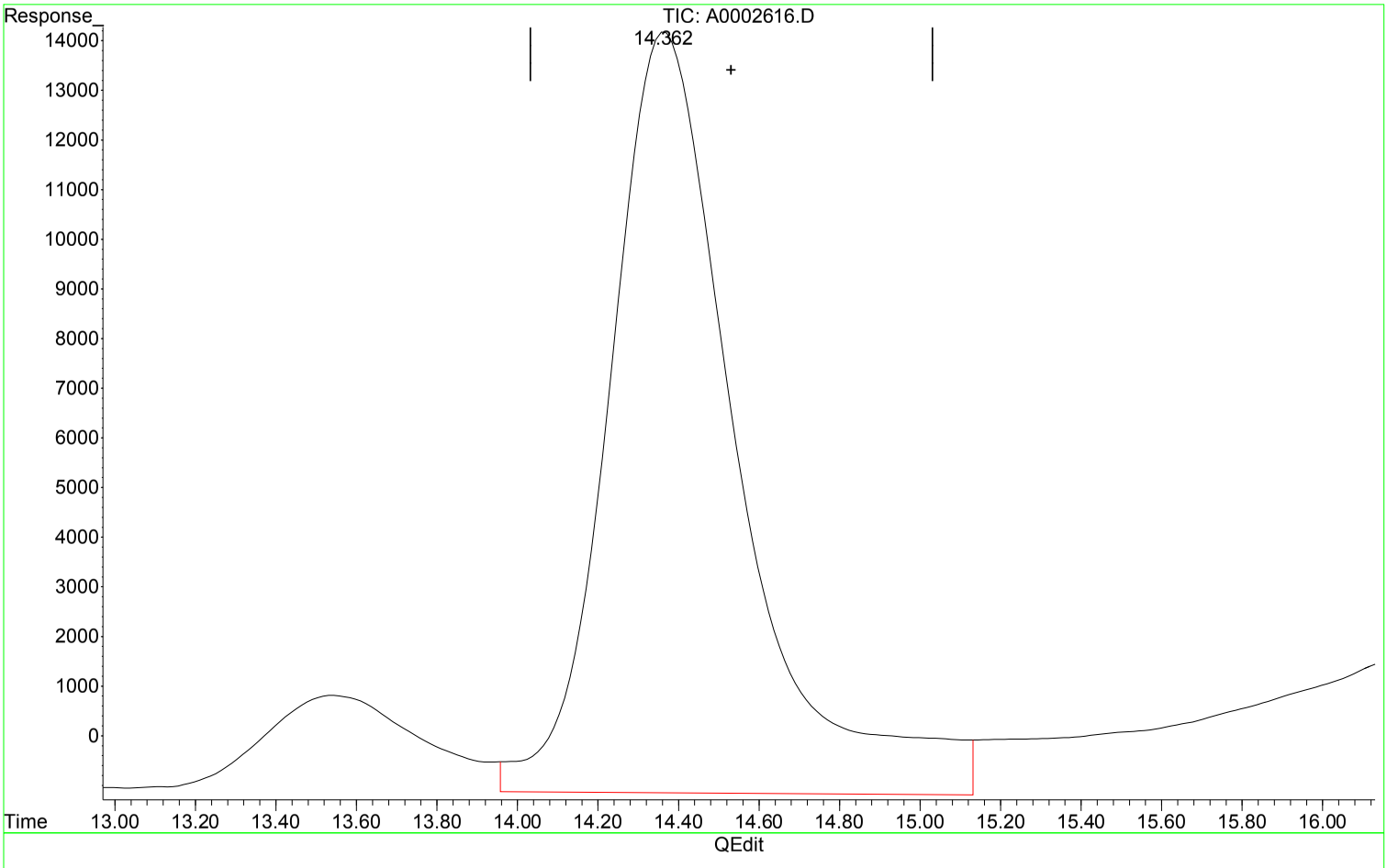
00946769

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002616.D
Signal(s) : dad1A.ch
Acq On : 19-Dec-2018, 22:10:28
Operator : b.allgeier
Sample : CCV
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:27:48 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:27:08 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(5) Propionic Acid (T)

14.368min 57.152 ppm

response 3405796

Manual Integration:

Before

12/20/18

(+) = Expected Retention Time

MA100418.M Thu Dec 20 09:28:40 2018

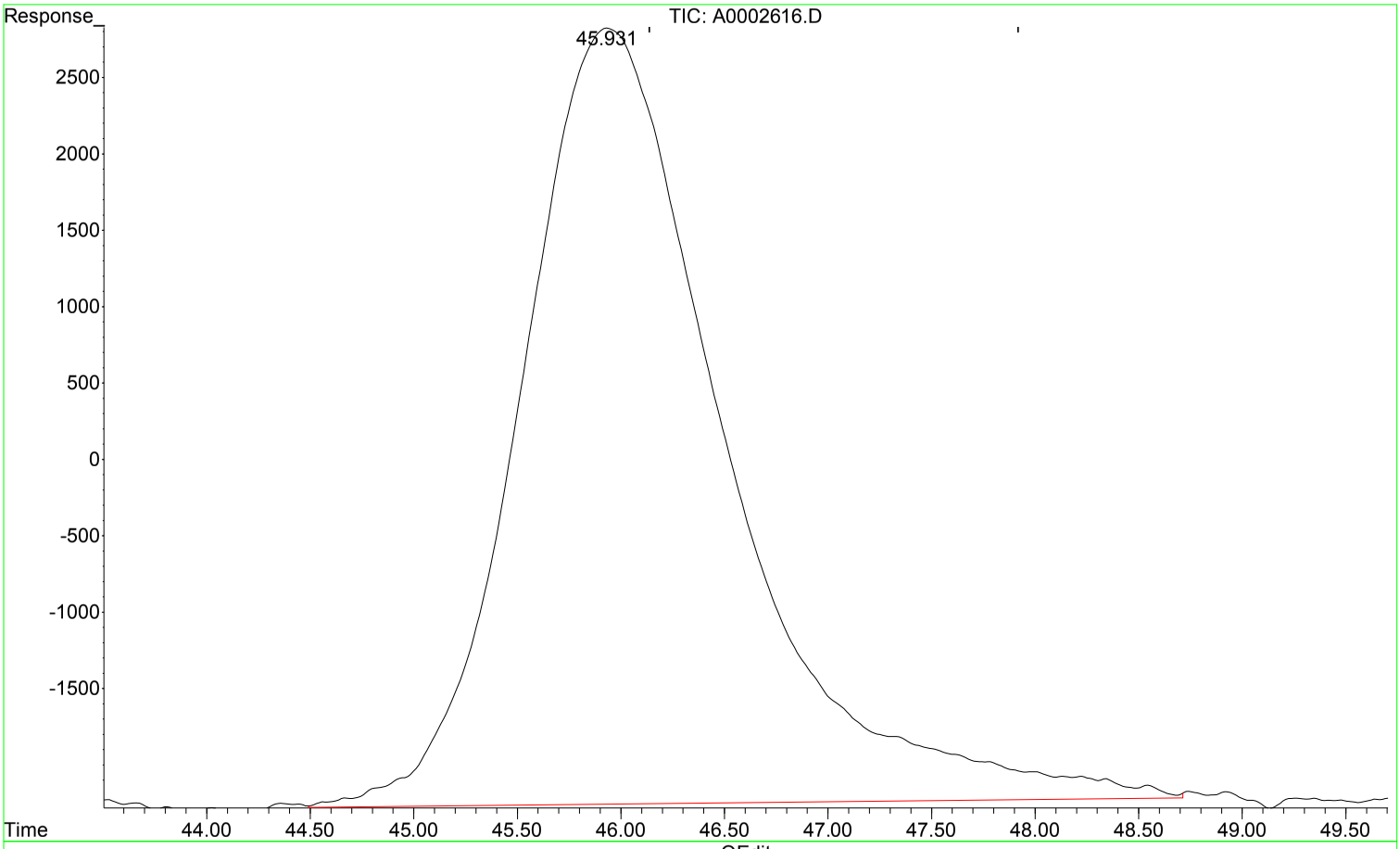
00946770

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002616.D
Signal(s) : dad1A.ch
Acq On : 19-Dec-2018, 22:10:28
Operator : b.allgeier
Sample : CCV
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:27:48 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:27:08 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(6) Butyric Acid (T)

45.931min 55.051 ppm m

response 3462535

Manual Integration:

After

Poor integration.

12/20/18

(+) = Expected Retention Time

MA100418.M Thu Dec 20 09:29:03 2018

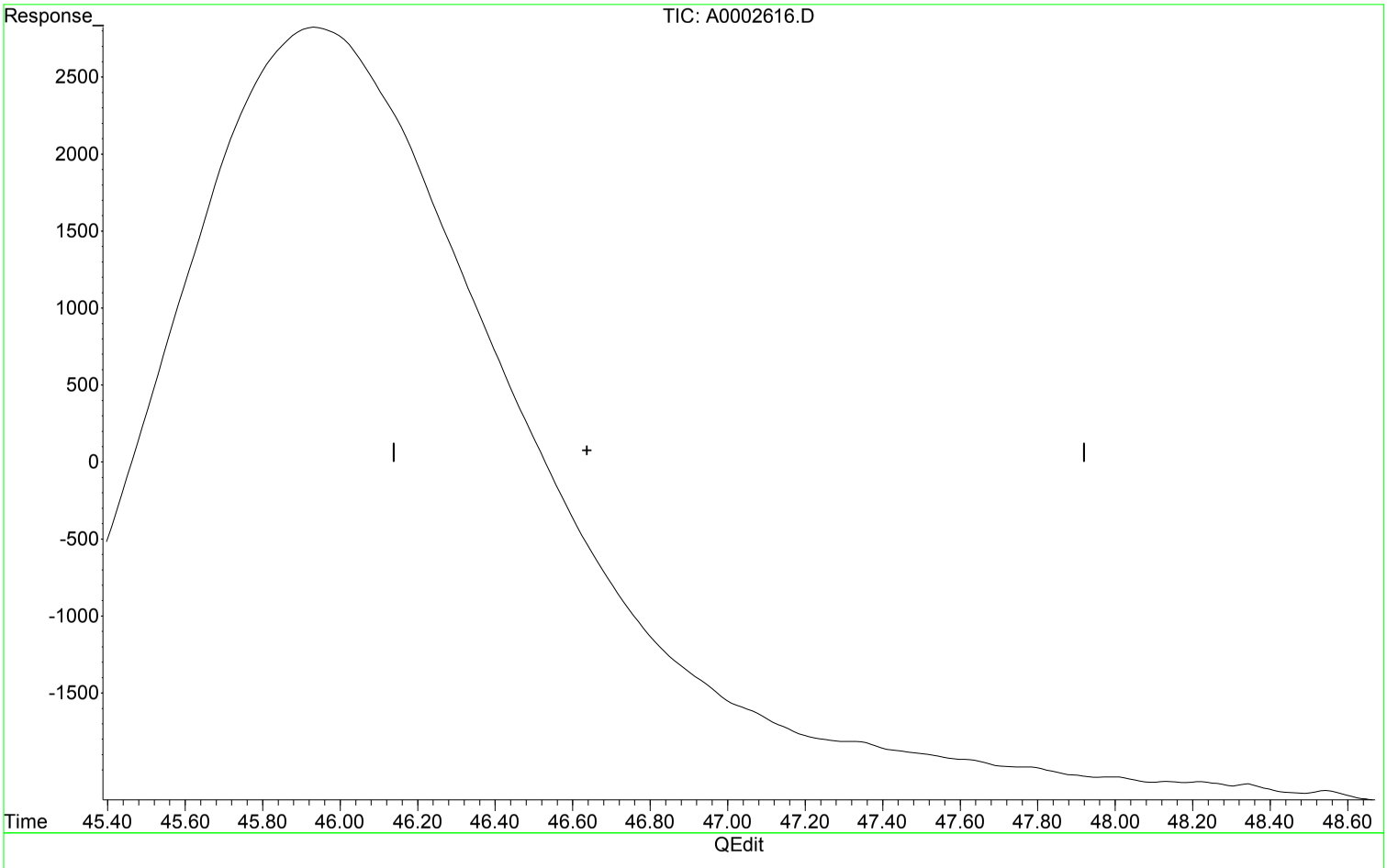
00946771

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002616.D
Signal(s) : dad1A.ch
Acq On : 19-Dec-2018, 22:10:28
Operator : b.allgeier
Sample : CCV
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:27:48 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:27:08 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(6) Butyric Acid (T)

46.638min 0.000 ppm

response 0

Manual Integration:

Before

12/20/18

(+) = Expected Retention Time

MA100418.M Thu Dec 20 09:28:53 2018

00946772

Evaluate Continuing Calibration Report

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002616.D
Signal(s) : dad1A.ch
Acq On : 19-Dec-2018, 22:10:28
Operator : b.allgeier
Sample : CCV
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:27:48 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:27:08 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
1 t	Formic acid	96.343	97.144 E3	-0.8	101	-0.02
2 T	Pyruvic acid	452.935	446.872 E3	1.3	97	-0.03
3 T	Lactic Acid	53.765	58.091 E3	-8.0	107	-0.04
4 T	Acetic Acid	59.169	59.782 E3	-1.0	99	-0.04
5 T	Propionic Acid	59.592	56.506 E3	5.2	96	-0.17
6 T	Butyric Acid	62.897	69.251 E3	-10.1	118	-0.71#

Evaluate Continuing Calibration Report - Not Founds

(#) = Out of Range SPCC's out = 0 CCC's out = 0

00946773

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002616.D
Signal(s) : dad1A.ch
Acq On : 19-Dec-2018, 22:10:28
Operator : b.allgeier
Sample : CCV
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:27:48 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:27:08 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1) t	Formic acid	3.432	4857207	50.416	ppm	m
2) T	Pyruvic acid	4.405	2234360	4.933	ppm	m
3) T	Lactic Acid	5.065	2904540	54.023	ppm	m
4) T	Acetic Acid	5.552	2989104	50.518	ppm	
5) T	Propionic Acid	14.362	2825301	47.411	ppm	m
6) T	Butyric Acid	45.931f	3462535	55.051	ppm	m

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

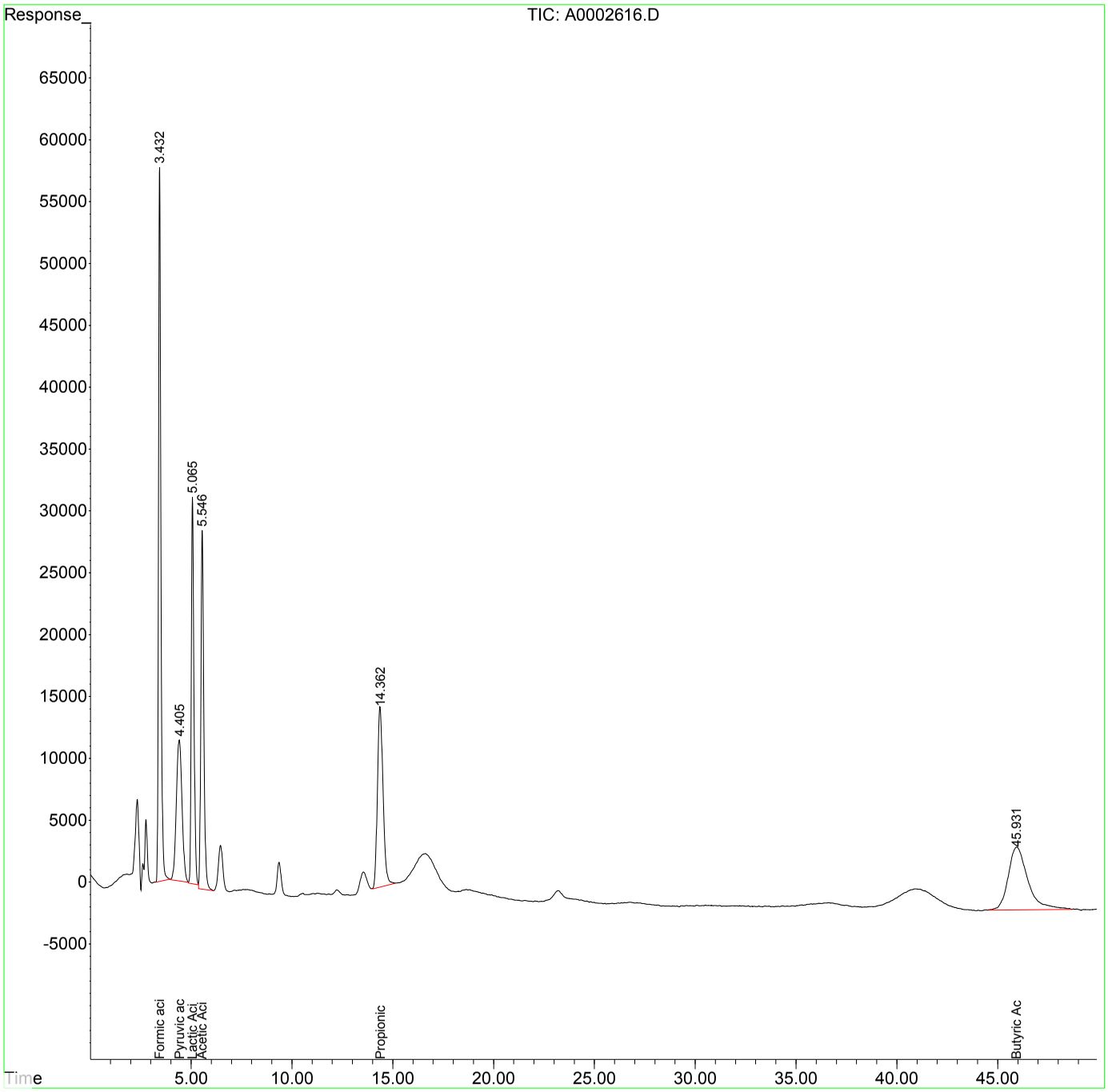
00946774

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002616.D
Signal(s) : dad1A.ch
Acq On : 19-Dec-2018, 22:10:28
Operator : b.allgeier
Sample : CCV
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 20 09:27:48 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Dec 20 09:27:08 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



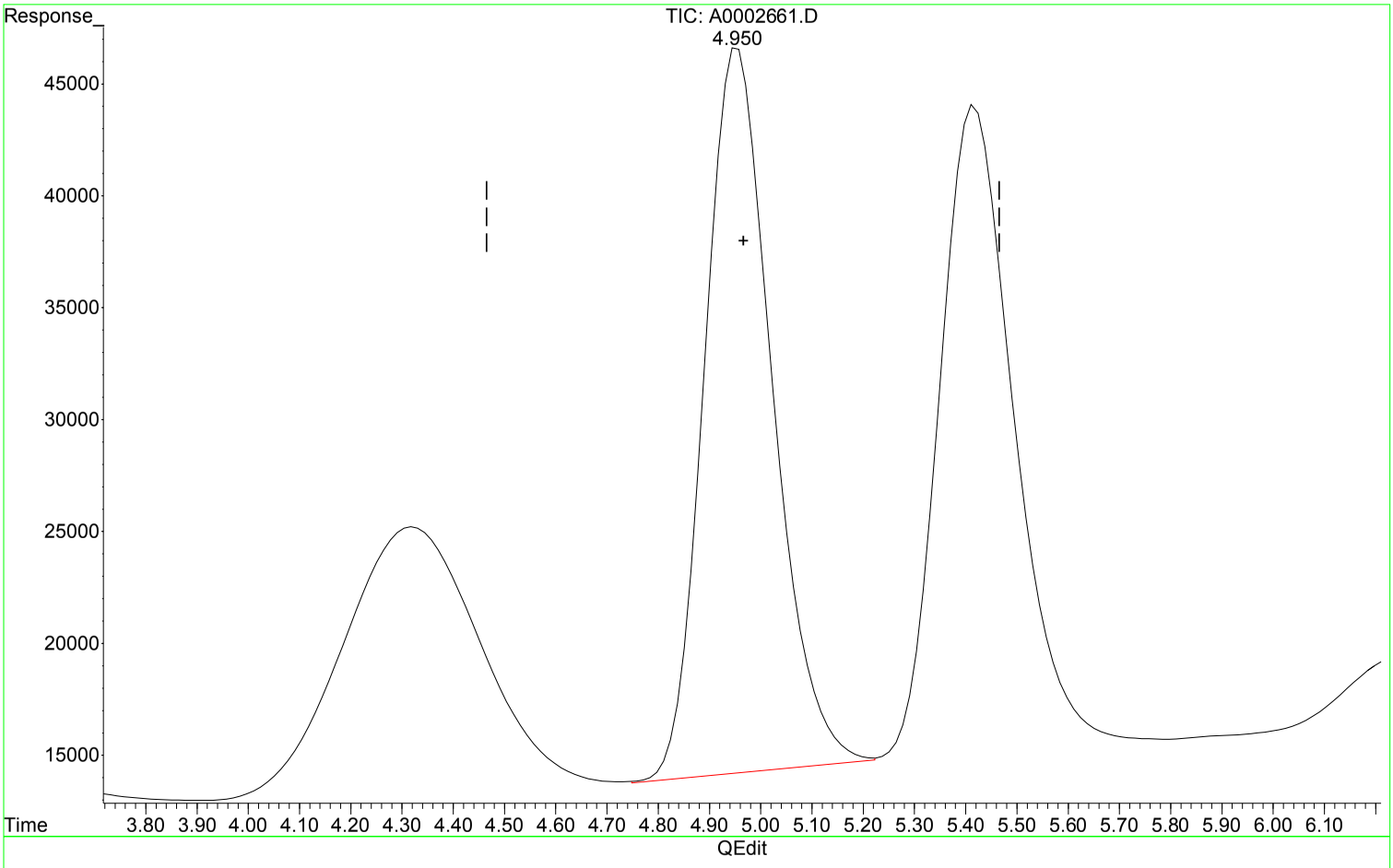
00946775

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002661.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 17:48:15
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 21 14:46:27 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Fri Dec 21 14:46:13 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(3) Lactic Acid (T)

4.950min 55.665 ppm m

response 2992819

Manual Integration:

After

Poor integration.

12/21/18

(+) = Expected Retention Time

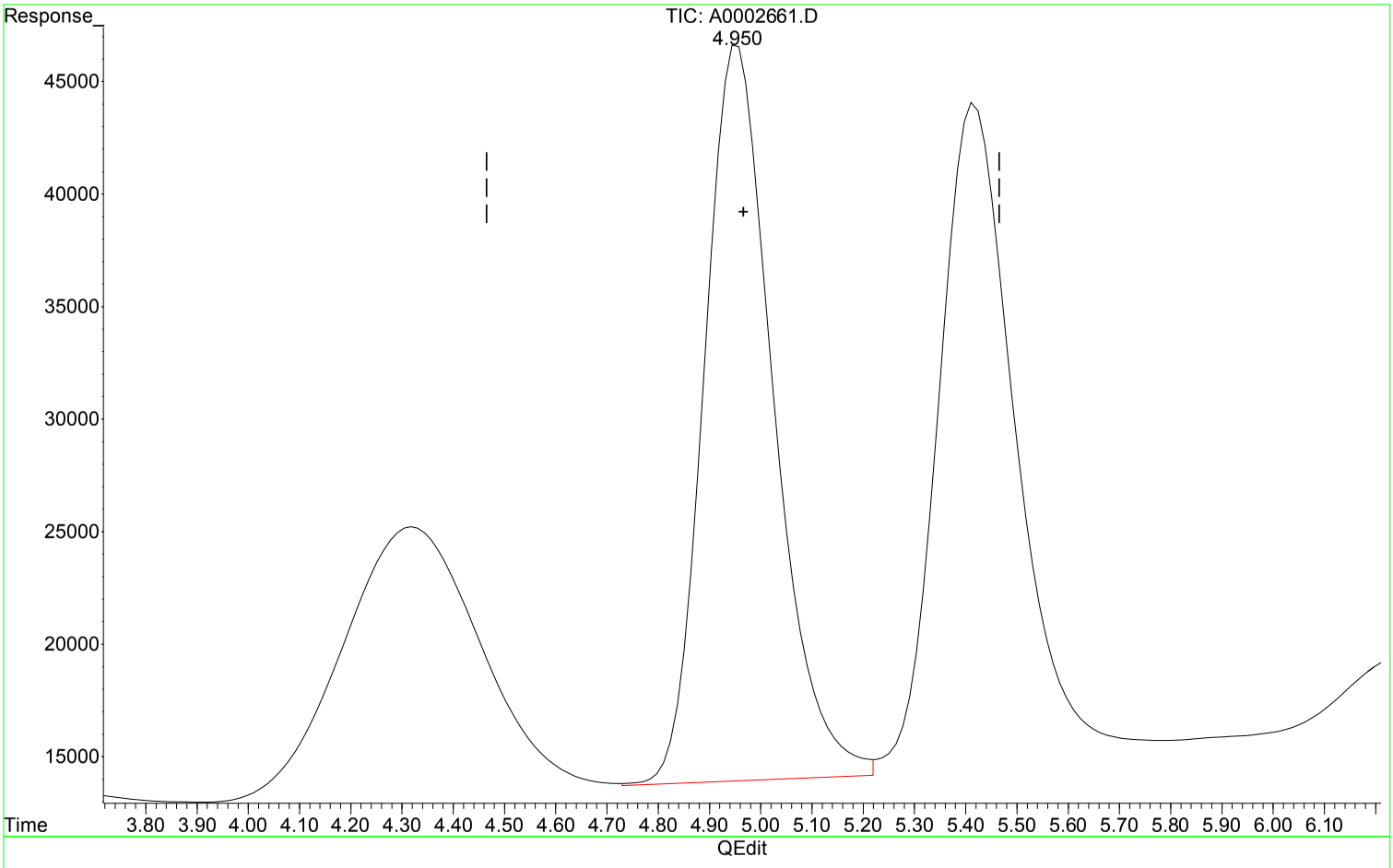
00946776

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002661.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 17:48:15
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 21 14:46:27 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Fri Dec 21 14:46:13 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(3) Lactic Acid (T)

4.957min 57.280 ppm

response 3079640

Manual Integration:

Before

12/21/18

(+) = Expected Retention Time

MA100418.M Fri Dec 21 14:46:43 2018

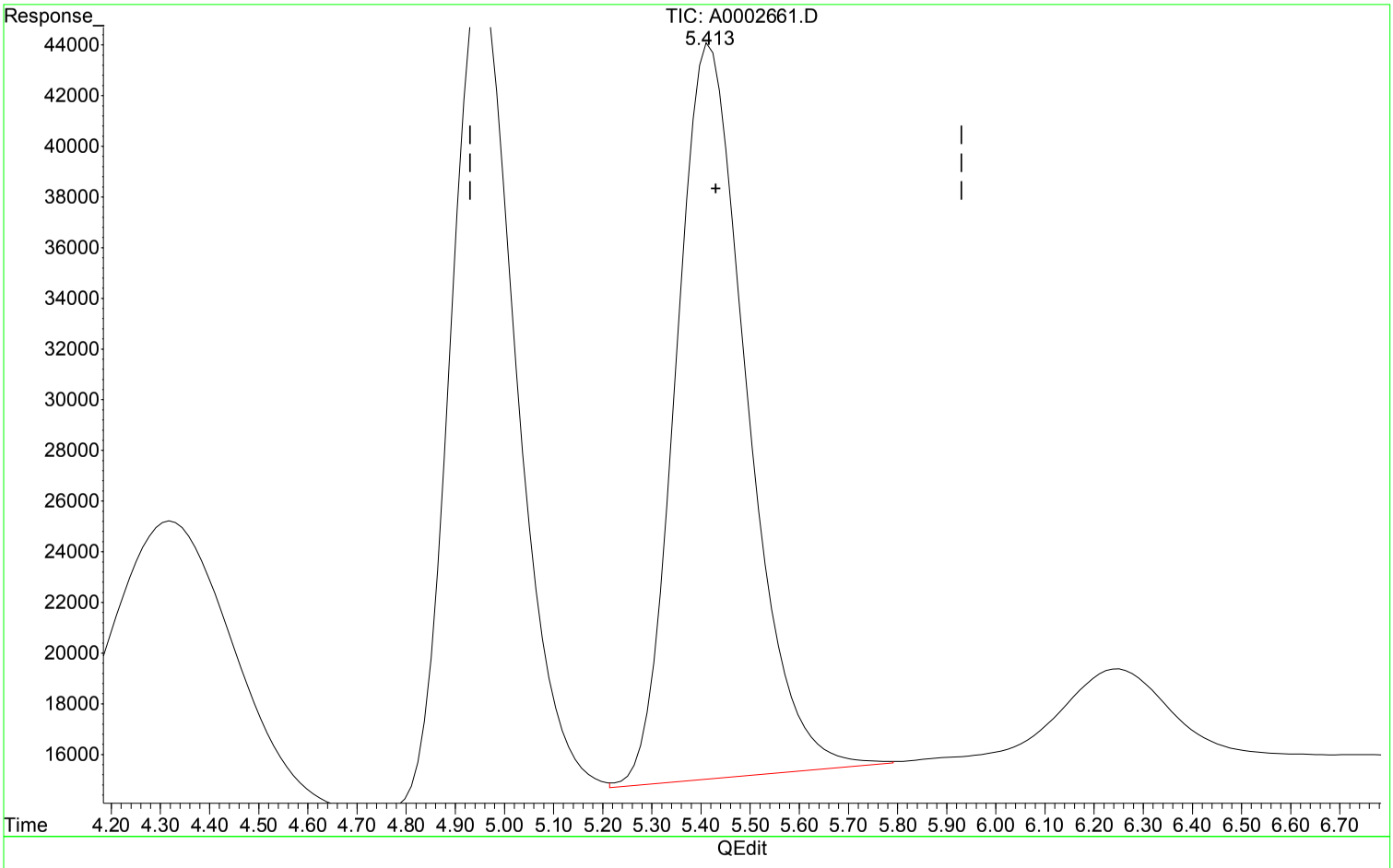
00946777

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002661.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 17:48:15
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 21 14:46:27 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Fri Dec 21 14:46:13 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(4) Acetic Acid (T)

5.413min 49.499 ppm m

response 2928823

Manual Integration:

After

Poor integration.

12/21/18

(+) = Expected Retention Time

MA100418.M Fri Dec 21 14:46:59 2018

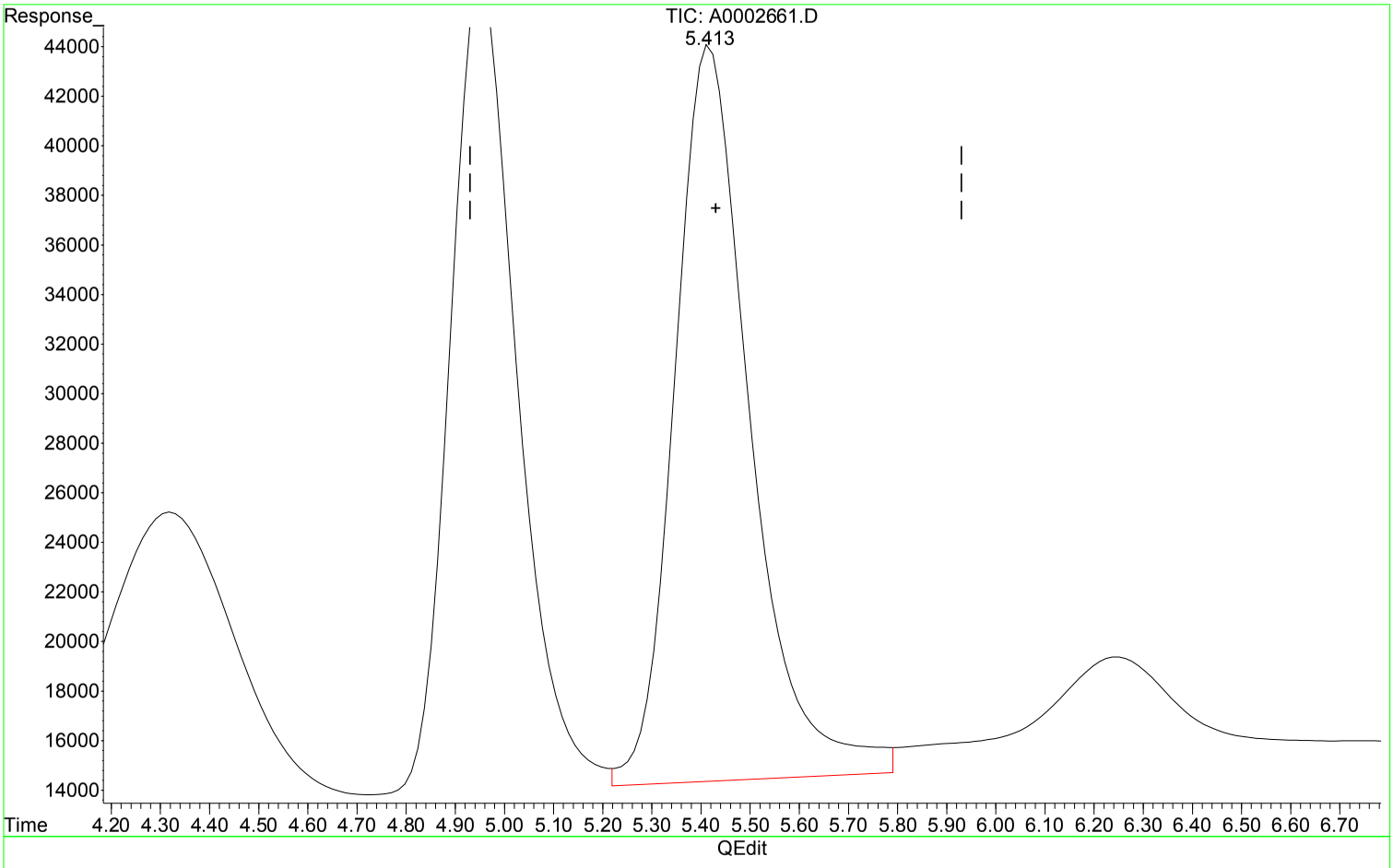
00946778

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002661.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 17:48:15
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 21 14:46:27 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Fri Dec 21 14:46:13 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(4) Acetic Acid (T)

5.420min 53.746 ppm

response 3180137

Manual Integration:

Before

12/21/18

(+) = Expected Retention Time

MA100418.M Fri Dec 21 14:46:53 2018

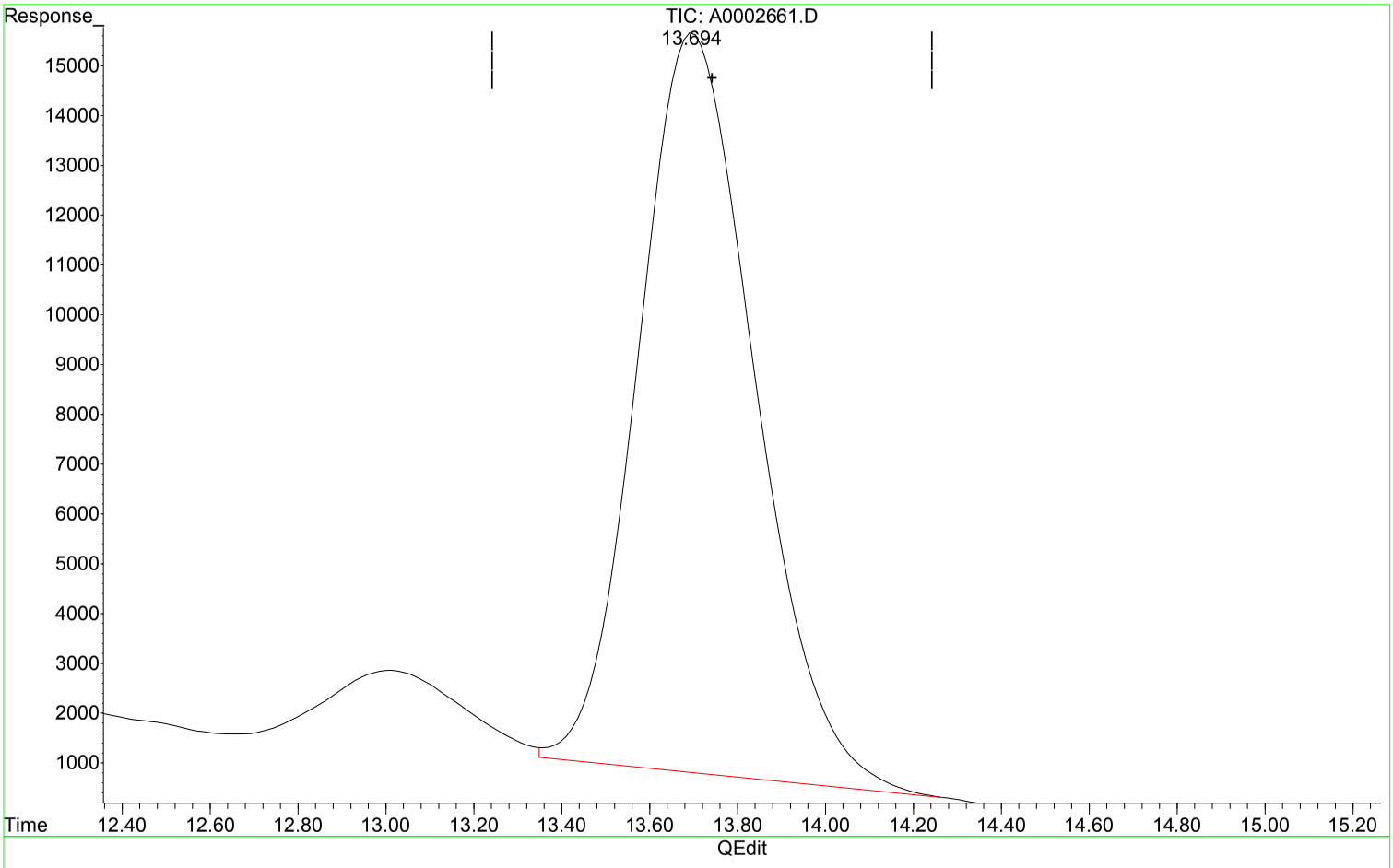
00946779

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002661.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 17:48:15
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 21 14:46:27 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Fri Dec 21 14:46:13 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(5) Propionic Acid (T)

13.694min 46.178 ppm m

response 2751846

Manual Integration:

After

Poor integration.

12/21/18

(+) = Expected Retention Time

MA100418.M Fri Dec 21 14:47:09 2018

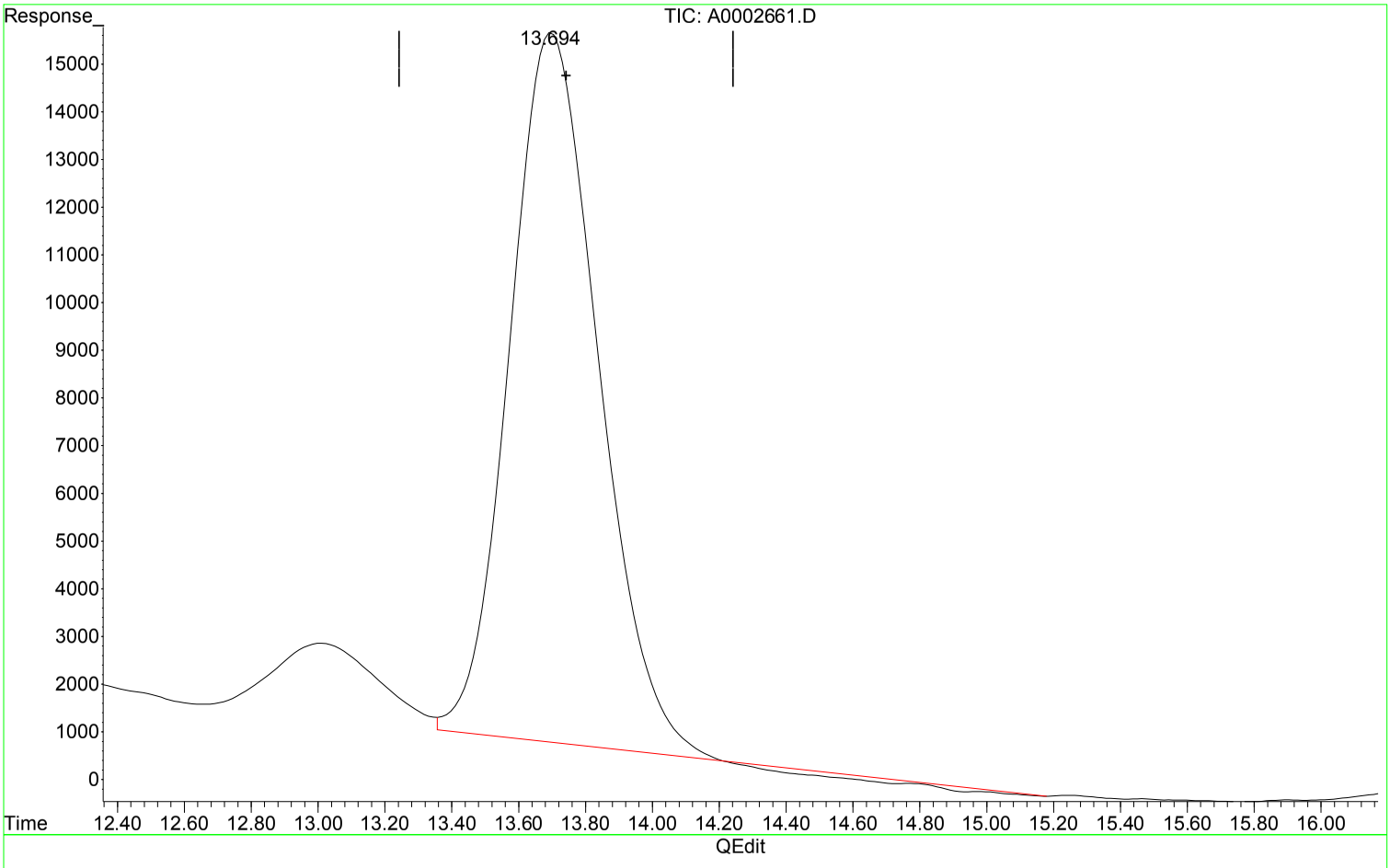
00946780

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002661.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 17:48:15
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 21 14:46:27 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Fri Dec 21 14:46:13 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(5) Propionic Acid (T)

13.701min 45.674 ppm

response 2721779

Manual Integration:

Before

12/21/18

(+) = Expected Retention Time

00946781

1st BA 12/24/18
2nd DM 12/26/18

Evaluate Continuing Calibration Report

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002661.D
Signal(s) : dad1A.ch
Acq On : ~~30-Dec-2000, 17:48:15~~ 21-Dec-2018, 13:50:00
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 21 14:46:27 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Fri Dec 21 14:46:13 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
1 t	Formic acid	96.343	94.769 E3	1.6	98	0.00
2 T	Pyruvic acid	452.935	439.778 E3	2.9	96	0.00
3 T	Lactic Acid	53.765	59.856 E3	-11.3	110	-0.02
4 T	Acetic Acid	59.169	58.576 E3	1.0	97	-0.02
5 T	Propionic Acid	59.592	55.037 E3	7.6	93	-0.05
6 T	Butyric Acid	62.897	54.523 E3	13.3	93	-0.22

Evaluate Continuing Calibration Report - Not Founds

(#) = Out of Range SPCC's out = 0 CCC's out = 0

00946782

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002661.D
Signal(s) : dad1A.ch
Acq On : ~~30-Dec-2000, 17:48:15~~ 21-Dec-2018, 13:50:00
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 21 14:46:27 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Fri Dec 21 14:46:13 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1) t	Formic acid	3.409	4738427	49.183	ppm	
2) T	Pyruvic acid	4.323	2198889	4.855	ppm	
3) T	Lactic Acid	4.950	2992819	55.665	ppm	m
4) T	Acetic Acid	5.413	2928823	49.499	ppm	m
5) T	Propionic Acid	13.694	2751846	46.178	ppm	m
6) T	Butyric Acid	42.960	2726132	43.343	ppm	

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

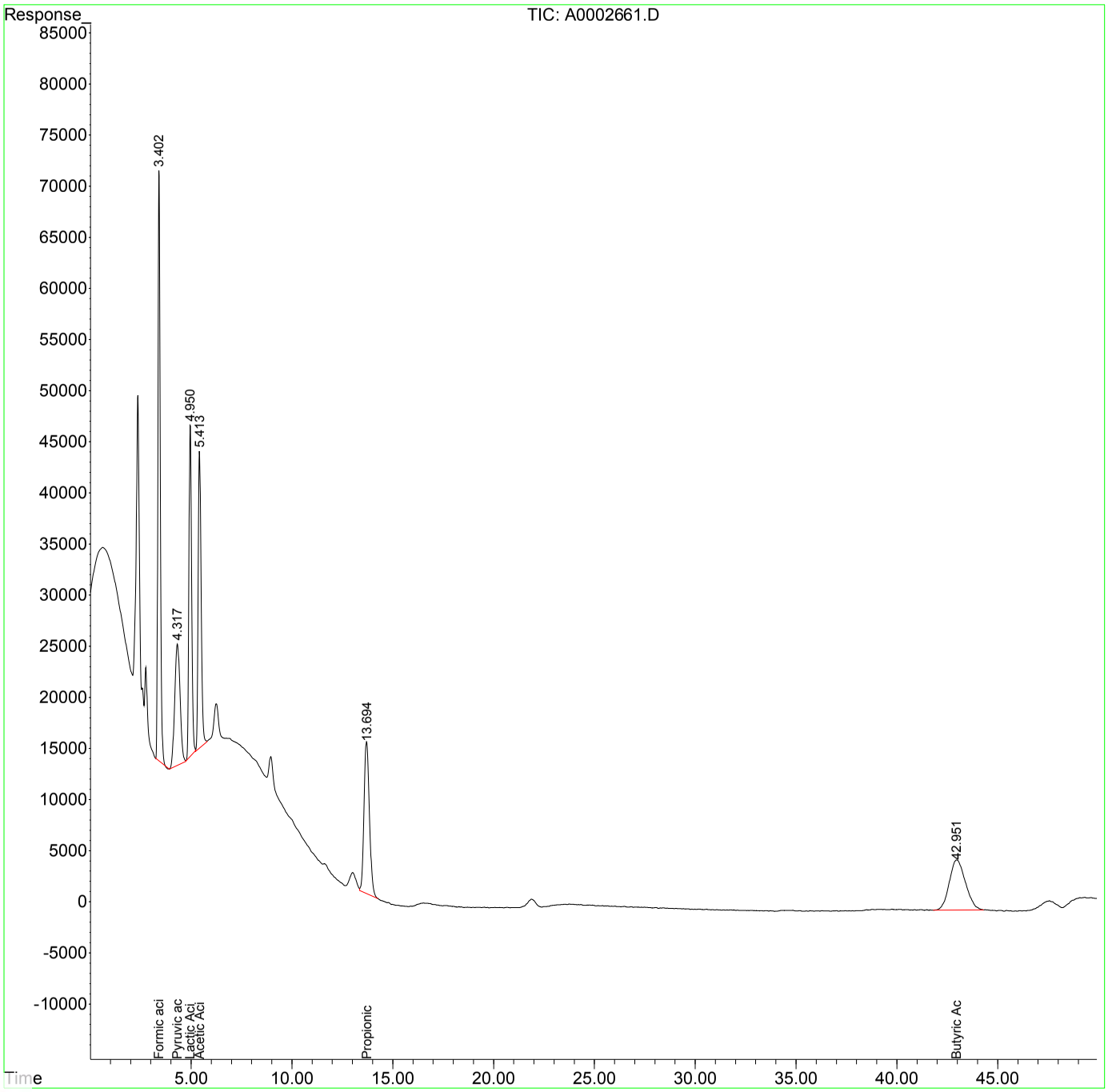
00946783

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002661.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 17:48:15
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 21 14:46:27 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Fri Dec 21 14:46:13 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



Evaluate Continuing Calibration Report

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002664.D
Signal(s) : dad1A.ch
Acq On : 21-Dec-2018, 16:31:46
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 24 09:50:00 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Mon Dec 24 09:49:30 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
1 t	Formic acid	96.343	96.917 E3	-0.6	101	0.00
2 T	Pyruvic acid	452.935	455.683 E3	-0.6	99	0.00
3 T	Lactic Acid	53.765	60.657 E3	-12.8	112	0.00
4 T	Acetic Acid	59.169	59.543 E3	-0.6	98	0.00
5 T	Propionic Acid	59.592	59.498 E3	0.2	101	0.00
6 T	Butyric Acid	62.897	56.871 E3	9.6	97	-0.02

Evaluate Continuing Calibration Report - Not Founds

(#) = Out of Range SPCC's out = 0 CCC's out = 0

00946785

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002664.D
Signal(s) : dad1A.ch
Acq On : 21-Dec-2018, 16:31:46
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 24 09:50:00 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Mon Dec 24 09:49:30 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc Units
Target Compounds				
1) t	Formic acid	3.410	4845835	50.298 ppm
2) T	Pyruvic acid	4.318	2278413	5.030 ppm
3) T	Lactic Acid	4.957	3032840	56.409 ppm
4) T	Acetic Acid	5.420	2977131	50.315 ppm
5) T	Propionic Acid	13.692	2974878	49.921 ppm
6) T	Butyric Acid	42.935	2843527	45.209 ppm

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

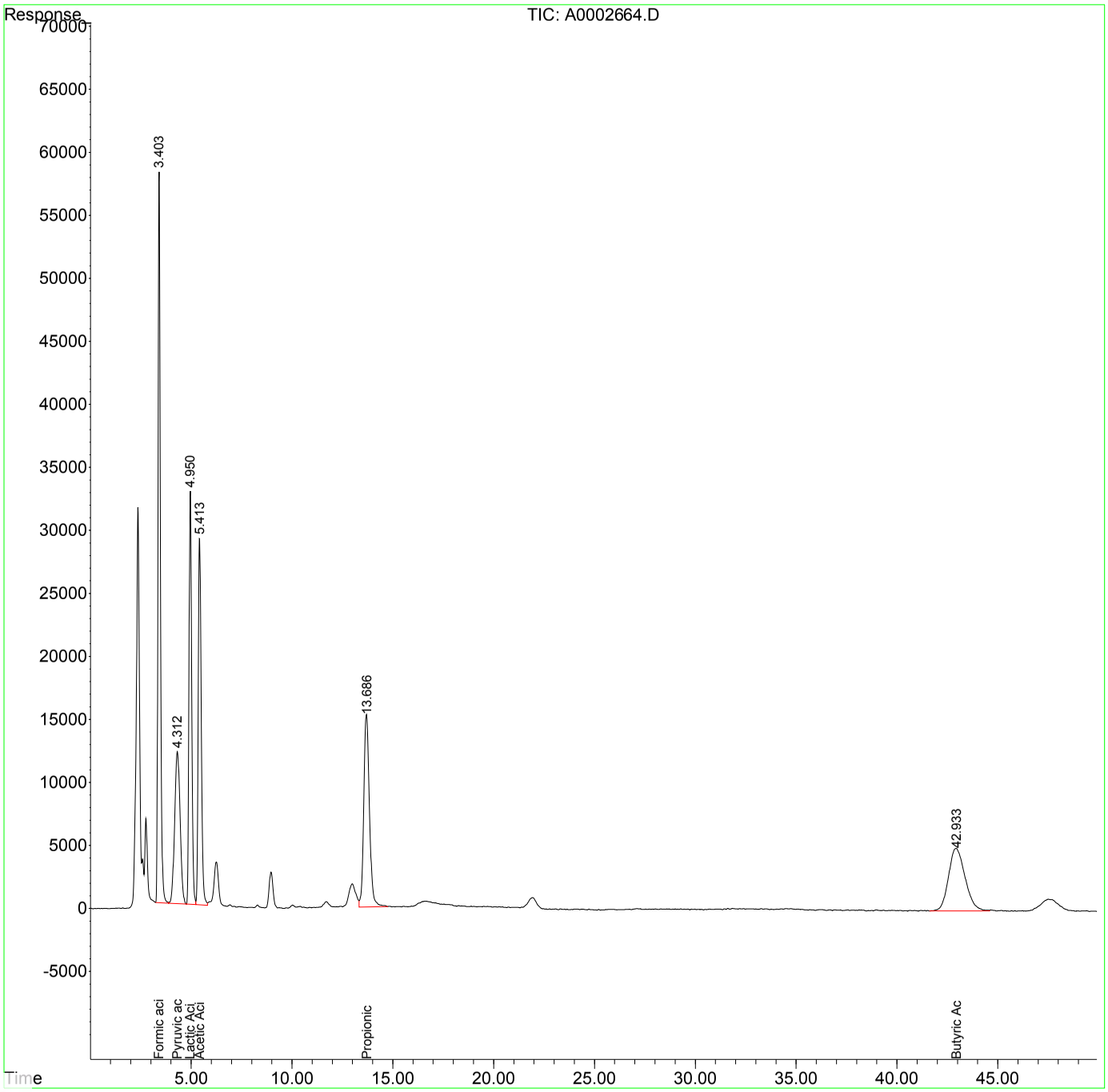
00946786

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\121918\
Data File : A0002664.D
Signal(s) : dad1A.ch
Acq On : 21-Dec-2018, 16:31:46
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Dec 24 09:50:00 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Mon Dec 24 09:49:30 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



00946787

Evaluate Continuing Calibration Report

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002717.D
Signal(s) : dad1A.ch
Acq On : 31-Dec-2018, 23:18:33
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 7 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 11:16:23 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 11:16:09 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
1 t	Formic acid	93.481	94.395 E3	-1.0	100	0.00
2 T	Pyruvic acid	719.144	710.268 E3	1.2	100	0.00
3 T	Lactic Acid	58.359	59.763 E3	-2.4	100	0.00
4 T	Acetic Acid	58.368	59.233 E3	-1.5	100	0.00
5 T	Propionic Acid	57.631	55.776 E3	3.2	99	0.00
6 T	Butyric Acid	54.107	54.456 E3	-0.6	100	0.00

Evaluate Continuing Calibration Report - Not Founds

(#) = Out of Range SPCC's out = 0 CCC's out = 0

00946788

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002717.D
Signal(s) : dad1A.ch
Acq On : 31-Dec-2018, 23:18:33
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 7 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 11:16:23 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 11:16:09 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc Units
Target Compounds				
1) t	Formic acid	3.399	4719758	50.489 ppm
2) T	Pyruvic acid	4.226	3551341	4.938 ppm
3) T	Lactic Acid	4.837	2988151	51.203 ppm
4) T	Acetic Acid	5.278	2961665	50.741 ppm
5) T	Propionic Acid	12.879	2788796	48.391 ppm
6) T	Butyric Acid	39.291	2722784	50.322 ppm

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

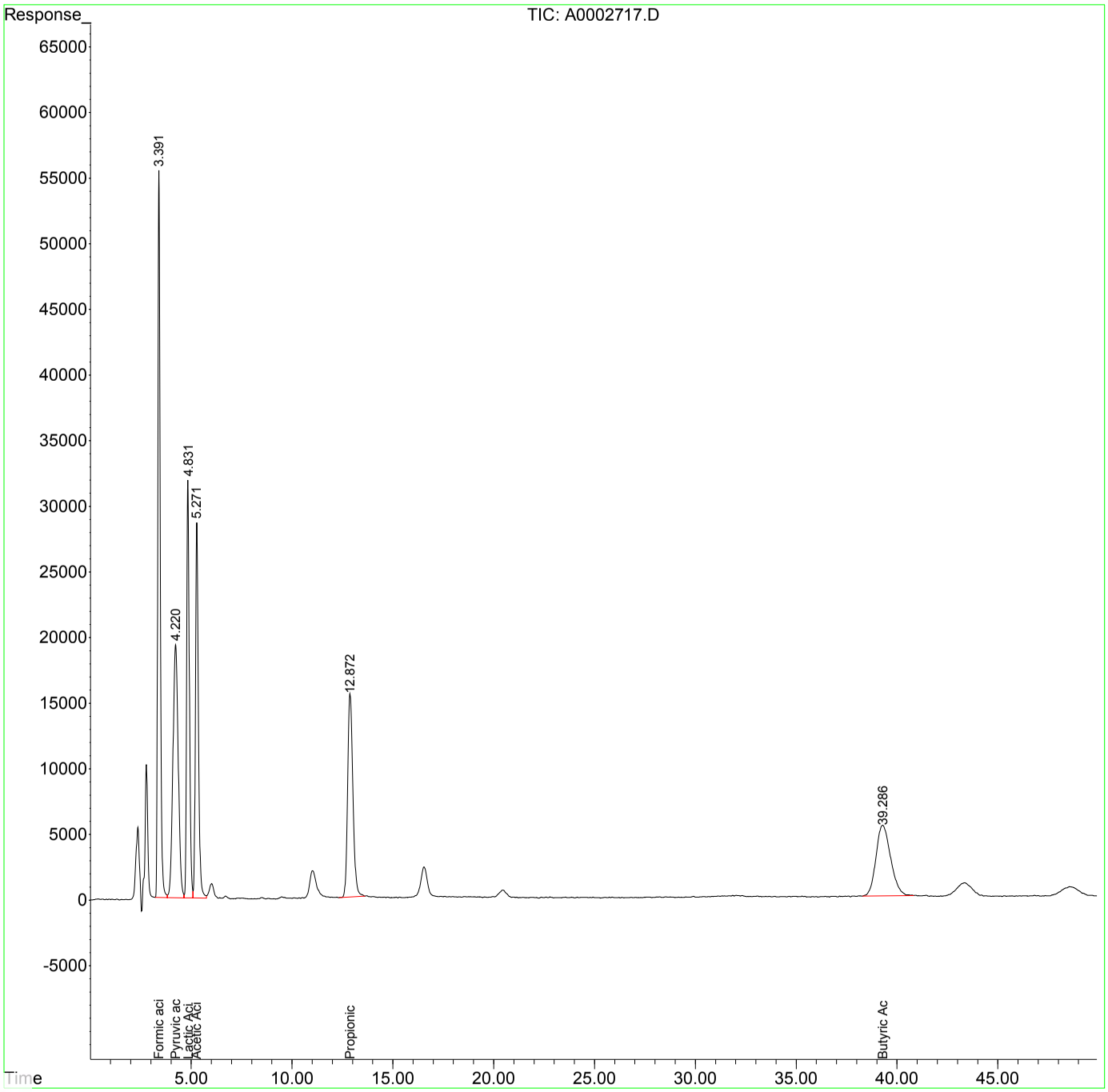
00946789

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002717.D
Signal(s) : dad1A.ch
Acq On : 31-Dec-2018, 23:18:33
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 7 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 11:16:23 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 11:16:09 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



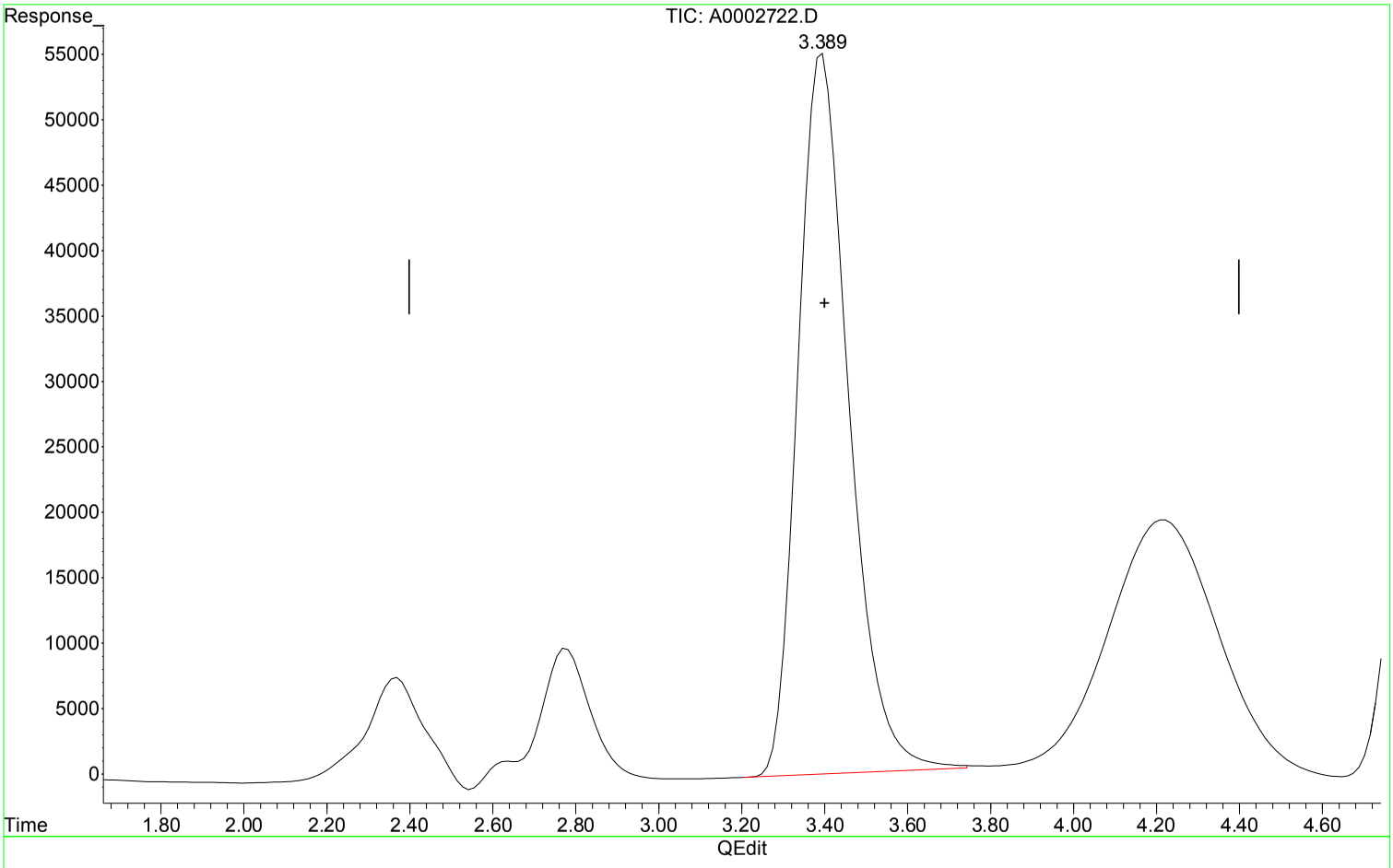
00946790

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002722.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 17:47:49
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 7 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 11:16:33 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 11:16:09 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(1) Formic acid (t)

3.389min 50.262 ppm m

response 4698578

Manual Integration:

After

Poor integration.

01/02/19

(+) = Expected Retention Time

MA123118.M Wed Jan 02 11:18:40 2019

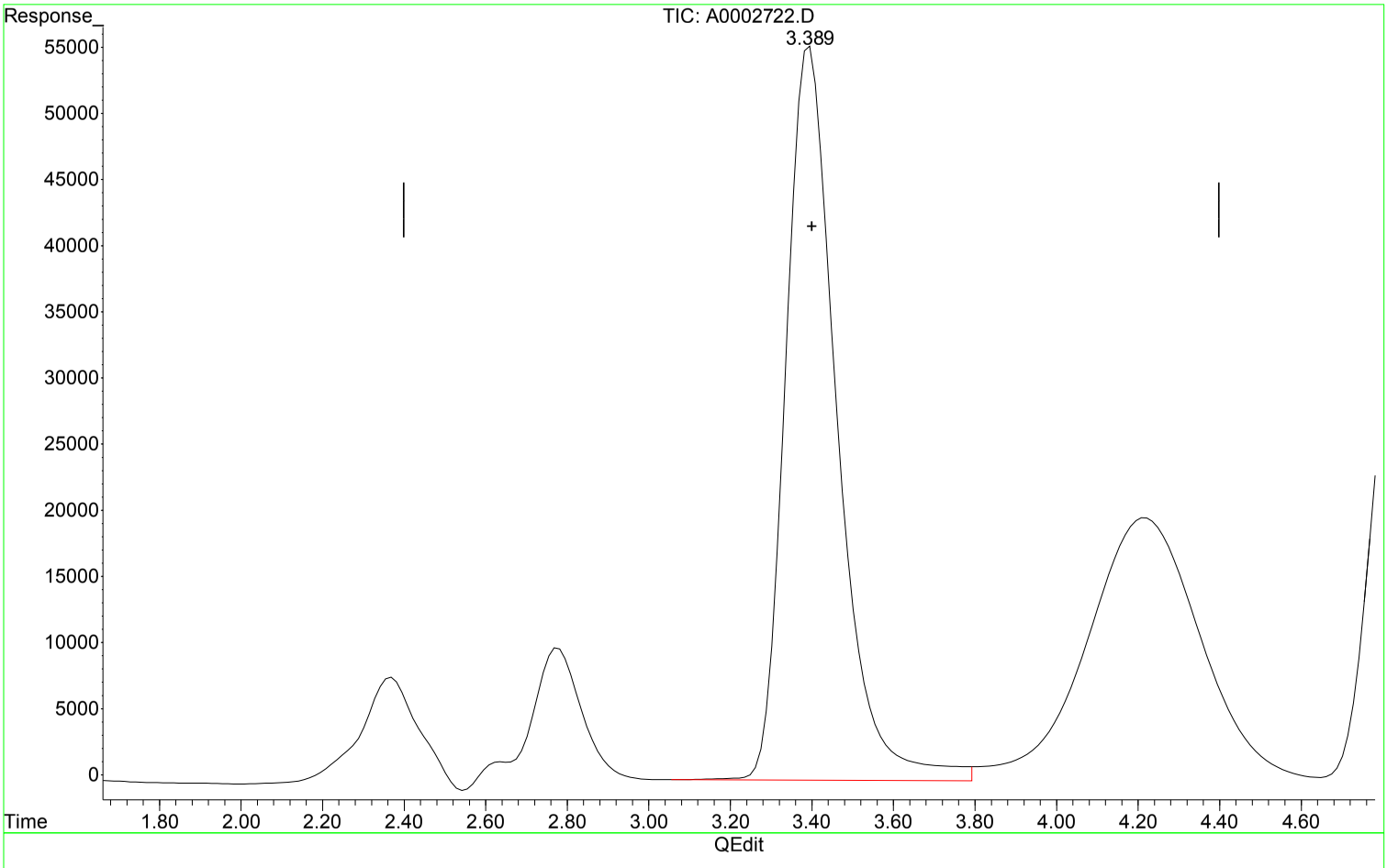
00946791

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002722.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 17:47:49
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 7 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 11:16:33 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 11:16:09 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(1) Formic acid (t)

3.396min 52.412 ppm

response 4899515

Manual Integration:

Before

01/02/19

(+) = Expected Retention Time

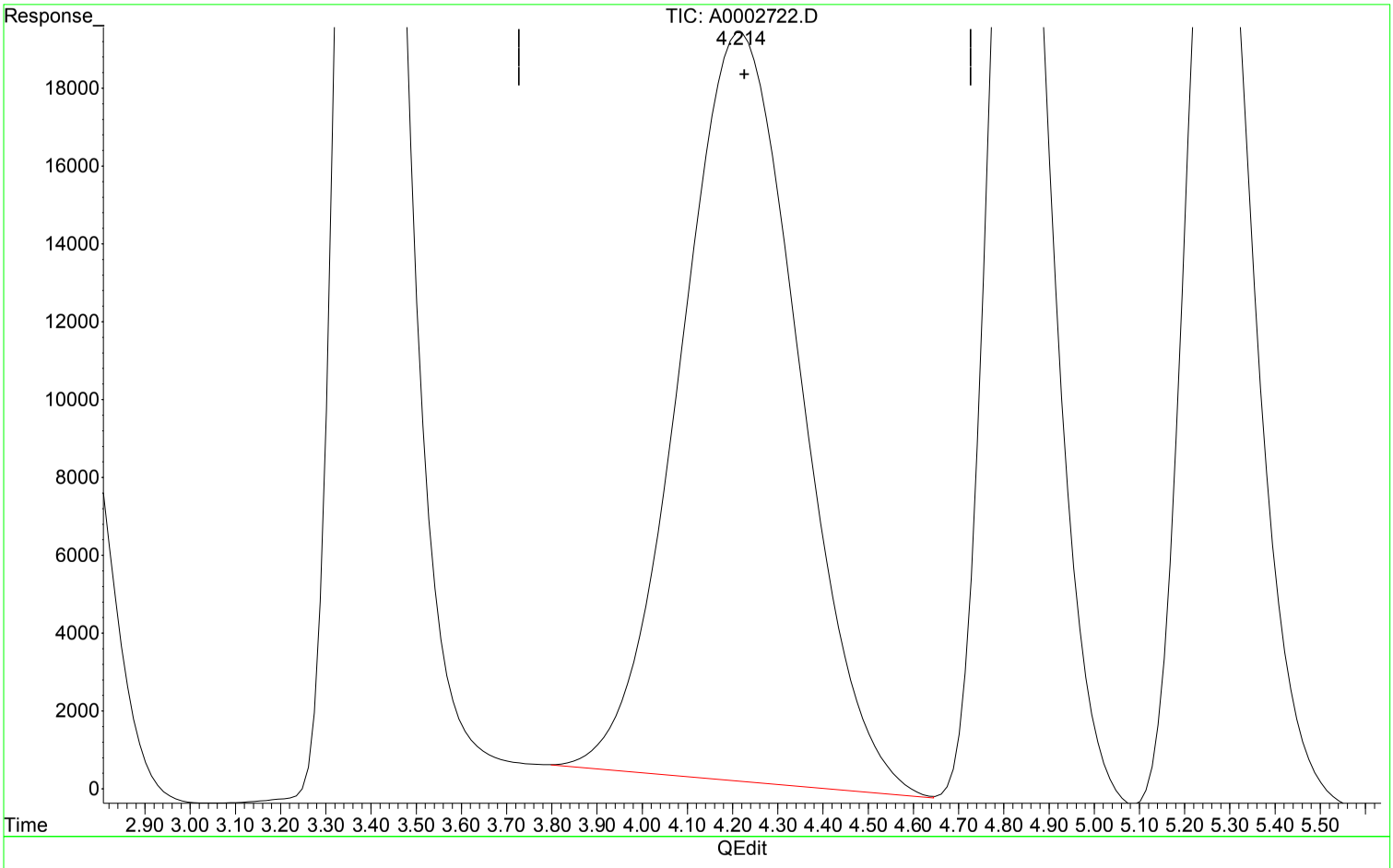
00946792

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002722.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 17:47:49
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 7 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 11:16:33 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 11:16:09 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(2) Pyruvic acid (T)

4.214min 4.925 ppm m

response 3542117

Manual Integration:

After

Poor integration.

01/02/19

(+) = Expected Retention Time

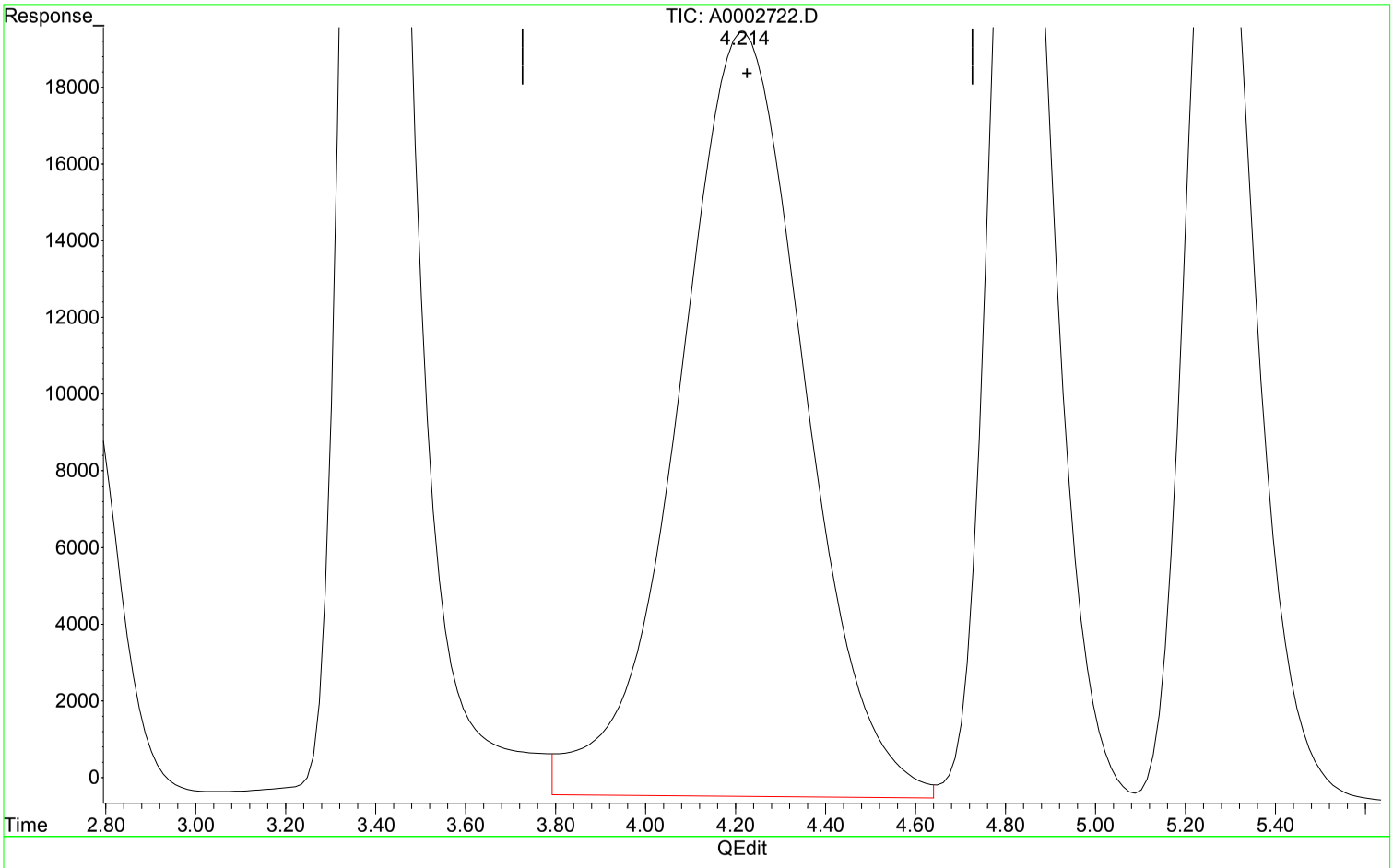
00946793

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002722.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 17:47:49
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 7 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 11:16:33 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 11:16:09 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(2) Pyruvic acid (T)

4.219min 5.413 ppm

response 3892397

Manual Integration:

Before

01/02/19

(+) = Expected Retention Time

MA123118.M Wed Jan 02 11:18:43 2019

00946794

Evaluate Continuing Calibration Report

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002722.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 17:47:49
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 7 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 11:16:33 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 11:16:09 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
1 t	Formic acid	93.481	93.972 E3	-0.5	100	0.00
2 T	Pyruvic acid	719.144	708.423 E3	1.5	100	-0.01
3 T	Lactic Acid	58.359	59.444 E3	-1.9	100	0.00
4 T	Acetic Acid	58.368	56.958 E3	2.4	96	0.00
5 T	Propionic Acid	57.631	57.440 E3	0.3	102	-0.03
6 T	Butyric Acid	54.107	54.008 E3	0.2	99	-0.09

Evaluate Continuing Calibration Report - Not Founds

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002722.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 17:47:49
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 7 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 11:16:33 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 11:16:09 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1) t	Formic acid	3.389	4698578	50.262	ppm	m
2) T	Pyruvic acid	4.214	3542117	4.925	ppm	m
3) T	Lactic Acid	4.833	2972182	50.929	ppm	
4) T	Acetic Acid	5.274	2847915	48.792	ppm	
5) T	Propionic Acid	12.853	2872024	49.835	ppm	
6) T	Butyric Acid	39.194	2700380	49.908	ppm	

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

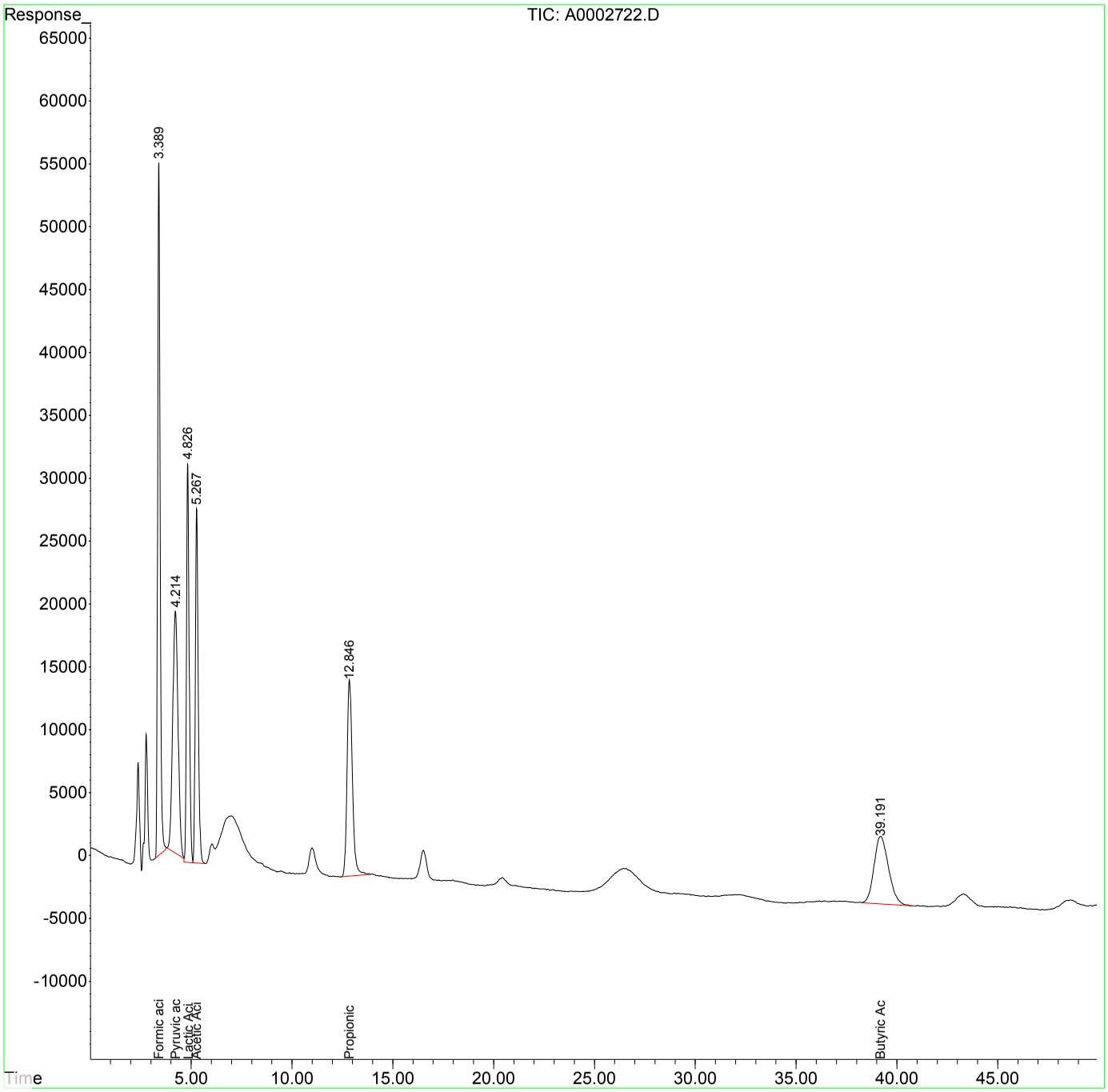
00946796

1st BA 01/02/19
2nd DM 01/03/19

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002722.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 17:47:49
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 7 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 11:16:33 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 11:16:09 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



00946797

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002375.D
Signal(s) : dad1A.ch
Acq On : 31-Dec-2000, 02:48:10
Operator : b.allgeier
Sample : icv
Misc :
ALS Vial : 10 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 05 08:21:24 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 16:42:39 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc Units
Target Compounds				
1) t	Formic acid	3.131	1896636	19.686 ppm
2) T	Pyruvic acid	3.628	1357394	2.997 ppm
3) T	Lactic Acid	4.052	1086883	20.215 ppm
4) T	Acetic Acid	4.405	1218452	20.593 ppm
5) T	Propionic Acid	9.222	1146657	19.242 ppm
6) T	Butyric Acid	25.002	1138865	18.107 ppm

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

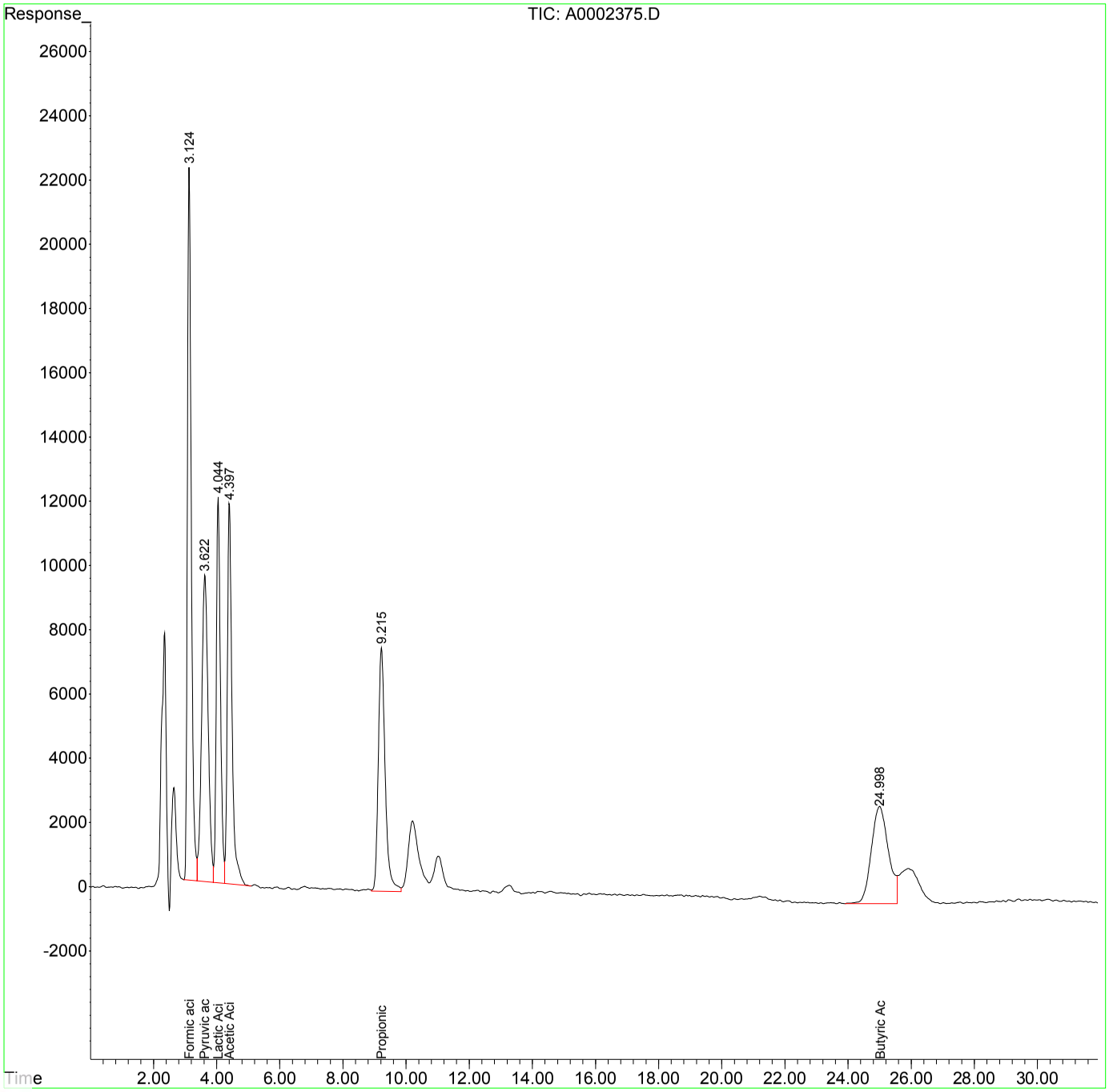
00946798

1st BA 10/05/18
2nd MP 10/09/18

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002375.D
Signal(s) : dad1A.ch
Acq On : 31-Dec-2000, 02:48:10
Operator : b.allgeier
Sample : icv
Misc :
ALS Vial : 10 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 05 08:21:24 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 16:42:39 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



00946799

Evaluate Continuing Calibration Report

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002375.D
Signal(s) : dad1A.ch
Acq On : 31-Dec-2000, 02:48:10
Operator : b.allgeier
Sample : icv
Misc :
ALS Vial : 10 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 05 08:21:24 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 16:42:39 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
1 t	Formic acid	96.343	94.832 E3	1.6	100	0.00
2 T	Pyruvic acid	452.935	678.697 E3	-49.8#	160#	0.00
3 T	Lactic Acid	53.765	54.344 E3	-1.1	108	0.00
4 T	Acetic Acid	59.169	60.923 E3	-3.0	111	0.00
5 T	Propionic Acid	59.592	57.333 E3	3.8	101	0.03
6 T	Butyric Acid	62.897	56.943 E3	9.5	94	0.16

Evaluate Continuing Calibration Report - Not Founds

(#) = Out of Range SPCC's out = 0 CCC's out = 0

00946800

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002374.D
Signal(s) : dad1A.ch
Acq On : 31-Dec-2000, 02:48:10
Operator : b.allgeier
Sample : 20.0-200.0ppm
Misc :
ALS Vial : 9 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:41:56 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 16:11:30 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1) t	Formic acid	3.129	18870917	195.296	ppm	
2) T	Pyruvic acid	3.625	9170882	20.284	ppm	
3) T	Lactic Acid	4.045	10741636	199.759	ppm	
4) T	Acetic Acid	4.387	11865318	200.607	ppm	m
5) T	Propionic Acid	9.141	11451173	191.091	ppm	
6) T	Butyric Acid	24.580	12106071	191.444	ppm	m

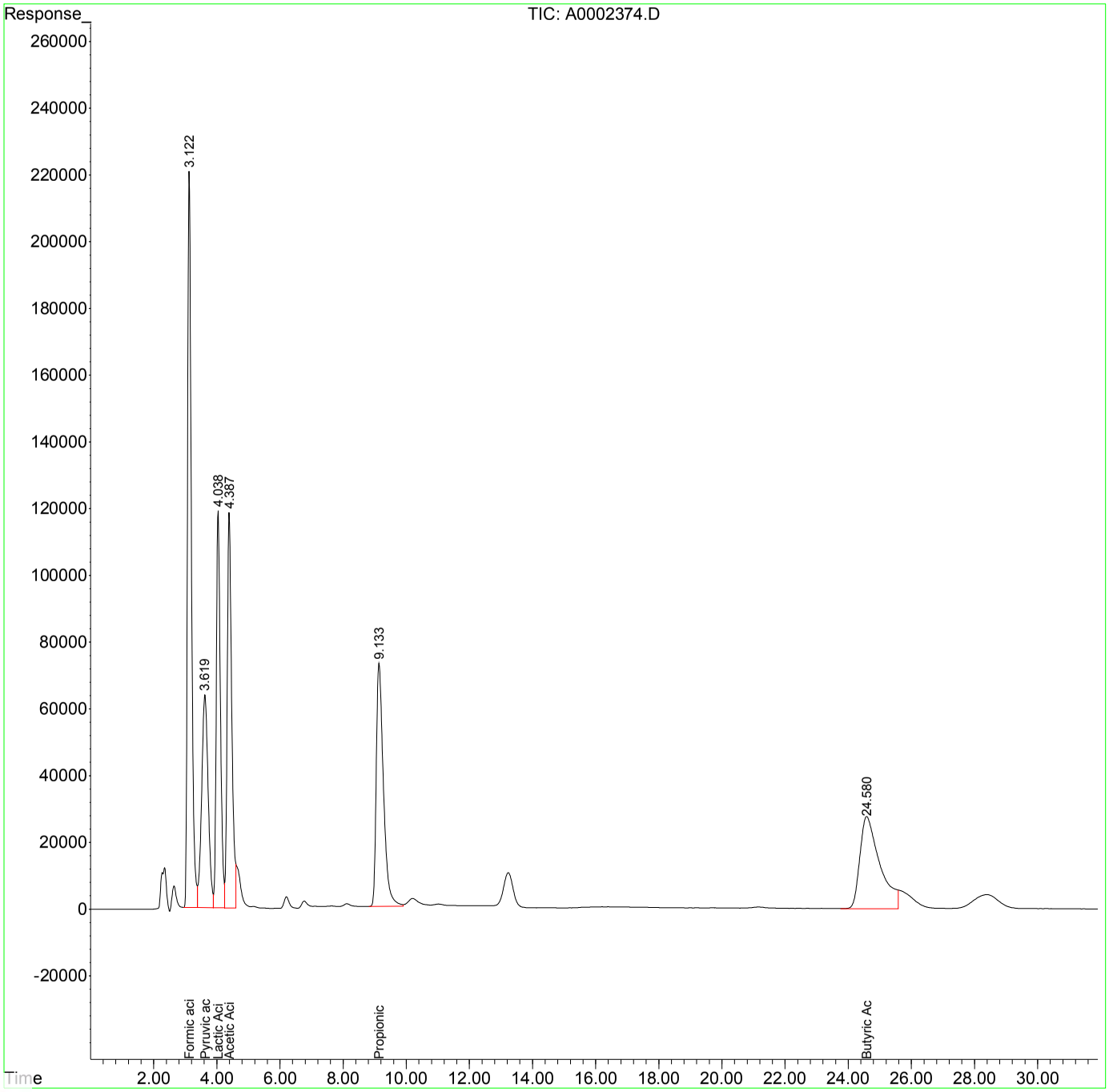
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002374.D
Signal(s) : dad1A.ch
Acq On : 31-Dec-2000, 02:48:10
Operator : b.allgeier
Sample : 20.0-200.0ppm
Misc :
ALS Vial : 9 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:41:56 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 16:11:30 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

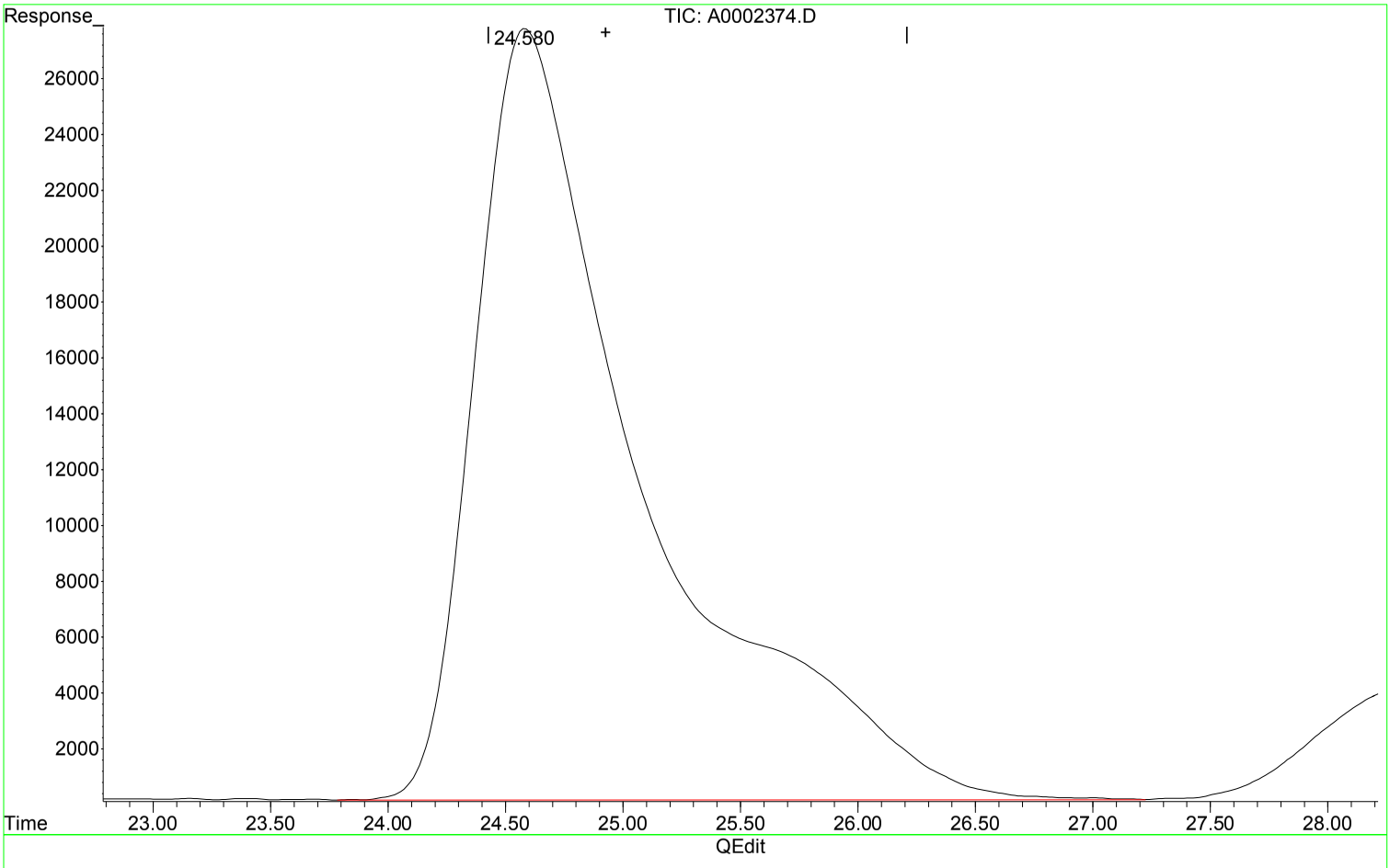


Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002374.D
Signal(s) : dad1A.ch
Acq On : 31-Dec-2000, 02:48:10
Operator : b.allgeier
Sample : 20.0-200.0ppm
Misc :
ALS Vial : 9 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:41:56 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 16:11:30 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(6) Butyric Acid (T)

24.587min 217.586 ppm

response 13759140

Manual Integration:

Before

10/04/18

(+) = Expected Retention Time

MA100418.M Thu Oct 04 16:42:19 2018

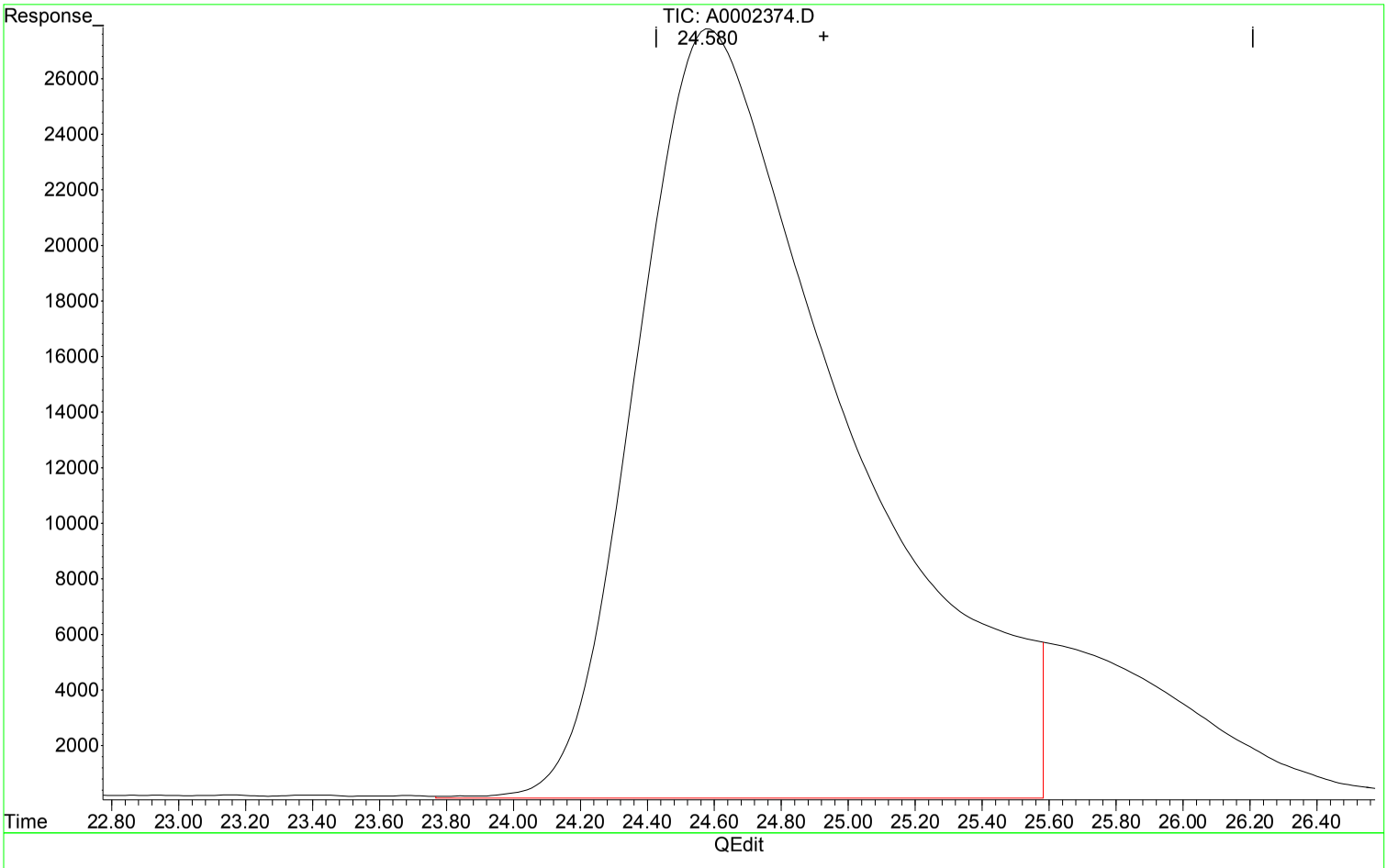
00946803

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002374.D
Signal(s) : dad1A.ch
Acq On : 31-Dec-2000, 02:48:10
Operator : b.allgeier
Sample : 20.0-200.0ppm
Misc :
ALS Vial : 9 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:41:56 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 16:11:30 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(6) Butyric Acid (T)

24.580min 191.444 ppm m

response 12106071

Manual Integration:

After

Poor integration.

10/04/18

(+) = Expected Retention Time

MA100418.M Thu Oct 04 16:42:27 2018

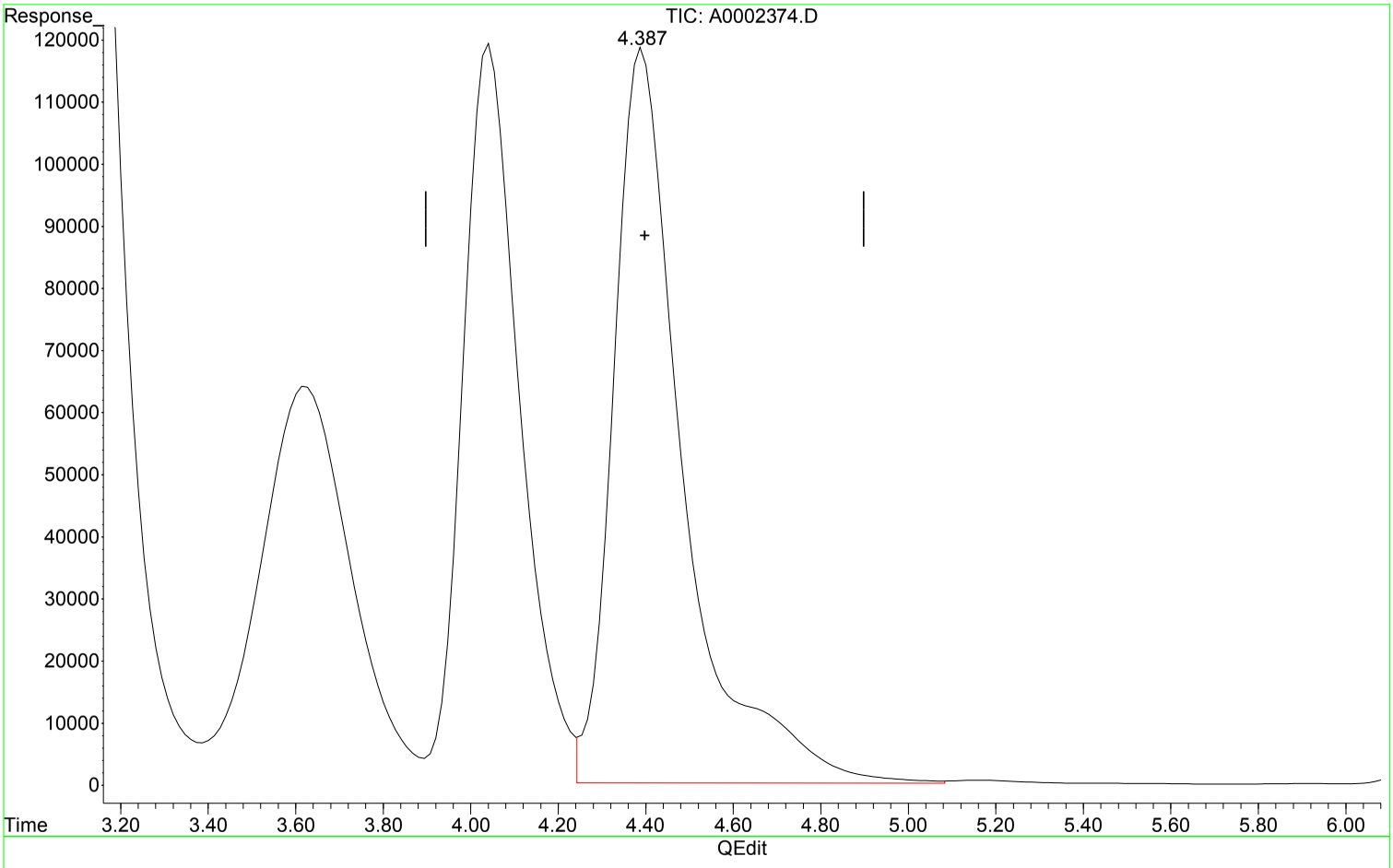
00946804

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002374.D
Signal(s) : dad1A.ch
Acq On : 31-Dec-2000, 02:48:10
Operator : b.allgeier
Sample : 20.0-200.0ppm
Misc :
ALS Vial : 9 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:41:56 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 16:11:30 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(4) Acetic Acid (T)

4.394min 222.004 ppm

response 13130885

Manual Integration:

Before

10/04/18

(+) = Expected Retention Time

MA100418.M Thu Oct 04 16:42:06 2018

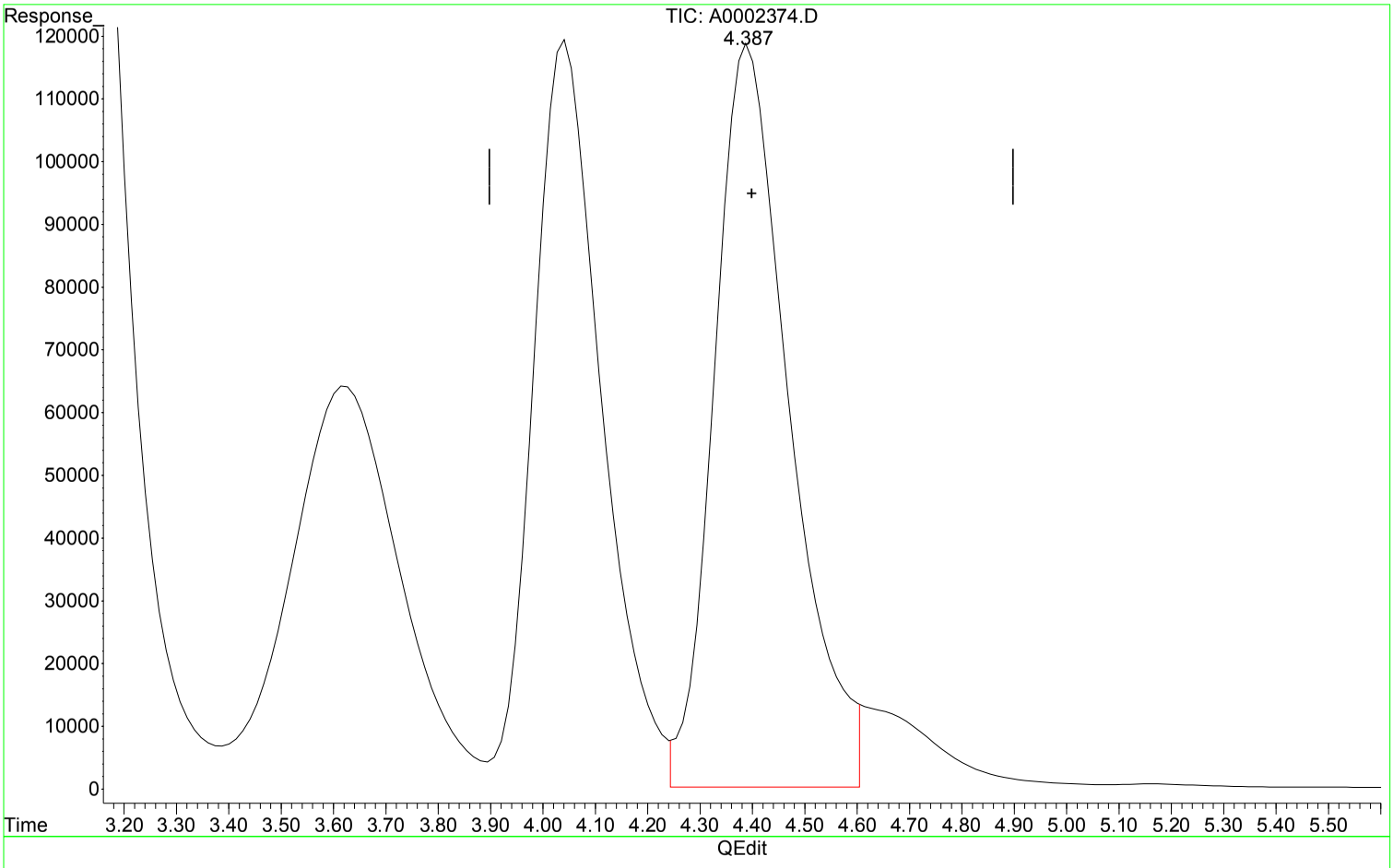
00946805

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002374.D
Signal(s) : dad1A.ch
Acq On : 31-Dec-2000, 02:48:10
Operator : b.allgeier
Sample : 20.0-200.0ppm
Misc :
ALS Vial : 9 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:41:56 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 16:11:30 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(4) Acetic Acid (T)

4.387min 200.607 ppm m

response 11865318

Manual Integration:

After

Poor integration.

10/04/18

(+) = Expected Retention Time

00946806

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002373.D
Signal(s) : dad1A.ch
Acq On : 04-Oct-2018, 15:31:47
Operator : b.allgeier
Sample : 10.0-100.0ppm
Misc :
ALS Vial : 8 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:10:46 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1) t	Formic acid	3.132	9131569	96.958	ppm	
2) T	Pyruvic acid	3.629	4430352	9.849	ppm	
3) T	Lactic Acid	4.052	5216101	98.587	ppm	
4) T	Acetic Acid	4.397	5725459	96.715	ppm	m
5) T	Propionic Acid	9.203	5508012	93.403	ppm	
6) T	Butyric Acid	24.847	5510917	91.221	ppm	m

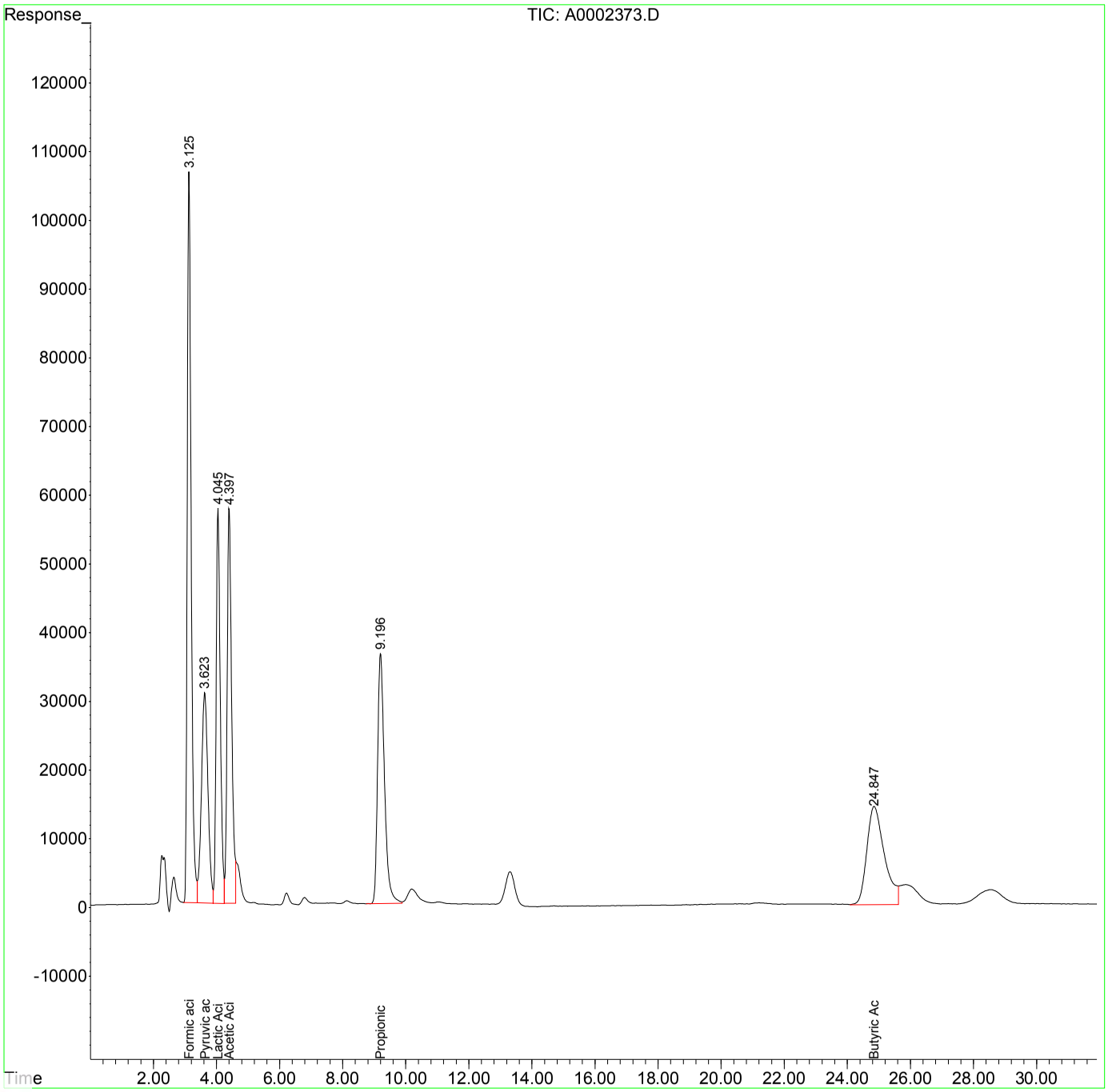
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002373.D
Signal(s) : dad1A.ch
Acq On : 04-Oct-2018, 15:31:47
Operator : b.allgeier
Sample : 10.0-100.0ppm
Misc :
ALS Vial : 8 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:10:46 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

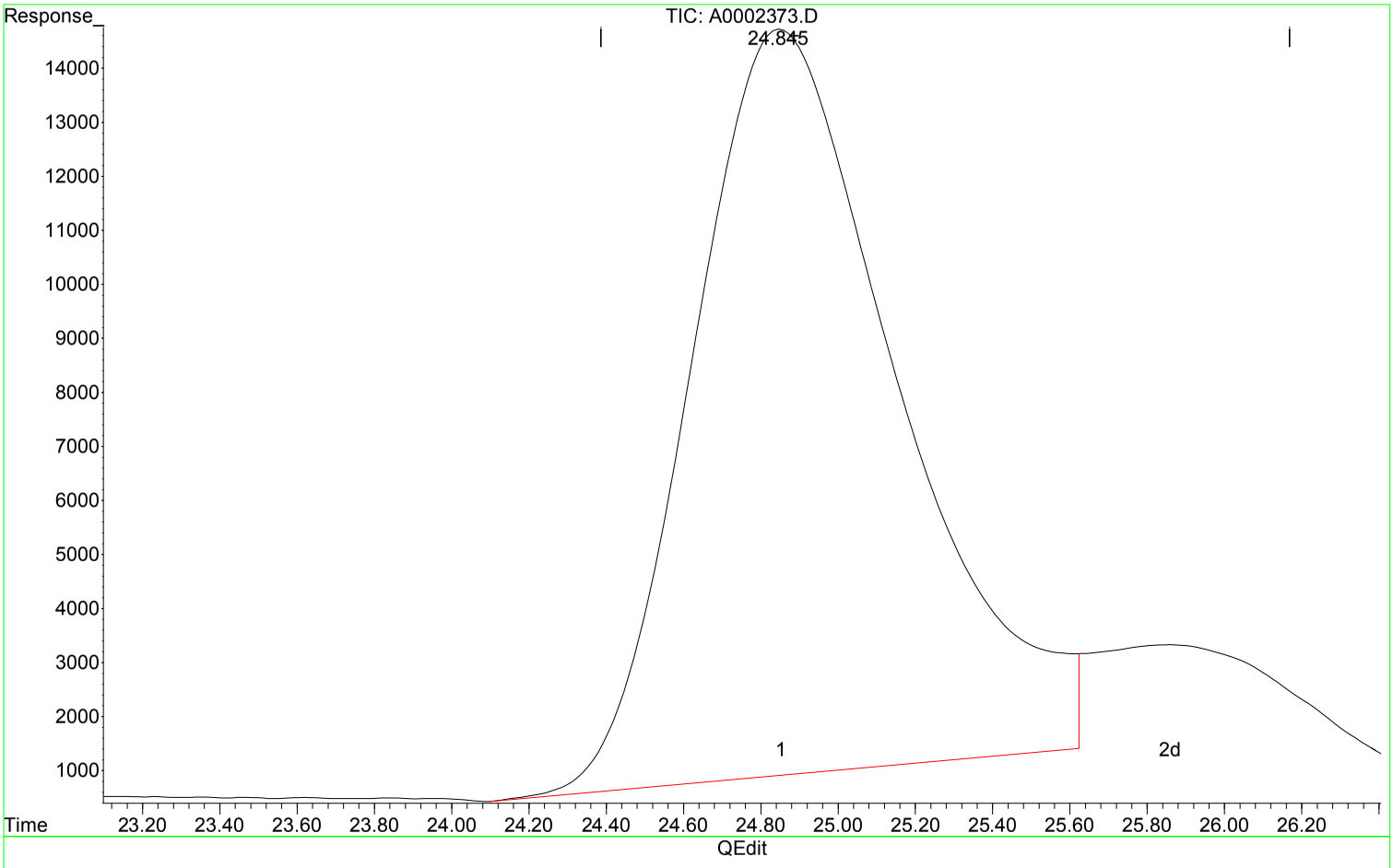


Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002373.D
Signal(s) : dad1A.ch
Acq On : 04-Oct-2018, 15:31:47
Operator : b.allgeier
Sample : 10.0-100.0ppm
Misc :
ALS Vial : 8 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:10:46 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(6) Butyric Acid (T)

24.853min 84.188 ppm

response 5086048

Manual Integration:

Before

10/04/18

(+) = Expected Retention Time

MA100418.M Thu Oct 04 16:11:08 2018

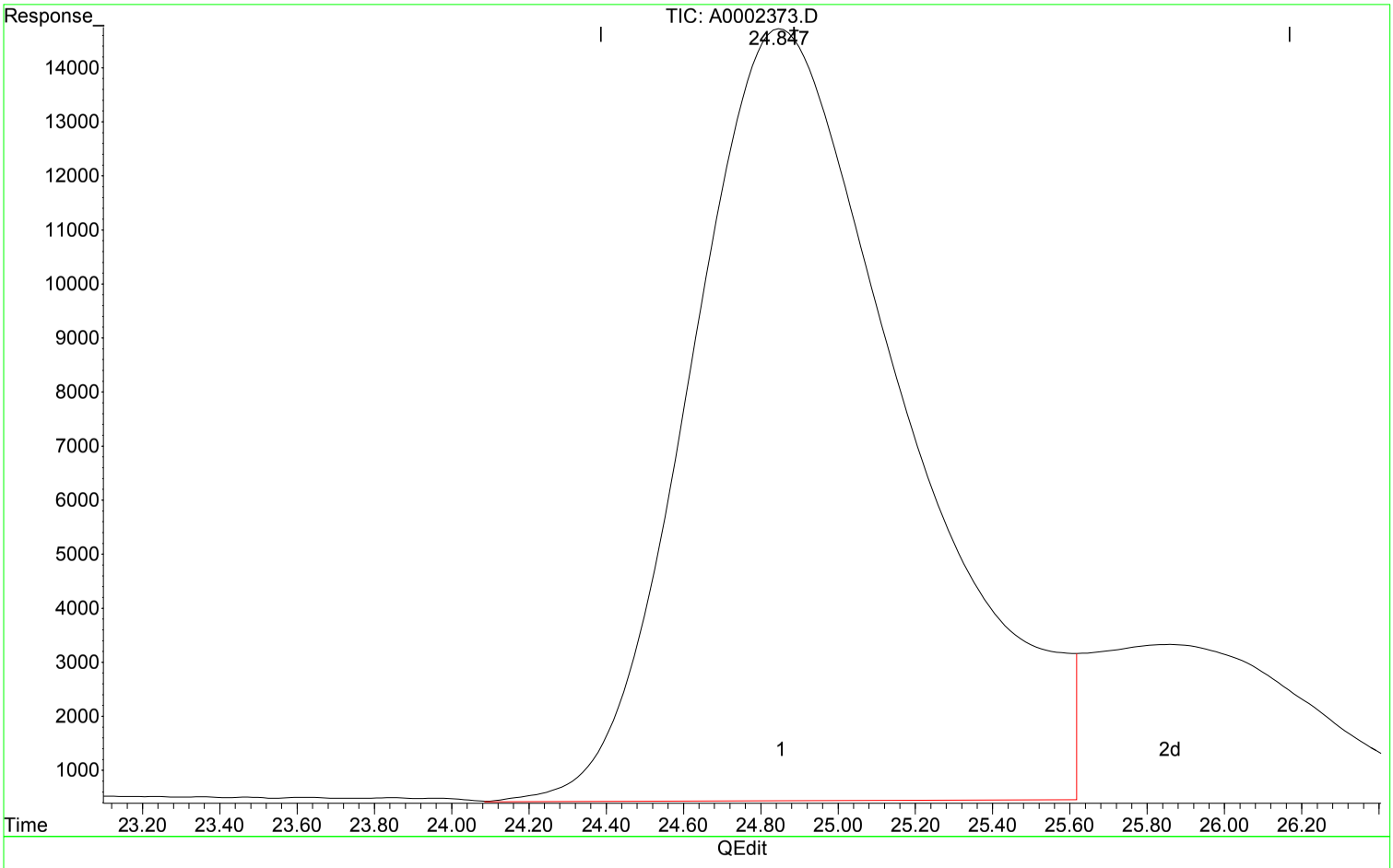
00946809

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002373.D
Signal(s) : dad1A.ch
Acq On : 04-Oct-2018, 15:31:47
Operator : b.allgeier
Sample : 10.0-100.0ppm
Misc :
ALS Vial : 8 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:10:46 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(6) Butyric Acid (T)

24.847min 91.221 ppm m

response 5510917

Manual Integration:

After

Poor integration.

10/04/18

(+) = Expected Retention Time

MA100418.M Thu Oct 04 16:11:21 2018

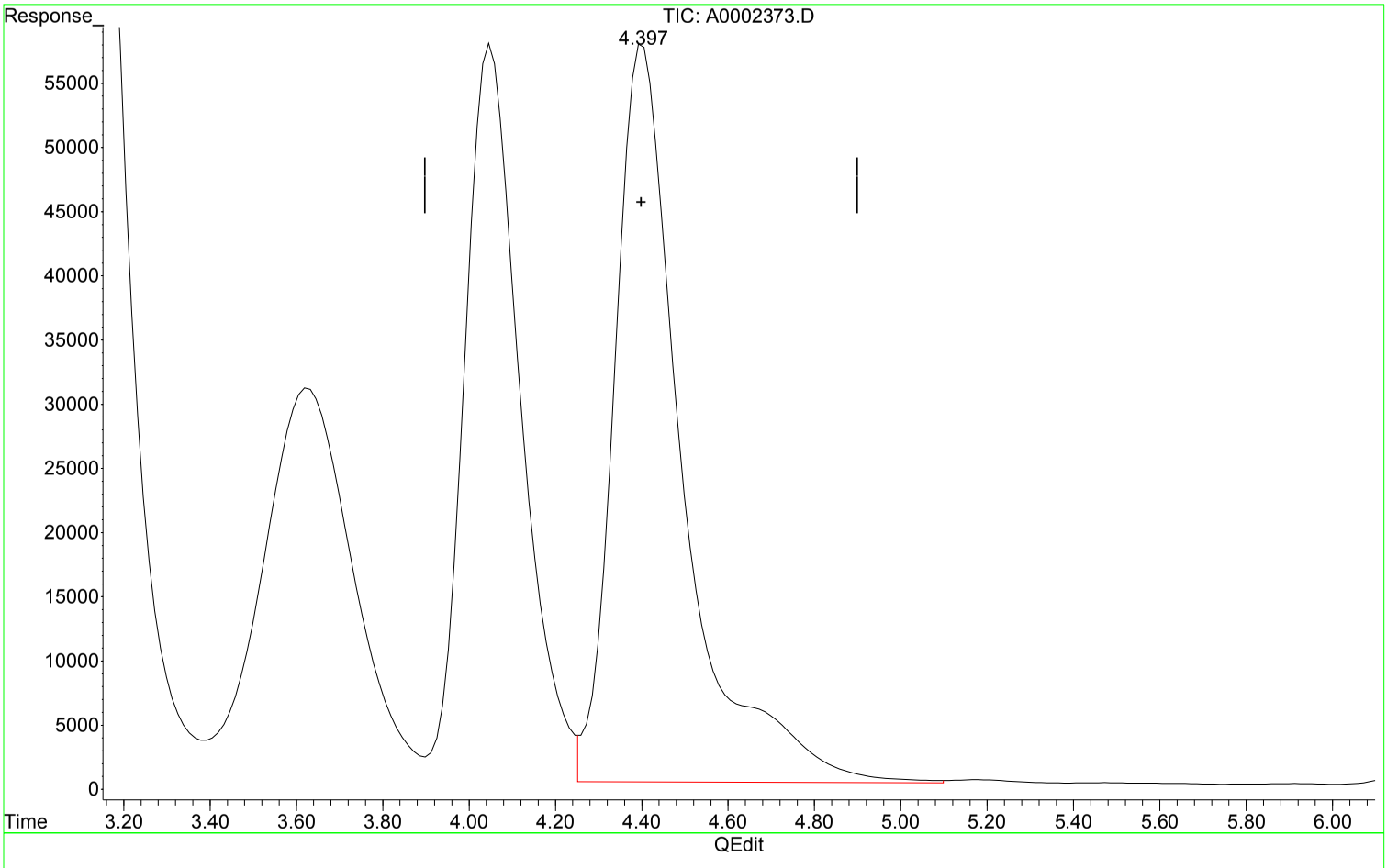
00946810

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002373.D
Signal(s) : dad1A.ch
Acq On : 04-Oct-2018, 15:31:47
Operator : b.allgeier
Sample : 10.0-100.0ppm
Misc :
ALS Vial : 8 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:10:46 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(4) Acetic Acid (T)

4.405min 107.446 ppm

response 6360712

Manual Integration:

Before

10/04/18

(+) = Expected Retention Time

MA100418.M Thu Oct 04 16:10:56 2018

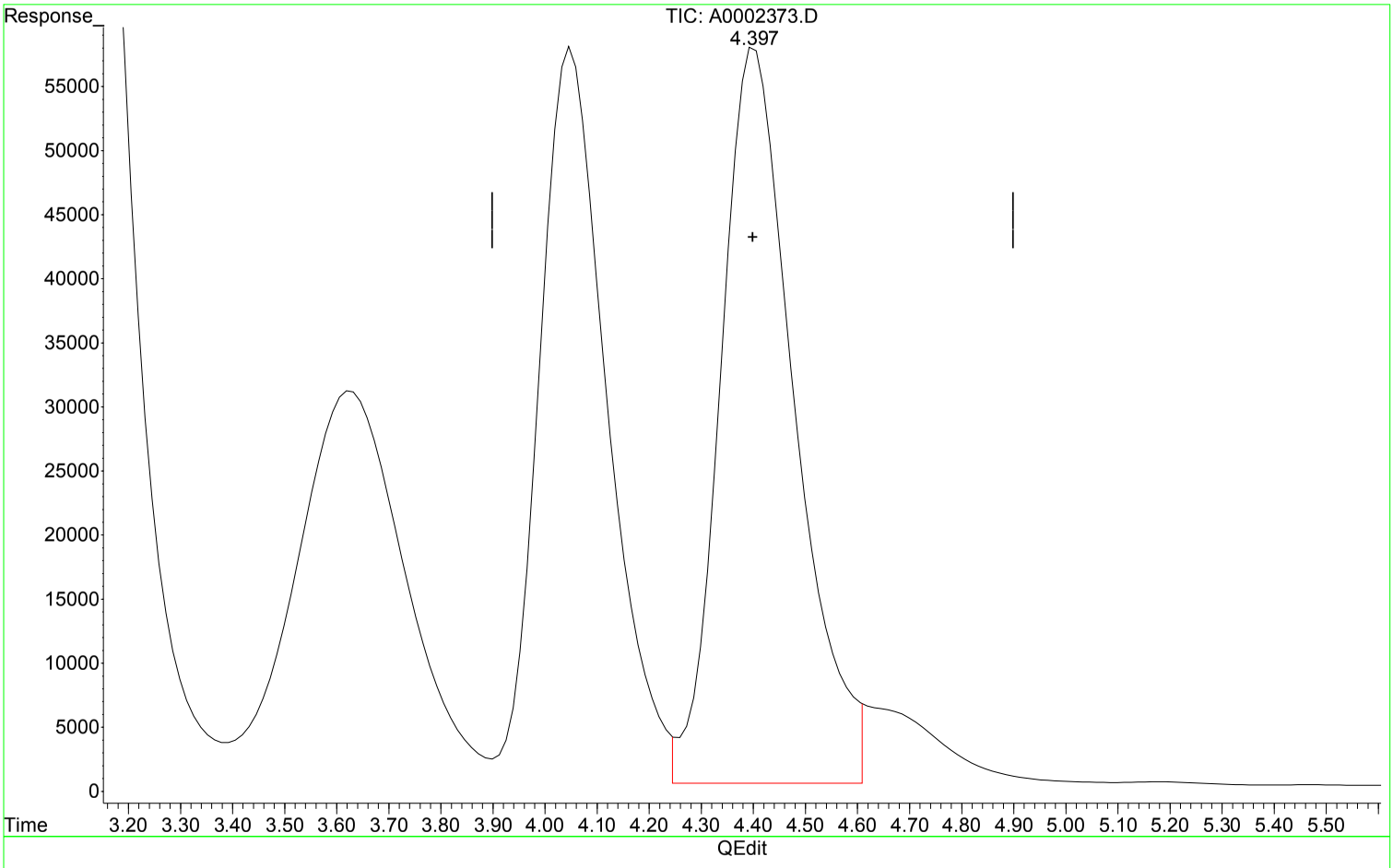
00946811

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002373.D
Signal(s) : dad1A.ch
Acq On : 04-Oct-2018, 15:31:47
Operator : b.allgeier
Sample : 10.0-100.0ppm
Misc :
ALS Vial : 8 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:10:46 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(4) Acetic Acid (T)

4.397min 96.715 ppm m

response 5725459

Manual Integration:

After

Poor integration.

10/04/18

(+) = Expected Retention Time

00946812

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002372.D
Signal(s) : dad1A.ch
Acq On : 04-Oct-2018, 14:56:43
Operator : b.allgeier
Sample : 5.0-50.0ppm
Misc :
ALS Vial : 7 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:10:03 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1) t	Formic acid	3.133	4817586	51.153	ppm	
2) T	Pyruvic acid	3.630	2294161	5.100	ppm	
3) T	Lactic Acid	4.053	2711599	51.251	ppm	
4) T	Acetic Acid	4.398	3026497	51.124	ppm	m
5) T	Propionic Acid	9.212	2949938	50.024	ppm	
6) T	Butyric Acid	24.928	2932273	48.537	ppm	

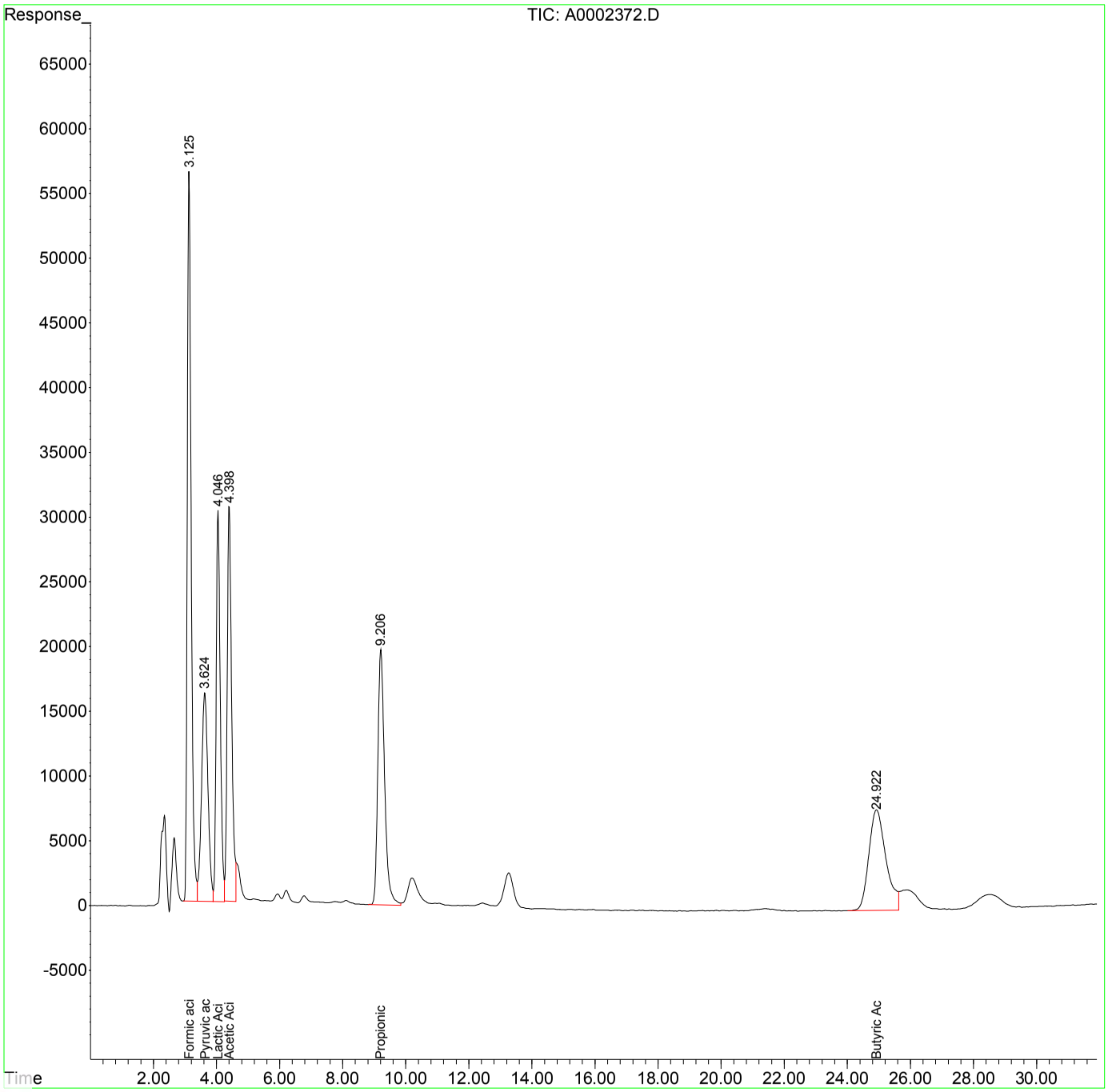
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002372.D
Signal(s) : dad1A.ch
Acq On : 04-Oct-2018, 14:56:43
Operator : b.allgeier
Sample : 5.0-50.0ppm
Misc :
ALS Vial : 7 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:10:03 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

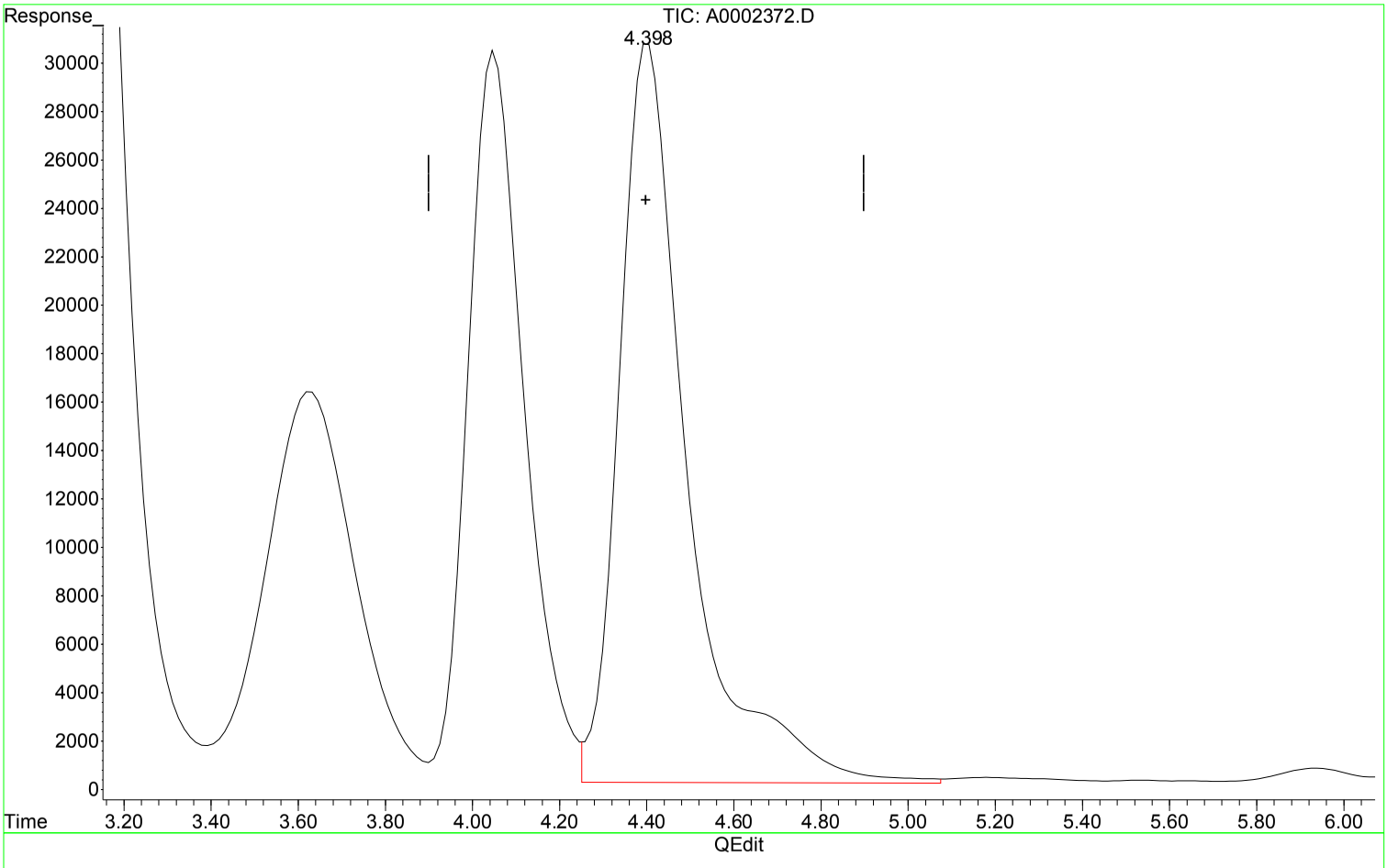


Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002372.D
Signal(s) : dad1A.ch
Acq On : 04-Oct-2018, 14:56:43
Operator : b.allgeier
Sample : 5.0-50.0ppm
Misc :
ALS Vial : 7 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:10:03 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(4) Acetic Acid (T)

4.406min 56.131 ppm

response 3322912

Manual Integration:

Before

10/04/18

(+) = Expected Retention Time

MA100418.M Thu Oct 04 16:10:16 2018

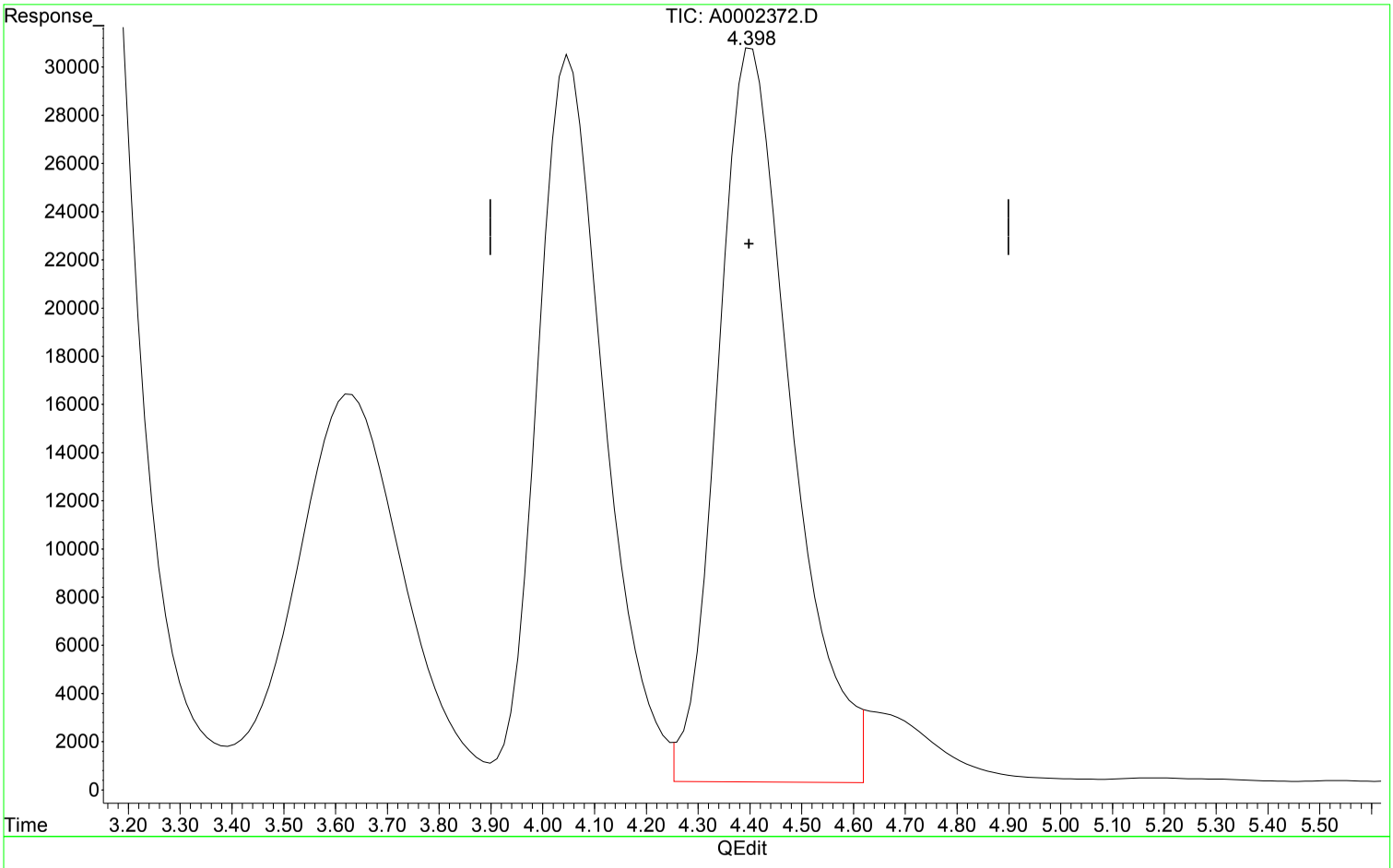
00946815

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002372.D
Signal(s) : dad1A.ch
Acq On : 04-Oct-2018, 14:56:43
Operator : b.allgeier
Sample : 5.0-50.0ppm
Misc :
ALS Vial : 7 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:10:03 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(4) Acetic Acid (T)

4.398min 51.124 ppm m

response 3026497

Manual Integration:

After

Poor integration.

10/04/18

(+) = Expected Retention Time

MA100418.M Thu Oct 04 16:10:25 2018

00946816

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002371.D
Signal(s) : dad1A.ch
Acq On : 04-Oct-2018, 14:21:46
Operator : b.allgeier
Sample : 2.0-20.0ppm
Misc :
ALS Vial : 6 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:09:14 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1) t	Formic acid	3.131	1890077	20.069	ppm	
2) T	Pyruvic acid	3.629	850051	1.890	ppm	
3) T	Lactic Acid	4.051	1003444	18.966	ppm	
4) T	Acetic Acid	4.397	1096677	18.525	ppm	m
5) T	Propionic Acid	9.206	1140510	19.340	ppm	m
6) T	Butyric Acid	24.960	1207082	19.981	ppm	

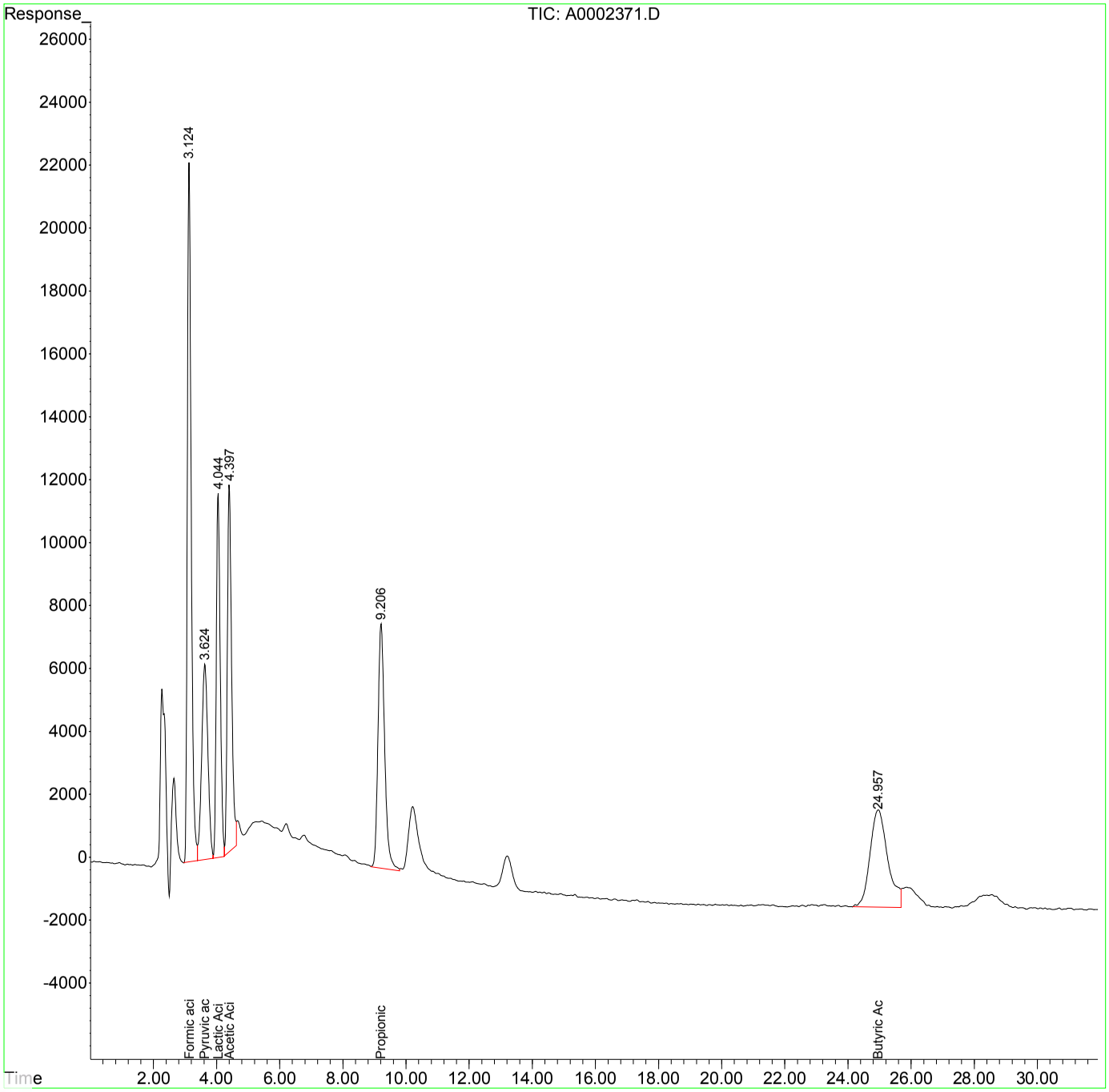
(f)=RT Delta > 1/2 Window (m)=manual int.

1st BA 10/05/18
2nd MP 10/09/18

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002371.D
Signal(s) : dad1A.ch
Acq On : 04-Oct-2018, 14:21:46
Operator : b.allgeier
Sample : 2.0-20.0ppm
Misc :
ALS Vial : 6 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:09:14 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

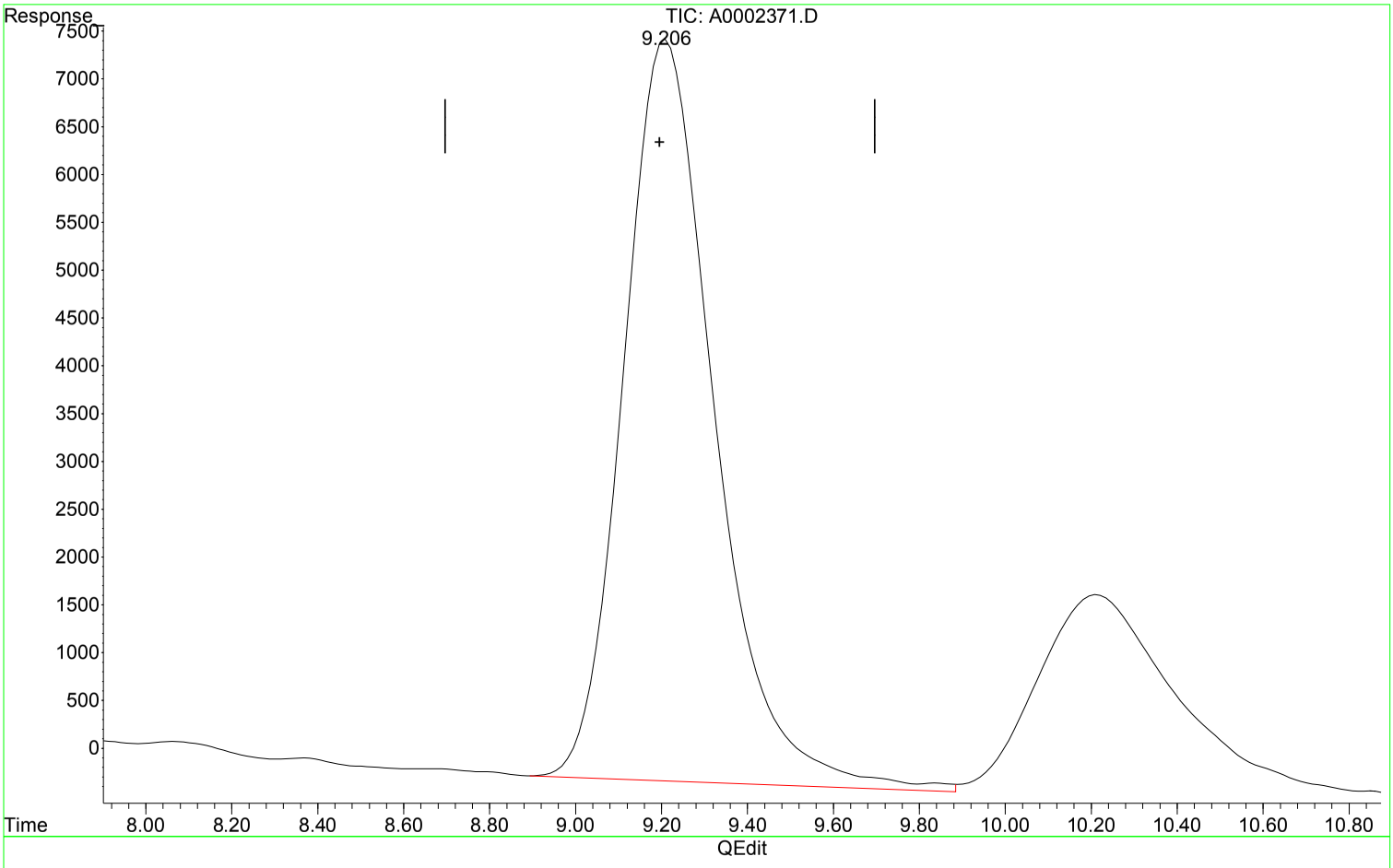


Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002371.D
Signal(s) : dad1A.ch
Acq On : 04-Oct-2018, 14:21:46
Operator : b.allgeier
Sample : 2.0-20.0ppm
Misc :
ALS Vial : 6 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:09:14 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(5) Propionic Acid (T)

9.212min 19.380 ppm

response 1142822

Manual Integration:

Before

10/04/18

(+) = Expected Retention Time

MA100418.M Thu Oct 04 16:09:40 2018

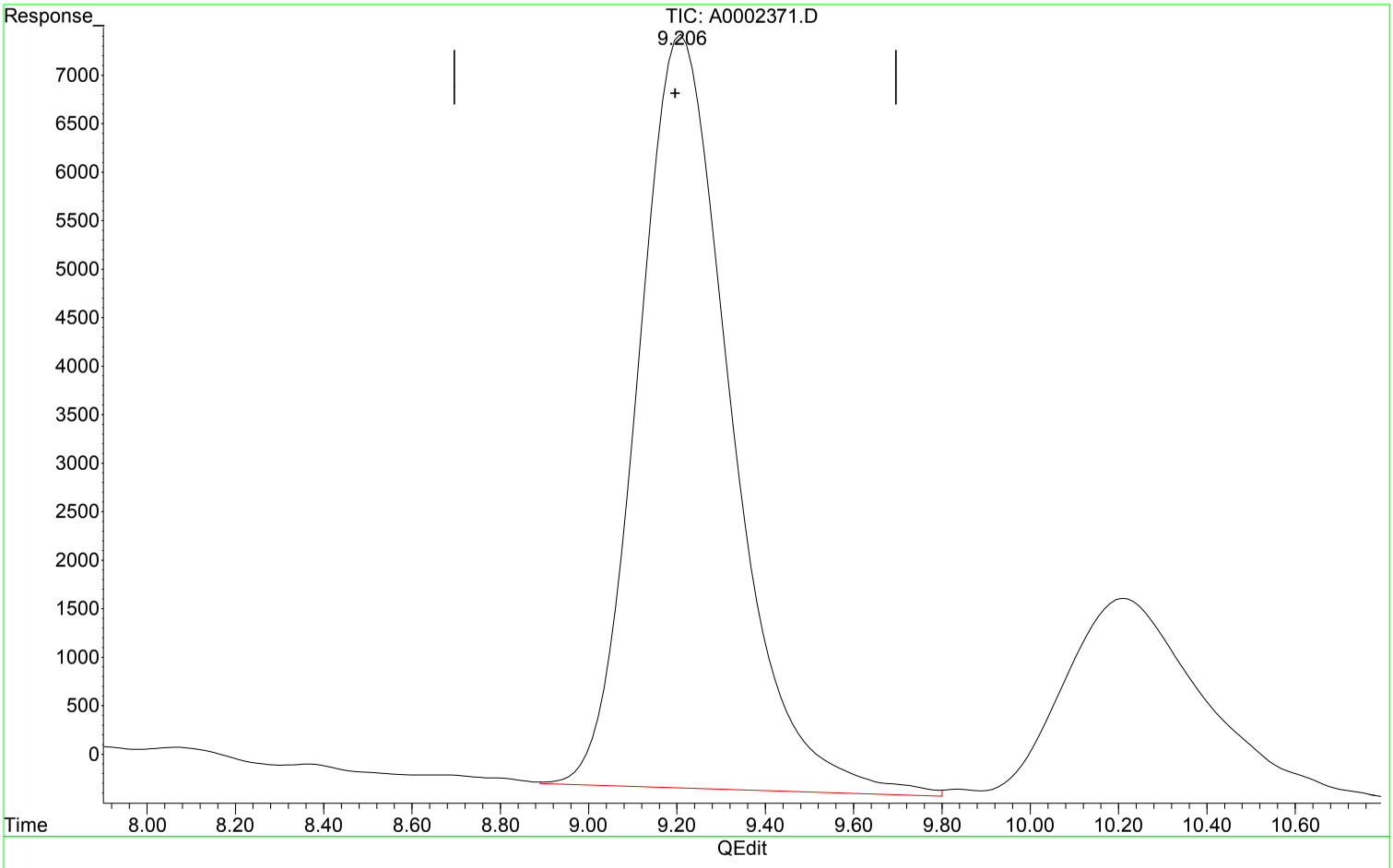
00946819

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002371.D
Signal(s) : dad1A.ch
Acq On : 04-Oct-2018, 14:21:46
Operator : b.allgeier
Sample : 2.0-20.0ppm
Misc :
ALS Vial : 6 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:09:14 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(5) Propionic Acid (T)

9.206min 19.340 ppm m

response 1140510

Manual Integration:

After

Poor integration.

10/04/18

(+) = Expected Retention Time

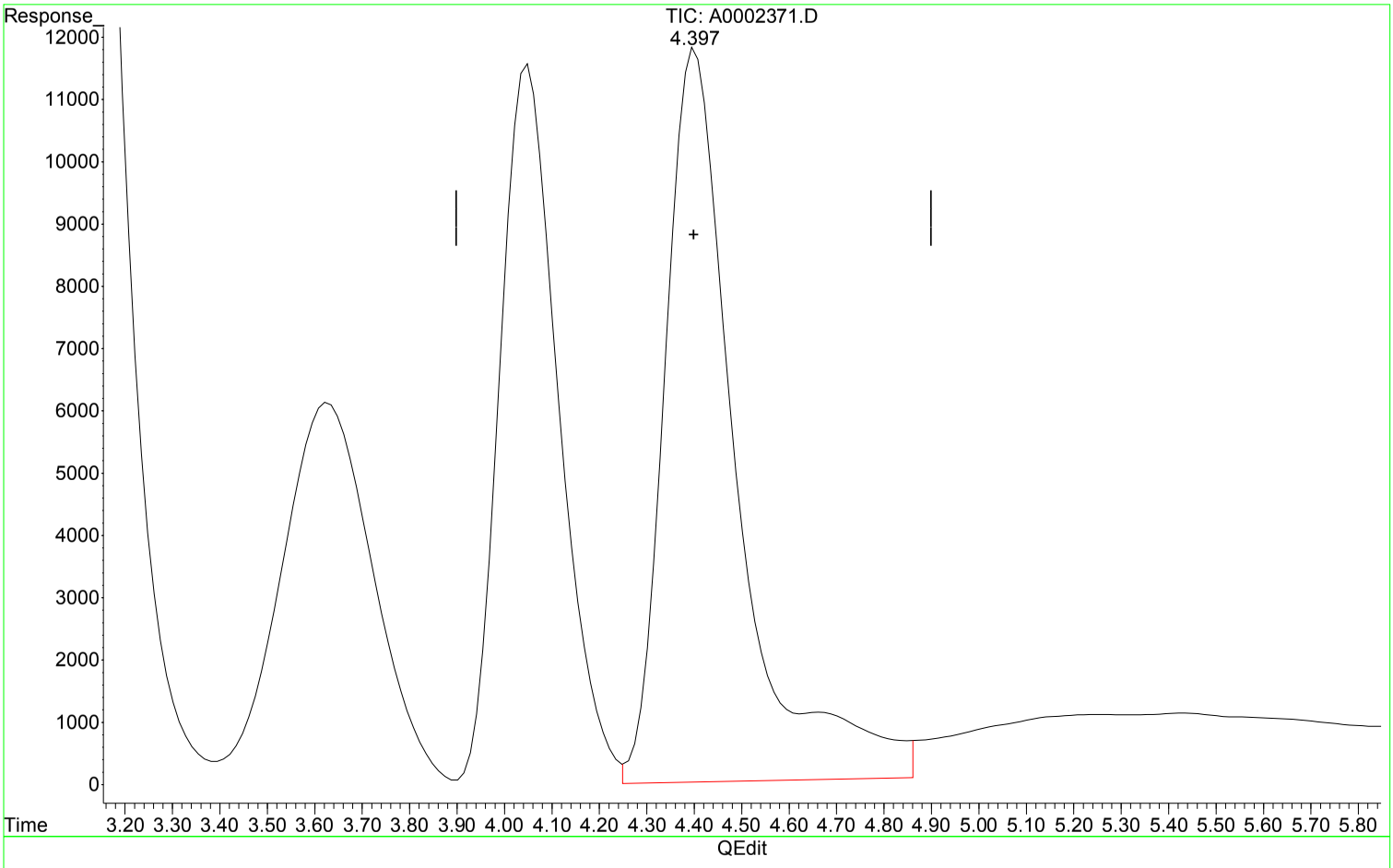
00946820

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002371.D
Signal(s) : dad1A.ch
Acq On : 04-Oct-2018, 14:21:46
Operator : b.allgeier
Sample : 2.0-20.0ppm
Misc :
ALS Vial : 6 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:09:14 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(4) Acetic Acid (T)

4.404min 21.093 ppm

response 1248683

Manual Integration:

Before

10/04/18

(+) = Expected Retention Time

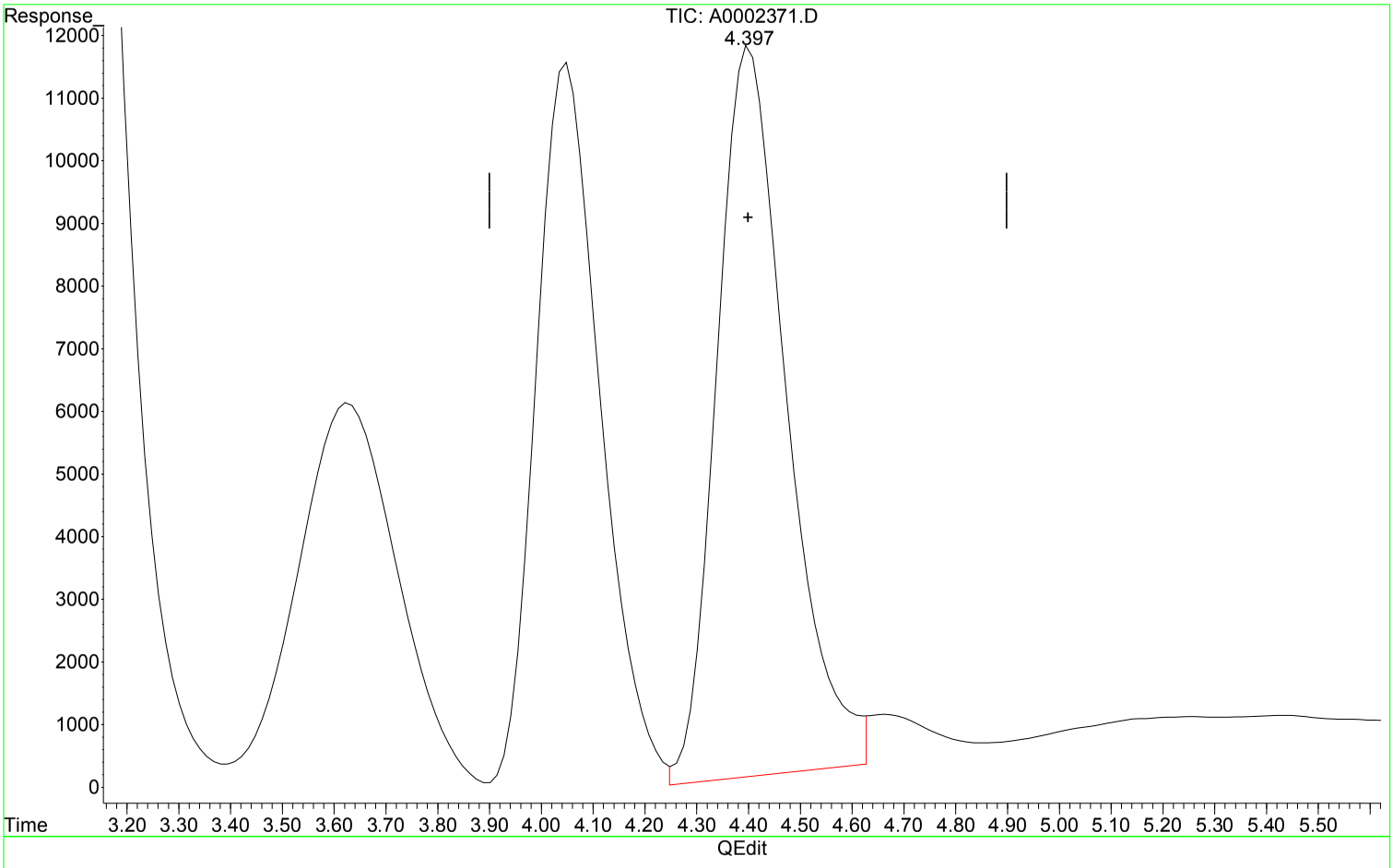
00946821

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002371.D
Signal(s) : dad1A.ch
Acq On : 04-Oct-2018, 14:21:46
Operator : b.allgeier
Sample : 2.0-20.0ppm
Misc :
ALS Vial : 6 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:09:14 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(4) Acetic Acid (T)

4.397min 18.525 ppm m

response 1096677

Manual Integration:

After

Poor integration.

10/04/18

(+) = Expected Retention Time

00946822

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002370.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 01:48:19
Operator : b.allgeier
Sample : 1.0-10.0ppm
Misc :
ALS Vial : 5 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:08:41 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1) t	Formic acid	3.133	942238	10.005	ppm	
2) T	Pyruvic acid	3.631	448113	0.996	ppm	
3) T	Lactic Acid	4.053	528635	9.991	ppm	
4) T	Acetic Acid	4.399	585881	9.897	ppm	m
5) T	Propionic Acid	9.226	585985	9.937	ppm	
6) T	Butyric Acid	25.010	602088	9.966	ppm	

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

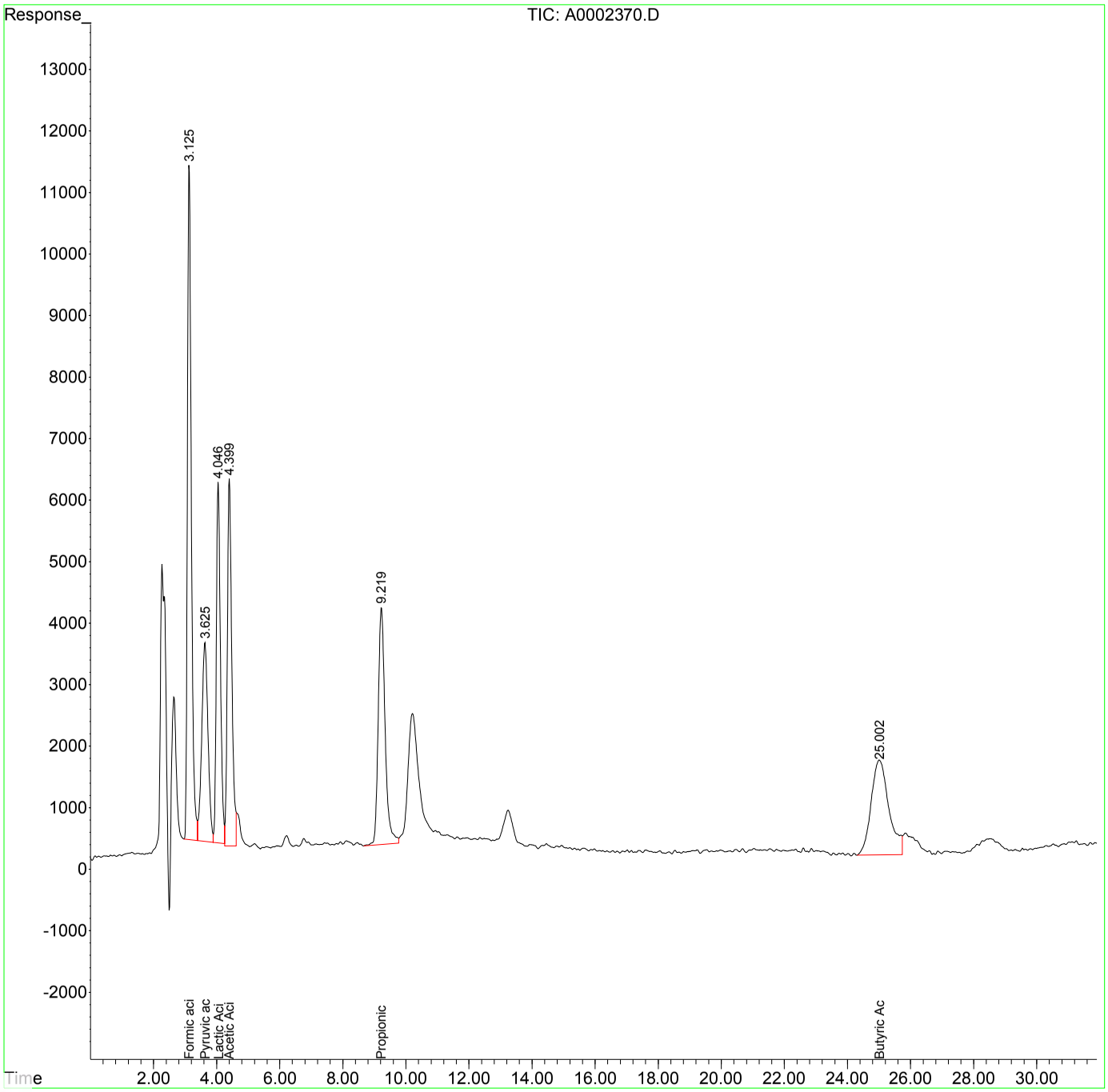
00946823

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002370.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 01:48:19
Operator : b.allgeier
Sample : 1.0-10.0ppm
Misc :
ALS Vial : 5 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:08:41 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

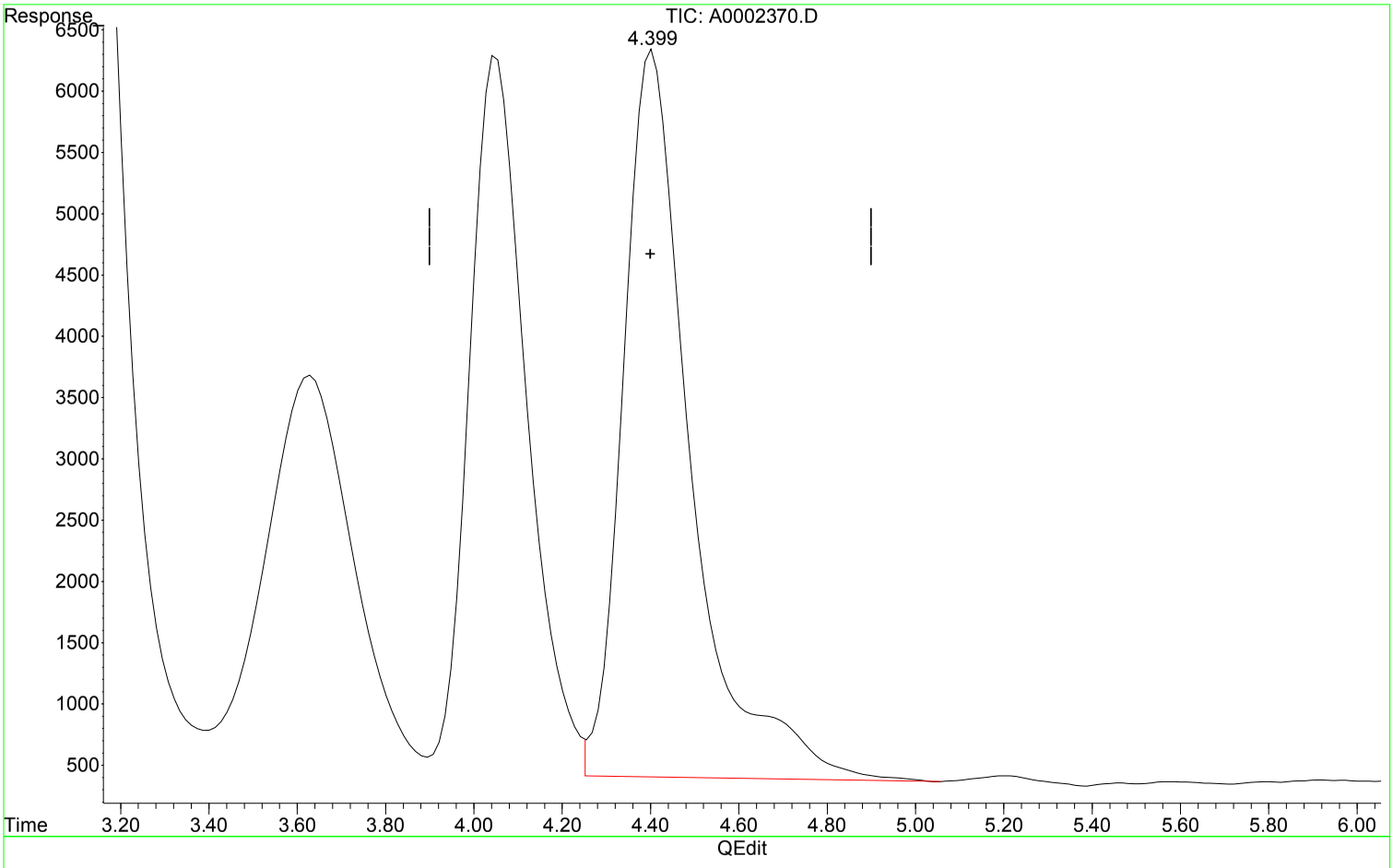


Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002370.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 01:48:19
Operator : b.allgeier
Sample : 1.0-10.0ppm
Misc :
ALS Vial : 5 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:08:41 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(4) Acetic Acid (T)

4.406min 10.646 ppm

response 630261

Manual Integration:

Before

10/04/18

(+) = Expected Retention Time

MA100418.M Thu Oct 04 16:08:50 2018

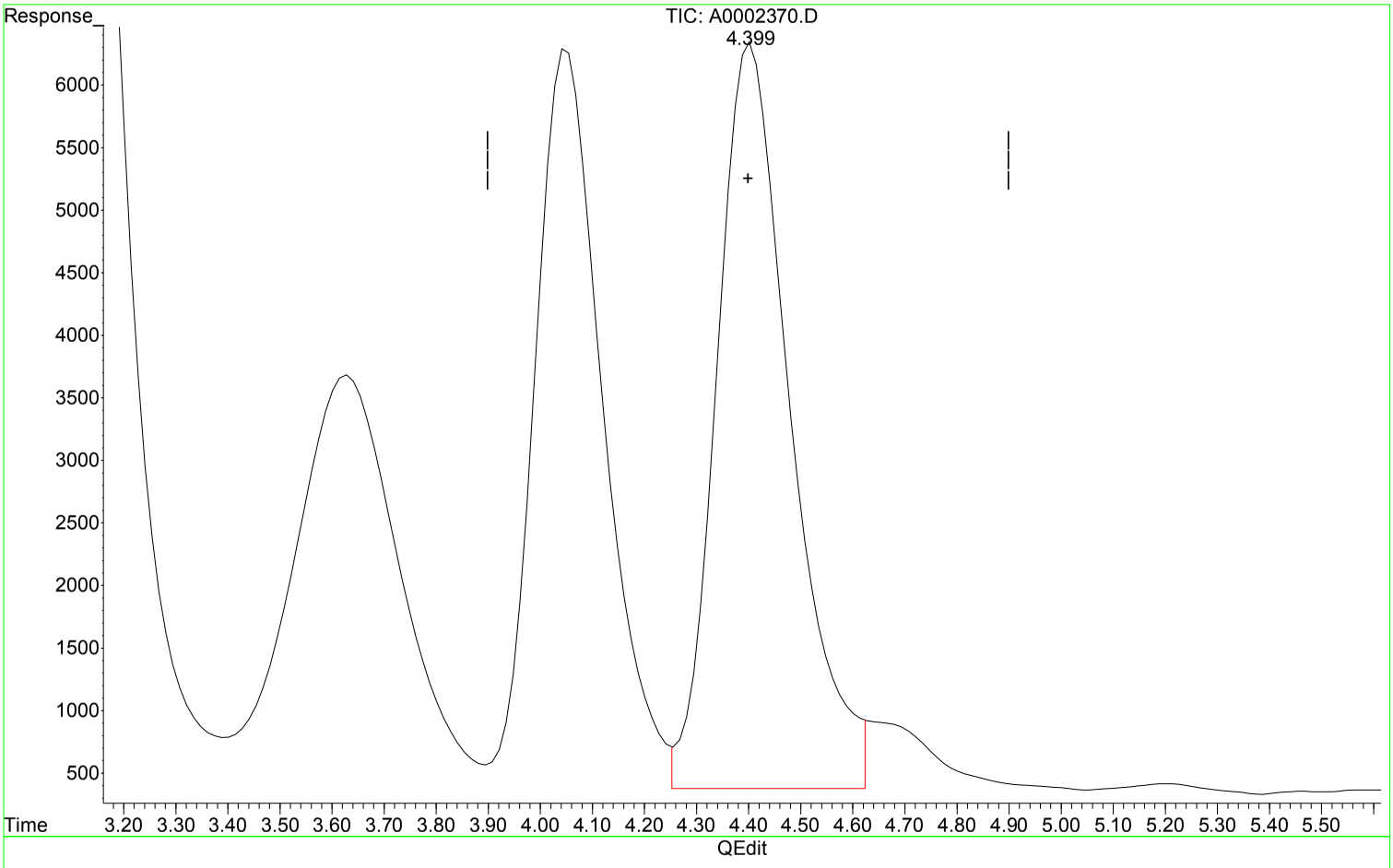
00946825

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002370.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 01:48:19
Operator : b.allgeier
Sample : 1.0-10.0ppm
Misc :
ALS Vial : 5 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:08:41 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(4) Acetic Acid (T)

4.399min 9.897 ppm m

response 585881

Manual Integration:

After

Poor integration.

10/04/18

(+) = Expected Retention Time

00946826

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002369.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 01:48:26
Operator : b.allgeier
Sample : 0.5-5.0ppm
Misc :
ALS Vial : 4 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 13:43:00 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1) t	Formic acid	3.133	497049	5.278	ppm	
2) T	Pyruvic acid	3.631	227620	0.506	ppm	
3) T	Lactic Acid	4.053	269401	5.092	ppm	
4) T	Acetic Acid	4.399	309471	5.228	ppm	m
5) T	Propionic Acid	9.220	306395	5.196	ppm	m
6) T	Butyric Acid	25.001	310758	5.144	ppm	m

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

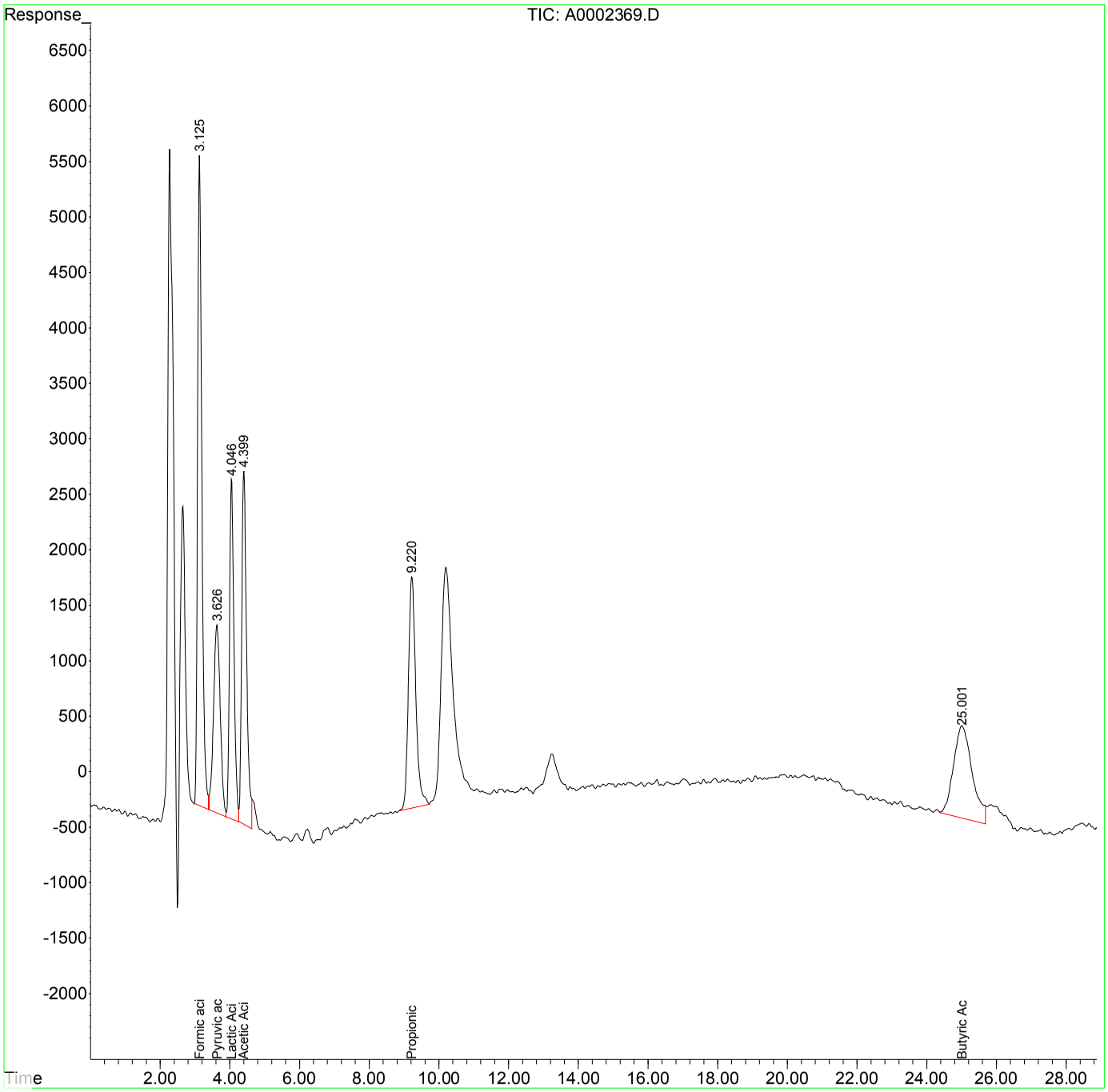
00946827

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002369.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 01:48:26
Operator : b.allgeier
Sample : 0.5-5.0ppm
Misc :
ALS Vial : 4 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 13:43:00 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

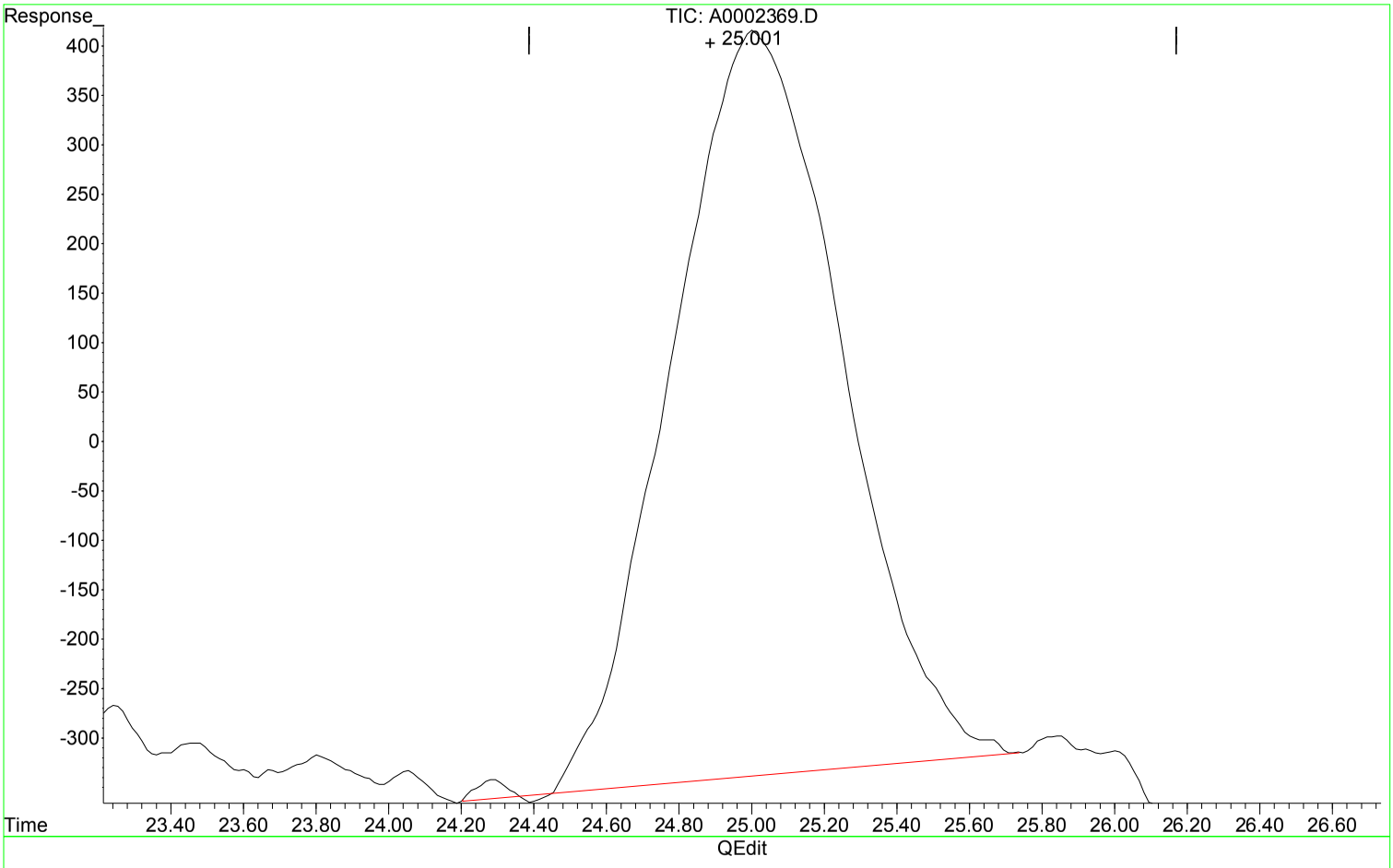


Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002369.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 01:48:26
Operator : b.allgeier
Sample : 0.5-5.0ppm
Misc :
ALS Vial : 4 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 13:43:00 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(6) Butyric Acid (T)

25.009min 4.071 ppm

response 245954

Manual Integration:

Before

10/04/18

(+) = Expected Retention Time

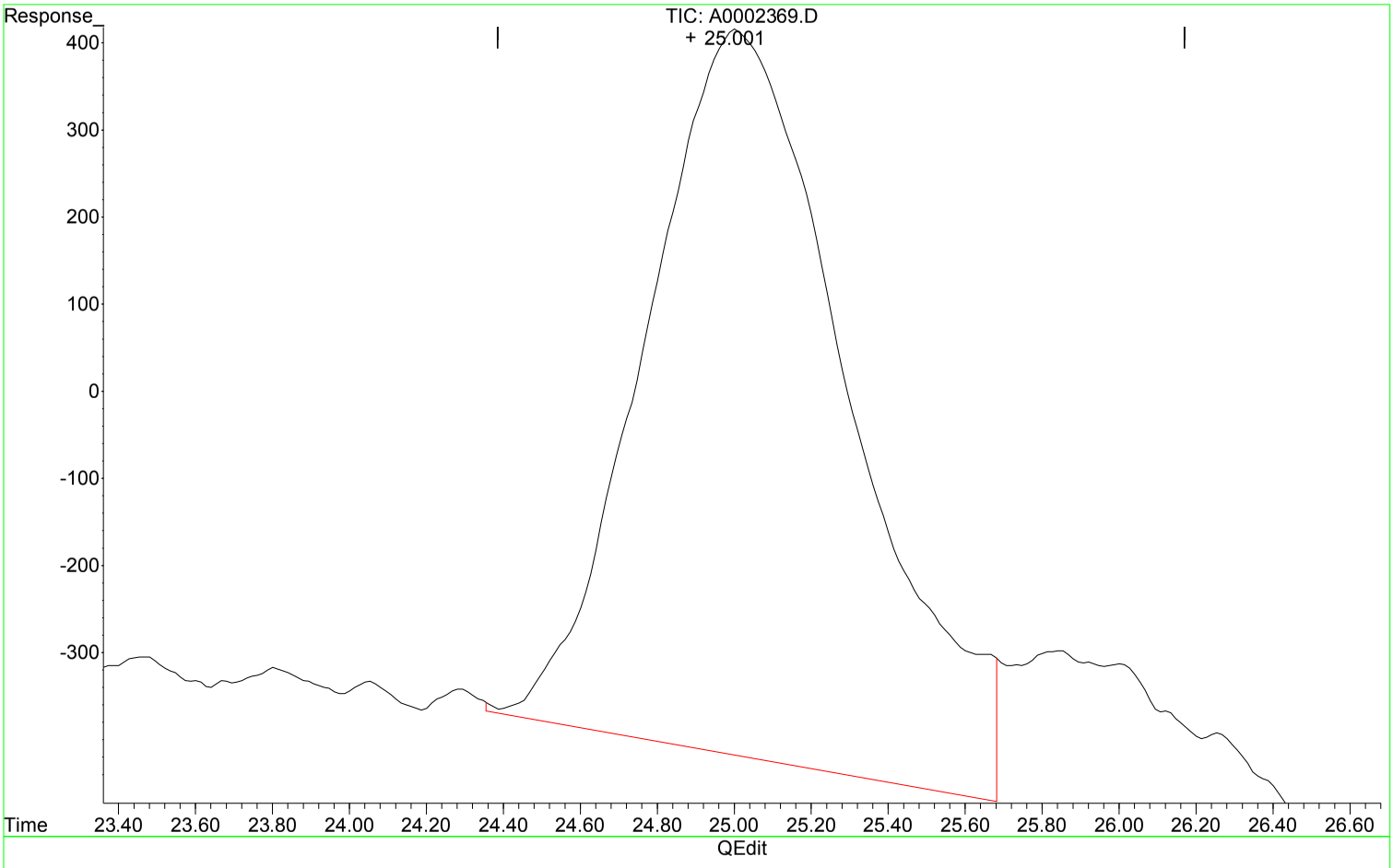
00946829

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002369.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 01:48:26
Operator : b.allgeier
Sample : 0.5-5.0ppm
Misc :
ALS Vial : 4 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 13:43:00 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(6) Butyric Acid (T)

25.001min 5.144 ppm m

response 310758

Manual Integration:

After

Poor integration.

10/04/18

(+) = Expected Retention Time

MA100418.M Thu Oct 04 13:45:19 2018 Page: 1

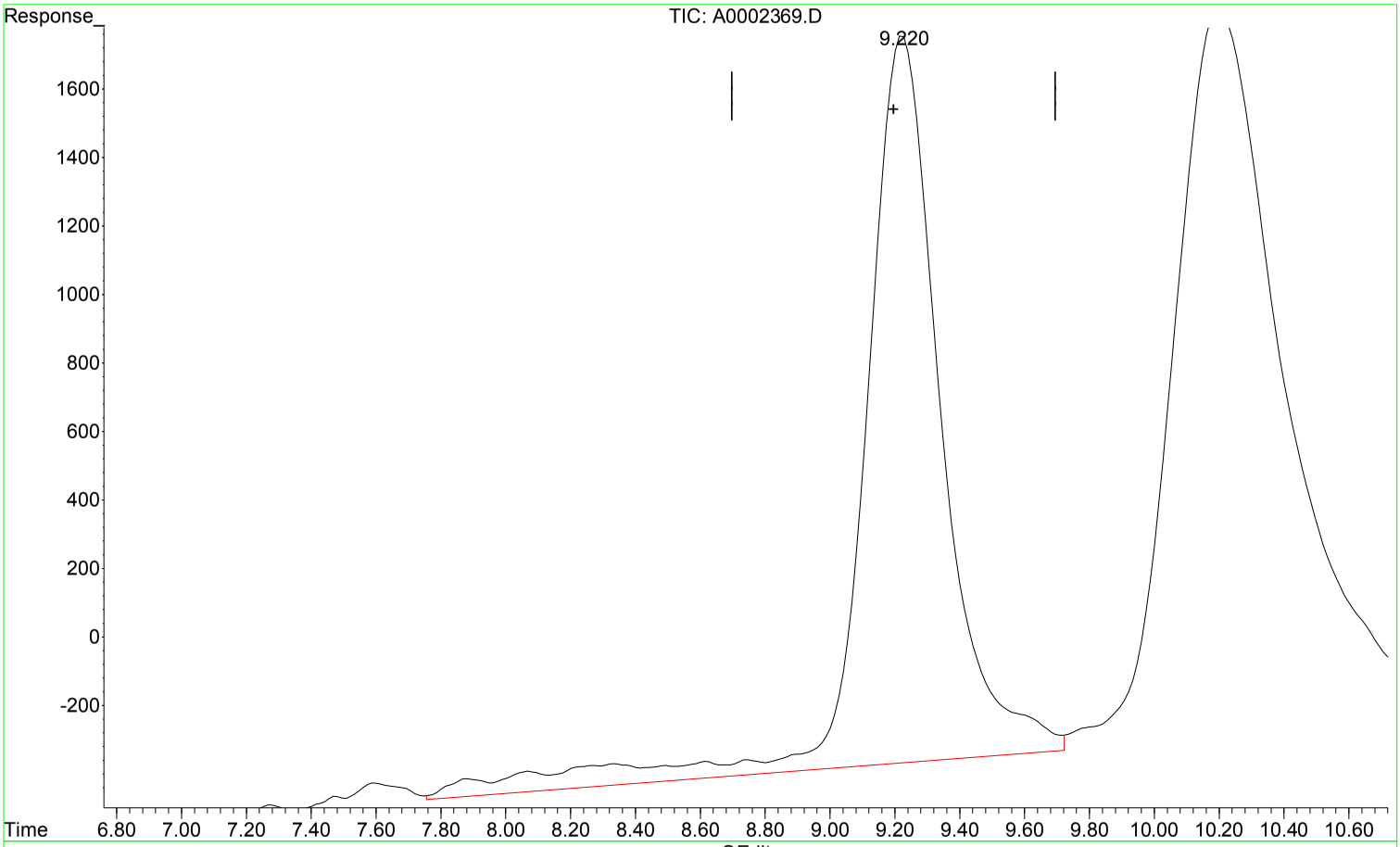
00946830

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002369.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 01:48:26
Operator : b.allgeier
Sample : 0.5-5.0ppm
Misc :
ALS Vial : 4 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 13:43:00 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(5) Propionic Acid (T)

9.226min 6.027 ppm

response 355419

Manual Integration:

Before

10/04/18

(+) = Expected Retention Time

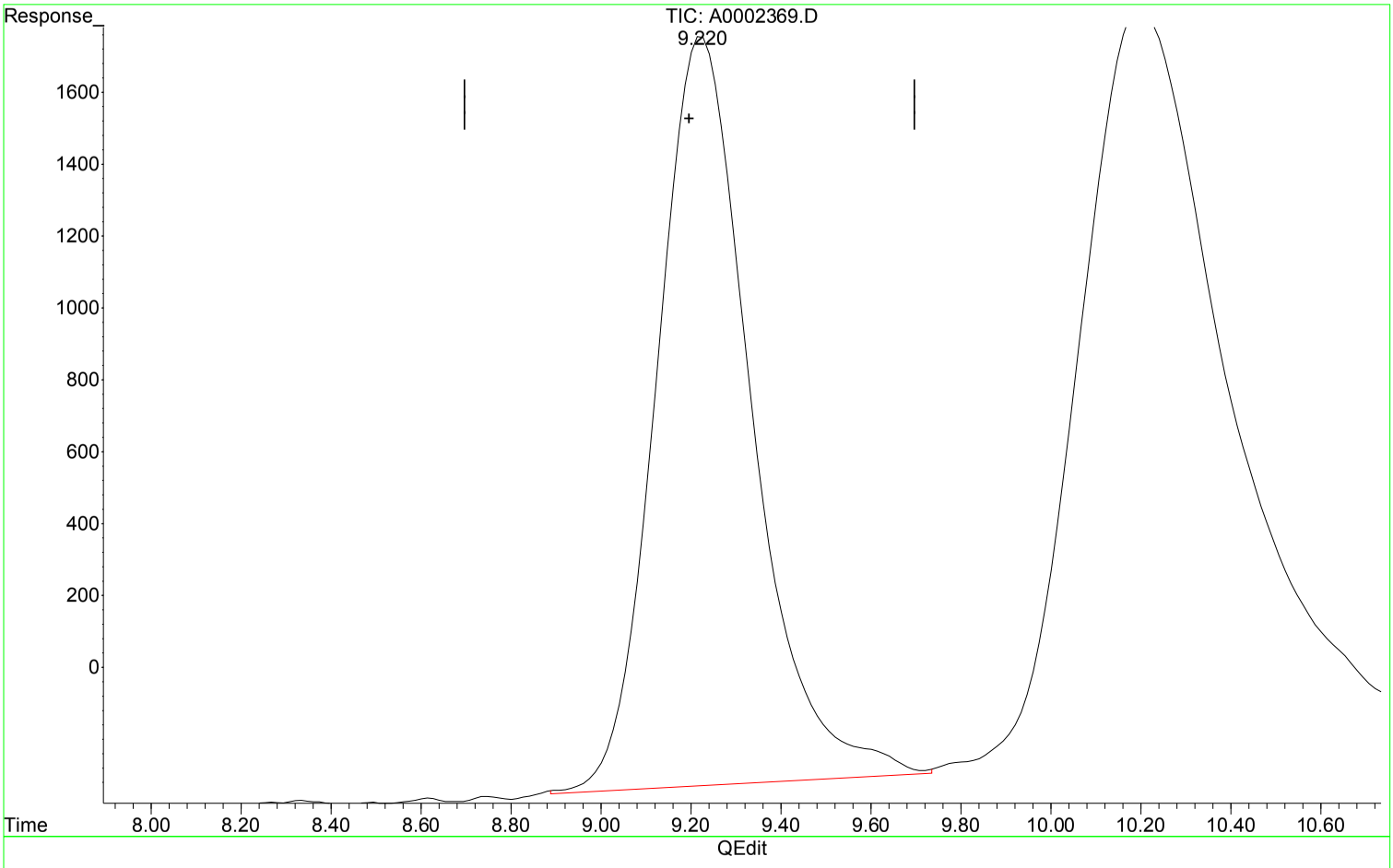
00946831

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002369.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 01:48:26
Operator : b.allgeier
Sample : 0.5-5.0ppm
Misc :
ALS Vial : 4 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 13:43:00 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(5) Propionic Acid (T)

9.220min 5.196 ppm m

response 306395

Manual Integration:

After

Poor integration.

10/04/18

(+) = Expected Retention Time

MA100418.M Thu Oct 04 13:45:02 2018

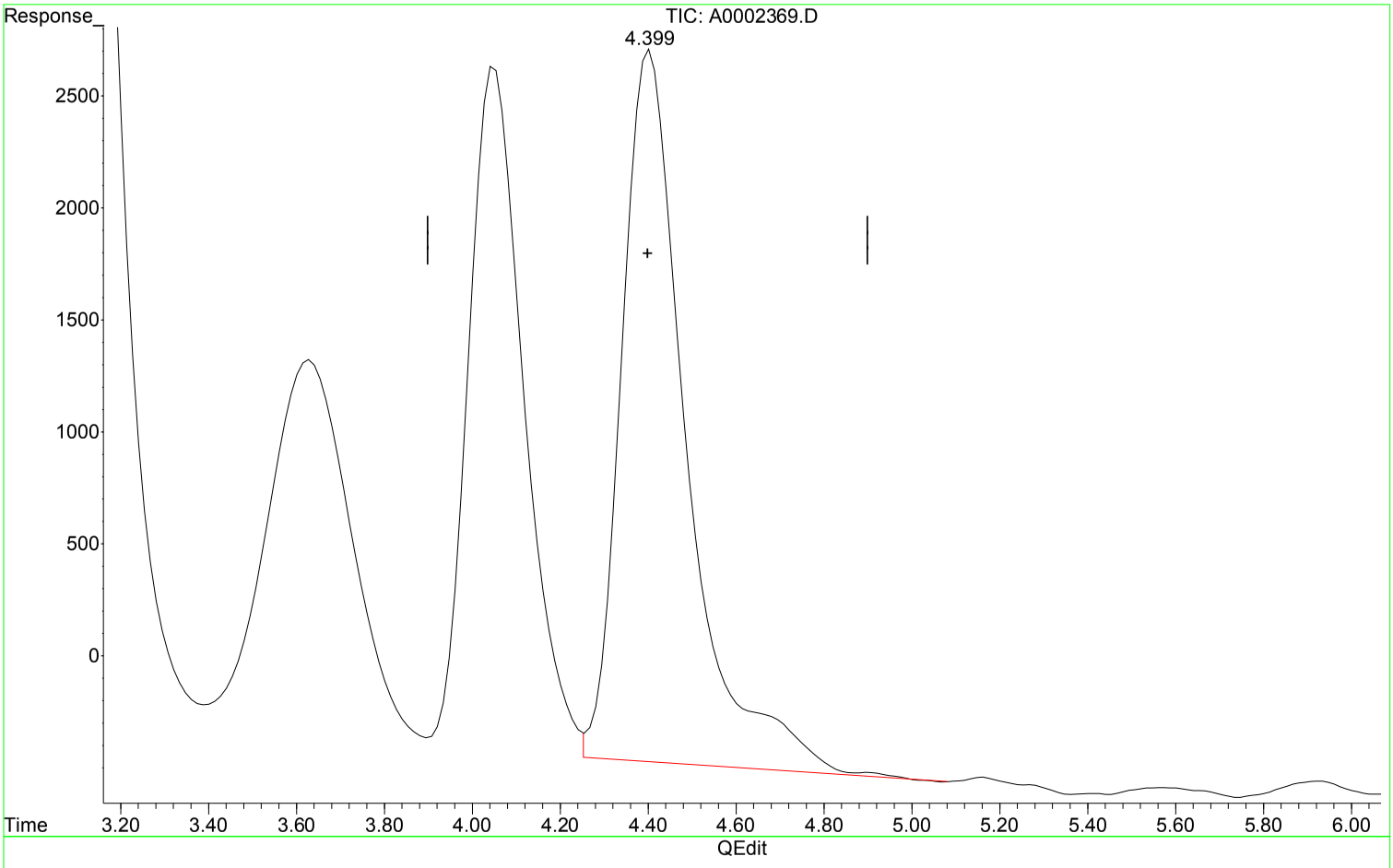
00946832

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002369.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 01:48:26
Operator : b.allgeier
Sample : 0.5-5.0ppm
Misc :
ALS Vial : 4 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 13:43:00 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(4) Acetic Acid (T)

4.406min 5.542 ppm

response 328094

Manual Integration:

Before

10/04/18

(+) = Expected Retention Time

MA100418.M Thu Oct 04 13:44:46 2018

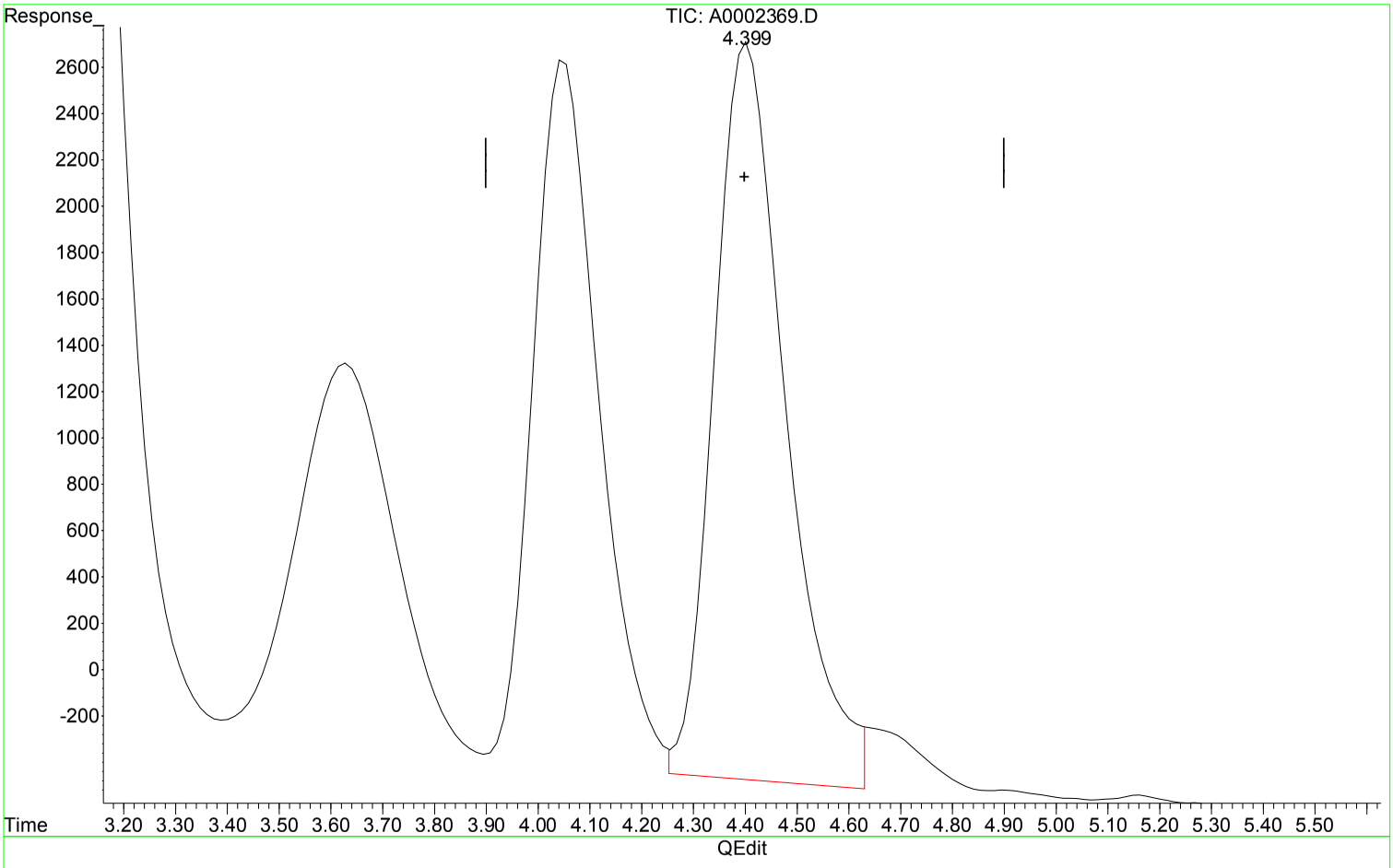
00946833

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002369.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 01:48:26
Operator : b.allgeier
Sample : 0.5-5.0ppm
Misc :
ALS Vial : 4 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 13:43:00 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(4) Acetic Acid (T)

4.399min 5.228 ppm m

response 309471

Manual Integration:

After

Poor integration.

10/04/18

(+) = Expected Retention Time

00946834

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002368.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 16:48:22
Operator : b.allgeier
Sample : 0.2-2.0ppm
Misc :
ALS Vial : 3 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 13:42:49 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1) t	Formic acid	3.133	197324	2.095	ppm	
2) T	Pyruvic acid	3.628	94203	0.209	ppm	
3) T	Lactic Acid	4.053	108314	2.047	ppm	
4) T	Acetic Acid	4.399	121343	2.050	ppm	m
5) T	Propionic Acid	9.219	118189	2.004	ppm	m
6) T	Butyric Acid	24.985	143852	2.381	ppm	m

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

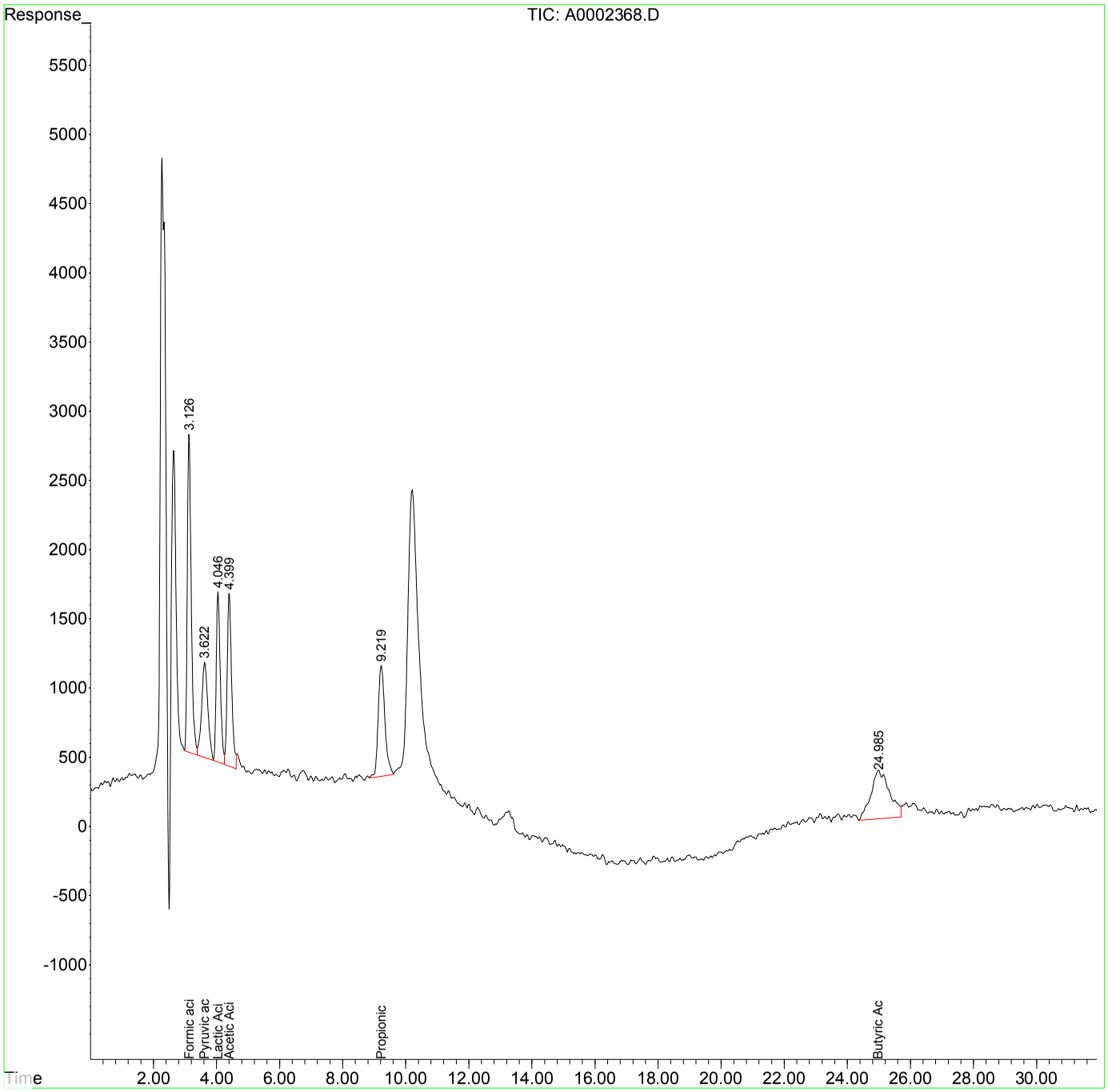
00946835

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002368.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 16:48:22
Operator : b.allgeier
Sample : 0.2-2.0ppm
Misc :
ALS Vial : 3 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 13:42:49 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

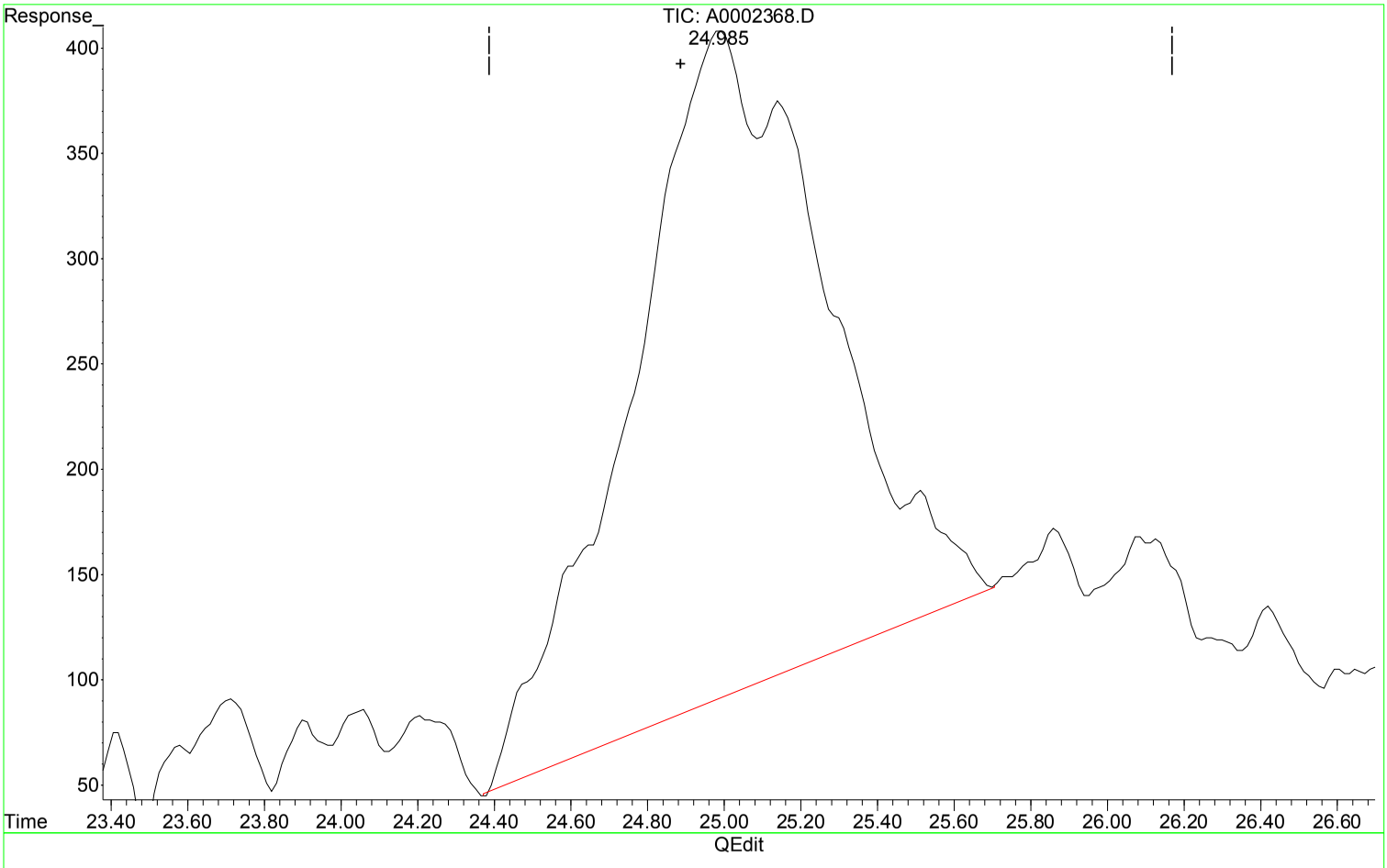


Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002368.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 16:48:22
Operator : b.allgeier
Sample : 0.2-2.0ppm
Misc :
ALS Vial : 3 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 13:42:49 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(6) Butyric Acid (T)

24.991min 1.857 ppm

response 112205

Manual Integration:

Before

10/04/18

(+) = Expected Retention Time

MA100418.M Thu Oct 04 13:44:20 2018

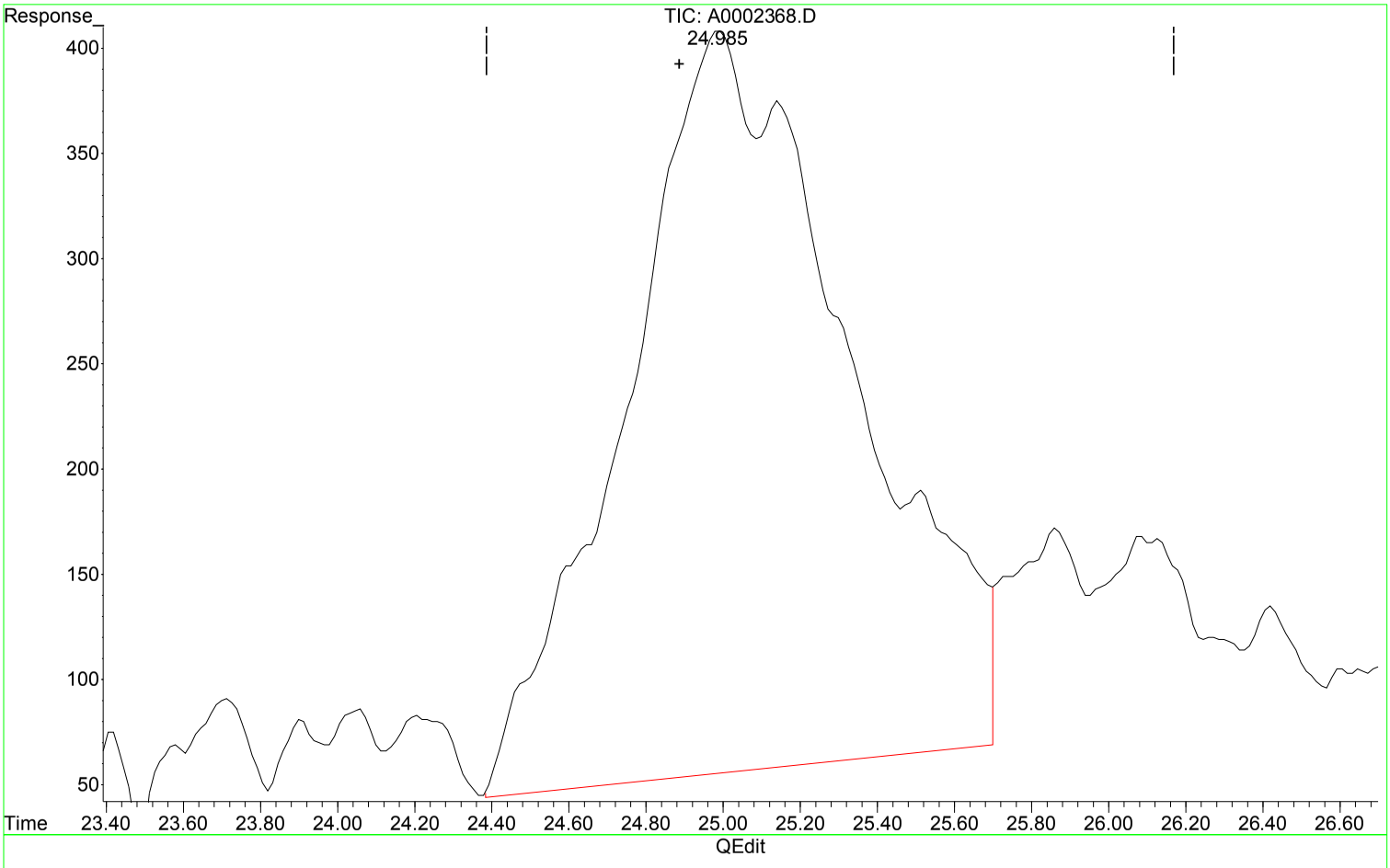
00946837

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002368.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 16:48:22
Operator : b.allgeier
Sample : 0.2-2.0ppm
Misc :
ALS Vial : 3 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 13:42:49 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(6) Butyric Acid (T)

24.985min 2.381 ppm m

response 143852

Manual Integration:

After

Poor integration.

10/04/18

(+) = Expected Retention Time

MA100418.M Thu Oct 04 13:44:27 2018

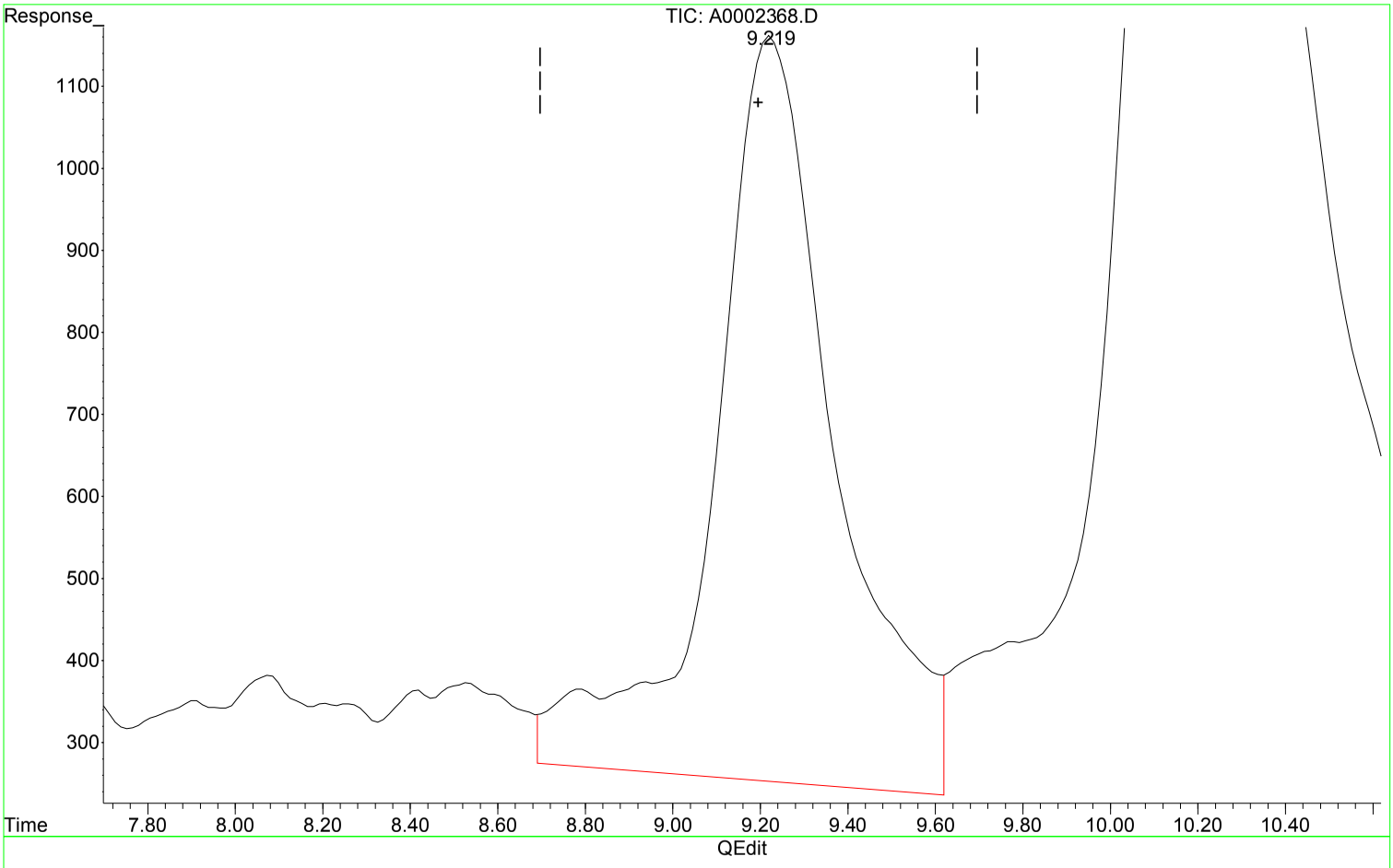
00946838

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002368.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 16:48:22
Operator : b.allgeier
Sample : 0.2-2.0ppm
Misc :
ALS Vial : 3 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 13:42:49 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(5) Propionic Acid (T)

9.226min 3.005 ppm

response 177221

Manual Integration:

Before

10/04/18

(+) = Expected Retention Time

MA100418.M Thu Oct 04 13:44:07 2018

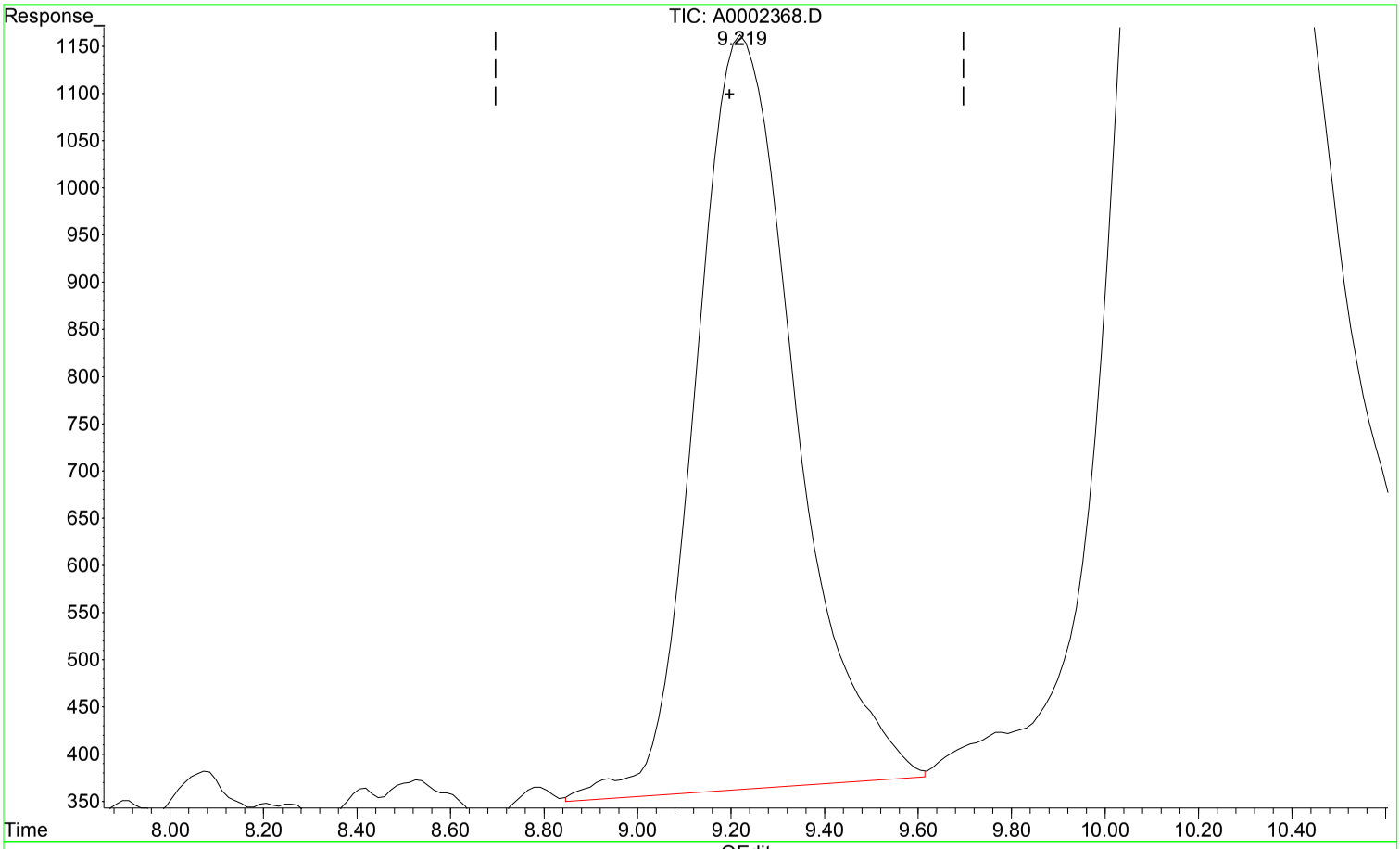
00946839

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002368.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 16:48:22
Operator : b.allgeier
Sample : 0.2-2.0ppm
Misc :
ALS Vial : 3 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 13:42:49 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(5) Propionic Acid (T)

9.219min 2.004 ppm m

response 118189

Manual Integration:

After

Poor integration.

10/04/18

(+) = Expected Retention Time

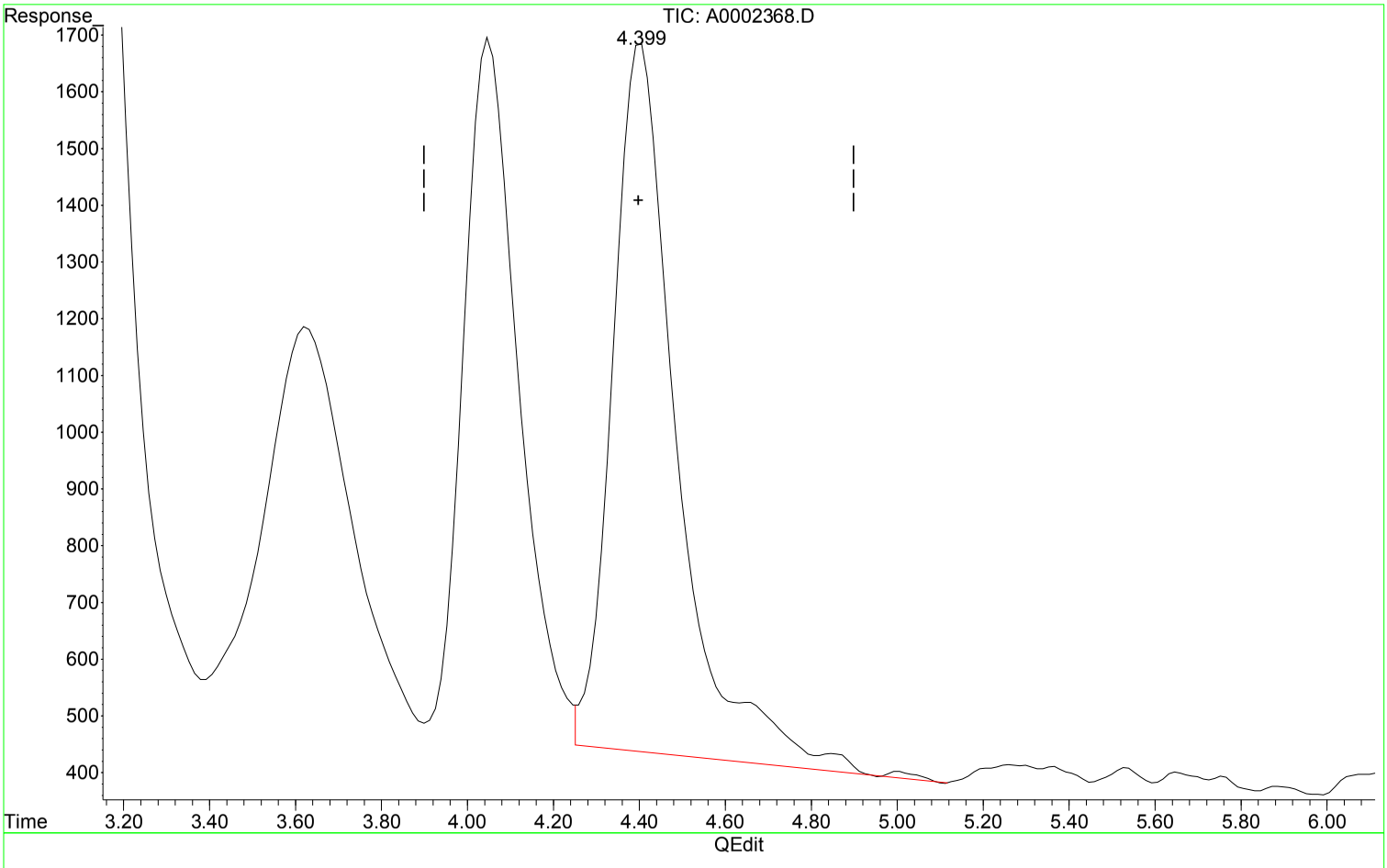
00946840

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002368.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 16:48:22
Operator : b.allgeier
Sample : 0.2-2.0ppm
Misc :
ALS Vial : 3 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 13:42:49 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(4) Acetic Acid (T)

4.406min 2.212 ppm

response 130945

Manual Integration:

Before

10/04/18

(+) = Expected Retention Time

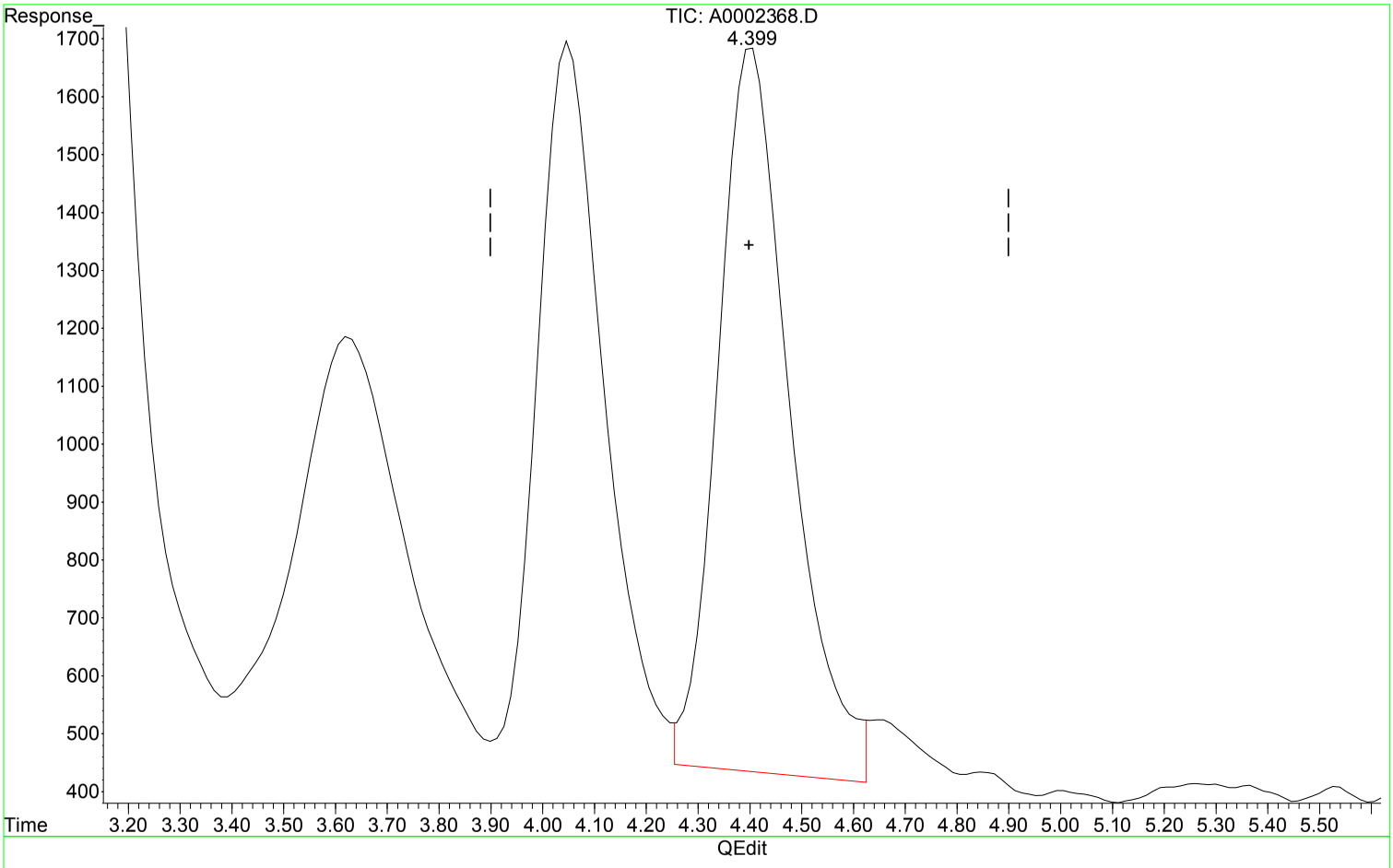
00946841

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002368.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 16:48:22
Operator : b.allgeier
Sample : 0.2-2.0ppm
Misc :
ALS Vial : 3 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 13:42:49 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(4) Acetic Acid (T)

4.399min 2.050 ppm m

response 121343

Manual Integration:

After

Poor integration.

10/04/18

(+) = Expected Retention Time

00946842

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002367.D
Signal(s) : dad1A.ch
Acq On : 04-Oct-2018, 12:01:56
Operator : b.allgeier
Sample : 0.1-1.0ppm
Misc :
ALS Vial : 2 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 13:42:47 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1) t	Formic acid	3.133	101923	1.082	ppm	
2) T	Pyruvic acid	3.631	46367	0.103	ppm	
3) T	Lactic Acid	4.052	58945	1.114	ppm	
4) T	Acetic Acid	4.404	60257	1.018	ppm	
5) T	Propionic Acid	9.215	69400	1.177	ppm	m
6) T	Butyric Acid	24.964	74253	1.229	ppm	m

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

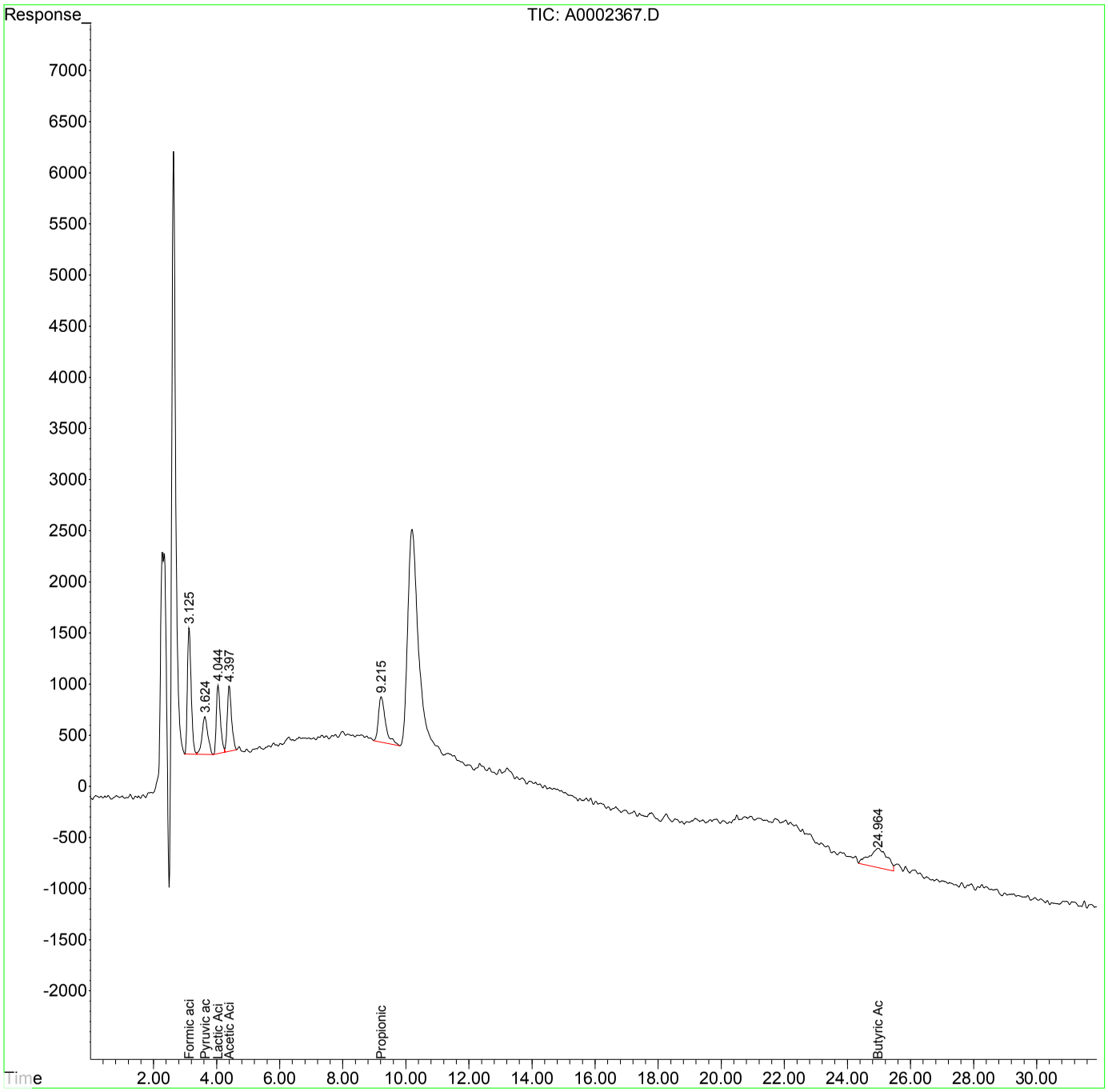
00946843

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002367.D
Signal(s) : dad1A.ch
Acq On : 04-Oct-2018, 12:01:56
Operator : b.allgeier
Sample : 0.1-1.0ppm
Misc :
ALS Vial : 2 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 13:42:47 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

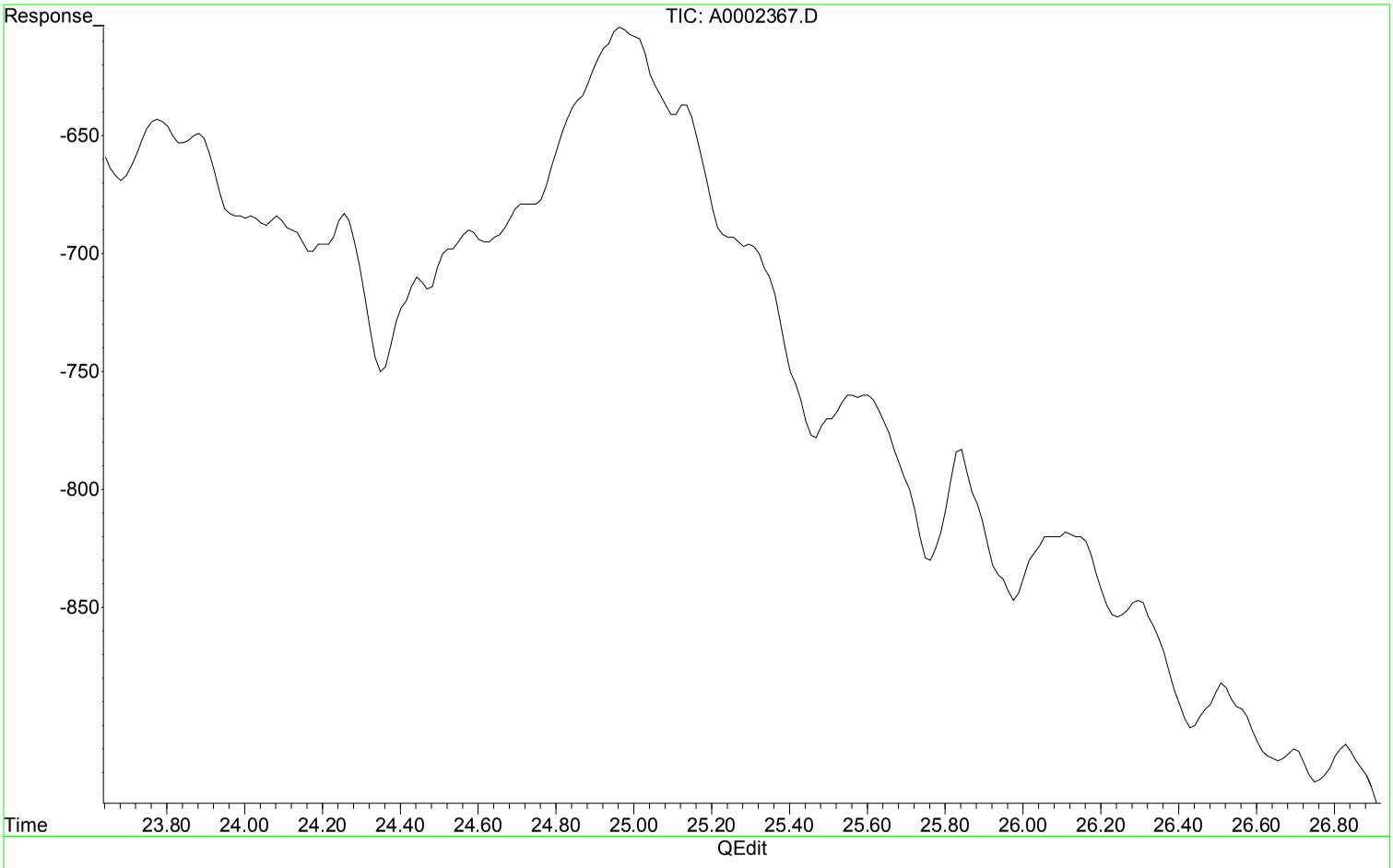


Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002367.D
Signal(s) : dad1A.ch
Acq On : 04-Oct-2018, 12:01:56
Operator : b.allgeier
Sample : 0.1-1.0ppm
Misc :
ALS Vial : 2 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 13:42:47 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(6) Butyric Acid (T)

24.887min 0.000 ppm

response 0

Manual Integration:

Before

10/04/18

(+) = Expected Retention Time

MA100418.M Thu Oct 04 13:43:19 2018

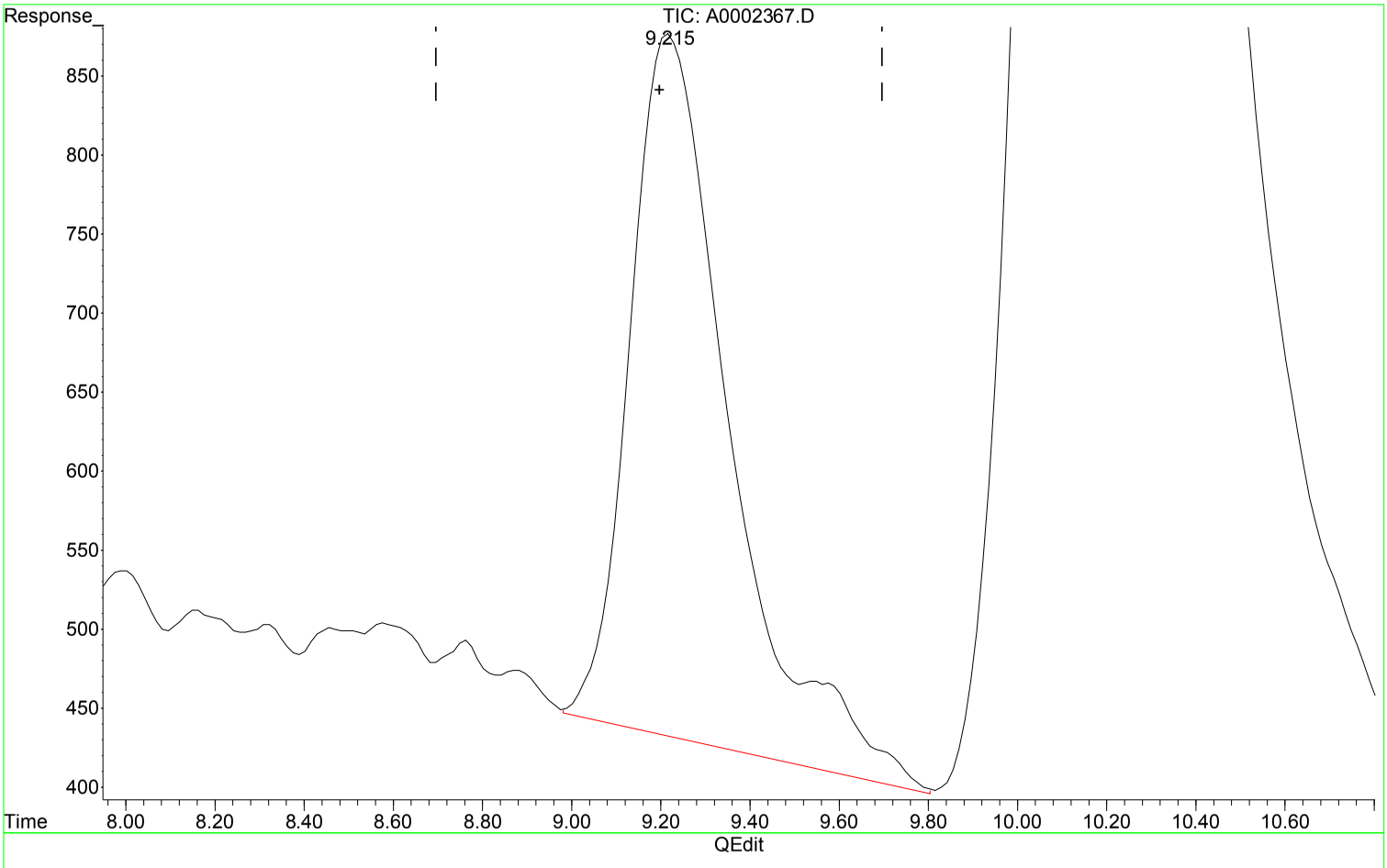
00946845

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002367.D
Signal(s) : dad1A.ch
Acq On : 04-Oct-2018, 12:01:56
Operator : b.allgeier
Sample : 0.1-1.0ppm
Misc :
ALS Vial : 2 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 13:42:47 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 08:47:26 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(5) Propionic Acid (T)

9.215min 1.177 ppm m

response 69400

Manual Integration:

After

Poor integration.

10/04/18

(+) = Expected Retention Time

00946846

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002366.D
Signal(s) : dad1A.ch
Acq On : 04-Oct-2018, 11:26:57
Operator : b.allgeier
Sample : inst blk
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:43:03 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 16:42:39 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1) t	Formic acid	0.000	0	N.D.	ppm	
2) T	Pyruvic acid	3.655	25630	0.057	ppm	m
3) T	Lactic Acid	0.000	0	N.D.	ppm	
4) T	Acetic Acid	0.000	0	N.D.	ppm	
5) T	Propionic Acid	0.000	0	N.D.	ppm	
6) T	Butyric Acid	0.000	0	N.D.	ppm	

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

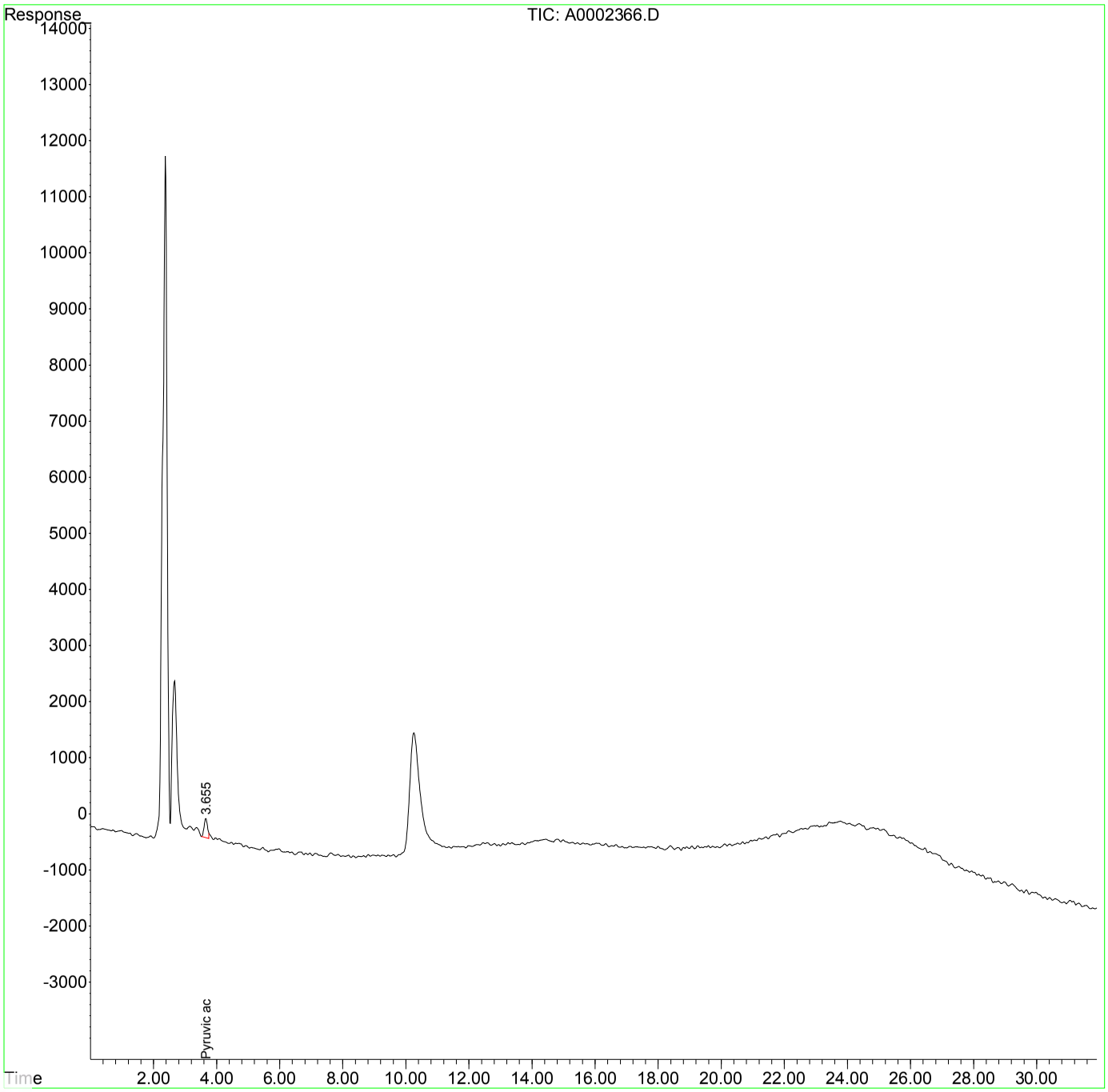
00946847

1st BA 10/05/18
2nd MP 10/09/18

Data Path : I:\ACQUDATA\hplc05\data\100418\
Data File : A0002366.D
Signal(s) : dad1A.ch
Acq On : 04-Oct-2018, 11:26:57
Operator : b.allgeier
Sample : inst blk
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Oct 04 16:43:03 2018
Quant Method : I:\ACQUDATA\hplc05\Methods\MA100418.M
Quant Title : organic acids
QLast Update : Thu Oct 04 16:42:39 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



00946848

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: LHAAP / Site 58

Service Request: R1812085
Calibration Date: 10/4/2018

Initial Calibration Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Calibration ID: RC1800114
Instrument ID: R-HPLC-05

Signal ID: synergi hydro rp

#	Lab Code	Sample Name	File Location	Acquisition Date
01	RC1800114-01	0.1-1.0ppm	I:\ACQUDATA\hplc05\data\100418\A0002367.D	10/04/2018 12:01
02	RC1800114-02	0.2-2.0ppm	I:\ACQUDATA\hplc05\data\100418\A0002368.D	10/04/2018 12:32
03	RC1800114-03	0.5-5.0ppm	I:\ACQUDATA\hplc05\data\100418\A0002369.D	10/04/2018 13:04
04	RC1800114-04	1.0-10.0ppm	I:\ACQUDATA\hplc05\data\100418\A0002370.D	10/04/2018 13:36
05	RC1800114-05	2.0-20.0ppm	I:\ACQUDATA\hplc05\data\100418\A0002371.D	10/04/2018 14:21
06	RC1800114-06	5.0-50.0ppm	I:\ACQUDATA\hplc05\data\100418\A0002372.D	10/04/2018 14:56
07	RC1800114-07	10.0-100.0ppm	I:\ACQUDATA\hplc05\data\100418\A0002373.D	10/04/2018 15:31
08	RC1800114-08	20.0-200.0ppm	I:\ACQUDATA\hplc05\data\100418\A0002374.D	10/04/2018 16:03

Analyte

Acetic Acid

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	6.026E4	02	2.000	6.067E4	03	5.000	6.189E4	04	10.000	5.859E4
05	20.000	5.483E4	06	50.000	6.053E4	07	100.000	5.725E4	08	200.000	5.933E4

Butanoic Acid (Butyric Acid)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	7.425E4	02	2.000	7.193E4	03	5.000	6.215E4	04	10.000	6.021E4
05	20.000	6.035E4	06	50.000	5.865E4	07	100.000	5.511E4	08	200.000	6.053E4

Lactic Acid

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	5.895E4	02	2.000	5.416E4	03	5.000	5.388E4	04	10.000	5.286E4
05	20.000	5.017E4	06	50.000	5.423E4	07	100.000	5.216E4	08	200.000	5.371E4

Propionic Acid

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	6.94E4	02	2.000	5.909E4	03	5.000	6.128E4	04	10.000	5.86E4
05	20.000	5.703E4	06	50.000	5.9E4	07	100.000	5.508E4	08	200.000	5.726E4

Pyruvic Acid

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.100	4.637E5	02	0.200	4.71E5	03	0.500	4.552E5	04	1.000	4.481E5
05	2.000	4.25E5	06	5.000	4.588E5	07	10.000	4.43E5	08	20.000	4.585E5

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: LHAAP / Site 58

Service Request: R1812085
Calibration Date: 10/4/2018

Initial Calibration Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Calibration ID: RC1800114
Instrument ID: R-HPLC-05

Signal ID: synergi hydro rp

Analyte Name	Compound Type	Calibration Evaluation				Calibration Evaluation	
		Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
Acetic Acid	TRG	Average RF	% RSD	3.8	≤	5.917E4	
Butanoic Acid (Butyric Acid)	TRG	Average RF	% RSD	10.6	≤	6.29E4	
Lactic Acid	TRG	Average RF	% RSD	4.6	≤	5.376E4	
Propionic Acid	TRG	Average RF	% RSD	7.3	≤	5.959E4	
Pyruvic Acid	TRG	Average RF	% RSD	3.1	≤	4.529E5	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: LHAAP / Site 58

Service Request: R1812085
Calibration Date: 12/31/2018

Initial Calibration Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Calibration ID: RC1900001
Instrument ID: R-HPLC-05

Signal ID: synergi hydro rp

#	Lab Code	Sample Name	File Location	Acquisition Date
01	RC1900001-01	0.1-1.0ppm	I:\ACQUDATA\hplc05\data\123118\A0002708.D	12/31/2018 15:30
02	RC1900001-02	0.2-2.0ppm	I:\ACQUDATA\hplc05\data\123118\A0002709.D	12/31/2018 16:20
03	RC1900001-03	0.5-5.0ppm	I:\ACQUDATA\hplc05\data\123118\A0002710.D	12/31/2018 17:10
04	RC1900001-04	1.0-10.0ppm	I:\ACQUDATA\hplc05\data\123118\A0002711.D	12/31/2018 18:01
05	RC1900001-05	2.0-20.0ppm	I:\ACQUDATA\hplc05\data\123118\A0002712.D	12/31/2018 18:53
06	RC1900001-06	5.0-50.0ppm	I:\ACQUDATA\hplc05\data\123118\A0002713.D	12/31/2018 20:00
07	RC1900001-07	10.0-100ppm	I:\ACQUDATA\hplc05\data\123118\A0002714.D	12/31/2018 20:39
08	RC1900001-08	20.0-200.0ppm	I:\ACQUDATA\hplc05\data\123118\A0002715.D	12/31/2018 21:32

Analyte

Acetic Acid

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	6.213E4	02	2.000	6.158E4	03	5.000	5.682E4	04	10.000	5.642E4
05	20.000	5.639E4	06	50.000	5.924E4	07	100.000	5.609E4	08	200.000	5.826E4

Butanoic Acid (Butyric Acid)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	2.000	6.107E4	03	5.000	5.113E4	04	10.000	5.523E4	05	20.000	5.225E4
06	50.000	5.443E4	07	100.000	5.078E4	08	200.000	5.385E4			

Lactic Acid

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	6.114E4	02	2.000	5.896E4	03	5.000	5.734E4	04	10.000	5.761E4
05	20.000	5.722E4	06	50.000	5.956E4	07	100.000	5.638E4	08	200.000	5.866E4

Propionic Acid

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	6.654E4	02	2.000	6.347E4	03	5.000	5.393E4	04	10.000	5.633E4
05	20.000	5.432E4	06	50.000	5.624E4	07	100.000	5.442E4	08	200.000	5.58E4

Pyruvic Acid

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.100	7.214E5	02	0.200	7.356E5	03	0.500	6.717E5	04	1.000	6.659E5
05	2.000	8.776E5	06	5.000	7.096E5	07	10.000	6.717E5	08	20.000	6.998E5

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: LHAAP / Site 58

Service Request: R1812085
Calibration Date: 12/31/2018

Initial Calibration Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Calibration ID: RC1900001
Instrument ID: R-HPLC-05

Signal ID: synergi hydro rp

		Calibration Evaluation				Calibration Evaluation	
Analyte Name	Compound Type	Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
Acetic Acid	TRG	Average RF	% RSD	4.1	≤	5.837E4	
Butanoic Acid (Butyric Acid)	TRG	Average RF	% RSD	6.5	≤	5.411E4	
Lactic Acid	TRG	Average RF	% RSD	2.6	≤	5.836E4	
Propionic Acid	TRG	Average RF	% RSD	8.2	≤	5.763E4	
Pyruvic Acid	TRG	Average RF	% RSD	9.6	≤	7.191E5	

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QA/QC Report

Client: ALS Environmental - US
Project: LHAAP / Site 58

Service Request: R1812085
Calibration Date: 10/4/2018

Initial Calibration Verification Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Calibration ID: RC1800114
Instrument ID: R-HPLC-05

Signal ID: synergi hydro rp

#	Lab Code	Sample Name	File Location	Acquisition Date
09	RC1800114-09	icv	I:\ACQUDATA\hplc05\data\100418\A0002375.D	10/04/2018 16:35

Analyte Name	Expected	Result	Average RF	SSV RF	Rec.	Criteria	Curve Fit
Pyruvic Acid	2.00	3.00	4.529E5	6.787E5	150*	85-115	Average RF
Acetic Acid	20.0	20.6	5.917E4	6.092E4	103	85-115	Average RF
Butanoic Acid (Butyric Acid)	20.0	18.1	6.29E4	5.694E4	90.5	85-115	Average RF
Lactic Acid	20.0	20.2	5.376E4	5.434E4	101	85-115	Average RF
Propionic Acid	20.0	19.2	5.959E4	5.733E4	96.0	85-115	Average RF

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QA/QC Report

Client: ALS Environmental - US
Project: LHAAP / Site 58

Service Request: R1812085
Calibration Date: 12/31/2018

Initial Calibration Verification Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Calibration ID: RC1900001
Instrument ID: R-HPLC-05

Signal ID: synergi hydro rp

#	Lab Code	Sample Name	File Location	Acquisition Date
09	RC1900001-09	icv	I:\ACQUDATA\hplc05\data\123118\A0002716.D	12/31/2018 22:10

Analyte Name	Expected	Result	Average RF	SSV RF	Rec.	Criteria	Curve Fit
Pyruvic Acid	2.00	1.90	7.191E5	6.83E5	95.0	85-115	Average RF
Acetic Acid	20.0	19.8	5.837E4	5.791E4	99.0	85-115	Average RF
Butanoic Acid (Butyric Acid)	20.0	20.2	5.411E4	5.455E4	101	85-115	Average RF
Lactic Acid	20.0	20.0	5.836E4	5.835E4	100	85-115	Average RF
Propionic Acid	20.0	19.2	5.763E4	5.535E4	96.0	85-115	Average RF

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QA/QC Report

Client: ALS Environmental - US
Project: LHAAP / Site 58/NWO1312.0150

Service Request: R1812085
Date Analyzed: 12/18/18 15:45

Continuing Calibration Verification (CCV) Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids
File ID: I:\ACQUDATA\hplc05\data\121718\A0002587.D\
Signal ID: synergi hydro rp

Calibration Date: 10/4/2018
Calibration ID: RC1800114
Analysis Lot: 619495
Units: mg/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Pyruvic Acid	5.03	4.98	4.529E5	4.489E5	-0.9	NA	±15	Average RF
Acetic Acid	50.1	50.8	5.917E4	5.993E4	1.3	NA	±15	Average RF
Butanoic Acid (Butyric Acid)	50.8	44.4	6.29E4	5.496E4	-12.6	NA	±15	Average RF
Lactic Acid	49.8	54.1	5.376E4	5.844E4	8.7	NA	±15	Average RF
Propionic Acid	50.3	48.7	5.959E4	5.763E4	-3.3	NA	±15	Average RF

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QA/QC Report

Client: ALS Environmental - US
Project: LHAAP / Site 58/NWO1312.0150

Service Request: R1812085
Date Analyzed: 12/19/18 01:48

Continuing Calibration Verification (CCV) Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids
File ID: I:\ACQUDATA\hplc05\data\121718\A0002598.D\
Signal ID: synergi hydro rp

Calibration Date: 10/4/2018
Calibration ID: RC1800114
Analysis Lot: 619495
Units: mg/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Pyruvic Acid	5.03	4.92	4.529E5	4.435E5	-2.1	NA	±15	Average RF
Acetic Acid	50.1	50.3	5.917E4	5.936E4	0.3	NA	±15	Average RF
Butanoic Acid (Butyric Acid)	50.8	44.3	6.29E4	5.481E4	-12.9	NA	±15	Average RF
Lactic Acid	49.8	54.4	5.376E4	5.876E4	9.3	NA	±15	Average RF
Propionic Acid	50.3	48.9	5.959E4	5.783E4	-3.0	NA	±15	Average RF

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QA/QC Report

Client: ALS Environmental - US
Project: LHAAP / Site 58/NWO1312.0150

Service Request: R1812085
Date Analyzed: 12/20/18 02:35

Continuing Calibration Verification (CCV) Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids
File ID: I:\ACQUDATA\hplc05\data\121918\A0002621.D\
Signal ID: synergi hydro rp

Calibration Date: 10/4/2018
Calibration ID: RC1800114
Analysis Lot: 619495
Units: mg/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Pyruvic Acid	5.03	5.01	4.529E5	4.514E5	-0.3	NA	±15	Average RF
Acetic Acid	50.1	50.7	5.917E4	5.982E4	1.1	NA	±15	Average RF
Butanoic Acid (Butyric Acid)	50.8	44.8	6.29E4	5.538E4	-12.0	NA	±15	Average RF
Lactic Acid	49.8	54.6	5.376E4	5.899E4	9.7	NA	±15	Average RF
Propionic Acid	50.3	49.5	5.959E4	5.859E4	-1.7	NA	±15	Average RF

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QA/QC Report

Client: ALS Environmental - US
Project: LHAAP / Site 58/NWO1312.0150

Service Request: R1812085
Date Analyzed: 12/20/18 04:21

Continuing Calibration Verification (CCV) Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids
File ID: I:\ACQUDATA\hplc05\data\121918\A0002623.D\
Signal ID: synergi hydro rp

Calibration Date: 10/4/2018
Calibration ID: RC1800114
Analysis Lot: 619495
Units: mg/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Pyruvic Acid	5.03	4.90	4.529E5	4.413E5	-2.6	NA	±15	Average RF
Acetic Acid	50.1	50.1	5.917E4	5.911E4	-0.1	NA	±15	Average RF
Butanoic Acid (Butyric Acid)	50.8	44.0	6.29E4	5.438E4	-13.5	NA	±15	Average RF
Lactic Acid	49.8	54.1	5.376E4	5.843E4	8.7	NA	±15	Average RF
Propionic Acid	50.3	49.1	5.959E4	5.809E4	-2.5	NA	±15	Average RF

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QA/QC Report

Client: ALS Environmental - US
Project: LHAAP / Site 58/NWO1312.0150

Service Request: R1812085
Date Analyzed: 12/21/18 05:03

Continuing Calibration Verification (CCV) Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids
File ID: I:\ACQUDATA\hplc05\data\121918\A0002651.D\
Signal ID: synergi hydro rp

Calibration Date: 10/4/2018
Calibration ID: RC1800114
Analysis Lot: 619495
Units: mg/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Pyruvic Acid	5.03	4.98	4.529E5	4.49E5	-0.9	NA	±15	Average RF
Acetic Acid	50.1	50.1	5.917E4	5.918E4	0.0	NA	±15	Average RF
Butanoic Acid (Butyric Acid)	50.8	44.5	6.29E4	5.501E4	-12.5	NA	±15	Average RF
Lactic Acid	49.8	56.0	5.376E4	6.053E4	12.6	NA	±15	Average RF
Propionic Acid	50.3	50.5	5.959E4	5.977E4	0.3	NA	±15	Average RF

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QA/QC Report

Client: ALS Environmental - US
Project: LHAAP / Site 58/NWO1312.0150

Service Request: R1812085
Date Analyzed: 12/21/18 09:00

Continuing Calibration Verification (CCV) Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids
File ID: I:\ACQUDATA\hplc05\data\121918\A0002657.D\
Signal ID: synergi hydro rp

Calibration Date: 10/4/2018
Calibration ID: RC1800114
Analysis Lot: 619495
Units: mg/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Pyruvic Acid	5.03	5.06	4.529E5	4.556E5	0.6	NA	±15	Average RF
Acetic Acid	50.1	50.5	5.917E4	5.959E4	0.7	NA	±15	Average RF
Butanoic Acid (Butyric Acid)	50.8	44.0	6.29E4	5.448E4	-13.4	NA	±15	Average RF
Lactic Acid	49.8	56.3	5.376E4	6.084E4	13.2	NA	±15	Average RF
Propionic Acid	50.3	44.6	5.959E4	5.283E4	-11.3	NA	±15	Average RF

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QA/QC Report

Client: ALS Environmental - US
Project: LHAAP / Site 58/NWO1312.0150

Service Request: R1812085
Date Analyzed: 12/19/18 22:10

Continuing Calibration Verification (CCV) Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids
File ID: I:\ACQUDATA\hplc05\data\121918\A0002616.D\
Signal ID: synergi hydro rp

Calibration Date: 10/4/2018
Calibration ID: RC1800114
Analysis Lot: 619495
Units: mg/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Pyruvic Acid	5.03	4.93	4.529E5	4.445E5	-1.9	NA	±15	Average RF
Acetic Acid	50.1	50.5	5.917E4	5.966E4	0.8	NA	±15	Average RF
Butanoic Acid (Butyric Acid)	50.8	55.1	6.29E4	6.812E4	8.3	NA	±15	Average RF
Lactic Acid	49.8	54.0	5.376E4	5.838E4	8.6	NA	±15	Average RF
Propionic Acid	50.3	47.4	5.959E4	5.612E4	-5.8	NA	±15	Average RF

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QA/QC Report

Client: ALS Environmental - US
Project: LHAAP / Site 58/NWO1312.0150

Service Request: R1812085
Date Analyzed: 12/21/18 13:50

Continuing Calibration Verification (CCV) Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids
File ID: I:\ACQUDATA\hplc05\data\121918\A0002661.D\
Signal ID: synergi hydro rp

Calibration Date: 10/4/2018
Calibration ID: RC1800114
Analysis Lot: 619495
Units: mg/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Pyruvic Acid	5.03	4.85	4.529E5	4.374E5	-3.4	NA	±15	Average RF
Acetic Acid	50.1	49.5	5.917E4	5.846E4	-1.2	NA	±15	Average RF
Butanoic Acid (Butyric Acid)	50.8	43.3	6.29E4	5.363E4	-14.7	NA	±15	Average RF
Lactic Acid	49.8	55.7	5.376E4	6.015E4	11.9	NA	±15	Average RF
Propionic Acid	50.3	46.2	5.959E4	5.467E4	-8.3	NA	±15	Average RF

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QA/QC Report

Client: ALS Environmental - US
Project: LHAAP / Site 58/NWO1312.0150

Service Request: R1812085
Date Analyzed: 12/21/18 16:31

Continuing Calibration Verification (CCV) Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids
File ID: I:\ACQUDATA\hplc05\data\121918\A0002664.D\
Signal ID: synergi hydro rp

Calibration Date: 10/4/2018
Calibration ID: RC1800114
Analysis Lot: 619495
Units: mg/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Pyruvic Acid	5.03	5.03	4.529E5	4.532E5	0.1	NA	±15	Average RF
Acetic Acid	50.1	50.3	5.917E4	5.942E4	0.4	NA	±15	Average RF
Butanoic Acid (Butyric Acid)	50.8	45.2	6.29E4	5.594E4	-11.1	NA	±15	Average RF
Lactic Acid	49.8	56.4	5.376E4	6.096E4	13.4	NA	±15	Average RF
Propionic Acid	50.3	49.9	5.959E4	5.91E4	-0.8	NA	±15	Average RF

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QA/QC Report

Client: ALS Environmental - US
Project: LHAAP / Site 58/NWO1312.0150

Service Request: R1812085
Date Analyzed: 12/31/18 23:18

Continuing Calibration Verification (CCV) Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids
File ID: I:\ACQUDATA\hplc05\data\123118\A0002717.D\
Signal ID: synergi hydro rp

Calibration Date: 12/31/2018
Calibration ID: RC1900001
Analysis Lot: 620723
Units: mg/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Pyruvic Acid	5.05	4.94	7.191E5	7.034E5	-2.2	NA	±15	Average RF
Acetic Acid	50.1	50.7	5.837E4	5.912E4	1.3	NA	±15	Average RF
Butanoic Acid (Butyric Acid)	50.8	50.3	5.411E4	5.357E4	-1.0	NA	±15	Average RF
Lactic Acid	49.8	51.2	5.836E4	6.006E4	2.9	NA	±15	Average RF
Propionic Acid	50.3	48.4	5.763E4	5.54E4	-3.9	NA	±15	Average RF

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QA/QC Report

Client: ALS Environmental - US
Project: LHAAP / Site 58/NWO1312.0150

Service Request: R1812085
Date Analyzed: 12/30/00 17:47

Continuing Calibration Verification (CCV) Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids
File ID: I:\ACQUDATA\hplc05\data\123118\A0002722.D\
Signal ID: synergi hydro rp

Calibration Date: 12/31/2018
Calibration ID: RC1900001
Analysis Lot: 620723
Units: mg/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Pyruvic Acid	5.05	4.93	7.191E5	7.015E5	-2.4	NA	±15	Average RF
Acetic Acid	50.1	48.8	5.837E4	5.684E4	-2.6	NA	±15	Average RF
Butanoic Acid (Butyric Acid)	50.8	49.9	5.411E4	5.313E4	-1.8	NA	±15	Average RF
Lactic Acid	49.8	50.9	5.836E4	5.974E4	2.4	NA	±15	Average RF
Propionic Acid	50.3	49.8	5.763E4	5.705E4	-1.0	NA	±15	Average RF

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QA/QC Report

Client: ALS Environmental - US **Service Request:**R1812085
Project: LHAAP / Site 58/NWO1312.0150

Analysis Run Log
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: **Analysis Lot:**619495
Instrument ID:R-HPLC-05

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
I:\ACQUDATA\hplc05\data\121918\A0002627.D\	ZZZZZZZ	ZZZZZZZ	12/30/2000	00:06:10	
I:\ACQUDATA\hplc05\data\121918\A0002663.D\	ZZZZZZZ	ZZZZZZZ	12/30/2000	00:10:08	
I:\ACQUDATA\hplc05\data\121918\A0002638.D\	ZZZZZZZ	ZZZZZZZ	12/30/2000	00:10:31	
I:\ACQUDATA\hplc05\data\121918\A0002657.D\	Continuing Calibration Verification	RQ1814001-18	12/30/2000	00:10:32	
I:\ACQUDATA\hplc05\data\121918\A0002619.D\	35AWW10_121218_a MS	RQ1814001-08	12/30/2000	00:18:26	
I:\ACQUDATA\hplc05\data\121918\A0002621.D\	Continuing Calibration Verification	RQ1814001-10	12/30/2000	01:28:24	
I:\ACQUDATA\hplc05\data\121718\A0002595.D\	ZZZZZZZ	ZZZZZZZ	12/30/2000	01:28:29	
I:\ACQUDATA\hplc05\data\121718\A0002589.D\	Lab Control Sample	RQ1814001-02	12/30/2000	02:47:47	
I:\ACQUDATA\hplc05\data\121718\A0002587.D\	Continuing Calibration Verification	RQ1814001-06	12/30/2000	02:47:53	
I:\ACQUDATA\hplc05\data\121918\A0002660.D\	ZZZZZZZ	ZZZZZZZ	12/30/2000	02:48:16	
I:\ACQUDATA\hplc05\data\121718\A0002593.D\	ZZZZZZZ	ZZZZZZZ	12/30/2000	02:48:30	
I:\ACQUDATA\hplc05\data\121918\A0002655.D\	03WW01_121218	R1812085-001	12/30/2000	02:48:38	
I:\ACQUDATA\hplc05\data\121918\A0002636.D\	ZZZZZZZ	ZZZZZZZ	12/30/2000	02:48:42	
I:\ACQUDATA\hplc05\data\121918\A0002625.D\	ZZZZZZZ	ZZZZZZZ	12/30/2000	03:48:16	
I:\ACQUDATA\hplc05\data\121918\A0002624.D\	ZZZZZZZ	ZZZZZZZ	12/30/2000	05:48:22	
I:\ACQUDATA\hplc05\data\121918\A0002628.D\	ZZZZZZZ	ZZZZZZZ	12/30/2000	17:48:05	
I:\ACQUDATA\hplc05\data\121918\A0002661.D\	Continuing Calibration Verification	RQ1814001-23	12/30/2000	17:48:15	
I:\ACQUDATA\hplc05\data\121718\A0002591.D\	ZZZZZZZ	ZZZZZZZ	12/30/2000	17:48:42	
I:\ACQUDATA\hplc05\data\121918\A0002634.D\	ZZZZZZZ	ZZZZZZZ	12/31/2000	03:47:56	
I:\ACQUDATA\hplc05\data\121718\A0002587.D\	Continuing Calibration Verification	RQ1814001-06	12/18/2018	15:45:00	
I:\ACQUDATA\hplc05\data\121718\A0002588.D\	Method Blank	RQ1814001-01	12/18/2018	16:38:32	
I:\ACQUDATA\hplc05\data\121718\A0002589.D\	Lab Control Sample	RQ1814001-02	12/18/2018	17:35:00	
I:\ACQUDATA\hplc05\data\121718\A0002590.D\	Duplicate Lab Control Sample	RQ1814001-03	12/18/2018	18:28:31	

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QA/QC Report

Client: ALS Environmental - US **Service Request:**R1812085
Project: LHAAP / Site 58/NWO1312.0150

Analysis Run Log
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: **Analysis Lot:**619495
Instrument ID:R-HPLC-05

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
I:\ACQUDATA\hplc05\data\121718\A0002591.D\	ZZZZZZZ	ZZZZZZZ	12/18/2018	19:25:00	
I:\ACQUDATA\hplc05\data\121718\A0002592.D\	ZZZZZZZ	ZZZZZZZ	12/18/2018	20:18:17	
I:\ACQUDATA\hplc05\data\121718\A0002593.D\	ZZZZZZZ	ZZZZZZZ	12/18/2018	21:15:00	
I:\ACQUDATA\hplc05\data\121718\A0002594.D\	ZZZZZZZ	ZZZZZZZ	12/18/2018	22:08:14	
I:\ACQUDATA\hplc05\data\121718\A0002595.D\	ZZZZZZZ	ZZZZZZZ	12/18/2018	23:05:00	
I:\ACQUDATA\hplc05\data\121718\A0002597.D\	ZZZZZZZ	ZZZZZZZ	12/19/2018	00:53:09	
I:\ACQUDATA\hplc05\data\121718\A0002598.D\	Continuing Calibration Verification	RQ1814001-07	12/19/2018	01:48:07	
I:\ACQUDATA\hplc05\data\121918\A0002616.D\	Continuing Calibration Verification	RQ1814001-22	12/19/2018	22:10:28	
I:\ACQUDATA\hplc05\data\121918\A0002617.D\	35AWW10_121218	R1812085-003	12/19/2018	23:03:21	
I:\ACQUDATA\hplc05\data\121918\A0002618.D\	35AWW10_121218_a	R1812085-004	12/19/2018	23:56:12	
I:\ACQUDATA\hplc05\data\121918\A0002619.D\	35AWW10_121218_a MS	RQ1814001-08	12/20/2018	00:50:00	
I:\ACQUDATA\hplc05\data\121918\A0002620.D\	35AWW10_121218_a DMS	RQ1814001-09	12/20/2018	01:42:07	
I:\ACQUDATA\hplc05\data\121918\A0002621.D\	Continuing Calibration Verification	RQ1814001-10	12/20/2018	02:35:00	
I:\ACQUDATA\hplc05\data\121918\A0002622.D\	ZZZZZZZ	ZZZZZZZ	12/20/2018	03:28:04	
I:\ACQUDATA\hplc05\data\121918\A0002623.D\	Continuing Calibration Verification	RQ1814001-11	12/20/2018	04:21:02	
I:\ACQUDATA\hplc05\data\121918\A0002624.D\	ZZZZZZZ	ZZZZZZZ	12/20/2018	05:15:00	
I:\ACQUDATA\hplc05\data\121918\A0002625.D\	ZZZZZZZ	ZZZZZZZ	12/20/2018	06:10:00	
I:\ACQUDATA\hplc05\data\121918\A0002626.D\	ZZZZZZZ	ZZZZZZZ	12/20/2018	06:59:53	
I:\ACQUDATA\hplc05\data\121918\A0002627.D\	ZZZZZZZ	ZZZZZZZ	12/20/2018	07:52:00	
I:\ACQUDATA\hplc05\data\121918\A0002628.D\	ZZZZZZZ	ZZZZZZZ	12/20/2018	08:49:00	
I:\ACQUDATA\hplc05\data\121918\A0002634.D\	ZZZZZZZ	ZZZZZZZ	12/20/2018	13:00:00	
I:\ACQUDATA\hplc05\data\121918\A0002635.D\	ZZZZZZZ	ZZZZZZZ	12/20/2018	14:56:30	
I:\ACQUDATA\hplc05\data\121918\A0002636.D\	ZZZZZZZ	ZZZZZZZ	12/20/2018	15:50:00	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US **Service Request:**R1812085
Project: LHAAP / Site 58/NWO1312.0150

Analysis Run Log

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: **Analysis Lot:**619495
Instrument ID:R-HPLC-05

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
I:\ACQUDATA\hplc05\data\121918\A0002637.D\	ZZZZZZZ	ZZZZZZZ	12/20/2018	16:42:18	
I:\ACQUDATA\hplc05\data\121918\A0002638.D\	ZZZZZZZ	ZZZZZZZ	12/20/2018	17:20:00	
I:\ACQUDATA\hplc05\data\121918\A0002639.D\	ZZZZZZZ	ZZZZZZZ	12/20/2018	18:28:13	
I:\ACQUDATA\hplc05\data\121918\A0002640.D\	ZZZZZZZ	ZZZZZZZ	12/20/2018	19:21:16	
I:\ACQUDATA\hplc05\data\121918\A0002641.D\	ZZZZZZZ	ZZZZZZZ	12/20/2018	20:14:08	
I:\ACQUDATA\hplc05\data\121918\A0002645.D\	ZZZZZZZ	ZZZZZZZ	12/20/2018	23:45:50	
I:\ACQUDATA\hplc05\data\121918\A0002646.D\	ZZZZZZZ	ZZZZZZZ	12/21/2018	00:38:42	
I:\ACQUDATA\hplc05\data\121918\A0002647.D\	ZZZZZZZ	ZZZZZZZ	12/21/2018	01:31:38	
I:\ACQUDATA\hplc05\data\121918\A0002648.D\	ZZZZZZZ	ZZZZZZZ	12/21/2018	02:24:42	
I:\ACQUDATA\hplc05\data\121918\A0002649.D\	ZZZZZZZ	ZZZZZZZ	12/21/2018	03:17:35	
I:\ACQUDATA\hplc05\data\121918\A0002650.D\	ZZZZZZZ	ZZZZZZZ	12/21/2018	04:10:42	
I:\ACQUDATA\hplc05\data\121918\A0002651.D\	Continuing Calibration Verification	RQ1814001-17	12/21/2018	05:03:39	
I:\ACQUDATA\hplc05\data\121918\A0002654.D\	ZZZZZZZ	ZZZZZZZ	12/21/2018	07:42:15	
I:\ACQUDATA\hplc05\data\121918\A0002655.D\	03WW01_121218	R1812085-001	12/21/2018	08:20:00	
I:\ACQUDATA\hplc05\data\121918\A0002657.D\	Continuing Calibration Verification	RQ1814001-18	12/21/2018	09:00:00	
I:\ACQUDATA\hplc05\data\121918\A0002658.D\	ZZZZZZZ	ZZZZZZZ	12/21/2018	11:14:02	
I:\ACQUDATA\hplc05\data\121918\A0002659.D\	ZZZZZZZ	ZZZZZZZ	12/21/2018	12:06:57	
I:\ACQUDATA\hplc05\data\121918\A0002660.D\	ZZZZZZZ	ZZZZZZZ	12/21/2018	13:00:00	
I:\ACQUDATA\hplc05\data\121918\A0002661.D\	Continuing Calibration Verification	RQ1814001-23	12/21/2018	13:50:00	
I:\ACQUDATA\hplc05\data\121918\A0002662.D\	ZZZZZZZ	ZZZZZZZ	12/21/2018	14:45:51	
I:\ACQUDATA\hplc05\data\121918\A0002663.D\	ZZZZZZZ	ZZZZZZZ	12/21/2018	15:40:00	
I:\ACQUDATA\hplc05\data\121918\A0002664.D\	Continuing Calibration Verification	RQ1814001-24	12/21/2018	16:31:46	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US **Service Request:**R1812085
Project: LHAAP / Site 58/NWO1312.0150

Analysis Run Log

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids **Analysis Lot:**620723
Instrument ID:R-HPLC-05

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
I:\ACQUDATA\hplc05\data\123118\A0002721.D\	35AWW08_121218	R1812085-002	12/30/2000	02:47:53	
I:\ACQUDATA\hplc05\data\123118\A0002722.D\	Continuing Calibration Verification	RQ1900011-02	12/30/2000	17:47:49	
I:\ACQUDATA\hplc05\data\123118\A0002717.D\	Continuing Calibration Verification	RQ1900011-01	12/31/2018	23:18:33	
I:\ACQUDATA\hplc05\data\123118\A0002718.D\	Method Blank	RQ1900011-03	1/1/2019	00:11:33	
I:\ACQUDATA\hplc05\data\123118\A0002719.D\	Lab Control Sample	RQ1900011-04	1/1/2019	01:04:28	
I:\ACQUDATA\hplc05\data\123118\A0002720.D\	Duplicate Lab Control Sample	RQ1900011-05	1/1/2019	01:57:20	

Analysis: Organic Acids Analyst: BA Run Method: ~~0410~~ NEW METH
Date: 12/17/18 Instr. HPLC-05 Quant Method: MA100418
LIMS Run#: 619495
Setup: Column: Synergi Hydro RP 150x4.6 Col.Temp: 35 Flow: 0.60 ml/min
Mobile Phase: 0.02 KH2 prep 0.1PO4 ul Inj.: 50

Pos.	Sample	Diln.	Stds. ID	File#	OK?	Comments
	CCV	1000/1mL	193753	A0000587	YC	
	MeOH BLK			88 87	Y	
	LCS	1000/1mL	193754	89 88	Y	> PYRUVIC OUT +
	DLCS	"	"	90 89	Y	
	R1817147-001			91 90	Y	
	" -002			92 91	Y	
	R1811942-001			93 92	Y	
	-002			94 93	Y	
	-003			95 94	Y	
	-004			96 95	N	RPT 1/10
	-005			97 96	Y	
	CCV			98 97	YC	RT SHIFT prep and BOTTLE
	R1811991-001			99 98	N	RPT 1/10
	-002			600 99		1/5
	-003			01 600		
	R1812085-001			02 01		
	-002			03 02		
	-003			04 03		
	-004			05 04		
	-004MS	1000/1mL	193754	06 05		
	-004MSD	"	"	07 06		JUST SHUTDOWN NOCLOC
	~~CCV~~	~~1000/1mL~~	~~193753~~	~~08 07~~		WHY MISSED 12 HR CLOCK
	R1811991-001			09 08		RESTART
	-002		12/20	10 09		
	-003			11 10		
	R1812085-001	BA		12 11		
	-002			13 12		
	-003			14 13		
	-004			15 14		
	-004MS	1000/1mL	193754	16 15		
	-004MSD	"	"	17 16		
	CCV	"	193753	18 17		

All samples = _____mL + _____uL Combined IS/Surr.;

Primary :_____ exp: Secondary :_____ exp:
Primary:_____ exp: Secondary :_____ exp:

Runlog HPLC05r1
1/10/13

Analysis: Organic Acids Analyst: BA Run Method: NEWMETA
Date: 12/19/18 Instr. HPLC-05 Quant Method: MA100418
LIMS Run#:
Setup: Column: Synergi Hydro RP150x4.6 Col.Temp: 35 Flow: 0.6 ml/min
Mobile Phase: 0.02 KHz prep 0.1 PO4 ul Inj.: 50

Pos.	Sample	Diln.	Stds. ID	File#	OK?	Comments
	CCU	100ul/1ml	193753	A0002608	—	
	R1811991-001	10.0		09	—	
	CCU			10	YC	
	R1811991-001	10.0		11	N	RPT RT SHIFT
	-002	5.0		12		
	-003			13		
	R1812085-001			14		
	-002			15		
	CCU	100ul/1ml	193753	16	YC	
	R1812085-003			17	Y	
	-004			18	Y	
	-004MS	100ul/1ml	193754	19	Y	
	-004MSD			20	Y	
	CCU			21	YC	
	R1811942-004	10.0		22	Y	
	CCU	100ul/1ml	193753	23	YC	
	MET BLK			24	Y	
	LCS	100ul/1ml	193754	25	Y	
	LCSD			26	Y	
	R1812089-006			27	Y	
	-007			28	Y	
	-008			29	N	
	-009			30		
	-015			31		
	-016			32		
	-017			33		
	-018			34	Y	
	-019			35	Y	
	R1812120-005			36	Y	
	CCU	100ul/1ml	193753	37	YC	RT PROP + BUTYRIC NO HID
	R1812120-006			38	Y	
	-007			39	Y	
	-009			40	Y	
	-010			41	Y	

All samples = _____mL + _____uL Combined IS/Surr.;

Primary :_____ exp: Secondary :_____ exp:
Primary:_____ exp: Secondary :_____ exp:

Runlog HPLC05r1
1/10/13

Analysis: Organic Acids Analyst: BA Run Method: NEW METH

Date: 12/20/18 Instr. _HPLC-05 Quant Method: MA100418

LIMS Run#:

Setup: Column: Synergi Hydro RP 150x4.6 Col.Temp: 35 Flow: 0.6 ml/min

Mobile Phase: 0.02 KH_2 prep 0.1 PO_4 ul Inj.: 50

Pos.	Sample	Diln.	Stds. ID	File#	OK?	Comments
	R1812120-011			A0002642	N	RPT 1/2.5
	-011ms			43	↓	↓
	-011msD			44	↓	↓
	CCV	1000/1ml	193753	45	YC	
	R1812089-008			46	Y	
	-009			47	Y	
	-015			48	Y	
	-016			49	Y	
	-017			50	Y	
	CCV	1000/1ml	193753	51	YC	
	R1811991-001	10.0		52	N	
	-002	5.0		53	N	
	-003			54	N Y	
	R1812085-001			55	Y Y	
	-002			56	~~Y~~ N	
	CCV	1000/1ml	193753	57	YC	RT SHIFT PROP + Buty.
	R1812120-011			58	Y	
	-011ms			59	Y	
	-011msD			60	Y	
	CCV	1000/1ml	193753	61	YC	
	R1811199-001	10.0		62	Y	
	-002	5.0		63	Y	
	CCV	1000/1ml	193753	64	YC	

All samples = _____mL + _____uL Combined IS/Surr.;

Primary :_____ exp: Secondary :_____ exp:

Primary:_____ exp: Secondary :_____ exp:

Runlog HPLC05r1
1/10/13

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Analysis: Organic Acids Analyst: BA Run Method: ~~OXIO~~ NEW METH
Date: 12/17/18 Instr. _HPLC-05_ Quant Method: MA100418
LIMS Run#: 619495
Setup: Column: Synergi Hydro RP 150x4.6 Col.Temp: 35 Flow: 0.60 ml/min
Mobile Phase: 0.02 KH2 prep 0.1PO4 ul Inj.: 50

Pos.	Sample	Diln.	Stds. ID	File#	OK?	Comments
	CCV	1000/1ml	193753	A0087	YC	
	MEOT BLK			88 87	Y	
	LCS	100/1ml	193754	89 88	Y	> PYRUVIC OUT
	DLCS	↓	↓	90 89	Y	
	R1812142-001			91 90	Y	
	↓ -002			92 91	Y	
	R1811942-001			93 92	Y	
	-002			94 93	Y	
	-003			95 94	Y	
	-004			96 95	N	RPT 1/10
	↓ -005			97 96	Y	
	CCV			98 97	YC	RT SHIFT prep and BOTTLE
	R1811991-001			99 98	N	RPT 1/10
	-002			100 99		1/5
	-003			01 00		
	R1812085-004			02 01		
	-002			03 02		
	-003			04 03		
	-004			05 04		
	-004MS	100/1ml	193754	06 05		
	-004MSD	↓	↓	07 06	↓	JUST SHUTDOWN NO CLOCK
	~~CCV~~	1000/1ml	193753	~~08 07~~		WHY MISSED 12 HR CLOCK
	R1811991-001			09 08		RESTART
	-002		12/20	10 09		
	-003			11 10		
	R1812085-001	BA		12 11		
	-002			13 12		
	-003			14 13		
	-004			15 14		
	-004MS	100/1ml	193754	16 15		
	-004MSD	↓	↓	17 16		
	~~CCV~~	↓	193753	18 17		

All samples = _____mL + _____uL Combined IS/Surr.;

Primary :_____ exp: Secondary :_____ exp:
Primary:_____ exp: Secondary :_____ exp:

Runlog HPLC05r1
1/10/13

Analysis: Organic Acids Analyst: BA Run Method: NEWMETA
Date: 12/19/18 Instr. _HPLC-05_ Quant Method: MA100418
LIMS Run#: _____
Setup: Column: Synergi Hydro RP150x4.6 Col.Temp: 35 Flow: 0.6 mL/min N
Mobile Phase: 0.02 KH2 PREP 0.1 PO4 ul Inj.: 50

Pos.	Sample	Diln.	Stds. ID	File#	OK?	Comments
	CCV	1000/1mL	193753	A0002608	—	
	R1811991-001	10.0		09	—	
	CCV			10	YC	
	R1811991-001	10.0		11	N	RPT RT SHEET
	-002	5.0		12		
	-003			13		
	R1812085-001			14		
	-002			15		
	CCV	1000/1mL	193753	16	YC	
	R1812085-003			17	Y	
	-004			18	Y	
	-004MS	1000/1mL	193754	19	Y	
	-004MSD	"	"	20	Y	
	CCV			21	YC	
	R1811942-004	10.0		22	Y	
	CCV	1000/1mL	193753	23	YC	
	MET BLK			24	Y	
	LCS	1000/1mL	193754	25	Y	
	LCSD	"	"	26	Y	
	R1812089-006			27	Y	
	-007			28	Y	
	-008			29	N	
	-009			30		
	-015			31		
	-016			32		
	-017			33		
	-018			34	Y	
	-019			35	Y	
	R1812120-005			36	Y	
	CCV	1000/1mL	193753	37	YC	RT PROP + BUTYRIC WAS HIGH
	R1812120-006			38	Y	
	-007			39	Y	
	-009			40	Y	
	-010			41	Y	

All samples = _____mL + _____uL Combined IS/Surr.;

Primary :_____ exp: Secondary :_____ exp:
Primary:_____ exp: Secondary :_____ exp:

Runlog HPLC05r1
1/10/13

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Analysis: Organic Acids Analyst: BA Run Method: NEW META
Date: 12/20/18 Instr. _HPLC-05 Quant Method: MA100418
LIMS Run#:
Setup: Column: Synergi Hydro RP 150x4.6 Col.Temp: 35 Flow: 0.6 ml/min
Mobile Phase: 0.02 KH_2 prep 0.1 H_3PO_4 ul Inj.: 50

Pos.	Sample	Diln.	Stds. ID	File#	OK?	Comments
	R182120-011			4000242	N	RPT 1/2.5
	-011MS			43		
	-011MSD			44		
	CCV	1000/1mL	193753	45	YC	
	R1812089-008			46	Y	
	-009			47	Y	
	-015			48	Y	
	-016			49	Y	
	-017			50	Y	
	CCV	1000/1mL	193753	51	YC	
	R1811991-001	10.0		52	N	
	-002	5.0		53	N	
	-003			54	N Y	
	R1812085 -001			55	Y Y	
	-002			56	Y N	
	CCV	1000/1mL	193753	57	YC	RT SHIFT PROP + Butyr.
	R1812120-011			58	Y	
	-011MS			59	Y	
	-011MSD			60	Y	
	CCV	1000/1mL	193753	61	YC	
	R181199-001	10.0		62	Y	
	-002	5.0		63	Y	
	CCV	1000/1mL	193753	64	YC	

All samples = _____mL + _____uL Combined IS/Surr.;

Primary :_____ exp: Secondary :_____ exp:
Primary:_____ exp: Secondary :_____ exp:

Runlog HPLC05r1
1/10/13

Analysis: Organic Acids Analyst: BA Run Method: NEWMETH

Date: 12/31/18 Instr. _HPLC-05_ Quant Method: MA123118

LIMS Run#: 620723

Setup: Column: Synergi Hydro RP 150x4.6 Col.Temp: 35 Flow: 0.6 mL/min

Mobile Phase: 0.02 K_2HPO_4 prep 0.1 Pay ul Inj.: 50

Pos.	Sample	Diln.	Stds. ID	File#	OK?	Comments
	BLK			A0002705	—	
	BLK			06	—	
	INST BLK			07	Y	
	0.1 - 1.0 PPM	2x/1ml	195967	08	Y	
	0.2 - 2.0	4x/1ml	↓	09	Y	
	0.5 - 5.0	10x/		10	Y	
	1.0 - 10.0	20x/		11	Y	
	2.0 - 20.0	40x/		12	Y	
	5.0 - 50.0	100x/		13	Y	
	10.0 - 100.0	200x/		14	Y	
	20.0 - 200.0	400x/	↓	15	Y	
	ICV	100x/1ml	195968	16	Y	
	CCV	↓	195967	17	YC	
	MET BLK			18	Y	
	LCS	100x/1ml	195968	19	Y	
	DLCS	↓	↓	20	Y	
	R1812085-002			21	Y	
	CCV	100x/1ml	195967	22	YC	

12/31/18

All samples = _____mL + _____uL Combined IS/Surr.;

Primary: 195967 exp: 3/16/19 Secondary: 195968 exp: 3/16/19

Primary: _____ exp: Secondary: _____ exp:

Runlog HPLC05r1
1/10/13

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General Chemistry

ALS Environmental—Rochester Laboratory
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ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1812085
Project:	LHAAP / Site 58/NWO1312.0150	**Date Collected:**	12/12/18 08:20
Sample Matrix:	Water	**Date Received:**	12/13/18 09:35
Sample Name:	03WW01_121218	**Basis:**	NA
Lab Code:	R1812085-001		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Iron, Divalent (Ferrous Iron)	SM 3500-Fe B.4.c	**27.5**	mg/L	1.0	0.8	0.3	10	12/13/18 21:21	*

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1812085
Project:	LHAAP / Site 58/NWO1312.0150	**Date Collected:**	12/12/18 09:10
Sample Matrix:	Water	**Date Received:**	12/13/18 09:35
Sample Name:	35AWW08_121218	**Basis:**	NA
Lab Code:	R1812085-002		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Iron, Divalent (Ferrous Iron)	SM 3500-Fe B.4.c	**21**	mg/L	10	8	3	100	12/13/18 21:21	*

ALS Group USA, Corp.
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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1812085
Project:	LHAAP / Site 58/NWO1312.0150	**Date Collected:**	12/12/18 10:30
Sample Matrix:	Water	**Date Received:**	12/13/18 09:35
Sample Name:	35AWW10_121218	**Basis:**	NA
Lab Code:	R1812085-003		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Iron, Divalent (Ferrous Iron)	SM 3500-Fe B.4.c	**0.09 J**	mg/L	0.10	0.08	0.03	1	12/13/18 21:21	*

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1812085
Project:	LHAAP / Site 58/NWO1312.0150	**Date Collected:**	12/12/18 10:30
Sample Matrix:	Water	**Date Received:**	12/13/18 09:35
Sample Name:	35AWW10_121218_a	**Basis:**	NA
Lab Code:	R1812085-004		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Iron, Divalent (Ferrous Iron)	SM 3500-Fe B.4.c	**0.07 J**	mg/L	0.10	0.08	0.03	1	12/13/18 21:21	*

Analytical Results Summary

Instrument Name: R-UV-VIS-05 **Analyst:** MROGERSON **Analysis Lot:** 619164 **Method/Testcode:** SM 3500-Fe B.4.c/Ferrous DOD

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
RQ1813873-01	Iron, Divalent (Ferrous Iron)	CCV		Water	2.04 mg/L	5 mL	2.04 mg/L	1					12/13/18 21:21	N	IV
RQ1813873-02	Iron, Divalent (Ferrous Iron)	CCB		Water	0.00 mg/L	5 mL	0.10 mg/L U	1	0.03	0.10			12/13/18 21:21	N	IV
RQ1813873-03	Iron, Divalent (Ferrous Iron)	LCS		Water	0.39 mg/L	5 mL	0.389 mg/L	1	0.03	0.10	97		12/13/18 21:21	N	IV
RQ1813873-04	Iron, Divalent (Ferrous Iron)	MB		Water	0.00 mg/L	5 mL	0.10 mg/L U	1	0.08	0.10			12/13/18 21:21:00	N	IV
R1812085-001	Iron, Divalent (Ferrous Iron)	N/A		Water	27.47 mg/L	5 mL	27.5 mg/L	10	0.3	1.0			12/13/18 21:21	N	IV
R1812085-002	Iron, Divalent (Ferrous Iron)	N/A		Water	21.35 mg/L	5 mL	21 mg/L	100	3	10			12/13/18 21:21	N	IV
R1812085-003	Iron, Divalent (Ferrous Iron)	N/A		Water	0.09 mg/L	5 mL	0.09 mg/L J	1	0.03	0.10			12/13/18 21:21	N	IV
R1812085-004	Iron, Divalent (Ferrous Iron)	N/A		Water	0.07 mg/L	5 mL	0.07 mg/L J	1	0.03	0.10			12/13/18 21:21	N	IV
RQ1813873-07	Iron, Divalent (Ferrous Iron)	MS	R1812085-004	Water	0.51 mg/L	5 mL	0.51 mg/L	1	0.03	0.10	110		12/13/18 21:21	N	IV
RQ1813873-08	Iron, Divalent (Ferrous Iron)	DMS	R1812085-004	Water	0.48 mg/L	5 mL	0.48 mg/L	1	0.03	0.10	102	6	12/13/18 21:21	N	IV
RQ1813873-06	Iron, Divalent (Ferrous Iron)	CCV		Water	2.04 mg/L	5 mL	2.04 mg/L	1					12/13/18 21:21	N	IV
RQ1813873-05	Iron, Divalent (Ferrous Iron)	CCB		Water	0.00 mg/L	5 mL	0.10 mg/L U	1	0.03	0.10			12/13/18 21:21	N	IV

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

Pippetor Calibration

ALS Environmental

Frequency:

Pipettes: 3 trials for both bias and precision DOD Projects - Daily before use at each volume of use, or if more than 3 volumes of use, a high, medium, and low. Non-DOD: Monthly at high, medium, and low.	**Calculations:** %Recovery = Mean/Nominal Volume*100 %RSD = Stdev/Volume*100
Repeaters, Dispensers, and Repipettors: 3 trials for both bias and precision If used for dilutions - Daily before use and each time the volume is changed. If not used for dilutions - monthly	**Limits:** % Rec: 98-102 for Pipettes and others for dilutions % Recovery: 90-110 (Repeaters, Dispensers, Repipettors not for dilutions) %RSD: ≤1 (Pipets); ≤3 (Repeaters, Dispensers, and Repipettors)

Use a balance and DI for all except Dispensers and Repipettors which contain reagents. For these, dispense into a To Contain Class A grad cylinder and document the Max Volume of the cylinder instead of the Balance ID. Record to 1/10 the graduation of the cylinder.

Date	Init.	Equipment ID	Volume (mL)	Trial #1 (g/mL)	Trial #2 (g/mL)	Trial #3 (g/mL)	Bias %Recovery	Pass/ Fail	Precision %RSD	Pass/ Fail	Recal? Y/N	Balance ID or Class A (TC)	Comments/ Corrective Action
12/6/18	GN	HTULIC	2.00	1.9688	1.9640	1.9680	98.34667	P	0.12858	P	N	R-10	
↓	↓	- ↓	5.00	4.9225	4.9516	4.9338	98.71933	P	0.29341	P	N	↓	
		Donald	0.5000	0.5052	0.5054	0.5051	101.0467	P	0.03955	P	N		
		↓	1.0000	1.0021	1.0010	1.0002	100.1100	P	0.09534	P	N		
↓	↓	↓	0.2000	0.2021	0.2024	02025	101.1667	P	0.10408	P	N	↓	
12/12/18	MAR	Hank	1.00	0.9998	0.9983	0.9993	99.91	P	0.07	P	N	R-10	DOD/Monthly
		↓	3.00	2.9999	3.0003	3.0029	100.03	P	0.05	P			
		↓	5.00	5.0134	5.0016	5.0055	100.19	P	0.12	P			
		Thor	0.200	0.1994	0.2000	0.2011	100.08	P	0.43	P			
		↓	0.500	0.4967	0.4956	0.4957	99.20	P	0.12	P			
		↓	1.000	0.9974	0.9970	0.9964	99.76	P	0.16	P			
		Dorsy	0.200	0.1991	0.1988	0.1990	99.49	P	0.09	P			
		↓	0.100	0.0999	0.0998	0.0989	99.87	P	0.06	P			
↓	↓	↓	0.0200	0.0101	0.0101	0.0101	101	P	0	P	↓	↓	↓
12/13/18	MAR	Thor	0.5000	0.4954	0.4952	0.4960	99.11	P	0.05	P	N	R-10	DOD
↓	↓	Hank	2.500	2.4983	2.5027	2.4903	99.88	P	0.25	P	↓	↓	↓
										MAR 12/17/18			

Sample Dilutions

Analyst: MAR
Instrument: UV-05

Date 12/13/18
Analysis Fe^{2+}

Sample ID	Matrix of Diluent	1st Dilution			2nd Dilution			3rd Dilution			4th Dilution			5th Dilution		
		mL's of Sample	mL's of Diluent	Dilution Factor	mL's of Sample	mL's of Diluent	Dilution Factor	mL's of Sample	mL's of Diluent	Dilution Factor	mL's of Sample	mL's of Diluent	Dilution Factor	mL's of Sample	mL's of Diluent	Dilution Factor
R1812085-001	DI	1	9	1/10												
R1812085-002	DI	1	9	1/10	1	9	1/100									

MAR 12/17/18

C:\Users\chris.woods\Downloads\Sample Dilution Sheets R2Original

9/18/15

ALS ENVIRONMENTAL

Analyte: Ferrous Iron By Standard Methods Analyst: MAR Date: 12/13/18

Method: 3500-Fe,D Pipette: HANK, THOR Time: 21:21

Instrument: UV-1600PC (R-UVVIS-05) DOD Pipet Check: WC194 P. 3 Balance: NA

Calibration:

Phenanthroline (0.1%w/v): 190443

Ammonium Acetate: 194232

Std	Conc.	Absorb.	Result	% Rec
1	0.00	0.000	-0.001	
2	0.10	0.010	0.097	96.6%
3	0.20	0.021	0.204	101.9%
4	0.30	0.031	0.301	100.4%
5	0.40	0.041	0.399	99.7%
6	0.80	0.081	0.788	98.5%
7	1.00	0.103	1.003	100.3%
8	2.00	0.207	2.016	100.8%
9	3.00	0.308	3.000	100.0%
10	4.00	0.410	3.994	99.8%

Curve Date: 7/16/2018

C.C = 0.999986

y-int. = 0.000084

Slope: 0.102641

Wavelength: 510nm

	Misc.	Order #	Absorb.	Color Blk, if nec.	Abs. Difference Sample - Color	mg/L	Dilution	Final Result (mg/L)/(mg/Kg	Check if Soil
1	TV=2.0	ICV	0.202		0.202	1.9672	1.0	1.967	
2		ICB	0.000		0.000	-0.0008	1.0	-0.001	
3	TV=0.4	LCS	0.038		0.038	0.3694	1.0	0.369	
4		CCV	0.209		0.209	2.0354	1.0	2.035	
5		CCB	0.000		0.000	-0.0008	1.0	-0.001	
6		LCS	0.040		0.040	0.3889	1.0	0.389	
7		R1812085-001	0.282	0.003	0.282	2.7466	10.0	27.466	
8		R1812085-002	0.022	0.002	0.022	0.2135	100.0	21.353	
9		R1812085-003	0.009		0.009	0.0869	1.0	0.087	
10		R1812085-004	0.007		0.007	0.0674	1.0	0.067	
11		R1812085-004 MS	0.052		0.052	0.5058	1.0	0.506	
12		R1812085-004 DMS	0.049		0.049	0.4766	1.0	0.477	
13		CCV	0.209		0.209	2.0354	1.0	2.035	
14		CCB	0.000		0.000	-0.0008	1.0	-0.001	

Soil Samples: 1g --> 100mL final volume. Decanted and filtered before analysis.

ALS Environmental
1565 Jefferson Rd., Rochester, NY 14623

General Chemistry Analytical Run Cover Sheet

Analyst: MAE Date: 12/13/18

Analysis: Ferrous Iron by Method 3500-Fe, D. Instrument: R-UV-VIS-05

Quality Control:

	Same as Log#, Date,	Stocks Prep. Log#, Date,	Stock Sol (mLs)	Stock Sol (mg/L)	Final Vol (mLs)	True Value (mg/L)
a) Standards Prep.:	WC126121A,11/25/13	WC149110A, 10/13/15				
b) ICV Preparation:	WC126121B,11/25/13	191837, 7/16/18	2.5	4.0	5	2.00
b2) CCV Preparation:	WC126121B, 11/25/14	191837, 7/16/18				
c) LCS Preparation:	WC126121C, 11/25/14	191836, 7/16/18	0.5	4.0	5	0.40
d) Matrix Spike Prep.:	WC126121C, 11/25/13	191836, 7/16/18	0.5	4.0	5	0.40

Instrument log filled in? (Y) (N)

Packages: Copy and attach Standards Preparation

Comments:

All standards, QC (CCV's, LCS's, Matrix Spikes) and samples are based on the Standard Methods 3500-Fe D. Phenanthroline Method being scaled down by a factor of 10. Hence, 1.0 mL of Ammonium acetate buffer and 2.0 mL of Phenanthroline solution are added to 5.0 mL of sample, standards, or QC and brought to 10.0 mL with DI water. True values are based on sample volumes of 5.0 mLs.

Color blank absorbance is not measured where the sample itself is clear or the sample absorbance is less than the PQL. Samples above the PQL do not have their color blank absorbance subtracted if it is less than the absorbance of the low standard (PQL).

LABORATORY REPORT

December 27, 2018

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

RE: HS18120736

Dear RJ:

Enclosed are the results of the samples submitted to our laboratory on December 14, 2018. For your reference, these analyses have been assigned our service request number P1806865.

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

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

Respectfully submitted,

ALS | Environmental

Kate Kaneko
By Kate Kaneko at 4:14 pm, 12/27/18

Kate Kaneko
Laboratory Director

Client: ALS Laboratory Group Service Request No: P1806865
Project: HS18120736

CASE NARRATIVE

The samples were received intact under chain of custody on December 14, 2018 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Carbon Dioxide Analysis

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

Methane, Ethene and Ethane Analysis

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

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

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

ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Alaska DEC	http://dec.alaska.gov/eh/lab.aspx	17-019
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/page/la-lab-accreditation	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml	2018027
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1521096
New Jersey DEP (NELAP)	http://www.nj.gov/dep/enforcement/oqa.html	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-005
Pennsylvania DEP	http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html	T104704413-18-9
Utah DOH (NELAP)	http://health.utah.gov/lab/lab_cert_env	CA016272018-9
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

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

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

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: ALS Laboratory Group
Service Request: P1806865
Project ID: HS18120736

Date Received: 12/14/2018
Time Received: 09:10

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	RSK 175 - Gases	RSK 175 - CO2
03WW01_121218	P1806865-001	Water	12/12/2018	08:20	X	X
35AWW08_121218	P1806865-002	Water	12/12/2018	09:10	X	X
35AWW10_121218	P1806865-003	Water	12/12/2018	10:30	X	X
35AWW10_121218_a	P1806865-004	Water	12/12/2018	10:30	X	X

P1806865

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

Subcontract Chain of Custody

COC ID: 10433

SUBCONTRACT TO:

ALS Environmental
2655 Park Center Drive, Suite A
Simi Valley, CA 93065

Phone: +1 805 526 7161

CUSTOMER INFORMATION:

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

INVOICE INFORMATION:

Company: ALS Houston
Contact: Accounts Payable
Address: 10450 Stancliff Rd, Ste 210
Phone: +1 281 530 5656
Reference: HS18120736
TSR: Danielle Winnings

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS18120736-01**	**03WW01_121218**	**Groundwater**	**12 Dec 2018 08:20**
	MEE plus CO2 Sub to ALS SimiValley			28 Dec 2018
2.	**HS18120736-02**	**35AWW08_121218**	**Groundwater**	**12 Dec 2018 09:10**
	MEE plus CO2 Sub to ALS SimiValley			28 Dec 2018
3.	**HS18120736-03**	**35AWW10_121218**	**Groundwater**	**12 Dec 2018 10:30**
	MEE plus CO2 Sub to ALS SimiValley			28 Dec 2018
4.	**HS18120736-04**	**35AWW10_121218_a**	**Groundwater**	**12 Dec 2018 10:30**
	MEE plus CO2 Sub to ALS SimiValley			28 Dec 2018

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

QC Level: DOD IV (DoD Data Package)

Relinquished By: R Giga Date/Time: 12/13/18 1800

Received By: [signature] Date/Time: 12-14-18 0910

Cooler ID(s): Temperature(s): 1° wet ice

ALS Environmental
Sample Acceptance Check Form

Client: ALS Laboratory Group Work order: P1806865
Project: HS18120736
Sample(s) received on: 12/14/18 Date opened: 12/14/18 by: ADAVID

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

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Did **sample containers** arrive in good condition?	☒	☐	☐
3	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
4	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
5	Was **sample volume** received adequate for analysis?	☒	☐	☐
6	Are samples within specified holding times?	☒	☐	☐
7	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☒	☐	☐
	Cooler Temperature: ° C Blank Temperature: 1° C Thermometer ID CO907034581 Wet Ice			
8	Were **custody seals** on outside of cooler/Box/Container?	☒	☐	☐
	Location of seal(s)? Cooler lid. Sealing Lid?	☒	☐	☐
	Were signature and date included?	☒	☐	☐
	Were seals intact?	☒	☐	☐
9	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☒	☐	☐
	Is there a client indication that the submitted samples are **pH** preserved?	☒	☐	☐
	Were **VOA vials** checked for presence/absence of air bubbles?	☒	☐	☐
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☒	☐
10	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
11	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1806865-001.01	40ml VOA HCL		1		A	MR 12/19/18
P1806865-001.02	40ml VOA HCL				A	
P1806865-001.04	40mL VOA NP		7		A	MR 12/20/18
P1806865-001.05	40mL VOA NP				A	
P1806865-002.01	40ml VOA HCL		1		A	MR 12/19/18
P1806865-002.02	40ml VOA HCL				A	
P1806865-002.04	40mL VOA NP		7		A	MR 12/20/18
P1806865-002.05	40mL VOA NP				A	
P1806865-003.01	40ml VOA HCL		1		A	MR 12/19/18
P1806865-003.04	40mL VOA NP		7		A	MR 12/20/18
P1806865-003.05	40mL VOA NP				A	
P1806865-003.06	40ml VOA HCL				A	
P1806865-004.01	40ml VOA HCL		1		A	MR 12/19/18
P1806865-004.04	40mL VOA NP		7		A	MR 12/20/18
P1806865-004.05	40mL VOA NP				A	

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

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

ALS Environmental
Sample Acceptance Check Form

Client: ALS Laboratory Group Work order: P1806865

Project: HS18120736

Sample(s) received on: 12/14/18 Date opened: 12/14/18 by: ADAVID

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1806865-004.06	40ml VOA HCL				A	

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

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Project ID: **HS18120736** ALS Project ID: P1806865

Carbon Dioxide

Test Code: RSK 175
Instrument ID: HP5890A/GC10/TCD
Analyst: Magaly Rodriguez
Matrix: Water
Test Notes:

Date(s) Collected: 12/12/18
Date Received: 12/14/18
Date Analyzed: 12/20/18

Client Sample ID	ALS Sample ID	Injection Volume ml(s)	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
03WW01_121218	P1806865-001	0.050	**390,000**	2,000	1,700	740	
35AWW08_121218	P1806865-002	0.050	**290,000**	2,000	1,700	740	
35AWW10_121218	P1806865-003	0.050	**430,000**	2,000	1,700	740	
35AWW10_121218_a	P1806865-004	0.050	**450,000**	2,000	1,700	740	
Method Control Sample	P181220-MB	0.10	860	1,000	860	370	**U**

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

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **ALS Laboratory Group**
Client Sample ID: **Duplicate Lab Control Sample**
Client Project ID: **HS18120736**

ALS Project ID: P1806865
ALS Sample ID: P181220-DLCS

Test Code: RSK 175
Instrument ID: HP5890A/GC10/TCD
Analyst: Magaly Rodriguez
Matrix: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 12/20/18
Volume(s) Analyzed: NA ml(s)

CAS #	Compound	Spike Amount LCS / DLCS ug/L	Result[1] LCS ug/L	Result[1] DLCS ug/L	% Recovery LCS	% Recovery DLCS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
124-38-9	Carbon Dioxide	22,900	18,700	20,500	**82**	**90**	80-122	9	12	

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **03WW01_121218**
Client Project ID: **HS18120736**

ALS Project ID: P1806865
ALS Sample ID: P1806865-001

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Magaly Rodriguez
Matrix: Water
Test Notes:

Date Collected: 12/12/18
Date Received: 12/14/18
Date Analyzed: 12/19/18
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**1,800**	1.3	1.0	0.51	
74-85-1	Ethene	**2.3**	1.0	0.55	0.24	
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **03WW08_121218**
Client Project ID: **HS18120736**

ALS Project ID: P1806865
ALS Sample ID: P1806865-002

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Magaly Rodriguez
Matrix: Water
Test Notes:

Date Collected: 12/12/18
Date Received: 12/14/18
Date Analyzed: 12/19/18
Volume(s) Analyzed: 0.10 ml(s)

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

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **03WW10_121218**
Client Project ID: **HS18120736**

ALS Project ID: P1806865
ALS Sample ID: P1806865-003

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Magaly Rodriguez
Matrix: Water
Test Notes:

Date Collected: 12/12/18
Date Received: 12/14/18
Date Analyzed: 12/19/18
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**3,500**	1.3	1.0	0.51	
74-85-1	Ethene	**2.8**	1.0	0.55	0.24	
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **03WW10_121218a**
Client Project ID: **HS18120736**

ALS Project ID: P1806865
ALS Sample ID: P1806865-004

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Magaly Rodriguez
Matrix: Water
Test Notes:

Date Collected: 12/12/18
Date Received: 12/14/18
Date Analyzed: 12/19/18
Volume(s) Analyzed: 0.10 ml(s)

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

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **Method Control Sample**
Client Project ID: **HS18120736**

ALS Project ID: P1806865
ALS Sample ID: P181219-MB

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Magaly Rodriguez
Matrix: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 12/19/18
Volume(s) Analyzed: 0.10 ml(s)

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

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

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **ALS Laboratory Group**
Client Sample ID: **Duplicate Lab Control Sample**
Client Project ID: **HS18120736**

ALS Project ID: P1806865
ALS Sample ID: P181219-LCS
P181219-DLCS

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Magaly Rodriguez
Matrix: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 12/19/18
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Spike Amount LCS / DLCS µg/L	Result$_1$ LCS µg/L	Result$_1$ DLCS µg/L	% Recovery LCS	% Recovery DLCS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
74-82-8	Methane	2.50	2.43	2.40	**97**	**96**	73-125	1	26	
74-85-1	Ethene	4.37	4.49	4.43	**103**	**101**	72-133	2	11	
74-84-0	Ethane	4.69	4.67	4.65	**100**	**99**	74-131	1	10	

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

Data Path : J:\GC10\DATA\RSK_TCD\2018_12\20\
Data File : 12201809.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Dec-2018, 14:04:40
Operator : MR
Sample : P1806865-001 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 14:18:19 2018
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

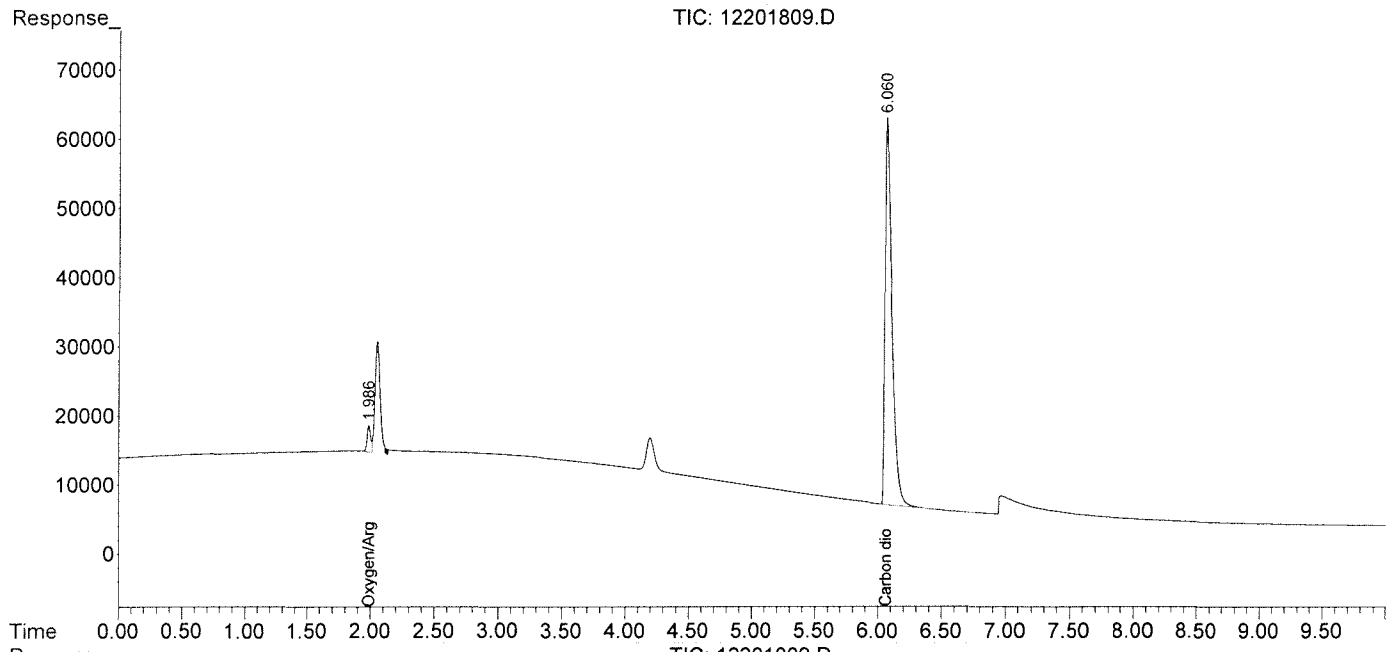
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.987f	72752	0.015	ppm
2)	Carbon monoxide	1.987f	72752	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.061	2097873	8937.416	ppm
6)	Methane (FID)	1.110	11423076	1209.071	ppm
7)	Ethylene	1.673	11069	0.657	ppm
8)	Ethane	1.673f	11069	0.642	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

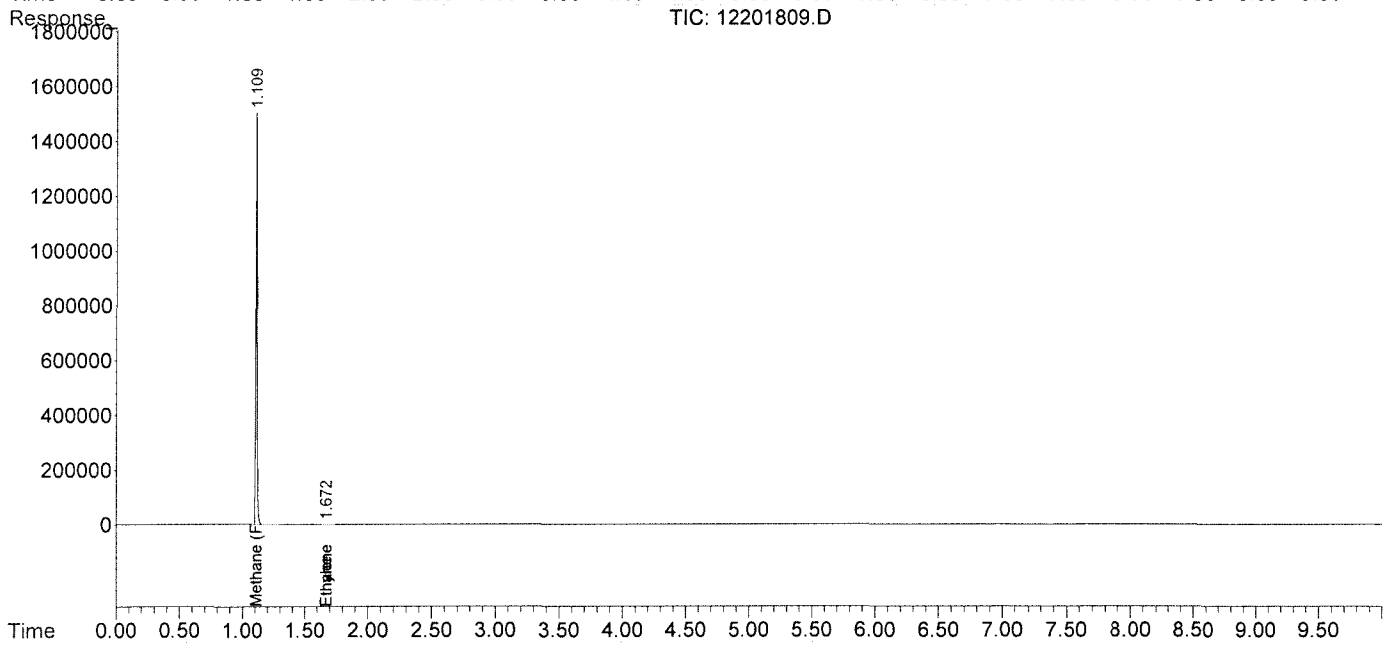
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2018_12\20\
Data File : 12201809.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Dec-2018, 14:04:40
Operator : MR
Sample : P1806865-001 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 14:18:19 2018
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Data Path : J:\GC10\DATA\RSK_TCD\2018_12\20\
Data File : 12201810.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Dec-2018, 14:19:57
Operator : MR
Sample : P1806865-002 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 14:43:06 2018
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

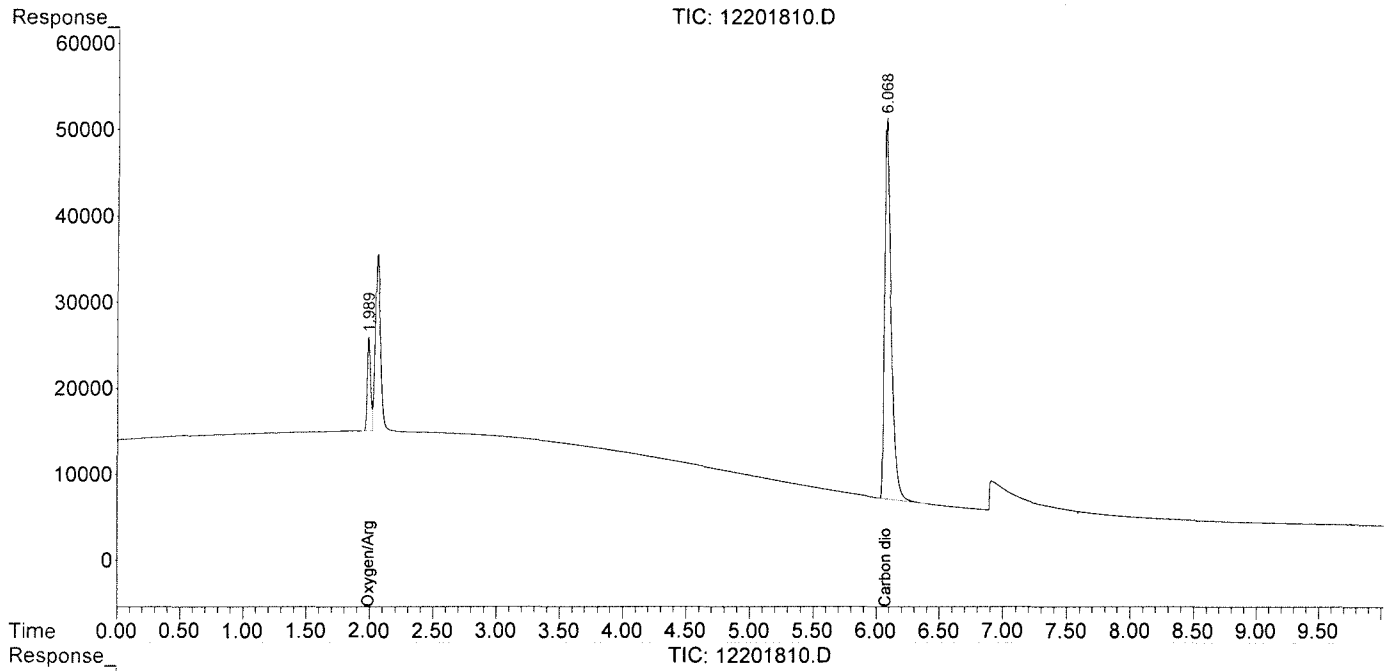
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.990f	198253	0.042	ppm
2)	Carbon monoxide	1.990f	198253	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.069	1575813	6713.325	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

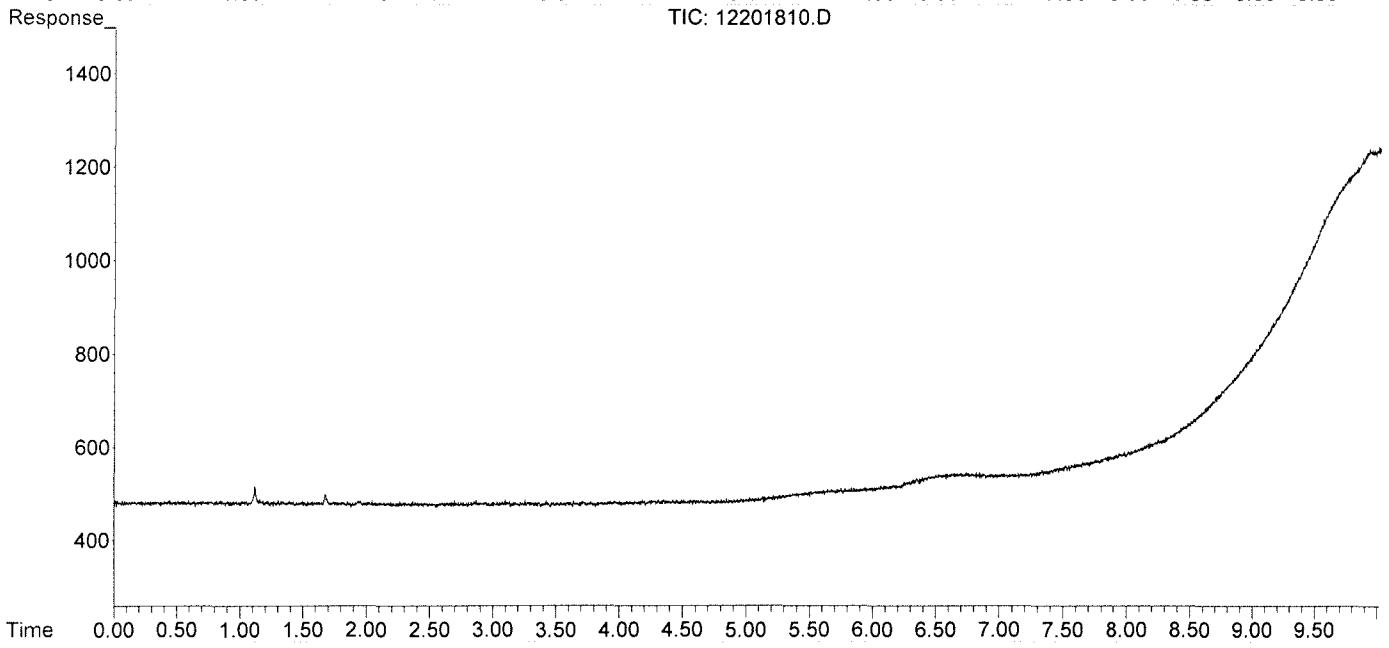
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2018_12\20\
Data File : 12201810.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Dec-2018, 14:19:57
Operator : MR
Sample : P1806865-002 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 14:43:06 2018
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Data Path : J:\GC10\DATA\RSK_TCD\2018_12\20\
Data File : 12201811.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Dec-2018, 14:38:24
Operator : MR
Sample : P1806865-003 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 21 15:06:39 2018
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

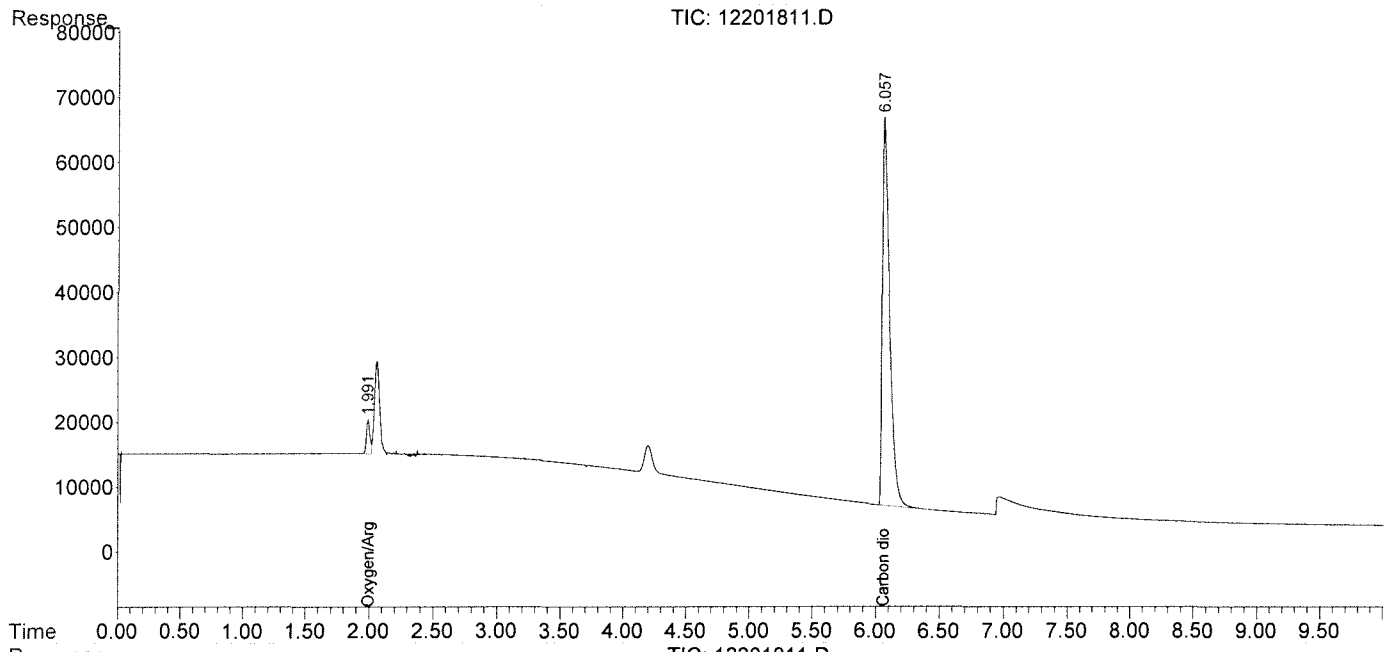
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.992f	97552	0.020	ppm
2)	Carbon monoxide	1.992f	97552	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.058	2307540	9830.648	ppm
6)	Methane (FID)	1.117	10153506	1074.694	ppm
7)	Ethylene	1.679	5407	0.321	ppm
8)	Ethane	1.679f	5407	0.314	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

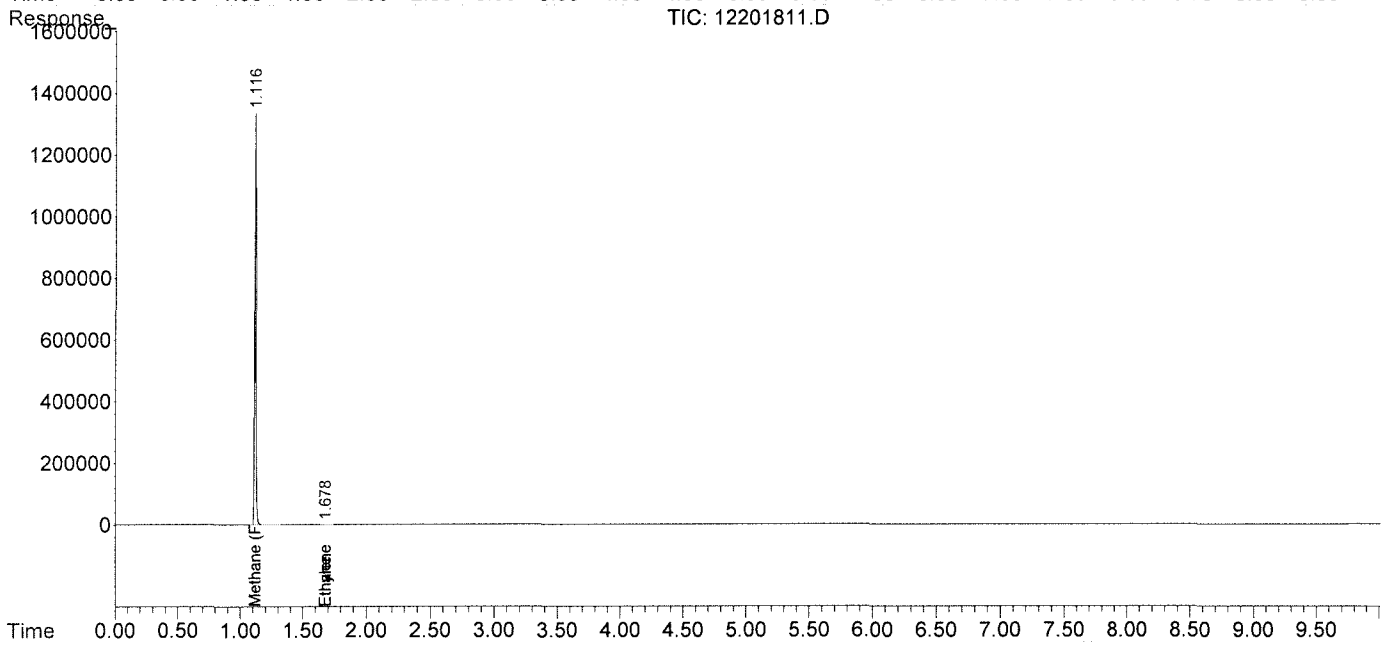
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2018_12\20\
Data File : 12201811.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Dec-2018, 14:38:24
Operator : MR
Sample : P1806865-003 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 21 15:06:39 2018
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Data Path : J:\GC10\DATA\RSK_TCD\2018_12\20\
Data File : 12201812.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Dec-2018, 14:56:31
Operator : MR
Sample : P1806865-004 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 21 15:06:58 2018
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

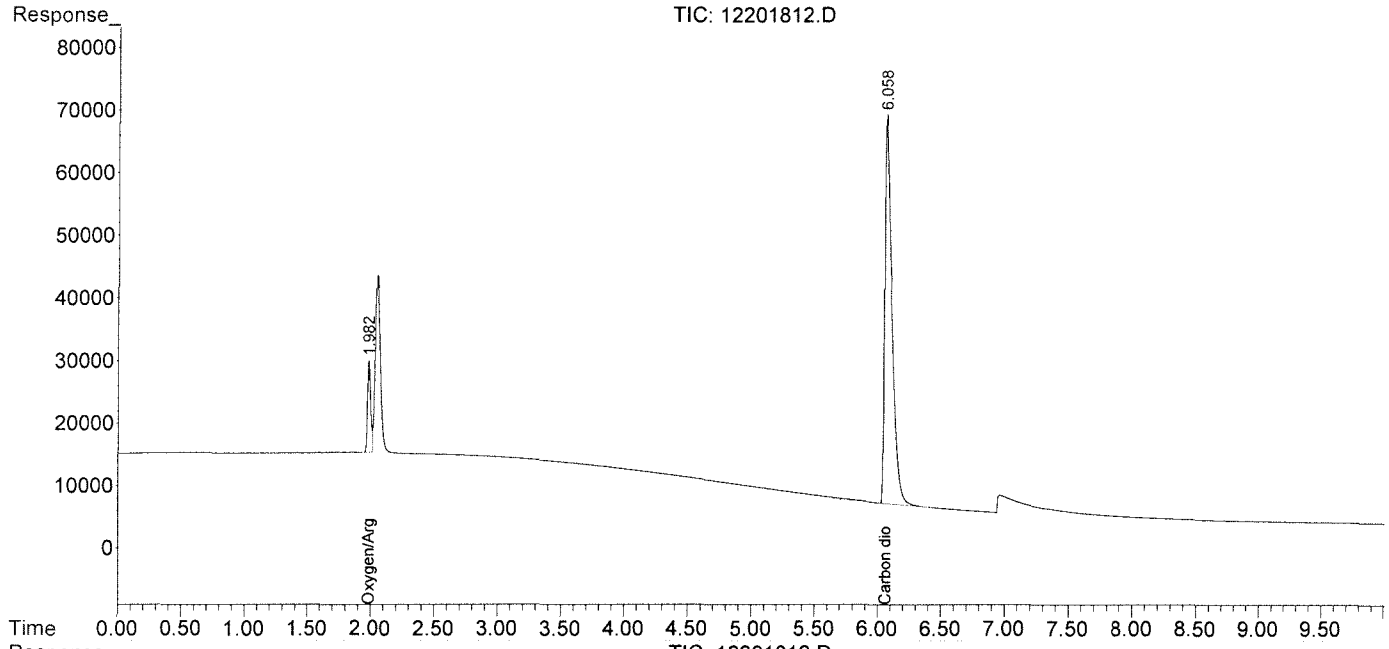
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.983f	262927	0.055	ppm
2)	Carbon monoxide	1.983f	262927	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.059	2422738	10321.420	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

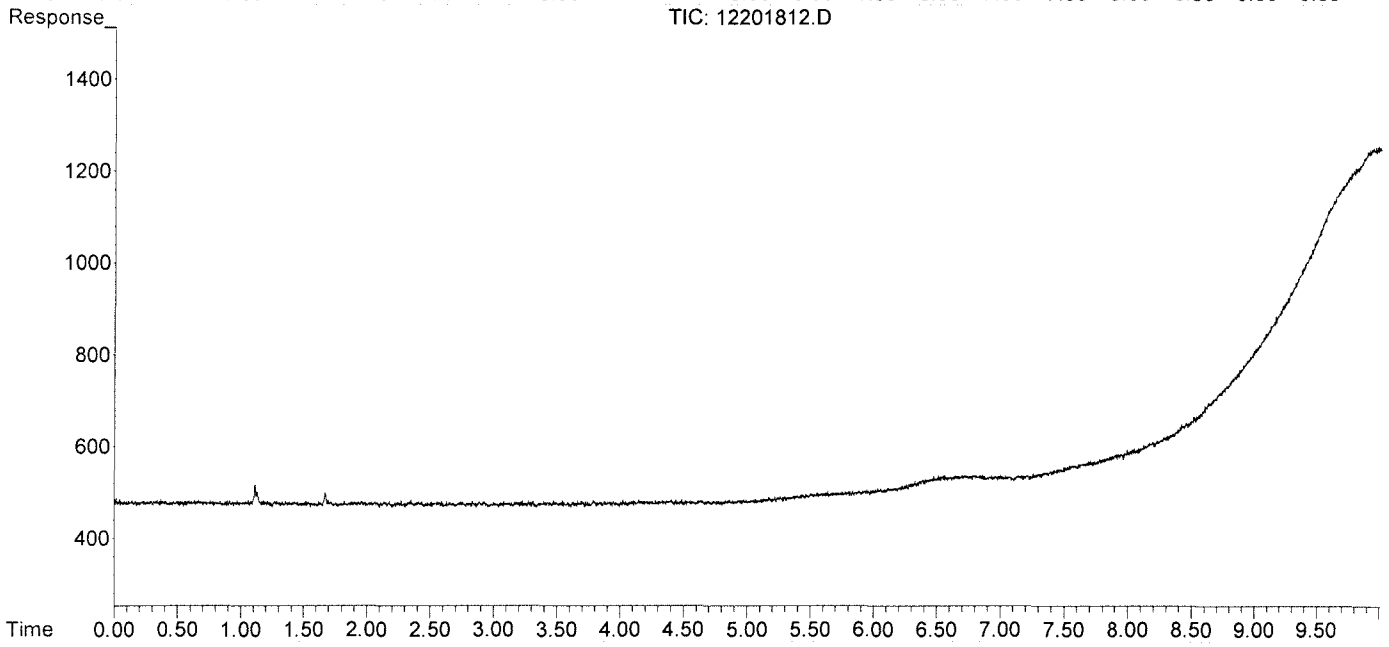
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2018_12\20\
Data File : 12201812.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Dec-2018, 14:56:31
Operator : MR
Sample : P1806865-004 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 21 15:06:58 2018
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Data Path : J:\GC10\DATA\RSK_TCD\2018_12\20\
Data File : 12201803.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Dec-2018, 12:01:09
Operator : MR
Sample : mcs 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 12:49:36 2018
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

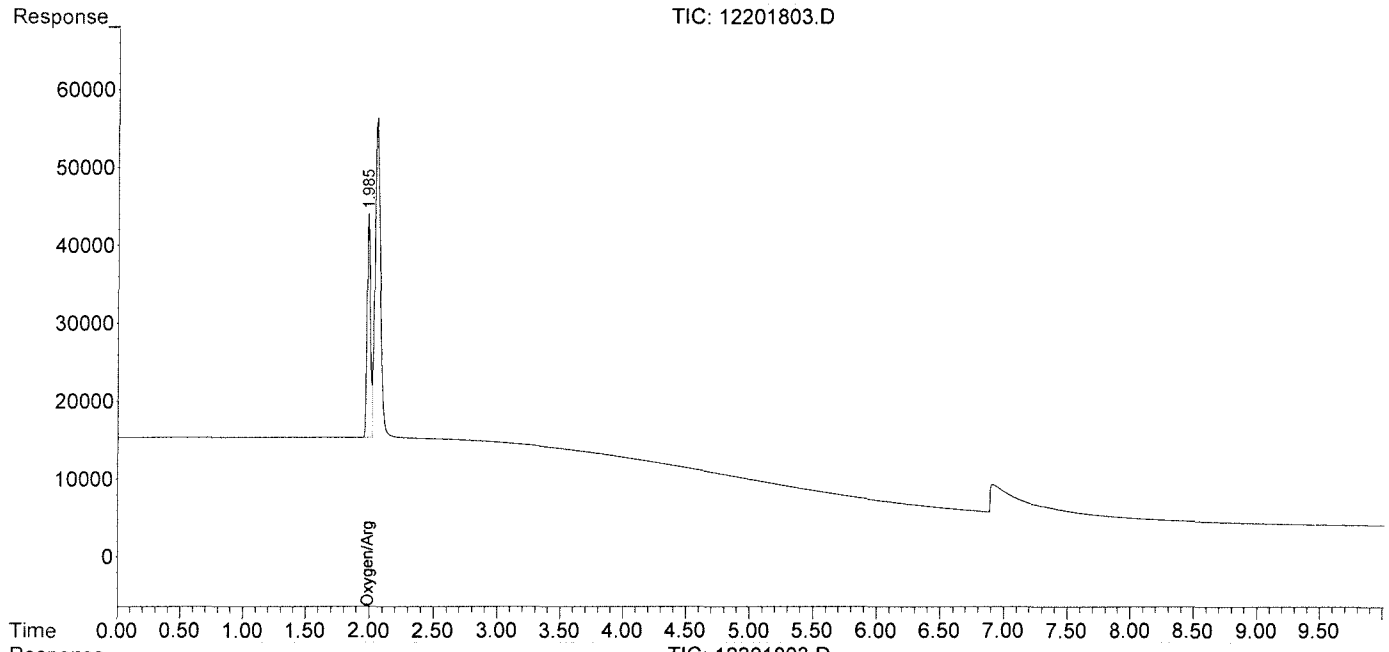
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.985f	524802	0.110	ppm
2)	Carbon monoxide	1.985f	524802	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.119	1505	0.159	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

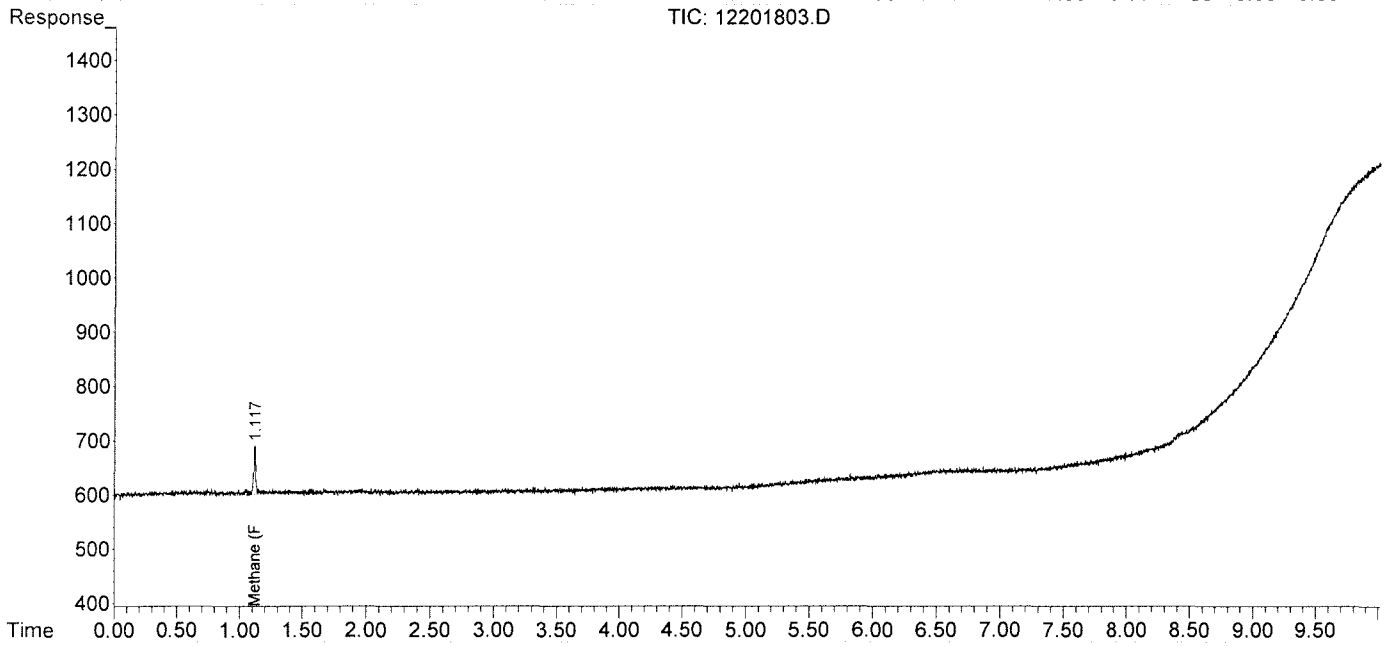
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2018_12\20\
Data File : 12201803.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Dec-2018, 12:01:09
Operator : MR
Sample : mcs 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 12:49:36 2018
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Data Path : J:\GC10\DATA\RSK_TCD\2018_12\20\
Data File : 12201804.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Dec-2018, 12:38:52
Operator : MR
Sample : tcd lcs s32-10081801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 16:38:03 2018
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

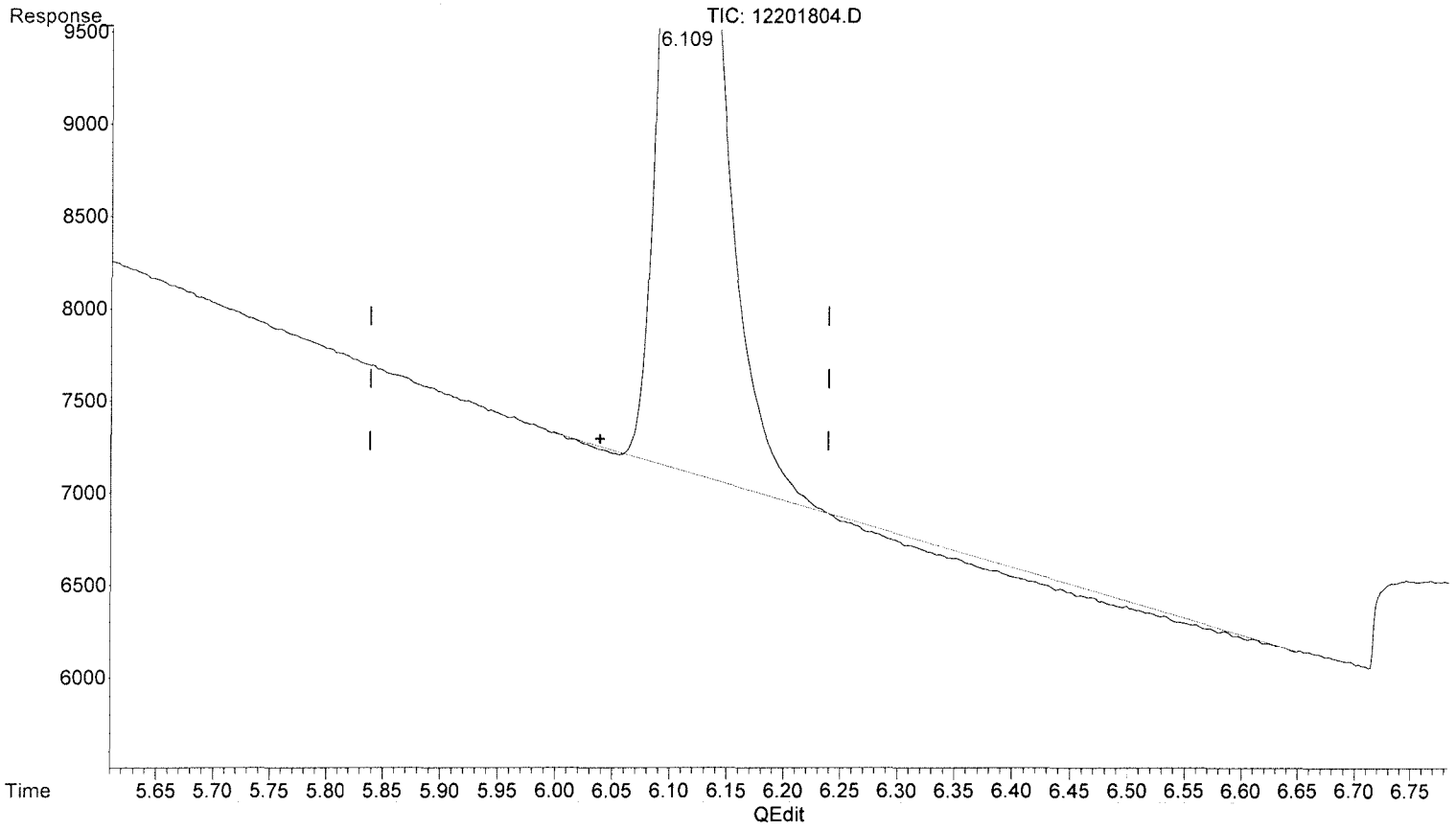
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.973f	1286380	0.270	ppm	
2)	Carbon monoxide	1.973f	1286380	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	6.109	201115	856.794	ppm	m
6)	Methane (FID)	1.116	30694128	3248.807	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

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

Data Path : J:\GC10\DATA\RSK_TCD\2018_12\20\
Data File : 12201804.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Dec-2018, 12:38:52
Operator : MR
Sample : tcd lcs s32-10081801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 16:38:03 2018
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(4) Carbon dioxide

6.111min 803.961 ppm

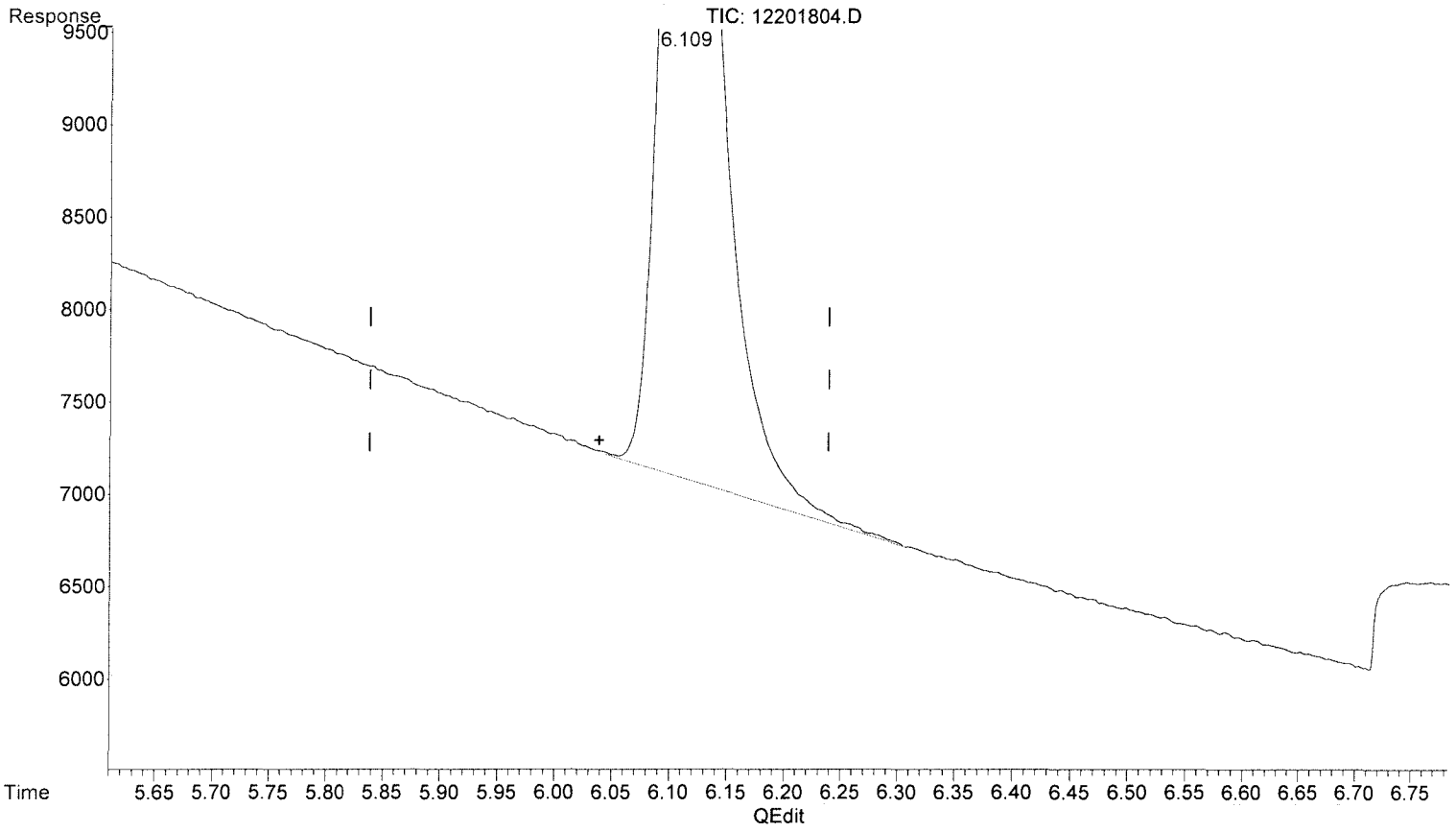
response 188713

(+) = Expected Retention Time

Data Path : J:\GC10\DATA\RSK_TCD\2018_12\20\
Data File : 12201804.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Dec-2018, 12:38:52
Operator : MR
Sample : tcd lcs s32-10081801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 16:38:03 2018
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(4) Carbon dioxide

6.109min 856.794 ppm m

response 201115

MK 12/21/18
BLC

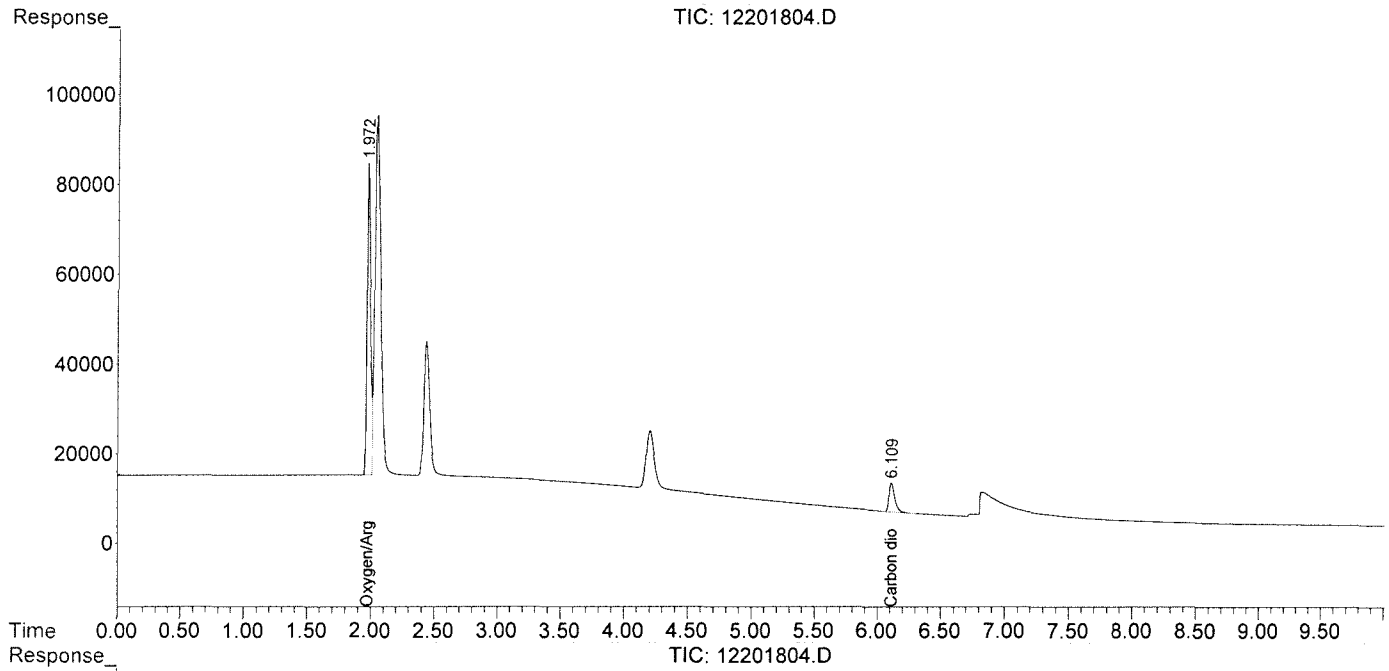
(+) = Expected Retention Time

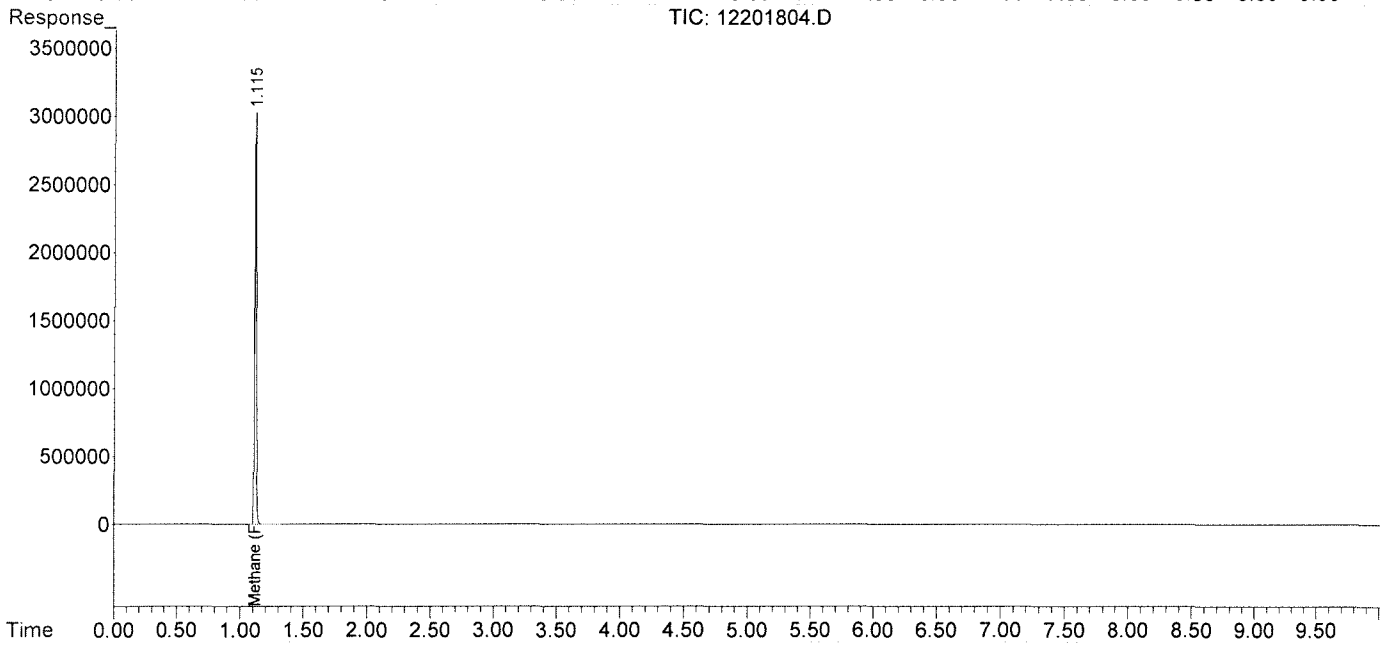
RS082817_CO2.M Thu Dec 20 16:38:57 2018 Page: 1

Data Path : J:\GC10\DATA\RSK_TCD\2018_12\20\
Data File : 12201804.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Dec-2018, 12:38:52
Operator : MR
Sample : tcd lcs s32-10081801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 16:38:03 2018
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Data Path : J:\GC10\DATA\RSK_TCD\2018_12\20\
Data File : 12201805.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Dec-2018, 12:52:24
Operator : MR
Sample : tcd lcsd s32-10081801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 16:39:22 2018
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

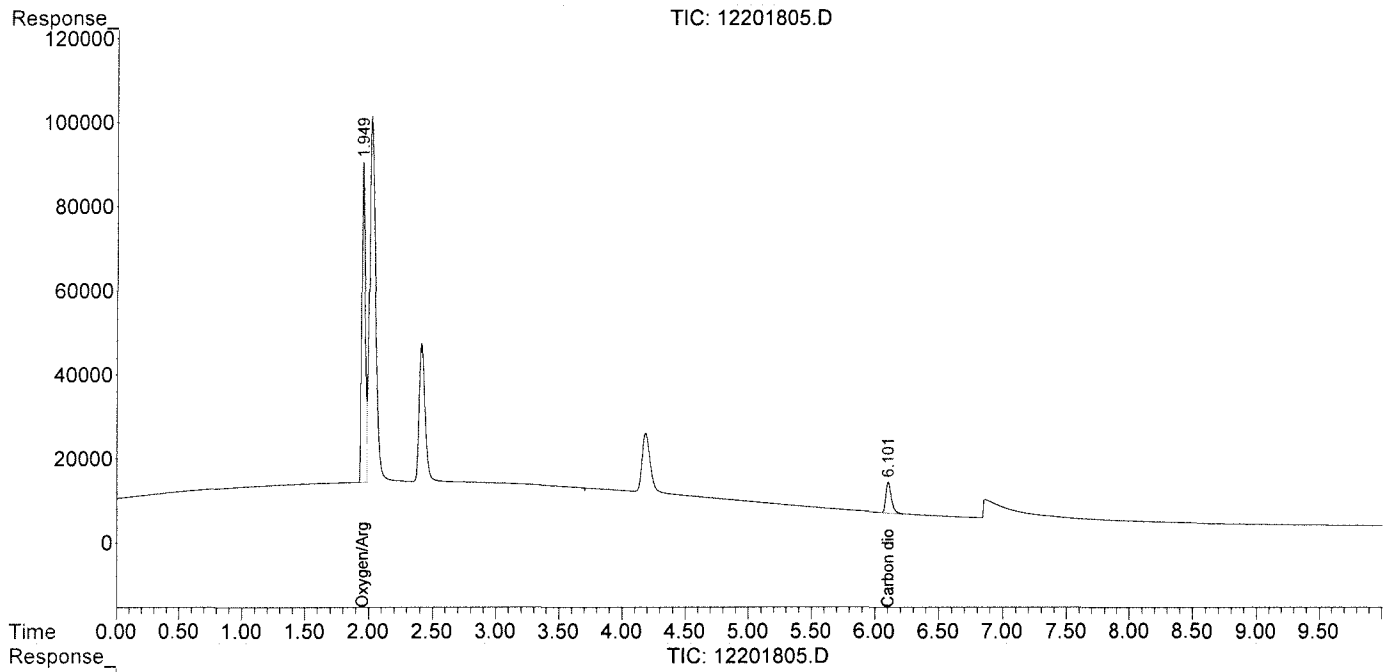
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.950f	1418439	0.298	ppm	
2)	Carbon monoxide	1.950f	1418439	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	6.101	220359	938.778	ppm	m
6)	Methane (FID)	1.097	33961665	3594.658	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

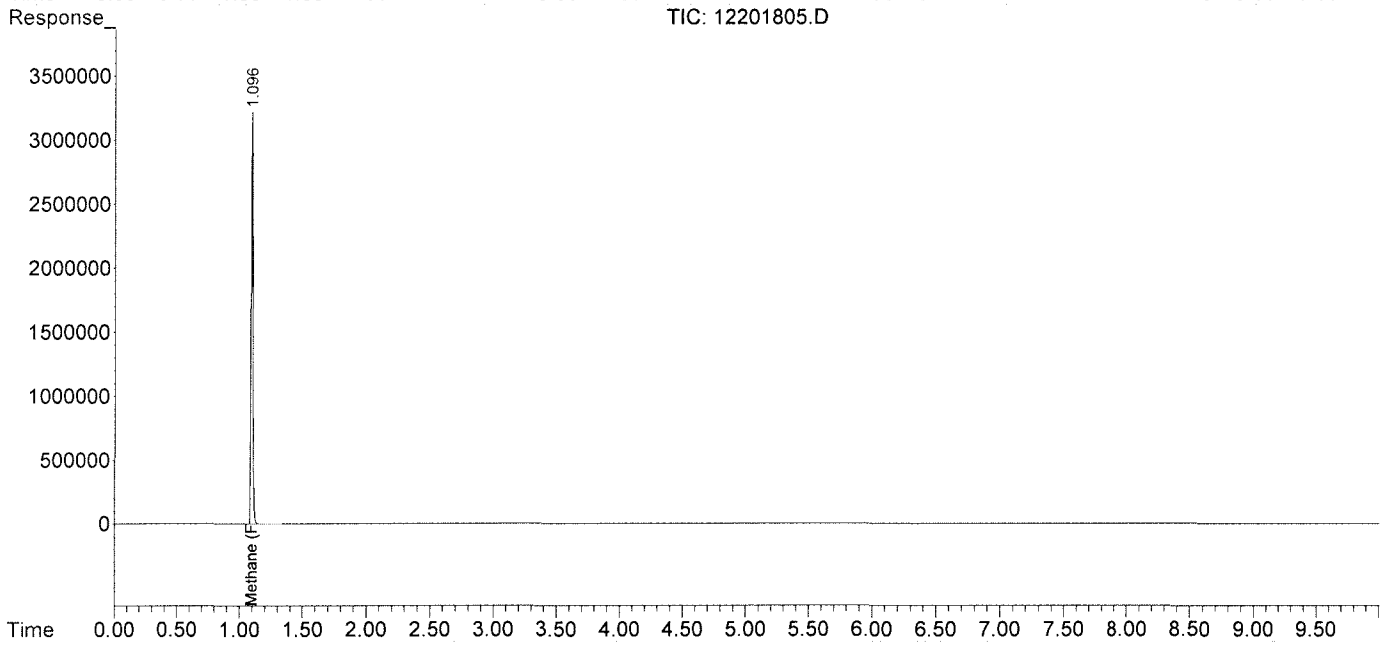
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2018_12\20\
Data File : 12201805.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Dec-2018, 12:52:24
Operator : MR
Sample : tcd lcsd s32-10081801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 16:39:22 2018
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

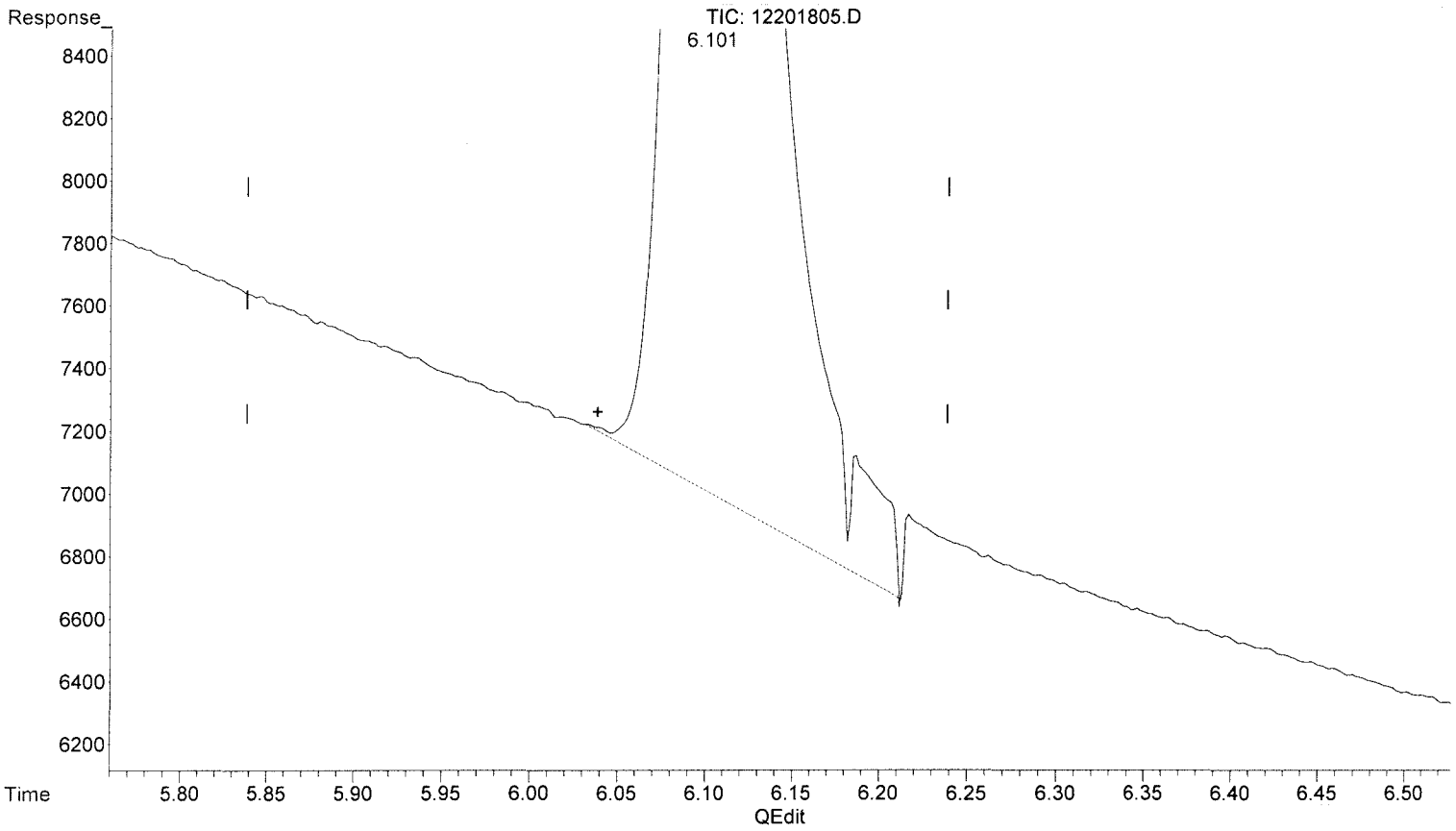




Data Path : J:\GC10\DATA\RSK_TCD\2018_12\20\
Data File : 12201805.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Dec-2018, 12:52:24
Operator : MR
Sample : tcd lcsd s32-10081801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 16:39:22 2018
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(4) Carbon dioxide

6.102min 989.017 ppm

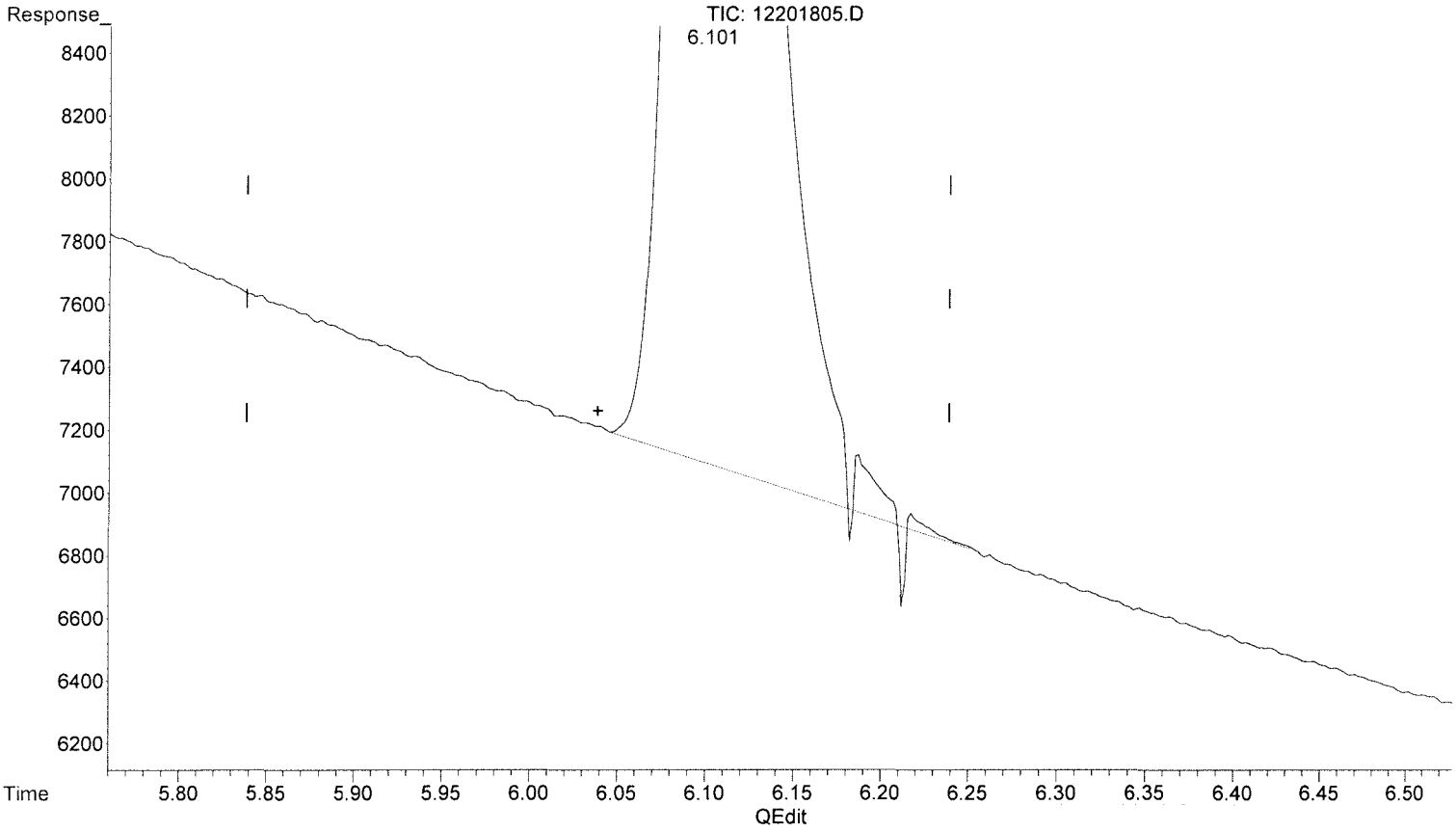
response 232151

(+) = Expected Retention Time

Data Path : J:\GC10\DATA\RSK_TCD\2018_12\20\
Data File : 12201805.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Dec-2018, 12:52:24
Operator : MR
Sample : tcd lcsd s32-10081801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 16:39:22 2018
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(4) Carbon dioxide

6.101min 938.778 ppm m

response 220359

MK 12/21/18
BLC

12/21/18

(+) = Expected Retention Time

RS082817_CO2.M Thu Dec 20 16:39:44 2018 Page: 1

Response Factor Report HP5890

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

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

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

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

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

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

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

Compounds -- Compound #4 -- Carbon dioxide

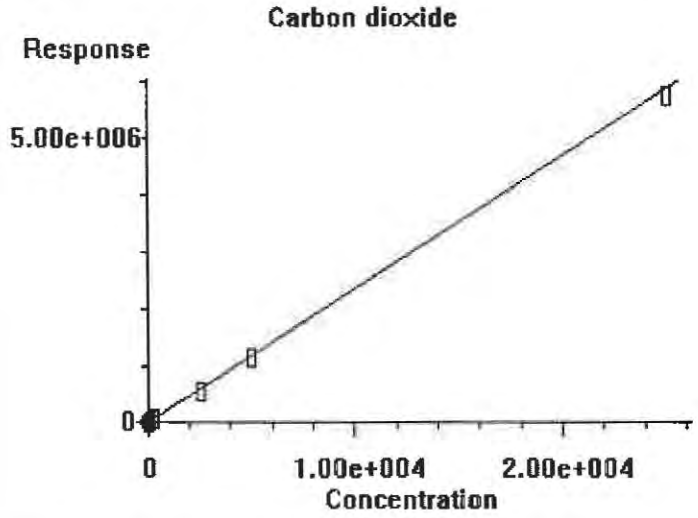
Search by: Ret Time | Name | Index — Find Compound

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

Identification | Calibration | User-Defined | Advanced | Reporting

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

Lvl ID	Concentration	Response



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

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

Calibration Status Report HP5890

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

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

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

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

Quantitation Report (QT Reviewed)

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

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

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

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

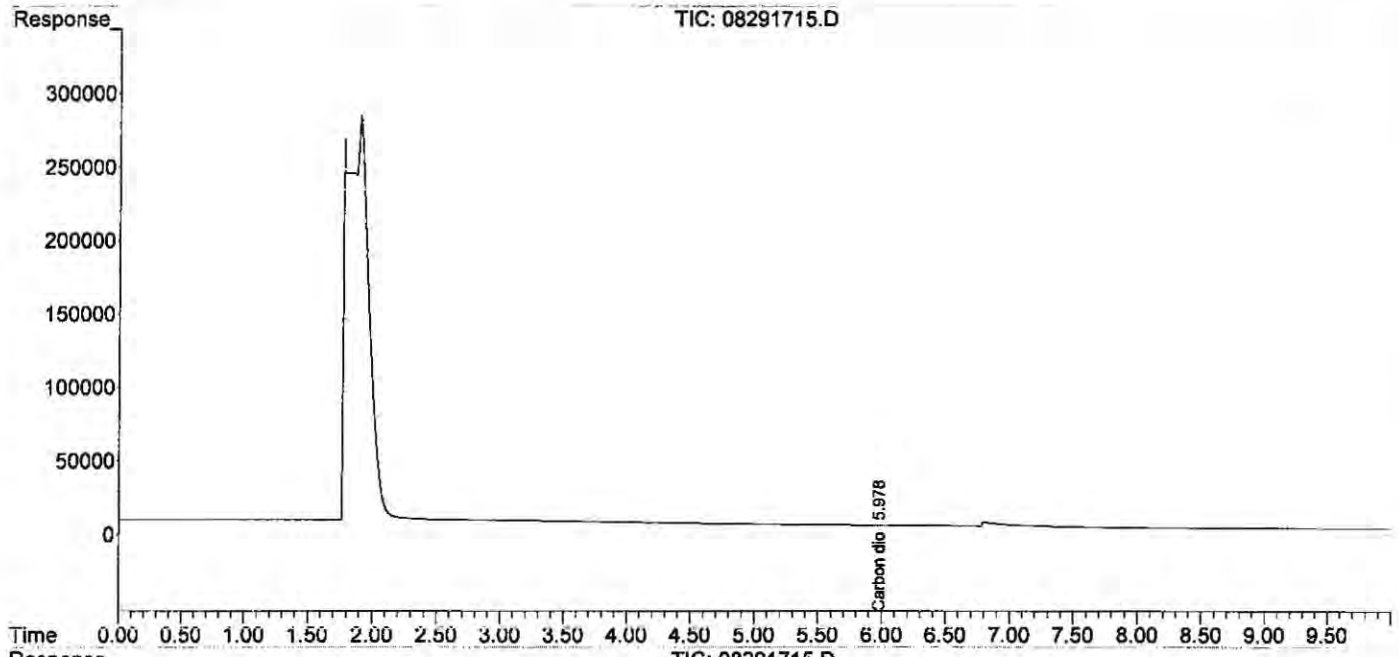
(f)=RT Delta > 1/2 Window (m)=manual int.

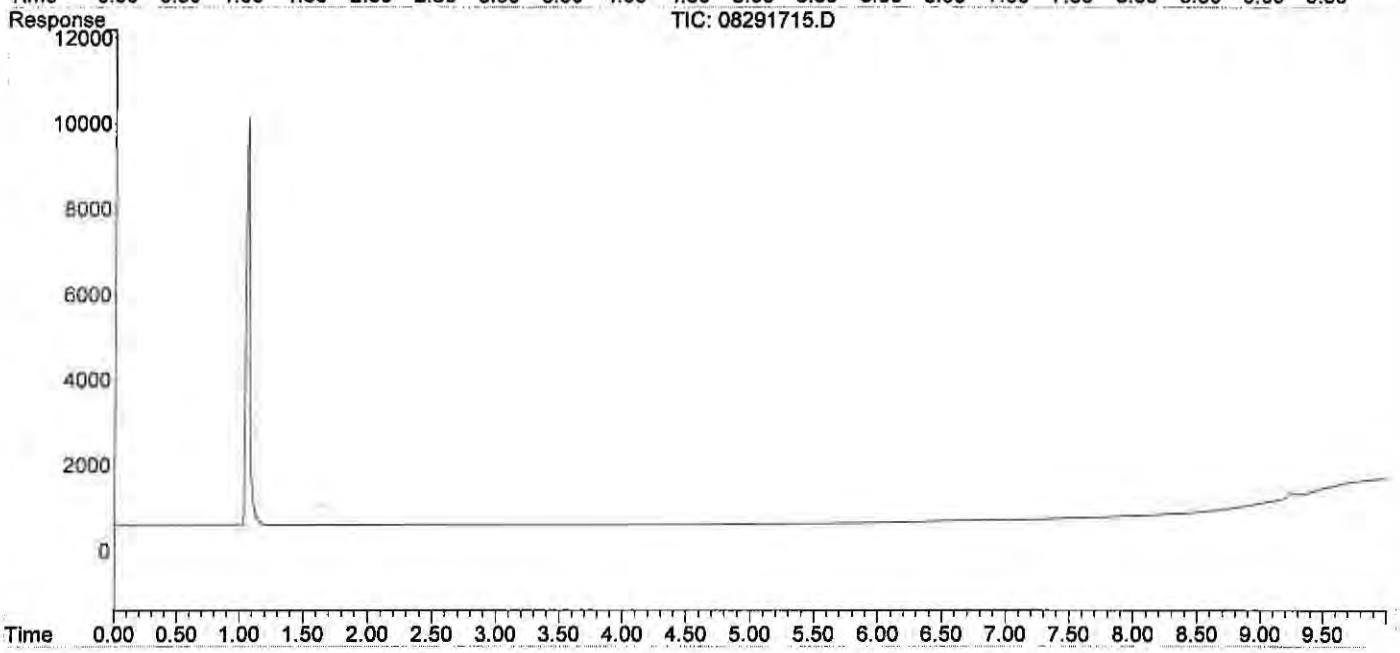
Quantitation Report (QT Reviewed)

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

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

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



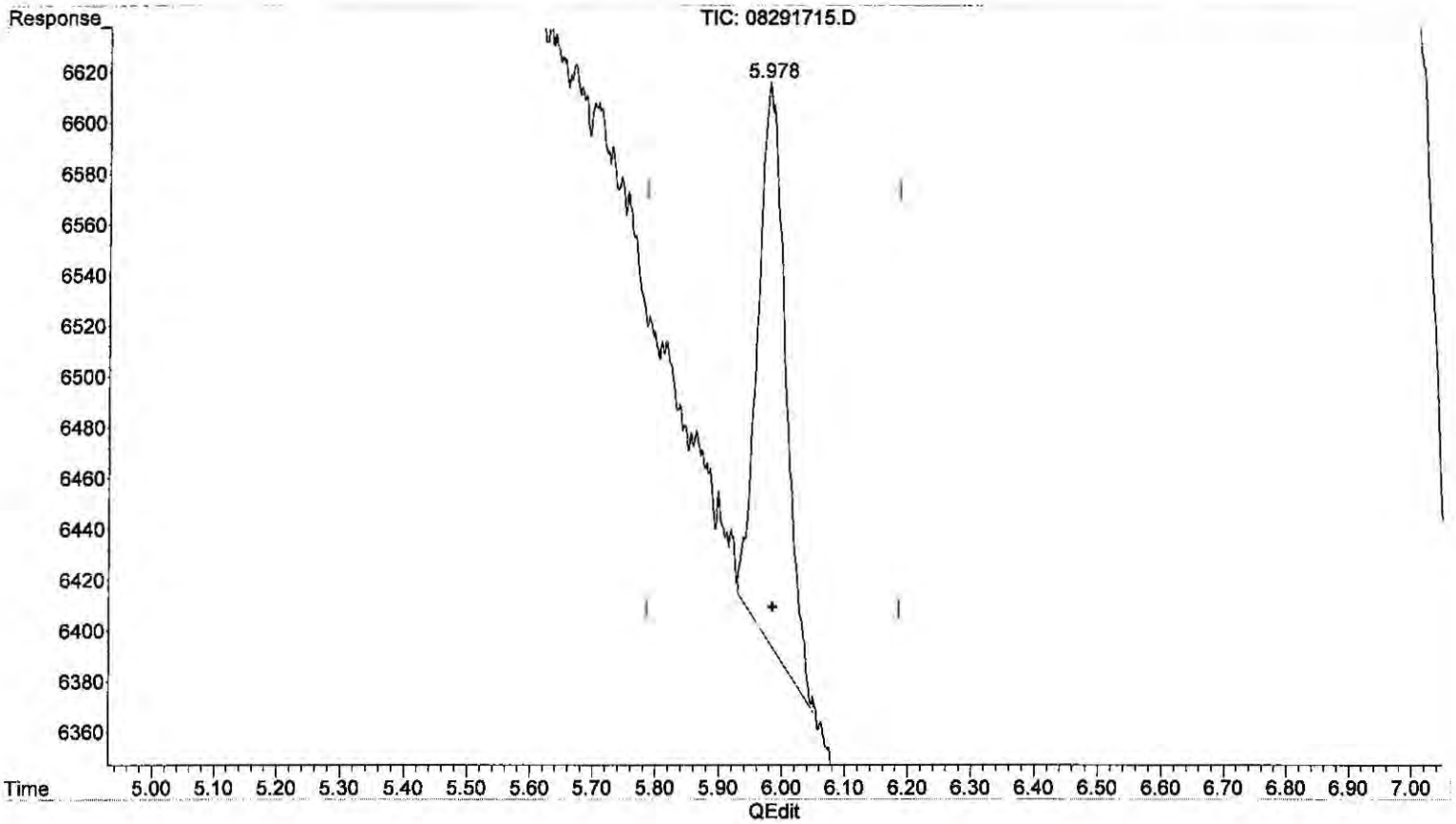


Quantitation Report (Qedit)

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

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

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



(4) Carbon dioxide

5.978min 27.870 ppm m

response 6794

(+) = Expected Retention Time

RS082817_CO2.M Wed Aug 30 13:17:47 2017 Page: 1

Quantitation Report (QT Reviewed)

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

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

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

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

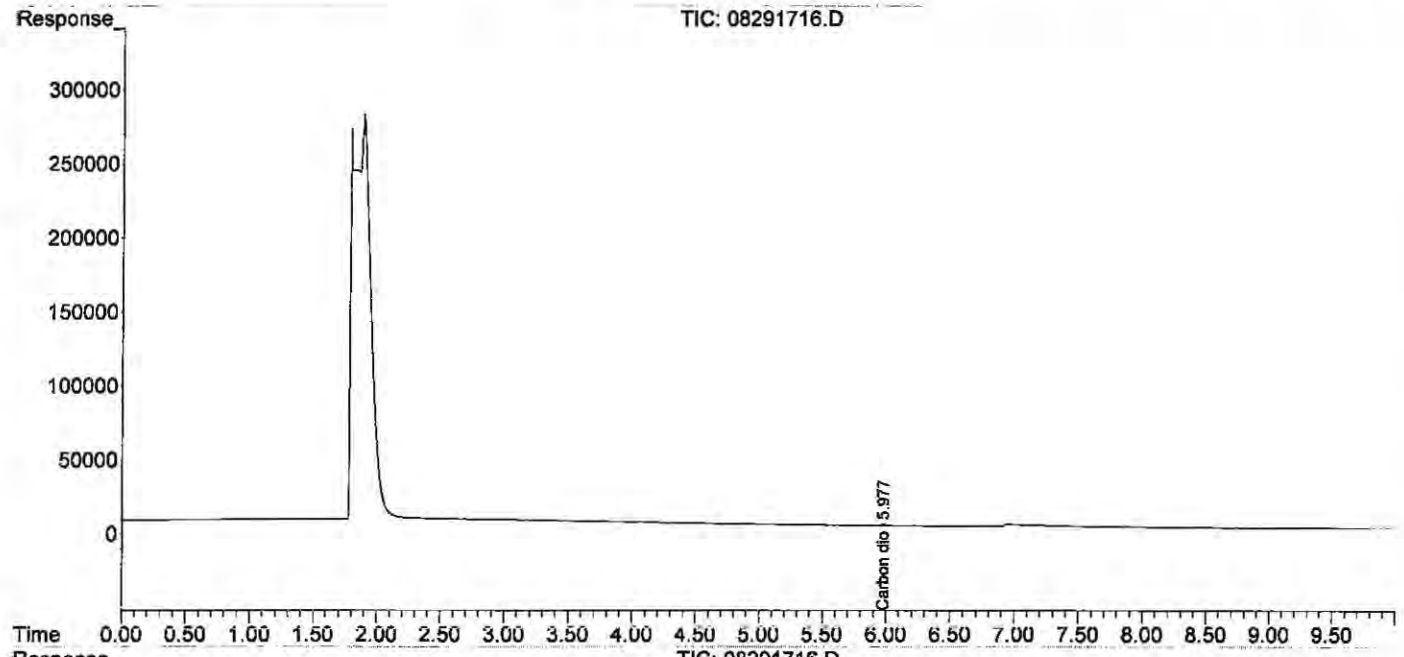
(f)=RT Delta > 1/2 Window (m)=manual int.

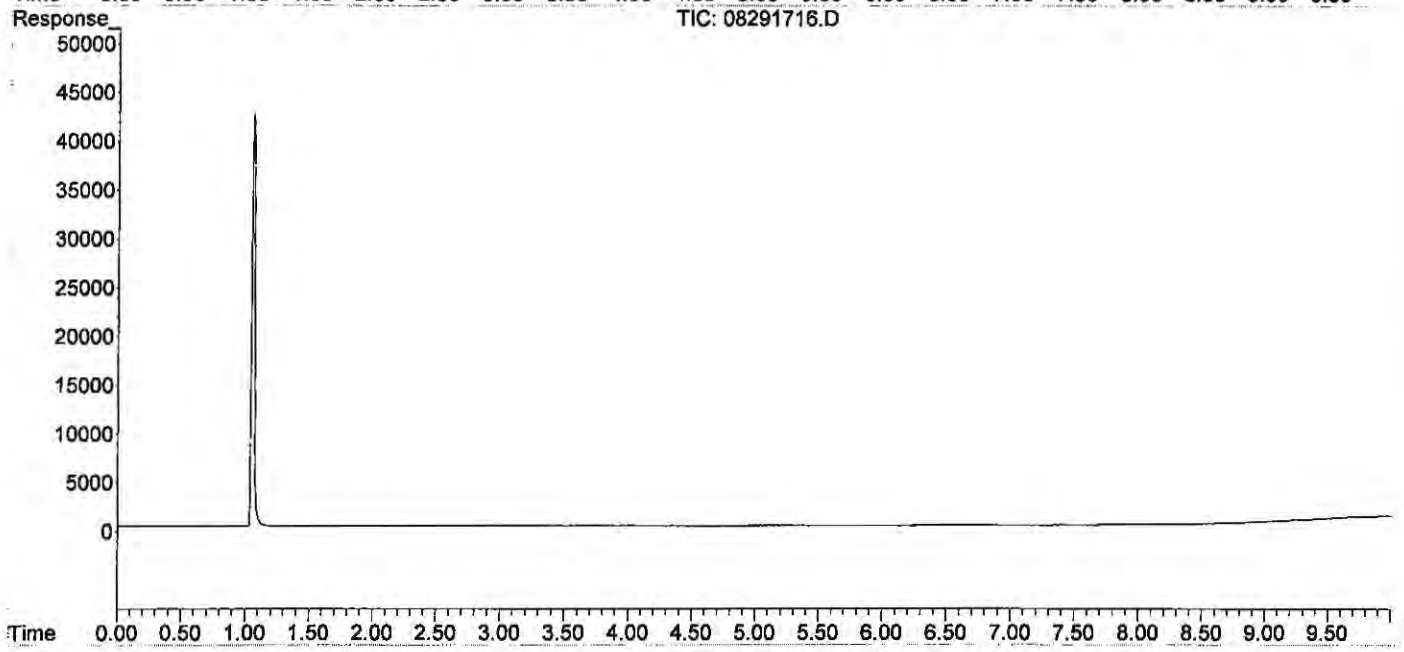
Quantitation Report (QT Reviewed)

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

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

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





Quantitation Report (QT Reviewed)

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

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

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

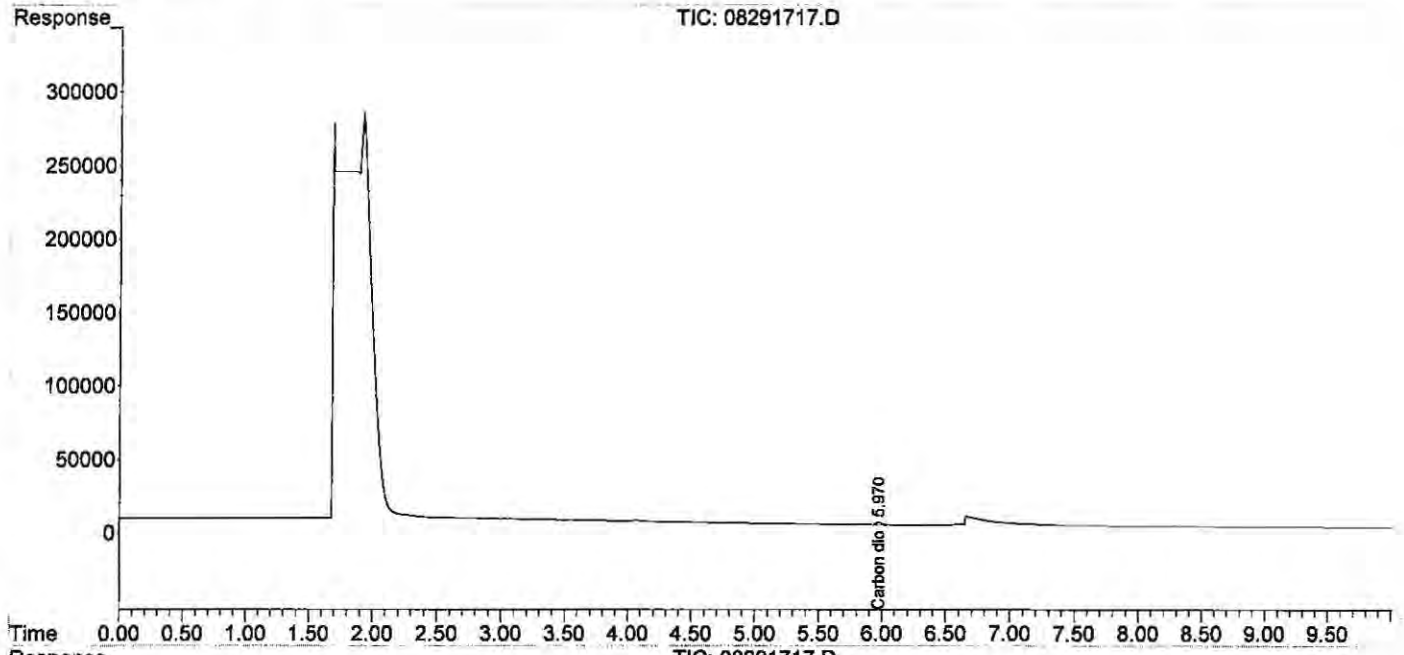
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.920f	-30716454	N.D.	ppm	
2)	Carbon monoxide	0.000	0	N.D.	ppm	d
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	5.970	58461	240.204	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000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

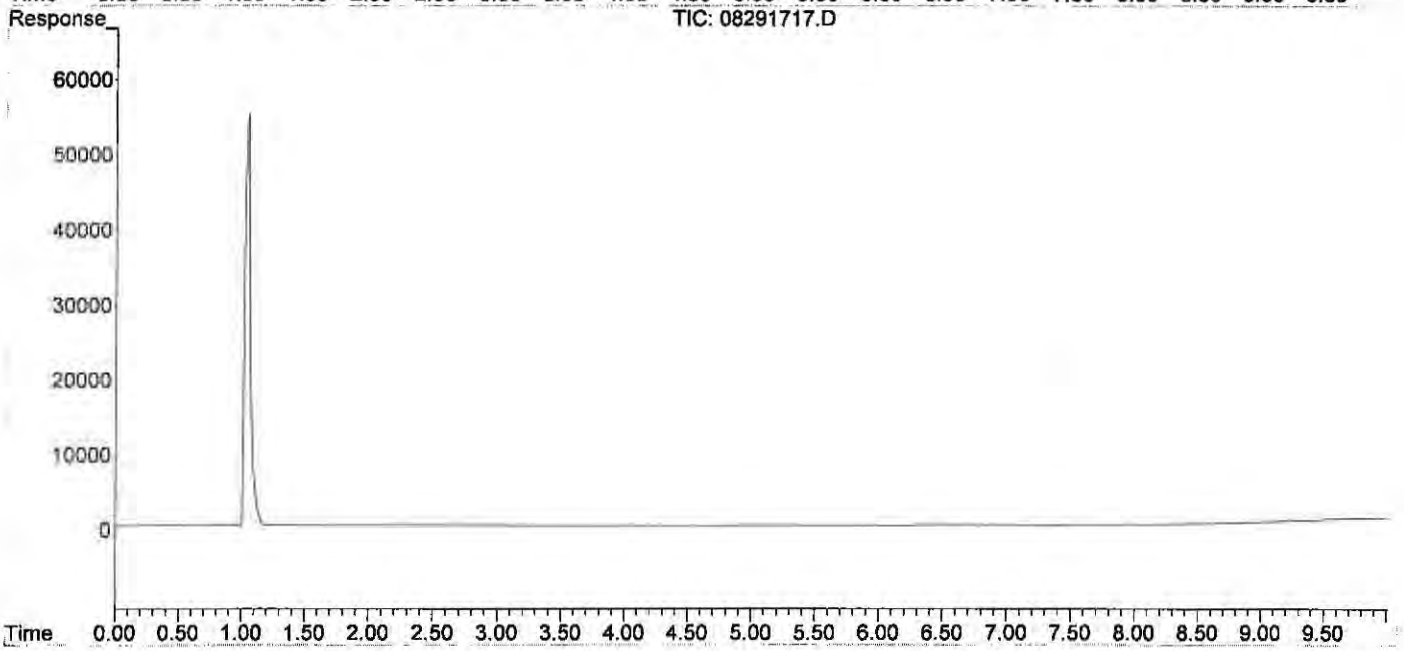
(f)=RT Delta > 1/2 Window (m)=manual int.

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

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

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



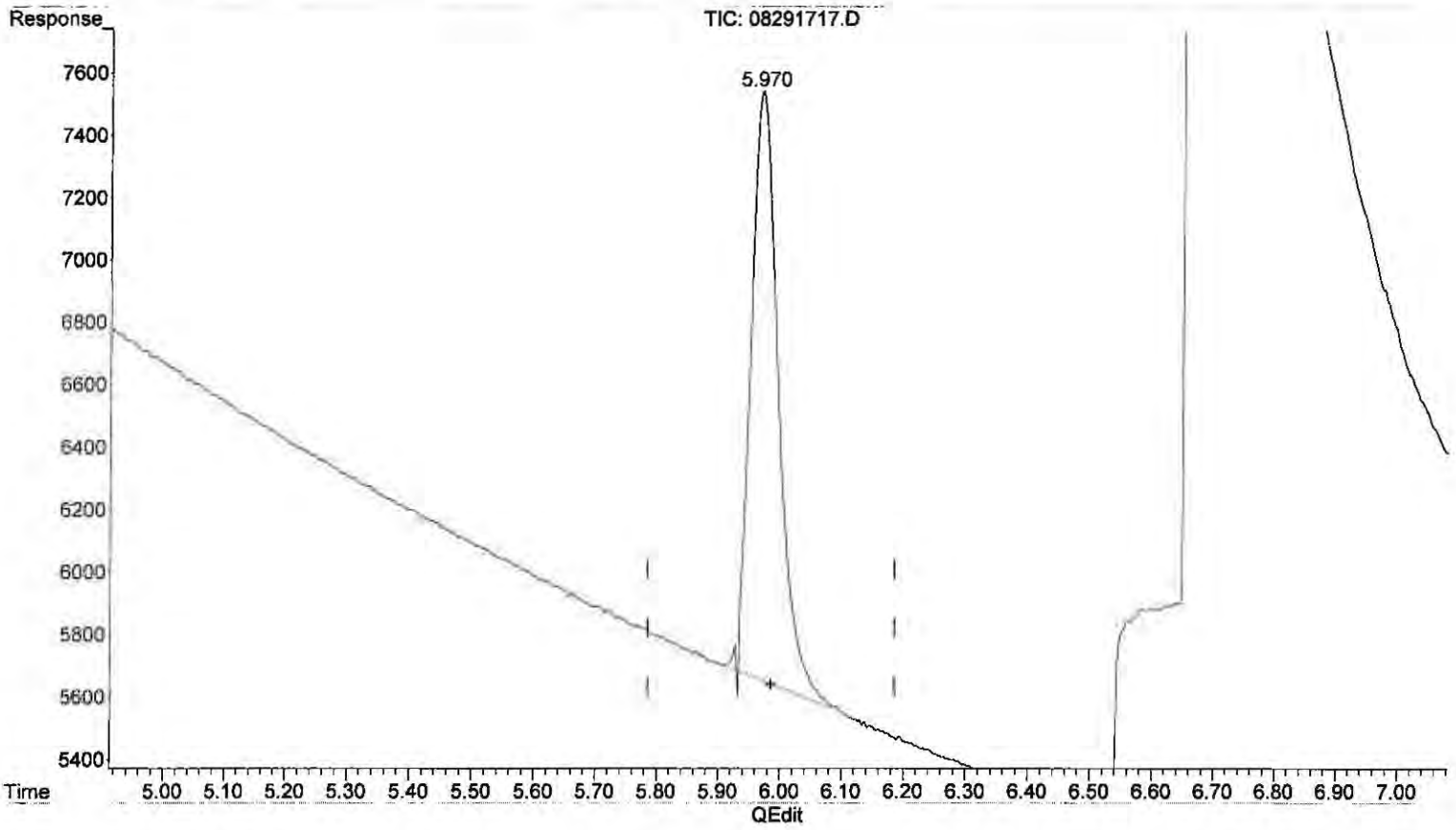


Quantitation Report (Qedit)

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

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

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



(4) Carbon dioxide

5.970min 240.204 ppm m

response 58461

(+) = Expected Retention Time

RS082817_CO2.M Wed Aug 30 13:19:20 2017

Quantitation Report (QT Reviewed)

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

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

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

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

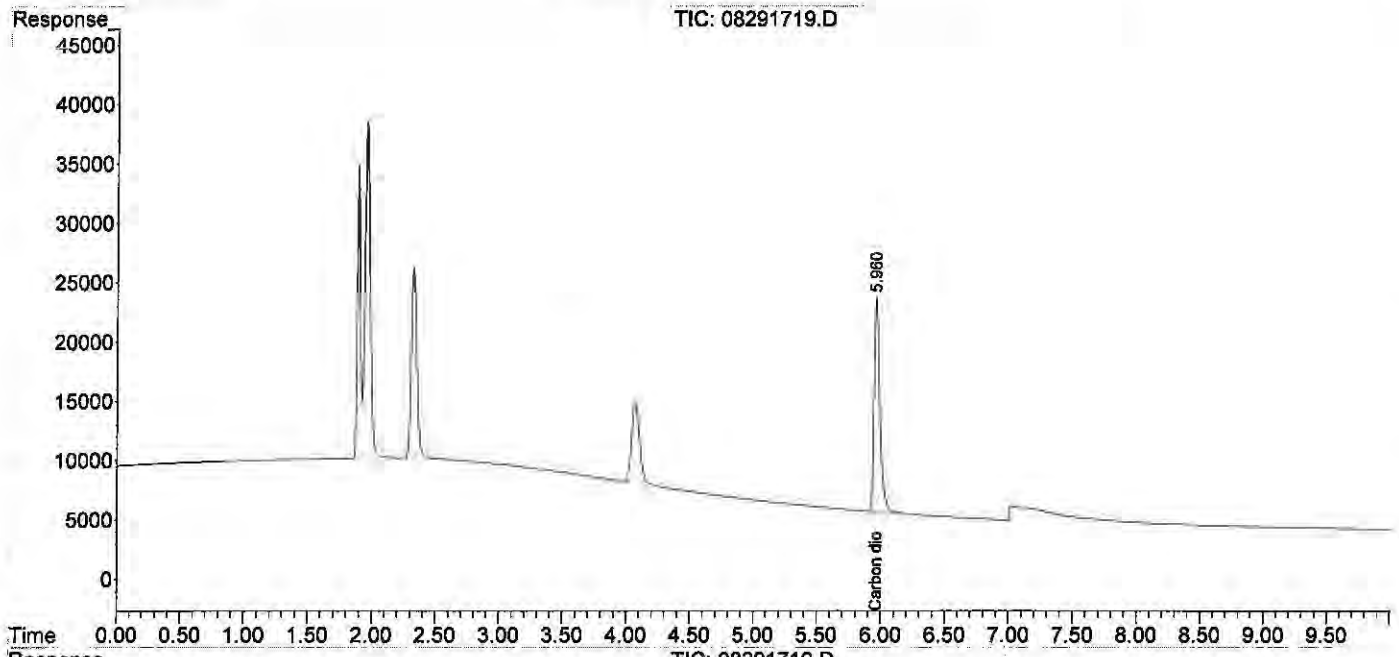
(f)=RT Delta > 1/2 Window (m)=manual int.

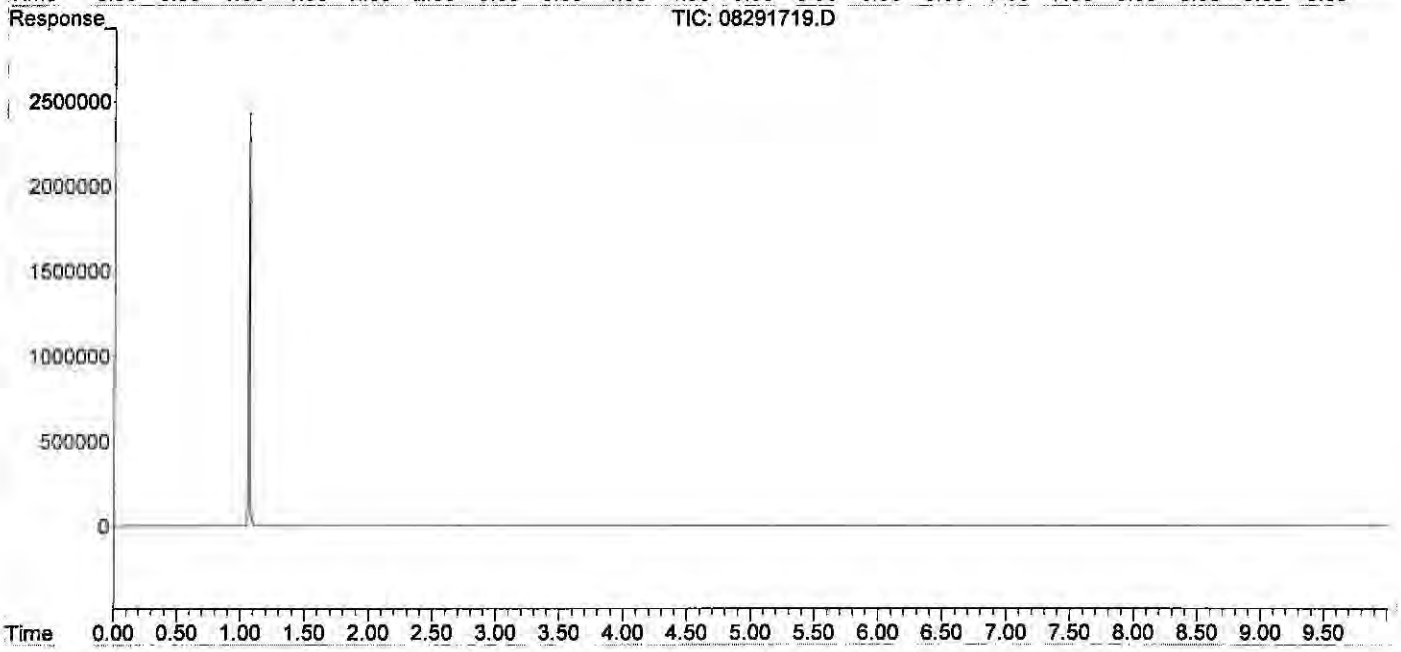
Quantitation Report (QT Reviewed)

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

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

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





Quantitation Report (QT Reviewed)

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

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

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

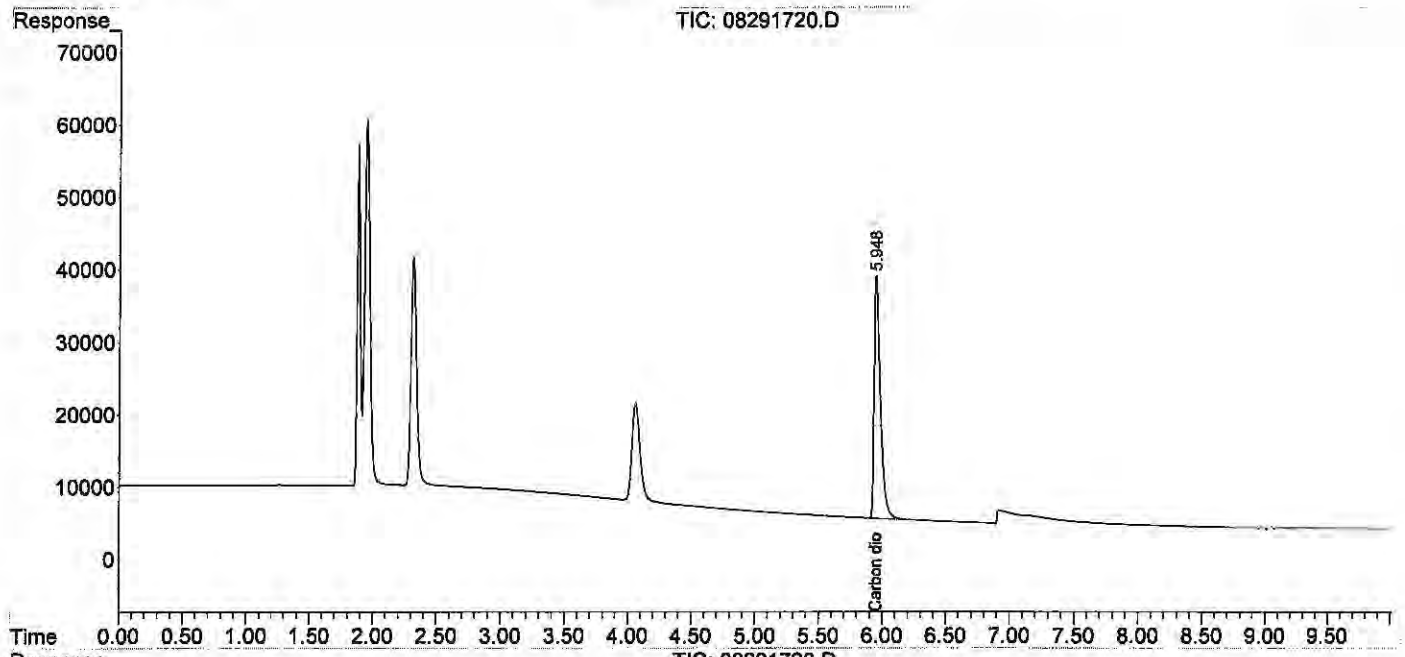
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.880	819221	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	5.948	1132363	4753.126	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0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

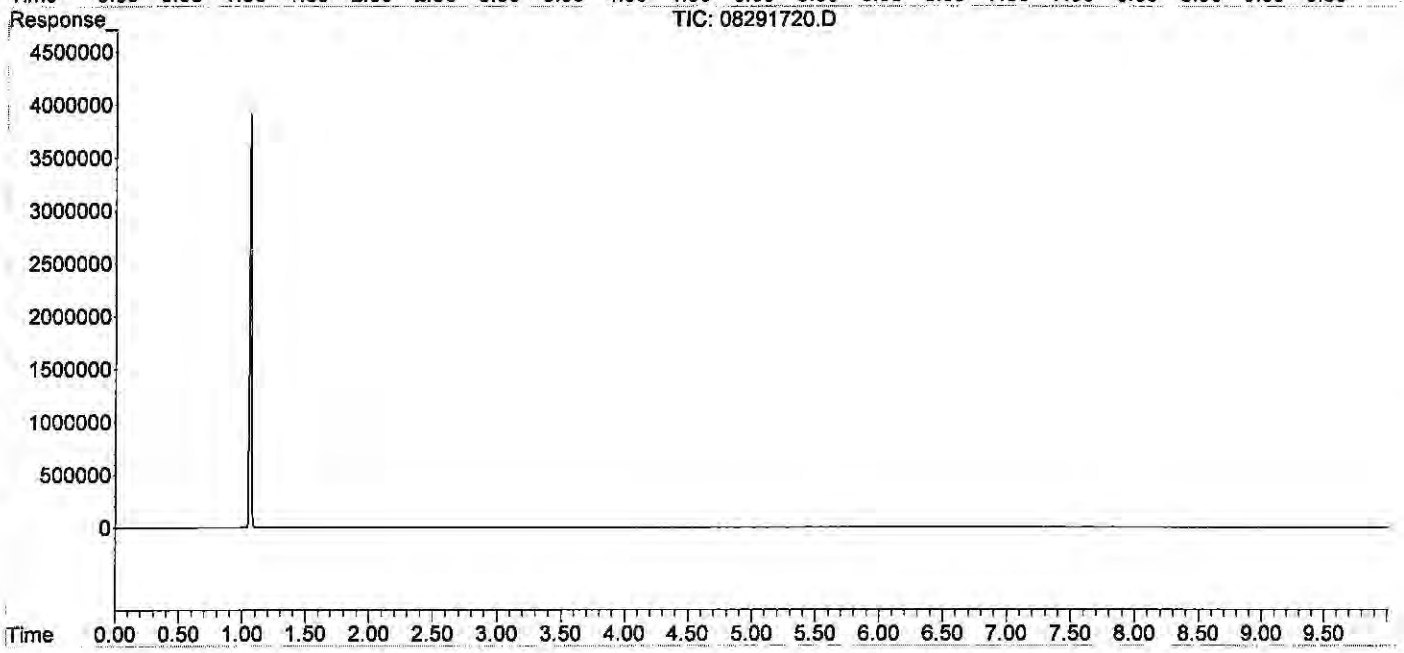
(f)=RT Delta > 1/2 Window (m)=manual int.

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

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

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





Quantitation Report (QT Reviewed)

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

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

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

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

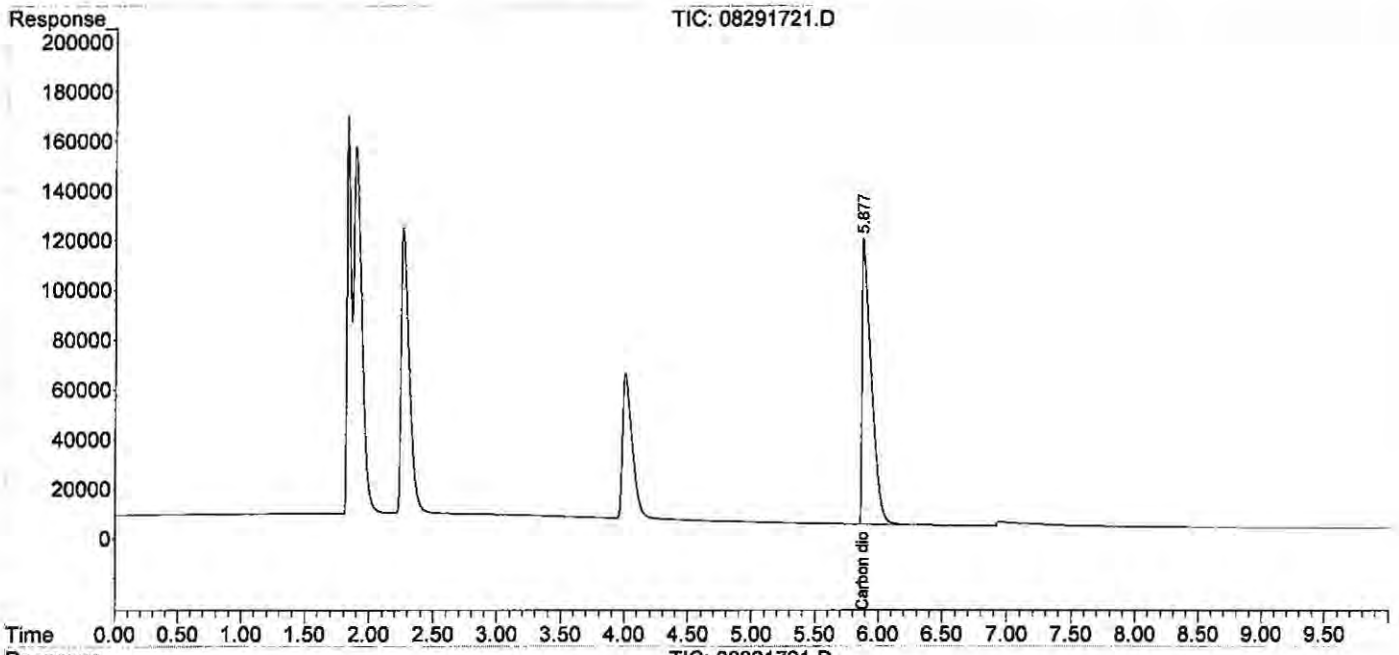
(f)=RT Delta > 1/2 Window (m)=manual int.

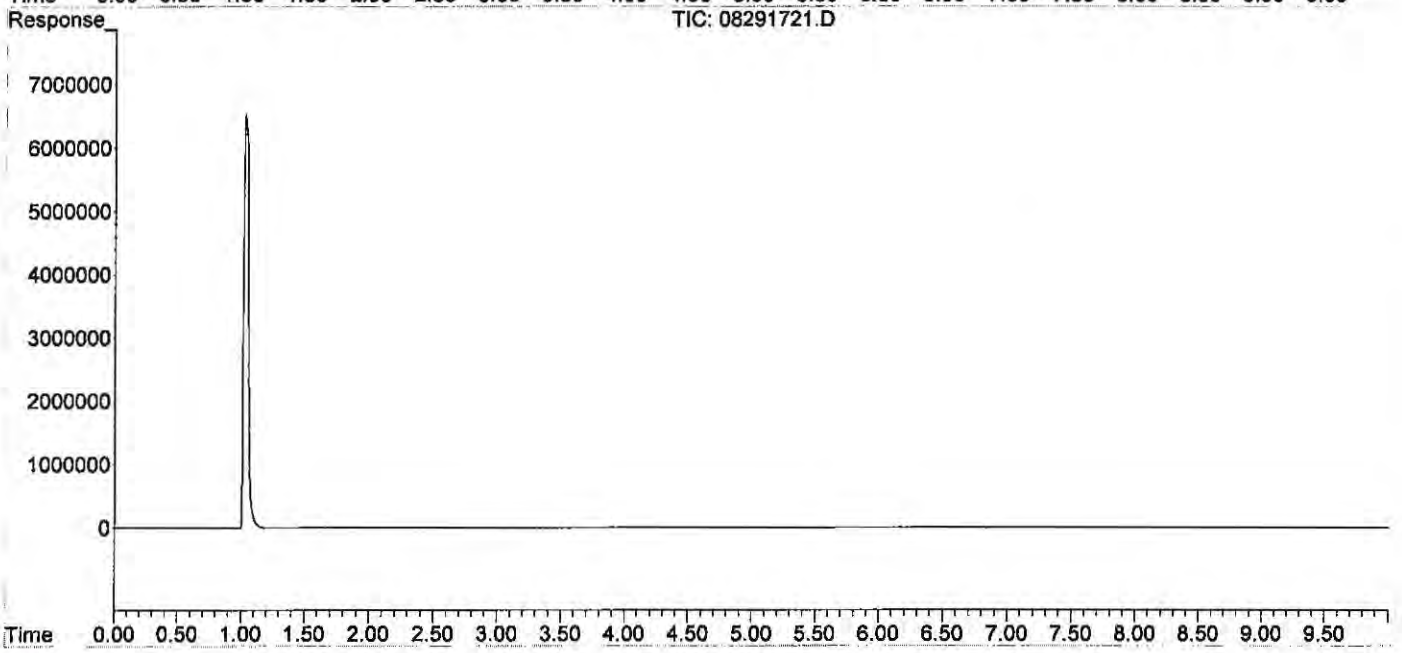
Quantitation Report (QT Reviewed)

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

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

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





Quantitation Report (QT Reviewed)

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

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

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

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.886	536422	0.113	ppm	Actual %D
2)	Carbon monoxide	1.886	536422	N.D.	ppm	
3)	Methane (TCD)	4.059f	626500	66244.710	ppm	
4)	Carbon dioxide	5.947	1163775	4957.948	ppm	5000 99.16
6)	Methane (FID)	1.062	37290742	3947.023	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

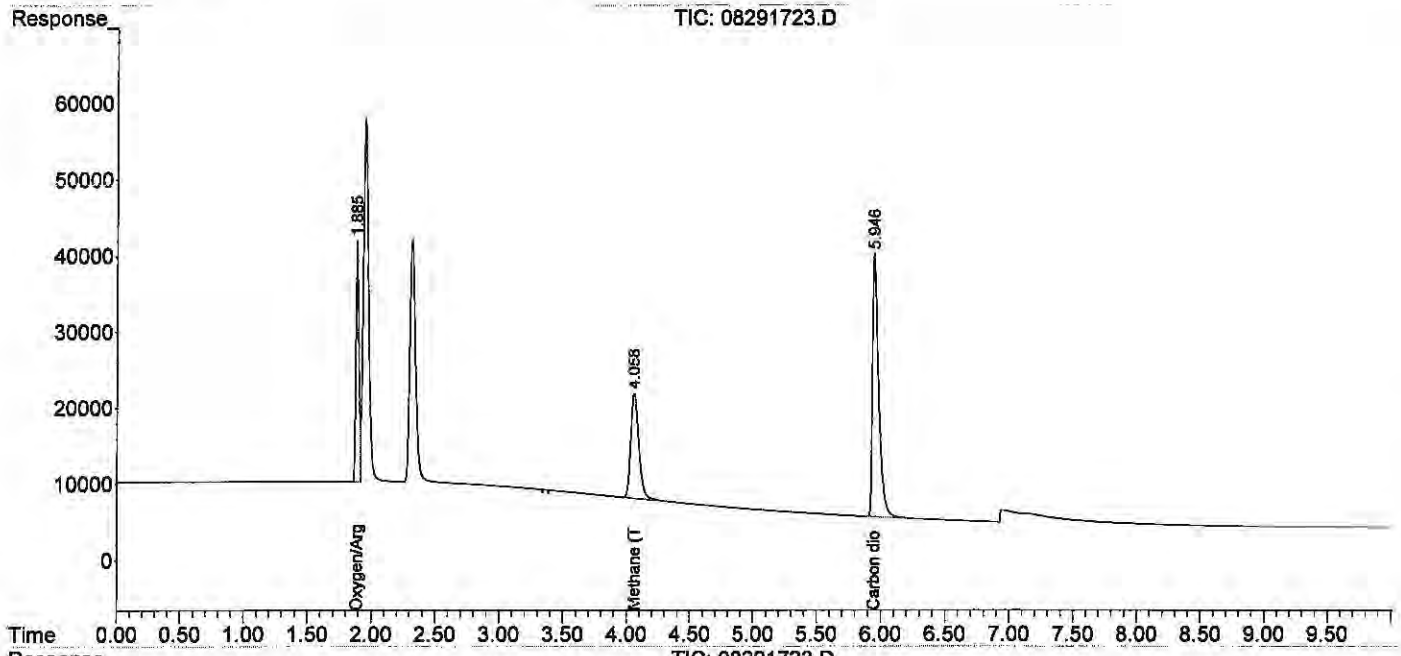
(f)=RT Delta > 1/2 Window (m)=manual int.

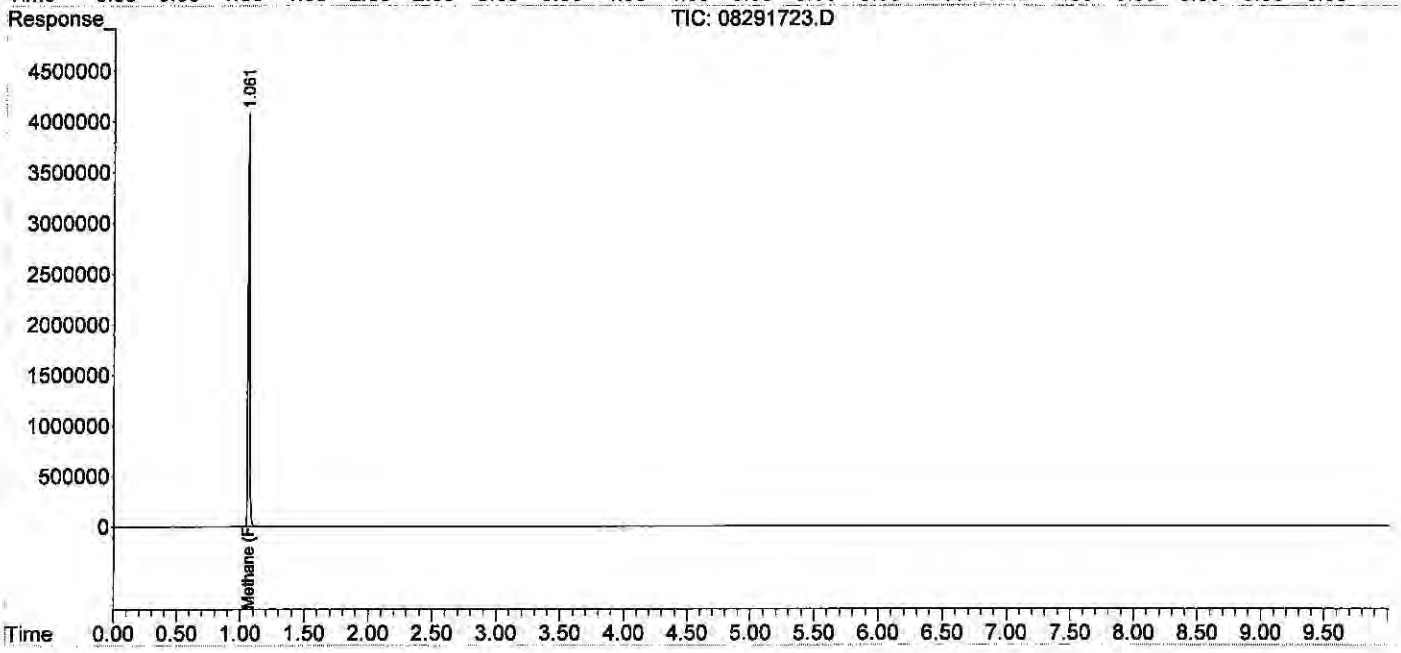
W 9/4/17

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

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

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





ALS Environmental

Method : RSK175 Headspace Method for Dissolved Hydrocarbon in Water by FID/TCD
Client : ALS Laboratory Group
Service Request: P1806865
Sample Vol. (ml) : 32.00 ml
Analyst : MR
Date Analysis : 12/20/18
Head Space Vol.(ml) : 8.00 ml
Instrument : GC#10
Detector : FID#10, TCD#10
Gas Constant : 24.05684 (20°C)

HEAD SPACE RESULT (ppm)

Sample ID	Inj. Vol.	Carbon Dioxide
std s32-11091801	0.100	4891.803
ACTUAL		5000.00
%Difference		2.2%
mcs 0.1ml	0.100	0.000
rb 0.1ml	0.100	0.000
tcd lcs s32-10081801	0.100	856.794
tcd lcsd s32-10081801	0.100	938.778
P1806865-001 50ul	0.050	8937.416
P1806865-002 50ul	0.050	6713.325
P1806865-003 50ul	0.050	9830.648
P1806865-004 50ul	0.050	10321.42

FINAL HEAD SPACE RESULT (ppm)

	Carbon Dioxide
WWt.	44.10
HENRY'S CONSTANT	1.42E+03
RL	100.00
mcs 0.1ml	0.000
tcd lcs s32-10081801	8567.940
tcd lcsd s32-10081801	9387.780
P1806865-001 50ul	178748.32
P1806865-002 50ul	134266.50
P1806865-003 50ul	196612.96
P1806865-004 50ul	206428.40

std s32-11091801	4915.636
ACTUAL	5000.00
%Difference	1.7%

Data Path : J:\GC10\DATA\RSK_TCD\2018_12\20\
Data File : 12201801.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Dec-2018, 11:26:02
Operator : MR
Sample : std s32-11091801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 16:36:46 2018
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.979f	566505	0.119	ppm	
2)	Carbon monoxide	1.979f	566505	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	6.076	1148249	4891.803	ppm	m
6)	Methane (FID)	1.113	32620061	3452.657	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

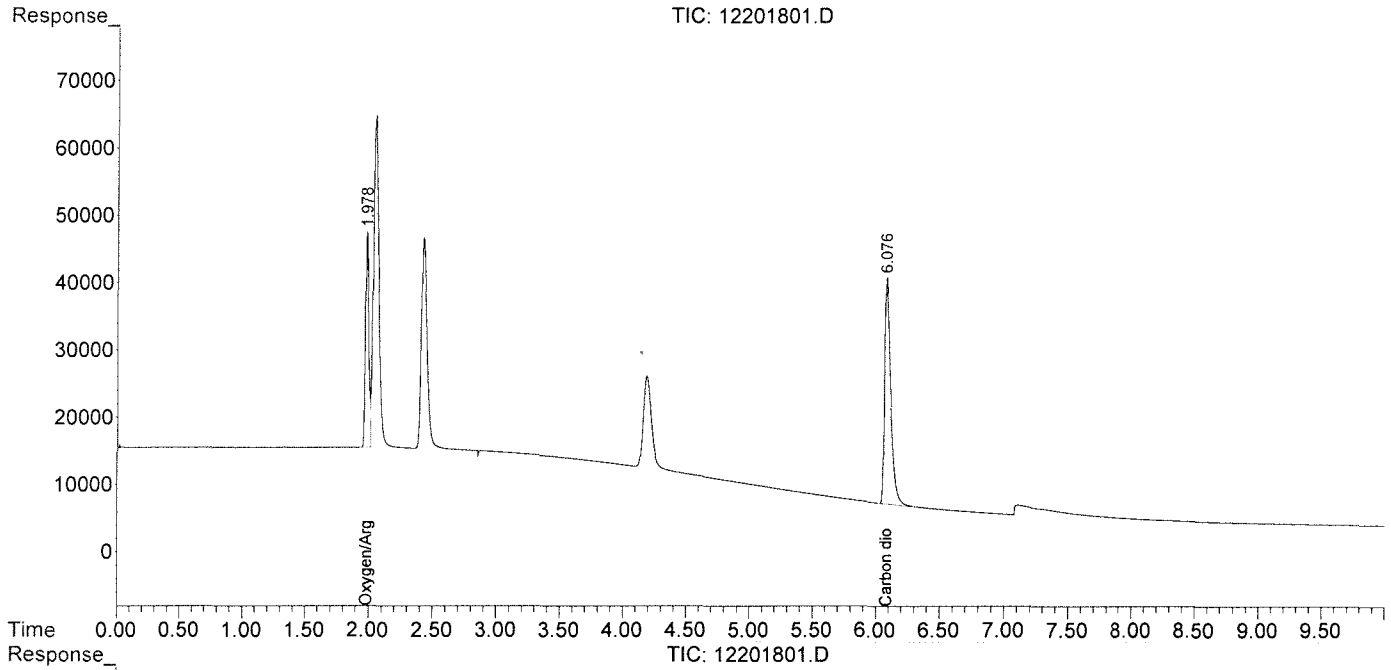
(f)=RT Delta > 1/2 Window (m)=manual int.

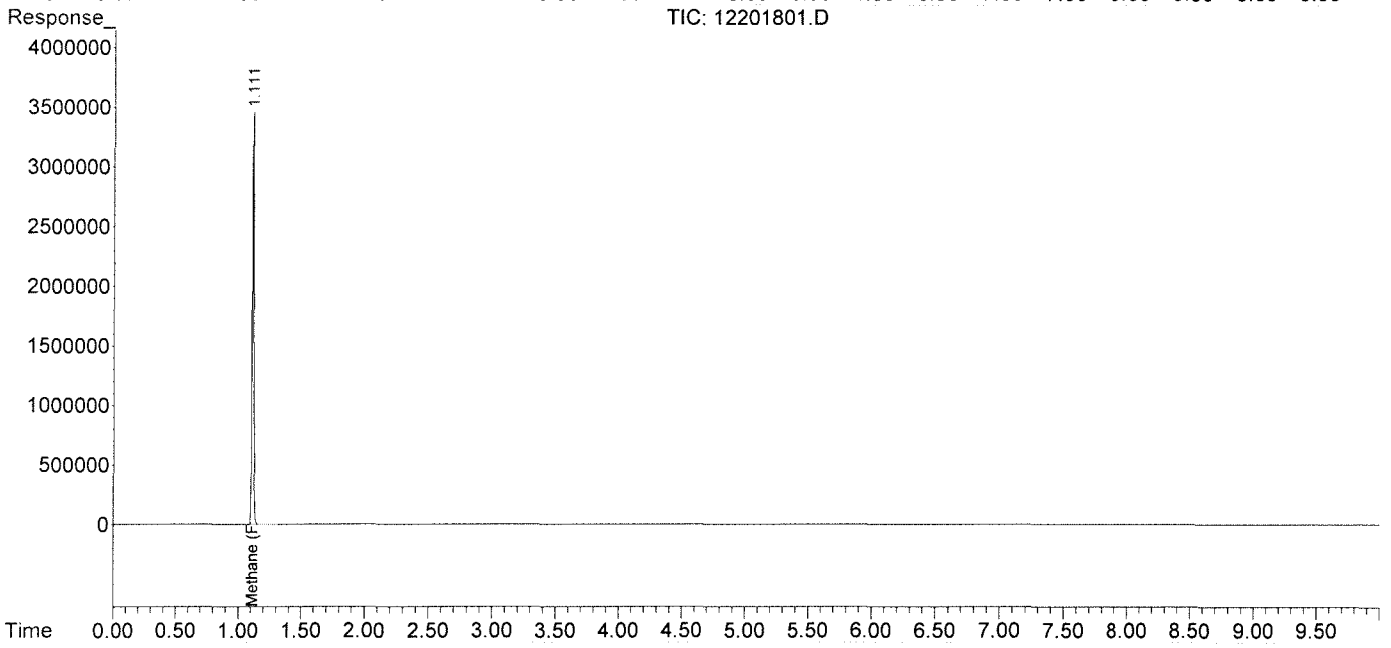
MR 12/21/18

Data Path : J:\GC10\DATA\RSK_TCD\2018_12\20\
Data File : 12201801.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Dec-2018, 11:26:02
Operator : MR
Sample : std s32-11091801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 16:36:46 2018
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

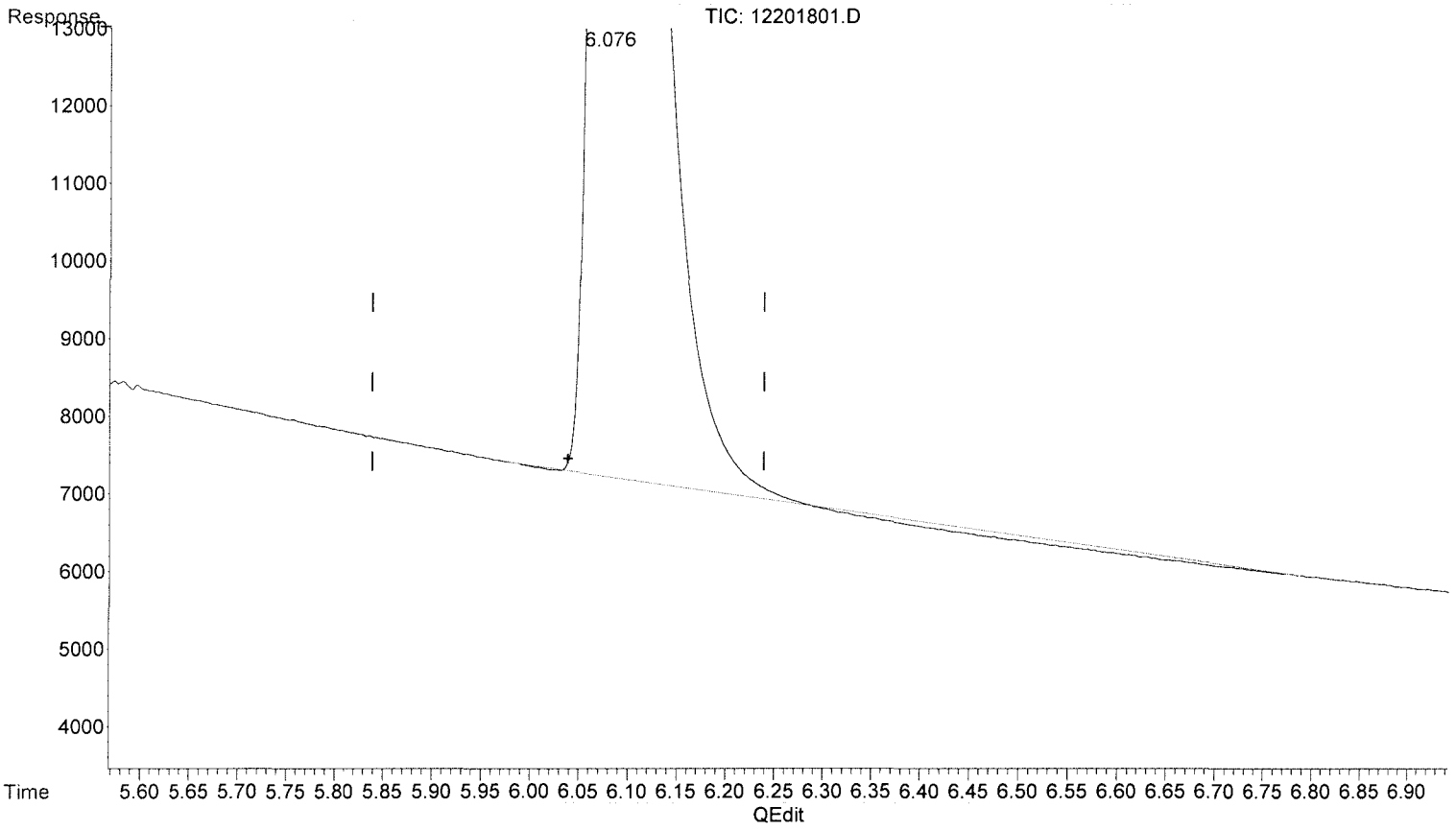




Data Path : J:\GC10\DATA\RSK_TCD\2018_12\20\
Data File : 12201801.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Dec-2018, 11:26:02
Operator : MR
Sample : std s32-11091801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 16:36:46 2018
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(4) Carbon dioxide

6.078min 4810.455 ppm

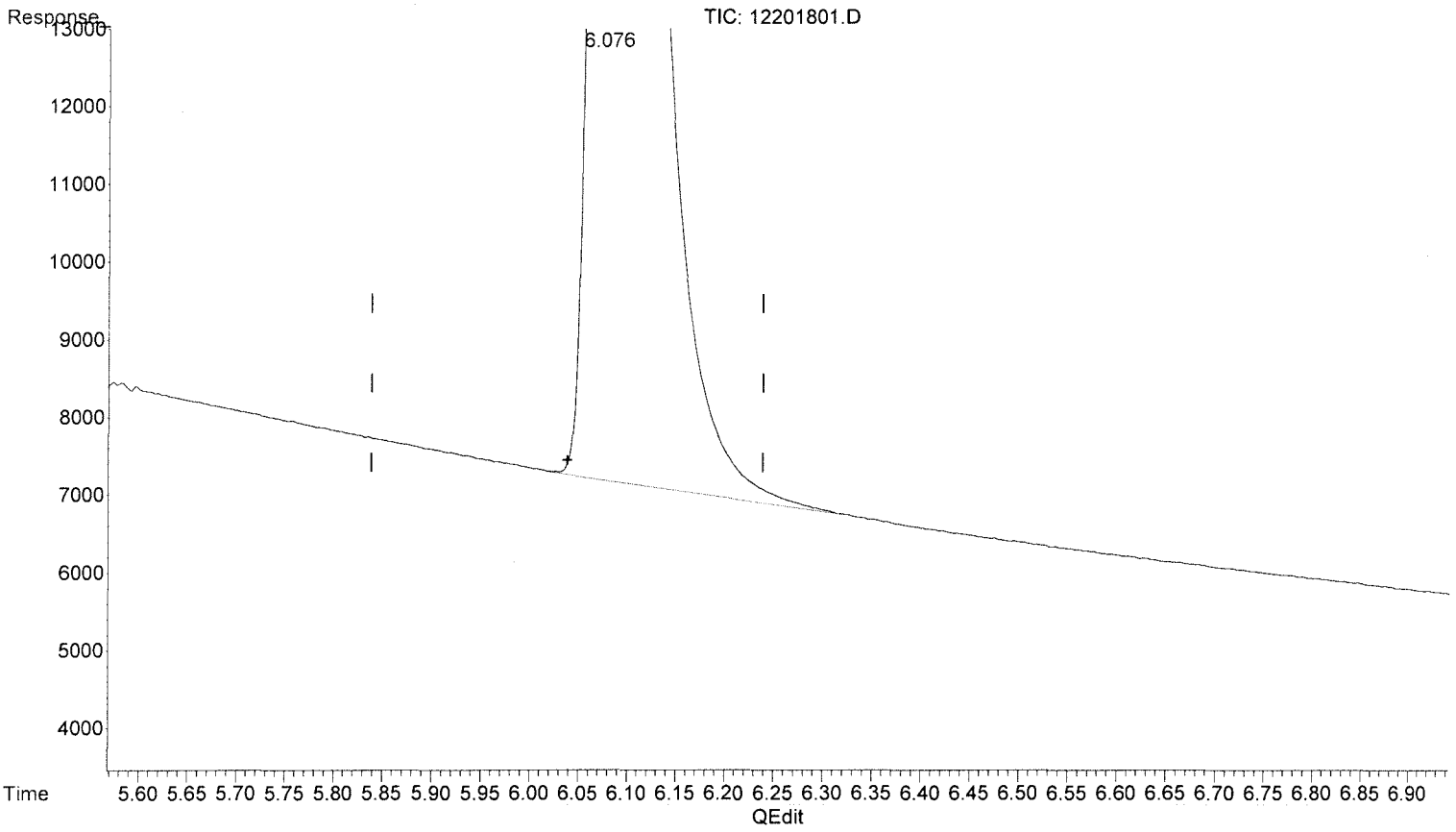
response 1129154

(+) = Expected Retention Time

Data Path : J:\GC10\DATA\RSK_TCD\2018_12\20\
Data File : 12201801.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Dec-2018, 11:26:02
Operator : MR
Sample : std s32-11091801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 16:36:46 2018
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(4) Carbon dioxide

6.076min 4891.803 ppm m

response 1148249

MR 12/21/18
BLC

12/21/18

(+) = Expected Retention Time

Data Path : J:\GC10\DATA\RSK_TCD\2018_12\20\
Data File : 12201813.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Dec-2018, 15:30:51
Operator : MR
Sample : std s32-11091801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 16:42:17 2018
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

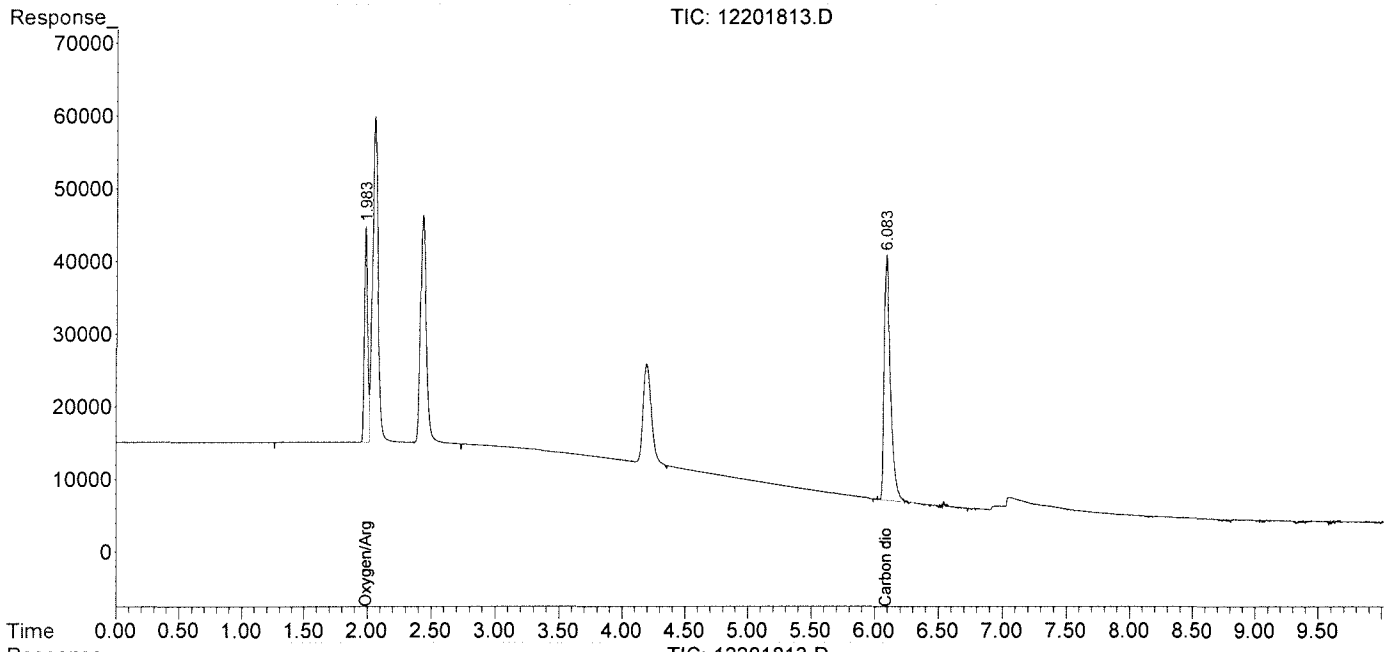
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.983f	529088	0.111	ppm	
2)	Carbon monoxide	1.983f	529088	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	6.083	1153843	4915.636	ppm	m
6)	Methane (FID)	1.114	33106517	3504.145	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

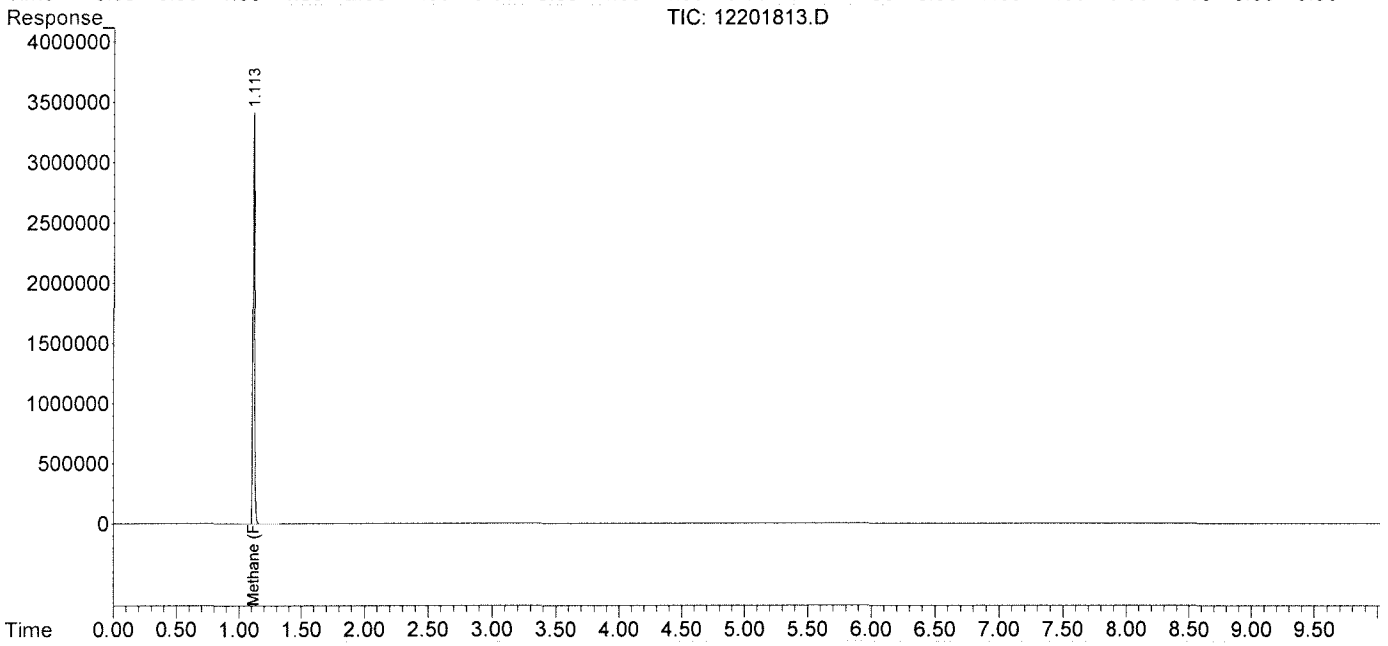
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2018_12\20\
Data File : 12201813.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Dec-2018, 15:30:51
Operator : MR
Sample : std s32-11091801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 16:42:17 2018
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

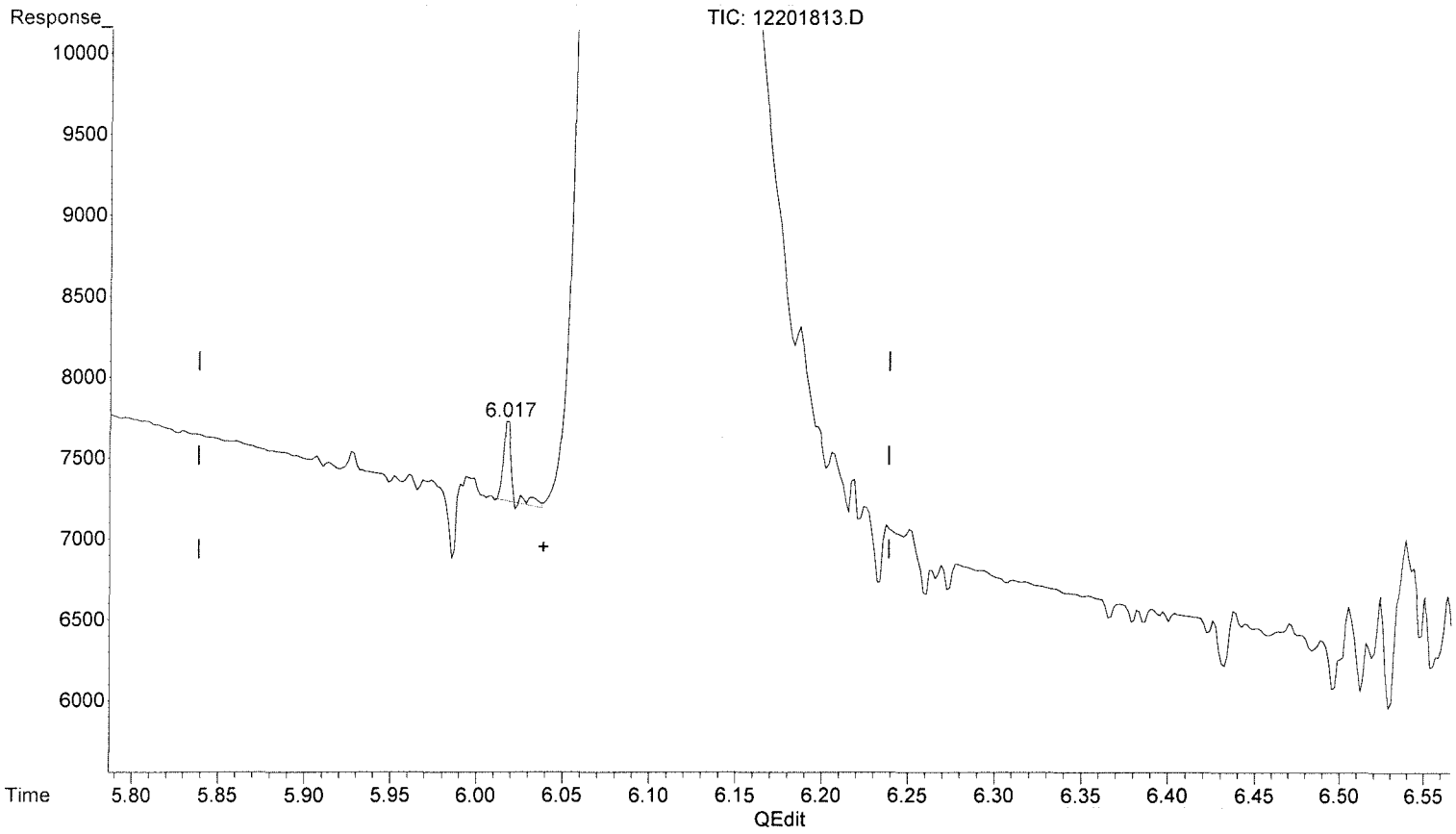




Data Path : J:\GC10\DATA\RSK_TCD\2018_12\20\
Data File : 12201813.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Dec-2018, 15:30:51
Operator : MR
Sample : std s32-11091801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 16:42:17 2018
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(4) Carbon dioxide

6.018min 7.400 ppm

response 1737

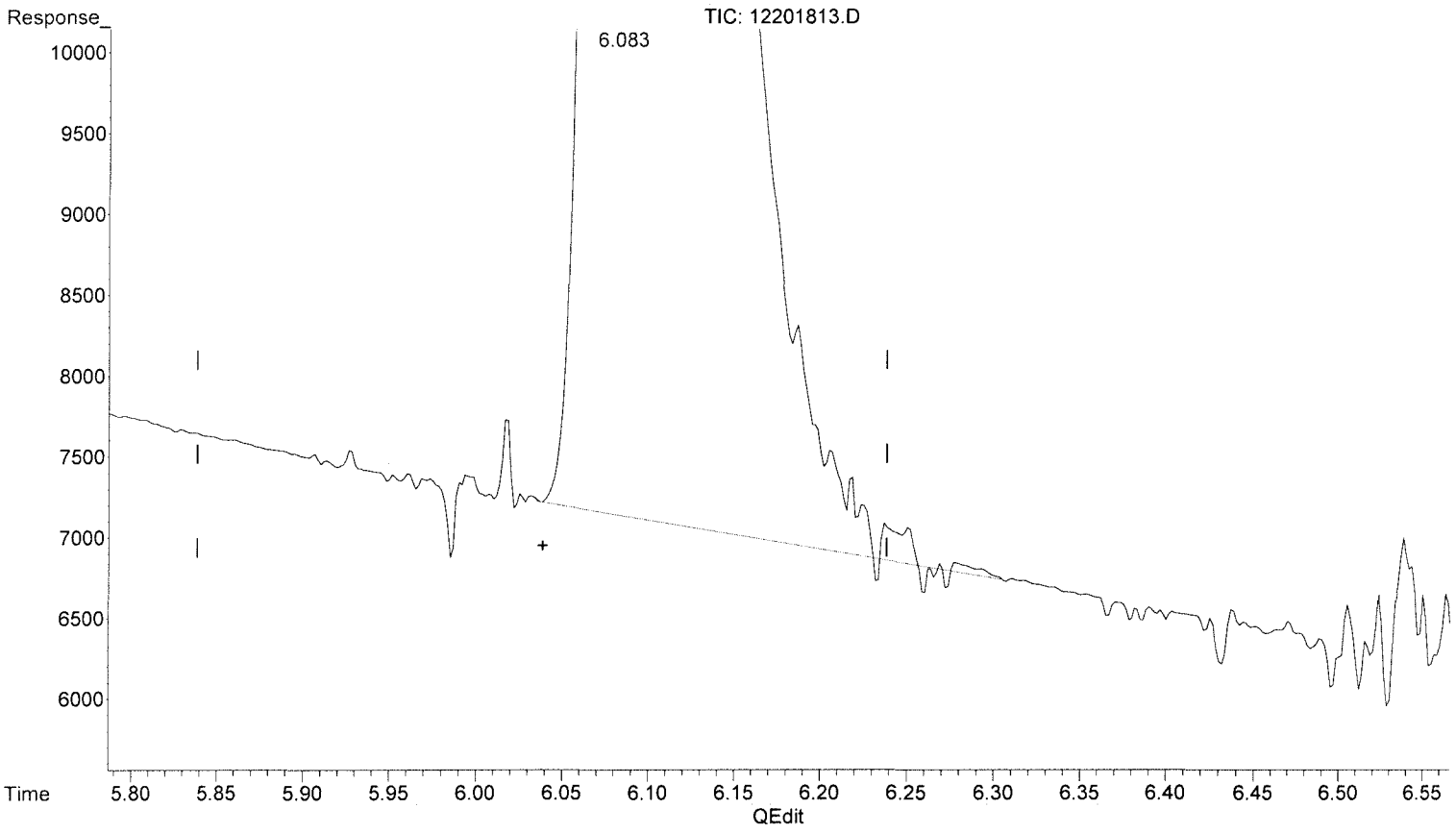
(+) = Expected Retention Time

RS082817_CO2.M Thu Dec 20 16:42:32 2018 Page: 1

Data Path : J:\GC10\DATA\RSK_TCD\2018_12\20\
Data File : 12201813.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Dec-2018, 15:30:51
Operator : MR
Sample : std s32-11091801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 16:42:17 2018
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(4) Carbon dioxide

6.083min 4915.636 ppm m

response 1153843

MR 12/21/18
MP

12/21/18

(+) = Expected Retention Time

RS082817_CO2.M Thu Dec 20 16:42:41 2018 Page: 1

Injection Log

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

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

Injection Log

Directory: I:\GC10\DATA\RSK_TCD\2018_12\20\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Acquisition Method	Comments
1	20-Dec-18, 11:26:02	12201801.D	std s32-11091801		MR	RSKBOTH.M	pass
2	20-Dec-18, 11:39:49	12201802.D	rb 0.1ml		MR	RSKBOTH.M	pass
3	20-Dec-18, 12:01:09	12201803.D	mcs 0.1ml		MR	RSKBOTH.M	pass
4	20-Dec-18, 12:38:52	12201804.D	tcd lcs s32-10081801		MR	RSKBOTH.M	pass
5	20-Dec-18, 12:52:24	12201805.D	tcd lcsd s32-10081801		MR	RSKBOTH.M	
6	20-Dec-18, 13:19:14	12201806.D	P1806863-001 50ul		MR	RSKBOTH.M	
7	20-Dec-18, 13:35:16	12201807.D	P1806863-002 50ul		MR	RSKBOTH.M	
8	20-Dec-18, 13:49:24	12201808.D	P1806863-003 50ul		MR	RSKBOTH.M	
9	20-Dec-18, 14:04:40	12201809.D	P1806865-001 50u		MR	RSKBOTH.M	
10	20-Dec-18, 14:19:57	12201810.D	P1806865-002 50u		MR	RSKBOTH.M	
11	20-Dec-18, 14:38:24	12201811.D	P1806865-003 50u		MR	RSKBOTH.M	
12	20-Dec-18, 14:56:31	12201812.D	P1806865-004 50u		MR	RSKBOTH.M	
13	20-Dec-18, 15:30:51	12201813.D	std s32-11091801		MR	RSKBOTH.M	pass

Data Path : J:\GC10\DATA\RSK_FID\2018_12\19\
Data File : 12191809.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Dec-2018, 13:23:14
Operator : MR
Sample : P1806865-001 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 14:20:46 2018
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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

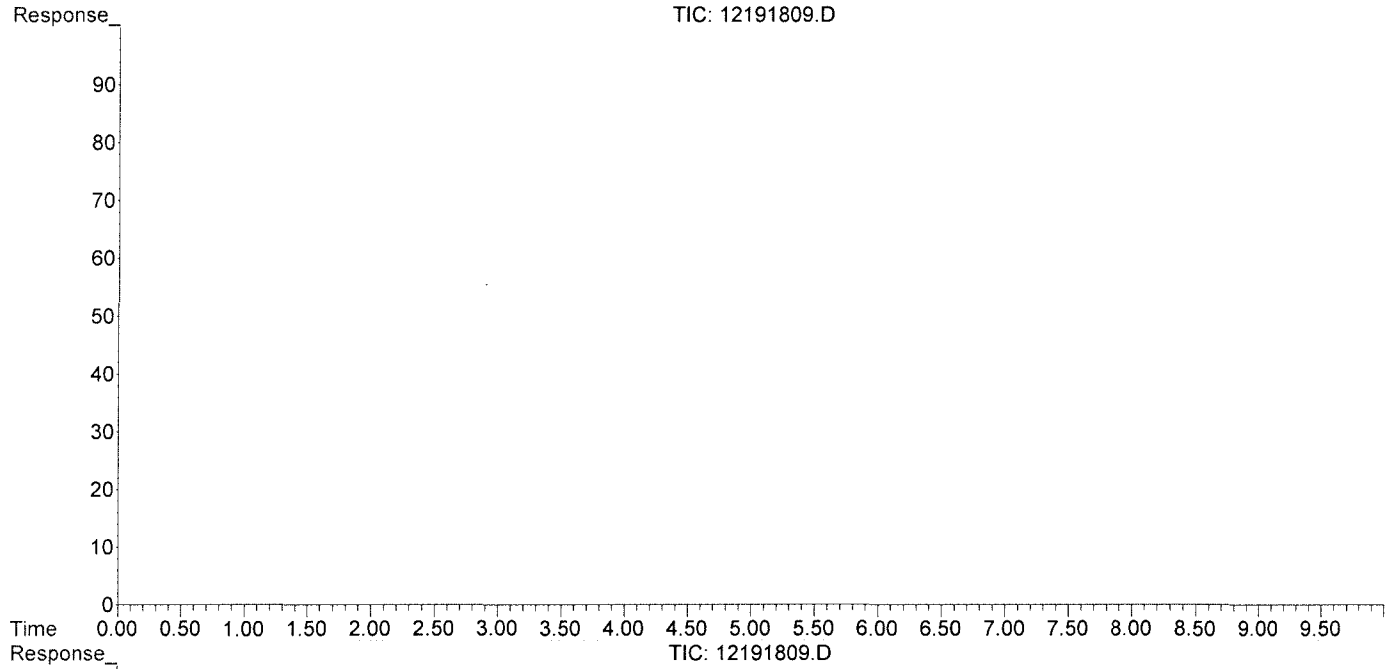
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.106	8773938	967.290	ppm
7)	Ethylene	1.668	8740	0.522	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

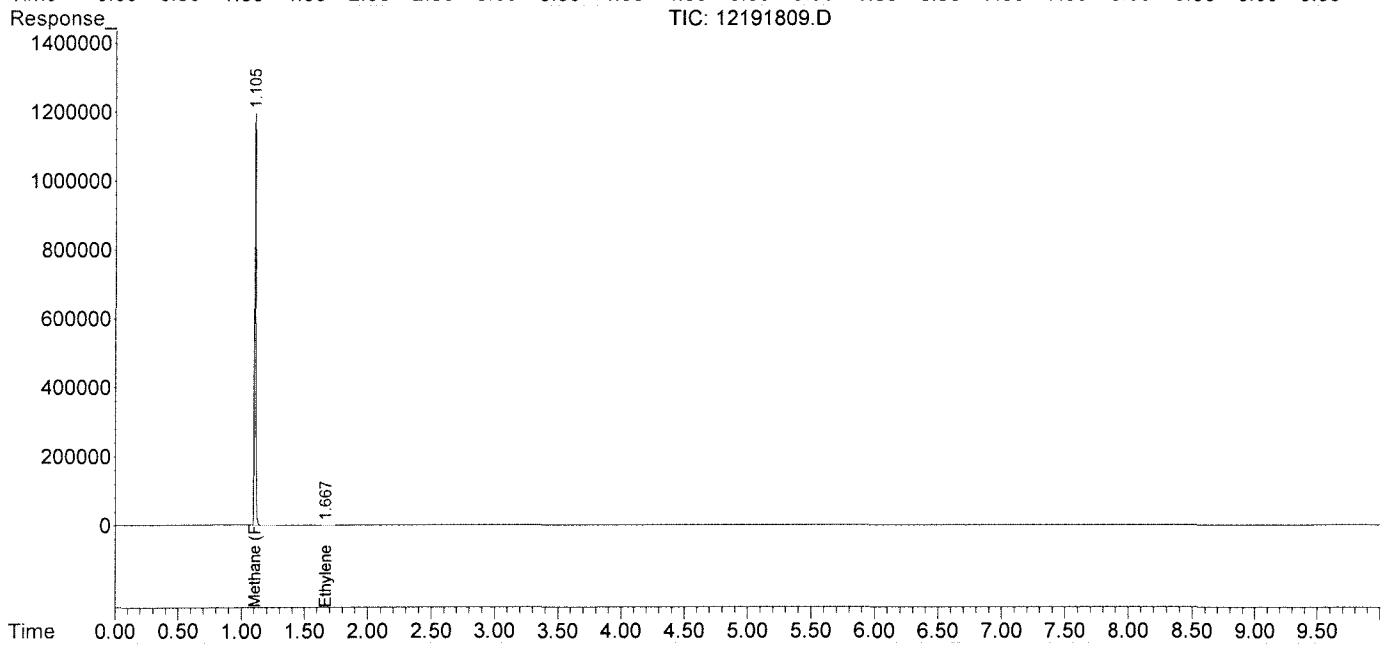
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2018_12\19\
Data File : 12191809.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Dec-2018, 13:23:14
Operator : MR
Sample : P1806865-001 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 14:20:46 2018
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Data Path : J:\GC10\DATA\RSK_FID\2018_12\19\
Data File : 12191810.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Dec-2018, 13:38:42
Operator : MR
Sample : P1806865-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 14:21:10 2018
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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

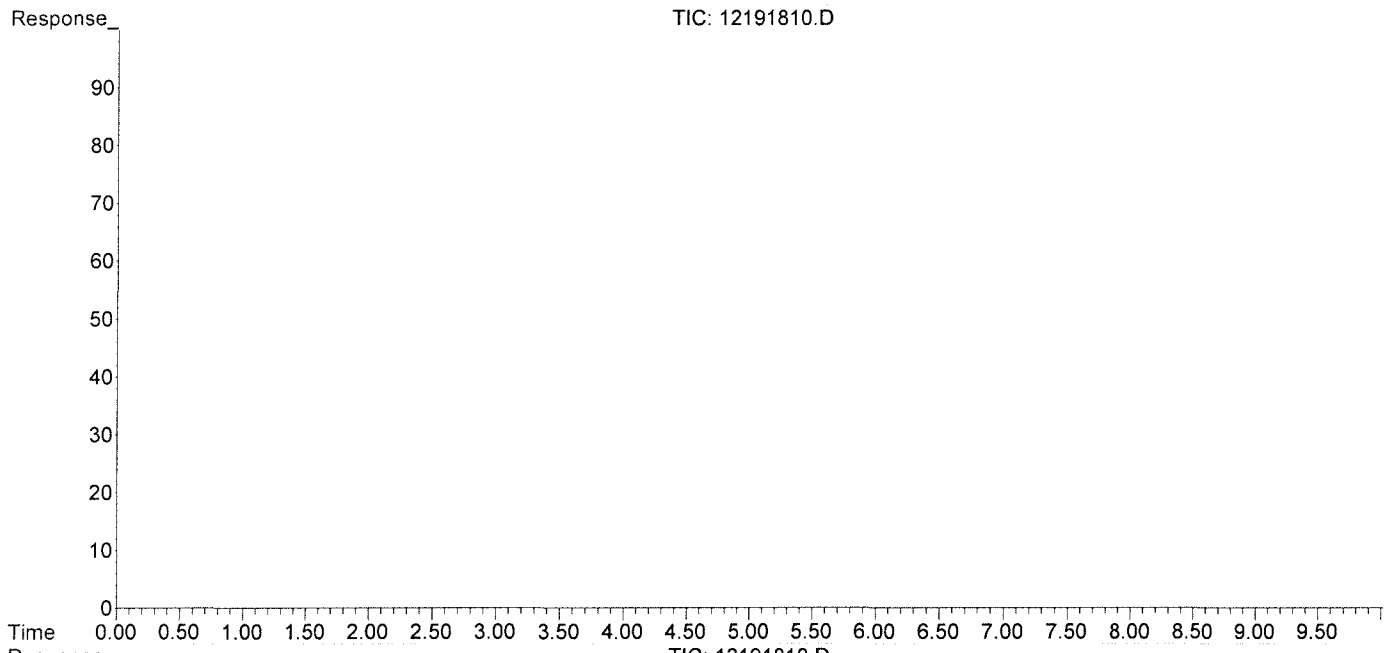
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	
2)	Carbon monoxide	0.000	0	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.112	706	0.078	ppm	m
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

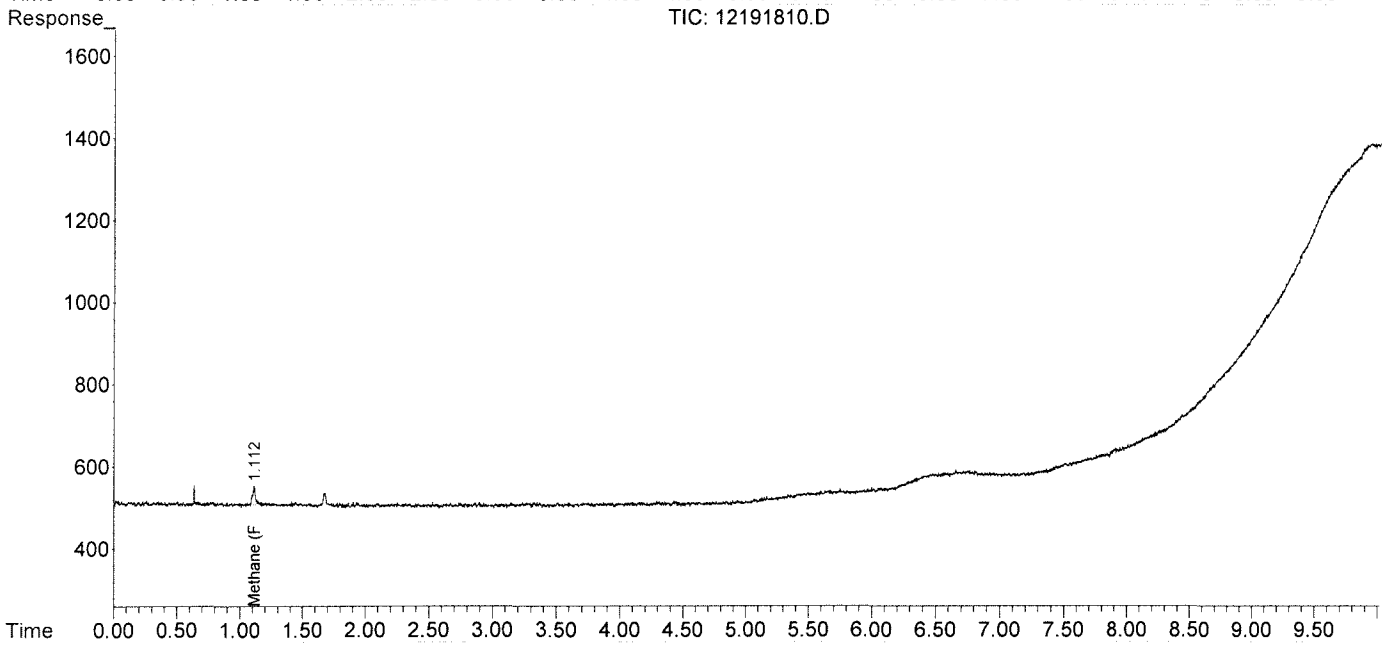
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2018_12\19\
Data File : 12191810.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Dec-2018, 13:38:42
Operator : MR
Sample : P1806865-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 14:21:10 2018
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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

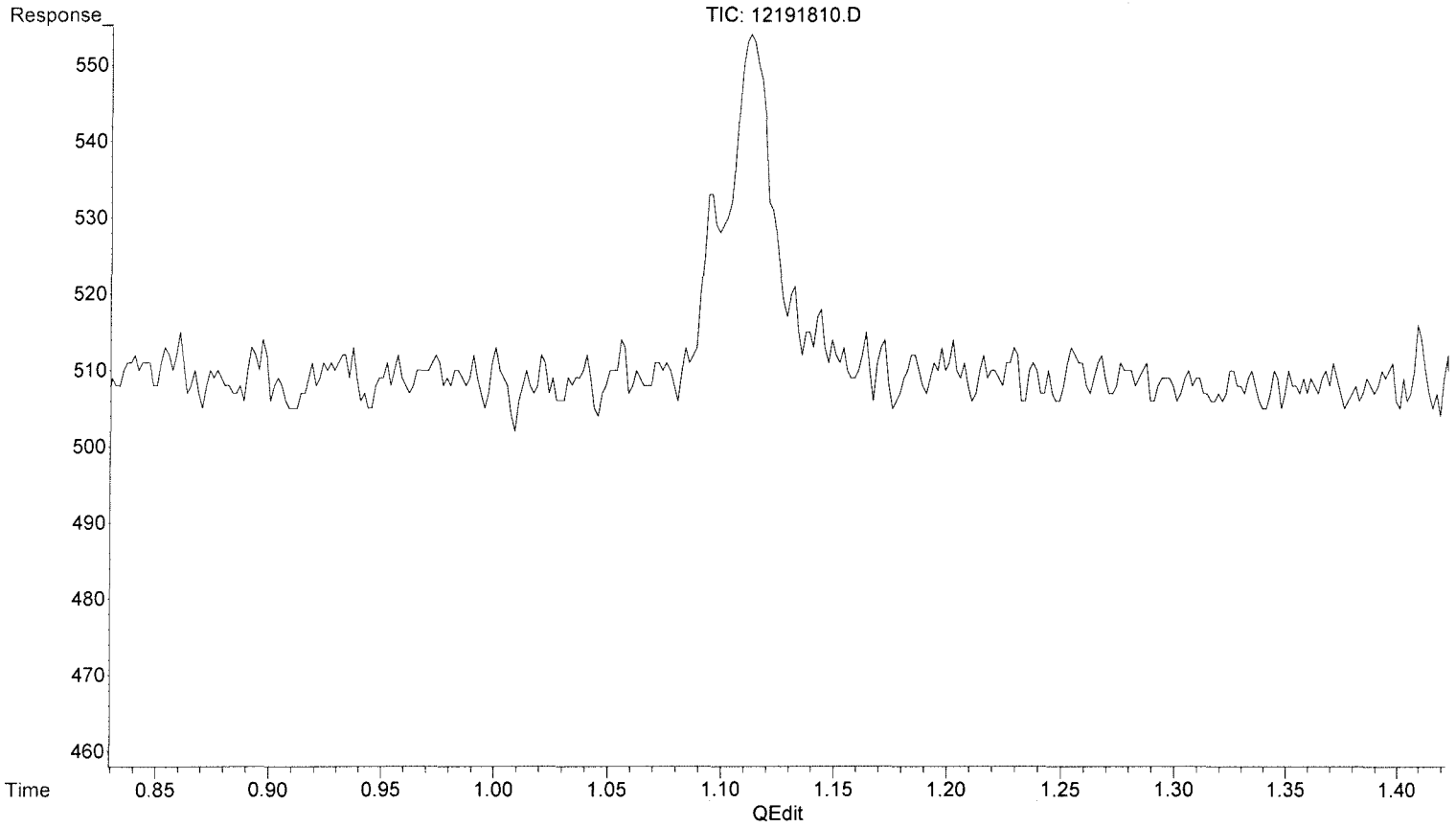




Data Path : J:\GC10\DATA\RSK_FID\2018_12\19\
Data File : 12191810.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Dec-2018, 13:38:42
Operator : MR
Sample : P1806865-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 14:21:10 2018
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(6) Methane (FID)

1.115min 0.000 ppm

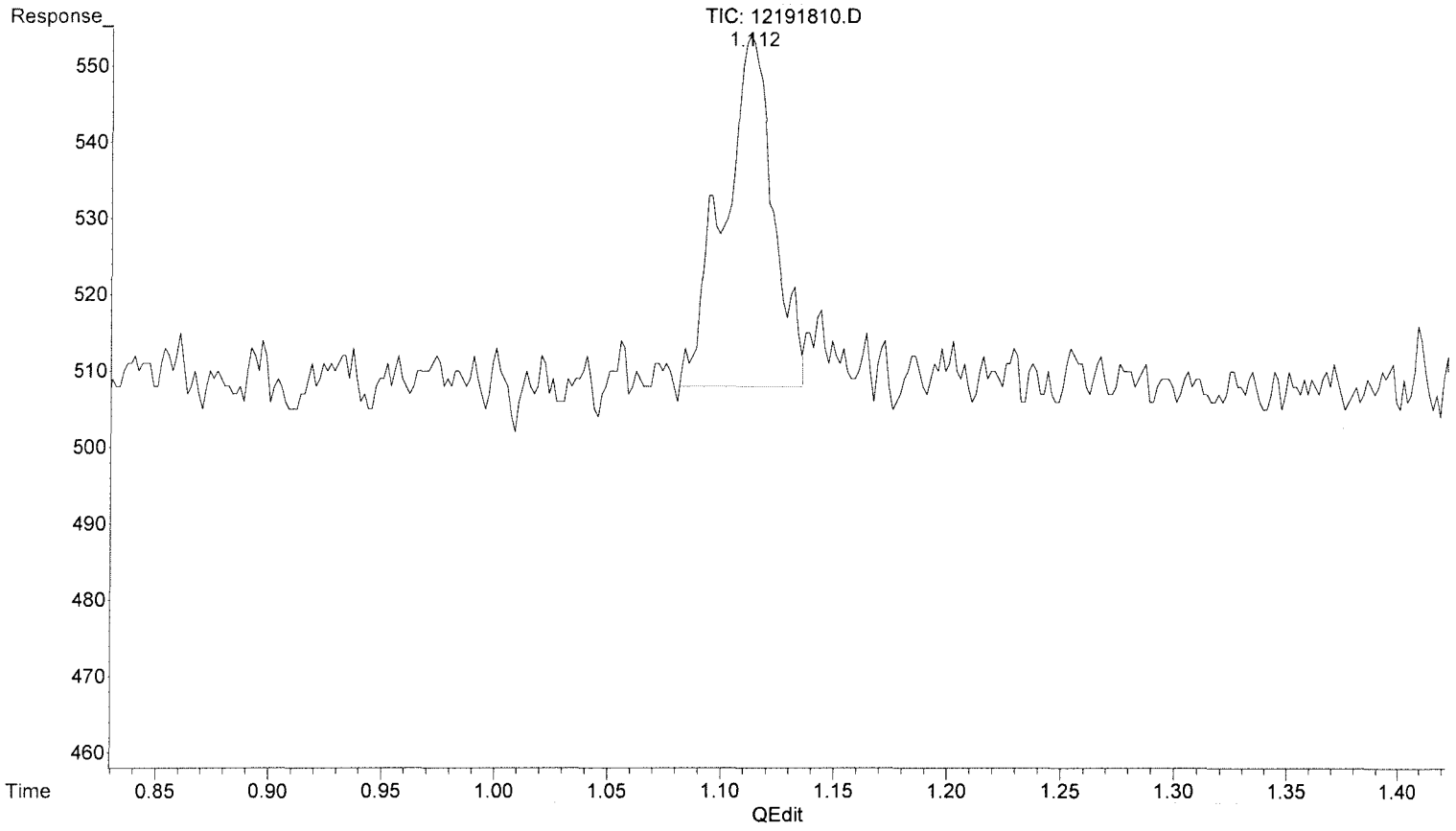
response 0

(+) = Expected Retention Time

Data Path : J:\GC10\DATA\RSK_FID\2018_12\19\
Data File : 12191810.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Dec-2018, 13:38:42
Operator : MR
Sample : P1806865-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 14:21:10 2018
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(6) Methane (FID)

1.112min 0.078 ppm m

response 706

MR 12/20/18
MP

(+) = Expected Retention Time

RS091217_R.M Thu Dec 20 14:21:48 2018 Page: 1

Data Path : J:\GC10\DATA\RSK_FID\2018_12\19\
Data File : 12191811.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Dec-2018, 13:52:18
Operator : MR
Sample : P1806865-003 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 14:22:04 2018
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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

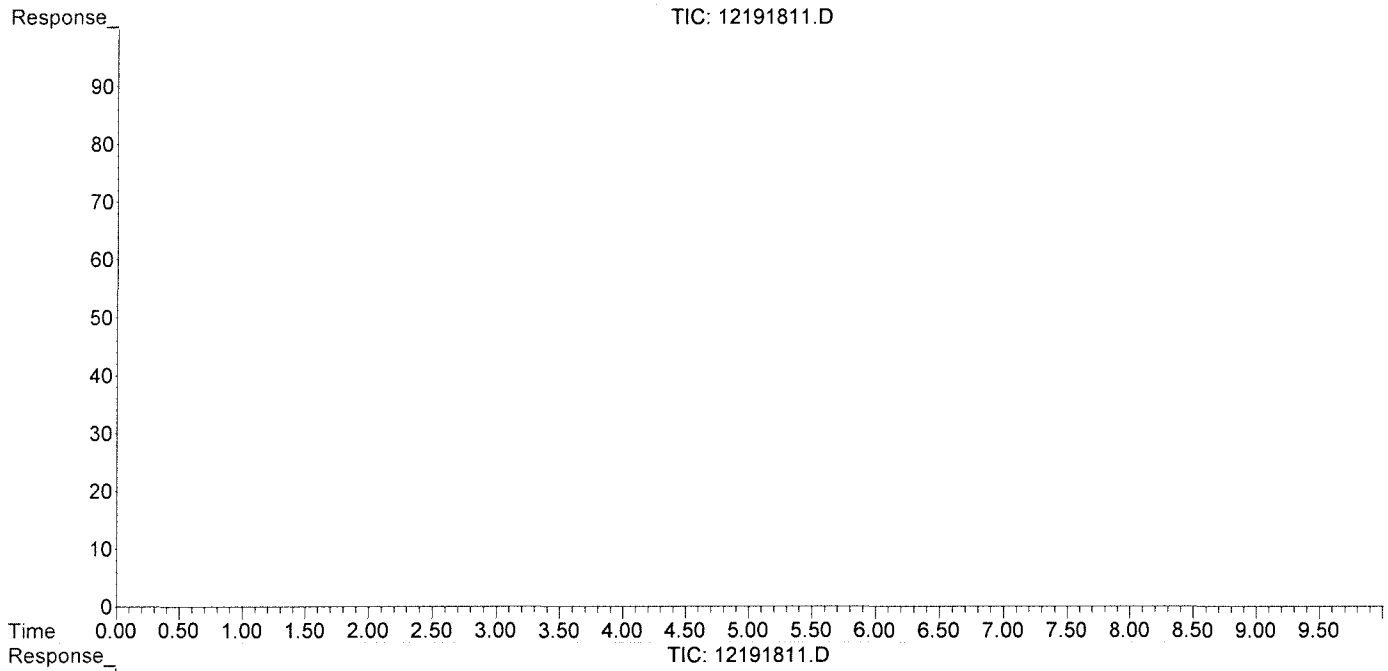
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.110	16601196	1830.212	ppm
7)	Ethylene	1.669	10441	0.624	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

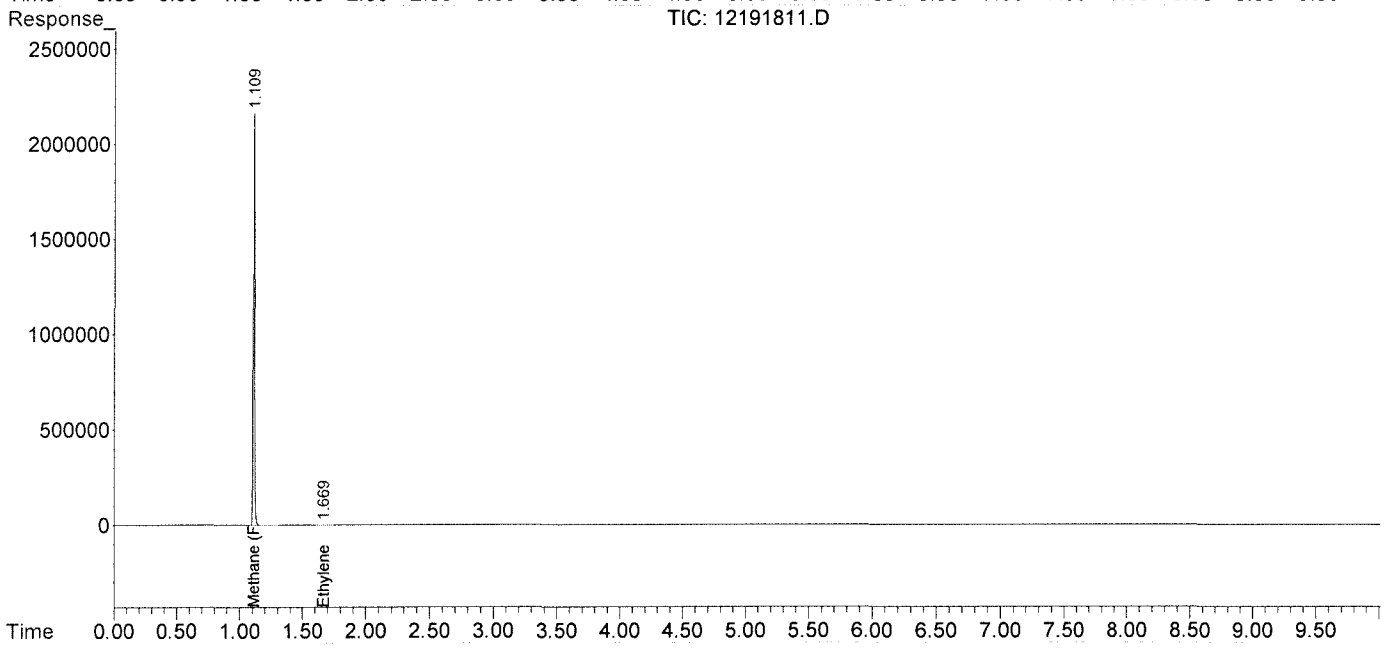
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2018_12\19\
Data File : 12191811.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Dec-2018, 13:52:18
Operator : MR
Sample : P1806865-003 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 14:22:04 2018
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Data Path : J:\GC10\DATA\RSK_FID\2018_12\19\
Data File : 12191812.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Dec-2018, 14:09:10
Operator : MR
Sample : P1806865-004 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 14:22:28 2018
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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

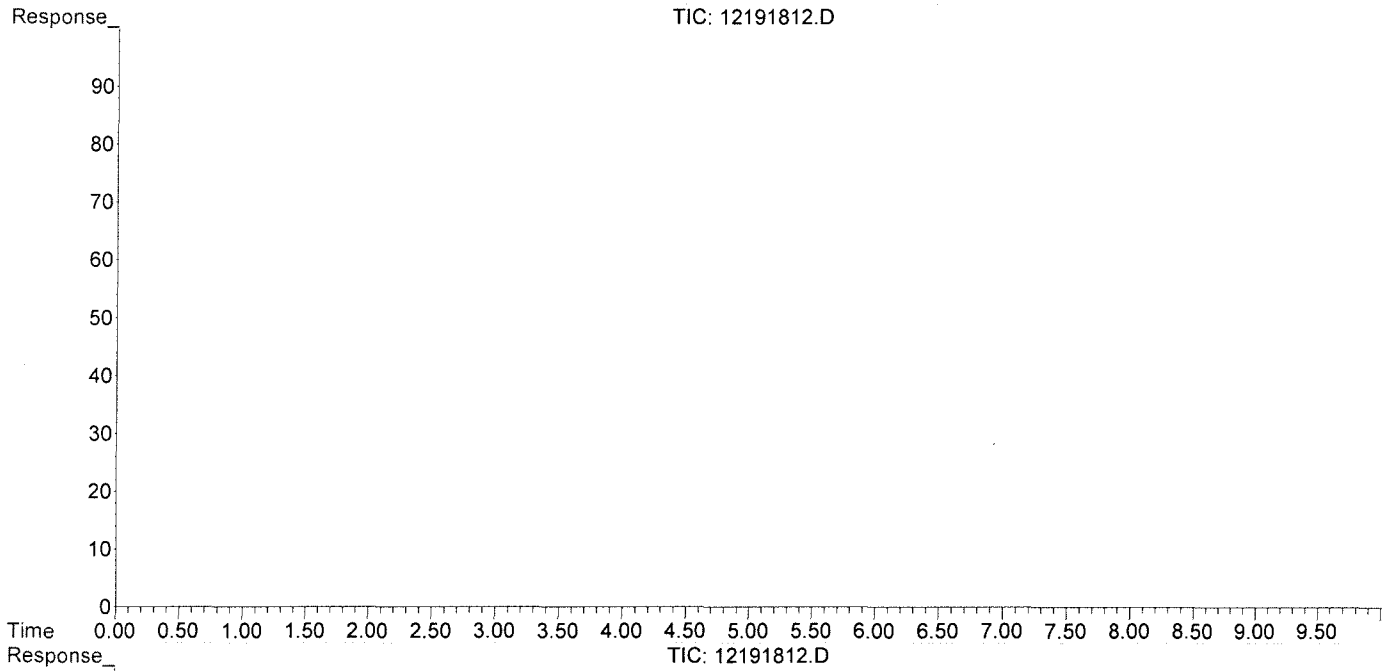
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	
2)	Carbon monoxide	0.000	0	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.103	937	0.103	ppm	m
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

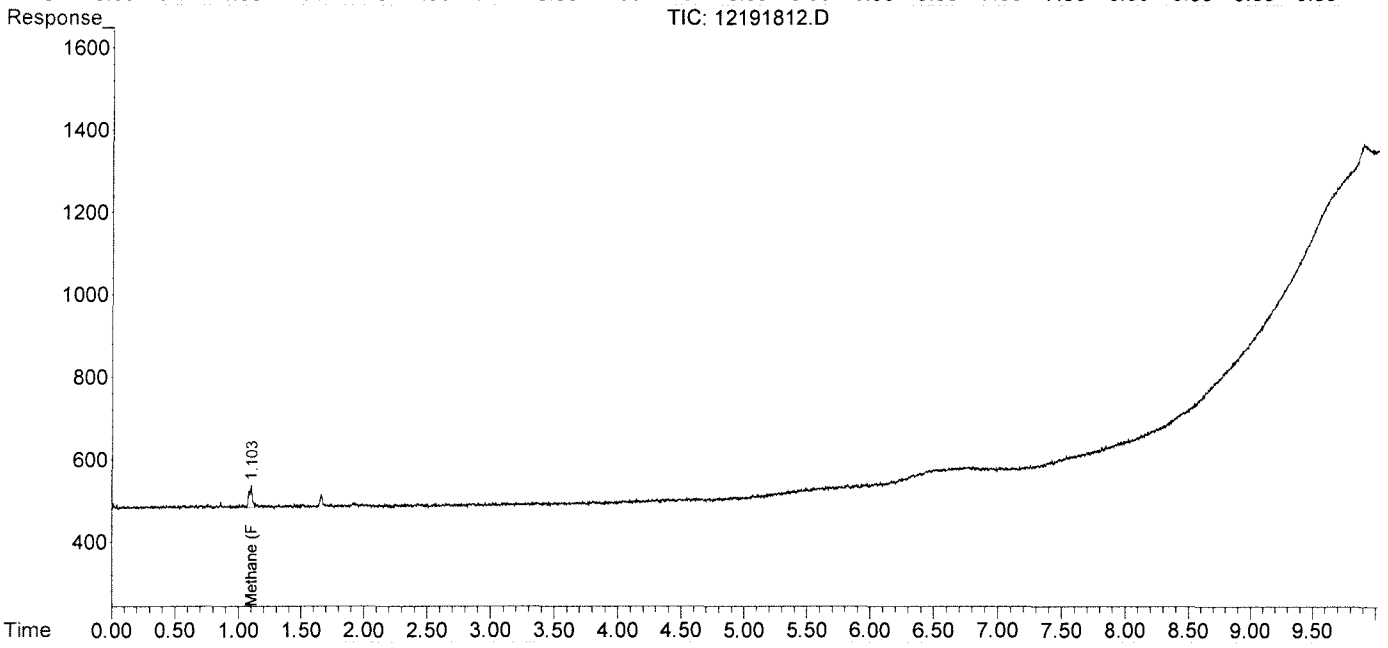
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2018_12\19\
Data File : 12191812.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Dec-2018, 14:09:10
Operator : MR
Sample : P1806865-004 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 14:22:28 2018
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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

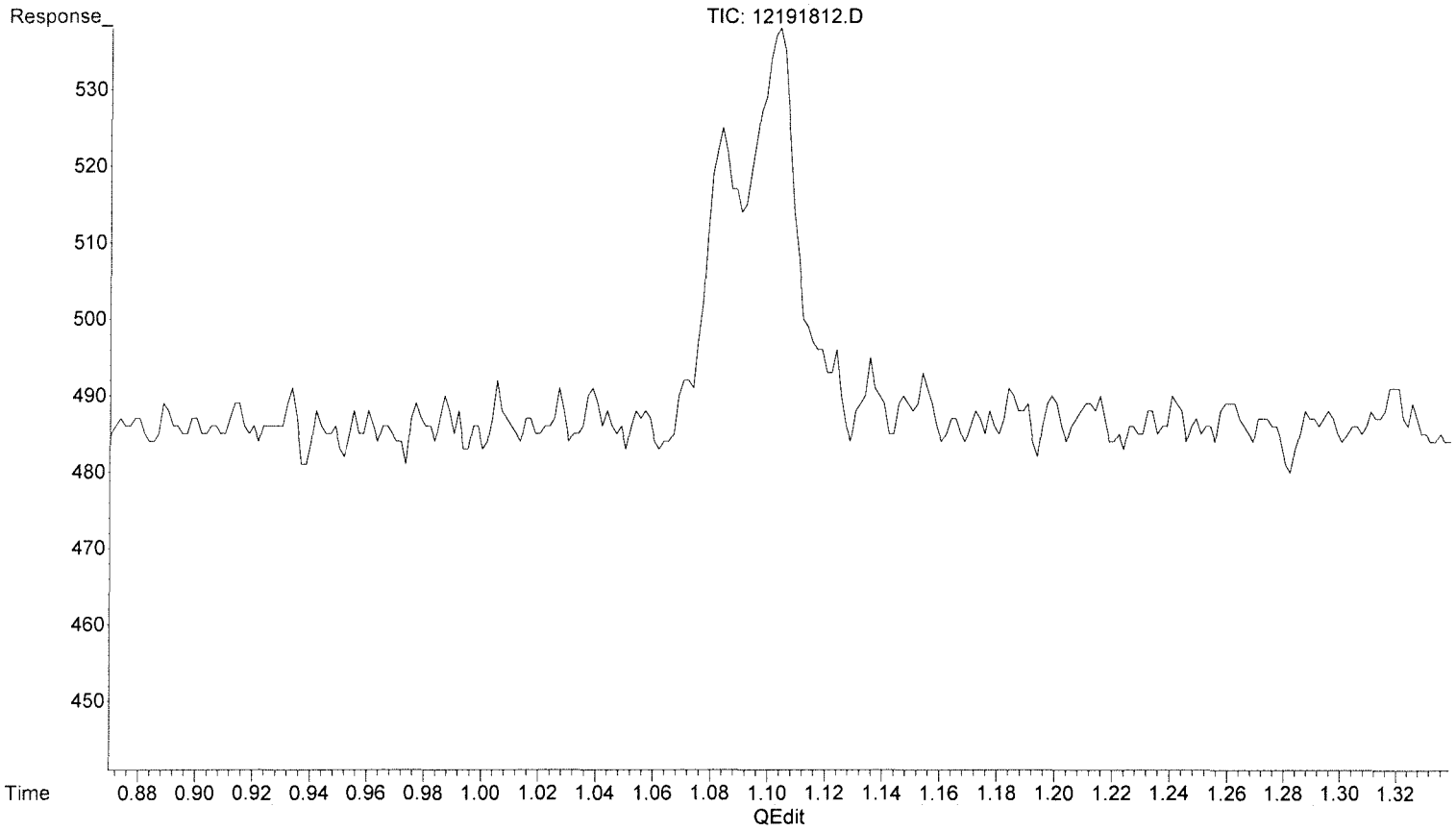




Data Path : J:\GC10\DATA\RSK_FID\2018_12\19\
Data File : 12191812.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Dec-2018, 14:09:10
Operator : MR
Sample : P1806865-004 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 14:22:28 2018
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(6) Methane (FID)

1.115min 0.000 ppm

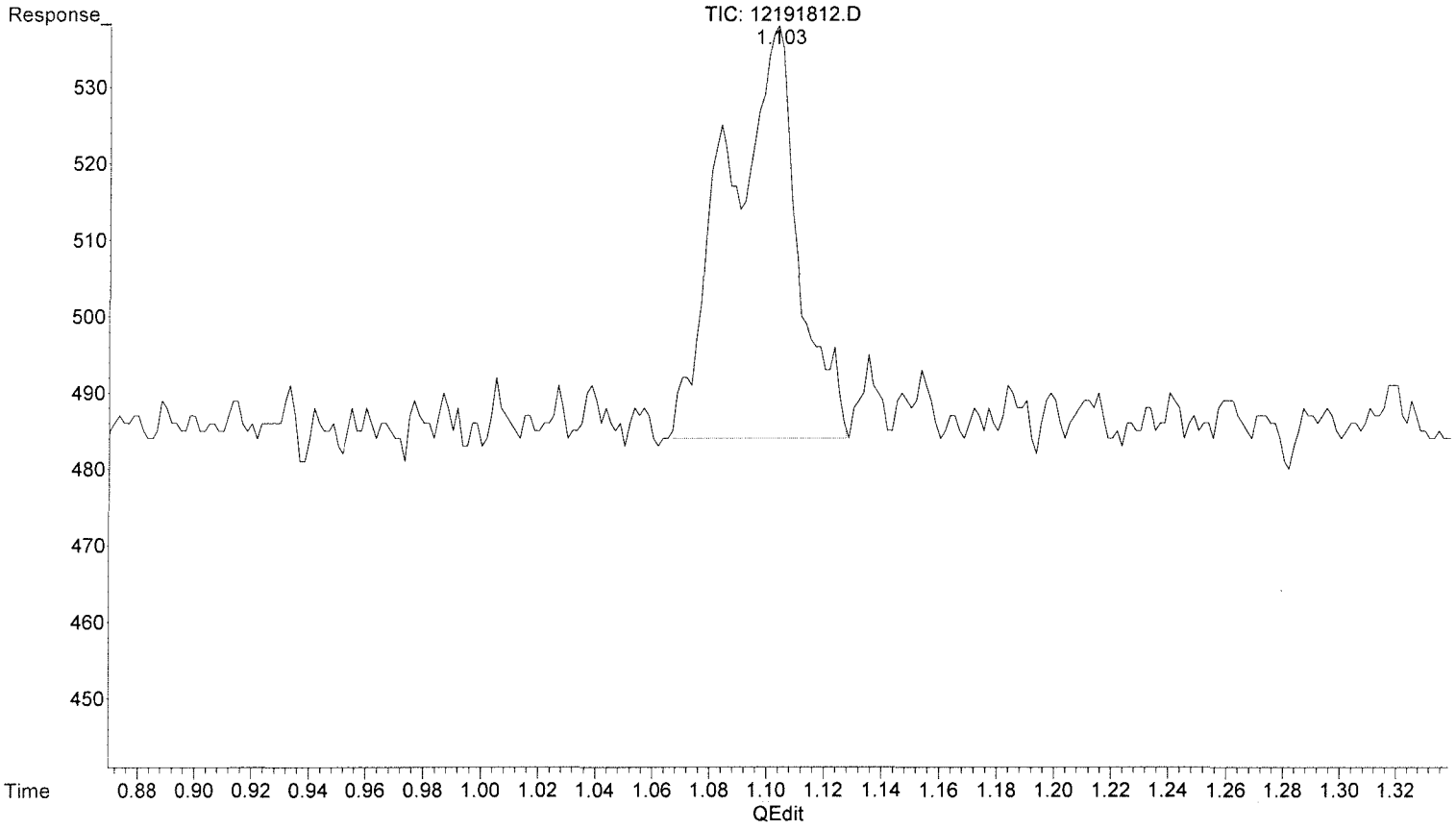
response 0

(+) = Expected Retention Time

Data Path : J:\GC10\DATA\RSK_FID\2018_12\19\
Data File : 12191812.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Dec-2018, 14:09:10
Operator : MR
Sample : P1806865-004 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 20 14:22:28 2018
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(6) Methane (FID)

1.103min 0.103 ppm m

response 937

MR 12/20/18
MP

12/20/18

(+) = Expected Retention Time

RS091217_R.M Thu Dec 20 14:23:12 2018

Data Path : J:\GC10\DATA\RSK_FID\2018_12\19\
Data File : 12191803.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Dec-2018, 11:13:15
Operator : MR
Sample : mcs 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 19 11:46:40 2018
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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

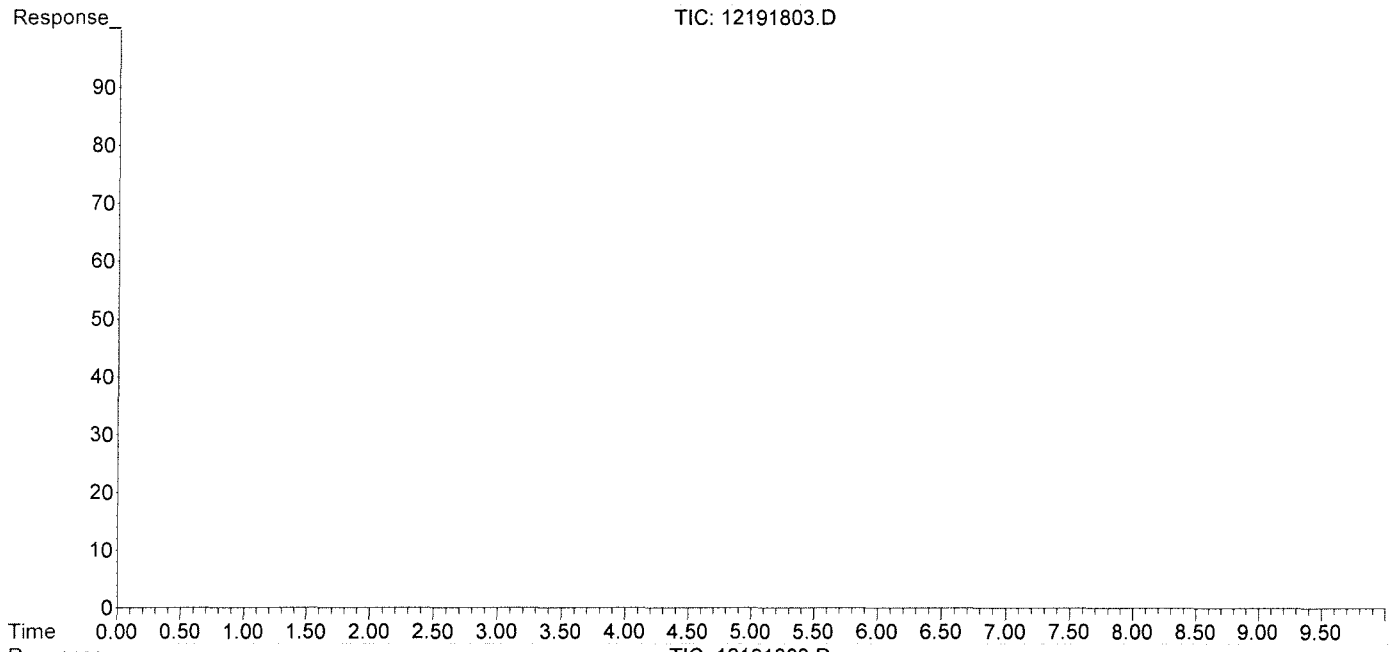
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	
2)	Carbon monoxide	0.000	0	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.120	1664	0.183	ppm	m
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

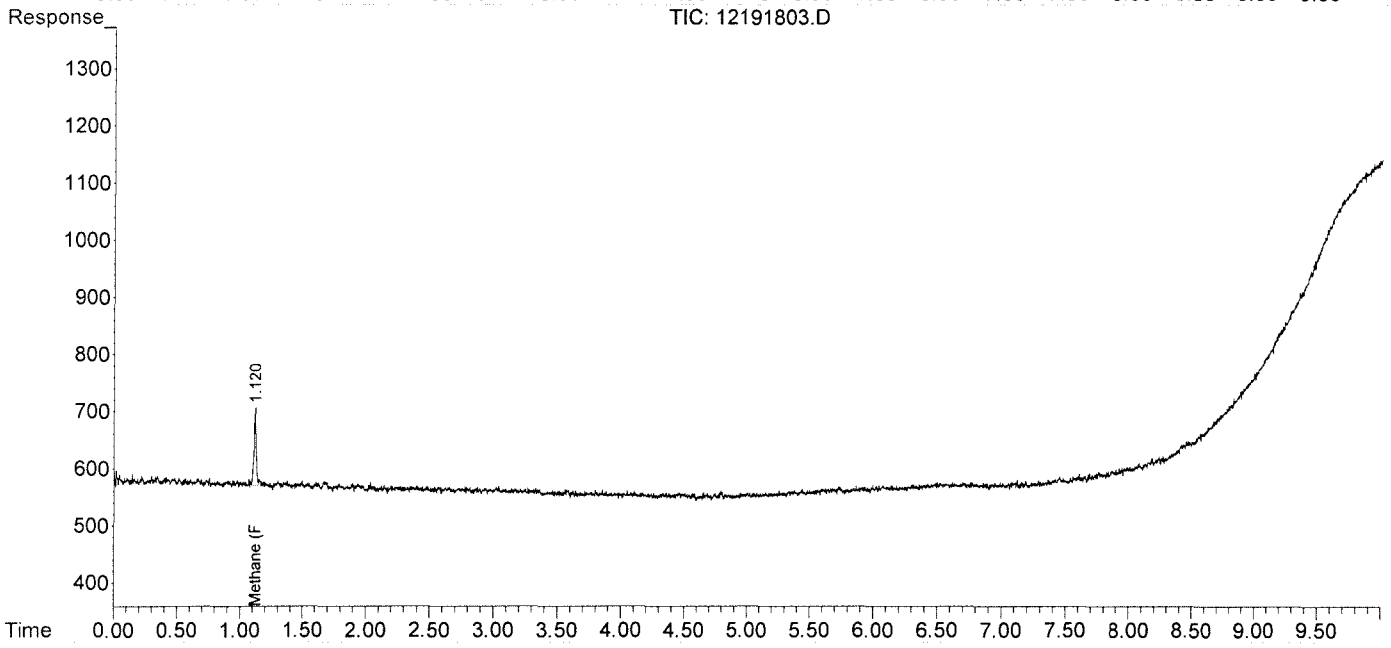
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2018_12\19\
Data File : 12191803.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Dec-2018, 11:13:15
Operator : MR
Sample : mcs 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 19 11:46:40 2018
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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

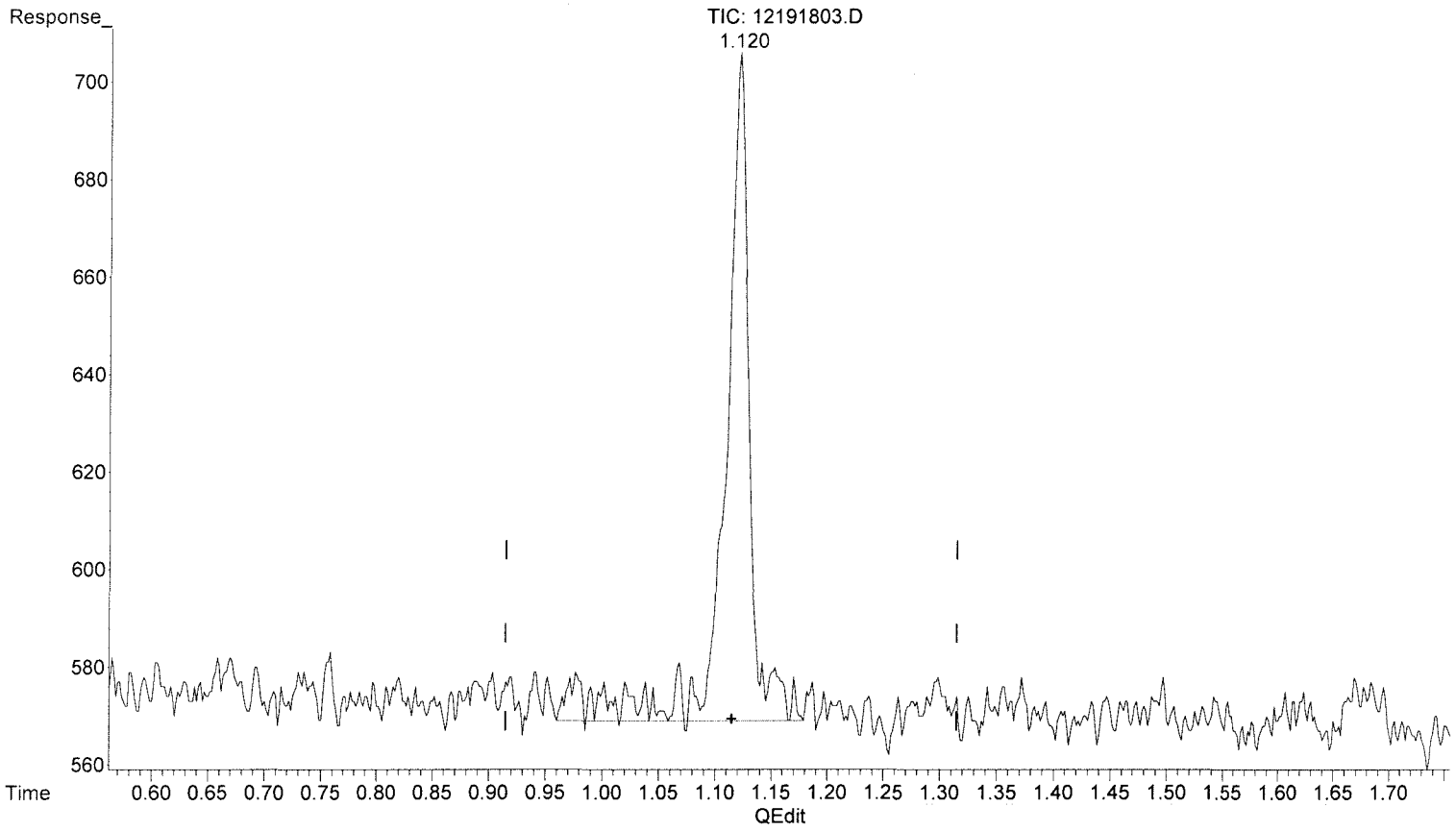




Data Path : J:\GC10\DATA\RSK_FID\2018_12\19\
Data File : 12191803.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Dec-2018, 11:13:15
Operator : MR
Sample : mcs 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 19 11:46:40 2018
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(6) Methane (FID)

1.121min 0.230 ppm

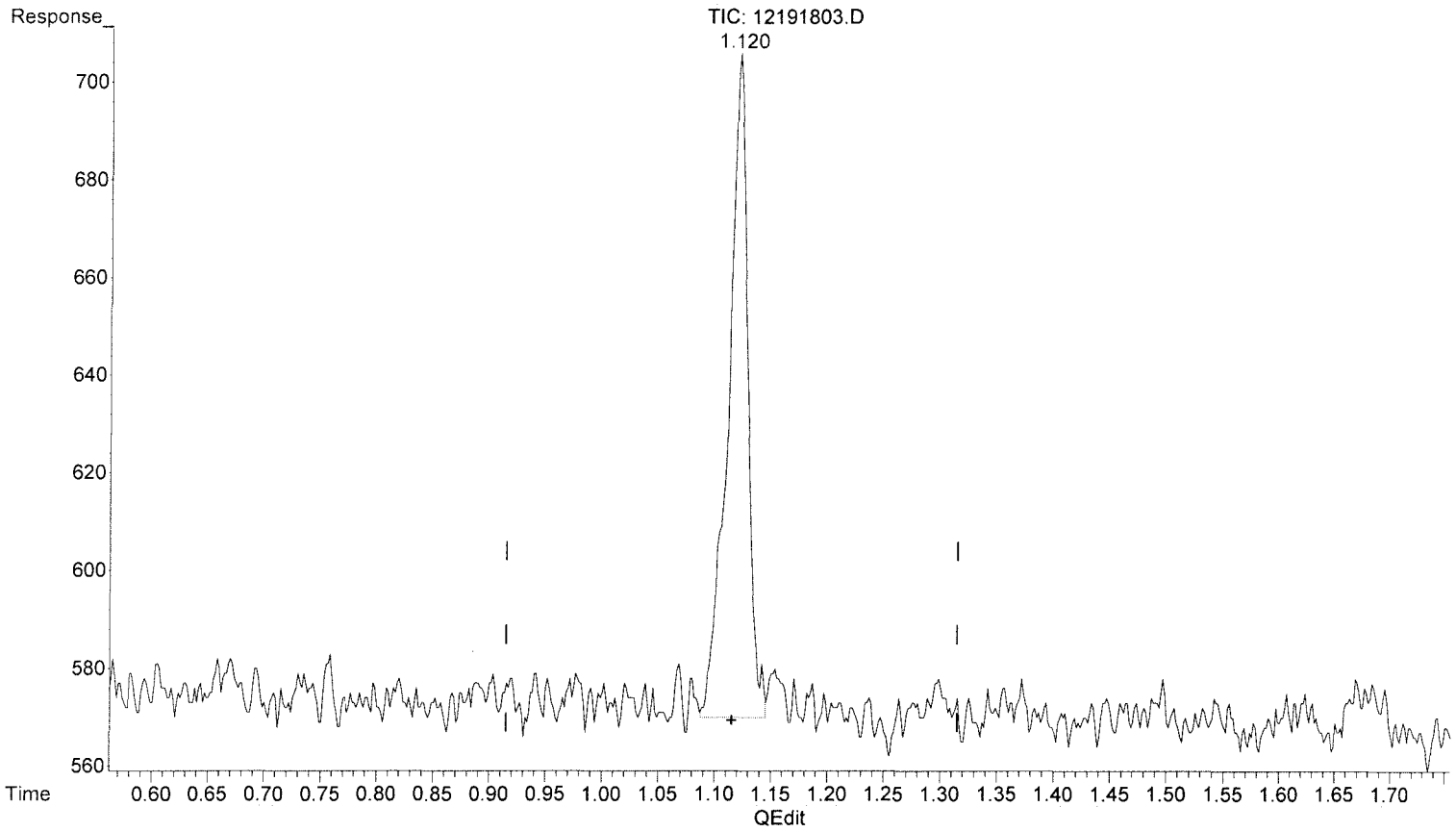
response 2085

(+) = Expected Retention Time

Data Path : J:\GC10\DATA\RSK_FID\2018_12\19\
Data File : 12191803.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Dec-2018, 11:13:15
Operator : MR
Sample : mcs 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 19 11:46:40 2018
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(6) Methane (FID)

1.120min 0.183 ppm m

response 1664

MR 12/20/18
BLC

12/20/18

(+) = Expected Retention Time

RS091217_R.M Wed Dec 19 14:14:16 2018 Page: 1

Data Path : J:\GC10\DATA\RSK_FID\2018_12\19\
Data File : 12191804.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Dec-2018, 11:29:51
Operator : MR
Sample : fid lcs s30-05241604
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 19 11:47:01 2018
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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

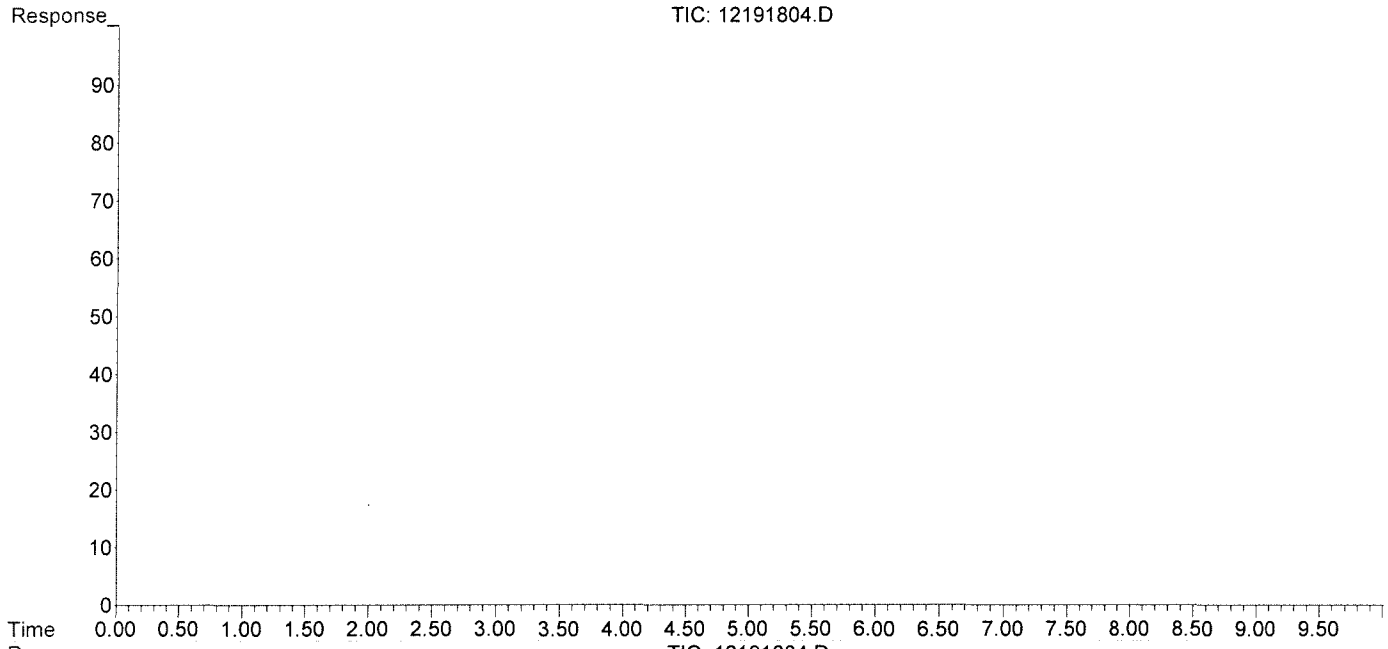
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.119	13215	1.457	ppm
7)	Ethylene	1.682	16932	1.012	ppm
8)	Ethane	1.946	21056	1.242	ppm
9)	Propylene	4.322	23272	0.993	ppm
10)	Propane	4.443	32697	1.314	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.657	43027	1.616	ppm
13)	n-Butane	6.657	43027	1.616	ppm

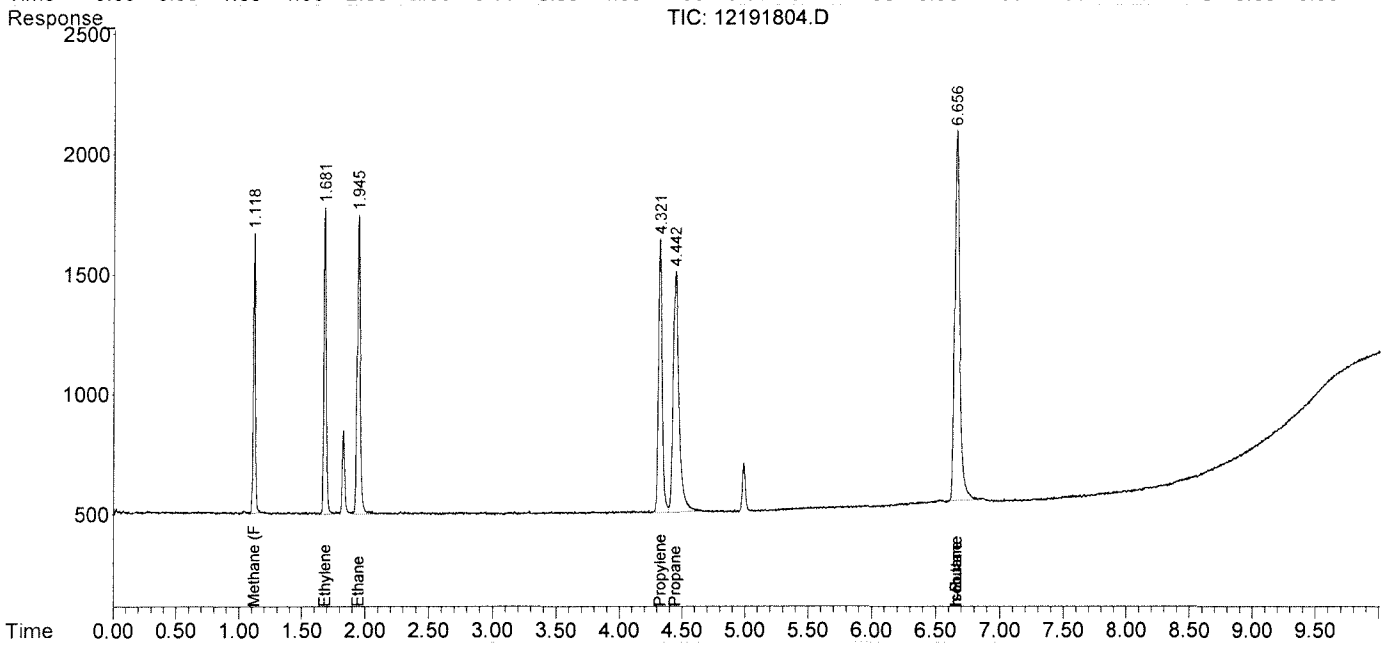
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2018_12\19\
Data File : 12191804.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Dec-2018, 11:29:51
Operator : MR
Sample : fid lcs s30-05241604
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 19 11:47:01 2018
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Data Path : J:\GC10\DATA\RSK_FID\2018_12\19\
Data File : 12191805.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Dec-2018, 11:45:28
Operator : MR
Sample : fid lcsd s30-05241604
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 19 12:54:06 2018
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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

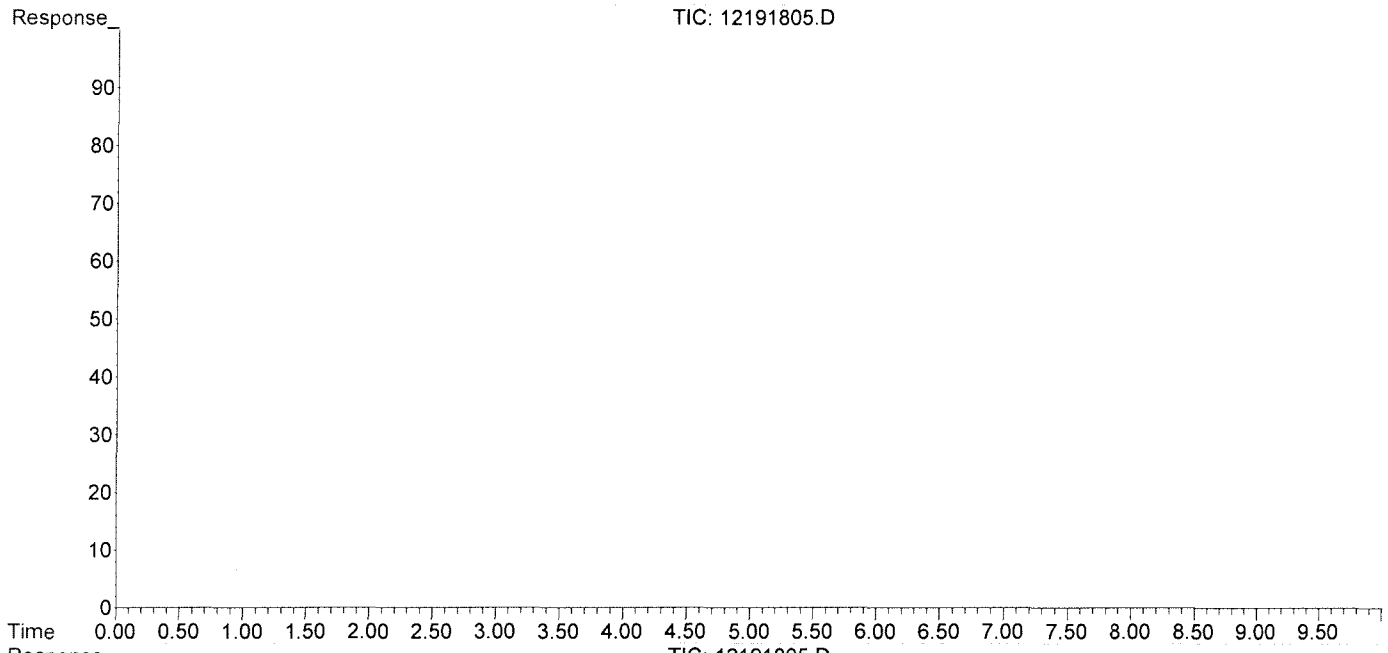
	Compound	R.T.	Response	Conc	Units
	Target Compounds				
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.119	13106	1.445	ppm
7)	Ethylene	1.683	16707	0.998	ppm
8)	Ethane	1.946	20957	1.236	ppm
9)	Propylene	4.322	23610	1.008	ppm
10)	Propane	4.443	33371	1.341	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.656	44089	1.656	ppm
13)	n-Butane	6.656	44089	1.656	ppm

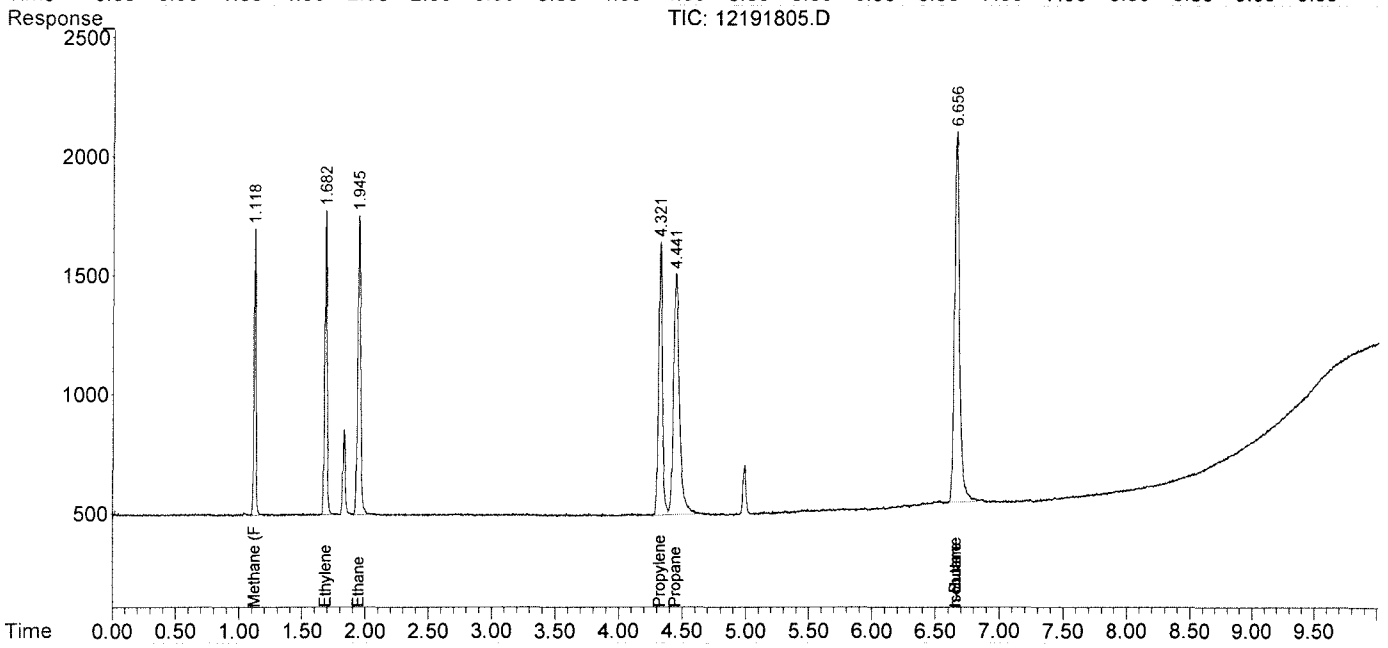
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2018_12\19\
Data File : 12191805.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Dec-2018, 11:45:28
Operator : MR
Sample : fid lcsd s30-05241604
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 19 12:54:06 2018
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Response Factor Report HP5890

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

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

	Compound	1	2	3	4	5	6	Avg		%RSD
1)	Oxygen/Argon	3.739		1.014			0.001	0.793	E6	189.17
2)	Carbon monoxide	3.739		1.014			0.001	0.594	E6	221.92
3)	Methane (TCD)						2.161	0.951	E2	106.37
4)	Carbon dioxide	2.365	2.569	2.558	2.361	2.459	2.314	2.438	E2	4.44

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

	Compound	1	2	3	4	5	6	Avg		%RSD
6)	Methane (FID)		1.180	0.975	0.908	0.870	0.868	0.907	E4	11.66
7)	Ethylene	1.736	1.638	1.780	1.720	1.628	1.670	1.673	E4	3.90
8)	Ethane	1.781	1.676	1.784	1.730	1.692	1.675	1.695	E4	3.83
9)	Propylene	2.505	2.296	2.592	2.480	2.346	2.252	2.343	E4	6.56
10)	Propane	2.439	2.283	2.645	2.555	2.433	2.522	2.488	E4	4.20
11)	Isobutylene							0.652	E1	138.46
12)	Isobutane	6.058	4.793	2.214	1.553	1.353		2.662	E4	86.17
13)	n-Butane	6.058	4.793	2.214	1.553	1.353		2.662	E4	86.17

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

RS091217_R.M Wed Sep 13 15:11:48 2017

Edit Compounds -- Compound #6 -- Methane (FID)

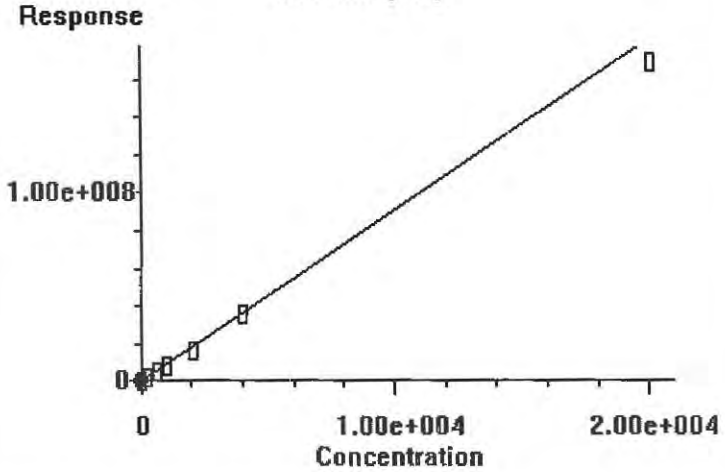
Search by: Ret Time | Name | Index | Find Compound

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

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	
2	0.302000	3564.400000
3	1.510000	14725.268625
4	4.530000	41128.575000
5	10.570000	91966.784531
6	200.000000	1735997.497500
7	600.000000	5189848.900000
8	1000.000000	8598533.570000
9	2000.000000	16098209.390000
10	4000.000000	35776839.311362
11	20000.000000	169009160.49199

Methane (FID)



0.000e+000	Quadratic term
9.071e+003	Linear term
0.000e+000	Constant term
11.657%	RF Rel Std Dev

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

Edit Compounds -- Compound #7 -- Ethylene

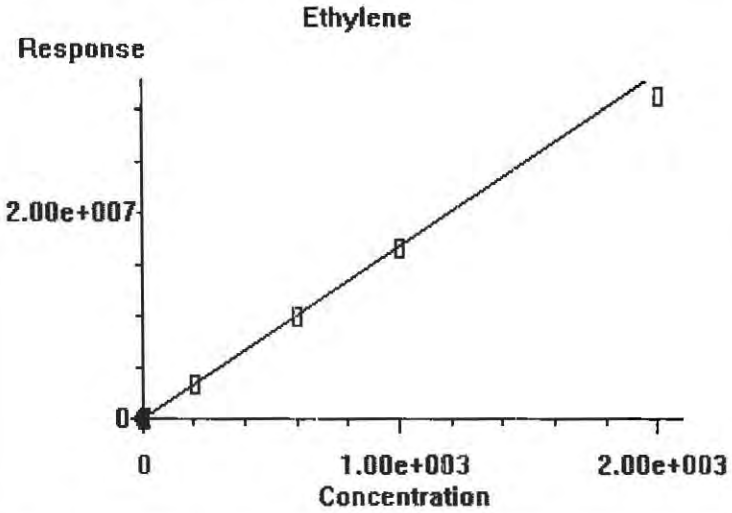
Search by: Ret Time | Name | Index | Find Compound

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

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	2621.970000
2	0.302000	4946.731301
3	1.510000	26884.746847
4	4.530000	77902.721497
5	10.570000	172085.529560
6	200.000000	3339702.313219
7	600.000000	10007758.776971
8	1000.000000	16608503.805988
9	2000.000000	31192443.898600
10	4000.000000	

Lvl ID	Concentration	Response
11	20000.000000	



0.000e+000	Quadratic term
1.673e+004	Linear term
0.000e+000	Constant term
3.897%	RF Rel Std Dev

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

Edit Compounds -- Compound #8 -- Ethane

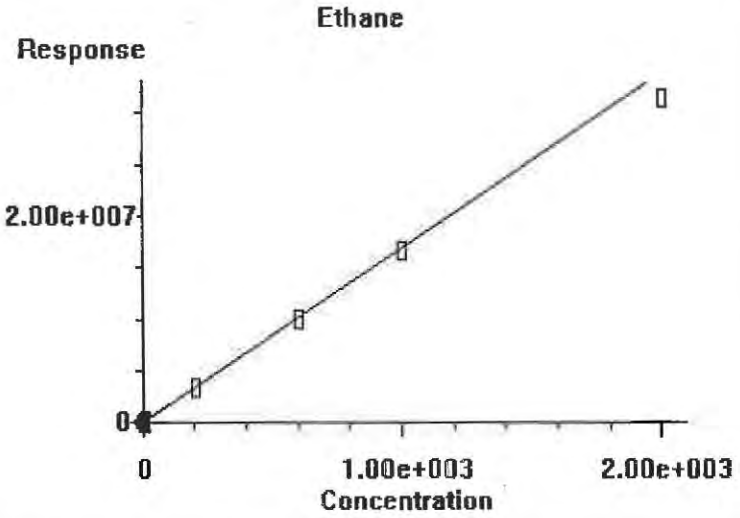
Search by: Ret Time | Name | Index — Find Compound

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

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	2689.928008
2	0.302000	5060.331943
3	1.510000	26943.667500
4	4.530000	78353.525045
5	10.570000	178840.731148
6	200.000000	3350442.319129
7	600.000000	10048964.218029
8	1000.000000	16703164.879012
9	2000.000000	31424217.938900
10	4000.000000	

Lvl ID	Concentration	Response
11	20000.000000	



0.000e+000	Quadratic term
1.695e+004	Linear term
0.000e+000	Constant term
3.831%	RF Rel Std Dev

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

Edit Compounds -- Compound #9 -- Propylene

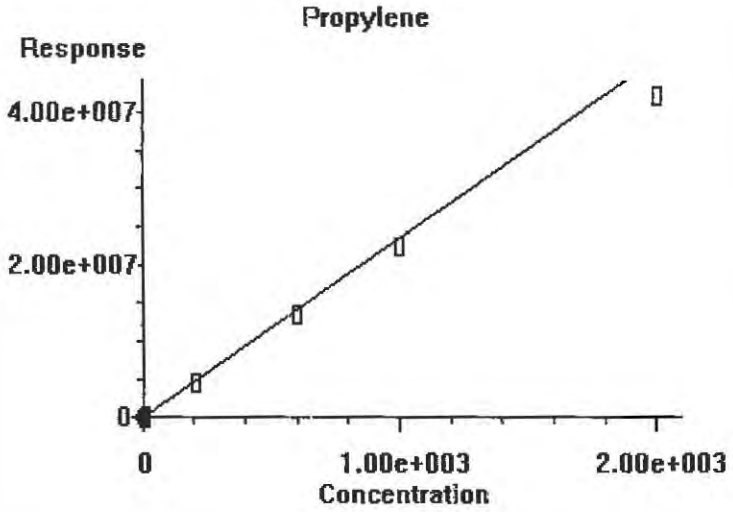
Search by: Ret Time | Name | Index | Find Compound

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

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	3782.537646
2	0.302000	6933.285530
3	1.510000	39139.518208
4	4.530000	112341.896872
5	10.570000	248003.903623
6	200.000000	4504060.086084
7	600.000000	13569342.761419
8	1000.000000	22494887.720990
9	2000.000000	42124689.656800
10	4000.000000	

Lvl ID	Concentration	Response
11	20000.000000	



0.000e+000	Quadratic term
2.343e+004	Linear term
0.000e+000	Constant term
6.559%	RF Rel Std Dev

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

Edit Compounds -- Compound #10 -- Propane

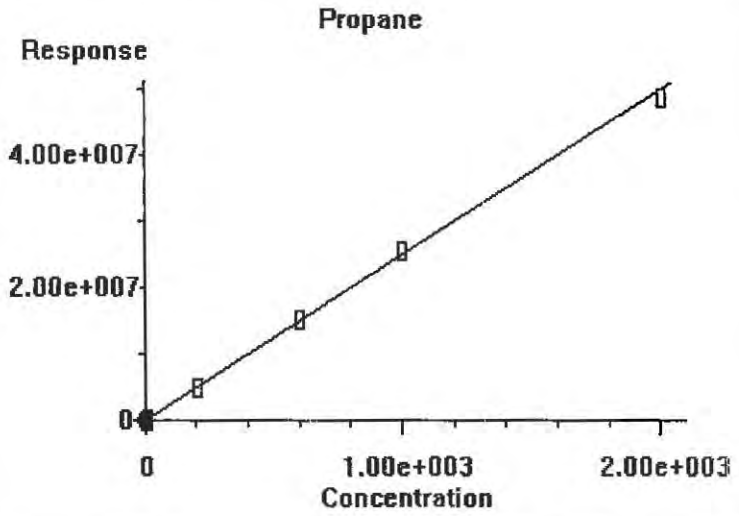
Search by: Ret Time | Name | Index — Find Compound

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

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	3682.897354
2	0.302000	6894.237803
3	1.510000	39934.166792
4	4.530000	115723.428128
5	10.570000	257124.432806
6	200.000000	5043035.663316
7	600.000000	15251325.797404
8	1000.000000	25459410.657938
9	2000.000000	48583085.287451
10	4000.000000	

Lvl ID	Concentration	Response
11	20000.000000	



0.000e+000	Quadratic term
2.488e+004	Linear term
0.000e+000	Constant term
4.200%	RF Rel Std Dev

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

00946975

Calibration Status Report HP5890

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

#	ID	Conc	ISTD Conc	Path\File
1	1	0	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121702.D
2	2	0	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121703.D
3	3	3	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121704.D
4	4	10	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121705.D
5	5	25	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121706.D
6	6	125	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121707.D
7	7	5000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121708.D
8	8	25000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121709.D
9	9	2000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121710.D
10	10	30000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121711.D
11	11	20000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121712.D

#	ID	Update Time	Quant Time	Acquisition Time
1	1	Sep 13 11:04 2017	Sep 12 15:03 2017	12-Sep-2017, 10:52
2	2	Sep 13 11:05 2017	Sep 13 11:05 2017	12-Sep-2017, 11:05
3	3	Sep 13 11:06 2017	Sep 13 11:05 2017	12-Sep-2017, 11:45
4	4	Sep 13 11:09 2017	Sep 13 11:06 2017	12-Sep-2017, 12:09
5	5	Sep 13 11:09 2017	Sep 13 11:09 2017	12-Sep-2017, 12:30
6	6	Sep 13 11:10 2017	Sep 13 11:10 2017	12-Sep-2017, 12:47
7	7	Sep 13 11:11 2017	Sep 13 11:10 2017	12-Sep-2017, 13:00
8	8	Sep 13 11:12 2017	Sep 13 11:11 2017	12-Sep-2017, 13:47
9	9	Sep 13 11:12 2017	Sep 13 11:12 2017	12-Sep-2017, 14:07
10	10	Sep 13 11:14 2017	Sep 13 11:13 2017	12-Sep-2017, 14:48
11	11	Sep 13 11:14 2017	Sep 13 11:14 2017	12-Sep-2017, 15:21

RS091217_R.M Wed Sep 13 15:11:22 2017

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121702.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 10:52
Operator : MC
Sample : 0.151ppm 0.250ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 12 11:03:15 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.767	373920	0.128	ppm	
2)	Carbon monoxide	1.767	373920	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	1.595	2622	0.156	ppm	
8)	Ethane	1.848	2690	0.156	ppm	
9)	Propylene	4.222	3783	0.154	ppm	
10)	Propane	4.348	3683	0.139	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	6.582f	6058	NoCal	ppm	
13)	n-Butane	6.582f	6058	NoCal	ppm	

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

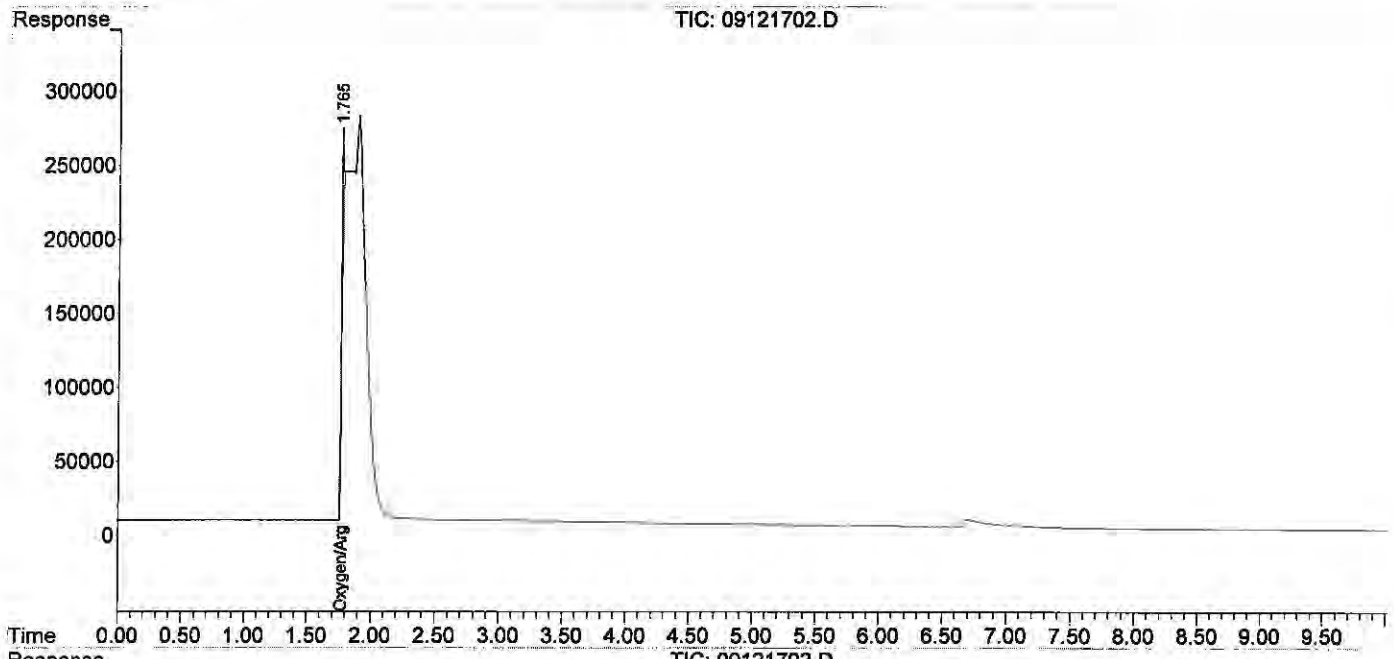
9/13/17

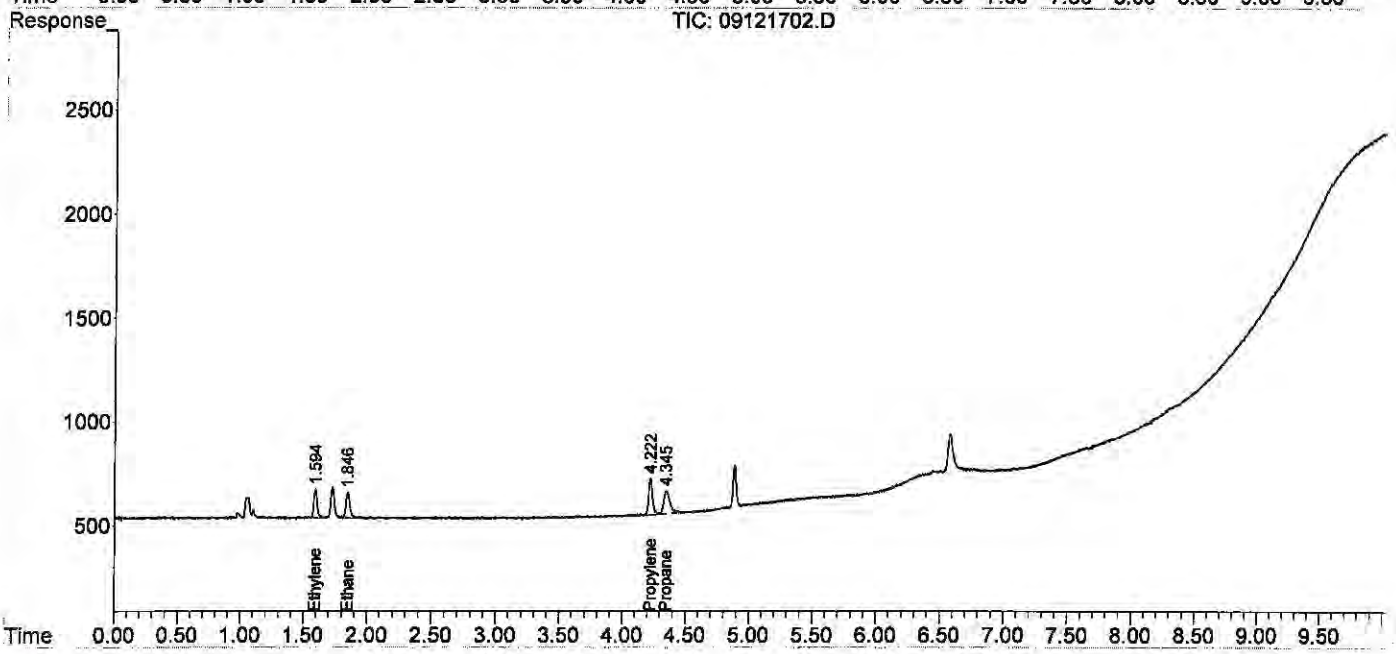
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121702.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 10:52
Operator : MC
Sample : 0.151ppm 0.250ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 12 11:03:15 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

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





RS091217_R.M Wed Sep 13 14:58:18 2017 Page: 2

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121703.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:05
Operator : MC
Sample : 0.302ppm 0.5ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:03 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.913f	-25181981	N.D.	ppm	
2)	Carbon monoxide	1.913f	-25181981	1.089	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.049	3564	0.391	ppm	m
7)	Ethylene	1.577	4947	0.292	ppm	
8)	Ethane	1.828	5060	0.293	ppm	
9)	Propylene	4.207	6933	0.281	ppm	
10)	Propane	4.337	6894	0.268	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	6.579f	9587	0.158	ppm	
13)	n-Butane	6.579f	9587	0.158	ppm	

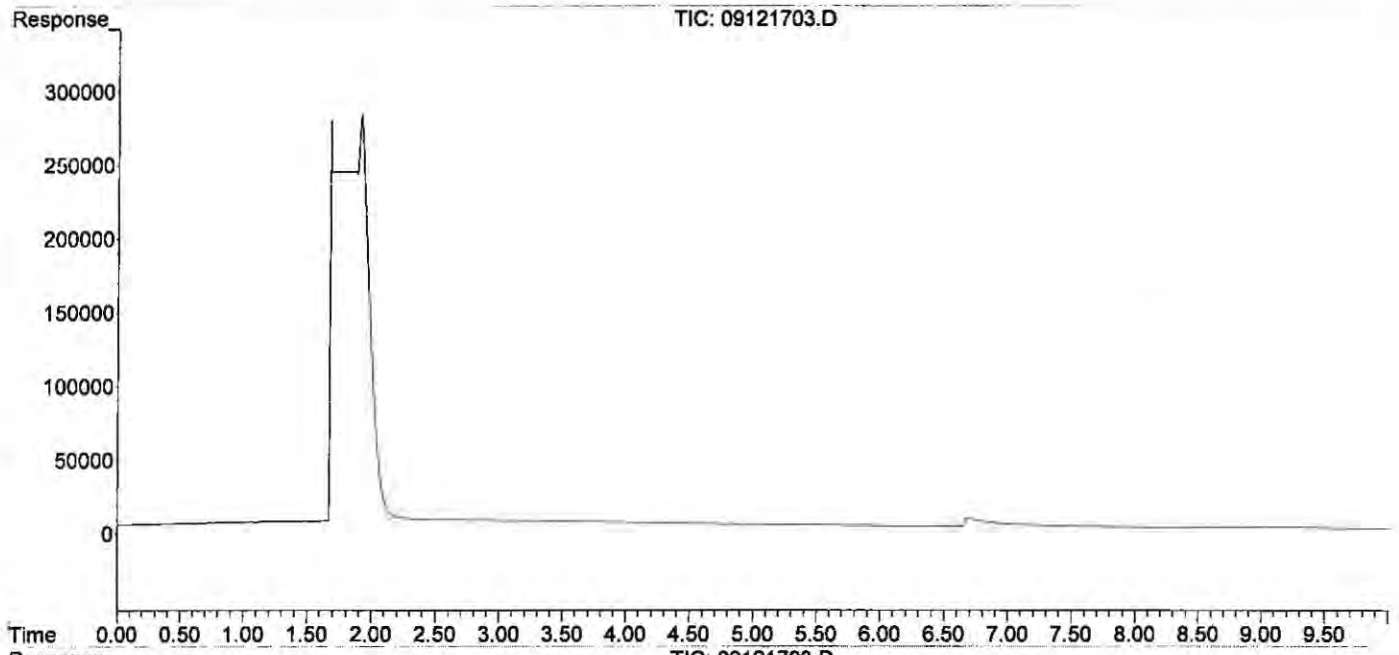
(f)=RT Delta > 1/2 Window (m)=manual int.

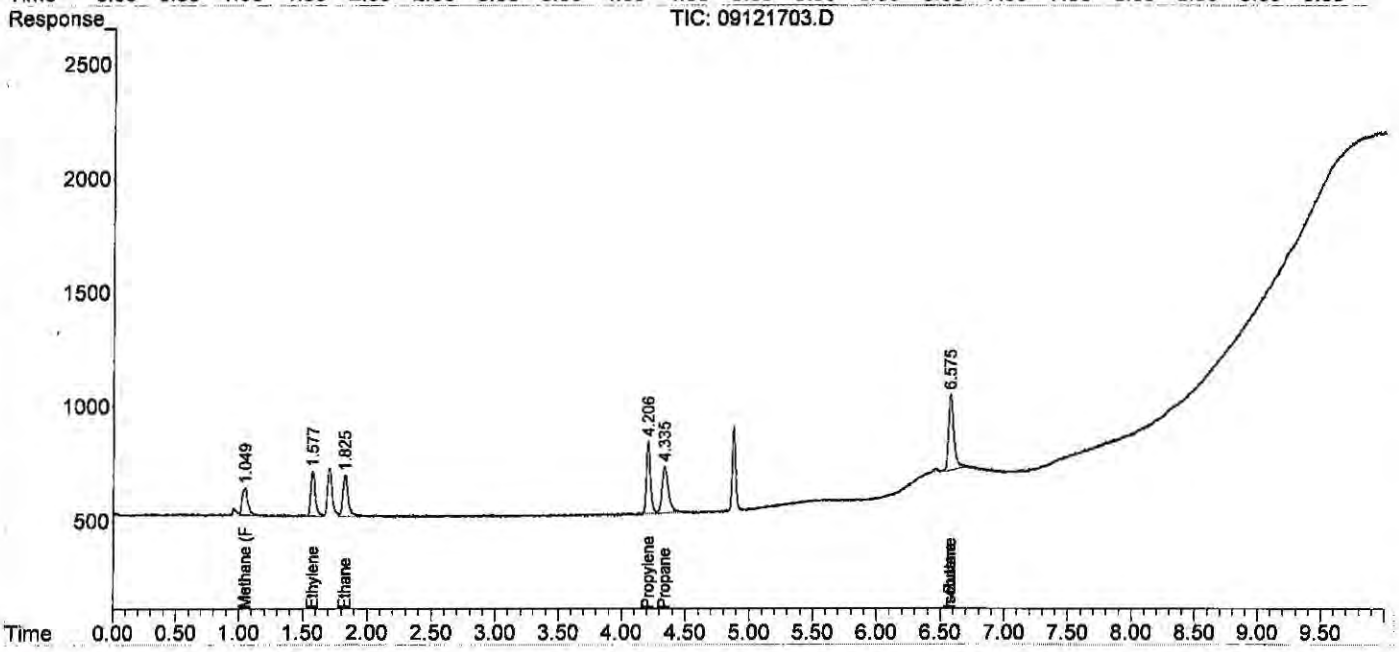
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121703.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:05
Operator : MC
Sample : 0.302ppm 0.5ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:03 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

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



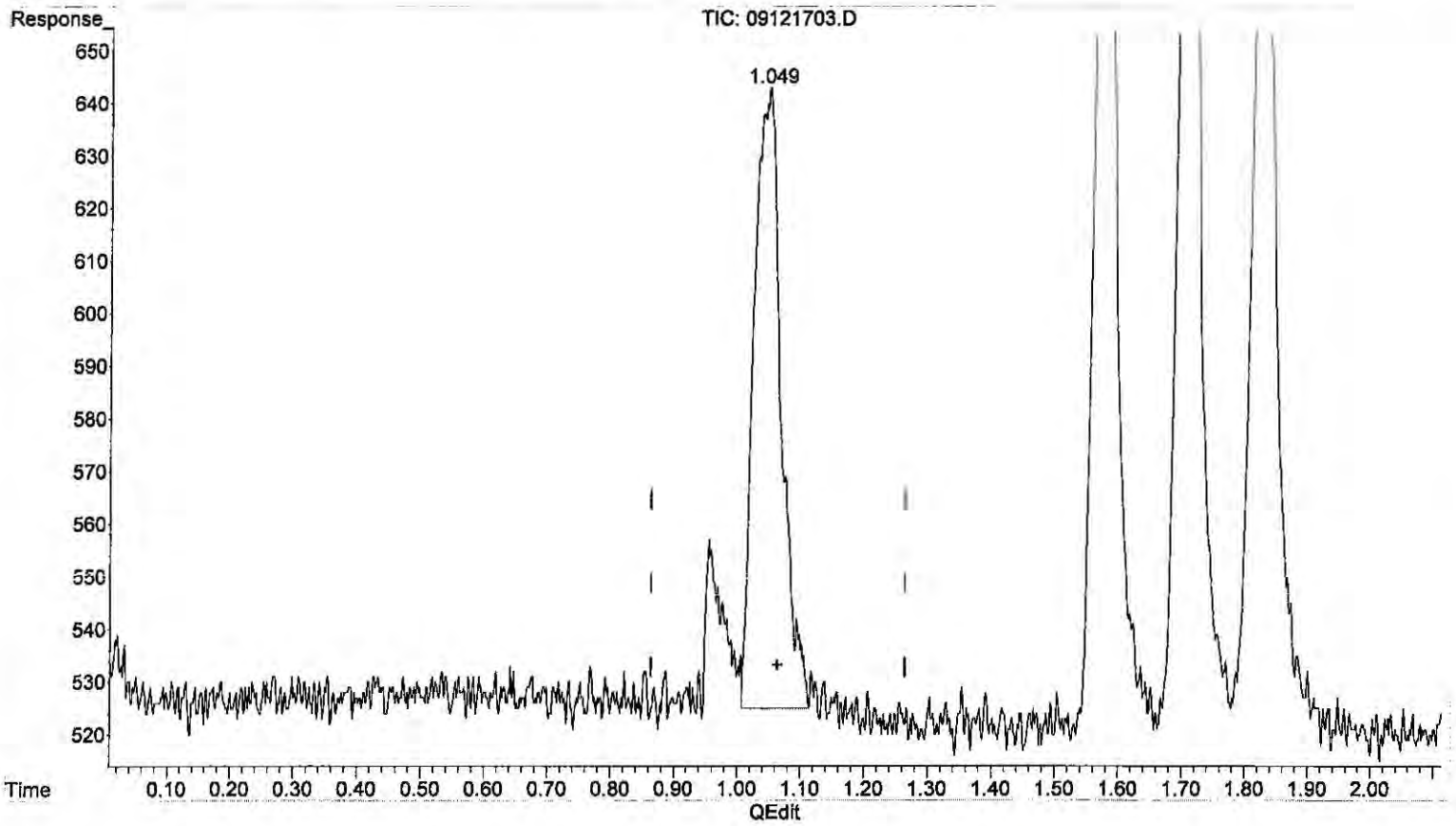


Quantitation Report (Qedit)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121703.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:05
Operator : MC
Sample : 0.302ppm 0.5ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:03 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(6) Methane (FID)

1.049min 0.391 ppm m

response 3564

(+) = Expected Retention Time

RS091217_R.M Wed Sep 13 15:00:03 2017

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121704.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:45
Operator : MC
Sample : 1.51ppm 0.1ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:55 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.847	2536230	1.056	ppm
2)	Carbon monoxide	1.847	2536230	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.064	14725	1.613	ppm
7)	Ethylene	1.598	26885	1.582	ppm
8)	Ethane	1.851	26944	1.555	ppm
9)	Propylene	4.220	39140	1.589	ppm
10)	Propane	4.349	39934	1.596	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.578f	55348	1.020	ppm
13)	n-Butane	6.578f	55348	1.020	ppm

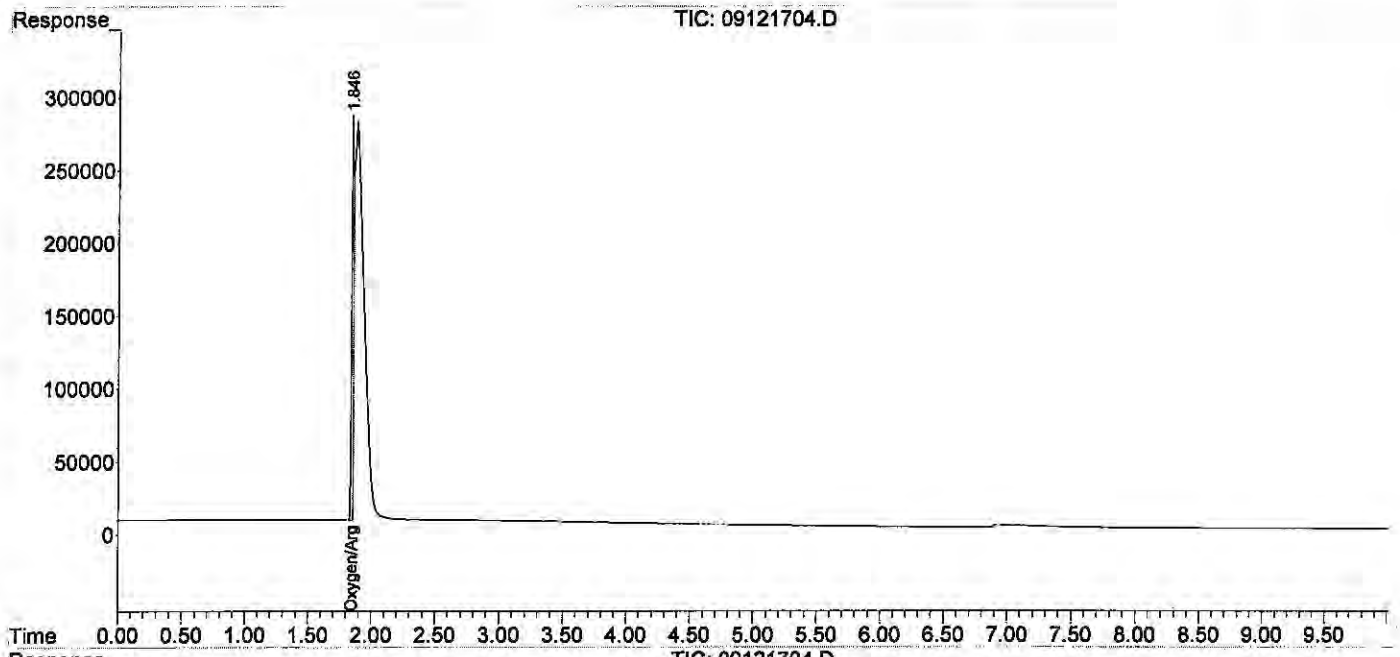
(f)=RT Delta > 1/2 Window (m)=manual int.

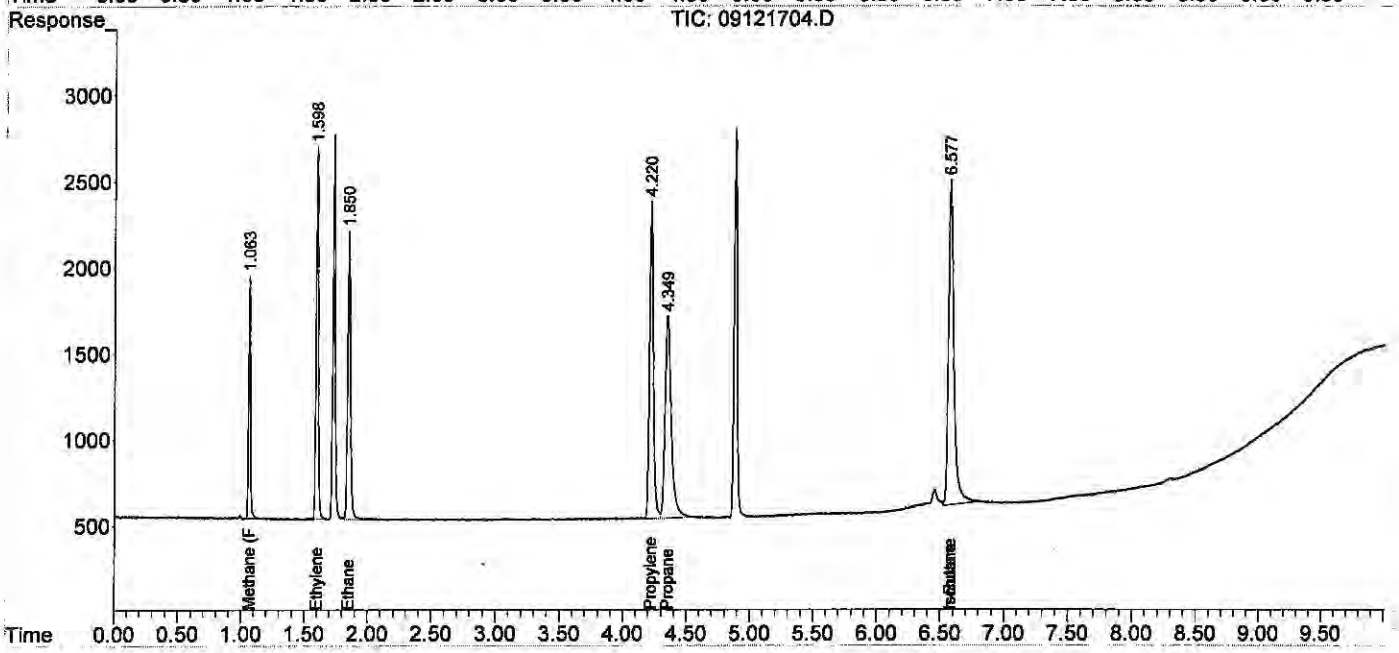
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121704.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:45
Operator : MC
Sample : 1.51ppm 0.1ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:55 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121705.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:09
Operator : MC
Sample : 4.53ppm 0.3ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:06:32 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.738	-331216	N.D.	ppm
2)	Carbon monoxide	1.738	-331216	0.019	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.052	41129	4.522	ppm
7)	Ethylene	1.586	77903	4.637	ppm
8)	Ethane	1.838	78354	4.558	ppm
9)	Propylene	4.218	112342	4.614	ppm
10)	Propane	4.347	115723	4.680	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.580f	155256	3.565	ppm
13)	n-Butane	6.580f	155256	3.565	ppm

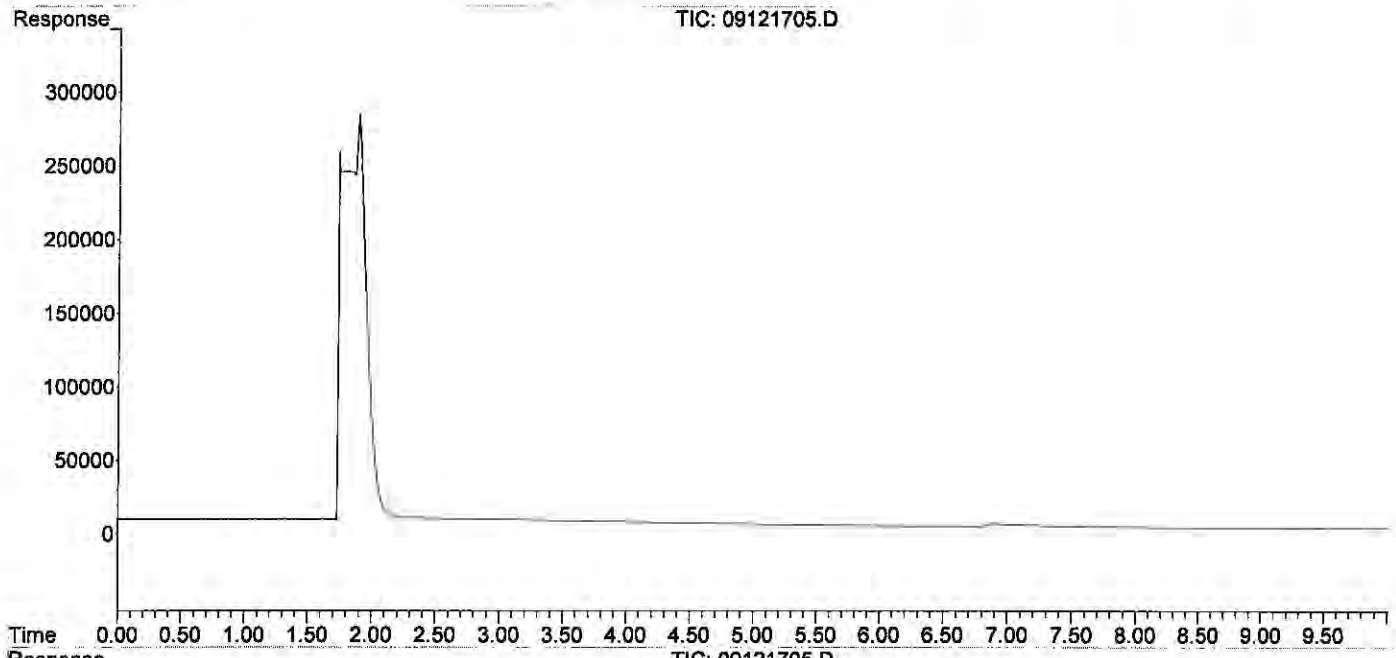
(f)=RT Delta > 1/2 Window (m)=manual int.

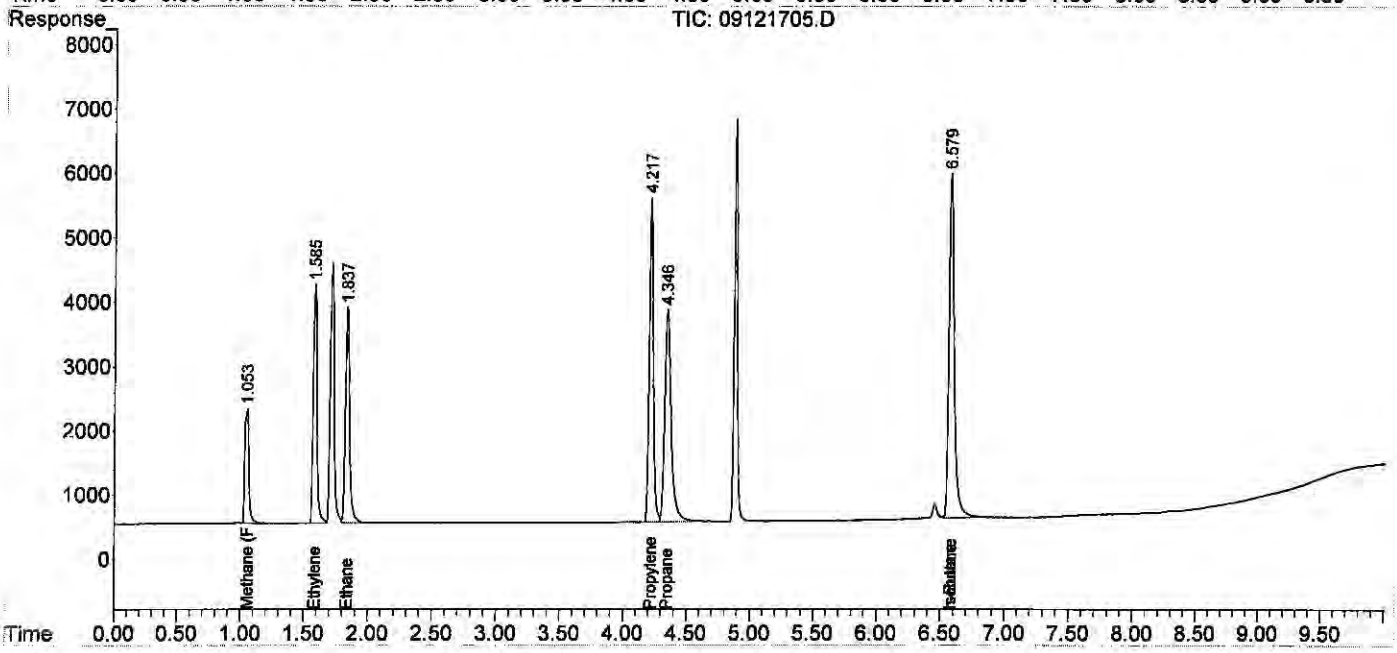
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121705.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:09
Operator : MC
Sample : 4.53ppm 0.3ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:06:32 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121706.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:30
Operator : MC
Sample : 10.57ppm 0.7ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:24 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.929f	-31871242	N.D.	ppm
2)	Carbon monoxide	1.929f	-31871242	1.818	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.025	91967	10.135	ppm
7)	Ethylene	1.568	172086	10.273	ppm
8)	Ethane	1.822	178841	10.441	ppm
9)	Propylene	4.214	248004	10.236	ppm
10)	Propane	4.344	257124	10.458	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.578f	338181	9.254	ppm
13)	n-Butane	6.578f	338181	9.254	ppm

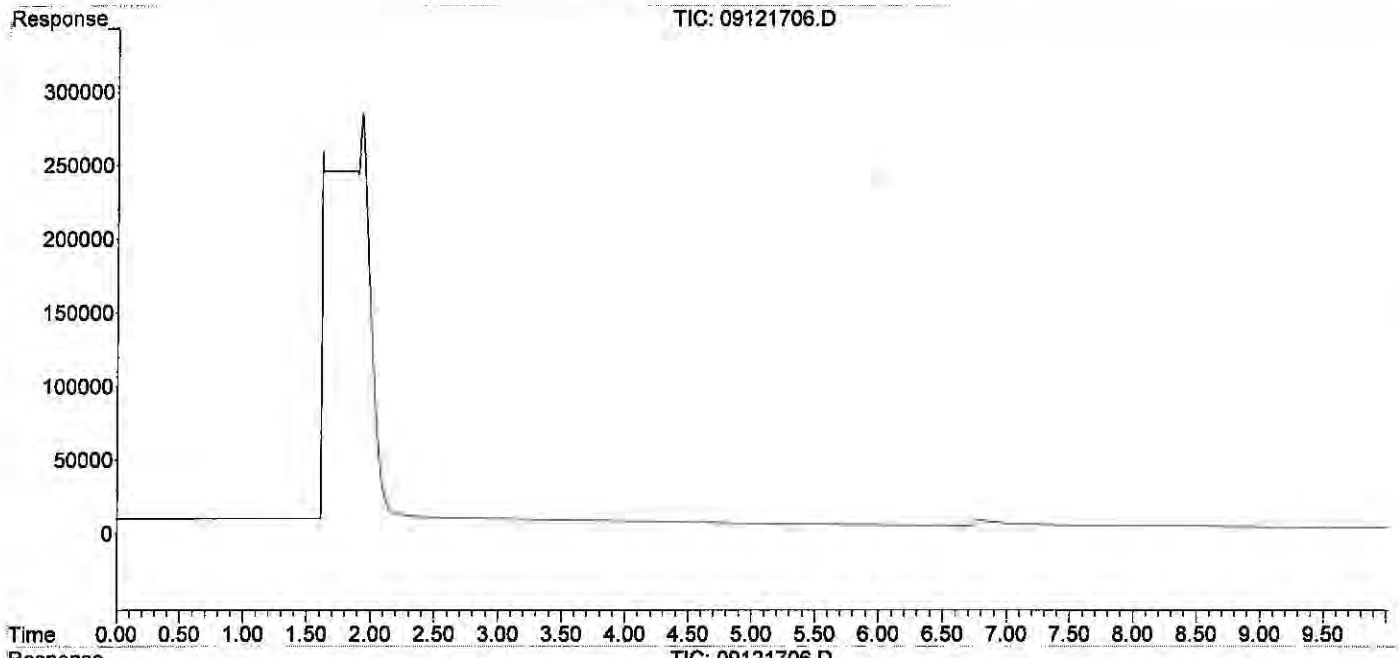
(f)=RT Delta > 1/2 Window (m)=manual int.

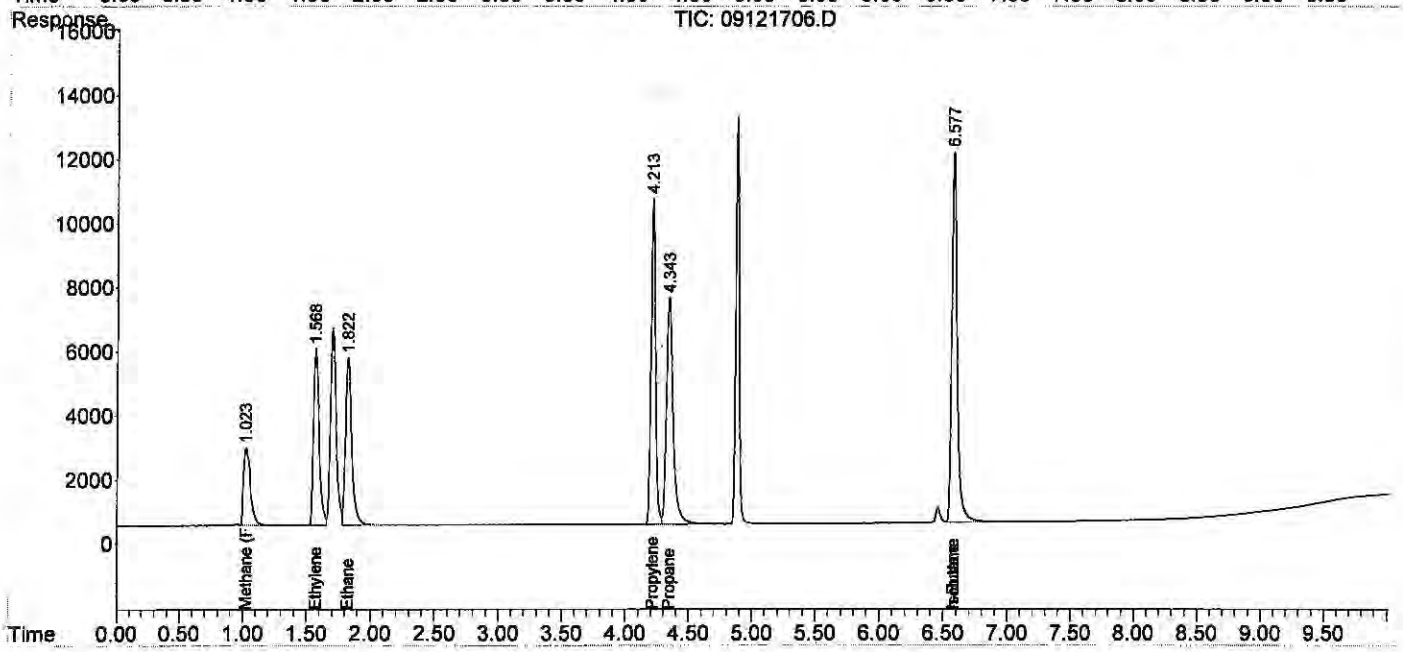
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121706.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:30
Operator : MC
Sample : 10.57ppm 0.7ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:24 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121707.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:47
Operator : MC
Sample : 200ppm 0.1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:59 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.897	155286	0.065	ppm
2)	Carbon monoxide	1.897	155286	N.D.	ppm
3)	Methane (TCD)	4.079f	27015	2856.472	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.063	1735997	190.792	ppm
7)	Ethylene	1.597	3339702	198.758	ppm
8)	Ethane	1.849	3350442	194.597	ppm
9)	Propylene	4.201	4504060	185.706	ppm
10)	Propane	4.333	5043036	204.809	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

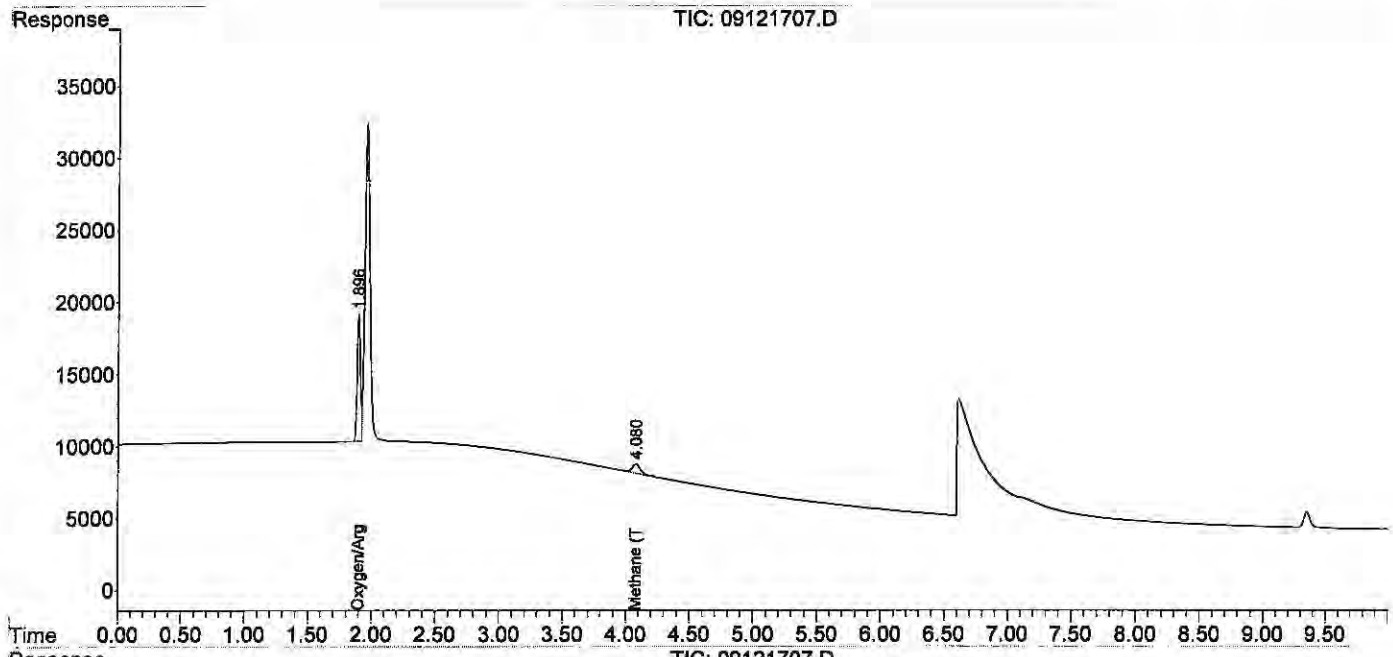
(f)=RT Delta > 1/2 Window (m)=manual int.

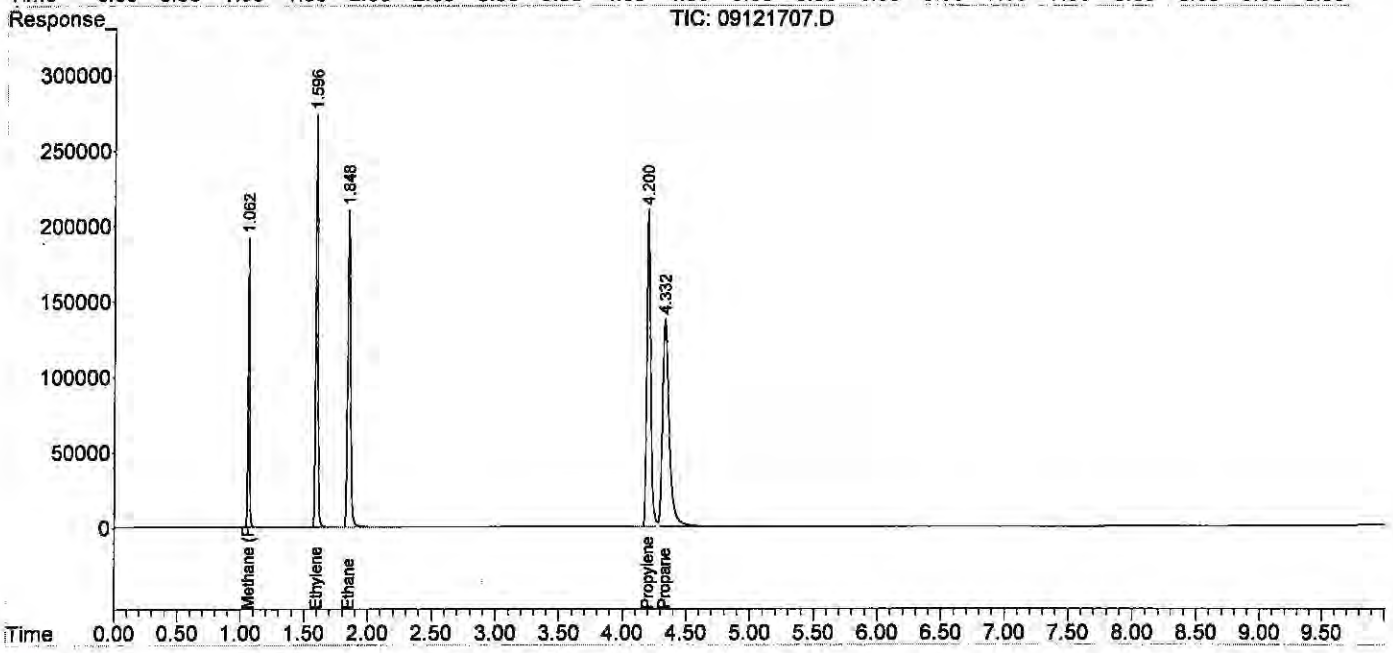
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121707.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:47
Operator : MC
Sample : 200ppm 0.1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:59 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121708.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:00
Operator : MC
Sample : 600ppm 0.3ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:10:57 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:10:50 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.884	196022	0.124	ppm
2)	Carbon monoxide	1.884	196022	N.D.	ppm
3)	Methane (TCD)	4.070f	88282	782.730	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.044	5189849	539.759	ppm
7)	Ethylene	1.573	10007759	590.286	ppm
8)	Ethane	1.822	10048964	583.213	ppm
9)	Propylene	4.160	13569343	562.612	ppm
10)	Propane	4.300	15251326	615.171	ppm
11)	Isobutylene	6.143	9815	NoCal	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

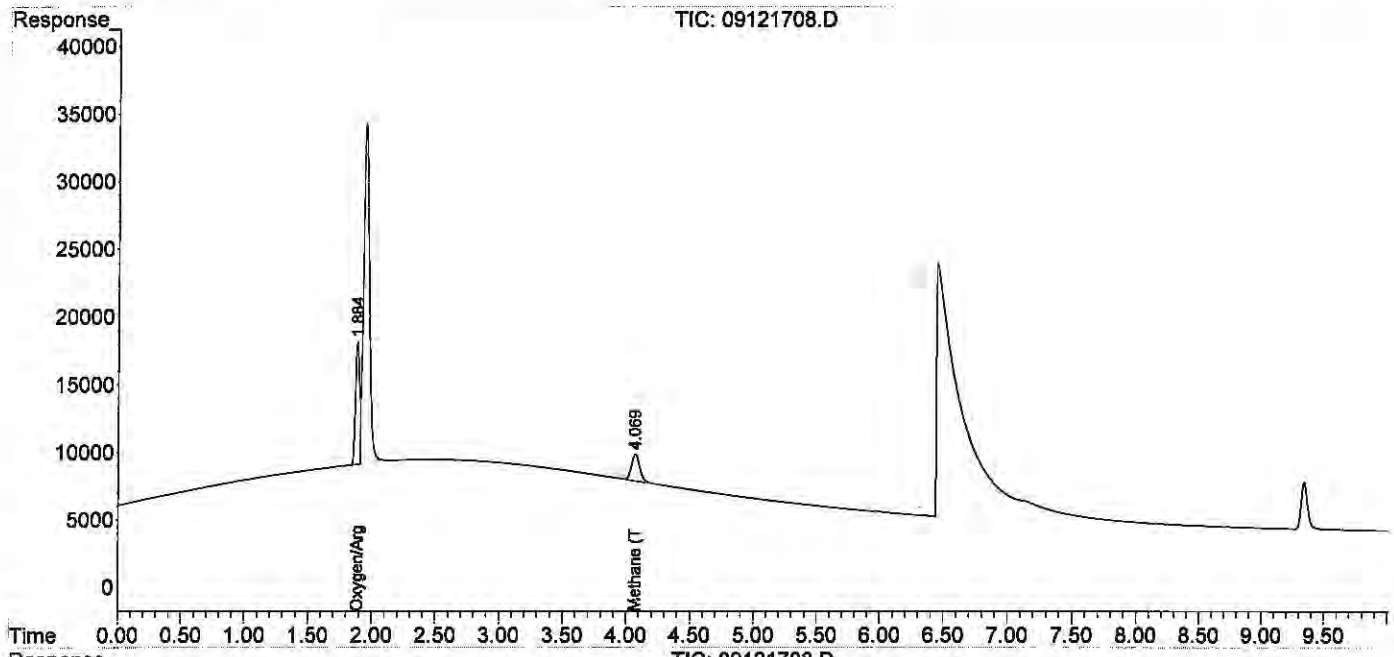
(f)=RT Delta > 1/2 Window (m)=manual int.

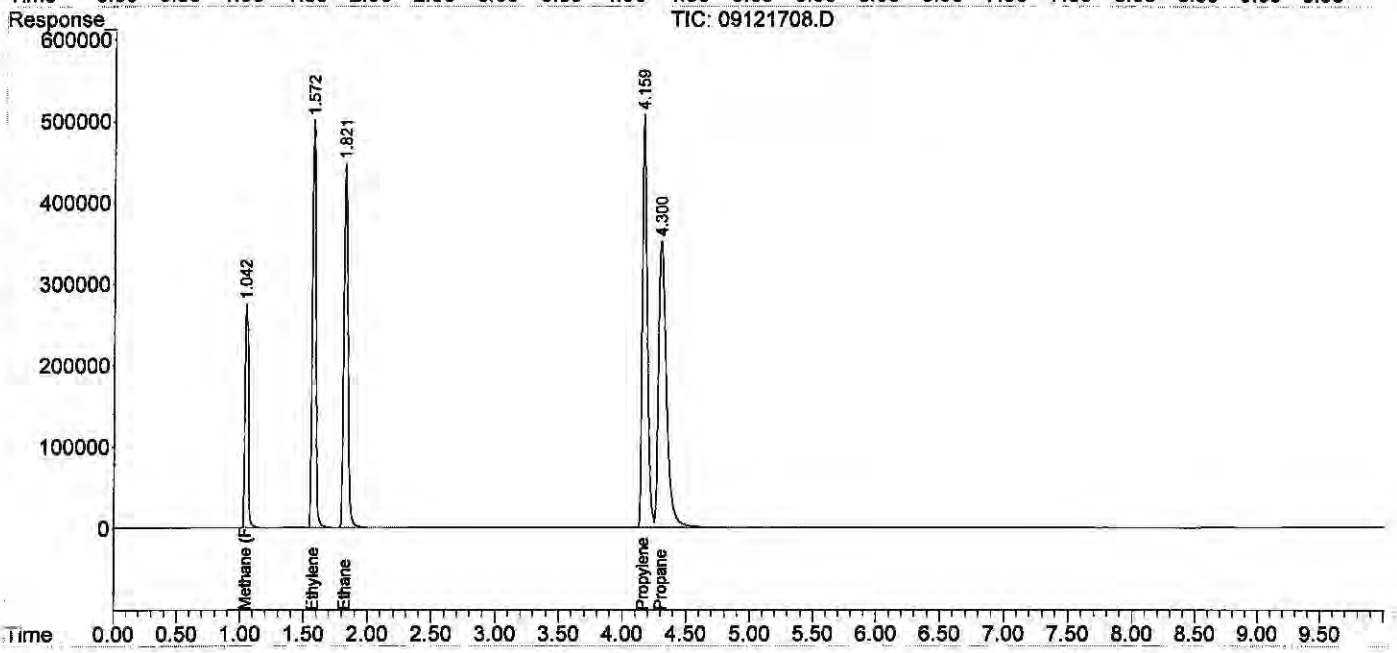
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121708.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:00
Operator : MC
Sample : 600ppm 0.3ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:10:57 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:10:50 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121709.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:47
Operator : MC
Sample : 1000ppm 0.5ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:11:46 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:11:38 2017
Response via : Initial Calibration
Integrator: ChemStation

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

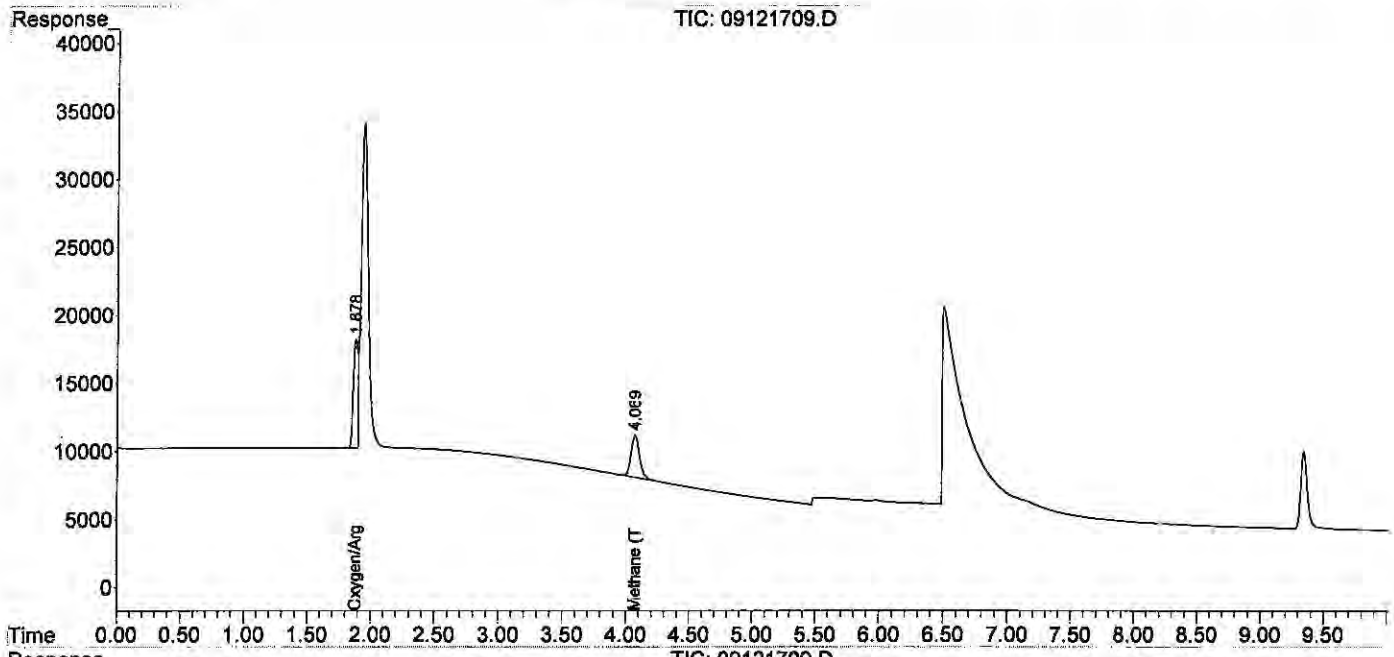
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.879	192611	0.162	ppm
2)	Carbon monoxide	1.879	192611	N.D.	ppm
3)	Methane (TCD)	4.070f	145492	1244.729	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.039	8598534	945.644	ppm
7)	Ethylene	1.576	16608504	981.887	ppm
8)	Ethane	1.827	16709165	973.644	ppm
9)	Propylene	4.161	22494888	941.060	ppm
10)	Propane	4.298	25459411	1023.223	ppm
11)	Isobutylene	6.138	16970	8645.243	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

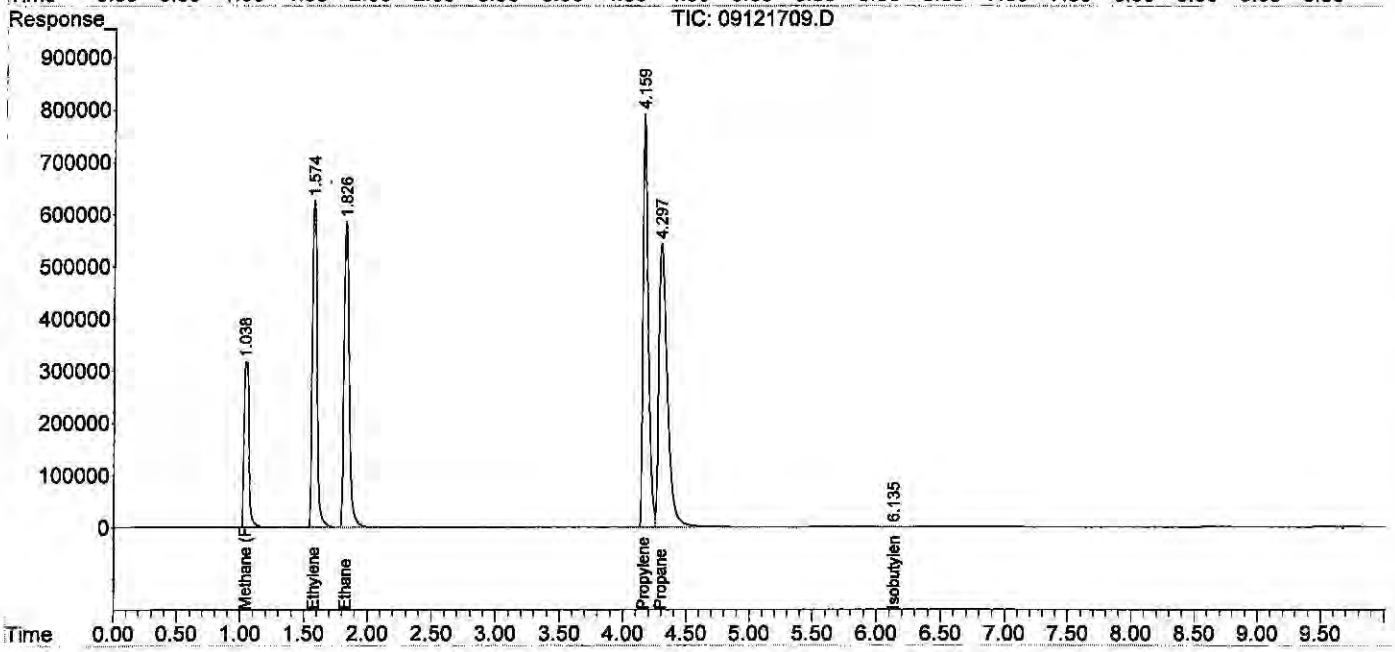
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121709.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:47
Operator : MC
Sample : 1000ppm 0.5ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:11:46 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:11:38 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121710.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:07
Operator : MC
Sample : 2000ppm 1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:12:33 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:12:25 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.922f	1578147	1.659	ppm	
2)	Carbon monoxide	1.922f	1578147	N.D.	ppm	
3)	Methane (TCD)	4.057f	281651	3526.607	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.016	16098209	1763.622	ppm	
7)	Ethylene	1.552	31192444	1848.268	ppm	
8)	Ethane	1.801	31424218	1837.143	ppm	
9)	Propylene	4.129	42124690	1775.341	ppm	m
10)	Propane	4.269	48583085	1946.921	ppm	
11)	Isobutylene	6.136	33832	25613.603	ppm	
12)	Isobutane	6.576f	3845	0.120	ppm	
13)	n-Butane	6.576f	3845	0.120	ppm	

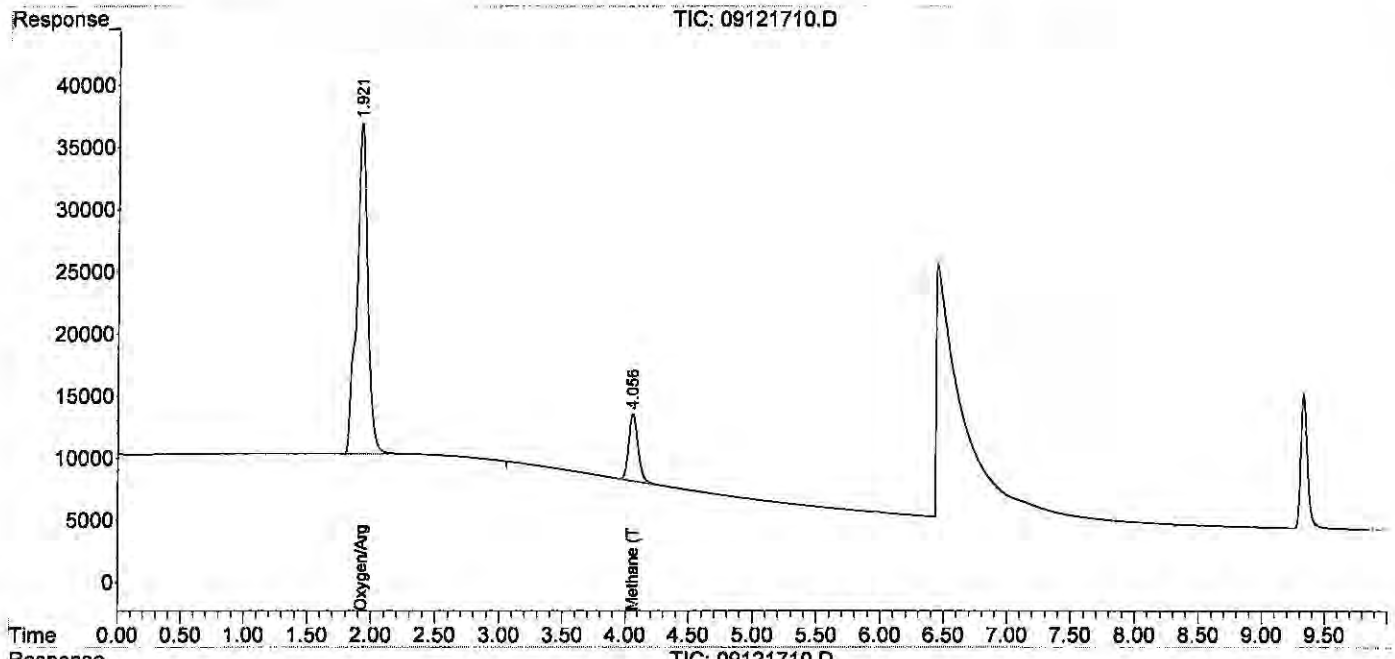
(f)=RT Delta > 1/2 Window (m)=manual int.

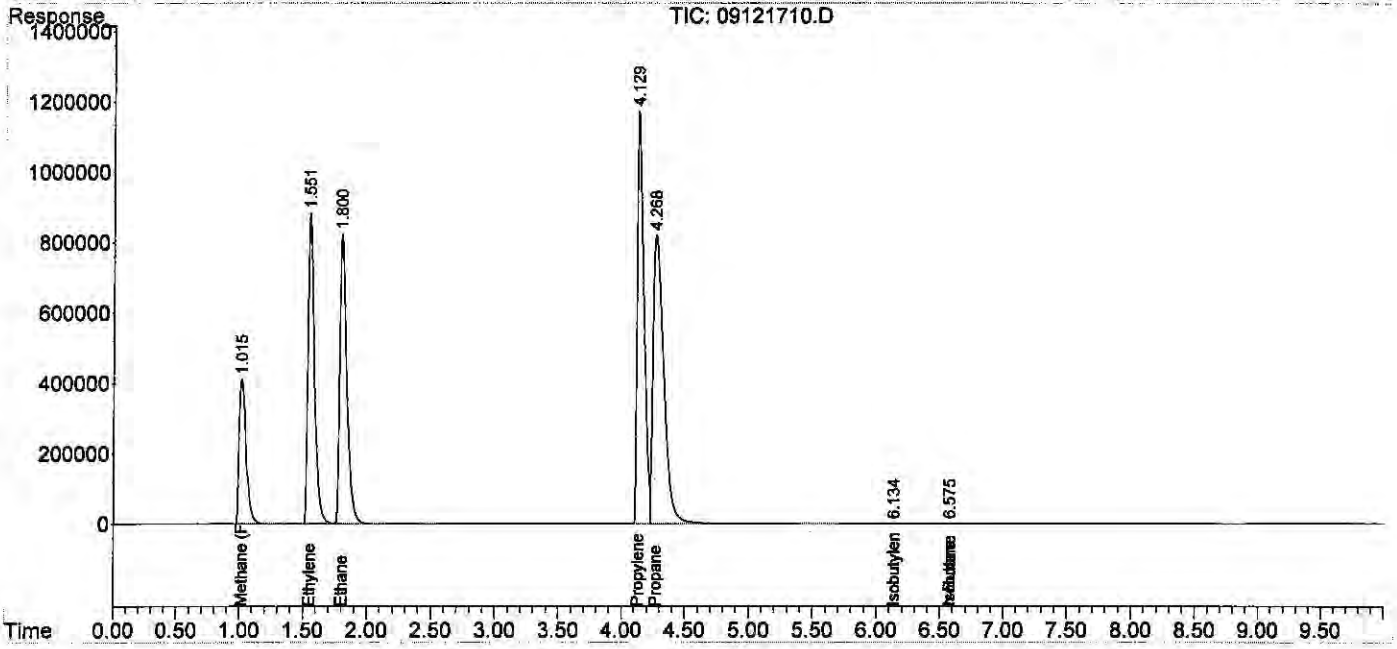
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121710.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:07
Operator : MC
Sample : 2000ppm 1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:12:33 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:12:25 2017
Response via : Initial Calibration
Integrator: ChemStation

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



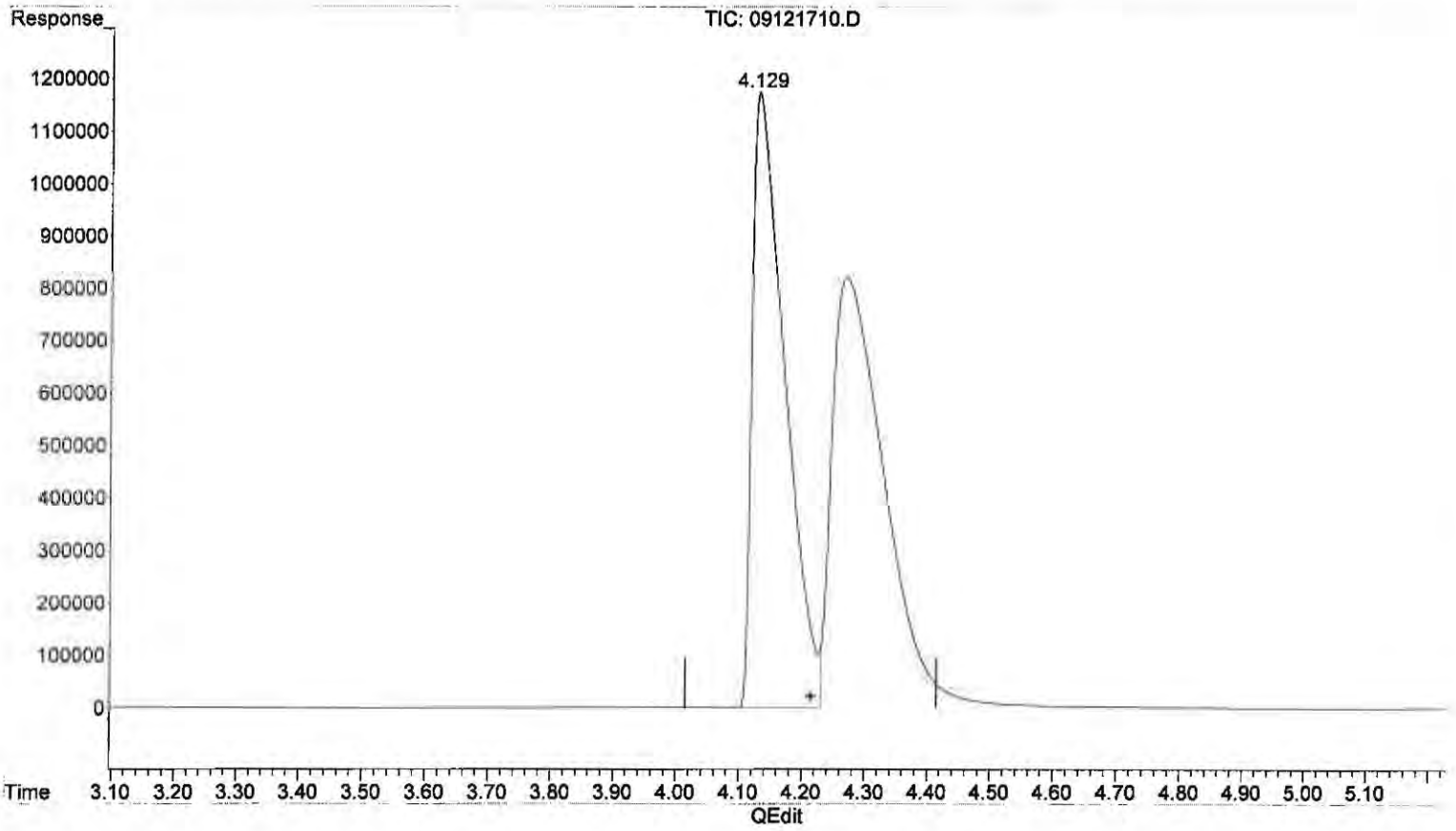


Quantitation Report (Qedit)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121710.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:07
Operator : MC
Sample : 2000ppm 1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:12:33 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:12:25 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(9) Propylene

4.129min 1775.341 ppm m

response 42124690

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121711.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:48
Operator : MC
Sample : 4000ppm 0.1ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:13:37 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	0.000	0	N.D.	ppm	d
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	0.000	0	N.D.	ppm	d
6)	Methane (FID)	1.059	35776839	3925.122	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

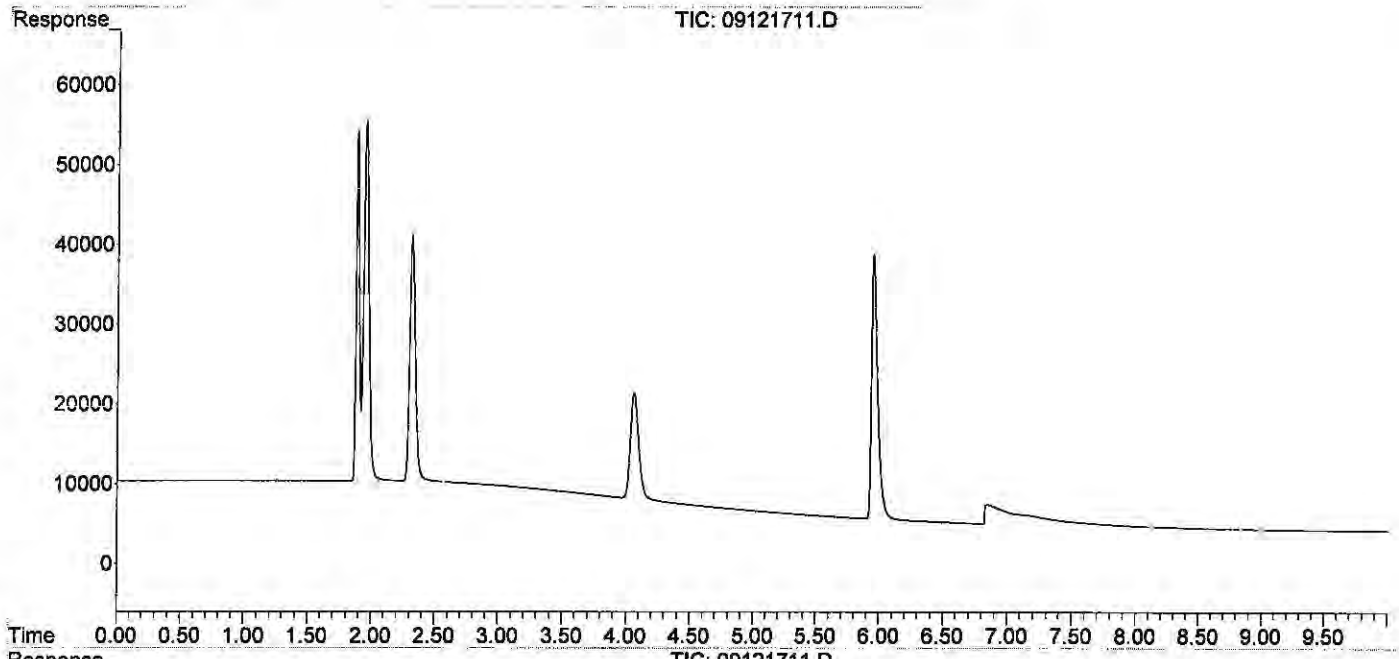
(f)=RT Delta > 1/2 Window (m)=manual int.

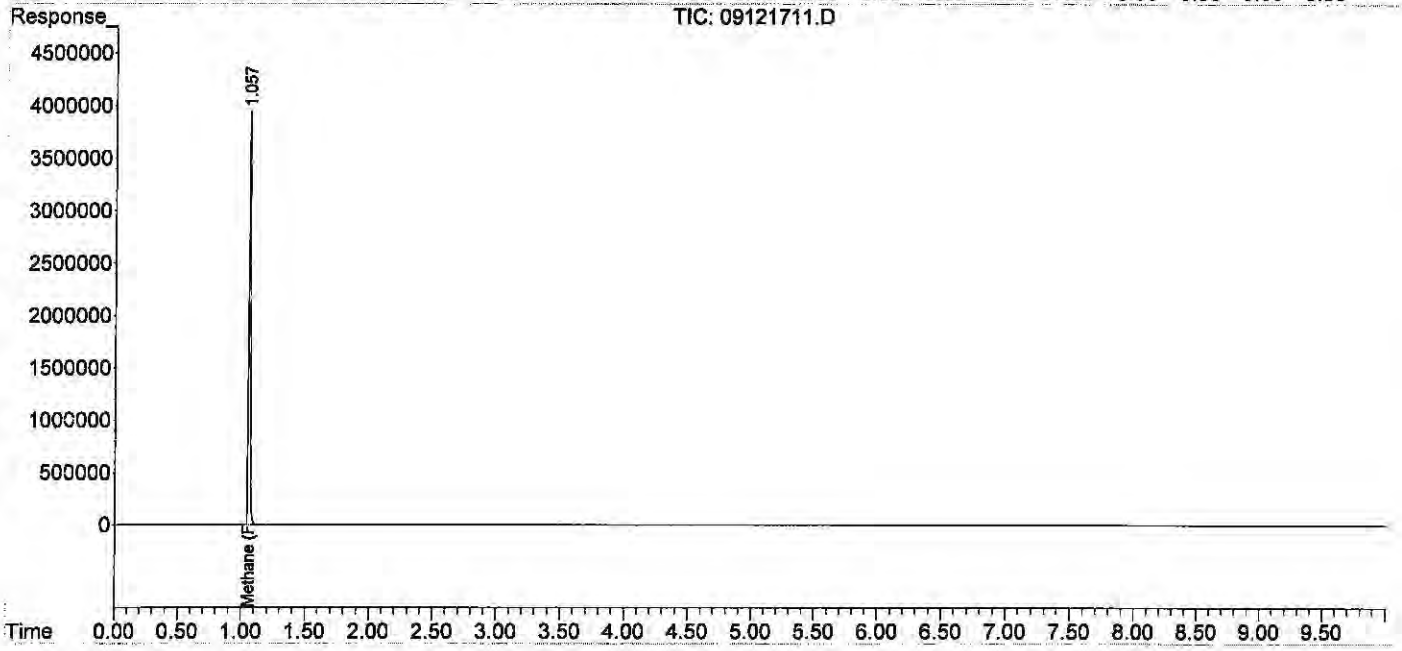
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121711.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:48
Operator : MC
Sample : 4000ppm 0.1ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:13:37 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121712.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 15:21
Operator : MC
Sample : 20000ppm 0.5ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:14:17 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.836	3190788	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	0.000	0	N.D.	ppm	d
6)	Methane (FID)	1.034	169009160	18492.064	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

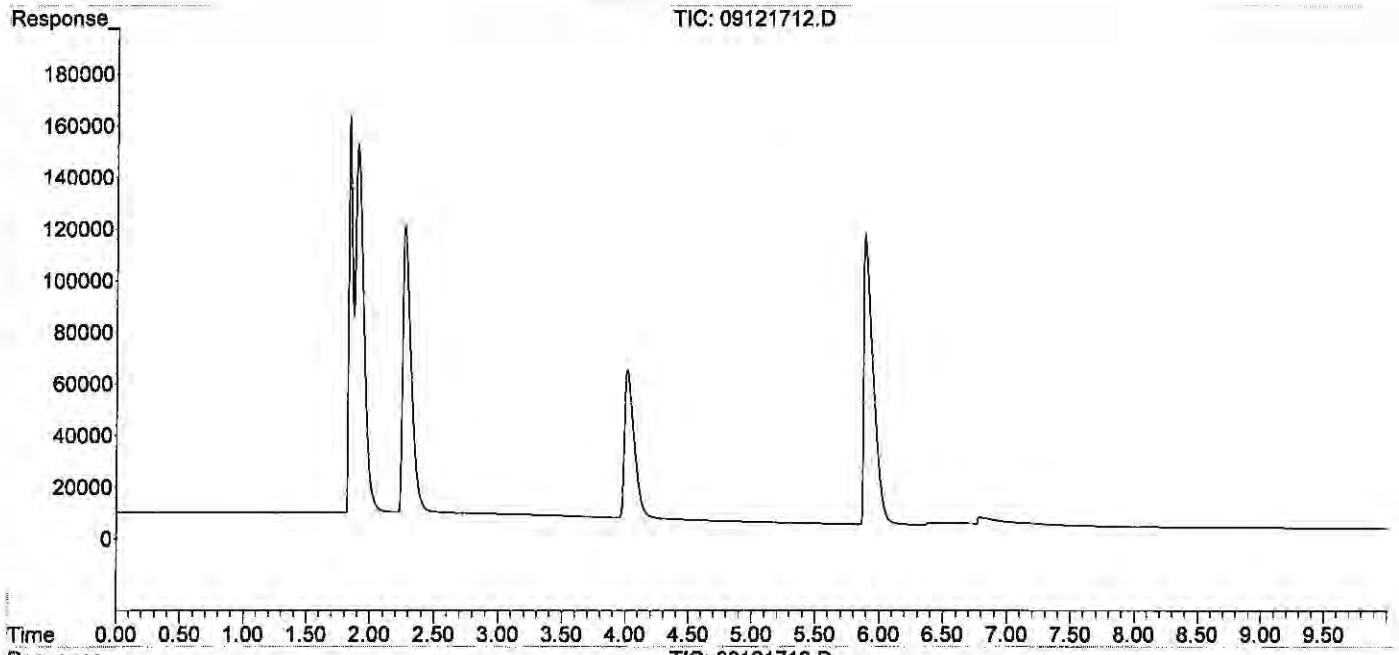
(f)=RT Delta > 1/2 Window (m)=manual int.

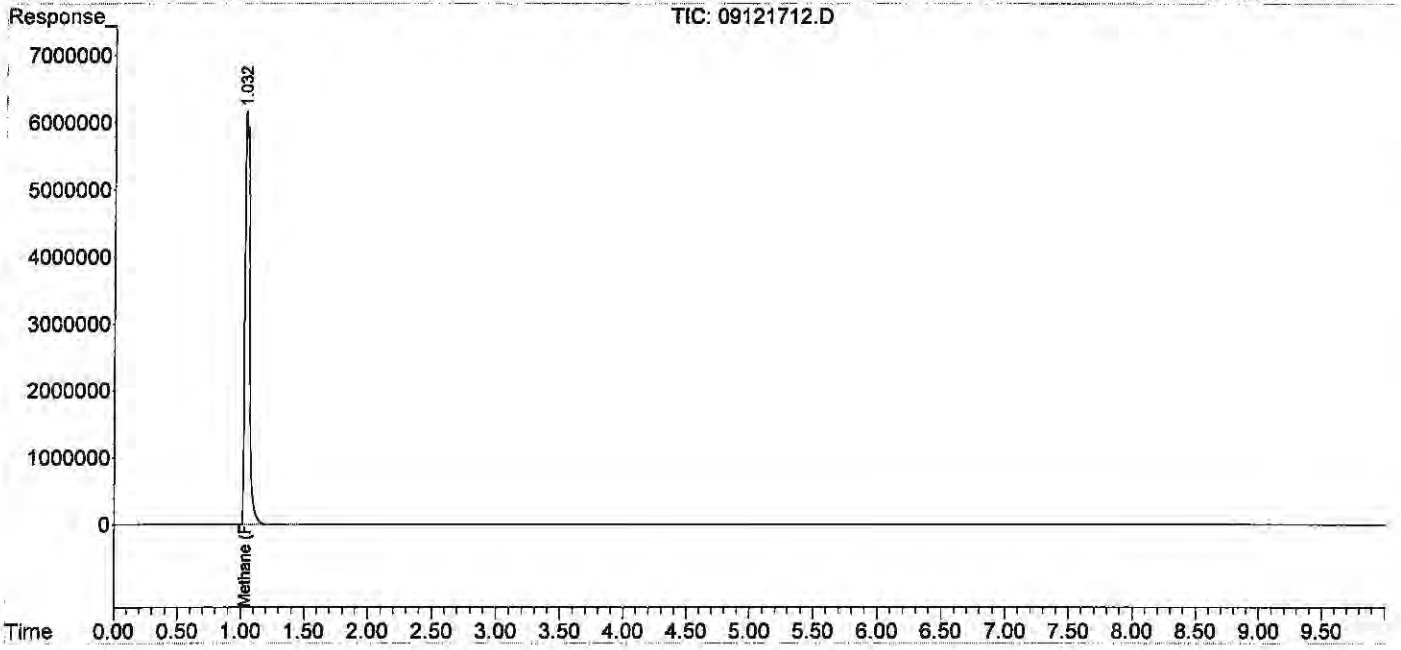
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121712.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 15:21
Operator : MC
Sample : 20000ppm 0.5ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:14:17 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 16:15
Operator : MC
Sample : icv s30-05241604
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:15:11 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.843	2922459	3.687	ppm	
2)	Carbon monoxide	1.843	2922459	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	actual %D
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.063	13748	1.516	ppm	1.50 101.1
7)	Ethylene	1.598	24153	1.443	ppm	1.50 96.2
8)	Ethane	1.850	24488	1.445	ppm	1.50 96.3
9)	Propylene	4.221	36004	1.537	ppm	1.50 102.5
10)	Propane	4.350	37738	1.517	ppm	1.51 100.5
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	6.579f	48019	1.804	ppm	9/14/2
13)	n-Butane	6.579f	48019	1.804	ppm	

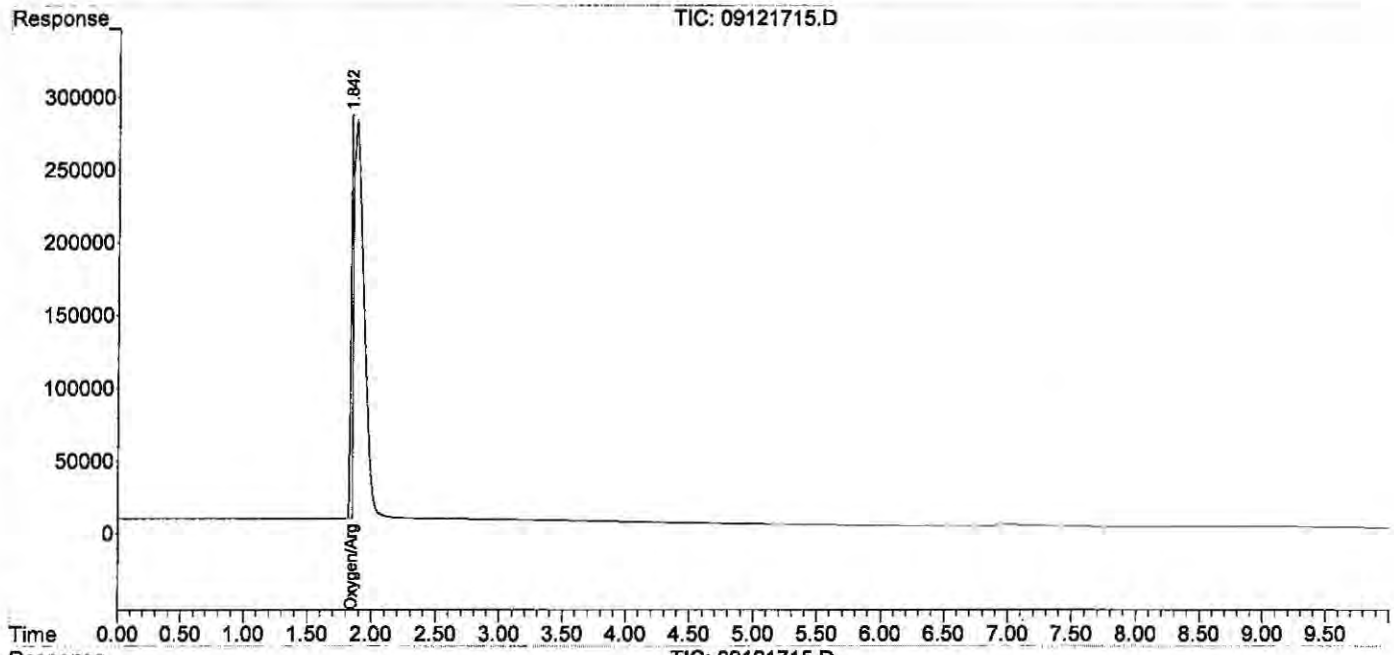
(f)=RT Delta > 1/2 Window (m)=manual int.

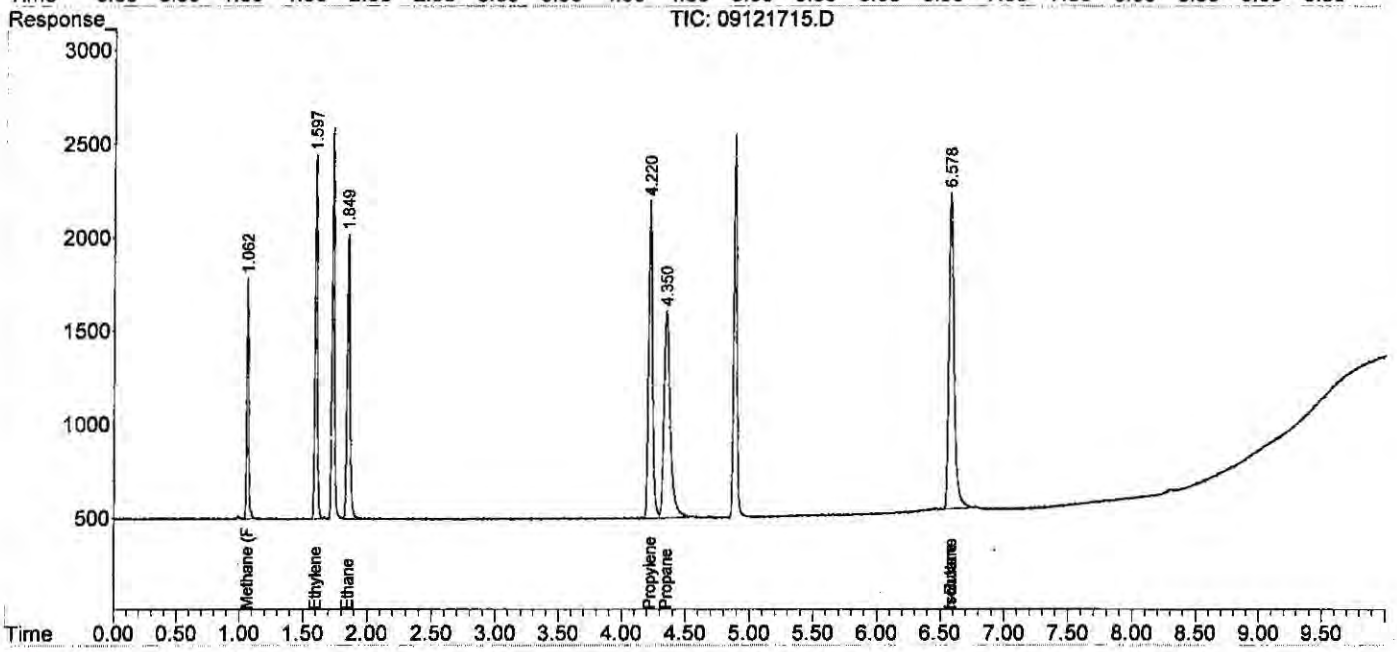
9/14/2017

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 16:15
Operator : MC
Sample : icv s30-05241604
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:15:11 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

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





ALS Environmental

Method : RSK175 Headspace Method for Dissolved Hydrocarbon in Water by FID/TCD
Client : ALS Laboratory Group
Service Request: P1806865
Sample Vol. (ml) : 32.00 ml
Analyst : MR
Date Analysis : 12/19/18
Head Space Vol.(ml) : 8.00 ml
Instrument : GC#10
Detector : FID#10, TCD#10
Gas Constant : 24.05684 (20°C)

HEAD SPACE RESULT (ppm)

Sample ID	Inj. Vol.	Methane	Ethylene	Ethane
std s32-07231801	0.100	1.508	1.430	1.398
ACTUAL		1.51	1.51	1.51
%Difference		0.1%	5.3%	7.4%
mcs 0.1ml	0.100	0.183	0.000	0.000
rb 0.1ml	0.100	0.000	0.000	0.000
fid lcs s30-05241604	0.100	1.457	1.012	1.242
fid lcsd s30-05241604	0.100	1.445	0.998	1.236
P1806865-001 0.1ml	0.100	967.290	0.522	0.000
P1806865-002 0.1ml	0.100	0.078	0.000	0.000
P1806865-003 0.1ml	0.100	1830.21	0.624	0.000
P1806865-004 0.1ml	0.100	0.103	0.000	0.000

FINAL HEAD SPACE RESULT (ppm)

	Methane	Ethylene	Ethane
WWt.	16.04	28.05	30.07
HENRY'S CONSTANT	3.76E+04	1.02E+04	2.63E+04
RL	1.30	1.00	0.60
mcs 0.1ml	1.830	0.000	0.000
fid lcs s30-05241604	14.570	10.120	12.420
fid lcsd s30-05241604	14.450	9.980	12.360
P1806865-001 0.1ml	9672.900	5.220	0.000
P1806865-002 0.1ml	0.780	0.000	0.000
P1806865-003 0.1ml	18302.12	6.240	0.000
P1806865-004 0.1ml	1.030	0.000	0.000

std s32-07231801	1.507	1.463	1.442
ACTUAL	1.51	1.51	1.51
%Difference	0.2%	3.1%	4.5%

Data Path : J:\GC10\DATA\RSK_FID\2018_12\19\
Data File : 12191801.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Dec-2018, 10:38:40
Operator : MR
Sample : std s32-07231801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 19 11:45:57 2018
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.116	13675	1.508	ppm
7)	Ethylene	1.679	23933	1.430	ppm
8)	Ethane	1.942	23704	1.398	ppm
9)	Propylene	4.319	33295	1.421	ppm
10)	Propane	4.443	35022	1.408	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.652	44527	1.673	ppm
13)	n-Butane	6.652	44527	1.673	ppm

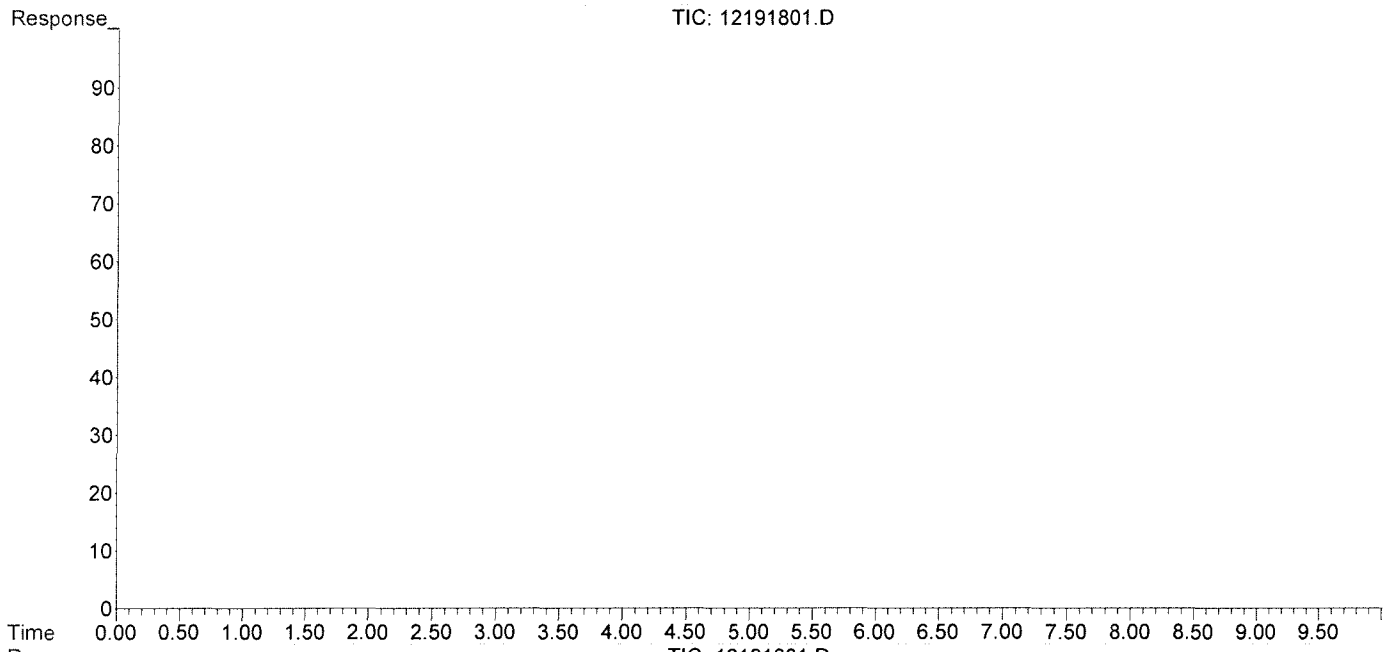
(f)=RT Delta > 1/2 Window (m)=manual int.

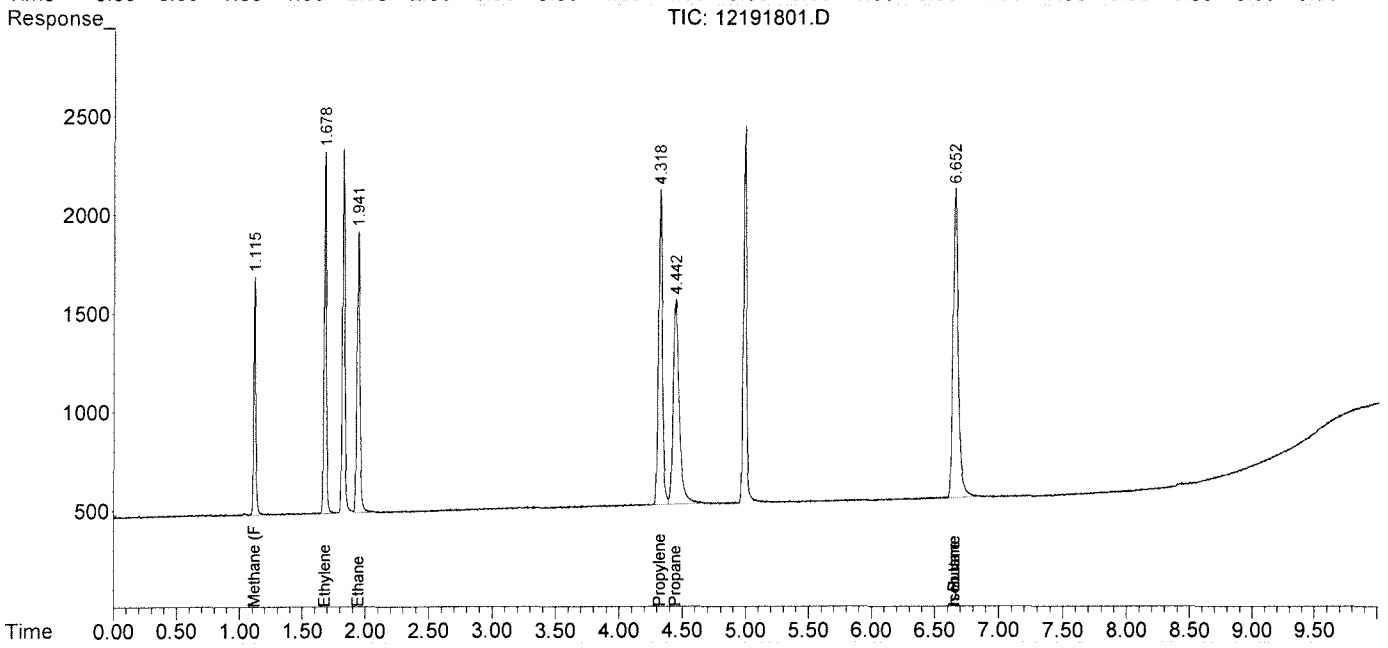
MR 12/20/18

Data Path : J:\GC10\DATA\RSK_FID\2018_12\19\
Data File : 12191801.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Dec-2018, 10:38:40
Operator : MR
Sample : std s32-07231801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 19 11:45:57 2018
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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





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Data File : 12191813.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Dec-2018, 14:22:31
Operator : MR
Sample : std s32-07231801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 19 14:35:00 2018
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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

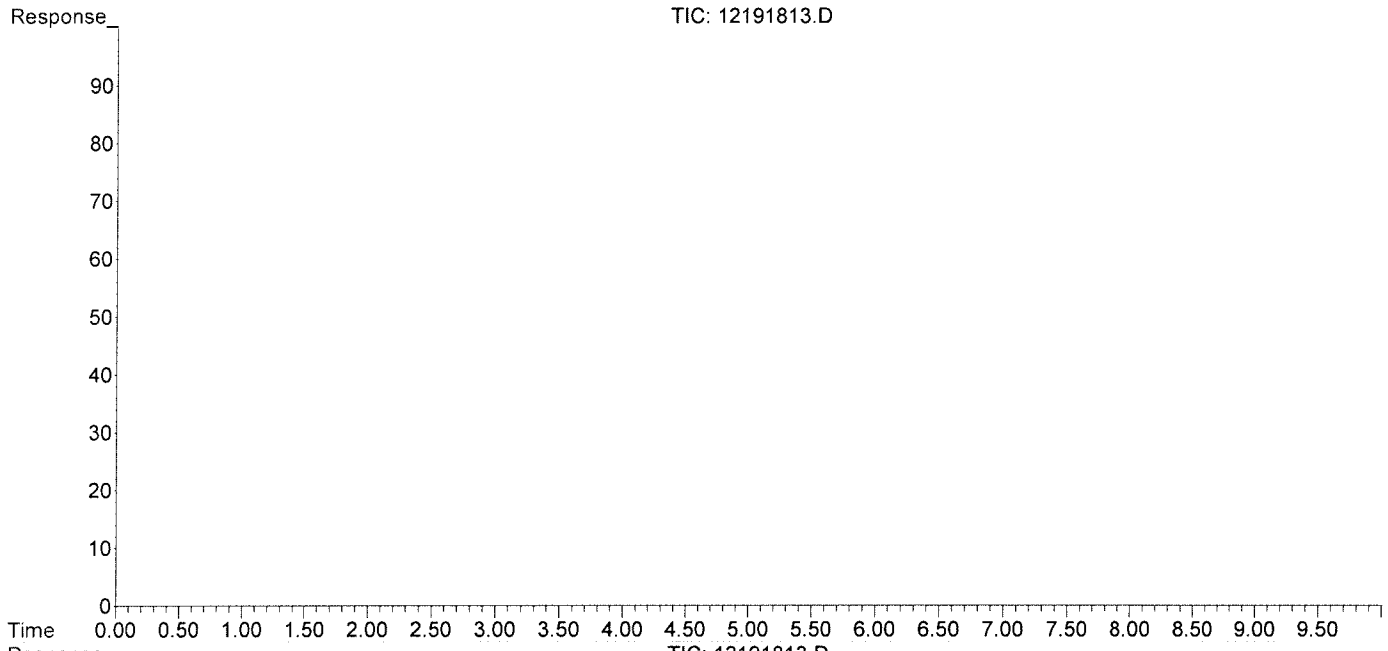
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.115	13669	1.507	ppm
7)	Ethylene	1.673	24477	1.463	ppm
8)	Ethane	1.935	24440	1.442	ppm
9)	Propylene	4.315	34381	1.467	ppm
10)	Propane	4.439	35574	1.430	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.654	44719	1.680	ppm
13)	n-Butane	6.654	44719	1.680	ppm

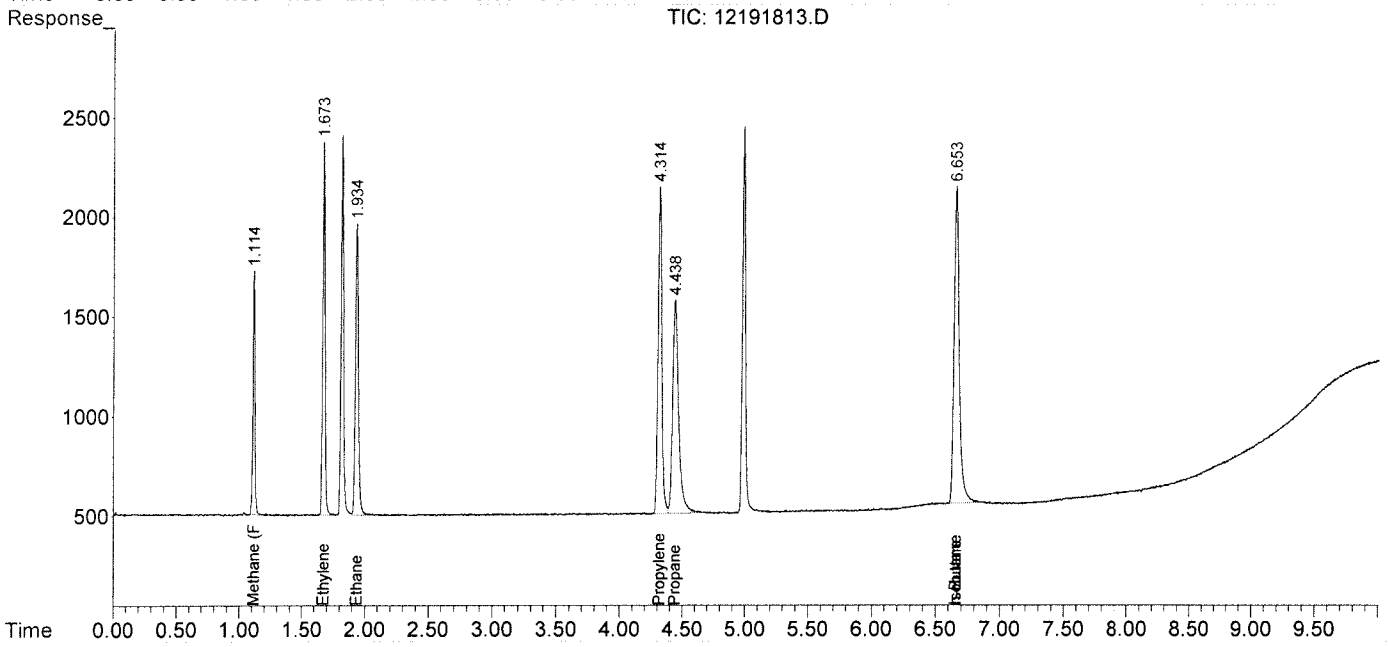
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2018_12\19\
Data File : 12191813.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Dec-2018, 14:22:31
Operator : MR
Sample : std s32-07231801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 19 14:35:00 2018
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Injection Log

Directory: I:\GC10\DATA\RSK_FID\2017_09\12\

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2	12-Sep-17, 10:52:40	09121702.D	0.151ppm 0.250ml s32-09121702		MC	RSKBOTH.M	Curve
3	12-Sep-17, 11:05:49	09121703.D	0.302ppm 0.5ml s32-09121702		MC	RSKBOTH.M	Curve
4	12-Sep-17, 11:45:34	09121704.D	1.51ppm 0.1ml s32-09051701		MC	RSKBOTH.M	Curve
5	12-Sep-17, 12:09:33	09121705.D	4.53ppm 0.3ml s32-09051701		MC	RSKBOTH.M	Curve
6	12-Sep-17, 12:30:23	09121706.D	10.57ppm 0.7ml s32-09051701		MC	RSKBOTH.M	Curve
7	12-Sep-17, 12:47:18	09121707.D	200ppm 0.1ml s32-09121701		MC	RSKBOTH.M	Curve
8	12-Sep-17, 13:00:22	09121708.D	600ppm 0.3ml s32-09121701		MC	RSKBOTH.M	Curve
9	12-Sep-17, 13:47:48	09121709.D	1000ppm 0.5ml s32-09121701		MC	RSKBOTH.M	Curve
10	12-Sep-17, 14:07:58	09121710.D	2000ppm 1ml s32-09121701		MC	RSKBOTH.M	Curve
11	12-Sep-17, 14:48:48	09121711.D	4000ppm 0.1ml s32-08231701		MC	RSKBOTH.M	Curve
12	12-Sep-17, 15:21:51	09121712.D	20000ppm 0.5ml s32-08231701		MC	RSKBOTH.M	Curve
13	12-Sep-17, 15:38:59	09121713.D	mb 0.5ml		MC	RSKBOTH.M	Pass
14	12-Sep-17, 15:55:35	09121714.D	mb 0.1ml		MC	RSKBOTH.M	Pass
15	12-Sep-17, 16:15:26	09121715.D	icv s30-05241604		MC	RSKBOTH.M	Pass

Injection Log

Directory: I:\GC10\DATA\RSK_FID\2018_12\19\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Acquisition Method	Comments
1	19-Dec-18, 10:38:40	12191801.D	std s32-07231801		MR	RSKBOTH.M	pass
2	19-Dec-18, 10:54:48	12191802.D	rb 0.1ml		MR	RSKBOTH.M	pass
3	19-Dec-18, 11:13:15	12191803.D	mcs 0.1ml		MR	RSKBOTH.M	pass
4	19-Dec-18, 11:29:51	12191804.D	fid lcs s30-05241604		MR	RSKBOTH.M	pass
5	19-Dec-18, 11:45:28	12191805.D	fid lcsd s30-05241604		MR	RSKBOTH.M	pass
6	19-Dec-18, 12:02:09	12191806.D	P1806863-001 0.1ml		MR	RSKBOTH.M	
7	19-Dec-18, 12:51:33	12191807.D	P1806863-002 0.1ml		MR	RSKBOTH.M	
8	19-Dec-18, 13:05:45	12191808.D	P1806863-003 0.1ml		MR	RSKBOTH.M	
9	19-Dec-18, 13:23:14	12191809.D	P1806865-001 0.1		MR	RSKBOTH.M	
10	19-Dec-18, 13:38:42	12191810.D	P1806865-002 0.1		MR	RSKBOTH.M	
11	19-Dec-18, 13:52:18	12191811.D	P1806865-003 0.1		MR	RSKBOTH.M	
12	19-Dec-18, 14:09:10	12191812.D	P1806865-004 0.1		MR	RSKBOTH.M	
13	19-Dec-18, 14:22:31	12191813.D	std s32-07231801		MR	RSKBOTH.M	pass

How to Retrieve and Use Estimated Percentile Ranks from the Microbial Insights Database

The MI Database

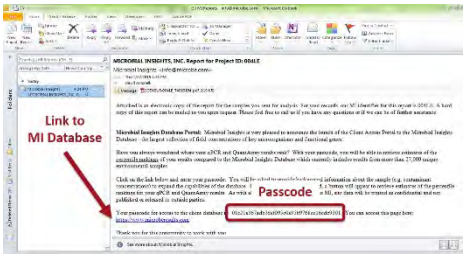
The Microbial Insights Database is the largest collection of field concentrations of key microorganisms and functional genes currently containing qPCR and QuantArray results for more than 40,000 unique groundwater, soil, and sediment samples from all 50 states and 33 countries worldwide.

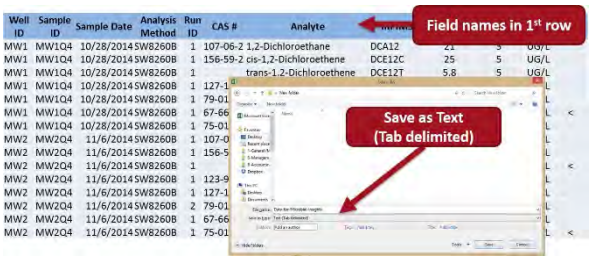
Is that low, medium or high?

In practice, biodegradation depends not just on the presence but the actual concentrations of the contaminant degrading microorganisms. The estimated percentile ranks retrieved from the MI Database answer the question "Is that low, medium or high?" by comparing your results to those of the literally thousands of other environmental samples submitted to MI for analysis over the last 20+ years.

Retrieving Estimated Percentile Ranks

With your report, you were emailed a passcode and link enabling you to login to the Client Portal. Just enter basic information about the sample (e.g. contaminant concentrations) to aid in understanding the links between environmental conditions and microbial populations and you can retrieve estimates of the percentile ranks of your results based on those compiled in the MI database at no additional charge.





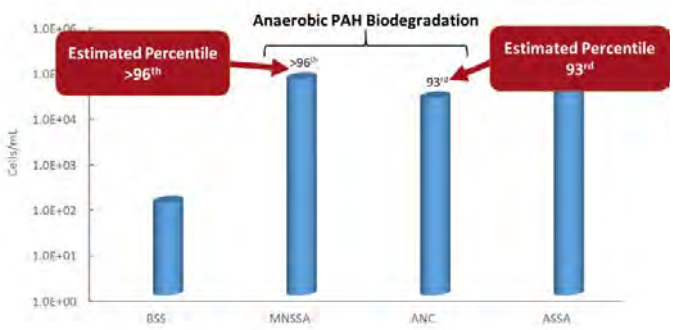
All site specific data will be treated as confidential and uploading is easy.

You can even upload chemical and geochemical data from EDDs. Just save as a Tab Delimited text file.

Example - Using Estimated Percentile for MNA Assessment at an MGP Site

CENSUS® qPCR was performed to quantify anaerobic naphthalene carboxylase (ANC) and naphthyl-2-methylsuccinate synthase (MNSSA) to assess anaerobic biodegradation of naphthalene and methyl-naphthalene under existing site conditions.

- Not only were ANC and MNSSA genes detected, but these functional genes responsible for anaerobic biodegradation of PAHs were present at concentrations "far better than average" based on the estimated percentile ranks.
- Demonstrating high concentrations of ANC and MNSSA gave an additional line of evidence indicating growth substantial populations of anaerobic PAH degraders and suggested a greater probability that monitored natural attenuation (MNA) will be successful.



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

Client: RJ Modashia
ALS Laboratory Group
10450 Stancliff Rd
Suite 210
Houston, TX 77040

Phone: 281-575-2279

Fax:

Identifier: 052PL **Date Rec:** 12/13/2018 **Report Date:** 12/19/2018

Client Project #: NW01312.0150 **Client Project Name:** LHAAP-58

Purchase Order #:

Analysis Requested: CENSUS

Reviewed By:



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MICROBIAL INSIGHTS, INC.

10515 Research Dr., Knoxville, TN 37932
Tel. (865) 573-8188 Fax. (865) 573-8133

CENSUS

Client: **ALS Laboratory Group**
Project: LHAAP-58

MI Project Number: **052PL**
Date Received: 12/13/2018

Sample Information

Client Sample ID:		**03WW01_121218**	**35AWW08_121218**	**35AWW10_121218**
Sample Date:		12/12/2018	12/12/2018	12/12/2018
Units:		cells/mL	cells/mL	cells/mL
Analyst/Reviewer:		JS	JS	JS

Dechlorinating Bacteria

Dehalococcoides	*DHC*	**1.01E+04**	**1.20E+06**	**1.58E+01**
tceA Reductase	TCE	**6.20E+00**	**3.13E+05**	**1.10E+00**
BAV1 Vinyl Chloride Reductase	BVC	<8.00E-01	<3.10E+00	<8.00E-01
Vinyl Chloride Reductase	VCR	**2.44E+04**	**3.66E+05**	**1.52E+01**
Dehalobacter spp.	*DHBt*	**5.99E+02**	**1.73E+05**	**1.36E+01**

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

Quality Assurance/Quality Control Data

Samples Received **12/13/2018**

Component	Date Prepared	Date Analyzed	Arrival Temperature	Positive Control	Extraction Blank	Negative Control
DHC	12/13/2018	12/19/2018	0 °C	108%	non-detect	non-detect
BVC	12/13/2018	12/19/2018	0 °C	101%	non-detect	non-detect
DHBt	12/13/2018	12/19/2018	0 °C	103%	non-detect	non-detect
TCE	12/13/2018	12/19/2018	0 °C	101%	non-detect	non-detect
VCR	12/13/2018	12/19/2018	0 °C	98%	non-detect	non-detect

How to Use Estimated Percentile Ranks from the Microbial Insights Database

The MI Database and Client Portal

The Microbial Insights Database is the largest collection of field concentrations of key microorganisms and functional genes currently containing qPCR and QuantArray results for more than 32,000 unique groundwater, soil, and sediment samples from all 50 states and 33 countries worldwide. Driven by field samples, the database reflects the impacts of common contaminants, geochemical conditions, and site management practices on critical microbial populations.

With your report, you received a passcode enabling you to retrieve estimates of the percentile ranks of your results based on those compiled in the MI database at no additional charge. When accessing the database, you will be asked to provide background information about the sample (e.g. contaminant concentrations) to aid in understanding the links between environmental conditions and microbial populations. As with all client information provided to MI, site specific data will be treated as confidential.

Is that low, medium or high?

In practice, biodegradation depends not just on the presence but the actual concentrations of the contaminant degrading microorganisms. Simply put, qPCR and QuantArray results demonstrating high concentrations of target microorganisms or functional genes suggest in situ selection, enrichment and growth of those specific contaminant degraders and therefore a greater probability that monitored natural attenuation (MNA) or bioremediation will be successful.

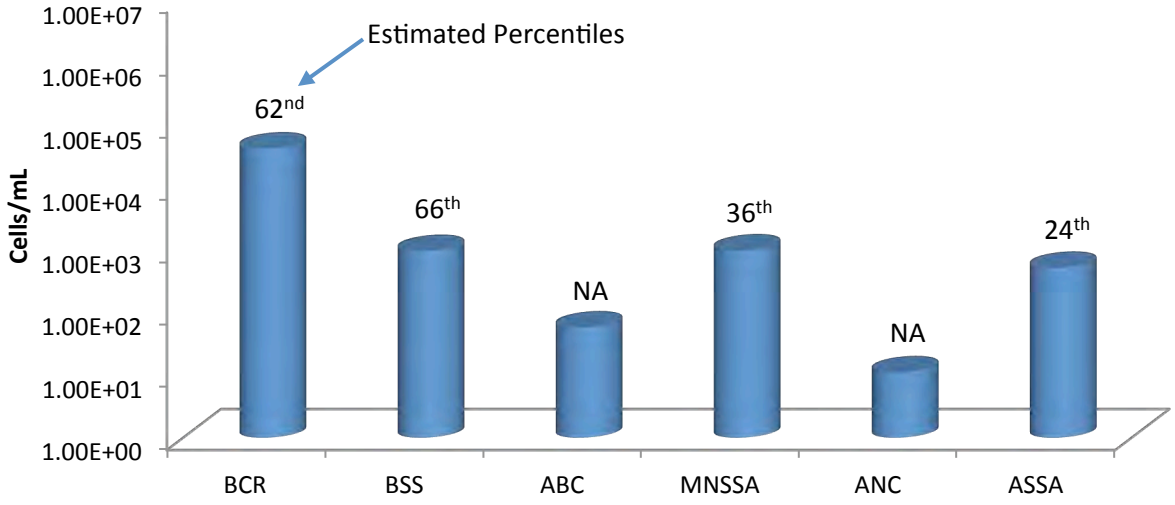
Is that a low, medium, or high concentration? The estimated percentile ranks retrieved from the MI Database answer that question by comparing your qPCR and QuantArray results to those of the literally thousands of other environmental samples submitted to MI for analysis over the last 20+ years.

Using the Estimated Percentile - Interpretation Examples

MNA Assessment – Petroleum Hydrocarbon Site:

Whenever possible, interpretation of qPCR and QuantArray results should include comparisons between samples obtained from background and impacted wells. The estimated percentile ranks however provide an additional avenue for comparison and evaluation of treatment options as shown below.

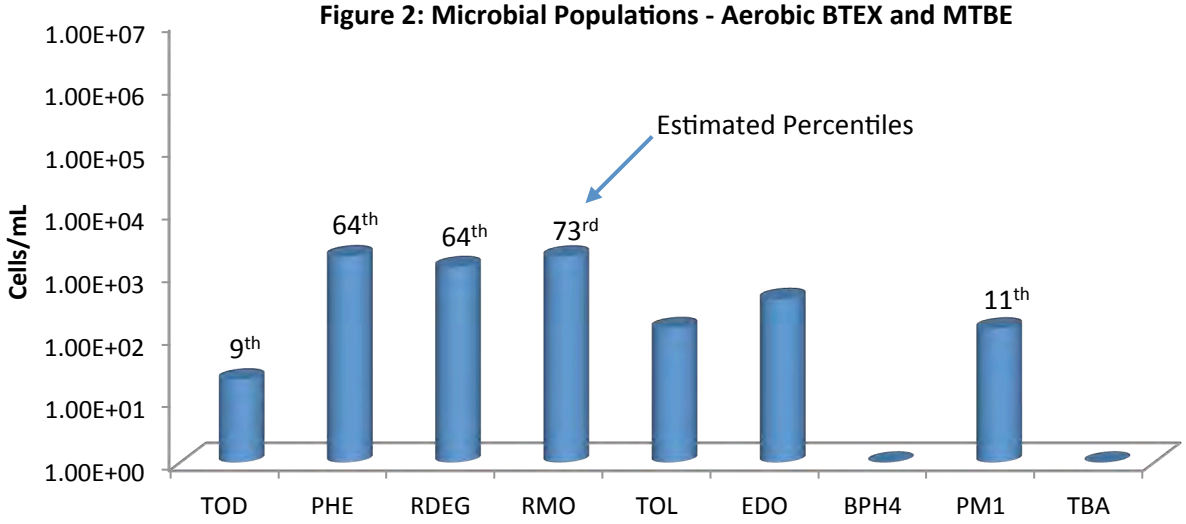
Figure 1: Microbial Populations - Anaerobic BTEX and PAHs



Anaerobic BTEX and PAH Biodegradation (Figure 1):

- With moderate concentrations of functional genes involved in anaerobic BTEX metabolism detected, the QuantArray-Petro® results were encouraging in terms of evaluating biodegradation potential under existing site conditions.
- More specifically, benzylsuccinate synthase (BSS) was detected on the order of nearly 10^3 cells/mL indicating the presence of a substantial population (66th percentile) capable of anaerobic biodegradation of toluene and other alkyl substituted benzenes.
- Naphthyl-2-methylsuccinate synthase (MNSSA) and alkylsuccinate synthase (ASSA) genes were also detected indicating the potential for anaerobic biodegradation of 2-methylnaphthalene and normal alkanes.
- The concentration of MNSSA genes would be considered modest with an estimated percentile of 36th.
- While the percentile rank for MNSSA would be "below average", a number of additional factors should be considered.
    - First, anaerobic hydrocarbon degraders are less prevalent than aerobic BTEX degraders and overall detection frequencies for many genes involved in anaerobic hydrocarbon biodegradation are less than 50%.
    - Therefore, the detection of genes like BSS, MNSSA, ASSA, anaerobic benzene carboxylase (ABC), and anaerobic naphthalene carboxylase (ANC) even at low concentrations is certainly noteworthy and inherently "better than average".
    - The estimated percentiles for all assays are based only on samples where the concentration of the target gene was greater than the practical quantitation limit (PQL).
    - For less commonly detected targets like many of the genes involved in anaerobic hydrocarbon biodegradation this is an especially important consideration.
    - Excluding samples where a gene target is below the PQL ensured that the median concentrations of less commonly detected targets would not be unduly biased low by the fact that the gene is not detected in most samples.
- Anaerobic benzene carboxylase (ABC) and naphthalene carboxylase (ANC) genes were also detected indicating the presence of bacterial populations capable of anaerobic biodegradation of benzene and naphthalene.
- For newly identified genes like ABC and ANC, estimated percentile ranks are not yet available due to the limited number of field samples that have been analyzed to date.
- However, like MNSSA and other genes involved in anaerobic hydrocarbon biodegradation, ABC and ANC detection frequencies are relatively low so the detection of these genes even at low concentrations should be considered when evaluating biodegradation potential under existing site conditions.

Figure 2: Microbial Populations - Aerobic BTEX and MTBE



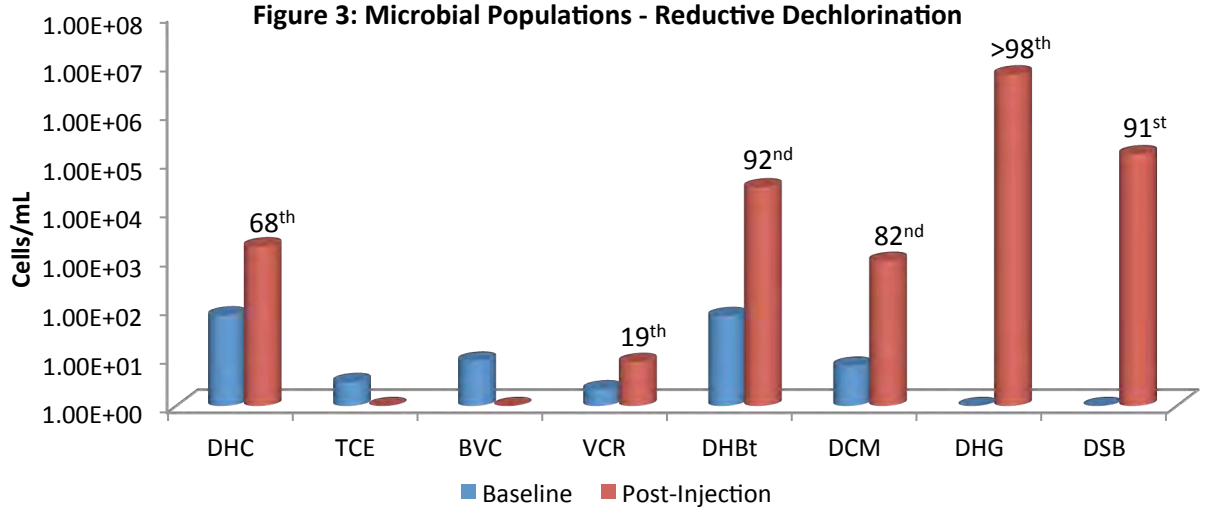
Aerobic BTEX and MTBE Biodegradation (Figure 2):

- With growing evidence that aromatic oxygenases function at low dissolved oxygen concentrations, aerobic BTEX biodegradation pathways should also be evaluated when considering MNA.
- Again, the QuantArray-Petro results were encouraging – genes encoding the first step in multiple pathways for aerobic BTEX biodegradation were detected indicating the presence of a diverse population of aerobic BTEX degraders.
- However, aerobic BTEX degraders are often considered ubiquitous. Therefore answering the question "Is that low, medium or high?" becomes especially important when evaluating aerobic BTEX biodegradation at petroleum hydrocarbon sites.
- In this case, the estimated percentile ranks of the concentrations of toluene/benzene monooxygenase (RMO and RDEG) and phenol hydroxylase (PHE) genes ranged from the 64th to 73rd percentile.
- In other words, the concentrations of RMO, RDEG, and PHE detected in this groundwater sample were greater than the concentrations detected in 64% to 73% of all other groundwater samples where these genes were analyzed and detected above the PQL.
- Aerobic BTEX degraders are common in the environment, but in this sample concentrations of toluene/benzene monooxygenase genes could be viewed as "better than average" when compared to the MI Database.

Biostimulation – Chlorinated Solvent Site:

Whenever possible, interpretation of qPCR and QuantArray results should include comparisons between baseline and post-injection monitoring events as shown below (Figure 3). The estimated percentile ranks however provide an additional avenue for comparison and evaluation of remedy performance.

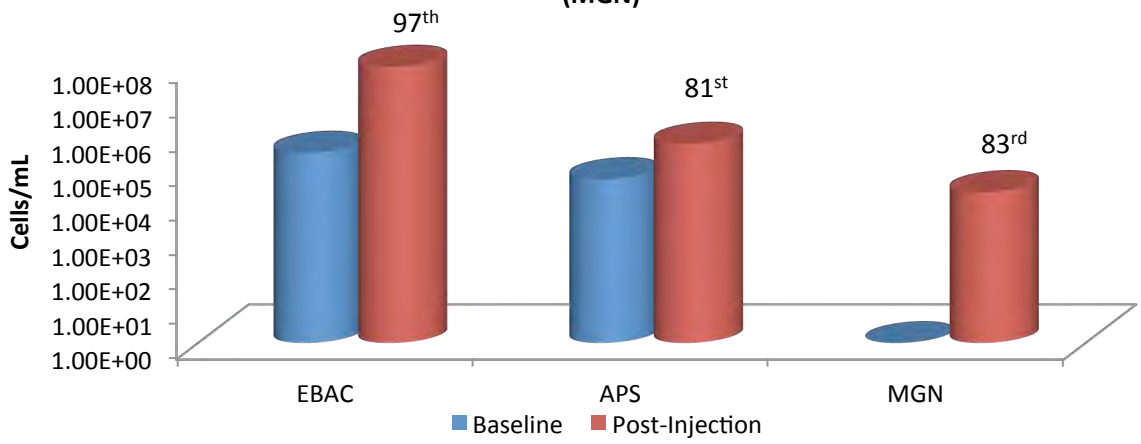
Figure 3: Microbial Populations - Reductive Dechlorination



- During the baseline groundwater sampling event, *Dehalococcoides* and vinyl chloride reductase genes were detected indicating the potential for complete reductive dechlorination of PCE and TCE to ethene.
- However, the *Dehalococcoides* concentration was well below the 10^4 cells/mL recommended by Lu et al. (2006) for generally effective rates of reductive dechlorination.
- Based on qPCR results as well as traditional groundwater monitoring, biostimulation with electron donor addition was selected as the site management plan.
- By the first monitoring event after injection, populations of halorespiring bacteria had increased substantially in response to electron donor addition.
    - *Dehalobacter* populations increased by more than two orders of magnitude to post-injection concentrations greater than 10^4 cells/mL (92nd percentile).
    - *Dehalogenimonas* (10^6 cells/mL) and *Desulfitobacterium* (10^5 cells/mL) which had not been detected prior electron donor addition were present at concentrations greater than observed in over 90% of other groundwater samples where these halorespiring bacteria were detected.
- After injection, *Dehalococcoides* populations increased by more than an order of magnitude to a concentration of over 10^3 cells/mL (68th percentile) demonstrating growth of this key group of halorespiring bacteria.
- Despite a substantial increase and a "better than average" concentration, the *Dehalococcoides* population was still below the 10^4 cells/mL threshold and vinyl chloride reductase gene copies were low (19th percentile).
    - In terms of electron donors and acceptors, the metabolic capabilities of *Dehalococcoides* are rather specialized (hydrogen utilizing obligate halorespiring bacteria) so the median concentration is low. With a low median concentration across the database, a "better than average" *Dehalococcoides* concentration in a given sample may not exceed the 10^4 cells/mL threshold established for effective reductive dechlorination (Lu et al. 2006) and ethene production (Microbial Insights, unpublished data).

- In this case, the initial growth of *Dehalococcoides* was substantial but may have been somewhat hindered by competition with sulfate reducing bacteria (Figure 4 below).
    - The baseline population of sulfate reducing bacteria was moderate (10^4 cells/mL; 63rd percentile). Consistent with an observed decreased in dissolved sulfate concentrations, populations of sulfate reducing bacteria increased and were detected at a relatively high concentration (81st percentile) after electron donor addition.
    - After injection, methanogen populations also increased to a relatively high concentration (83rd percentile) suggesting generation of methanogenic conditions.
- With sulfate depletion and generation of highly anaerobic conditions more conducive to reductive dechlorination, *Dehalococcoides* populations may continue to increase and exceed the 10^4 *Dehalococcoides* cells/mL threshold in subsequent monitoring events.
- Overall, QuantArray analysis conclusively demonstrated that electron donor addition stimulated growth of halorespiring bacteria with the estimated percentiles retrieved from the MI Database providing the "low, medium or high" perspective to the observed changes in microbial populations.

Figure 4: Total Bacteria (EBAC), Sulfate Reducering Bacteria (APS) and Methanogens (MGN)



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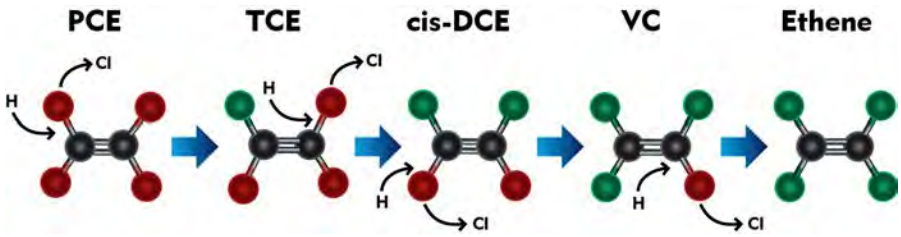
Lu, X., J.T. Wilson, and D.H. Kampbell. 2006. Relationship between *Dehalococcoides* DNA in ground water and rates of reductive dechlorination at field scale. *Water Research* 40 no. 16: 3131-3140.

DHC Interpretation

Dehalococcoides 16S rRNA gene (qDHC)

Under anaerobic conditions, tetrachloroethene (PCE) and trichloroethene (TCE) can undergo sequential reductive dechlorination through the daughter products *cis*-dichloroethene (*cis*-DCE) and vinyl chloride to nontoxic ethene (1,2).



While a number of bacterial cultures capable of utilizing PCE and TCE as growth supporting electron acceptors have been isolated (3-7), *Dehalococcoides* spp. may be the most important because they are the only bacterial group that has been isolated to date which is capable of complete reductive dechlorination of PCE to ethene (8). In fact, the presence of *Dehalococcoides* spp. has been associated with complete dechlorination to ethene at sites across North America and Europe (9).

Status	*Dehalococcoides spp.*	Observation
	**≥ 10^4** (cells/mL)	Lu et al. proposed that a concentration of 1 x 10^4 DHC cells/mL could be used as a screening criterion to identify sites where reductive dechlorination will yield a generally useful biodegradation rate (10). Similarly, in an internal study conducted with nearly 1000 groundwater samples obtained from sites across the US, ethene production was observed in approximately 80% of samples in which CENSUS® qDHC results were greater than or equal to 10^4 DHC cells/mL.
	**10^1 to < 10^4** (cells/mL)	When vinyl chloride reductase genes (See DHC functional genes discussion below) are also detected, complete reductive dechlorination of PCE and TCE to ethene may still occur even with moderate DHC concentrations. When the DHC population is below the 10^4 cells/mL criterion proposed by Lu et al. (10), project managers should carefully consider other site-specific data to determine whether subsurface conditions may be limiting reductive dechlorination. For example, the addition of an electron donor may be able to stimulate DHC growth and enhance anaerobic bioremediation.
	**< 10^1** (cells/mL)	DHC concentrations are low suggesting that complete reductive dechlorination of PCE and TCE to ethene is unlikely to occur under existing conditions. Enhanced anaerobic bioremediation options (biostimulation or bioaugmentation) may need to be considered.

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DHC Interpretation

DHC Functional Genes (*tce*A, *bvc*A, *vcr*A)

A "stall" where daughter products *cis*-DCE and vinyl chloride accumulate can occur at PCE- and TCE-impacted sites especially under MNA conditions. The accumulation of vinyl chloride, generally considered more carcinogenic than the parent compounds, is particularly problematic. Although elevated *Dehalococcoides* concentrations correspond to ethene production in numerous studies, the range of chlorinated ethenes metabolized and cometabolized varies among species and strains within the *Dehalococcoides* genus. For example, *Dehalococcoides ethenogenes* str. 195 metabolizes PCE, TCE, and *cis*-DCE and cometabolizes vinyl chloride (8) to produce ethene. Conversely, *Dehalococcoides* sp. CBDB1 utilizes PCE and TCE but does not cometabolize additional chloroethenes (11). Other *Dehalococcoides* strains, such as BAV1, GT and VS, are known to fully dechlorinate cis-DCE and VC to ethene (14,16,19). Quantification of reductive dehalogenase genes is used to more definitively confirm the potential for reductive dechlorination of TCE, cis-DCE, and vinyl chloride (12-15).

Functional Gene	Observation
TCE Reductase	
***tce*A gene**	The *tce*A gene encodes the enzyme responsible for reductive dechlorination of TCE to *cis*-DCE in some strains of *Dehalococcoides*. Absence of *tce*A does not preclude the potential for reductive dechlorination of TCE in the field since the *tce*A gene is not universally distributed among all DHC and is not present in other microorganisms capable of reductive dechlorination of TCE (e.g. *Dehalobacter*). Detection of the *tce*A gene provides an additional line of evidence indicating the potential for dechlorination of TCE.
Vinyl Chloride Reductase	
***bvc*A gene**	The *bvc*A gene encodes the vinyl chloride reductase enzyme responsible for reductive dechlorination of vinyl chloride to ethene by *Dehalococcoides* sp. str. BAV1 (16). Presence of *bvc*A gene indicates the potential for reductive dechlorination of VC to ethene. Absence of both *bvc*A and *vcr*A genes suggests VC may accumulate. An internal study with ~1,000 samples showed ethene production was observed in 80% of the samples that the DHC population was greater than or equal to 10^4 cells/mL. The *bvc*A gene was detected in over 50% of these samples. Van Der Zaan et al (17) noted that the bvcA gene was the only VC reductase gene detected at three of their sites. Alfred Spormann's laboratory at Stanford University (18) reported that the *bvc*A gene was the most abundant and active at the outflow of a PCE fed column study. This section of the column was in the DCE to VC stages of reductive dechlorination thus confirming the importance of the *bvc*A gene for complete reductive dechlorination.
***vcr*A gene**	The *vcr*A gene encodes the vinyl chloride reductase enzyme responsible for reductive dechlorination of *cis*-DCE and vinyl chloride by *Dehalococcoides* sp. strain VS (14). Presence of *vcr*A gene indicates the potential for reductive dechlorination of DCE and/or VC to ethene. Absence of both *bvc*A and *vcr*A genes suggest VC may accumulate. As with the *bvc*A gene, detection of the *vcr*A gene is associated with ethene production in internal studies (67%) and vinyl chloride reduction in independent studies (14, 17).

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DHC Interpretation

Reporting

Microbial Insights can provide a variety of data packages and reporting levels to suit the needs of any project. Data packages range from simple analytical reports with results only to more complex data packages that include a report narrative, analytical results, QC data, and supporting materials including all raw data and chain-of-custody documentation. The figure below shows our standard report and explains the way values are reported.

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CENSUS

Client: Company Name
Project: Your Project Name

MI Project Number: Unique Laboratory Identifier
Date Received: Date Samples Arrived

Sample Information

Client Sample ID:		Sample A	Sample B	Sample C
Sample Date:		00/00/0000	00/00/0000	00/00/0000
Units:		cells/mL	cells/mL	cells/mL
Analyst:		Intials	Intials	Intials
Dechlorinating Bacteria				
Dehalococcoides spp.	DHC	**1.84E+05**	**2.76E+02**	**2.28E+01 (J)**
Functional Genes				
tceA Reductase	TCE	**6.00E+01**	**3.23E+01**	<4.00E-01
bvcA Reductase	BVC	**1.17E+04**	**1.81E+01**	<4.00E-01
vcrA Reducatase	VCR	**8.42E+04**	**1.74E+02**	<4.00E-01

"J" value
Result is an estimated value. This data qualifier (flag) is used when the target gene is detected but at a concentration or abundance below the practical quantification limit (PQL).

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

< value
The target gene was not detected at the limit of quantitation (LOQ) reported for that sample.

"I" value
QA Procedure indicated that the sample may have exhibited PCR inhibition. Although relatively rare, PCR inhibition can occur due to the presence of metals or humic acids at high concentrations in the sample.

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Quality Assurance

Microbial Insights' comprehensive Quality Assurance (QA) Program is the foundation of all laboratory analyses, ensuring that our clients receive high-quality analytical services that are timely, reliable, and meet their intended purpose in a cost effective manner. MI is committed to providing quality data that surpasses regulatory and industry standards, thus enabling the client to make well-informed decisions. MI maintains strict standard operating procedures and QA/QC measures throughout all of the analyses offered. The following Table details specific QA/QC procedures that are used for CENSUS.

QA/QC	Description
Date of Extraction	DNA and RNA extractions are performed the day the samples are received by MI to minimize the possibility of any changes to the microbial community prior to analysis.
Laboratory Method Blanks	An extraction blank (no sample added) is processed alongside each set of field samples from DNA extraction through CENSUS® analysis to ensure that cross contamination has not occurred. Although MI has never experienced this issue, the detection of the CENSUS® target (e.g. *Dehalococcoides*) in an extraction blank is direct evidence of cross contamination with a sample or contamination of a reagent and would invalidate the results. If this were to occur, MI would re-extract the sample. If not possible to re-extract, MI would contact the client immediately and notate it on the laboratory report.
Laboratory Control Samples (LCS)	A laboratory control sample (LCS) or positive control (target DNA) is included with each CENSUS® plate to confirm amplification and as a continuing calibration check.
Negative Controls	A negative control (no DNA) is included with each CENSUS plate to ensure that cross contamination has not occurred during amplification. As with the extraction blank, detection of CENSUS target (e.g. DHC) in a negative control is direct evidence of contamination and would invalidate the results. If this were to occur, MI would rerun the analysis.

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Sample Information					Analyses					CENSUS: Please select the target organism/gene																							
MI ID (Laboratory Use Only)	Sample Name	Date Sampled	Time Sampled	Matrix	PLFA	DGGE+3ID	DGGE+5ID	QuantArray Chlor	QuantArray Petro	DHC (Dehalococcoides)	DHC Functional genes (bvc, tca, vcr)	DHBI (Dehalobacter)	DSM (Desulfuromonas)	DSB (Desulfitobacterium)	EBAC (Total)	SRB (Sulfate Reducing Bacteria-APS)	MGN (Methanogens)	MOB (Methanotrophs)	SMMO	DNF (Denitrifiers-nirS and nirK)	AOB (ammonia oxidizing bacteria)	PM1 (MTBE aerobic)	RMO (Toluene Monooxygenase)	RDEG (Toluene Monooxygenase)	PHE (Phenol Hydroxylase)	NAH (Napthalene-aerobic)	BSSA (Toluene/Xylene-Anaerobic)	add. qPCR:	add. qPCR:	RNA Expression Option)*	Other:	Other:	Other:
052PL1	03WW01-121218	12/12/18	0820	WG						X		X																					
2	35AWW08-121218	12/12/18	0910	WG						X		X																					
3	35AWW10-121218	12/12/18	1030	WG						X		X																					

Relinquished by: [signature] 12/12/18 1430
Received by: [signature] Date 12/13/18 1240

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Failure to provide sufficient and/or correct information regarding reporting, invoicing & analyses requested information may result in delays for which MI will not be liable.

HS18120736 8260 Raw Data

ALS WO# HS18120736

MSVOA09 -Logbook

Batch: 34002
Date: 12-21-2018
Method: 8260
Comments:

Analyst: Presenta Cabascango
Reviewer:
Laboratory: Houston

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	12-21-2018 01:25 pm	1.00	50 mL	50 mL	U122101.D	Liquid	Y	NA
	Auto find/purged									
2	VSTD00.25	ICAL1	12-21-2018 01:49 pm	1.00	50 mL	50 mL	U122102.D	Liquid	Y	NA
	0.25 uL cal std/250 mL DI									
3	VSTD00.5	ICAL2	12-21-2018 02:14 pm	1.00	50 mL	50 mL	U122103.D	Liquid	Y	NA
	0.5 uL cal std/250 mL DI									
4	VSTD001	ICAL3	12-21-2018 03:03 pm	1.00	50 mL	50 mL	U122104.D	Liquid	Y	NA
	1 uL cal std/250 mL DI									
5	VSTD002	ICAL4	12-21-2018 03:28 pm	1.00	50 mL	50 mL	U122105.D	Liquid	Y	NA
	2 uL cal std/250 mL DI									
6	VSTD005	ICAL5	12-21-2018 03:52 pm	1.00	50 mL	50 mL	U122106.D	Liquid	Y	NA
	5 uL cal std/250 mL DI									
7	VSTD020	ICAL6	12-21-2018 04:17 pm	1.00	50 mL	50 mL	U122107.D	Liquid	Y	NA
	4 uL cal std/50 mL DI									
8	VSTD050	ICAL7	12-21-2018 04:41 pm	1.00	50 mL	50 mL	U122108.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
9	VSTD100	ICAL8	12-21-2018 05:06 pm	1.00	50 mL	50 mL	U122109.D	Liquid	Y	NA
	20 uL cal std/50 mL DI									
10	VSTD150	ICAL9	12-21-2018 05:31 pm	1.00	50 mL	50 mL	U122110.D	Liquid	Y	NA
	30 uL cal std/50 mL DI									
11	VSTD200	ICAL	12-21-2018 05:55 pm	1.00	50 mL	50 mL	U122111.D	Liquid	Y	NA
	40 uL cal std/50 mL DI									
12	BLANK	SAMP	12-21-2018 06:20 pm	1.00	50 mL	50 mL	U122112.D	Liquid	Y	NA
	Cleanup blk									
13	VSTD050	ICV	12-21-2018 06:45 pm	1.00	50 mL	50 mL	U122113.D	Liquid	Y	NA
	10 uL ICV std/50 mL DI									
14	BLANK	SAMP	12-21-2018 07:09 pm	1.00	50 mL	50 mL	U122114.D	Liquid	Y	NA
15	VLCSW-1812021	LCS	12-21-2018 07:34 pm	1.00	50 mL	50 mL	U122115.D	Liquid	Y	NA
	4 uL ICV std/50 mL DI									
16	BLANK	SAMP	12-21-2018 07:59 pm	1.00	50 mL	50 mL	U122116.D	Liquid	Y	NA
17	VBLKW-181221	MBLK	12-21-2018 08:24 pm	1.00	50 mL	50 mL	U122117.D	Liquid	Y	NA
18	HS18120782-01	SAMP	12-21-2018 08:48 pm	1.00	50 mL	50 mL	U122118.D	Liquid	Y	<2
19	HS18121172-01	SAMP	12-21-2018 09:13 pm	1.00	50 mL	50 mL	U122119.D	Liquid	Y	<2
20	HS18120947-01	SAMP	12-21-2018 09:38 pm	10.00	5 mL	50 mL	U122120.D	Liquid	Y	<2
21	HS18121172-01MS	MS	12-21-2018 10:03 pm	1.00	50 mL	50 mL	U122121.D	Liquid	Y	<2
	3.5 uL cal std/40 mL Sample									
22	HS18121172-01MSD	MSD	12-21-2018 10:27 pm	1.00	50 mL	50 mL	U122122.D	Liquid	Y	<2
	3.5 uL cal std/40 mL Sample									
23	HS18121172-02	SAMP	12-21-2018 10:52 pm	1.00	50 mL	50 mL	U122123.D	Liquid	Y	<2
24	HS18121172-03	SAMP	12-21-2018 11:17 pm	1.00	50 mL	50 mL	U122124.D	Liquid	Y	<2
25	HS18121172-04	SAMP	12-21-2018 11:42 pm	1.00	50 mL	50 mL	U122125.D	Liquid	Y	<2
26	HS18121172-05	SAMP	12-22-2018 12:06 am	1.00	50 mL	50 mL	U122126.D	Liquid	Y	<2
27	HS18121172-06	SAMP	12-22-2018 12:31 am	1.00	50 mL	50 mL	U122127.D	Liquid	Y	<2

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Chemical	Value
SURR SPK ID	30502-52-03
IS ID	30502-52-04
ICV STD ID	30603-46-01
LCS/MS ID	30603-46-01
CAL STD ID	30502-56-01/02
BFB ID	30502-52-03

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS18120736

Matrix Spike - Sample No.: VSTD050

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
cis-1,3-Dichloropropene	50.00	48.91	98	80-120
trans-1,3-Dichloroprope	50.00	48.93	98	80-120
1,3-Dichlorobenzene	50.00	48.27	96	80-120
2,2-Dichloropropane	50.00	53.09	106	80-120
1,1-Dichloropropene	50.00	47.46	95	80-120
Dibromomethane	50.00	50.89	102	80-120
1,2-Dibromoethane	50.00	51.16	102	80-120
trans-1,2-Dichloroethen	50.00	48.02	96	80-120
1,1,1,2-Tetrachloroetha	50.00	48.43	97	80-120
1,1,1-Trichloroethane	50.00	49.36	99	80-120
1,1,2,2-Tetrachloroetha	50.00	49.55	99	80-120
Freon TF	50.00	45.07	90	80-120
1,1,2-Trichloroethane	50.00	49.30	99	80-120
1,1-Dichloroethane	50.00	47.96	96	80-120
1,1-Dichloroethene	50.00	45.82	92	80-120
Trichlorofluoromethane	50.00	45.85	92	80-120
1,2,3-Trichlorobenzene	50.00	47.80	96	80-120
Toluene	50.00	49.27	98	80-120
1,2,4-Trichlorobenzene	50.00	50.37	101	80-120
1,2,4-Trimethylbenzene	50.00	50.13	100	80-120
Tetrachloroethene	50.00	45.93	92	80-120
Trichloroethene	50.00	48.84	98	80-120
1,2-Dichlorobenzene	50.00	48.36	97	80-120
1,2-Dichloroethane	50.00	50.35	101	80-120
1,2-Dichloropropane	50.00	49.19	98	80-120
1,3,5-Trimethylbenzene	50.00	50.06	100	80-120
1,3-Dichloropropane	50.00	49.40	99	80-120
1,4-Dichlorobenzene	50.00	47.08	94	80-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

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FORM III VOA

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS18120736

Matrix Spike - Sample No.: VSTD050

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
2-Butanone	100.00	104.35	104	80-120
2-Chlorotoluene	50.00	49.32	99	80-120
2-Hexanone	100.00	109.16	109	80-120
4-Chlorotoluene	50.00	49.71	99	80-120
tert-Butylbenzene	50.00	47.93	96	80-120
4-Methyl-2-Pentanone	100.00	106.57	106	80-120
Acetone	100.00	114.45	114	80-120
Benzene	50.00	48.82	98	80-120
Bromobenzene	50.00	49.77	100	80-120
Bromochloromethane	50.00	56.76	114	80-120
Bromodichloromethane	50.00	52.06	104	80-120
Bromoform	50.00	47.92	96	80-120
Bromomethane	50.00	54.05	108	80-120
Carbon Disulfide	100.00	96.00	96	80-120
Carbon Tetrachloride	50.00	44.88	90	80-120
Chlorobenzene	50.00	48.25	96	80-120
Chloroethane	50.00	46.15	92	80-120
Chloroform	50.00	48.45	97	80-120
Chloromethane	50.00	48.96	98	80-120
cis-1,2-Dichloroethene	50.00	48.93	98	80-120
Dibromochloromethane	50.00	48.57	97	80-120
Dichlorodifluoromethane	50.00	46.21	92	80-120
Ethylbenzene	50.00	49.30	99	80-120
Hexachlorobutadiene	50.00	46.17	92	80-120
Isopropylbenzene	50.00	49.07	98	80-120
m,p-Xylenes	100.00	99.88	100	80-120
Methylene Chloride	50.00	49.75	100	80-120
n-Butylbenzene	50.00	46.94	94	80-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

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FORM III VOA

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS18120736

Matrix Spike - Sample No.: VSTD050

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
n-Propylbenzene	50.00	49.11	98	80-120
Naphthalene	50.00	49.46	99	80-120
o-Xylene	50.00	49.89	100	80-120
sec-Butylbenzene	50.00	47.69	95	80-120
Styrene	50.00	52.73	105	80-120
Vinyl Chloride	50.00	46.02	92	80-120
1,2,3-Trichloropropane	50.00	53.26	106	80-120
p-Isopropyltoluene	50.00	49.19	98	80-120
1,2-Dibromo-3-Chloropro	50.00	49.92	100	80-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

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FORM III VOA

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS18120736

Lab File ID: U122101 BFB Injection Date: 12/21/18

Instrument ID: VOA9 BFB Injection Time: 1325

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	19.6
75	30.0 - 60.0% of mass 95	50.4
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.0
173	Less than 2.0% of mass 174	0.5 (0.8)1
174	Greater than 50.0% of mass 95	66.8
175	5.0 - 9.0% of mass 174	5.1 (7.7)1
176	95.0 - 101.0% of mass 174	63.8 (95.6)1
177	5.0 - 9.0% of mass 176	4.5 (7.0)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD00.25	VSTD00.25	U122102	12/21/18	1349
02	VSTD00.5	VSTD00.5	U122103	12/21/18	1414
03	VSTD001	VSTD001	U122104	12/21/18	1503
04	VSTD002	VSTD002	U122105	12/21/18	1528
05	VSTD005	VSTD005	U122106	12/21/18	1552
06	VSTD020	VSTD020	U122107	12/21/18	1617
07	VSTD050	VSTD050	U122108	12/21/18	1641
08	VSTD100	VSTD100	U122109	12/21/18	1706
09	VSTD150	VSTD150	U122110	12/21/18	1731
10	VSTD200	VSTD200	U122111	12/21/18	1755
11	VSTD050	VSTD050	U122113	12/21/18	1845
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS18120736

Instrument ID: VOA9 Calibration Date(s): 12/21/18 12/21/18

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1349 1755

LAB FILE ID: RF0.25: U122102 RF0.5: U122103 RF1: U122104
RF2: U122105 RF5: U122106 RF20: U122107

COMPOUND	RF0.25	RF0.5	RF1	RF2	RF5	RF20
cis-1,3-Dichloropropene		2152	7273	13732	38403	162454
trans-1,3-Dichloropropene		1633	5668	10646	30725	135347
1,3-Dichlorobenzene		1.191	1.700	1.605	1.568	1.456
2,2-Dichloropropane		0.485	0.763	0.625	0.645	0.634
1,1-Dichloropropene		0.322	0.521	0.477	0.458	0.439
Dibromomethane		0.143	0.229	0.212	0.217	0.208
1,2-Dibromoethane		0.251	0.393	0.345	0.364	0.358
trans-1,2-Dichloroethene		0.432	0.724	0.620	0.614	0.598
1,1,1,2-Tetrachloroethane		1272	4208	8522	21878	89389
1,1,1-Trichloroethane		0.521	0.866	0.775	0.824	0.806
1,1,2,2-Tetrachloroethane		0.818	1.359	1.245	1.216	1.139
Freon TF		0.306	0.503	0.450	0.439	0.408
1,1,2-Trichloroethane		0.224	0.351	0.317	0.320	0.302
1,1-Dichloroethane		0.726	1.305	1.174	1.154	1.100
1,1-Dichloroethene		0.403	0.563	0.526	0.486	0.447
Trichlorofluoromethane		1919	7922	14026	37144	130957
1,2,3-Trichlorobenzene		1324	6631	12385	31113	126752
Toluene		1.131	1.662	1.581	1.624	1.525
1,2,4-Trichlorobenzene		0.721	1.015	0.905	0.905	0.901
1,2,4-Trimethylbenzene		1.826	2.823	2.656	2.819	2.701
Tetrachloroethene		0.219	0.326	0.277	0.272	0.254
Trichloroethene		0.245	0.382	0.322	0.344	0.317
1,2-Dichlorobenzene		1.166	1.777	1.606	1.586	1.444
1,2-Dichloroethane		2385	8970	15708	41415	149131
1,2-Dichloropropane		0.265	0.415	0.367	0.371	0.353
1,3,5-Trimethylbenzene		1.672	2.689	2.445	2.682	2.616
1,3-Dichloropropane		0.478	0.748	0.679	0.708	0.655
1,4-Dichlorobenzene		1.357	1.906	1.683	1.662	1.508
2-Butanone		2109	6369	11299	29605	119433
2-Chlorotoluene		1.700	2.636	2.392	2.490	2.333
2-Hexanone		0.182	0.278	0.270	0.285	0.300
4-Chlorotoluene		1.938	2.990	2.793	2.876	2.698
tert-Butylbenzene		1.429	2.338	2.197	2.340	2.218
4-Methyl-2-Pentanone		0.264	0.428	0.396	0.407	0.423
Acetone		3366	5582	8219	19230	73380
Benzene		0.975	1.562	1.399	1.435	1.337
Bromobenzene		0.564	0.890	0.814	0.813	0.765
Bromochloromethane		773	2865	5148	13786	51515
Bromodichloromethane		0.250	0.393	0.362	0.383	0.380
Bromoform		762	2343	4574	12962	53922
Bromomethane		822	2293	4588	12245	47148
Carbon Disulfide		1.468	2.043	1.806	1.808	1.714
Carbon Tetrachloride		1510	5463	10077	26439	104210
Chlorobenzene		0.762	1.142	1.012	1.020	0.962

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS1812073

Instrument ID: VOA9 Calibration Date(s): 12/21/18 12/21/18

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1349 1755

LAB FILE ID: RF0.25: U122102 RF0.5: U122103 RF1: U122104
RF2: U122105 RF5: U122106 RF20: U122107

COMPOUND	RF0.25	RF0.5	RF1	RF2	RF5	RF20
Chloroethane		2753	3213	8179	22172	73150
Chloroform		0.705	1.253	1.110	1.148	1.060
Chloromethane		1695	4689	8693	20682	79075
cis-1,2-Dichloroethene		0.459	0.806	0.684	0.699	0.678
Dibromochloromethane		1194	4051	7740	20846	89836
Dichlorodifluoromethane		2033	6583	11371	26580	98486
Ethylbenzene		0.353	0.556	0.512	0.523	0.497
Hexachlorobutadiene		0.453	0.398	0.322	0.324	0.310
Isopropylbenzene		0.918	1.542	1.455	1.530	1.485
m,p-Xylenes		0.432	0.668	0.621	0.648	0.629
Methylene Chloride		3346	8113	13726	31487	109403
n-Butylbenzene		1.993	2.818	2.596	2.666	2.520
n-Propylbenzene		2.596	4.144	3.755	4.032	3.835
Naphthalene		5535	16505	32897	91300	413229
o-Xylene		0.413	0.703	0.613	0.642	0.637
sec-Butylbenzene		2.047	3.385	3.201	3.334	3.199
Styrene		0.640	1.035	0.996	1.084	1.092
Vinyl Chloride		1815	6308	12656	29272	111713
1,2,3-Trichloropropane		0.777	1.295	1.203	1.184	1.156
p-Isopropyltoluene		1.912	2.733	2.516	2.786	2.704
1,2-Dibromo-3-Chloropropane		272	861	1910	4931	22196
1,2-Dichloroethane-d4		8601	10907	17881	38943	131494
Dibromofluoromethane		6036	8005	12720	28568	98984
Toluene-d8		27052	32175	54444	117010	408521
4-Bromofluorobenzene		9627	12547	20092	42900	153183

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS1812073

Instrument ID: VOA9 Calibration Date(s): 12/21/18 12/21/18

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1349 1755

LAB FILE ID: RF50: U122108 RF100: U122109 RF150: U122110
RF200: U122111

COMPOUND	RF50	RF100	RF150	RF200
cis-1,3-Dichloropropene	449225	944095	1468956	1986544
trans-1,3-Dichloropropene	381258	811224	1271771	1721394
1,3-Dichlorobenzene	1.440	1.476	1.485	1.441
2,2-Dichloropropane	0.635	0.683	0.695	0.673
1,1-Dichloropropene	0.427	0.455	0.457	0.448
Dibromomethane	0.207	0.207	0.205	0.205
1,2-Dibromoethane	0.349	0.345	0.342	0.340
trans-1,2-Dichloroethene	0.564	0.579	0.576	0.559
1,1,1,2-Tetrachloroethane	235446	493177	766622	1032567
1,1,1-Trichloroethane	0.788	0.846	0.852	0.826
1,1,2,2-Tetrachloroethane	1.127	1.090	1.080	1.060
Freon TF	0.397	0.445	0.445	0.434
1,1,2-Trichloroethane	0.296	0.295	0.290	0.286
1,1-Dichloroethane	1.058	1.079	1.066	1.028
1,1-Dichloroethene	0.441	0.480	0.472	0.461
Trichlorofluoromethane	330010	753769	1146930	1561606
1,2,3-Trichlorobenzene	334600	694931	1085027	1453309
Toluene	1.488	1.490	1.464	1.421
1,2,4-Trichlorobenzene	0.926	0.982	1.001	0.974
1,2,4-Trimethylbenzene	2.661	2.738	2.712	2.610
Tetrachloroethene	0.243	0.257	0.257	0.251
Trichloroethene	0.311	0.321	0.328	0.321
1,2-Dichlorobenzene	1.442	1.463	1.459	1.417
1,2-Dichloroethane	376591	747337	1129116	1504782
1,2-Dichloropropane	0.350	0.357	0.353	0.348
1,3,5-Trimethylbenzene	2.579	2.685	2.665	2.582
1,3-Dichloropropane	0.642	0.630	0.620	0.613
1,4-Dichlorobenzene	1.482	1.511	1.509	1.472
2-Butanone	304044	587152	880878	1199902
2-Chlorotoluene	2.295	2.323	2.315	2.248
2-Hexanone	0.302	0.295	0.297	0.293
4-Chlorotoluene	2.665	2.704	2.694	2.601
tert-Butylbenzene	2.197	2.301	2.300	2.225
4-Methyl-2-Pentanone	0.427	0.421	0.419	0.415
Acetone	187964	331678	520533	723113
Benzene	1.319	1.335	1.317	1.294
Bromobenzene	0.765	0.778	0.792	0.773
Bromochloromethane	129496	244429	348533	453685
Bromodichloromethane	0.388	0.406	0.411	0.408
Bromoform	154855	331336	522892	718878
Bromomethane	117780	281859	444174	585856
Carbon Disulfide	1.656	1.742	1.730	1.622
Carbon Tetrachloride	274507	601960	939611	1268610
Chlorobenzene	0.940	0.949	0.943	0.916

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS1812073

Instrument ID: VOA9 Calibration Date(s): 12/21/18 12/21/18

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1349 1755

LAB FILE ID: RF50: U122108 RF100: U122109 RF150: U122110
RF200: U122111

COMPOUND	RF50	RF100	RF150	RF200
Chloroethane	179707	384958	684109	859472
Chloroform	1.027	1.035	1.016	0.978
Chloromethane	197328	441603	746873	1095269
cis-1,2-Dichloroethene	0.650	0.655	0.653	0.630
Dibromochloromethane	242061	512845	791728	1081017
Dichlorodifluoromethane	248322	553841	873891	1151588
Ethylbenzene	0.490	0.504	0.504	0.495
Hexachlorobutadiene	0.324	0.352	0.356	
Isopropylbenzene	1.450	1.506	1.482	1.428
m,p-Xylenes	0.612	0.626	0.616	0.600
Methylene Chloride	274258	554902	841220	1131189
n-Butylbenzene	2.535	2.661	2.637	
n-Propylbenzene	3.794	3.919	3.867	3.682
Naphthalene	1107938	2231968	3430934	4589381
o-Xylene	0.622	0.631	0.627	0.612
sec-Butylbenzene	3.182	3.378	3.341	3.190
Styrene	1.084	1.087	1.074	1.044
Vinyl Chloride	283791	629175	1000865	1348117
1,2,3-Trichloropropane	1.210	1.222	1.246	1.245
p-Isopropyltoluene	2.733	2.856	2.837	2.735
1,2-Dibromo-3-Chloropropane	61793	125814	200384	274280
1,2-Dichloroethane-d4	320796	635081	949266	1274051
Dibromofluoromethane	245007	495628	745399	1006329
Toluene-d8	1010127	2029223	3016887	4010125
4-Bromofluorobenzene	382581	764798	1153874	1540801

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS1812073

Instrument ID: VOA9 Calibration Date(s): 12/21/18 12/21/18

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1349 1755

COMPOUND	CURVE	COEFFICENTS A0	A1	A2	%RSD OR R^2	MAX %RSD OR R^2
cis-1,3-Dichloropropene	LINR	2.529e-002	1.70725996		0.9997580	0.9900000
trans-1,3-Dichloropropene	LINR	3.3e-002	1.96902158		0.9995927	0.9900000
1,3-Dichlorobenzene	AVRG		1.48472992		9.494	20.000
2,2-Dichloropropane	AVRG		0.64891526		11.509	20.000
1,1-Dichloropropene	AVRG		0.44488137		11.968	20.000
Dibromomethane	AVRG		0.20390294		11.744	20.000
1,2-Dibromoethane	AVRG		0.34310644		11.102	20.000
trans-1,2-Dichloroethene	AVRG		0.58526565		12.993	20.000
1,1,1,2-Tetrachloroethane	LINR	1.17e-002	3.11489679		0.9998991	0.9900000
1,1,1-Trichloroethane	AVRG		0.78949465		13.294	20.000
1,1,2,2-Tetrachloroethane	AVRG		1.12601556		13.302	20.000
Freon TF	AVRG		0.42507305		12.611	20.000
1,1,2-Trichloroethane	AVRG		0.29788801		11.475	20.000
1,1-Dichloroethane	AVRG		1.07678494		14.456	20.000
1,1-Dichloroethene	AVRG		0.47540572		9.911	20.000
Trichlorofluoromethane	LINR	1.25e-002	1.19826122		0.9992799	0.9900000
1,2,3-Trichlorobenzene	LINR	1.266e-002	1.04791842		0.9997493	0.9900000
Toluene	AVRG		1.48733738		10.393	20.000
1,2,4-Trichlorobenzene	AVRG		0.92571167		9.562	20.000
1,2,4-Trimethylbenzene	AVRG		2.61651384		11.645	20.000
Tetrachloroethene	AVRG		0.26176272		11.269	20.000
Trichloroethene	AVRG		0.32119921		11.118	20.000
1,2-Dichlorobenzene	AVRG		1.48461871		11.211	20.000
1,2-Dichloroethane	LINR	-1.47e-002	2.25247271		0.9997943	0.9900000
1,2-Dichloropropane	AVRG		0.35329723		11.023	20.000
1,3,5-Trimethylbenzene	AVRG		2.51283681		12.919	20.000
1,3-Dichloropropane	AVRG		0.64163858		11.739	20.000
1,4-Dichlorobenzene	AVRG		1.56545234		10.298	20.000
2-Butanone	LINR	-4.87e-002	3.13274512		0.9994657	0.9900000
2-Chlorotoluene	AVRG		2.30373097		11.091	20.000
2-Hexanone	AVRG		0.27803053		13.505	20.000
4-Chlorotoluene	AVRG		2.66220268		11.134	20.000
tert-Butylbenzene	AVRG		2.17187412		13.092	20.000
4-Methyl-2-Pentanone	AVRG		0.40004668		13.000	20.000
Acetone	LINR	-6.05e-002	5.27806885		0.9991782	0.9900000
Benzene	AVRG		1.33049482		11.804	20.000
Bromobenzene	AVRG		0.77253354		11.330	20.000
Bromochloromethane	LINR	-6.22e-002	4.05290698		0.9951390	0.9900000
Bromodichloromethane	AVRG		0.37570006		13.249	20.000
Bromoform	LINR	3.523e-002	4.49538839		0.9994690	0.9900000
Bromomethane	LINR	2.677e-002	3.15194291		0.9981331	0.9900000
Carbon Disulfide	AVRG		1.73224763		9.031	20.000
Carbon Tetrachloride	LINR	2.798e-002	2.67309140		0.9994430	0.9900000
Chlorobenzene	AVRG		0.96069061		10.497	20.000

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS1812073

Instrument ID: VOA9 Calibration Date(s): 12/21/18 12/21/18

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1349 1755

COMPOUND	CURVE	COEFFICENTS A0	A1	A2	%RSD OR R^2	MAX %RSD OR R^2
Chloroethane	2ORDR	9.363e-003	2.27118996	-8.34e-002	0.9953360	0.9900000
Chloroform	AVRG		1.03699562		14.439	20.000
Chloromethane	LINR	6.638e-002	1.75757606		0.9946541	0.9900000
cis-1,2-Dichloroethene	AVRG		0.65721728		13.730	20.000
Dibromochloromethane	LINR	1.95e-002	2.98429229		0.9998675	0.9900000
Dichlorodifluoromethane	LINR	9.706e-003	1.60963706		0.9988360	0.9900000
Ethylbenzene	AVRG		0.49273054		11.389	20.000
Hexachlorobutadiene	AVRG		0.35465839		13.679	20.000
Isopropylbenzene	AVRG		1.42182513		13.532	20.000
m,p-Xylenes	AVRG		0.60575037		11.285	20.000
Methylene Chloride	LINR	-2.41e-002	1.65721813		0.9996145	0.9900000
n-Butylbenzene	AVRG		2.55335964		9.575	20.000
n-Propylbenzene	AVRG		3.73602785		12.044	20.000
Naphthalene	2ORDR	1.313e-002	0.32140252	9.017e-004	0.9999007	0.9900000
o-Xylene	AVRG		0.61109521		12.917	20.000
sec-Butylbenzene	AVRG		3.13985879		13.327	20.000
Styrene	AVRG		1.01526757		14.203	20.000
Vinyl Chloride	LINR	1.938e-002	1.38661185		0.9992348	0.9900000
1,2,3-Trichloropropane	AVRG		1.17088717		13.058	20.000
p-Isopropyltoluene	AVRG		2.64580193		11.042	20.000
1,2-Dibromo-3-Chloropropane	LINR	2.904e-002	5.59224209		0.9995363	0.9900000
1,2-Dichloroethane-d4	LINR	-4.34e-002	1.47435424		0.9993295	0.9900000
Dibromofluoromethane	LINR	-3.06e-002	1.86777807		0.9996249	0.9900000
Toluene-d8	LINR	-3.57e-002	0.80216996		0.9994439	0.9900000
4-Bromofluorobenzene	LINR	-2.86e-002	2.09274699		0.9997553	0.9900000

FORM VI VOA

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122101.D

Date : 21-DEC-2018 13:25

Client ID: BFB

Instrument: VOA9.i

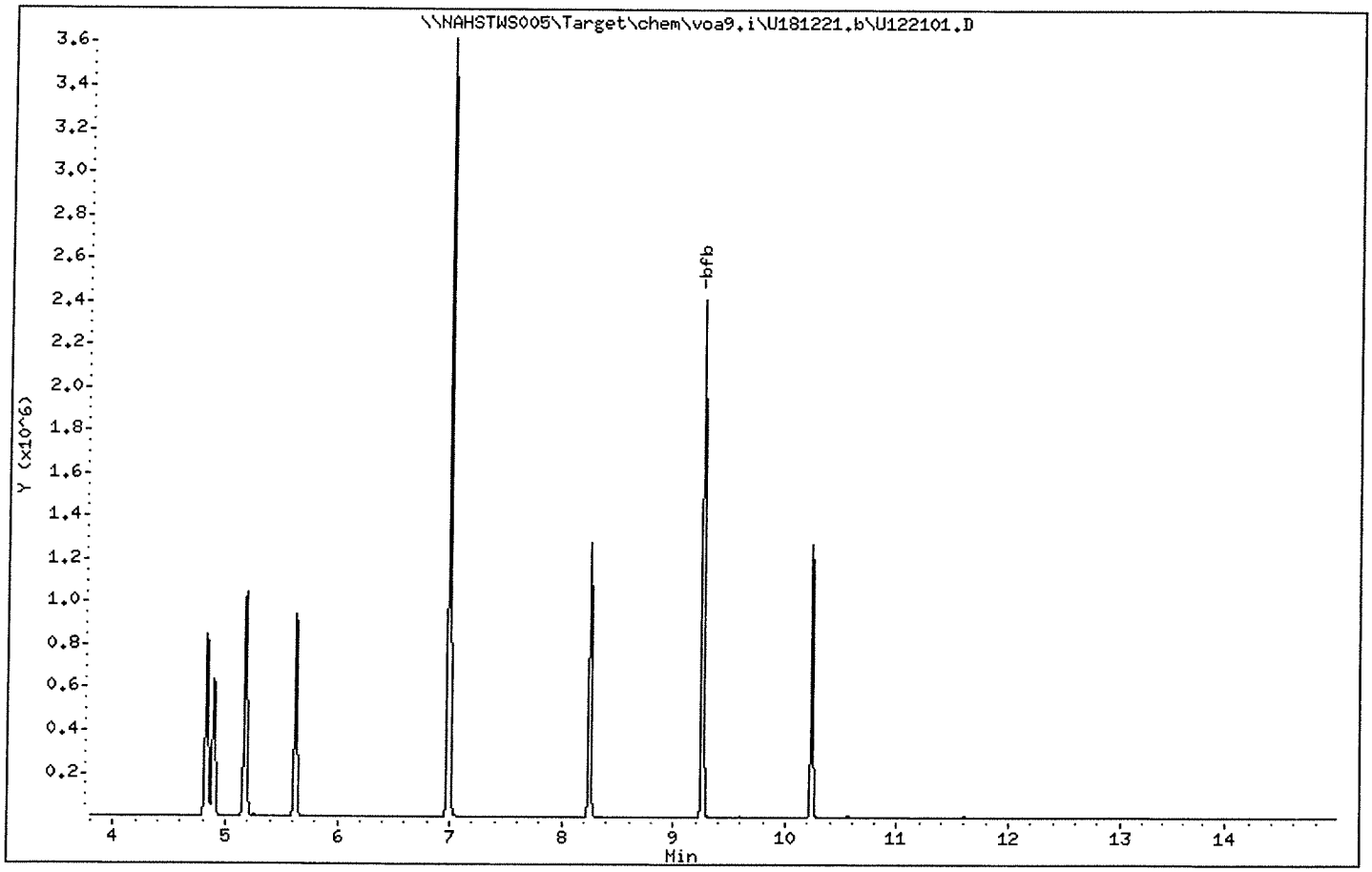
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122101.D

Date : 21-DEC-2018 13:25

Client ID: BFB

Instrument: VOA9.i

Sample Info: BFB;BFB;3;;BFB

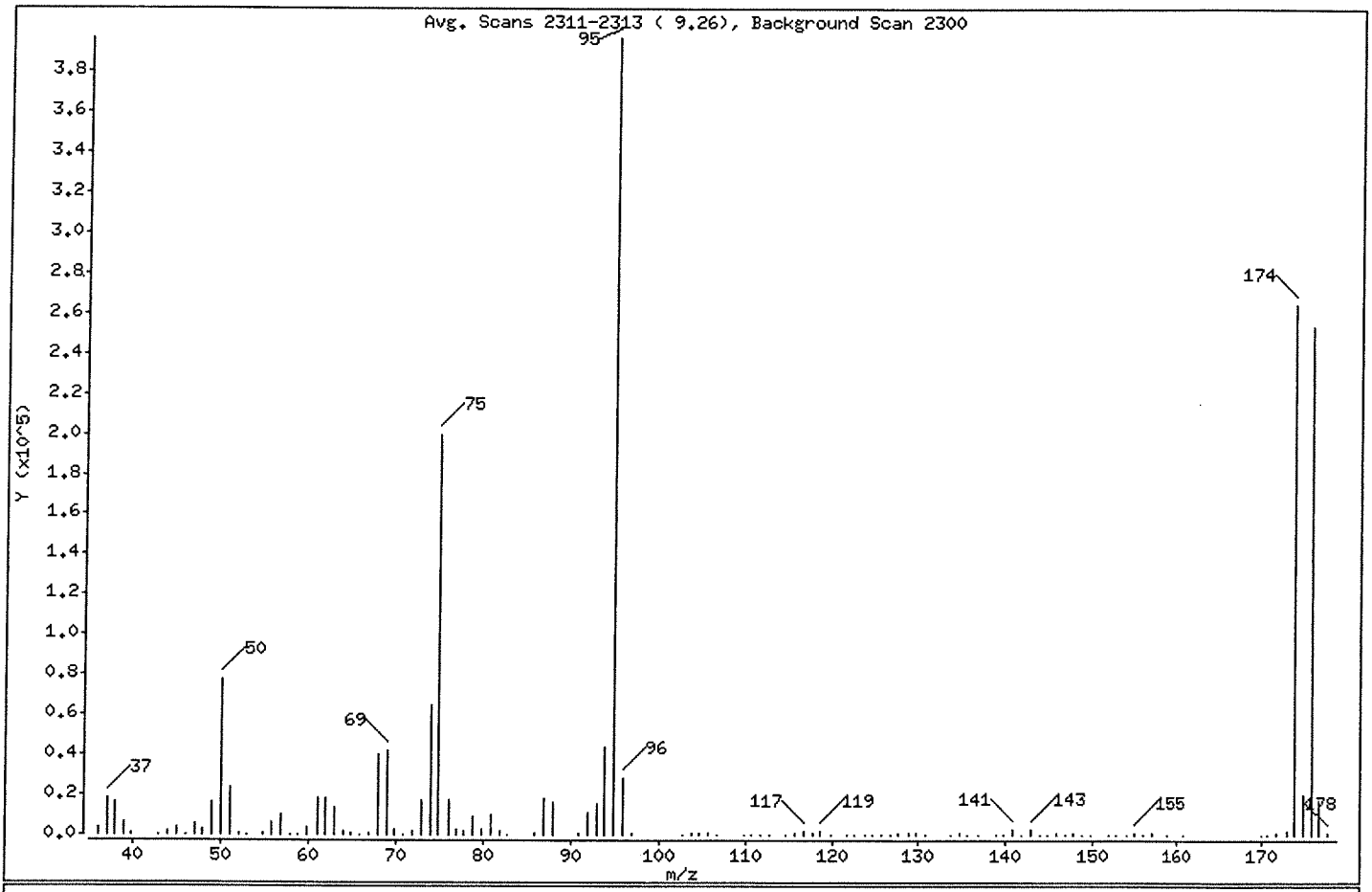
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	19.64
75	30.00 - 60.00% of mass 95	50.36
96	5.00 - 9.00% of mass 95	7.02
173	Less than 2.00% of mass 174	0.53 (0.79)
174	Greater than 50.00% of mass 95	66.76
175	5.00 - 9.00% of mass 174	5.12 (7.67)
176	95.00 - 101.00% of mass 174	63.79 (95.55)
177	5.00 - 9.00% of mass 176	4.47 (7.01)

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122101.D

Date : 21-DEC-2018 13:25

Client ID: BFB

Instrument: VOA9.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

Data File: U122101.D

Spectrum: Avg. Scans 2311-2313 (9.26), Background Scan 2300

Location of Maximum: 94.95

Number of points: 113

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	3522	67.90	40024	105.80	1268	141.70	302
37.00	18528	68.90	41568	106.80	285	142.80	2909
38.00	16159	69.90	3074	109.80	127	143.80	180
39.00	6598	70.90	134	110.70	307	144.70	380
39.90	601	71.90	2102	111.70	156	145.70	457
42.90	115	73.00	17344	112.80	260	146.70	229
43.90	2066	73.90	64968	114.70	321	147.70	676
45.00	3408	74.90	199680	115.70	1039	148.60	185
46.10	284	76.00	17352	116.80	1890	149.70	381
47.00	5059	76.90	2402	117.70	1164	151.70	195
47.90	2352	77.80	1696	118.70	1600	152.70	221
49.00	16317	78.90	8933	119.80	55	153.80	245
50.00	77856	79.90	2552	121.70	99	154.70	869
51.00	23912	80.90	9833	122.70	71	155.70	141
52.00	1198	81.90	1903	123.80	148	156.70	599
52.90	102	82.80	214	124.70	101	158.60	297
54.90	806	85.90	533	125.70	152	160.70	273
55.90	6021	86.90	18088	126.70	123	169.90	51
56.90	10148	87.90	16848	127.70	1127	170.60	105
57.90	434	90.80	1233	128.80	534	171.70	1051
58.70	68	91.90	10521	129.70	1152	172.80	2098
59.90	3925	92.90	15269	130.70	419	173.70	264704
61.00	18160	93.90	43328	133.70	53	174.70	20304
61.90	18216	94.90	396480	134.70	496	175.70	252928
63.00	13327	95.90	27824	135.60	96	176.70	17720
64.00	1507	96.90	709	136.70	369	177.70	520
64.90	816	102.80	137	138.90	62		
65.80	130	103.80	1364	139.70	200		
67.00	910	104.70	463	140.80	2707		

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122102.D Page 1
Report Date: 28-Jan-2019 11:36

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122102.D
Lab Smp Id: VSTD00.25 Client Smp ID: VSTD00.25
Inj Date : 21-DEC-2018 13:49
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD00.25;VSTD00.25;1;1;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 13:49 Cal File: U122102.D
Als bottle: 2 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

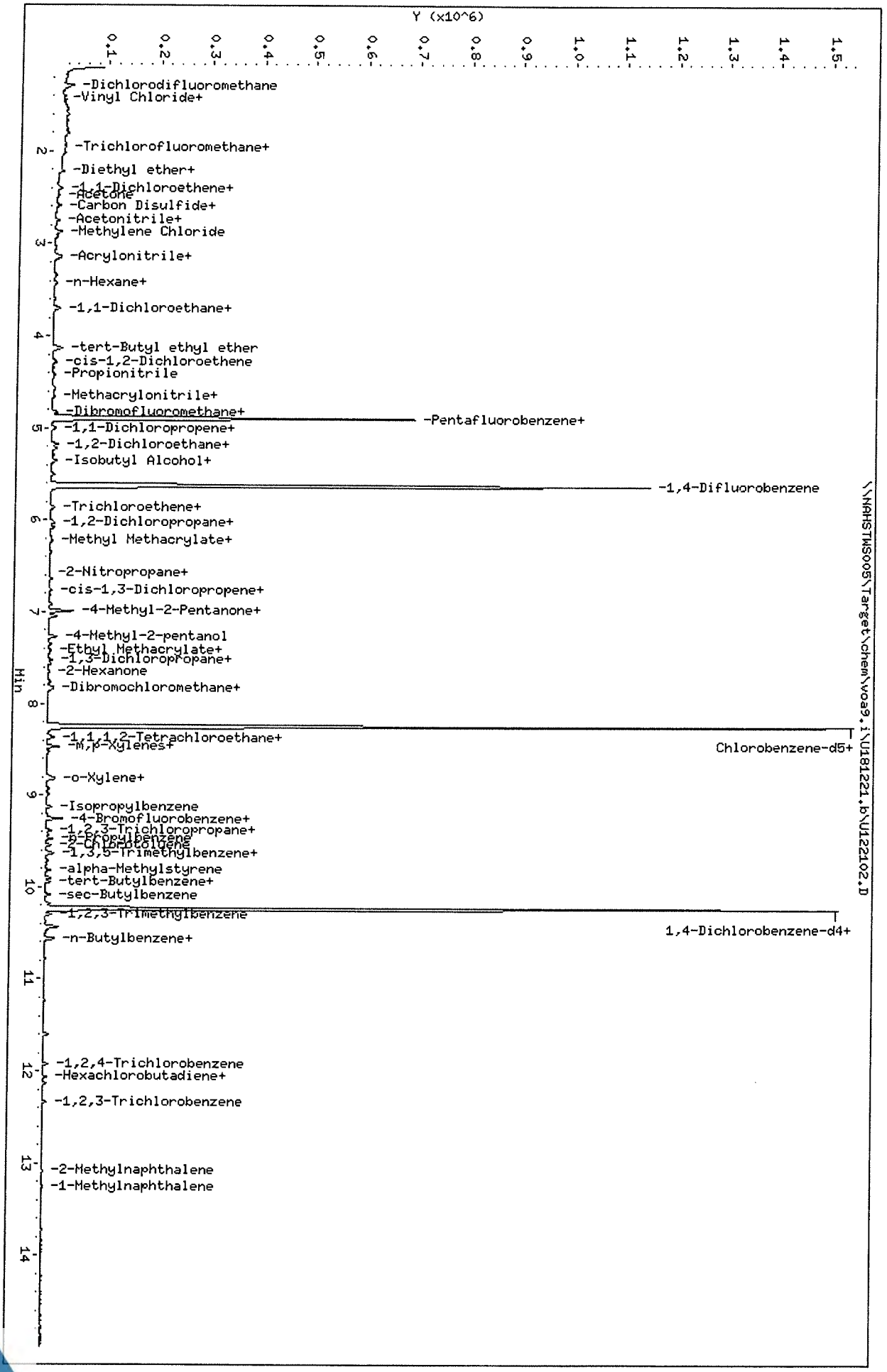
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.894	4.890	(1.000)	428138	50.0000	
*	36 1,4-Difluorobenzene	114	5.625	5.625	(1.000)	818709	50.0000	
*	47 Chlorobenzene-d5	117	8.249	8.249	(1.000)	747851	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	340535	50.0000	
$	30 Dibromofluoromethane	113	4.830	4.826	(0.987)	4885	0.25000	(a)
$	35 1,2-Dichloroethane-d4	65	5.175	5.171	(1.057)	7874	0.25000	(a)
$	48 Toluene-d8	98	6.986	6.989	(0.847)	25629	0.25000	(a)
$	69 4-Bromofluorobenzene	95	9.257	9.257	(1.122)	9480	0.25000	(a)
	60 1,1,1,2-Tetrachloroethane	131	8.350	8.350	(1.012)	1214	0.25000	0.83(a)
	31 1,1,1-Trichloroethane	97	4.826	4.826	(0.986)	2037	0.25000	0.30(a)
	138 Freon TF	101	2.401	2.394	(0.491)	1292	0.25000	0.35(a)
	53 1,1,2-Trichloroethane	83	7.421	7.421	(0.900)	1492	0.25000	0.33(a)
	22 1,1-Dichloroethane	63	3.601	3.597	(0.736)	2808	0.25000	0.30(Ta)
	11 1,1-Dichloroethene	96	2.397	2.394	(0.490)	1606	0.25000	0.39(a)
	32 1,1-Dichloropropene	75	5.003	5.003	(0.889)	2559	0.25000	0.35(a)
	93 1,2,3-Trichlorobenzene	180	12.335	12.335	(1.205)	2119	0.25000	0.95(a)
	71 1,2,3-Trichloropropane	75	9.426	9.430	(0.921)	2311	0.25000	0.28(a)
	90 1,2,4-Trichlorobenzene	180	11.923	11.926	(1.165)	1867	0.25000	0.29(a)
	79 1,2,4-Trimethylbenzene	105	9.940	9.943	(0.971)	5702	0.25000	0.31(a)
	57 1,2-Dibromoethane	107	7.852	7.852	(0.952)	1463	0.25000	0.28(a)
	88 1,2-Dichlorobenzene	146	10.573	10.573	(1.033)	3604	0.25000	0.35(a)
	33 1,2-Dichloroethane	62	5.254	5.250	(0.934)	2468	0.25000	(a)
	42 1,2-Dichloropropane	63	6.079	6.078	(1.081)	1752	0.25000	0.30(a)

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122102.D Page 2
Report Date: 28-Jan-2019 11:36

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
75 1,3,5-Trimethylbenzene	105	9.625	9.628	(0.940)	5173	0.25000	0.30(a)
83 1,3-Dichlorobenzene	146	10.180	10.180	(0.995)	3530	0.25000	0.34(a)
54 1,3-Dichloropropane	76	7.563	7.563	(0.917)	3033	0.25000	0.31(a)
84 1,4-Dichlorobenzene	146	10.255	10.258	(1.002)	4184	0.25000	0.39(a)
76 2-Chlorotoluene	91	9.546	9.550	(0.933)	5370	0.25000	0.34(a)
52 2-Hexanone	43	7.649	7.653	(0.927)	2221	0.50000	0.53(a)
77 4-Chlorotoluene	91	9.640	9.640	(0.942)	6065	0.25000	0.33(a)
82 p-Isopropyltoluene	119	10.210	10.213	(0.997)	5637	0.25000	0.31(a)
45 4-Methyl-2-Pentanone	43	6.914	6.914	(0.838)	3388	0.50000	0.56(a)
10 Acetone	43	2.480	2.476	(0.507)	3620	0.50000	(a)
37 Benzene	78	5.216	5.216	(0.927)	7659	0.25000	0.35(a)
74 Bromobenzene	156	9.381	9.385	(0.917)	1549	0.25000	0.29(a)
19 Carbon Disulfide	76	2.588	2.585	(0.529)	12805	0.50000	0.86(a)
34 Carbon Tetrachloride	117	4.988	4.991	(0.887)	1501	0.25000	1.64(a)
59 Chlorobenzene	112	8.272	8.275	(1.003)	5314	0.25000	0.36(a)
28 Chloroform	83	4.654	4.654	(0.951)	3005	0.25000	0.33(a)
27 cis-1,2-Dichloroethene	96	4.283	4.283	(0.875)	1960	0.25000	0.34(a)
46 cis-1,3-Dichloropropene	75	6.757	6.757	(1.201)	2017	0.25000	1.47(a)
55 Dibromochloromethane	129	7.758	7.758	(0.940)	1084	0.25000	1.19(a)
2 Dichlorodifluoromethane	85	1.201	1.198	(0.246)	2264	0.25000	0.91(a)
61 Ethylbenzene	106	8.369	8.373	(1.015)	2474	0.25000	0.33(a)
91 Hexachlorobutadiene	225	12.061	12.065	(1.178)	1019	0.25000	0.42(a)
67 Isopropylbenzene	105	9.126	9.126	(1.106)	6811	0.25000	0.32(a)
62 m,p-Xylenes	106	8.474	8.474	(1.027)	5829	0.50000	0.64(a)
17 Methylene Chloride	84	2.870	2.866	(0.586)	3269	0.25000	(a)
87 n-Butylbenzene	91	10.554	10.558	(1.031)	6526	0.25000	0.37(a)
73 n-Propylbenzene	91	9.475	9.479	(0.926)	8427	0.25000	0.33(a)
92 Naphthalene	128	12.133	12.133	(1.185)	4657	0.25000	0.87(a)
63 o-Xylene	106	8.811	8.811	(1.068)	2975	0.25000	0.32(a)
81 sec-Butylbenzene	105	10.086	10.090	(0.985)	6928	0.25000	0.32(a)
64 Styrene	104	8.823	8.826	(1.070)	4467	0.25000	0.29(a)
78 tert-Butylbenzene	119	9.902	9.902	(0.967)	4611	0.25000	0.31(a)
56 Tetrachloroethene	164	7.522	7.525	(0.912)	1622	0.25000	0.41(a)
50 Toluene	91	7.046	7.046	(0.854)	7336	0.25000	0.32(a)
20 trans-1,2-Dichloroethene	96	3.136	3.136	(0.641)	1833	0.25000	0.36(a)
38 Trichloroethene	130	5.861	5.861	(1.042)	2028	0.25000	0.38(a)
8 Trichlorofluoromethane	101	1.955	1.944	(0.400)	2465	0.25000	0.97(a)
5 Vinyl Chloride	62	1.419	1.415	(0.290)	2098	0.25000	1.30(a)

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122102.D
Date : 21-DEC-2018 13:49
Client ID: VSTD00.25
Sample Info: VSTD00.25;VSTD00.25;1;1;
Purge Volume: 5.0
Column phase: DB624

\\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122102.D

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122103.D Page 1
Report Date: 28-Jan-2019 11:25

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122103.D
Lab Smp Id: VSTD00.5 Client Smp ID: VSTD00.5
Inj Date : 21-DEC-2018 14:14
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD00.5;VSTD00.5;1;2;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 13:49 Cal File: U122102.D
Als bottle: 3 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

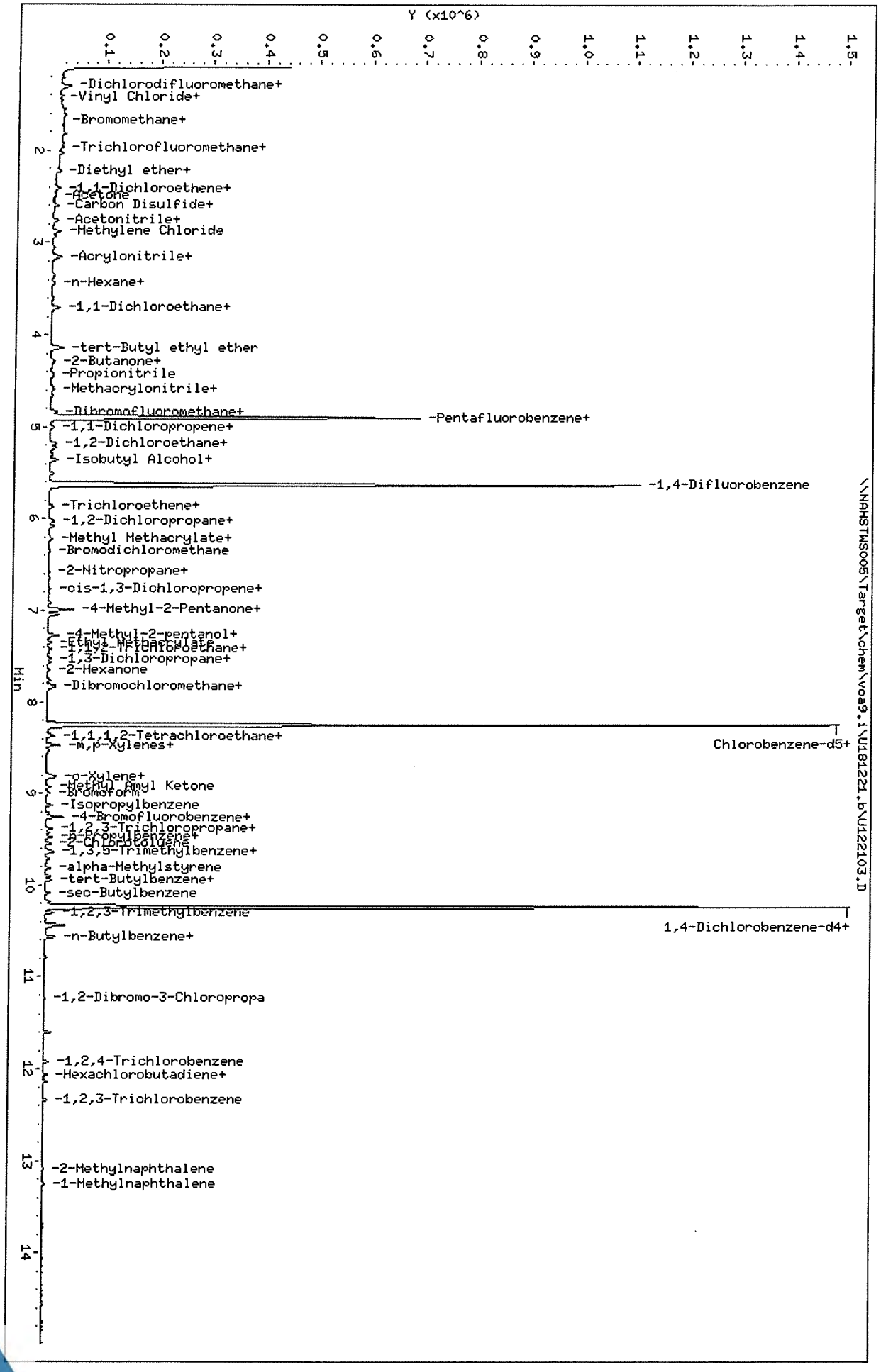
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.898	4.898	(1.000)	422356	50.0000	
* 36 1,4-Difluorobenzene	114	5.629	5.629	(1.000)	796827	50.0000	
* 47 Chlorobenzene-d5	117	8.249	8.249	(1.000)	725774	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	333300	50.0000	
$ 30 Dibromofluoromethane	113	4.834	4.834	(0.987)	6036	0.50000	(a)
$ 35 1,2-Dichloroethane-d4	65	5.179	5.179	(1.057)	8601	0.50000	(a)
$ 48 Toluene-d8	98	6.989	6.989	(0.847)	27052	0.50000	(a)
$ 69 4-Bromofluorobenzene	95	9.257	9.257	(1.122)	9627	0.50000	(a)
60 1,1,1,2-Tetrachloroethane	131	8.350	8.350	(1.012)	1272	0.50000	0.85(a)
31 1,1,1-Trichloroethane	97	4.830	4.830	(0.986)	2201	0.50000	0.33(a)
68 1,1,2,2-Tetrachloroethane	83	9.392	9.392	(0.918)	2725	0.50000	0.36(aM)
138 Freon TF	101	2.412	2.412	(0.493)	1292	0.50000	0.35(a)
53 1,1,2-Trichloroethane	83	7.421	7.421	(0.900)	1629	0.50000	0.37(a)
22 1,1-Dichloroethane	63	3.612	3.612	(0.737)	3066	0.50000	0.33(Ta)
11 1,1-Dichloroethene	96	2.409	2.409	(0.492)	1703	0.50000	0.42(a)
32 1,1-Dichloropropene	75	5.010	5.010	(0.890)	2565	0.50000	0.36(a)
93 1,2,3-Trichlorobenzene	180	12.335	12.335	(1.205)	1324	0.50000	0.84(a)
71 1,2,3-Trichloropropane	75	9.426	9.426	(0.921)	2591	0.50000	0.33(a)
90 1,2,4-Trichlorobenzene	180	11.923	11.923	(1.165)	2402	0.50000	0.38(a)
79 1,2,4-Trimethylbenzene	105	9.943	9.943	(0.971)	6088	0.50000	0.34(a)
89 1,2-Dibromo-3-Chloropropane	155	11.233	11.233	(1.097)	272	0.50000	1.68(aM)
57 1,2-Dibromoethane	107	7.852	7.852	(0.952)	1825	0.50000	0.36(a)

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122103.D Page 2
Report Date: 28-Jan-2019 11:25

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	10.573	10.573	(1.033)	3885	0.50000	0.39(a)
33	1,2-Dichloroethane	62	5.258	5.258	(0.934)	2385	0.50000	(a)
42	1,2-Dichloropropane	63	6.082	6.082	(1.081)	2114	0.50000	0.37(a)
75	1,3,5-Trimethylbenzene	105	9.625	9.625	(0.940)	5574	0.50000	0.33(a)
83	1,3-Dichlorobenzene	146	10.180	10.180	(0.995)	3970	0.50000	0.40(a)
54	1,3-Dichloropropane	76	7.563	7.563	(0.917)	3471	0.50000	0.37(a)
84	1,4-Dichlorobenzene	146	10.255	10.255	(1.002)	4522	0.50000	0.43(a)
26	2,2-Dichloropropane	77	4.279	4.279	(0.874)	2050	0.50000	0.37(aM)
24	2-Butanone	43	4.354	4.354	(0.889)	2109	1.00000	(a)
76	2-Chlorotoluene	91	9.550	9.550	(0.933)	5666	0.50000	0.36(a)
52	2-Hexanone	43	7.649	7.649	(0.927)	2639	1.00000	0.65(a)
77	4-Chlorotoluene	91	9.640	9.640	(0.942)	6459	0.50000	0.36(a)
82	p-Isopropyltoluene	119	10.210	10.210	(0.997)	6372	0.50000	0.36(a)
45	4-Methyl-2-Pentanone	43	6.914	6.914	(0.838)	3831	1.00000	0.65(a)
10	Acetone	43	2.491	2.491	(0.509)	3366	1.00000	(a)
37	Benzene	78	5.220	5.220	(0.927)	7772	0.50000	0.36(a)
74	Bromobenzene	156	9.381	9.381	(0.917)	1879	0.50000	0.36(a)
29	Bromochloromethane	128	4.553	4.553	(0.930)	773	0.50000	(a)
39	Bromodichloromethane	83	6.348	6.348	(1.128)	1990	0.50000	0.33(aM)
66	Bromoform	173	8.984	8.984	(1.089)	762	0.50000	1.99(aM)
6	Bromomethane	94	1.681	1.681	(0.343)	822	0.50000	1.64(a)
19	Carbon Disulfide	76	2.596	2.596	(0.530)	12403	1.00000	0.84(a)
34	Carbon Tetrachloride	117	4.999	4.999	(0.888)	1510	0.50000	1.65(a)
59	Chlorobenzene	112	8.275	8.275	(1.003)	5533	0.50000	0.39(a)
7	Chloroethane	64	1.764	1.764	(0.360)	2753	0.50000	1.20(aM)
28	Chloroform	83	4.662	4.662	(0.952)	2977	0.50000	0.33(a)
3	Chloromethane	50	1.348	1.348	(0.275)	1695	0.50000	3.67(aM)
27	cis-1,2-Dichloroethene	96	4.294	4.294	(0.877)	1939	0.50000	0.34(a)
46	cis-1,3-Dichloropropene	75	6.761	6.761	(1.201)	2152	0.50000	1.49(a)
55	Dibromochloromethane	129	7.758	7.758	(0.940)	1194	0.50000	1.22(a)
44	Dibromomethane	93	6.195	6.195	(1.101)	1143	0.50000	0.35(aM)
2	Dichlorodifluoromethane	85	1.213	1.213	(0.248)	2033	0.50000	0.87(aM)
61	Ethylbenzene	106	8.369	8.369	(1.015)	2560	0.50000	0.35(a)
91	Hexachlorobutadiene	225	12.065	12.065	(1.179)	1509	0.50000	0.63(a)
67	Isopropylbenzene	105	9.126	9.126	(1.106)	6665	0.50000	0.32(a)
62	m,p-Xylenes	106	8.474	8.474	(1.027)	6264	1.00000	0.71(a)
17	Methylene Chloride	84	2.877	2.877	(0.587)	3346	0.50000	(a)
87	n-Butylbenzene	91	10.558	10.558	(1.031)	6644	0.50000	0.39(a)
73	n-Propylbenzene	91	9.475	9.475	(0.926)	8654	0.50000	0.34(a)
92	Naphthalene	128	12.136	12.136	(1.186)	5535	0.50000	0.92(a)
63	o-Xylene	106	8.811	8.811	(1.068)	3001	0.50000	0.33(a)
81	sec-Butylbenzene	105	10.086	10.086	(0.985)	6823	0.50000	0.32(a)
64	Styrene	104	8.826	8.826	(1.070)	4646	0.50000	0.31(a)
78	tert-Butylbenzene	119	9.902	9.902	(0.967)	4764	0.50000	0.32(a)
56	Tetrachloroethene	164	7.526	7.526	(0.912)	1587	0.50000	0.41(a)
50	Toluene	91	7.049	7.049	(0.855)	8207	0.50000	0.38(a)
20	trans-1,2-Dichloroethene	96	3.151	3.151	(0.643)	1825	0.50000	0.36(a)
51	trans-1,3-Dichloropropene	75	7.263	7.263	(1.290)	1633	0.50000	1.85(aM)
38	Trichloroethene	130	5.865	5.865	(1.042)	1953	0.50000	0.38(a)
8	Trichlorofluoromethane	101	1.966	1.966	(0.402)	1919	0.50000	0.89(a)
5	Vinyl Chloride	62	1.430	1.430	(0.292)	1815	0.50000	1.26(a)

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



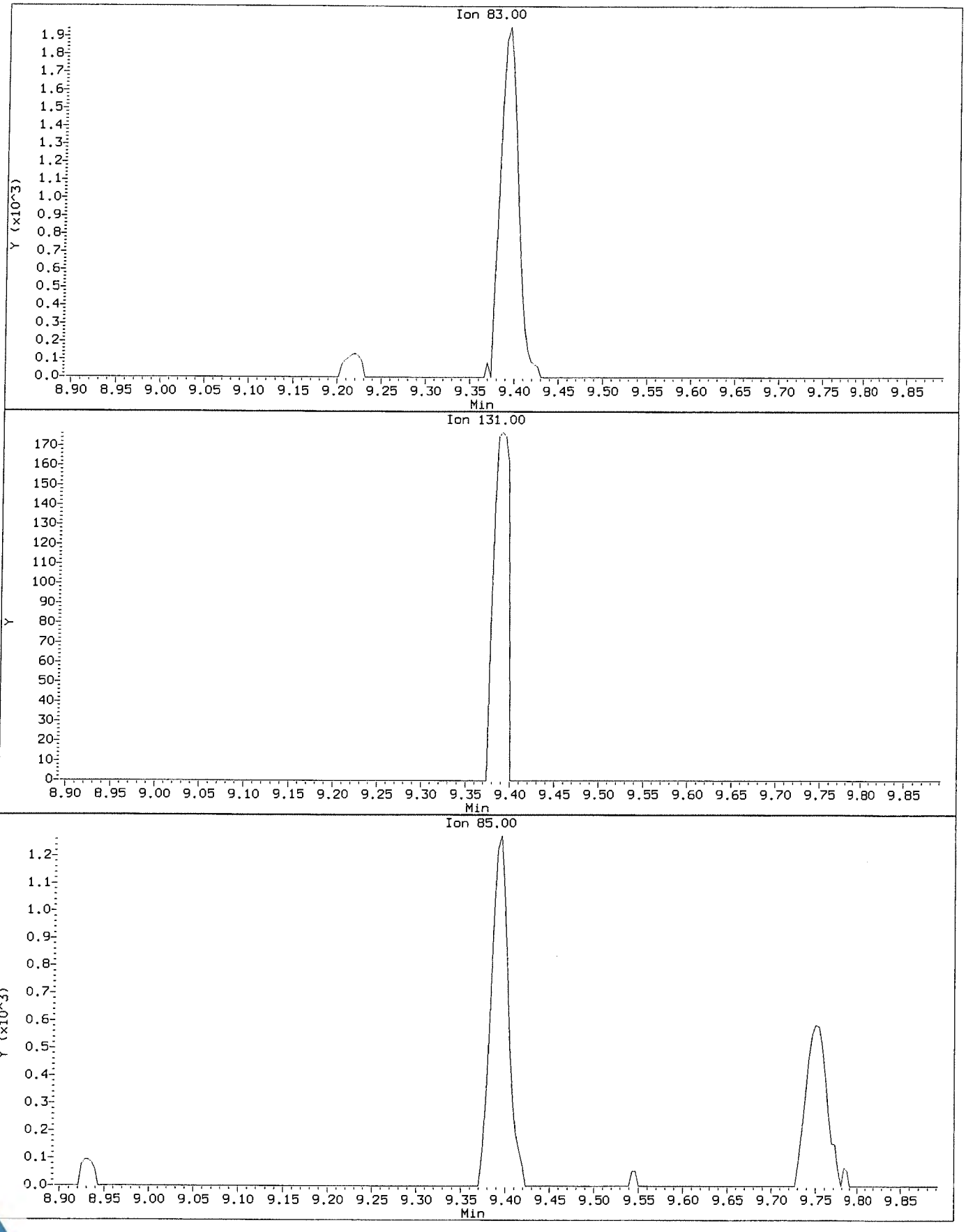
Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122103.D
Date : 21-DEC-2018 14:14
Client ID: VSTD00.5
Sample Info: VSTD00.5;VSTD00.5;1;2;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

\\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122103.D

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122103.D
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5



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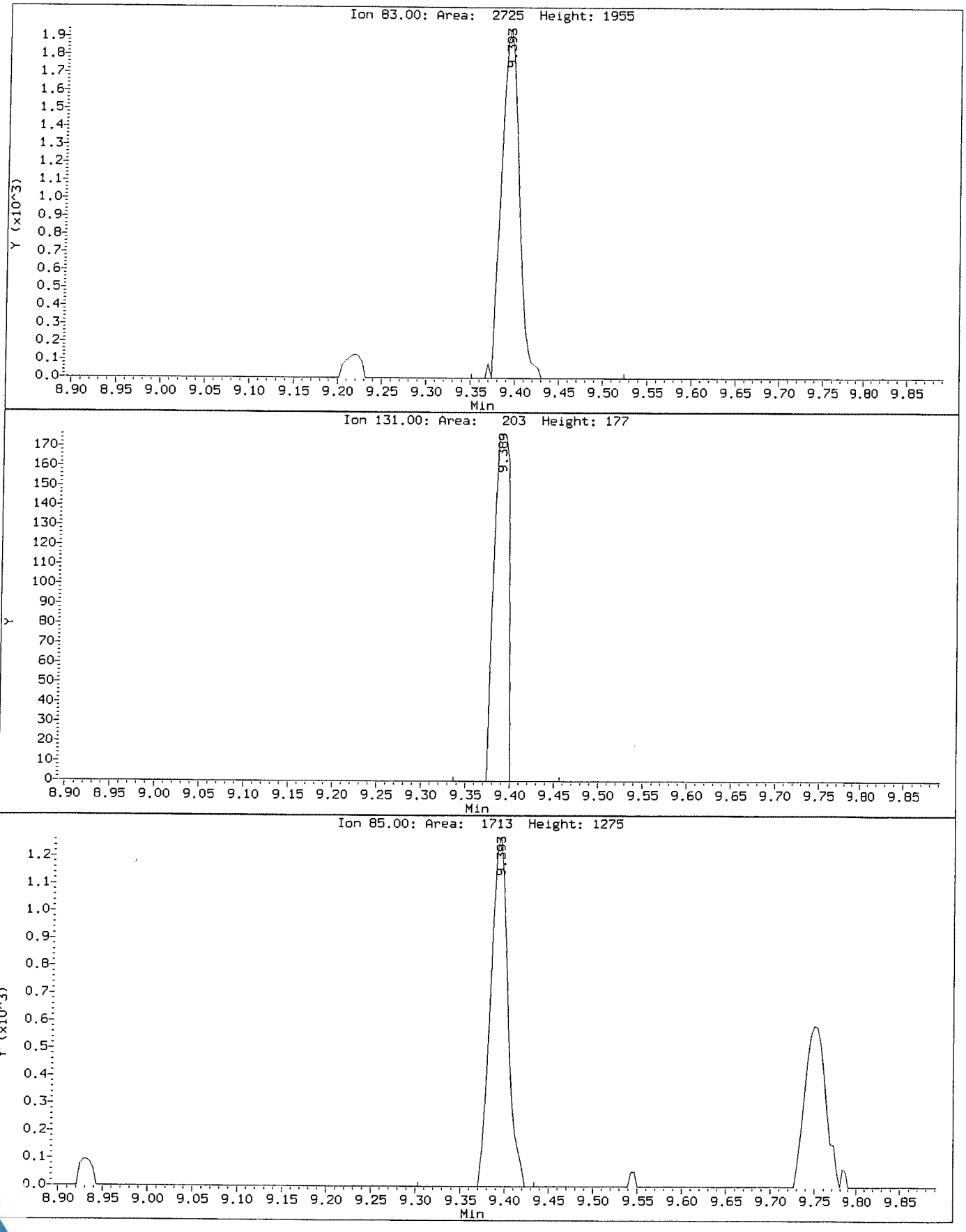
Client Sample ID: VSTD00.5

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5



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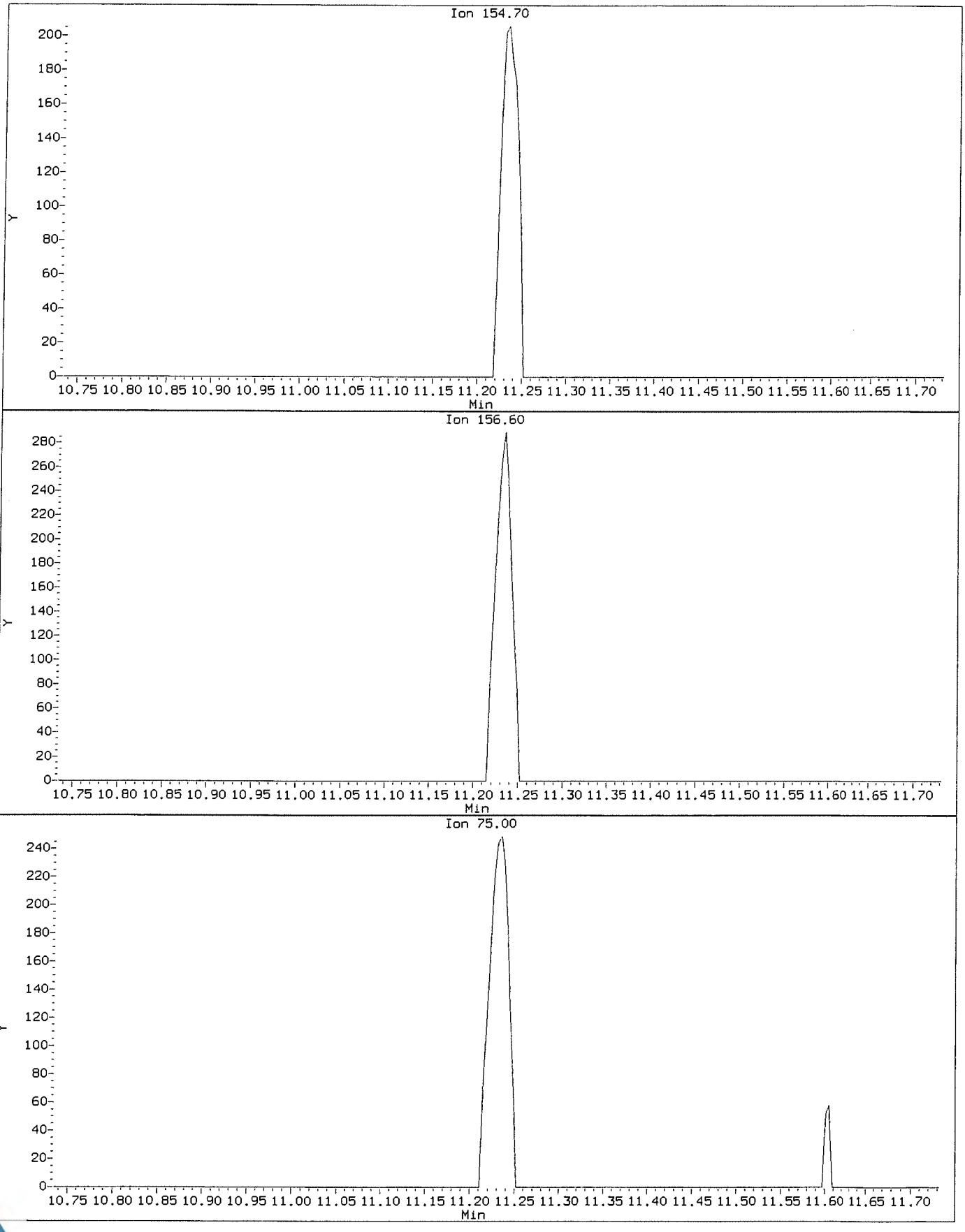
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8



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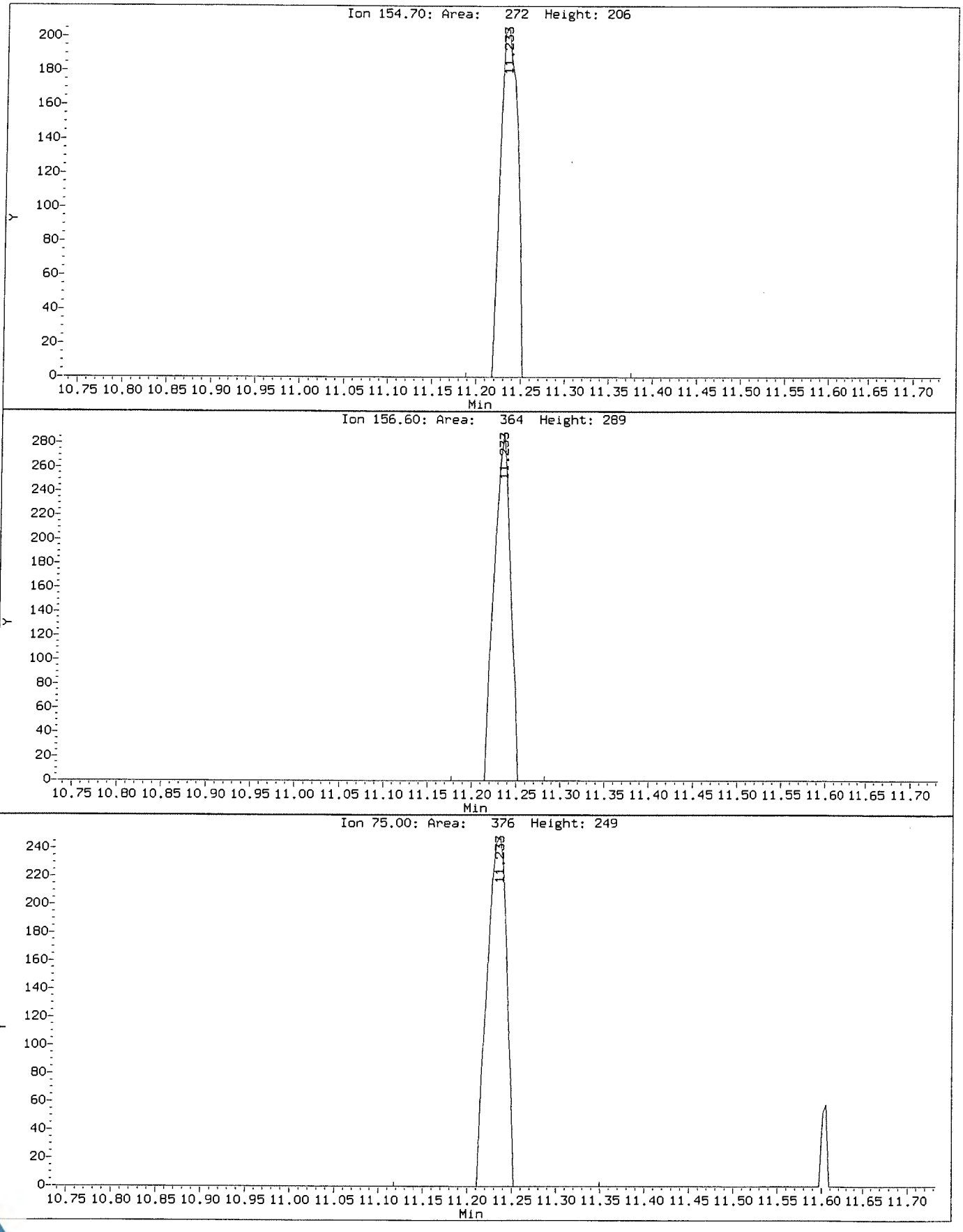
Client Sample ID: VSTD00.5

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8



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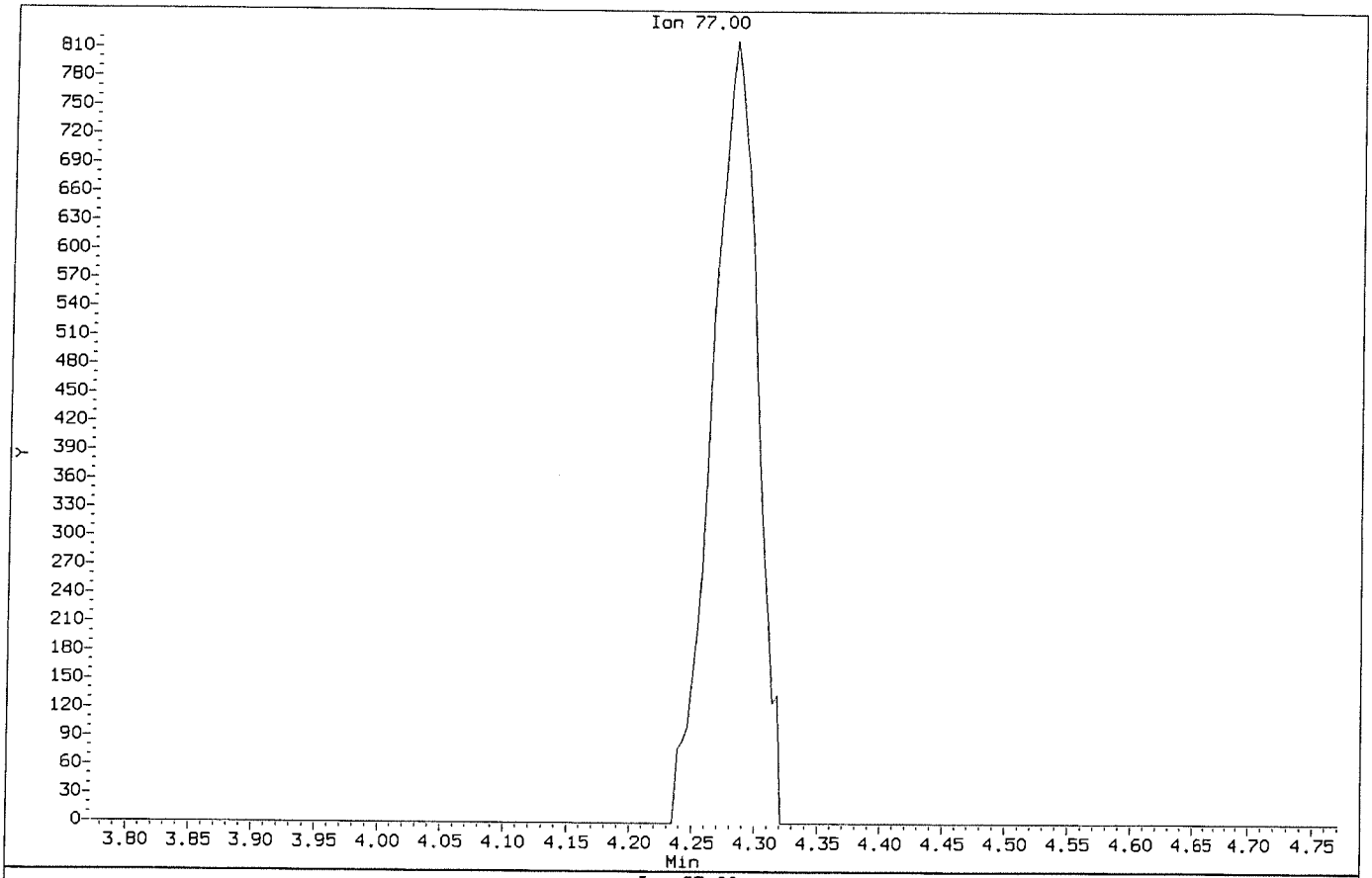
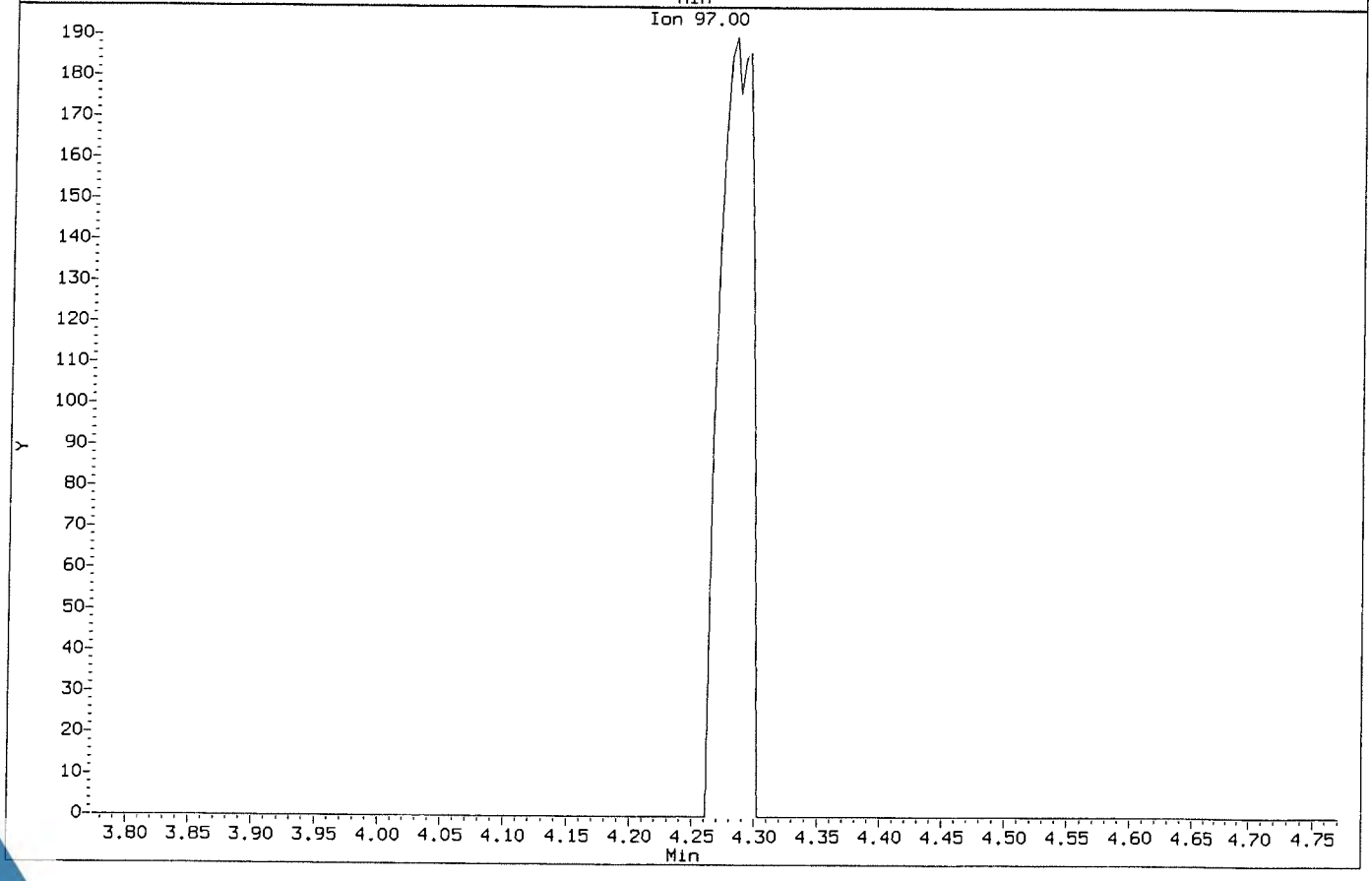
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: 2,2-Dichloropropane
CAS Number: 594-20-7





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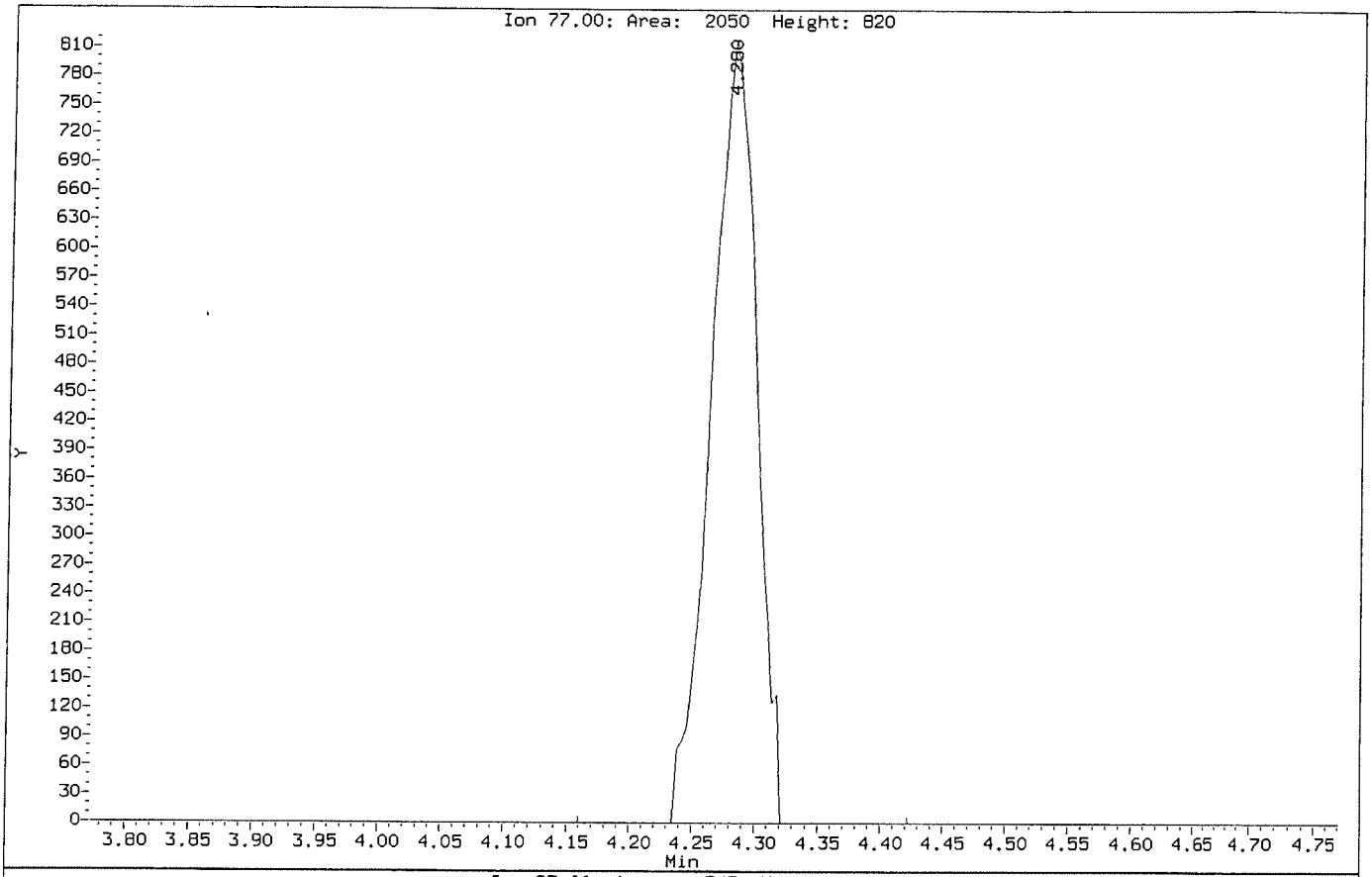
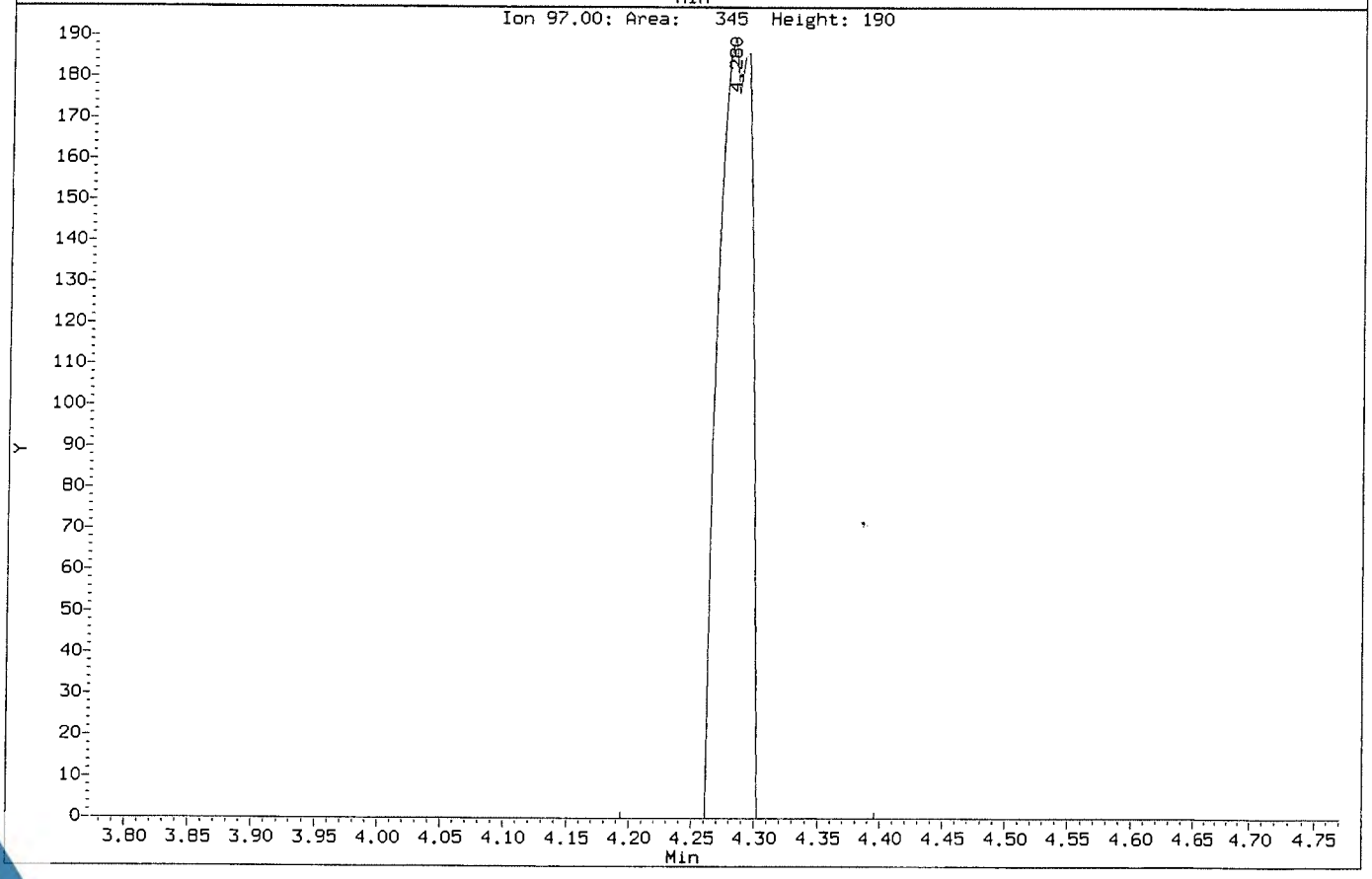
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: 2,2-Dichloropropane
CAS Number: 594-20-7





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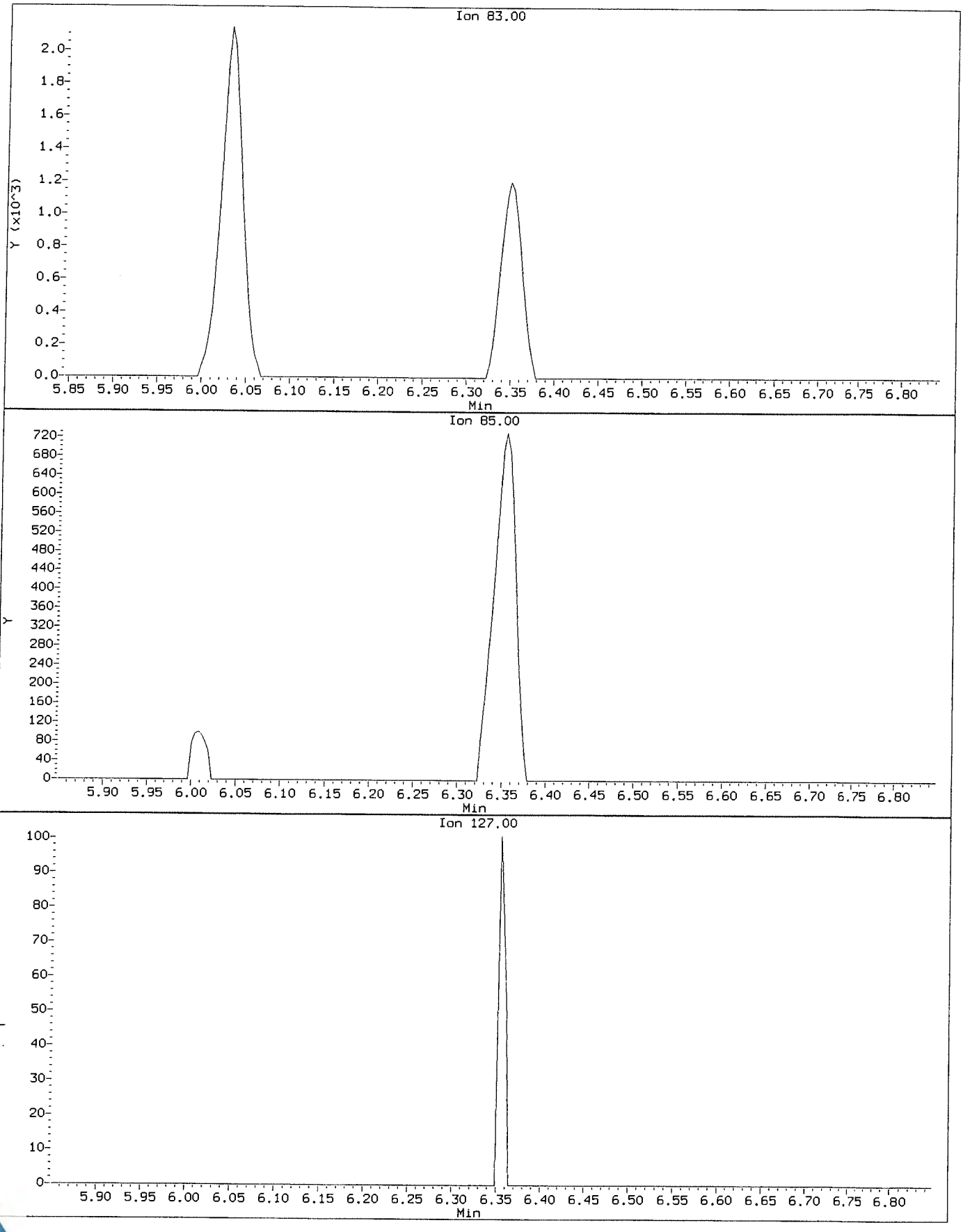
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Bromodichloromethane
CAS Number: 75-27-4



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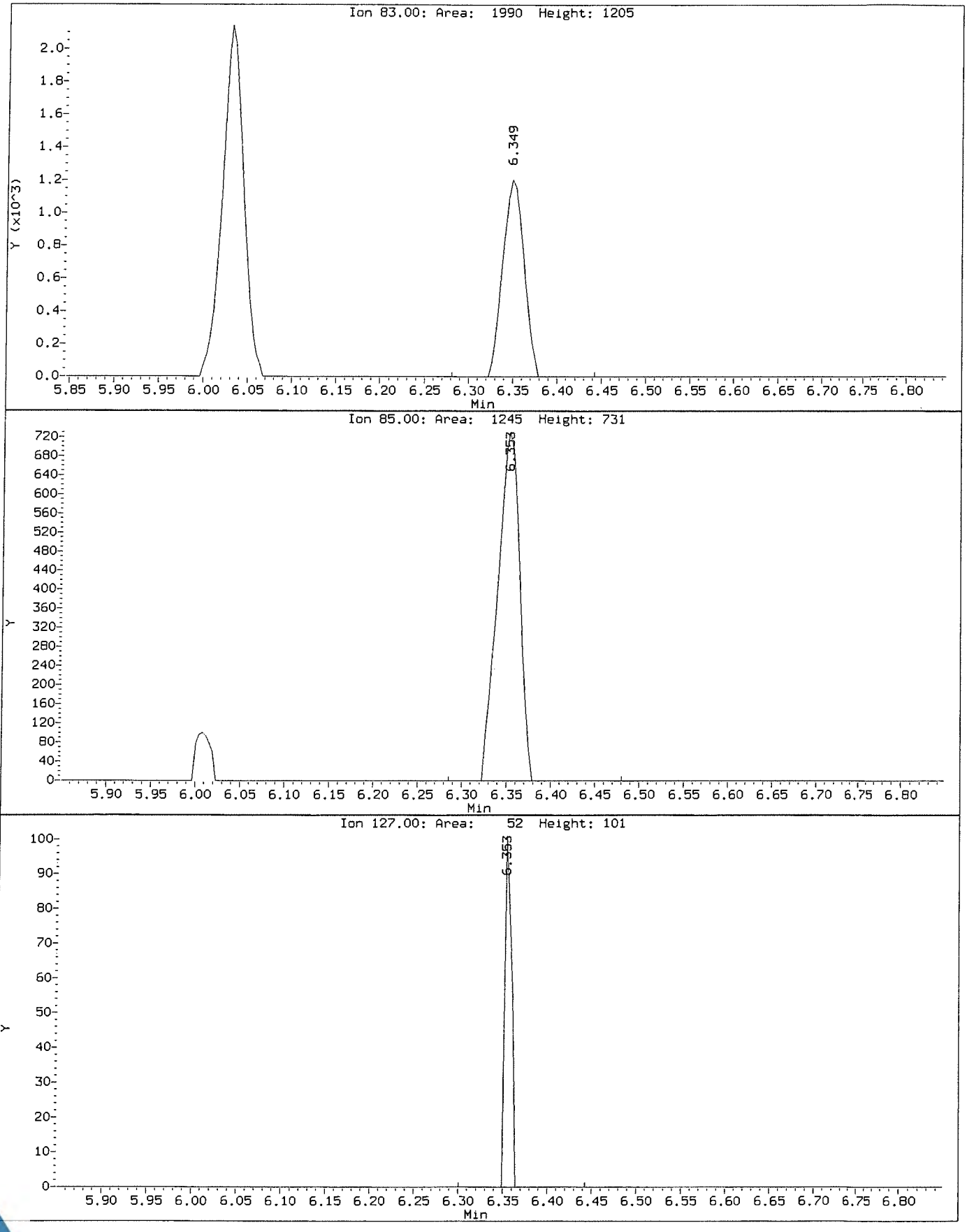
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Bromodichloromethane
CAS Number: 75-27-4



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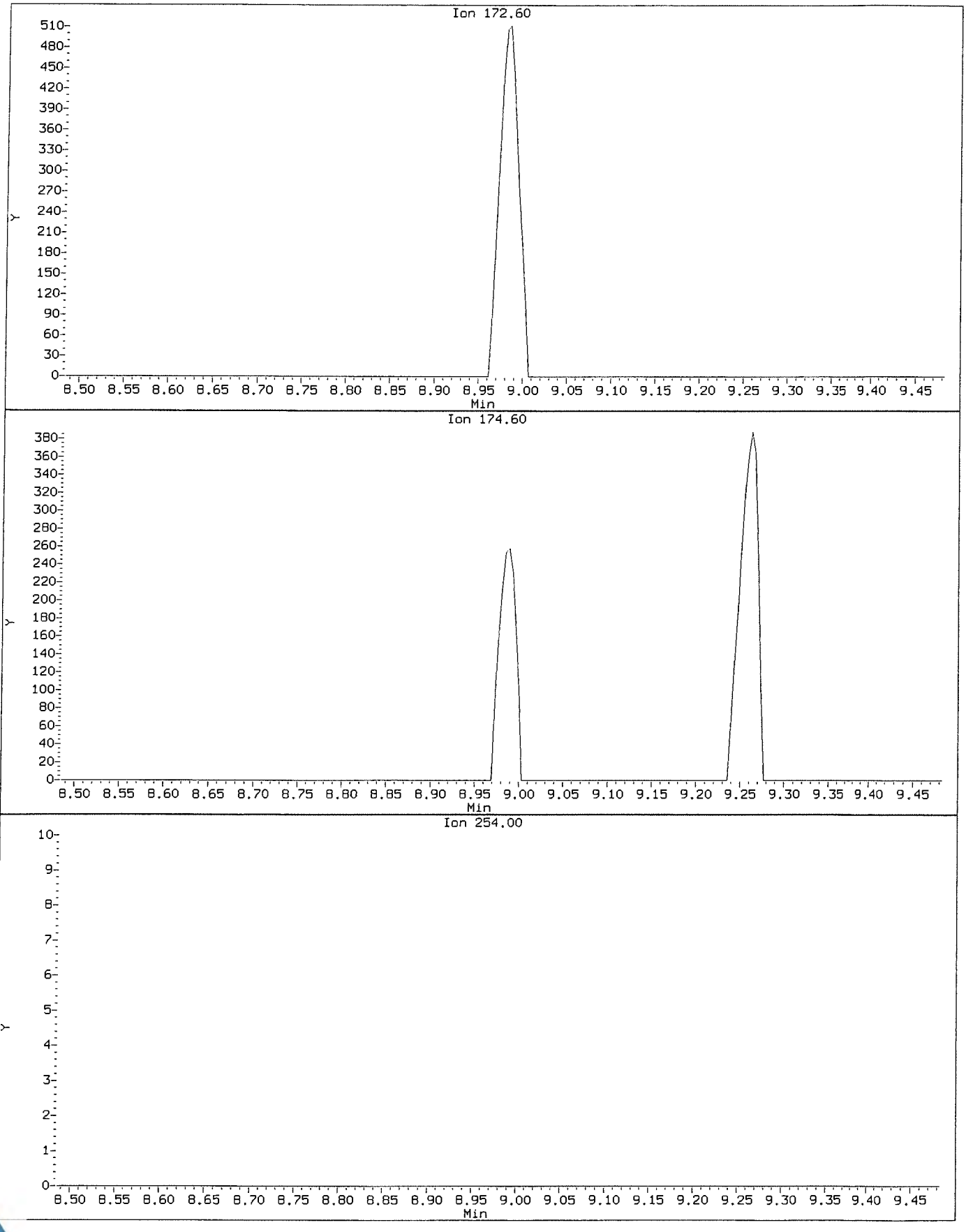
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Bromoform
CAS Number: 75-25-2



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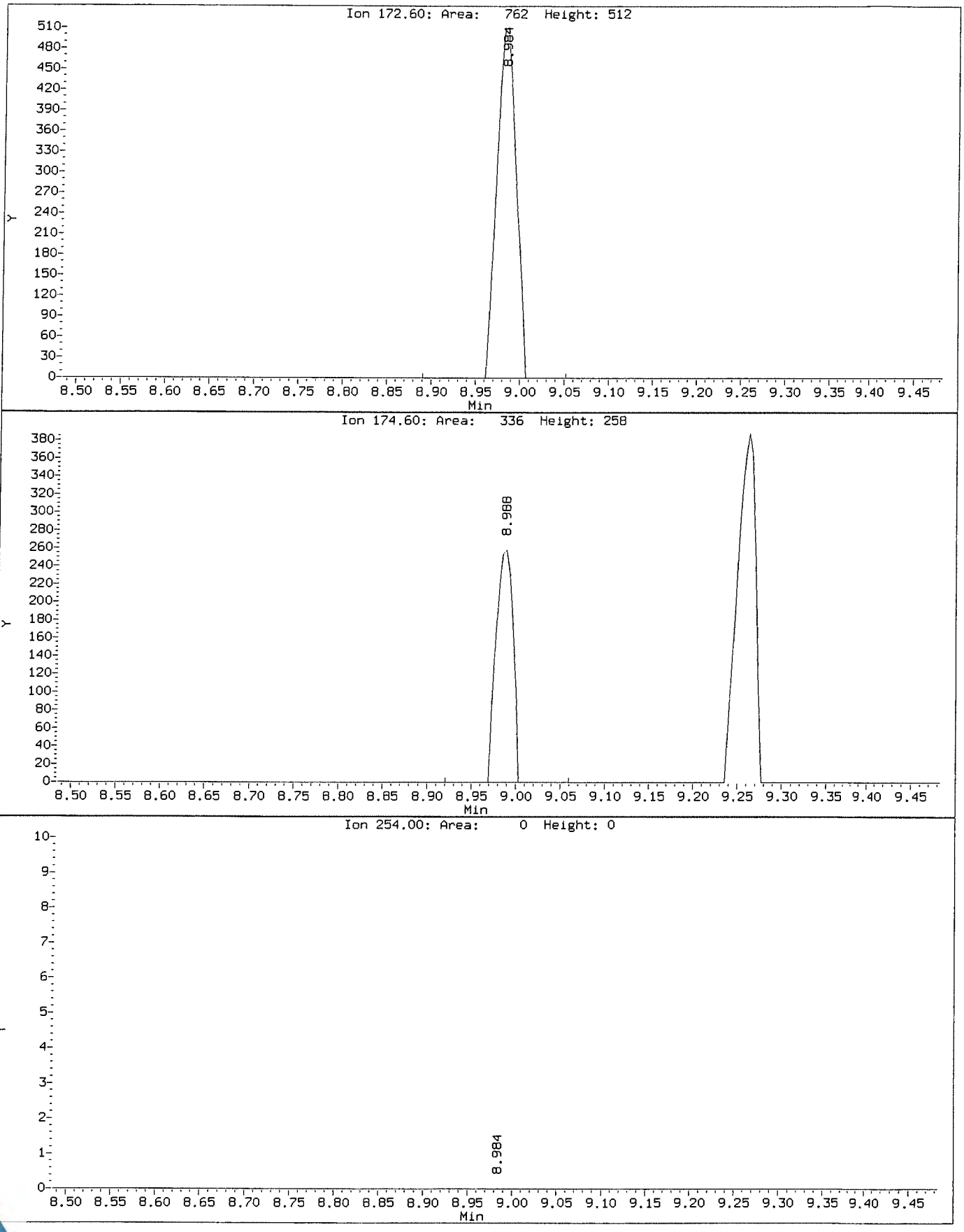
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Bromoform
CAS Number: 75-25-2



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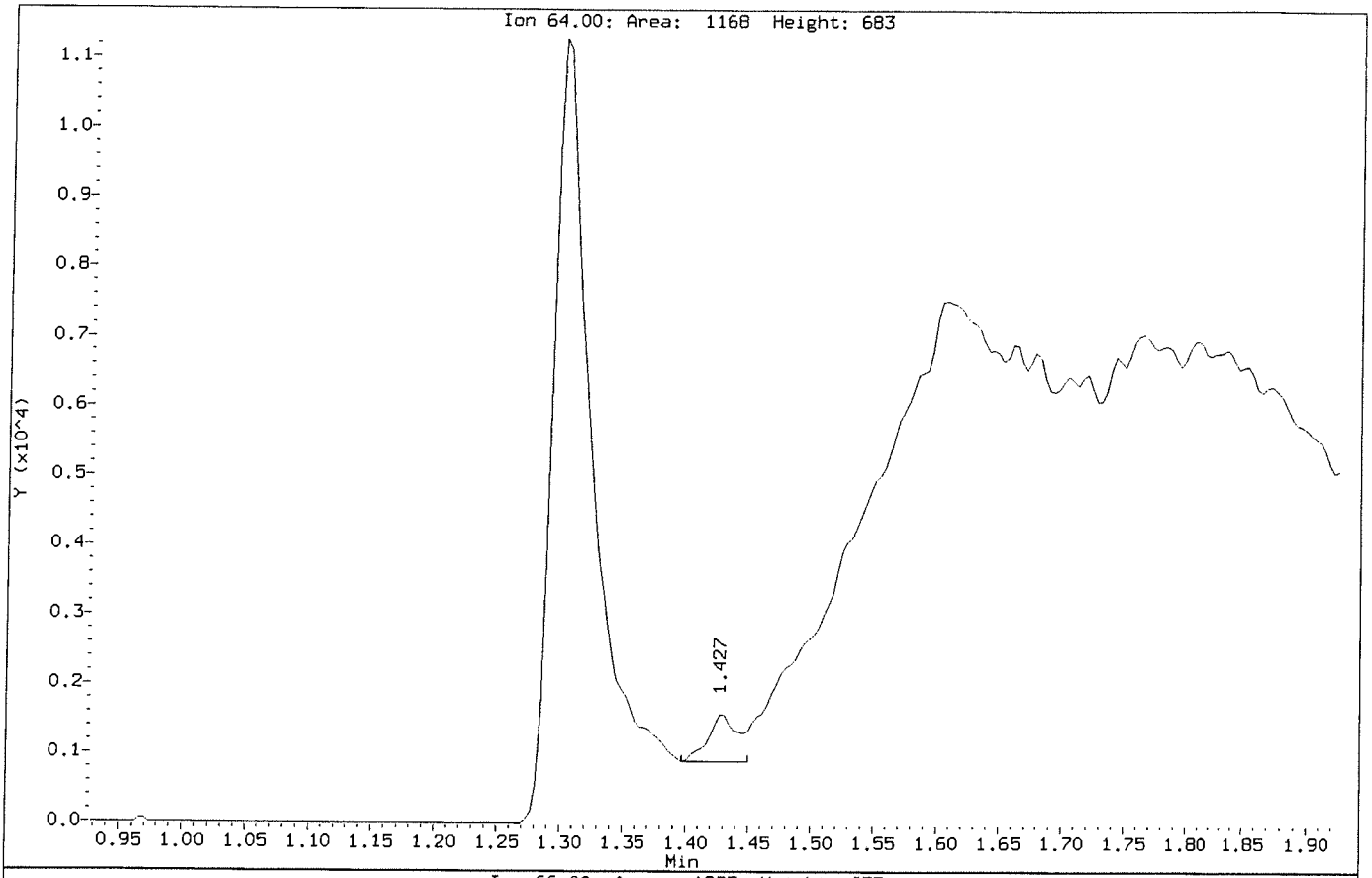
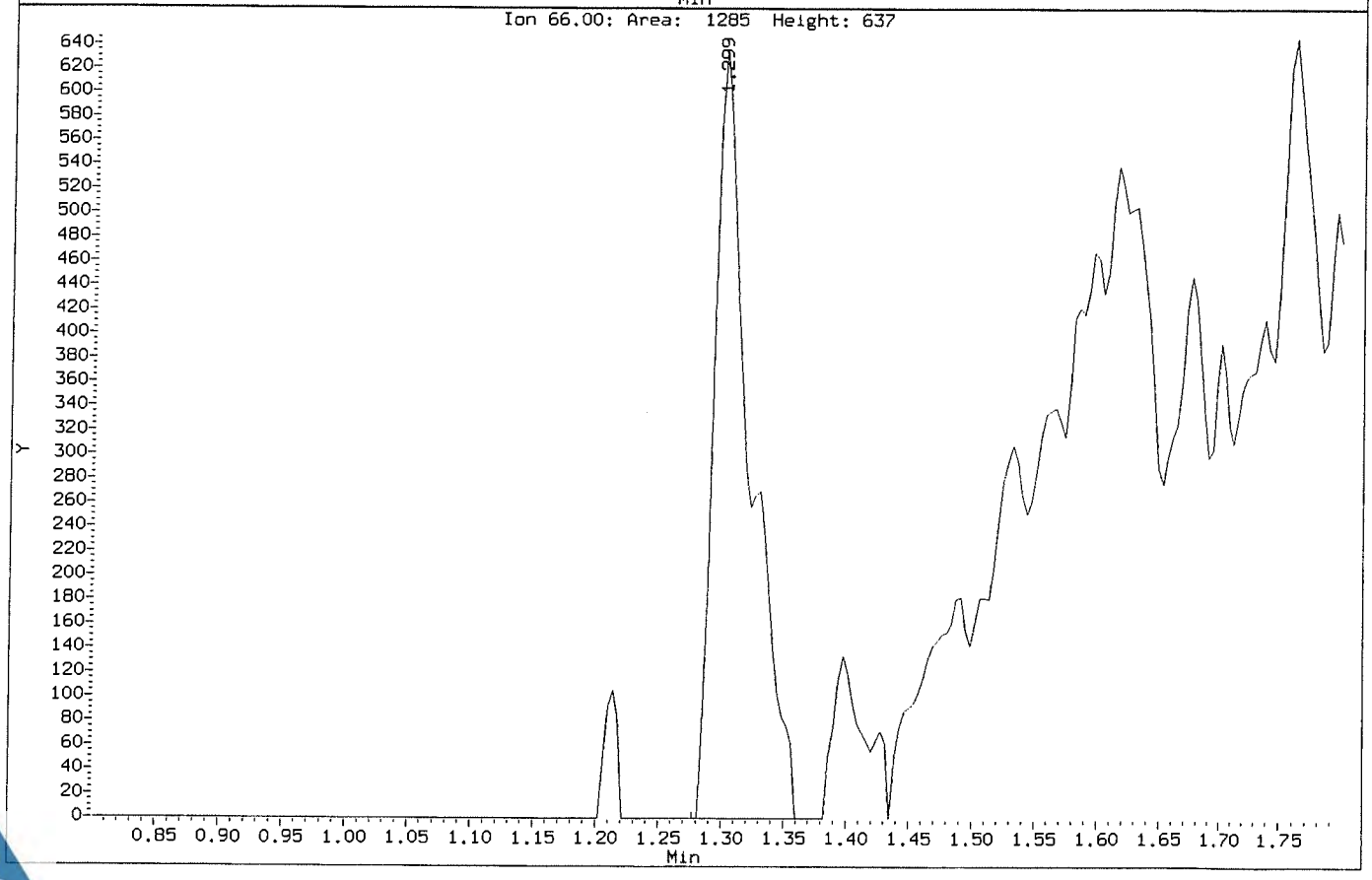
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Chloroethane
CAS Number: 75-00-3





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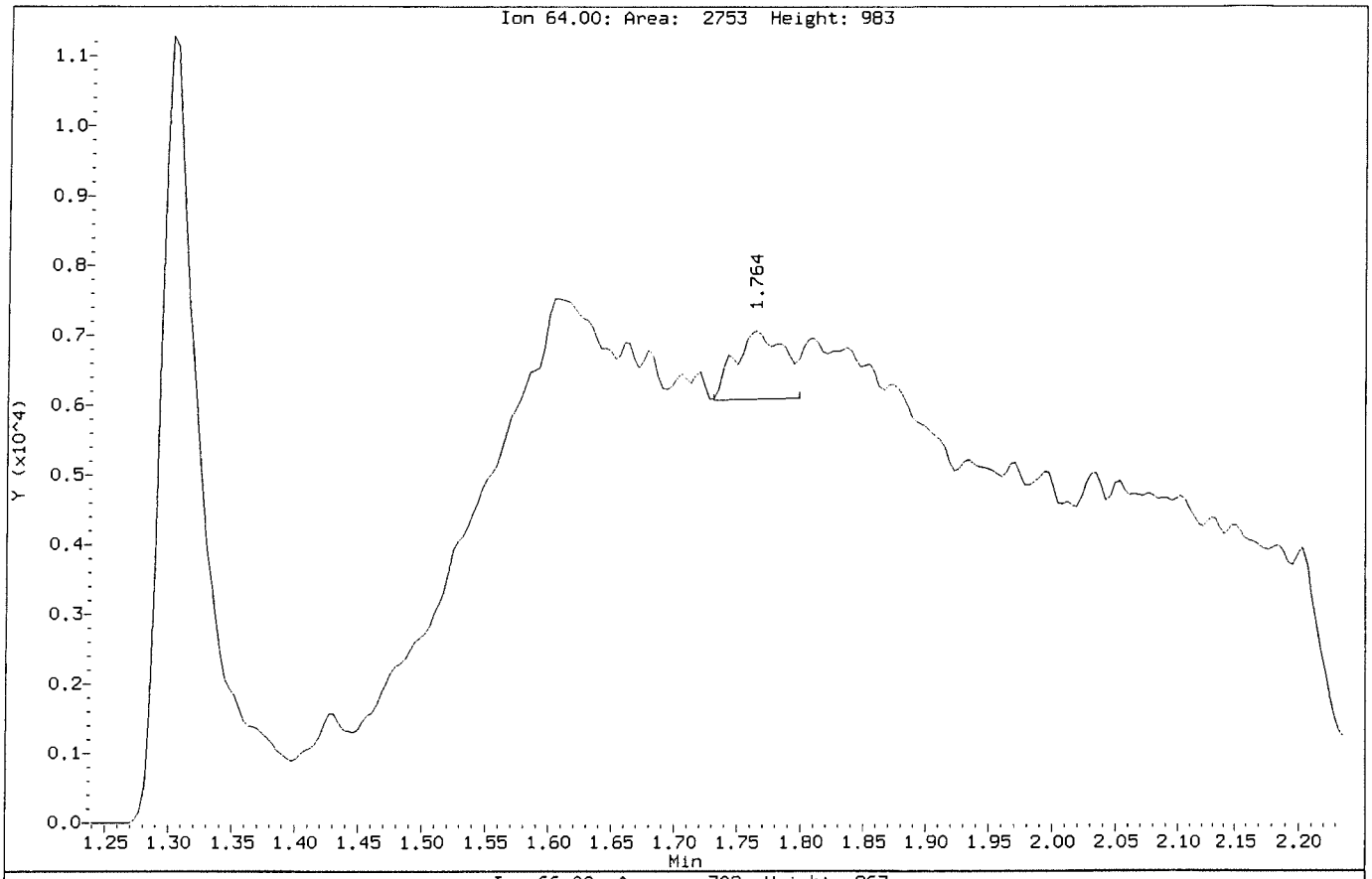
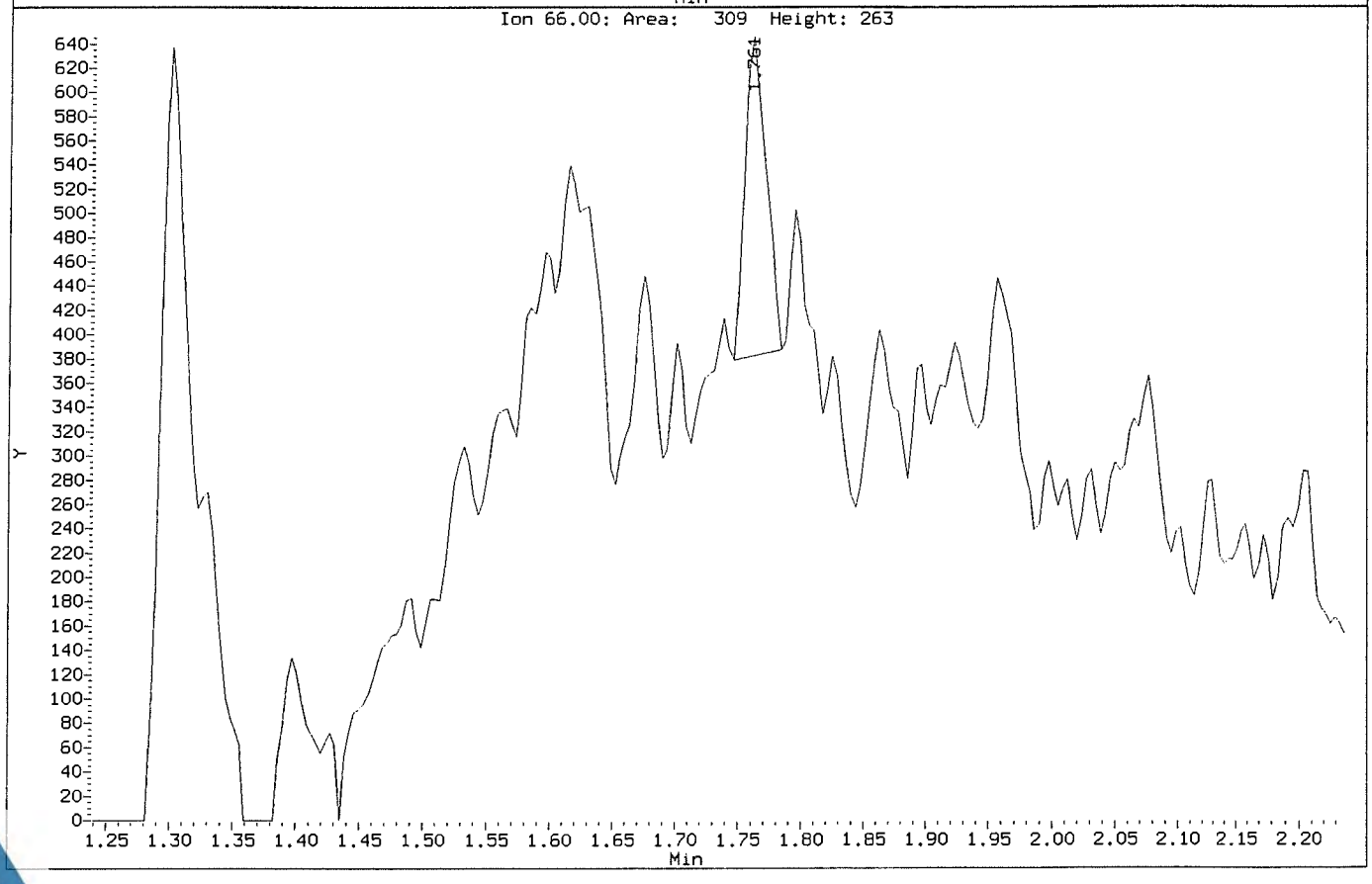
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Chloroethane
CAS Number: 75-00-3





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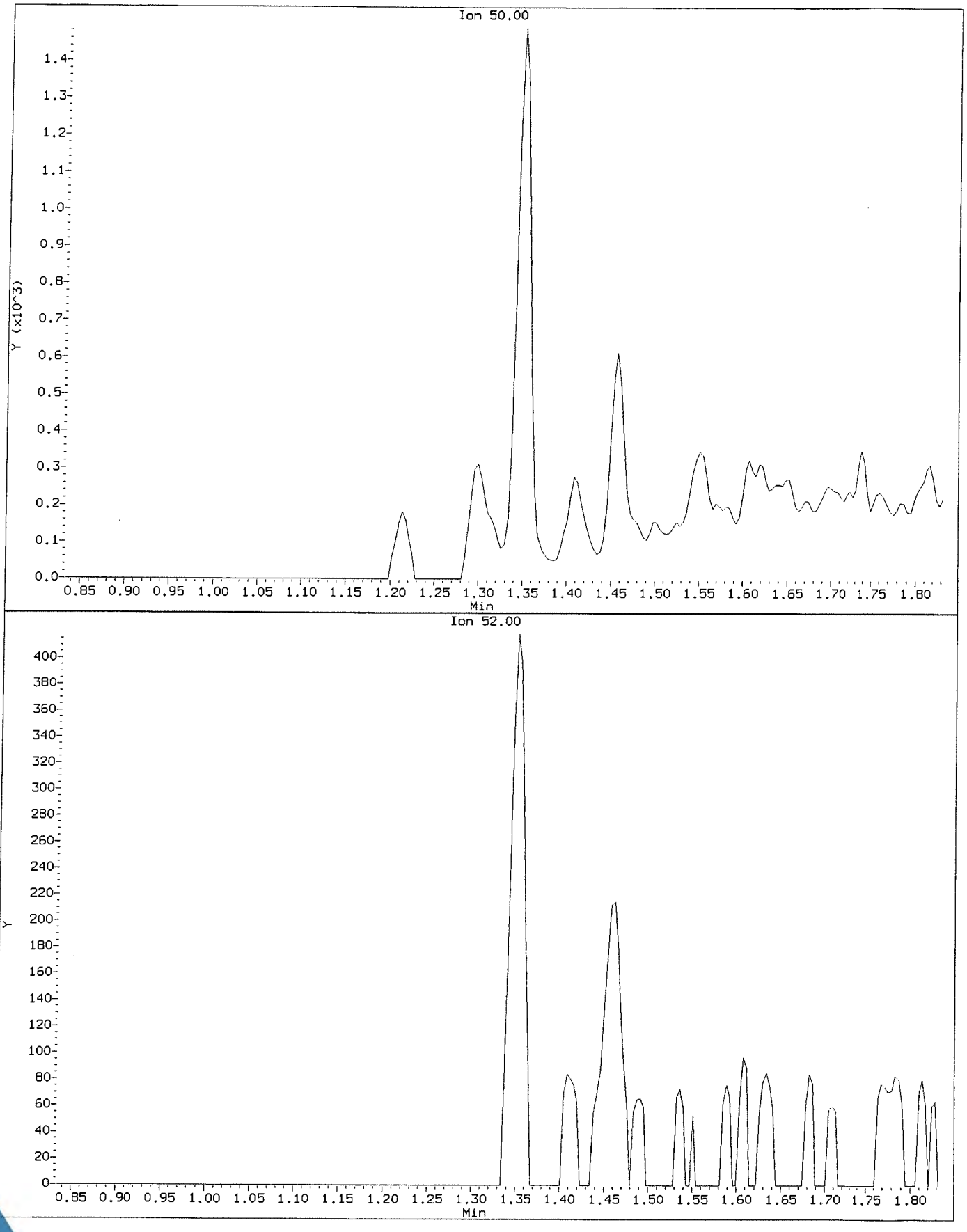
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Chloromethane
CAS Number: 74-87-3



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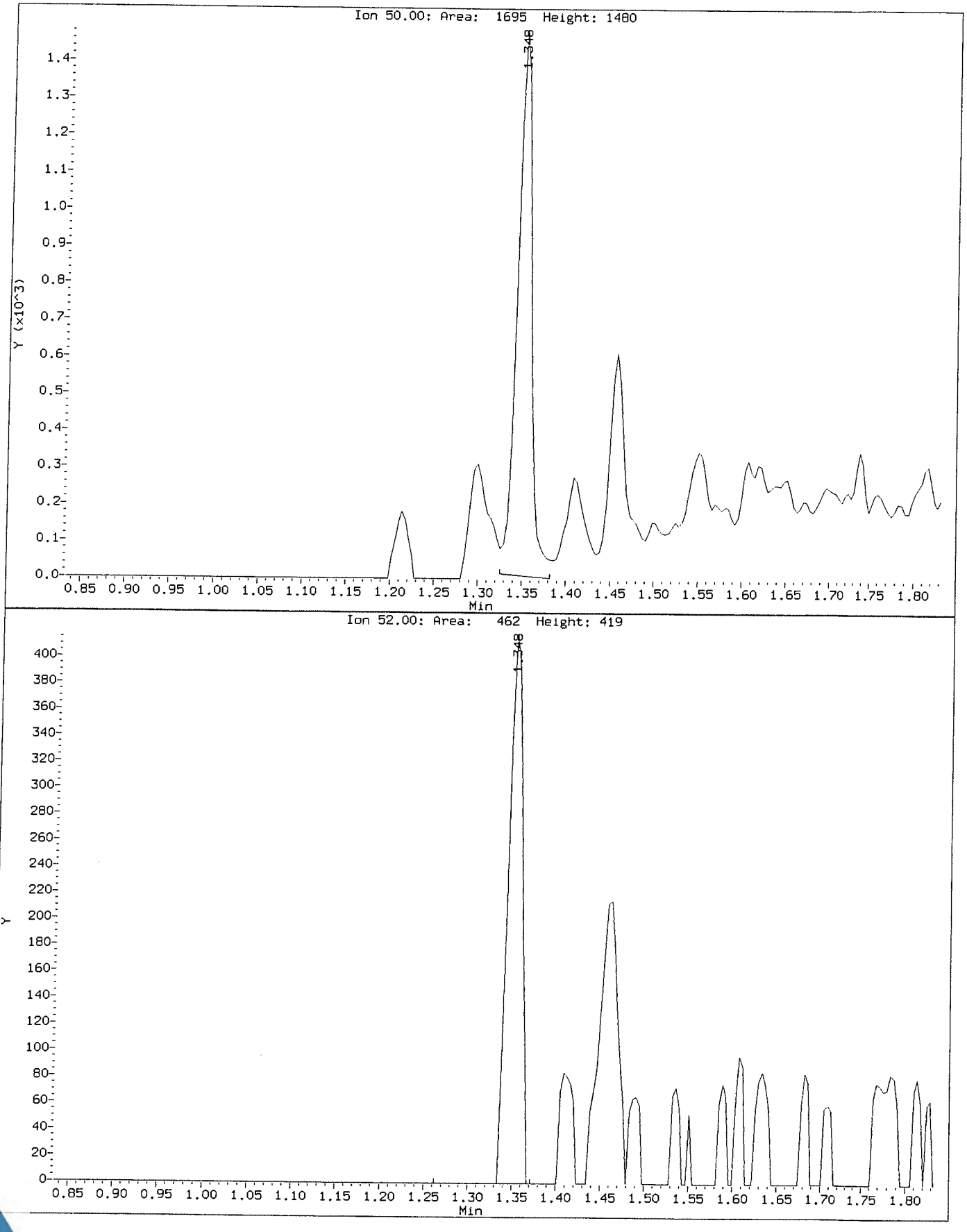
Client Sample ID: VSTD00.5

Compound: Chloromethane
CAS Number: 74-87-3



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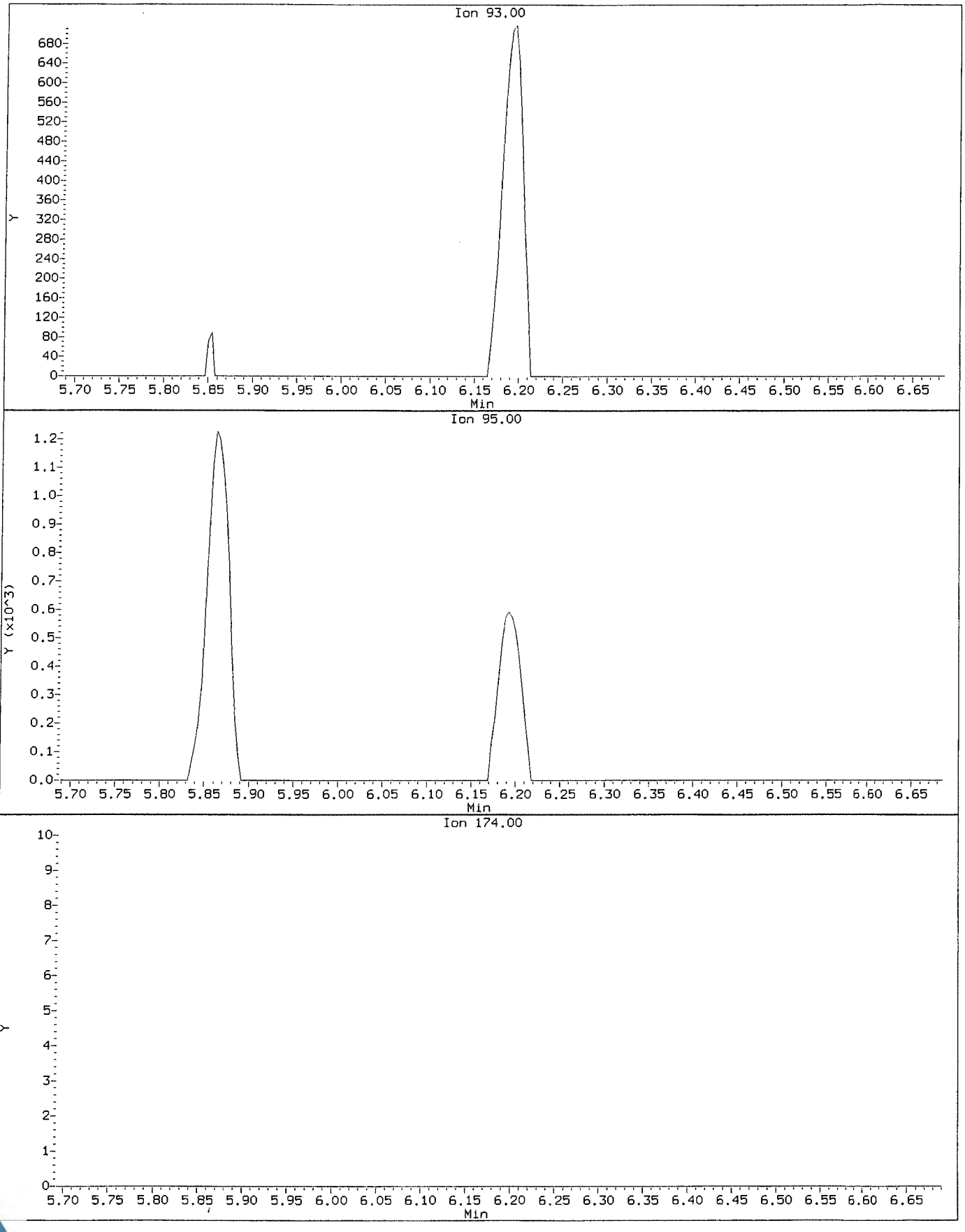
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Dibromomethane
CAS Number: 74-95-3



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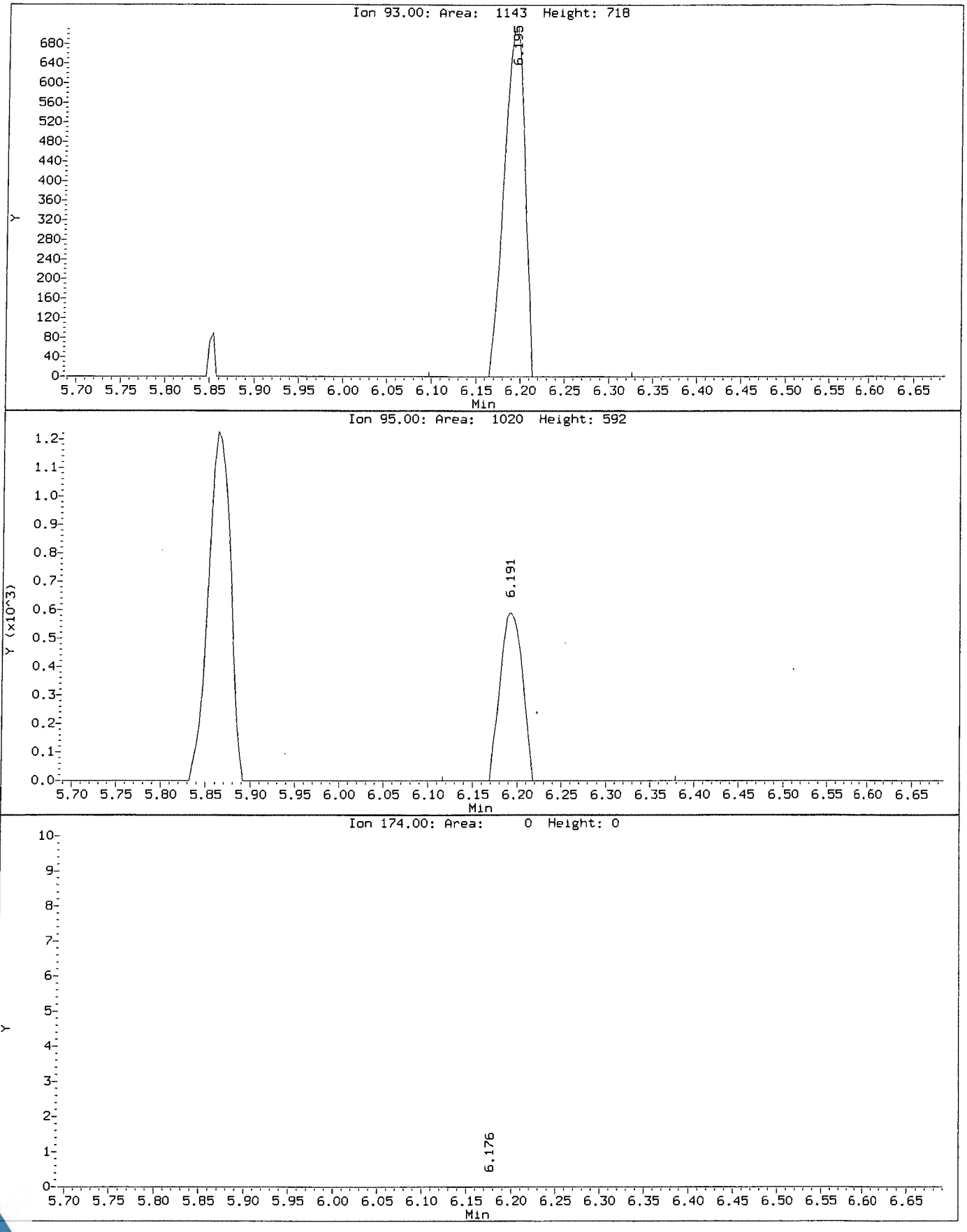
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Dibromomethane
CAS Number: 74-95-3



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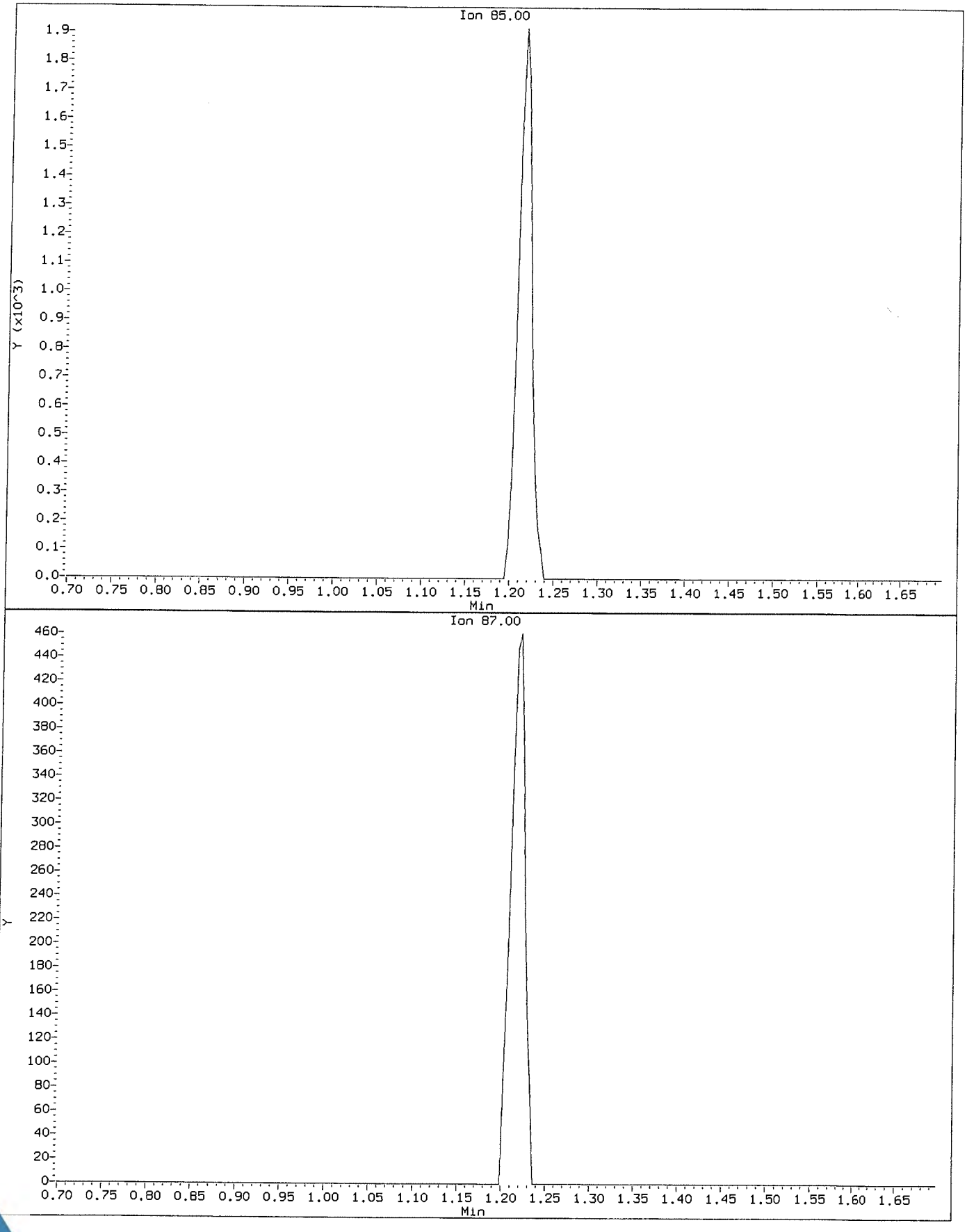
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Dichlorodifluoromethane
CAS Number: 75-71-8



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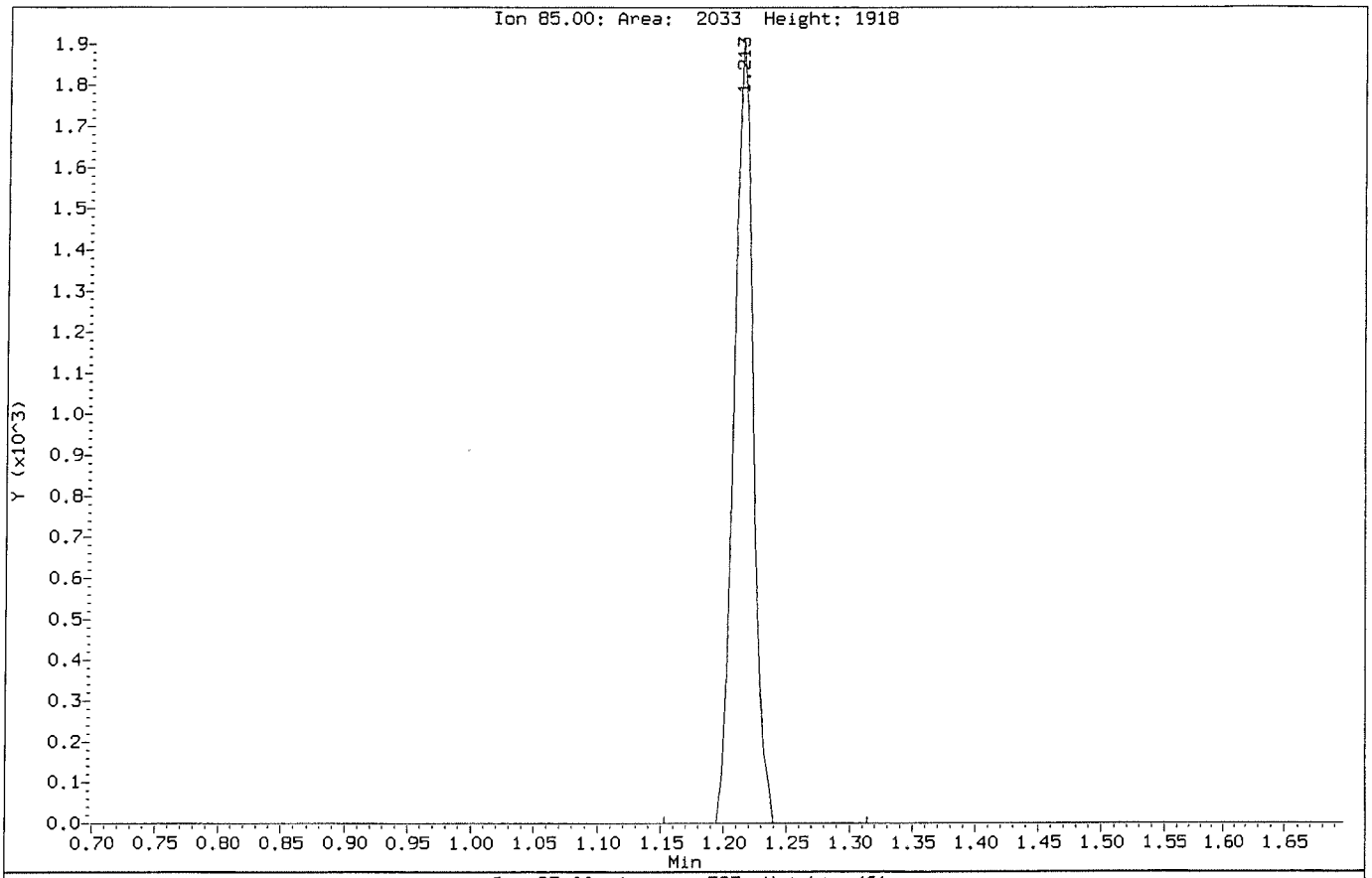
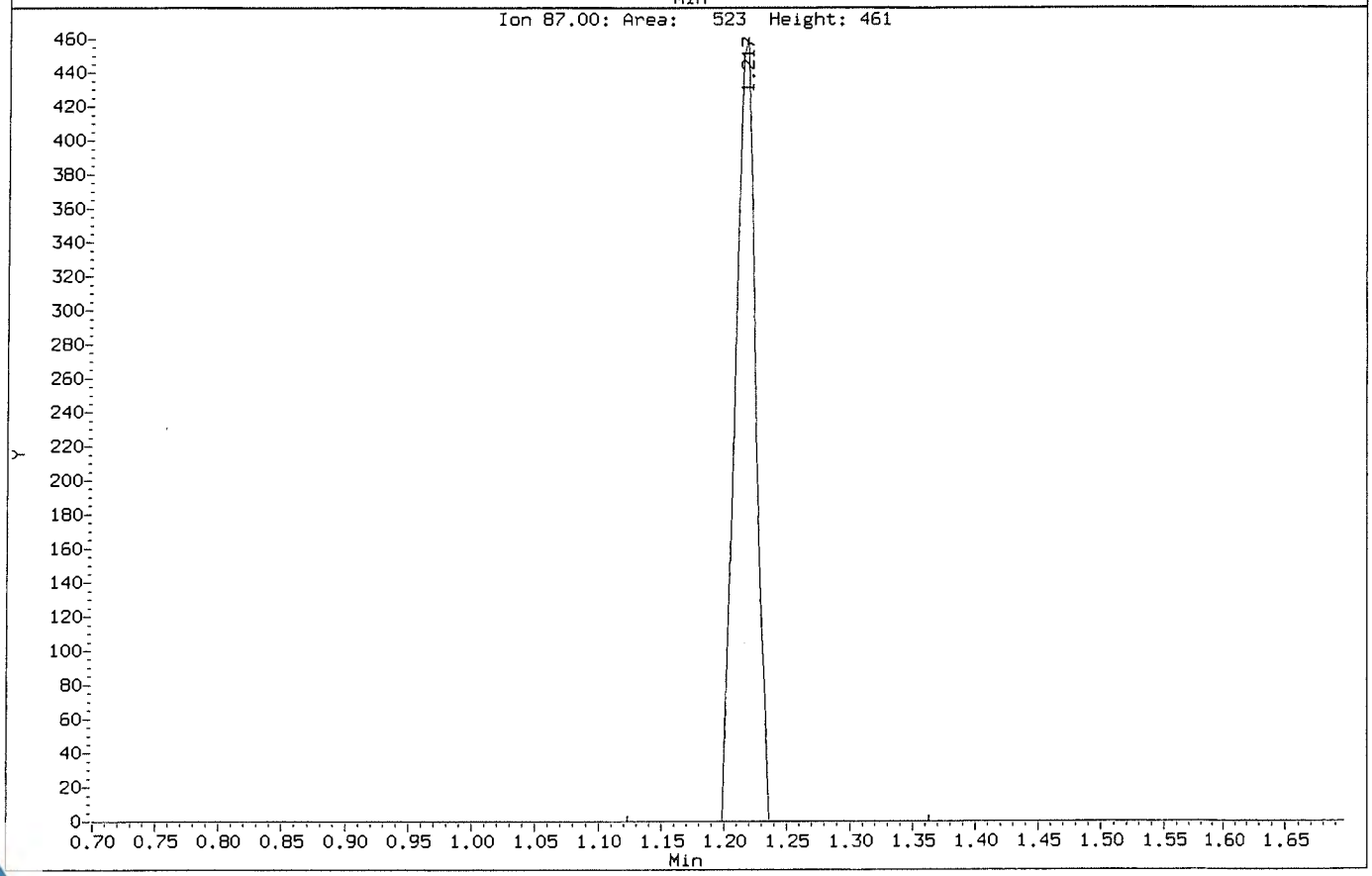
Client Sample ID: VSTD00.5

Compound: Dichlorodifluoromethane
CAS Number: 75-71-8





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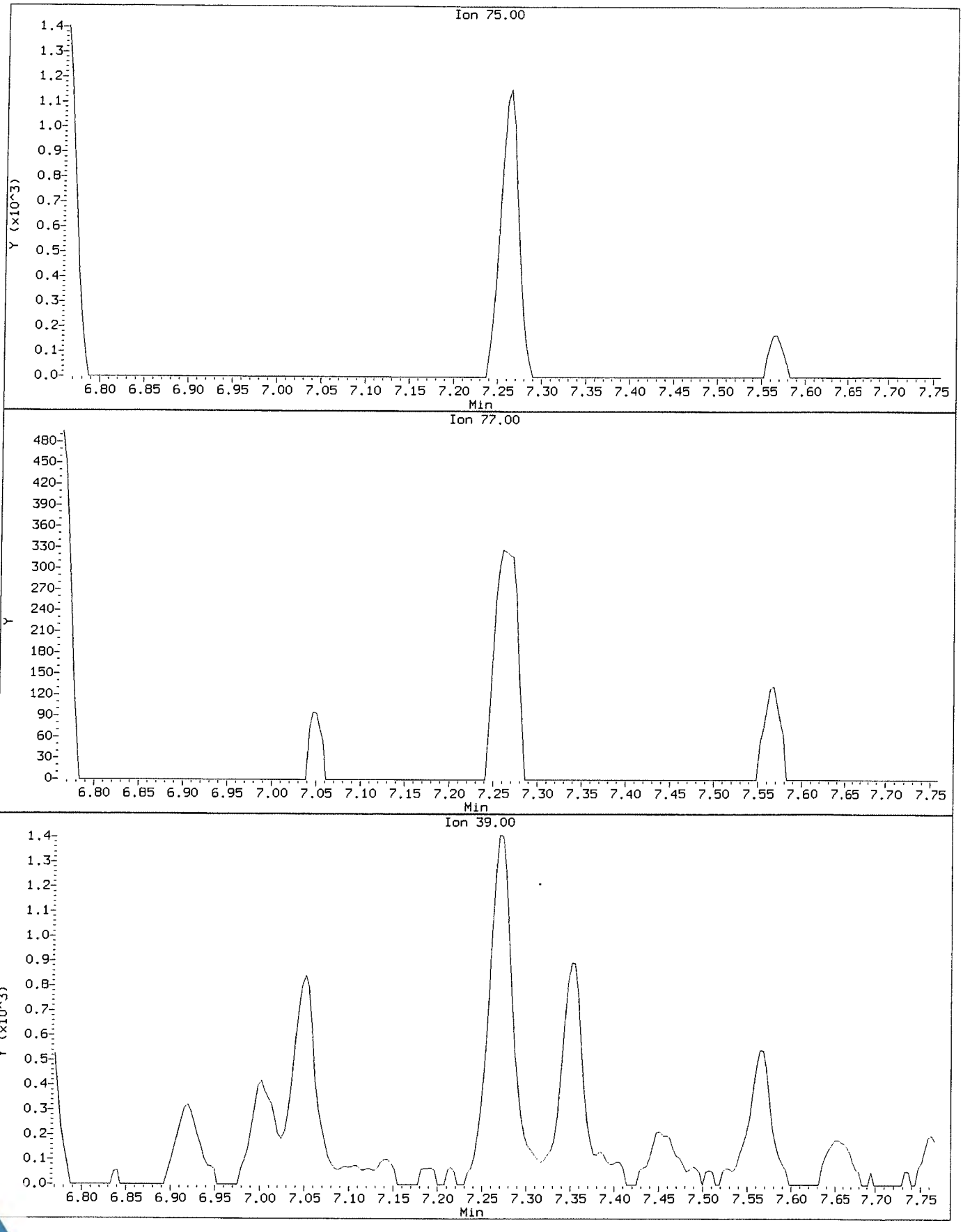
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: trans-1,3-Dichloropropene
CAS Number: 10061-02-6



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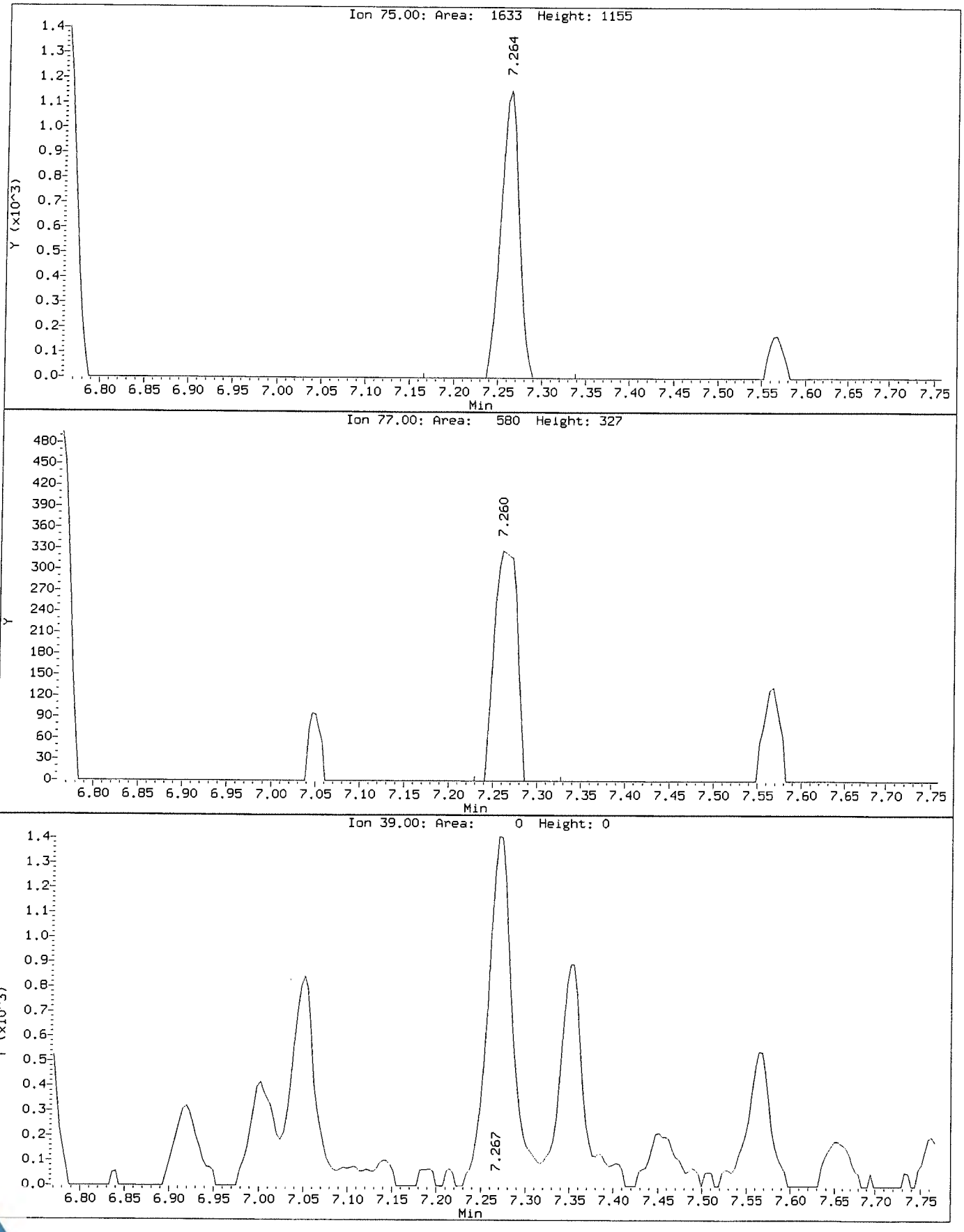
Client Sample ID: VSTD00.5

Compound: trans-1,3-Dichloropropene
CAS Number: 10061-02-6



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Report Date: 28-Jan-2019 11:25

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122104.D
Lab Smp Id: VSTD001 Client Smp ID: VSTD001
Inj Date : 21-DEC-2018 15:03
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD001;VSTD001;1;3;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 14:14 Cal File: U122103.D
Als bottle: 5 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

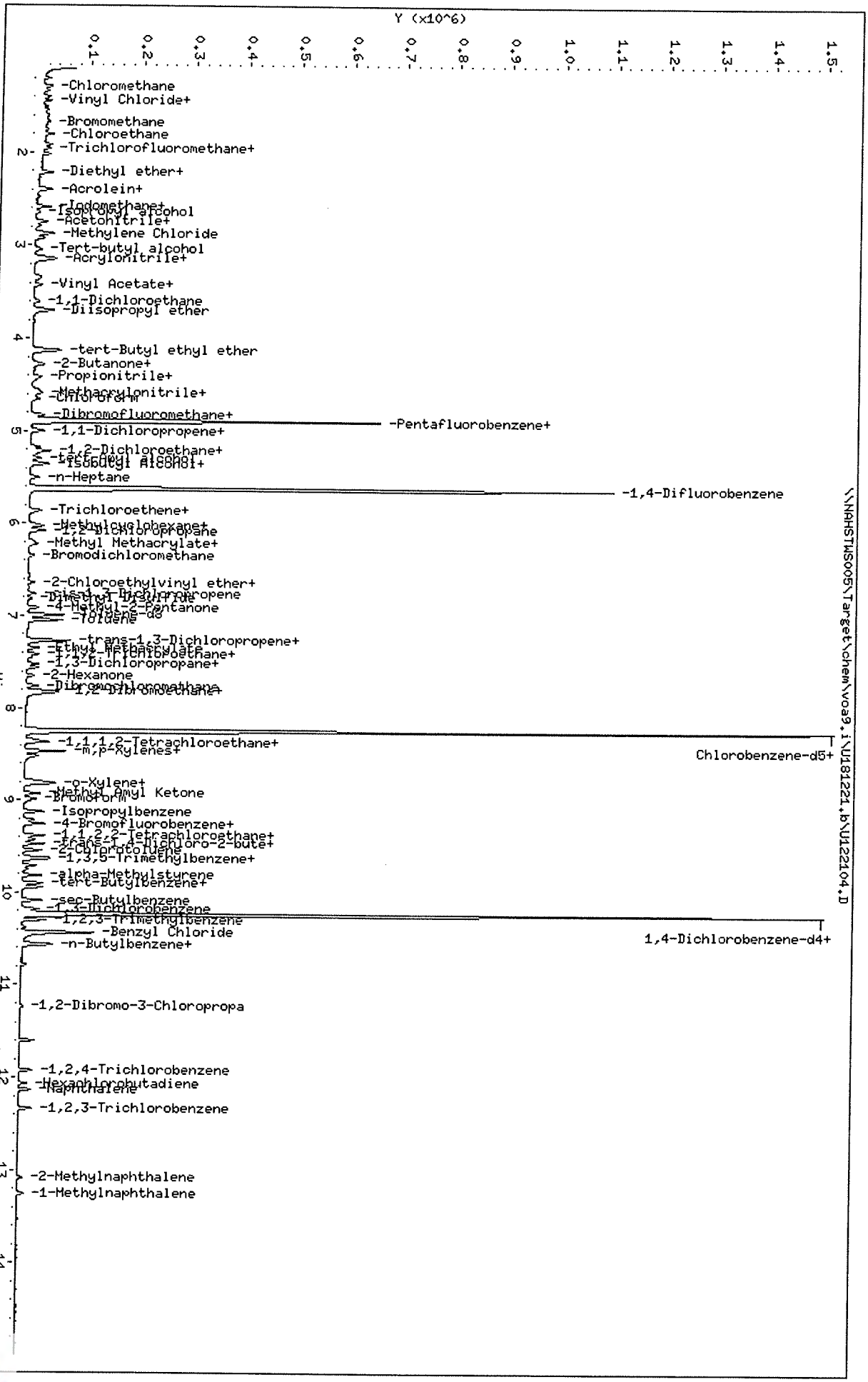
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.894	4.894	(1.000)	408613	50.0000	
*	36 1,4-Difluorobenzene	114	5.625	5.625	(1.000)	790484	50.0000	
*	47 Chlorobenzene-d5	117	8.249	8.249	(1.000)	731112	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	336061	50.0000	
$	30 Dibromofluoromethane	113	4.826	4.826	(0.986)	8005	1.00000	0.30(a)
$	35 1,2-Dichloroethane-d4	65	5.175	5.175	(1.057)	10907	1.00000	(a)
$	48 Toluene-d8	98	6.989	6.989	(0.847)	32175	1.00000	(a)
$	69 4-Bromofluorobenzene	95	9.257	9.257	(1.122)	12547	1.00000	0.36(a)
	60 1,1,1,2-Tetrachloroethane	131	8.350	8.350	(1.012)	4208	1.00000	1.48(a)
	31 1,1,1-Trichloroethane	97	4.826	4.826	(0.986)	7082	1.00000	1.09(a)
	68 1,1,2,2-Tetrachloroethane	83	9.392	9.392	(0.918)	9134	1.00000	1.20(a)
	138 Freon TF	101	2.401	2.401	(0.491)	4108	1.00000	1.18(a)
	53 1,1,2-Trichloroethane	83	7.421	7.421	(0.900)	5137	1.00000	1.17(a)
	22 1,1-Dichloroethane	63	3.604	3.604	(0.737)	10662	1.00000	1.21(a)
	11 1,1-Dichloroethene	96	2.397	2.397	(0.490)	4598	1.00000	1.18(a)
	32 1,1-Dichloropropene	75	5.003	5.003	(0.889)	8232	1.00000	1.17(a)
	93 1,2,3-Trichlorobenzene	180	12.335	12.335	(1.205)	6631	1.00000	1.66(a)
	71 1,2,3-Trichloropropane	75	9.426	9.426	(0.921)	8706	1.00000	1.10(a)
	90 1,2,4-Trichlorobenzene	180	11.923	11.923	(1.165)	6820	1.00000	1.09(a)
	79 1,2,4-Trimethylbenzene	105	9.943	9.943	(0.971)	18977	1.00000	1.07(a)
	89 1,2-Dibromo-3-Chloropropane	155	11.233	11.233	(1.097)	861	1.00000	2.16(a)
	57 1,2-Dibromoethane	107	7.852	7.852	(0.952)	5748	1.00000	1.14(a)

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122104.D Page 2
Report Date: 28-Jan-2019 11:25

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	10.569	10.569	(1.033)	11945	1.00000	1.19(a)
33	1,2-Dichloroethane	62	5.250	5.250	(0.933)	8970	1.00000	0.54(a)
42	1,2-Dichloropropane	63	6.078	6.078	(1.081)	6565	1.00000	1.17(a)
75	1,3,5-Trimethylbenzene	105	9.625	9.625	(0.940)	18075	1.00000	1.07(a)
83	1,3-Dichlorobenzene	146	10.180	10.180	(0.995)	11430	1.00000	1.14(a)
54	1,3-Dichloropropane	76	7.563	7.563	(0.917)	10939	1.00000	1.16(a)
84	1,4-Dichlorobenzene	146	10.255	10.255	(1.002)	12811	1.00000	1.21(a)
26	2,2-Dichloropropane	77	4.272	4.272	(0.873)	6236	1.00000	1.17(a)
24	2-Butanone	43	4.343	4.343	(0.887)	6369	2.00000	0.00(a)
76	2-Chlorotoluene	91	9.546	9.546	(0.933)	17719	1.00000	1.14(a)
52	2-Hexanone	43	7.649	7.649	(0.927)	8136	2.00000	2.00(a)
77	4-Chlorotoluene	91	9.640	9.640	(0.942)	20099	1.00000	1.12(a)
82	p-Isopropyltoluene	119	10.210	10.210	(0.997)	18371	1.00000	1.03(a)
45	4-Methyl-2-Pentanone	43	6.914	6.914	(0.838)	12526	2.00000	2.14(a)
10	Acetone	43	2.480	2.480	(0.507)	5582	2.00000	0.58(a)
37	Benzene	78	5.216	5.216	(0.927)	24701	1.00000	1.17(a)
74	Bromobenzene	156	9.381	9.381	(0.917)	5982	1.00000	1.15(a)
29	Bromochloromethane	128	4.553	4.553	(0.930)	2865	1.00000	(a)
39	Bromodichloromethane	83	6.348	6.348	(1.129)	6221	1.00000	1.04(aM)
66	Bromoform	173	8.984	8.984	(1.089)	2343	1.00000	2.48(Ta)
6	Bromomethane	94	1.670	1.670	(0.341)	2293	1.00000	2.22(a)
19	Carbon Disulfide	76	2.585	2.585	(0.528)	33391	2.00000	2.35(a)
34	Carbon Tetrachloride	117	4.991	4.991	(0.887)	5463	1.00000	2.32(a)
59	Chlorobenzene	112	8.275	8.275	(1.003)	16703	1.00000	1.18(a)
7	Chloroethane	64	1.749	1.749	(0.357)	3213	1.00000	1.36(aM)
28	Chloroform	83	4.654	4.654	(0.951)	10242	1.00000	1.20(a)
3	Chloromethane	50	1.336	1.336	(0.273)	4689	1.00000	4.32(a)
27	cis-1,2-Dichloroethene	96	4.283	4.283	(0.875)	6586	1.00000	1.22(a)
46	cis-1,3-Dichloropropene	75	6.757	6.757	(1.201)	7273	1.00000	2.04(a)
55	Dibromochloromethane	129	7.758	7.758	(0.940)	4051	1.00000	1.80(a)
44	Dibromomethane	93	6.187	6.187	(1.100)	3627	1.00000	1.12(aM)
2	Dichlorodifluoromethane	85	1.201	1.201	(0.246)	6583	1.00000	1.78(a)
61	Ethylbenzene	106	8.369	8.369	(1.015)	8132	1.00000	1.12(a)
91	Hexachlorobutadiene	225	12.065	12.065	(1.179)	2672	1.00000	1.12(a)
67	Isopropylbenzene	105	9.126	9.126	(1.106)	22547	1.00000	1.08(a)
62	m,p-Xylenes	106	8.470	8.470	(1.027)	19538	2.00000	2.20(a)
17	Methylene Chloride	84	2.866	2.866	(0.586)	8113	1.00000	0.44(a)
87	n-Butylbenzene	91	10.554	10.554	(1.031)	18944	1.00000	1.10(a)
73	n-Propylbenzene	91	9.475	9.475	(0.926)	27852	1.00000	1.10(a)
92	Naphthalene	128	12.133	12.133	(1.185)	16505	1.00000	1.44(a)
63	o-Xylene	106	8.811	8.811	(1.068)	10277	1.00000	1.15(a)
81	sec-Butylbenzene	105	10.086	10.086	(0.985)	22753	1.00000	1.07(a)
64	Styrene	104	8.826	8.826	(1.070)	15133	1.00000	1.01(a)
78	tert-Butylbenzene	119	9.902	9.902	(0.967)	15715	1.00000	1.07(a)
56	Tetrachloroethene	164	7.522	7.522	(0.912)	4775	1.00000	1.24(a)
50	Toluene	91	7.046	7.046	(0.854)	24298	1.00000	1.11(a)
20	trans-1,2-Dichloroethene	96	3.140	3.140	(0.642)	5920	1.00000	1.23(a)
51	trans-1,3-Dichloropropene	75	7.259	7.259	(1.291)	5668	1.00000	2.35(a)
38	Trichloroethene	130	5.861	5.861	(1.042)	6040	1.00000	1.18(a)
8	Trichlorofluoromethane	101	1.951	1.951	(0.399)	7922	1.00000	1.78(a)
5	Vinyl Chloride	62	1.415	1.415	(0.289)	6308	1.00000	2.03(a)

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



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Sample Info: VSTD001;VSTD001;1;3;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

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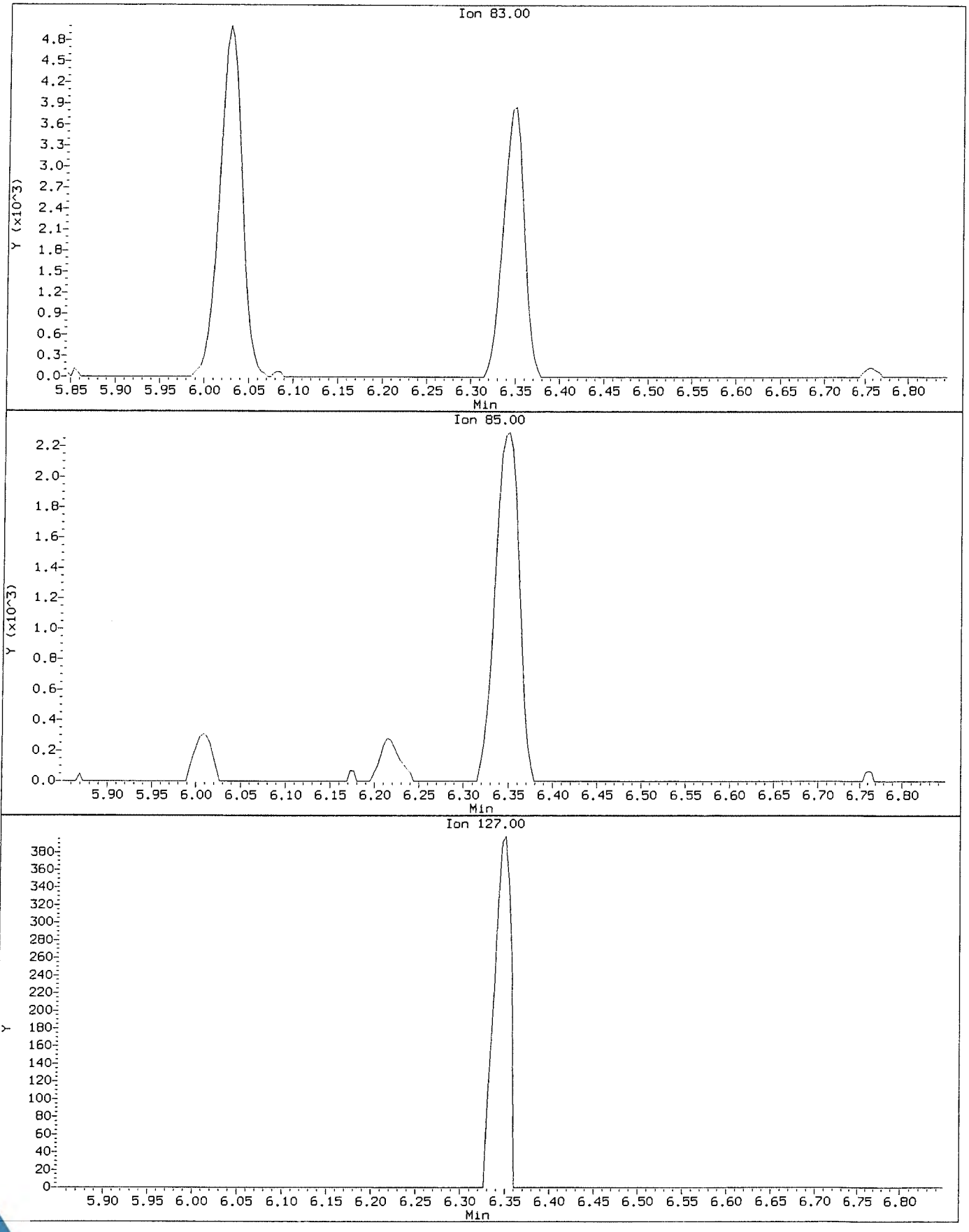
Instrument: VOA9.i
Client Sample ID: VSTD001

Compound: Bromodichloromethane
CAS Number: 75-27-4



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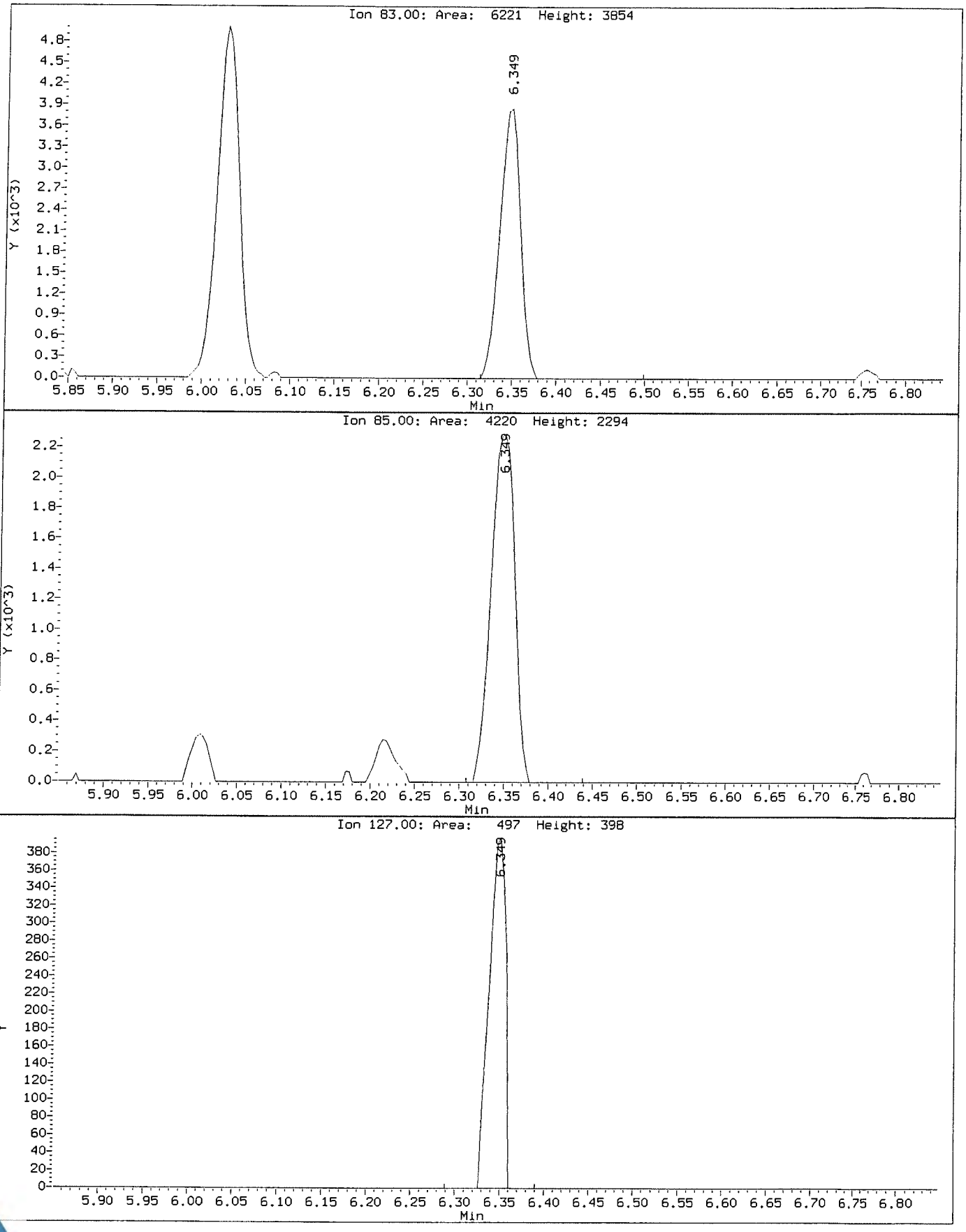
Compound: Bromodichloromethane
CAS Number: 75-27-4



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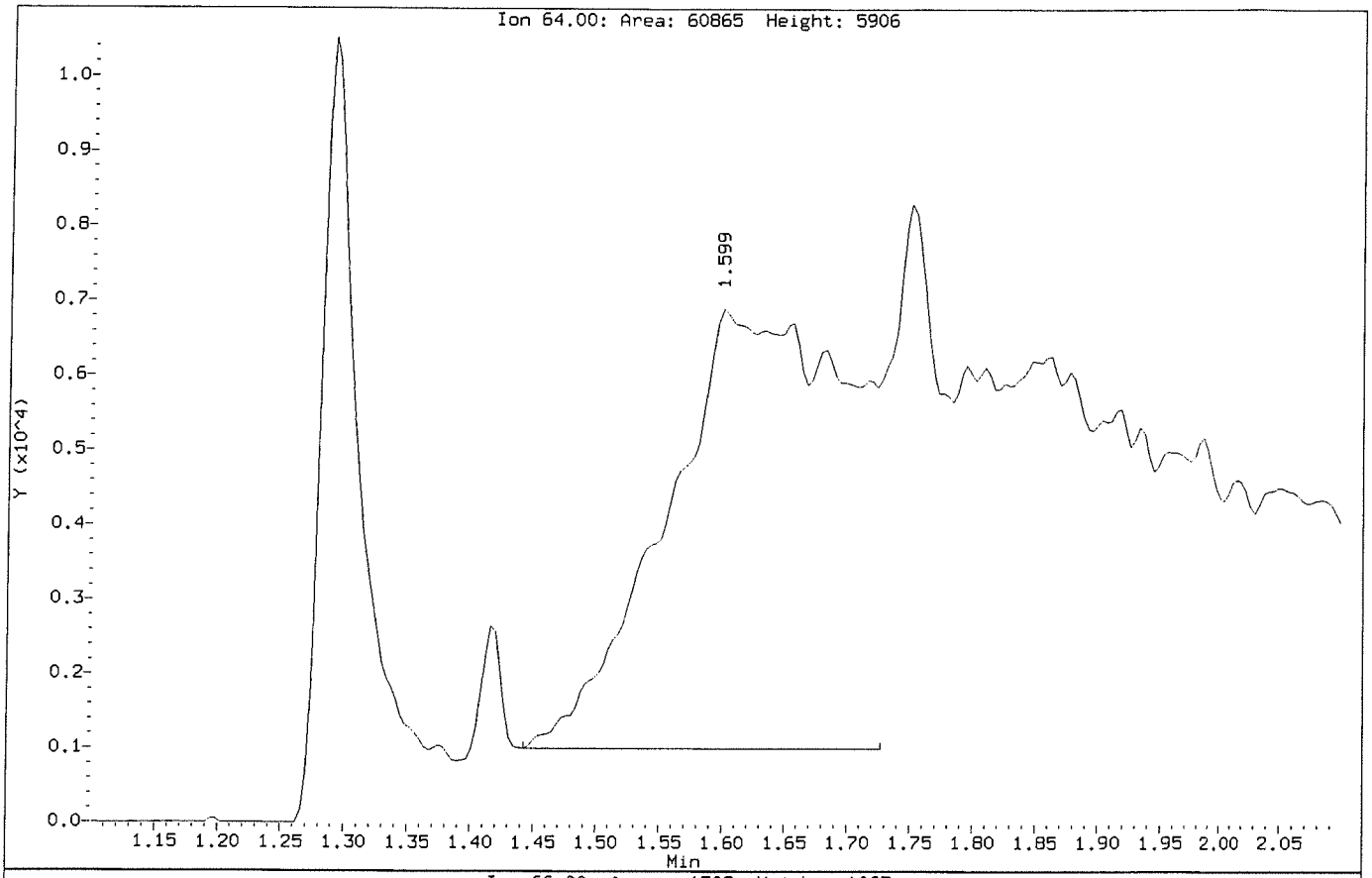
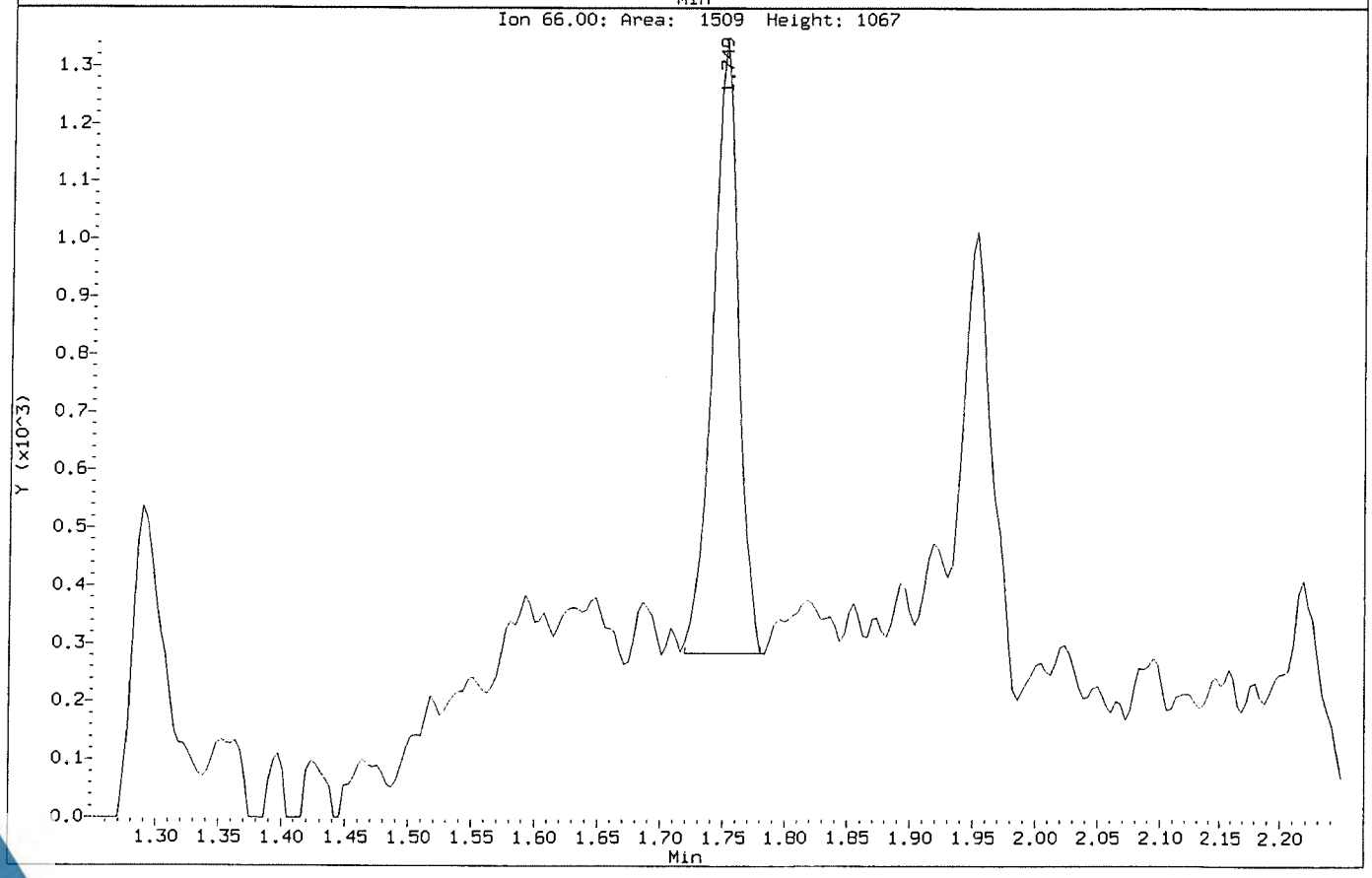
Compound: Chloroethane
CAS Number: 75-00-3





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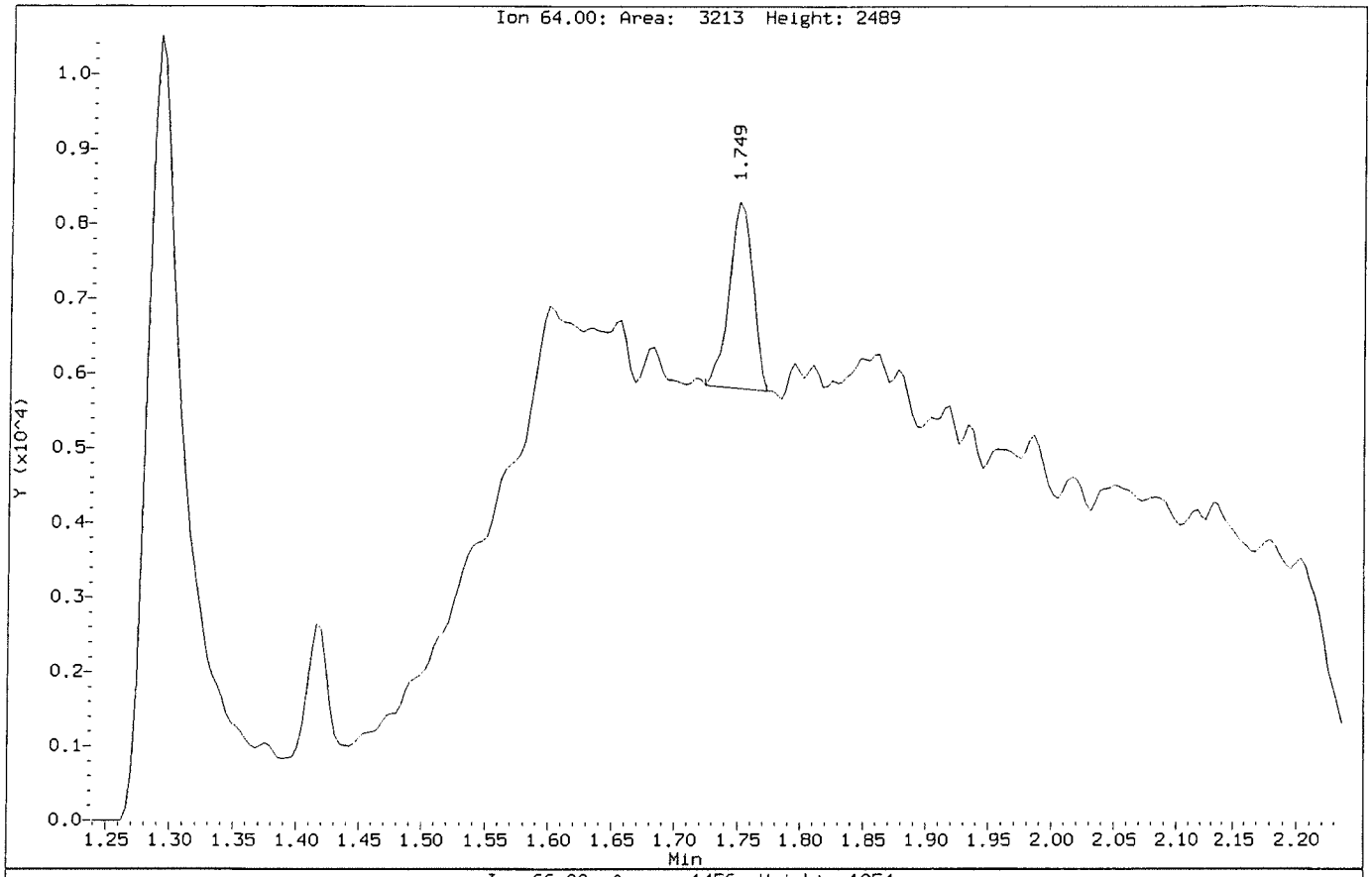
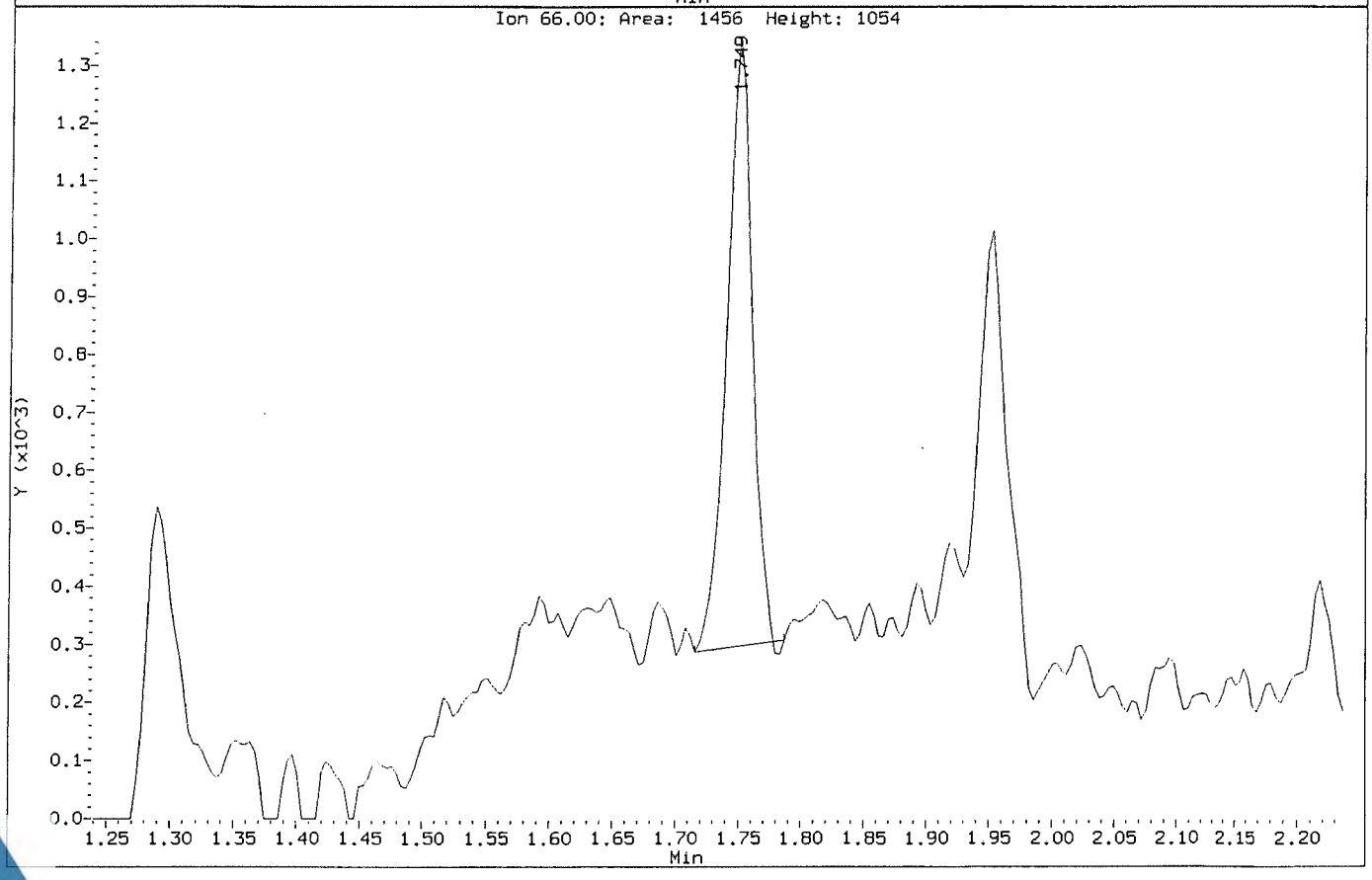
Client Sample ID: VSTD001

Compound: Chloroethane
CAS Number: 75-00-3





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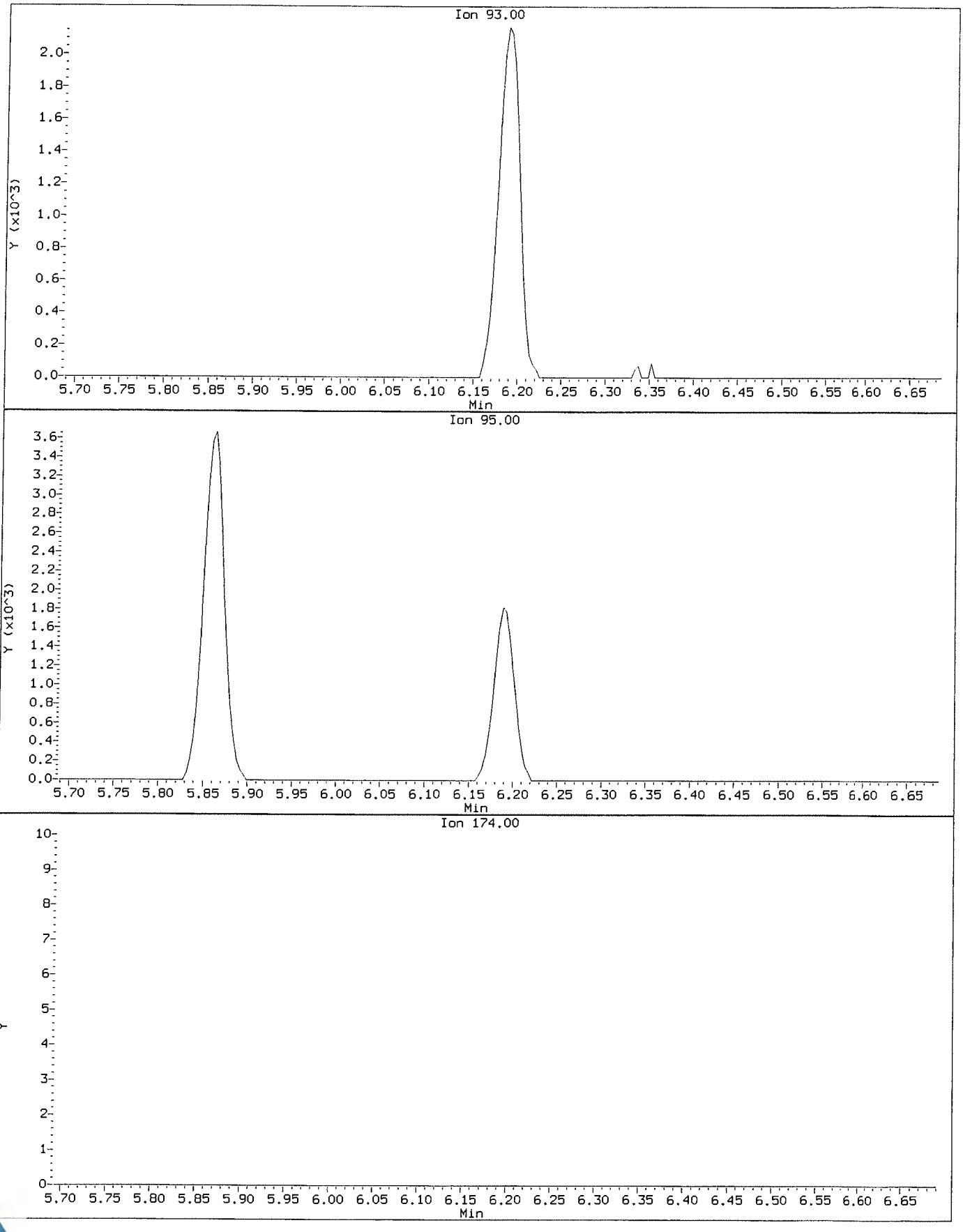
Injection Date: 21-DEC-2018 15:03
Instrument: VOA9.i
Client Sample ID: VSTD001

Compound: Dibromomethane
CAS Number: 74-95-3



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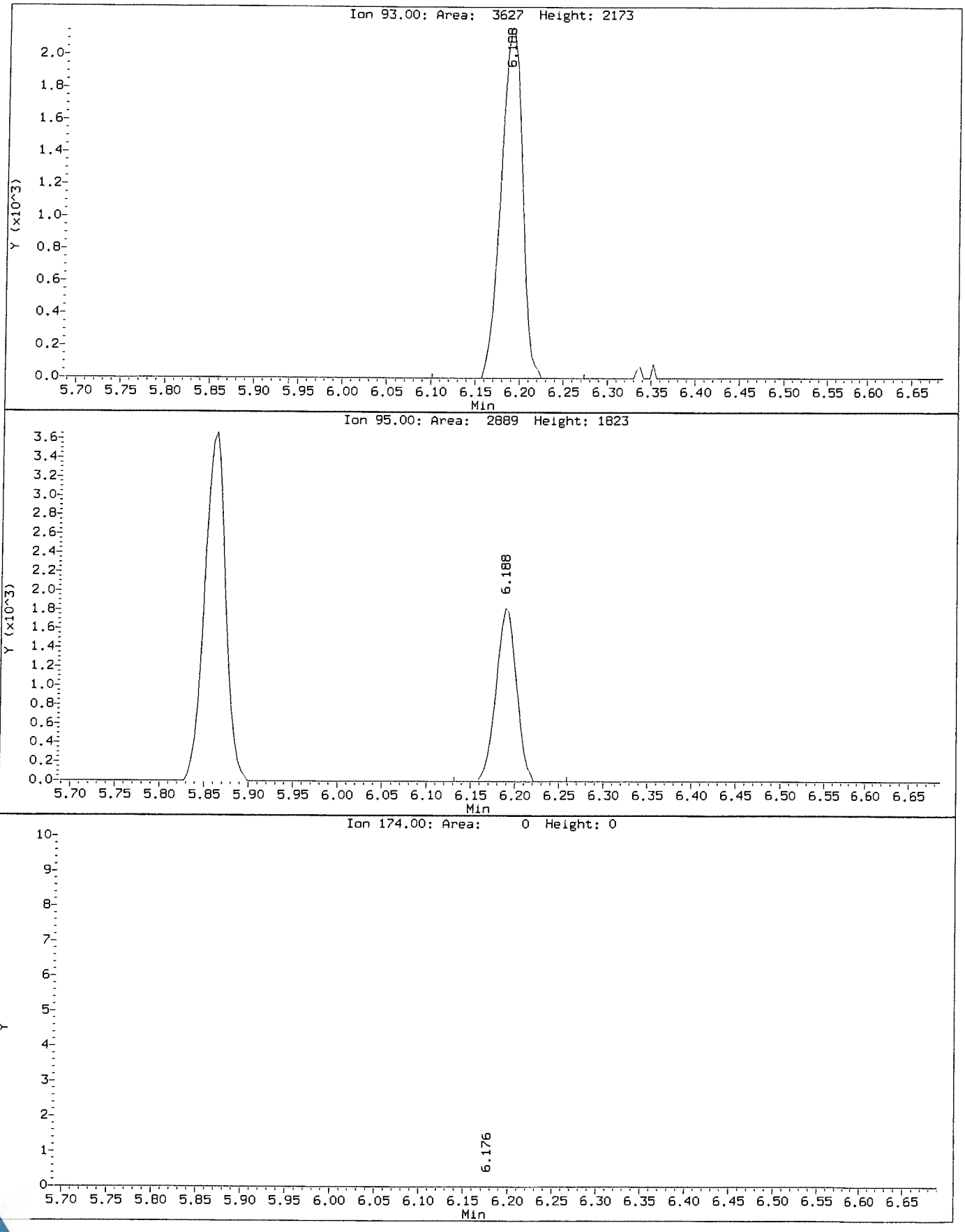
Instrument: VOA9.i
Client Sample ID: VSTD001

Compound: Dibromomethane
CAS Number: 74-95-3



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Report Date: 28-Jan-2019 11:25

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122105.D
Lab Smp Id: VSTD002 Client Smp ID: VSTD002
Inj Date : 21-DEC-2018 15:28
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD002;VSTD002;1;4;
Misc Info : 180315V9;WATER;0;1;
Comment :
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Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 15:03 Cal File: U122104.D
Als bottle: 6 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

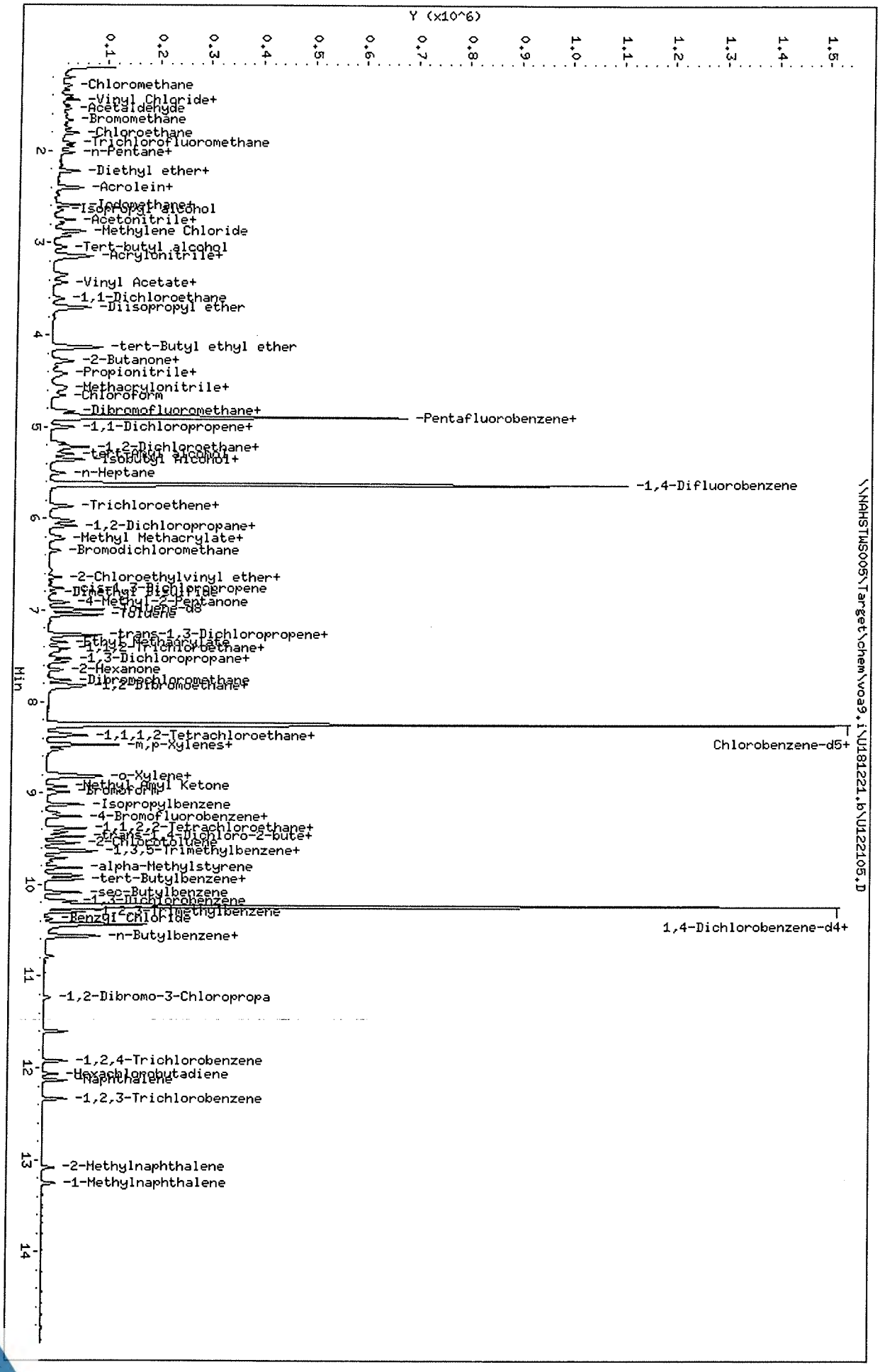
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.894	4.894	(1.000)	416245	50.0000	
* 36 1,4-Difluorobenzene	114	5.625	5.625	(1.000)	790380	50.0000	
* 47 Chlorobenzene-d5	117	8.249	8.249	(1.000)	728875	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	340088	50.0000	
$ 30 Dibromofluoromethane	113	4.830	4.830	(0.987)	12720	2.00000	1.32(a)
$ 35 1,2-Dichloroethane-d4	65	5.175	5.175	(1.057)	17881	2.00000	0.99(a)
$ 48 Toluene-d8	98	6.989	6.989	(0.847)	54444	2.00000	1.21(a)
$ 69 4-Bromofluorobenzene	95	9.257	9.257	(1.122)	20092	2.00000	1.45(a)
60 1,1,1,2-Tetrachloroethane	131	8.347	8.347	(1.012)	8522	2.00000	2.40(a)
31 1,1,1-Trichloroethane	97	4.827	4.827	(0.986)	12904	2.00000	1.96(a)
68 1,1,2,2-Tetrachloroethane	83	9.392	9.392	(0.918)	16933	2.00000	2.21(a)
138 Freon TF	101	2.401	2.401	(0.491)	7489	2.00000	2.11(a)
53 1,1,2-Trichloroethane	83	7.421	7.421	(0.900)	9254	2.00000	2.13(a)
22 1,1-Dichloroethane	63	3.604	3.604	(0.737)	19553	2.00000	2.18(a)
11 1,1-Dichloroethene	96	2.401	2.401	(0.491)	8761	2.00000	2.21(a)
32 1,1-Dichloropropene	75	5.006	5.006	(0.890)	15087	2.00000	2.14(a)
93 1,2,3-Trichlorobenzene	180	12.335	12.335	(1.205)	12385	2.00000	2.54(a)
71 1,2,3-Trichloropropane	75	9.426	9.426	(0.921)	16368	2.00000	2.05(a)
90 1,2,4-Trichlorobenzene	180	11.923	11.923	(1.165)	12313	2.00000	1.95(a)
79 1,2,4-Trimethylbenzene	105	9.943	9.943	(0.971)	36129	2.00000	2.03(a)
89 1,2-Dibromo-3-Chloropropane	155	11.233	11.233	(1.097)	1910	2.00000	3.02(a)
57 1,2-Dibromoethane	107	7.852	7.852	(0.952)	10069	2.00000	2.01(a)

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122105.D Page 2
Report Date: 28-Jan-2019 11:25

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	10.569	10.569	(1.033)	21852	2.00000	2.16(a)
33	1,2-Dichloroethane	62	5.254	5.254	(0.934)	15708	2.00000	1.50(a)
42	1,2-Dichloropropane	63	6.079	6.079	(1.081)	11593	2.00000	2.07(a)
75	1,3,5-Trimethylbenzene	105	9.625	9.625	(0.940)	33264	2.00000	1.94(a)
83	1,3-Dichlorobenzene	146	10.180	10.180	(0.995)	21833	2.00000	2.16(a)
54	1,3-Dichloropropane	76	7.563	7.563	(0.917)	19804	2.00000	2.11(a)
84	1,4-Dichlorobenzene	146	10.255	10.255	(1.002)	22897	2.00000	2.15(a)
26	2,2-Dichloropropane	77	4.275	4.275	(0.874)	10414	2.00000	1.92(a)
24	2-Butanone	43	4.343	4.343	(0.887)	11299	4.00000	1.81(a)
76	2-Chlorotoluene	91	9.546	9.546	(0.933)	32538	2.00000	2.07(a)
52	2-Hexanone	43	7.653	7.653	(0.928)	15773	4.00000	3.89(a)
77	4-Chlorotoluene	91	9.640	9.640	(0.942)	38000	2.00000	2.09(a)
82	p-Isopropyltoluene	119	10.210	10.210	(0.997)	34224	2.00000	1.90(a)
45	4-Methyl-2-Pentanone	43	6.915	6.915	(0.838)	23124	4.00000	3.96(a)
10	Acetone	43	2.484	2.484	(0.508)	8219	4.00000	2.18(a)
37	Benzene	78	5.220	5.220	(0.928)	44238	2.00000	2.10(a)
74	Bromobenzene	156	9.381	9.381	(0.917)	11074	2.00000	2.10(a)
29	Bromochloromethane	128	4.557	4.557	(0.931)	5148	2.00000	(a)
39	Bromodichloromethane	83	6.348	6.348	(1.129)	11433	2.00000	1.92(a)
66	Bromoform	173	8.984	8.984	(1.089)	4574	2.00000	3.17(Ta)
6	Bromomethane	94	1.674	1.674	(0.342)	4588	2.00000	3.07(a)
19	Carbon Disulfide	76	2.589	2.589	(0.529)	60138	4.00000	4.17(a)
34	Carbon Tetrachloride	117	4.995	4.995	(0.888)	10077	2.00000	3.10(a)
59	Chlorobenzene	112	8.275	8.275	(1.003)	29501	2.00000	2.10(a)
7	Chloroethane	64	1.753	1.753	(0.358)	8179	2.00000	2.69(aM)
28	Chloroform	83	4.658	4.658	(0.952)	18482	2.00000	2.14(a)
3	Chloromethane	50	1.340	1.340	(0.274)	8693	2.00000	5.15
27	cis-1,2-Dichloroethene	96	4.287	4.287	(0.876)	11391	2.00000	2.08(a)
46	cis-1,3-Dichloropropene	75	6.757	6.757	(1.201)	13732	2.00000	2.74(a)
55	Dibromochloromethane	129	7.758	7.758	(0.940)	7740	2.00000	2.55(a)
44	Dibromomethane	93	6.191	6.191	(1.101)	6690	2.00000	2.07(aM)
2	Dichlorodifluoromethane	85	1.205	1.205	(0.246)	11371	2.00000	2.68(a)
61	Ethylbenzene	106	8.373	8.373	(1.015)	14915	2.00000	2.07(a)
91	Hexachlorobutadiene	225	12.065	12.065	(1.179)	4376	2.00000	1.81(a)
67	Isopropylbenzene	105	9.126	9.126	(1.106)	42416	2.00000	2.04(a)
62	m,p-Xylenes	106	8.474	8.474	(1.027)	36211	4.00000	4.10(a)
17	Methylene Chloride	84	2.873	2.873	(0.587)	13726	2.00000	1.52(a)
87	n-Butylbenzene	91	10.558	10.558	(1.031)	35309	2.00000	2.03(a)
73	n-Propylbenzene	91	9.475	9.475	(0.926)	51078	2.00000	2.01(a)
92	Naphthalene	128	12.133	12.133	(1.185)	32897	2.00000	2.21(a)
63	o-Xylene	106	8.811	8.811	(1.068)	17863	2.00000	2.00(a)
81	sec-Butylbenzene	105	10.086	10.086	(0.985)	43551	2.00000	2.03(a)
64	Styrene	104	8.826	8.826	(1.070)	29048	2.00000	1.96(a)
78	tert-Butylbenzene	119	9.902	9.902	(0.967)	29889	2.00000	2.02(a)
56	Tetrachloroethene	164	7.526	7.526	(0.912)	8071	2.00000	2.11(a)
50	Toluene	91	7.049	7.049	(0.855)	46092	2.00000	2.12(a)
20	trans-1,2-Dichloroethene	96	3.143	3.143	(0.642)	10325	2.00000	2.11(a)
51	trans-1,3-Dichloropropene	75	7.259	7.259	(1.291)	10646	2.00000	2.97(a)
38	Trichloroethene	130	5.861	5.861	(1.042)	10169	2.00000	2.00(a)
8	Trichlorofluoromethane	101	1.955	1.955	(0.400)	14026	2.00000	2.64(a)
5	Vinyl Chloride	62	1.419	1.419	(0.290)	12656	2.00000	3.07(a)

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.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0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
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1.2
1.3
1.4
1.5
Min
2
3
4
5
6
7
8
9
10
11
12
13
14
-Chloromethane
-Vinyl Chloride+
-Acetaldehyde
-Bromomethane
-Chloroethane
-Trichlorofluoromethane
-n-Pentane+
-Diethyl ether+
-Acrolein+
-Iodomethane+
-Isopropyl alcohol
-Acetonitrile+
-Methylene Chloride
-Tert-butyl alcohol
-Acrylonitrile+
-Vinyl Acetate+
-1,1-Dichloroethane
-Diisopropyl ether
-tert-Butyl ethyl ether
-2-Butanone+
-Propionitrile+
-Methacrylonitrile+
-Chloroform
-Dibromofluoromethane+
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-tert-Amyl alcohol
-Isobutyl alcohol+
-n-Heptane
-1,4-Difluorobenzene
-Trichloroethene+
-1,2-Dichloropropane+
-Methyl Methacrylate+
-Bromodichloromethane
-2-Chloroethylvinyl ether+
-cis-1,3-Dichloropropene
-Dimethyl Disulfide
-4-Methyl-2-pentanone
-Toluene-d8
-Toluene
-trans-1,3-Dichloropropene+
-Ethyl Methacrylate
-1,1,2-Trichloroethane+
-1,3-Dichloropropane+
-2-Hexanone
-Dibromochloromethane
-1,2-Dibromoethane+
-1,1,1,2-Tetrachloroethane+
-m,p-Xylenes+
Chlorobenzene-d5+
-o-Xylene+
-Methyl Amyl Ketone
-Bromoform
-Isopropylbenzene
-4-Bromofluorobenzene+
-1,1,2,2-Tetrachloroethane+
-trans-1,4-Dichloro-2-bute+
-2-Chlorotoluene
-1,3,5-Trimethylbenzene+
-alpha-Methylstyrene
-tert-Butylbenzene+
-sec-Butylbenzene
-1,3-Dichlorobenzene
-4-Isopropyltoluene
-Benzyl Chloride
1,4-Dichlorobenzene-d4+
-n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Hexachlorobutadiene
-Naphthalene
-1,2,3-Trichlorobenzene
-2-Methylnaphthalene
-1-Methylnaphthalene
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Date : 21-DEC-2018 15:28
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Sample Info: VSTD002;VSTD002;1;4;
Purge Volume: 5.0
Column phase: DB624
Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122105.D
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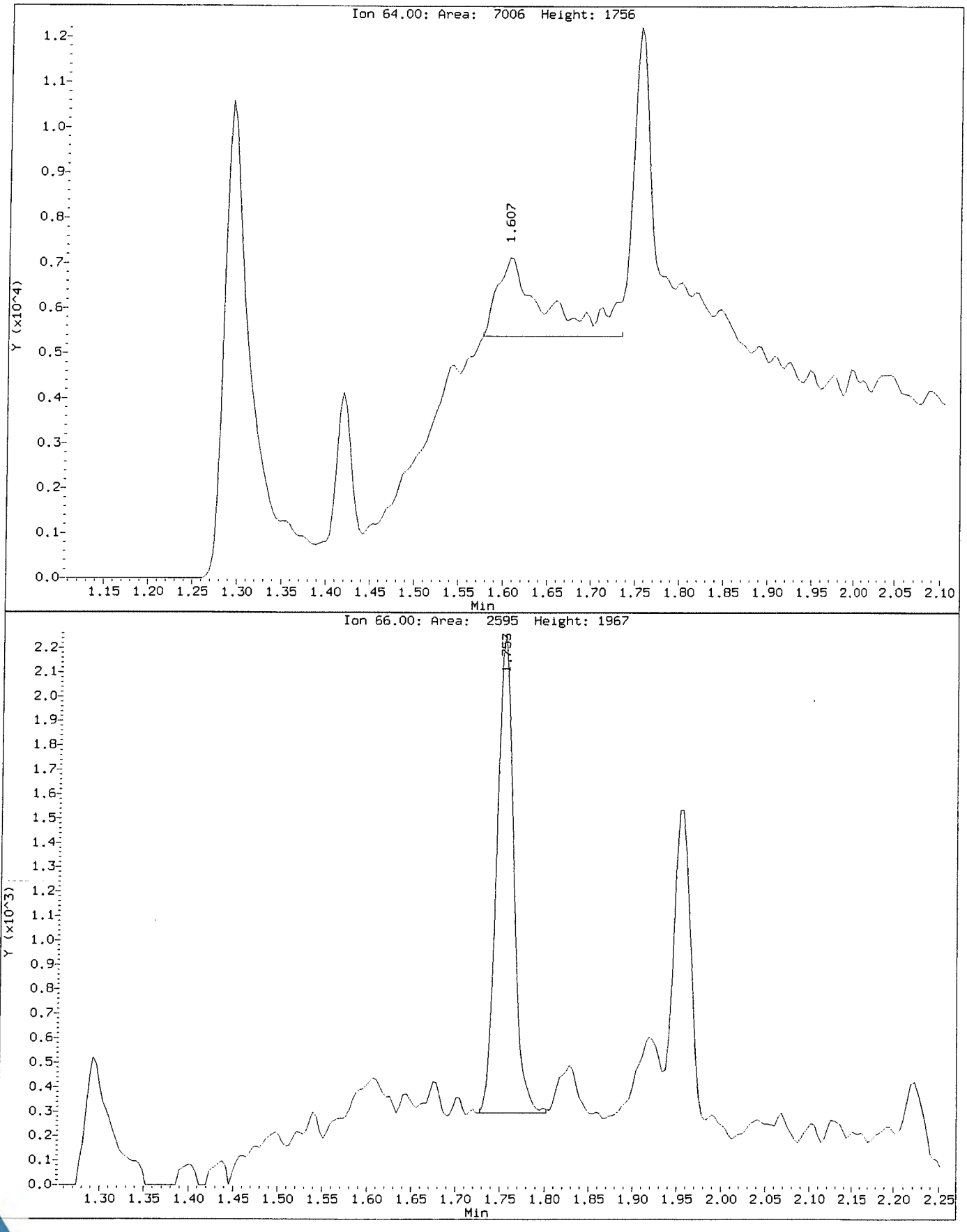
Instrument: VOA9.i
Client Sample ID: VSTD002

Compound: Chloroethane
CAS Number: 75-00-3



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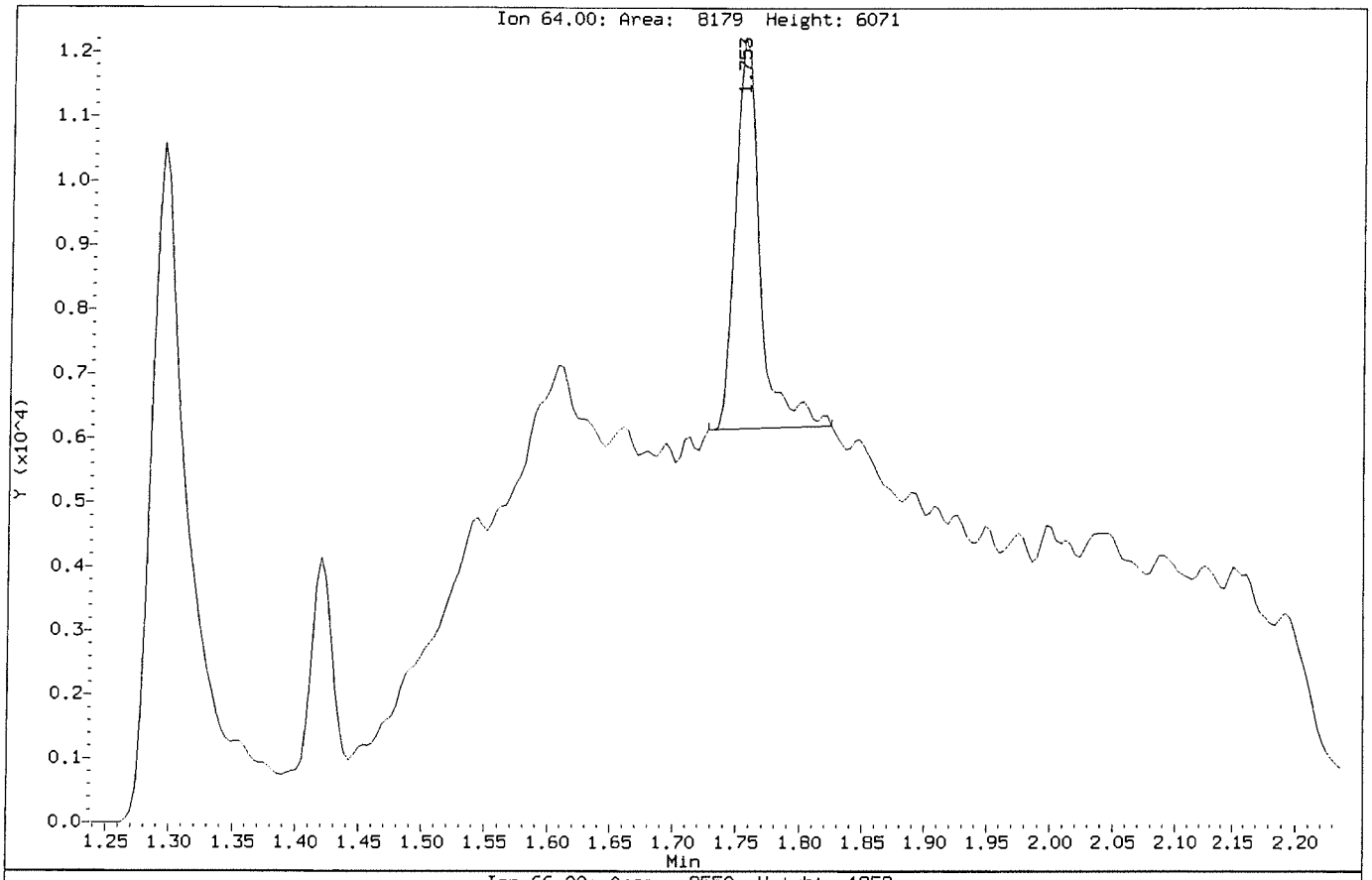
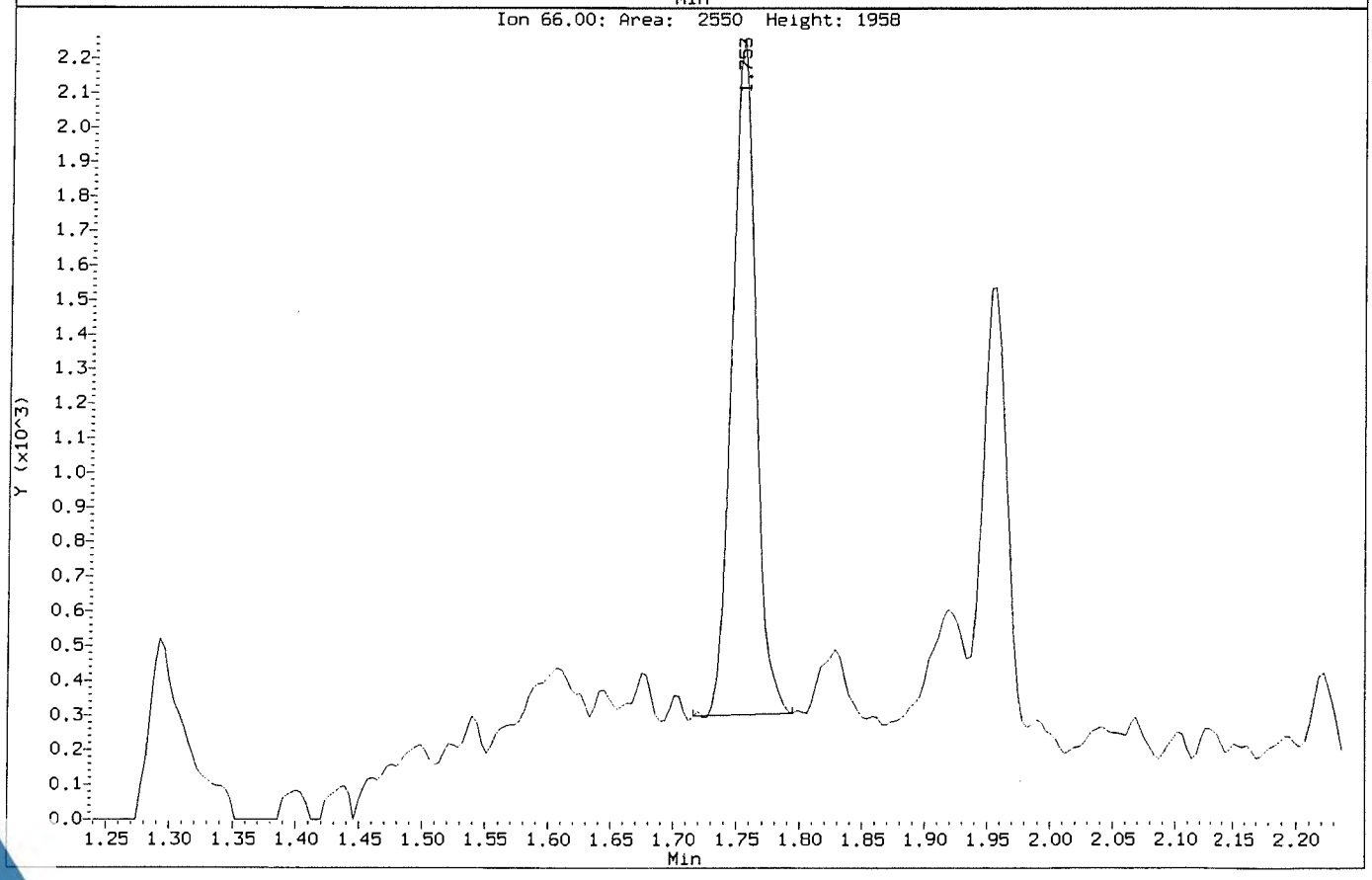
Instrument: VOA9.i
Client Sample ID: VSTD002

Compound: Chloroethane
CAS Number: 75-00-3





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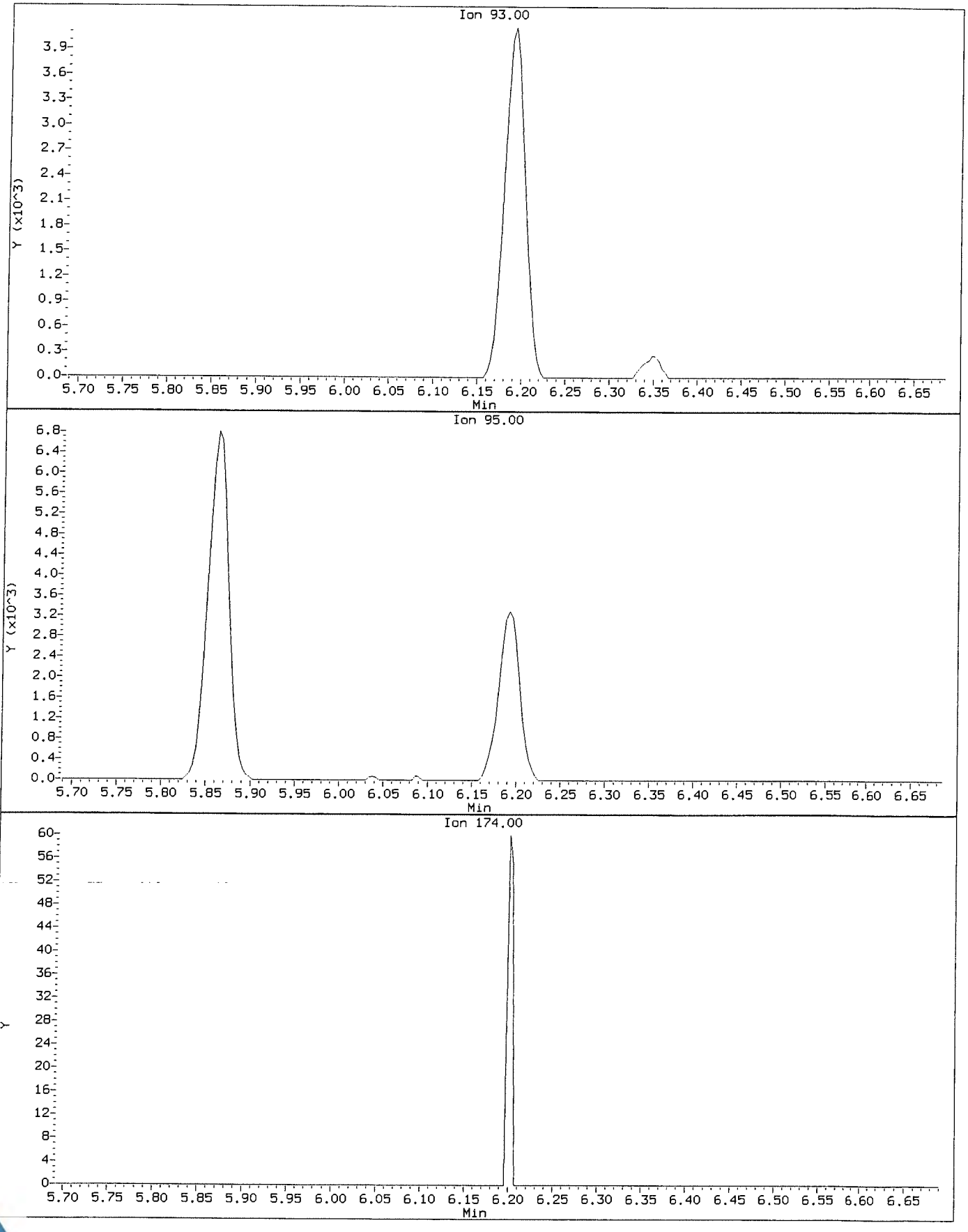
Injection Date: 21-DEC-2018 15:28
Instrument: VOA9.i
Client Sample ID: VSTD002

Compound: Dibromomethane
CAS Number: 74-95-3



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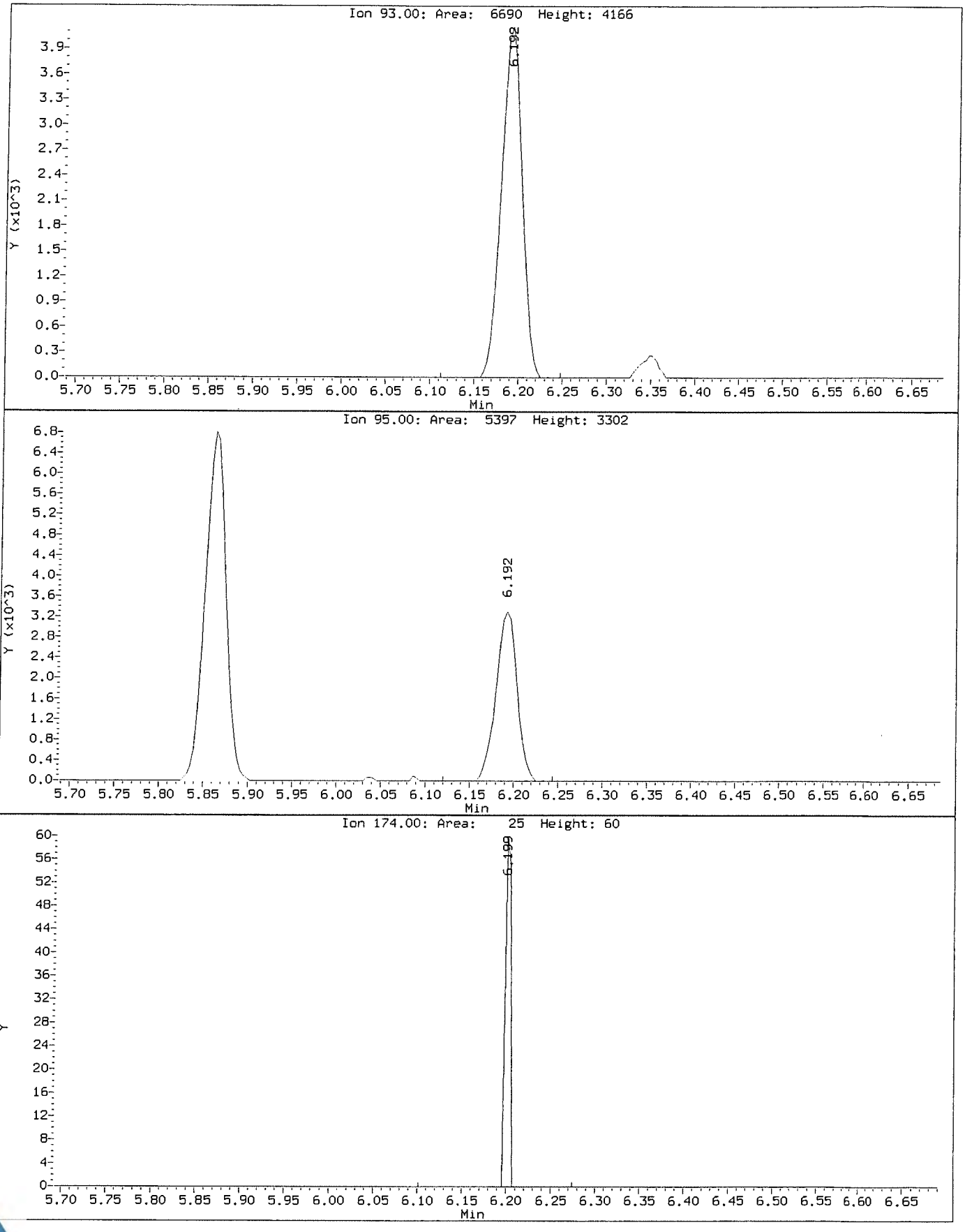
Instrument: VOA9.i
Client Sample ID: VSTD002

Compound: Dibromomethane
CAS Number: 74-95-3



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122106.D Page 1
Report Date: 28-Jan-2019 11:25

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122106.D
Lab Smp Id: VSTD005 Client Smp ID: VSTD005
Inj Date : 21-DEC-2018 15:52
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD005;VSTD005;1;5;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 15:28 Cal File: U122105.D
Als bottle: 7 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

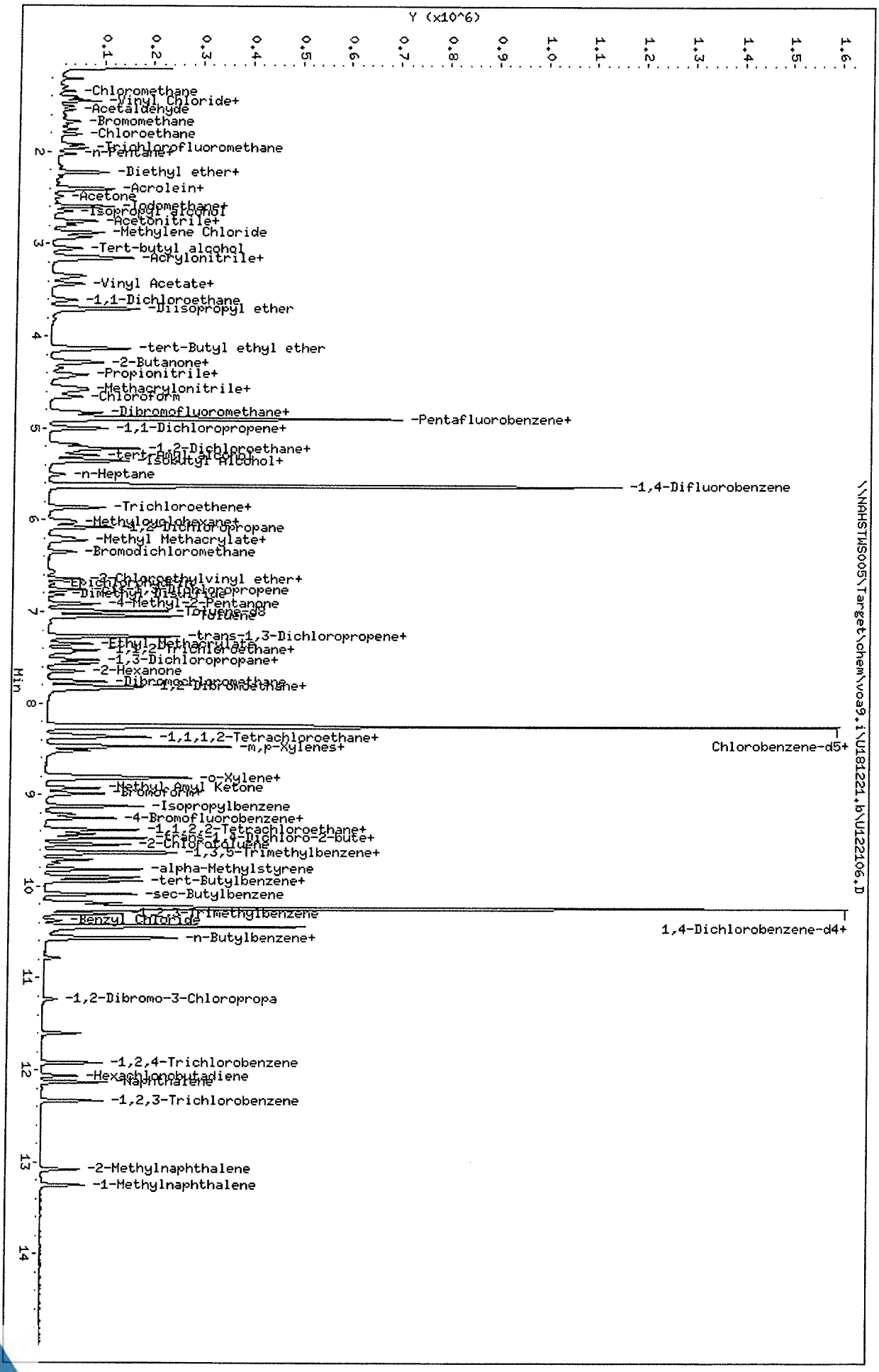
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.897	4.897	(1.000)	423551	50.0000	
* 36 1,4-Difluorobenzene	114	5.625	5.625	(1.000)	811321	50.0000	
* 47 Chlorobenzene-d5	117	8.249	8.249	(1.000)	744062	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	348718	50.0000	
$ 30 Dibromofluoromethane	113	4.830	4.830	(0.986)	28568	5.00000	4.77(a)
$ 35 1,2-Dichloroethane-d4	65	5.175	5.175	(1.057)	38943	5.00000	4.60(a)
$ 48 Toluene-d8	98	6.989	6.989	(0.847)	117010	5.00000	4.52(a)
$ 69 4-Bromofluorobenzene	95	9.257	9.257	(1.122)	42900	5.00000	4.60(a)
60 1,1,1,2-Tetrachloroethane	131	8.350	8.350	(1.012)	21878	5.00000	5.16
31 1,1,1-Trichloroethane	97	4.830	4.830	(0.986)	34906	5.00000	5.21
68 1,1,2,2-Tetrachloroethane	83	9.392	9.392	(0.918)	42397	5.00000	5.39
138 Freon TF	101	2.408	2.408	(0.492)	18593	5.00000	5.16
53 1,1,2-Trichloroethane	83	7.420	7.420	(0.900)	23788	5.00000	5.36
22 1,1-Dichloroethane	63	3.608	3.608	(0.737)	48869	5.00000	5.35
11 1,1-Dichloroethene	96	2.405	2.405	(0.491)	20607	5.00000	5.11
32 1,1-Dichloropropene	75	5.006	5.006	(0.890)	37139	5.00000	5.14
93 1,2,3-Trichlorobenzene	180	12.335	12.335	(1.205)	31113	5.00000	5.30
71 1,2,3-Trichloropropane	75	9.426	9.426	(0.921)	41282	5.00000	5.05
90 1,2,4-Trichlorobenzene	180	11.922	11.922	(1.165)	31564	5.00000	4.88(a)
79 1,2,4-Trimethylbenzene	105	9.943	9.943	(0.971)	98307	5.00000	5.38
89 1,2-Dibromo-3-Chloropropane	155	11.233	11.233	(1.097)	4931	5.00000	5.40
57 1,2-Dibromoethane	107	7.851	7.851	(0.952)	27067	5.00000	5.30

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122106.D Page 2
Report Date: 28-Jan-2019 11:25

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	10.569	10.569	(1.033)	55324	5.00000	5.34
33	1,2-Dichloroethane	62	5.254	5.254	(0.934)	41415	5.00000	5.01
42	1,2-Dichloropropane	63	6.082	6.082	(1.081)	30107	5.00000	5.25
75	1,3,5-Trimethylbenzene	105	9.624	9.624	(0.940)	93516	5.00000	5.33
83	1,3-Dichlorobenzene	146	10.179	10.179	(0.995)	54677	5.00000	5.28
54	1,3-Dichloropropane	76	7.563	7.563	(0.917)	52651	5.00000	5.51
84	1,4-Dichlorobenzene	146	10.254	10.254	(1.002)	57942	5.00000	5.30
26	2,2-Dichloropropane	77	4.275	4.275	(0.873)	27335	5.00000	4.97(a)
24	2-Butanone	43	4.343	4.343	(0.887)	29605	10.0000	8.51
76	2-Chlorotoluene	91	9.546	9.546	(0.933)	86842	5.00000	5.40
52	2-Hexanone	43	7.649	7.649	(0.927)	42401	10.0000	10.24
77	4-Chlorotoluene	91	9.639	9.639	(0.942)	100274	5.00000	5.40
82	p-Isopropyltoluene	119	10.209	10.209	(0.997)	97160	5.00000	5.26
45	4-Methyl-2-Pentanone	43	6.914	6.914	(0.838)	60636	10.0000	10.18
10	Acetone	43	2.487	2.487	(0.508)	19230	10.0000	8.95
37	Benzene	78	5.220	5.220	(0.928)	116462	5.00000	5.39
74	Bromobenzene	156	9.381	9.381	(0.917)	28350	5.00000	5.26
29	Bromochloromethane	128	4.556	4.556	(0.930)	13786	5.00000	3.48(a)
39	Bromodichloromethane	83	6.348	6.348	(1.129)	31104	5.00000	5.10
66	Bromoform	173	8.983	8.983	(1.089)	12962	5.00000	5.67(T)
6	Bromomethane	94	1.674	1.674	(0.342)	12245	5.00000	5.89
19	Carbon Disulfide	76	2.592	2.592	(0.529)	153199	10.0000	10.44
34	Carbon Tetrachloride	117	4.999	4.999	(0.889)	26439	5.00000	5.75
59	Chlorobenzene	112	8.275	8.275	(1.003)	75901	5.00000	5.30
7	Chloroethane	64	1.756	1.756	(0.359)	22172	5.00000	6.40(M)
28	Chloroform	83	4.657	4.657	(0.951)	48639	5.00000	5.53
3	Chloromethane	50	1.344	1.344	(0.274)	20682	5.00000	7.61
27	cis-1,2-Dichloroethene	96	4.290	4.290	(0.876)	29626	5.00000	5.32
46	cis-1,3-Dichloropropene	75	6.760	6.760	(1.202)	38403	5.00000	5.30
55	Dibromochloromethane	129	7.758	7.758	(0.940)	20846	5.00000	5.15
44	Dibromomethane	93	6.191	6.191	(1.101)	17610	5.00000	5.32(M)
2	Dichlorodifluoromethane	85	1.209	1.209	(0.247)	26580	5.00000	5.53
61	Ethylbenzene	106	8.372	8.372	(1.015)	38926	5.00000	5.30
91	Hexachlorobutadiene	225	12.065	12.065	(1.179)	11286	5.00000	4.56(a)
67	Isopropylbenzene	105	9.126	9.126	(1.106)	113805	5.00000	5.37
62	m,p-Xylenes	106	8.474	8.474	(1.027)	96419	10.0000	10.69
17	Methylene Chloride	84	2.877	2.877	(0.587)	31487	5.00000	4.95(a)
87	n-Butylbenzene	91	10.554	10.554	(1.031)	92969	5.00000	5.22
73	n-Propylbenzene	91	9.475	9.475	(0.926)	140607	5.00000	5.39
92	Naphthalene	128	12.132	12.132	(1.185)	91300	5.00000	4.86(a)
63	o-Xylene	106	8.811	8.811	(1.068)	47745	5.00000	5.25
81	sec-Butylbenzene	105	10.086	10.086	(0.985)	116270	5.00000	5.30
64	Styrene	104	8.826	8.826	(1.070)	80690	5.00000	5.34
78	tert-Butylbenzene	119	9.902	9.902	(0.967)	81608	5.00000	5.38
56	Tetrachloroethene	164	7.525	7.525	(0.912)	20249	5.00000	5.19
50	Toluene	91	7.049	7.049	(0.855)	120808	5.00000	5.45
20	trans-1,2-Dichloroethene	96	3.147	3.147	(0.643)	25998	5.00000	5.24
51	trans-1,3-Dichloropropene	75	7.259	7.259	(1.291)	30725	5.00000	5.37
38	Trichloroethene	130	5.865	5.865	(1.043)	27950	5.00000	5.36
8	Trichlorofluoromethane	101	1.958	1.958	(0.400)	37144	5.00000	5.87
5	Vinyl Chloride	62	1.422	1.422	(0.291)	29272	5.00000	5.76

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



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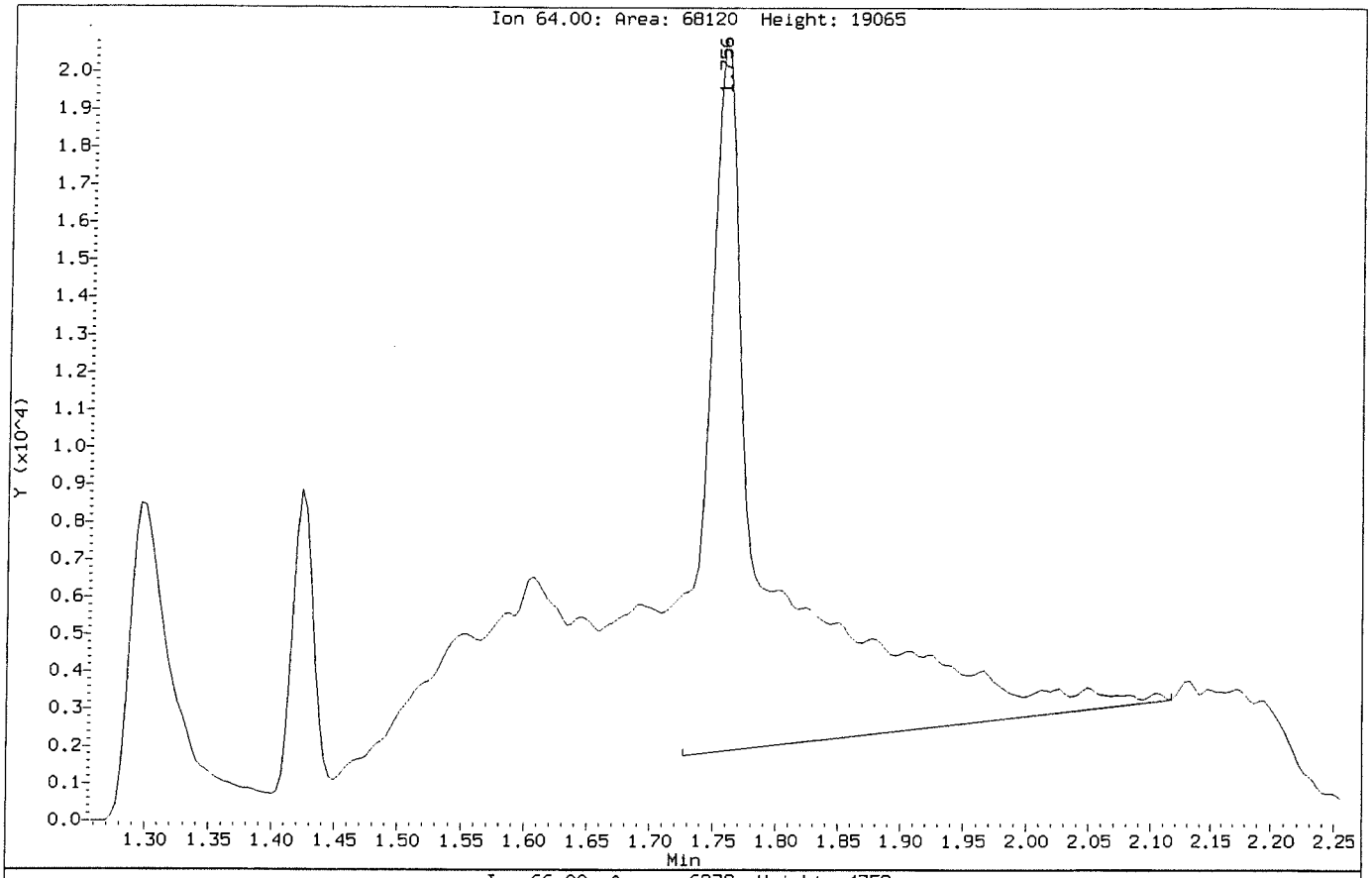
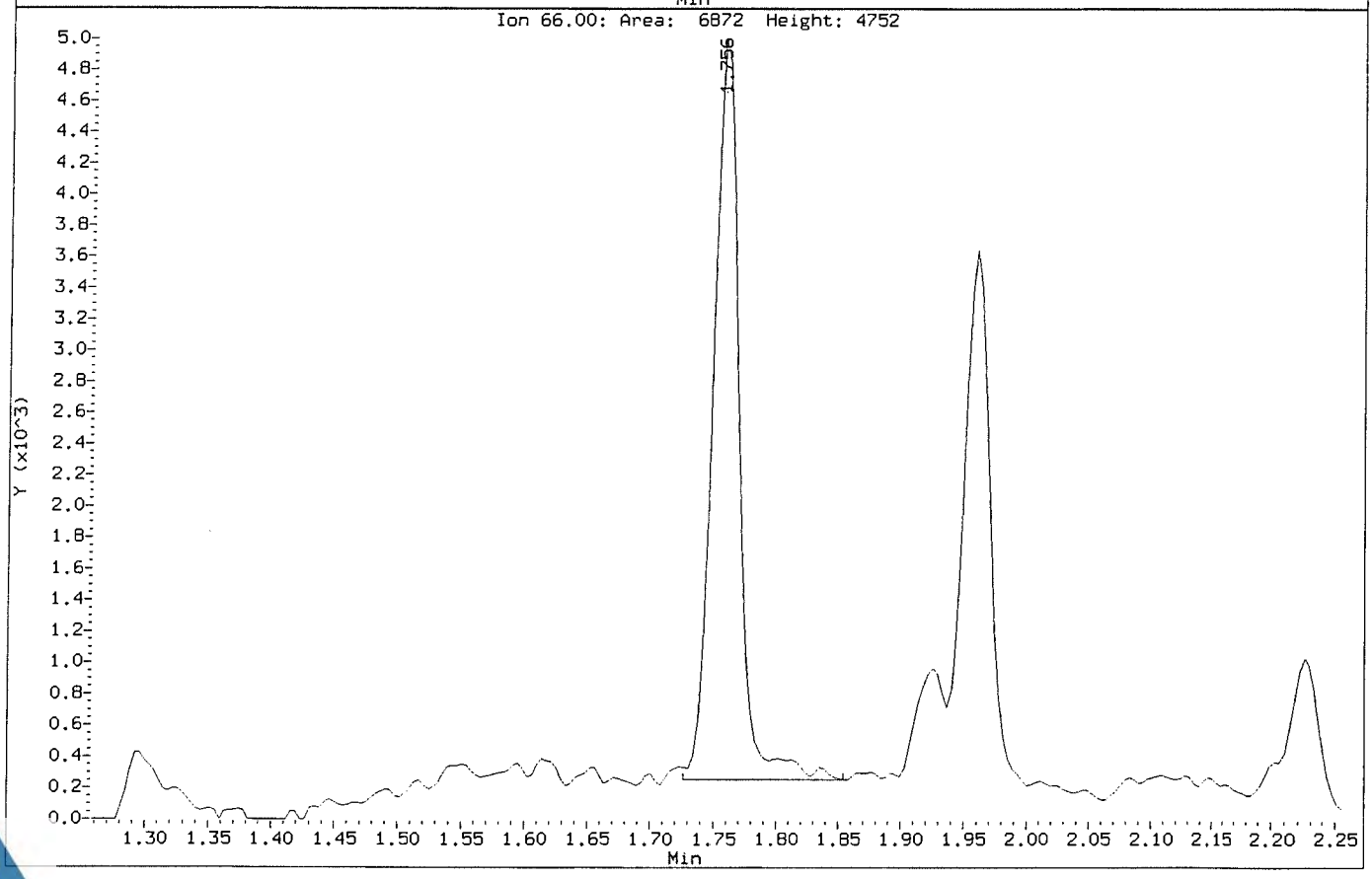
Client ID: VSTD005
Sample Info: VSTD005;VSTD005;1;5;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122106.D
Injection Date: 21-DEC-2018 15:52
Instrument: VOA9.i
Client Sample ID: VSTD005

Compound: Chloroethane
CAS Number: 75-00-3





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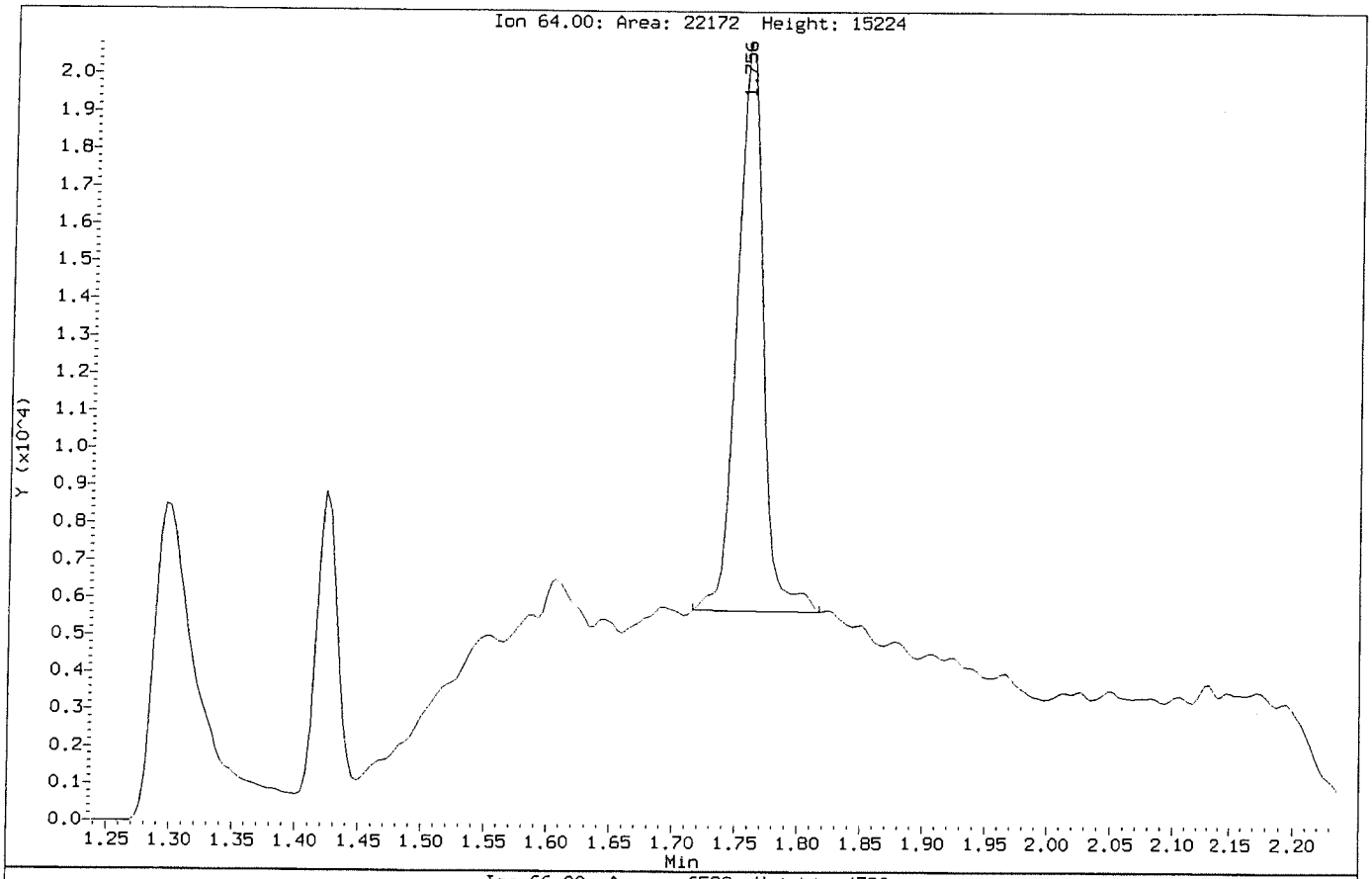
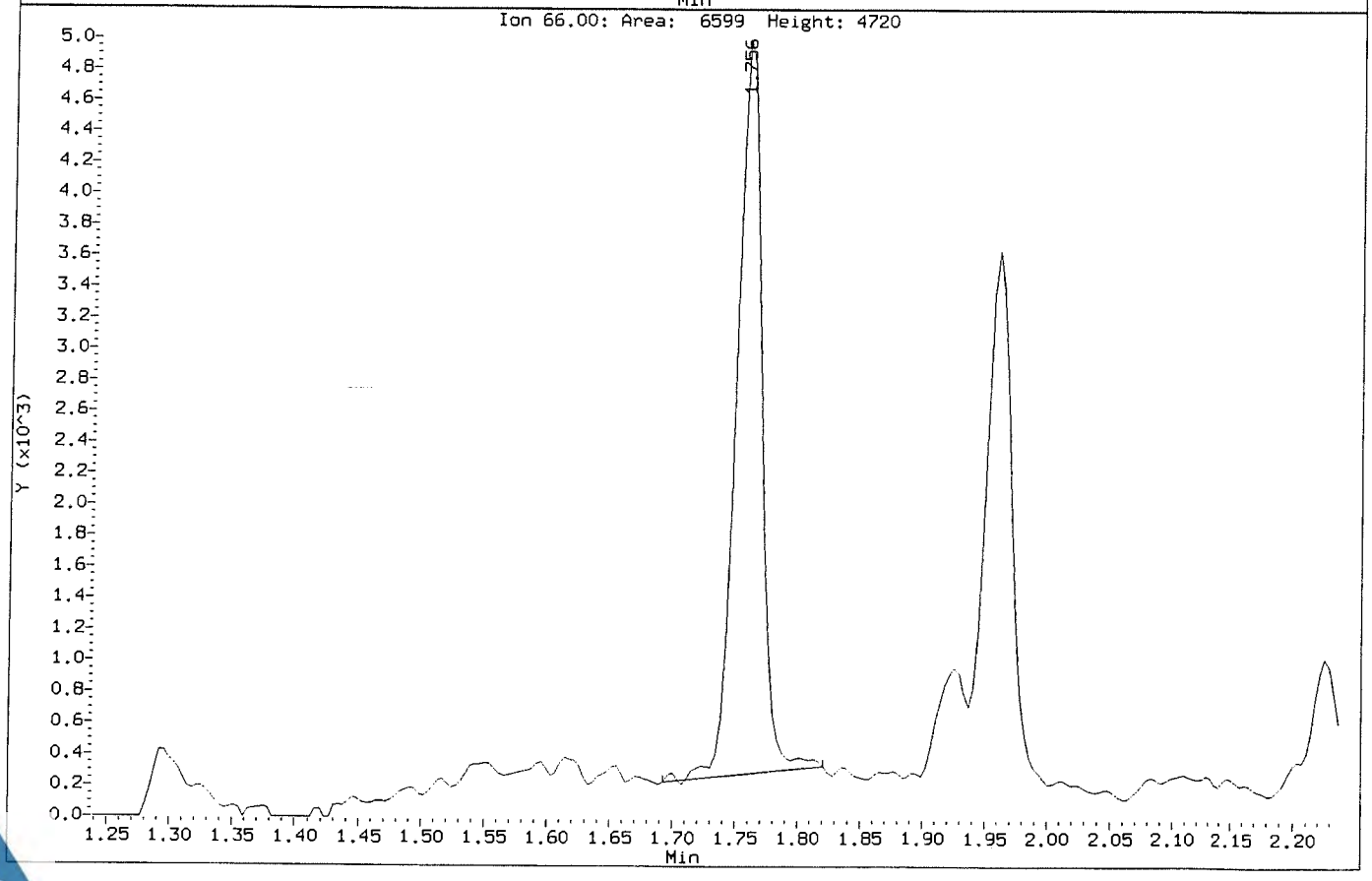
Client Sample ID: VSTD005

Compound: Chloroethane
CAS Number: 75-00-3





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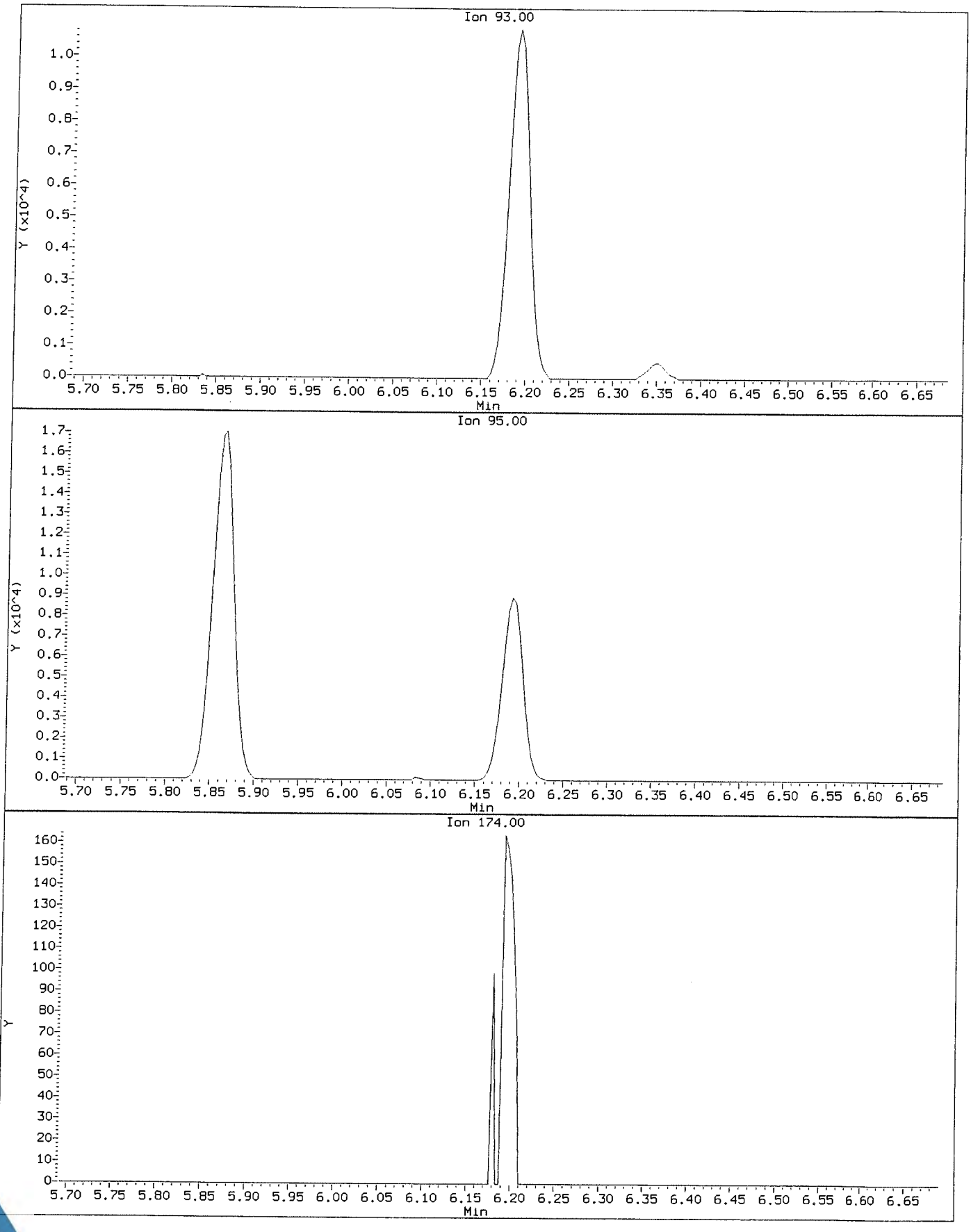
Instrument: VOA9.i
Client Sample ID: VSTD005

Compound: Dibromomethane
CAS Number: 74-95-3



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122106.D
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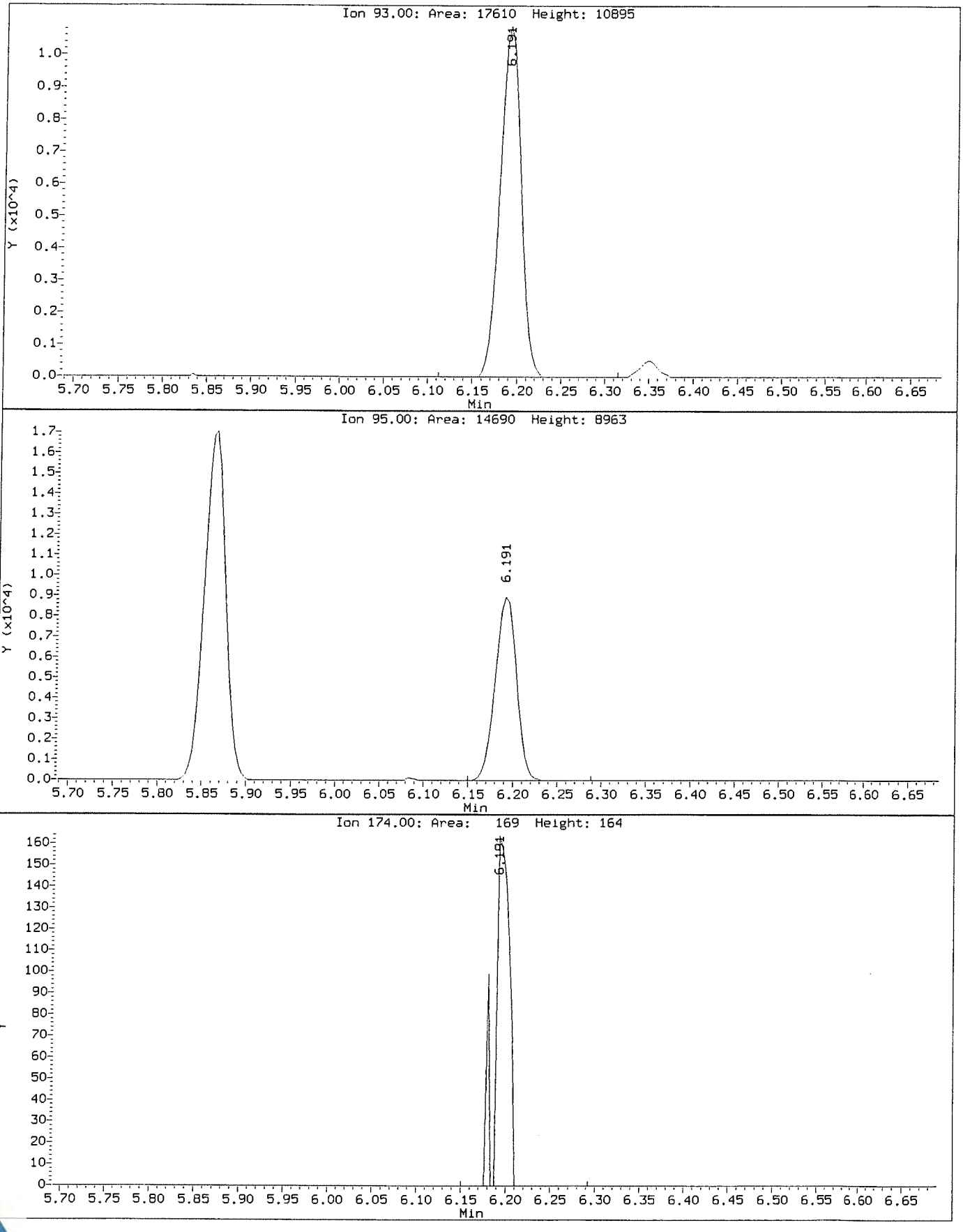
Instrument: VOA9.i
Client Sample ID: VSTD005

Compound: Dibromomethane
CAS Number: 74-95-3



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122107.D Page 1
Report Date: 28-Jan-2019 11:25

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Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122107.D
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Inj Date : 21-DEC-2018 16:17
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD020;VSTD020;1;6;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 15:52 Cal File: U122106.D
Als bottle: 8 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

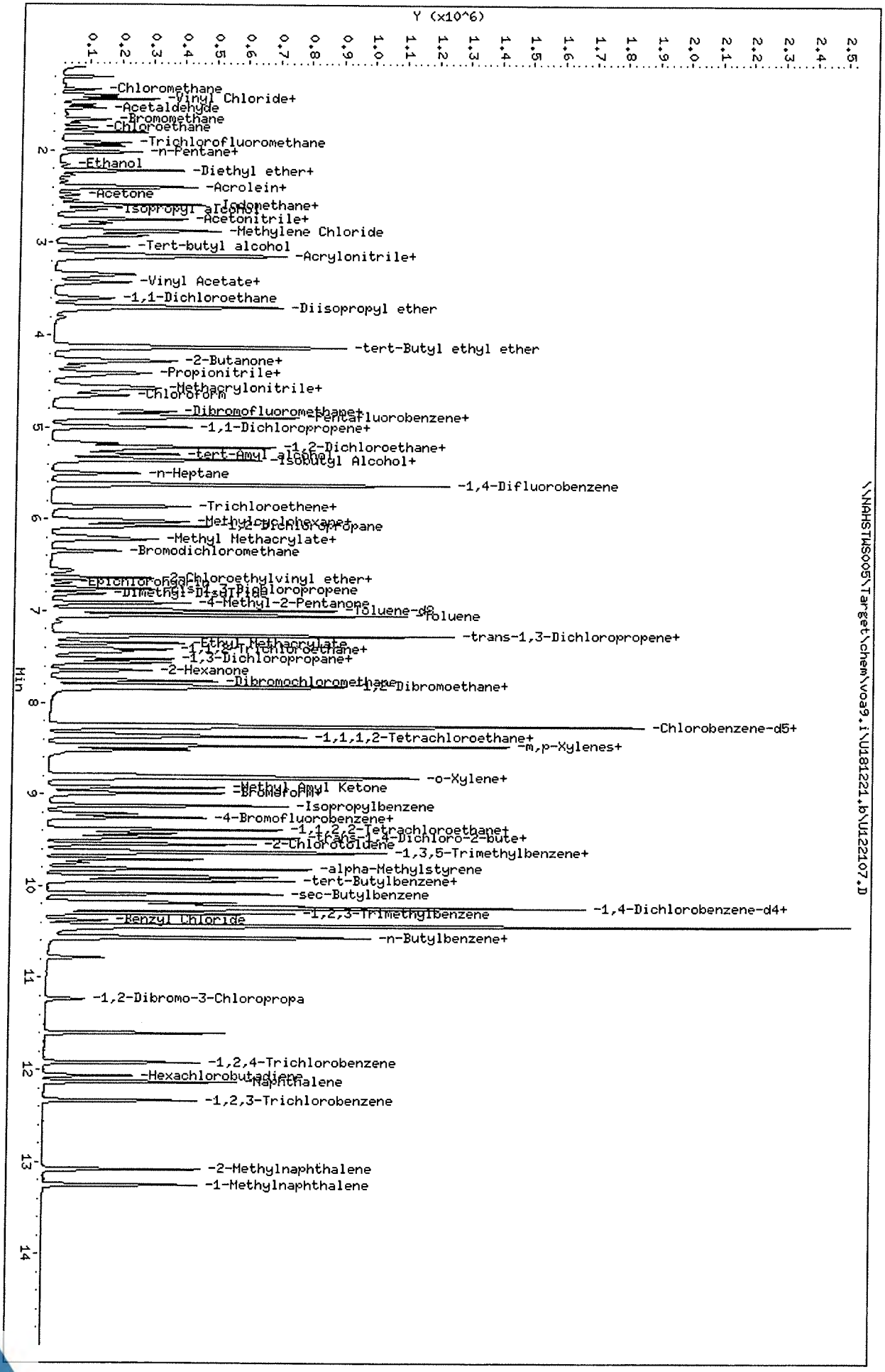
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.894	4.894	(1.000)	420221	50.0000	
* 36 1,4-Difluorobenzene	114	5.625	5.625	(1.000)	802033	50.0000	
* 47 Chlorobenzene-d5	117	8.249	8.249	(1.000)	739775	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	359235	50.0000	
$ 30 Dibromofluoromethane	113	4.830	4.830	(0.987)	98984	20.0000	20.47
$ 35 1,2-Dichloroethane-d4	65	5.175	5.175	(1.057)	131494	20.0000	20.89
$ 48 Toluene-d8	98	6.989	6.989	(0.847)	408521	20.0000	20.36
$ 69 4-Bromofluorobenzene	95	9.257	9.257	(1.122)	153183	20.0000	20.23
60 1,1,1,2-Tetrachloroethane	131	8.350	8.350	(1.012)	89389	20.0000	19.40
31 1,1,1-Trichloroethane	97	4.826	4.826	(0.986)	135496	20.0000	20.42
68 1,1,2,2-Tetrachloroethane	83	9.392	9.392	(0.918)	163701	20.0000	20.23
138 Freon TF	101	2.401	2.401	(0.491)	68573	20.0000	19.19
53 1,1,2-Trichloroethane	83	7.421	7.421	(0.900)	89267	20.0000	20.25
22 1,1-Dichloroethane	63	3.604	3.604	(0.737)	184998	20.0000	20.44
11 1,1-Dichloroethene	96	2.397	2.397	(0.490)	75169	20.0000	18.81
32 1,1-Dichloropropene	75	5.003	5.003	(0.889)	140960	20.0000	19.75
93 1,2,3-Trichlorobenzene	180	12.335	12.335	(1.205)	126752	20.0000	19.12
71 1,2,3-Trichloropropane	75	9.426	9.426	(0.921)	166045	20.0000	19.73
90 1,2,4-Trichlorobenzene	180	11.923	11.923	(1.165)	129526	20.0000	19.47
79 1,2,4-Trimethylbenzene	105	9.943	9.943	(0.971)	388189	20.0000	20.64
89 1,2-Dibromo-3-Chloropropane	155	11.233	11.233	(1.097)	22196	20.0000	18.72
57 1,2-Dibromoethane	107	7.852	7.852	(0.952)	105981	20.0000	20.87

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122107.D Page 2
Report Date: 28-Jan-2019 11:25

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
88 1,2-Dichlorobenzene	146	10.569	10.569	(1.033)	207507	20.0000	19.45
33 1,2-Dichloroethane	62	5.250	5.250	(0.933)	149131	20.0000	20.20
42 1,2-Dichloropropane	63	6.079	6.079	(1.081)	113309	20.0000	19.99
75 1,3,5-Trimethylbenzene	105	9.625	9.625	(0.940)	375852	20.0000	20.81
83 1,3-Dichlorobenzene	146	10.180	10.180	(0.995)	209196	20.0000	19.61
54 1,3-Dichloropropane	76	7.563	7.563	(0.917)	193920	20.0000	20.42
84 1,4-Dichlorobenzene	146	10.255	10.255	(1.002)	216649	20.0000	19.26
26 2,2-Dichloropropane	77	4.275	4.275	(0.874)	106667	20.0000	19.55
24 2-Butanone	43	4.339	4.339	(0.887)	119433	40.0000	42.08
76 2-Chlorotoluene	91	9.546	9.546	(0.933)	335289	20.0000	20.25
52 2-Hexanone	43	7.649	7.649	(0.927)	177404	40.0000	43.12
77 4-Chlorotoluene	91	9.640	9.640	(0.942)	387760	20.0000	20.27
82 p-Isopropyltoluene	119	10.210	10.210	(0.997)	388512	20.0000	20.43
45 4-Methyl-2-Pentanone	43	6.914	6.914	(0.838)	250121	40.0000	42.25
10 Acetone	43	2.480	2.480	(0.507)	73380	40.0000	43.05
37 Benzene	78	5.216	5.216	(0.927)	428833	20.0000	20.09
74 Bromobenzene	156	9.381	9.381	(0.917)	109892	20.0000	19.79
29 Bromochloromethane	128	4.553	4.553	(0.930)	51515	20.0000	21.73
39 Bromodichloromethane	83	6.348	6.348	(1.129)	121760	20.0000	20.20
66 Bromoform	173	8.984	8.984	(1.089)	53922	20.0000	18.14(T)
6 Bromomethane	94	1.666	1.666	(0.341)	47148	20.0000	19.02
19 Carbon Disulfide	76	2.588	2.588	(0.529)	576362	40.0000	39.58
34 Carbon Tetrachloride	117	4.995	4.995	(0.888)	104210	20.0000	18.76
59 Chlorobenzene	112	8.275	8.275	(1.003)	284621	20.0000	20.02
7 Chloroethane	64	1.749	1.749	(0.357)	73150	20.0000	20.10(M)
28 Chloroform	83	4.654	4.654	(0.951)	178122	20.0000	20.43
3 Chloromethane	50	1.336	1.336	(0.273)	79075	20.0000	19.85
27 cis-1,2-Dichloroethene	96	4.287	4.287	(0.876)	114056	20.0000	20.64
46 cis-1,3-Dichloropropene	75	6.757	6.757	(1.201)	162454	20.0000	18.55
55 Dibromochloromethane	129	7.758	7.758	(0.940)	89836	20.0000	19.09
44 Dibromomethane	93	6.187	6.187	(1.100)	66878	20.0000	20.44
2 Dichlorodifluoromethane	85	1.201	1.201	(0.246)	98486	20.0000	19.34
61 Ethylbenzene	106	8.369	8.369	(1.015)	147187	20.0000	20.18
91 Hexachlorobutadiene	225	12.065	12.065	(1.179)	44482	20.0000	17.45
67 Isopropylbenzene	105	9.126	9.126	(1.106)	439477	20.0000	20.89
62 m,p-Xylenes	106	8.474	8.474	(1.027)	372108	40.0000	41.51
17 Methylene Chloride	84	2.870	2.870	(0.586)	109403	20.0000	20.36
87 n-Butylbenzene	91	10.554	10.554	(1.031)	362066	20.0000	19.73
73 n-Propylbenzene	91	9.475	9.475	(0.926)	551133	20.0000	20.53
92 Naphthalene	128	12.133	12.133	(1.185)	413229	20.0000	19.20
63 o-Xylene	106	8.811	8.811	(1.068)	188442	20.0000	20.84
81 sec-Butylbenzene	105	10.086	10.086	(0.985)	459645	20.0000	20.37
64 Styrene	104	8.823	8.823	(1.070)	323232	20.0000	21.51
78 tert-Butylbenzene	119	9.902	9.902	(0.967)	318726	20.0000	20.42
56 Tetrachloroethene	164	7.522	7.522	(0.912)	75128	20.0000	19.39
50 Toluene	91	7.046	7.046	(0.854)	451178	20.0000	20.50
20 trans-1,2-Dichloroethene	96	3.140	3.140	(0.642)	100515	20.0000	20.43
51 trans-1,3-Dichloropropene	75	7.259	7.259	(1.291)	135347	20.0000	18.26
38 Trichloroethene	130	5.861	5.861	(1.042)	101824	20.0000	19.76
8 Trichlorofluoromethane	101	1.951	1.951	(0.399)	130957	20.0000	19.29
5 Vinyl Chloride	62	1.419	1.419	(0.290)	111713	20.0000	19.39

QC Flag Legend

T - Target compound detected outside RT window.
M - Compound response manually integrated.



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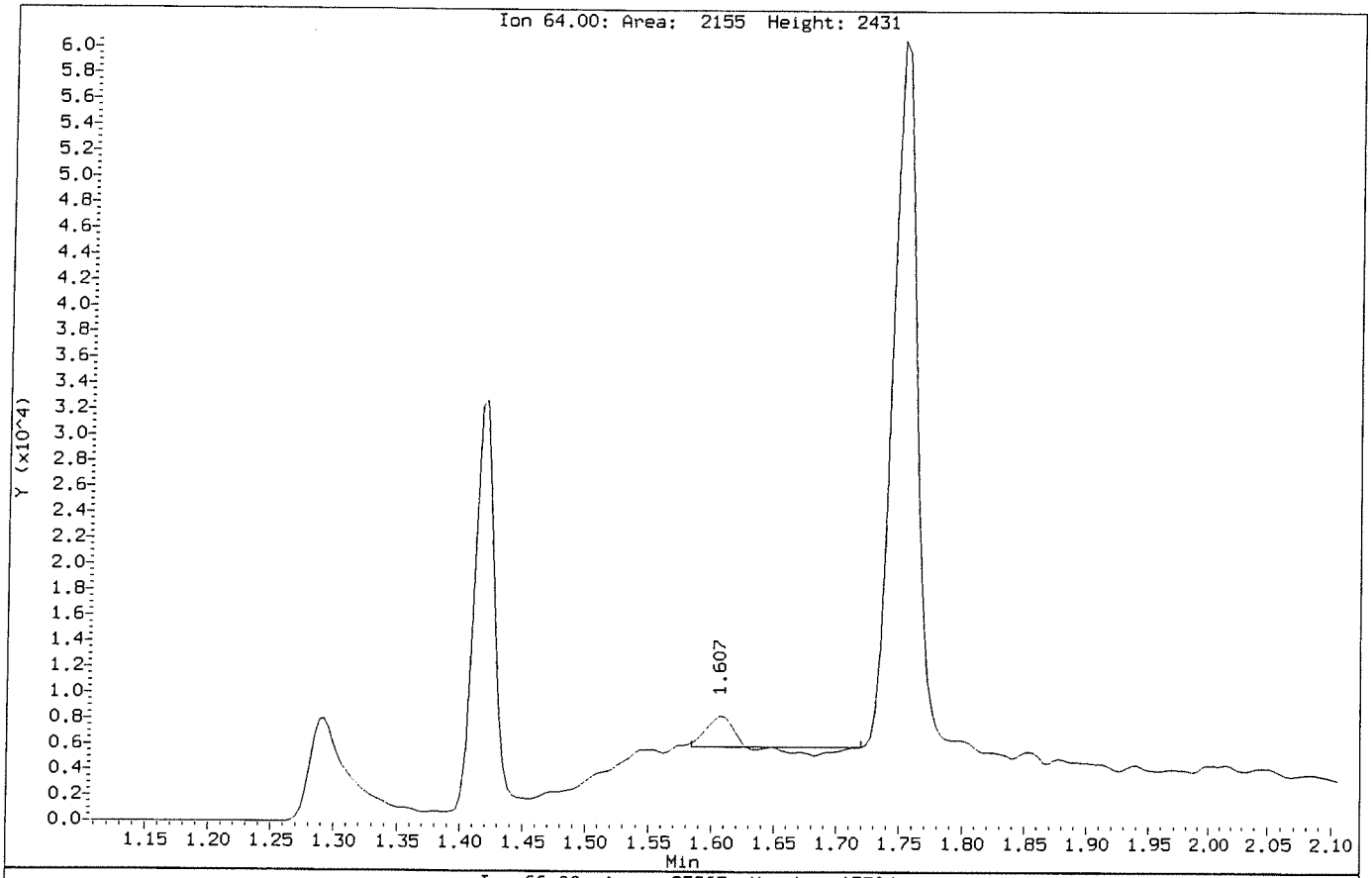
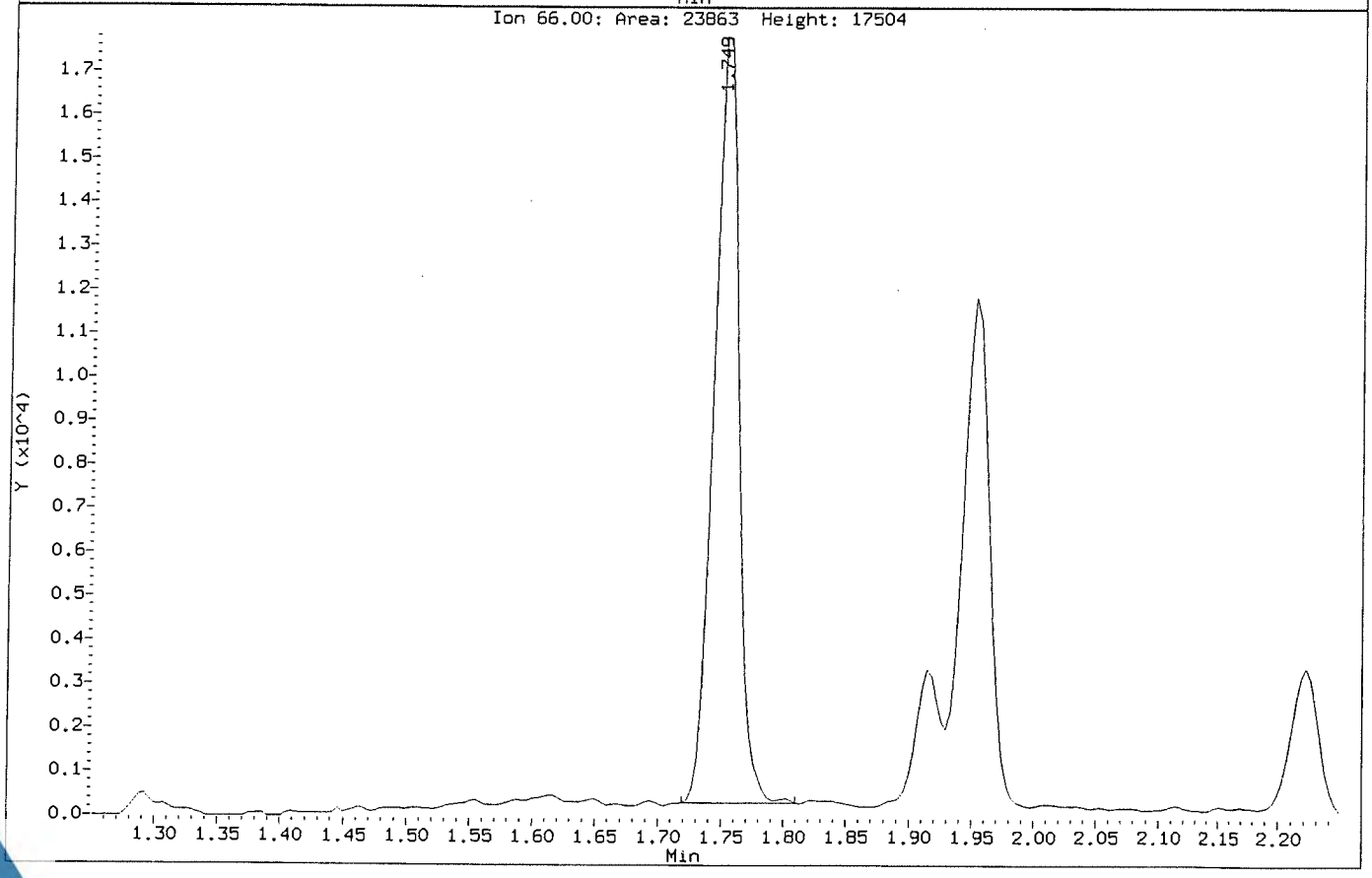
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122107.D
Injection Date: 21-DEC-2018 16:17
Instrument: VOA9.i
Client Sample ID: VSTD020

Compound: Chloroethane
CAS Number: 75-00-3





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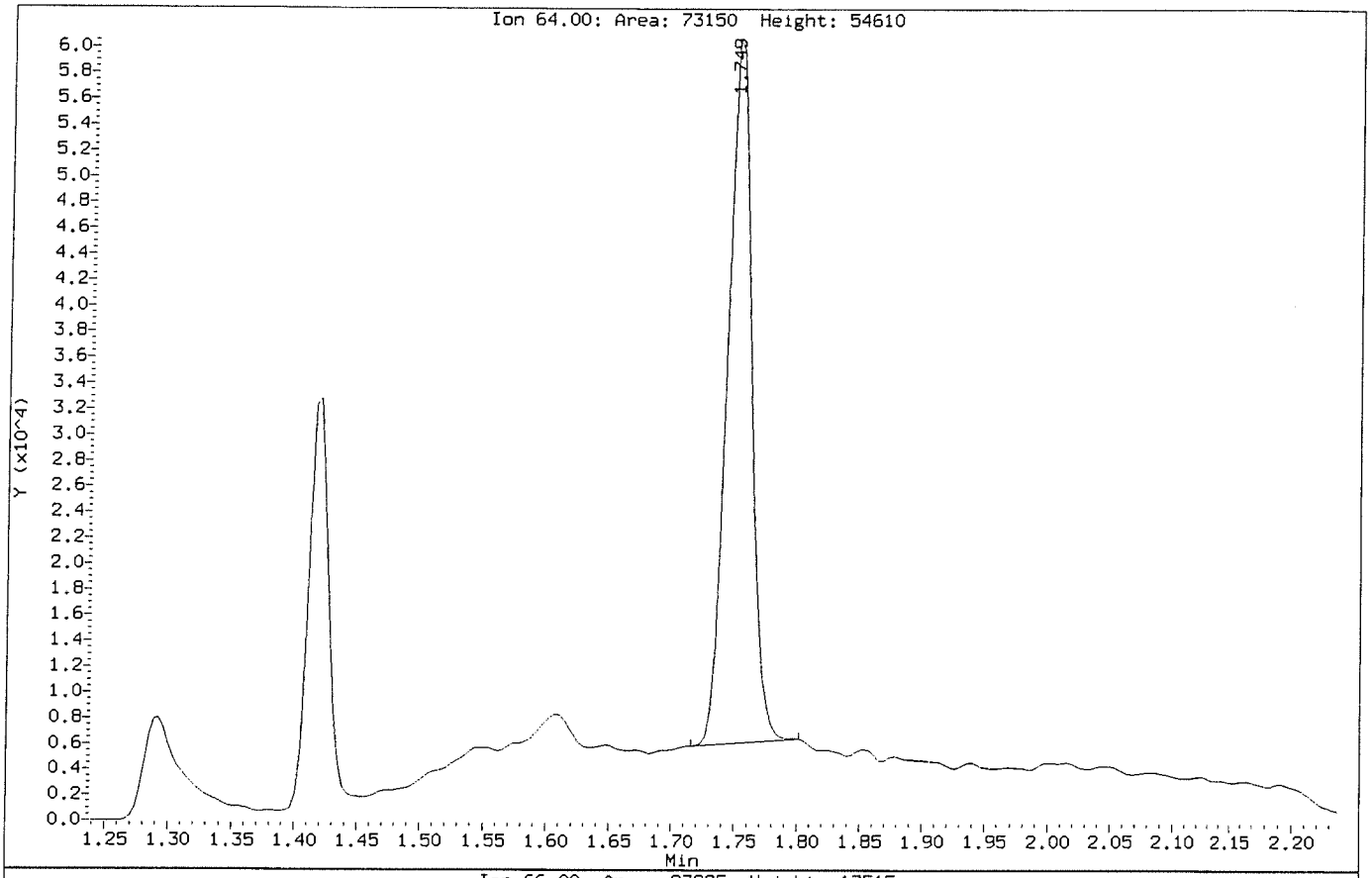
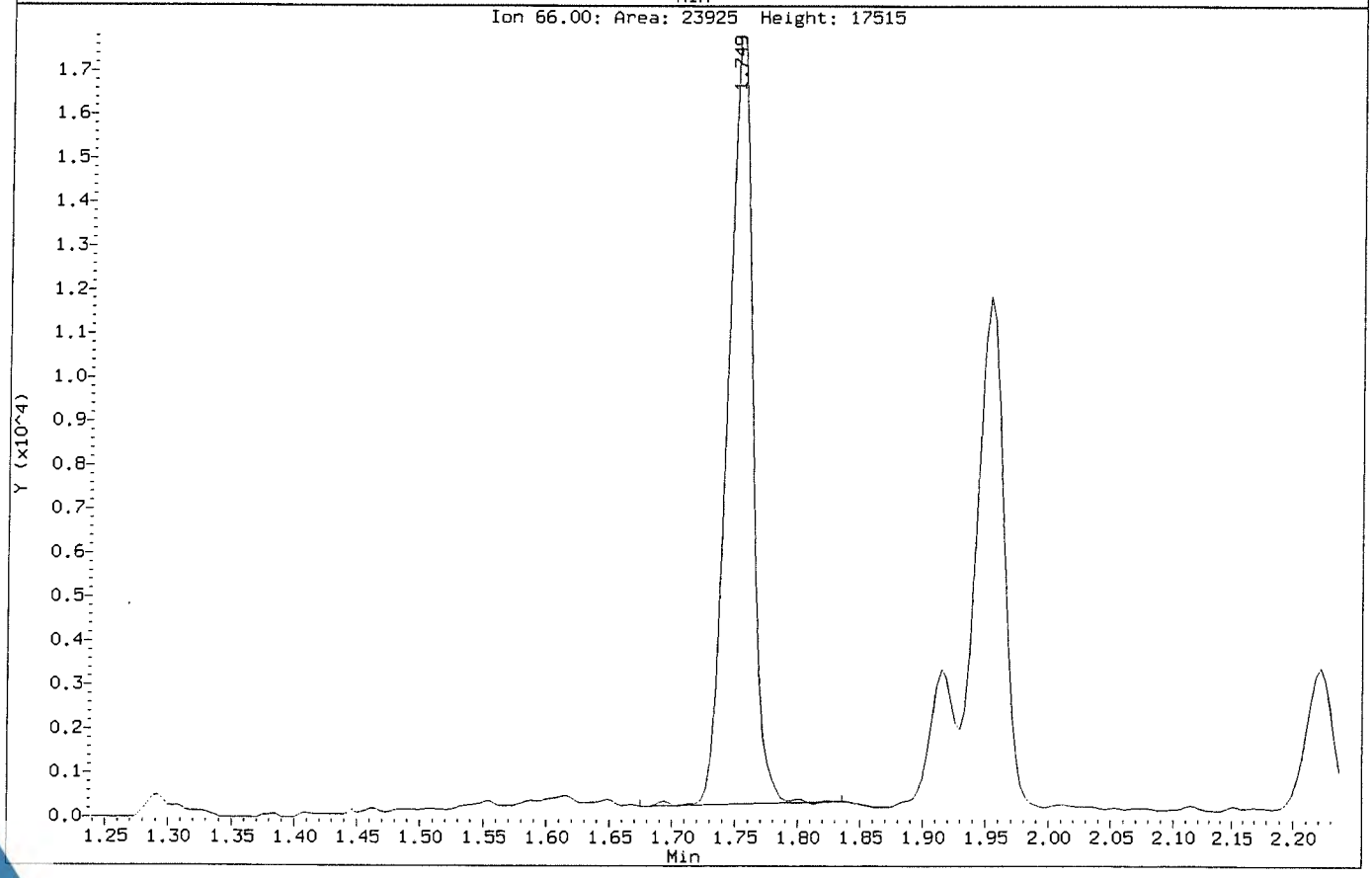
Client Sample ID: VSTD020

Compound: Chloroethane
CAS Number: 75-00-3





Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122108.D Page 1
Report Date: 28-Jan-2019 11:25

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122108.D
Lab Smp Id: VSTD050 Client Smp ID: VSTD050
Inj Date : 21-DEC-2018 16:41
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD050;VSTD050;1;7;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:17 Cal File: U122107.D
Als bottle: 9 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

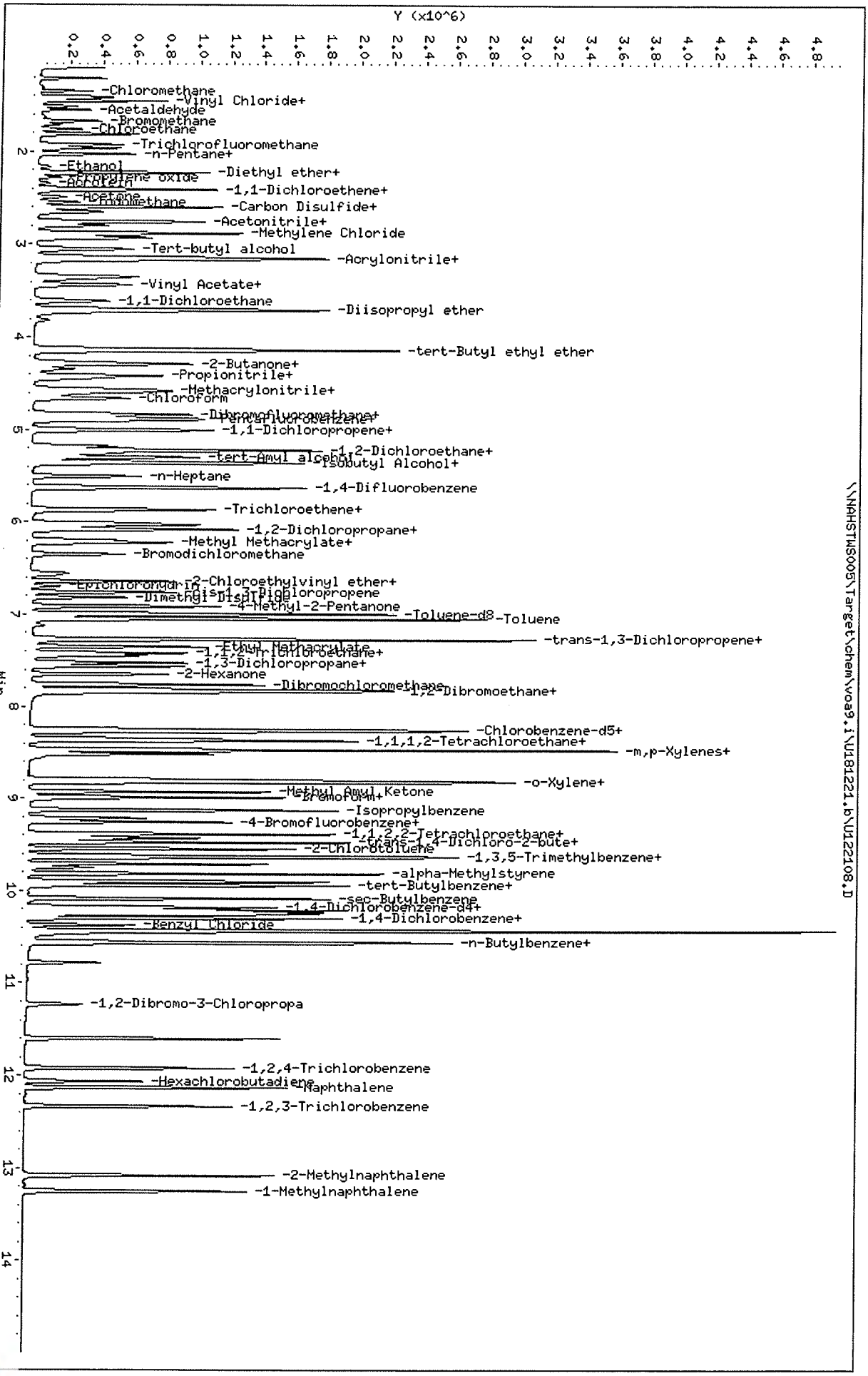
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.898	4.898	(1.000)	441118	50.0000	
* 36 1,4-Difluorobenzene	114	5.629	5.629	(1.000)	822734	50.0000	
* 47 Chlorobenzene-d5	117	8.249	8.249	(1.000)	764792	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	367345	50.0000	
$ 30 Dibromofluoromethane	113	4.834	4.834	(0.987)	245007	50.0000	50.34
$ 35 1,2-Dichloroethane-d4	65	5.179	5.179	(1.057)	320796	50.0000	51.44
$ 48 Toluene-d8	98	6.989	6.989	(0.847)	1010127	50.0000	51.19
$ 69 4-Bromofluorobenzene	95	9.257	9.257	(1.122)	382581	50.0000	50.91
60 1,1,1,2-Tetrachloroethane	131	8.350	8.350	(1.012)	235446	50.0000	48.53
31 1,1,1-Trichloroethane	97	4.830	4.830	(0.986)	347757	50.0000	49.92
68 1,1,2,2-Tetrachloroethane	83	9.392	9.392	(0.918)	414173	50.0000	50.06
138 Freon TF	101	2.412	2.412	(0.493)	175022	50.0000	46.67
53 1,1,2-Trichloroethane	83	7.421	7.421	(0.900)	226615	50.0000	49.73
22 1,1-Dichloroethane	63	3.612	3.612	(0.737)	466899	50.0000	49.14
11 1,1-Dichloroethene	96	2.409	2.409	(0.492)	194403	50.0000	46.35
32 1,1-Dichloropropene	75	5.010	5.010	(0.890)	351519	50.0000	48.01
93 1,2,3-Trichlorobenzene	180	12.335	12.335	(1.205)	334600	50.0000	48.35
71 1,2,3-Trichloropropane	75	9.426	9.426	(0.921)	444407	50.0000	51.66
90 1,2,4-Trichlorobenzene	180	11.923	11.923	(1.165)	340316	50.0000	50.03
79 1,2,4-Trimethylbenzene	105	9.943	9.943	(0.971)	977610	50.0000	50.85
89 1,2-Dibromo-3-Chloropropane	155	11.233	11.233	(1.097)	61793	50.0000	48.48
57 1,2-Dibromoethane	107	7.852	7.852	(0.952)	266705	50.0000	50.81

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122108.D Page 2
Report Date: 28-Jan-2019 11:25

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88 1,2-Dichlorobenzene	146	10.569	10.569	(1.033)	529898	50.0000	48.58
33 1,2-Dichloroethane	62	5.258	5.258	(0.934)	376591	50.0000	50.81
42 1,2-Dichloropropane	63	6.082	6.082	(1.081)	287570	50.0000	49.46
75 1,3,5-Trimethylbenzene	105	9.625	9.625	(0.940)	947470	50.0000	51.32
83 1,3-Dichlorobenzene	146	10.180	10.180	(0.995)	529098	50.0000	48.50
54 1,3-Dichloropropane	76	7.563	7.563	(0.917)	491255	50.0000	50.05
84 1,4-Dichlorobenzene	146	10.255	10.255	(1.002)	544274	50.0000	47.32
26 2,2-Dichloropropane	77	4.279	4.279	(0.874)	280126	50.0000	48.93
24 2-Butanone	43	4.343	4.343	(0.887)	304044	100.000	105.52
76 2-Chlorotoluene	91	9.546	9.546	(0.933)	843166	50.0000	49.81
52 2-Hexanone	43	7.653	7.653	(0.928)	461299	100.000	108.47
77 4-Chlorotoluene	91	9.640	9.640	(0.942)	978873	50.0000	50.04
82 p-Isopropyltoluene	119	10.210	10.210	(0.997)	1003937	50.0000	51.64
45 4-Methyl-2-Pentanone	43	6.914	6.914	(0.838)	653234	100.000	106.75
10 Acetone	43	2.487	2.487	(0.508)	187964	100.000	109.42
37 Benzene	78	5.220	5.220	(0.927)	1084861	50.0000	49.55
74 Bromobenzene	156	9.381	9.381	(0.917)	280874	50.0000	49.48
29 Bromochloromethane	128	4.560	4.560	(0.931)	129496	50.0000	56.37
39 Bromodichloromethane	83	6.348	6.348	(1.128)	319701	50.0000	51.71
66 Bromoform	173	8.984	8.984	(1.089)	154855	50.0000	47.27(T)
6 Bromomethane	94	1.674	1.674	(0.342)	117780	50.0000	43.41
19 Carbon Disulfide	76	2.600	2.600	(0.531)	1460668	100.000	95.57
34 Carbon Tetrachloride	117	4.999	4.999	(0.888)	274507	50.0000	45.99
59 Chlorobenzene	112	8.275	8.275	(1.003)	718560	50.0000	48.89
7 Chloroethane	64	1.760	1.760	(0.359)	179707	50.0000	46.03(M)
28 Chloroform	83	4.661	4.661	(0.952)	453061	50.0000	49.52
3 Chloromethane	50	1.348	1.348	(0.275)	197328	50.0000	42.63
27 cis-1,2-Dichloroethene	96	4.290	4.290	(0.876)	286659	50.0000	49.43
46 cis-1,3-Dichloropropene	75	6.761	6.761	(1.201)	449225	50.0000	47.87
55 Dibromochloromethane	129	7.758	7.758	(0.940)	242061	50.0000	48.20
44 Dibromomethane	93	6.191	6.191	(1.100)	170556	50.0000	50.83
2 Dichlorodifluoromethane	85	1.213	1.213	(0.248)	248322	50.0000	45.79
61 Ethylbenzene	106	8.373	8.373	(1.015)	374921	50.0000	49.74
91 Hexachlorobutadiene	225	12.065	12.065	(1.179)	119140	50.0000	45.72
67 Isopropylbenzene	105	9.126	9.126	(1.106)	1109213	50.0000	51.00
62 m,p-Xylenes	106	8.474	8.474	(1.027)	936911	100.000	101.11
17 Methylene Chloride	84	2.877	2.877	(0.587)	274258	50.0000	50.31
87 n-Butylbenzene	91	10.558	10.558	(1.031)	931396	50.0000	49.64
73 n-Propylbenzene	91	9.475	9.475	(0.926)	1393780	50.0000	50.77
92 Naphthalene	128	12.133	12.133	(1.185)	1107938	50.0000	49.53
63 o-Xylene	106	8.811	8.811	(1.068)	475748	50.0000	50.89
81 sec-Butylbenzene	105	10.086	10.086	(0.985)	1169025	50.0000	50.67
64 Styrene	104	8.826	8.826	(1.070)	828798	50.0000	53.36
78 tert-Butylbenzene	119	9.902	9.902	(0.967)	807157	50.0000	50.58
56 Tetrachloroethene	164	7.525	7.525	(0.912)	186057	50.0000	46.46
50 Toluene	91	7.049	7.049	(0.855)	1138194	50.0000	50.03
20 trans-1,2-Dichloroethene	96	3.147	3.147	(0.643)	248845	50.0000	48.19
51 trans-1,3-Dichloropropene	75	7.263	7.263	(1.290)	381258	50.0000	47.27
38 Trichloroethene	130	5.865	5.865	(1.042)	255628	50.0000	48.36
8 Trichlorofluoromethane	101	1.962	1.962	(0.401)	330010	50.0000	45.44
5 Vinyl Chloride	62	1.426	1.426	(0.291)	283791	50.0000	45.57

QC Flag Legend

T - Target compound detected outside RT window.
M - Compound response manually integrated.



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Purge Volume: 5.0
Column phase: DB624

\\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122108.D

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122108.D
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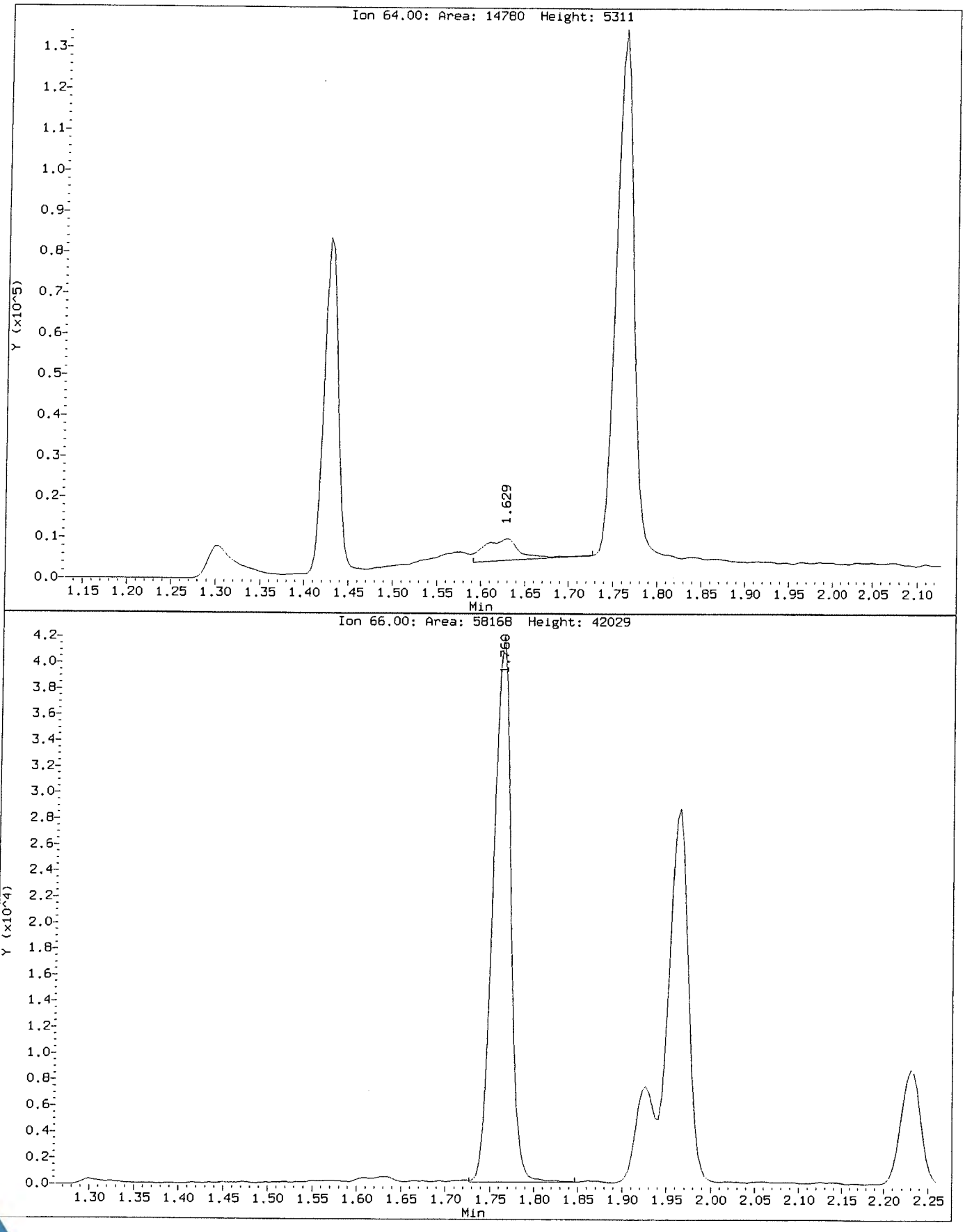
Instrument: VOA9.i
Client Sample ID: VSTD050

Compound: Chloroethane
CAS Number: 75-00-3



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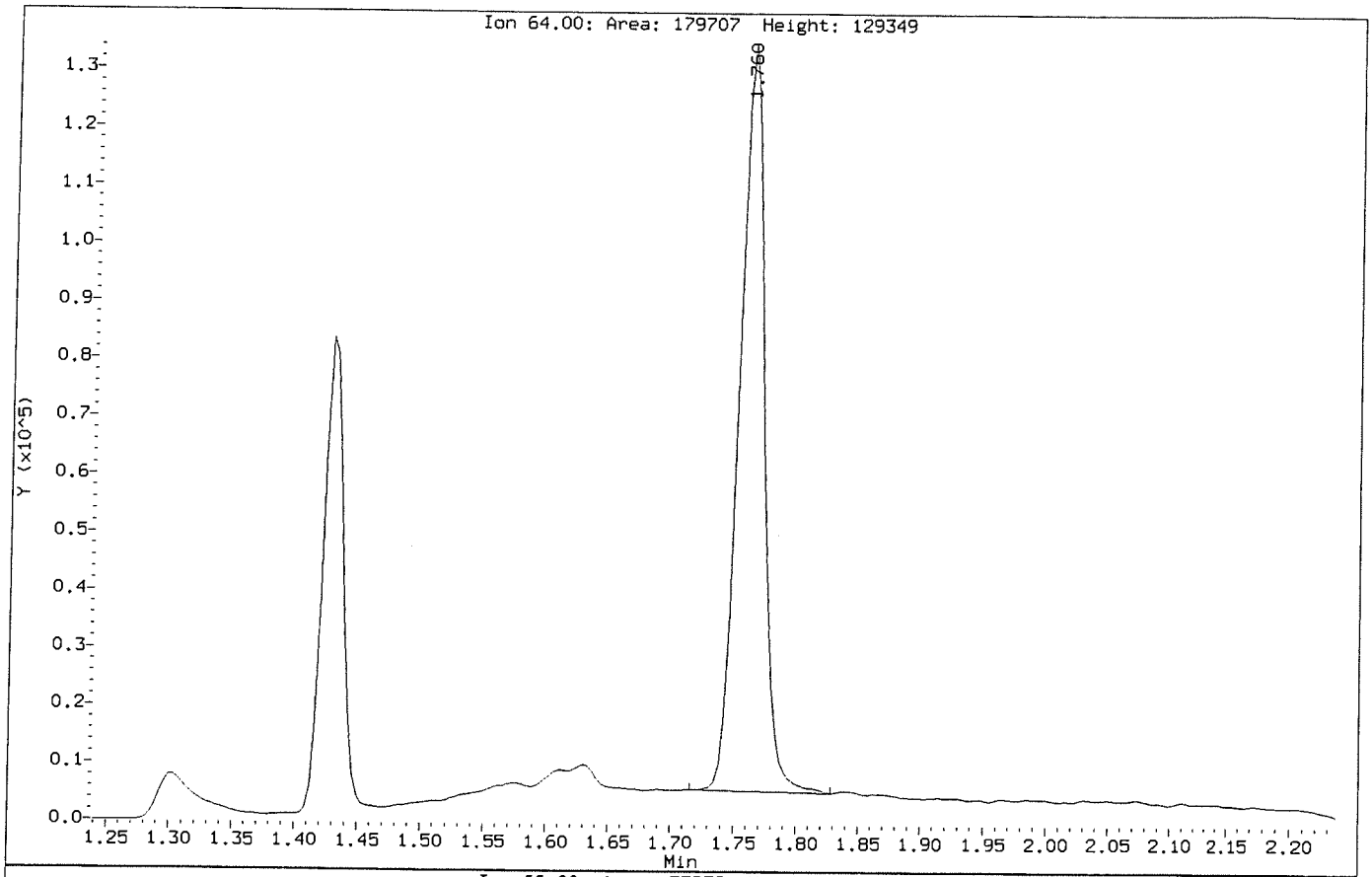
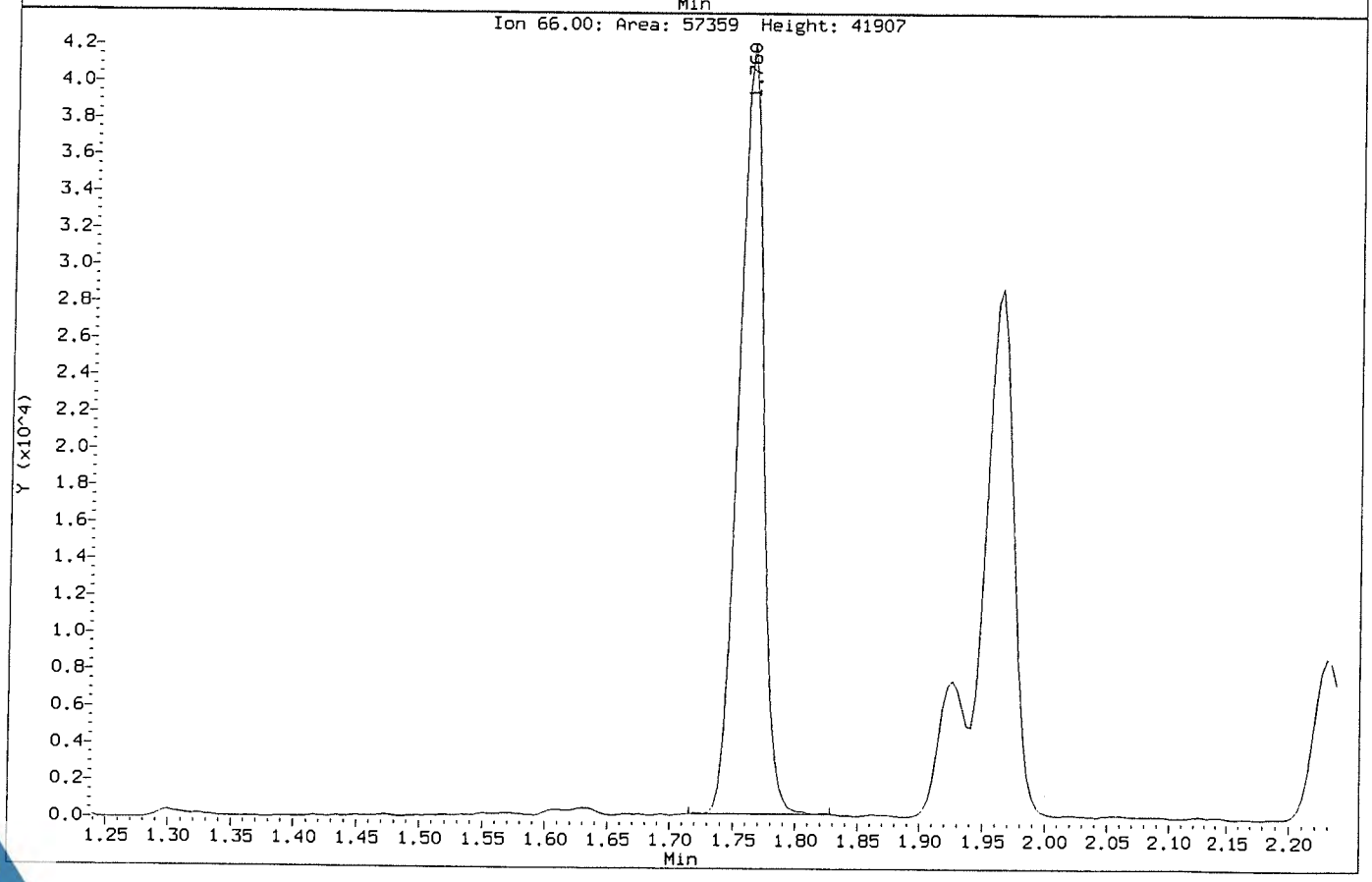
Compound: Chloroethane
CAS Number: 75-00-3





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Report Date: 28-Jan-2019 11:25

ALS Laboratory Group

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Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 10 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

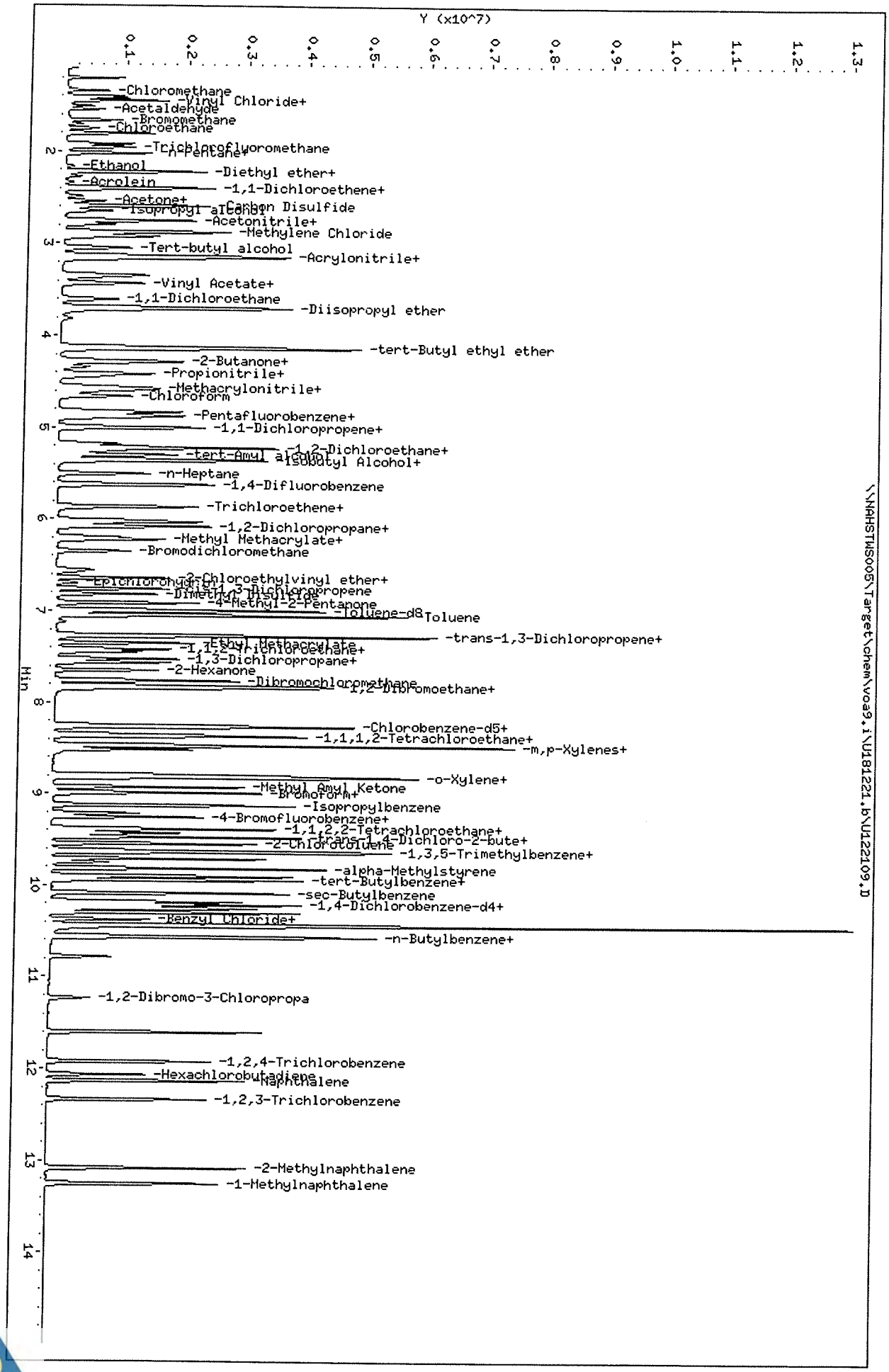
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.897	4.897	(1.000)	443466	50.0000	
*	36 1,4-Difluorobenzene	114	5.625	5.625	(1.000)	822102	50.0000	
*	47 Chlorobenzene-d5	117	8.252	8.252	(1.000)	772888	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	10.235	10.235	(1.000)	368944	50.0000	
$	30 Dibromofluoromethane	113	4.830	4.830	(0.986)	495628	100.000	102.84
$	35 1,2-Dichloroethane-d4	65	5.175	5.175	(1.057)	635081	100.000	103.40
$	48 Toluene-d8	98	6.989	6.989	(0.847)	2029223	100.000	103.52
$	69 4-Bromofluorobenzene	95	9.257	9.257	(1.122)	764798	100.000	102.11
	60 1,1,1,2-Tetrachloroethane	131	8.350	8.350	(1.012)	493177	100.000	99.96
	31 1,1,1-Trichloroethane	97	4.830	4.830	(0.986)	750490	100.000	107.17
	68 1,1,2,2-Tetrachloroethane	83	9.392	9.392	(0.918)	804056	100.000	96.77
	138 Freon TF	101	2.404	2.404	(0.491)	394668	100.000	104.68
	53 1,1,2-Trichloroethane	83	7.420	7.420	(0.899)	455612	100.000	98.94
	22 1,1-Dichloroethane	63	3.604	3.604	(0.736)	956686	100.000	100.17
	11 1,1-Dichloroethene	96	2.401	2.401	(0.490)	425292	100.000	100.86
	32 1,1-Dichloropropene	75	5.006	5.006	(0.890)	748488	100.000	102.32
	93 1,2,3-Trichlorobenzene	180	12.335	12.335	(1.205)	694931	100.000	99.32
	71 1,2,3-Trichloropropane	75	9.430	9.430	(0.921)	901833	100.000	104.38
	90 1,2,4-Trichlorobenzene	180	11.926	11.926	(1.165)	724973	100.000	106.13
	79 1,2,4-Trimethylbenzene	105	9.943	9.943	(0.971)	2020622	100.000	104.65
	89 1,2-Dibromo-3-Chloropropane	155	11.233	11.233	(1.097)	125814	100.000	96.80
	57 1,2-Dibromoethane	107	7.851	7.851	(0.951)	533692	100.000	100.62

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122109.D Page 2
Report Date: 28-Jan-2019 11:25

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	10.573	10.573	(1.033)	1079683	100.000	98.55
33	1,2-Dichloroethane	62	5.253	5.253	(0.934)	747337	100.000	101.64
42	1,2-Dichloropropane	63	6.082	6.082	(1.081)	587293	100.000	101.10
75	1,3,5-Trimethylbenzene	105	9.628	9.628	(0.941)	1981203	100.000	106.84
83	1,3-Dichlorobenzene	146	10.179	10.179	(0.995)	1088889	100.000	99.39
54	1,3-Dichloropropane	76	7.563	7.563	(0.916)	974518	100.000	98.25
84	1,4-Dichlorobenzene	146	10.258	10.258	(1.002)	1115296	100.000	96.55
26	2,2-Dichloropropane	77	4.275	4.275	(0.873)	606051	100.000	105.30
24	2-Butanone	43	4.339	4.339	(0.886)	587152	200.000	204.95(A)
76	2-Chlorotoluene	91	9.549	9.549	(0.933)	1714248	100.000	100.84
52	2-Hexanone	43	7.649	7.649	(0.927)	912444	200.000	212.30(A)
77	4-Chlorotoluene	91	9.639	9.639	(0.942)	1995109	100.000	101.56
82	p-Isopropyltoluene	119	10.209	10.209	(0.997)	2107729	100.000	107.96
45	4-Methyl-2-Pentanone	43	6.914	6.914	(0.838)	1301011	200.000	210.38(A)
10	Acetone	43	2.483	2.483	(0.507)	331678	200.000	194.35
37	Benzene	78	5.220	5.220	(0.928)	2195227	100.000	100.34
74	Bromobenzene	156	9.385	9.385	(0.917)	573954	100.000	100.68
29	Bromochloromethane	128	4.556	4.556	(0.930)	244429	100.000	108.58
39	Bromodichloromethane	83	6.348	6.348	(1.129)	667511	100.000	108.05
66	Bromoform	173	8.983	8.983	(1.089)	331336	100.000	98.11(T)
6	Bromomethane	94	1.666	1.666	(0.340)	281859	100.000	101.50
19	Carbon Disulfide	76	2.592	2.592	(0.529)	3090544	200.000	201.15(A)
34	Carbon Tetrachloride	117	4.999	4.999	(0.889)	601960	100.000	99.26
59	Chlorobenzene	112	8.275	8.275	(1.003)	1466929	100.000	98.78
7	Chloroethane	64	1.752	1.752	(0.358)	384958	100.000	95.90(M)
28	Chloroform	83	4.657	4.657	(0.951)	918394	100.000	99.85
3	Chloromethane	50	1.344	1.344	(0.274)	441603	100.000	90.82
27	cis-1,2-Dichloroethene	96	4.286	4.286	(0.875)	580958	100.000	99.66
46	cis-1,3-Dichloropropene	75	6.760	6.760	(1.202)	944095	100.000	99.29
55	Dibromochloromethane	129	7.758	7.758	(0.940)	512845	100.000	99.98
44	Dibromomethane	93	6.191	6.191	(1.101)	341140	100.000	101.75
2	Dichlorodifluoromethane	85	1.209	1.209	(0.247)	553841	100.000	100.99
61	Ethylbenzene	106	8.372	8.372	(1.015)	779796	100.000	102.38
91	Hexachlorobutadiene	225	12.065	12.065	(1.179)	259405	100.000	99.12
67	Isopropylbenzene	105	9.126	9.126	(1.106)	2327627	100.000	105.90
62	m,p-Xylenes	106	8.474	8.474	(1.027)	1935465	200.000	206.70(A)
17	Methylene Chloride	84	2.873	2.873	(0.587)	554902	100.000	102.47
87	n-Butylbenzene	91	10.558	10.558	(1.031)	1963594	100.000	104.21
73	n-Propylbenzene	91	9.478	9.478	(0.926)	2891517	100.000	104.88
92	Naphthalene	128	12.132	12.132	(1.185)	2231968	100.000	99.52
63	o-Xylene	106	8.811	8.811	(1.068)	975544	100.000	103.27
81	sec-Butylbenzene	105	10.086	10.086	(0.985)	2492415	100.000	107.57
64	Styrene	104	8.826	8.826	(1.069)	1680613	100.000	107.08
78	tert-Butylbenzene	119	9.902	9.902	(0.967)	1698031	100.000	105.95
56	Tetrachloroethene	164	7.525	7.525	(0.912)	397169	100.000	98.15
50	Toluene	91	7.049	7.049	(0.854)	2304015	100.000	100.21
20	trans-1,2-Dichloroethene	96	3.143	3.143	(0.642)	513822	100.000	98.98
51	trans-1,3-Dichloropropene	75	7.263	7.263	(1.291)	811224	100.000	98.79
38	Trichloroethene	130	5.861	5.861	(1.042)	528149	100.000	100.00
8	Trichlorofluoromethane	101	1.955	1.955	(0.399)	753769	100.000	102.46
5	Vinyl Chloride	62	1.422	1.422	(0.290)	629175	100.000	99.33

QC Flag Legend

T - Target compound detected outside RT window.
A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.



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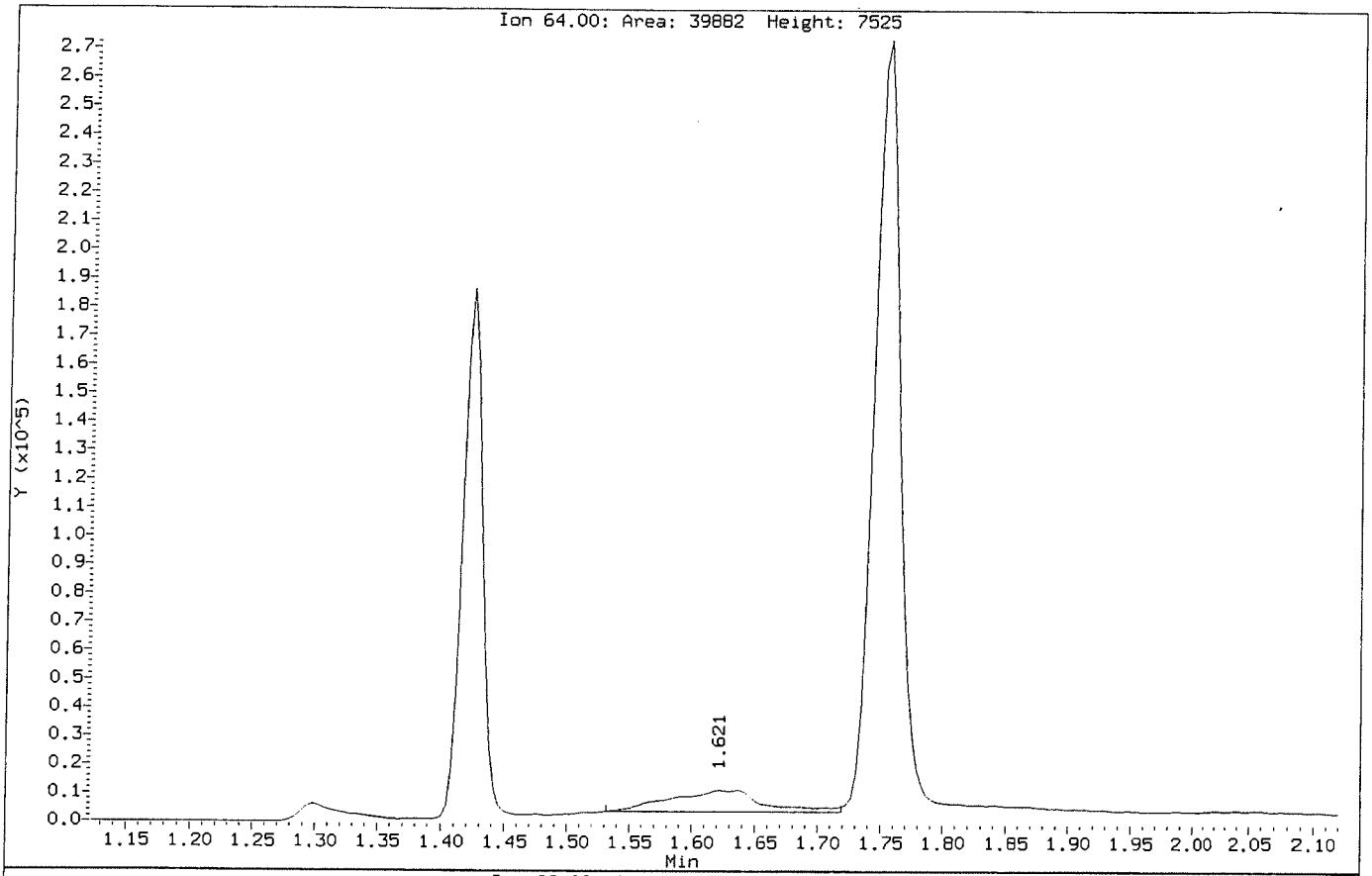
Date : 21-DEC-2018 17:06
Client ID: VSTD100
Sample Info: VSTD100;VSTD100;1;8;
Purge Volume: 5.0
Column phase: DB624

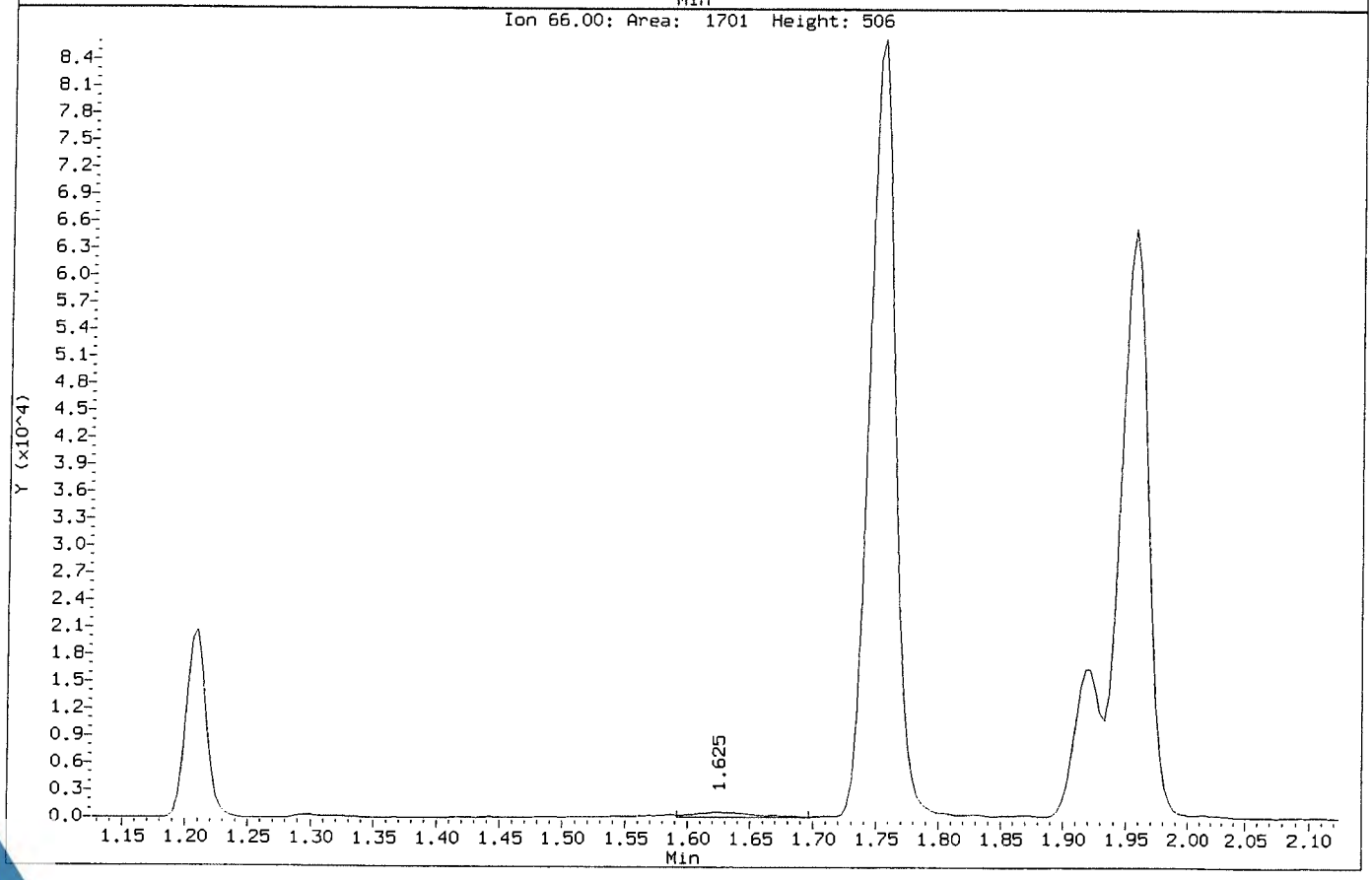
\\NAHSTWS005\Target\chem\voa9,i\U181221,b\U122109,D

Instrument: VOA9,i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122109.D
Injection Date: 21-DEC-2018 17:06
Instrument: VOA9.i
Client Sample ID: VSTD100

Compound: Chloroethane
CAS Number: 75-00-3





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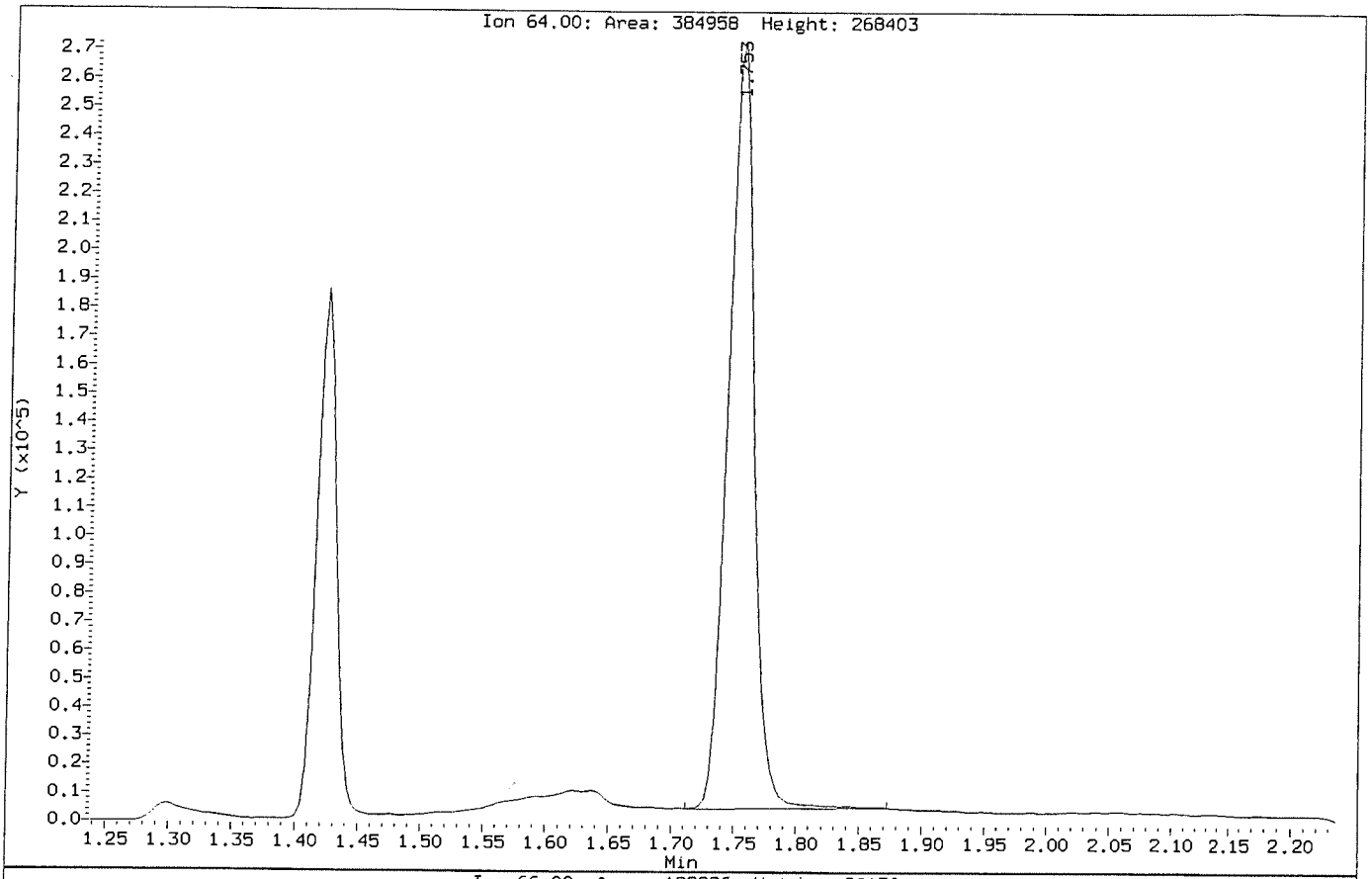
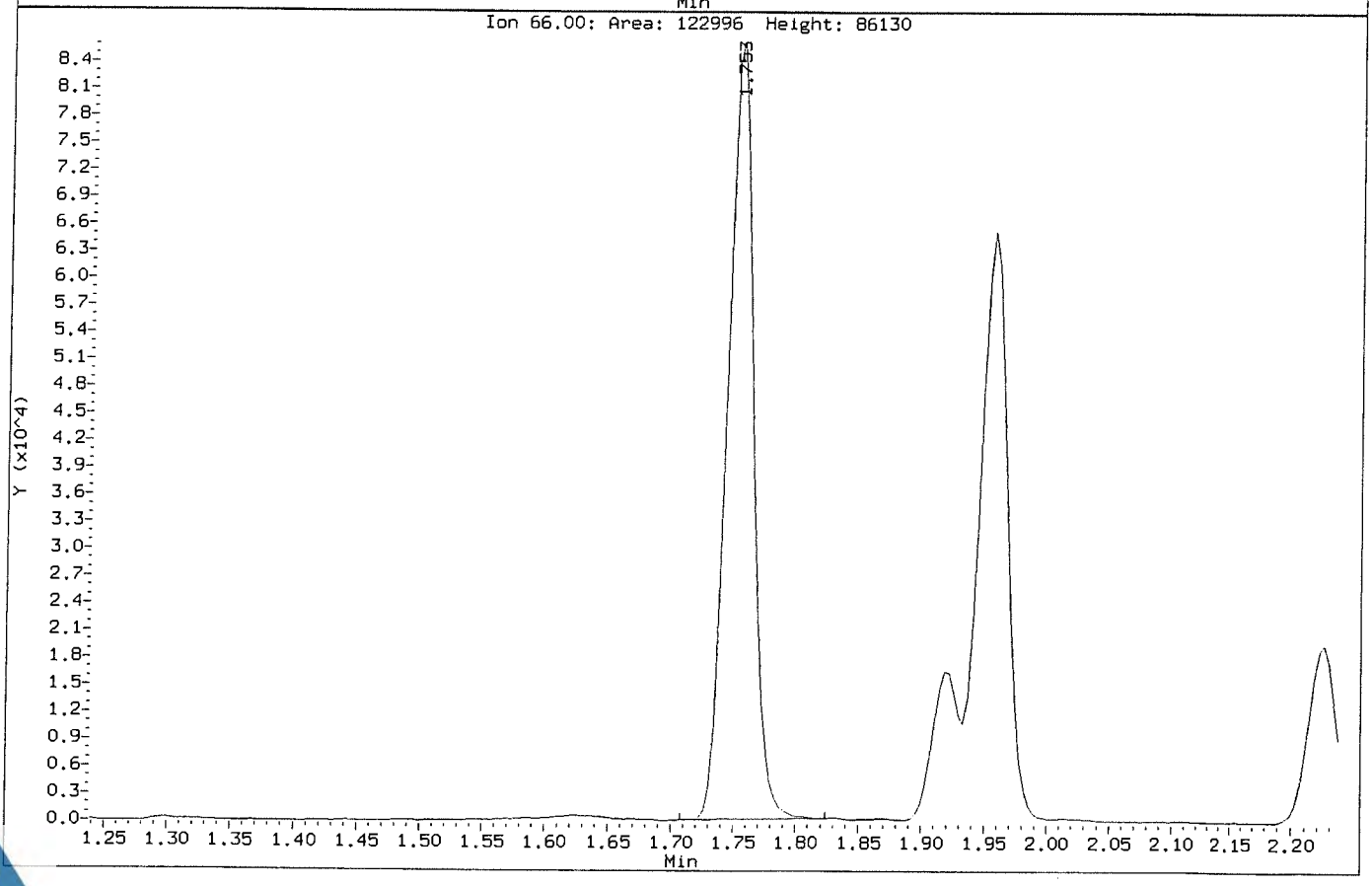
Injection Date: 21-DEC-2018 17:06
Instrument: VOA9.i
Client Sample ID: VSTD100

Compound: Chloroethane
CAS Number: 75-00-3





Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122110.D Page 1
Report Date: 28-Jan-2019 11:25

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122110.D
Lab Smp Id: VSTD150 Client Smp ID: VSTD150
Inj Date : 21-DEC-2018 17:31
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD150;VSTD150;1;9;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 17:06 Cal File: U122109.D
Als bottle: 11 Calibration Sample, Level: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

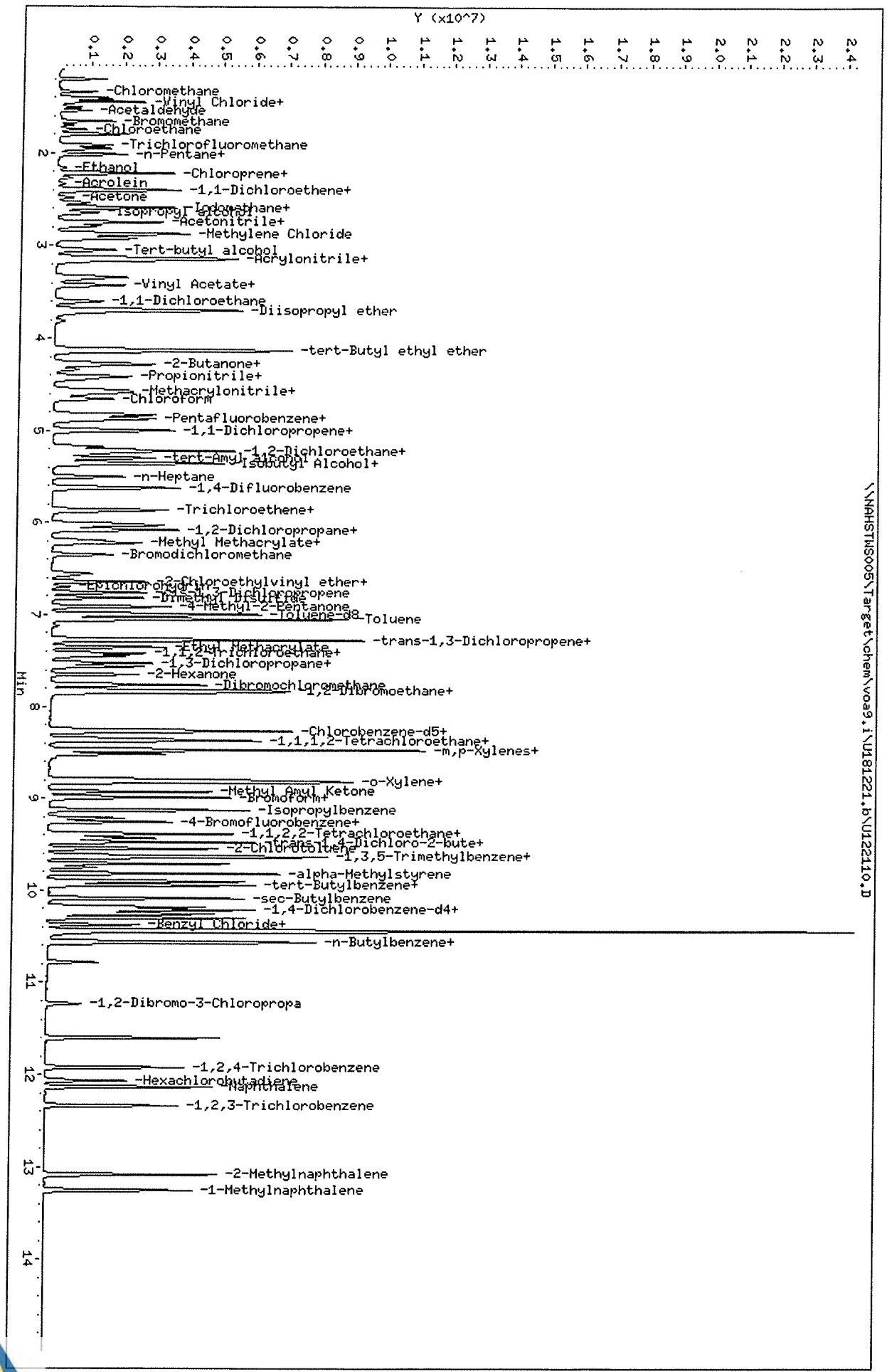
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.894	4.894	(1.000)	456327	50.0000	
*	36 1,4-Difluorobenzene	114	5.625	5.625	(1.000)	837974	50.0000	
*	47 Chlorobenzene-d5	117	8.249	8.249	(1.000)	793198	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	374825	50.0000	
$	30 Dibromofluoromethane	113	4.830	4.830	(0.987)	745399	150.000	151.02
$	35 1,2-Dichloroethane-d4	65	5.175	5.175	(1.057)	949266	150.000	151.18
$	48 Toluene-d8	98	6.989	6.989	(0.847)	3016887	150.000	150.76
$	69 4-Bromofluorobenzene	95	9.257	9.257	(1.122)	1153874	150.000	150.78
	60 1,1,1,2-Tetrachloroethane	131	8.350	8.350	(1.012)	766622	150.000	151.11
	31 1,1,1-Trichloroethane	97	4.826	4.826	(0.986)	1166981	150.000	161.96
	68 1,1,2,2-Tetrachloroethane	83	9.392	9.392	(0.918)	1214939	150.000	143.93
	138 Freon TF	101	2.401	2.401	(0.491)	609198	150.000	157.03
	53 1,1,2-Trichloroethane	83	7.421	7.421	(0.900)	689788	150.000	145.96
	22 1,1-Dichloroethane	63	3.604	3.604	(0.737)	1459691	150.000	148.53
	11 1,1-Dichloroethene	96	2.397	2.397	(0.490)	645721	150.000	148.82
	32 1,1-Dichloropropene	75	5.003	5.003	(0.889)	1147997	150.000	153.96
	93 1,2,3-Trichlorobenzene	180	12.335	12.335	(1.205)	1085027	150.000	152.30
	71 1,2,3-Trichloropropane	75	9.430	9.430	(0.921)	1401190	150.000	159.63
	90 1,2,4-Trichlorobenzene	180	11.923	11.923	(1.165)	1126029	150.000	162.26
	79 1,2,4-Trimethylbenzene	105	9.943	9.943	(0.971)	3050007	150.000	155.49
	89 1,2-Dibromo-3-Chloropropane	155	11.233	11.233	(1.097)	200384	150.000	150.93
	57 1,2-Dibromoethane	107	7.852	7.852	(0.952)	815175	150.000	149.76

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122110.D Page 2
Report Date: 28-Jan-2019 11:25

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88 1,2-Dichlorobenzene	146	10.573	10.573	(1.033)	1640210	150.000	147.37
33 1,2-Dichloroethane	62	5.254	5.254	(0.934)	1129116	150.000	151.01
42 1,2-Dichloropropane	63	6.082	6.082	(1.081)	888346	150.000	150.03
75 1,3,5-Trimethylbenzene	105	9.625	9.625	(0.940)	2996671	150.000	159.08
83 1,3-Dichlorobenzene	146	10.180	10.180	(0.995)	1669910	150.000	150.03
54 1,3-Dichloropropane	76	7.563	7.563	(0.917)	1476732	150.000	145.07
84 1,4-Dichlorobenzene	146	10.255	10.255	(1.002)	1696761	150.000	144.58
26 2,2-Dichloropropane	77	4.275	4.275	(0.874)	951402	150.000	160.64
24 2-Butanone	43	4.335	4.335	(0.886)	880878	300.000	299.93(A)
76 2-Chlorotoluene	91	9.550	9.550	(0.933)	2603345	150.000	150.74
52 2-Hexanone	43	7.653	7.653	(0.928)	1413890	300.000	320.56(A)
77 4-Chlorotoluene	91	9.640	9.640	(0.942)	3029757	150.000	151.81
82 p-Isopropyltoluene	119	10.210	10.210	(0.997)	3190047	150.000	160.83
45 4-Methyl-2-Pentanone	43	6.914	6.914	(0.838)	1993190	300.000	314.06(A)
10 Acetone	43	2.480	2.480	(0.507)	520533	300.000	298.01(A)
37 Benzene	78	5.216	5.216	(0.927)	3311929	150.000	148.52
74 Bromobenzene	156	9.385	9.385	(0.917)	890701	150.000	153.79
29 Bromochloromethane	128	4.557	4.557	(0.931)	348533	150.000	151.66
39 Bromodichloromethane	83	6.348	6.348	(1.129)	1032680	150.000	164.00
66 Bromoform	173	8.984	8.984	(1.089)	522892	150.000	149.93
6 Bromomethane	94	1.659	1.659	(0.339)	444174	150.000	154.73
19 Carbon Disulfide	76	2.588	2.588	(0.529)	4735575	300.000	299.54(A)
34 Carbon Tetrachloride	117	4.995	4.995	(0.888)	939611	150.000	151.26
59 Chlorobenzene	112	8.275	8.275	(1.003)	2244427	150.000	147.26
7 Chloroethane	64	1.745	1.745	(0.357)	684109	150.000	161.33
28 Chloroform	83	4.658	4.658	(0.952)	1391091	150.000	146.98
3 Chloromethane	50	1.340	1.340	(0.274)	746873	150.000	147.15
27 cis-1,2-Dichloroethene	96	4.287	4.287	(0.876)	893807	150.000	149.01
46 cis-1,3-Dichloropropene	75	6.757	6.757	(1.201)	1468956	150.000	150.90
55 Dibromochloromethane	129	7.758	7.758	(0.940)	791728	150.000	149.91
44 Dibromomethane	93	6.191	6.191	(1.101)	516406	150.000	151.11
2 Dichlorodifluoromethane	85	1.205	1.205	(0.246)	873891	150.000	154.61
61 Ethylbenzene	106	8.373	8.373	(1.015)	1198529	150.000	153.33
91 Hexachlorobutadiene	225	12.065	12.065	(1.179)	400552	150.000	150.65
67 Isopropylbenzene	105	9.126	9.126	(1.106)	3526393	150.000	156.34
62 m,p-Xylenes	106	8.474	8.474	(1.027)	2933161	300.000	305.23(A)
17 Methylene Chloride	84	2.870	2.870	(0.586)	841220	150.000	151.54
87 n-Butylbenzene	91	10.558	10.558	(1.031)	2965307	150.000	154.91
73 n-Propylbenzene	91	9.479	9.479	(0.926)	4348220	150.000	155.25
92 Naphthalene	128	12.133	12.133	(1.185)	3430934	150.000	151.53
63 o-Xylene	106	8.811	8.811	(1.068)	1492877	150.000	153.99
81 sec-Butylbenzene	105	10.090	10.090	(0.986)	3757107	150.000	159.61
64 Styrene	104	8.826	8.826	(1.070)	2556162	150.000	158.70
78 tert-Butylbenzene	119	9.902	9.902	(0.967)	2586354	150.000	158.85
56 Tetrachloroethene	164	7.526	7.526	(0.912)	610669	150.000	147.05
50 Toluene	91	7.049	7.049	(0.855)	3483930	150.000	147.65
20 trans-1,2-Dichloroethene	96	3.140	3.140	(0.642)	789348	150.000	147.77
51 trans-1,3-Dichloropropene	75	7.263	7.263	(1.291)	1271771	150.000	151.06
38 Trichloroethene	130	5.861	5.861	(1.042)	823329	150.000	152.94
8 Trichlorofluoromethane	101	1.951	1.951	(0.399)	1146930	150.000	151.21
5 Vinyl Chloride	62	1.419	1.419	(0.290)	1000865	150.000	153.03

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.



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Sample Info: VSTD150;VSTD150;1;9;
Purge Volume: 5.0
Column phase: DB624

\\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122110.D

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122111.D Page 1
Report Date: 28-Jan-2019 11:25

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122111.D
Lab Smp Id: VSTD200 Client Smp ID: VSTD200
Inj Date : 21-DEC-2018 17:55
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD200;VSTD200;1;10;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 17:31 Cal File: U122110.D
Als bottle: 12 Calibration Sample, Level: 10
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

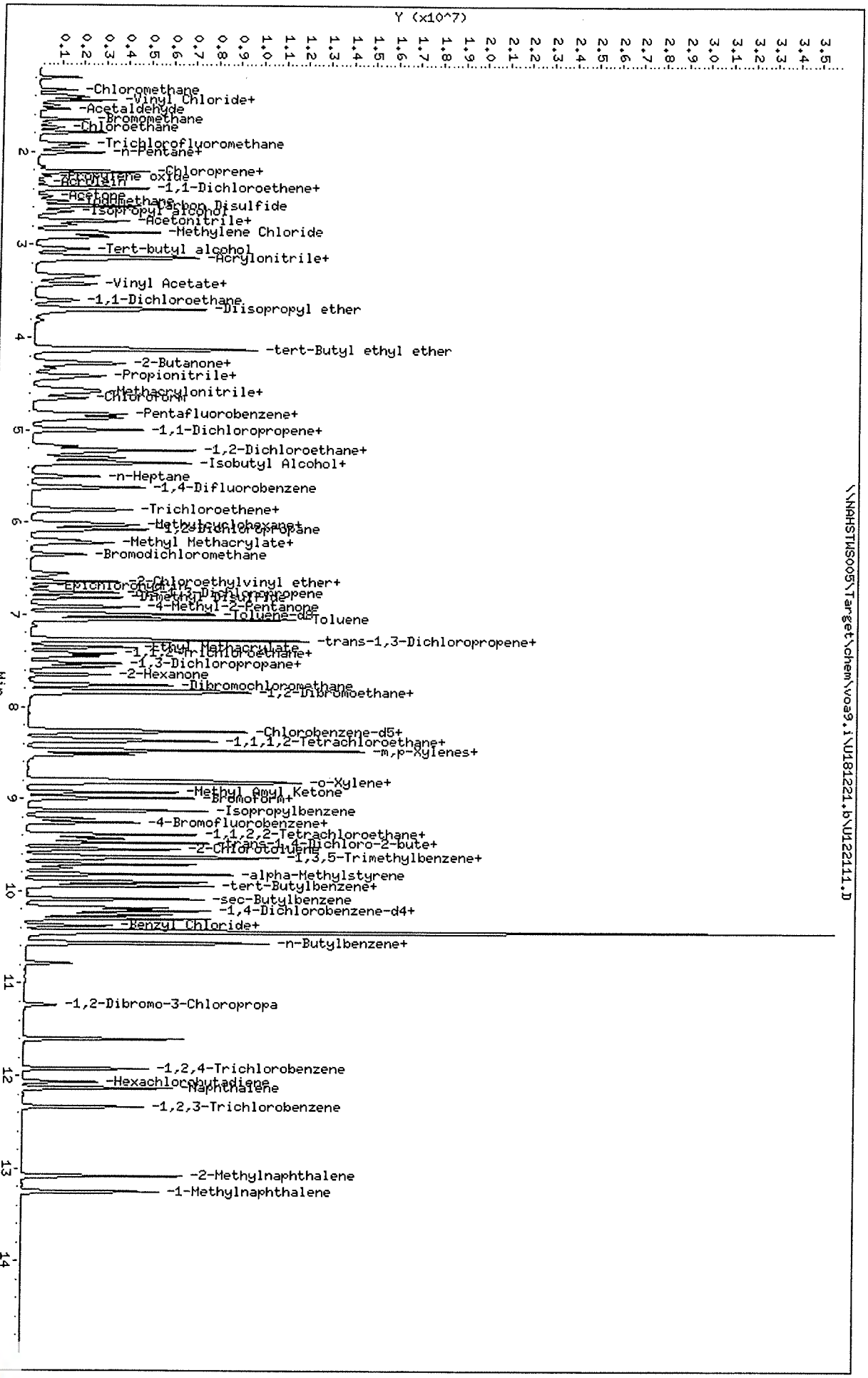
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.890	4.890	(1.000)	471928	50.0000	
* 36 1,4-Difluorobenzene	114	5.625	5.625	(1.000)	852109	50.0000	
* 47 Chlorobenzene-d5	117	8.249	8.249	(1.000)	808162	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	383807	50.0000	
$ 30 Dibromofluoromethane	113	4.826	4.826	(0.987)	1006329	200.000	197.61
$ 35 1,2-Dichloroethane-d4	65	5.171	5.171	(1.057)	1274051	200.000	196.84
$ 48 Toluene-d8	98	6.989	6.989	(0.847)	4010125	200.000	197.23
$ 69 4-Bromofluorobenzene	95	9.257	9.257	(1.122)	1540801	200.000	198.06
60 1,1,1,2-Tetrachloroethane	131	8.350	8.350	(1.012)	1032567	200.000	199.57
31 1,1,1-Trichloroethane	97	4.826	4.826	(0.987)	1558350	200.000	209.12(A)
68 1,1,2,2-Tetrachloroethane	83	9.392	9.392	(0.918)	1627647	200.000	188.30
138 Freon TF	101	2.394	2.394	(0.490)	818502	200.000	204.00(A)
53 1,1,2-Trichloroethane	83	7.421	7.421	(0.900)	922969	200.000	191.69
22 1,1-Dichloroethane	63	3.597	3.597	(0.736)	1941260	200.000	191.00
11 1,1-Dichloroethene	96	2.394	2.394	(0.490)	870210	200.000	193.93
32 1,1-Dichloropropene	75	5.003	5.003	(0.889)	1526453	200.000	201.33(A)
93 1,2,3-Trichlorobenzene	180	12.335	12.335	(1.205)	1453309	200.000	199.03
71 1,2,3-Trichloropropane	75	9.430	9.430	(0.921)	1910859	200.000	212.60(A)
90 1,2,4-Trichlorobenzene	180	11.926	11.926	(1.165)	1495400	200.000	210.44(A)
79 1,2,4-Trimethylbenzene	105	9.943	9.943	(0.971)	4007083	200.000	199.50
89 1,2-Dibromo-3-Chloropropane	155	11.233	11.233	(1.097)	274280	200.000	201.27(A)
57 1,2-Dibromoethane	107	7.852	7.852	(0.952)	1097675	200.000	197.93

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122111.D Page 2
Report Date: 28-Jan-2019 11:25

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88 1,2-Dichlorobenzene	146	10.573	10.573	(1.033)	2176108	200.000	190.95
33 1,2-Dichloroethane	62	5.250	5.250	(0.933)	1504782	200.000	198.15
42 1,2-Dichloropropane	63	6.078	6.078	(1.081)	1186343	200.000	197.03
75 1,3,5-Trimethylbenzene	105	9.628	9.628	(0.941)	3964216	200.000	205.51(A)
83 1,3-Dichlorobenzene	146	10.180	10.180	(0.995)	2212350	200.000	194.11
54 1,3-Dichloropropane	76	7.563	7.563	(0.917)	1981022	200.000	191.01
84 1,4-Dichlorobenzene	146	10.258	10.258	(1.002)	2259523	200.000	188.03
26 2,2-Dichloropropane	77	4.272	4.272	(0.874)	1270502	200.000	207.43(A)
24 2-Butanone	43	4.335	4.335	(0.887)	1199902	400.000	395.82(A)
76 2-Chlorotoluene	91	9.550	9.550	(0.933)	3451393	200.000	195.17
52 2-Hexanone	43	7.653	7.653	(0.928)	1896004	400.000	421.90(A)
77 4-Chlorotoluene	91	9.640	9.640	(0.942)	3993483	200.000	195.41
82 p-Isopropyltoluene	119	10.213	10.213	(0.998)	4198944	200.000	206.74(A)
45 4-Methyl-2-Pentanone	43	6.914	6.914	(0.838)	2681840	400.000	414.75(A)
10 Acetone	43	2.476	2.476	(0.506)	723113	400.000	401.34(A)
37 Benzene	78	5.216	5.216	(0.927)	4410809	200.000	194.52
74 Bromobenzene	156	9.385	9.385	(0.917)	1186255	200.000	200.04(A)
29 Bromochloromethane	128	4.553	4.553	(0.931)	453685	200.000	191.69
39 Bromodichloromethane	83	6.345	6.345	(1.128)	1391257	200.000	217.29(A)
66 Bromoform	173	8.984	8.984	(1.089)	718878	200.000	201.69(A)
6 Bromomethane	94	1.651	1.651	(0.338)	585856	200.000	196.98
19 Carbon Disulfide	76	2.585	2.585	(0.529)	6125723	400.000	374.66(A)
34 Carbon Tetrachloride	117	4.991	4.991	(0.887)	1268610	200.000	200.38(A)
59 Chlorobenzene	112	8.275	8.275	(1.003)	2961137	200.000	190.69
7 Chloroethane	64	1.737	1.737	(0.355)	859472	200.000	193.44
28 Chloroform	83	4.654	4.654	(0.952)	1846267	200.000	188.63
3 Chloromethane	50	1.333	1.333	(0.273)	1095269	200.000	207.27(A)
27 cis-1,2-Dichloroethene	96	4.283	4.283	(0.876)	1189323	200.000	191.72
46 cis-1,3-Dichloropropene	75	6.757	6.757	(1.201)	1986544	200.000	200.27(A)
55 Dibromochloromethane	129	7.758	7.758	(0.940)	1081017	200.000	200.56(A)
44 Dibromomethane	93	6.187	6.187	(1.100)	698521	200.000	201.01(A)
2 Dichlorodifluoromethane	85	1.198	1.198	(0.245)	1151588	200.000	196.87
61 Ethylbenzene	106	8.373	8.373	(1.015)	1600834	200.000	201.00(A)
91 Hexachlorobutadiene	225	12.065	12.065	(1.179)	534175	200.000	196.21
67 Isopropylbenzene	105	9.126	9.126	(1.106)	4617933	200.000	200.94(A)
62 m,p-Xylenes	106	8.474	8.474	(1.027)	3876248	400.000	395.90(A)
17 Methylene Chloride	84	2.866	2.866	(0.586)	1131189	200.000	197.41
87 n-Butylbenzene	91	10.558	10.558	(1.031)	3856663	200.000	196.76
73 n-Propylbenzene	91	9.479	9.479	(0.926)	5652456	200.000	197.09
92 Naphthalene	128	12.133	12.133	(1.185)	4589381	200.000	199.26
63 o-Xylene	106	8.811	8.811	(1.068)	1977764	200.000	200.23(A)
81 sec-Butylbenzene	105	10.090	10.090	(0.986)	4898290	200.000	203.23(A)
64 Styrene	104	8.826	8.826	(1.070)	3375201	200.000	205.67(A)
78 tert-Butylbenzene	119	9.902	9.902	(0.967)	3416506	200.000	204.92(A)
56 Tetrachloroethene	164	7.525	7.525	(0.912)	811202	200.000	191.73
50 Toluene	91	7.046	7.046	(0.854)	4594912	200.000	191.13
20 trans-1,2-Dichloroethene	96	3.136	3.136	(0.641)	1055077	200.000	190.99
51 trans-1,3-Dichloropropene	75	7.259	7.259	(1.291)	1721394	200.000	200.53(A)
38 Trichloroethene	130	5.861	5.861	(1.042)	1093007	200.000	199.67
8 Trichlorofluoromethane	101	1.944	1.944	(0.398)	1561606	200.000	198.87
5 Vinyl Chloride	62	1.415	1.415	(0.289)	1348117	200.000	199.01

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.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0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3 2.4 2.5 2.6 2.7 2.8 2.9 3.0 3.1 3.2 3.3 3.4 3.5
Min
1 2 3 4 5 6 7 8 9 10 11 12 13 14
-Chloromethane
-Vinyl Chloride+
-Acetaldehyde
-Bromomethane
-Chloroethane
-Trichlorofluoromethane
-n-Pentane+
-Propylene oxide
-Acrolein
-Acetone
-Iodomethane
-Carbon Disulfide
-Isopropyl alcohol
-Acetonitrile+
-Methylene Chloride
-Tert-butyl alcohol
-Acrylonitrile+
-Vinyl Acetate+
-1,1-Dichloroethane
-Diisopropyl ether
-tert-Butyl ethyl ether
-2-Butanone+
-Propionitrile+
-Methacrylonitrile+
-Chloroform
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-Isobutyl Alcohol+
-n-Heptane
-1,4-Difluorobenzene
-Trichloroethene+
-Methylcyclohexane+
-1,2-Dichloropropane
-Methyl Methacrylate+
-Bromodichloromethane
-2-Chloroethylvinyl ether+
-cis-1,3-Dichloropropene
-4-Methyl-2-Pentanone
-Toluene-d8
-Toluene
-trans-1,3-Dichloropropene+
-Ethyl Methacrylate
-1,1,2-Trichloroethane+
-1,3-Dichloropropane+
-2-Hexanone
-Dibromochloromethane
-1,2-Dibromoethane+
-Chlorobenzene-d5+
-1,1,1,2-Tetrachloroethane+
-m,p-Xylenes+
-o-Xylene+
-Methyl Amyl Ketone
-Bromoform+
-Isopropylbenzene
-4-Bromofluorobenzene+
-1,1,2,2-Tetrachloroethane+
-trans-1,4-Dichloro-2-bute+
-2-Chlorotoluene
-1,3,5-Trimethylbenzene+
-alpha-Methylstyrene
-tert-Butylbenzene+
-sec-Butylbenzene
-1,4-Dichlorobenzene-d4+
-Benzyl Chloride+
-n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Hexachlorobutadiene
-Naphthalene
-1,2,3-Trichlorobenzene
-2-Methylnaphthalene
-1-Methylnaphthalene
\\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122111.D
Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122111.D
Date : 21-DEC-2018 17:55
Client ID: VSTD200
Sample Info: VSTD200;VSTD200;1;10;
Purge Volume: 5.0
Column phase: DB624
Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122113.D Page 1
Report Date: 28-Jan-2019 11:25

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122113.D
Lab Smp Id: VSTD050 Client Smp ID: VSTD050
Inj Date : 21-DEC-2018 18:45
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD050;VSTD050;2;;ICV
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 17:55 Cal File: U122111.D
Als bottle: 14 QC Sample: METHSPIKE
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

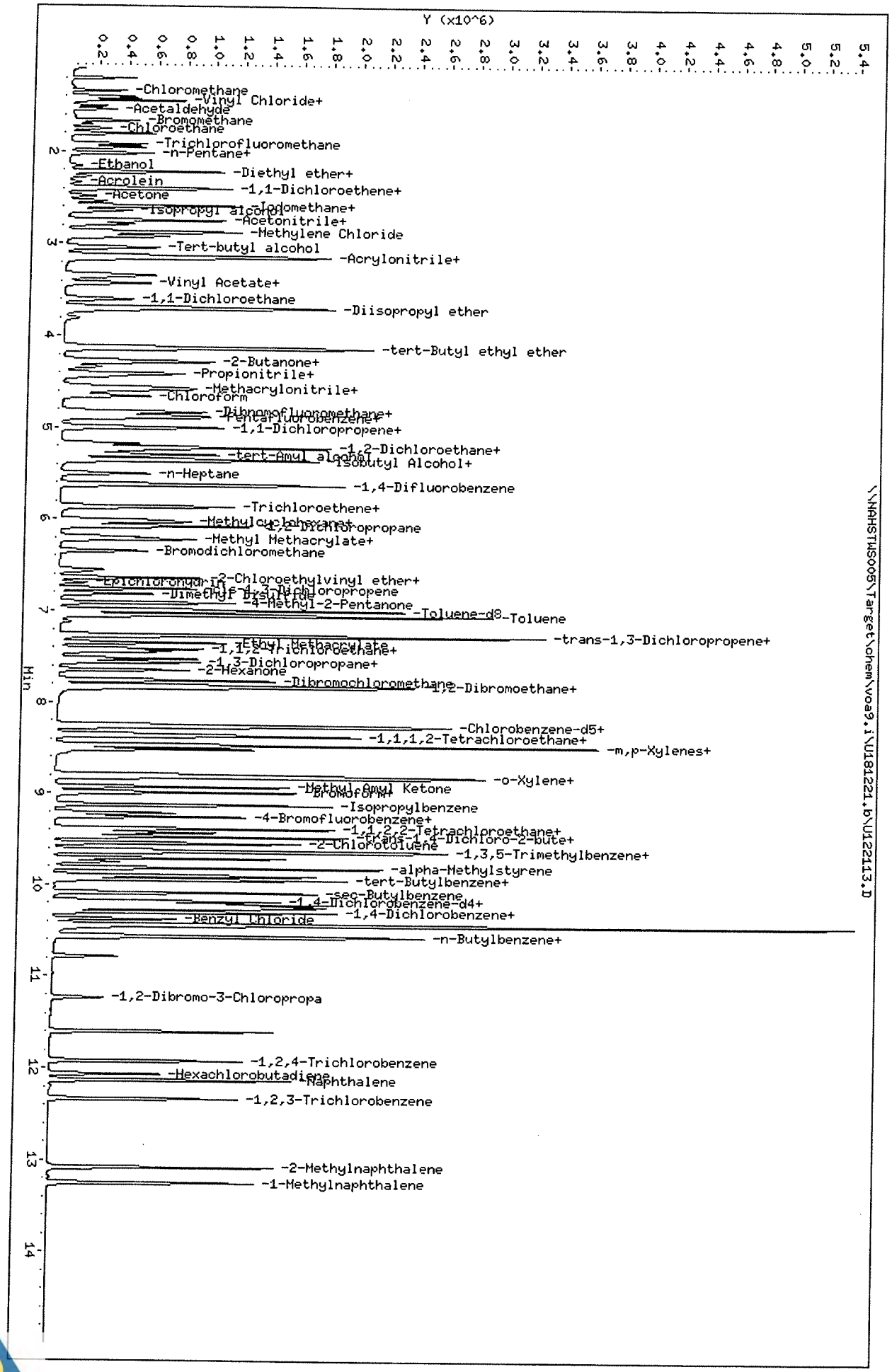
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.894	4.890	(1.000)	454236	50.0000	
* 36 1,4-Difluorobenzene	114	5.625	5.625	(1.000)	837452	50.0000	
* 47 Chlorobenzene-d5	117	8.249	8.249	(1.000)	785431	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	375418	50.0000	
$ 30 Dibromofluoromethane	113	4.830	4.826	(0.987)	255609	51.0245	51.02
$ 35 1,2-Dichloroethane-d4	65	5.175	5.171	(1.057)	329809	51.3551	51.35
$ 48 Toluene-d8	98	6.989	6.989	(0.847)	1045729	51.6161	51.61
$ 69 4-Bromofluorobenzene	95	9.257	9.257	(1.122)	396478	51.3902	51.39
60 1,1,1,2-Tetrachloroethane	131	8.350	8.350	(1.012)	241293	48.4317	48.43
31 1,1,1-Trichloroethane	97	4.826	4.826	(0.986)	354032	49.3608	49.36
68 1,1,2,2-Tetrachloroethane	83	9.392	9.392	(0.918)	418971	49.5558	49.55
138 Freon TF	101	2.401	2.394	(0.491)	174050	45.0712	45.07
53 1,1,2-Trichloroethane	83	7.420	7.421	(0.900)	230741	49.3099	49.30
22 1,1-Dichloroethane	63	3.604	3.597	(0.737)	469167	47.9609	47.96
11 1,1-Dichloroethene	96	2.397	2.394	(0.490)	197920	45.8262	45.82
32 1,1-Dichloropropene	75	5.003	5.003	(0.889)	353683	47.4657	47.46
93 1,2,3-Trichlorobenzene	180	12.335	12.335	(1.205)	338004	47.8072	47.80
71 1,2,3-Trichloropropane	75	9.426	9.430	(0.921)	468241	53.2610	53.26
90 1,2,4-Trichlorobenzene	180	11.923	11.926	(1.165)	350114	50.3719	50.37
79 1,2,4-Trimethylbenzene	105	9.943	9.943	(0.971)	985013	50.1388	50.13
89 1,2-Dibromo-3-Chloropropane	155	11.233	11.233	(1.097)	65081	49.9244	49.92
57 1,2-Dibromoethane	107	7.852	7.852	(0.952)	275792	51.1699	51.16

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122113.D Page 2
Report Date: 28-Jan-2019 11:25

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
88 1,2-Dichlorobenzene	146	10.573	10.573	(1.033)	539129	48.3652	48.36
33 1,2-Dichloroethane	62	5.254	5.250	(0.934)	379863	50.3501	50.35
42 1,2-Dichloropropane	63	6.082	6.078	(1.081)	291083	49.1911	49.19
75 1,3,5-Trimethylbenzene	105	9.625	9.628	(0.940)	944583	50.0646	50.06
83 1,3-Dichlorobenzene	146	10.180	10.180	(0.995)	538150	48.2737	48.27
54 1,3-Dichloropropane	76	7.563	7.563	(0.917)	498006	49.4090	49.40
84 1,4-Dichlorobenzene	146	10.254	10.258	(1.002)	553425	47.0841	47.08
26 2,2-Dichloropropane	77	4.275	4.272	(0.874)	312995	53.0931	53.09
24 2-Butanone	43	4.335	4.335	(0.886)	309683	104.354	104.35
76 2-Chlorotoluene	91	9.546	9.550	(0.933)	853147	49.3227	49.32
52 2-Hexanone	43	7.649	7.653	(0.927)	476780	109.166	109.16
77 4-Chlorotoluene	91	9.640	9.640	(0.942)	993815	49.7187	49.71
82 p-Isopropyltoluene	119	10.209	10.213	(0.997)	977284	49.1947	49.19
45 4-Methyl-2-Pentanone	43	6.914	6.914	(0.838)	669743	106.576	106.57
10 Acetone	43	2.480	2.476	(0.507)	202203	114.452	114.45
37 Benzene	78	5.216	5.216	(0.927)	1087936	48.8203	48.82
74 Bromobenzene	156	9.381	9.385	(0.917)	288693	49.7707	49.77
29 Bromochloromethane	128	4.553	4.553	(0.930)	134219	56.7663	56.76
39 Bromodichloromethane	83	6.348	6.345	(1.129)	327631	52.0660	52.06
66 Bromoform	173	8.984	8.984	(1.089)	161326	47.9288	47.92(T)
6 Bromomethane	94	1.666	1.651	(0.341)	151955	54.0592	54.05
19 Carbon Disulfide	76	2.588	2.585	(0.529)	1510901	96.0096	96.00
34 Carbon Tetrachloride	117	4.995	4.991	(0.888)	272477	44.8853	44.88
59 Chlorobenzene	112	8.275	8.275	(1.003)	728193	48.2531	48.25
7 Chloroethane	64	1.752	1.737	(0.358)	185529	46.1546	46.15(M)
28 Chloroform	83	4.658	4.654	(0.952)	456472	48.4536	48.45
3 Chloromethane	50	1.340	1.333	(0.274)	235959	48.9688	48.96
27 cis-1,2-Dichloroethene	96	4.287	4.283	(0.876)	292150	48.9311	48.93
46 cis-1,3-Dichloropropene	75	6.757	6.757	(1.201)	467498	48.9175	48.91
55 Dibromochloromethane	129	7.758	7.758	(0.940)	250542	48.5723	48.57
44 Dibromomethane	93	6.191	6.187	(1.101)	173822	50.8969	50.89
2 Dichlorodifluoromethane	85	1.205	1.198	(0.246)	258081	46.2123	46.21
61 Ethylbenzene	106	8.373	8.373	(1.015)	381593	49.3007	49.30
91 Hexachlorobutadiene	225	12.065	12.065	(1.179)	122959	46.1748	46.17
67 Isopropylbenzene	105	9.126	9.126	(1.106)	1096015	49.0718	49.07
62 m,p-Xylenes	106	8.474	8.474	(1.027)	950452	99.8846	99.88
17 Methylene Chloride	84	2.870	2.866	(0.586)	279368	49.7584	49.75
87 n-Butylbenzene	91	10.558	10.558	(1.031)	900081	46.9488	46.94
73 n-Propylbenzene	91	9.475	9.479	(0.926)	1377655	49.1117	49.11
92 Naphthalene	128	12.133	12.133	(1.185)	1130612	49.4621	49.46
63 o-Xylene	106	8.811	8.811	(1.068)	478939	49.8923	49.89
81 sec-Butylbenzene	105	10.086	10.090	(0.985)	1124348	47.6920	47.69
64 Styrene	104	8.826	8.826	(1.070)	841070	52.7368	52.73
78 tert-Butylbenzene	119	9.902	9.902	(0.967)	781669	47.9339	47.93
56 Tetrachloroethene	164	7.525	7.525	(0.912)	188872	45.9327	45.93
50 Toluene	91	7.046	7.046	(0.854)	1151259	49.2749	49.27
20 trans-1,2-Dichloroethene	96	3.139	3.136	(0.642)	255368	48.0288	48.02
51 trans-1,3-Dichloropropene	75	7.259	7.259	(1.291)	402226	48.9357	48.93
38 Trichloroethene	130	5.861	5.861	(1.042)	262761	48.8423	48.84
8 Trichlorofluoromethane	101	1.951	1.944	(0.399)	342884	45.8511	45.85
5 Vinyl Chloride	62	1.419	1.415	(0.290)	295169	46.0208	46.02

QC Flag Legend

T - Target compound detected outside RT window.
M - Compound response manually integrated.



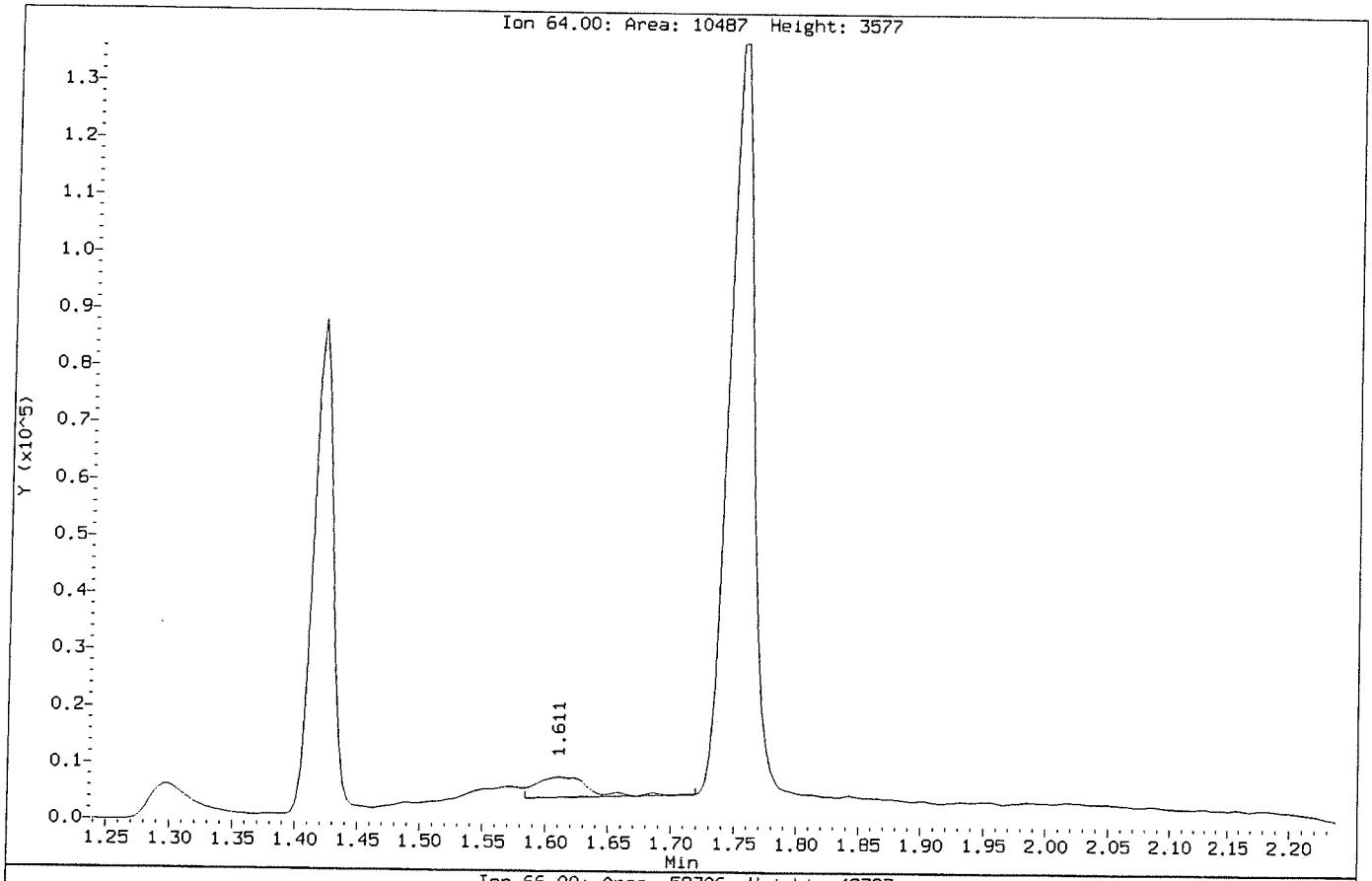
Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122113.D
Date : 21-DEC-2018 18:45
Client ID: VSTD050
Sample Info: VSTD050;VSTD050;2;;ICV
Purge Volume: 5.0
Column phase: DB624

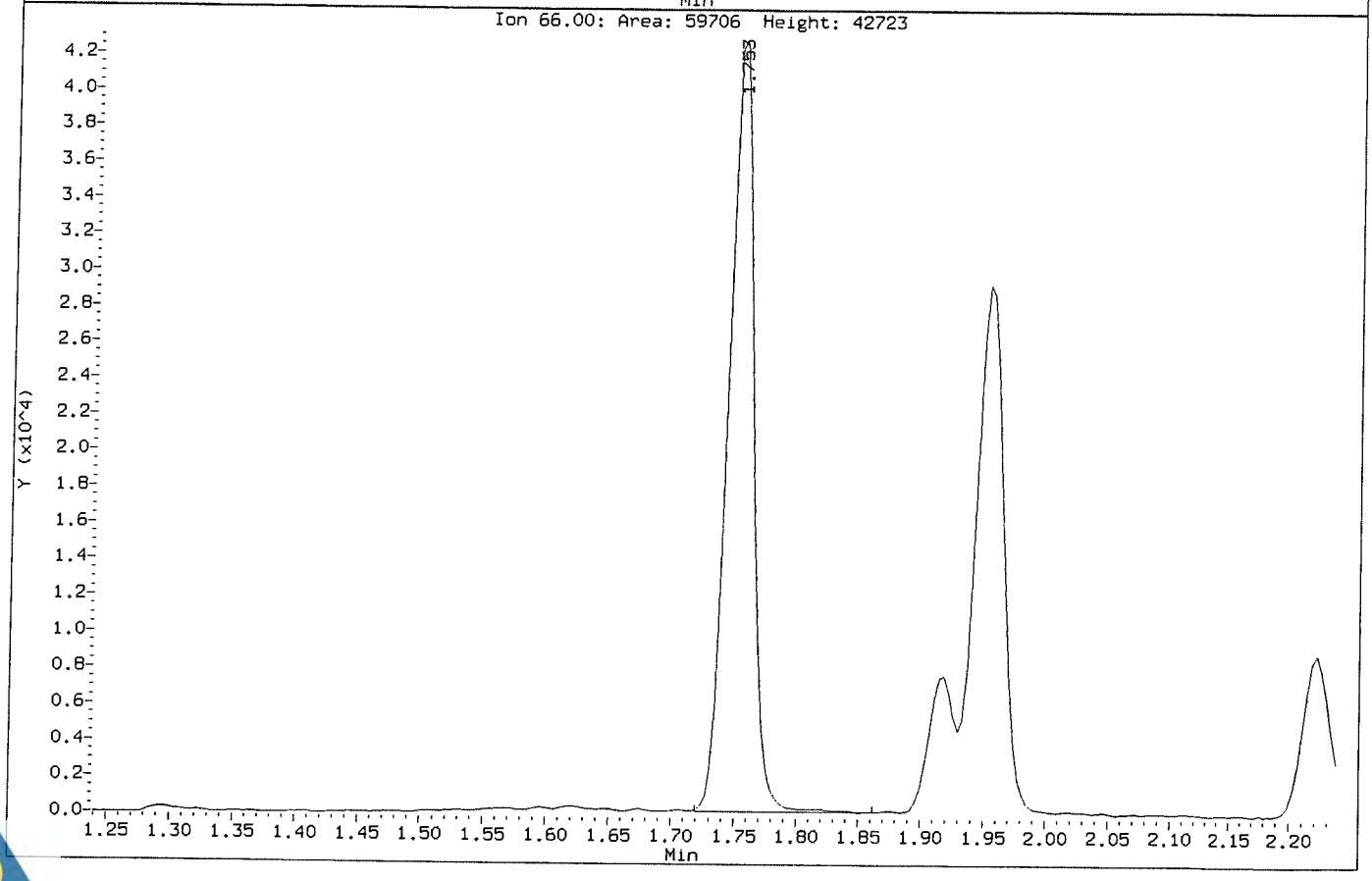
\\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122113.D

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122113.D
Injection Date: 21-DEC-2018 18:45
Instrument: VOA9.i
Client Sample ID: VSTD050

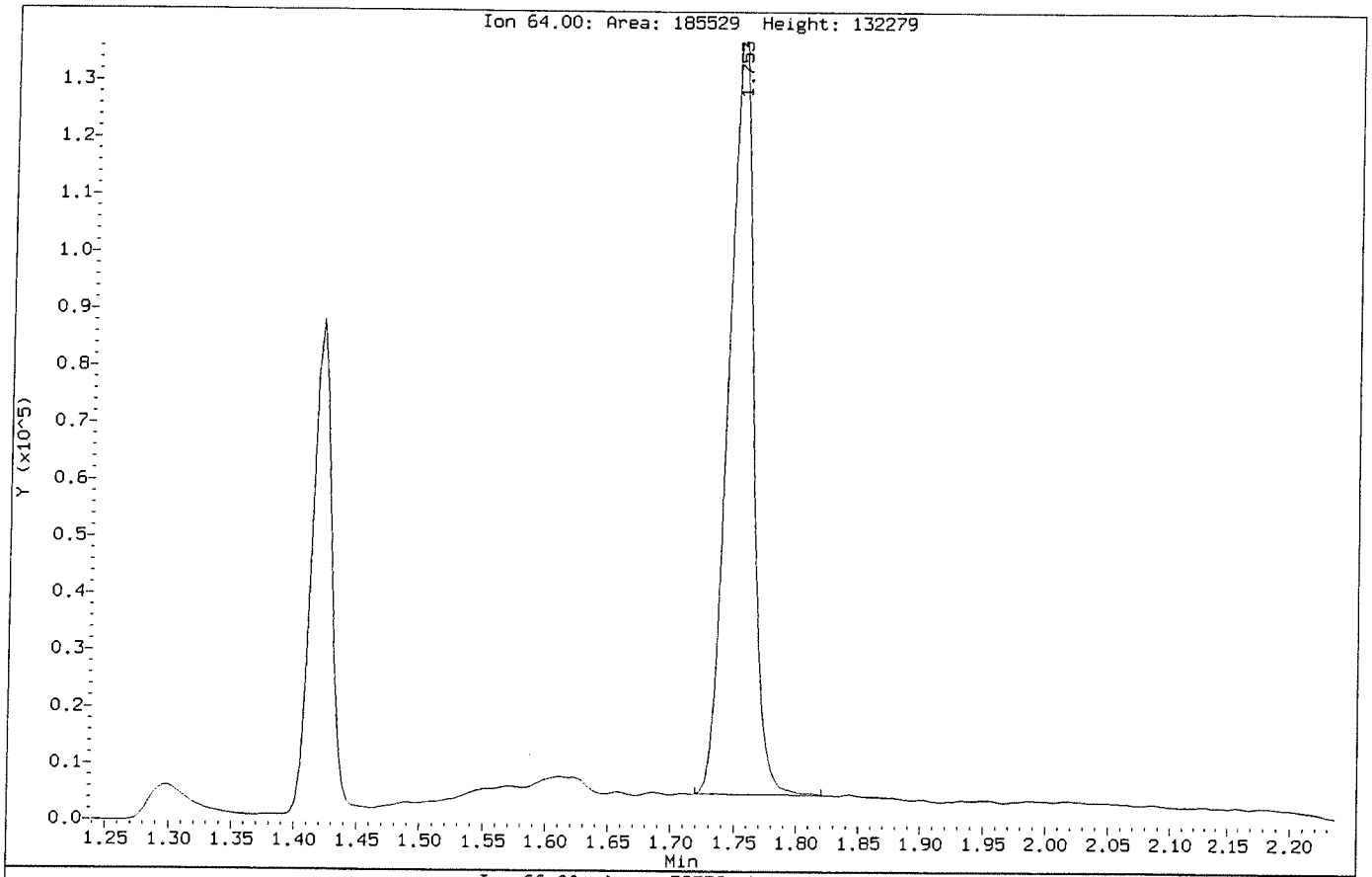
Compound: Chloroethane
CAS Number: 75-00-3

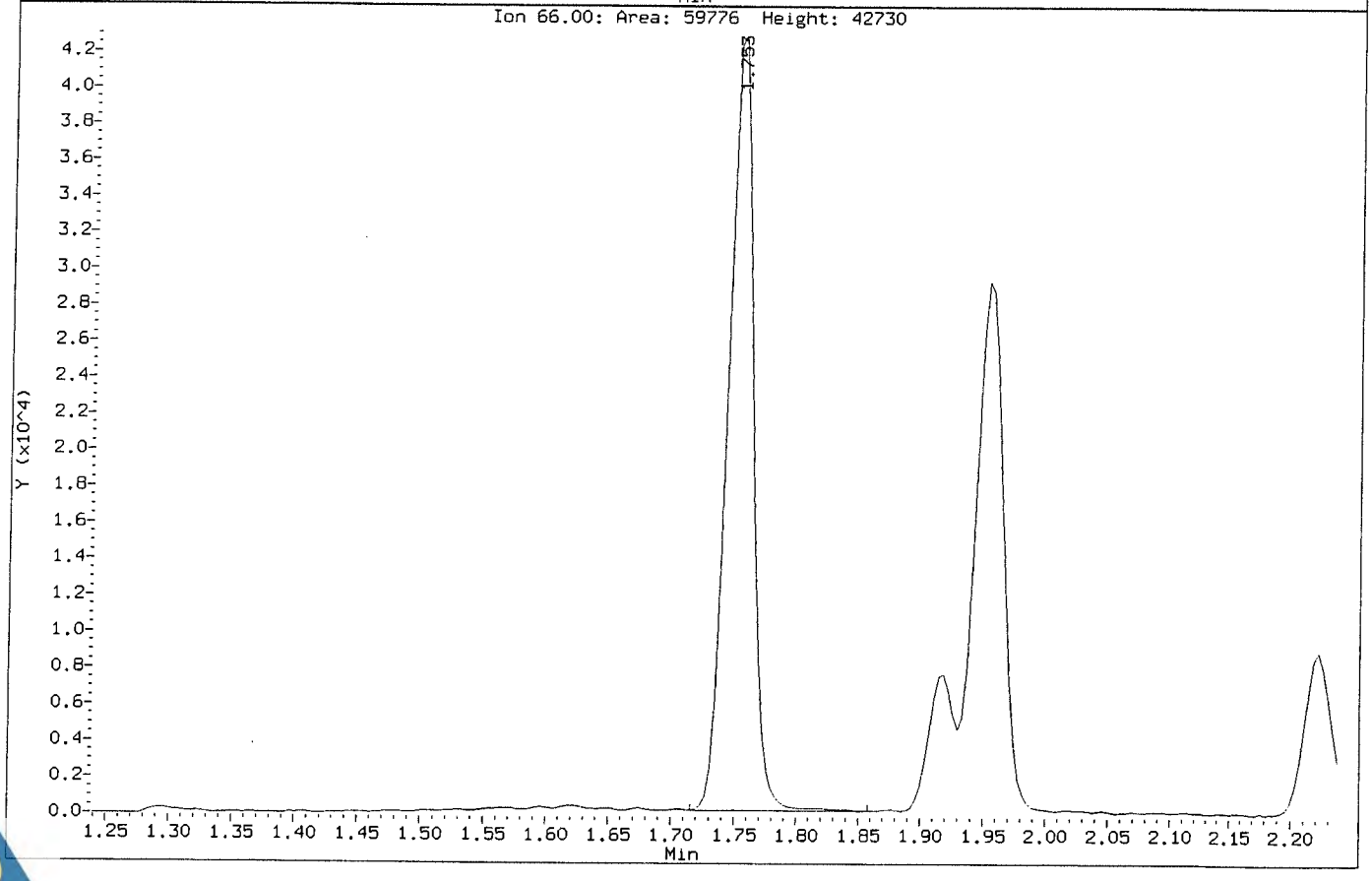




Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122113.D
Injection Date: 21-DEC-2018 18:45
Instrument: VOA9.i
Client Sample ID: VSTD050

Compound: Chloroethane
CAS Number: 75-00-3





MSVOA09 -Logbook

Batch: 34003
Date: 12-22-2018
Method: 8260
Comments:

Analyst: Presenta Cabascango
Reviewer:
Laboratory: Houston

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	12-22-2018 10:39 am	1.00	50 mL	50 mL	U122201.D	Liquid	Y	NA
	Auto find/purged									
2	VSTD050	CCV	12-22-2018 11:03 am	1.00	50 mL	50 mL	U122202.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
3	VLCSW-1812022	LCS	12-22-2018 11:28 am	1.00	50 mL	50 mL	U122203.D	Liquid	Y	NA
	4 uL ICV std/50 mL DI									
4	BLANK	SAMP	12-22-2018 11:53 am	1.00	50 mL	50 mL	U122204.D	Liquid	Y	NA
	Cleanup blk									
5	VBLKW-181222	MBLK	12-22-2018 12:18 pm	1.00	50 mL	50 mL	U122205.D	Liquid	Y	NA
6	HS18120927-05	SAMP	12-22-2018 12:43 pm	1.00	50 mL	50 mL	U122206.D	Liquid	Y	<2
7	HS18120642-01	SAMP	12-22-2018 01:07 pm	1.00	50 mL	50 mL	U122207.D	Liquid	Y	<2
8	HS18120642-03	SAMP	12-22-2018 01:32 pm	1.00	50 mL	50 mL	U122208.D	Liquid	Y	<2
9	HS18120927-05MS	MS	12-22-2018 01:57 pm	1.00	50 mL	50 mL	U122209.D	Liquid	Y	<2
	3.5 uL cal std/43 mL Sample									
10	HS18120927-05MSD	MSD	12-22-2018 02:22 pm	1.00	50 mL	50 mL	U122210.D	Liquid	Y	<2
	3.5 uL cal std/43 mL Sample									
11	HS18120642-03	SAMP	12-22-2018 02:46 pm	10.00	5 mL	50 mL	U122211.D	Liquid	Y	<2
12	HS18120927-02	SAMP	12-22-2018 03:11 pm	1.00	50 mL	50 mL	U122212.D	Liquid	Y	<2
13	HS18120927-09	SAMP	12-22-2018 03:36 pm	1.00	50 mL	50 mL	U122213.D	Liquid	Y	<2
14	HS18120642-05	SAMP	12-22-2018 04:01 pm	1.00	50 mL	50 mL	U122214.D	Liquid	Y	<2
15	HS18120927-01	SAMP	12-22-2018 04:26 pm	1.00	50 mL	50 mL	U122215.D	Liquid	Y	<2
16	HS18120927-03	SAMP	12-22-2018 04:50 pm	1.00	50 mL	50 mL	U122216.D	Liquid	Y	<2
17	HS18120927-04	SAMP	12-22-2018 05:15 pm	1.00	50 mL	50 mL	U122217.D	Liquid	Y	<2
18	HS18120927-06	SAMP	12-22-2018 05:40 pm	1.00	50 mL	50 mL	U122218.D	Liquid	Y	<2
19	HS18120927-07	SAMP	12-22-2018 06:05 pm	1.00	50 mL	50 mL	U122219.D	Liquid	Y	<2
20	HS18120927-08	SAMP	12-22-2018 06:30 pm	1.00	50 mL	50 mL	U122220.D	Liquid	Y	<2
21	HS18120642-02	SAMP	12-22-2018 06:54 pm	1.00	50 mL	50 mL	U122221.D	Liquid	Y	<2
22	HS18120642-04	SAMP	12-22-2018 07:19 pm	1.00	50 mL	50 mL	U122222.D	Liquid	Y	<2
23	HS18120736-02	SAMP	12-22-2018 07:44 pm	10.00	5 mL	50 mL	U122223.D	Liquid	Y	<2
24	HS18120736-01	SAMP	12-22-2018 08:09 pm	1.00	50 mL	50 mL	U122224.D	Liquid	Y	<2
25	HS18120736-03	SAMP	12-22-2018 08:33 pm	1.00	50 mL	50 mL	U122225.D	Liquid	Y	<2
26	HS18120736-04	SAMP	12-22-2018 08:58 pm	1.00	50 mL	50 mL	U122226.D	Liquid	Y	<2
27	HS18120642-01	SAMP	12-22-2018 09:23 pm	5.00	10 mL	50 mL	U122227.D	Liquid	Y	<2
28	VSTD050-END	CCV	12-22-2018 09:47 pm	1.00	50 mL	50 mL	U122228.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
29	BFB	TUNE	12-22-2018 10:12 pm	1.00	50 mL	50 mL	V122201.D	Liquid	Y	NA
	Auto find/purged									
30	VSTD050	CCV	12-22-2018 10:37 pm	1.00	50 mL	50 mL	V122202.D	Liquid	Y	NA
	Auto find/purged									
31	CCB	SAMP	12-22-2018 11:02 pm	1.00	50 mL	50 mL	V122203.D	Liquid	Y	NA
	CCB									
32	VLCSW-1812022	LCS	12-22-2018 11:26 pm	1.00	50 mL	50 mL	V122204.D	Liquid	Y	NA
	4 uL ICV std/50 mL DI									
33	BLANK	SAMP	12-22-2018 11:51 pm	1.00	50 mL	50 mL	V122205.D	Liquid	Y	NA
	Cleanup blk									
34	VBLKW-181222	MBLK	12-23-2018 12:16 am	1.00	50 mL	50 mL	V122206.D	Liquid	Y	NA
35	HS18120646-13	SAMP	12-23-2018 12:41 am	1.00	50 mL	50 mL	V122207.D	Liquid	Y	<2

MSVOA09 -Logbook

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
36	HS18120646-03	SAMP	12-23-2018 01:05 am	1.00	50 mL	50 mL	V122208.D	Liquid	Y	<2
37	HS18120646-03MS	MS	12-23-2018 01:30 am	1.00	50 mL	50 mL	V122209.D	Liquid	Y	<2
	3.5 uL cal std/43 mL Sample									
38	HS18120646-03MSD	MSD	12-23-2018 01:55 am	1.00	50 mL	50 mL	V122210.D	Liquid	Y	<2
	3.5 uL cal std/43 mL Sample									
39	HS18120704-05	SAMP	12-23-2018 02:20 am	25.00	2 mL	50 mL	V122211.D	Liquid	Y	<2
40	HS18120704-06	SAMP	12-23-2018 02:45 am	25.00	2 mL	50 mL	V122212.D	Liquid	Y	<2
41	HS18120646-04	SAMP	12-23-2018 03:09 am	1.00	50 mL	50 mL	V122213.D	Liquid	Y	<2
42	HS18120646-07	SAMP	12-23-2018 03:34 am	1.00	50 mL	50 mL	V122214.D	Liquid	Y	<2
43	HS18120646-08	SAMP	12-23-2018 03:59 am	1.00	50 mL	50 mL	V122215.D	Liquid	Y	<2
44	HS18120646-09	SAMP	12-23-2018 04:24 am	1.00	50 mL	50 mL	V122216.D	Liquid	Y	<2
45	HS18120646-11	SAMP	12-23-2018 04:49 am	1.00	50 mL	50 mL	V122217.D	Liquid	Y	<2
46	HS18120646-01	SAMP	12-23-2018 05:14 am	5.00	10 mL	50 mL	V122218.D	Liquid	Y	<2
47	HS18120646-02	SAMP	12-23-2018 05:39 am	10.00	5 mL	50 mL	V122219.D	Liquid	Y	<2
48	HS18120646-05	SAMP	12-23-2018 06:04 am	1.00	50 mL	50 mL	V122220.D	Liquid	Y	<2
49	HS18120646-05	SAMP	12-23-2018 06:29 am	10.00	5 mL	50 mL	V122221.D	Liquid	Y	<2
50	HS18120646-06	SAMP	12-23-2018 06:54 am	10.00	5 mL	50 mL	V122222.D	Liquid	Y	<2
51	HS18120646-10	SAMP	12-23-2018 07:19 am	1.00	50 mL	50 mL	V122223.D	Liquid	Y	<2
52	HS18120646-10	SAMP	12-23-2018 07:45 am	10.00	5 mL	50 mL	V122224.D	Liquid	Y	<2
53	HS18120646-12	SAMP	12-23-2018 08:10 am	10.00	5 mL	50 mL	V122225.D	Liquid	Y	<2
54	HS18120704-01	SAMP	12-23-2018 08:35 am	1.00	50 mL	50 mL	V122226.D	Liquid	Y	<2
55	HS18120704-02	SAMP	12-23-2018 09:00 am	1.00	50 mL	50 mL	V122227.D	Liquid	Y	<2
56	HS18120704-03	SAMP	12-23-2018 09:25 am	1.00	50 mL	50 mL	V122228.D	Liquid	Y	<2

Chemical	Value
SURR SPK ID	30502-52-03
IS ID	30502-52-04
LCS/MS ID	30603-46-01
CAL STD ID	30502-56-01/02
BFB ID	30502-52-03

FORM 2
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS18120736

	CLIENT SAMPLE NO.	SMC1 (DCE)#	SMC2 #	SMC3 (TOL)#	OTHER #	TOT OUT
01	VLCSW-181222	106	103	102	102	0
02	VBLKW-181222	93	87	105	98	0
03	HS18120927-0	91	90	105	102	0
04	HS18120927-0	92	89	106	104	0
05	HS18120736-0	95	92	104	97	0
06	HS18120736-0	95	90	106	99	0
07	HS18120736-0	97	92	105	97	0
08	HS18120736-0	96	91	105	97	0
09						
10						
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28						

		QC LIMITS
SMC1 (DCE)	= 1,2-Dichloroethane-d4	(0-130)
SMC2	= Dibromofluoromethane	(0-130)
SMC3 (TOL)	= Toluene-d8	(0-130)
OTHER	= 4-Bromofluorobenzene	(0-130)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

FORM 4
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

VBLKW-181222

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS18120736

Lab File ID: U122205 Lab Sample ID: VBLKW-181222

Date Analyzed: 12/22/18 Time Analyzed: 1218

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: VOA9

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VLCSW-181222	VLCSW-1812022	U122203	1128
02	HS18120927-0	HS18120927-05M	U122209	1357
03	HS18120927-0	HS18120927-05M	U122210	1422
04	HS18120736-0	HS18120736-02	U122223	1944
05	HS18120736-0	HS18120736-01	U122224	2009
06	HS18120736-0	HS18120736-03	U122225	2033
07	HS18120736-0	HS18120736-04	U122226	2058
08				
09				
10				
11				
12				
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14				
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22				
23				
24				
25				
26				
27				
28				
29				
30				

COMMENTS:

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS18120736

Lab File ID: U122201 BFB Injection Date: 12/22/18

Instrument ID: VOA9 BFB Injection Time: 1039

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	19.2
75	30.0 - 60.0% of mass 95	50.3
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.1
173	Less than 2.0% of mass 174	0.6 (0.9)1
174	Greater than 50.0% of mass 95	67.4
175	5.0 - 9.0% of mass 174	5.1 (7.6)1
176	95.0 - 101.0% of mass 174	65.0 (96.4)1
177	5.0 - 9.0% of mass 176	4.3 (6.6)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD050	VSTD050	U122202	12/22/18	1103
02	VLCSW-181222	VLCSW-1812022	U122203	12/22/18	1128
03	VBLKW-181222	VBLKW-181222	U122205	12/22/18	1218
04	HS18120927-0	HS18120927-05M	U122209	12/22/18	1357
05	HS18120927-0	HS18120927-05M	U122210	12/22/18	1422
06	HS18120736-0	HS18120736-02	U122223	12/22/18	1944
07	HS18120736-0	HS18120736-01	U122224	12/22/18	2009
08	HS18120736-0	HS18120736-03	U122225	12/22/18	2033
09	HS18120736-0	HS18120736-04	U122226	12/22/18	2058
10	VSTD050-END	VSTD050-END	U122228	12/22/18	2147
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS18120736

Instrument ID: VOA9 Calibration Date: 12/22/18 Time: 1103

Lab File ID: U122202 Init. Calib. Date(s): 12/21/18 12/21/18

Init. Calib. Times: 1349 1755

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
cis-1,3-Dichloropropene	48.764951	50.000000	0.5277837	0.2	2.47	20.00	LINR
trans-1,3-Dichloropropene	48.330215	50.000000	0.4524389	0.1	3.34	20.00	LINR
1,3-Dichlorobenzene	1.4850000	1.4390608	1.4390608	0.6	3.09	20.00	AVRG
2,2-Dichloropropane	0.6490000	0.5274239	0.5274239	0.1	18.73	20.00	AVRG
1,1-Dichloropropene	0.4450000	0.4255397	0.4255397	0.1	4.37	20.00	AVRG
Dibromomethane	0.2040000	0.2102588	0.2102588	0.1	-3.07	20.00	AVRG
1,2-Dibromoethane	0.3430000	0.3596375	0.3596375	0.1	-4.85	20.00	AVRG
trans-1,2-Dichloroethene	0.5850000	0.5756573	0.5756573	0.1	1.60	20.00	AVRG
1,1,1,2-Tetrachloroethane	48.888847	50.000000	0.3074071	0.1	2.22	20.00	LINR
1,1,1-Trichloroethane	0.7890000	0.7953628	0.7953628	0.1	-0.81	20.00	AVRG
1,1,2,2-Tetrachloroethane	1.1260000	1.1459592	1.1459592	0.3	-1.77	20.00	AVRG
Freon TF	0.4250000	0.3885645	0.3885645	0.1	8.57	20.00	AVRG
1,1,2-Trichloroethane	0.2980000	0.3049414	0.3049414	0.1	-2.33	20.00	AVRG
1,1-Dichloroethane	1.0770000	1.0657707	1.0657707	0.2	1.04	20.00	AVRG
1,1-Dichloroethene	0.4750000	0.4572196	0.4572196	0.1	3.74	20.00	AVRG
Trichlorofluoromethane	50.804434	50.000000	0.7968663	0.1	-1.61	20.00	LINR
1,2,3-Trichlorobenzene	47.722858	50.000000	0.9049339	0.1	4.55	20.00	LINR
Toluene	1.4870000	1.4923025	1.4923025	0.4	-0.36	20.00	AVRG
1,2,4-Trichlorobenzene	0.9260000	0.9161280	0.9161280	0.2	1.07	20.00	AVRG
1,2,4-Trimethylbenzene	2.6160000	2.6459268	2.6459268	0.1	-1.14	20.00	AVRG
Tetrachloroethene	0.2620000	0.2355687	0.2355687	0.2	10.09	20.00	AVRG
Trichloroethene	0.3210000	0.3088790	0.3088790	0.2	3.78	20.00	AVRG
1,2-Dichlorobenzene	1.4840000	1.4508495	1.4508495	0.4	2.23	20.00	AVRG
1,2-Dichloroethane	51.153481	50.000000	0.4649868	0.1	-2.31	20.00	LINR
1,2-Dichloropropane	0.3530000	0.3509230	0.3509230	0.1	0.59	20.00	AVRG
1,3,5-Trimethylbenzene	2.5130000	2.5151502	2.5151502	0.1	-0.08	20.00	AVRG
1,3-Dichloropropane	0.6410000	0.6561811	0.6561811	0.1	-2.37	20.00	AVRG
1,4-Dichlorobenzene	1.5660000	1.4842464	1.4842464	0.4	5.22	20.00	AVRG
2-Butanone	100.05221	100.00000	0.3462225	0.1	-0.05	20.00	LINR
2-Chlorotoluene	2.3040000	2.2780427	2.2780427	0.1	1.13	20.00	AVRG
2-Hexanone	0.2780000	0.3092444	0.3092444	0.1	-11.24	20.00	AVRG
4-Chlorotoluene	2.6620000	2.6521022	2.6521022	0.1	0.37	20.00	AVRG
tert-Butylbenzene	2.1720000	2.1285396	2.1285396	0.1	2.00	20.00	AVRG
4-Methyl-2-Pentanone	0.4000000	0.4316568	0.4316568	0.1	-7.91	20.00	AVRG
Acetone	104.18702	100.00000	0.2452801	0.1	-4.19	20.00	LINR
Benzene	1.3300000	1.3215973	1.3215973	0.5	0.63	20.00	AVRG
Bromobenzene	0.7730000	0.7756938	0.7756938	0.1	-0.35	20.00	AVRG
Bromochloromethane	58.115547	50.000000	0.2998792	0.1	-16.23	20.00	LINR
Bromodichloromethane	0.3760000	0.3920147	0.3920147	0.2	-4.26	20.00	AVRG
Bromoform	48.045782	50.000000	0.2040281	0.1	3.91	20.00	LINR
Bromomethane	50.484275	50.000000	0.1972688	0.1	-0.97	20.00	LINR
Carbon Disulfide	1.7320000	1.6858883	1.6858883	0.1	2.66	20.00	AVRG

FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS1812073

Instrument ID: VOA9 Calibration Date: 12/22/18 Time: 1103

Lab File ID: U122202 Init. Calib. Date(s): 12/21/18 12/21/18

Init. Calib. Times: 1349 1755

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Carbon Tetrachloride	48.386486	50.000000	0.3302381	0.1	3.23	20.00	LINR
Chlorobenzene	0.9610000	0.9453081	0.9453081	0.5	1.63	20.00	AVRG
Chloroethane	48.626371	50.000000	0.4227912	0.1	2.75	20.00	2RDR
Chloroform	1.0370000	1.0359967	1.0359967	0.2	0.10	20.00	AVRG
Chloromethane	49.758168	50.000000	0.4333563	0.1	0.48	20.00	LINR
cis-1,2-Dichloroethene	0.6570000	0.6580261	0.6580261	0.1	-0.16	20.00	AVRG
Dibromochloromethane	48.766356	50.000000	0.3261819	0.1	2.47	20.00	LINR
Dichlorodifluoromethane	49.534880	50.000000	0.5519381	0.1	0.93	20.00	LINR
Ethylbenzene	0.4930000	0.4828480	0.4828480	0.1	2.06	20.00	AVRG
Hexachlorobutadiene	0.3550000	0.2979790	0.2979790	0.1	16.06	20.00	AVRG
Isopropylbenzene	1.4220000	1.4082826	1.4082826	0.1	0.96	20.00	AVRG
m,p-Xylenes	0.6060000	0.6004248	0.6004248	0.1	0.92	20.00	AVRG
Methylene Chloride	51.585216	50.000000	0.6349337	0.1	-3.17	20.00	LINR
n-Butylbenzene	2.5530000	2.3941048	2.3941048	0.5	6.22	20.00	AVRG
n-Propylbenzene	3.7360000	3.6918689	3.6918689	0.1	1.18	20.00	AVRG
Naphthalene	48.387582	50.000000	3.0564916	0.2	3.22	20.00	2RDR
o-Xylene	0.6110000	0.6136959	0.6136959	0.3	-0.44	20.00	AVRG
sec-Butylbenzene	3.1400000	3.0685275	3.0685275	0.1	2.28	20.00	AVRG
Styrene	1.0150000	1.0735114	1.0735114	0.3	-5.76	20.00	AVRG
Vinyl Chloride	49.231582	50.000000	0.6535542	0.1	1.54	20.00	LINR
1,2,3-Trichloropropane	1.1710000	1.2279091	1.2279091	0.1	-4.86	20.00	AVRG
p-Isopropyltoluene	2.6460000	2.6046501	2.6046501	0.1	1.56	20.00	AVRG
1,2-Dibromo-3-Chloropropane	46.724517	50.000000	0.1676998	0.05	6.55	20.00	LINR
1,2-Dichloroethane-d4	51.432208	50.000000	0.7432890	0.1	-2.86	20.00	LINR
Dibromofluoromethane	51.809400	50.000000	0.5693840	0.1	-3.62	20.00	LINR
Toluene-d8	51.230451	50.000000	1.3489865	0.1	-2.46	20.00	LINR
4-Bromofluorobenzene	51.316453	50.000000	0.5096516	0.1	-2.63	20.00	LINR

FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS18120736

Instrument ID: VOA9 Calibration Date: 12/22/18 Time: 2147

Lab File ID: U122228 Init. Calib. Date(s): 12/21/18 12/21/18

Init. Calib. Times: 1349 1755

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
cis-1,3-Dichloropropene	46.317778	50.000000	0.5277837	0.2	7.36	50.00	LINR
trans-1,3-Dichloropropene	46.193050	50.000000	0.4524389	0.1	7.61	50.00	LINR
1,3-Dichlorobenzene	1.4850000	1.4390608	1.4390608	0.6	3.09	50.00	AVRG
2,2-Dichloropropane	0.6490000	0.5274239	0.5274239	0.1	18.73	50.00	AVRG
1,1-Dichloropropene	0.4450000	0.4255397	0.4255397	0.1	4.37	50.00	AVRG
Dibromomethane	0.2040000	0.2102588	0.2102588	0.1	-3.07	50.00	AVRG
1,2-Dibromoethane	0.3430000	0.3596375	0.3596375	0.1	-4.85	50.00	AVRG
trans-1,2-Dichloroethene	0.5850000	0.5756573	0.5756573	0.1	1.60	50.00	AVRG
1,1,1,2-Tetrachloroethane	48.462204	50.000000	0.3074071	0.1	3.08	50.00	LINR
1,1,1-Trichloroethane	0.7890000	0.7953628	0.7953628	0.1	-0.81	50.00	AVRG
1,1,2,2-Tetrachloroethane	1.1260000	1.1459592	1.1459592	0.3	-1.77	50.00	AVRG
Freon TF	0.4250000	0.3885645	0.3885645	0.1	8.57	50.00	AVRG
1,1,2-Trichloroethane	0.2980000	0.3049414	0.3049414	0.1	-2.33	50.00	AVRG
1,1-Dichloroethane	1.0770000	1.0657707	1.0657707	0.2	1.04	50.00	AVRG
1,1-Dichloroethene	0.4750000	0.4572196	0.4572196	0.1	3.74	50.00	AVRG
Trichlorofluoromethane	48.367931	50.000000	0.7968663	0.1	3.26	50.00	LINR
1,2,3-Trichlorobenzene	48.047881	50.000000	0.9049339	0.1	3.90	50.00	LINR
Toluene	1.4870000	1.4923025	1.4923025	0.4	-0.36	50.00	AVRG
1,2,4-Trichlorobenzene	0.9260000	0.9161280	0.9161280	0.2	1.07	50.00	AVRG
1,2,4-Trimethylbenzene	2.6160000	2.6459268	2.6459268	0.1	-1.14	50.00	AVRG
Tetrachloroethene	0.2620000	0.2355687	0.2355687	0.2	10.09	50.00	AVRG
Trichloroethene	0.3210000	0.3088790	0.3088790	0.2	3.78	50.00	AVRG
1,2-Dichlorobenzene	1.4840000	1.4508495	1.4508495	0.4	2.23	50.00	AVRG
1,2-Dichloroethane	51.633261	50.000000	0.4649868	0.1	-3.27	50.00	LINR
1,2-Dichloropropane	0.3530000	0.3509230	0.3509230	0.1	0.59	50.00	AVRG
1,3,5-Trimethylbenzene	2.5130000	2.5151502	2.5151502	0.1	-0.08	50.00	AVRG
1,3-Dichloropropane	0.6410000	0.6561811	0.6561811	0.1	-2.37	50.00	AVRG
1,4-Dichlorobenzene	1.5660000	1.4842464	1.4842464	0.4	5.22	50.00	AVRG
2-Butanone	106.02705	100.00000	0.3462225	0.1	-6.03	50.00	LINR
2-Chlorotoluene	2.3040000	2.2780427	2.2780427	0.1	1.13	50.00	AVRG
2-Hexanone	0.2780000	0.3092444	0.3092444	0.1	-11.24	50.00	AVRG
4-Chlorotoluene	2.6620000	2.6521022	2.6521022	0.1	0.37	50.00	AVRG
tert-Butylbenzene	2.1720000	2.1285396	2.1285396	0.1	2.00	50.00	AVRG
4-Methyl-2-Pentanone	0.4000000	0.4316568	0.4316568	0.1	-7.91	50.00	AVRG
Acetone	126.43639	100.00000	0.2452801	0.1	-26.44	50.00	LINR
Benzene	1.3300000	1.3215973	1.3215973	0.5	0.63	50.00	AVRG
Bromobenzene	0.7730000	0.7756938	0.7756938	0.1	-0.35	50.00	AVRG
Bromochloromethane	57.657205	50.000000	0.2998792	0.1	-15.31	50.00	LINR
Bromodichloromethane	0.3760000	0.3920147	0.3920147	0.2	-4.26	50.00	AVRG
Bromoform	47.620905	50.000000	0.2040281	0.1	4.76	50.00	LINR
Bromomethane	32.427445	50.000000	0.1972688	0.1	35.14	50.00	LINR
Carbon Disulfide	1.7320000	1.6858883	1.6858883	0.1	2.66	50.00	AVRG

FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS1812073

Instrument ID: VOA9 Calibration Date: 12/22/18 Time: 2147

Lab File ID: U122228 Init. Calib. Date(s): 12/21/18 12/21/18

Init. Calib. Times: 1349 1755

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Carbon Tetrachloride	45.536719	50.000000	0.3302381	0.1	8.93	50.00	LINR
Chlorobenzene	0.9610000	0.9453081	0.9453081	0.5	1.63	50.00	AVRG
Chloroethane	47.734383	50.000000	0.4227912	0.1	4.53	50.00	2RDR
Chloroform	1.0370000	1.0359967	1.0359967	0.2	0.10	50.00	AVRG
Chloromethane	41.401789	50.000000	0.4333563	0.1	17.20	50.00	LINR
cis-1,2-Dichloroethene	0.6570000	0.6580261	0.6580261	0.1	-0.16	50.00	AVRG
Dibromochloromethane	49.645964	50.000000	0.3261819	0.1	0.71	50.00	LINR
Dichlorodifluoromethane	44.906322	50.000000	0.5519381	0.1	10.19	50.00	LINR
Ethylbenzene	0.4930000	0.4828480	0.4828480	0.1	2.06	50.00	AVRG
Hexachlorobutadiene	0.3550000	0.2979790	0.2979790	0.1	16.06	50.00	AVRG
Isopropylbenzene	1.4220000	1.4082826	1.4082826	0.1	0.96	50.00	AVRG
m,p-Xylenes	0.6060000	0.6004248	0.6004248	0.1	0.92	50.00	AVRG
Methylene Chloride	51.407764	50.000000	0.6349337	0.1	-2.82	50.00	LINR
n-Butylbenzene	2.5530000	2.3941048	2.3941048	0.5	6.22	50.00	AVRG
n-Propylbenzene	3.7360000	3.6918689	3.6918689	0.1	1.18	50.00	AVRG
Naphthalene	50.195677	50.000000	3.0564916	0.2	-0.39	50.00	2RDR
o-Xylene	0.6110000	0.6136959	0.6136959	0.3	-0.44	50.00	AVRG
sec-Butylbenzene	3.1400000	3.0685275	3.0685275	0.1	2.28	50.00	AVRG
Styrene	1.0150000	1.0735114	1.0735114	0.3	-5.76	50.00	AVRG
Vinyl Chloride	46.280143	50.000000	0.6535542	0.1	7.44	50.00	LINR
1,2,3-Trichloropropane	1.1710000	1.2279091	1.2279091	0.1	-4.86	50.00	AVRG
p-Isopropyltoluene	2.6460000	2.6046501	2.6046501	0.1	1.56	50.00	AVRG
1,2-Dibromo-3-Chloropropane	48.342831	50.000000	0.1676998	0.05	3.31	50.00	LINR
1,2-Dichloroethane-d4	52.624152	50.000000	0.7432890	0.1	-5.25	50.00	LINR
Dibromofluoromethane	51.646605	50.000000	0.5693840	0.1	-3.29	50.00	LINR
Toluene-d8	52.321114	50.000000	1.3489865	0.1	-4.64	50.00	LINR
4-Bromofluorobenzene	51.898862	50.000000	0.5096516	0.1	-3.80	50.00	LINR

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS18120736

Lab File ID (Standard): U122202 Date Analyzed: 12/22/18

Instrument ID: VOA9 Time Analyzed: 1103

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS1(DCB) AREA #	IS1(DCB) RT #	IS2(CBZ) AREA #	IS2(CBZ) RT #	IS3(DFB) AREA #	IS3(DFB) RT #
	12 HOUR STD	368700	10.24	765245	8.25	822201	5.63
	UPPER LIMIT	737400	10.74	1530490	8.75	1644402	6.13
	LOWER LIMIT	184350	9.74	382623	7.75	411101	5.13
	CLIENT SAMPLE NO.						
01	VLCSW-181222	366132	10.24	755224	8.25	814375	5.63
02	VBLKW-181222	284398	10.24	615766	8.25	677477	5.63
03	HS18120927-0	295823	10.24	616476	8.25	673318	5.63
04	HS18120927-0	298917	10.24	614956	8.25	673270	5.63
05	HS18120736-0	263483	10.24	578447	8.25	637768	5.63
06	HS18120736-0	278883	10.24	593620	8.25	663881	5.63
07	HS18120736-0	267846	10.24	592573	8.25	650451	5.63
08	HS18120736-0	260663	10.24	572649	8.25	636669	5.63
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (CBZ) = Chlorobenzene-d5
IS3 (DFB) = 1,4-Difluorobenzene

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM VIII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS18120736

Lab File ID (Standard): U122202 Date Analyzed: 12/22/18

Instrument ID: VOA9 Time Analyzed: 1103

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

	CLIENT SAMPLE NO.	IS4 AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	439937	4.90				
	UPPER LIMIT	879874	5.40				
	LOWER LIMIT	219969	4.40				
01	VLCSW-181222	431862	4.90				
02	VBLKW-181222	393752	4.89				
03	HS18120927-0	395043	4.89				
04	HS18120927-0	396082	4.90				
05	HS18120736-0	363207	4.90				
06	HS18120736-0	376694	4.90				
07	HS18120736-0	369842	4.89				
08	HS18120736-0	362538	4.90				
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

IS4 = Pentafluorobenzene

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM VIII VOA

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122201.D

Date : 22-DEC-2018 10:39

Client ID: BFB

Instrument: VOA9.i

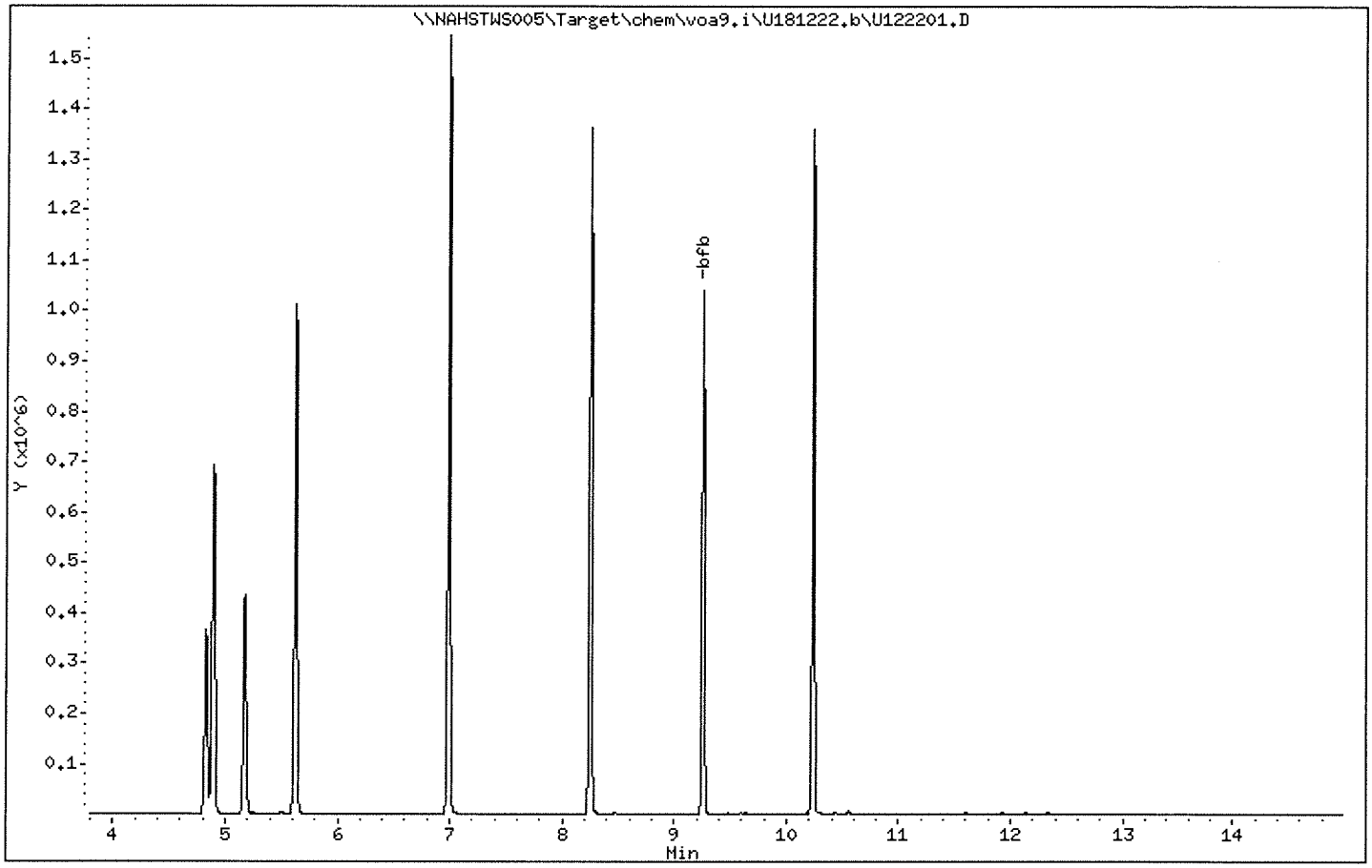
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122201.D Page 2

Date : 22-DEC-2018 10:39

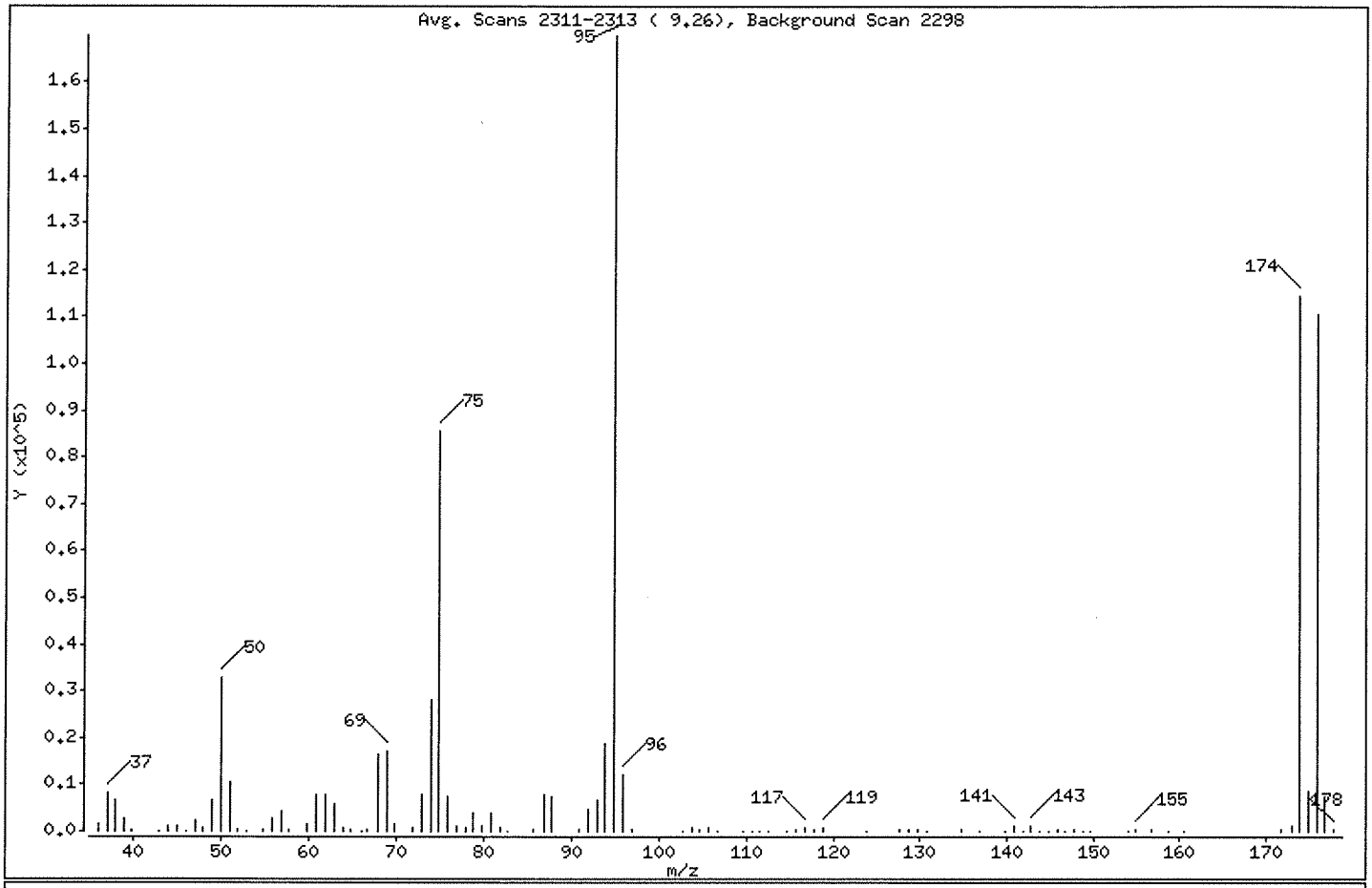
Client ID: BFB Instrument: VOA9.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0 Operator: PC

Column phase: DB624 Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	19.23
75	30.00 - 60.00% of mass 95	50.31
96	5.00 - 9.00% of mass 95	7.08
173	Less than 2.00% of mass 174	0.60 (0.89)
174	Greater than 50.00% of mass 95	67.35
175	5.00 - 9.00% of mass 174	5.09 (7.56)
176	95.00 - 101.00% of mass 174	64.96 (96.45)
177	5.00 - 9.00% of mass 176	4.26 (6.57)

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122201.D

Date : 22-DEC-2018 10:39

Client ID: BFB

Instrument: VOA9.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

Data File: U122201.D

Spectrum: Avg. Scans 2311-2313 (9.26), Background Scan 2298

Location of Maximum: 94.95

Number of points: 97

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	1436	64.90	473	94.90	169920	140.80	1142
37.00	8335	66.00	65	95.90	12036	141.80	190
38.00	6727	66.80	360	96.90	334	142.70	1124
39.00	2833	67.90	16488	102.70	61	143.60	73
39.90	481	68.90	17088	103.80	640	144.60	132
43.00	60	69.90	1514	104.70	221	145.70	201
44.00	1090	71.90	926	105.70	599	146.60	118
45.00	1308	72.90	7652	106.70	135	147.60	290
46.00	147	73.90	28112	109.70	74	148.70	73
47.00	2212	74.90	85488	110.70	129	149.60	127
47.90	971	75.90	7517	111.60	55	153.80	66
49.00	6786	76.90	1131	112.60	99	154.80	311
50.00	32672	77.90	730	114.70	104	156.60	265
51.00	10467	78.80	3950	115.80	539	158.70	146
51.90	456	79.90	1163	116.80	938	160.60	149
52.90	88	80.80	4033	117.80	500	171.70	501
54.90	440	81.90	901	118.80	628	172.80	1014
55.90	2592	82.80	72	123.90	64	173.70	114448
56.90	4484	85.70	203	127.70	526	174.70	8654
57.80	218	86.90	7752	128.70	236	175.70	110384
59.90	1552	87.80	7334	129.70	465	176.70	7247
60.90	7770	90.80	576	130.80	191	177.70	247
62.00	7739	91.90	4523	134.70	239		
63.00	5671	92.90	6720	136.70	158		
63.90	616	93.90	18800	139.60	57		

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122202.D Page 1
Report Date: 28-Jan-2019 13:52

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122202.D
Lab Smp Id: VSTD050 Client Smp ID: VSTD050
Inj Date : 22-DEC-2018 11:03
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD050;VSTD050;2;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181222.b\8260C.m
Meth Date : 28-Jan-2019 13:52 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 2 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

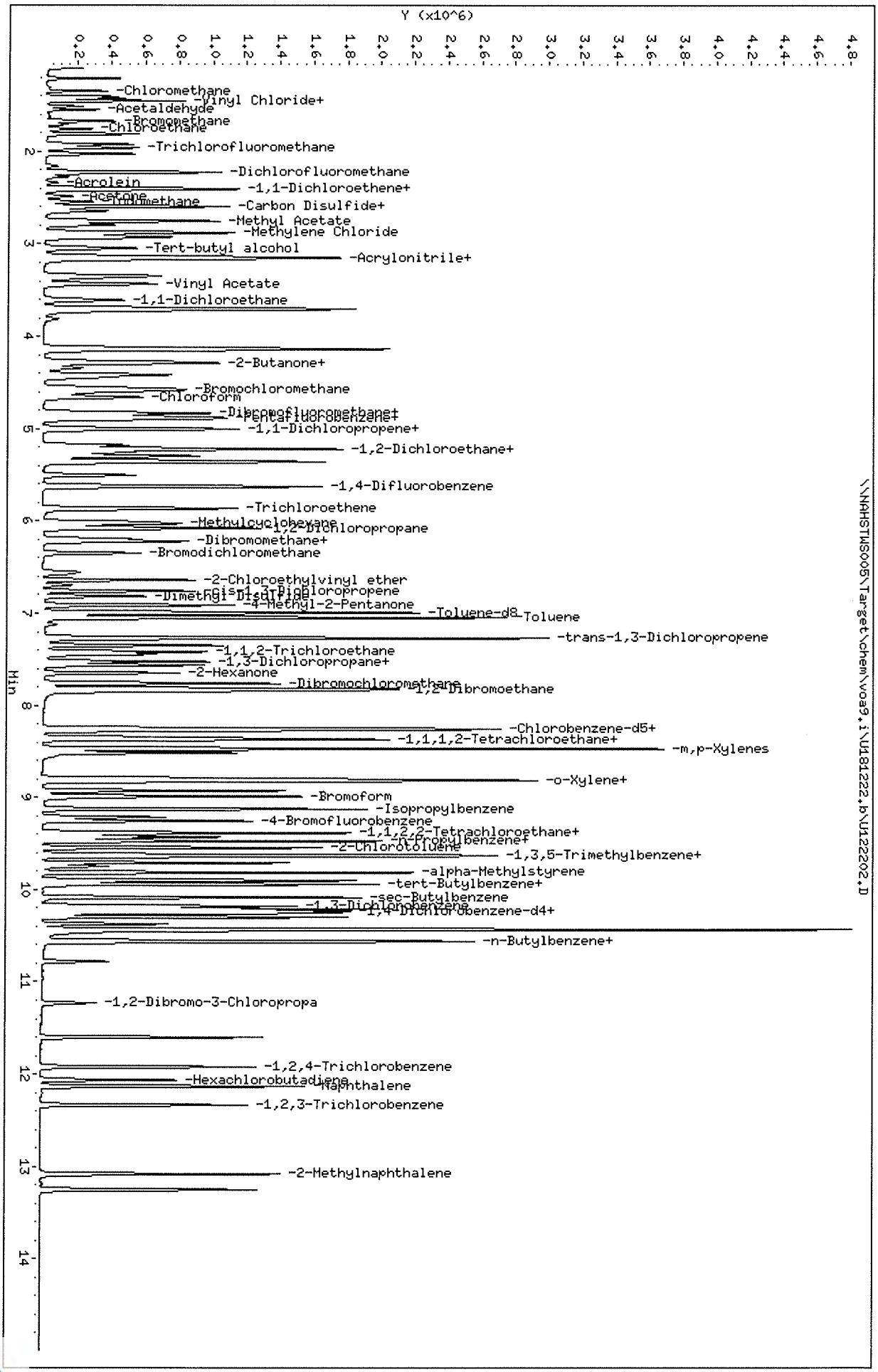
		QUANT SIG					AMOUNTS	
	Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/l)	ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.897	4.897	(1.000)	439937	50.0000	
*	36 1,4-Difluorobenzene	114	5.628	5.628	(1.000)	822201	50.0000	
*	47 Chlorobenzene-d5	117	8.249	8.249	(1.000)	765245	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	368700	50.0000	
$	30 Dibromofluoromethane	113	4.834	4.834	(0.987)	251260	50.0000	51.80
$	35 1,2-Dichloroethane-d4	65	5.179	5.179	(1.057)	319887	50.0000	51.43
$	48 Toluene-d8	98	6.989	6.989	(0.847)	1011496	50.0000	51.23
$	69 4-Bromofluorobenzene	95	9.257	9.257	(1.122)	385749	50.0000	51.31
	60 1,1,1,2-Tetrachloroethane	131	8.350	8.350	(1.012)	237338	50.0000	48.88
	31 1,1,1-Trichloroethane	97	4.830	4.830	(0.986)	365717	50.0000	52.64
	68 1,1,2,2-Tetrachloroethane	83	9.392	9.392	(0.918)	399095	50.0000	48.06
	138 Freon TF	101	2.408	2.408	(0.492)	192741	50.0000	51.53
	53 1,1,2-Trichloroethane	83	7.420	7.420	(0.900)	226319	50.0000	49.64
	22 1,1-Dichloroethane	63	3.608	3.608	(0.737)	473232	50.0000	49.94
	11 1,1-Dichloroethene	96	2.405	2.405	(0.491)	206895	50.0000	49.46
	32 1,1-Dichloropropene	75	5.006	5.006	(0.889)	368445	50.0000	50.36
	93 1,2,3-Trichlorobenzene	180	12.335	12.335	(1.205)	331362	50.0000	47.72
	71 1,2,3-Trichloropropane	75	9.426	9.426	(0.921)	443705	50.0000	51.38
	90 1,2,4-Trichlorobenzene	180	11.923	11.923	(1.165)	339651	50.0000	49.75
	79 1,2,4-Trimethylbenzene	105	9.943	9.943	(0.971)	988374	50.0000	51.22
	89 1,2-Dibromo-3-Chloropropane	155	11.233	11.233	(1.097)	59697	50.0000	46.72
	57 1,2-Dibromoethane	107	7.851	7.851	(0.952)	267661	50.0000	50.97

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122202.D Page 2
Report Date: 28-Jan-2019 13:52

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	10.573	10.573	(1.033)	527850	50.0000	48.21
33	1,2-Dichloroethane	62	5.254	5.254	(0.933)	378810	50.0000	51.15
42	1,2-Dichloropropane	63	6.082	6.082	(1.081)	289116	50.0000	49.76
75	1,3,5-Trimethylbenzene	105	9.625	9.625	(0.940)	958319	50.0000	51.71
83	1,3-Dichlorobenzene	146	10.179	10.179	(0.995)	533290	50.0000	48.70
54	1,3-Dichloropropane	76	7.563	7.563	(0.917)	489297	50.0000	49.82
84	1,4-Dichlorobenzene	146	10.254	10.254	(1.002)	547075	50.0000	47.39
26	2,2-Dichloropropane	77	4.279	4.279	(0.874)	317585	50.0000	55.62
24	2-Butanone	43	4.339	4.339	(0.886)	287851	100.000	100.05
76	2-Chlorotoluene	91	9.546	9.546	(0.933)	850436	50.0000	50.06
52	2-Hexanone	43	7.649	7.649	(0.927)	437511	100.000	102.81
77	4-Chlorotoluene	91	9.640	9.640	(0.942)	987531	50.0000	50.30
82	p-Isopropyltoluene	119	10.209	10.209	(0.997)	1008118	50.0000	51.67
45	4-Methyl-2-Pentanone	43	6.914	6.914	(0.838)	624635	100.000	102.01
10	Acetone	43	2.483	2.483	(0.507)	178725	100.000	104.18
37	Benzene	78	5.220	5.220	(0.927)	1095158	50.0000	50.05
74	Bromobenzene	156	9.381	9.381	(0.917)	283071	50.0000	49.69
29	Bromochloromethane	128	4.556	4.556	(0.930)	132923	50.0000	58.11
39	Bromodichloromethane	83	6.348	6.348	(1.128)	328321	50.0000	53.14
66	Bromoform	173	8.984	8.984	(1.089)	157578	50.0000	48.04(T)
6	Bromomethane	94	1.674	1.674	(0.342)	137192	50.0000	50.48
19	Carbon Disulfide	76	2.596	2.596	(0.530)	1379459	100.000	90.50
34	Carbon Tetrachloride	117	4.999	4.999	(0.888)	289053	50.0000	48.38
59	Chlorobenzene	112	8.275	8.275	(1.003)	729755	50.0000	49.63
7	Chloroethane	64	1.756	1.756	(0.359)	189569	50.0000	48.62(M)
28	Chloroform	83	4.661	4.661	(0.952)	458505	50.0000	50.25
3	Chloromethane	50	1.344	1.344	(0.274)	232483	50.0000	49.75
27	cis-1,2-Dichloroethene	96	4.290	4.290	(0.876)	293348	50.0000	50.72
46	cis-1,3-Dichloropropene	75	6.761	6.761	(1.201)	457515	50.0000	48.76
55	Dibromochloromethane	129	7.758	7.758	(0.940)	245098	50.0000	48.76
44	Dibromomethane	93	6.191	6.191	(1.100)	170275	50.0000	50.78
2	Dichlorodifluoromethane	85	1.209	1.209	(0.247)	268119	50.0000	49.53
61	Ethylbenzene	106	8.373	8.373	(1.015)	381042	50.0000	50.52
91	Hexachlorobutadiene	225	12.065	12.065	(1.179)	130497	50.0000	49.89
67	Isopropylbenzene	105	9.126	9.126	(1.106)	1129055	50.0000	51.88
62	m,p-Xylenes	106	8.474	8.474	(1.027)	946477	100.000	102.09
17	Methylene Chloride	84	2.877	2.877	(0.587)	280273	50.0000	51.58
87	n-Butylbenzene	91	10.558	10.558	(1.031)	951357	50.0000	50.52
73	n-Propylbenzene	91	9.475	9.475	(0.926)	1414293	50.0000	51.33
92	Naphthalene	128	12.132	12.132	(1.185)	1086132	50.0000	48.38
63	o-Xylene	106	8.811	8.811	(1.068)	476832	50.0000	50.98
81	sec-Butylbenzene	105	10.086	10.086	(0.985)	1189748	50.0000	51.38
64	Styrene	104	8.826	8.826	(1.070)	832029	50.0000	53.54
78	tert-Butylbenzene	119	9.902	9.902	(0.967)	807069	50.0000	50.39
56	Tetrachloroethene	164	7.525	7.525	(0.912)	192069	50.0000	47.94
50	Toluene	91	7.049	7.049	(0.855)	1153238	50.0000	50.66
20	trans-1,2-Dichloroethene	96	3.147	3.147	(0.643)	258990	50.0000	50.29
51	trans-1,3-Dichloropropene	75	7.263	7.263	(1.290)	389844	50.0000	48.33
38	Trichloroethene	130	5.865	5.865	(1.042)	265713	50.0000	50.30
8	Trichlorofluoromethane	101	1.959	1.959	(0.400)	368462	50.0000	50.80
5	Vinyl Chloride	62	1.426	1.426	(0.291)	306251	50.0000	49.23

QC Flag Legend

T - Target compound detected outside RT window.
M - Compound response manually integrated.



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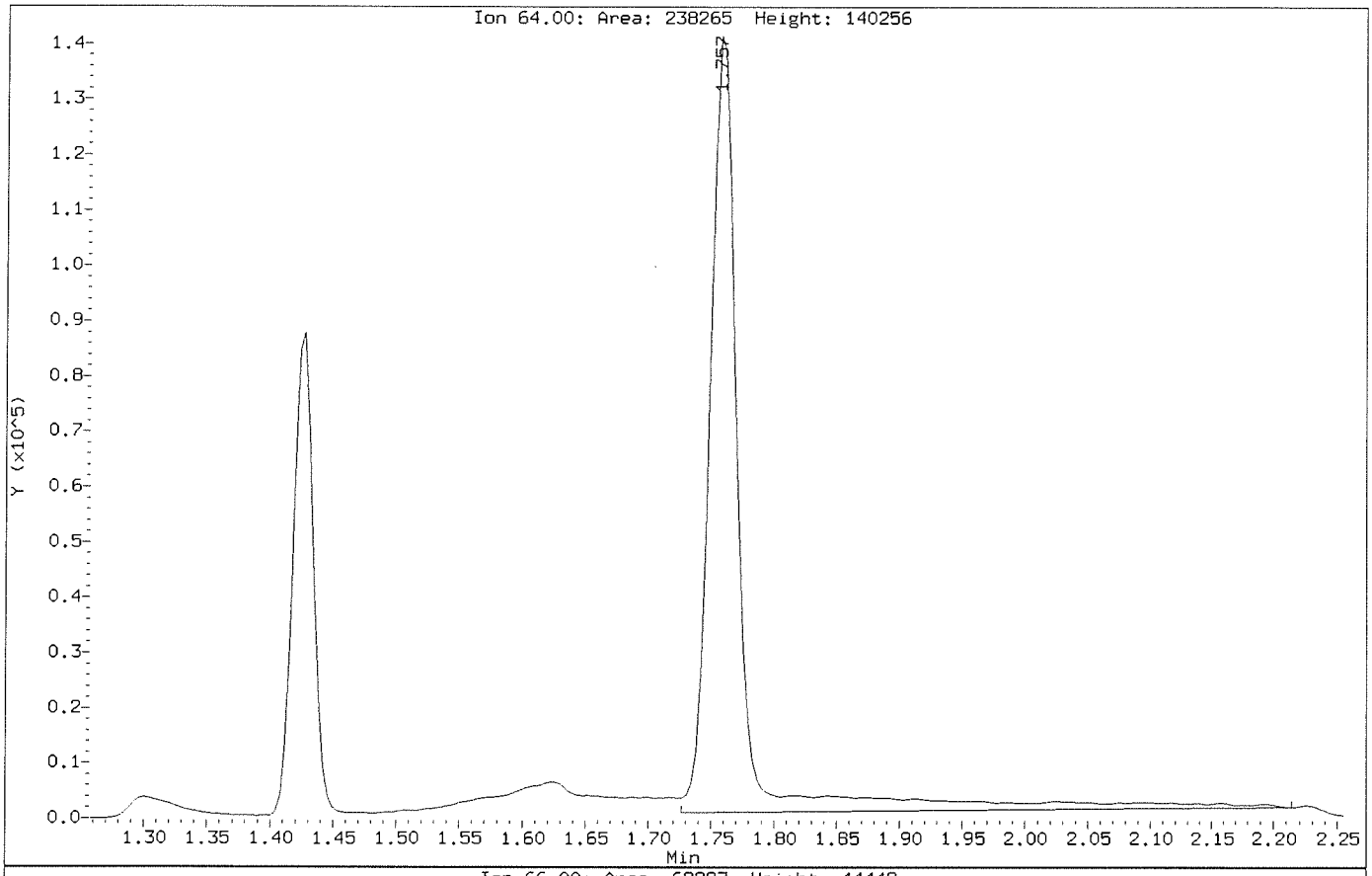
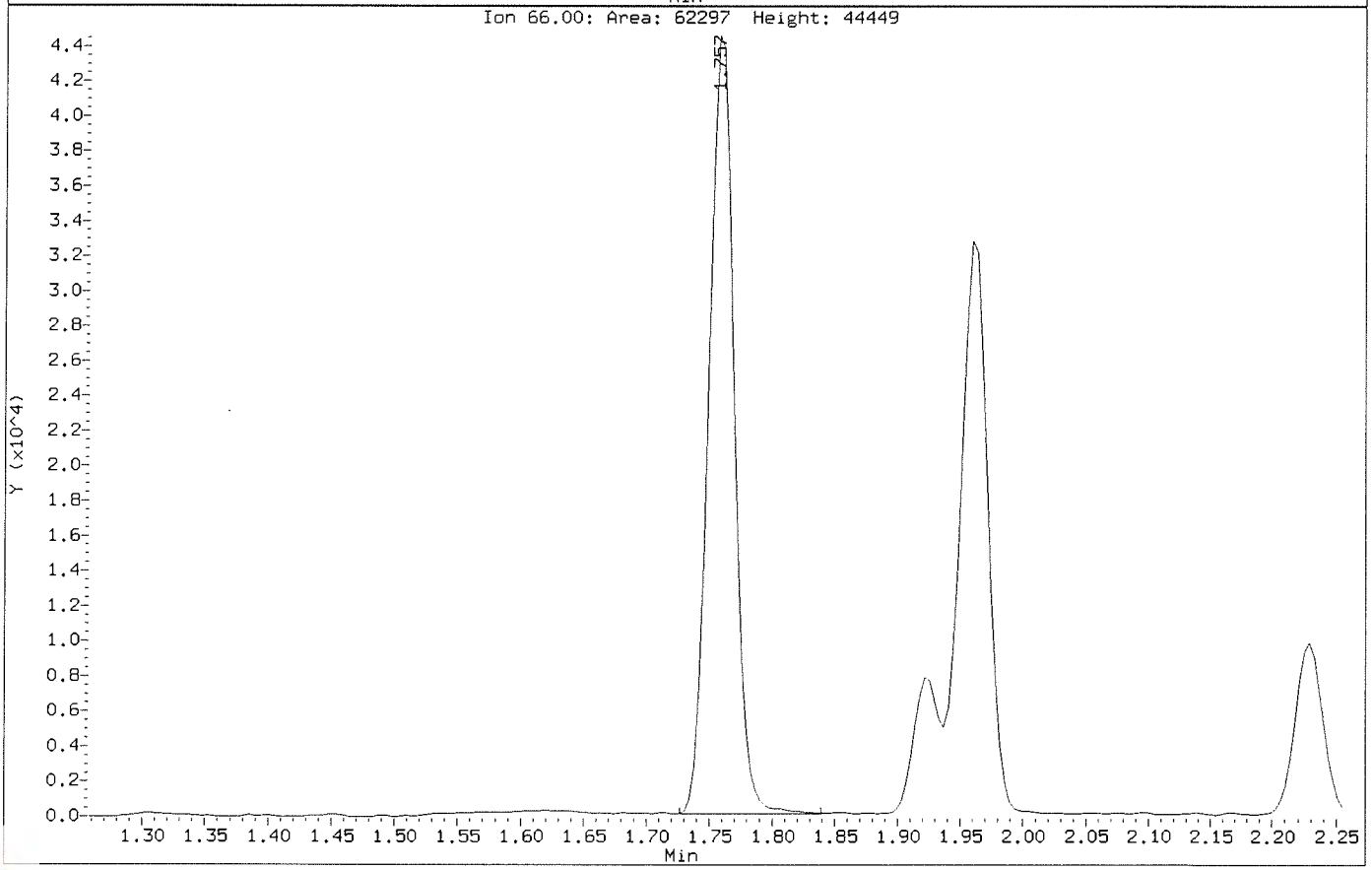
Date : 22-DEC-2018 11:03
Client ID: VSTD050
Sample Info: VSTD050;VSTD050;2;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9,i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\Before\U122202.D
Injection Date: 22-DEC-2018 11:03
Instrument: VOA9.i
Client Sample ID: VSTD050

Compound: Chloroethane
CAS Number: 75-00-3





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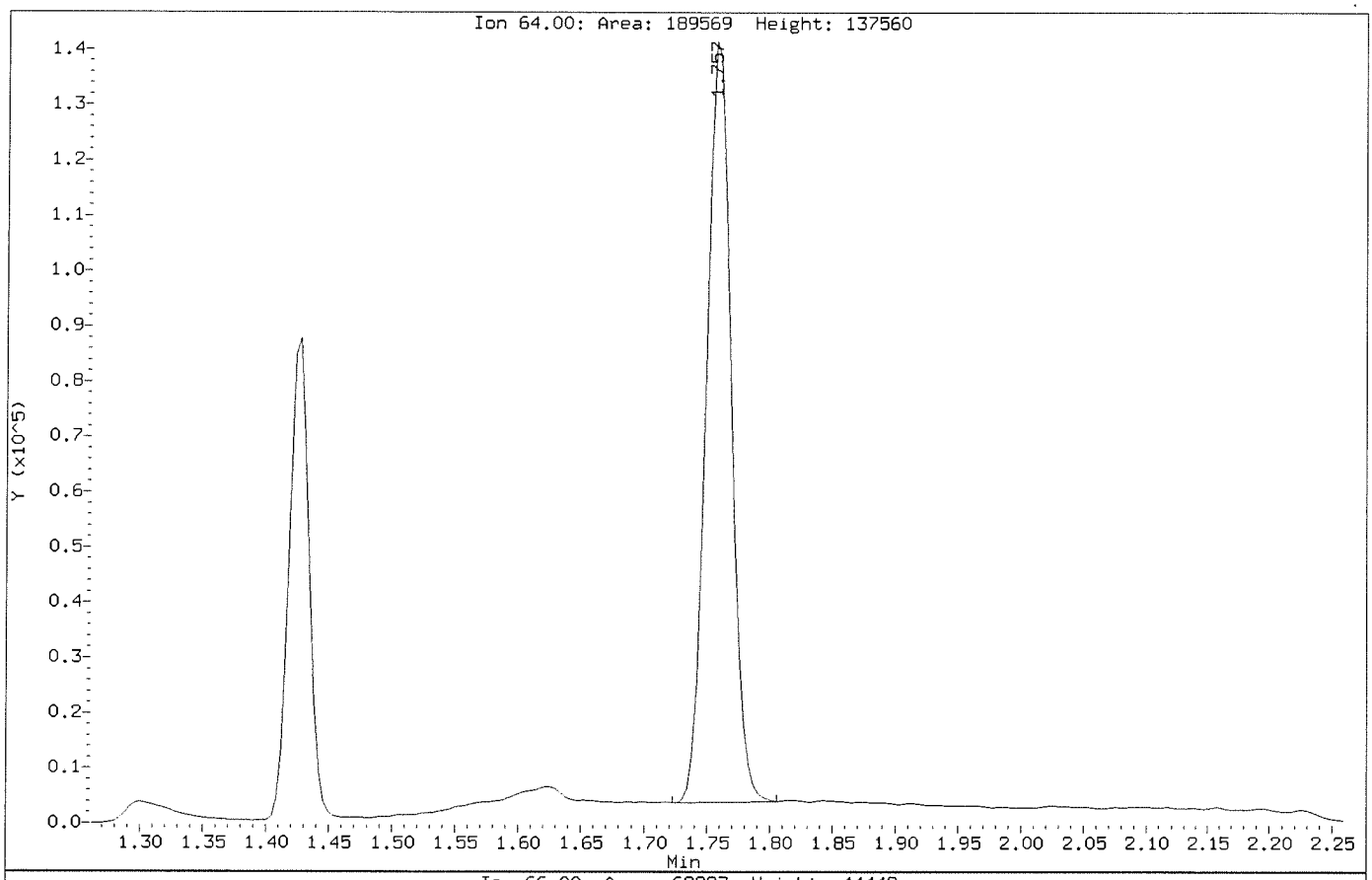
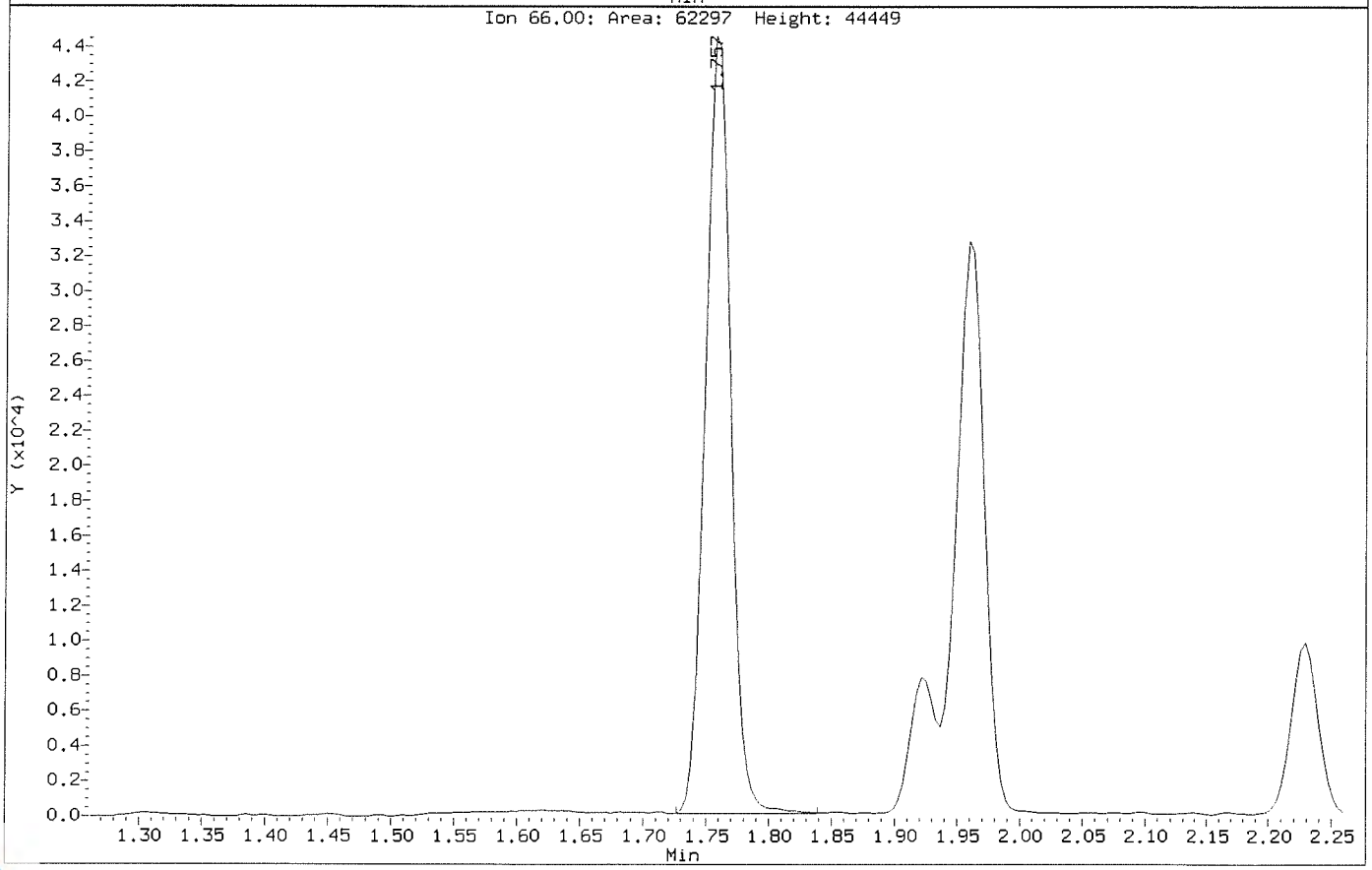
Instrument: VOA9.i
Client Sample ID: VSTD050

Compound: Chloroethane
CAS Number: 75-00-3





Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122203.D Page 1
Report Date: 28-Jan-2019 13:52

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122203.D
Lab Smp Id: VLCSW-1812022 Client Smp ID: VLCSW-181222
Inj Date : 22-DEC-2018 11:28
Operator : PC Inst ID: VOA9.i
Smp Info : VLCSW-1812022;VLCSW-181222;3;;LCS
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181222.b\8260C.m
Meth Date : 28-Jan-2019 13:52 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 3 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

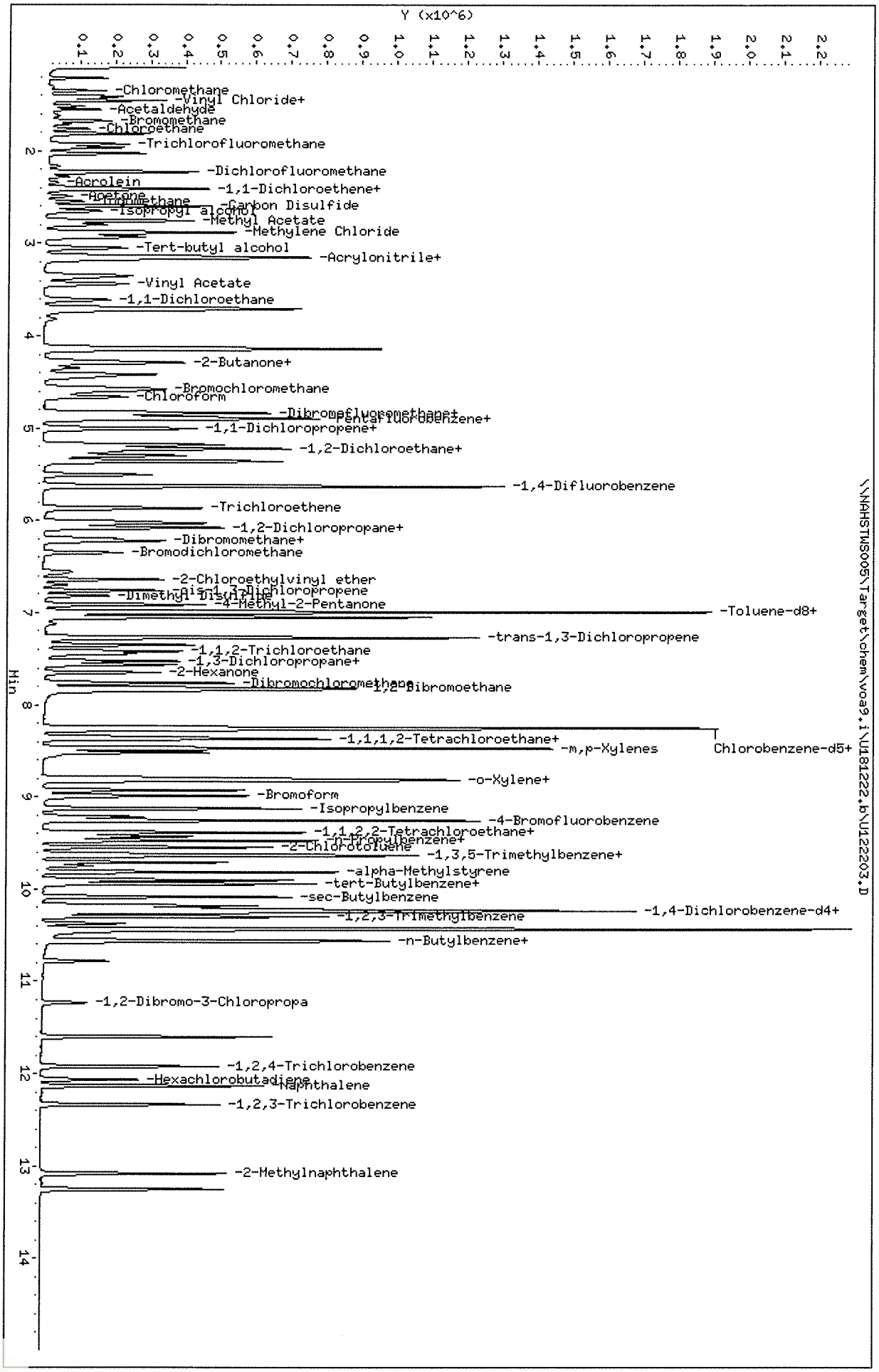
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.898	4.897	(1.000)	431862	50.0000	
* 36 1,4-Difluorobenzene	114	5.629	5.628	(1.000)	814375	50.0000	
* 47 Chlorobenzene-d5	117	8.249	8.249	(1.000)	755224	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	366132	50.0000	
$ 30 Dibromofluoromethane	113	4.834	4.834	(0.987)	245304	51.5187	51.51
$ 35 1,2-Dichloroethane-d4	65	5.179	5.179	(1.057)	323042	52.9730	52.97
$ 48 Toluene-d8	98	6.990	6.989	(0.847)	997232	51.1764	51.17
$ 69 4-Bromofluorobenzene	95	9.257	9.257	(1.122)	380376	51.2719	51.27
60 1,1,1,2-Tetrachloroethane	131	8.350	8.350	(1.012)	93491	19.8652	19.86
31 1,1,1-Trichloroethane	97	4.834	4.830	(0.987)	136533	20.0223	20.02
68 1,1,2,2-Tetrachloroethane	83	9.392	9.392	(0.918)	164920	20.0014	20.00
138 Freon TF	101	2.412	2.408	(0.493)	71338	19.4304	19.43
53 1,1,2-Trichloroethane	83	7.421	7.420	(0.900)	91176	20.2638	20.26
22 1,1-Dichloroethane	63	3.612	3.608	(0.737)	187326	20.1416	20.14
11 1,1-Dichloroethene	96	2.409	2.405	(0.492)	80193	19.5298	19.52
32 1,1-Dichloropropene	75	5.010	5.006	(0.890)	141547	19.5345	19.53
93 1,2,3-Trichlorobenzene	180	12.335	12.335	(1.205)	133430	19.7278	19.72
71 1,2,3-Trichloropropane	75	9.426	9.426	(0.921)	173074	20.1859	20.18
90 1,2,4-Trichlorobenzene	180	11.923	11.923	(1.165)	134480	19.8387	19.83
79 1,2,4-Trimethylbenzene	105	9.943	9.943	(0.971)	391337	20.4249	20.42
89 1,2-Dibromo-3-Chloropropane	155	11.233	11.233	(1.097)	23150	19.1314	19.13
57 1,2-Dibromoethane	107	7.852	7.851	(0.952)	108939	21.0208	21.02

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122203.D Page 2
Report Date: 28-Jan-2019 13:52

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
88	1,2-Dichlorobenzene	146	10.573	10.573	(1.033)	212027	19.5033	19.50
33	1,2-Dichloroethane	62	5.258	5.254	(0.934)	153542	20.4988	20.49
42	1,2-Dichloropropane	63	6.082	6.082	(1.081)	115717	20.1096	20.10
75	1,3,5-Trimethylbenzene	105	9.625	9.625	(0.940)	370755	20.1491	20.14
83	1,3-Dichlorobenzene	146	10.180	10.179	(0.995)	212305	19.5274	19.52
54	1,3-Dichloropropane	76	7.563	7.563	(0.917)	198073	20.4376	20.43
84	1,4-Dichlorobenzene	146	10.255	10.254	(1.002)	219281	19.1291	19.12
26	2,2-Dichloropropane	77	4.279	4.279	(0.874)	117240	20.9176	20.91
24	2-Butanone	43	4.343	4.339	(0.887)	122250	41.9047	41.90
76	2-Chlorotoluene	91	9.546	9.546	(0.933)	335307	19.8766	19.87
52	2-Hexanone	43	7.649	7.649	(0.927)	184006	43.8161	43.81
77	4-Chlorotoluene	91	9.640	9.640	(0.942)	394300	20.2264	20.22
82	p-Isopropyltoluene	119	10.210	10.209	(0.997)	382155	19.7249	19.72
45	4-Methyl-2-Pentanone	43	6.915	6.914	(0.838)	257059	42.5418	42.54
10	Acetone	43	2.487	2.483	(0.508)	76735	43.8673	43.86
37	Benzene	78	5.220	5.220	(0.927)	435013	20.0740	20.07
74	Bromobenzene	156	9.381	9.381	(0.917)	112974	19.9707	19.97
29	Bromochloromethane	128	4.560	4.556	(0.931)	53467	21.9767	21.97
39	Bromodichloromethane	83	6.348	6.348	(1.128)	124748	20.3863	20.38
66	Bromoform	173	8.984	8.984	(1.089)	57750	18.9492	18.94
6	Bromomethane	94	1.678	1.674	(0.343)	58636	22.7362	22.73
19	Carbon Disulfide	76	2.596	2.596	(0.530)	591894	39.5602	39.56
34	Carbon Tetrachloride	117	4.999	4.999	(0.888)	105981	18.7924	18.79
59	Chlorobenzene	112	8.275	8.275	(1.003)	289484	19.9496	19.94
7	Chloroethane	64	1.760	1.756	(0.359)	75533	20.2022	20.20(M)
28	Chloroform	83	4.662	4.661	(0.952)	180784	20.1840	20.18
3	Chloromethane	50	1.348	1.344	(0.275)	98573	23.3774	23.37
27	cis-1,2-Dichloroethene	96	4.290	4.290	(0.876)	116853	20.5852	20.58
46	cis-1,3-Dichloropropene	75	6.761	6.761	(1.201)	173404	19.4408	19.44
55	Dibromochloromethane	129	7.758	7.758	(0.940)	93036	19.3566	19.35
44	Dibromomethane	93	6.191	6.191	(1.100)	67867	20.4353	20.43
2	Dichlorodifluoromethane	85	1.213	1.209	(0.248)	102972	19.6752	19.67
61	Ethylbenzene	106	8.373	8.373	(1.015)	149559	20.0954	20.09
91	Hexachlorobutadiene	225	12.065	12.065	(1.179)	44289	17.0537	17.05
67	Isopropylbenzene	105	9.126	9.126	(1.106)	436840	20.3409	20.34
62	m,p-Xylenes	106	8.474	8.474	(1.027)	370799	40.5265	40.52
17	Methylene Chloride	84	2.881	2.877	(0.588)	112181	20.3206	20.32
87	n-Butylbenzene	91	10.555	10.558	(1.031)	352487	18.8523	18.85
73	n-Propylbenzene	91	9.475	9.475	(0.926)	546860	19.9893	19.98
92	Naphthalene	128	12.133	12.132	(1.185)	435664	19.8421	19.84
63	o-Xylene	106	8.811	8.811	(1.068)	190318	20.6189	20.61
81	sec-Butylbenzene	105	10.086	10.086	(0.985)	439895	19.1325	19.13
64	Styrene	104	8.826	8.826	(1.070)	328837	21.4434	21.44
78	tert-Butylbenzene	119	9.902	9.902	(0.967)	311840	19.6078	19.60
56	Tetrachloroethene	164	7.526	7.525	(0.912)	74662	18.8837	18.88
50	Toluene	91	7.050	7.049	(0.855)	457817	20.3787	20.37
20	trans-1,2-Dichloroethene	96	3.151	3.147	(0.643)	102347	20.2464	20.24
51	trans-1,3-Dichloropropene	75	7.263	7.263	(1.290)	144791	19.1540	19.15
38	Trichloroethene	130	5.865	5.865	(1.042)	103906	19.8615	19.86
8	Trichlorofluoromethane	101	1.963	1.959	(0.401)	141045	20.1927	20.19
5	Vinyl Chloride	62	1.426	1.426	(0.291)	121201	20.4263	20.42

QC Flag Legend

M - Compound response manually integrated.



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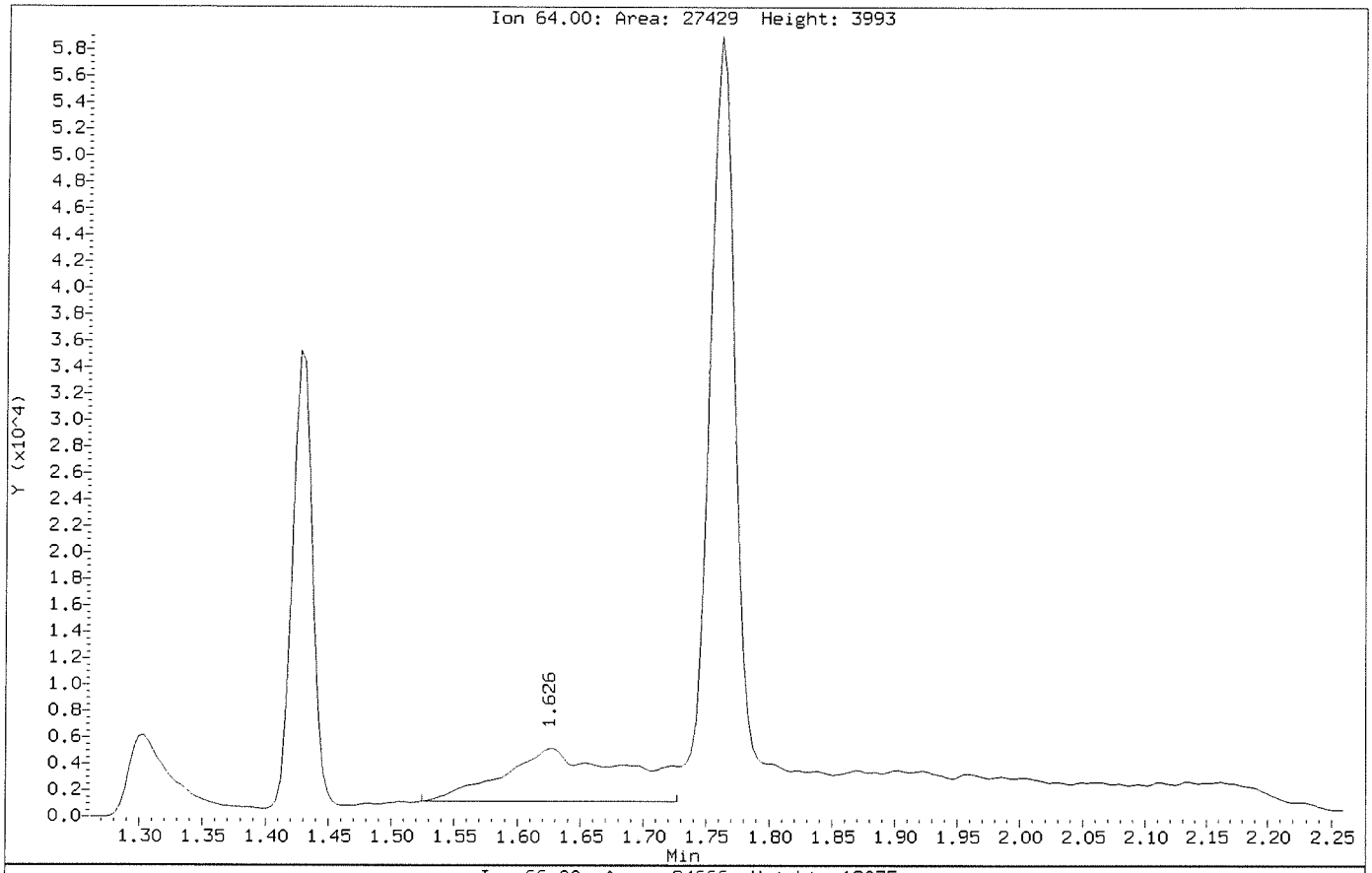
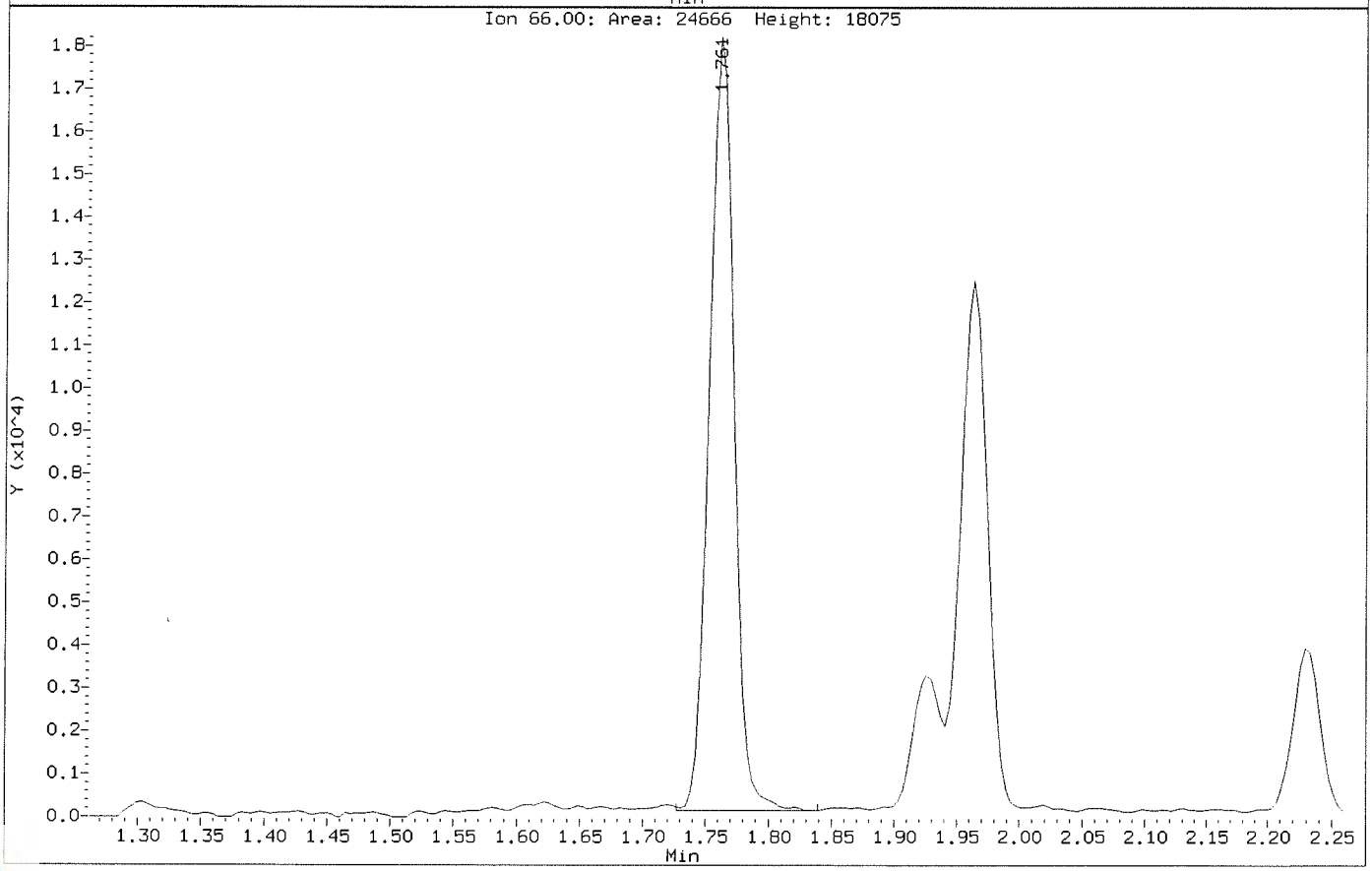
Sample Info: VLCSW-1812022;VLCSW-181222;3;;LCS
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9,i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\Before\U122203.D
Injection Date: 22-DEC-2018 11:28
Instrument: VOA9.i
Client Sample ID: VLCSW-181222

Compound: Chloroethane
CAS Number: 75-00-3





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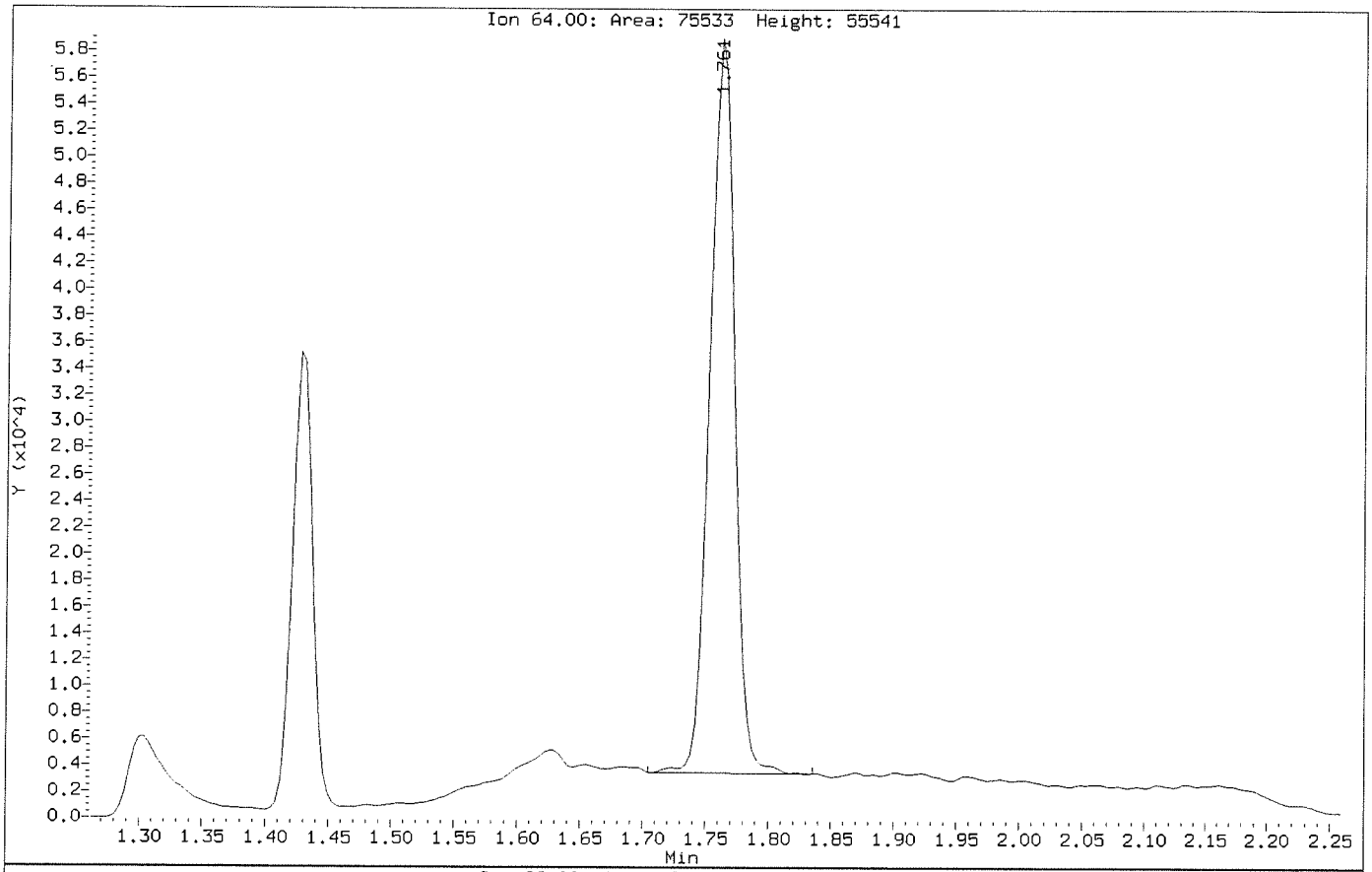
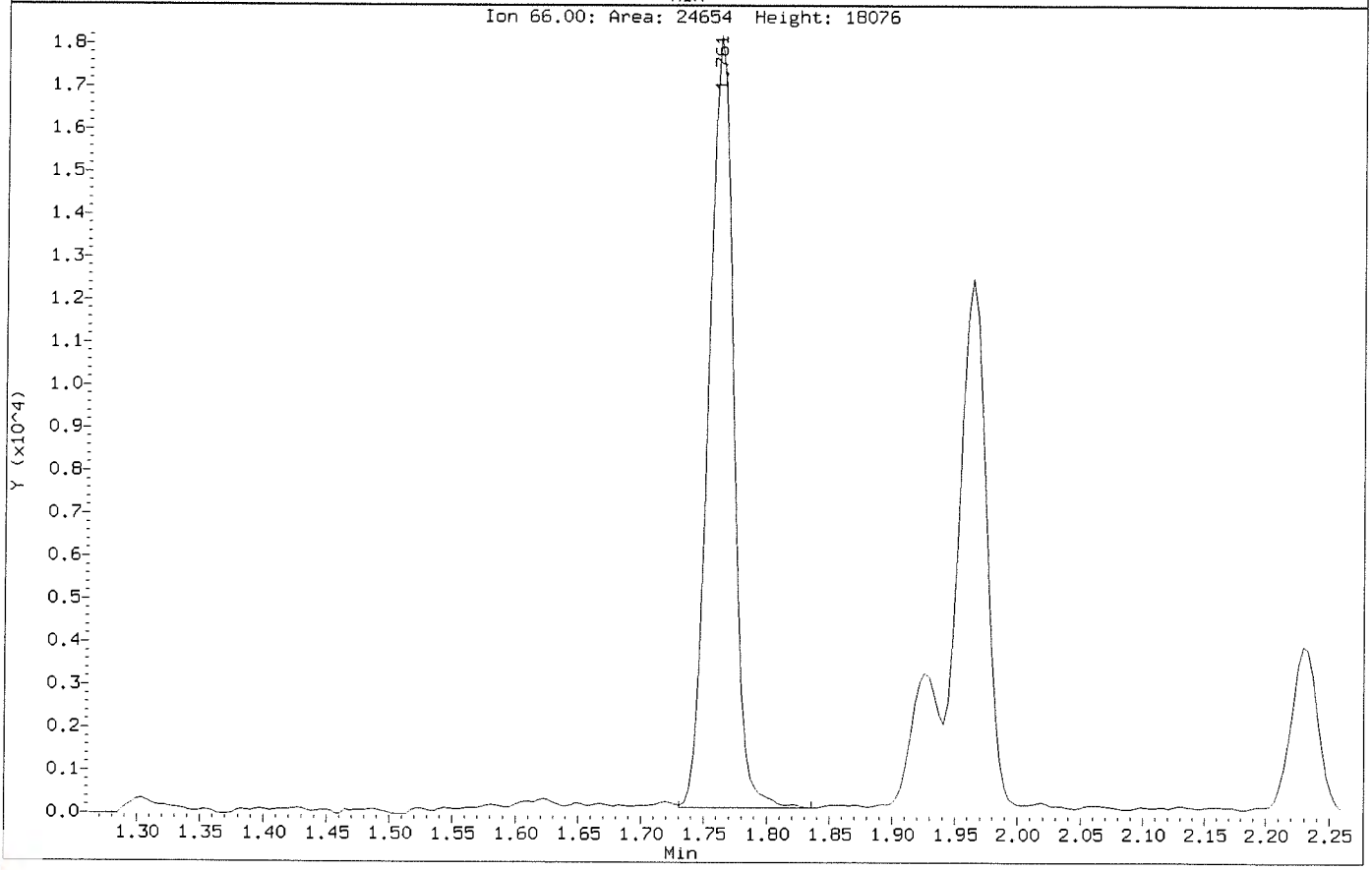
Instrument: VOA9.i
Client Sample ID: VLCSW-181222

Compound: Chloroethane
CAS Number: 75-00-3





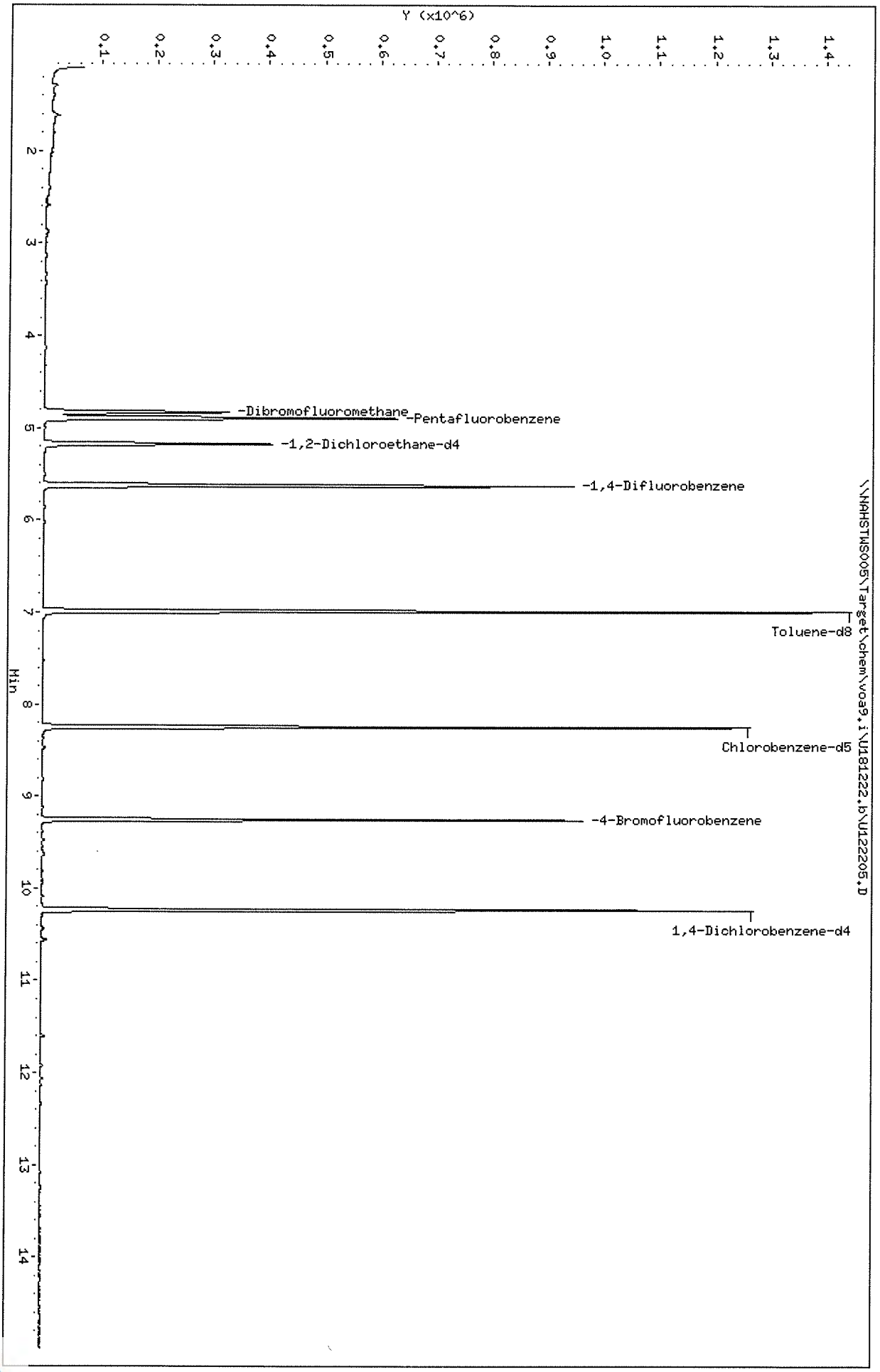
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122205.D
Lab Smp Id: VBLKW-181222 Client Smp ID: VBLKW-181222
Inj Date : 22-DEC-2018 12:18
Operator : PC Inst ID: VOA9.i
Smp Info : VBLKW-181222;VBLKW-181222;3;;BLANK
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181222.b\8260C.m
Meth Date : 28-Jan-2019 13:52 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 5 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.894	4.897	(1.000)	393752	50.0000	
* 36 1,4-Difluorobenzene	114	5.625	5.628	(1.000)	677477	50.0000	
* 47 Chlorobenzene-d5	117	8.249	8.249	(1.000)	615766	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	284398	50.0000	
$ 30 Dibromofluoromethane	113	4.830	4.834	(0.987)	189791	43.4865	43.48
$ 35 1,2-Dichloroethane-d4	65	5.175	5.179	(1.057)	259716	46.4543	46.45
$ 48 Toluene-d8	98	6.989	6.989	(0.847)	830845	52.3332	52.33
$ 69 4-Bromofluorobenzene	95	9.257	9.257	(1.122)	298252	49.2523	49.25



Data File: \\NAHSTWS005\Target\chem\voa9,i\U181222,b\U122205,D
Date : 22-DEC-2018 12:18
Client ID: VBLKW-181222
Sample Info: VBLKW-181222;VBLKW-181222;3;;BLANK
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9,i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122209.D Page 1
Report Date: 28-Jan-2019 13:52

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122209.D
Lab Smp Id: HS18120927-05MS Client Smp ID: HS18120927-05MS
Inj Date : 22-DEC-2018 13:57
Operator : PC Inst ID: VOA9.i
Smp Info : HS18120927-05MS;HS18120927-05MS;3;;MS
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181222.b\8260C.m
Meth Date : 28-Jan-2019 13:52 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 9 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

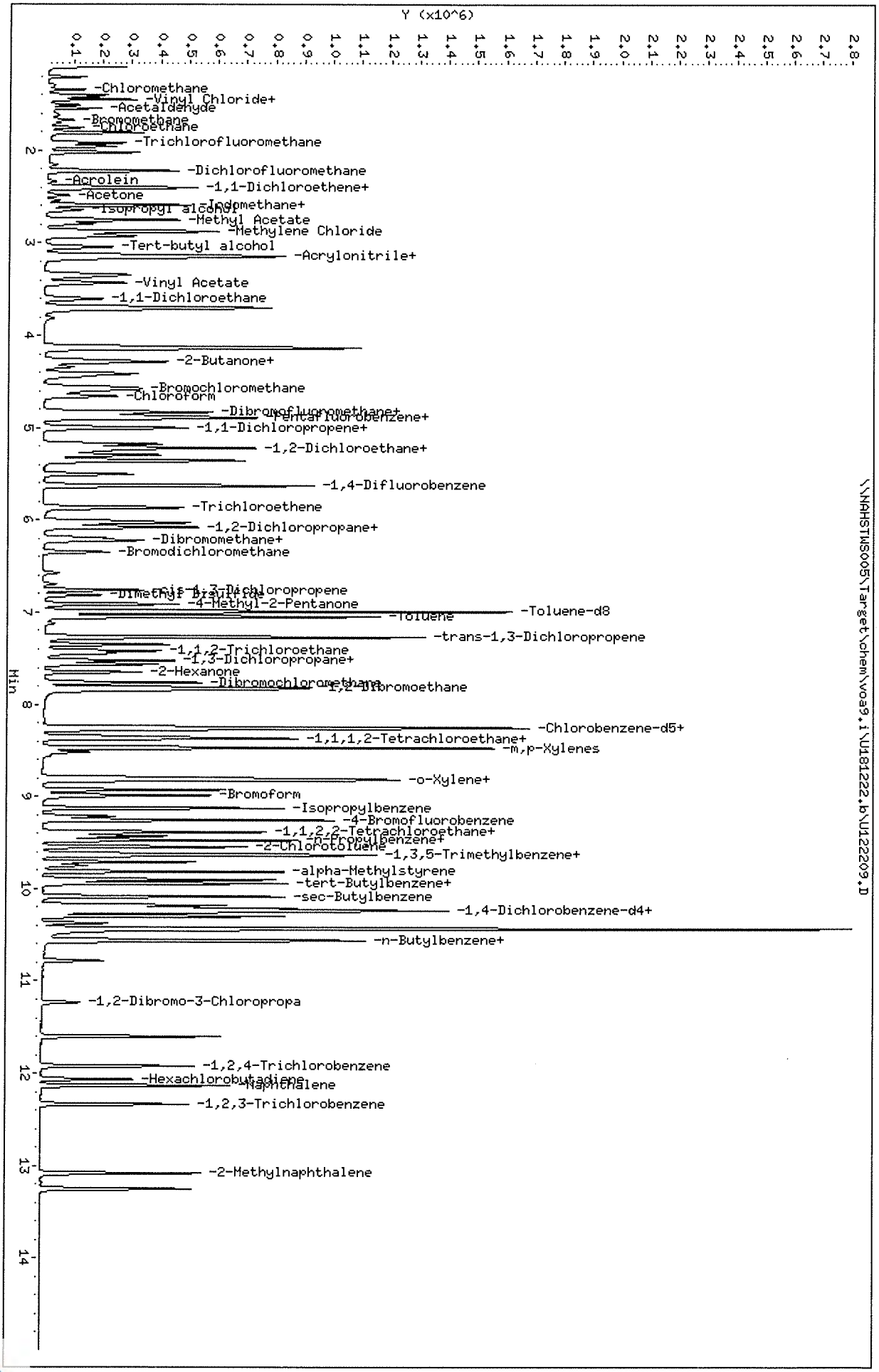
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.894	4.897	(1.000)	395043	50.0000	
*	36 1,4-Difluorobenzene	114	5.625	5.628	(1.000)	673318	50.0000	
*	47 Chlorobenzene-d5	117	8.249	8.249	(1.000)	616476	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	295823	50.0000	
$	30 Dibromofluoromethane	113	4.830	4.834	(0.987)	197217	45.0949	45.09
$	35 1,2-Dichloroethane-d4	65	5.175	5.179	(1.057)	255507	45.5099	45.50
$	48 Toluene-d8	98	6.990	6.989	(0.847)	837428	52.6991	52.69
$	69 4-Bromofluorobenzene	95	9.257	9.257	(1.122)	309963	51.1817	51.18
	60 1,1,1,2-Tetrachloroethane	131	8.350	8.350	(1.012)	96400	24.9394	24.93
	31 1,1,1-Trichloroethane	97	4.830	4.830	(0.987)	153870	24.6678	24.66
	68 1,1,2,2-Tetrachloroethane	83	9.392	9.392	(0.918)	169884	25.5004	25.50
	138 Freon TF	101	2.405	2.408	(0.491)	81914	24.3905	24.39
	53 1,1,2-Trichloroethane	83	7.421	7.420	(0.900)	93860	25.5553	25.55
	22 1,1-Dichloroethane	63	3.604	3.608	(0.737)	199426	23.4411	23.44
	11 1,1-Dichloroethene	96	2.401	2.405	(0.491)	88030	23.4365	23.43
	32 1,1-Dichloropropene	75	5.006	5.006	(0.890)	158413	26.4421	26.44
	93 1,2,3-Trichlorobenzene	180	12.335	12.335	(1.205)	137176	24.9295	24.92
	71 1,2,3-Trichloropropane	75	9.426	9.426	(0.921)	173142	24.9934	24.99
	90 1,2,4-Trichlorobenzene	180	11.923	11.923	(1.165)	139963	25.5550	25.55
	79 1,2,4-Trimethylbenzene	105	9.943	9.943	(0.971)	423271	27.3422	27.34
	89 1,2-Dibromo-3-Chloropropane	155	11.233	11.233	(1.097)	23723	23.8749	23.87
	57 1,2-Dibromoethane	107	7.852	7.851	(0.952)	110349	26.0852	26.08

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122209.D Page 2
Report Date: 28-Jan-2019 13:52

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
88 1,2-Dichlorobenzene	146	10.570	10.573	(1.033)	222204	25.2973	25.29
33 1,2-Dichloroethane	62	5.254	5.254	(0.934)	159097	25.8764	25.87
42 1,2-Dichloropropane	63	6.082	6.082	(1.081)	121295	25.4948	25.49
75 1,3,5-Trimethylbenzene	105	9.625	9.625	(0.940)	411319	27.6664	27.66
83 1,3-Dichlorobenzene	146	10.180	10.179	(0.995)	221980	25.2700	25.26
54 1,3-Dichloropropane	76	7.563	7.563	(0.917)	204914	25.9021	25.90
84 1,4-Dichlorobenzene	146	10.255	10.254	(1.002)	228594	24.6810	24.68
26 2,2-Dichloropropane	77	4.275	4.279	(0.874)	126637	24.7001	24.70
24 2-Butanone	43	4.339	4.339	(0.887)	119784	45.0595	45.05
76 2-Chlorotoluene	91	9.546	9.546	(0.933)	360986	26.4848	26.48
52 2-Hexanone	43	7.649	7.649	(0.927)	187061	54.5688	54.56
77 4-Chlorotoluene	91	9.640	9.640	(0.942)	417862	26.5295	26.52
82 p-Isopropyltoluene	119	10.210	10.209	(0.997)	435284	27.8070	27.80
45 4-Methyl-2-Pentanone	43	6.915	6.914	(0.838)	265897	53.9084	53.90
10 Acetone	43	2.484	2.483	(0.508)	82459	52.0616	52.06
37 Benzene	78	5.220	5.220	(0.928)	461755	25.7720	25.77
74 Bromobenzene	156	9.381	9.381	(0.917)	117540	25.7162	25.71
29 Bromochloromethane	128	4.557	4.556	(0.931)	54645	24.9193	24.91
39 Bromodichloromethane	83	6.348	6.348	(1.129)	129090	25.5153	25.51
66 Bromoform	173	8.984	8.984	(1.089)	59485	23.4501	23.45
6 Bromomethane	94	1.670	1.674	(0.341)	37684	16.3720	16.37
19 Carbon Disulfide	76	2.592	2.596	(0.530)	625517	45.7041	45.70
34 Carbon Tetrachloride	117	4.995	4.999	(0.888)	122132	25.6423	25.64
59 Chlorobenzene	112	8.275	8.275	(1.003)	306691	25.8923	25.89
7 Chloroethane	64	1.753	1.756	(0.358)	75911	22.1356	22.13(M)
28 Chloroform	83	4.658	4.661	(0.952)	191874	23.4188	23.41
3 Chloromethane	50	1.340	1.344	(0.274)	77519	20.5633	20.56
27 cis-1,2-Dichloroethene	96	4.287	4.290	(0.876)	122082	23.5108	23.51
46 cis-1,3-Dichloropropene	75	6.757	6.761	(1.201)	174282	23.3600	23.35
55 Dibromochloromethane	129	7.758	7.758	(0.940)	94915	23.9485	23.94
44 Dibromomethane	93	6.191	6.191	(1.101)	70026	25.5027	25.50
2 Dichlorodifluoromethane	85	1.205	1.209	(0.246)	80320	16.8489	16.84
61 Ethylbenzene	106	8.373	8.373	(1.015)	165585	27.2562	27.25
91 Hexachlorobutadiene	225	12.065	12.065	(1.179)	50558	24.0945	24.09
67 Isopropylbenzene	105	9.126	9.126	(1.106)	490568	27.9838	27.98
62 m,p-Xylenes	106	8.474	8.474	(1.027)	402773	53.9288	53.92
17 Methylene Chloride	84	2.873	2.877	(0.587)	115889	23.1045	23.10
87 n-Butylbenzene	91	10.558	10.558	(1.031)	413416	27.3661	27.36
73 n-Propylbenzene	91	9.475	9.475	(0.926)	615543	27.8475	27.84
92 Naphthalene	128	12.133	12.132	(1.185)	448465	25.1220	25.12
63 o-Xylene	106	8.811	8.811	(1.068)	202541	26.8818	26.88
81 sec-Butylbenzene	105	10.086	10.086	(0.985)	520848	28.0375	28.03
64 Styrene	104	8.826	8.826	(1.070)	345860	27.6295	27.62
78 tert-Butylbenzene	119	9.902	9.902	(0.967)	357243	27.8014	27.80
56 Tetrachloroethene	164	7.526	7.525	(0.912)	90769	28.1244	28.12
50 Toluene	91	7.049	7.049	(0.855)	489824	26.7106	26.71
20 trans-1,2-Dichloroethene	96	3.143	3.147	(0.642)	109492	23.6785	23.67
51 trans-1,3-Dichloropropene	75	7.259	7.263	(1.291)	149003	23.4368	23.43
38 Trichloroethene	130	5.861	5.865	(1.042)	112525	26.0150	26.01
8 Trichlorofluoromethane	101	1.955	1.959	(0.400)	155554	24.2169	24.21
5 Vinyl Chloride	62	1.423	1.426	(0.291)	112308	20.6791	20.67

QC Flag Legend

M - Compound response manually integrated.



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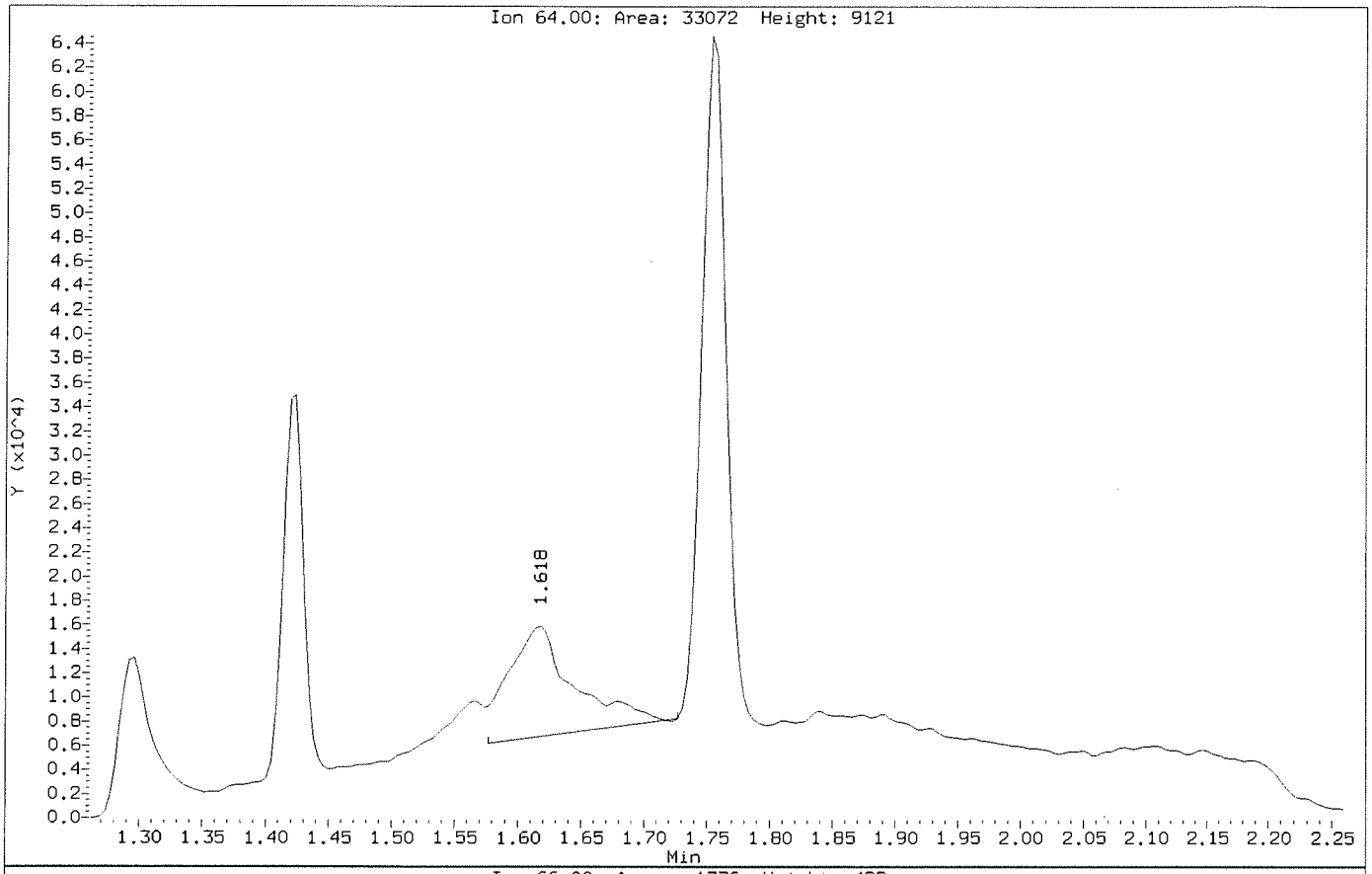
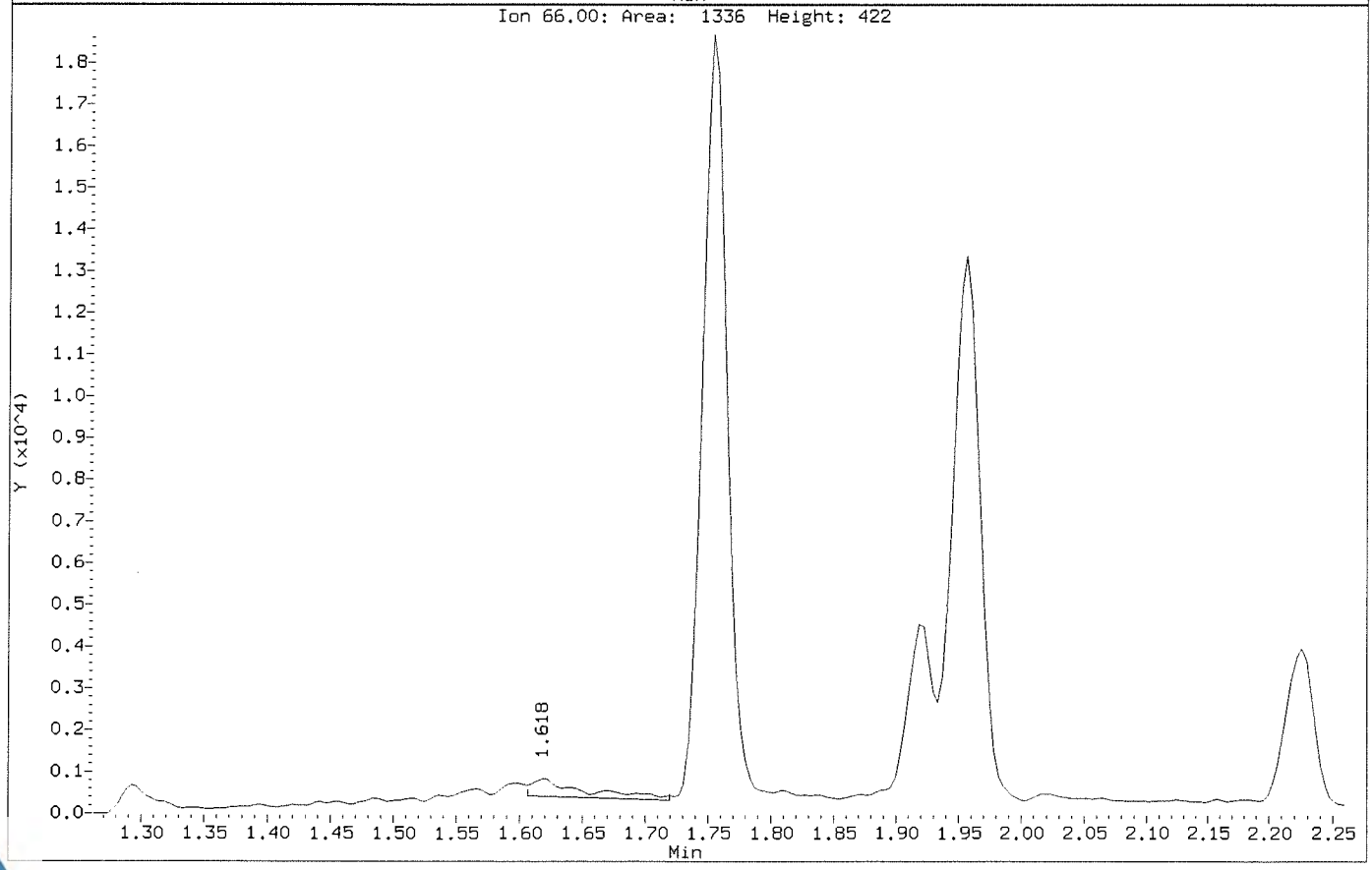
Sample Info: HS18120927-05MS;HS18120927-05MS;3;;MS
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\Before\U122209.D
Injection Date: 22-DEC-2018 13:57
Instrument: VOA9.i
Client Sample ID: HS18120927-05MS

Compound: Chloroethane
CAS Number: 75-00-3





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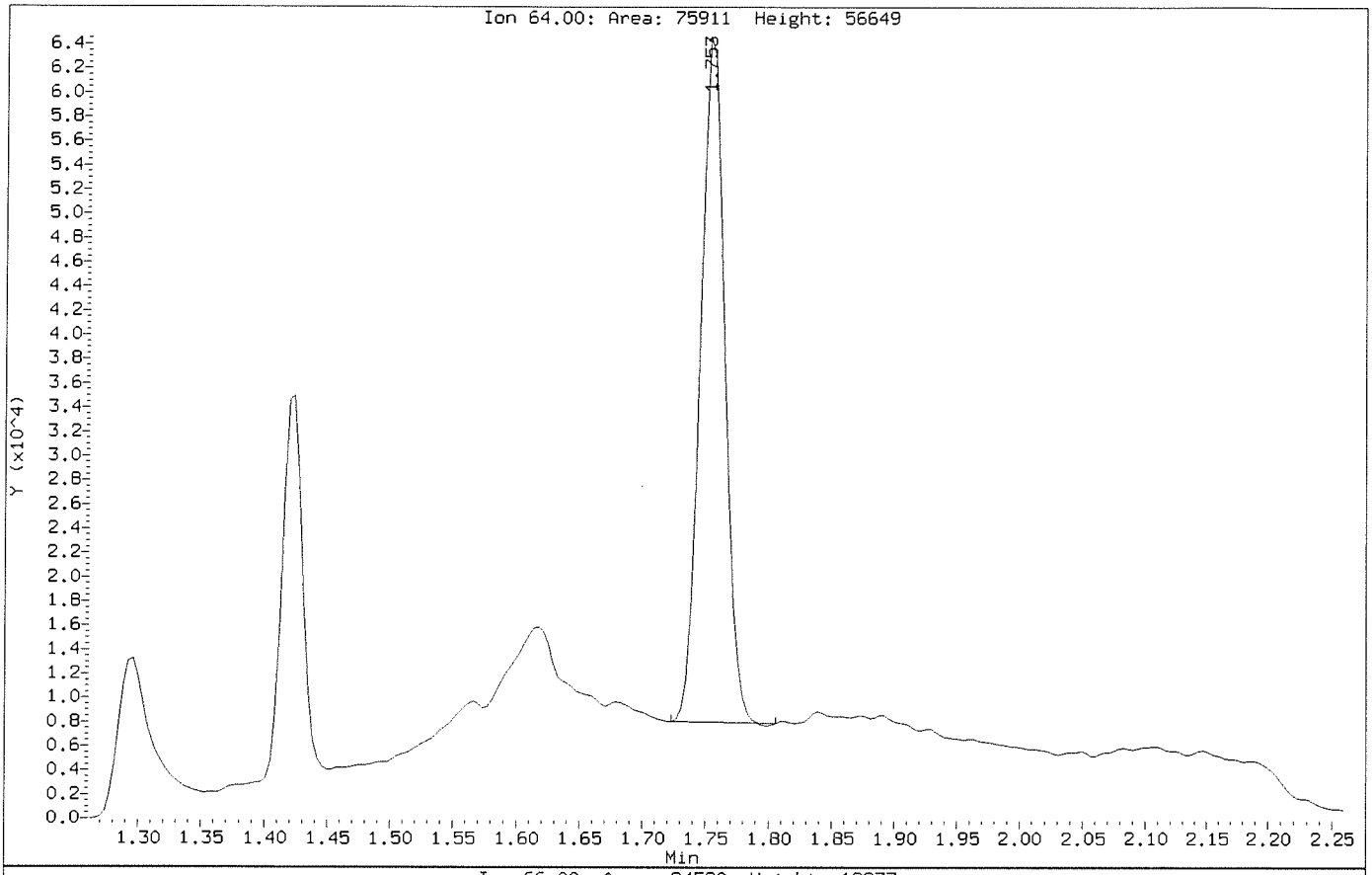
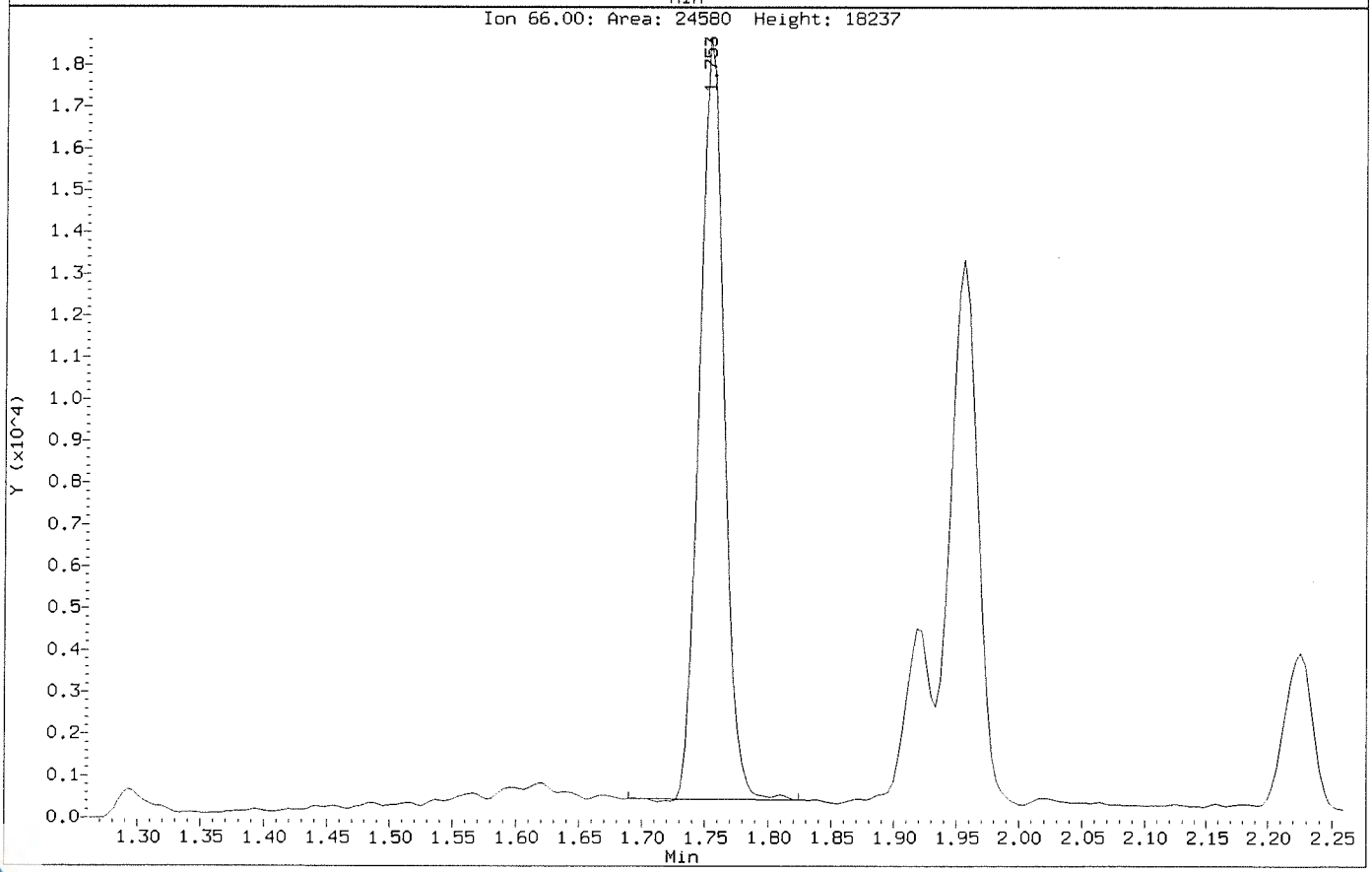
Injection Date: 22-DEC-2018 13:57
Instrument: VOA9.i
Client Sample ID: HS18120927-05MS

Compound: Chloroethane
CAS Number: 75-00-3





Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122210.D Page 1
Report Date: 28-Jan-2019 13:52

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122210.D
Lab Smp Id: HS18120927-05MSD Client Smp ID: HS18120927-05MSD
Inj Date : 22-DEC-2018 14:22
Operator : PC Inst ID: VOA9.i
Smp Info : HS18120927-05MSD;HS18120927-05MSD;3;;MSD
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181222.b\8260C.m
Meth Date : 28-Jan-2019 13:52 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 9 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

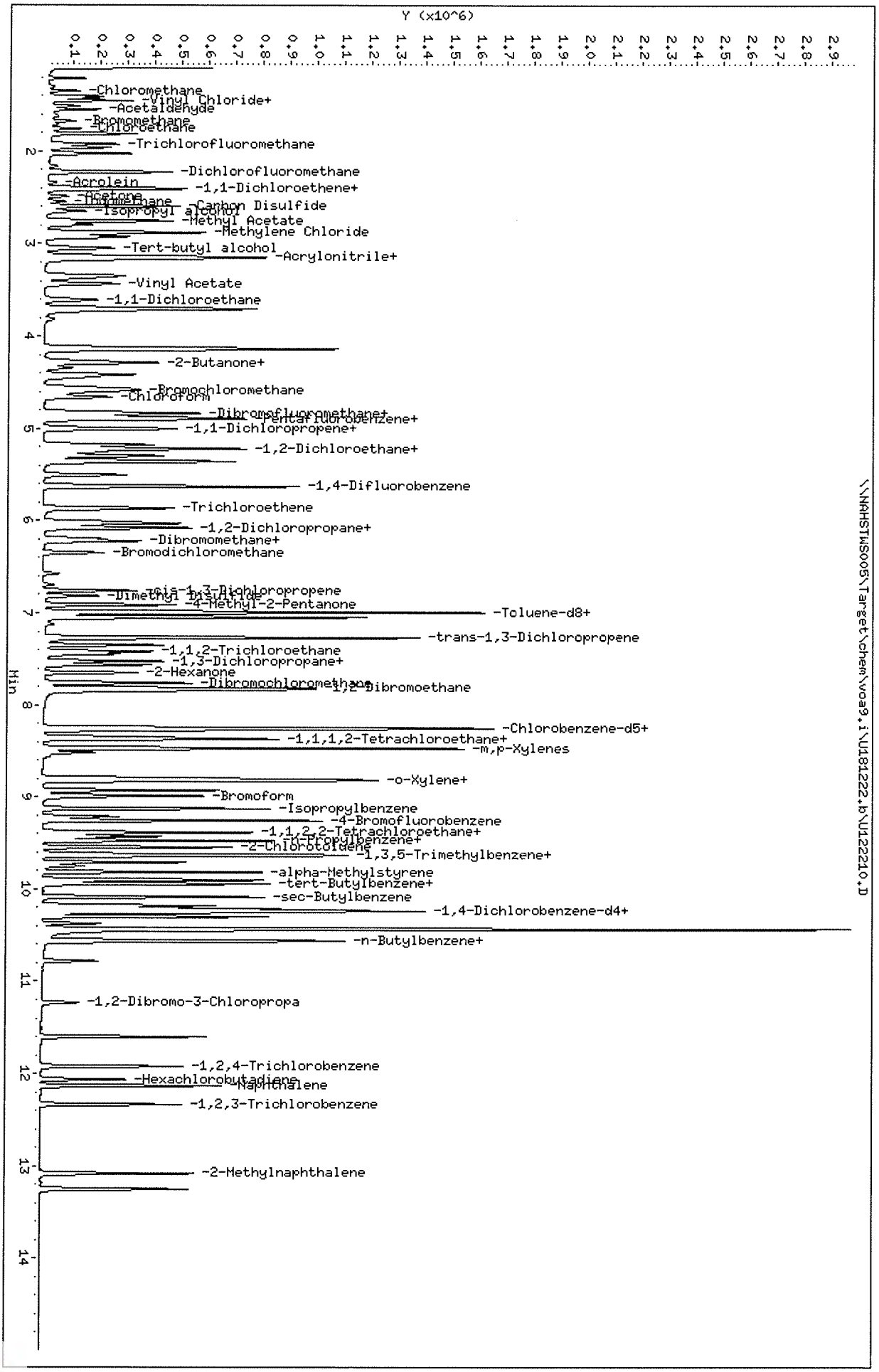
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.898	4.897	(1.000)	396082	50.0000	
*	36 1,4-Difluorobenzene	114	5.629	5.628	(1.000)	673270	50.0000	
*	47 Chlorobenzene-d5	117	8.249	8.249	(1.000)	614956	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	298917	50.0000	
$	30 Dibromofluoromethane	113	4.834	4.834	(0.987)	195450	44.5560	44.55
$	35 1,2-Dichloroethane-d4	65	5.179	5.179	(1.057)	257591	45.7727	45.77
$	48 Toluene-d8	98	6.989	6.989	(0.847)	839449	52.9656	52.96
$	69 4-Bromofluorobenzene	95	9.257	9.257	(1.122)	312851	51.8032	51.80
	60 1,1,1,2-Tetrachloroethane	131	8.350	8.350	(1.012)	95635	24.8058	24.80
	31 1,1,1-Trichloroethane	97	4.830	4.830	(0.986)	151476	24.2203	24.22
	68 1,1,2,2-Tetrachloroethane	83	9.392	9.392	(0.918)	169057	25.1136	25.11
	138 Freon TF	101	2.408	2.408	(0.492)	79969	23.7489	23.74
	53 1,1,2-Trichloroethane	83	7.420	7.420	(0.900)	94280	25.7331	25.73
	22 1,1-Dichloroethane	63	3.608	3.608	(0.737)	195548	22.9250	22.92
	11 1,1-Dichloroethene	96	2.405	2.405	(0.491)	86817	23.0529	23.05
	32 1,1-Dichloropropene	75	5.006	5.006	(0.889)	156191	26.0731	26.07
	93 1,2,3-Trichlorobenzene	180	12.335	12.335	(1.205)	138315	24.8777	24.87
	71 1,2,3-Trichloropropane	75	9.426	9.426	(0.921)	179033	25.5763	25.57
	90 1,2,4-Trichlorobenzene	180	11.926	11.923	(1.165)	140555	25.3974	25.39
	79 1,2,4-Trimethylbenzene	105	9.943	9.943	(0.971)	420780	26.8999	26.89
	89 1,2-Dibromo-3-Chloropropane	155	11.233	11.233	(1.097)	24448	24.3210	24.32
	57 1,2-Dibromoethane	107	7.852	7.851	(0.952)	110313	26.1411	26.14

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122210.D Page 2
Report Date: 28-Jan-2019 13:52

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
88	1,2-Dichlorobenzene	146	10.569	10.573	(1.033)	221340	24.9382	24.93
33	1,2-Dichloroethane	62	5.257	5.254	(0.934)	159054	25.8711	25.87
42	1,2-Dichloropropane	63	6.082	6.082	(1.081)	119026	25.0197	25.01
75	1,3,5-Trimethylbenzene	105	9.625	9.625	(0.940)	402960	26.8236	26.82
83	1,3-Dichlorobenzene	146	10.179	10.179	(0.995)	224610	25.3047	25.30
54	1,3-Dichloropropane	76	7.567	7.563	(0.917)	205652	26.0596	26.05
84	1,4-Dichlorobenzene	146	10.254	10.254	(1.002)	227646	24.3243	24.32
26	2,2-Dichloropropane	77	4.279	4.279	(0.874)	122497	23.8299	23.82
24	2-Butanone	43	4.343	4.339	(0.887)	124945	46.9760	46.97
76	2-Chlorotoluene	91	9.546	9.546	(0.933)	355895	25.8410	25.84
52	2-Hexanone	43	7.649	7.649	(0.927)	193394	56.5557	56.55
77	4-Chlorotoluene	91	9.640	9.640	(0.942)	414630	26.0519	26.05
82	p-Isopropyltoluene	119	10.209	10.209	(0.997)	431943	27.3079	27.30
45	4-Methyl-2-Pentanone	43	6.914	6.914	(0.838)	273284	55.5430	55.54
10	Acetone	43	2.487	2.483	(0.508)	83751	52.7779	52.77
37	Benzene	78	5.220	5.220	(0.927)	457942	25.5610	25.56
74	Bromobenzene	156	9.381	9.381	(0.917)	116968	25.3261	25.32
29	Bromochloromethane	128	4.556	4.556	(0.930)	54271	24.6545	24.65
39	Bromodichloromethane	83	6.348	6.348	(1.128)	127329	25.1690	25.16
66	Bromoform	173	8.984	8.984	(1.089)	60219	23.7720	23.77
6	Bromomethane	94	1.674	1.674	(0.342)	42989	18.4433	18.44
19	Carbon Disulfide	76	2.596	2.596	(0.530)	612139	44.6093	44.60
34	Carbon Tetrachloride	117	4.999	4.999	(0.888)	119367	25.0951	25.09
59	Chlorobenzene	112	8.275	8.275	(1.003)	302740	25.6220	25.62
7	Chloroethane	64	1.756	1.756	(0.359)	75620	21.9969	21.99(M)
28	Chloroform	83	4.661	4.661	(0.952)	190164	23.1492	23.14
3	Chloromethane	50	1.344	1.344	(0.274)	73942	19.7245	19.72
27	cis-1,2-Dichloroethene	96	4.290	4.290	(0.876)	120115	23.0714	23.07
46	cis-1,3-Dichloropropene	75	6.761	6.761	(1.201)	173421	23.2524	23.25
55	Dibromochloromethane	129	7.758	7.758	(0.940)	96569	24.4066	24.40
44	Dibromomethane	93	6.191	6.191	(1.100)	69470	25.3020	25.30
2	Dichlorodifluoromethane	85	1.213	1.209	(0.248)	78502	16.4365	16.43
61	Ethylbenzene	106	8.373	8.373	(1.015)	160257	26.4444	26.44
91	Hexachlorobutadiene	225	12.065	12.065	(1.179)	50808	23.9630	23.96
67	Isopropylbenzene	105	9.126	9.126	(1.106)	480775	27.4930	27.49
62	m,p-Xylenes	106	8.474	8.474	(1.027)	398688	53.5138	53.51
17	Methylene Chloride	84	2.877	2.877	(0.587)	114736	22.7995	22.79
87	n-Butylbenzene	91	10.558	10.558	(1.031)	405459	26.5616	26.56
73	n-Propylbenzene	91	9.475	9.475	(0.926)	605284	27.0999	27.09
92	Naphthalene	128	12.133	12.132	(1.185)	456703	25.3144	25.31
63	o-Xylene	106	8.811	8.811	(1.068)	199299	26.5169	26.51
81	sec-Butylbenzene	105	10.086	10.086	(0.985)	511179	27.2322	27.23
64	Styrene	104	8.826	8.826	(1.070)	339873	27.2184	27.21
78	tert-Butylbenzene	119	9.902	9.902	(0.967)	354232	27.2818	27.28
56	Tetrachloroethene	164	7.525	7.525	(0.912)	86000	26.7126	26.71
50	Toluene	91	7.049	7.049	(0.855)	486207	26.5789	26.57
20	trans-1,2-Dichloroethene	96	3.147	3.147	(0.643)	106792	23.0341	23.03
51	trans-1,3-Dichloropropene	75	7.263	7.263	(1.290)	147380	23.2011	23.20
38	Trichloroethene	130	5.865	5.865	(1.042)	110236	25.4876	25.48
8	Trichlorofluoromethane	101	1.959	1.959	(0.400)	147862	22.9915	22.99
5	Vinyl Chloride	62	1.426	1.426	(0.291)	113420	20.8220	20.82

QC Flag Legend

M - Compound response manually integrated.

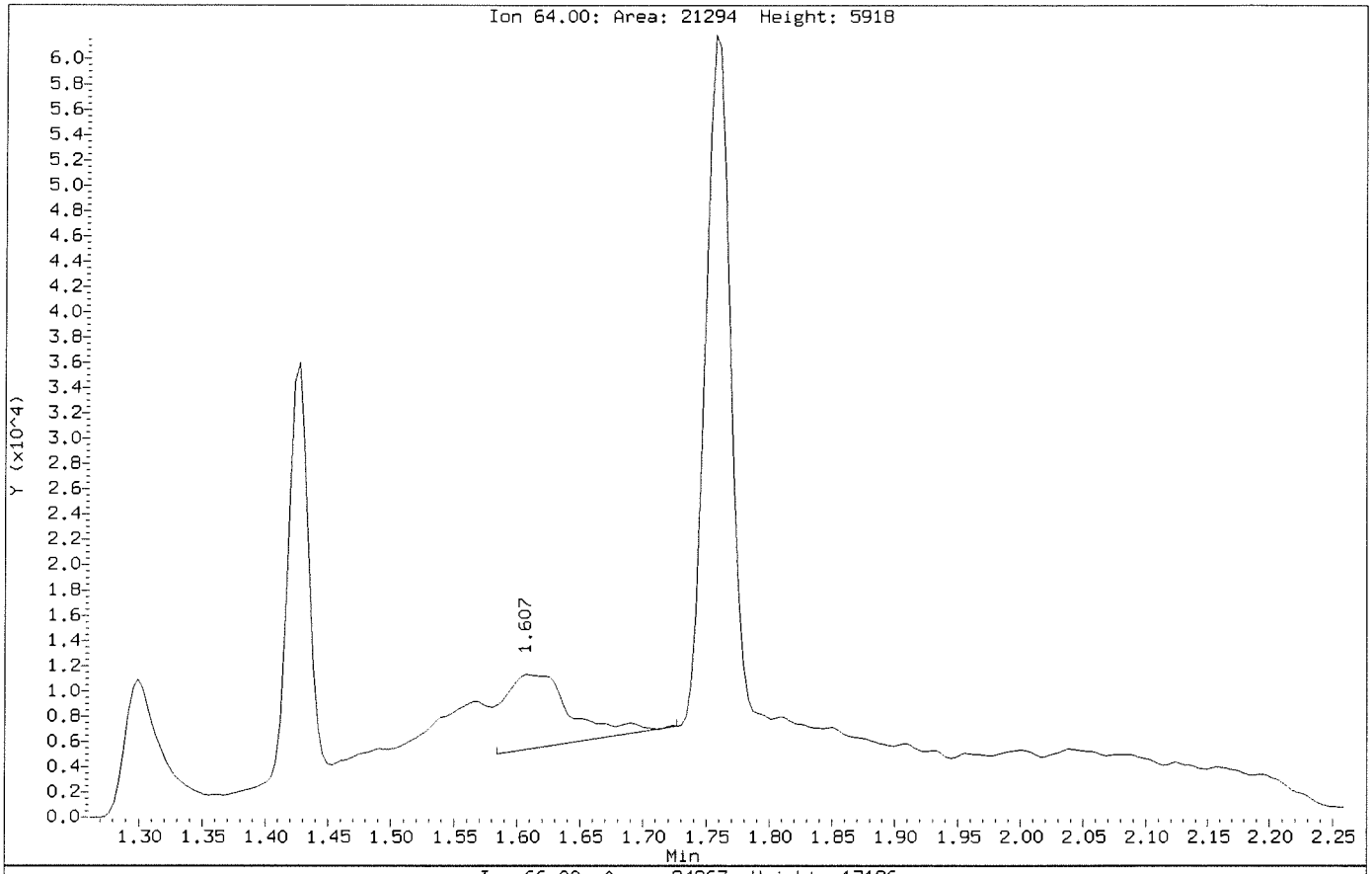


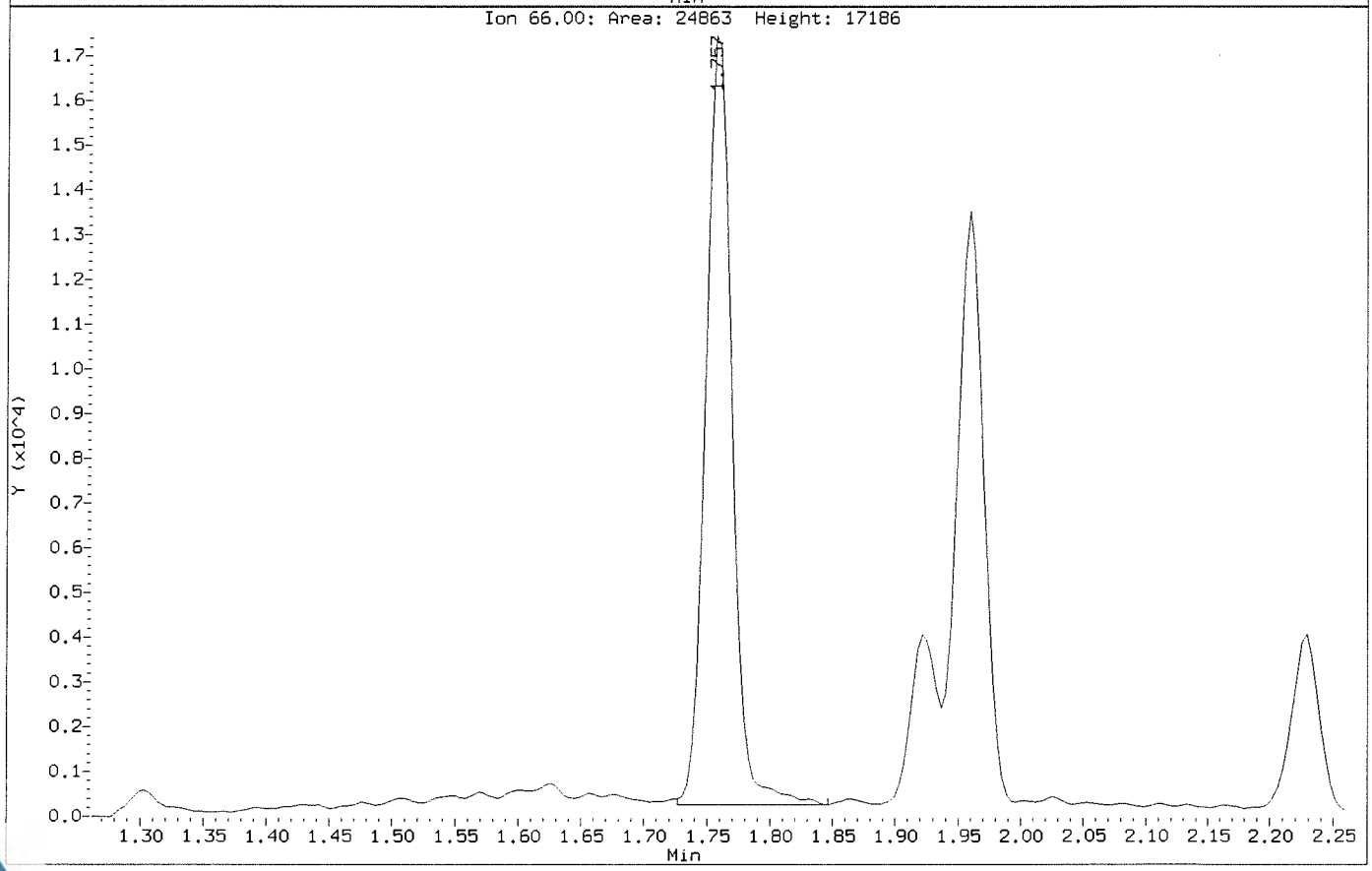
Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122210.D
Date : 22-DEC-2018 14:22
Client ID: HS181120927-05MSD
Sample Info: HS181120927-05MSD;HS181120927-05MSD;3;;MSD
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\Before\U122210.D
Injection Date: 22-DEC-2018 14:22
Instrument: VOA9.i
Client Sample ID: HS18120927-05MSD

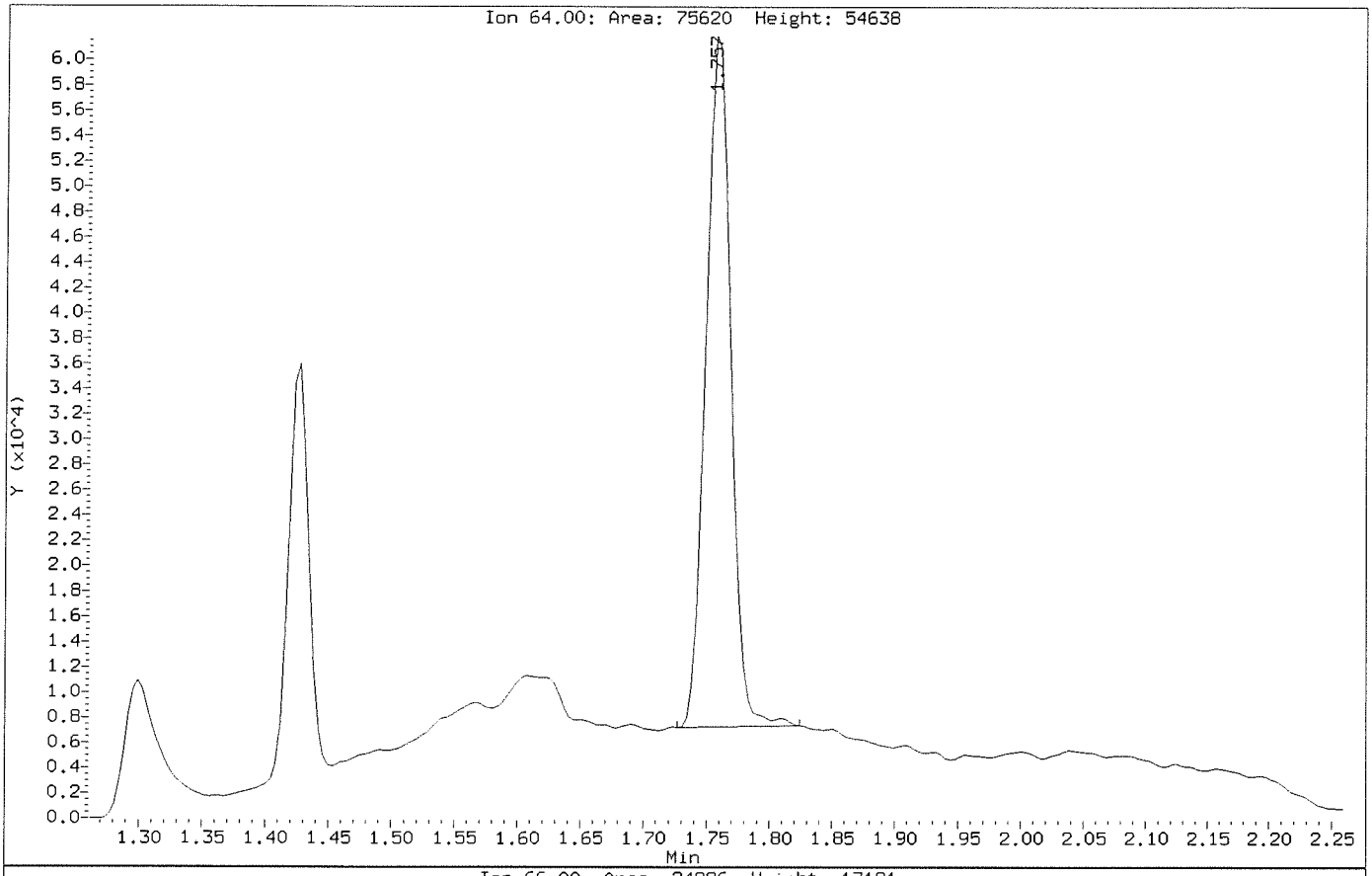
Compound: Chloroethane
CAS Number: 75-00-3

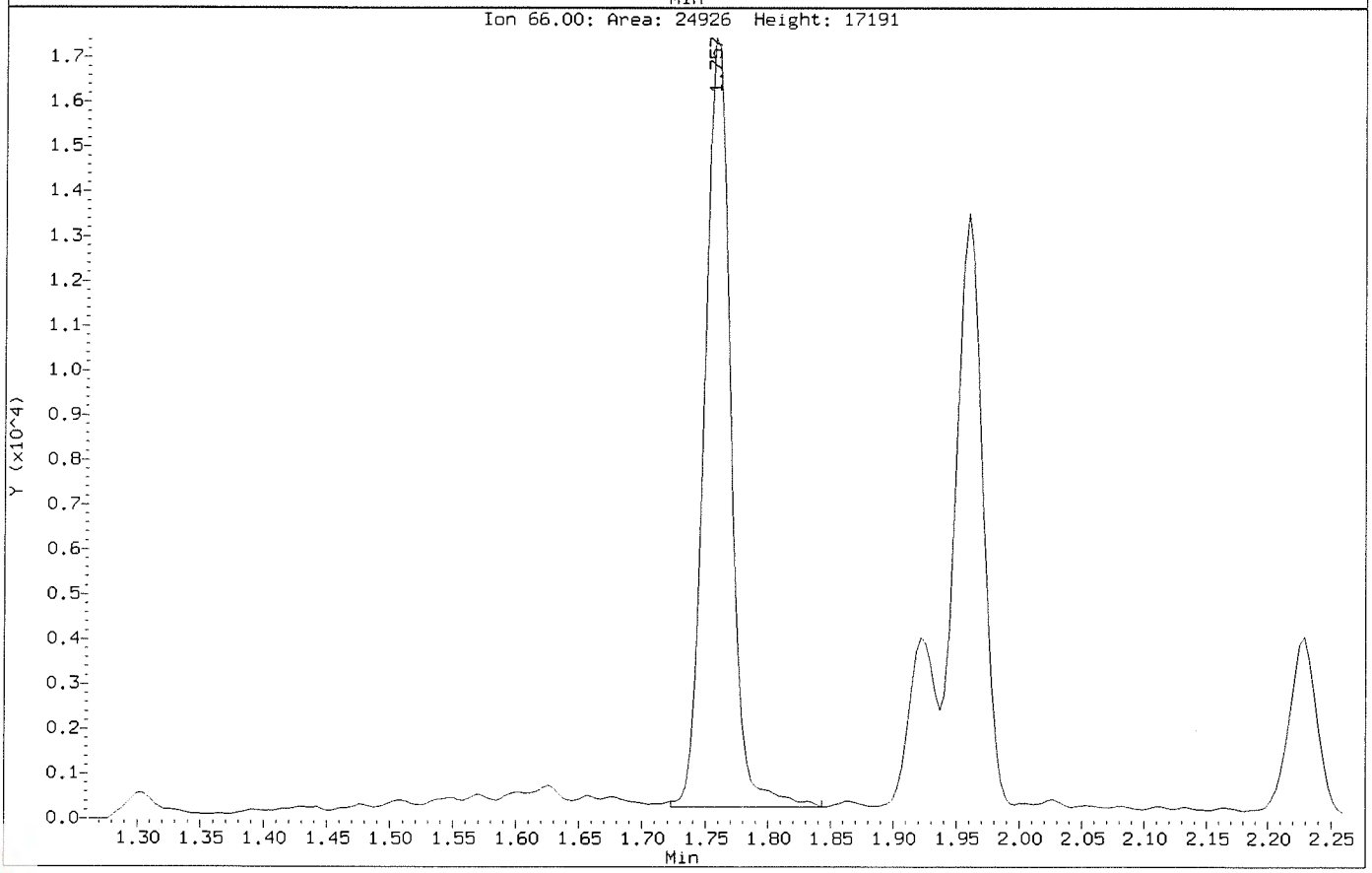




Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122210.D
Injection Date: 22-DEC-2018 14:22
Instrument: VOA9.i
Client Sample ID: HS18120927-05MSD

Compound: Chloroethane
CAS Number: 75-00-3





Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122223.D Page 1
Report Date: 28-Jan-2019 14:04

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122223.D
Lab Smp Id: HS18120736-02 Client Smp ID: HS18120736-02
Inj Date : 22-DEC-2018 19:44
Operator : PC Inst ID: VOA9.i
Smp Info : HS18120736-02;HS18120736-02;;;
Misc Info : 180315V9;WATER;0;10;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181222.b\8260C.m
Meth Date : 28-Jan-2019 14:02 hvan Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 22
Dil Factor: 10.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

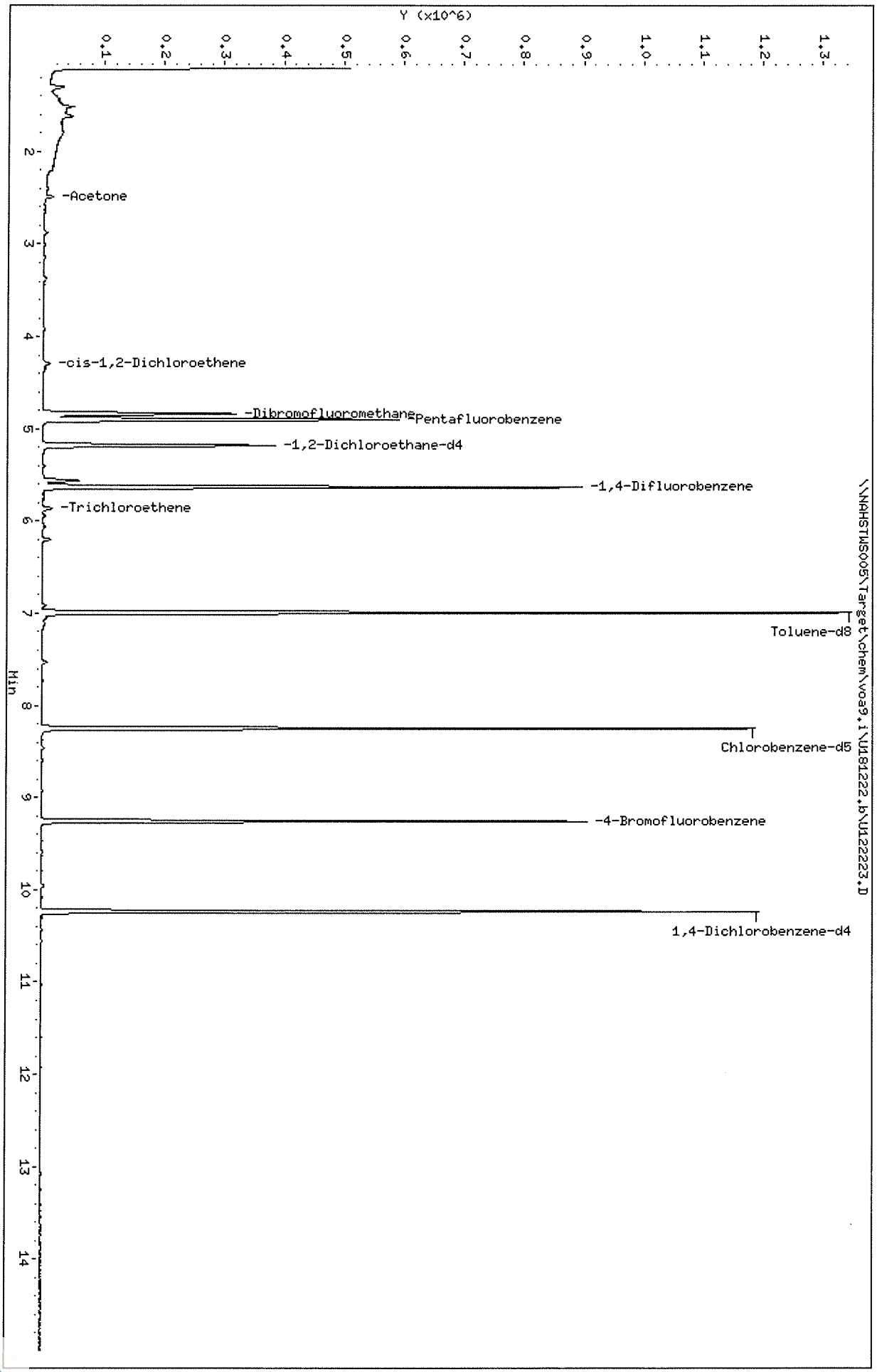
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	10.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.898	4.898	(1.000)	363207	50.0000	
* 36 1,4-Difluorobenzene	114	5.629	5.629	(1.000)	637768	50.0000	
* 47 Chlorobenzene-d5	117	8.249	8.249	(1.000)	578447	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	263483	50.0000	
$ 30 Dibromofluoromethane	113	4.834	4.834	(0.987)	183997	45.7823	45.78
$ 35 1,2-Dichloroethane-d4	65	5.179	5.179	(1.057)	245610	47.6804	47.68
$ 48 Toluene-d8	98	6.989	6.989	(0.847)	776544	52.0595	52.05
$ 69 4-Bromofluorobenzene	95	9.257	9.257	(1.122)	277108	48.6973	48.69
10 Acetone	43	2.491	2.491	(0.509)	14587	7.57470	75.74
27 cis-1,2-Dichloroethene	96	4.294	4.294	(0.877)	4258	0.89189	8.91(a)
38 Trichloroethene	130	5.865	5.865	(1.042)	4791	1.16939	11.69(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).



Data File: \\NAHSTWS005\Target\chem\voa9,i\U181222,b\U122223,D
Date : 22-DEC-2018 19:44
Client ID: HS18120736-02
Sample Info: HS18120736-02;HS18120736-02;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9,i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122223.D

Date : 22-DEC-2018 19:44

Client ID: HS18120736-02

Instrument: VOA9.i

Sample Info: HS18120736-02;HS18120736-02;;;

Purge Volume: 5.0

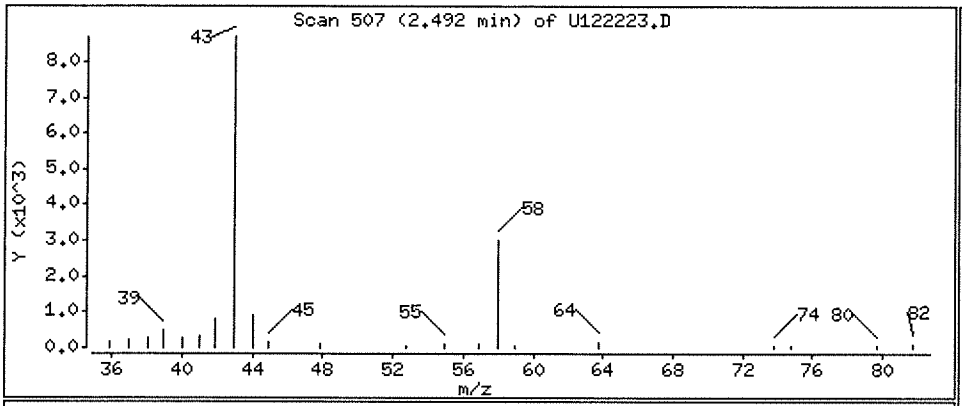
Operator: PC

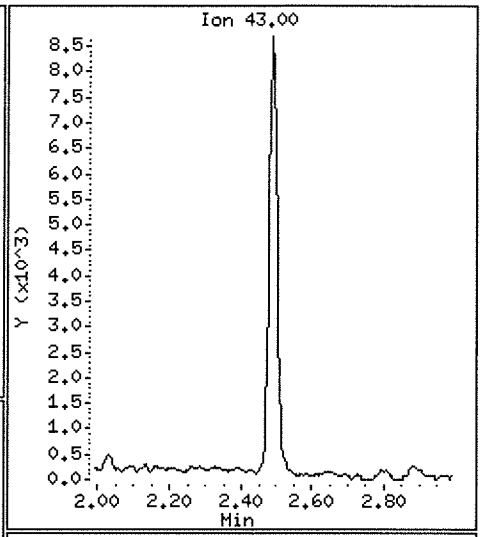
Column phase: DB624

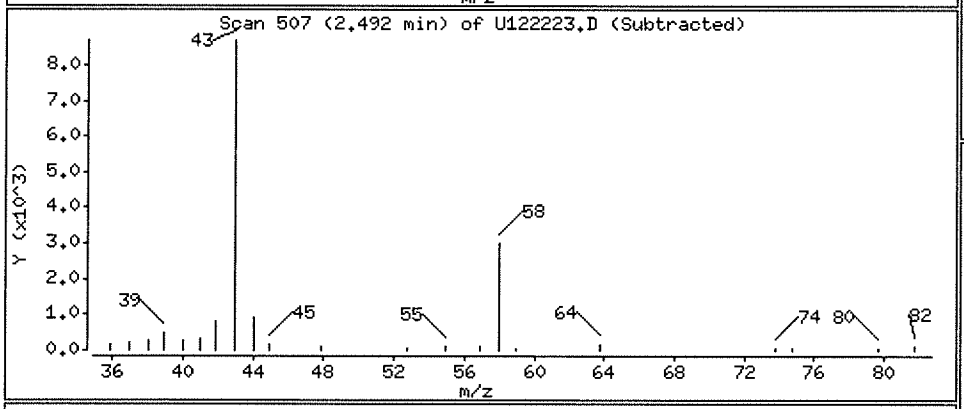
Column diameter: 0.18

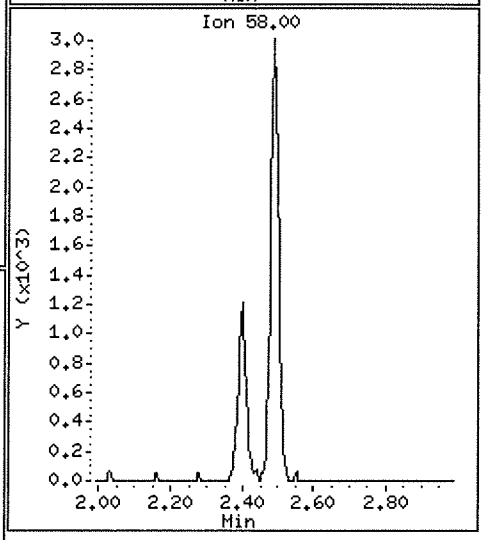
10 Acetone

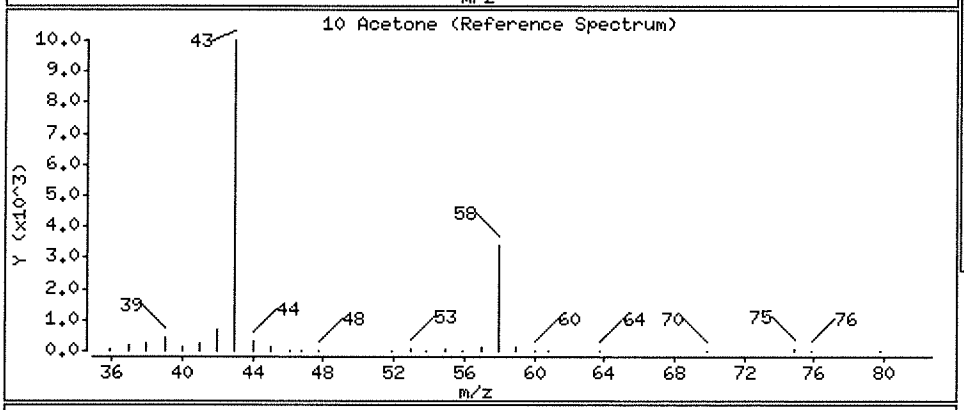
Concentration: 75.74 ug/l

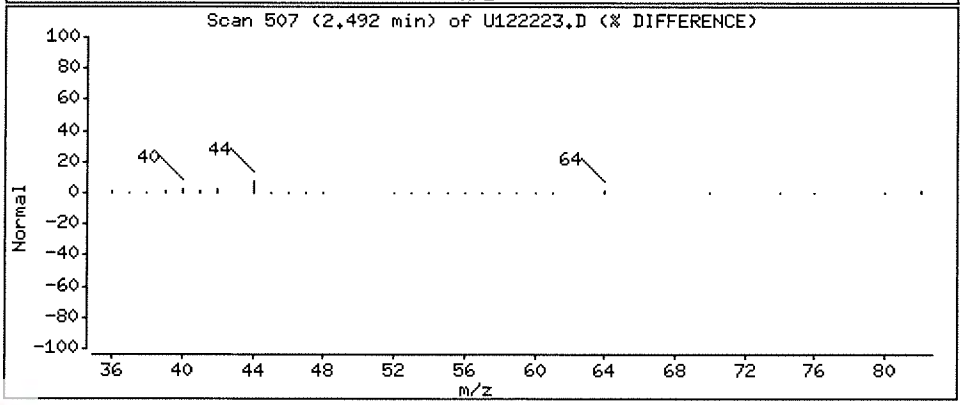












Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122223.D Page 4

Date : 22-DEC-2018 19:44

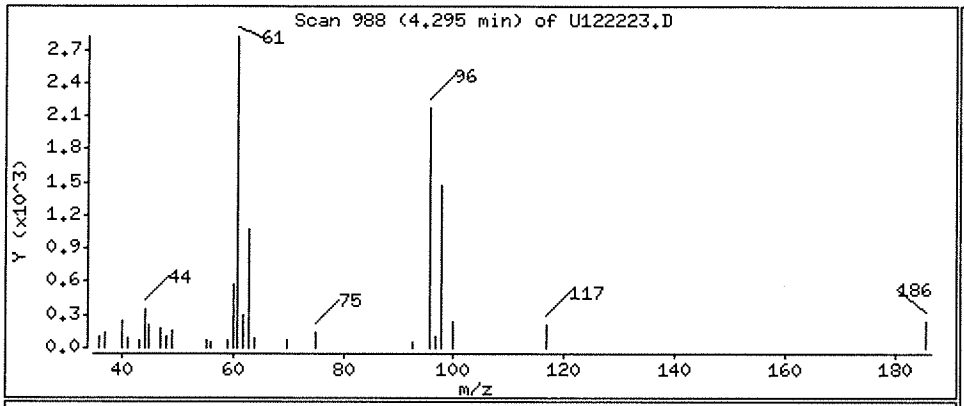
Client ID: HS18120736-02 Instrument: VOA9.i

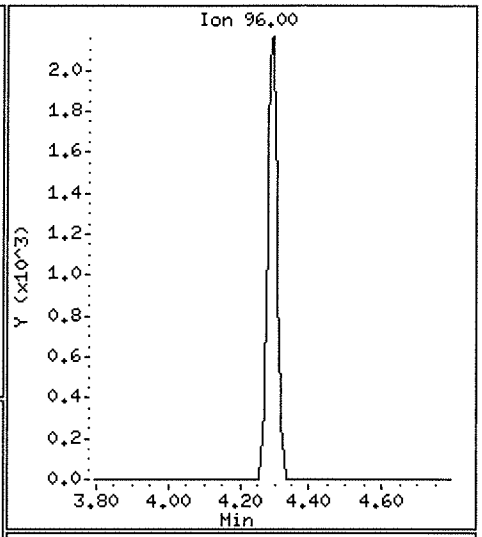
Sample Info: HS18120736-02;HS18120736-02;;;

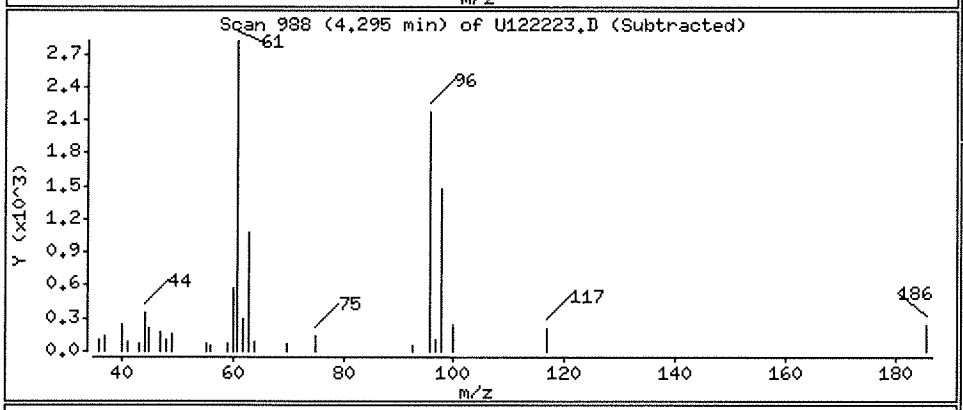
Purge Volume: 5.0 Operator: PC

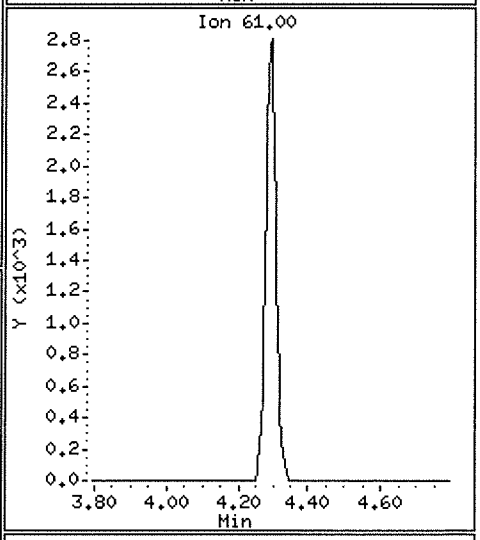
Column phase: DB624 Column diameter: 0.18

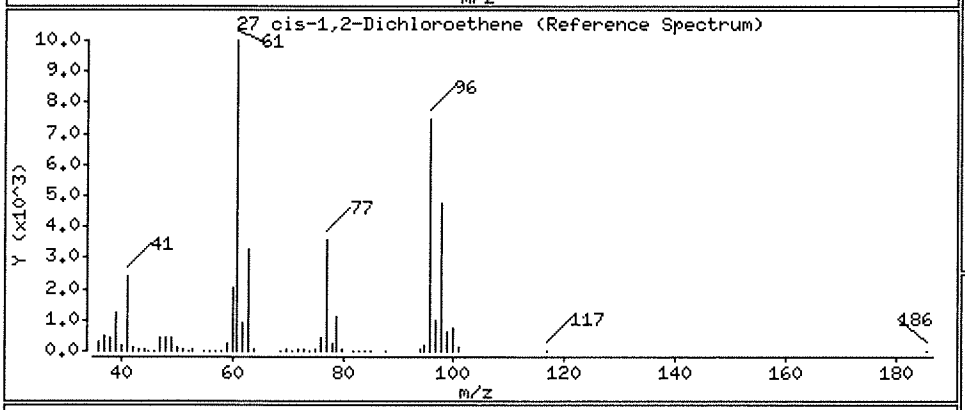
27 cis-1,2-Dichloroethene Concentration: 8.91 ug/l

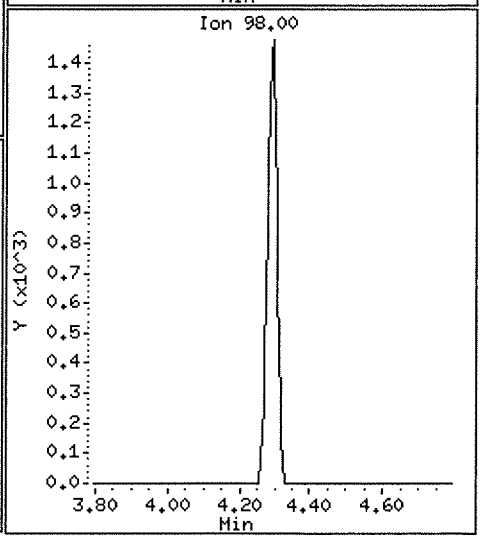


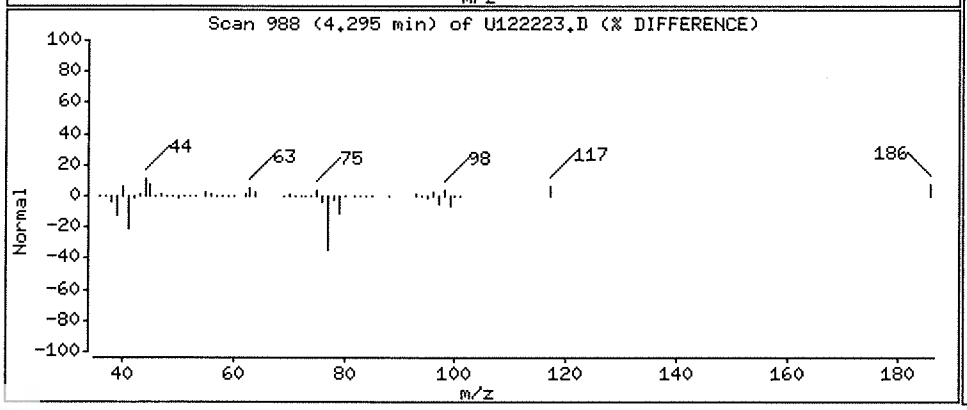












Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122223.D

Date : 22-DEC-2018 19:44

Client ID: HS18120736-02

Instrument: VOA9.i

Sample Info: HS18120736-02;HS18120736-02;;;

Purge Volume: 5.0

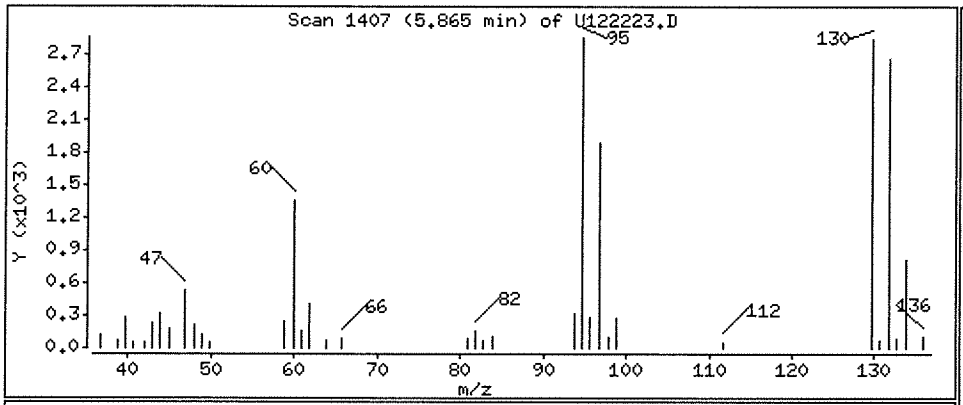
Operator: PC

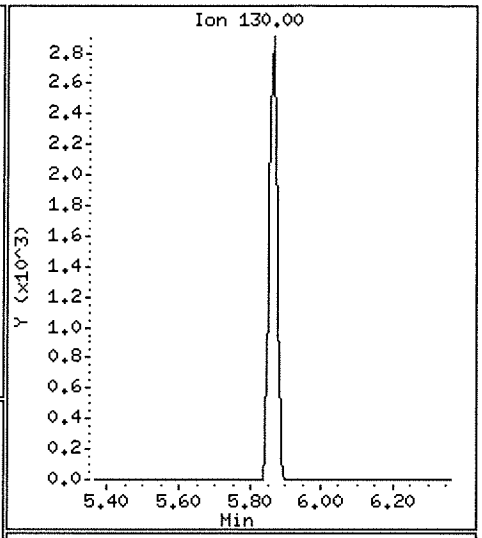
Column phase: DB624

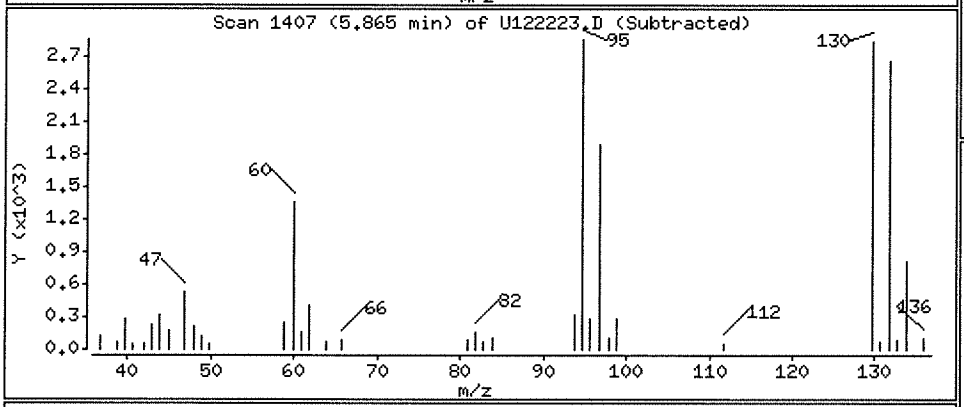
Column diameter: 0.18

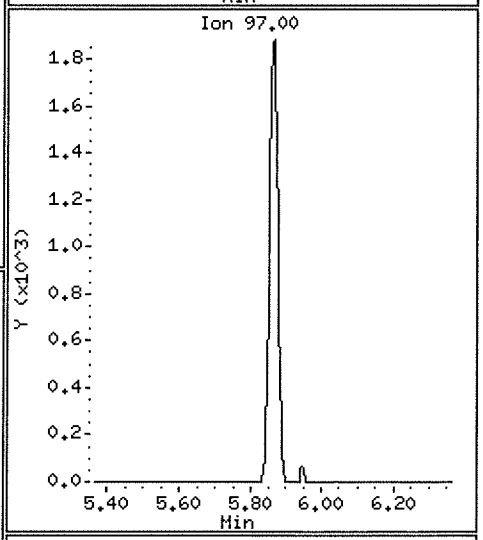
38 Trichloroethene

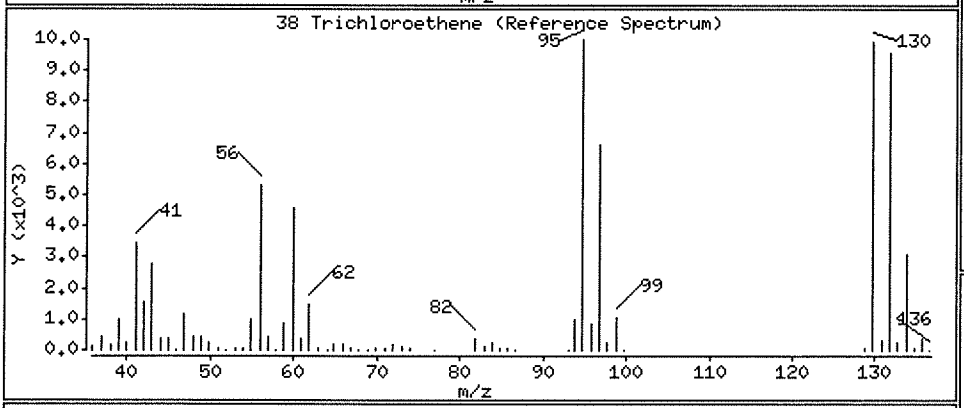
Concentration: 11.69 ug/l

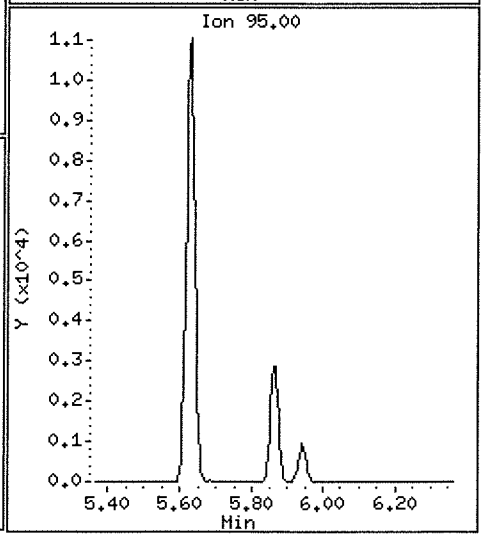


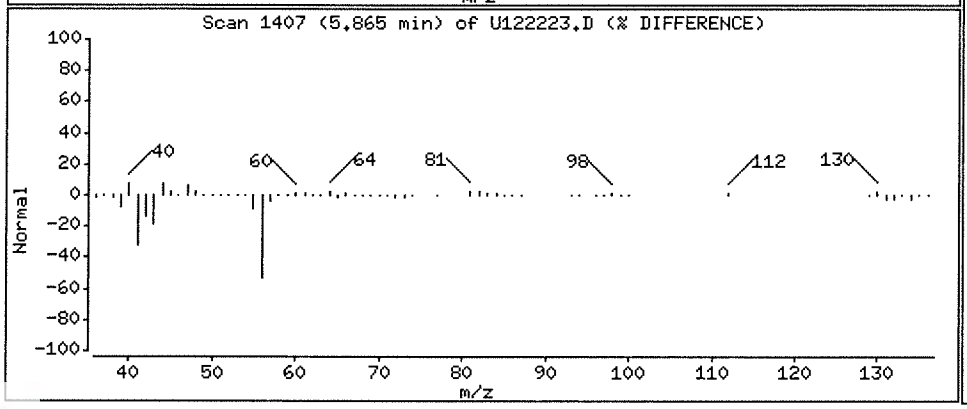












Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122224.D Page 1
Report Date: 28-Jan-2019 14:04

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122224.D
Lab Smp Id: HS18120736-01 Client Smp ID: HS18120736-01
Inj Date : 22-DEC-2018 20:09
Operator : PC Inst ID: VOA9.i
Smp Info : HS18120736-01;HS18120736-01;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181222.b\8260C.m
Meth Date : 28-Jan-2019 14:02 hvan Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 23
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

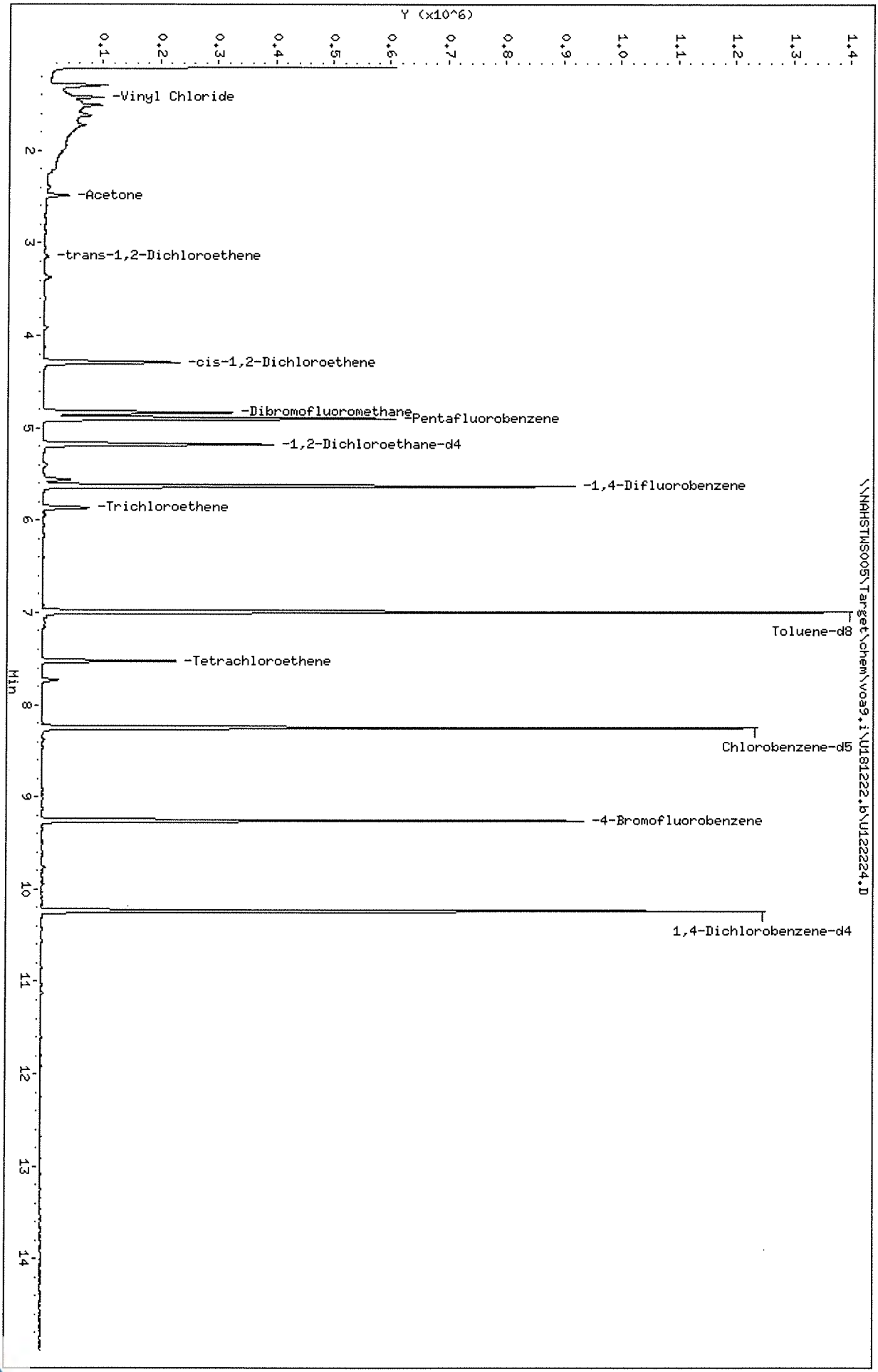
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.898	4.898	(1.000)	376694	50.0000	
* 36 1,4-Difluorobenzene	114	5.625	5.629	(1.000)	663881	50.0000	
* 47 Chlorobenzene-d5	117	8.249	8.249	(1.000)	593620	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	278883	50.0000	
$ 30 Dibromofluoromethane	113	4.830	4.834	(0.986)	188094	45.1042	45.10
$ 35 1,2-Dichloroethane-d4	65	5.175	5.179	(1.057)	253428	47.4256	47.42
$ 48 Toluene-d8	98	6.990	6.989	(0.847)	808907	52.8699	52.86
$ 69 4-Bromofluorobenzene	95	9.258	9.257	(1.122)	288951	49.5036	49.50
10 Acetone	43	2.484	2.491	(0.507)	39662	24.7622	24.76
27 cis-1,2-Dichloroethene	96	4.291	4.294	(0.876)	110154	22.2471	22.24
56 Tetrachloroethene	164	7.526	7.525	(0.912)	45779	14.7306	14.73
20 trans-1,2-Dichloroethene	96	3.147	3.151	(0.643)	2716	0.61597	0.61(a)
38 Trichloroethene	130	5.861	5.865	(1.042)	24120	5.65565	5.65
5 Vinyl Chloride	62	1.423	1.426	(0.291)	35771	7.55250	7.55

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).



Data File: \\NAHSTWS005\Target\chem\voa9,i\U181222.b\U122224.D
Date : 22-DEC-2018 20:09
Client ID: HS18120736-01
Sample Info: HS18120736-01;HS18120736-01;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9,i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122224.D

Date : 22-DEC-2018 20:09

Client ID: HS18120736-01

Instrument: VOA9.i

Sample Info: HS18120736-01;HS18120736-01;;;

Purge Volume: 5.0

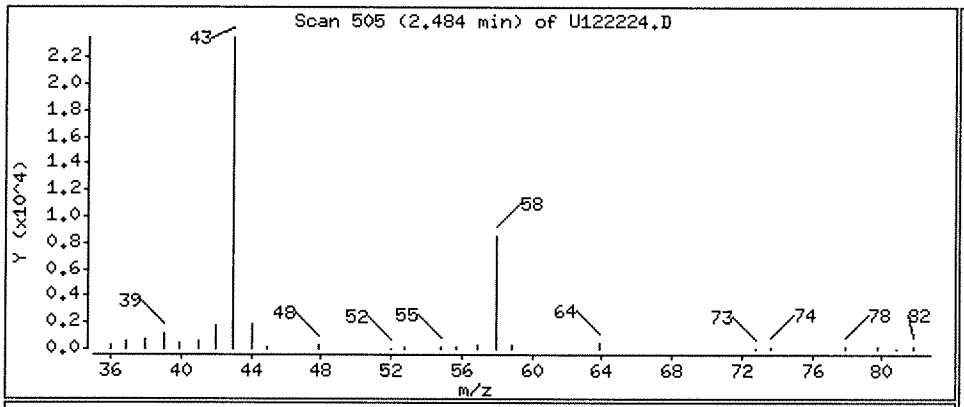
Operator: PC

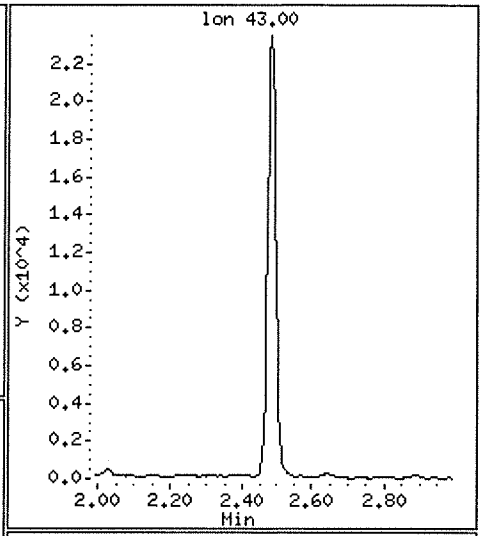
Column phase: DB624

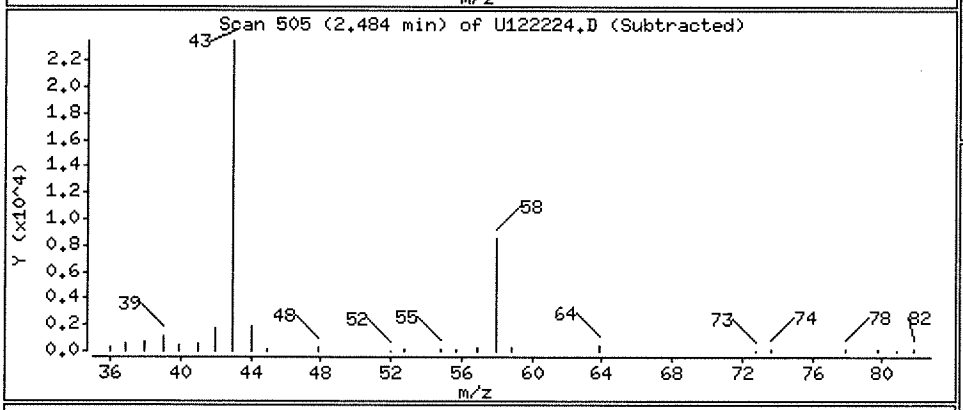
Column diameter: 0.18

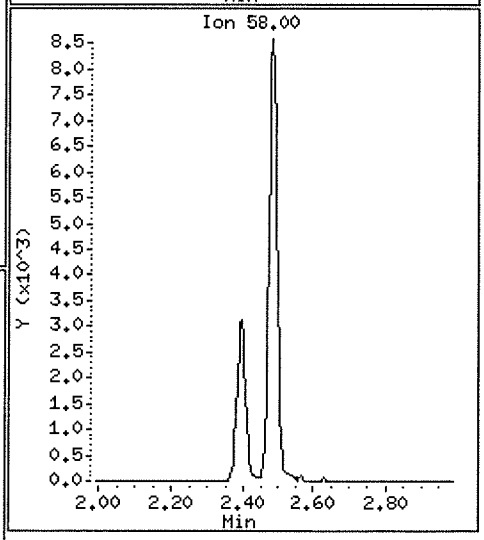
10 Acetone

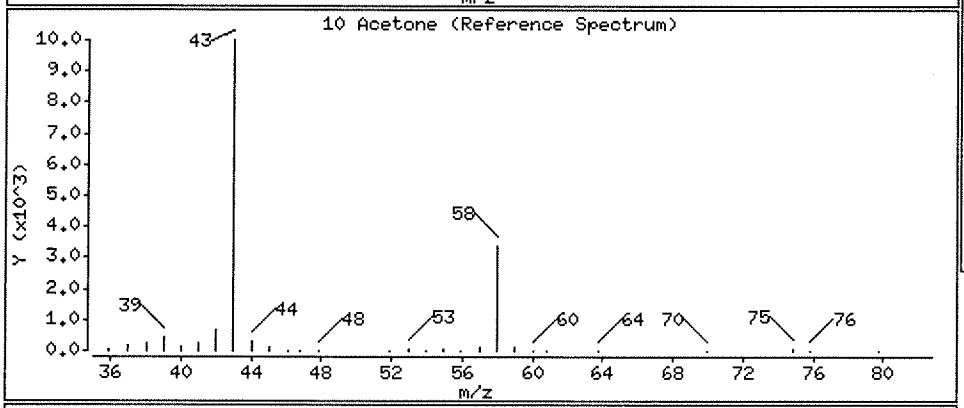
Concentration: 24.76 ug/l

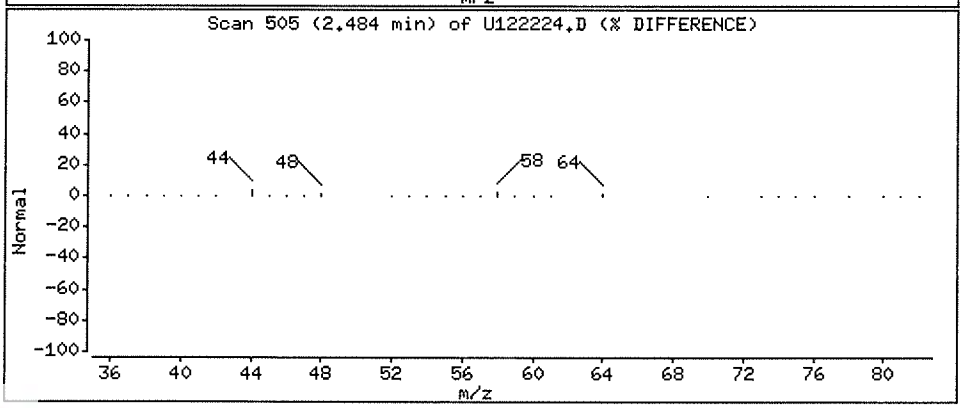












Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122224.D

Date : 22-DEC-2018 20:09

Client ID: HS18120736-01

Instrument: VOA9.i

Sample Info: HS18120736-01;HS18120736-01;;;

Purge Volume: 5.0

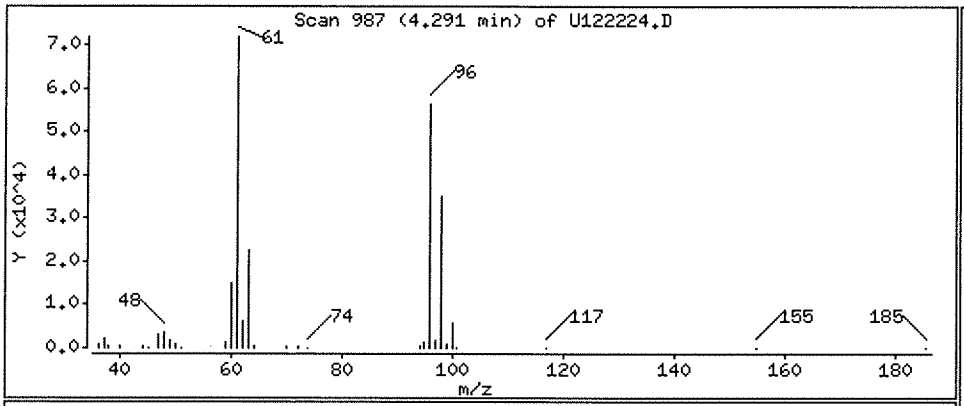
Operator: PC

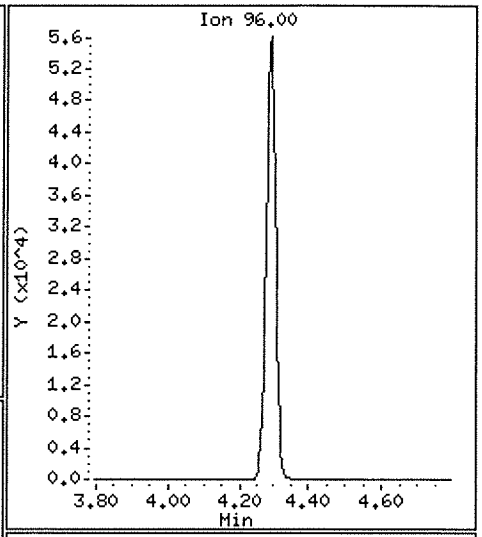
Column phase: DB624

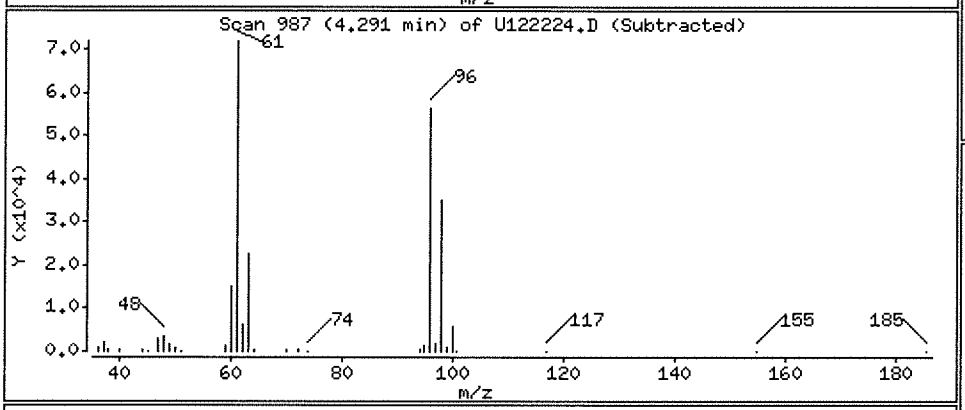
Column diameter: 0.18

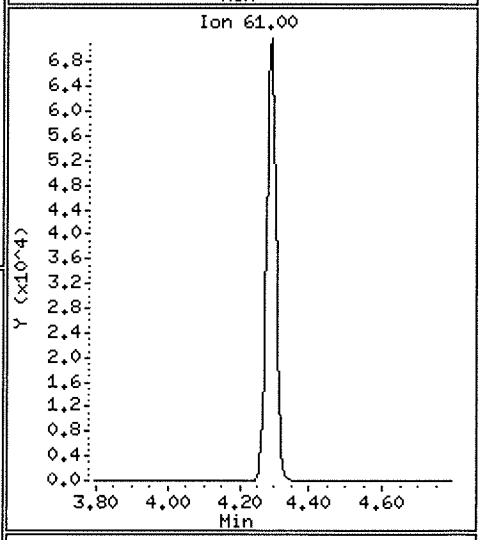
27 cis-1,2-Dichloroethene

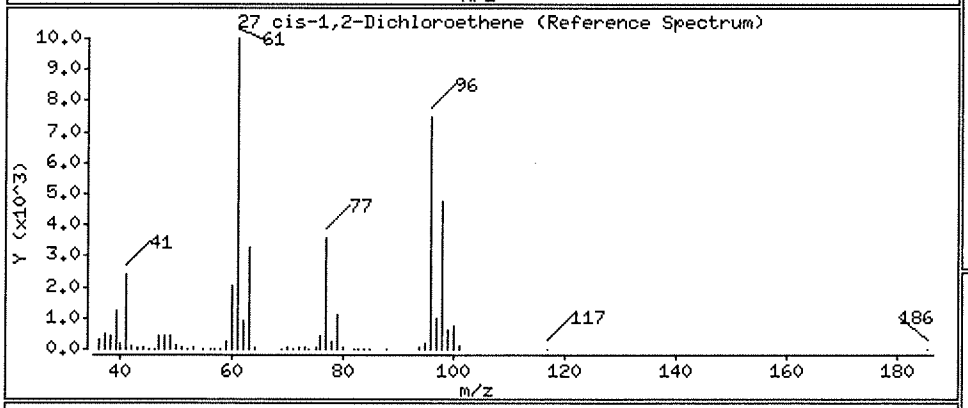
Concentration: 22.24 ug/l

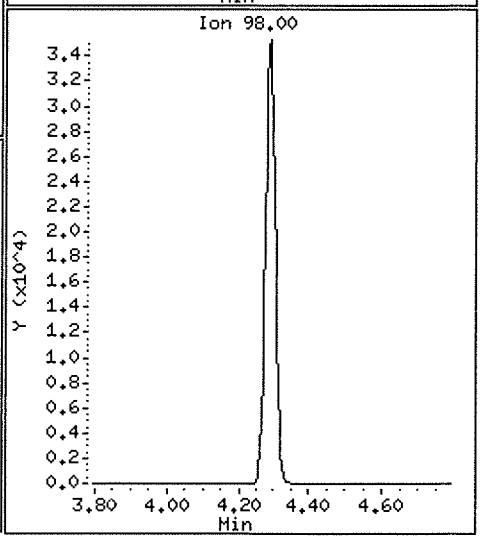


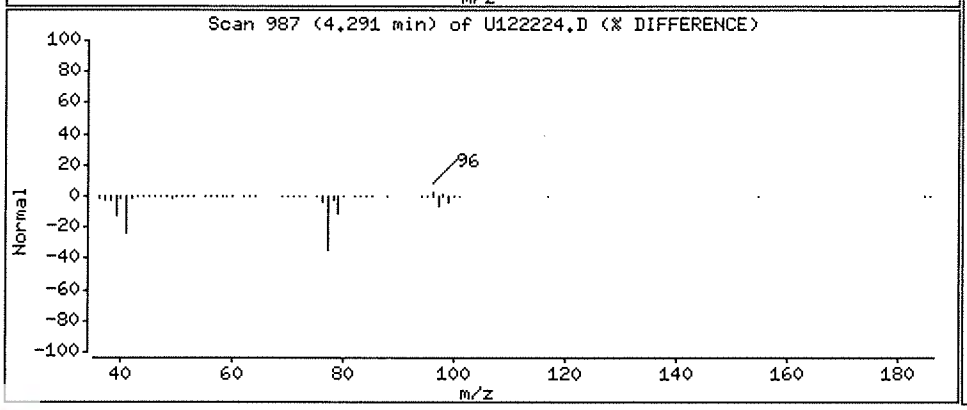












Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122224.D

Date : 22-DEC-2018 20:09

Client ID: HS18120736-01

Instrument: VOA9.i

Sample Info: HS18120736-01;HS18120736-01;;;

Purge Volume: 5.0

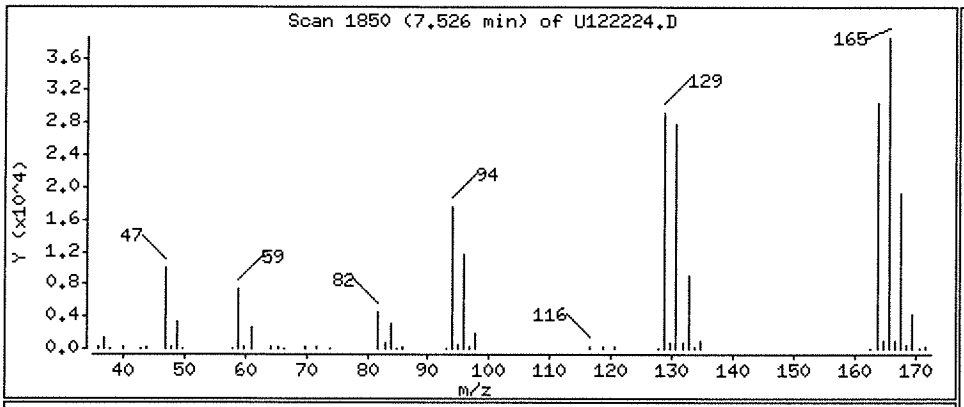
Operator: PC

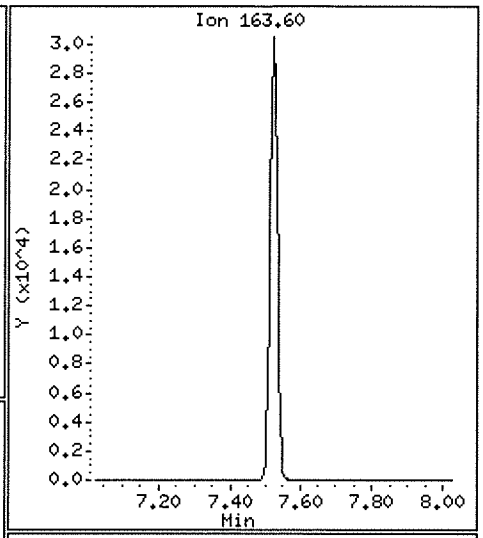
Column phase: DB624

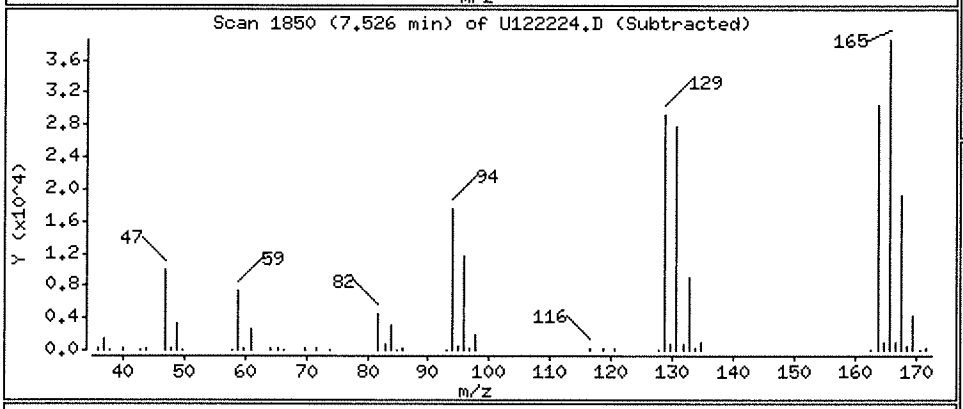
Column diameter: 0.18

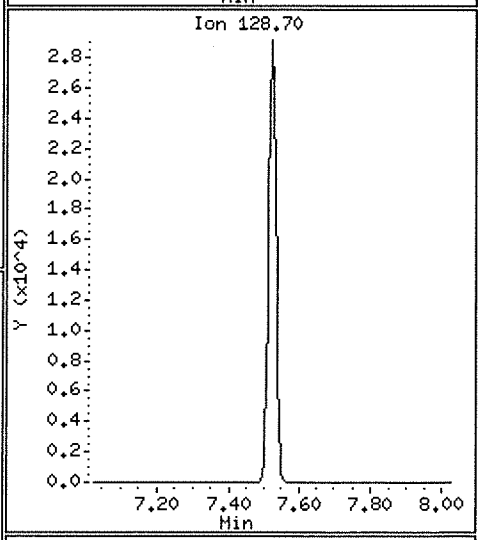
56 Tetrachloroethene

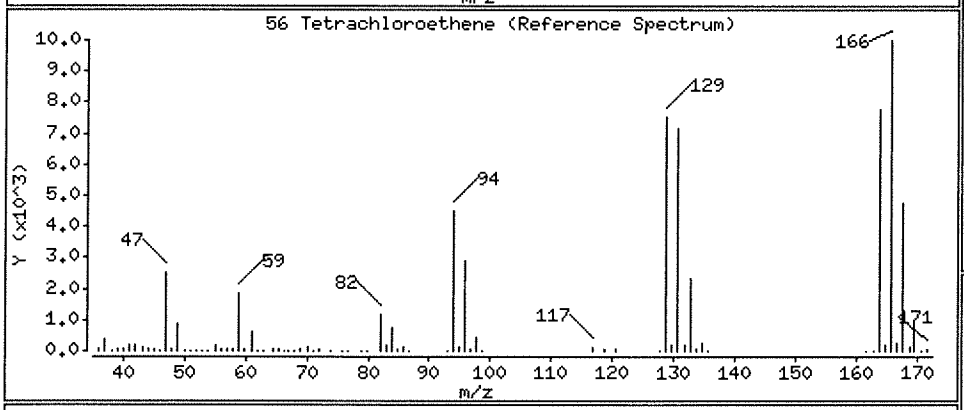
Concentration: 14.73 ug/l

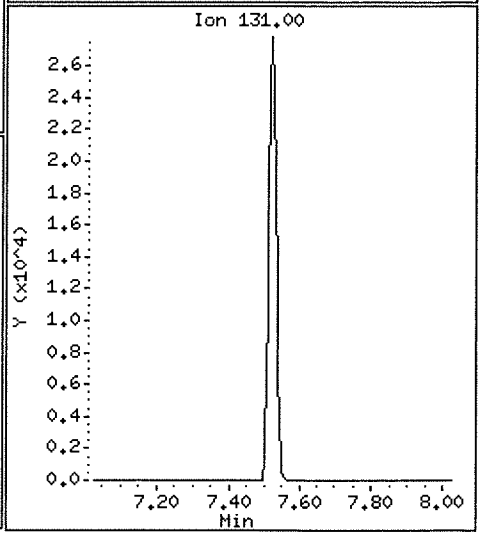


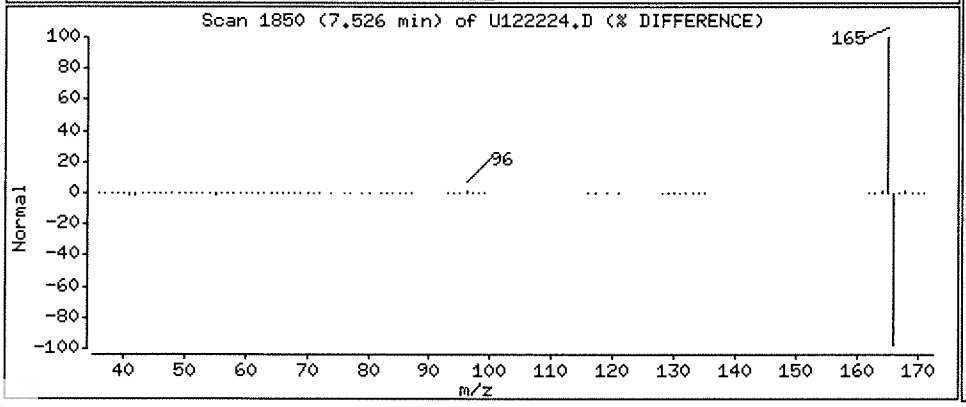












Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122224.D

Date : 22-DEC-2018 20:09

Client ID: HS18120736-01

Instrument: VOA9.i

Sample Info: HS18120736-01;HS18120736-01;;;

Purge Volume: 5.0

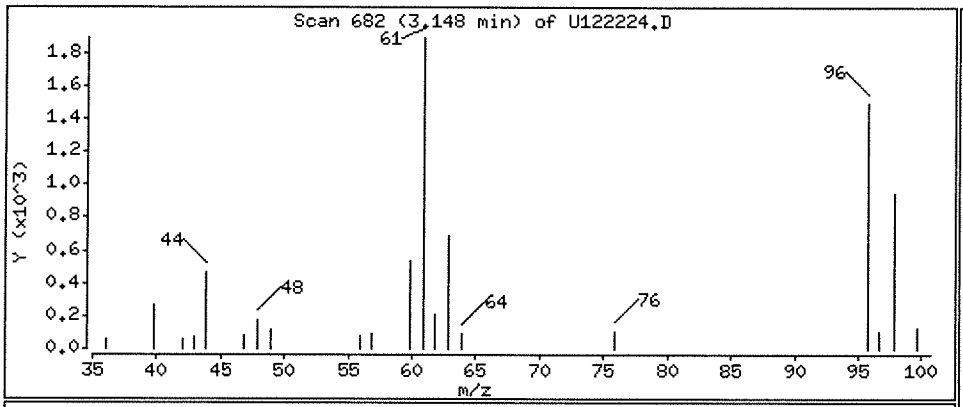
Operator: PC

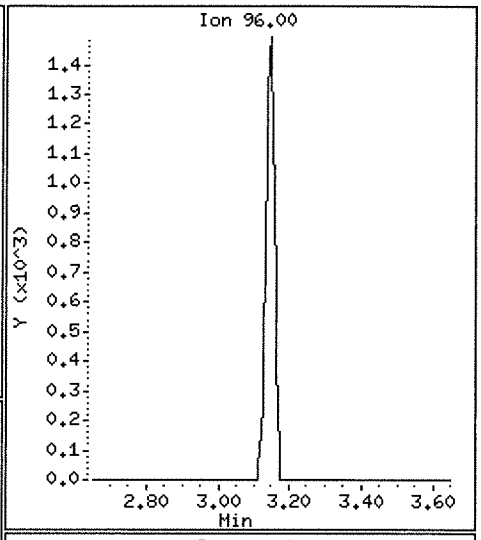
Column phase: DB624

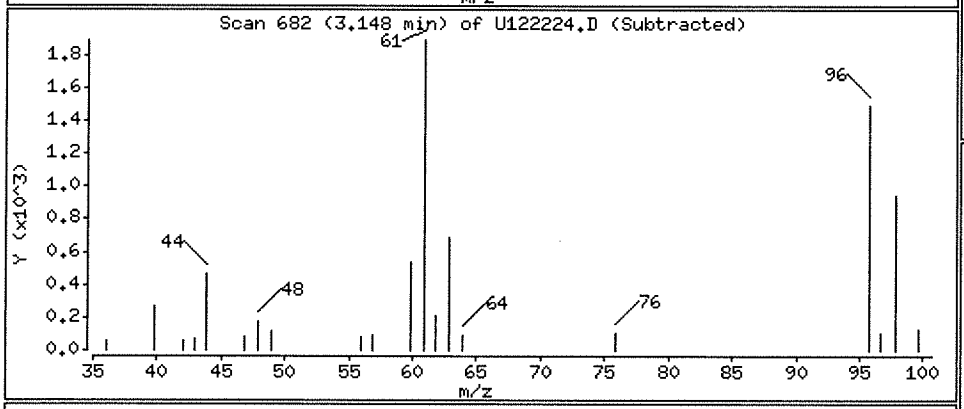
Column diameter: 0.18

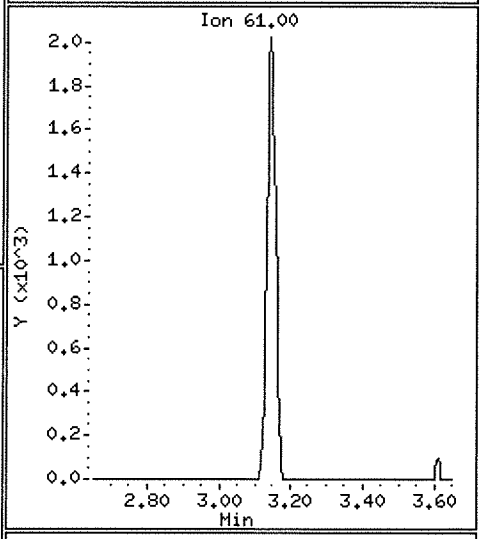
20 trans-1,2-Dichloroethene

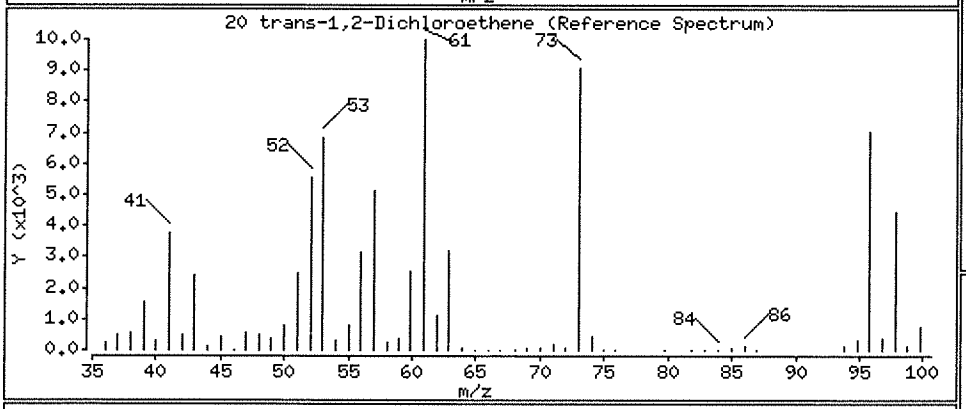
Concentration: 0.61 ug/l

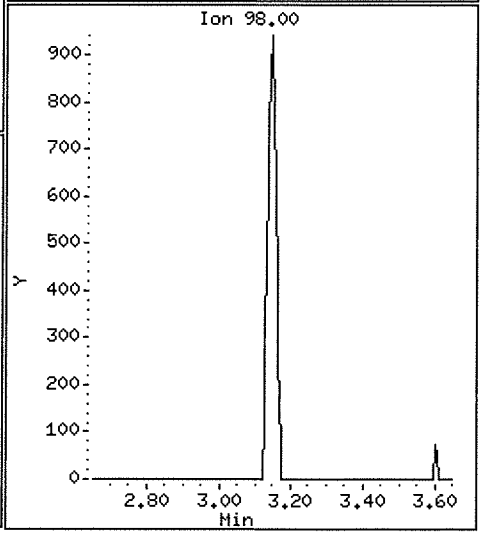


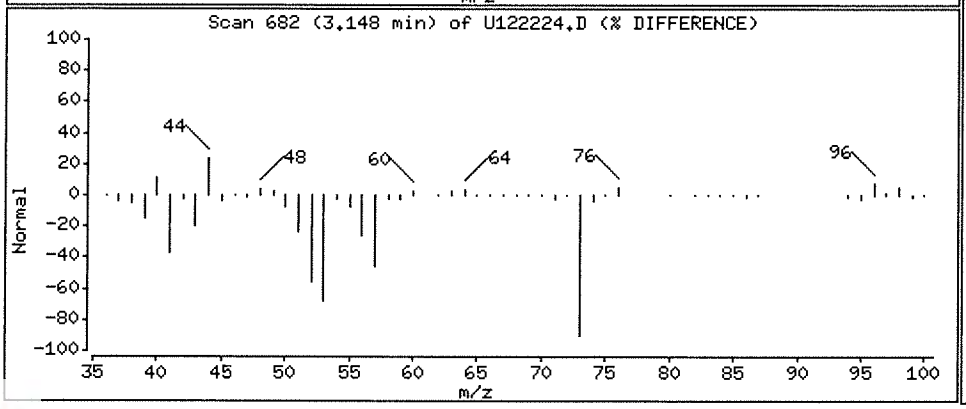












Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122224.D

Date : 22-DEC-2018 20:09

Client ID: HS18120736-01

Instrument: VOA9.i

Sample Info: HS18120736-01;HS18120736-01;;;

Purge Volume: 5.0

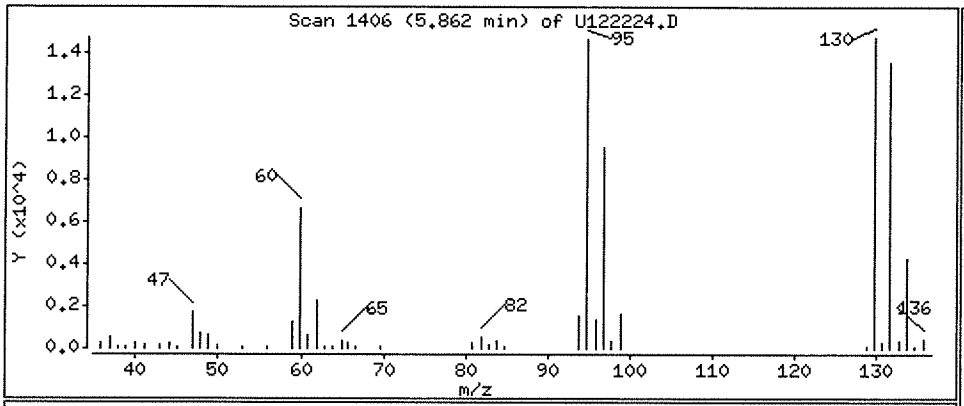
Operator: PC

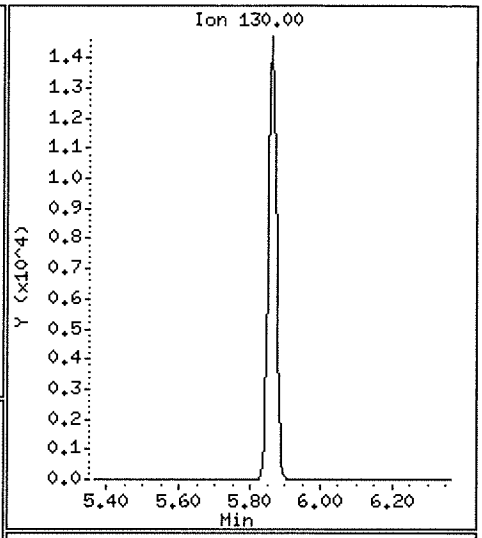
Column phase: DB624

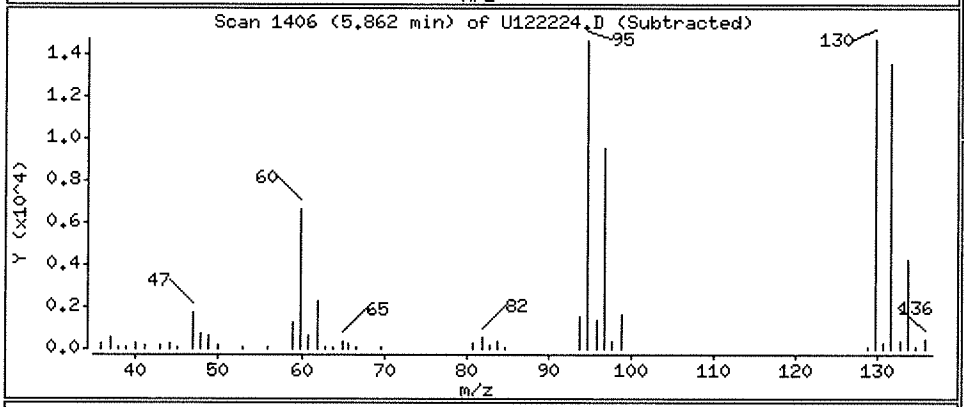
Column diameter: 0.18

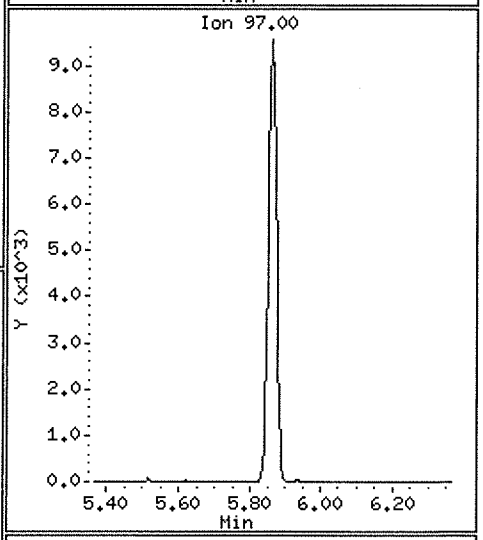
38 Trichloroethene

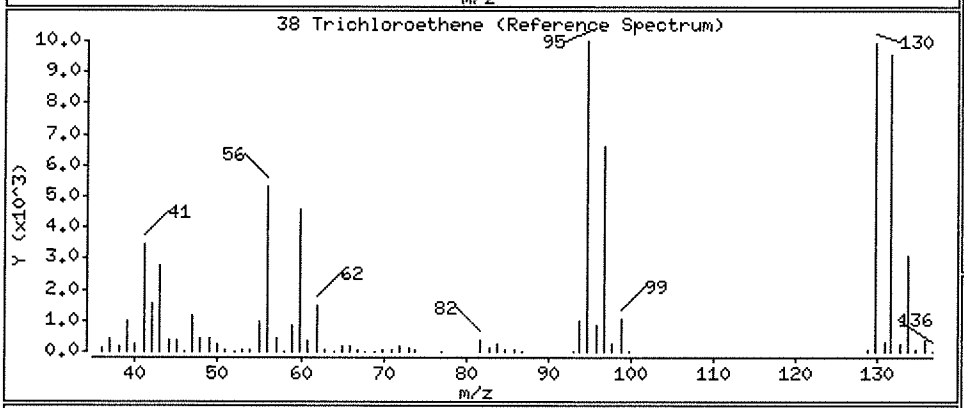
Concentration: 5.65 ug/l

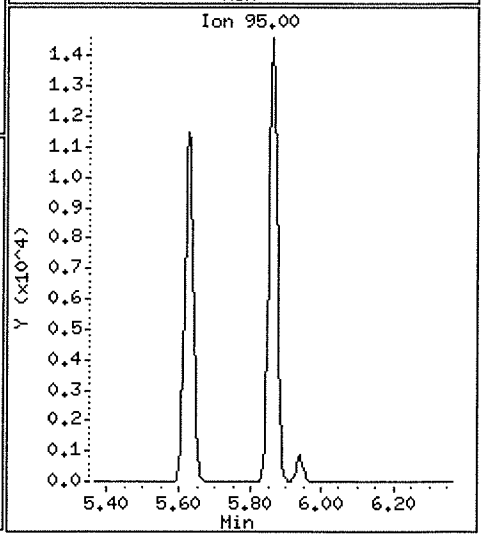


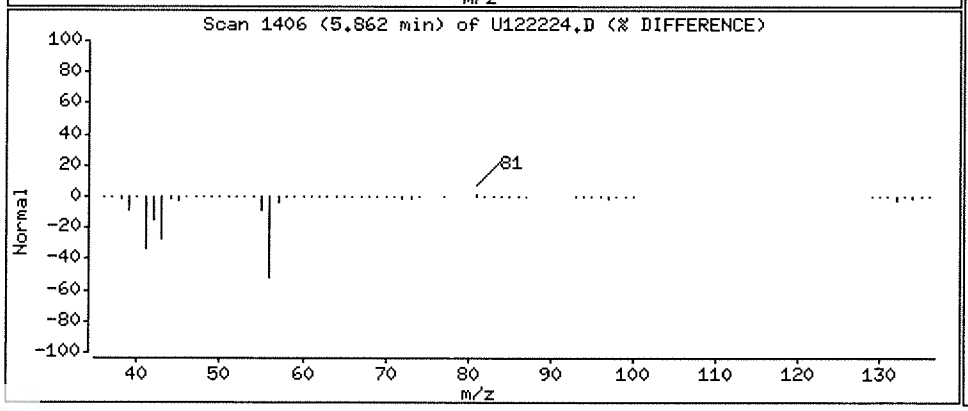












Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122224.D

Date : 22-DEC-2018 20:09

Client ID: HS18120736-01

Instrument: VOA9.i

Sample Info: HS18120736-01;HS18120736-01;;;

Purge Volume: 5.0

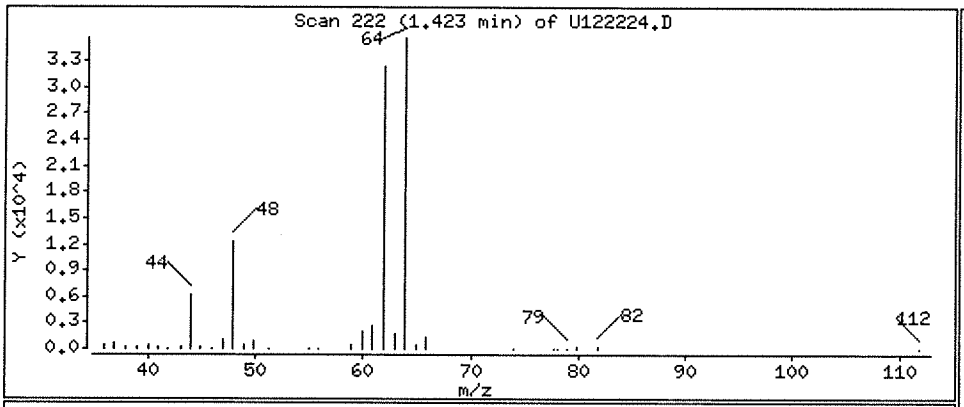
Operator: PC

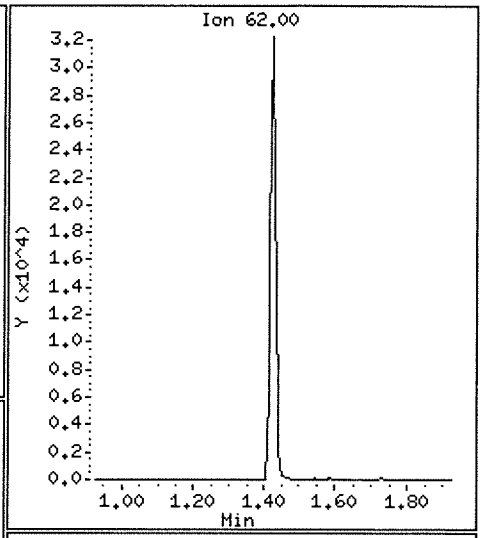
Column phase: DB624

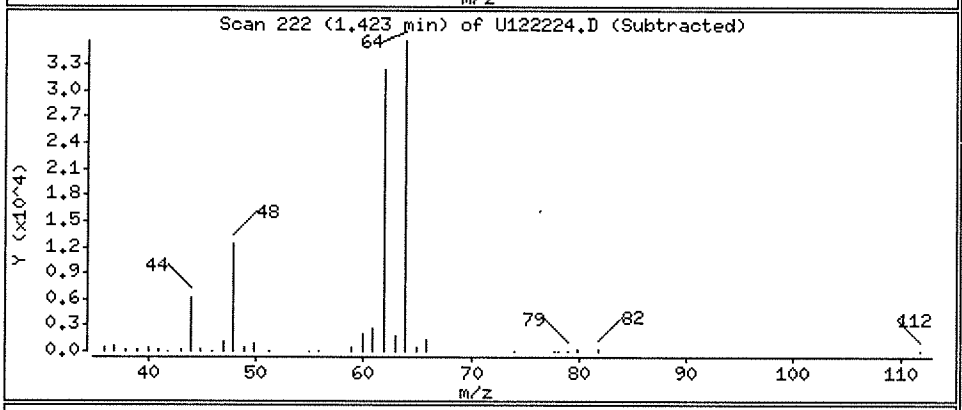
Column diameter: 0.18

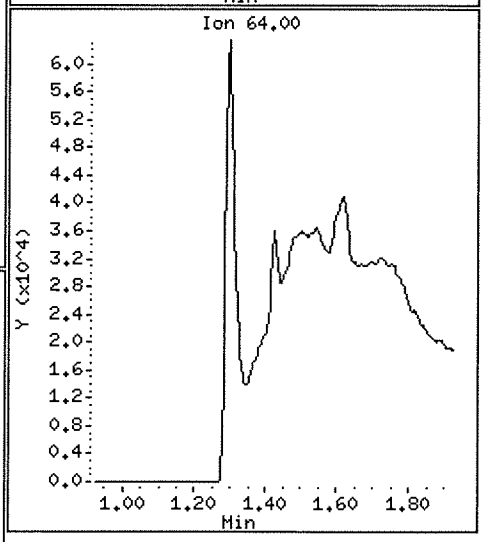
5 Vinyl Chloride

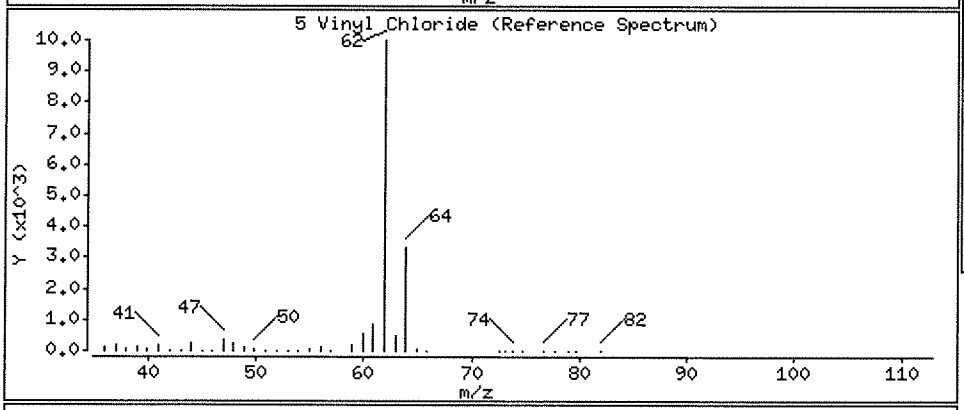
Concentration: 7.55 ug/l

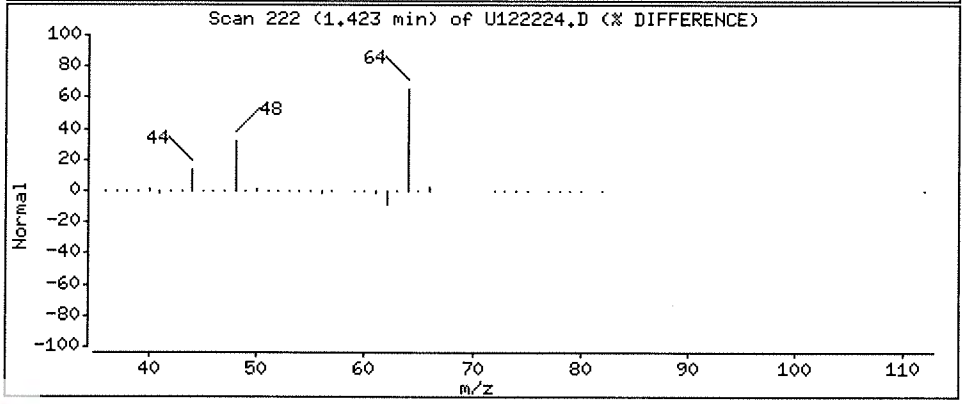












Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122225.D Page 1
Report Date: 28-Jan-2019 14:04

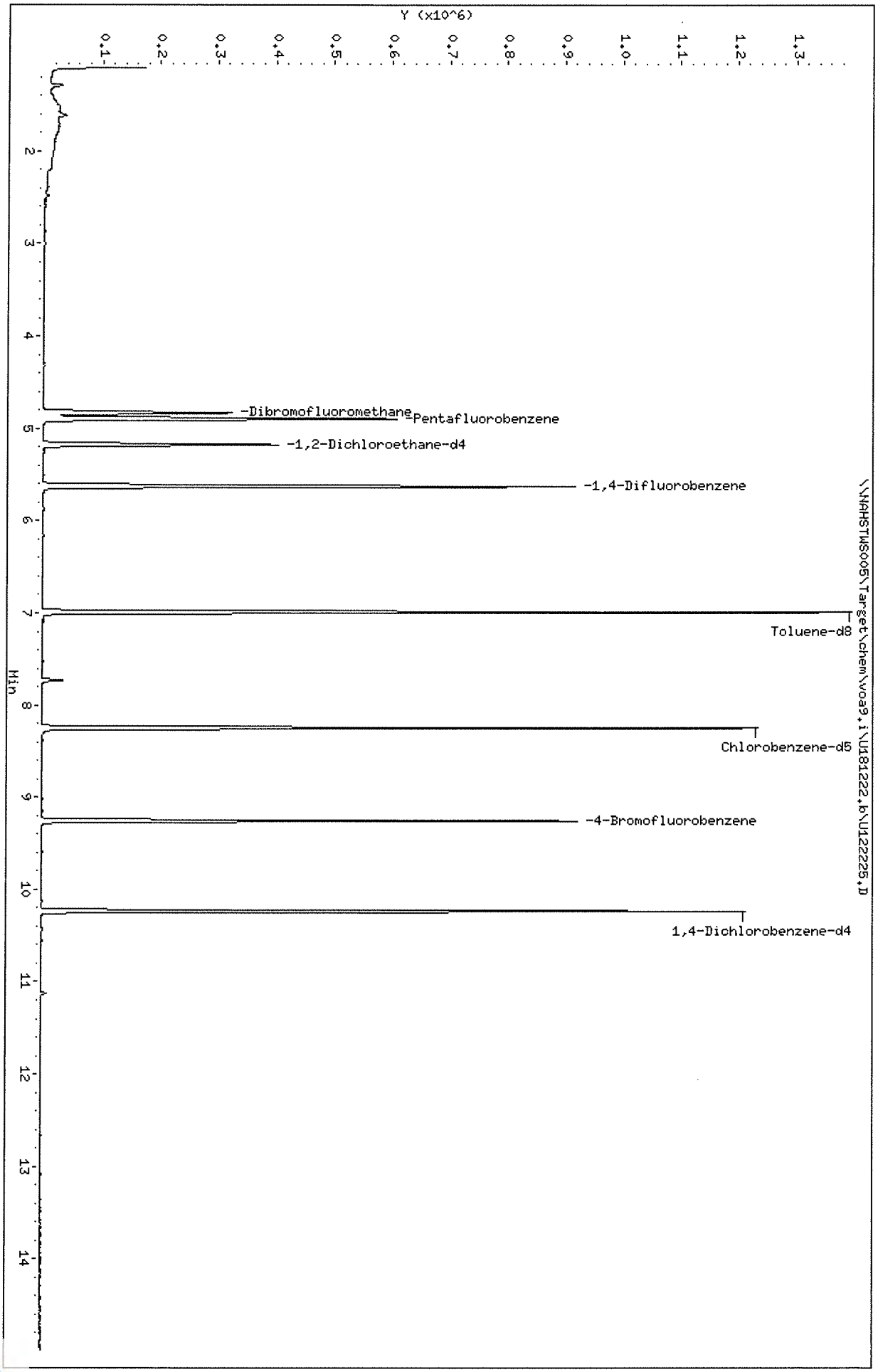
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122225.D
Lab Smp Id: HS18120736-03 Client Smp ID: HS18120736-03
Inj Date : 22-DEC-2018 20:33
Operator : PC Inst ID: VOA9.i
Smp Info : HS18120736-03;HS18120736-03;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181222.b\8260C.m
Meth Date : 28-Jan-2019 14:02 hvan Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 24
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.894	4.898	(1.000)	369842	50.0000	
* 36 1,4-Difluorobenzene	114	5.625	5.629	(1.000)	650451	50.0000	
* 47 Chlorobenzene-d5	117	8.249	8.249	(1.000)	592573	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	267846	50.0000	
$ 30 Dibromofluoromethane	113	4.830	4.834	(0.987)	189135	46.2310	46.23
$ 35 1,2-Dichloroethane-d4	65	5.175	5.179	(1.057)	255427	48.7428	48.74
$ 48 Toluene-d8	98	6.989	6.989	(0.847)	799511	52.3305	52.33
$ 69 4-Bromofluorobenzene	95	9.257	9.257	(1.122)	283058	48.5530	48.55



Data File: \\NAHSTWS005\Target\chem\voa9,i\U181222,b\U122225.D
Date : 22-DEC-2018 20:33
Client ID: HS18120736-03
Sample Info: HS18120736-03;HS18120736-03;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9,i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122226.D Page 1
Report Date: 28-Jan-2019 14:04

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122226.D
Lab Smp Id: HS18120736-04 Client Smp ID: HS18120736-04
Inj Date : 22-DEC-2018 20:58
Operator : PC Inst ID: VOA9.i
Smp Info : HS18120736-04;HS18120736-04;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181222.b\8260C.m
Meth Date : 28-Jan-2019 14:02 hvan Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 25
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

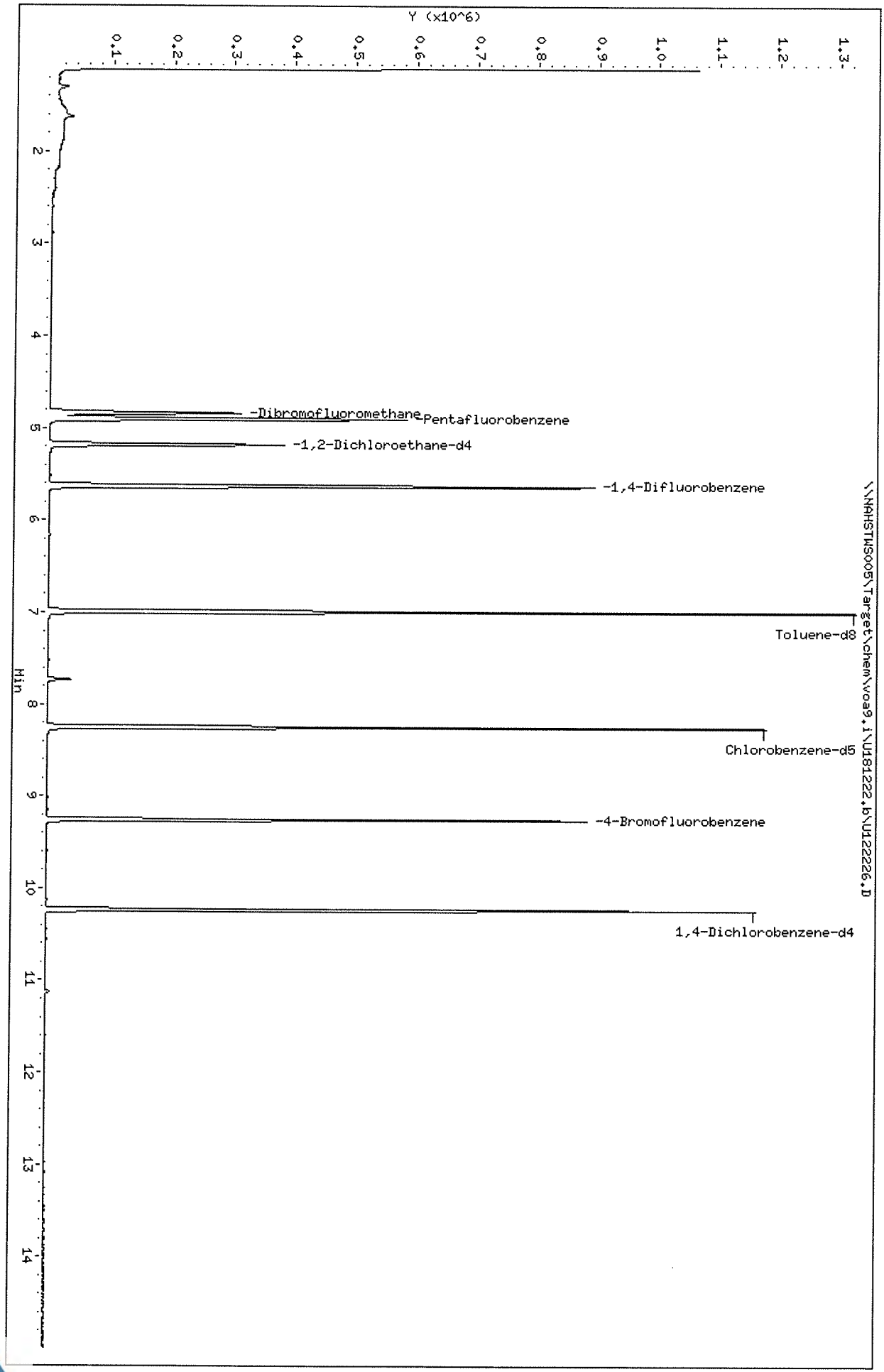
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.901	4.898	(1.000)	362538	50.0000	
* 36 1,4-Difluorobenzene	114	5.628	5.629	(1.000)	636669	50.0000	
* 47 Chlorobenzene-d5	117	8.252	8.249	(1.000)	572649	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.235	10.236	(1.000)	260663	50.0000	
$ 30 Dibromofluoromethane	113	4.837	4.834	(0.987)	183482	45.7370	45.73
$ 35 1,2-Dichloroethane-d4	65	5.178	5.179	(1.057)	247469	48.1504	48.15
$ 48 Toluene-d8	98	6.993	6.989	(0.847)	775748	52.5489	52.54
$ 69 4-Bromofluorobenzene	95	9.257	9.257	(1.122)	273759	48.5929	48.59

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122226.D
Date : 22-DEC-2018 20:58
Client ID: HS18120736-04
Sample Info: HS18120736-04;HS18120736-04;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122228.D Page 1
Report Date: 28-Jan-2019 13:53

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Data file : \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122228.D
Lab Smp Id: VSTD050-END Client Smp ID: VSTD050-END
Inj Date : 22-DEC-2018 21:47
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD050-END;VSTD050-END;2;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181222.b\8260C.m
Meth Date : 28-Jan-2019 13:53 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 27 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

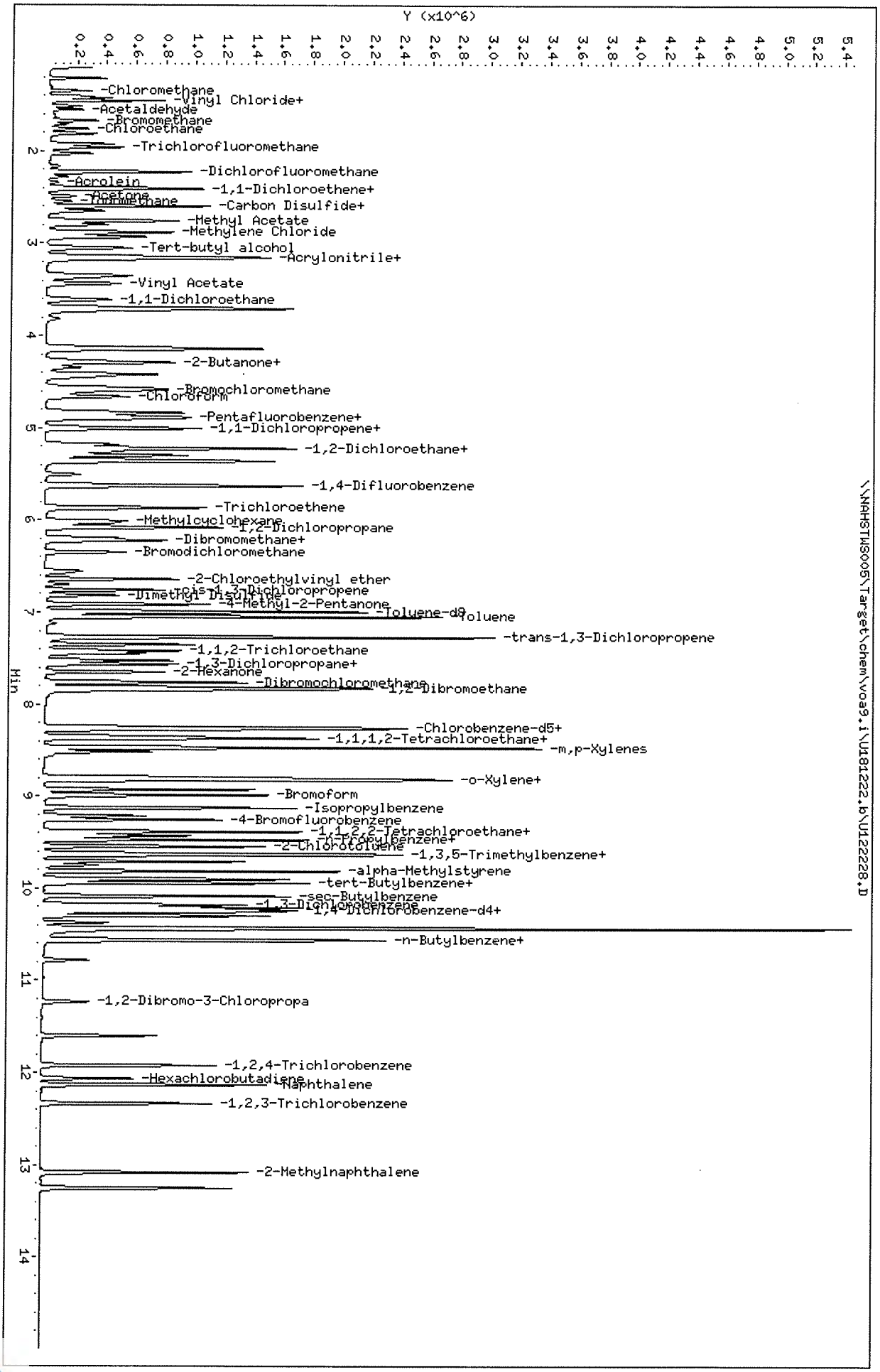
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.898	4.898	(1.000)	416371	50.0000	
*	36 1,4-Difluorobenzene	114	5.629	5.629	(1.000)	780134	50.0000	
*	47 Chlorobenzene-d5	117	8.249	8.249	(1.000)	715426	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	339732	50.0000	
$	30 Dibromofluoromethane	113	4.834	4.834	(0.987)	237075	50.0000	51.64
$	35 1,2-Dichloroethane-d4	65	5.179	5.179	(1.057)	309484	50.0000	52.62
$	48 Toluene-d8	98	6.989	6.989	(0.847)	965100	50.0000	52.32
$	69 4-Bromofluorobenzene	95	9.257	9.257	(1.122)	364618	50.0000	51.89
	60 1,1,1,2-Tetrachloroethane	131	8.350	8.350	(1.012)	219927	50.0000	48.46
	31 1,1,1-Trichloroethane	97	4.834	4.834	(0.987)	331166	50.0000	50.37
	68 1,1,2,2-Tetrachloroethane	83	9.392	9.392	(0.918)	389319	50.0000	50.88
	138 Freon TF	101	2.408	2.408	(0.492)	161787	50.0000	45.70
	53 1,1,2-Trichloroethane	83	7.420	7.420	(0.900)	218163	50.0000	51.18
	22 1,1-Dichloroethane	63	3.612	3.612	(0.737)	443756	50.0000	49.48
	11 1,1-Dichloroethene	96	2.408	2.408	(0.492)	190373	50.0000	48.08
	32 1,1-Dichloropropene	75	5.010	5.010	(0.890)	331978	50.0000	47.82
	93 1,2,3-Trichlorobenzene	180	12.335	12.335	(1.205)	307435	50.0000	48.04
	71 1,2,3-Trichloropropane	75	9.426	9.426	(0.921)	417160	50.0000	52.43
	90 1,2,4-Trichlorobenzene	180	11.923	11.923	(1.165)	311238	50.0000	49.48
	79 1,2,4-Trimethylbenzene	105	9.943	9.943	(0.971)	898906	50.0000	50.56
	89 1,2-Dibromo-3-Chloropropane	155	11.233	11.233	(1.097)	56973	50.0000	48.34
	57 1,2-Dibromoethane	107	7.852	7.852	(0.952)	257294	50.0000	52.40

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\U122228.D Page 2
Report Date: 28-Jan-2019 13:53

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	10.569	10.569	(1.033)	492900	50.0000	48.86
33	1,2-Dichloroethane	62	5.257	5.257	(0.934)	362752	50.0000	51.63
42	1,2-Dichloropropane	63	6.082	6.082	(1.081)	273767	50.0000	49.66
75	1,3,5-Trimethylbenzene	105	9.625	9.625	(0.940)	854477	50.0000	50.04
83	1,3-Dichlorobenzene	146	10.179	10.179	(0.995)	488895	50.0000	48.46
54	1,3-Dichloropropane	76	7.567	7.567	(0.917)	469449	50.0000	51.13
84	1,4-Dichlorobenzene	146	10.254	10.254	(1.002)	504246	50.0000	47.40
26	2,2-Dichloropropane	77	4.283	4.283	(0.874)	219604	50.0000	40.63
24	2-Butanone	43	4.343	4.343	(0.887)	288314	100.000	106.02
76	2-Chlorotoluene	91	9.546	9.546	(0.933)	773924	50.0000	49.44
52	2-Hexanone	43	7.649	7.649	(0.927)	442483	100.000	111.22
77	4-Chlorotoluene	91	9.640	9.640	(0.942)	901004	50.0000	49.81
82	p-Isopropyltoluene	119	10.209	10.209	(0.997)	884883	50.0000	49.22
45	4-Methyl-2-Pentanone	43	6.914	6.914	(0.838)	617637	100.000	107.90
10	Acetone	43	2.491	2.491	(0.509)	204255	100.000	126.43
37	Benzene	78	5.220	5.220	(0.927)	1031023	50.0000	49.66
74	Bromobenzene	156	9.381	9.381	(0.917)	263528	50.0000	50.20
29	Bromochloromethane	128	4.560	4.560	(0.931)	124861	50.0000	57.65
39	Bromodichloromethane	83	6.348	6.348	(1.128)	305824	50.0000	52.17
66	Bromoform	173	8.984	8.984	(1.089)	145967	50.0000	47.62(T)
6	Bromomethane	94	1.674	1.674	(0.342)	82137	50.0000	32.42
19	Carbon Disulfide	76	2.600	2.600	(0.531)	1403910	100.000	97.32
34	Carbon Tetrachloride	117	4.999	4.999	(0.888)	257630	50.0000	45.53
59	Chlorobenzene	112	8.275	8.275	(1.003)	676298	50.0000	49.19
7	Chloroethane	64	1.760	1.760	(0.359)	176038	50.0000	47.73(M)
28	Chloroform	83	4.661	4.661	(0.952)	431359	50.0000	49.95
3	Chloromethane	50	1.348	1.348	(0.275)	180437	50.0000	41.40
27	cis-1,2-Dichloroethene	96	4.294	4.294	(0.877)	273983	50.0000	50.06
46	cis-1,3-Dichloropropene	75	6.761	6.761	(1.201)	411742	50.0000	46.31
55	Dibromochloromethane	129	7.758	7.758	(0.940)	233359	50.0000	49.64
44	Dibromomethane	93	6.191	6.191	(1.100)	164030	50.0000	51.55
2	Dichlorodifluoromethane	85	1.213	1.213	(0.248)	229811	50.0000	44.90
61	Ethylbenzene	106	8.373	8.373	(1.015)	345442	50.0000	48.99
91	Hexachlorobutadiene	225	12.065	12.065	(1.179)	101233	50.0000	42.00
67	Isopropylbenzene	105	9.126	9.126	(1.106)	1007522	50.0000	49.52
62	m,p-Xylenes	106	8.474	8.474	(1.027)	859119	100.000	99.12
17	Methylene Chloride	84	2.881	2.881	(0.588)	264368	50.0000	51.40
87	n-Butylbenzene	91	10.558	10.558	(1.031)	813354	50.0000	46.88
73	n-Propylbenzene	91	9.475	9.475	(0.926)	1254246	50.0000	49.40
92	Naphthalene	128	12.133	12.133	(1.185)	1038388	50.0000	50.19
63	o-Xylene	106	8.811	8.811	(1.068)	439054	50.0000	50.21
81	sec-Butylbenzene	105	10.086	10.086	(0.985)	1042477	50.0000	48.86
64	Styrene	104	8.826	8.826	(1.070)	768018	50.0000	52.86
78	tert-Butylbenzene	119	9.902	9.902	(0.967)	723133	50.0000	49.00
56	Tetrachloroethene	164	7.525	7.525	(0.912)	168532	50.0000	44.99
50	Toluene	91	7.049	7.049	(0.855)	1067632	50.0000	50.16
20	trans-1,2-Dichloroethene	96	3.151	3.151	(0.643)	239687	50.0000	49.17
51	trans-1,3-Dichloropropene	75	7.263	7.263	(1.290)	352963	50.0000	46.19
38	Trichloroethene	130	5.865	5.865	(1.042)	240967	50.0000	48.08
8	Trichlorofluoromethane	101	1.962	1.962	(0.401)	331792	50.0000	48.36
5	Vinyl Chloride	62	1.426	1.426	(0.291)	272121	50.0000	46.28

QC Flag Legend

T - Target compound detected outside RT window.
M - Compound response manually integrated.



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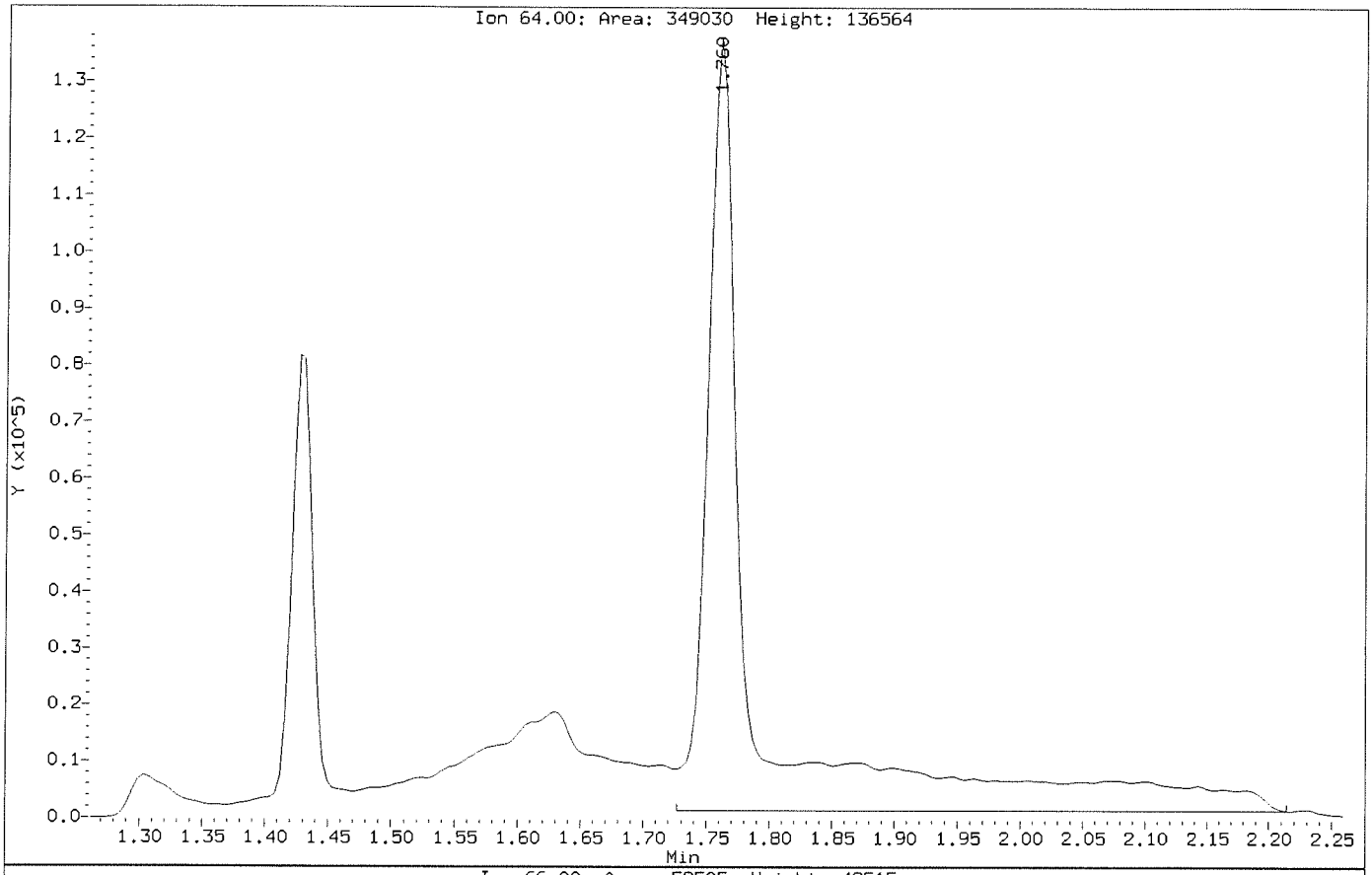
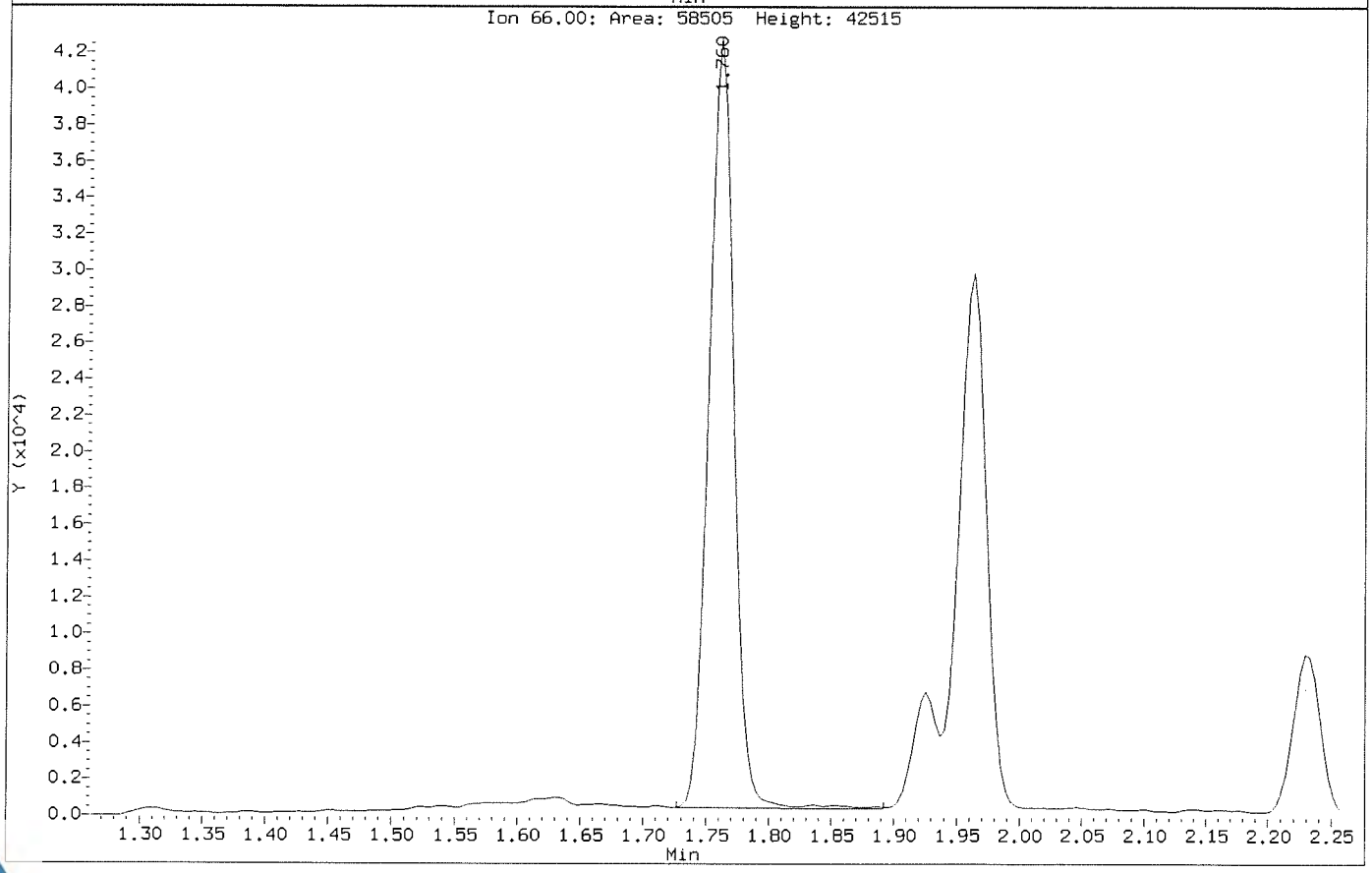
Date : 22-DEC-2018 21:47
Client ID: VSTD050-END
Sample Info: VSTD050-END;VSTD050-END;2;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9,i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181222.b\Before\U122228.D
Injection Date: 22-DEC-2018 21:47
Instrument: VOA9.i
Client Sample ID: VSTD050-END

Compound: Chloroethane
CAS Number: 75-00-3





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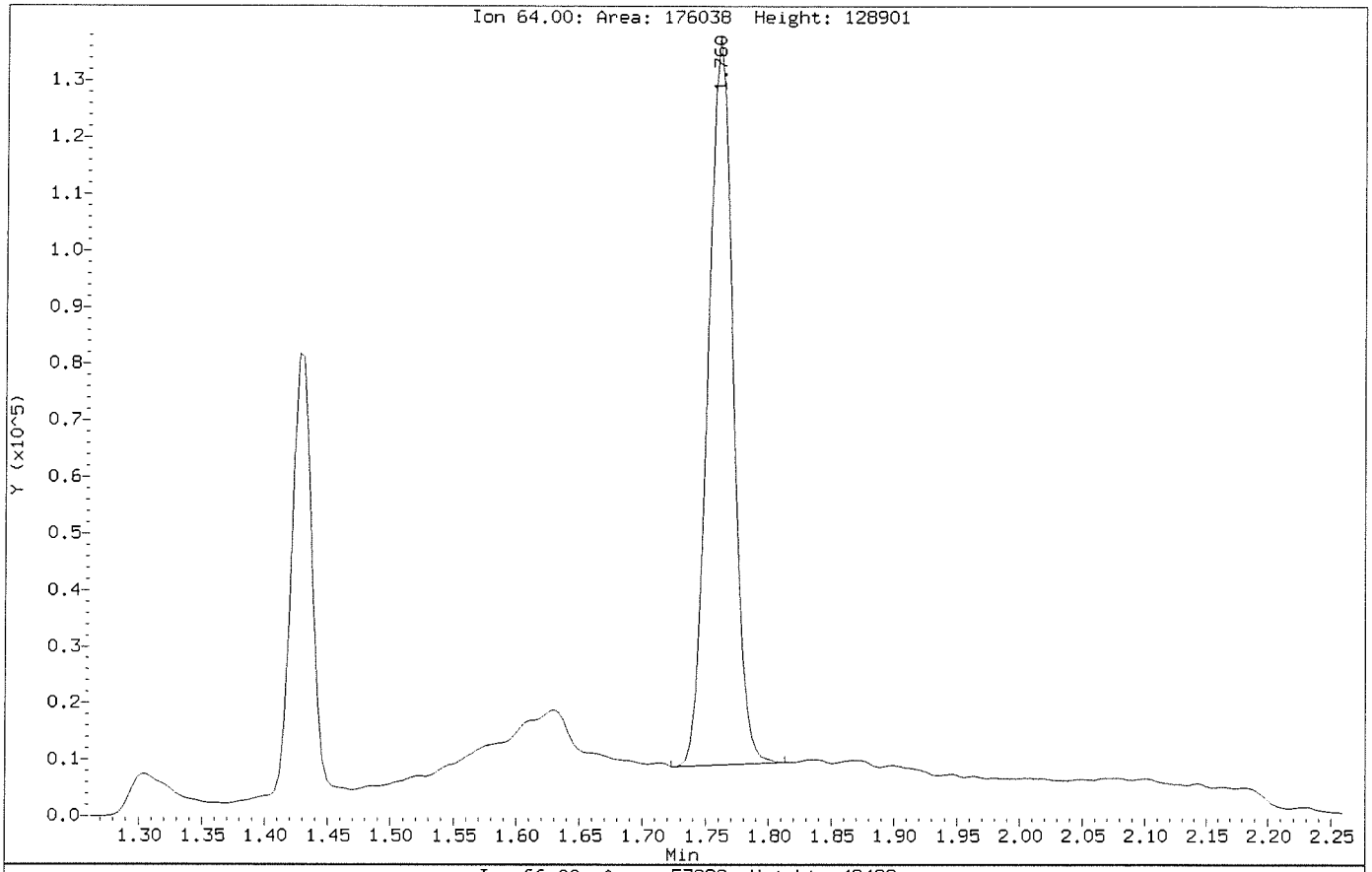
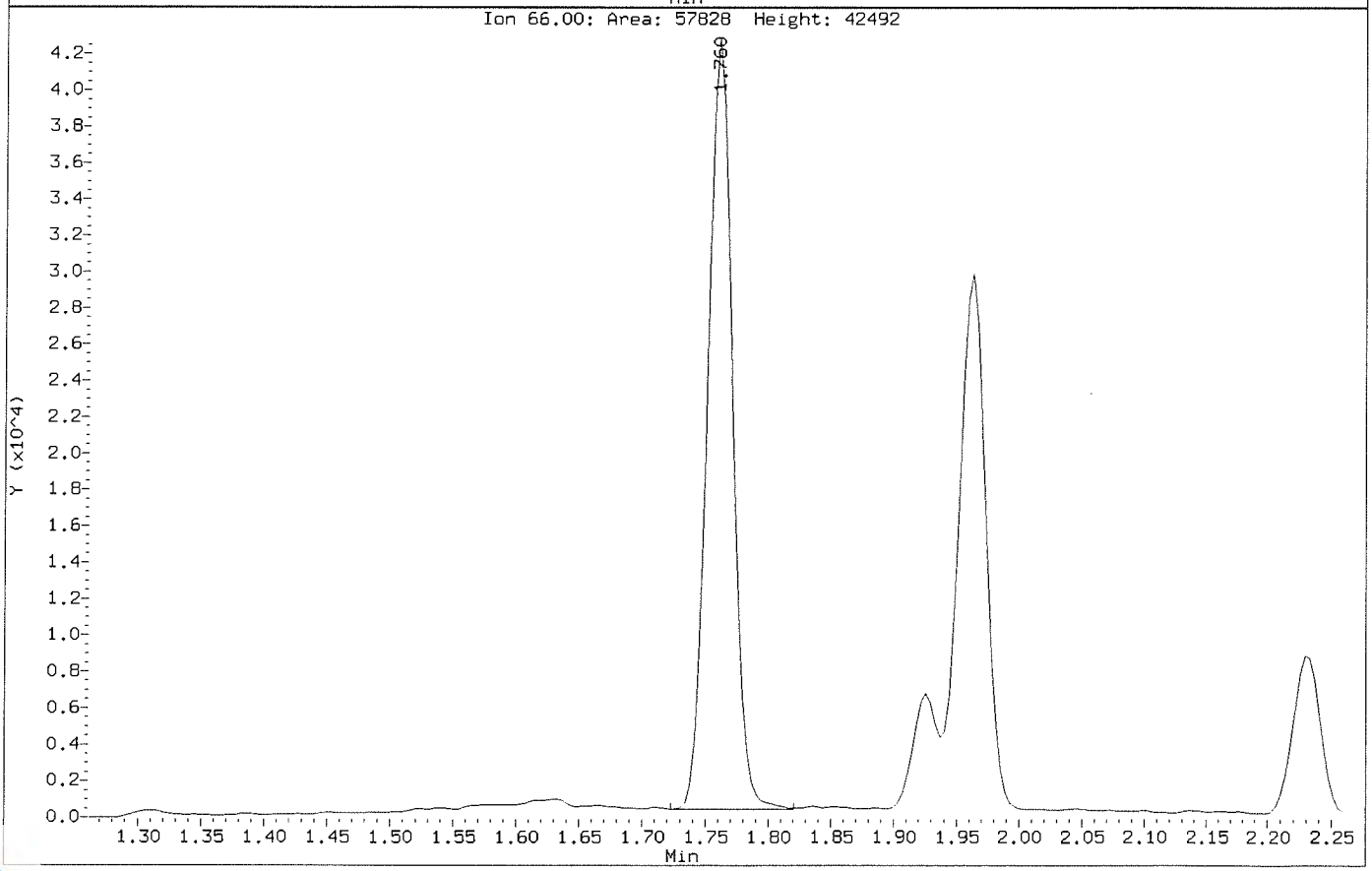
Injection Date: 22-DEC-2018 21:47
Instrument: VOA9.i
Client Sample ID: VSTD050-END

Compound: Chloroethane
CAS Number: 75-00-3





MSVOA09 -Logbook

Batch: 34004
Date: 12-24-2018
Method: 8260
Comments:

Analyst: Presenta Cabascango
Reviewer:
Laboratory: Houston

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	12-24-2018 09:28 am	1.00	50 mL	50 mL	U122401.D	Liquid	Y	NA
	Auto find/purged									
2	VSTD050	CCV	12-24-2018 09:52 am	1.00	50 mL	50 mL	U122402.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
3	VLCSW-1812024	LCS	12-24-2018 10:17 am	1.00	50 mL	50 mL	U122403.D	Liquid	Y	NA
	4 uL ICV std/50 mL DI									
4	BLANK	SAMP	12-24-2018 10:41 am	1.00	50 mL	50 mL	U122404.D	Liquid	Y	NA
5	VBLKW-181224	MBLK	12-24-2018 11:06 am	1.00	50 mL	50 mL	U122405.D	Liquid	Y	NA
6	HS18120736-09	SAMP	12-24-2018 11:31 am	1.00	50 mL	50 mL	U122406.D	Liquid	Y	<2
7	HS18120913-03	SAMP	12-24-2018 11:55 am	1.00	50 mL	50 mL	U122407.D	Liquid	Y	<2
8	HS18120736-05	SAMP	12-24-2018 12:20 pm	1.00	50 mL	50 mL	U122408.D	Liquid	Y	<2
9	HS18120736-06	SAMP	12-24-2018 12:45 pm	1.00	50 mL	50 mL	U122409.D	Liquid	Y	<2
10	HS18120736-07	SAMP	12-24-2018 01:10 pm	1.00	50 mL	50 mL	U122410.D	Liquid	Y	<2
11	HS18121093-02	SAMP	12-24-2018 01:35 pm	1.00	50 mL	50 mL	U122411.D	Liquid	Y	<2
12	HS18120913-01	SAMP	12-24-2018 01:59 pm	1.00	50 mL	50 mL	U122412.D	Liquid	Y	<2
13	HS18120913-02	SAMP	12-24-2018 02:24 pm	1.00	50 mL	50 mL	U122413.D	Liquid	Y	<2
14	HS18121093-01	SAMP	12-24-2018 02:49 pm	5.00	10 mL	50 mL	U122414.D	Liquid	Y	<2
15	HS18120913-03MS	MS	12-24-2018 03:14 pm	1.00	50 mL	50 mL	U122415.D	Liquid	Y	<2
	3.5 uL cal std/43 mL Sample									
16	HS18120913-03MSD	MSD	12-24-2018 03:39 pm	1.00	50 mL	50 mL	U122416.D	Liquid	Y	<2
	3.5 uL cal std/43 mL Sample									
17	HS18121093-01	SAMP	12-24-2018 04:03 pm	50.00	1 mL	50 mL	U122417.D	Liquid	Y	<2
18	HS18120913-08	SAMP	12-24-2018 04:28 pm	1.00	50 mL	50 mL	U122418.D	Liquid	Y	<2
19	HS18121030-05	SAMP	12-24-2018 04:53 pm	1.00	50 mL	50 mL	U122419.D	Liquid	Y	<2
20	HS18120913-04	SAMP	12-24-2018 05:18 pm	1.00	50 mL	50 mL	U122420.D	Liquid	Y	<2
21	HS18120913-05	SAMP	12-24-2018 05:43 pm	1.00	50 mL	50 mL	U122421.D	Liquid	Y	<2
22	HS18120913-06	SAMP	12-24-2018 06:08 pm	1.00	50 mL	50 mL	U122422.D	Liquid	Y	<2
23	HS18120913-07	SAMP	12-24-2018 06:32 pm	1.00	50 mL	50 mL	U122423.D	Liquid	Y	<2
24	HS18121030-01	SAMP	12-24-2018 06:57 pm	1.00	50 mL	50 mL	U122424.D	Liquid	Y	<2
25	HS18121030-02	SAMP	12-24-2018 07:22 pm	1.00	50 mL	50 mL	U122425.D	Liquid	Y	<2
26	HS18121030-03	SAMP	12-24-2018 07:47 pm	1.00	50 mL	50 mL	U122426.D	Liquid	Y	<2
27	HS18121030-04	SAMP	12-24-2018 08:12 pm	1.00	50 mL	50 mL	U122427.D	Liquid	Y	<2
28	VSTD050-END	CCV	12-24-2018 08:37 pm	1.00	50 mL	50 mL	U122428.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
29	BFB	TUNE	12-24-2018 09:01 pm	1.00	50 mL	50 mL	V122401.D	Liquid	Y	NA
	Auto find/purged									
30	VSTD050	CCV	12-24-2018 09:26 pm	1.00	50 mL	50 mL	V122402.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
31	BLANK	SAMP	12-24-2018 09:51 pm	1.00	50 mL	50 mL	V122403.D	Liquid	Y	NA
32	CCB	SAMP	12-24-2018 10:16 pm	1.00	50 mL	50 mL	V122404.D	Liquid	Y	NA
	CCB									
33	VLCSW-1812024	LCS	12-24-2018 10:40 pm	1.00	50 mL	50 mL	V122405.D	Liquid	Y	NA
	4 uL ICV std/50 mL DI									
34	BLANK	SAMP	12-24-2018 11:05 pm	1.00	50 mL	50 mL	V122406.D	Liquid	Y	NA
35	VBLKW-181224	MBLK	12-24-2018 11:30 pm	1.00	50 mL	50 mL	V122407.D	Liquid	Y	NA
36	HS18120845-05	SAMP	12-24-2018 11:55 pm	1.00	50 mL	50 mL	V122408.D	Liquid	Y	<2

MSVOA09 -Logbook

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
37	HS18120845-06	SAMP	12-25-2018 12:20 am	1.00	50 mL	50 mL	V122409.D	Liquid	Y	<2
38	HS18121097-07	SAMP	12-25-2018 12:45 am	1.00	50 mL	50 mL	V122410.D	Liquid	Y	<2
39	HS18121097-08	SAMP	12-25-2018 01:09 am	1.00	50 mL	50 mL	V122411.D	Liquid	Y	<2
40	HS18121097-09	SAMP	12-25-2018 01:34 am	1.00	50 mL	50 mL	V122412.D	Liquid	Y	<2
41	HS18121098-01	SAMP	12-25-2018 01:59 am	1.00	50 mL	50 mL	V122413.D	Liquid	Y	<2
42	HS18121098-02	SAMP	12-25-2018 02:24 am	1.00	50 mL	50 mL	V122414.D	Liquid	Y	<2
43	HS18121098-08	SAMP	12-25-2018 02:49 am	1.00	50 mL	50 mL	V122415.D	Liquid	Y	<2
44	HS18121098-03	SAMP	12-25-2018 03:14 am	1.00	50 mL	50 mL	V122416.D	Liquid	Y	<2
45	HS18121098-03MS	MS	12-25-2018 03:38 am	1.00	50 mL	50 mL	V122417.D	Liquid	Y	<2
	3.5 uL cal std/43 mL Sample									
46	HS18121098-03MSD	MSD	12-25-2018 04:03 am	1.00	50 mL	50 mL	V122418.D	Liquid	Y	<2
	3.5 uL cal std/43 mL Sample									
47	HS18121068-09	SAMP	12-25-2018 04:28 am	1.00	50 mL	50 mL	V122419.D	Liquid	Y	<2
48	HS18121097-01	SAMP	12-25-2018 04:53 am	1.00	50 mL	50 mL	V122420.D	Liquid	Y	<2
49	HS18121097-02	SAMP	12-25-2018 05:18 am	1.00	50 mL	50 mL	V122421.D	Liquid	Y	<2
50	HS18121097-03	SAMP	12-25-2018 05:43 am	1.00	50 mL	50 mL	V122422.D	Liquid	Y	<2
51	HS18121097-04	SAMP	12-25-2018 06:07 am	1.00	50 mL	50 mL	V122423.D	Liquid	Y	<2
52	HS18121097-05	SAMP	12-25-2018 06:32 am	1.00	50 mL	50 mL	V122424.D	Liquid	Y	<2
53	HS18121097-06	SAMP	12-25-2018 06:57 am	1.00	50 mL	50 mL	V122425.D	Liquid	Y	<2
54	HS18121098-04	SAMP	12-25-2018 07:22 am	1.00	50 mL	50 mL	V122426.D	Liquid	Y	<2
55	HS18121098-05	SAMP	12-25-2018 07:47 am	1.00	50 mL	50 mL	V122427.D	Liquid	Y	<2
56	HS18121098-06	SAMP	12-25-2018 08:11 am	1.00	50 mL	50 mL	V122428.D	Liquid	Y	<2
57	HS18121098-07	SAMP	12-25-2018 08:36 am	1.00	50 mL	50 mL	V122429.D	Liquid	Y	<2

Chemical	Value
SURR SPK ID	30502-52-03
IS ID	30502-52-04
ICV STD ID	30603-46-01
LCS/MS ID	30603-46-01
CAL STD ID	30502-57-01/02
BFB ID	30502-52-03

FORM 2
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS18120736

	CLIENT SAMPLE NO.	SMC1 (DCE)#	SMC2 #	SMC3 (TOL)#	OTHER #	TOT OUT
01	VLCSW-181224	104	102	102	104	0
02	VBLKW-181224	95	89	104	96	0
03	HS18120736-0	96	90	106	99	0
04	HS18120736-0	97	90	105	98	0
05	HS18120736-0	96	91	106	99	0
06	HS18120736-0	96	90	106	98	0
07	HS18120913-0	94	91	106	103	0
08	HS18120913-0	95	92	106	104	0
09						
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		QC LIMITS
SMC1 (DCE)	= 1,2-Dichloroethane-d4	(0-130)
SMC2	= Dibromofluoromethane	(0-130)
SMC3 (TOL)	= Toluene-d8	(0-130)
OTHER	= 4-Bromofluorobenzene	(0-130)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

FORM 4
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

VBLKW-181224

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS18120736

Lab File ID: U122405 Lab Sample ID: VBLKW-181224

Date Analyzed: 12/24/18 Time Analyzed: 1106

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: VOA9

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VLCSW-181224	VLCSW-1812024	U122403	1017
02	HS18120736-0	HS18120736-09	U122406	1131
03	HS18120736-0	HS18120736-05	U122408	1220
04	HS18120736-0	HS18120736-06	U122409	1245
05	HS18120736-0	HS18120736-07	U122410	1310
06	HS18120913-0	HS18120913-03M	U122415	1514
07	HS18120913-0	HS18120913-03M	U122416	1539
08				
09				
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COMMENTS:

FORM IV VOA

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS18120736

Lab File ID: U122401 BFB Injection Date: 12/24/18

Instrument ID: VOA9 BFB Injection Time: 0928

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	19.5
75	30.0 - 60.0% of mass 95	50.9
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.1
173	Less than 2.0% of mass 174	0.7 (1.0)1
174	Greater than 50.0% of mass 95	66.6
175	5.0 - 9.0% of mass 174	4.9 (7.4)1
176	95.0 - 101.0% of mass 174	64.4 (96.7)1
177	5.0 - 9.0% of mass 176	4.4 (6.8)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD050	VSTD050	U122402	12/24/18	0952
02	VLCSW-181224	VLCSW-1812024	U122403	12/24/18	1017
03	VBLKW-181224	VBLKW-181224	U122405	12/24/18	1106
04	HS18120736-0	HS18120736-09	U122406	12/24/18	1131
05	HS18120736-0	HS18120736-05	U122408	12/24/18	1220
06	HS18120736-0	HS18120736-06	U122409	12/24/18	1245
07	HS18120736-0	HS18120736-07	U122410	12/24/18	1310
08	HS18120913-0	HS18120913-03M	U122415	12/24/18	1514
09	HS18120913-0	HS18120913-03M	U122416	12/24/18	1539
10	VSTD050-END	VSTD050-END	U122428	12/24/18	2037
11					
12					
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20					
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22					

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS18120736

Instrument ID: VOA9 Calibration Date: 12/24/18 Time: 0952

Lab File ID: U122402 Init. Calib. Date(s): 12/21/18 12/21/18

Init. Calib. Times: 1349 1755

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE	
cis-1,3-Dichloropropene	46.969001	50.000000	0.5381928	0.2	6.06	20.00	LINR	
trans-1,3-Dichloropropene	46.115718	50.000000	0.4606842	0.1	7.77	20.00	LINR	
1,3-Dichlorobenzene	1.4850000	1.4492226	1.4492226	0.6	2.41	20.00	AVRG	
2,2-Dichloropropane	0.6490000	0.5663916	0.5663916	0.1	12.73	20.00	AVRG	
1,1-Dichloropropene	0.4450000	0.4256150	0.4256150	0.1	4.36	20.00	AVRG	
Dibromomethane	0.2040000	0.2144626	0.2144626	0.1	-5.13	20.00	AVRG	
1,2-Dibromoethane	0.3430000	0.3597016	0.3597016	0.1	-4.87	20.00	AVRG	
trans-1,2-Dichloroethene	0.5850000	0.5850593	0.5850593	0.1	-0.01	20.00	AVRG	
1,1,1,2-Tetrachloroethane	46.940910	50.000000	0.3043937	0.1	6.12	20.00	LINR	
1,1,1-Trichloroethane	0.7890000	0.7935465	0.7935465	0.1	-0.58	20.00	AVRG	
1,1,2,2-Tetrachloroethane	1.1260000	1.1917002	1.1917002	0.3	-5.83	20.00	AVRG	
Freon TF	0.4250000	0.3989719	0.3989719	0.1	6.12	20.00	AVRG	
1,1,2-Trichloroethane	0.2980000	0.3097296	0.3097296	0.1	-3.94	20.00	AVRG	
1,1-Dichloroethane	1.0770000	1.0983183	1.0983183	0.2	-1.98	20.00	AVRG	
1,1-Dichloroethene	0.4750000	0.4595711	0.4595711	0.1	3.25	20.00	AVRG	
Trichlorofluoromethane	44.085746	50.000000	0.7886797	0.1	11.83	20.00	LINR	
1,2,3-Trichlorobenzene	43.749299	50.000000	0.9004990	0.1	12.50	20.00	LINR	
Toluene	1.4870000	1.4890724	1.4890724	0.4	-0.14	20.00	AVRG	
1,2,4-Trichlorobenzene	0.9260000	0.9128821	0.9128821	0.2	1.42	20.00	AVRG	
1,2,4-Trimethylbenzene	2.6160000	2.6703840	2.6703840	0.1	-2.08	20.00	AVRG	
Tetrachloroethene	0.2620000	0.2343416	0.2343416	0.2	10.56	20.00	AVRG	
Trichloroethene	0.3210000	0.3111153	0.3111153	0.2	3.08	20.00	AVRG	
1,2-Dichlorobenzene	1.4840000	1.4720949	1.4720949	0.4	0.80	20.00	AVRG	
1,2-Dichloroethane	49.720294	50.000000	0.4762008	0.1	0.56	20.00	LINR	
1,2-Dichloropropane	0.3530000	0.3595027	0.3595027	0.1	-1.84	20.00	AVRG	
1,3,5-Trimethylbenzene	2.5130000	2.5708391	2.5708391	0.1	-2.30	20.00	AVRG	
1,3-Dichloropropane	0.6410000	0.6628423	0.6628423	0.1	-3.41	20.00	AVRG	
1,4-Dichlorobenzene	1.5660000	1.4828544	1.4828544	0.4	5.31	20.00	AVRG	
2-Butanone	87.524774	100.00000	0.3885447	0.1	12.48	20.00	LINR	
2-Chlorotoluene	2.3040000	2.2915781	2.2915781	0.1	0.54	20.00	AVRG	
2-Hexanone	0.2780000	0.3355379	0.3355379	0.1	-20.70	20.00	AVRG	<-
4-Chlorotoluene	2.6620000	2.6823399	2.6823399	0.1	-0.76	20.00	AVRG	
tert-Butylbenzene	2.1720000	2.1680208	2.1680208	0.1	0.18	20.00	AVRG	
4-Methyl-2-Pentanone	0.4000000	0.4671265	0.4671265	0.1	-16.78	20.00	AVRG	
Acetone	88.945078	100.00000	0.2567717	0.1	11.05	20.00	LINR	
Benzene	1.3300000	1.3327330	1.3327330	0.5	-0.20	20.00	AVRG	
Bromobenzene	0.7730000	0.7689868	0.7689868	0.1	0.52	20.00	AVRG	
Bromochloromethane	54.738270	50.000000	0.2995106	0.1	-9.48	20.00	LINR	
Bromodichloromethane	0.3760000	0.3919790	0.3919790	0.2	-4.25	20.00	AVRG	
Bromoform	43.625632	50.000000	0.2006203	0.1	12.75	20.00	LINR	
Bromomethane	48.433994	50.000000	0.3215455	0.1	3.13	20.00	LINR	
Carbon Disulfide	1.7320000	1.6738989	1.6738989	0.1	3.35	20.00	AVRG	

FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS1812073

Instrument ID: VOA9 Calibration Date: 12/24/18 Time: 0952

Lab File ID: U122402 Init. Calib. Date(s): 12/21/18 12/21/18

Init. Calib. Times: 1349 1755

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Carbon Tetrachloride	42.908085	50.000000	0.3206431	0.1	14.18	20.00	LINR
Chlorobenzene	0.9610000	0.9517026	0.9517026	0.5	0.97	20.00	AVRG
Chloroethane	48.651727	50.000000	0.4376382	0.1	2.70	20.00	2RDR
Chloroform	1.0370000	1.0750225	1.0750225	0.2	-3.67	20.00	AVRG
Chloromethane	48.105273	50.000000	0.5006841	0.1	3.79	20.00	LINR
cis-1,2-Dichloroethene	0.6570000	0.6738882	0.6738882	0.1	-2.57	20.00	AVRG
Dibromochloromethane	46.378243	50.000000	0.3131343	0.1	7.24	20.00	LINR
Dichlorodifluoromethane	41.832474	50.000000	0.5469699	0.1	16.34	20.00	LINR
Ethylbenzene	0.4930000	0.4907710	0.4907710	0.1	0.45	20.00	AVRG
Hexachlorobutadiene	0.3550000	0.3075225	0.3075225	0.1	13.37	20.00	AVRG
Isopropylbenzene	1.4220000	1.4345733	1.4345733	0.1	-0.88	20.00	AVRG
m,p-Xylenes	0.6060000	0.6065328	0.6065328	0.1	-0.09	20.00	AVRG
Methylene Chloride	49.161284	50.000000	0.6598726	0.1	1.68	20.00	LINR
n-Butylbenzene	2.5530000	2.4878949	2.4878949	0.5	2.55	20.00	AVRG
n-Propylbenzene	3.7360000	3.7675955	3.7675955	0.1	-0.84	20.00	AVRG
Naphthalene	42.625569	50.000000	3.1185011	0.2	14.75	20.00	2RDR
o-Xylene	0.6110000	0.6247110	0.6247110	0.3	-2.24	20.00	AVRG
sec-Butylbenzene	3.1400000	3.1149837	3.1149837	0.1	0.80	20.00	AVRG
Styrene	1.0150000	1.0920948	1.0920948	0.3	-7.60	20.00	AVRG
Vinyl Chloride	44.382144	50.000000	0.6938894	0.1	11.24	20.00	LINR
1,2,3-Trichloropropane	1.1710000	1.2984150	1.2984150	0.1	-10.88	20.00	AVRG
p-Isopropyltoluene	2.6460000	2.6489186	2.6489186	0.1	-0.11	20.00	AVRG
1,2-Dibromo-3-Chloropropane	40.205727	50.000000	0.1753790	0.05	19.59	20.00	LINR
1,2-Dichloroethane-d4	50.883328	50.000000	0.7752248	0.1	-1.77	20.00	LINR
Dibromofluoromethane	51.294758	50.000000	0.5865296	0.1	-2.59	20.00	LINR
Toluene-d8	51.601871	50.000000	1.3137645	0.1	-3.20	20.00	LINR
4-Bromofluorobenzene	51.802881	50.000000	0.5048850	0.1	-3.60	20.00	LINR

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS18120913

Instrument ID: VOA9 Calibration Date: 12/24/18 Time: 2037

Lab File ID: U122428 Init. Calib. Date(s): 12/21/18 12/21/18

Init. Calib. Times: 1349 1755

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
cis-1,3-Dichloropropene	47.206327	50.000000	0.5381928	0.2	5.59	50.00	LINR
trans-1,3-Dichloropropene	47.004802	50.000000	0.4606842	0.1	5.99	50.00	LINR
1,3-Dichlorobenzene	1.4850000	1.4492226	1.4492226	0.6	2.41	50.00	AVRG
2,2-Dichloropropane	0.6490000	0.5663916	0.5663916	0.1	12.73	50.00	AVRG
1,1-Dichloropropene	0.4450000	0.4256150	0.4256150	0.1	4.36	50.00	AVRG
Dibromomethane	0.2040000	0.2144626	0.2144626	0.1	-5.13	50.00	AVRG
1,2-Dibromoethane	0.3430000	0.3597016	0.3597016	0.1	-4.87	50.00	AVRG
trans-1,2-Dichloroethene	0.5850000	0.5850593	0.5850593	0.1	-0.01	50.00	AVRG
1,1,1,2-Tetrachloroethane	47.992888	50.000000	0.3043937	0.1	4.01	50.00	LINR
1,1,1-Trichloroethane	0.7890000	0.7935465	0.7935465	0.1	-0.58	50.00	AVRG
1,1,2,2-Tetrachloroethane	1.1260000	1.1917002	1.1917002	0.3	-5.83	50.00	AVRG
Freon TF	0.4250000	0.3989719	0.3989719	0.1	6.12	50.00	AVRG
1,1,2-Trichloroethane	0.2980000	0.3097296	0.3097296	0.1	-3.94	50.00	AVRG
1,1-Dichloroethane	1.0770000	1.0983183	1.0983183	0.2	-1.98	50.00	AVRG
1,1-Dichloroethene	0.4750000	0.4595711	0.4595711	0.1	3.25	50.00	AVRG
Trichlorofluoromethane	47.877448	50.000000	0.7886797	0.1	4.24	50.00	LINR
1,2,3-Trichlorobenzene	47.815512	50.000000	0.9004990	0.1	4.37	50.00	LINR
Toluene	1.4870000	1.4890724	1.4890724	0.4	-0.14	50.00	AVRG
1,2,4-Trichlorobenzene	0.9260000	0.9128821	0.9128821	0.2	1.42	50.00	AVRG
1,2,4-Trimethylbenzene	2.6160000	2.6703840	2.6703840	0.1	-2.08	50.00	AVRG
Tetrachloroethene	0.2620000	0.2343416	0.2343416	0.2	10.56	50.00	AVRG
Trichloroethene	0.3210000	0.3111153	0.3111153	0.2	3.08	50.00	AVRG
1,2-Dichlorobenzene	1.4840000	1.4720949	1.4720949	0.4	0.80	50.00	AVRG
1,2-Dichloroethane	52.896221	50.000000	0.4762008	0.1	-5.79	50.00	LINR
1,2-Dichloropropane	0.3530000	0.3595027	0.3595027	0.1	-1.84	50.00	AVRG
1,3,5-Trimethylbenzene	2.5130000	2.5708391	2.5708391	0.1	-2.30	50.00	AVRG
1,3-Dichloropropane	0.6410000	0.6628423	0.6628423	0.1	-3.41	50.00	AVRG
1,4-Dichlorobenzene	1.5660000	1.4828544	1.4828544	0.4	5.31	50.00	AVRG
2-Butanone	119.28553	100.00000	0.3885447	0.1	-19.28	50.00	LINR
2-Chlorotoluene	2.3040000	2.2915781	2.2915781	0.1	0.54	50.00	AVRG
2-Hexanone	0.2780000	0.3355379	0.3355379	0.1	-20.70	50.00	AVRG
4-Chlorotoluene	2.6620000	2.6823399	2.6823399	0.1	-0.76	50.00	AVRG
tert-Butylbenzene	2.1720000	2.1680208	2.1680208	0.1	0.18	50.00	AVRG
4-Methyl-2-Pentanone	0.4000000	0.4671265	0.4671265	0.1	-16.78	50.00	AVRG
Acetone	132.50176	100.00000	0.2567717	0.1	-32.50	50.00	LINR
Benzene	1.3300000	1.3327330	1.3327330	0.5	-0.20	50.00	AVRG
Bromobenzene	0.7730000	0.7689868	0.7689868	0.1	0.52	50.00	AVRG
Bromochloromethane	57.582518	50.000000	0.2995106	0.1	-15.16	50.00	LINR
Bromodichloromethane	0.3760000	0.3919790	0.3919790	0.2	-4.25	50.00	AVRG
Bromoform	46.854942	50.000000	0.2006203	0.1	6.29	50.00	LINR
Bromomethane	52.013096	50.000000	0.3215455	0.1	-4.03	50.00	LINR
Carbon Disulfide	1.7320000	1.6738989	1.6738989	0.1	3.35	50.00	AVRG

FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP Contract: .

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS1812091

Instrument ID: VOA9 Calibration Date: 12/24/18 Time: 2037

Lab File ID: U122428 Init. Calib. Date(s): 12/21/18 12/21/18

Init. Calib. Times: 1349 1755

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Carbon Tetrachloride	44.254301	50.000000	0.3206431	0.1	11.49	50.00	LINR
Chlorobenzene	0.9610000	0.9517026	0.9517026	0.5	0.97	50.00	AVRG
Chloroethane	49.367103	50.000000	0.4376382	0.1	1.26	50.00	2RDR
Chloroform	1.0370000	1.0750225	1.0750225	0.2	-3.67	50.00	AVRG
Chloromethane	47.318479	50.000000	0.5006841	0.1	5.36	50.00	LINR
cis-1,2-Dichloroethene	0.6570000	0.6738882	0.6738882	0.1	-2.57	50.00	AVRG
Dibromochloromethane	47.699067	50.000000	0.3131343	0.1	4.60	50.00	LINR
Dichlorodifluoromethane	44.506477	50.000000	0.5469699	0.1	10.99	50.00	LINR
Ethylbenzene	0.4930000	0.4907710	0.4907710	0.1	0.45	50.00	AVRG
Hexachlorobutadiene	0.3550000	0.3075225	0.3075225	0.1	13.37	50.00	AVRG
Isopropylbenzene	1.4220000	1.4345733	1.4345733	0.1	-0.88	50.00	AVRG
m,p-Xylenes	0.6060000	0.6065328	0.6065328	0.1	-0.09	50.00	AVRG
Methylene Chloride	53.474221	50.000000	0.6598726	0.1	-6.95	50.00	LINR
n-Butylbenzene	2.5530000	2.4878949	2.4878949	0.5	2.55	50.00	AVRG
n-Propylbenzene	3.7360000	3.7675955	3.7675955	0.1	-0.84	50.00	AVRG
Naphthalene	51.209442	50.000000	3.1185011	0.2	-2.42	50.00	2RDR
o-Xylene	0.6110000	0.6247110	0.6247110	0.3	-2.24	50.00	AVRG
sec-Butylbenzene	3.1400000	3.1149837	3.1149837	0.1	0.80	50.00	AVRG
Styrene	1.0150000	1.0920948	1.0920948	0.3	-7.60	50.00	AVRG
Vinyl Chloride	49.076608	50.000000	0.6938894	0.1	1.85	50.00	LINR
1,2,3-Trichloropropane	1.1710000	1.2984150	1.2984150	0.1	-10.88	50.00	AVRG
p-Isopropyltoluene	2.6460000	2.6489186	2.6489186	0.1	-0.11	50.00	AVRG
1,2-Dibromo-3-Chloropropane	50.490014	50.000000	0.1753790	0.05	-0.98	50.00	LINR
1,2-Dichloroethane-d4	54.978385	50.000000	0.7752248	0.1	-9.96	50.00	LINR
Dibromofluoromethane	53.247810	50.000000	0.5865296	0.1	-6.50	50.00	LINR
Toluene-d8	50.908412	50.000000	1.3137645	0.1	-1.82	50.00	LINR
4-Bromofluorobenzene	51.400094	50.000000	0.5048850	0.1	-2.80	50.00	LINR

FORM VII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS18120736

Lab File ID (Standard): U122402 Date Analyzed: 12/24/18

Instrument ID: VOA9 Time Analyzed: 0952

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS1(DCB) AREA #	RT #	IS2(CBZ) AREA #	RT #	IS3(DFB) AREA #	RT #
	12 HOUR STD	352991	10.24	724498	8.25	785837	5.63
	UPPER LIMIT	705982	10.74	1448996	8.75	1571674	6.13
	LOWER LIMIT	176496	9.74	362249	7.75	392919	5.13
	CLIENT SAMPLE NO.						
01	VLCSW-181224	339524	10.24	703027	8.25	758509	5.63
02	VBLKW-181224	263882	10.24	571876	8.25	632508	5.63
03	HS18120736-0	258873	10.24	554587	8.25	618164	5.63
04	HS18120736-0	248682	10.24	540374	8.25	598859	5.63
05	HS18120736-0	252851	10.24	542430	8.25	600894	5.63
06	HS18120736-0	239875	10.24	527117	8.25	586697	5.63
07	HS18120913-0	266360	10.24	543870	8.25	594715	5.63
08	HS18120913-0	254873	10.24	529623	8.25	576248	5.63
09							
10							
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18							
19							
20							

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (CBZ) = Chlorobenzene-d5
IS3 (DFB) = 1,4-Difluorobenzene

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM VIII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS18120736

Lab File ID (Standard): U122402 Date Analyzed: 12/24/18

Instrument ID: VOA9 Time Analyzed: 0952

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS4 AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	423354	4.89				
	UPPER LIMIT	846708	5.39				
	LOWER LIMIT	211677	4.39				
	CLIENT SAMPLE NO.						
01	VLCSW-181224	406772	4.90				
02	VBLKW-181224	360724	4.90				
03	HS18120736-0	353433	4.90				
04	HS18120736-0	339418	4.90				
05	HS18120736-0	343602	4.90				
06	HS18120736-0	335037	4.90				
07	HS18120913-0	345000	4.90				
08	HS18120913-0	331424	4.89				
09							
10							
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14							
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16							
17							
18							
19							
20							

IS4 = Pentafluorobenzene

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM VIII VOA

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122401.D

Date : 24-DEC-2018 09:28

Client ID: BFB

Instrument: VOA9.i

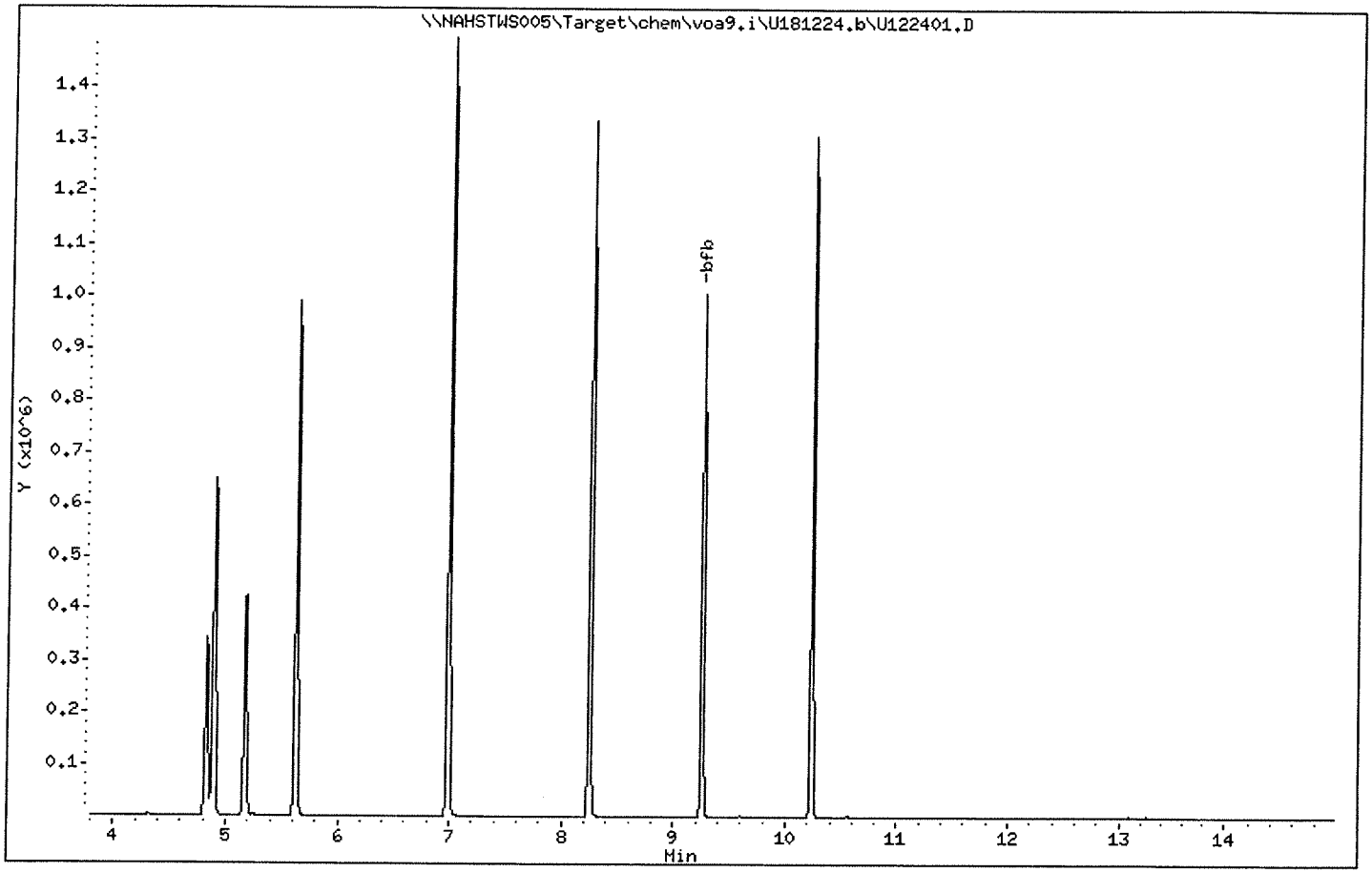
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122401.D

Date : 24-DEC-2018 09:28

Client ID: BFB

Instrument: VOA9.i

Sample Info: BFB;BFB;3;;BFB

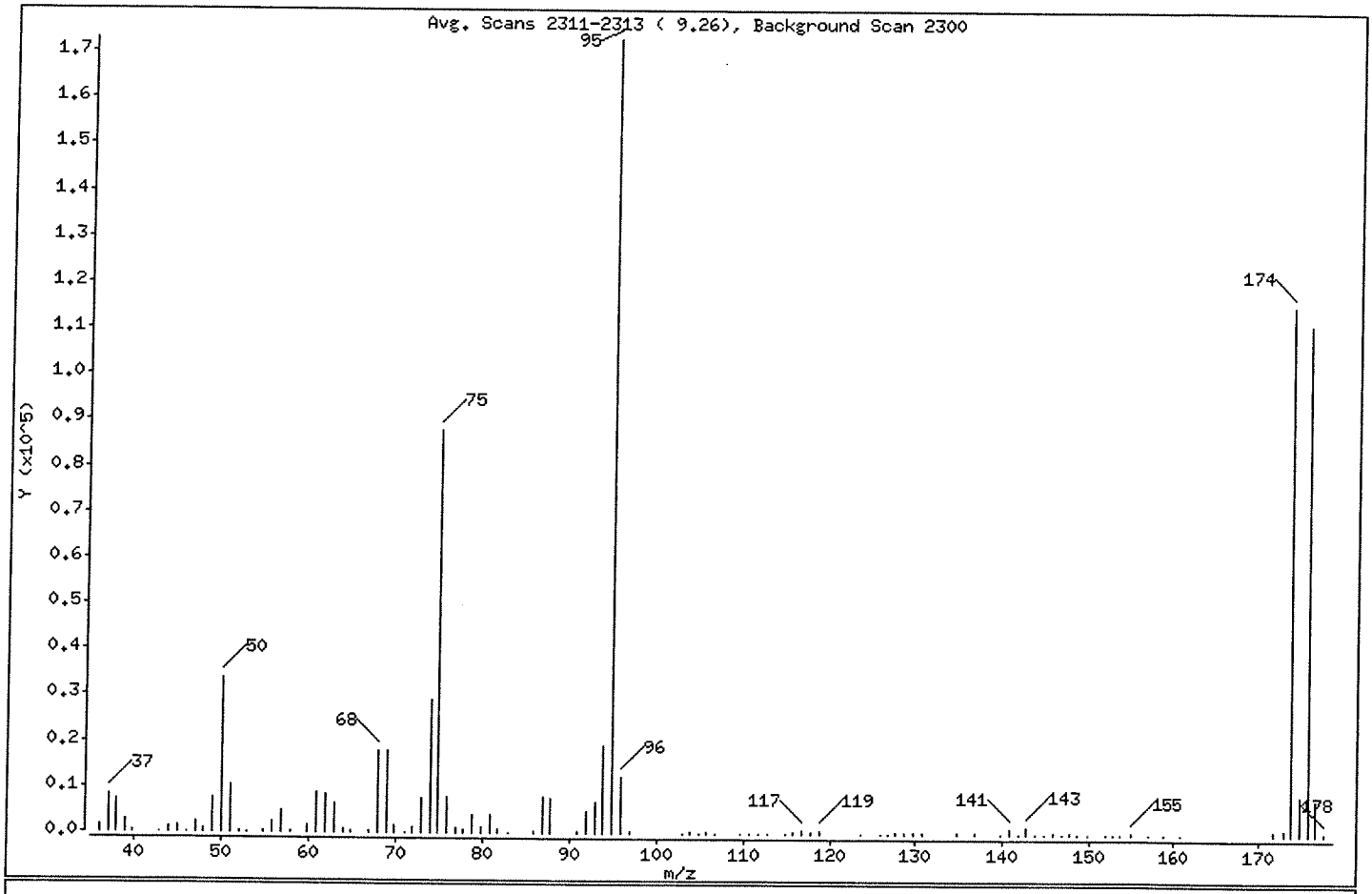
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	19.51
75	30.00 - 60.00% of mass 95	50.89
96	5.00 - 9.00% of mass 95	7.08
173	Less than 2.00% of mass 174	0.66 (0.98)
174	Greater than 50.00% of mass 95	66.63
175	5.00 - 9.00% of mass 174	4.91 (7.37)
176	95.00 - 101.00% of mass 174	64.42 (96.68)
177	5.00 - 9.00% of mass 176	4.35 (6.75)

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122401.D

Date : 24-DEC-2018 09:28

Client ID: BFB

Instrument: VOA9.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

Data File: U122401.D
Spectrum: Avg. Scans 2311-2313 (9.26), Background Scan 2300
Location of Maximum: 94.90
Number of points: 101

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	1458	66.90	489	96.90	358	141.70	125
37.00	8306	67.90	17736	102.90	83	142.70	1432
38.00	7224	68.90	17704	103.80	566	143.70	92
39.00	2852	69.90	1399	104.80	198	144.80	130
39.90	515	71.00	55	105.70	571	145.70	211
42.90	58	71.90	1002	106.70	150	146.80	93
43.90	1149	72.90	7684	109.70	67	147.60	307
45.00	1416	73.90	28936	110.70	106	148.50	71
46.00	144	74.90	87944	111.80	127	149.70	118
47.00	2331	75.90	7853	112.80	101	151.70	104
47.90	988	76.90	1152	114.80	164	152.70	119
48.90	7413	77.80	691	115.80	498	153.50	62
50.00	33712	78.90	3904	116.70	773	154.80	440
51.00	10257	79.90	1262	117.80	575	156.70	197
52.00	516	80.80	4127	118.80	642	158.60	130
52.90	79	81.80	955	123.70	117	160.70	97
54.90	360	83.00	125	125.90	58	171.70	672
55.90	2572	85.90	201	126.70	59	172.80	1133
57.00	4669	86.90	7827	127.70	540	173.70	115136
58.00	207	87.80	7508	128.70	266	174.70	8487
59.90	1649	90.80	470	129.70	553	175.70	111312
60.90	8598	91.90	4648	130.70	230	176.70	7518
61.90	8257	92.90	6773	134.70	224	177.70	226
62.90	6370	93.90	19208	136.80	276		
63.90	787	94.90	172800	139.70	105		
64.90	503	95.90	12233	140.70	1161		

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122402.D Page 1
Report Date: 28-Jan-2019 14:34

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122402.D
Lab Smp Id: VSTD050 Client Smp ID: VSTD050
Inj Date : 24-DEC-2018 09:52
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD050;VSTD050;2;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 2 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

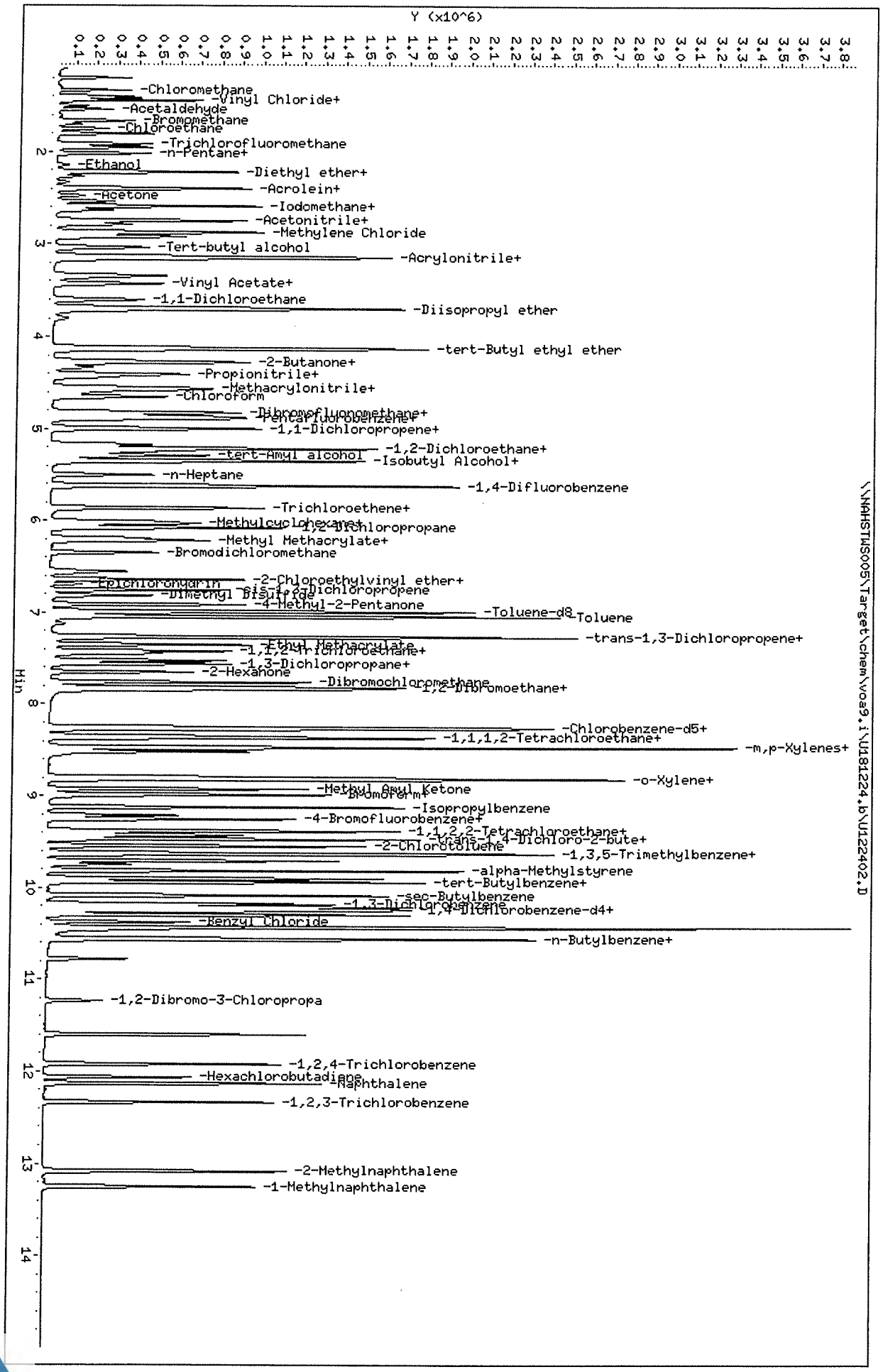
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.894	4.894	(1.000)	423354	50.0000	
* 36 1,4-Difluorobenzene	114	5.625	5.625	(1.000)	785837	50.0000	
* 47 Chlorobenzene-d5	117	8.249	8.249	(1.000)	724498	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.235	10.235	(1.000)	352991	50.0000	
$ 30 Dibromofluoromethane	113	4.826	4.826	(0.986)	239456	50.0000	51.29
$ 35 1,2-Dichloroethane-d4	65	5.171	5.171	(1.057)	304677	50.0000	50.88
$ 48 Toluene-d8	98	6.989	6.989	(0.847)	964346	50.0000	51.60
$ 69 4-Bromofluorobenzene	95	9.257	9.257	(1.122)	368577	50.0000	51.80
60 1,1,1,2-Tetrachloroethane	131	8.350	8.350	(1.012)	215639	50.0000	46.94
31 1,1,1-Trichloroethane	97	4.826	4.826	(0.986)	316440	50.0000	47.33
68 1,1,2,2-Tetrachloroethane	83	9.392	9.392	(0.918)	355332	50.0000	44.69
138 Freon TF	101	2.401	2.401	(0.491)	153951	50.0000	42.77
53 1,1,2-Trichloroethane	83	7.420	7.420	(0.900)	207577	50.0000	48.09
22 1,1-Dichloroethane	63	3.600	3.600	(0.736)	433057	50.0000	47.49
11 1,1-Dichloroethene	96	2.401	2.401	(0.491)	181293	50.0000	45.03
32 1,1-Dichloropropene	75	5.002	5.002	(0.889)	323333	50.0000	46.24
93 1,2,3-Trichlorobenzene	180	12.335	12.335	(1.205)	290474	50.0000	43.74
71 1,2,3-Trichloropropane	75	9.426	9.426	(0.921)	390574	50.0000	47.24
90 1,2,4-Trichlorobenzene	180	11.922	11.922	(1.165)	305143	50.0000	46.69
79 1,2,4-Trimethylbenzene	105	9.943	9.943	(0.971)	893982	50.0000	48.39
89 1,2-Dibromo-3-Chloropropane	155	11.233	11.233	(1.097)	48924	50.0000	40.20
57 1,2-Dibromoethane	107	7.851	7.851	(0.952)	242501	50.0000	48.77

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122402.D Page 2
Report Date: 28-Jan-2019 14:34

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88 1,2-Dichlorobenzene	146	10.569	10.569	(1.033)	486970	50.0000	46.46
33 1,2-Dichloroethane	62	5.250	5.250	(0.933)	352056	50.0000	49.72
42 1,2-Dichloropropane	63	6.078	6.078	(1.081)	267418	50.0000	48.16
75 1,3,5-Trimethylbenzene	105	9.624	9.624	(0.940)	854241	50.0000	48.15
83 1,3-Dichlorobenzene	146	10.179	10.179	(0.995)	487011	50.0000	46.46
54 1,3-Dichloropropane	76	7.563	7.563	(0.917)	448896	50.0000	48.28
84 1,4-Dichlorobenzene	146	10.254	10.254	(1.002)	501619	50.0000	45.38
26 2,2-Dichloropropane	77	4.271	4.271	(0.873)	274613	50.0000	49.98
24 2-Butanone	43	4.335	4.335	(0.886)	243142	100.000	87.52
76 2-Chlorotoluene	91	9.546	9.546	(0.933)	777485	50.0000	47.80
52 2-Hexanone	43	7.649	7.649	(0.927)	368317	100.000	91.42
77 4-Chlorotoluene	91	9.639	9.639	(0.942)	907472	50.0000	48.28
82 p-Isopropyltoluene	119	10.209	10.209	(0.997)	884191	50.0000	47.33
45 4-Methyl-2-Pentanone	43	6.910	6.910	(0.838)	534634	100.000	92.23
10 Acetone	43	2.476	2.476	(0.506)	147537	100.000	88.94
37 Benzene	78	5.216	5.216	(0.927)	1004828	50.0000	48.05
74 Bromobenzene	156	9.381	9.381	(0.917)	258984	50.0000	47.48
29 Bromochloromethane	128	4.552	4.552	(0.930)	120857	50.0000	54.73
39 Bromodichloromethane	83	6.348	6.348	(1.129)	296500	50.0000	50.21
66 Bromoform	173	8.983	8.983	(1.089)	134940	50.0000	43.62(T)
6 Bromomethane	94	1.666	1.666	(0.341)	126513	50.0000	48.43
19 Carbon Disulfide	76	2.588	2.588	(0.529)	1200523	100.000	81.85
34 Carbon Tetrachloride	117	4.995	4.995	(0.888)	244058	50.0000	42.90
59 Chlorobenzene	112	8.275	8.275	(1.003)	671654	50.0000	48.24
7 Chloroethane	64	1.748	1.748	(0.357)	182521	50.0000	48.65
28 Chloroform	83	4.654	4.654	(0.951)	423382	50.0000	48.21
3 Chloromethane	50	1.336	1.336	(0.273)	215757	50.0000	48.10
27 cis-1,2-Dichloroethene	96	4.283	4.283	(0.875)	268280	50.0000	48.21
46 cis-1,3-Dichloropropene	75	6.757	6.757	(1.201)	420747	50.0000	46.96
55 Dibromochloromethane	129	7.758	7.758	(0.940)	220452	50.0000	46.37
44 Dibromomethane	93	6.187	6.187	(1.100)	155992	50.0000	48.67
2 Dichlorodifluoromethane	85	1.201	1.201	(0.246)	217496	50.0000	41.83
61 Ethylbenzene	106	8.369	8.369	(1.015)	346487	50.0000	48.53
91 Hexachlorobutadiene	225	12.065	12.065	(1.179)	111829	50.0000	44.66
67 Isopropylbenzene	105	9.126	9.126	(1.106)	987775	50.0000	47.94
62 m,p-Xylenes	106	8.474	8.474	(1.027)	860607	100.000	98.04
17 Methylene Chloride	84	2.869	2.869	(0.586)	257324	50.0000	49.16
87 n-Butylbenzene	91	10.558	10.558	(1.031)	832522	50.0000	46.18
73 n-Propylbenzene	91	9.474	9.474	(0.926)	1249543	50.0000	47.37
92 Naphthalene	128	12.132	12.132	(1.185)	915226	50.0000	42.62
63 o-Xylene	106	8.811	8.811	(1.068)	438615	50.0000	49.53
81 sec-Butylbenzene	105	10.086	10.086	(0.985)	1017399	50.0000	45.89
64 Styrene	104	8.822	8.822	(1.070)	765253	50.0000	52.01
78 tert-Butylbenzene	119	9.902	9.902	(0.967)	704838	50.0000	45.96
56 Tetrachloroethene	164	7.521	7.521	(0.912)	165998	50.0000	43.76
50 Toluene	91	7.045	7.045	(0.854)	1057144	50.0000	49.05
20 trans-1,2-Dichloroethene	96	3.139	3.139	(0.642)	235322	50.0000	47.48
51 trans-1,3-Dichloropropene	75	7.259	7.259	(1.291)	354926	50.0000	46.11
38 Trichloroethene	130	5.861	5.861	(1.042)	235763	50.0000	46.70
8 Trichlorofluoromethane	101	1.951	1.951	(0.399)	307098	50.0000	44.08
5 Vinyl Chloride	62	1.419	1.419	(0.290)	265095	50.0000	44.38

QC Flag Legend

T - Target compound detected outside RT window.



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122402.D
Date : 24-DEC-2018 09:52
Client ID: VSTD050
Sample Info: VSTD050;VSTD050;2;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122403.D Page 1
Report Date: 28-Jan-2019 14:34

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122403.D
Lab Smp Id: VLCSW-1812024 Client Smp ID: VLCSW-181224
Inj Date : 24-DEC-2018 10:17
Operator : PC Inst ID: VOA9.i
Smp Info : VLCSW-1812024;VLCSW-181224;3;;LCS
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 3 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

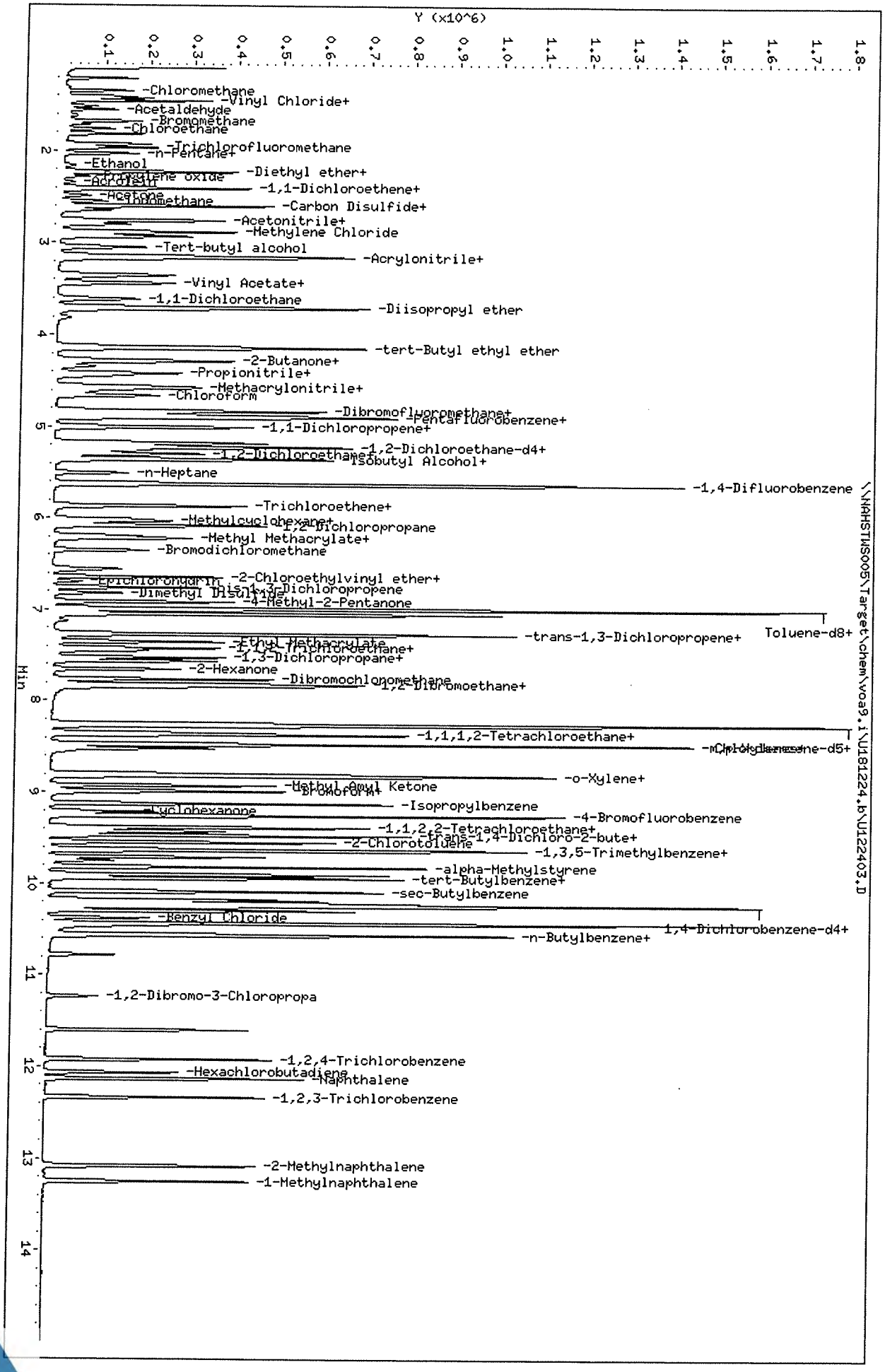
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.897	4.894	(1.000)	406772	50.0000	
* 36 1,4-Difluorobenzene	114	5.628	5.625	(1.000)	758509	50.0000	
* 47 Chlorobenzene-d5	117	8.249	8.249	(1.000)	703027	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.235	10.235	(1.000)	339524	50.0000	
$ 30 Dibromofluoromethane	113	4.834	4.826	(0.987)	227871	50.7883	50.78
$ 35 1,2-Dichloroethane-d4	65	5.178	5.171	(1.057)	299407	52.0910	52.09
$ 48 Toluene-d8	98	6.989	6.989	(0.847)	921570	50.7919	50.79
$ 69 4-Bromofluorobenzene	95	9.257	9.257	(1.122)	357826	51.8285	51.82
60 1,1,1,2-Tetrachloroethane	131	8.350	8.350	(1.012)	88375	20.1633	20.16
31 1,1,1-Trichloroethane	97	4.830	4.826	(0.986)	135603	21.1125	21.11
68 1,1,2,2-Tetrachloroethane	83	9.392	9.392	(0.918)	153489	20.0739	20.07
138 Freon TF	101	2.412	2.401	(0.493)	72333	20.9166	20.91
53 1,1,2-Trichloroethane	83	7.420	7.420	(0.900)	88710	21.1796	21.17
22 1,1-Dichloroethane	63	3.612	3.600	(0.737)	184709	21.0852	21.08
11 1,1-Dichloroethene	96	2.408	2.401	(0.492)	78960	20.4156	20.41
32 1,1-Dichloropropene	75	5.010	5.002	(0.890)	141680	20.9930	20.99
93 1,2,3-Trichlorobenzene	180	12.335	12.335	(1.205)	127493	20.3080	20.30
71 1,2,3-Trichloropropane	75	9.426	9.426	(0.921)	160947	20.2426	20.24
90 1,2,4-Trichlorobenzene	180	11.922	11.922	(1.165)	133328	21.2102	21.21
79 1,2,4-Trimethylbenzene	105	9.943	9.943	(0.971)	396053	22.2910	22.29
89 1,2-Dibromo-3-Chloropropane	155	11.233	11.233	(1.097)	20393	18.2464	18.24
57 1,2-Dibromoethane	107	7.851	7.851	(0.952)	102168	21.1780	21.17

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122403.D Page 2
Report Date: 28-Jan-2019 14:34

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
88 1,2-Dichlorobenzene	146	10.569	10.569	(1.033)	207631	20.5957	20.59
33 1,2-Dichloroethane	62	5.257	5.250	(0.934)	150051	21.5444	21.54
42 1,2-Dichloropropane	63	6.082	6.078	(1.081)	111360	20.7777	20.77
75 1,3,5-Trimethylbenzene	105	9.624	9.624	(0.940)	377636	22.1314	22.13
83 1,3-Dichlorobenzene	146	10.179	10.179	(0.995)	211456	20.9736	20.97
54 1,3-Dichloropropane	76	7.563	7.563	(0.917)	190232	21.0858	21.08
84 1,4-Dichlorobenzene	146	10.254	10.254	(1.002)	215686	20.2900	20.28
26 2,2-Dichloropropane	77	4.279	4.271	(0.874)	116146	22.0006	22.00
24 2-Butanone	43	4.343	4.335	(0.887)	107059	38.7900	38.78
76 2-Chlorotoluene	91	9.546	9.546	(0.933)	335605	21.4534	21.45
52 2-Hexanone	43	7.649	7.649	(0.927)	158802	40.6220	40.62
77 4-Chlorotoluene	91	9.639	9.639	(0.942)	393315	21.7570	21.75
82 p-Isopropyltoluene	119	10.209	10.209	(0.997)	401121	22.3263	22.32
45 4-Methyl-2-Pentanone	43	6.914	6.910	(0.838)	230112	40.9097	40.90
10 Acetone	43	2.487	2.476	(0.508)	66585	40.1746	40.17
37 Benzene	78	5.223	5.216	(0.928)	426379	21.1248	21.12
74 Bromobenzene	156	9.381	9.381	(0.917)	109171	20.8108	20.81
29 Bromochloromethane	128	4.560	4.552	(0.931)	50277	21.9350	21.93
39 Bromodichloromethane	83	6.348	6.348	(1.128)	120773	21.1903	21.19
66 Bromoform	173	8.983	8.983	(1.089)	52936	18.6861	18.68
6 Bromomethane	94	1.681	1.666	(0.343)	57771	23.7209	23.72
19 Carbon Disulfide	76	2.599	2.588	(0.531)	587803	41.7101	41.71
34 Carbon Tetrachloride	117	4.999	4.995	(0.888)	106164	20.1057	20.10
59 Chlorobenzene	112	8.275	8.275	(1.003)	283627	20.9972	20.99
7 Chloroethane	64	1.763	1.748	(0.360)	75051	21.2783	21.27(M)
28 Chloroform	83	4.661	4.654	(0.952)	177187	21.0026	21.00
3 Chloromethane	50	1.347	1.336	(0.275)	95716	23.9974	23.99
27 cis-1,2-Dichloroethene	96	4.290	4.283	(0.876)	112668	21.0722	21.07
46 cis-1,3-Dichloropropene	75	6.760	6.757	(1.201)	165133	19.8487	19.84
55 Dibromochloromethane	129	7.758	7.758	(0.940)	86605	19.3564	19.35
44 Dibromomethane	93	6.191	6.187	(1.100)	66144	21.3834	21.38
2 Dichlorodifluoromethane	85	1.212	1.201	(0.248)	99637	20.1990	20.19
61 Ethylbenzene	106	8.372	8.369	(1.015)	150022	21.6543	21.65
91 Hexachlorobutadiene	225	12.065	12.065	(1.179)	46864	19.4594	19.45
67 Isopropylbenzene	105	9.126	9.126	(1.106)	444629	22.2408	22.24
62 m,p-Xylenes	106	8.474	8.474	(1.027)	373925	43.9025	43.90
17 Methylene Chloride	84	2.881	2.869	(0.588)	110110	21.2264	21.22
87 n-Butylbenzene	91	10.558	10.558	(1.031)	382218	22.0444	22.04
73 n-Propylbenzene	91	9.474	9.474	(0.926)	566860	22.3442	22.34
92 Naphthalene	128	12.132	12.132	(1.185)	398777	19.5931	19.59
63 o-Xylene	106	8.811	8.811	(1.068)	188789	21.9718	21.97
81 sec-Butylbenzene	105	10.086	10.086	(0.985)	470724	22.0778	22.07
64 Styrene	104	8.826	8.822	(1.070)	319620	22.3899	22.38
78 tert-Butylbenzene	119	9.902	9.902	(0.967)	326809	22.1594	22.15
56 Tetrachloroethene	164	7.525	7.521	(0.912)	74823	20.3294	20.32
50 Toluene	91	7.049	7.045	(0.855)	451266	21.5785	21.57
20 trans-1,2-Dichloroethene	96	3.150	3.139	(0.643)	100128	21.0291	21.02
51 trans-1,3-Dichloropropene	75	7.263	7.259	(1.290)	137974	19.5584	19.55
38 Trichloroethene	130	5.864	5.861	(1.042)	101926	20.9180	20.91
8 Trichlorofluoromethane	101	1.966	1.951	(0.401)	138983	21.0959	21.09
5 Vinyl Chloride	62	1.430	1.419	(0.292)	121149	21.6176	21.61

QC Flag Legend

M - Compound response manually integrated.



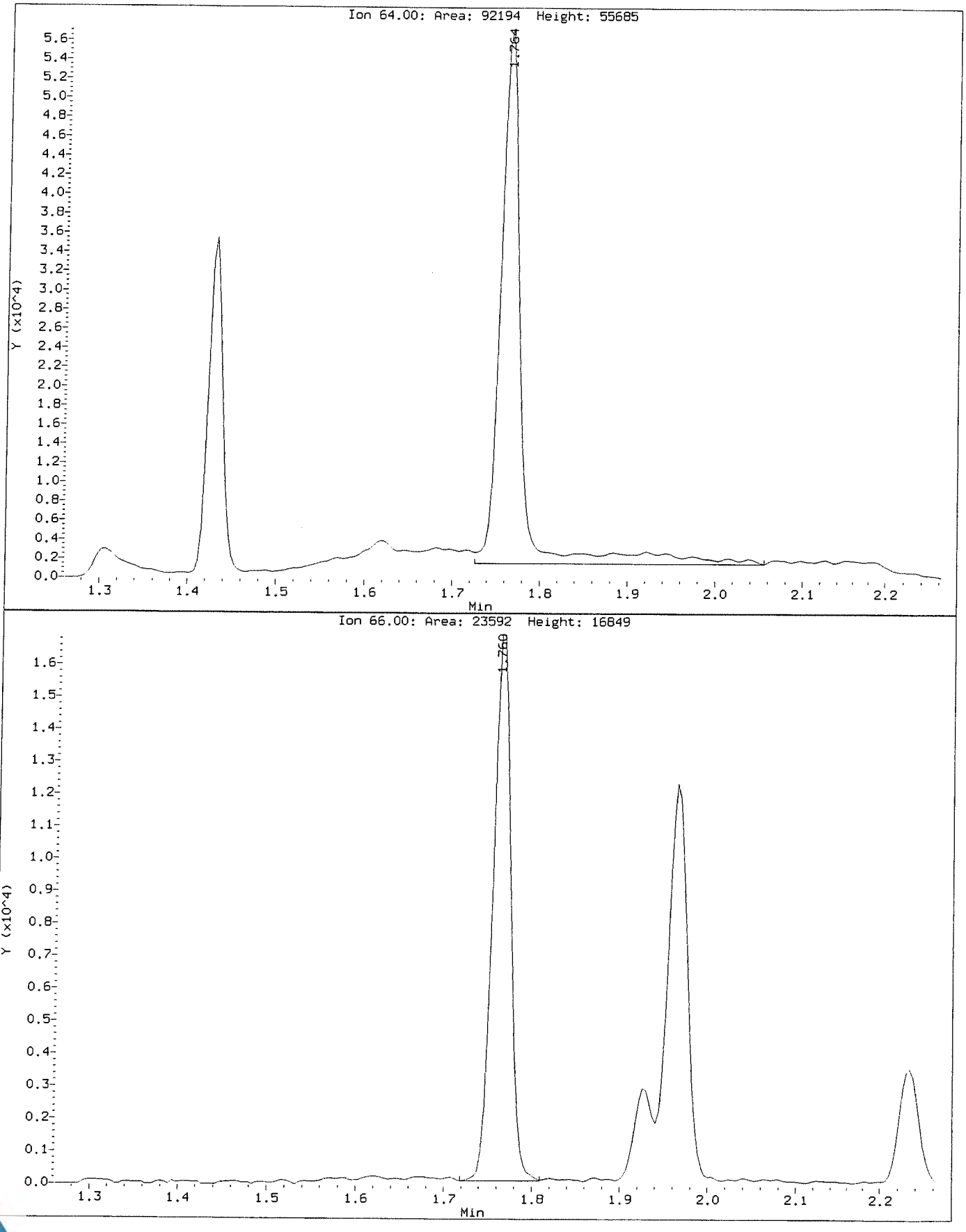
Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122403.D
Date : 24-DEC-2018 10:17
Client ID: VLCSW-181224
Sample Info: VLCSW-1812024;VLCSW-181224;3;;LCS
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

\\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122403.D

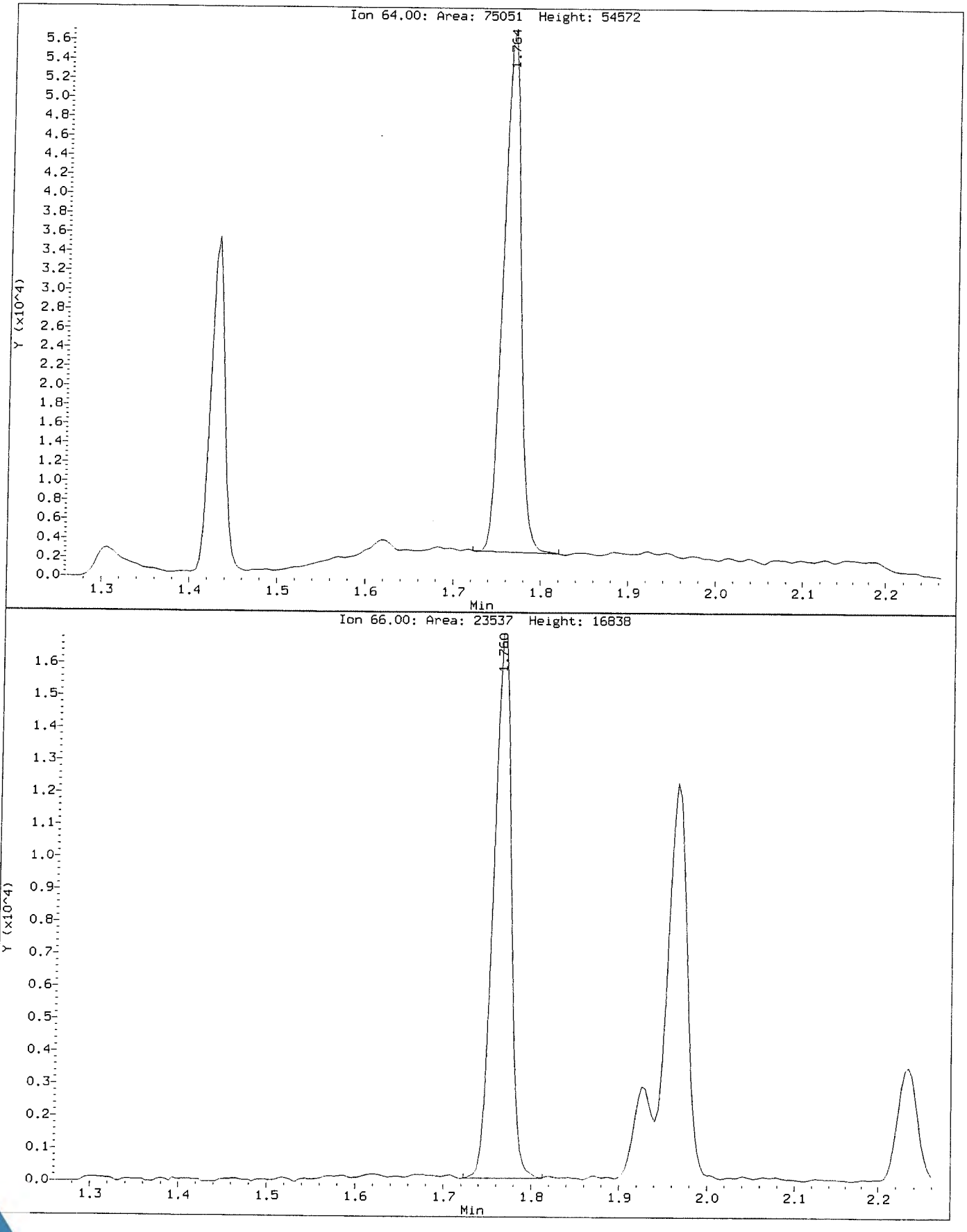
Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\Before\U122403.D
Injection Date: 24-DEC-2018 10:17
Instrument: VOA9.i
Client Sample ID: VLCSW-181224

Compound: Chloroethane
CAS Number: 75-00-3



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122403.D
Injection Date: 24-DEC-2018 10:17
Instrument: VOA9.i
Client Sample ID: VLCSW-181224

Compound: Chloroethane
CAS Number: 75-00-3



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Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122405.D
Lab Smp Id: VBLKW-181224 Client Smp ID: VBLKW-181224
Inj Date : 24-DEC-2018 11:06
Operator : PC Inst ID: VOA9.i
Smp Info : VBLKW-181224;VBLKW-181224;3;;BLANK
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 5 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

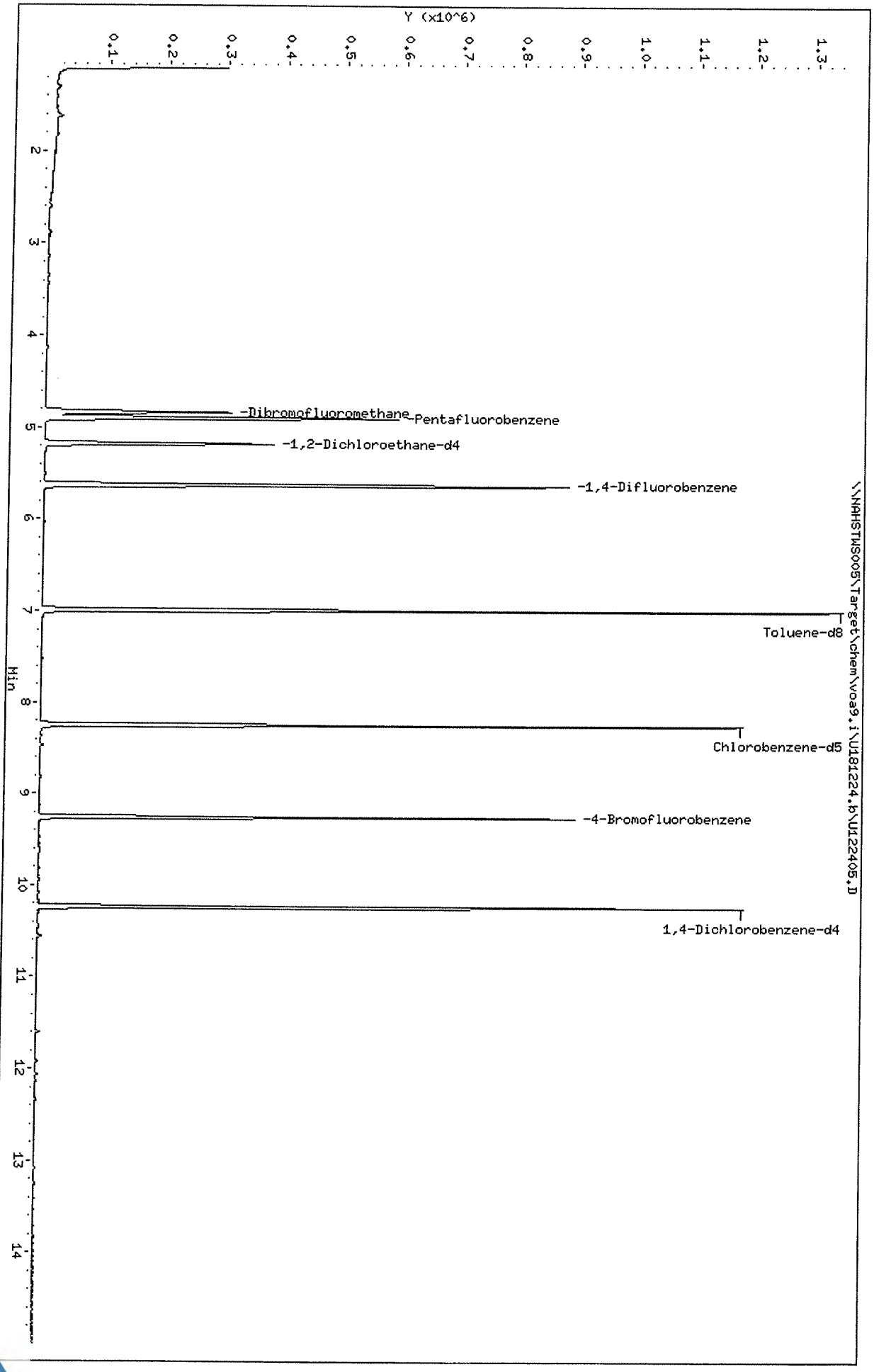
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.897	4.894	(1.000)	360724	50.0000	
* 36 1,4-Difluorobenzene	114	5.628	5.625	(1.000)	632508	50.0000	
* 47 Chlorobenzene-d5	117	8.249	8.249	(1.000)	571876	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.235	10.235	(1.000)	263882	50.0000	
$ 30 Dibromofluoromethane	113	4.834	4.826	(0.987)	177273	44.3672	44.36
$ 35 1,2-Dichloroethane-d4	65	5.179	5.171	(1.057)	242561	47.4005	47.40
$ 48 Toluene-d8	98	6.989	6.989	(0.847)	770698	52.2682	52.26
$ 69 4-Bromofluorobenzene	95	9.257	9.257	(1.122)	271263	48.2038	48.20

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122405.D
Date : 24-DEC-2018 11:06
Client ID: VBLKW-181224
Sample Info: VBLKW-181224;VBLKW-181224;3;;BLANK
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122406.D Page 1
Report Date: 28-Jan-2019 14:41

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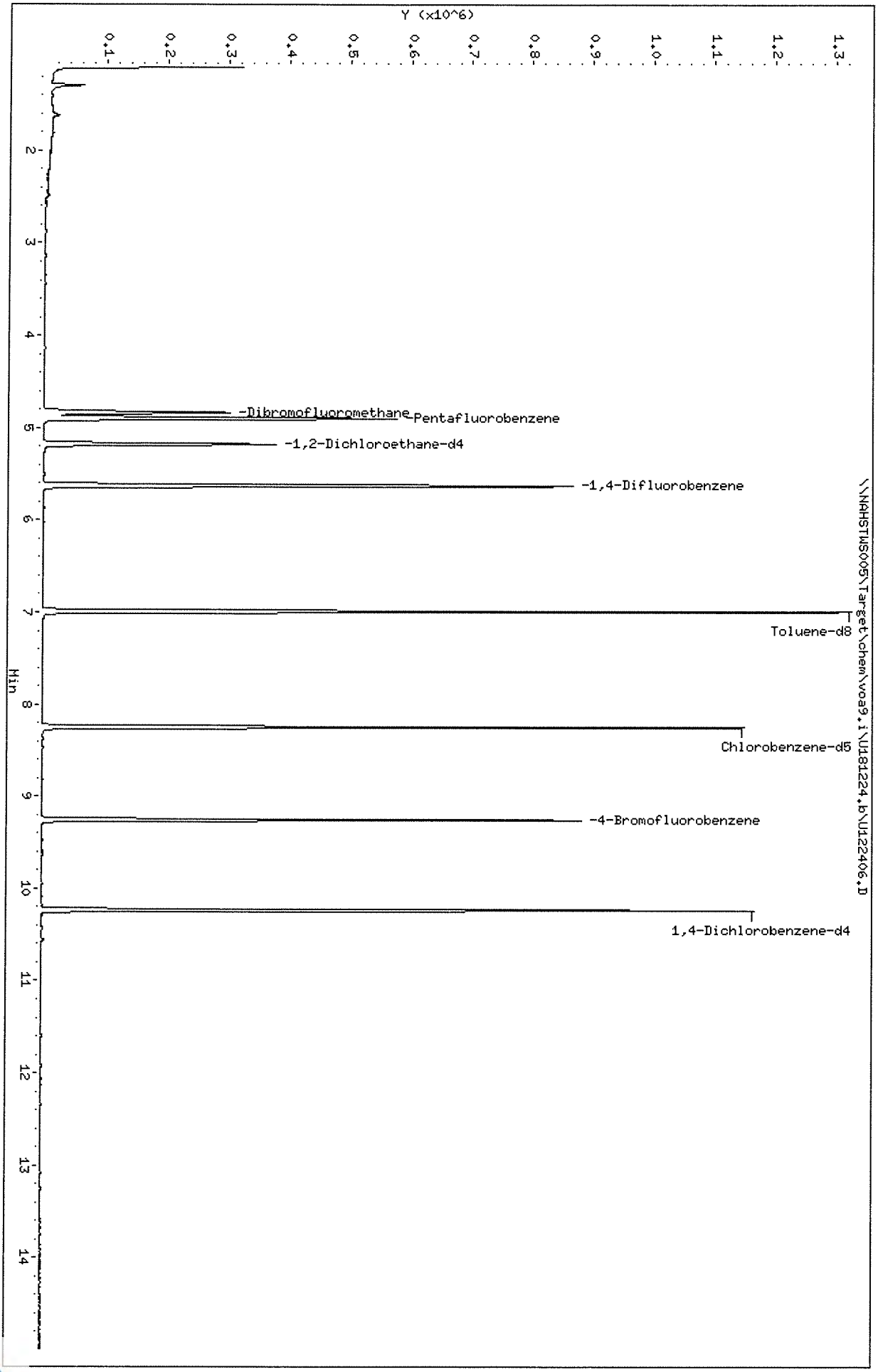
Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122406.D
Lab Smp Id: HS18120736-09 Client Smp ID: HS18120736-09
Inj Date : 24-DEC-2018 11:31
Operator : PC Inst ID: VOA9.i
Smp Info : HS18120736-09;HS18120736-09;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.897	4.902	(1.000)	353433	50.0000	
* 36 1,4-Difluorobenzene	114	5.628	5.629	(1.000)	618164	50.0000	
* 47 Chlorobenzene-d5	117	8.252	8.253	(1.000)	554587	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.235	10.236	(1.000)	258873	50.0000	
$ 30 Dibromofluoromethane	113	4.834	4.834	(0.987)	175914	44.9549	44.95
$ 35 1,2-Dichloroethane-d4	65	5.179	5.179	(1.057)	239865	47.8607	47.86
$ 48 Toluene-d8	98	6.989	6.990	(0.847)	757456	52.9956	52.99
$ 69 4-Bromofluorobenzene	95	9.257	9.258	(1.122)	269160	49.3543	49.35



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Date : 24-DEC-2018 11:31
Client ID: HS18120736-09
Sample Info: HS18120736-09;HS18120736-09;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122408.D Page 1
Report Date: 28-Jan-2019 14:41

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Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122408.D
Lab Smp Id: HS18120736-05 Client Smp ID: HS18120736-05
Inj Date : 24-DEC-2018 12:20
Operator : PC Inst ID: VOA9.i
Smp Info : HS18120736-05;HS18120736-05;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

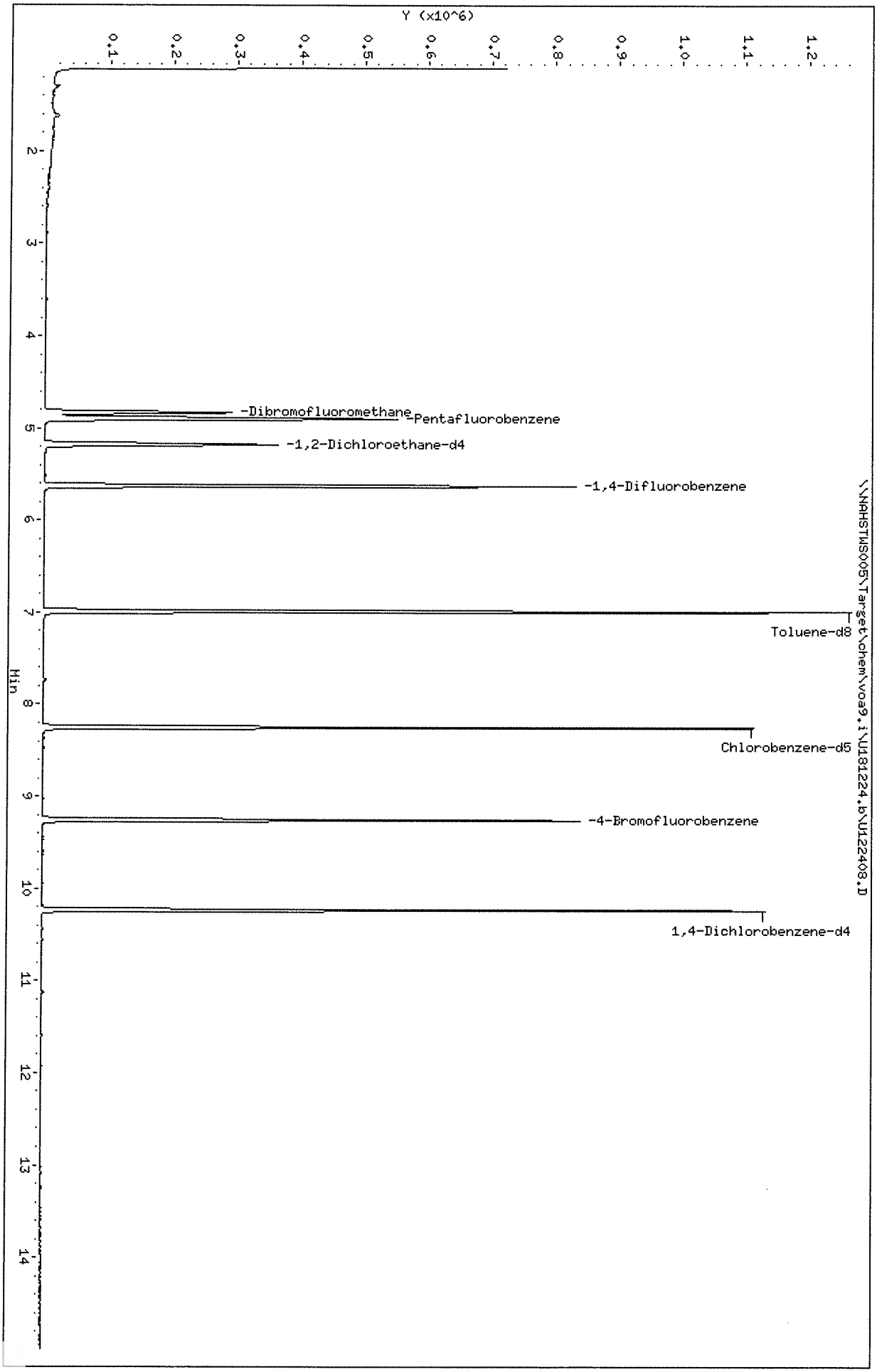
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.897	4.902	(1.000)	339418	50.0000	
* 36 1,4-Difluorobenzene	114	5.628	5.629	(1.000)	598859	50.0000	
* 47 Chlorobenzene-d5	117	8.252	8.253	(1.000)	540374	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	248682	50.0000	
$ 30 Dibromofluoromethane	113	4.834	4.834	(0.987)	168863	44.9341	44.93
$ 35 1,2-Dichloroethane-d4	65	5.179	5.179	(1.057)	232468	48.3200	48.31
$ 48 Toluene-d8	98	6.989	6.990	(0.847)	731493	52.5093	52.50
$ 69 4-Bromofluorobenzene	95	9.257	9.258	(1.122)	259806	48.8788	48.87

Data File: \\NAHSTWS005\Target\chem\voa9,i\U181224,b\U122408.D
Date : 24-DEC-2018 12:20
Client ID: HS18120736-05
Sample Info: HS18120736-05;HS18120736-05;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9,i
Operator: PC
Column diameter: 0.18



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Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122409.D
Lab Smp Id: HS18120736-06 Client Smp ID: HS18120736-06
Inj Date : 24-DEC-2018 12:45
Operator : PC Inst ID: VOA9.i
Smp Info : HS18120736-06;HS18120736-06;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

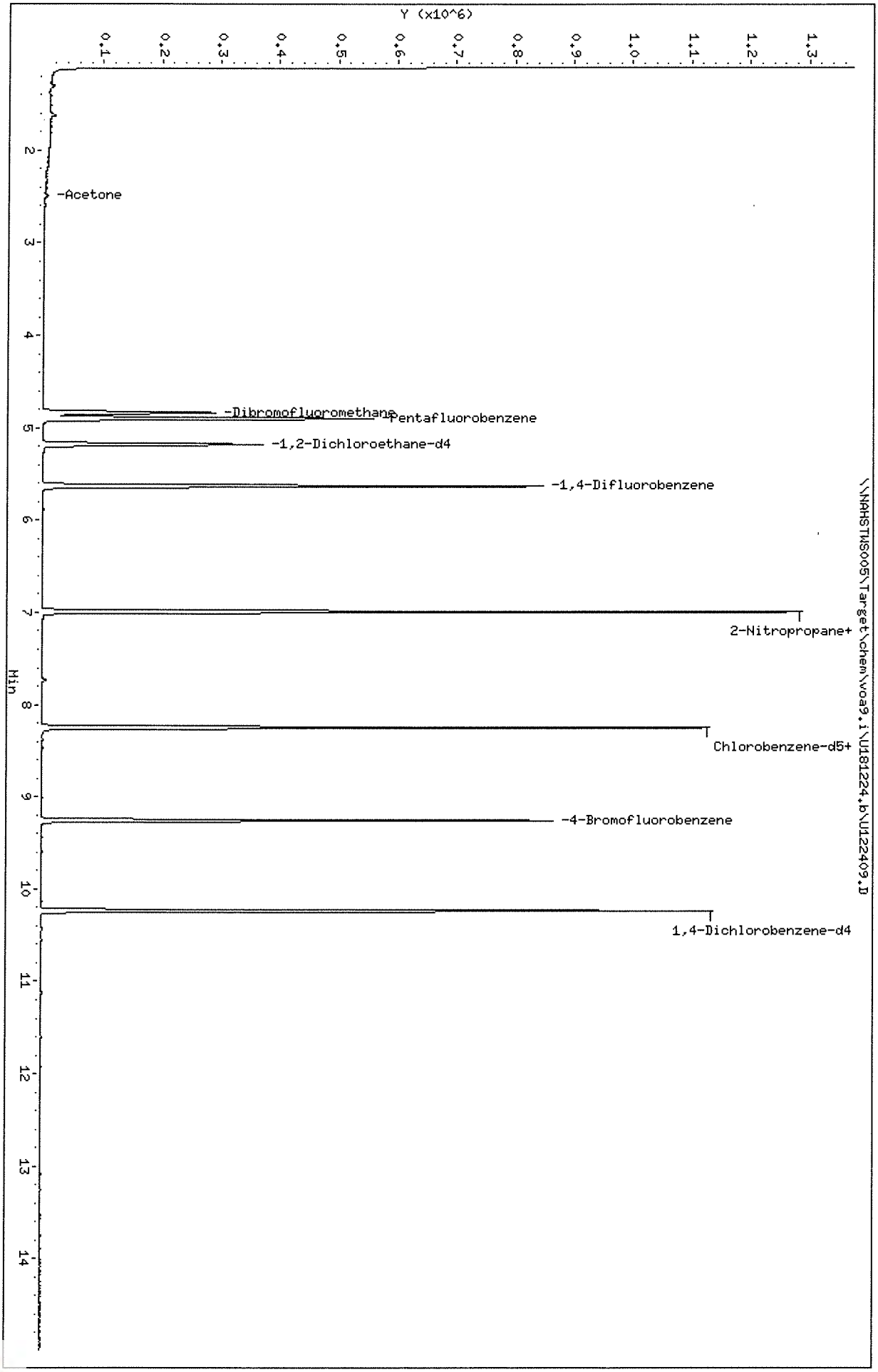
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.898	4.902	(1.000)	343602	50.0000	
* 36 1,4-Difluorobenzene	114	5.629	5.629	(1.000)	600894	50.0000	
* 47 Chlorobenzene-d5	117	8.249	8.253	(1.000)	542430	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	252851	50.0000	
$ 30 Dibromofluoromethane	113	4.834	4.834	(0.987)	172338	45.3129	45.31
$ 35 1,2-Dichloroethane-d4	65	5.179	5.179	(1.057)	235150	48.2806	48.28
$ 48 Toluene-d8	98	6.990	6.990	(0.847)	740653	52.9808	52.98
$ 69 4-Bromofluorobenzene	95	9.257	9.258	(1.122)	263083	49.3202	49.32
10 Acetone	43	2.491	2.491	(0.509)	6366	1.86530	1.86(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).



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Date : 24-DEC-2018 12:45
Client ID: HS18120736-06
Sample Info: HS18120736-06;HS18120736-06;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122409.D

Date : 24-DEC-2018 12:45

Client ID: HS18120736-06

Instrument: VOA9.i

Sample Info: HS18120736-06;HS18120736-06;;;

Purge Volume: 5.0

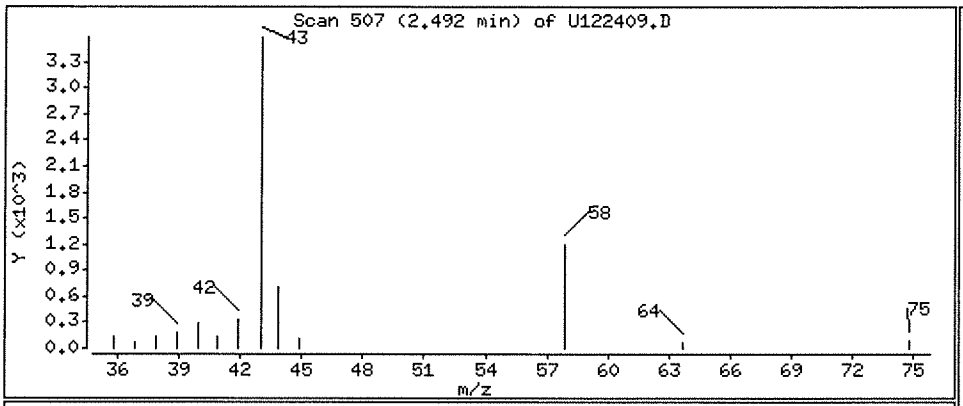
Operator: PC

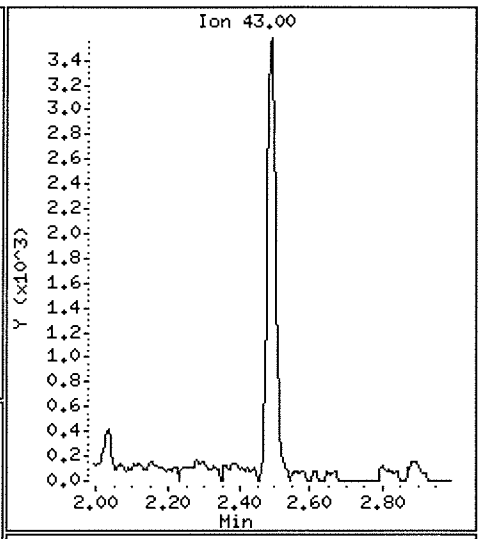
Column phase: DB624

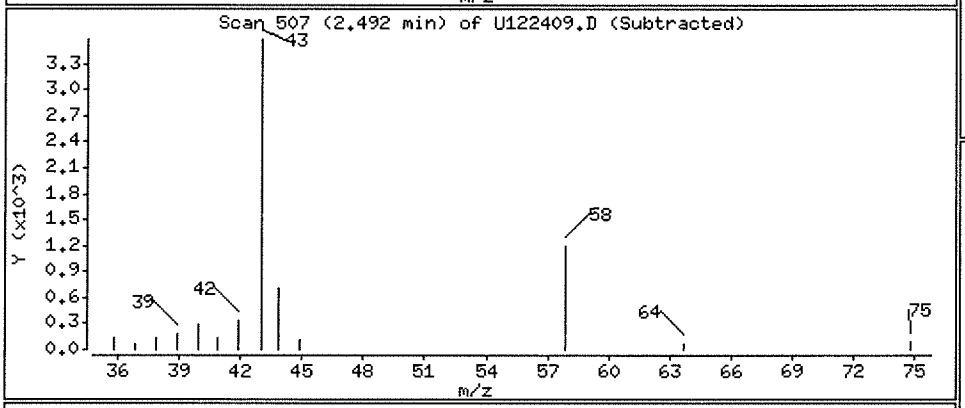
Column diameter: 0.18

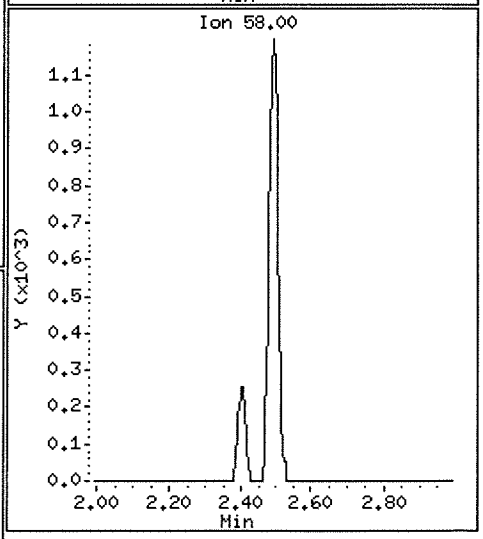
10 Acetone

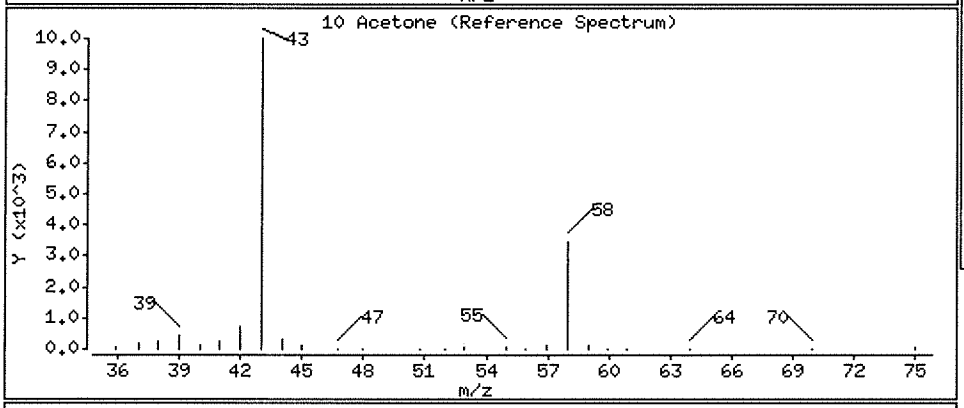
Concentration: 1.86 ug/l

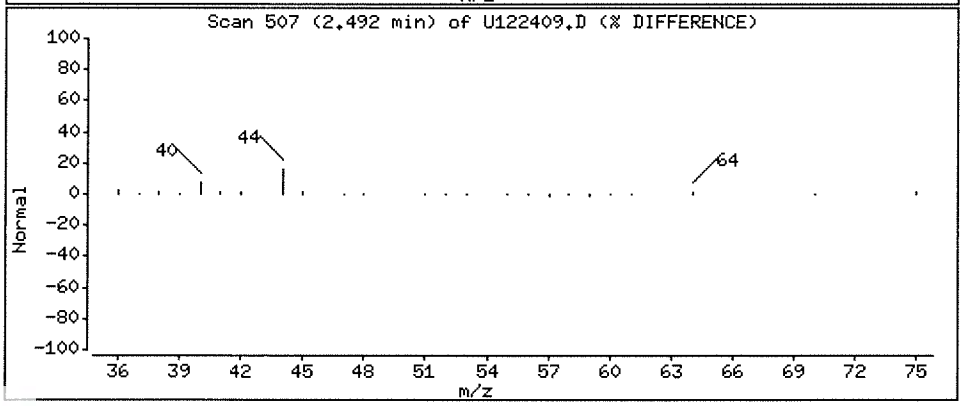












Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122410.D Page 1
Report Date: 28-Jan-2019 14:41

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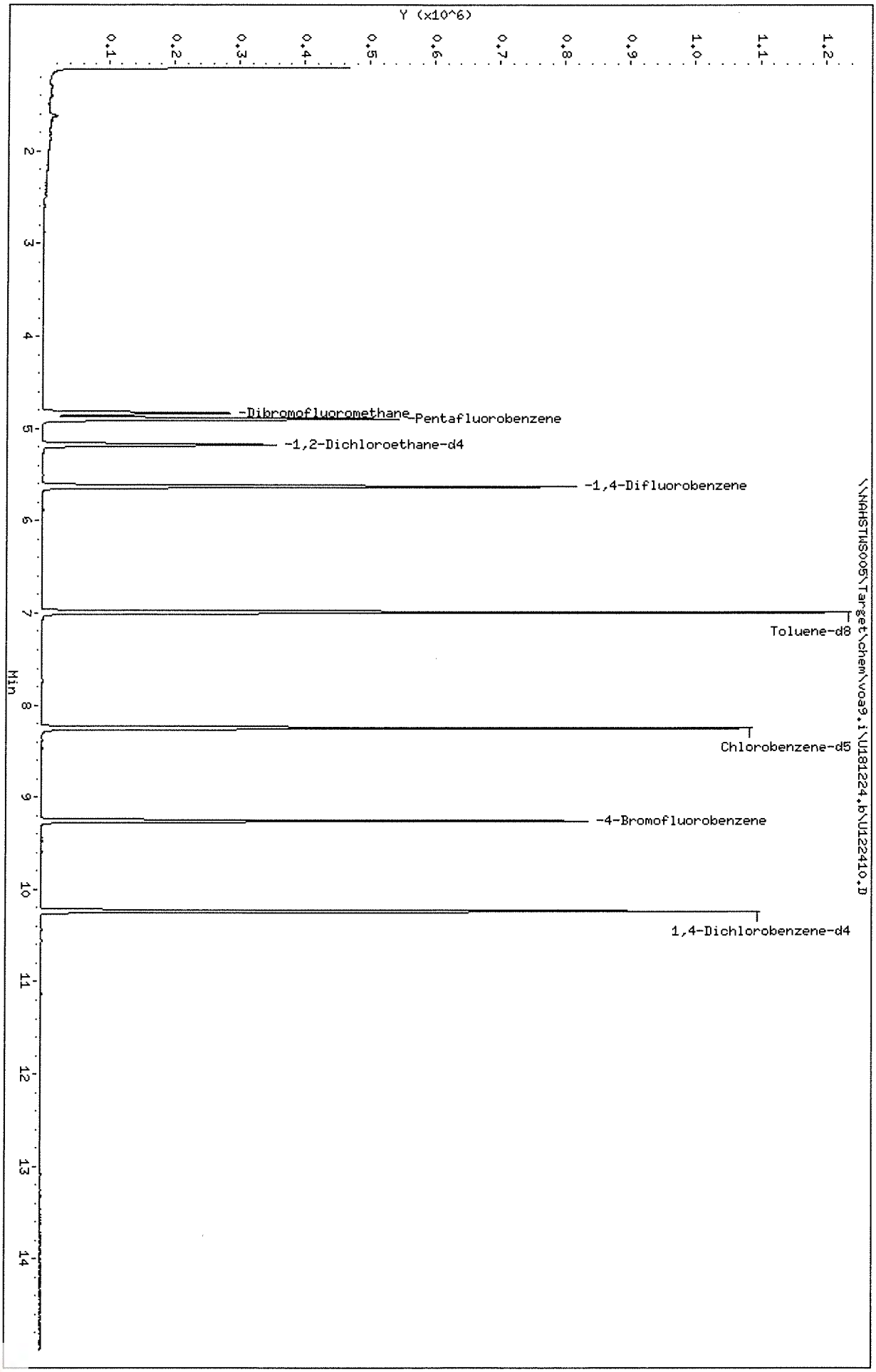
Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122410.D
Lab Smp Id: HS18120736-07 Client Smp ID: HS18120736-07
Inj Date : 24-DEC-2018 13:10
Operator : PC Inst ID: VOA9.i
Smp Info : HS18120736-07;HS18120736-07;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 10
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.898	4.902	(1.000)	335037	50.0000	
* 36 1,4-Difluorobenzene	114	5.629	5.629	(1.000)	586697	50.0000	
* 47 Chlorobenzene-d5	117	8.249	8.253	(1.000)	527117	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	239875	50.0000	
$ 30 Dibromofluoromethane	113	4.834	4.834	(0.987)	166268	44.8183	44.81
$ 35 1,2-Dichloroethane-d4	65	5.179	5.179	(1.057)	227005	47.7782	47.77
$ 48 Toluene-d8	98	6.990	6.990	(0.847)	719120	52.9334	52.93
$ 69 4-Bromofluorobenzene	95	9.258	9.258	(1.122)	254214	49.0340	49.03



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122410.D
Date : 24-DEC-2018 13:10
Client ID: HS18120736-07
Sample Info: HS18120736-07;HS18120736-07;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122415.D Page 1
Report Date: 28-Jan-2019 14:34

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Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122415.D
Lab Smp Id: HS18120913-03MS Client Smp ID: HS18120913-03MS
Inj Date : 24-DEC-2018 15:14
Operator : PC Inst ID: VOA9.i
Smp Info : HS18120913-03MS;HS18120913-03MS;3;;MS
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 15 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

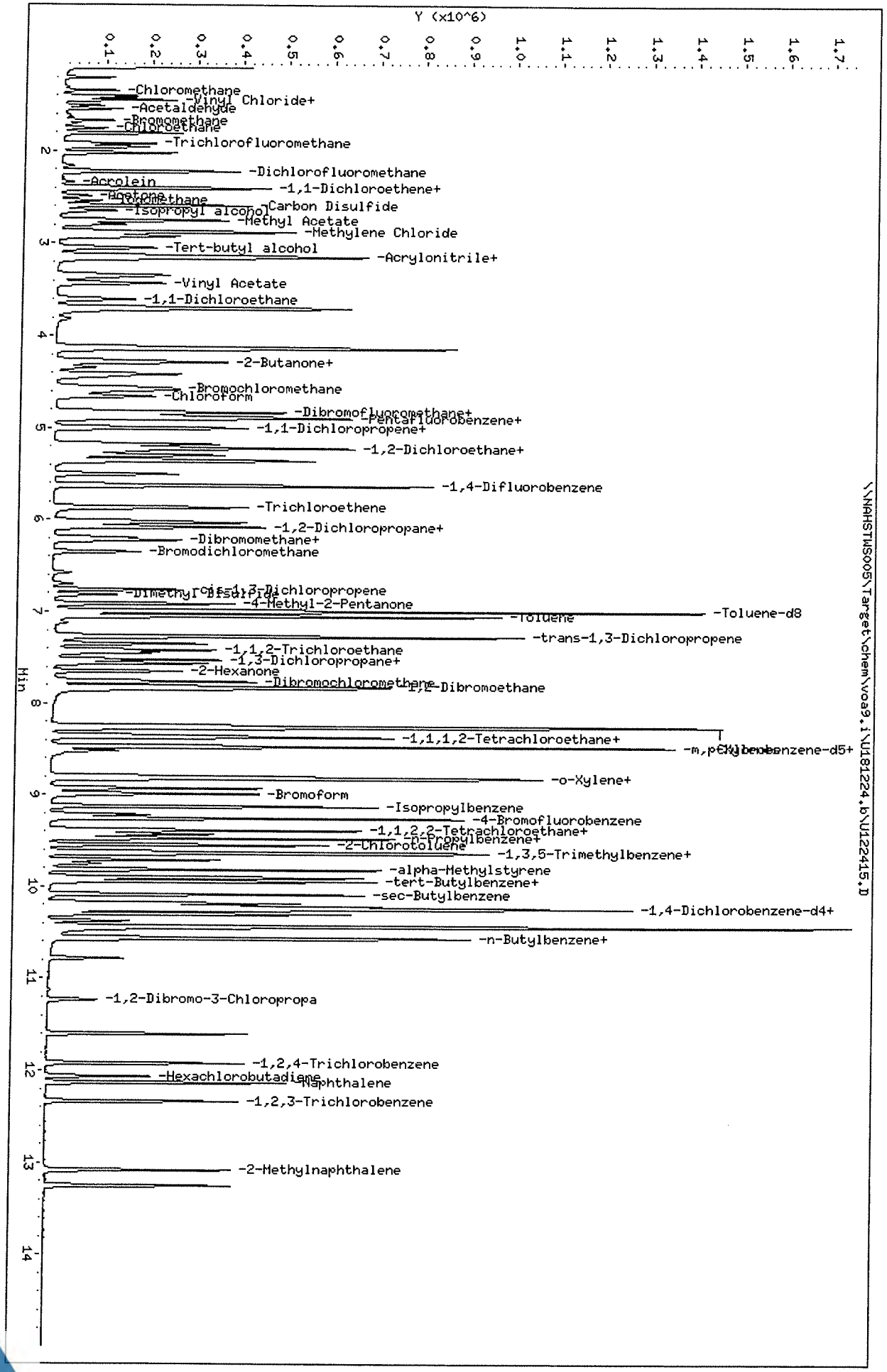
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.898	4.894	(1.000)	345000	50.0000	
*	36 1,4-Difluorobenzene	114	5.629	5.625	(1.000)	594715	50.0000	
*	47 Chlorobenzene-d5	117	8.249	8.249	(1.000)	543870	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	10.236	10.235	(1.000)	266360	50.0000	
$	30 Dibromofluoromethane	113	4.830	4.826	(0.986)	174630	45.7435	45.74
$	35 1,2-Dichloroethane-d4	65	5.179	5.171	(1.057)	230784	47.1432	47.14
$	48 Toluene-d8	98	6.989	6.989	(0.847)	746782	53.2878	53.28
$	69 4-Bromofluorobenzene	95	9.257	9.257	(1.122)	276028	51.6764	51.67
	60 1,1,1,2-Tetrachloroethane	131	8.350	8.350	(1.012)	79024	23.2148	23.21
	31 1,1,1-Trichloroethane	97	4.830	4.826	(0.986)	124996	22.9455	22.94
	68 1,1,2,2-Tetrachloroethane	83	9.392	9.392	(0.918)	145185	24.2035	24.20
	138 Freon TF	101	2.405	2.401	(0.491)	73723	25.1357	25.13
	53 1,1,2-Trichloroethane	83	7.420	7.420	(0.900)	81989	25.3033	25.30
	22 1,1-Dichloroethane	63	3.608	3.600	(0.737)	168755	22.7132	22.71
	11 1,1-Dichloroethene	96	2.401	2.401	(0.490)	75592	23.0442	23.04
	32 1,1-Dichloropropene	75	5.006	5.002	(0.889)	134692	25.4542	25.45
	93 1,2,3-Trichlorobenzene	180	12.335	12.335	(1.205)	109130	22.1001	22.10
	71 1,2,3-Trichloropropane	75	9.426	9.426	(0.921)	145667	23.3532	23.35
	90 1,2,4-Trichlorobenzene	180	11.923	11.922	(1.165)	110324	22.3715	22.37
	79 1,2,4-Trimethylbenzene	105	9.943	9.943	(0.971)	351572	25.2227	25.22
	89 1,2-Dibromo-3-Chloropropane	155	11.233	11.233	(1.097)	18444	20.8136	20.81
	57 1,2-Dibromoethane	107	7.852	7.851	(0.952)	94955	25.4427	25.44

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122415.D Page 2
Report Date: 28-Jan-2019 14:34

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
88 1,2-Dichlorobenzene	146	10.569	10.569	(1.033)	187882	23.7559	23.75
33 1,2-Dichloroethane	62	5.254	5.250	(0.933)	138450	25.4836	25.48
42 1,2-Dichloropropane	63	6.082	6.078	(1.081)	104134	24.7807	24.78
75 1,3,5-Trimethylbenzene	105	9.625	9.624	(0.940)	342429	25.5804	25.58
83 1,3-Dichlorobenzene	146	10.179	10.179	(0.995)	184561	23.3342	23.33
54 1,3-Dichloropropane	76	7.563	7.563	(0.917)	174086	24.9430	24.94
84 1,4-Dichlorobenzene	146	10.254	10.254	(1.002)	194001	23.2630	23.26
26 2,2-Dichloropropane	77	4.275	4.271	(0.873)	102083	22.7990	22.79
24 2-Butanone	43	4.343	4.335	(0.887)	105483	45.4559	45.45
76 2-Chlorotoluene	91	9.546	9.546	(0.933)	306257	24.9549	24.95
52 2-Hexanone	43	7.649	7.649	(0.927)	159855	52.8577	52.85
77 4-Chlorotoluene	91	9.640	9.639	(0.942)	356306	25.1237	25.12
82 p-Isopropyltoluene	119	10.209	10.209	(0.997)	355401	25.2152	25.21
45 4-Methyl-2-Pentanone	43	6.914	6.910	(0.838)	223482	51.3578	51.35
10 Acetone	43	2.487	2.476	(0.508)	70952	51.2497	51.24
37 Benzene	78	5.220	5.216	(0.927)	397101	25.0928	25.09
74 Bromobenzene	156	9.385	9.381	(0.917)	97879	23.7834	23.78
29 Bromochloromethane	128	4.556	4.552	(0.930)	46188	24.0179	24.01
39 Bromodichloromethane	83	6.348	6.348	(1.128)	109342	24.4685	24.46
66 Bromoform	173	8.984	8.983	(1.089)	47381	21.3431	21.34
6 Bromomethane	94	1.670	1.666	(0.341)	51729	24.9684	24.96
19 Carbon Disulfide	76	2.592	2.588	(0.529)	516135	43.1821	43.18
34 Carbon Tetrachloride	117	4.999	4.995	(0.888)	99519	23.7645	23.76
59 Chlorobenzene	112	8.275	8.275	(1.003)	261122	24.9882	24.98
7 Chloroethane	64	1.756	1.748	(0.359)	65153	21.7650	21.76(M)
28 Chloroform	83	4.658	4.654	(0.951)	164251	22.9552	22.95
3 Chloromethane	50	1.344	1.336	(0.274)	73734	22.1006	22.10
27 cis-1,2-Dichloroethene	96	4.290	4.283	(0.876)	110116	24.2824	24.28
46 cis-1,3-Dichloropropene	75	6.761	6.757	(1.201)	142392	21.7030	21.70
55 Dibromochloromethane	129	7.758	7.758	(0.940)	77822	22.3259	22.32
44 Dibromomethane	93	6.191	6.187	(1.100)	60796	25.0676	25.06
2 Dichlorodifluoromethane	85	1.209	1.201	(0.247)	60996	14.7145	14.71
61 Ethylbenzene	106	8.373	8.369	(1.015)	137460	25.6473	25.64
91 Hexachlorobutadiene	225	12.065	12.065	(1.179)	36483	19.3100	19.30
67 Isopropylbenzene	105	9.126	9.126	(1.106)	409452	26.4747	26.47
62 m,p-Xylenes	106	8.474	8.474	(1.027)	342200	51.9351	51.93
17 Methylene Chloride	84	2.873	2.869	(0.587)	100414	22.9137	22.91
87 n-Butylbenzene	91	10.554	10.558	(1.031)	332695	24.4588	24.45
73 n-Propylbenzene	91	9.475	9.474	(0.926)	515682	25.9103	25.91
92 Naphthalene	128	12.133	12.132	(1.185)	359474	22.4263	22.42
63 o-Xylene	106	8.811	8.811	(1.068)	170427	25.6392	25.63
81 sec-Butylbenzene	105	10.086	10.086	(0.985)	425090	25.4139	25.41
64 Styrene	104	8.826	8.822	(1.070)	290415	26.2974	26.29
78 tert-Butylbenzene	119	9.902	9.902	(0.967)	293816	25.3946	25.39
56 Tetrachloroethene	164	7.525	7.521	(0.912)	68956	24.2180	24.21
50 Toluene	91	7.049	7.045	(0.855)	422501	26.1152	26.11
20 trans-1,2-Dichloroethene	96	3.143	3.139	(0.642)	93150	23.0664	23.06
51 trans-1,3-Dichloropropene	75	7.263	7.259	(1.290)	119186	21.3804	21.38
38 Trichloroethene	130	5.865	5.861	(1.042)	100047	26.1873	26.18
8 Trichlorofluoromethane	101	1.959	1.951	(0.400)	125967	22.5008	22.50
5 Vinyl Chloride	62	1.423	1.419	(0.291)	101003	21.2662	21.26

QC Flag Legend

M - Compound response manually integrated.



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Sample Info: HS18120913-03MS;HS18120913-03MS;3;;MS
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

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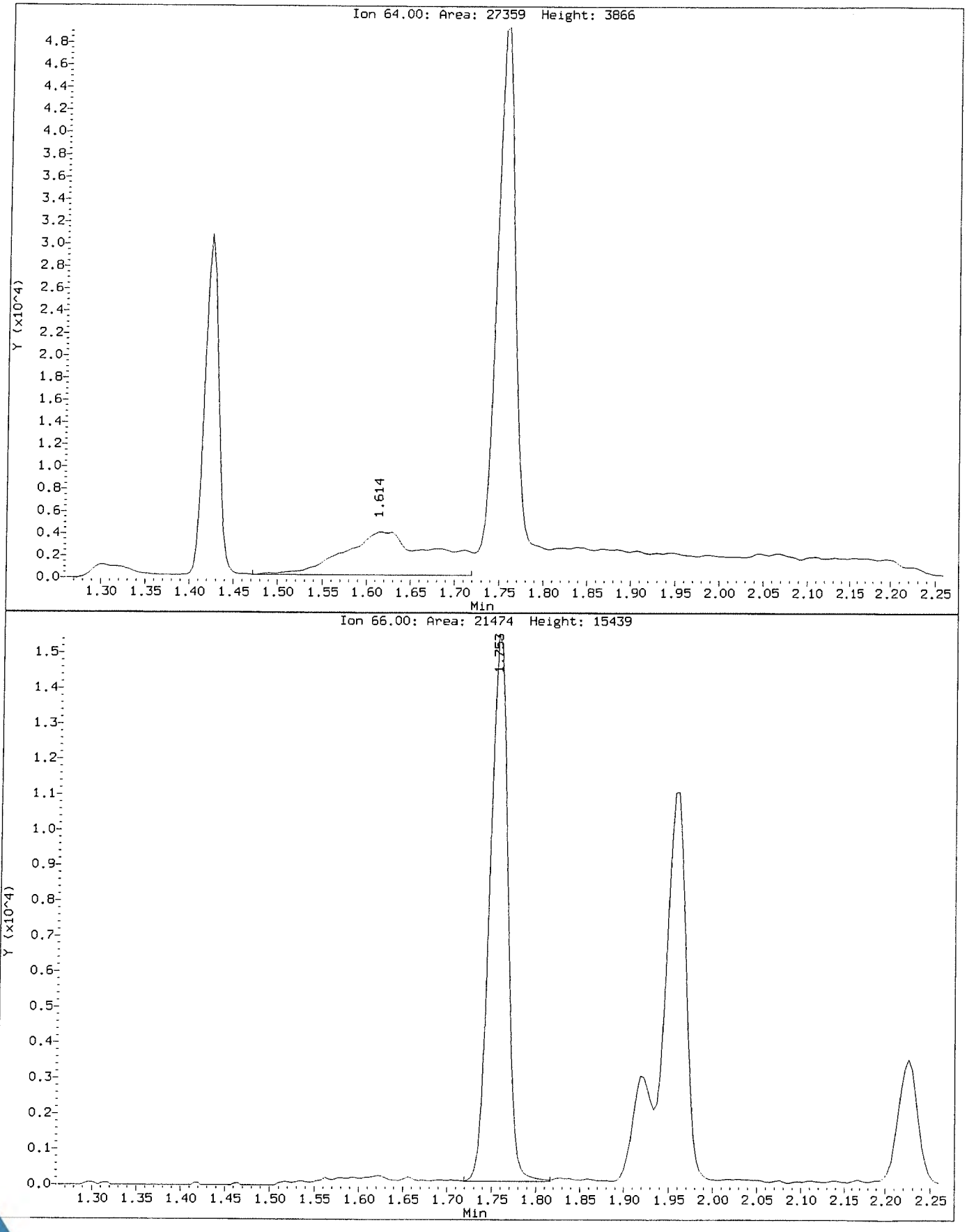
Injection Date: 24-DEC-2018 15:14
Instrument: VOA9.i
Client Sample ID: HS18120913-03MS

Compound: Chloroethane
CAS Number: 75-00-3



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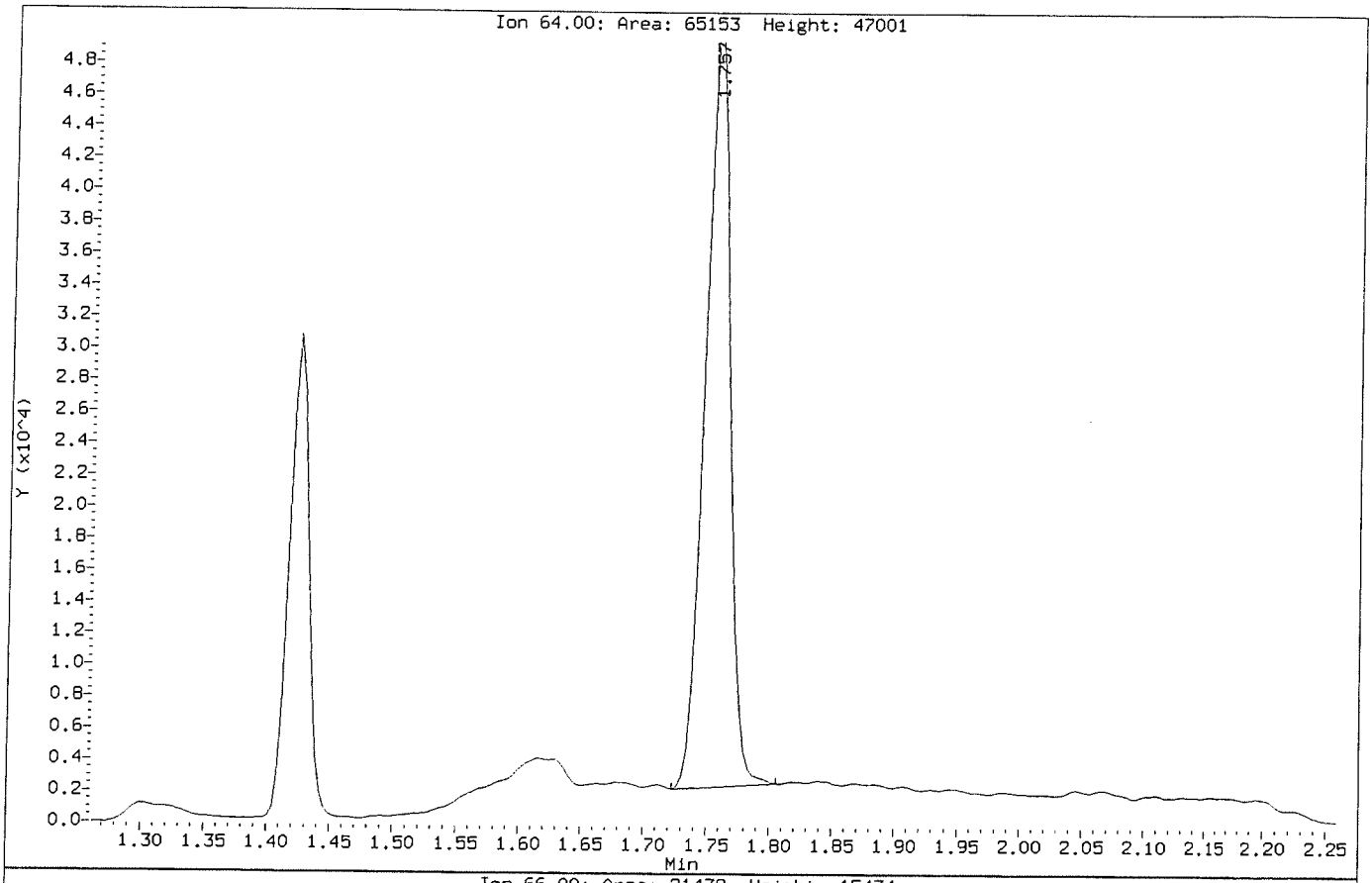
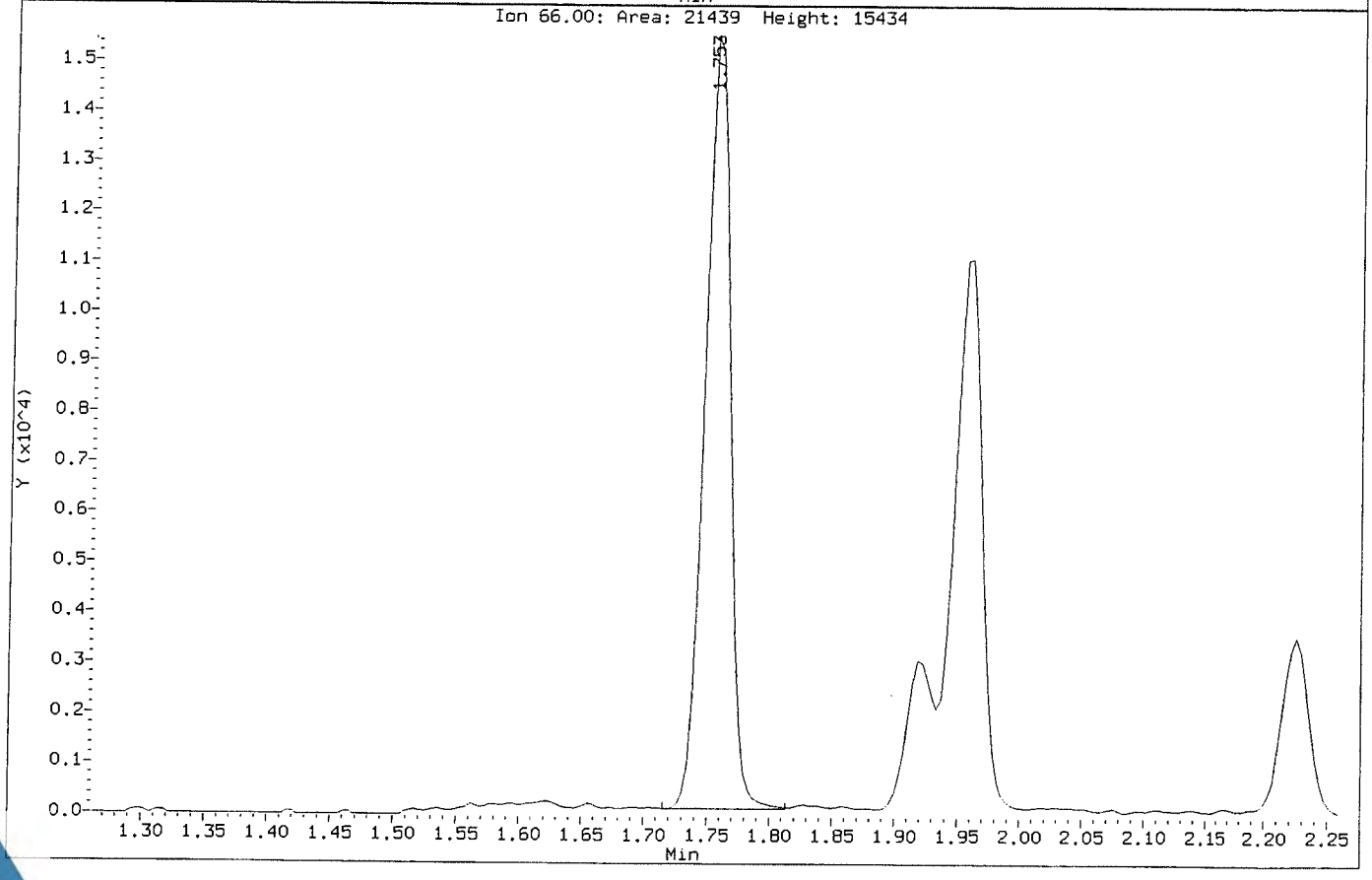
Instrument: VOA9.i
Client Sample ID: HS18120913-03MS

Compound: Chloroethane
CAS Number: 75-00-3





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Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122416.D
Lab Smp Id: HS18120913-03MSD Client Smp ID: HS18120913-03MSD
Inj Date : 24-DEC-2018 15:39
Operator : PC Inst ID: VOA9.i
Smp Info : HS18120913-03MSD;HS18120913-03MSD;3;;MSD
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 15 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

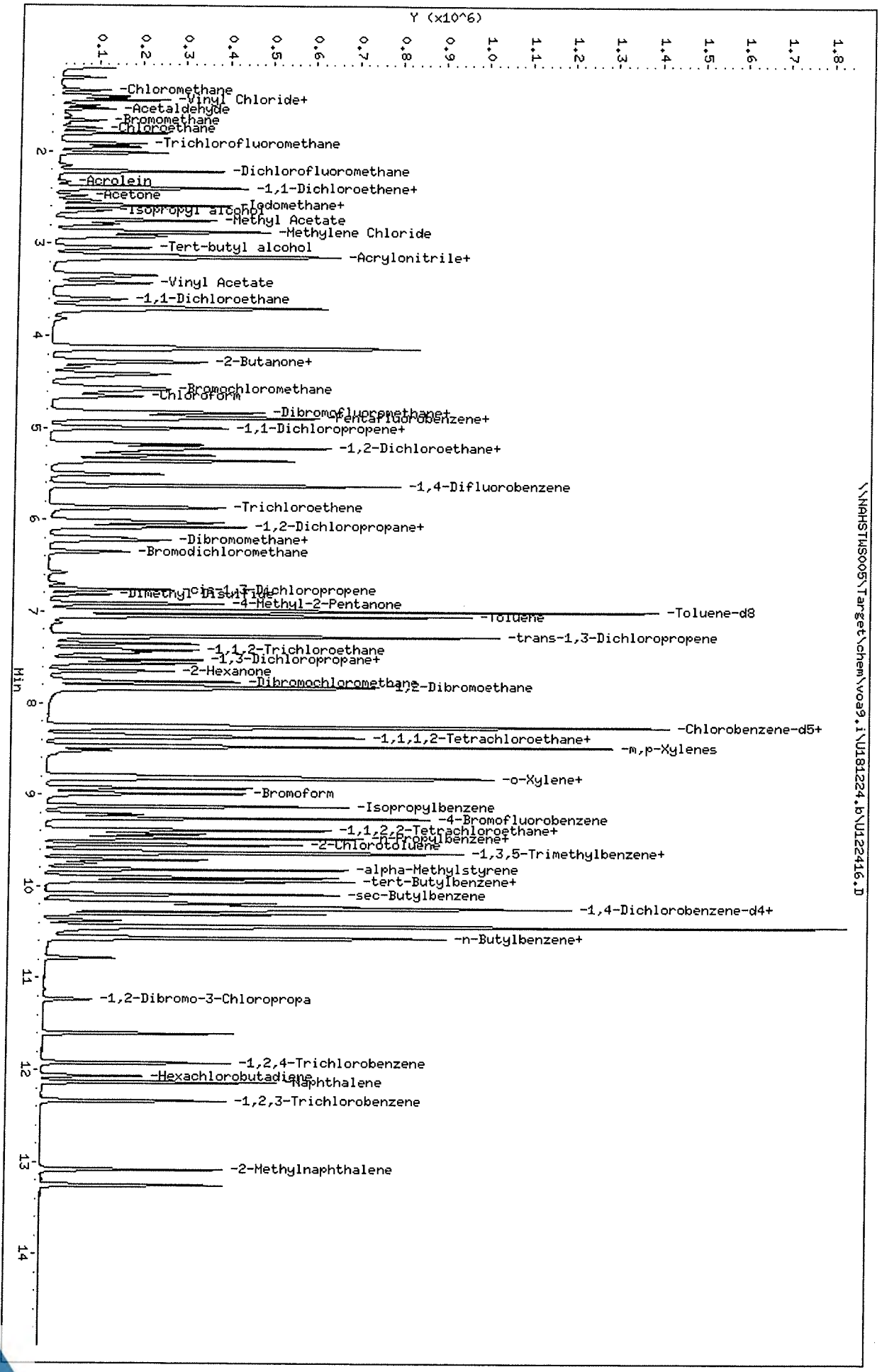
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.894	4.894	(1.000)	331424	50.0000	
* 36 1,4-Difluorobenzene	114	5.625	5.625	(1.000)	576248	50.0000	
* 47 Chlorobenzene-d5	117	8.249	8.249	(1.000)	529623	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.236	10.235	(1.000)	254873	50.0000	
$ 30 Dibromofluoromethane	113	4.827	4.826	(0.986)	168144	45.8522	45.85
$ 35 1,2-Dichloroethane-d4	65	5.175	5.171	(1.057)	222561	47.3342	47.33
$ 48 Toluene-d8	98	6.990	6.989	(0.847)	724188	53.0583	53.05
$ 69 4-Bromofluorobenzene	95	9.258	9.257	(1.122)	269198	51.7556	51.75
60 1,1,1,2-Tetrachloroethane	131	8.350	8.350	(1.012)	77847	23.4774	23.47
31 1,1,1-Trichloroethane	97	4.827	4.826	(0.986)	124807	23.8493	23.84
68 1,1,2,2-Tetrachloroethane	83	9.392	9.392	(0.918)	146512	25.5255	25.52
138 Freon TF	101	2.397	2.401	(0.490)	69274	24.5863	24.58
53 1,1,2-Trichloroethane	83	7.421	7.420	(0.900)	79929	25.3311	25.33
22 1,1-Dichloroethane	63	3.601	3.600	(0.736)	165784	23.2274	23.22
11 1,1-Dichloroethene	96	2.397	2.401	(0.490)	72848	23.1174	23.11
32 1,1-Dichloropropene	75	5.003	5.002	(0.889)	129339	25.2259	25.22
93 1,2,3-Trichlorobenzene	180	12.335	12.335	(1.205)	110289	23.3059	23.30
71 1,2,3-Trichloropropane	75	9.426	9.426	(0.921)	147392	24.6948	24.69
90 1,2,4-Trichlorobenzene	180	11.923	11.922	(1.165)	111669	23.6648	23.66
79 1,2,4-Trimethylbenzene	105	9.944	9.943	(0.971)	350216	26.2578	26.25
89 1,2-Dibromo-3-Chloropropane	155	11.233	11.233	(1.097)	19134	22.4432	22.44
57 1,2-Dibromoethane	107	7.852	7.851	(0.952)	93013	25.5928	25.59

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122416.D Page 2
Report Date: 28-Jan-2019 14:34

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
88	1,2-Dichlorobenzene	146	10.570	10.569	(1.033)	186214	24.6061	24.60
33	1,2-Dichloroethane	62	5.254	5.250	(0.934)	135491	25.7455	25.74
42	1,2-Dichloropropane	63	6.079	6.078	(1.081)	100756	24.7452	24.74
75	1,3,5-Trimethylbenzene	105	9.625	9.624	(0.940)	337155	26.3216	26.32
83	1,3-Dichlorobenzene	146	10.180	10.179	(0.995)	184469	24.3737	24.37
54	1,3-Dichloropropane	76	7.563	7.563	(0.917)	173022	25.4574	25.45
84	1,4-Dichlorobenzene	146	10.255	10.254	(1.002)	190330	23.8514	23.85
26	2,2-Dichloropropane	77	4.275	4.271	(0.874)	97599	22.6905	22.69
24	2-Butanone	43	4.339	4.335	(0.887)	107198	48.2282	48.22
76	2-Chlorotoluene	91	9.546	9.546	(0.933)	300561	25.5945	25.59
52	2-Hexanone	43	7.649	7.649	(0.927)	159891	54.2919	54.29
77	4-Chlorotoluene	91	9.640	9.639	(0.942)	351762	25.9211	25.92
82	p-Isopropyltoluene	119	10.210	10.209	(0.997)	352635	26.1465	26.14
45	4-Methyl-2-Pentanone	43	6.915	6.910	(0.838)	226082	53.3530	53.35
10	Acetone	43	2.480	2.476	(0.507)	74295	56.1349	56.13
37	Benzene	78	5.216	5.216	(0.927)	391973	25.5625	25.56
74	Bromobenzene	156	9.381	9.381	(0.917)	97267	24.6999	24.69
29	Bromochloromethane	128	4.553	4.552	(0.930)	45259	24.5612	24.56
39	Bromodichloromethane	83	6.349	6.348	(1.129)	107054	24.7242	24.72
66	Bromoform	173	8.984	8.983	(1.089)	47071	21.7383	21.73
6	Bromomethane	94	1.663	1.666	(0.340)	49208	24.7376	24.73
19	Carbon Disulfide	76	2.585	2.588	(0.528)	503010	43.8079	43.80
34	Carbon Tetrachloride	117	4.995	4.995	(0.888)	96698	23.8270	23.82
59	Chlorobenzene	112	8.275	8.275	(1.003)	255742	25.1317	25.13
7	Chloroethane	64	1.749	1.748	(0.357)	64023	22.2494	22.24(M)
28	Chloroform	83	4.654	4.654	(0.951)	161546	23.5020	23.50
3	Chloromethane	50	1.337	1.336	(0.273)	73406	22.7829	22.78
27	cis-1,2-Dichloroethene	96	4.287	4.283	(0.876)	103515	23.7619	23.76
46	cis-1,3-Dichloropropene	75	6.757	6.757	(1.201)	141799	22.2701	22.27
55	Dibromochloromethane	129	7.758	7.758	(0.940)	77586	22.8337	22.83
44	Dibromomethane	93	6.191	6.187	(1.101)	59570	25.3492	25.34
2	Dichlorodifluoromethane	85	1.202	1.201	(0.246)	61834	15.5009	15.50
61	Ethylbenzene	106	8.369	8.369	(1.015)	134489	25.7680	25.76
91	Hexachlorobutadiene	225	12.065	12.065	(1.179)	35933	19.8760	19.87
67	Isopropylbenzene	105	9.126	9.126	(1.106)	402846	26.7483	26.74
62	m,p-Xylenes	106	8.474	8.474	(1.027)	335947	52.3577	52.35
17	Methylene Chloride	84	2.870	2.869	(0.586)	98201	23.3483	23.34
87	n-Butylbenzene	91	10.558	10.558	(1.031)	331532	25.4718	25.47
73	n-Propylbenzene	91	9.475	9.474	(0.926)	504768	26.5050	26.50
92	Naphthalene	128	12.133	12.132	(1.185)	367426	23.9167	23.91
63	o-Xylene	106	8.811	8.811	(1.068)	168940	26.0992	26.09
81	sec-Butylbenzene	105	10.086	10.086	(0.985)	419576	26.2148	26.21
64	Styrene	104	8.826	8.822	(1.070)	285317	26.5308	26.53
78	tert-Butylbenzene	119	9.902	9.902	(0.967)	289715	26.1687	26.16
56	Tetrachloroethene	164	7.522	7.521	(0.912)	67478	24.3365	24.33
50	Toluene	91	7.046	7.045	(0.854)	407430	25.8611	25.86
20	trans-1,2-Dichloroethene	96	3.140	3.139	(0.642)	89909	23.1759	23.17
51	trans-1,3-Dichloropropene	75	7.259	7.259	(1.291)	118283	21.8584	21.85
38	Trichloroethene	130	5.861	5.861	(1.042)	95016	25.6675	25.66
8	Trichlorofluoromethane	101	1.951	1.951	(0.399)	122329	22.7392	22.73
5	Vinyl Chloride	62	1.415	1.419	(0.289)	98964	21.6711	21.67

QC Flag Legend

M - Compound response manually integrated.



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Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

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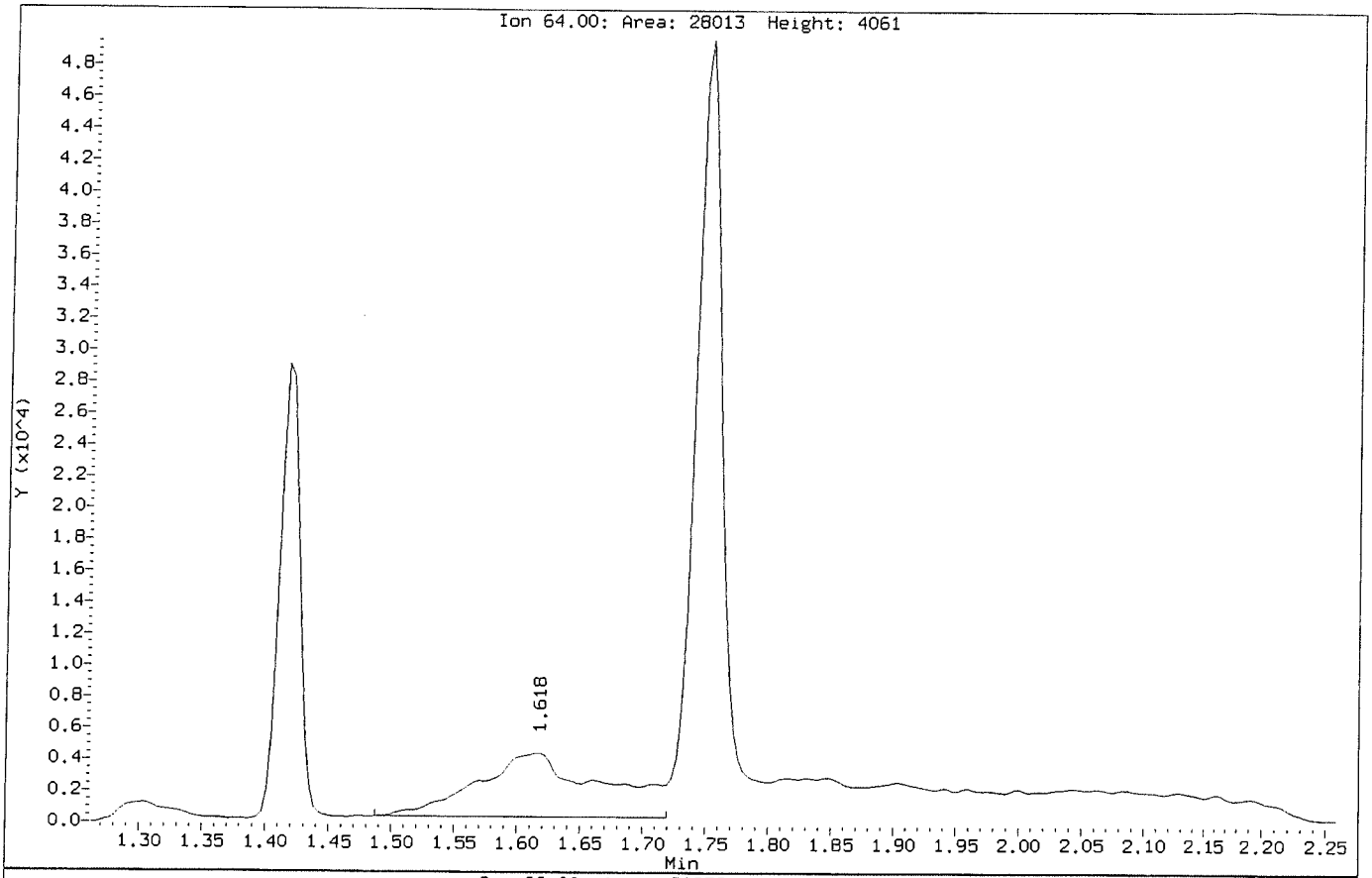
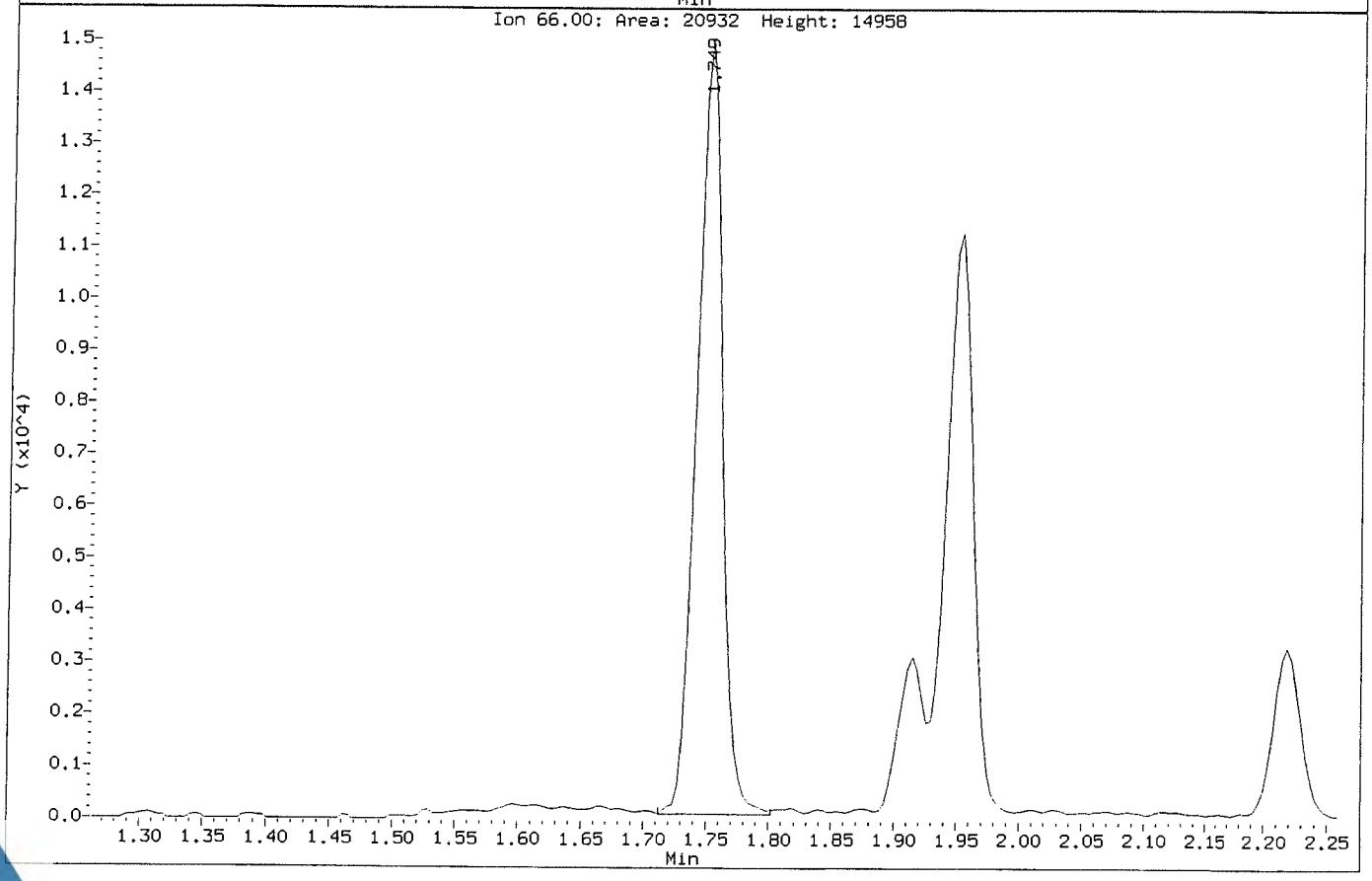
Instrument: VOA9.i
Client Sample ID: HS18120913-03MSD

Compound: Chloroethane
CAS Number: 75-00-3





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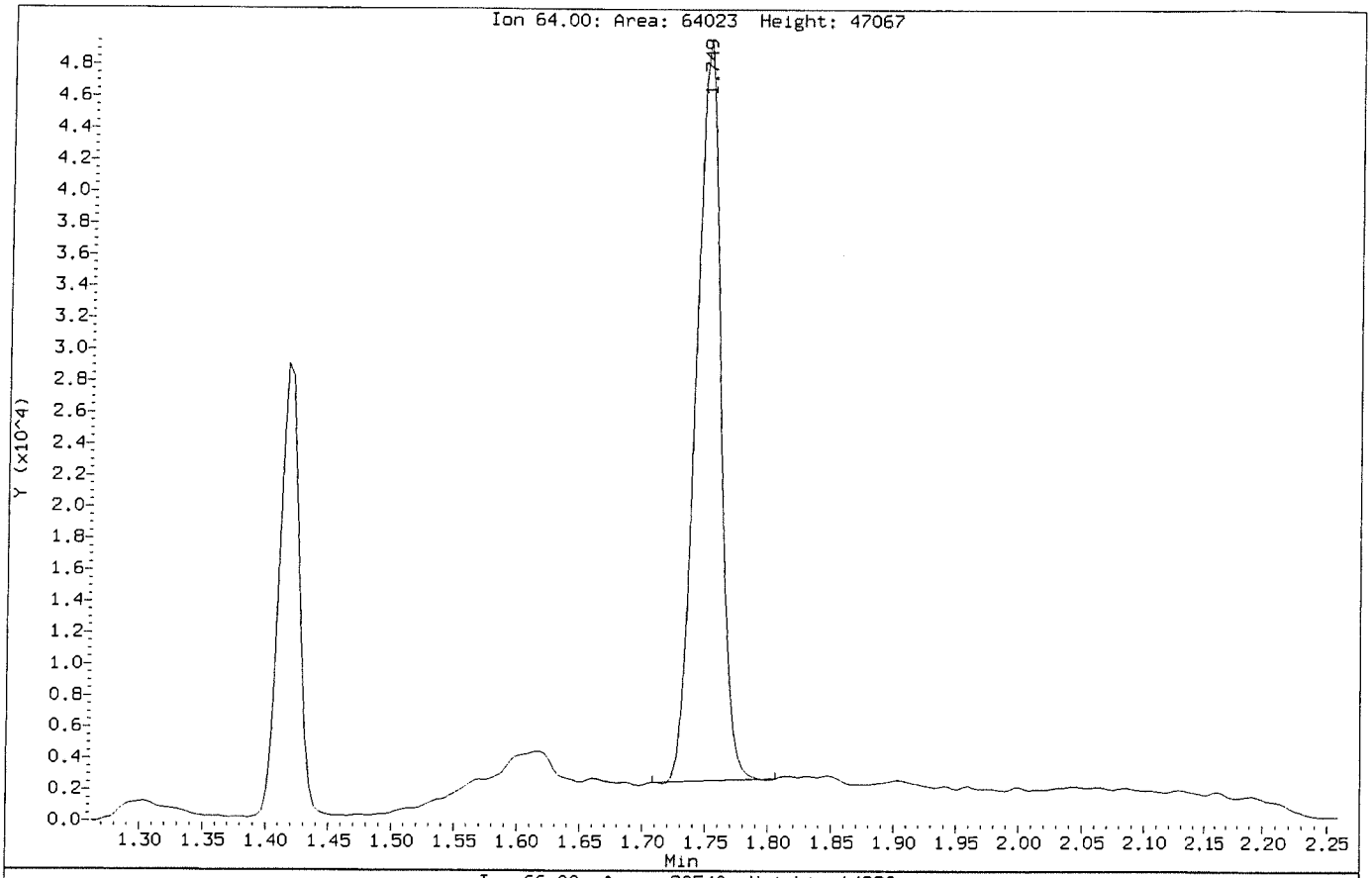
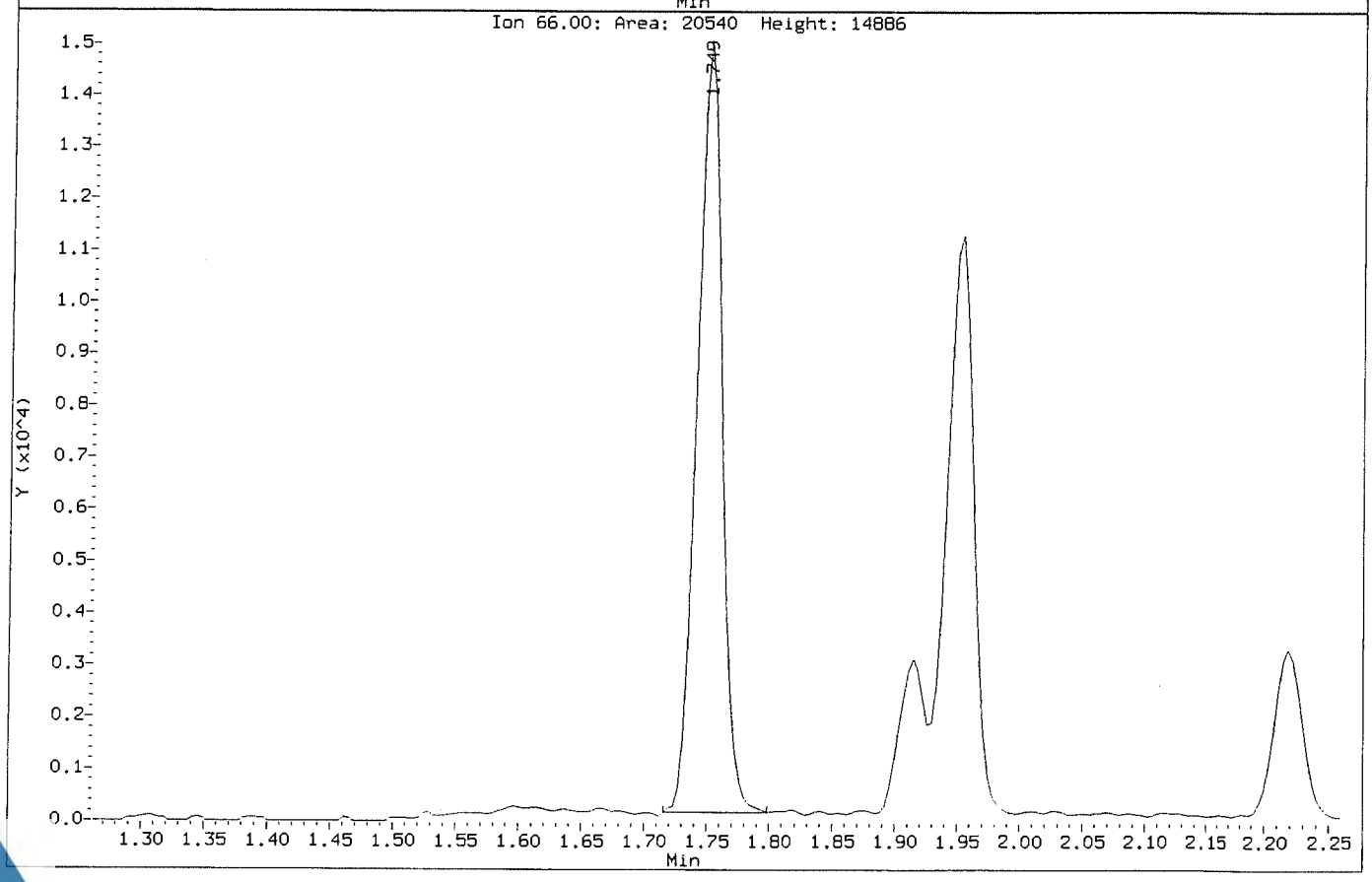
Compound: Chloroethane
CAS Number: 75-00-3





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Report Date: 28-Jan-2019 14:34

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Operator : PC Inst ID: VOA9.i
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Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 27 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

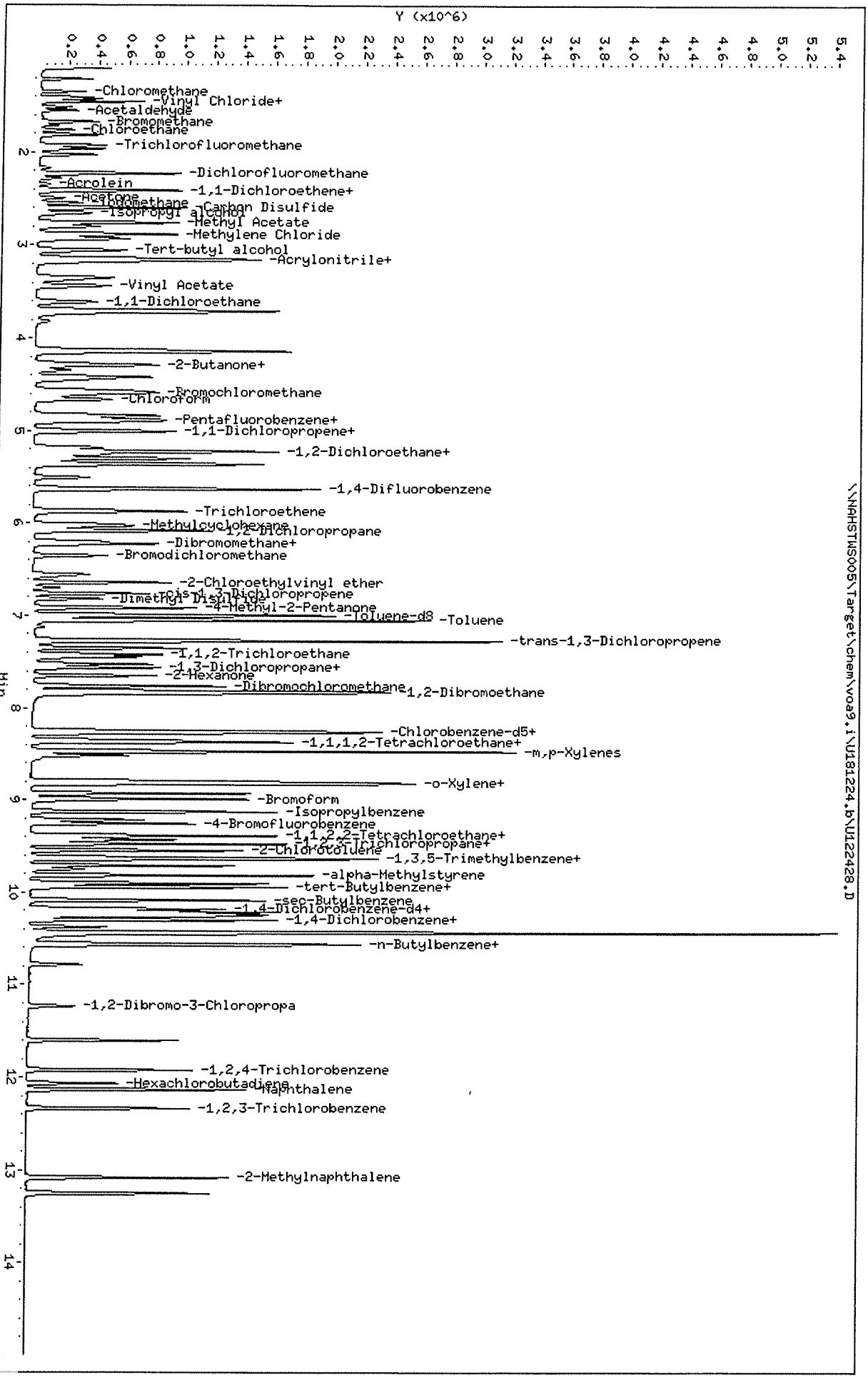
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.902	4.902	(1.000)	372728	50.0000	
* 36 1,4-Difluorobenzene	114	5.629	5.629	(1.000)	712334	50.0000	
* 47 Chlorobenzene-d5	117	8.253	8.253	(1.000)	666433	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	318419	50.0000	
$ 30 Dibromofluoromethane	113	4.834	4.834	(0.986)	218616	50.0000	53.24
$ 35 1,2-Dichloroethane-d4	65	5.179	5.179	(1.057)	288948	50.0000	54.97
$ 48 Toluene-d8	98	6.990	6.990	(0.847)	875536	50.0000	50.90
$ 69 4-Bromofluorobenzene	95	9.258	9.258	(1.122)	336472	50.0000	51.40
60 1,1,1,2-Tetrachloroethane	131	8.350	8.350	(1.012)	202858	50.0000	47.99
31 1,1,1-Trichloroethane	97	4.834	4.834	(0.986)	295777	50.0000	50.25
68 1,1,2,2-Tetrachloroethane	83	9.392	9.392	(0.918)	379460	50.0000	52.91
138 Freon TF	101	2.412	2.412	(0.492)	148708	50.0000	46.92
53 1,1,2-Trichloroethane	83	7.421	7.421	(0.899)	206414	50.0000	51.98
22 1,1-Dichloroethane	63	3.612	3.612	(0.737)	409374	50.0000	50.99
11 1,1-Dichloroethene	96	2.409	2.409	(0.491)	171295	50.0000	48.33
32 1,1-Dichloropropene	75	5.010	5.010	(0.890)	303180	50.0000	47.83
93 1,2,3-Trichlorobenzene	180	12.335	12.335	(1.205)	286736	50.0000	47.81
71 1,2,3-Trichloropropane	75	9.430	9.430	(0.921)	413440	50.0000	55.44
90 1,2,4-Trichlorobenzene	180	11.923	11.923	(1.165)	290679	50.0000	49.30
79 1,2,4-Trimethylbenzene	105	9.944	9.944	(0.971)	850301	50.0000	51.02
89 1,2-Dibromo-3-Chloropropane	155	11.233	11.233	(1.097)	55844	50.0000	50.49
57 1,2-Dibromoethane	107	7.852	7.852	(0.951)	239717	50.0000	52.41

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122428.D Page 2
Report Date: 28-Jan-2019 14:34

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88 1,2-Dichlorobenzene	146	10.570	10.570	(1.033)	468743	50.0000	49.57
33 1,2-Dichloroethane	62	5.258	5.258	(0.934)	339214	50.0000	52.89
42 1,2-Dichloropropane	63	6.086	6.086	(1.081)	256086	50.0000	50.87
75 1,3,5-Trimethylbenzene	105	9.625	9.625	(0.940)	818604	50.0000	51.15
83 1,3-Dichlorobenzene	146	10.180	10.180	(0.995)	461460	50.0000	48.80
54 1,3-Dichloropropane	76	7.567	7.567	(0.917)	441740	50.0000	51.65
84 1,4-Dichlorobenzene	146	10.255	10.255	(1.002)	472169	50.0000	47.36
26 2,2-Dichloropropane	77	4.283	4.283	(0.874)	211110	50.0000	43.64
24 2-Butanone	43	4.347	4.347	(0.887)	289643	100.000	119.28
76 2-Chlorotoluene	91	9.546	9.546	(0.933)	729682	50.0000	49.73
52 2-Hexanone	43	7.653	7.653	(0.927)	447227	100.000	120.68
77 4-Chlorotoluene	91	9.640	9.640	(0.942)	854108	50.0000	50.37
82 p-Isopropyltoluene	119	10.210	10.210	(0.997)	843466	50.0000	50.05
45 4-Methyl-2-Pentanone	43	6.915	6.915	(0.838)	622617	100.000	116.76
10 Acetone	43	2.491	2.491	(0.508)	191412	100.000	132.50
37 Benzene	78	5.224	5.224	(0.928)	949351	50.0000	50.08
74 Bromobenzene	156	9.385	9.385	(0.917)	244860	50.0000	49.77
29 Bromochloromethane	128	4.560	4.560	(0.930)	111636	50.0000	57.58
39 Bromodichloromethane	83	6.352	6.352	(1.129)	279220	50.0000	52.16
66 Bromoform	173	8.984	8.984	(1.089)	133700	50.0000	46.85(T)
6 Bromomethane	94	1.674	1.674	(0.342)	119849	50.0000	52.01
19 Carbon Disulfide	76	2.600	2.600	(0.530)	1247818	100.000	96.63
34 Carbon Tetrachloride	117	5.003	5.003	(0.889)	228405	50.0000	44.25
59 Chlorobenzene	112	8.275	8.275	(1.003)	634246	50.0000	49.53
7 Chloroethane	64	1.760	1.760	(0.359)	163120	50.0000	49.36(M)
28 Chloroform	83	4.665	4.665	(0.952)	400691	50.0000	51.83
3 Chloromethane	50	1.352	1.352	(0.276)	186619	50.0000	47.31
27 cis-1,2-Dichloroethene	96	4.294	4.294	(0.876)	251177	50.0000	51.26
46 cis-1,3-Dichloropropene	75	6.761	6.761	(1.201)	383373	50.0000	47.20
55 Dibromochloromethane	129	7.758	7.758	(0.940)	208683	50.0000	47.69
44 Dibromomethane	93	6.195	6.195	(1.101)	152769	50.0000	52.58
2 Dichlorodifluoromethane	85	1.217	1.217	(0.248)	203871	50.0000	44.50
61 Ethylbenzene	106	8.373	8.373	(1.015)	327066	50.0000	49.80
91 Hexachlorobutadiene	225	12.065	12.065	(1.179)	97921	50.0000	43.35
67 Isopropylbenzene	105	9.126	9.126	(1.106)	956047	50.0000	50.44
62 m,p-Xylenes	106	8.474	8.474	(1.027)	808427	100.000	100.12
17 Methylene Chloride	84	2.881	2.881	(0.588)	245953	50.0000	53.47
87 n-Butylbenzene	91	10.558	10.558	(1.031)	792193	50.0000	48.71
73 n-Propylbenzene	91	9.475	9.475	(0.926)	1199674	50.0000	50.42
92 Naphthalene	128	12.133	12.133	(1.185)	992990	50.0000	51.20
63 o-Xylene	106	8.811	8.811	(1.068)	416328	50.0000	51.11
81 sec-Butylbenzene	105	10.086	10.086	(0.985)	991870	50.0000	49.60
64 Styrene	104	8.826	8.826	(1.069)	727808	50.0000	53.78
78 tert-Butylbenzene	119	9.902	9.902	(0.967)	690339	50.0000	49.91
56 Tetrachloroethene	164	7.526	7.526	(0.912)	156173	50.0000	44.76
50 Toluene	91	7.050	7.050	(0.854)	992367	50.0000	50.05
20 trans-1,2-Dichloroethene	96	3.151	3.151	(0.643)	218068	50.0000	49.98
51 trans-1,3-Dichloropropene	75	7.263	7.263	(1.290)	328161	50.0000	47.00
38 Trichloroethene	130	5.865	5.865	(1.042)	221618	50.0000	48.43
8 Trichlorofluoromethane	101	1.963	1.963	(0.400)	293963	50.0000	47.87
5 Vinyl Chloride	62	1.430	1.430	(0.292)	258632	50.0000	49.07

QC Flag Legend

T - Target compound detected outside RT window.
M - Compound response manually integrated.

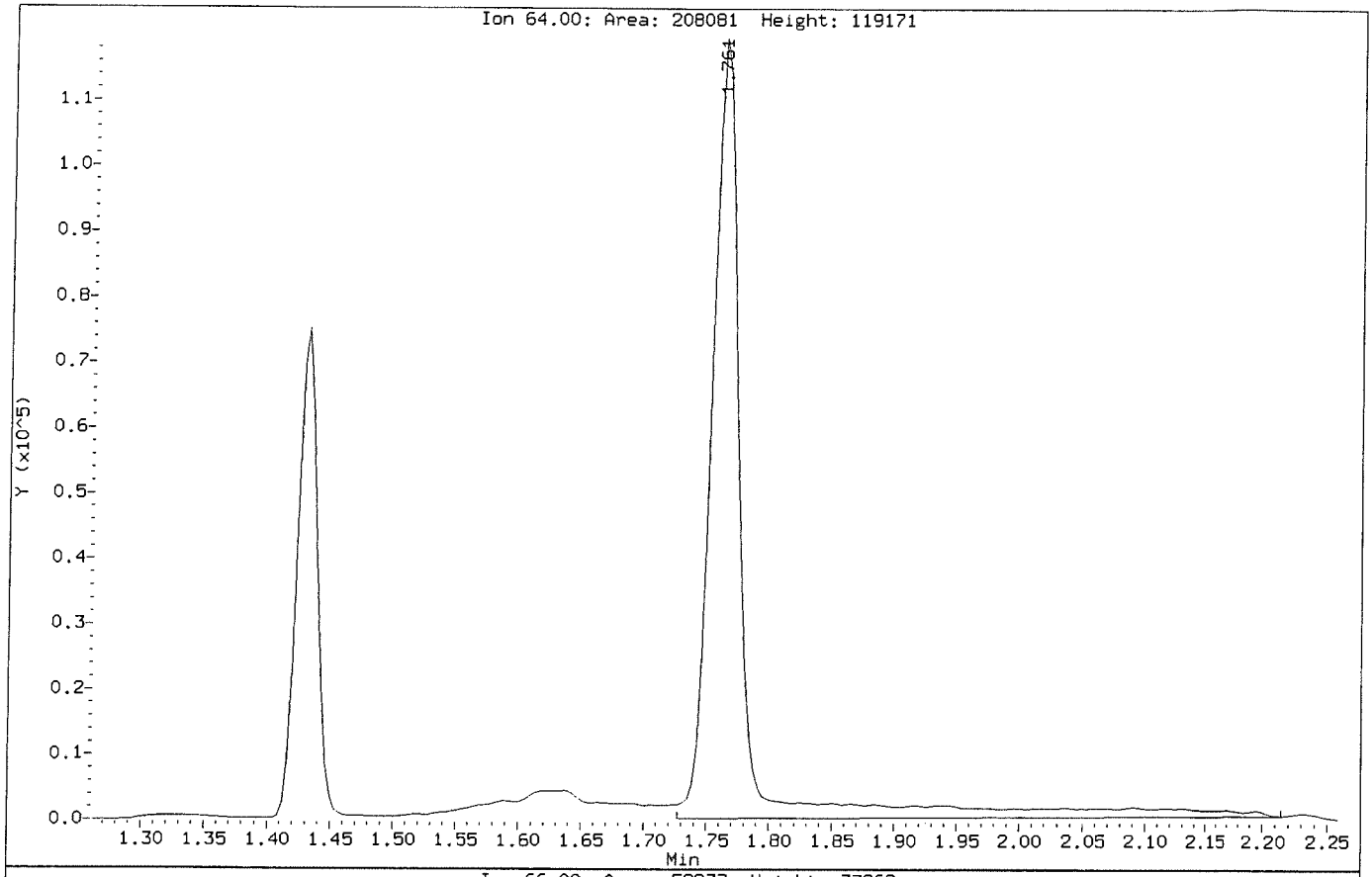


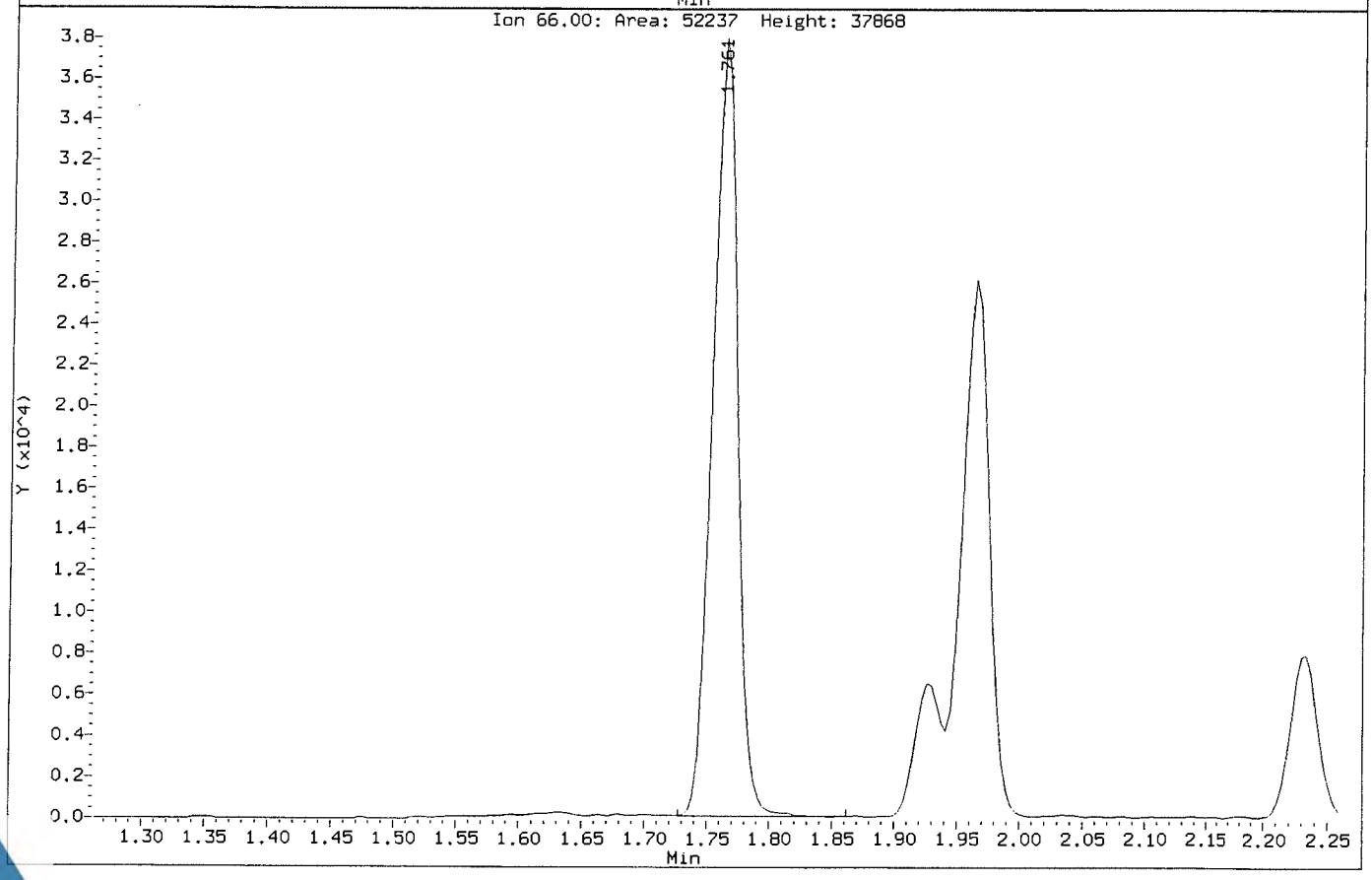
Data File: \\NAHSTWS005\Target\chem\voa9,i\U181224,b\U122428,D
Date : 24-DEC-2018 20:37
Client ID: VSTD050-END
Sample Info: VSTD050-END;VSTD050-END;2;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9,i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\Before\U122428.D
Injection Date: 24-DEC-2018 20:37
Instrument: VOA9.i
Client Sample ID: VSTD050-END

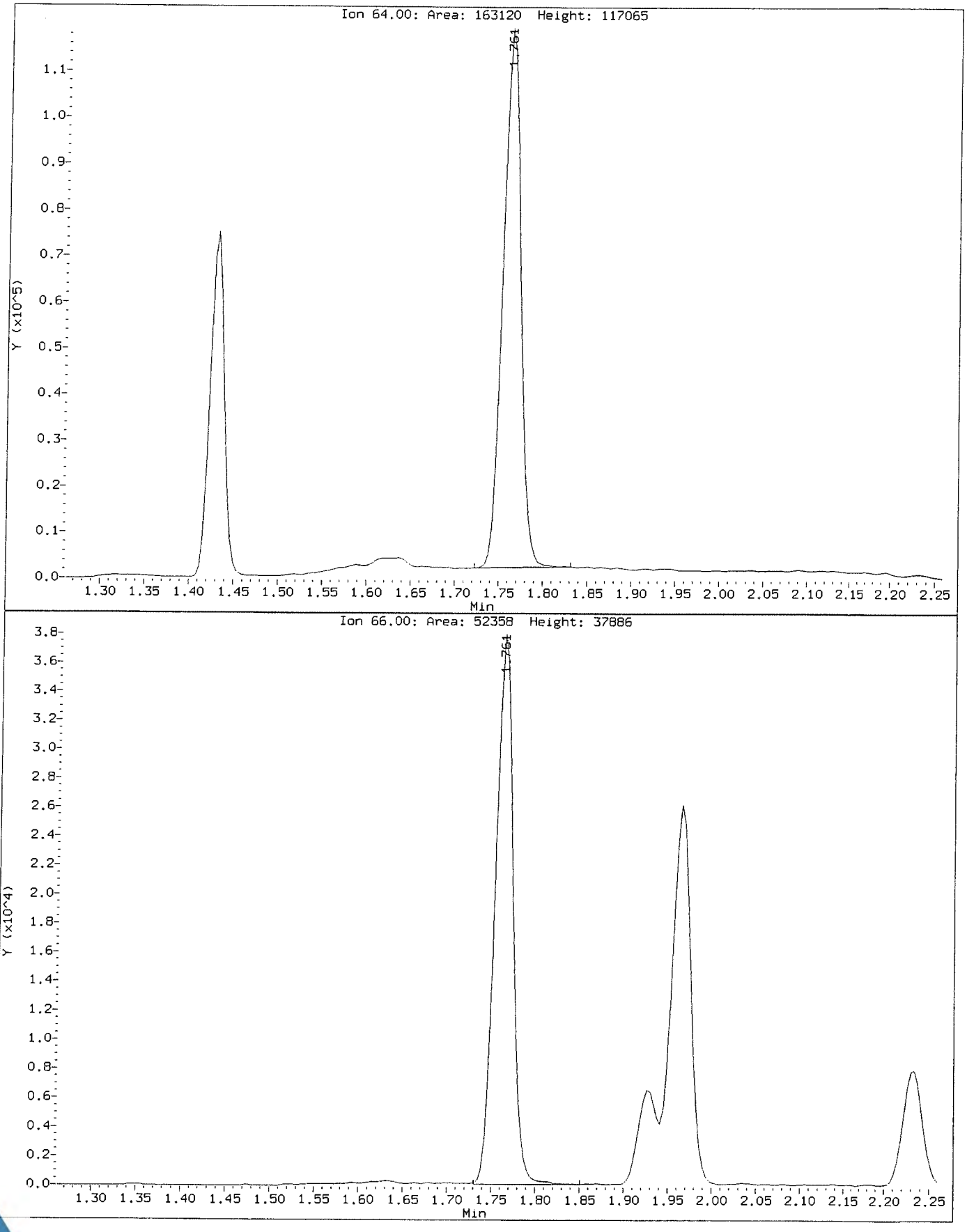
Compound: Chloroethane
CAS Number: 75-00-3





Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122428.D
Injection Date: 24-DEC-2018 20:37
Instrument: VOA9.i
Client Sample ID: VSTD050-END

Compound: Chloroethane
CAS Number: 75-00-3



HS18120736 LHAAP58

ALS WO# HS18120736

Form 11 - INTERNAL STANDARD ASSOCIATION

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120736

Instrument:ICPMS04

Mass	Analyte	Assoc Int Standard 1	Assoc Int Standard 2	Mode
9	Beryllium	Lithium		Ar
11	Boron	Lithium		Ar
23	Sodium	Germanium		Ar
24	Magnesium	Germanium		Ar
27	Aluminum	Germanium		Ar
39	Potassium	Germanium		Ar
44	Calcium	Germanium		ArHe
47	Titanium	Germanium		Ar
51	Vanadium	Germanium		ArHe
52	Chromium	Germanium		ArHe
55	Manganese	Germanium		ArHe
56	Iron	Germanium		ArHe
59	Cobalt	Germanium		ArHe
60	Nickel	Germanium		ArHe
63	Copper	Germanium		ArHe
66	Zinc	Germanium		ArHe
75	Arsenic	Germanium		ArHe
78	Selenium	Germanium		ArHe
88	Strontium	Germanium		Ar
95	Molybdenum	Germanium		Ar
105	Palladium	Germanium		Ar
107	Silver	Germanium		Ar
111	Cadmium	Indium		Ar
118	Tin	Germanium		Ar
121	Antimony	Germanium		ArHe
135	Barium	Indium		Ar
203	Thallium	Bismuth		Ar
208	Lead	Bismuth		Ar

Form 11 - INTERNAL STANDARD ASSOCIATION

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120736

Instrument:ICPMS05

Mass	Analyte	Assoc Int Standard 1	Assoc Int Standard 2	Mode
9	Beryllium	Lithium		Ar
11	Boron	Lithium		Ar
23	Sodium	Germanium		Ar
24	Magnesium	Germanium		Ar
27	Aluminum	Germanium		Ar
39	Potassium	Germanium		Ar
44	Calcium	Germanium		Ar
47	Titanium	Germanium		Ar
51	Vanadium	Germanium		ArHe
52	Chromium	Germanium		ArHe
55	Manganese	Germanium		ArHe
56	Iron	Germanium		ArHe
59	Cobalt	Germanium		ArHe
60	Nickel	Germanium		ArHe
63	Copper	Germanium		ArHe
66	Zinc	Germanium		ArHe
75	Arsenic	Germanium		ArHe
78	Selenium	Germanium		ArHe
88	Strontium	Germanium		Ar
95	Molybdenum	Germanium		Ar
105	Palladium	Germanium		Ar
107	Silver	Germanium		Ar
114	Cadmium	Indium		Ar
118	Tin	Germanium		Ar
121	Antimony	Germanium		ArHe
137	Barium	Indium		Ar
205	Thallium	Bismuth		Ar
208	Lead	Bismuth		Ar

FORM 12 - PREPARATION LOG

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120736
Start Date: 19-Dec-2018 13:00 End Date: 19-Dec-2018 17:00

Batch ID: 135804
Prep Code: 3010A
Method: SW3010A
Technician:

SampID	ClientID	Matrix	Init Wt	Init Vol	FinalVol (mL)	PrepFac
HS18120736-01	03WW01_121218	Groundwater		10	10	1
HS18120736-02	35AWW08_121218	Groundwater		10	10	1
HS18120736-03	35AWW10_121218	Groundwater		10	10	1
HS18120736-04	35AWW10_121218_a	Groundwater		10	10	1
HS18120736-08	35AWW09_121118	Water		10	10	1
HS18120913-04MS				10	10	1
HS18120913-04MSD				10	10	1
HS18120913-04PDS				10	10	1
HS18120913-04SD				10	10	1
LCS-135804				10	10	1
MBLK-135804				10	10	1

FORM 12 - PREPARATION LOG

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120736
Start Date: 19-Dec-2018 13:00 End Date: 19-Dec-2018 17:00

Batch ID: 135805
Prep Code: 3010A Diss
Method: SW3010A
Technician:

SampID	ClientID	Matrix	Init Wt	Init Vol	FinalVol (mL)	PrepFac
HS18120736-01	03WW01_121218	Groundwater		10	10	1
HS18120736-02	35AWW08_121218	Groundwater		10	10	1
HS18120736-03	35AWW10_121218	Groundwater		10	10	1
HS18120736-04	35AWW10_121218_a	Groundwater		10	10	1
HS18120927-08MS				10	10	1
HS18120927-08MSD				10	10	1
HS18120927-08PDS				10	10	1
HS18120927-08SD				10	10	1
LCS-135805				10	10	1
MBLK-135805				10	10	1

FORM 13 - ANALYSIS RUN LOG

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120736
Start Date: 21-Dec-2018 End Date: 22-Dec-2018

Run ID:ICPMS04_329719
Instrument:ICPMS04
Method:SW6020

Sample No.	D/F	Time	FileID	Analytes
CAL BLK	1	21-Dec-2018 12:57	014CALB.d_4877193	AS FE MN
2/10/200	1	21-Dec-2018 12:59	015CALS.d_4877194	AS FE MN
5/25/500	1	21-Dec-2018 13:01	016CALS.d_4877195	AS FE MN
10/50/1000	1	21-Dec-2018 13:03	017CALS.d_4877196	AS FE MN
100/500/10K	1	21-Dec-2018 13:06	018CALS.d_4877197	AS FE MN
200/1000/20K	1	21-Dec-2018 13:08	019CALS.d_4877198	AS FE MN
ICV	1	21-Dec-2018 13:12	021_ICV.d_4877200	AS FE MN
LLICV2	1	21-Dec-2018 13:14	022SMPL.d_4877201	AS FE MN
LLICV5	1	21-Dec-2018 13:17	023LICV.d_4877202	AS FE MN
ICB	1	21-Dec-2018 13:19	024_ICB.d_4877203	AS FE MN
ICSA	1	21-Dec-2018 13:36	025ICSA.d_4877204	AS FE MN
ICSAB	1	21-Dec-2018 13:38	026ICSB.d_4877205	AS FE MN
CCV 1	1	21-Dec-2018 14:07	038_CCV.d_4877419	AS FE MN
CCB 1	1	21-Dec-2018 14:09	039_CCB.d_4877420	AS FE MN
CCB 2	1	21-Dec-2018 14:47	051_CCB.d_4877517	AS FE MN
CCV 2	1	21-Dec-2018 15:12	053_CCV.d_4877562	AS FE MN
CCB 3	1	21-Dec-2018 15:45	064_CCB.d_4877606	AS FE MN
CCV 3	1	21-Dec-2018 15:57	066_CCV.d_4877806	AS FE MN
CCV 4	1	21-Dec-2018 16:59	076_CCV.d_4877824	AS FE MN
CCB 4	1	21-Dec-2018 17:01	077_CCB.d_4877825	AS FE MN
CCV 5	1	21-Dec-2018 17:32	088_CCV.d_4877944	AS FE MN
CCB 5	1	21-Dec-2018 17:34	089_CCB.d_4877945	AS FE MN
CCV 6	1	21-Dec-2018 18:09	093_CCV.d_4878002	AS FE MN
CCB 6	1	21-Dec-2018 18:11	094_CCB.d_4878003	AS FE MN
CCV 7	1	21-Dec-2018 18:44	105_CCV.d_4878027	AS FE MN
CCB 7	1	21-Dec-2018 18:46	106_CCB.d_4878028	AS FE MN
CCV 8	1	21-Dec-2018 19:16	117_CCV.d_4878173	AS FE MN
CCB 8	1	21-Dec-2018 19:18	118_CCB.d_4878174	AS FE MN
CCV 9	1	21-Dec-2018 19:51	129_CCV.d_4878188	AS FE MN
CCB 9	1	21-Dec-2018 19:53	130_CCB.d_4878189	AS FE MN
CCV 10	1	21-Dec-2018 20:23	141_CCV.d_4878292	AS FE MN
CCB 10	1	21-Dec-2018 20:25	142_CCB.d_4878293	AS FE MN
CCV 11	1	21-Dec-2018 20:40	148_CCV.d_4878299	AS FE MN
CCB 11	1	21-Dec-2018 20:42	149_CCB.d_4878300	AS FE MN
MBLK-135804	1	21-Dec-2018 21:07	151SMPL.d_4879116	AS FE MN
LCS-135804	1	21-Dec-2018 21:10	152SMPL.d_4879117	AS FE MN
CCV 12	1	21-Dec-2018 21:28	160_CCV.d_4879125	AS FE MN
CCB 12	1	21-Dec-2018 21:30	161_CCB.d_4879126	AS FE MN
03WW01_121218	1	21-Dec-2018 21:37	164SMPL.d_4879129	FE
35AWW08_121218	10	21-Dec-2018 21:39	165SMPL.d_4879130	AS FE MN
35AWW10_121218	1	21-Dec-2018 21:41	166SMPL.d_4879131	FE MN
35AWW10_121218_a	1	21-Dec-2018 21:44	167SMPL.d_4879132	FE MN
35AWW09_121118	1	21-Dec-2018 21:46	168SMPL.d_4879133	AS
CCV 13	1	21-Dec-2018 21:55	172_CCV.d_4879137	AS FE MN
CCB 13	1	21-Dec-2018 21:57	173_CCB.d_4879138	AS FE MN
ZZZZZZSD	5	21-Dec-2018 22:10	176SMPL.d_4879141	AS FE MN
ZZZZZZMS	1	21-Dec-2018 22:12	177SMPL.d_4879142	AS FE MN
ZZZZZZMSD	1	21-Dec-2018 22:14	178SMPL.d_4879143	AS FE MN
ZZZZZZPDS	1	21-Dec-2018 22:17	179SMPL.d_4879144	AS FE MN
CCV 14	1	21-Dec-2018 22:21	181_CCV.d_4879146	AS FE MN
CCB 14	1	21-Dec-2018 22:23	182_CCB.d_4879147	AS FE MN

FORM 13 - ANALYSIS RUN LOG

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120736
Start Date: 21-Dec-2018 End Date: 22-Dec-2018

Run ID:ICPMS04_329719
Instrument:ICPMS04
Method:SW6020

Sample No.	D/F	Time	FileID	Analytes
CAL BLK	1	21-Dec-2018 22:57	193CALB.d_4879261	AS FE MN
2/10/200	1	21-Dec-2018 22:59	194CALS.d_4879262	AS FE MN
5/25/500	1	21-Dec-2018 23:01	195CALS.d_4879263	AS FE MN
10/50/1000	1	21-Dec-2018 23:03	196CALS.d_4879264	AS FE MN
100/500/10K	1	21-Dec-2018 23:06	197CALS.d_4879265	AS FE MN
200/1000/20K	1	21-Dec-2018 23:08	198CALS.d_4879269	AS FE MN
ICCV 15	1	21-Dec-2018 23:12	200_ICV.d_4879271	AS FE MN
LLCCV2	1	21-Dec-2018 23:15	201SMPL.d_4879272	AS FE MN
LLCCV5	1	21-Dec-2018 23:17	202LICV.d_4879273	AS FE MN
ICCB 15	1	21-Dec-2018 23:19	203_ICB.d_4879274	AS FE MN
MBLK-135805	1	21-Dec-2018 23:24	205SMPL.d_4879287	FE MN
LCS-135805	1	21-Dec-2018 23:26	206SMPL.d_4879288	FE MN
CCV 16	1	21-Dec-2018 23:42	213_CCV.d_4879295	AS FE MN
CCB 16	1	21-Dec-2018 23:44	214_CCB.d_4879296	AS FE MN
03WW01_121218	1	21-Dec-2018 23:51	217SMPL.d_4879299	FE
35AWW08_121218	10	21-Dec-2018 23:53	218SMPL.d_4879300	FE MN
35AWW10_121218	1	21-Dec-2018 23:55	219SMPL.d_4879301	FE MN
35AWW10_121218_a	1	21-Dec-2018 23:58	220SMPL.d_4879302	FE MN
CCV 17	1	22-Dec-2018 00:02	222_CCV.d_4879304	AS FE MN
CCB 17	1	22-Dec-2018 00:04	223_CCB.d_4879305	AS FE MN
CCV 18	1	22-Dec-2018 00:36	231_CCV.d_4879319	AS FE MN
CCB 18	1	22-Dec-2018 00:38	232_CCB.d_4879320	AS FE MN
ZZZZZZSD	50	22-Dec-2018 00:43	234SMPL.d_4879322	FE MN
ZZZZZZMS	10	22-Dec-2018 00:45	235SMPL.d_4879323	FE MN
ZZZZZZMSD	10	22-Dec-2018 00:47	236SMPL.d_4879324	FE MN
ZZZZZZPDS	10	22-Dec-2018 00:50	237SMPL.d_4879325	FE MN
CCV 19	1	22-Dec-2018 00:56	240_CCV.d_4879328	AS FE MN
CCB 19	1	22-Dec-2018 00:59	241_CCB.d_4879329	AS FE MN
LLICV2	1	22-Dec-2018 01:01	242SMPL.d_4879330	AS FE MN
LLICV5	1	22-Dec-2018 01:03	243LICV.d_4879331	AS FE MN
ICSA	1	22-Dec-2018 01:05	244ICSA.d_4879332	AS FE MN
ICSAB	1	22-Dec-2018 01:08	245ICSB.d_4879333	AS FE MN

FORM 13 - ANALYSIS RUN LOG

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120736
Start Date: 24-Dec-2018 End Date: 25-Dec-2018

Run ID:ICPMS05_329812
Instrument:ICPMS05
Method:

Sample No.	D/F	Time	FileID	Analytes
ICPMS05_329812_Tune	1	24-Dec-2018 00:00	ICPMS05_329812_Tune_1	
CAL BLK	1	24-Dec-2018 11:33	013CALB.d_4879781	MN
2/10/200	1	24-Dec-2018 11:35	014CALS.d_4879782	MN
5/25/500	1	24-Dec-2018 11:37	015CALS.d_4879783	MN
10/50/1000	1	24-Dec-2018 11:39	016CALS.d_4879784	MN
100/500/10K	1	24-Dec-2018 11:41	017CALS.d_4879785	MN
200/1000/20K	1	24-Dec-2018 11:43	018CALS.d_4879786	MN
LLICV2	1	24-Dec-2018 11:49	021SMPL.d_4879789	MN
LLICV5	1	24-Dec-2018 11:51	022LICV.d_4879790	MN
ICB	1	24-Dec-2018 11:53	023_ICB.d_4879791	AS FE MN
ICV	1	24-Dec-2018 12:13	025_ICV.d_4879793	AS FE MN
ICSA	1	24-Dec-2018 12:27	026ICSA.d_4879794	MN
ICSAB	1	24-Dec-2018 12:29	027ICSB.d_4879795	MN
CCV 1	1	24-Dec-2018 13:12	039_CCV.d_4879947	AS FE MN
CCB 1	1	24-Dec-2018 13:14	040_CCB.d_4879948	AS FE MN
03WW01_121218	50	24-Dec-2018 13:38	049SMPL.d_4880208	MN
CCV 2	1	24-Dec-2018 13:42	051_CCV.d_4880210	AS FE MN
CCB 2	1	24-Dec-2018 13:44	052_CCB.d_4880211	AS FE MN
CCV 3	1	24-Dec-2018 13:46	053_CCV.d_4880212	AS FE MN
CCB 3	1	24-Dec-2018 13:48	054_CCB.d_4880213	AS FE MN
03WW01_121218	50	24-Dec-2018 14:02	061SMPL.d_4880262	MN
CCV 4	1	24-Dec-2018 14:10	065_CCV.d_4880266	AS FE MN
CCB 4	1	24-Dec-2018 14:12	066_CCB.d_4880267	AS FE MN
CCV 5	1	24-Dec-2018 14:20	070_CCV.d_4880594	AS FE MN
CCB 5	1	24-Dec-2018 14:22	071_CCB.d_4880595	AS FE MN
CCB 6	1	24-Dec-2018 17:00	083_CCB.d_4880607	AS FE MN
CCV 6	1	24-Dec-2018 17:05	084_CCV.d_4880608	AS FE MN
CCB 7	1	24-Dec-2018 17:24	092_CCB.d_4880616	AS FE MN
CCV 7	1	24-Dec-2018 17:32	094_CCV.d_4880618	AS FE MN
CCV 8	1	24-Dec-2018 17:50	103_CCV.d_4880669	AS FE MN
CCB 8	1	24-Dec-2018 17:52	104_CCB.d_4880670	AS FE MN
CCV 9	1	24-Dec-2018 18:33	113_CCV.d_4880729	AS FE MN
CCB 9	1	24-Dec-2018 18:35	114_CCB.d_4880730	AS FE MN
CCV 10	1	24-Dec-2018 18:49	118_CCV.d_4880734	AS FE MN
CCB 10	1	24-Dec-2018 18:51	119_CCB.d_4880735	AS FE MN
CAL BLK	1	24-Dec-2018 18:59	123CALB.d_4881006	MN
2/10/200	1	24-Dec-2018 19:01	124CALS.d_4881007	MN
5/25/500	1	24-Dec-2018 19:03	125CALS.d_4881008	MN
10/50/1000	1	24-Dec-2018 19:05	126CALS.d_4881009	MN
100/500/10K	1	24-Dec-2018 19:07	127CALS.d_4881010	MN
200/1000/20K	1	24-Dec-2018 19:09	128CALS.d_4881011	MN
ICCV 11	1	24-Dec-2018 19:11	129_ICV.d_4881012	AS FE MN
LLCCV5	1	24-Dec-2018 19:15	131LICV.d_4881014	MN
ICCB 11	1	24-Dec-2018 19:17	132_ICB.d_4881015	AS FE MN
LLCCV2	1	24-Dec-2018 19:19	133SMPL.d_4881016	MN
CCB 12	1	24-Dec-2018 19:33	138_CCB.d_4881048	AS FE MN
CCV 12	1	24-Dec-2018 19:41	141_CCV.d_4881051	AS FE MN
CCV 13	1	24-Dec-2018 19:53	147_CCV.d_4881057	AS FE MN
CCB 13	1	24-Dec-2018 19:55	148_CCB.d_4881058	AS FE MN
CCV 14	1	24-Dec-2018 20:17	159_CCV.d_4881069	AS FE MN
CCB 14	1	24-Dec-2018 20:19	160_CCB.d_4881070	AS FE MN

FORM 13 - ANALYSIS RUN LOG

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120736
Start Date: 24-Dec-2018 End Date: 25-Dec-2018

Run ID:ICPMS05_329812
Instrument:ICPMS05
Method:

Sample No.	D/F	Time	FileID	Analytes
CCV 15	1	24-Dec-2018 20:34	168_CCV.d_4881078	AS FE MN
CCB 15	1	24-Dec-2018 20:36	169_CCB.d_4881079	AS FE MN
CCV 16	1	24-Dec-2018 20:54	178_CCV.d_4881088	AS FE MN
CCB 16	1	24-Dec-2018 20:56	179_CCB.d_4881089	AS FE MN
CCV 17	1	24-Dec-2018 21:18	190_CCV.d_4881167	AS FE MN
CCB 17	1	24-Dec-2018 21:20	191_CCB.d_4881168	AS FE MN
CCV 18	1	24-Dec-2018 21:36	199_CCV.d_4881176	AS FE MN
CCB 18	1	24-Dec-2018 21:38	200_CCB.d_4881177	AS FE MN
CCV 19	1	24-Dec-2018 22:00	211_CCV.d_4881188	AS FE MN
CCB 19	1	24-Dec-2018 22:02	212_CCB.d_4881189	AS FE MN
CCV 20	1	24-Dec-2018 22:23	223_CCV.d_4881200	AS FE MN
CCB 20	1	24-Dec-2018 22:25	224_CCB.d_4881201	AS FE MN
CAL BLK	1	24-Dec-2018 22:39	231CALB.d_4881324	MN
2/10/200	1	24-Dec-2018 22:41	232CALS.d_4881325	MN
5/25/500	1	24-Dec-2018 22:43	233CALS.d_4881326	MN
10/50/1000	1	24-Dec-2018 22:45	234CALS.d_4881327	MN
100/500/10K	1	24-Dec-2018 22:47	235CALS.d_4881328	MN
200/1000/20K	1	24-Dec-2018 22:49	236CALS.d_4881329	MN
ICCV 21	1	24-Dec-2018 22:51	237_ICV.d_4881330	AS FE MN
LLCCV2	1	24-Dec-2018 22:53	238SMPL.d_4881331	MN
LLCCV5	1	24-Dec-2018 22:55	239LICV.d_4881332	MN
ICCB 21	1	24-Dec-2018 22:57	240_ICB.d_4881333	AS FE MN
CCV 22	1	24-Dec-2018 23:21	252_CCV.d_4881399	AS FE MN
CCB 22	1	24-Dec-2018 23:23	253_CCB.d_4881400	AS FE MN
CCV 23	1	24-Dec-2018 23:45	264_CCV.d_4881411	AS FE MN
CCB 23	1	24-Dec-2018 23:47	265_CCB.d_4881412	AS FE MN
CCV 24	1	24-Dec-2018 23:53	268_CCV.d_4881415	AS FE MN
CCB 24	1	24-Dec-2018 23:55	269_CCB.d_4881416	AS FE MN
LLCCV5	1	24-Dec-2018 23:57	270LICV.d_4881417	MN
LLCCV2	1	24-Dec-2018 23:59	271SMPL.d_4881418	MN
ICSA	1	25-Dec-2018 00:01	272ICSA.d_4881419	MN
ICSAB	1	25-Dec-2018 00:03	273ICSB.d_4881420	MN

Form 2 - Initial and Continuing Calibration Verification

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120736

Run ID: ICPMS04_329719
Instrument: ICPMS04
Method: SW6020

ICV	Date: 21-Dec-2018 13:12		Seq: 4877200	ICV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Arsenic	100	102.764	103	90-110	
Iron	10000	10574.02	106	90-110	
Manganese	100	103.623	104	90-110	

CCV1	Date: 21-Dec-2018 14:07		Seq: 4877419	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Arsenic	100	104.385	104	90-110	
Iron	10000	10839.127	108	90-110	
Manganese	100	103.031	103	90-110	

CCV2	Date: 21-Dec-2018 15:12		Seq: 4877562	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Arsenic	100	103.155	103	90-110	
Iron	10000	10556.643	106	90-110	
Manganese	100	103.792	104	90-110	

CCV3	Date: 21-Dec-2018 15:57		Seq: 4877806	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Arsenic	100	102.165	102	90-110	
Iron	10000	10257.711	103	90-110	
Manganese	100	101.308	101	90-110	

CCV4	Date: 21-Dec-2018 16:59		Seq: 4877824	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Arsenic	100	98.559	99	90-110	
Iron	10000	10046.499	100	90-110	
Manganese	100	96.481	97	90-110	

CCV5	Date: 21-Dec-2018 17:32		Seq: 4877944	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Arsenic	100	96.562	97	90-110	
Iron	10000	9882.79	99	90-110	
Manganese	100	95.811	96	90-110	

CCV6	Date: 21-Dec-2018 18:09		Seq: 4878002	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Arsenic	100	99.666	100	90-110	
Iron	10000	10409.029	104	90-110	
Manganese	100	96.201	96	90-110	

CCV7	Date: 21-Dec-2018 18:44		Seq: 4878027	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Arsenic	100	104.615	105	90-110	
Iron	10000	10070.795	101	90-110	
Manganese	100	100.473	100	90-110	

CCV8	Date: 21-Dec-2018 19:16		Seq: 4878173	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Arsenic	100	101.432	101	90-110	
Iron	10000	10124.033	101	90-110	
Manganese	100	94.326	94	90-110	

CCV9	Date: 21-Dec-2018 19:51		Seq: 4878188	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Arsenic	100	103.291	103	90-110	

Form 2 - Initial and Continuing Calibration Verification

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120736

Run ID: ICPMS04_329719
Instrument: ICPMS04
Method: SW6020

CCV9	Date: 21-Dec-2018 19:51		Seq: 4878188	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Iron	10000	10071.437	101	90-110	
Manganese	100	99.427	99	90-110	

CCV10	Date: 21-Dec-2018 20:23		Seq: 4878292	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Arsenic	100	101.201	101	90-110	
Iron	10000	9853.148	99	90-110	
Manganese	100	94.9	95	90-110	

CCV11	Date: 21-Dec-2018 20:40		Seq: 4878299	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Arsenic	100	101.088	101	90-110	
Iron	10000	10376.441	104	90-110	
Manganese	100	92.065	92	90-110	

CCV12	Date: 21-Dec-2018 21:28		Seq: 4879125	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Arsenic	100	102.789	103	90-110	
Iron	10000	10422.832	104	90-110	
Manganese	100	98.617	99	90-110	

CCV13	Date: 21-Dec-2018 21:55		Seq: 4879137	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Arsenic	100	99.083	99	90-110	
Iron	10000	9696.836	97	90-110	
Manganese	100	93.952	94	90-110	

CCV14	Date: 21-Dec-2018 22:21		Seq: 4879146	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Arsenic	100	102.89	103	90-110	
Iron	10000	9974.439	100	90-110	
Manganese	100	94.062	94	90-110	

ICCV15	Date: 21-Dec-2018 23:12		Seq: 4879271	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Arsenic	100	101.778	102	90-110	
Iron	10000	9759.1	98	90-110	
Manganese	100	103.783	104	90-110	

CCV16	Date: 21-Dec-2018 23:42		Seq: 4879295	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Arsenic	100	98.381	98	90-110	
Iron	10000	10276.043	103	90-110	
Manganese	100	97.859	98	90-110	

CCV17	Date: 22-Dec-2018 00:02		Seq: 4879304	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Arsenic	100	103.546	104	90-110	
Iron	10000	9312.665	93	90-110	
Manganese	100	102.304	102	90-110	

CCV18	Date: 22-Dec-2018 00:36		Seq: 4879319	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Arsenic	100	97.362	97	90-110	
Iron	10000	9837.847	98	90-110	

Form 2 - Initial and Continuing Calibration Verification

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120736

Run ID: ICPMS04_329719
Instrument: ICPMS04
Method: SW6020

CCV18 Date: 22-Dec-2018 00:36 Seq: 4879319 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Manganese	100	100.804	101	90-110	

CCV19 Date: 22-Dec-2018 00:56 Seq: 4879328 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Arsenic	100	98.182	98	90-110	
Iron	10000	9418.586	94	90-110	
Manganese	100	98.991	99	90-110	

Form 2 - Initial and Continuing Calibration Verification

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120736

Run ID: ICPMS05_329812
Instrument: ICPMS05
Method: SW6020

ICV	Date: 24-Dec-2018 12:13		Seq: 4879793	ICV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Manganese	100	99.824	100	90-110	

CCV1	Date: 24-Dec-2018 13:12		Seq: 4879947	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Manganese	100	93.055	93	90-110	

CCV2	Date: 24-Dec-2018 13:42		Seq: 4880210	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Manganese	100	94.979	95	90-110	

CCV3	Date: 24-Dec-2018 13:46		Seq: 4880212	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Manganese	100	93.043	93	90-110	

CCV4	Date: 24-Dec-2018 14:10		Seq: 4880266	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Manganese	100	94.844	95	90-110	

CCV5	Date: 24-Dec-2018 14:20		Seq: 4880594	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Manganese	100	93.871	94	90-110	

CCV6	Date: 24-Dec-2018 17:05		Seq: 4880608	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Manganese	100	98.304	98	90-110	

CCV7	Date: 24-Dec-2018 17:32		Seq: 4880618	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Manganese	100	98.278	98	90-110	

CCV8	Date: 24-Dec-2018 17:50		Seq: 4880669	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Manganese	100	98.614	99	90-110	

CCV9	Date: 24-Dec-2018 18:33		Seq: 4880729	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Manganese	100	97.733	98	90-110	

CCV10	Date: 24-Dec-2018 18:49		Seq: 4880734	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Manganese	100	96.382	96	90-110	

ICCV11	Date: 24-Dec-2018 19:11		Seq: 4881012	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Manganese	100	99.04	99	90-110	

CCV12	Date: 24-Dec-2018 19:41		Seq: 4881051	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Manganese	100	102.015	102	90-110	

CCV13	Date: 24-Dec-2018 19:53		Seq: 4881057	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Manganese	100	99.325	99	90-110	

Form 2 - Initial and Continuing Calibration Verification

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120736

Run ID: ICPMS05_329812
Instrument: ICPMS05
Method: SW6020

CCV14	Date: 24-Dec-2018 20:17		Seq: 4881069	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Manganese	100	101.031	101	90-110	

CCV15	Date: 24-Dec-2018 20:34		Seq: 4881078	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Manganese	100	101.139	101	90-110	

CCV16	Date: 24-Dec-2018 20:54		Seq: 4881088	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Manganese	100	99.897	100	90-110	

CCV17	Date: 24-Dec-2018 21:18		Seq: 4881167	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Manganese	100	98.277	98	90-110	

CCV18	Date: 24-Dec-2018 21:36		Seq: 4881176	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Manganese	100	98.544	99	90-110	

CCV19	Date: 24-Dec-2018 22:00		Seq: 4881188	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Manganese	100	98.793	99	90-110	

CCV20	Date: 24-Dec-2018 22:23		Seq: 4881200	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Manganese	100	97.133	97	90-110	

ICCV21	Date: 24-Dec-2018 22:51		Seq: 4881330	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Manganese	100	96.404	96	90-110	

CCV22	Date: 24-Dec-2018 23:21		Seq: 4881399	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Manganese	100	99.414	99	90-110	

CCV23	Date: 24-Dec-2018 23:45		Seq: 4881411	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Manganese	100	99.399	99	90-110	

CCV24	Date: 24-Dec-2018 23:53		Seq: 4881415	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Manganese	100	100.691	101	90-110	

Form 3 - BLANKS

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120736

Run ID: ICPMS04_329719
Instrument: ICPMS04
Method: SW6020

ICB	Date: 21-Dec-2018 13:19		Seq: 4877203	ICB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Arsenic	2	0.4	2	U	
Iron	200	12	200	U	
Manganese	5	0.7	5	U	

CCB1	Date: 21-Dec-2018 14:09		Seq: 4877420	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Arsenic	2	0.4	2	U	
Iron	200	12	200	U	
Manganese	5	0.7	5	U	

CCB2	Date: 21-Dec-2018 14:47		Seq: 4877517	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Arsenic	2	0.4	2	U	
Iron	200	12	200	U	
Manganese	5	0.7	5	U	

CCB3	Date: 21-Dec-2018 15:45		Seq: 4877606	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Arsenic	2	0.4	2	U	
Iron	200	12	200	U	
Manganese	5	0.7	5	U	

CCB4	Date: 21-Dec-2018 17:01		Seq: 4877825	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Arsenic	2	0.4	2	U	
Iron	200	12	200	U	
Manganese	5	0.7	5	U	

CCB5	Date: 21-Dec-2018 17:34		Seq: 4877945	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Arsenic	2	0.4	2	U	
Iron	200	12	200	U	
Manganese	5	0.7	5	U	

CCB6	Date: 21-Dec-2018 18:11		Seq: 4878003	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Arsenic	2	0.4	2	U	
Iron	200	12	200	U	
Manganese	5	0.7	5	U	

CCB7	Date: 21-Dec-2018 18:46		Seq: 4878028	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Arsenic	2	0.4	2	U	
Iron	200	12	200	U	
Manganese	0.884	0.7	5	J	

CCB8	Date: 21-Dec-2018 19:18		Seq: 4878174	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Arsenic	2	0.4	2	U	
Iron	200	12	200	U	
Manganese	5	0.7	5	U	

CCB9	Date: 21-Dec-2018 19:53		Seq: 4878189	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Arsenic	2	0.4	2	U	
Iron	200	12	200	U	

Form 3 - BLANKS

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120736

Run ID: ICPMS04_329719
Instrument: ICPMS04
Method: SW6020

CCB9	Date: 21-Dec-2018 19:53		Seq: 4878189	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Manganese	5	0.7	5	U	

CCB10	Date: 21-Dec-2018 20:25		Seq: 4878293	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Arsenic	2	0.4	2	U	
Iron	200	12	200	U	
Manganese	5	0.7	5	U	

CCB11	Date: 21-Dec-2018 20:42		Seq: 4878300	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Arsenic	2	0.4	2	U	
Iron	200	12	200	U	
Manganese	5	0.7	5	U	

MBLK-135804	Date: 21-Dec-2018 21:07		Seq: 4879116	MBLK	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Arsenic	2	0.4	2	U	
Iron	200	12	200	U	
Manganese	5	0.7	5	U	

CCB12	Date: 21-Dec-2018 21:30		Seq: 4879126	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Arsenic	2	0.4	2	U	
Iron	200	12	200	U	
Manganese	5	0.7	5	U	

CCB13	Date: 21-Dec-2018 21:57		Seq: 4879138	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Arsenic	2	0.4	2	U	
Iron	200	12	200	U	
Manganese	5	0.7	5	U	

CCB14	Date: 21-Dec-2018 22:23		Seq: 4879147	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Arsenic	2	0.4	2	U	
Iron	200	12	200	U	
Manganese	5	0.7	5	U	

ICCB15	Date: 21-Dec-2018 23:19		Seq: 4879274	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Arsenic	2	0.4	2	U	
Iron	200	12	200	U	
Manganese	5	0.7	5	U	

MBLK-135805	Date: 21-Dec-2018 23:24		Seq: 4879287	MBLK	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Iron	200	12	200	U	
Manganese	5	0.7	5	U	

CCB16	Date: 21-Dec-2018 23:44		Seq: 4879296	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Arsenic	2	0.4	2	U	
Iron	23.09	12	200	J	
Manganese	5	0.7	5	U	

Form 3 - BLANKS

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120736

Run ID: ICPMS04_329719
Instrument: ICPMS04
Method: SW6020

CCB17	Date: 22-Dec-2018 00:04		Seq: 4879305	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Arsenic	2	0.4	2	U	
Iron	12.66	12	200	J	
Manganese	5	0.7	5	U	

CCB18	Date: 22-Dec-2018 00:38		Seq: 4879320	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Arsenic	2	0.4	2	U	
Iron	25.87	12	200	J	
Manganese	5	0.7	5	U	

CCB19	Date: 22-Dec-2018 00:59		Seq: 4879329	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Arsenic	2	0.4	2	U	
Iron	17.81	12	200	J	
Manganese	5	0.7	5	U	

Form 3 - BLANKS

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120736

Run ID: ICPMS05_329812
Instrument: ICPMS05
Method: SW6020

ICB	Date: 24-Dec-2018 11:53		Seq: 4879791	ICB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Manganese	5	0.7	5	U	

CCB1	Date: 24-Dec-2018 13:14		Seq: 4879948	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Manganese	5	0.7	5	U	

CCB2	Date: 24-Dec-2018 13:44		Seq: 4880211	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Manganese	5	0.7	5	U	

CCB3	Date: 24-Dec-2018 13:48		Seq: 4880213	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Manganese	5	0.7	5	U	

CCB4	Date: 24-Dec-2018 14:12		Seq: 4880267	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Manganese	5	0.7	5	U	

CCB5	Date: 24-Dec-2018 14:22		Seq: 4880595	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Manganese	5	0.7	5	U	

CCB6	Date: 24-Dec-2018 17:00		Seq: 4880607	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Manganese	5	0.7	5	U	

CCB7	Date: 24-Dec-2018 17:24		Seq: 4880616	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Manganese	5	0.7	5	U	

CCB8	Date: 24-Dec-2018 17:52		Seq: 4880670	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Manganese	5	0.7	5	U	

CCB9	Date: 24-Dec-2018 18:35		Seq: 4880730	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Manganese	5	0.7	5	U	

CCB10	Date: 24-Dec-2018 18:51		Seq: 4880735	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Manganese	5	0.7	5	U	

ICCB11	Date: 24-Dec-2018 19:17		Seq: 4881015	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Manganese	5	0.7	5	U	

CCB12	Date: 24-Dec-2018 19:33		Seq: 4881048	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Manganese	0.853	0.7	5	J	

CCB13	Date: 24-Dec-2018 19:55		Seq: 4881058	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Manganese	0.84	0.7	5	J	

CCB14	Date: 24-Dec-2018 20:19		Seq: 4881070	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Manganese	0.761	0.7	5	J	

Form 3 - BLANKS

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120736

Run ID: ICPMS05_329812
Instrument: ICPMS05
Method: SW6020

CCB15	Date: 24-Dec-2018 20:36		Seq: 4881079	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Manganese	0.884	0.7	5	J	

CCB16	Date: 24-Dec-2018 20:56		Seq: 4881089	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Manganese	0.829	0.7	5	J	

CCB17	Date: 24-Dec-2018 21:20		Seq: 4881168	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Manganese	0.804	0.7	5	J	

CCB18	Date: 24-Dec-2018 21:38		Seq: 4881177	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Manganese	0.909	0.7	5	J	

CCB19	Date: 24-Dec-2018 22:02		Seq: 4881189	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Manganese	0.897	0.7	5	J	

CCB20	Date: 24-Dec-2018 22:25		Seq: 4881201	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Manganese	0.803	0.7	5	J	

ICCB21	Date: 24-Dec-2018 22:57		Seq: 4881333	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Manganese	5	0.7	5	U	

CCB22	Date: 24-Dec-2018 23:23		Seq: 4881400	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Manganese	0.956	0.7	5	J	

CCB23	Date: 24-Dec-2018 23:47		Seq: 4881412	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Manganese	1.068	0.7	5	J	

CCB24	Date: 24-Dec-2018 23:55		Seq: 4881416	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Manganese	1.056	0.7	5	J	

Form 4 - ICP Interference Check Sample

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120736

Run ID: ICPMS04_329719
Instrument: ICPMS04
Method: SW6020

ICSA	Date: 21-Dec-2018 13:36	Seq: 4877204	ICSA	Units: ug/L
Analyte	**True**	**Found**	**%R**	
Arsenic		0.156	0	
Iron	100000	106000	106	
Manganese		0.99	0	

ICSAB	Date: 21-Dec-2018 13:38	Seq: 4877205	ICSAB	Units: ug/L
Analyte	**True**	**Found**	**%R**	
Arsenic	100	114.4	114	
Iron	110000	111700	102	
Manganese	100	111.4	111	

ICSA	Date: 22-Dec-2018 01:05	Seq: 4879332	ICSA	Units: ug/L
Analyte	**True**	**Found**	**%R**	
Arsenic		0.16	0	
Iron	100000	95310	95.3	
Manganese		0.473	0	

ICSAB	Date: 22-Dec-2018 01:08	Seq: 4879333	ICSAB	Units: ug/L
Analyte	**True**	**Found**	**%R**	
Arsenic	100	109.6	110	
Iron	110000	111000	101	
Manganese	100	105.3	105	

Form 4 - ICP Interference Check Sample

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120736

Run ID: ICPMS05_329812
Instrument: ICPMS05
Method: SW6020

ICSA	Date: 24-Dec-2018 12:27	Seq: 4879794	ICSA	Units: ug/L
Analyte	**True**	**Found**	**%R**	
Manganese		0.675	0	

ICSAB	Date: 24-Dec-2018 12:29	Seq: 4879795	ICSAB	Units: ug/L
Analyte	**True**	**Found**	**%R**	
Manganese	100	107.8	108	

ICSA	Date: 25-Dec-2018 00:01	Seq: 4881419	ICSA	Units: ug/L
Analyte	**True**	**Found**	**%R**	
Manganese		0.748	0	

ICSAB	Date: 25-Dec-2018 00:03	Seq: 4881420	ICSAB	Units: ug/L
Analyte	**True**	**Found**	**%R**	
Manganese	100	109.5	109	

Form 5A - Matrix Spike/Matrix Spike Duplicate Recovery

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120736

Date Analyzed: 21-Dec-2018 22:14
Date Extracted: 19-Dec-2018 13:00
Units: ug/L

Matrix Spike: HS18120913-04MS
Analysis Method: SW6020
Client Sample ID:

Analyte	Sample Result	MS Result	Spike Amount	% Rec	MSD Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Arsenic	2.000	50.79	50.00	101	48.89	50.00	97.7	80-120	3.81	20
Iron	10760	15560	5000	96.0	15340	5000	91.6	80-120	1.43	20
Manganese	65.87	113.5	50.00	95.3	108.4	50.00	85.0	80-120	4.65	20

Matrix Spike: HS18120927-08MS
Analysis Method: SW6020
Client Sample ID:

Analyte	Sample Result	MS Result	Spike Amount	% Rec	MSD Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Iron	2000	4965	5000	97.3	4346	5000	84.9	75-125	13.3	20
Manganese	50.00	41.04	50.00	72.1	35.26	50.00	60.5	75-125	0	20

Form 5B - Post Digest Sample Recovery

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120736

Date Analyzed: 21-Dec-2018 22:17
Date Extracted: 19-Dec-2018 13:00
Units: ug/L

Lab Sample ID: HS18120913-04PDS
Client Sample ID:
Analysis Method: SW6020

Analyte	Sample Result	PDS Result	Spike Amount	% Rec	% Rec Limits
Arsenic	0	107.4	100	107	75-125
Iron	10760	22170	10000	114	75-125
Manganese	65.87	163.2	100	97	75-125

Lab Sample ID: HS18120927-08PDS
Client Sample ID:
Analysis Method: SW6020

Analyte	Sample Result	PDS Result	Spike Amount	% Rec	% Rec Limits
Iron	0	99190	100000	99	75-125
Manganese	0	1104	1000	110	75-125

Form 7 - Laboratory Control Sample

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120736

Date Analyzed: 21-Dec-2018 21:10
Date Extracted: 19-Dec-2018 13:00
Units: ug/L

Lab Sample ID: LCS-135804 Analysis Method: SW6020

Analyte	Spike Amount	LCS Result	% Rec	% Rec Limits
Arsenic	50	49.62	99	80-120
Iron	5000	4811	96	80-120
Manganese	50	47.29	95	80-120

Lab Sample ID: LCS-135805 Analysis Method: SW6020

Analyte	Spike Amount	LCS Result	% Rec	% Rec Limits
Iron	5000	4612	92	80-120
Manganese	50	47.44	95	80-120

Form 8 - ICP Serial Dilutions

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120736

Date Analyzed: 21-Dec-2018 22:10
Date Extracted: 19-Dec-2018 13:00
Units: ug/L

Lab Sample ID: HS18120913-04SD
Client Sample ID:

Analysis Method: SW6020

Analyte	Sample Result	C	SD Result	C	RPD	Q
Arsenic	0	U	0	U	0	
Iron	10760		11500		7	
Manganese	65.87		66.12		0	

Lab Sample ID: HS18120927-08SD
Client Sample ID:

Analysis Method: SW6020

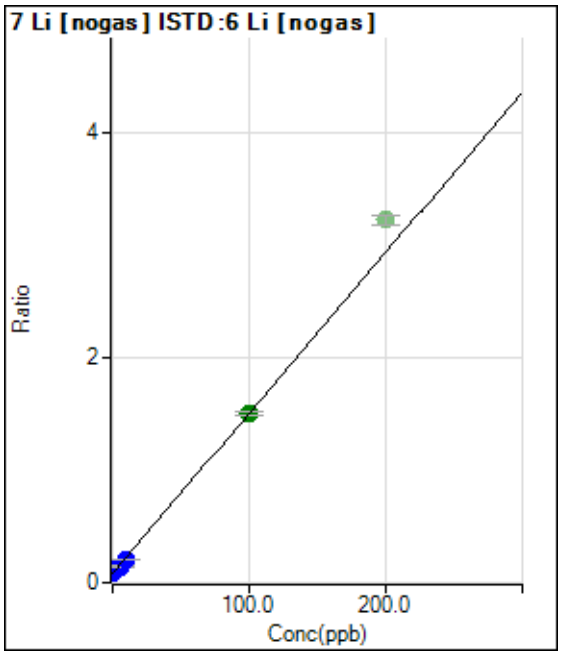
Analyte	Sample Result	C	SD Result	C	RPD	Q
Iron	0	U	620.1	J	514	
Manganese	0	U	0	U	0	

Calibration for 020_ICV.d

Batch Folder: C:\Agilent\ICPMH\1\DATA\122418A.b\
Analysis File: 122418A.batch.bin
DA Date-Time: 2018-12-24 19:19:15
Calibration Title:
Calibration Method: External Calibration
VIS Interpolation Fit:

Level	Standard Data File	Sample Name	Acq. Date-Time
1	013CALB.d	CAL BLK	2018-12-24 11:33:27
2	014CALS.d	2/10/200	2018-12-24 11:35:28
3	015CALS.d	5/25/500	2018-12-24 11:37:27
4	016CALS.d	10/50/1000	2018-12-24 11:39:27
5	017CALS.d	100/500/10K	2018-12-24 11:41:25
6	018CALS.d	200/1000/20K	2018-12-24 11:43:24
7			

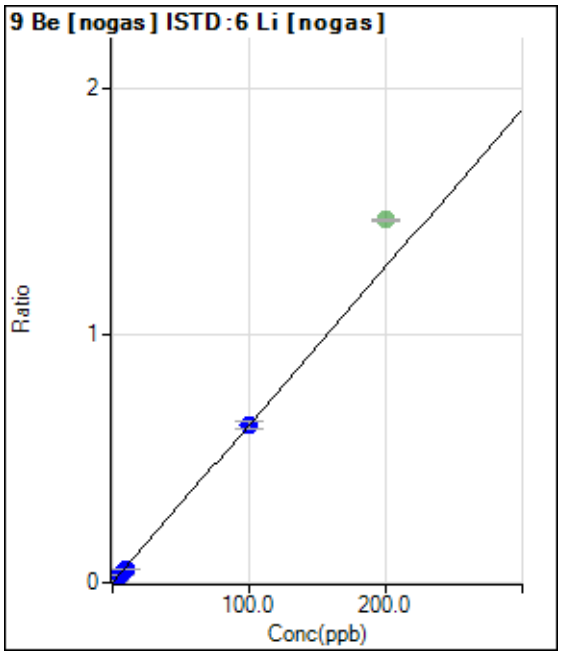
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	111277.55	0.0820	P	5.2
2	☐	2.000	2.088	150039.46	0.1118	P	5.6
3	☐	5.000	4.342	198349.20	0.1440	P	3.6
4	☐	10.000	8.841	280071.44	0.2082	P	0.7
5	☐	100.000	100.147	1883791.43	1.5117	A	2.5
6	☑	200.000		3654384.84	3.2289	A	2.4
7	☐	1.000					

y = 0.0143 * x + 0.0820
R = 0.9999
DL = 0.8936
BEC = 5.741

Weight: <None>
Min Conc: <None>

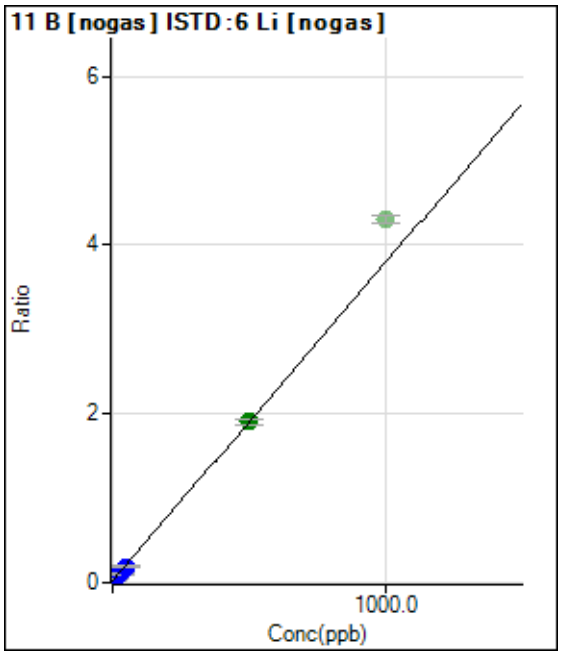


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	56.67	0.0000	P	17.
2	☐	2.000	1.830	15760.07	0.0117	P	2.6
3	☐	5.000	4.323	38124.79	0.0277	P	2.0
4	☐	10.000	8.875	76314.45	0.0567	P	2.9
5	☐	100.000	100.150	796335.72	0.6397	P	4.5
6	☑	200.000		1661599.45	1.4681	A	0.3
7	☐	1.000					

y = 0.0064 * x + 4.1581E-005
R = 0.9999
DL = 0.003466
BEC = 0.00651

Weight: <None>
Min Conc: <None>

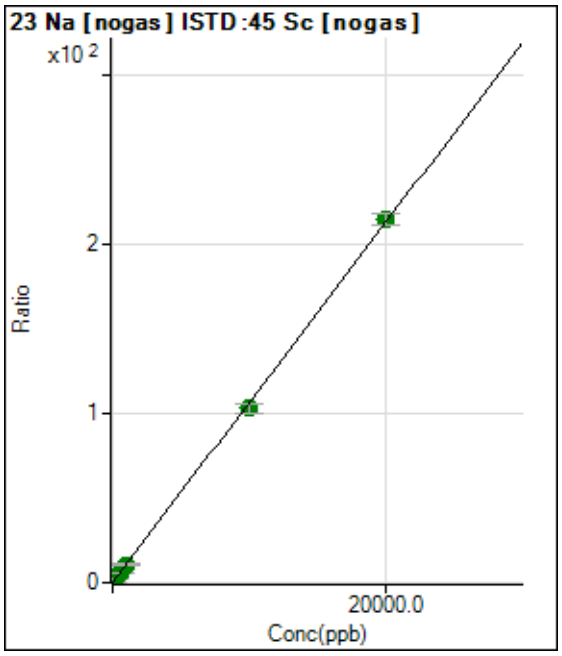
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	30501.10	0.0225	P	5.1
2	☐	10.000	8.961	75501.49	0.0563	P	5.3
3	☐	25.000	21.386	141990.64	0.1031	P	5.2
4	☐	50.000	45.152	259170.40	0.1927	P	3.8
5	☐	500.000	500.686	2379058.14	1.9105	A	3.4
6	☑	1000.000		4863367.74	4.2970	A	2.1
7	☐	5.000					

y = 0.0038 * x + 0.0225
R = 1.0000
DL = 0.9088
BEC = 5.958

Weight: <None>
Min Conc: <None>

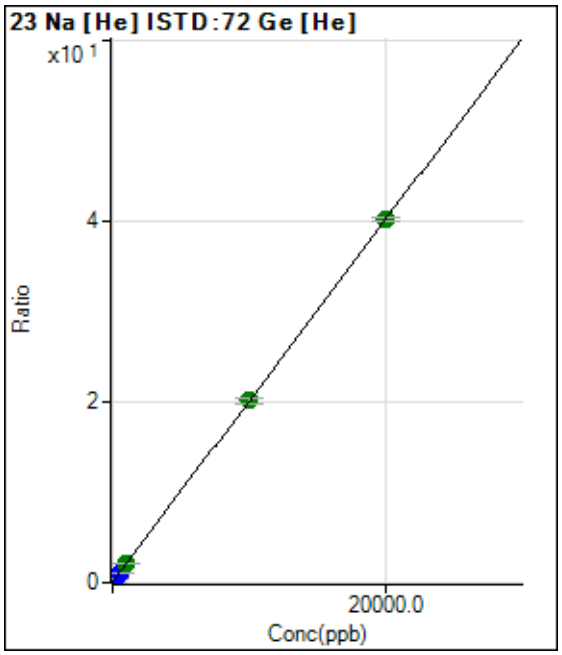


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	417456.77	0.1780	P	5.2
2	☐	200.000	197.753	5379648.04	2.2781	A	2.2
3	☐	500.000	497.504	12786651.07	5.4614	A	3.7
4	☐	1000.000	975.070	24675953.16	10.5330	A	7.1
5	☐	10000.00	9678.099	242452630.4	102.957	A	5.0
6	☐	20000.00	20162.282	494803094.4	214.296	A	3.1
7	☐	100.000					

y = 0.0106 * x + 0.1780
R = 0.9998
DL = 2.637
BEC = 16.76

Weight: <None>
Min Conc: <None>

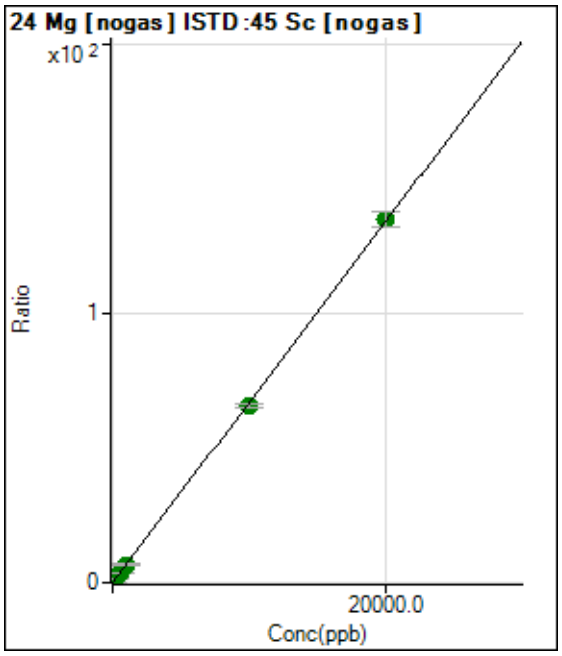
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	54678.81	0.0697	P	3.3
2	☐	200.000	189.988	360618.21	0.4508	P	2.2
3	☐	500.000	493.692	816355.53	1.0601	P	2.8
4	☐	1000.000	994.952	1592790.03	2.0657	A	3.1
5	☐	10000.00	10016.109	15131845.61	20.1637	A	2.6
6	☐	20000.00	19992.456	29835737.89	40.1780	A	1.2
7	☐	100.000					

y = 0.0020 * x + 0.0697
R = 1.0000
DL = 3.479
BEC = 34.73

Weight: <None>
Min Conc: <None>

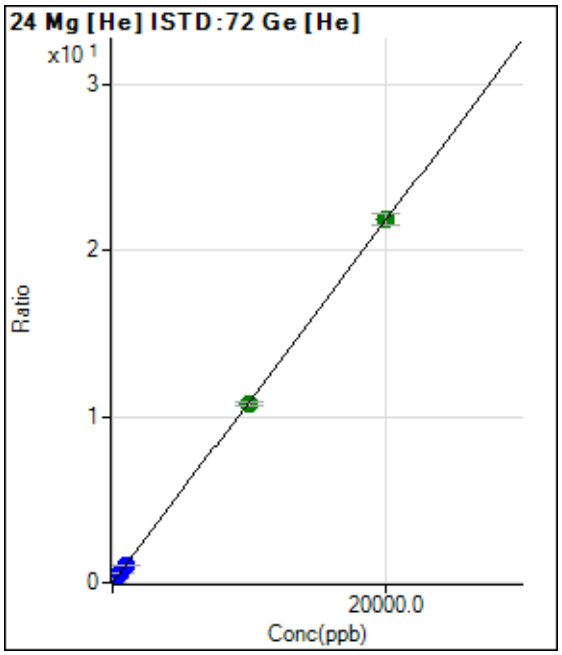


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	5901.75	0.0025	P	6.9
2	☐	200.000	206.073	3271575.14	1.3859	A	5.2
3	☐	500.000	504.053	7926348.09	3.3863	A	4.9
4	☐	1000.000	994.333	15657513.37	6.6776	A	5.3
5	☐	10000.00	9795.789	154983028.4	65.7631	A	2.5
6	☐	20000.00	20102.227	311533323.6	134.951	A	4.3
7	☐	100.000					

y = 0.0067 * x + 0.0025
R = 0.9999
DL = 0.07734
BEC = 0.3751

Weight: <None>
Min Conc: <None>

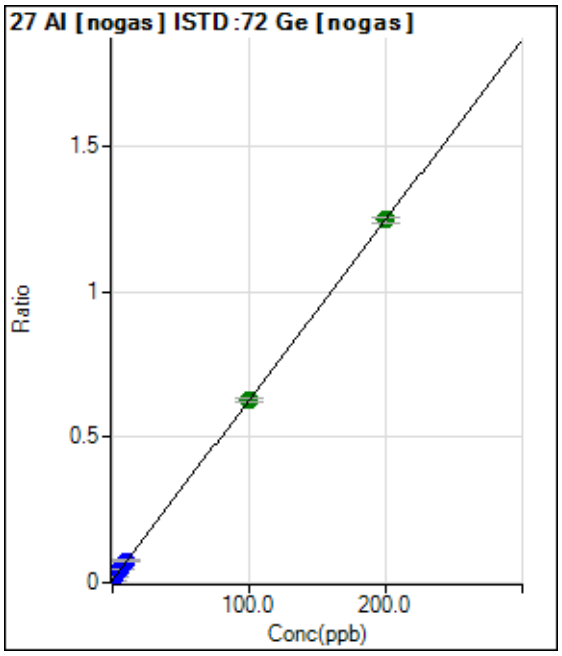
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	453.34	0.0006	P	18.
2	☐	200.000	193.705	169302.41	0.2116	P	0.5
3	☐	500.000	501.933	421390.51	0.5474	P	5.2
4	☐	1000.000	971.240	816215.90	1.0587	P	3.5
5	☐	10000.00	9892.844	8087589.05	10.7782	A	3.0
6	☐	20000.00	20055.031	16222332.26	21.8492	A	3.1
7	☐	100.000					

y = 0.0011 * x + 5.7837E-004
R = 1.0000
DL = 0.3001
BEC = 0.5309

Weight: <None>
Min Conc: <None>

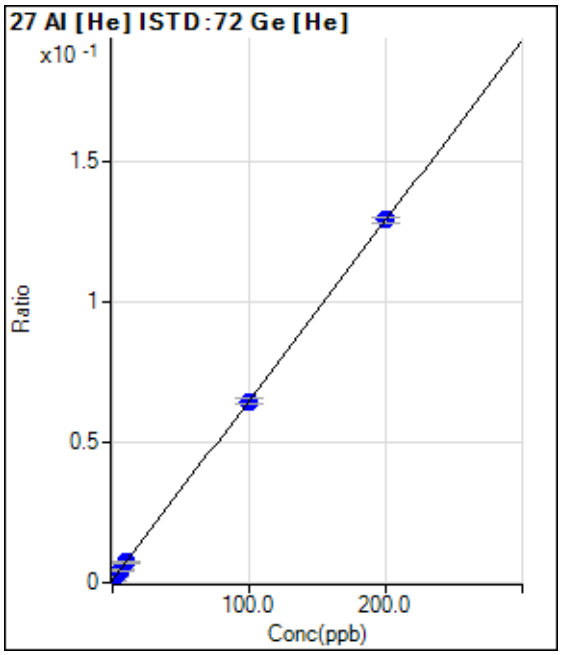


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	27887.50	0.0089	P	3.7
2	☐	2.000	1.973	67747.78	0.0211	P	2.7
3	☐	5.000	6.059	146244.49	0.0464	P	1.3
4	☐	10.000	10.753	238007.68	0.0754	P	2.9
5	☐	100.000	99.846	1956520.08	0.6268	A	2.1
6	☐	200.000	200.013	3801721.92	1.2467	A	1.4
7	☐	1.000					

y = 0.0062 * x + 0.0089
R = 1.0000
DL = 0.1587
BEC = 1.433

Weight: <None>
Min Conc: <None>

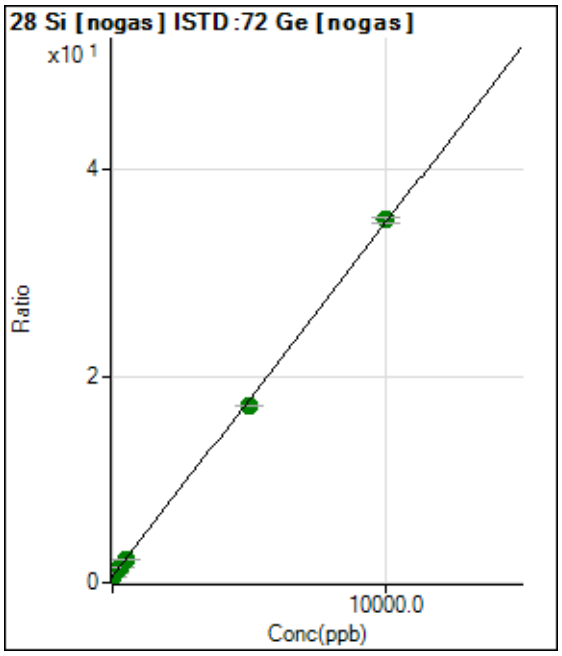
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-0.178	643.35	0.0008	P	9.4
2	☐	2.000	1.992	1766.78	0.0022	P	11.
3	☐	5.000	5.326	3350.35	0.0043	P	8.4
4	☐	10.000	10.204	5757.64	0.0075	P	9.5
5	☐	100.000	99.349	48475.43	0.0646	P	3.6
6	☐	200.000	200.307	96018.78	0.1293	P	1.5
7	☐	1.000					

y = 6.4090E-004 * x + 9.3424E-004
R = 1.0000
DL = 0.3609
BEC = 1.458

Weight: <None>
Min Conc: <None>

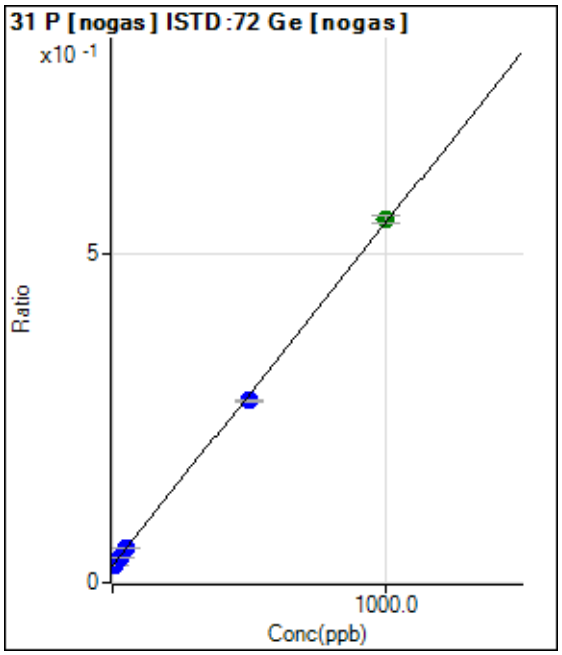


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1941965.44	0.6175	A	1.0
2	☐	100.000	90.473	2979669.96	0.9273	A	0.6
3	☐	250.000	241.405	4555456.60	1.4442	A	1.6
4	☐	500.000	477.424	7109444.47	2.2525	A	2.0
5	☐	5000.000	4831.629	53576002.53	17.1639	A	0.6
6	☐	10000.00	10085.624	107207228.4	35.1567	A	1.6
7	☐	5.000					

y = 0.0034 * x + 0.6175
R = 0.9998
DL = 5.362
BEC = 180.3

Weight: <None>
Min Conc: <None>

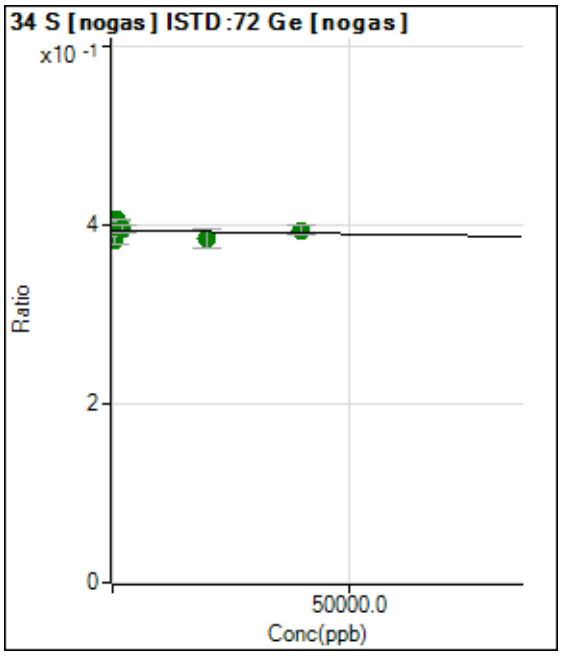
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	81129.62	0.0258	P	1.7
2	☐	10.000	-0.335	82335.14	0.0256	P	1.8
3	☐	25.000	25.323	122878.83	0.0390	P	2.1
4	☐	50.000	51.846	166448.38	0.0527	P	2.1
5	☐	500.000	481.240	861073.53	0.2759	P	0.5
6	☐	1000.000	1009.383	1677933.41	0.5503	A	2.2
7	☐	5.000					

y = 5.1962E-004 * x + 0.0258
R = 0.9997
DL = 2.532
BEC = 49.65

Weight: <None>
Min Conc: <None>

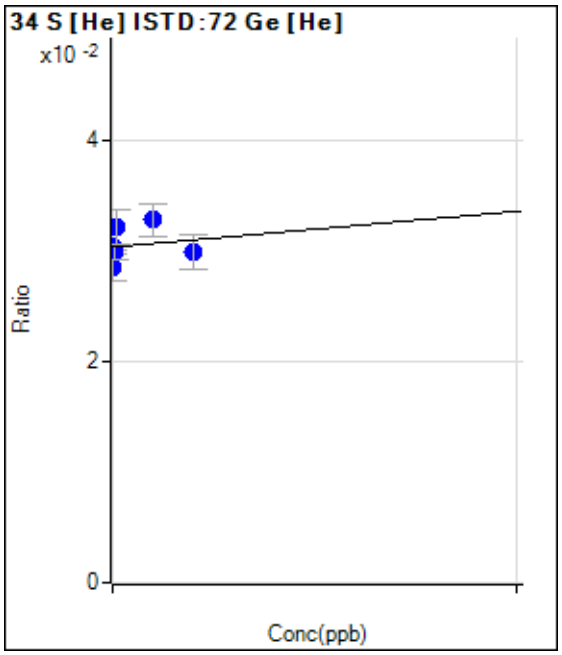


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1240192.18	0.3944	A	2.2
2	☐	400.000	139725.830	1231135.18	0.3832	A	1.8
3	☐	1000.000	-144160.379	1280446.25	0.4059	A	0.8
4	☐	2000.000	-18556.861	1249745.83	0.3959	A	1.8
5	☐	20000.00	111238.432	1203226.78	0.3855	A	5.4
6	☐	40000.00	-2355.622	1202967.12	0.3946	A	3.1
7	☐	100.000					

y = -8.0160E-008 * x + 0.3944
R = -0.1320
DL = -3.312E+05
BEC = -4.92E+06

Weight: <None>
Min Conc: <None>

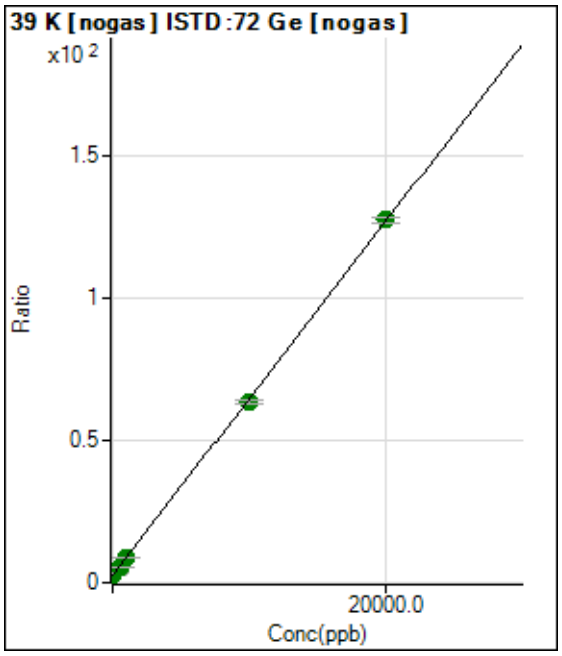
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	23818.47	0.0303	P	1.4
2	☐	400.000	-113916.726	22785.07	0.0285	P	8.1
3	☐	1000.000	-22461.142	23084.41	0.0300	P	4.6
4	☐	2000.000	115974.513	24821.47	0.0322	P	9.8
5	☐	20000.00	151642.131	24620.58	0.0328	P	8.8
6	☐	40000.00	-29790.095	22184.52	0.0299	P	10.
7	☐	100.000					

y = 1.6193E-008 * x + 0.0303
R = 0.1153
DL = 8.051E+04
BEC = 1.874E+06

Weight: <None>
Min Conc: <None>

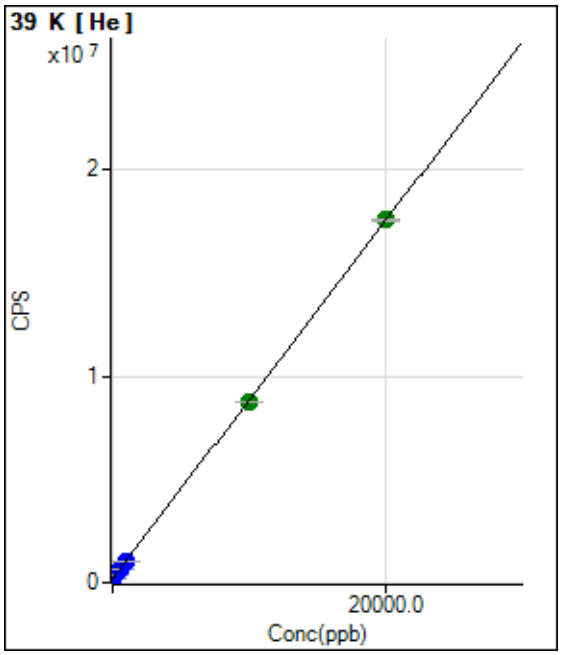


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	7950833.77	2.5282	A	1.6
2	☐	200.000	192.139	11954391.93	3.7205	A	1.3
3	☐	500.000	497.868	17719817.06	5.6176	A	1.2
4	☐	1000.000	983.290	27236219.36	8.6297	A	2.3
5	☐	10000.00	9805.112	197795387.7	63.3700	A	2.1
6	☐	20000.00	20098.411	388084200.3	127.241	A	1.8
7	☐	100.000					

y = 0.0062 * x + 2.5282
R = 0.9999
DL = 19.9
BEC = 407.4

Weight: <None>
Min Conc: <None>

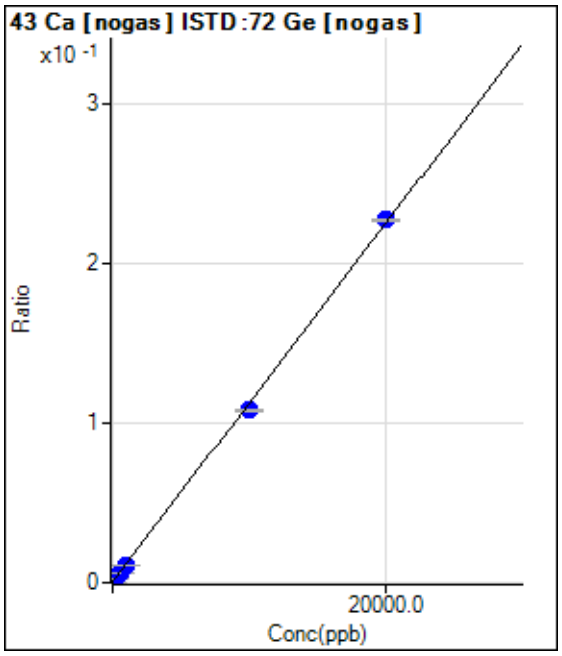
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	191802.98		P	0.2
2	☐	200.000	205.494	370064.71		P	0.3
3	☐	500.000	502.285	627524.74		P	1.3
4	☐	1000.000	998.569	1058041.36		P	1.0
5	☐	10000.00	9891.039	8772076.33		A	0.5
6	☐	20000.00	20054.440	17588618.49		A	0.7
7	☐	100.000					

y = 867.4795 * x + 191802.9833
R = 1.0000
DL = 1.119
BEC = 221.1

Weight: <None>
Min Conc: <None>

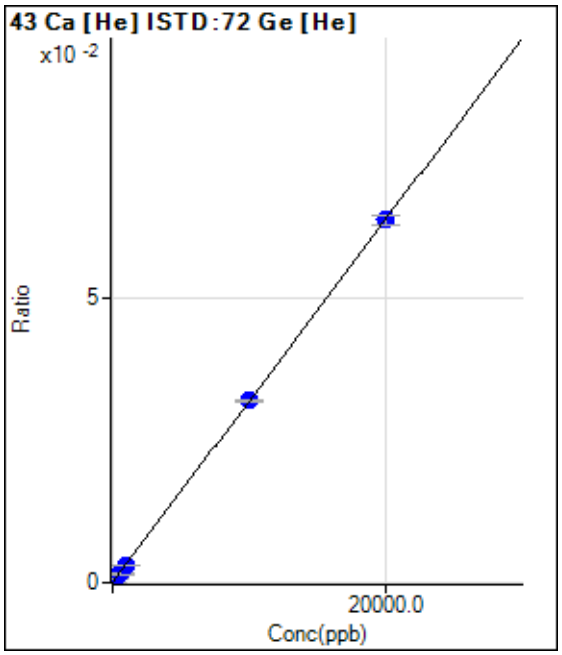


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1386.74	0.0004	P	3.5
2	☐	200.000	190.602	8301.99	0.0026	P	6.1
3	☐	500.000	486.445	18639.59	0.0059	P	1.8
4	☐	1000.000	957.601	35377.28	0.0112	P	3.0
5	☐	10000.00	9577.352	337418.86	0.1081	P	1.4
6	☐	20000.00	20213.877	694444.26	0.2277	P	0.4
7	☐	100.000					

y = 1.1241E-005 * x + 4.4103E-004
R = 0.9997
DL = 4.09
BEC = 39.23

Weight: <None>
Min Conc: <None>

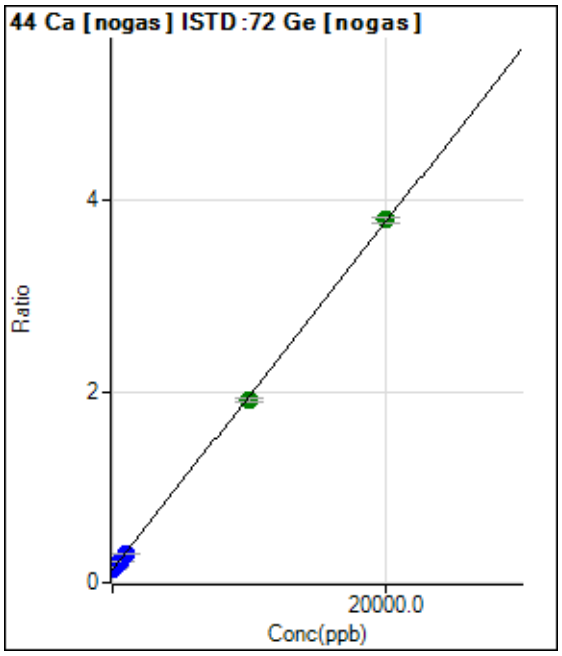
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	36.67	0.0000	P	14.
2	☐	200.000	185.924	510.01	0.0006	P	16.
3	☐	500.000	476.126	1203.39	0.0016	P	12.
4	☐	1000.000	950.440	2363.52	0.0031	P	5.9
5	☐	10000.00	10022.864	23949.08	0.0319	P	1.4
6	☐	20000.00	19991.784	47213.18	0.0636	P	2.3
7	☐	100.000					

y = 3.1775E-006 * x + 4.6654E-005
R = 1.0000
DL = 6.448
BEC = 14.68

Weight: <None>
Min Conc: <None>

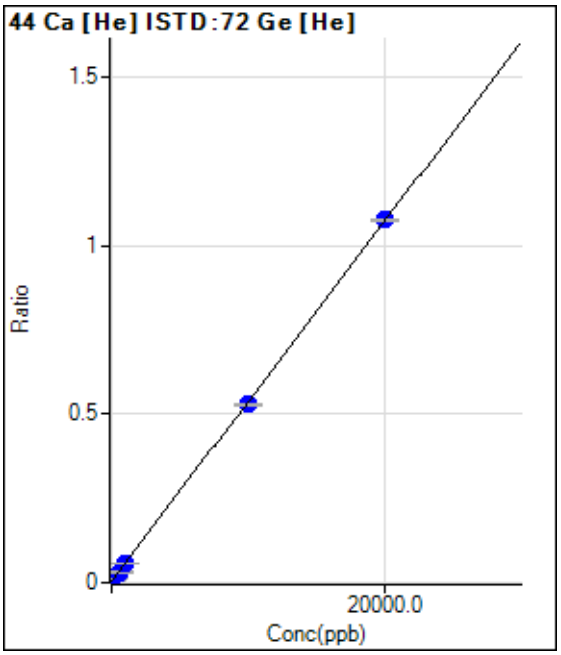


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	427469.51	0.1359	P	1.1
2	☐	200.000	145.767	521914.18	0.1624	P	1.1
3	☐	500.000	440.032	681186.71	0.2159	P	0.9
4	☐	1000.000	887.572	938664.86	0.2973	P	0.3
5	☐	10000.00	9755.300	5961691.37	1.9101	A	2.2
6	☐	20000.00	20130.013	11581260.24	3.7969	A	1.7
7	☐	100.000					

y = 1.8187E-004 * x + 0.1359
R = 0.9999
DL = 23.94
BEC = 747.4

Weight: <None>
Min Conc: <None>

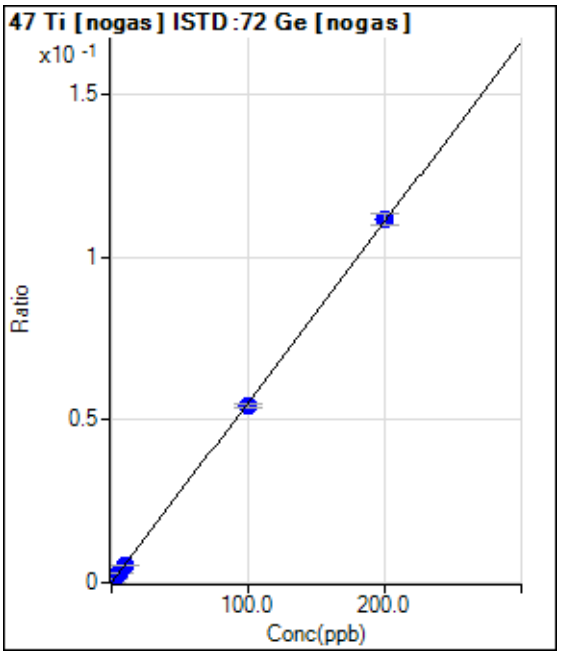
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	3250.34	0.0041	P	6.5
2	☐	200.000	191.057	11456.99	0.0143	P	2.6
3	☐	500.000	510.029	24112.53	0.0313	P	6.8
4	☐	1000.000	961.502	42709.23	0.0554	P	4.3
5	☐	10000.00	9817.224	395860.85	0.5274	P	1.4
6	☐	20000.00	20093.152	798401.45	1.0752	P	0.8
7	☐	100.000					

y = 5.3303E-005 * x + 0.0041
R = 0.9999
DL = 15.08
BEC = 77.64

Weight: <None>
Min Conc: <None>

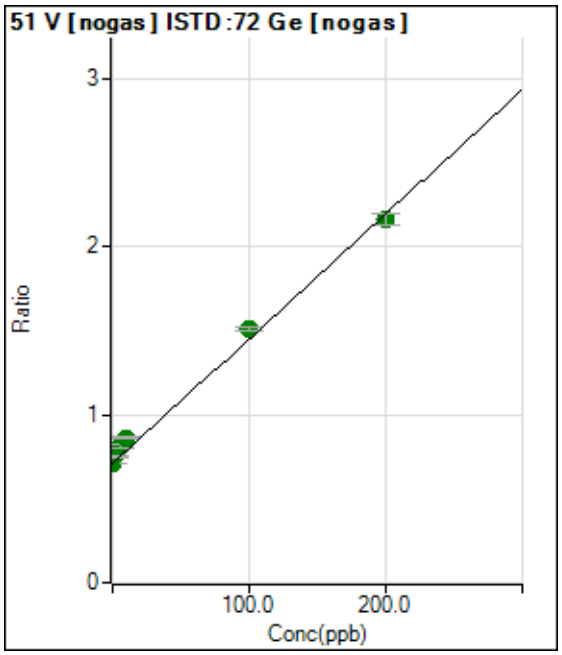


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	293.34	0.0001	P	5.9
2	☐	2.000	1.989	3840.46	0.0012	P	3.7
3	☐	5.000	4.721	8542.09	0.0027	P	3.0
4	☐	10.000	9.795	17421.72	0.0055	P	0.5
5	☐	100.000	97.753	169280.73	0.0542	P	2.4
6	☐	200.000	201.141	339933.58	0.1115	P	3.0
7	☐	1.000					

y = 5.5385E-004 * x + 9.3297E-005
R = 0.9999
DL = 0.02997
BEC = 0.1685

Weight: <None>
Min Conc: <None>

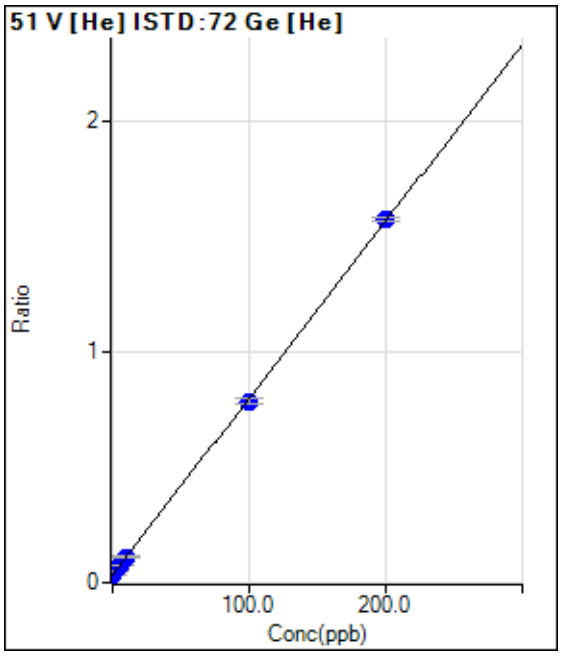
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	2231666.65	0.7096	A	0.7
2	☐	2.000	5.461	2409766.40	0.7500	A	2.4
3	☐	5.000	14.093	2567511.26	0.8140	A	3.4
4	☐	10.000	20.640	2722696.22	0.8625	A	0.9
5	☐	100.000	107.667	4705398.80	1.5075	A	1.5
6	☐	200.000	195.372	6578225.28	2.1576	A	3.0
7	☐	1.000					

y = 0.0074 * x + 0.7096
R = 0.9981
DL = 2.021
BEC = 95.74

Weight: <None>
Min Conc: <None>

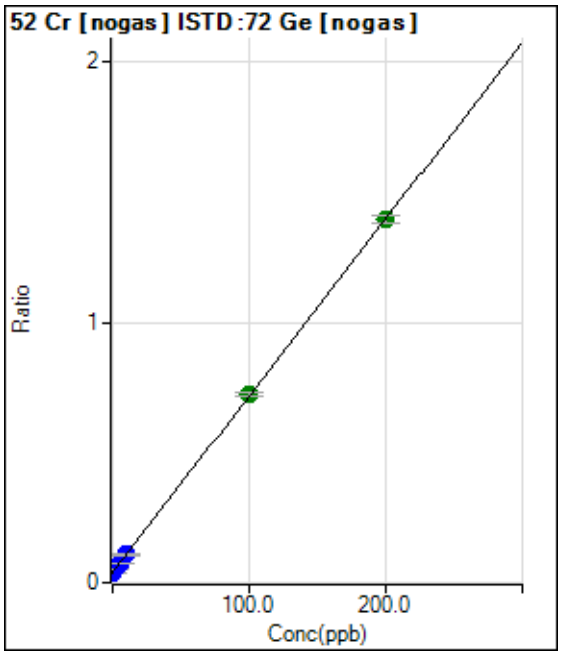


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.065	27333.93	0.0348	P	1.9
2	☐	2.000	2.198	40946.02	0.0512	P	2.3
3	☐	5.000	5.491	58867.50	0.0764	P	2.6
4	☐	10.000	10.166	86588.64	0.1123	P	2.1
5	☐	100.000	98.206	590835.87	0.7874	P	3.3
6	☐	200.000	200.874	1169324.83	1.5747	P	1.2
7	☐	1.000					

y = 0.0077 * x + 0.0343
R = 0.9999
DL = 0.2614
BEC = 4.477

Weight: <None>
Min Conc: <None>

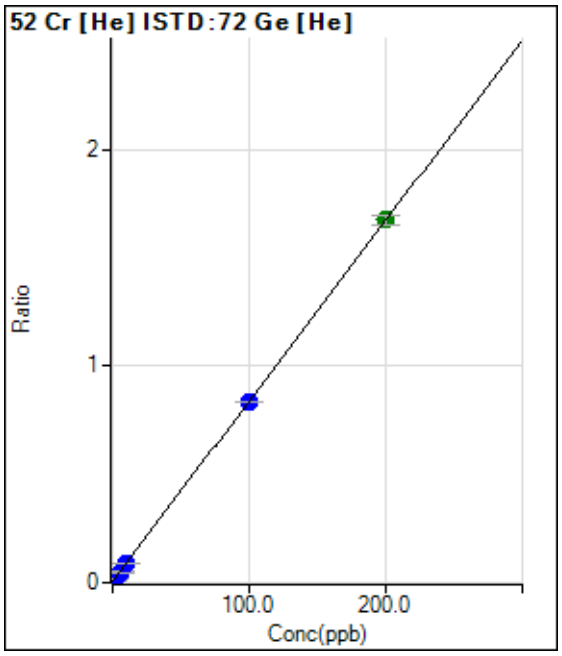
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	123313.64	0.0392	P	1.4
2	☐	2.000	1.981	169203.60	0.0527	P	0.8
3	☐	5.000	5.431	240004.07	0.0761	P	0.4
4	☐	10.000	10.342	345311.34	0.1094	P	4.6
5	☐	100.000	100.722	2257468.30	0.7233	A	1.8
6	☐	200.000	199.612	4253262.23	1.3949	A	2.2
7	☐	1.000					

y = 0.0068 * x + 0.0392
R = 1.0000
DL = 0.2509
BEC = 5.772

Weight: <None>
Min Conc: <None>

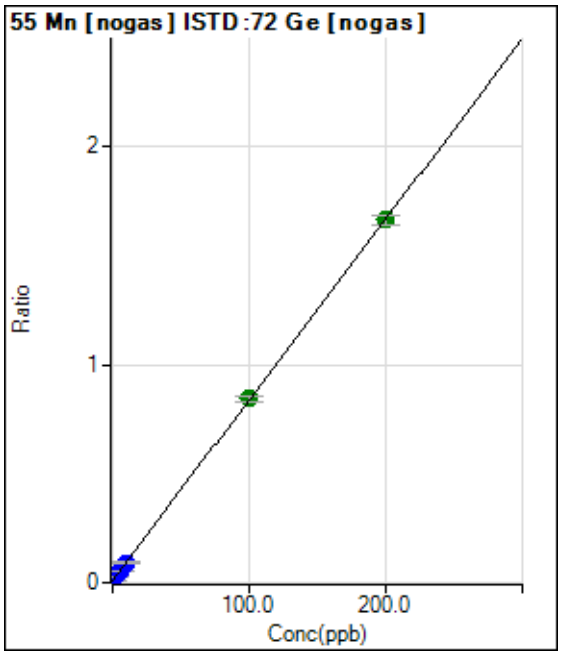


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	5294.16	0.0067	P	6.5
2	☐	2.000	1.855	17758.77	0.0222	P	1.7
3	☐	5.000	4.962	37013.70	0.0481	P	4.6
4	☐	10.000	9.636	67101.71	0.0870	P	1.9
5	☐	100.000	99.333	626074.49	0.8341	P	0.8
6	☐	200.000	200.354	1244109.96	1.6754	A	2.4
7	☐	1.000					

y = 0.0083 * x + 0.0067
R = 1.0000
DL = 0.1586
BEC = 0.8104

Weight: <None>
Min Conc: <None>

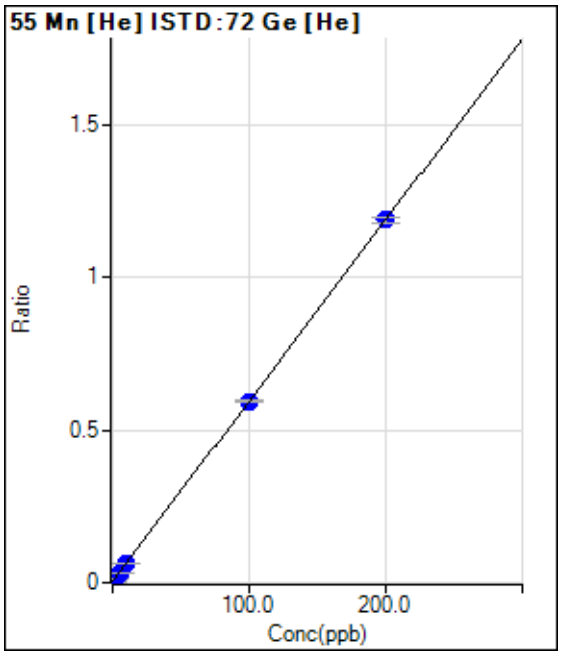
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	30719.02	0.0098	P	1.4
2	☐	2.000	1.759	78208.66	0.0243	P	1.6
3	☐	5.000	5.046	162683.94	0.0516	P	1.3
4	☐	10.000	9.952	291039.40	0.0922	P	3.5
5	☐	100.000	100.608	2632425.54	0.8434	A	3.6
6	☐	200.000	199.700	5075225.45	1.6644	A	2.4
7	☐	1.000					

y = 0.0083 * x + 0.0098
R = 1.0000
DL = 0.04863
BEC = 1.179

Weight: <None>
Min Conc: <None>

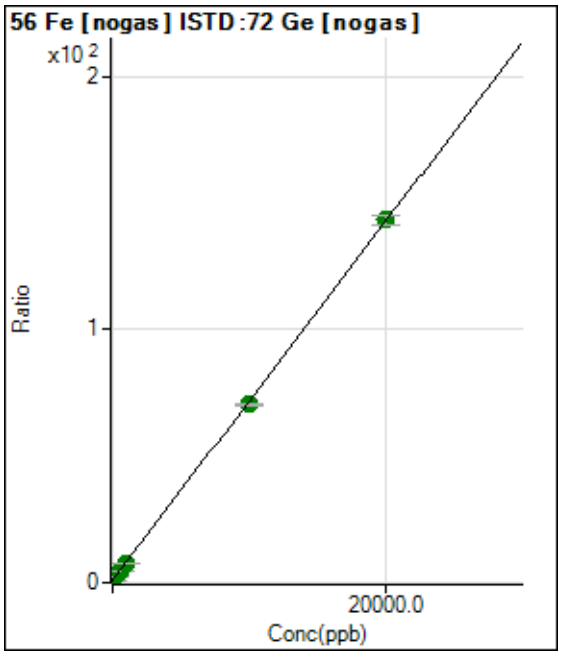


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	2523.54	0.0032	P	10.
2	☐	2.000	1.713	10696.63	0.0134	P	6.3
3	☐	5.000	4.970	25187.41	0.0327	P	3.3
4	☐	10.000	10.024	48353.55	0.0627	P	1.1
5	☐	100.000	99.851	447094.04	0.5956	P	1.1
6	☐	200.000	200.077	883838.08	1.1903	P	1.5
7	☐	1.000					

y = 0.0059 * x + 0.0032
R = 1.0000
DL = 0.1694
BEC = 0.5425

Weight: <None>
Min Conc: <None>

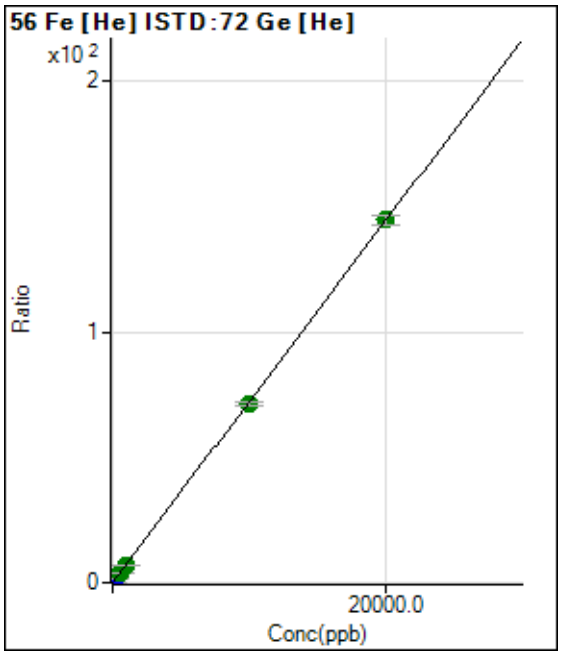
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	3039831.91	0.9667	A	2.8
2	☐	200.000	193.286	7507901.21	2.3368	A	2.8
3	☐	500.000	497.123	14164128.44	4.4904	A	1.5
4	☐	1000.000	962.034	24575025.55	7.7858	A	1.9
5	☐	10000.00	9813.214	220141371.5	70.5249	A	0.8
6	☐	20000.00	20095.430	437250959.7	143.407	A	2.7
7	☐	100.000					

y = 0.0071 * x + 0.9667
R = 0.9999
DL = 11.33
BEC = 136.4

Weight: <None>
Min Conc: <None>

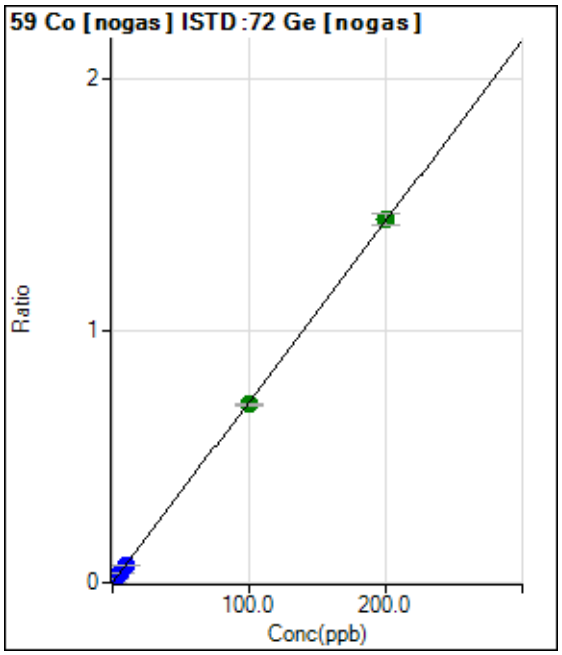


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	12284.25	0.0157	P	6.4
2	☐	200.000	189.314	1104282.98	1.3807	P	3.4
3	☐	500.000	495.508	2763312.04	3.5886	A	3.5
4	☐	1000.000	984.058	5485164.71	7.1113	A	0.5
5	☐	10000.00	9895.238	53558117.53	71.3659	A	2.2
6	☐	20000.00	20053.397	107380421.7	144.612	A	2.6
7	☐	100.000					

y = 0.0072 * x + 0.0157
R = 1.0000
DL = 0.4138
BEC = 2.172

Weight: <None>
Min Conc: <None>

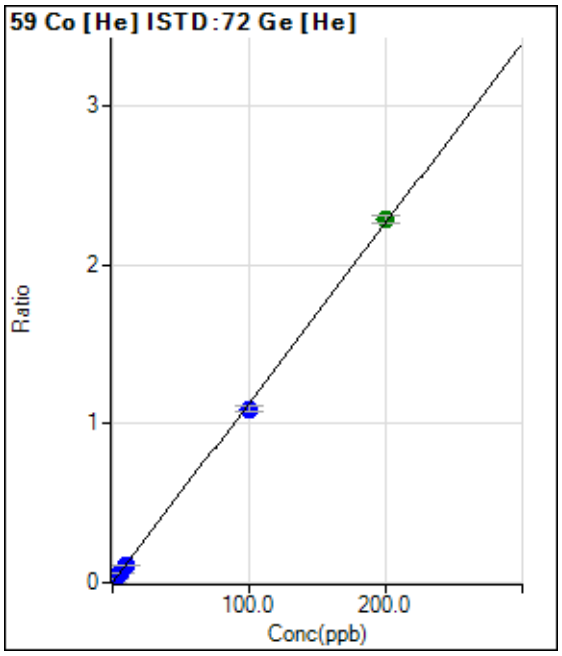
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1063.38	0.0003	P	9.6
2	☐	2.000	1.963	46295.30	0.0144	P	2.8
3	☐	5.000	4.909	112057.49	0.0355	P	2.3
4	☐	10.000	9.648	219439.60	0.0695	P	1.4
5	☐	100.000	98.584	2207038.56	0.7070	A	0.6
6	☐	200.000	200.728	4388040.25	1.4393	A	3.2
7	☐	1.000					

y = 0.0072 * x + 3.3794E-004
R = 1.0000
DL = 0.01354
BEC = 0.04714

Weight: <None>
Min Conc: <None>

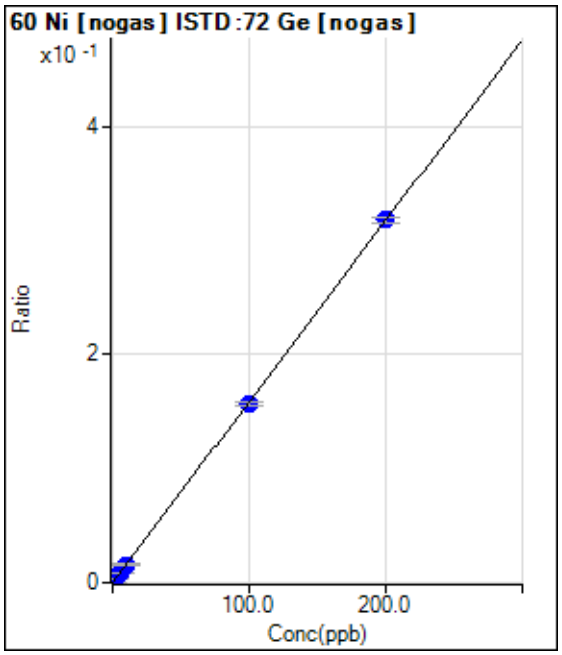


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	396.68	0.0005	P	13.
2	☐	2.000	1.896	17575.26	0.0220	P	3.9
3	☐	5.000	4.914	43214.33	0.0561	P	3.1
4	☐	10.000	9.689	84932.28	0.1102	P	3.8
5	☐	100.000	96.494	819857.80	1.0926	P	3.0
6	☐	200.000	201.772	1696000.70	2.2841	A	2.2
7	☐	1.000					

y = 0.0113 * x + 5.0594E-004
R = 0.9998
DL = 0.01755
BEC = 0.0447

Weight: <None>
Min Conc: <None>

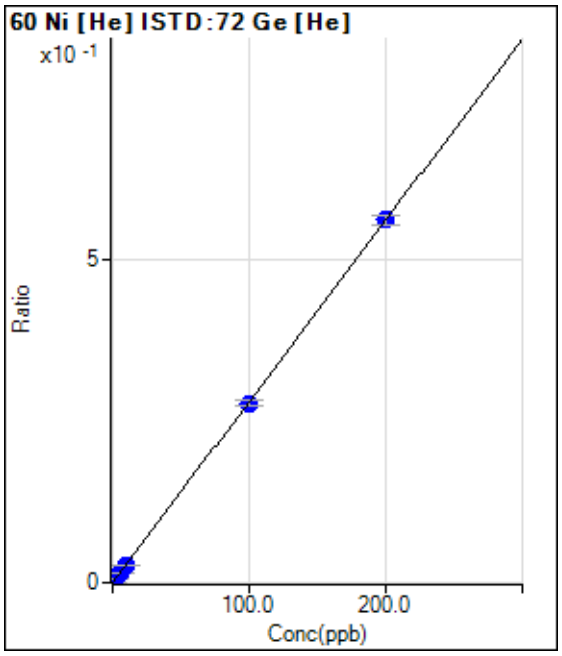
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.119	450.01	0.0001	P	5.5
2	☐	2.000	2.148	10796.68	0.0034	P	4.4
3	☐	5.000	5.248	26108.79	0.0083	P	1.5
4	☐	10.000	10.077	50315.75	0.0159	P	2.2
5	☐	100.000	98.837	489050.58	0.1567	P	2.1
6	☐	200.000	200.570	969721.60	0.3180	P	1.7
7	☐	1.000					

y = 0.0016 * x - 4.5824E-005
R = 1.0000
DL = 0.0148
BEC = -0.0289

Weight: <None>
Min Conc: <None>

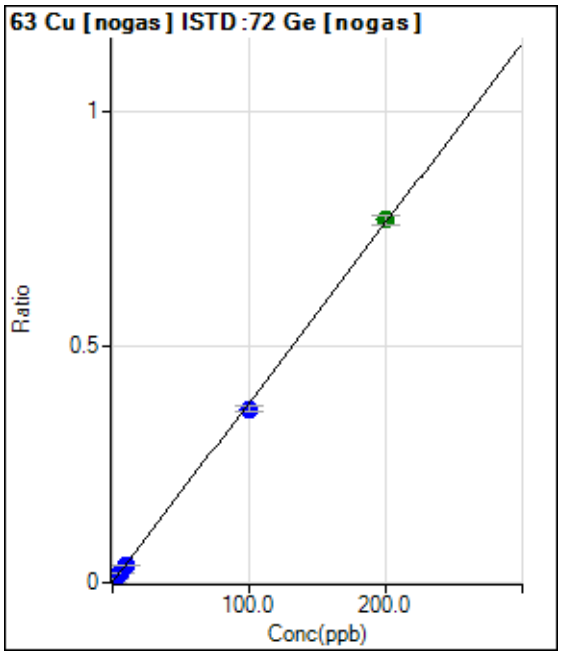


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.122	133.33	0.0002	P	22.
2	☐	2.000	2.063	4480.62	0.0056	P	6.2
3	☐	5.000	5.168	10996.76	0.0143	P	5.8
4	☐	10.000	10.004	21439.45	0.0278	P	2.5
5	☐	100.000	99.298	208204.37	0.2775	P	3.9
6	☐	200.000	200.346	415855.75	0.5601	P	2.8
7	☐	1.000					

y = 0.0028 * x - 1.7175E-004
R = 1.0000
DL = 0.04022
BEC = -0.06142

Weight: <None>
Min Conc: <None>

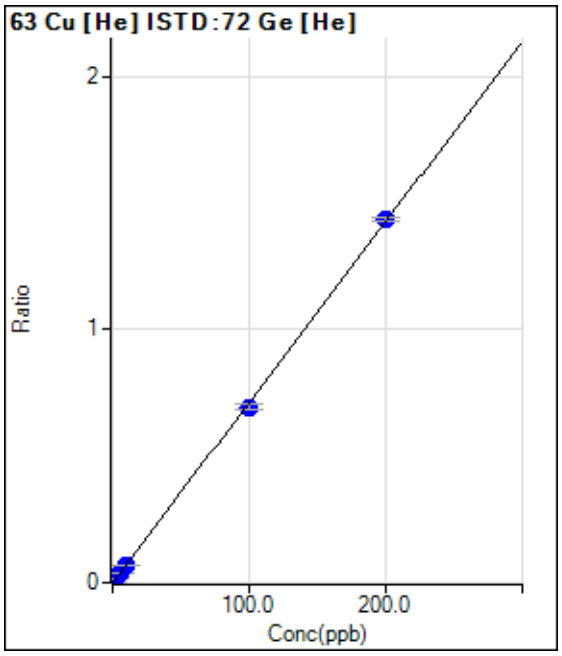
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	2390.19	0.0008	P	2.8
2	☐	2.000	1.902	25731.69	0.0080	P	1.6
3	☐	5.000	4.966	62088.55	0.0197	P	0.4
4	☐	10.000	9.747	119631.74	0.0379	P	2.0
5	☐	100.000	96.589	1151186.75	0.3688	P	2.9
6	☐	200.000	201.720	2346111.74	0.7695	A	2.6
7	☐	1.000					

y = 0.0038 * x + 7.5978E-004
R = 0.9998
DL = 0.01703
BEC = 0.1994

Weight: <None>
Min Conc: <None>

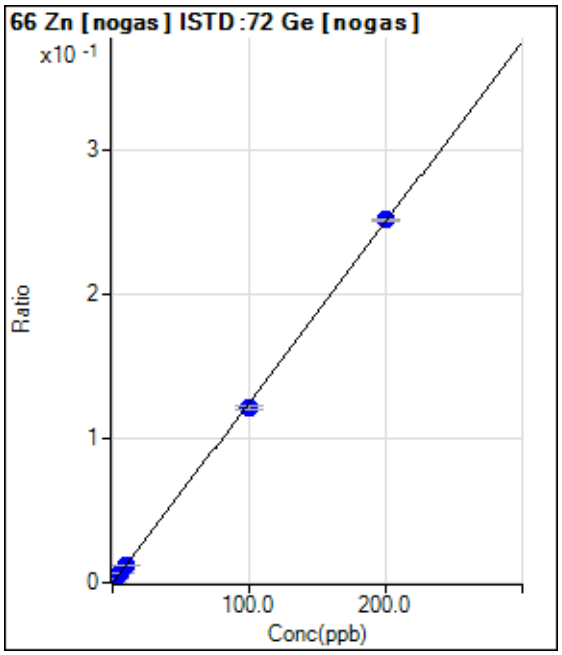


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.407	933.37	0.0012	P	0.9
2	☐	2.000	2.343	11984.10	0.0150	P	5.3
3	☐	5.000	5.452	28602.68	0.0372	P	4.4
4	☐	10.000	9.987	53571.57	0.0695	P	3.3
5	☐	100.000	97.651	521094.98	0.6944	P	2.6
6	☐	200.000	201.160	1063553.26	1.4323	P	1.2
7	☐	1.000					

y = 0.0071 * x - 0.0017
R = 0.9999
DL = 0.004517
BEC = -0.2403

Weight: <None>
Min Conc: <None>

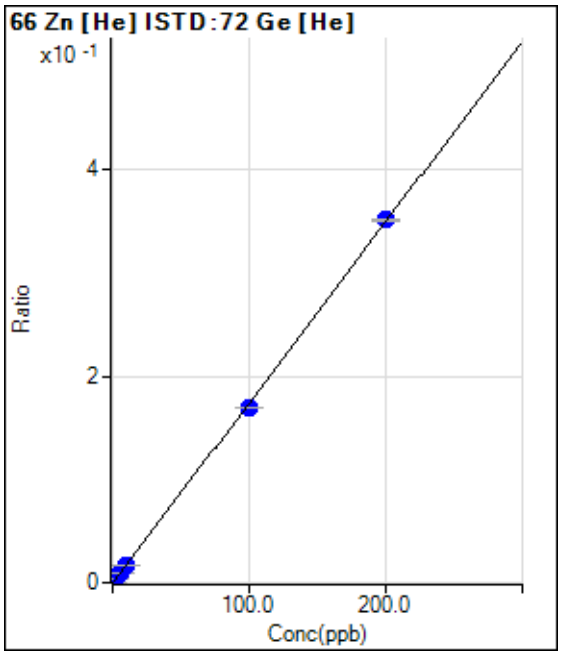
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.302	416.68	0.0001	P	19.
2	☐	2.000	2.291	8425.42	0.0026	P	3.0
3	☐	5.000	5.555	21159.06	0.0067	P	4.1
4	☐	10.000	10.247	39713.40	0.0126	P	1.4
5	☐	100.000	97.268	379268.48	0.1215	P	2.2
6	☐	200.000	201.337	767982.31	0.2518	P	0.4
7	☐	1.000					

y = 0.0013 * x - 2.4569E-004
R = 0.9999
DL = 0.06107
BEC = -0.1963

Weight: <None>
Min Conc: <None>

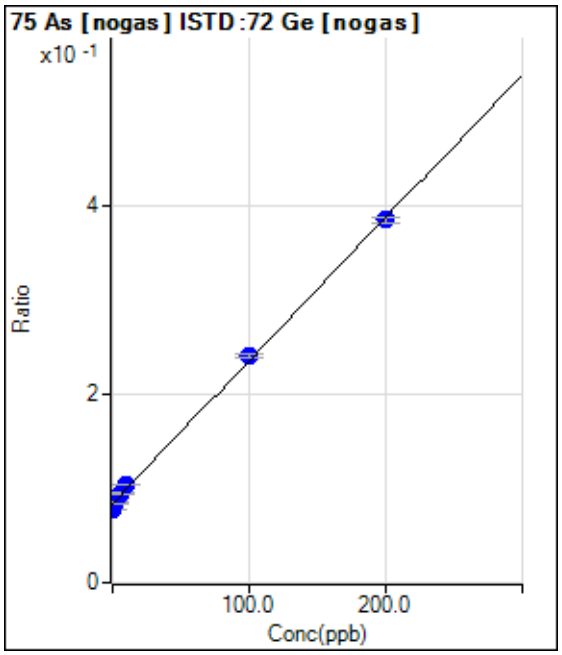


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.494	150.00	0.0002	P	4.9
2	☐	2.000	2.296	2676.90	0.0033	P	3.0
3	☐	5.000	5.573	6991.44	0.0091	P	2.1
4	☐	10.000	10.014	13001.43	0.0168	P	2.3
5	☐	100.000	97.283	127289.02	0.1696	P	0.8
6	☐	200.000	201.341	261124.72	0.3516	P	0.3
7	☐	1.000					

y = 0.0017 * x - 6.7339E-004
R = 0.9999
DL = 0.01604
BEC = -0.3848

Weight: <None>
Min Conc: <None>

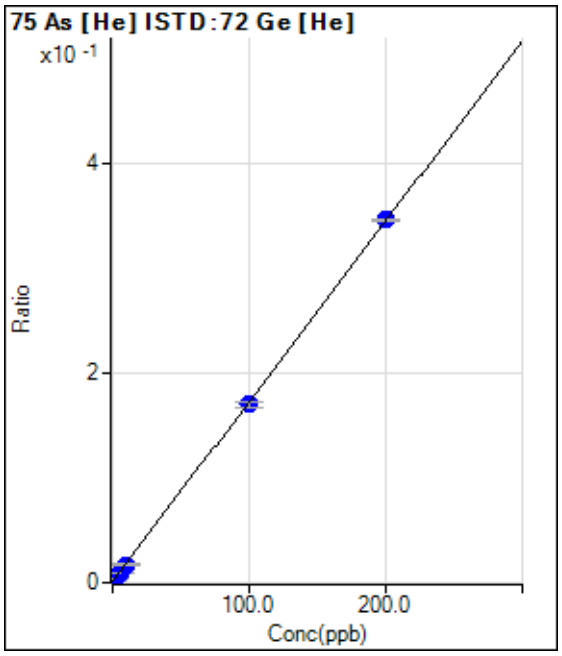
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-4.482	242660.55	0.0772	P	1.4
2	☐	2.000	0.356	271444.50	0.0845	P	2.7
3	☐	5.000	6.863	297594.35	0.0943	P	2.0
4	☐	10.000	12.876	326589.32	0.1035	P	0.9
5	☐	100.000	103.121	749783.24	0.2402	P	1.5
6	☐	200.000	198.265	1172252.04	0.3844	P	1.6
7	☐	1.000					

y = 0.0015 * x + 0.0839
R = 0.9993
DL = 2.109
BEC = 55.4

Weight: <None>
Min Conc: <None>

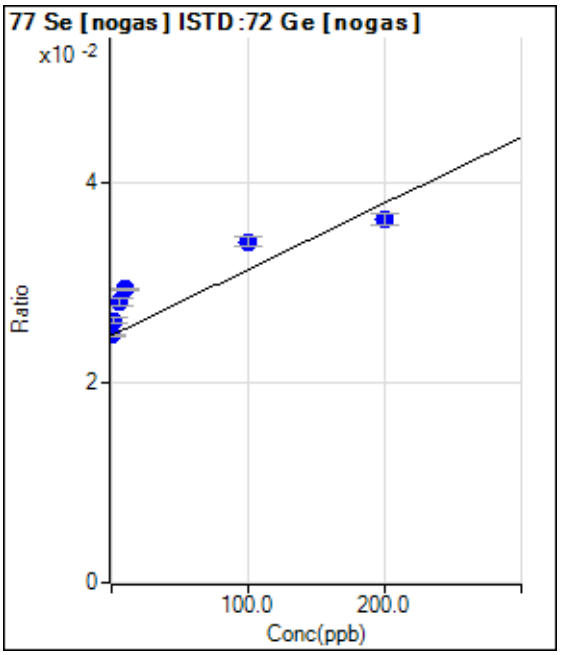


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	812.25	0.0010	P	7.7
2	☐	2.000	1.958	3524.80	0.0044	P	4.2
3	☐	5.000	4.915	7310.38	0.0095	P	3.3
4	☐	10.000	9.422	13301.54	0.0173	P	3.5
5	☐	100.000	98.477	127952.24	0.1705	P	2.9
6	☐	200.000	200.793	257379.97	0.3466	P	0.7
7	☐	1.000					

y = 0.0017 * x + 0.0010
R = 1.0000
DL = 0.1392
BEC = 0.6017

Weight: <None>
Min Conc: <None>

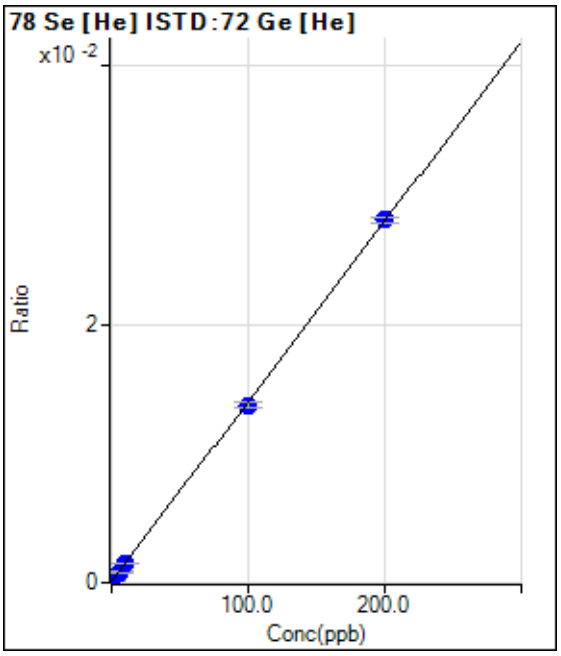
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	77721.89	0.0247	P	0.7
2	☐	2.000	22.658	84207.17	0.0262	P	2.2
3	☐	5.000	49.849	88340.38	0.0280	P	2.9
4	☐	10.000	70.838	92788.44	0.0294	P	0.7
5	☐	100.000	142.006	106428.92	0.0341	P	2.8
6	☐	200.000	174.627	110539.49	0.0363	P	3.1
7	☐	1.000					

y = 6.6121E-005 * x + 0.0247
R = 0.9238
DL = 7.935
BEC = 373.7

Weight: <None>
Min Conc: <None>

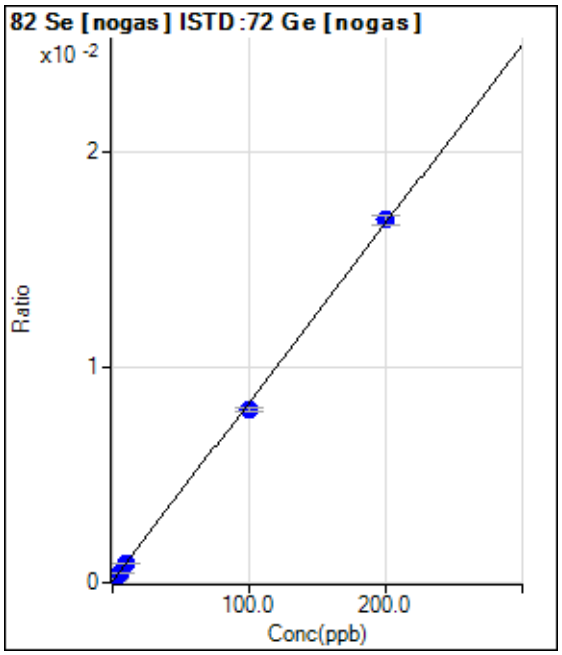


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.637	142.00	0.0002	P	7.4
2	☐	2.000	2.392	340.00	0.0004	P	10.
3	☐	5.000	5.150	622.68	0.0008	P	11.
4	☐	10.000	9.773	1120.04	0.0015	P	3.4
5	☐	100.000	98.089	10317.60	0.0137	P	2.4
6	☐	200.000	200.959	20841.90	0.0281	P	1.6
7	☐	1.000					

y = 1.3921E-004 * x + 9.2096E-005
R = 0.9999
DL = 0.2872
BEC = 0.6615

Weight: <None>
Min Conc: <None>

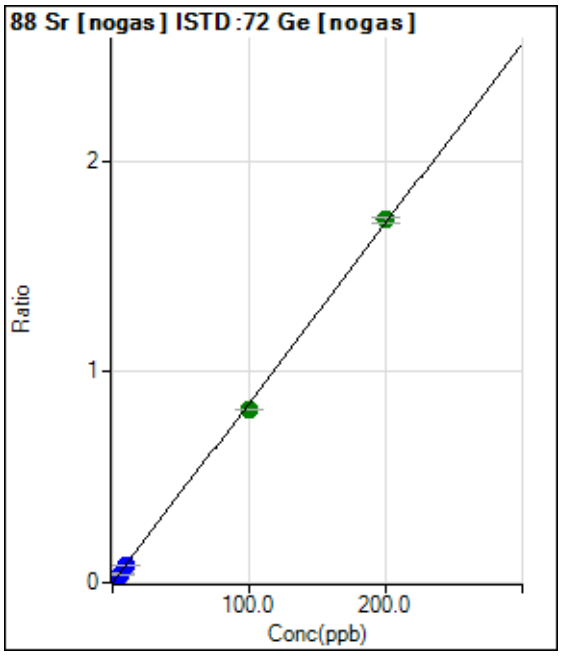
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	240.01	0.0001	P	34.
2	☐	2.000	1.669	690.02	0.0002	P	22.
3	☐	5.000	4.245	1353.41	0.0004	P	7.0
4	☐	10.000	9.600	2756.91	0.0009	P	3.1
5	☐	100.000	96.048	25131.04	0.0081	P	1.5
6	☐	200.000	202.018	51393.05	0.0169	P	2.8
7	☐	1.000					

y = 8.3033E-005 * x + 7.6479E-005
R = 0.9997
DL = 0.9411
BEC = 0.9211

Weight: <None>
Min Conc: <None>

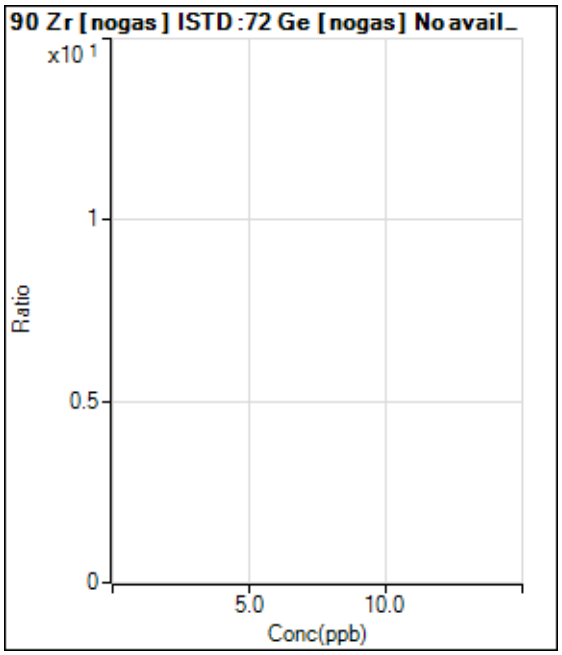


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	810.03	0.0003	P	3.9
2	☐	2.000	1.922	53470.05	0.0166	P	4.2
3	☐	5.000	4.773	129199.14	0.0410	P	2.6
4	☐	10.000	9.392	253599.04	0.0803	P	1.3
5	☐	100.000	96.277	2563408.66	0.8212	A	0.6
6	☐	200.000	201.898	5250985.44	1.7219	A	1.8
7	☐	1.000					

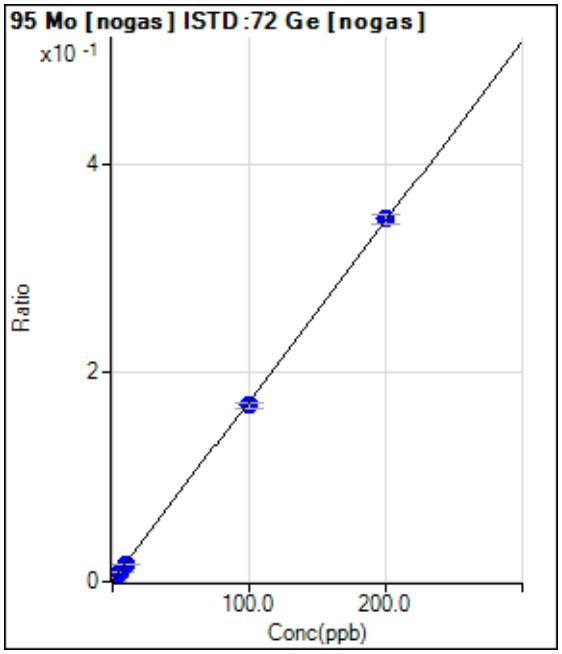
y = 0.0085 * x + 2.5760E-004
R = 0.9998
DL = 0.003553
BEC = 0.03021

Weight: <None>
Min Conc: <None>

Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000					
2	☐	2.000					
3	☐	5.000					
4	☐	10.000					
5	☐	100.000					
6	☐	200.000					
7	☐	1.000					

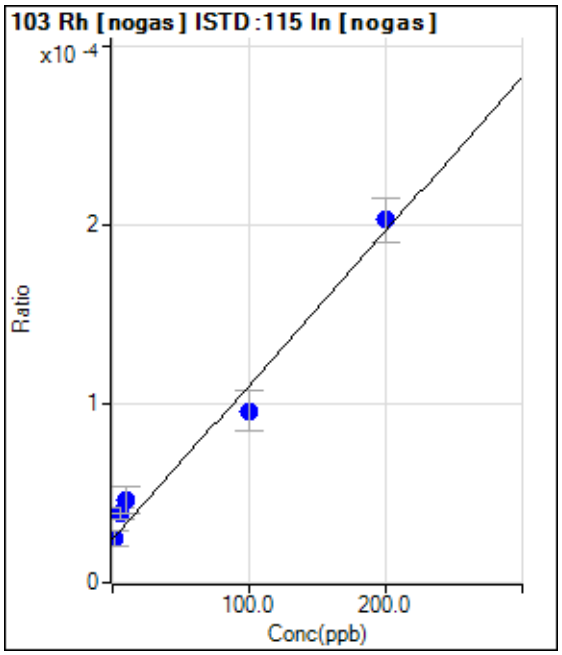


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	2346.86	0.0007	P	8.4
2	☐	2.000	1.858	12691.37	0.0039	P	0.6
3	☐	5.000	4.830	28616.63	0.0091	P	3.7
4	☐	10.000	9.509	54099.29	0.0171	P	2.0
5	☐	100.000	97.437	526515.83	0.1687	P	2.3
6	☐	200.000	201.312	1060404.51	0.3477	P	2.8
7	☐	1.000					

y = 0.0017 * x + 7.4666E-004
R = 0.9999
DL = 0.1091
BEC = 0.4332

Weight: <None>
Min Conc: <None>

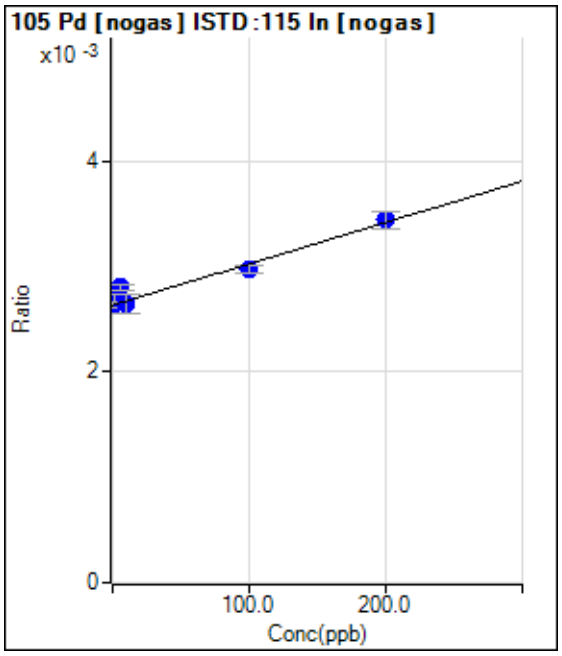
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	66.67	0.0000	P	35.
2	☐	2.000	0.528	70.00	0.0000	P	33.
3	☐	5.000	17.218	110.00	0.0000	P	16.
4	☐	10.000	25.475	126.67	0.0000	P	33.
5	☐	100.000	83.468	266.67	0.0001	P	23.
6	☐	200.000	207.201	536.68	0.0002	P	12.
7	☐	1.000					

y = 8.6114E-007 * x + 2.4223E-005
R = 0.9900
DL = 30.06
BEC = 28.13

Weight: <None>
Min Conc: <None>

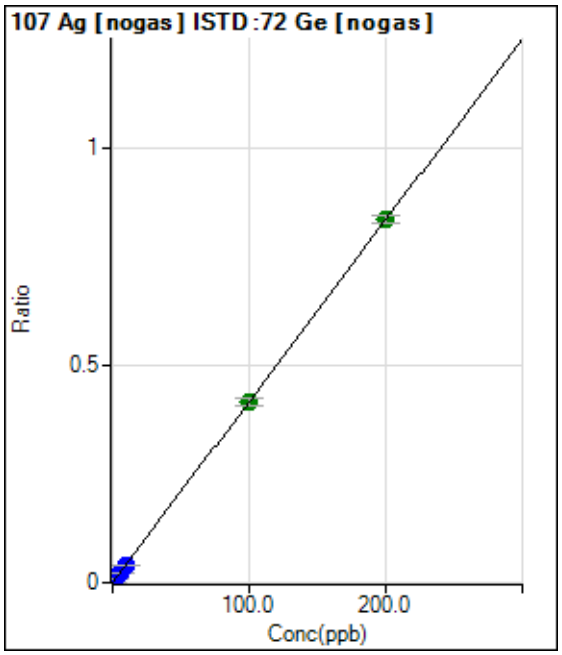


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	7274.94	0.0026	P	1.9
2	☐	2.000	25.052	7825.18	0.0027	P	4.8
3	☐	5.000	42.617	7895.25	0.0028	P	1.8
4	☐	10.000	1.560	7281.63	0.0026	P	6.9
5	☐	100.000	86.483	8272.06	0.0030	P	2.7
6	☐	200.000	206.009	9092.51	0.0034	P	4.7
7	☐	1.000					

y = 3.9266E-006 * x + 0.0026
R = 0.9712
DL = 37.3
BEC = 670.8

Weight: <None>
Min Conc: <None>

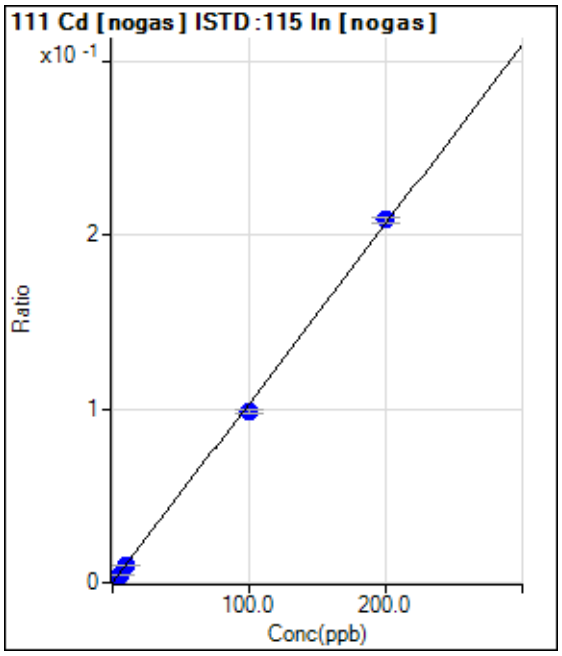
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	313.34	0.0001	P	18.
2	☐	2.000	1.993	27057.61	0.0084	P	2.1
3	☐	5.000	4.847	64139.82	0.0203	P	1.8
4	☐	10.000	9.691	127992.66	0.0406	P	2.9
5	☐	100.000	99.590	1297879.88	0.4158	A	4.7
6	☐	200.000	200.224	2548997.25	0.8360	A	2.2
7	☐	1.000					

y = 0.0042 * x + 9.9494E-005
R = 1.0000
DL = 0.01299
BEC = 0.02383

Weight: <None>
Min Conc: <None>

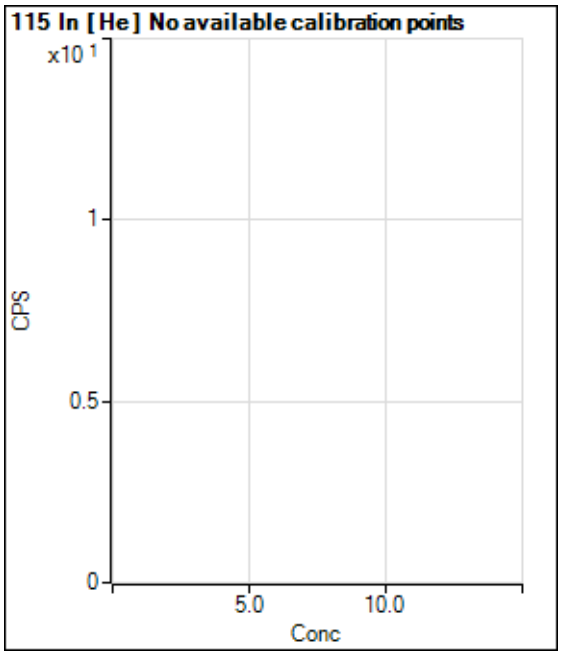


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	16.67	0.0000	P	36.
2	☐	2.000	1.913	5661.00	0.0020	P	9.1
3	☐	5.000	4.673	13618.78	0.0048	P	0.8
4	☐	10.000	9.523	27167.91	0.0098	P	0.3
5	☐	100.000	95.439	273998.84	0.0985	P	1.7
6	☐	200.000	202.314	551807.61	0.2089	P	1.9
7	☐	1.000					

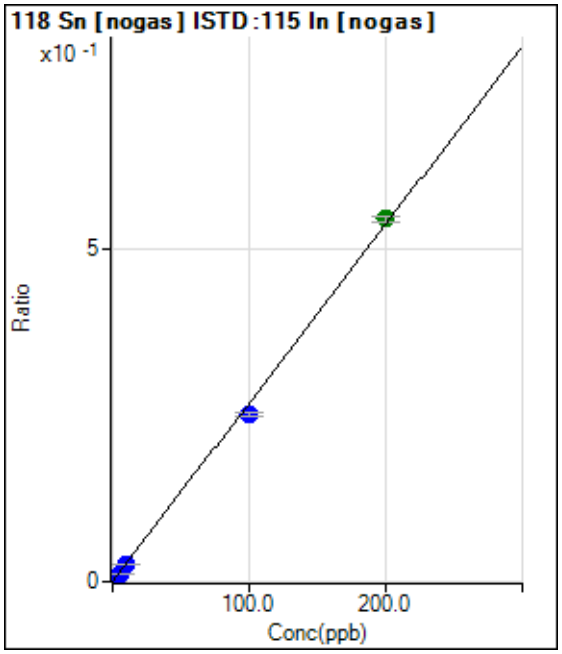
y = 0.0010 * x + 6.0777E-006
R = 0.9996
DL = 0.00647
BEC = 0.005887

Weight: <None>
Min Conc: <None>

Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐			929411.46		P	0.5
2	☐			963801.71		P	1.7
3	☐			912139.59		P	2.3
4	☐			935971.63		P	0.6
5	☐			884579.95		P	1.9
6	☐			894182.83		P	1.3
7	☐						

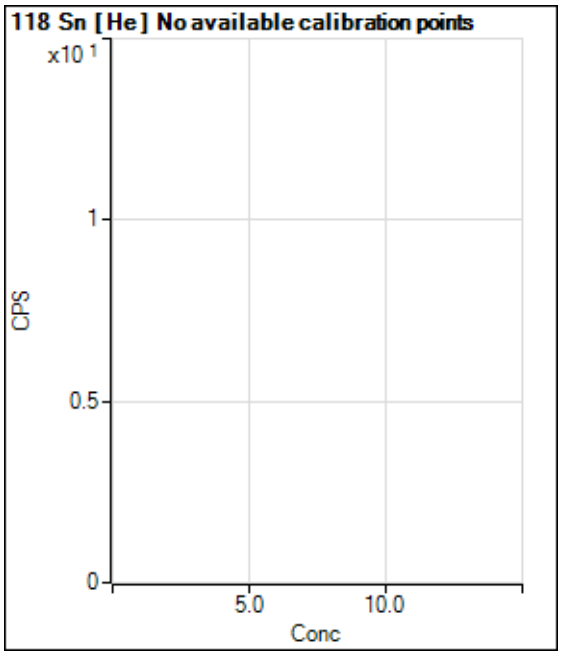


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	900.04	0.0003	P	22.
2	☐	2.000	1.789	14713.08	0.0051	P	1.3
3	☐	5.000	4.547	35382.89	0.0126	P	3.0
4	☐	10.000	9.435	70960.99	0.0257	P	1.0
5	☐	100.000	93.586	700595.80	0.2520	P	2.3
6	☐	200.000	203.248	1444717.17	0.5468	A	1.8
7	☐	1.000					

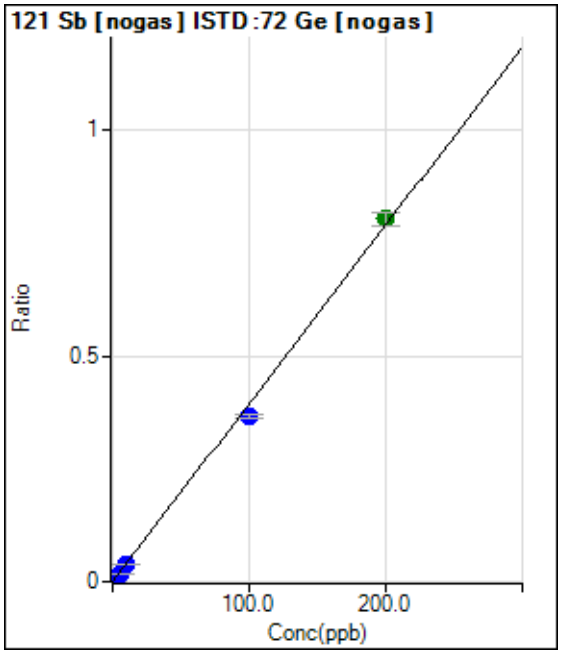
y = 0.0027 * x + 3.2733E-004
R = 0.9993
DL = 0.08178
BEC = 0.1217

Weight: <None>
Min Conc: <None>

Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐			346.68		P	31.
2	☐			5827.72		P	1.5
3	☐			14075.82		P	4.8
4	☐			27051.31		P	2.0
5	☐			269593.39		P	1.8
6	☐			551640.48		P	0.7
7	☐						

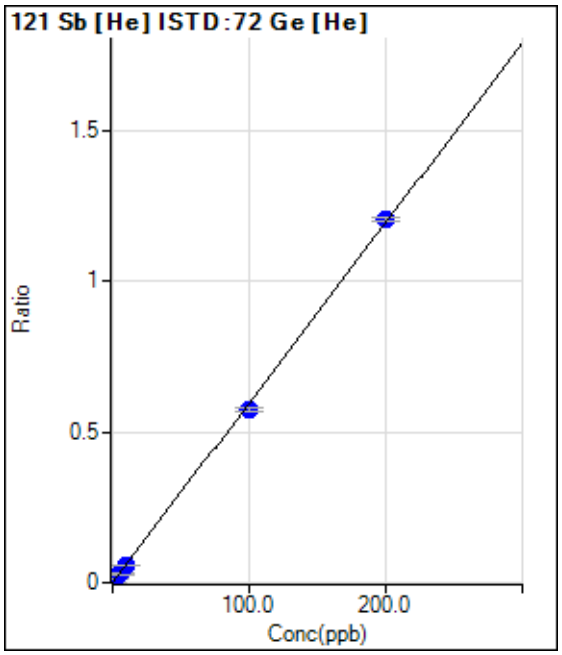


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	220.00	0.0001	P	5.0
2	☐	2.000	1.854	23726.40	0.0074	P	2.2
3	☐	5.000	4.748	59290.80	0.0188	P	2.8
4	☐	10.000	9.562	119295.20	0.0378	P	1.3
5	☐	100.000	92.731	1141841.70	0.3659	P	3.1
6	☐	200.000	203.664	2449177.36	0.8034	A	4.0
7	☐	1.000					

y = 0.0039 * x + 6.9961E-005
R = 0.9991
DL = 0.002662
BEC = 0.01774

Weight: <None>
Min Conc: <None>

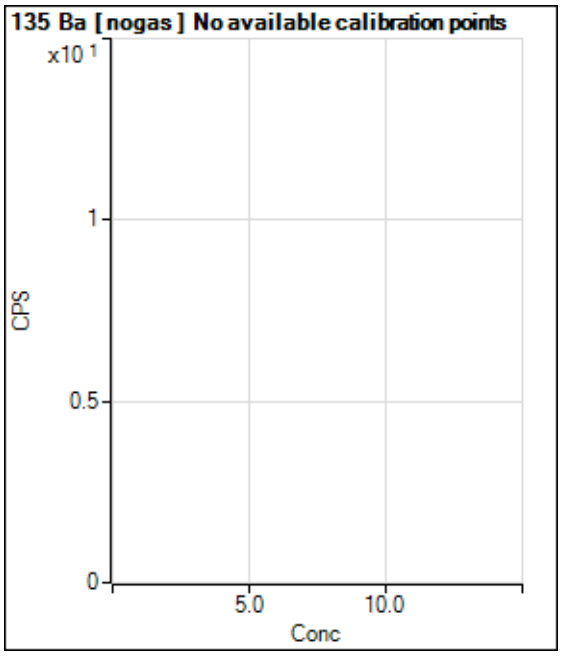
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	93.33	0.0001	P	33.
2	☐	2.000	1.839	8885.72	0.0111	P	3.3
3	☐	5.000	4.805	22200.94	0.0288	P	2.4
4	☐	10.000	9.649	44553.84	0.0578	P	2.3
5	☐	100.000	96.563	433078.86	0.5771	P	2.1
6	☐	200.000	201.742	895149.57	1.2055	P	1.0
7	☐	1.000					

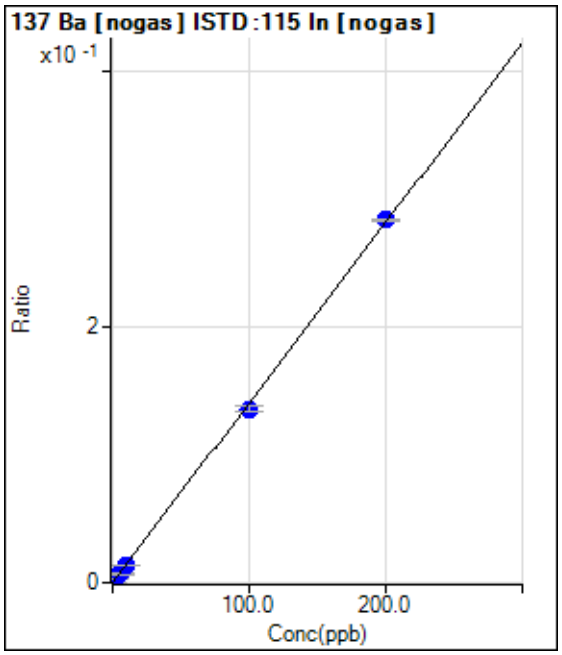
y = 0.0060 * x + 1.1896E-004
R = 0.9998
DL = 0.01984
BEC = 0.01991

Weight: <None>
Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐			50.00		P	0.0
2	☐			4527.33		P	5.2
3	☐			11167.10		P	0.4
4	☐			22127.70		P	1.3
5	☐			219963.50		P	2.6
6	☐			443919.46		P	0.7
7	☐						

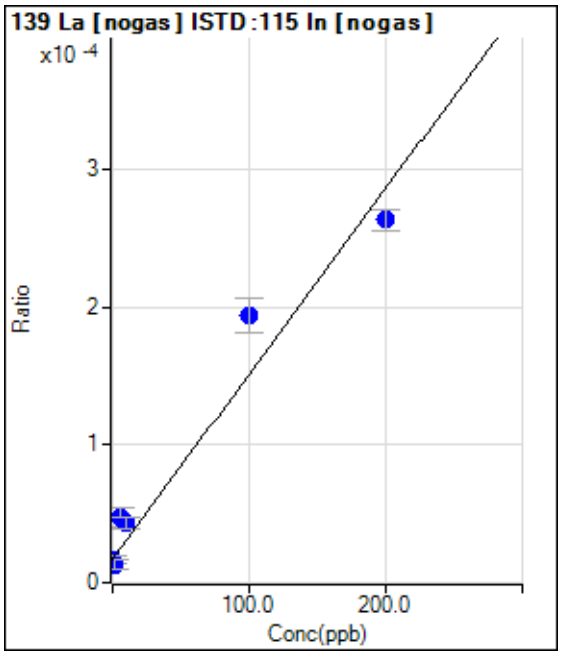
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	50.00	0.0000	P	58.
2	☐	2.000	1.835	7428.38	0.0026	P	4.8
3	☐	5.000	4.801	19077.54	0.0068	P	3.2
4	☐	10.000	9.553	37116.85	0.0134	P	4.5
5	☐	100.000	96.668	377867.18	0.1359	P	3.2
6	☐	200.000	201.695	749343.66	0.2836	P	0.6
7	☐	1.000					

y = 0.0014 * x + 1.8059E-005
R = 0.9998
DL = 0.02242
BEC = 0.01285

Weight: <None>
Min Conc: <None>

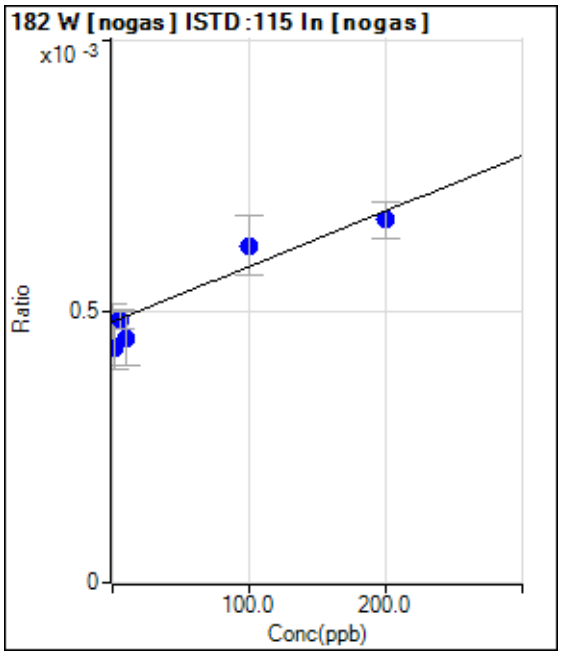


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	46.67	0.0000	P	35.
2	☐	2.000	-3.147	36.67	0.0000	P	54.
3	☐	5.000	22.464	133.33	0.0000	P	30.
4	☐	10.000	19.781	120.00	0.0000	P	19.
5	☐	100.000	131.828	540.02	0.0002	P	13.
6	☐	200.000	183.212	696.69	0.0003	P	6.1
7	☐	1.000					

y = 1.3460E-006 * x + 1.6995E-005
R = 0.9775
DL = 13.32
BEC = 12.63

Weight: <None>
Min Conc: <None>

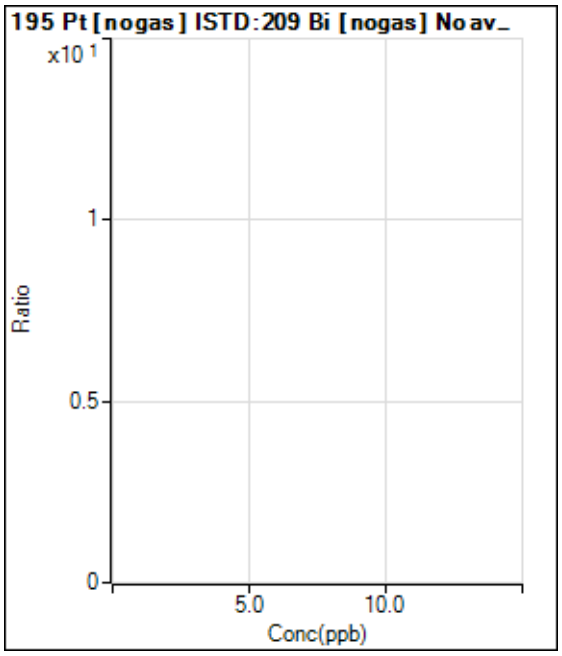
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1323.41	0.0005	P	13.
2	☐	2.000	-46.758	1233.40	0.0004	P	19.
3	☐	5.000	5.083	1370.08	0.0005	P	7.6
4	☐	10.000	-30.301	1236.73	0.0004	P	22.
5	☐	100.000	137.403	1726.86	0.0006	P	17.
6	☐	200.000	183.799	1766.78	0.0007	P	10.
7	☐	1.000					

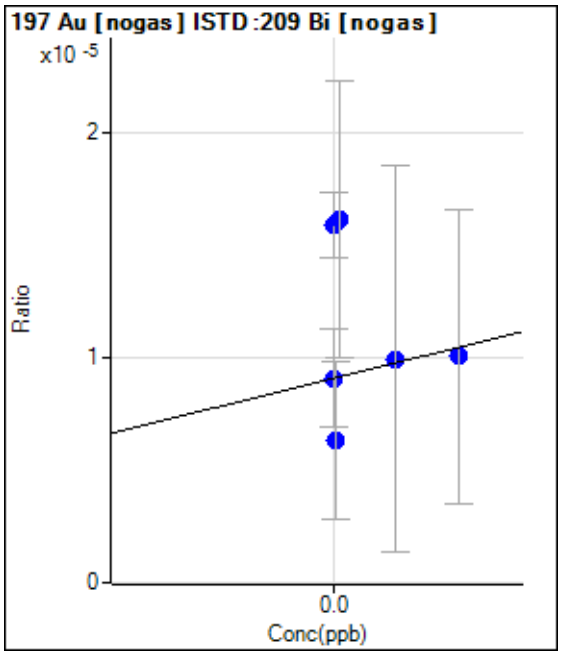
y = 1.0216E-006 * x + 4.8084E-004
R = 0.9490
DL = 189.8
BEC = 470.7

Weight: <None>
Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000					
2	☐	2.000					
3	☐	5.000					
4	☐	10.000					
5	☐	100.000					
6	☐	200.000					
7	☐	1.000					

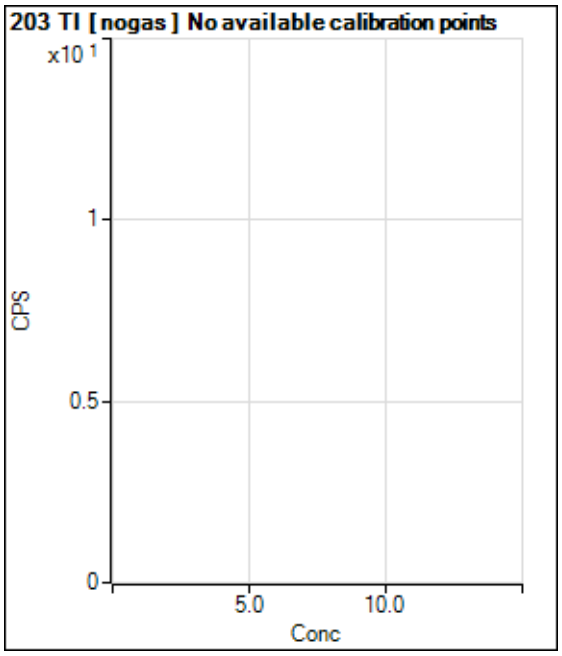
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	20.00	0.0000	P	48.
2	☐	2.000	984.237	33.33	0.0000	P	18.
3	☐	5.000	-400.848	13.33	0.0000	P	111
4	☐	10.000	1013.815	33.33	0.0000	P	76.
5	☐	100.000	122.077	20.00	0.0000	P	173
6	☐	200.000	139.095	20.00	0.0000	P	130
7	☐	1.000					

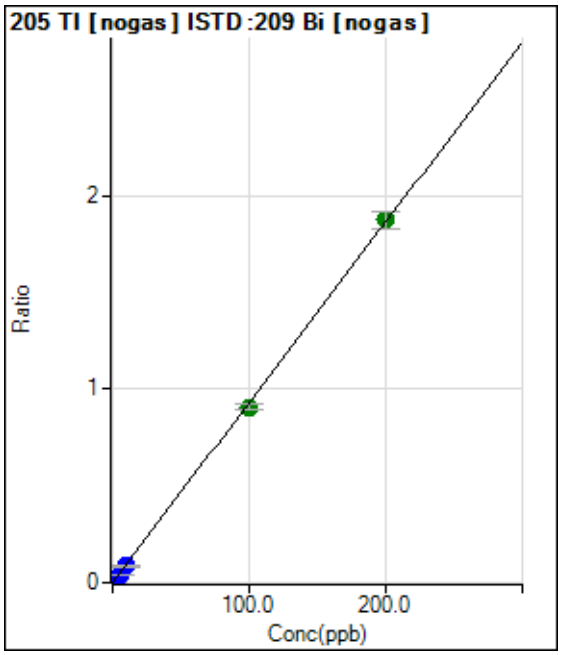
y = 6.9401E-009 * x + 9.0850E-006
R = -0.2069
DL = 1901
BEC = 1309

Weight: <None>
Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐			396.68		P	6.3
2	☐			15177.28		P	1.9
3	☐			37206.19		P	2.6
4	☐			74657.31		P	2.8
5	☐			754513.63		P	0.6
6	☐			1615787.06		A	4.1
7	☐						

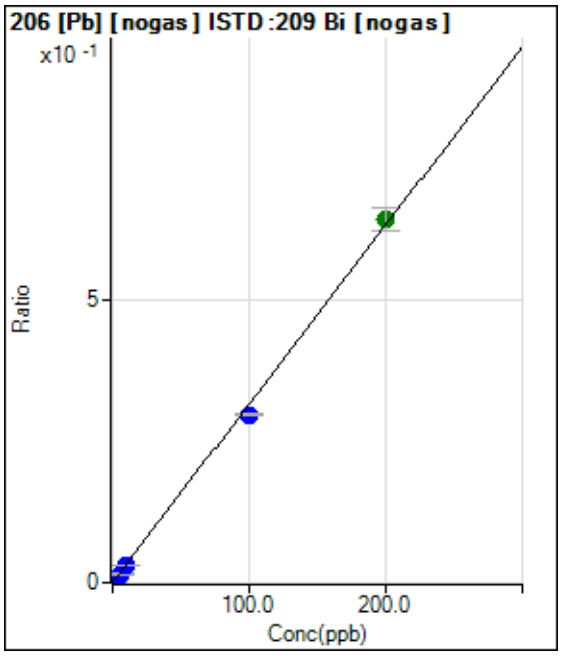
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	950.04	0.0004	P	26.
2	☐	2.000	1.846	36978.93	0.0176	P	5.3
3	☐	5.000	4.650	90889.89	0.0438	P	3.6
4	☐	10.000	9.123	177386.68	0.0855	P	3.5
5	☐	100.000	97.375	1871198.98	0.9080	A	3.2
6	☐	200.000	201.366	3729505.46	1.8773	A	5.1
7	☐	1.000					

y = 0.0093 * x + 4.3290E-004
R = 0.9999
DL = 0.03734
BEC = 0.04645

Weight: <None>
Min Conc: <None>

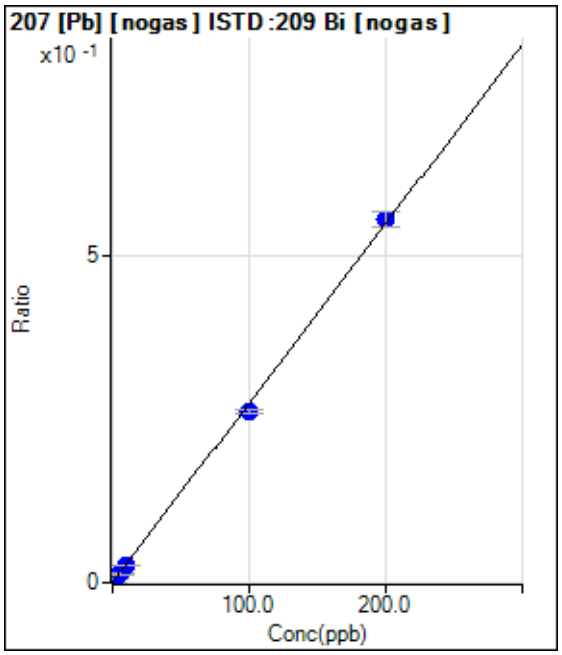


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1443.42	0.0007	P	2.7
2	☐	2.000	1.898	13959.54	0.0067	P	2.6
3	☐	5.000	4.594	31470.82	0.0152	P	8.4
4	☐	10.000	9.218	61834.71	0.0298	P	3.3
5	☐	100.000	93.880	612633.70	0.2974	P	1.3
6	☐	200.000	203.110	1276227.35	0.6426	A	6.3
7	☐	1.000					

y = 0.0032 * x + 6.5882E-004
R = 0.9994
DL = 0.01697
BEC = 0.2084

Weight: <None>
Min Conc: <None>

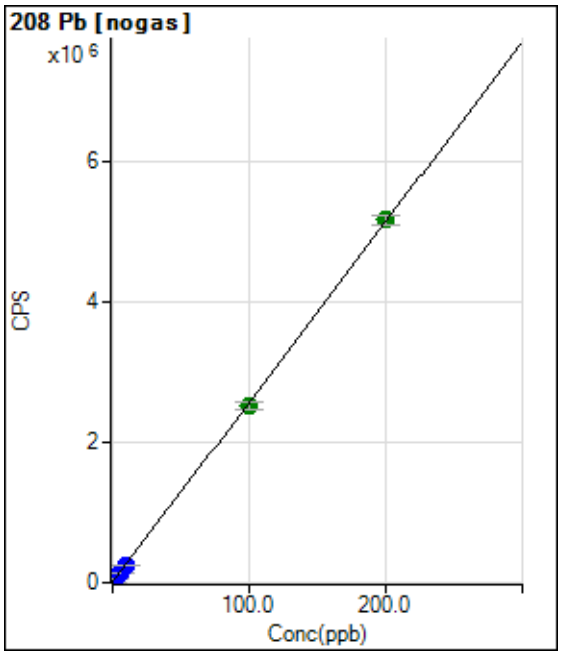
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1286.74	0.0006	P	10.
2	☐	2.000	1.901	12171.41	0.0058	P	1.7
3	☐	5.000	4.736	28181.32	0.0136	P	5.2
4	☐	10.000	9.431	54919.53	0.0265	P	3.7
5	☐	100.000	95.639	541907.69	0.2630	P	2.5
6	☐	200.000	202.216	1103714.62	0.5554	P	4.3
7	☐	1.000					

y = 0.0027 * x + 5.8827E-004
R = 0.9997
DL = 0.06788
BEC = 0.2144

Weight: <None>
Min Conc: <None>

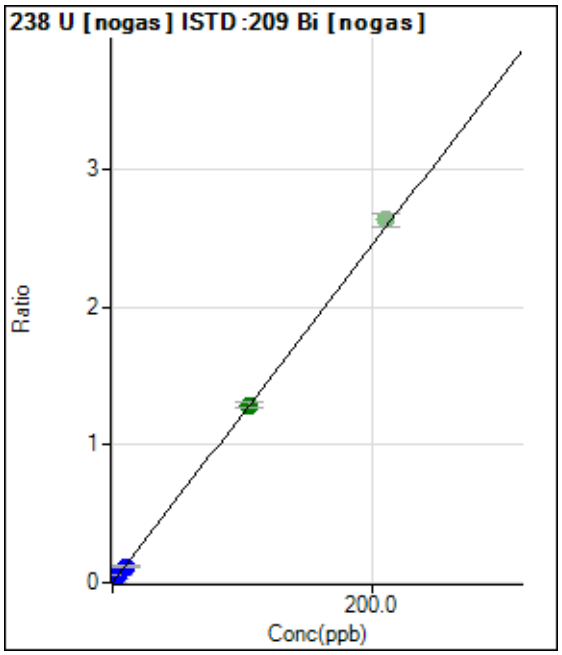


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	5600.46		P	3.4
2	☐	2.000	1.947	55658.05		P	1.7
3	☐	5.000	4.775	128327.18		P	0.4
4	☐	10.000	9.450	248511.29		P	1.3
5	☐	100.000	97.744	2517963.92		A	4.1
6	☐	200.000	201.162	5176179.64		A	2.9
7	☐	1.000					

y = 25703.5855 * x + 5600.4633
R = 0.9999
DL = 0.02227
BEC = 0.2179

Weight: <None>
Min Conc: <None>

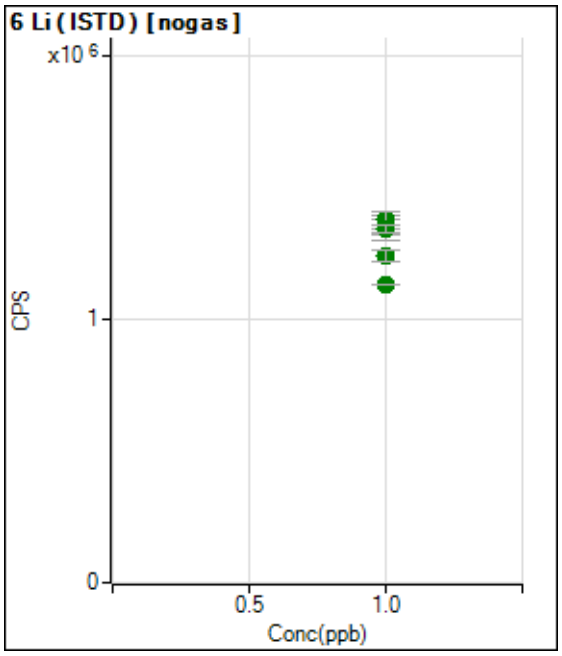
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	63.33	0.0000	P	22.
2	☐	2.000	1.905	49056.52	0.0234	P	1.0
3	☐	5.000	4.872	124200.91	0.0598	P	1.6
4	☐	10.000	9.631	245233.03	0.1181	P	1.8
5	☐	105.000	105.043	2655341.11	1.2884	A	2.6
6	☑	210.000		5233637.32	2.6334	A	3.4
7	☐	1.000					

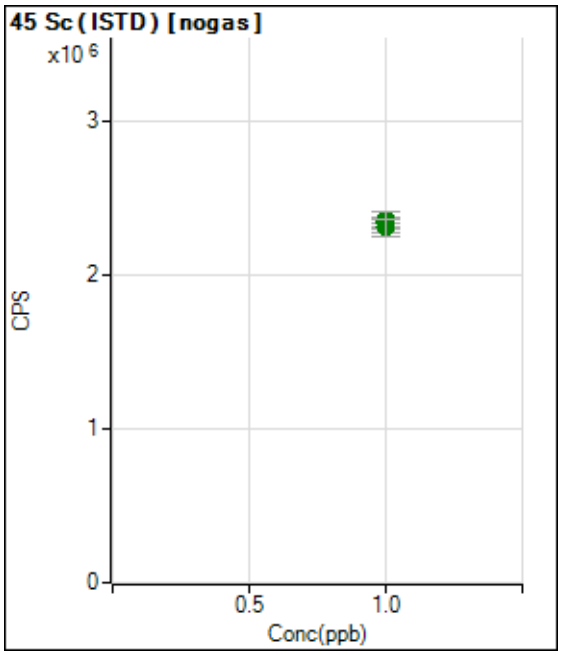
y = 0.0123 * x + 2.8842E-005
R = 1.0000
DL = 0.001568
BEC = 0.002352

Weight: <None>
Min Conc: <None>

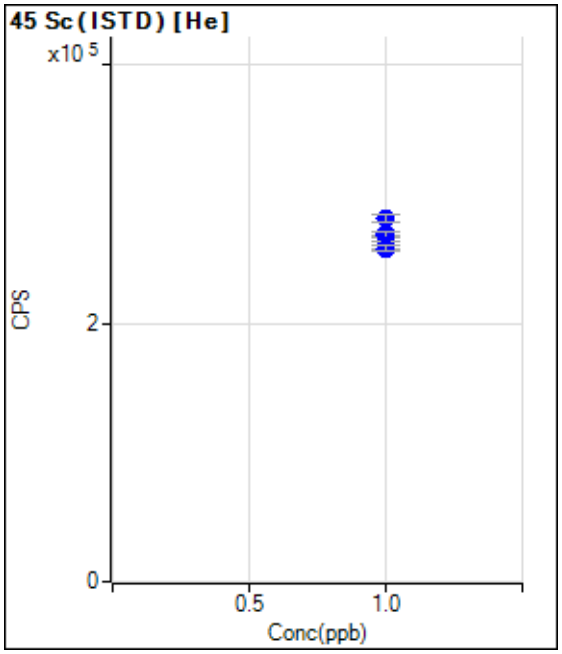


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		1359891.36		A	4.9
2	☐	1.000		1344970.86		A	6.0
3	☐	1.000		1379508.00		A	5.0
4	☐	1.000		1345500.42		A	2.3
5	☐	1.000		1246083.87		A	3.4
6	☐	1.000		1131773.55		A	0.1
7	☐	1.000					

Calibration for 020_ICV.d

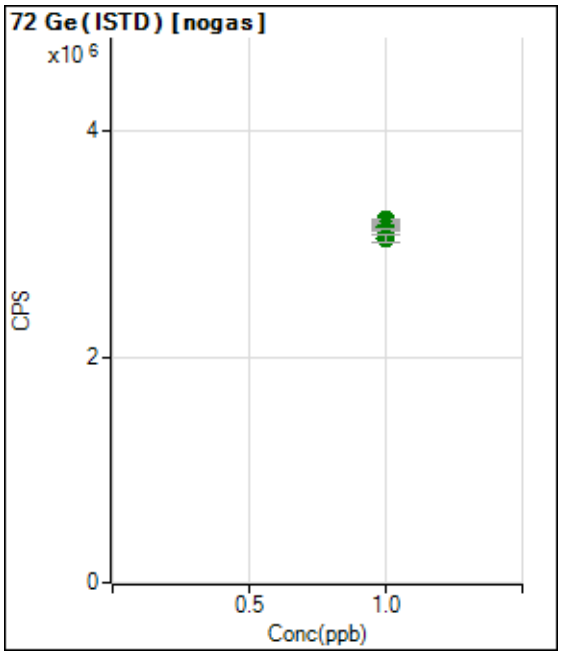


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		2346055.54		A	2.6
2	☐	1.000		2362147.52		A	1.9
3	☐	1.000		2342697.83		A	2.7
4	☐	1.000		2348832.83		A	5.5
5	☐	1.000		2358413.77		A	4.5
6	☐	1.000		2311042.67		A	4.5
7	☐	1.000					

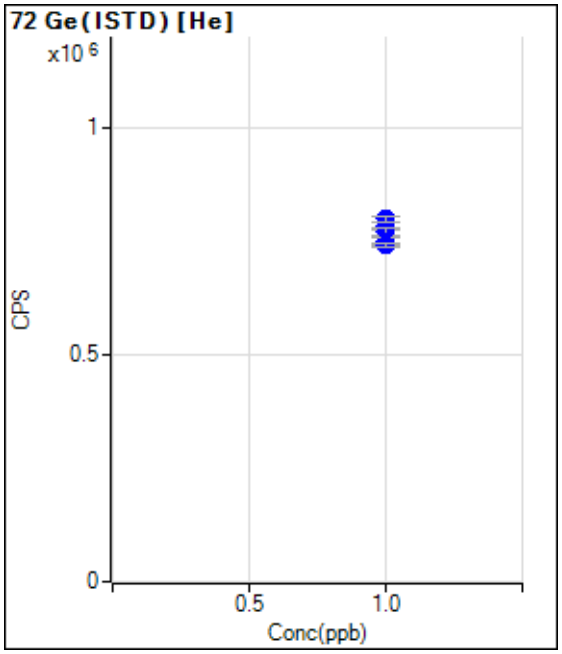


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		268993.35		P	1.0
2	☐	1.000		280693.89		P	2.1
3	☐	1.000		266646.73		P	0.5
4	☐	1.000		267248.55		P	2.8
5	☐	1.000		260197.88		P	2.3
6	☐	1.000		257615.65		P	1.6
7	☐	1.000					

Calibration for 020_ICV.d

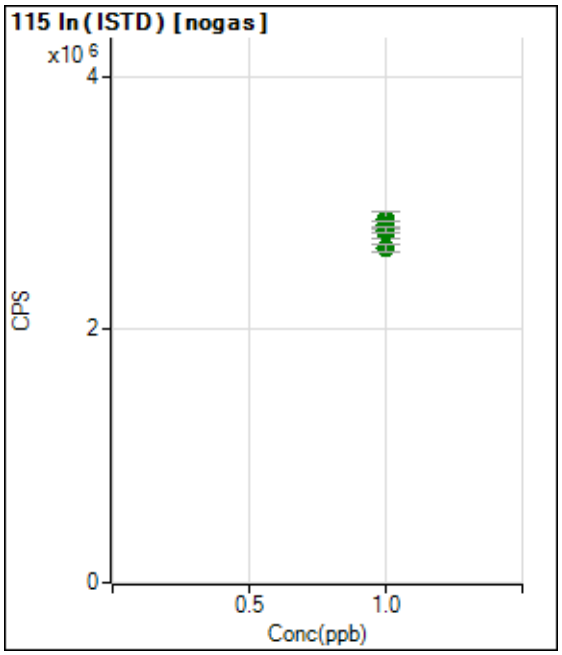


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		3145209.43		A	1.2
2	☐	1.000		3213340.79		A	0.9
3	☐	1.000		3154457.97		A	0.5
4	☐	1.000		3156956.72		A	1.8
5	☐	1.000		3121481.00		A	0.8
6	☐	1.000		3050026.83		A	2.0
7	☐	1.000					

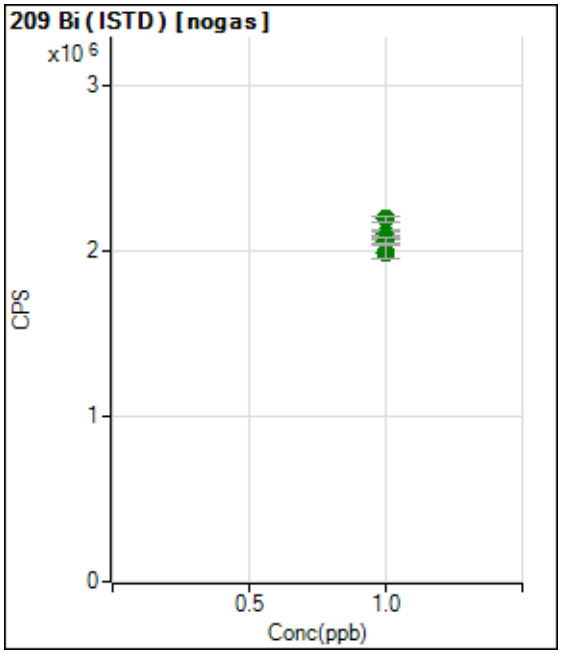


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		785019.94		P	1.9
2	☐	1.000		800121.60		P	1.9
3	☐	1.000		770398.48		P	2.3
4	☐	1.000		771369.03		P	2.2
5	☐	1.000		750724.47		P	2.4
6	☐	1.000		742606.29		P	0.9
7	☐	1.000					

Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		2761163.82		A	3.7
2	☐	1.000		2864140.74		A	4.8
3	☐	1.000		2819102.61		A	2.0
4	☐	1.000		2761826.92		A	3.1
5	☐	1.000		2781244.33		A	1.7
6	☐	1.000		2642789.96		A	2.6
7	☐	1.000					



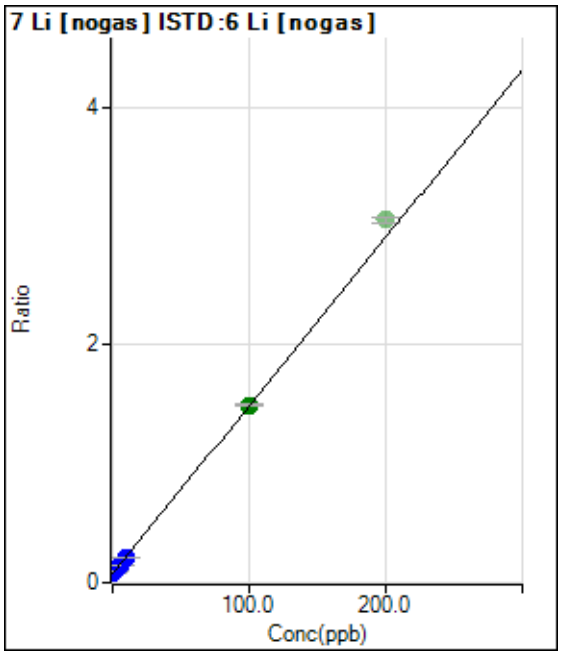
	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		2190176.74		A	1.9
2	☐	1.000		2096933.25		A	1.0
3	☐	1.000		2078205.39		A	4.3
4	☐	1.000		2075763.61		A	0.8
5	☐	1.000		2060332.52		A	2.0
6	☐	1.000		1989046.90		A	3.9
7	☐	1.000					

Calibration for 129_ICV.d

Batch Folder: C:\Agilent\ICPMH\1\DATA\122418A.b\
Analysis File: 122418A.batch.bin
DA Date-Time: 2018-12-24 19:19:15
Calibration Title:
Calibration Method: External Calibration
VIS Interpolation Fit:

Level	Standard Data File	Sample Name	Acq. Date-Time
1	123CALB.d	CAL BLK	2018-12-24 18:59:56
2	124CALS.d	2/10/200	2018-12-24 19:01:55
3	125CALS.d	5/25/500	2018-12-24 19:03:54
4	126CALS.d	10/50/1000	2018-12-24 19:05:53
5	127CALS.d	100/500/10K	2018-12-24 19:07:51
6	128CALS.d	200/1000/20K	2018-12-24 19:09:49
7			

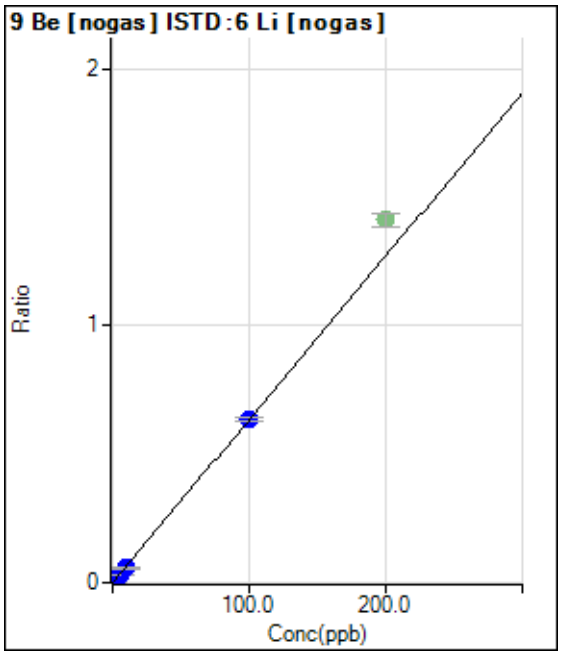
Calibration for 129_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	109987.48	0.0761	P	4.0
2	☐	2.000	2.015	144042.98	0.1046	P	3.7
3	☐	5.000	5.051	196257.95	0.1475	P	4.2
4	☐	10.000	9.293	278269.37	0.2074	P	4.0
5	☐	100.000	100.068	1809426.95	1.4908	A	1.3
6	☑	200.000		3539333.70	3.0537	A	1.8
7	☐	1.000					

y = 0.0141 * x + 0.0761
R = 1.0000
DL = 0.6449
BEC = 5.38

Weight: <None>
Min Conc: <None>

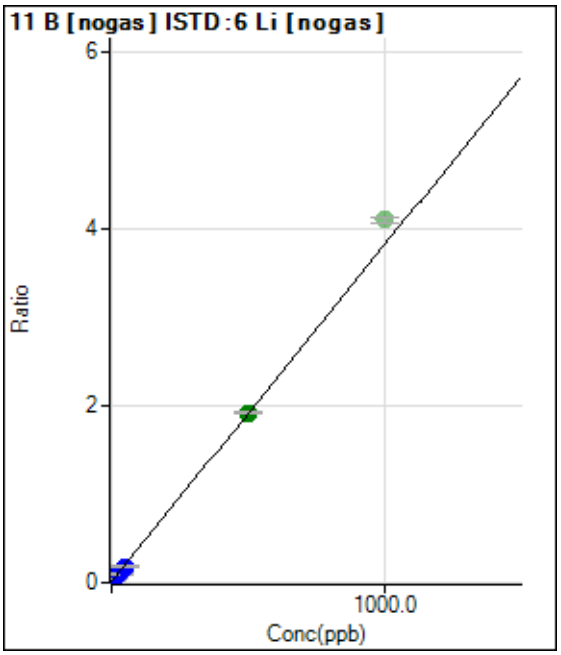


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	70.00	0.0000	P	37.
2	☐	2.000	1.825	16016.87	0.0116	P	5.3
3	☐	5.000	4.751	40216.01	0.0302	P	3.1
4	☐	10.000	9.062	77147.95	0.0576	P	6.7
5	☐	100.000	100.110	770857.12	0.6353	P	1.3
6	☑	200.000		1635048.00	1.4106	A	3.5
7	☐	1.000					

y = 0.0063 * x + 4.8377E-005
R = 1.0000
DL = 0.008578
BEC = 0.007624

Weight: <None>
Min Conc: <None>

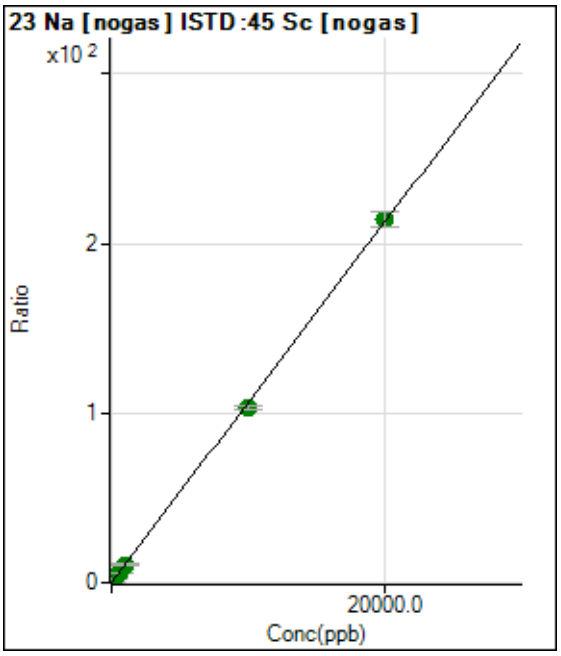
Calibration for 129_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	18916.23	0.0131	P	2.2
2	☐	10.000	8.712	63562.20	0.0462	P	6.2
3	☐	25.000	22.388	130645.87	0.0982	P	3.7
4	☐	50.000	44.565	244624.14	0.1824	P	5.6
5	☐	500.000	500.700	2325500.28	1.9158	A	1.0
6	☑	1000.000		4747091.91	4.0959	A	1.8
7	☐	5.000					

y = 0.0038 * x + 0.0131
R = 1.0000
DL = 0.2234
BEC = 3.442

Weight: <None>
Min Conc: <None>

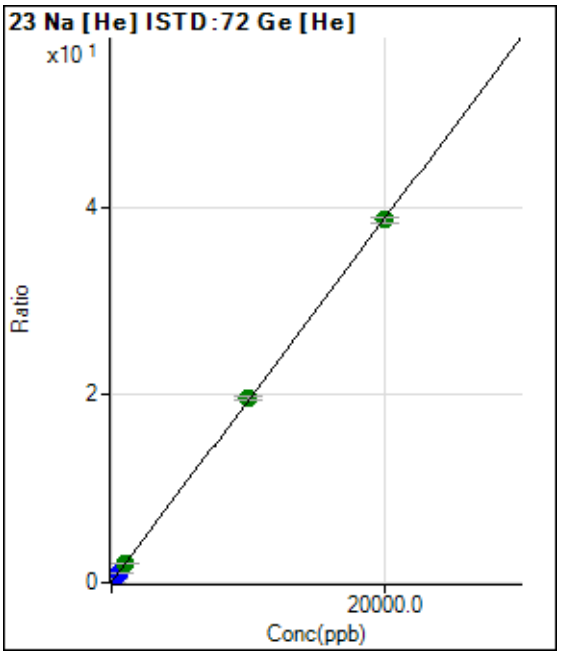


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	400648.68	0.1735	P	0.5
2	☐	200.000	196.654	5490362.49	2.2612	A	3.5
3	☐	500.000	506.361	12844224.25	5.5491	A	3.5
4	☐	1000.000	993.358	25250872.44	10.7190	A	2.4
5	☐	10000.00	9722.634	242498655.4	103.389	A	1.5
6	☐	20000.00	20138.890	487938144.2	213.968	A	4.4
7	☐	100.000					

y = 0.0106 * x + 0.1735
R = 0.9999
DL = 0.2609
BEC = 16.34

Weight: <None>
Min Conc: <None>

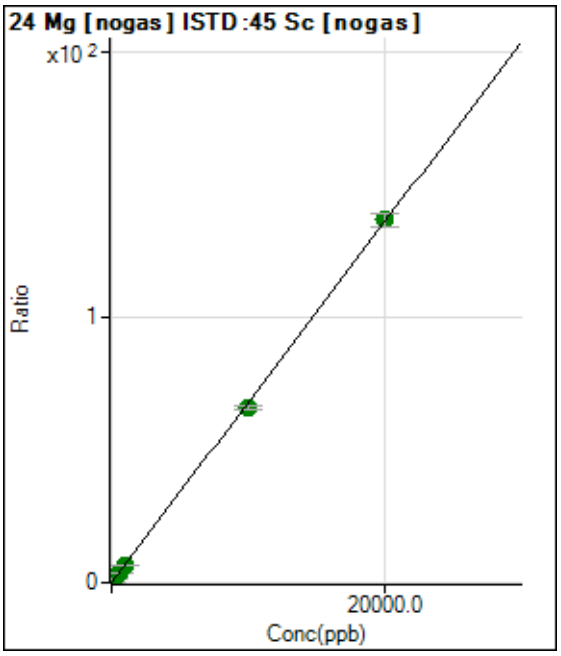
Calibration for 129_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	45584.69	0.0604	P	3.2
2	☐	200.000	199.795	338996.83	0.4467	P	2.9
3	☐	500.000	478.901	782019.52	0.9862	P	1.4
4	☐	1000.000	1043.104	1603255.50	2.0769	A	3.7
5	☐	10000.00	10100.867	14697812.28	19.5869	A	1.8
6	☐	20000.00	19947.941	28670344.57	38.6227	A	1.8
7	☐	100.000					

y = 0.0019 * x + 0.0604
R = 1.0000
DL = 3.039
BEC = 31.26

Weight: <None>
Min Conc: <None>

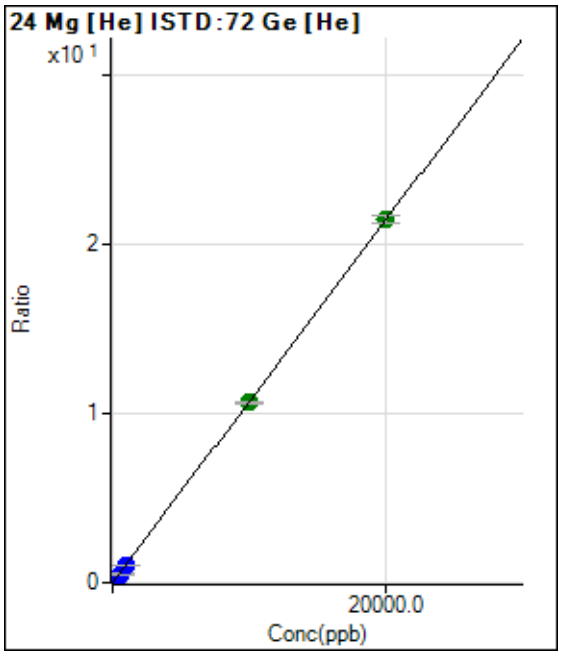


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	8169.72	0.0035	P	17.
2	☐	200.000	207.727	3430175.73	1.4130	A	5.2
3	☐	500.000	509.339	8008672.58	3.4594	A	2.3
4	☐	1000.000	990.209	15834309.73	6.7222	A	2.5
5	☐	10000.00	9731.414	154874207.6	66.0318	A	2.7
6	☐	20000.00	20134.472	311599648.6	136.617	A	3.7
7	☐	100.000					

y = 0.0068 * x + 0.0035
R = 0.9999
DL = 0.276
BEC = 0.5222

Weight: <None>
Min Conc: <None>

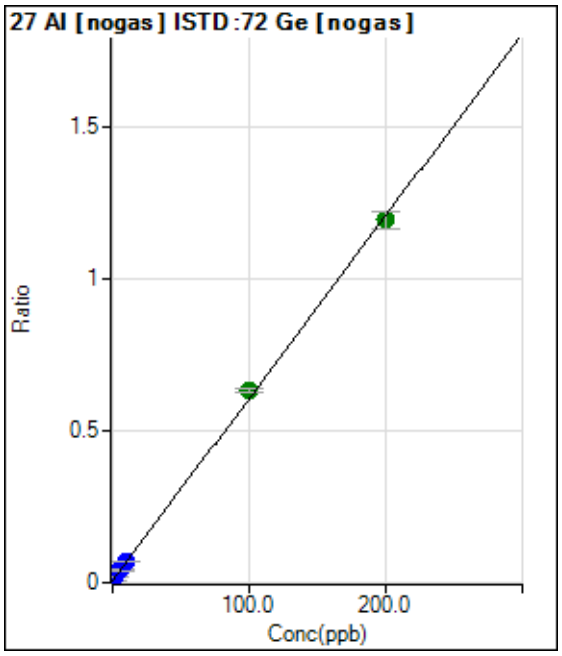
Calibration for 129_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	583.35	0.0008	P	14.
2	☐	200.000	200.524	163587.70	0.2155	P	2.7
3	☐	500.000	475.935	404818.80	0.5105	P	1.2
4	☐	1000.000	985.076	815125.67	1.0558	P	2.7
5	☐	10000.00	9942.707	7992093.84	10.6500	A	0.8
6	☐	20000.00	20029.989	15925250.18	21.4541	A	2.0
7	☐	100.000					

y = 0.0011 * x + 7.7207E-004
R = 1.0000
DL = 0.303
BEC = 0.7208

Weight: <None>
Min Conc: <None>

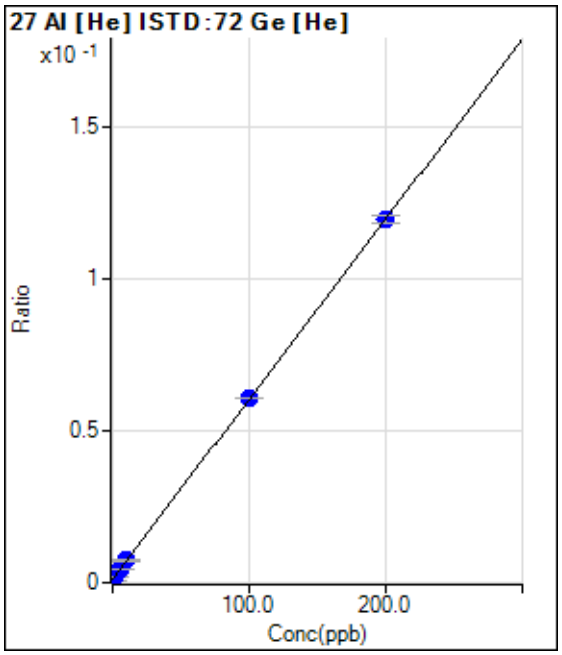


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	21442.36	0.0067	P	4.3
2	☐	2.000	2.061	62001.74	0.0190	P	3.2
3	☐	5.000	5.801	140606.19	0.0415	P	3.0
4	☐	10.000	10.560	232007.90	0.0700	P	0.4
5	☐	100.000	104.066	1990080.39	0.6309	A	2.4
6	☐	200.000	197.918	3720618.90	1.1938	A	5.1
7	☐	1.000					

y = 0.0060 * x + 0.0067
R = 0.9997
DL = 0.144
BEC = 1.115

Weight: <None>
Min Conc: <None>

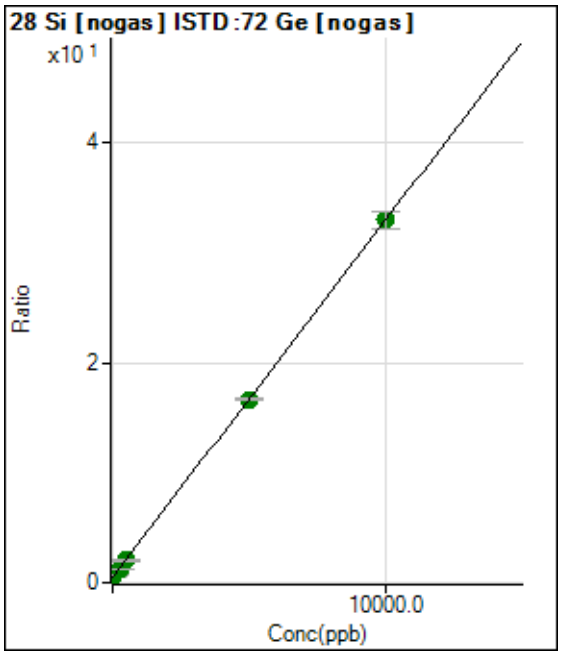
Calibration for 129_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-0.865	436.68	0.0006	P	18.
2	☐	2.000	1.605	1553.42	0.0020	P	8.1
3	☐	5.000	5.532	3467.04	0.0044	P	1.9
4	☐	10.000	10.454	5627.60	0.0073	P	5.8
5	☐	100.000	100.613	45588.36	0.0607	P	0.6
6	☐	200.000	199.662	88686.85	0.1195	P	2.0
7	☐	1.000					

y = 5.9290E-004 * x + 0.0011
R = 1.0000
DL = 0.5335
BEC = 1.843

Weight: <None>
Min Conc: <None>

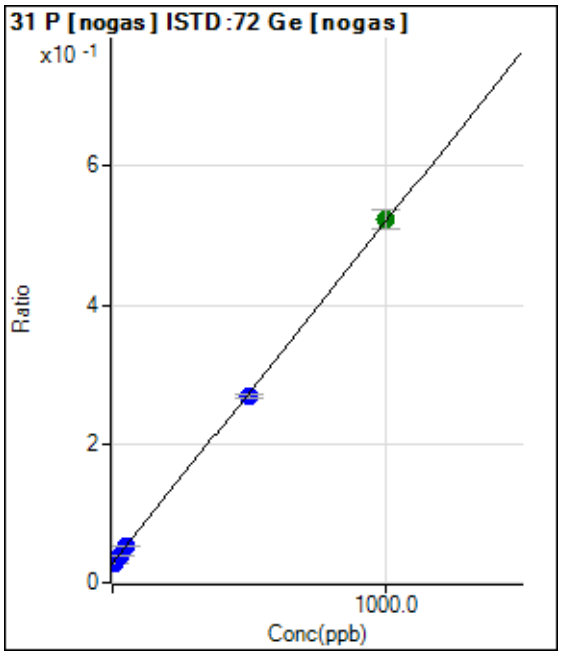


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1541531.96	0.4807	A	2.8
2	☐	100.000	95.072	2570600.17	0.7897	A	3.4
3	☐	250.000	231.577	4181612.54	1.2334	A	1.6
4	☐	500.000	471.512	6670116.15	2.0133	A	0.5
5	☐	5000.000	4990.719	52692804.22	16.7021	A	1.9
6	☐	10000.00	10006.575	102886088.4	33.0051	A	4.6
7	☐	5.000					

y = 0.0033 * x + 0.4807
R = 1.0000
DL = 12.53
BEC = 147.9

Weight: <None>
Min Conc: <None>

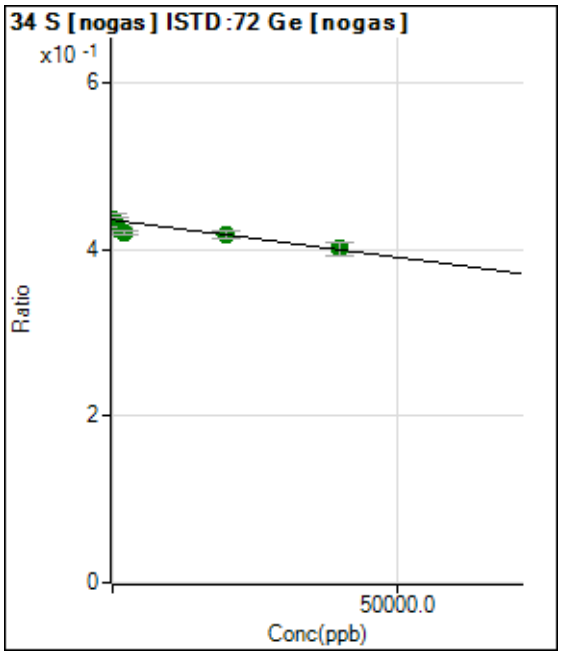
Calibration for 129_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	90461.85	0.0282	P	1.7
2	☐	10.000	-2.420	87959.88	0.0270	P	3.0
3	☐	25.000	21.272	131059.88	0.0387	P	3.5
4	☐	50.000	49.693	174335.07	0.0526	P	2.4
5	☐	500.000	488.610	846504.44	0.2683	P	2.4
6	☐	1000.000	1005.928	1628622.27	0.5226	A	5.4
7	☐	5.000					

y = 4.9145E-004 * x + 0.0282
R = 0.9999
DL = 2.983
BEC = 57.4

Weight: <None>
Min Conc: <None>

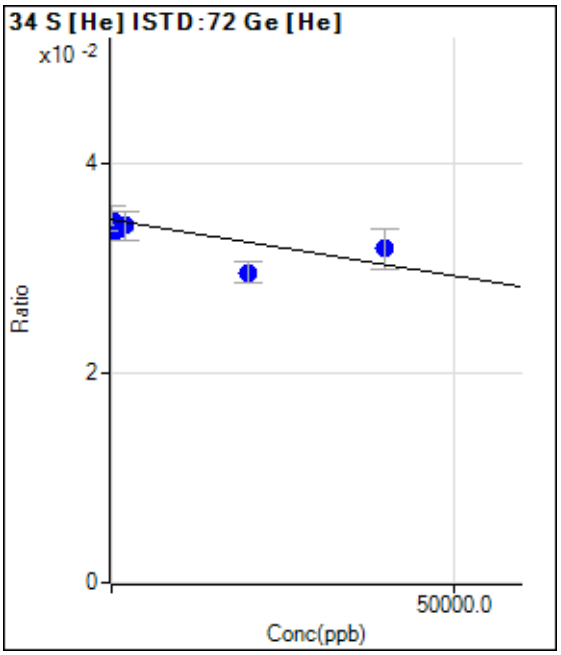


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1396824.77	0.4356	A	3.9
2	☐	400.000	3152.730	1408824.22	0.4328	A	2.8
3	☐	1000.000	13056.907	1437071.29	0.4239	A	1.5
4	☐	2000.000	17104.652	1392253.03	0.4203	A	1.1
5	☐	20000.00	19982.618	1317836.85	0.4177	A	1.8
6	☐	40000.00	38924.509	1249132.51	0.4007	A	4.4
7	☐	100.000					

y = -8.9599E-007 * x + 0.4356
R = -0.9057
DL = -5.671E+04
BEC = -4.862E+05

Weight: <None>
Min Conc: <None>

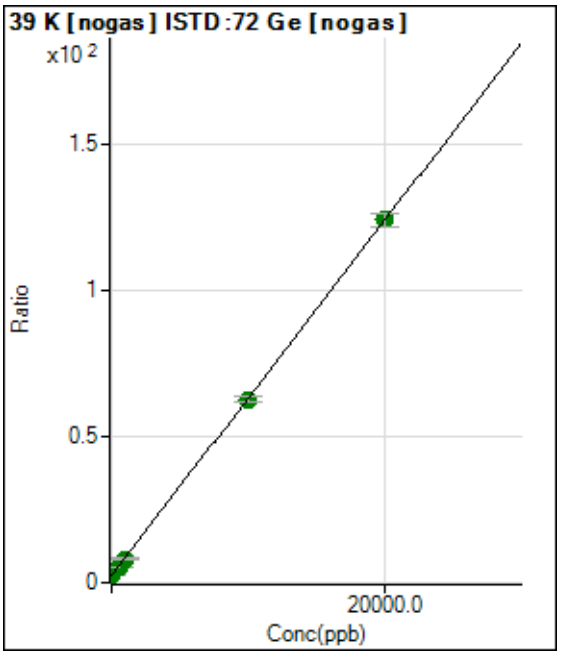
Calibration for 129_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	26123.34	0.0346	P	7.8
2	☐	400.000	11341.660	25388.79	0.0334	P	0.6
3	☐	1000.000	7300.970	26857.01	0.0339	P	1.5
4	☐	2000.000	5032.600	26322.65	0.0341	P	8.1
5	☐	20000.00	46969.867	22250.35	0.0296	P	6.8
6	☐	40000.00	26096.495	23652.87	0.0319	P	11.
7	☐	100.000					

y = -1.0641E-007 * x + 0.0346
R = -0.6867
DL = -7.658E+04
BEC = -3.256E+05

Weight: <None>
Min Conc: <None>

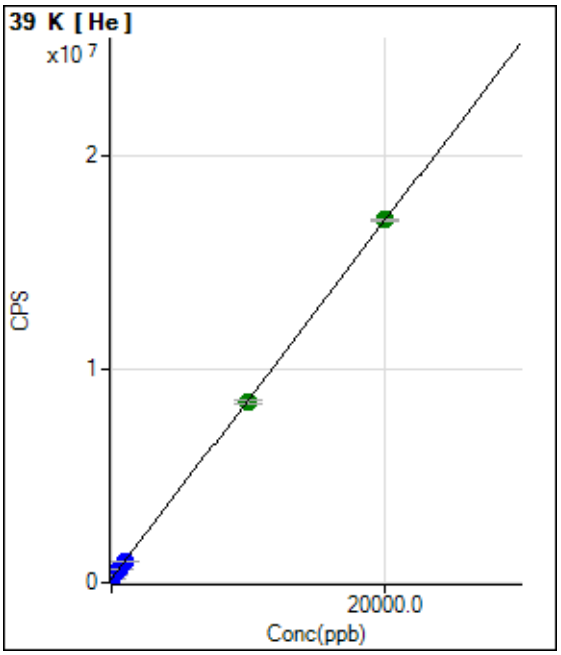


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	7853188.46	2.4490	A	0.9
2	☐	200.000	201.119	11948323.96	3.6702	A	2.3
3	☐	500.000	465.004	17872185.82	5.2724	A	2.8
4	☐	1000.000	947.779	27175798.52	8.2036	A	1.5
5	☐	10000.00	9928.145	197878504.4	62.7298	A	3.1
6	☐	20000.00	20039.402	387013200.3	124.122	A	3.8
7	☐	100.000					

y = 0.0061 * x + 2.4490
R = 1.0000
DL = 10.79
BEC = 403.3

Weight: <None>
Min Conc: <None>

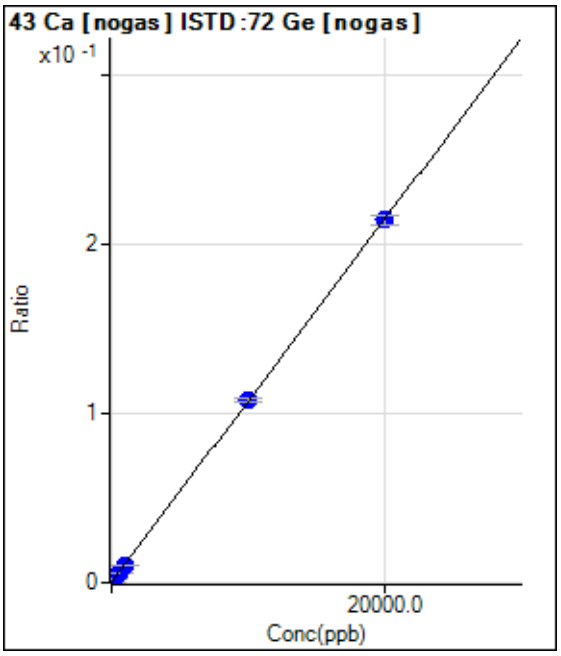
Calibration for 129_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	181917.03		P	1.6
2	☐	200.000	200.744	350063.77		P	0.8
3	☐	500.000	496.267	597599.06		P	0.8
4	☐	1000.000	976.799	1000101.37		P	0.3
5	☐	10000.00	9873.819	8452403.42		A	1.7
6	☐	20000.00	20064.336	16988162.25		A	0.8
7	☐	100.000					

y = 837.6178 * x + 181917.0300
R = 1.0000
DL = 10.5
BEC = 217.2

Weight: <None>
Min Conc: <None>

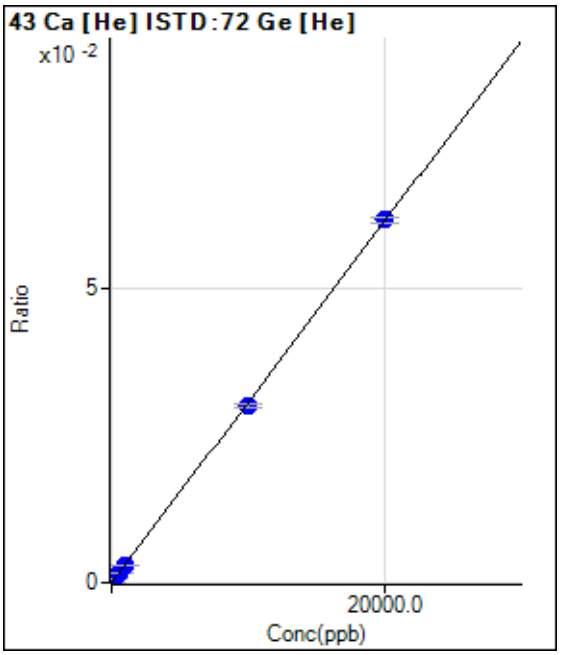


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	563.35	0.0002	P	15.
2	☐	200.000	205.812	7758.39	0.0024	P	5.1
3	☐	500.000	483.954	18202.48	0.0054	P	1.1
4	☐	1000.000	968.960	35026.59	0.0106	P	0.9
5	☐	10000.00	10035.124	340305.98	0.1079	P	1.5
6	☐	20000.00	19984.333	669374.60	0.2146	P	2.9
7	☐	100.000					

y = 1.0730E-005 * x + 1.7572E-004
R = 1.0000
DL = 7.357
BEC = 16.38

Weight: <None>
Min Conc: <None>

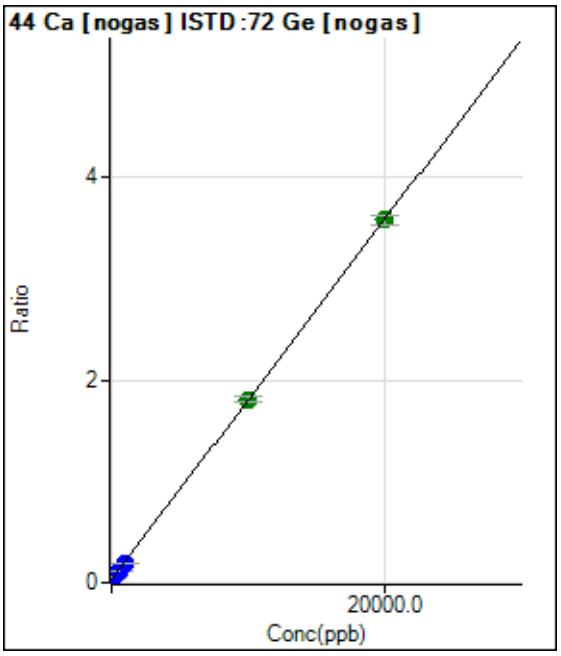
Calibration for 129_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	10.00	0.0000	P	173
2	☐	200.000	211.627	503.35	0.0007	P	12.
3	☐	500.000	532.767	1306.73	0.0016	P	9.8
4	☐	1000.000	976.133	2323.51	0.0030	P	3.7
5	☐	10000.00	9819.239	22630.66	0.0302	P	2.4
6	☐	20000.00	20090.638	45786.34	0.0617	P	1.5
7	☐	100.000					

y = 3.0694E-006 * x + 1.3487E-005
R = 0.9999
DL = 22.83
BEC = 4.394

Weight: <None>
Min Conc: <None>

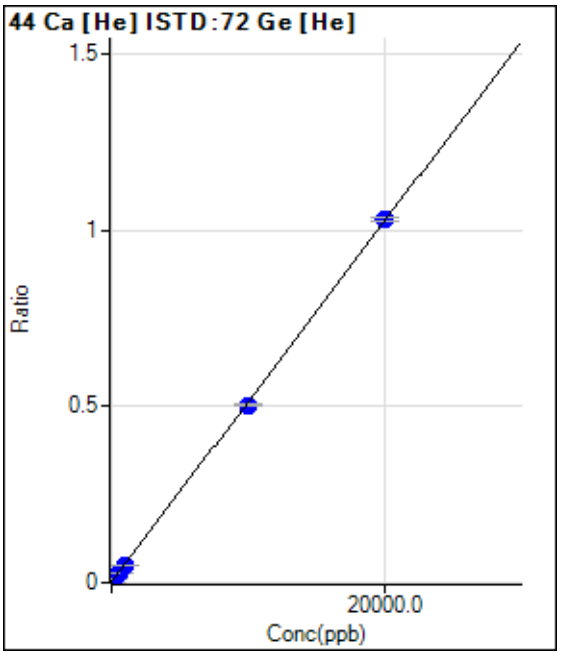


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	95927.98	0.0299	P	1.3
2	☐	200.000	183.548	203606.75	0.0625	P	2.9
3	☐	500.000	453.515	374776.73	0.1105	P	1.3
4	☐	1000.000	921.185	641708.45	0.1937	P	1.0
5	☐	10000.00	10030.191	5719862.00	1.8132	A	2.3
6	☐	20000.00	19990.172	11178437.75	3.5839	A	2.7
7	☐	100.000					

y = 1.7779E-004 * x + 0.0299
R = 1.0000
DL = 6.327
BEC = 168.3

Weight: <None>
Min Conc: <None>

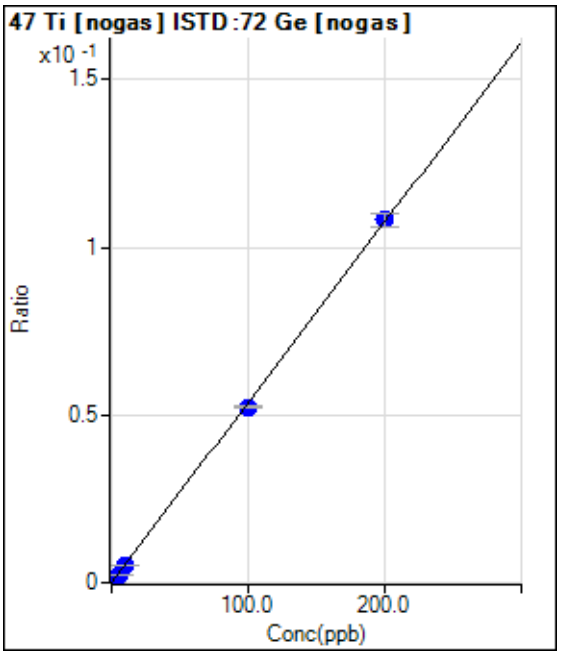
Calibration for 129_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1076.71	0.0014	P	3.7
2	☐	200.000	201.046	8882.24	0.0117	P	2.3
3	☐	500.000	472.581	20271.27	0.0256	P	5.3
4	☐	1000.000	960.055	38974.26	0.0505	P	0.6
5	☐	10000.00	9808.540	377152.79	0.5025	P	0.9
6	☐	20000.00	20098.402	763233.06	1.0282	P	1.0
7	☐	100.000					

y = 5.1089E-005 * x + 0.0014
R = 0.9999
DL = 3.109
BEC = 27.94

Weight: <None>
Min Conc: <None>

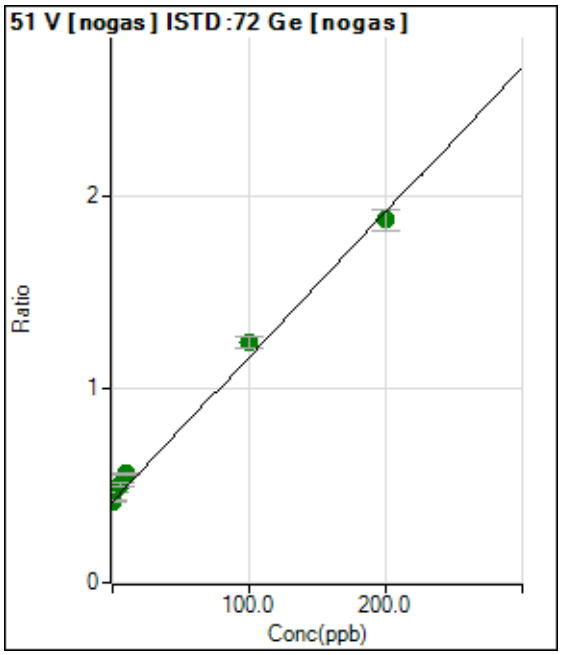


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	236.67	0.0001	P	26.
2	☐	2.000	1.976	3690.42	0.0011	P	10.
3	☐	5.000	4.628	8675.50	0.0026	P	1.6
4	☐	10.000	9.227	16657.76	0.0050	P	3.2
5	☐	100.000	97.395	165245.99	0.0524	P	0.9
6	☐	200.000	201.351	337306.81	0.1082	P	3.6
7	☐	1.000					

y = 5.3690E-004 * x + 7.3776E-005
R = 0.9999
DL = 0.111
BEC = 0.1374

Weight: <None>
Min Conc: <None>

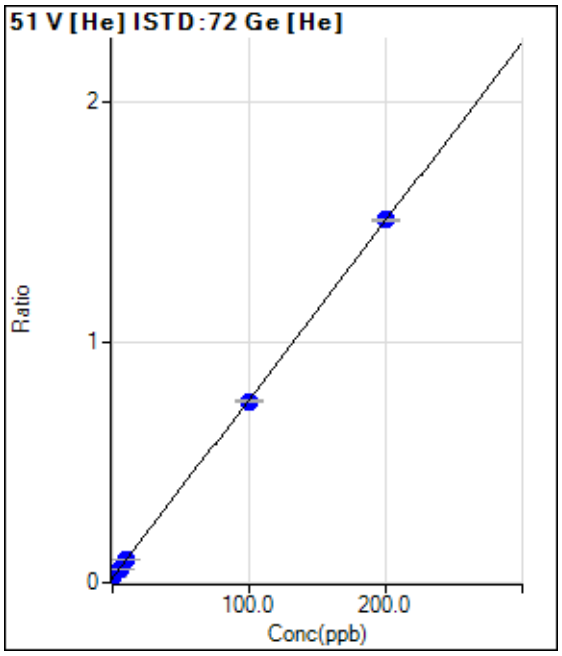
Calibration for 129_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1345869.72	0.4197	A	1.7
2	☐	2.000	7.600	1551444.86	0.4766	A	4.6
3	☐	5.000	11.570	1716980.12	0.5064	A	2.6
4	☐	10.000	19.280	1868880.05	0.5641	A	1.6
5	☐	100.000	109.718	3915445.92	1.2417	A	4.3
6	☐	200.000	194.457	5847591.93	1.8765	A	5.7
7	☐	1.000					

y = 0.0075 * x + 0.4197
R = 0.9980
DL = 2.823
BEC = 56.03

Weight: <None>
Min Conc: <None>

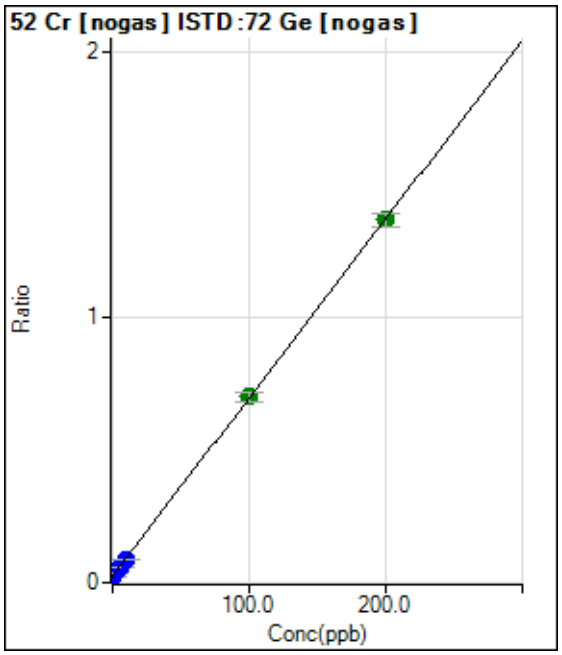


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.142	15473.08	0.0205	P	1.2
2	☐	2.000	2.262	27507.52	0.0362	P	0.3
3	☐	5.000	5.039	45060.12	0.0568	P	1.1
4	☐	10.000	10.104	72880.65	0.0944	P	0.7
5	☐	100.000	98.926	565139.19	0.7531	P	1.2
6	☐	200.000	200.528	1118348.42	1.5066	P	0.2
7	☐	1.000					

y = 0.0074 * x + 0.0195
R = 1.0000
DL = 0.09877
BEC = 2.624

Weight: <None>
Min Conc: <None>

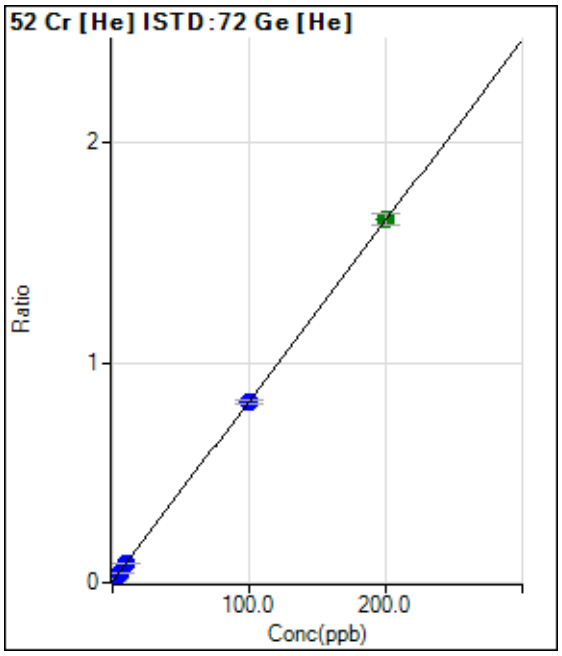
Calibration for 129_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	77474.30	0.0242	P	1.4
2	☐	2.000	1.994	122256.54	0.0376	P	4.7
3	☐	5.000	4.791	191121.94	0.0564	P	0.4
4	☐	10.000	9.499	291583.32	0.0880	P	2.4
5	☐	100.000	100.766	2212533.61	0.7017	A	5.0
6	☐	200.000	199.647	4260513.48	1.3665	A	4.0
7	☐	1.000					

y = 0.0067 * x + 0.0242
R = 1.0000
DL = 0.1503
BEC = 3.593

Weight: <None>
Min Conc: <None>

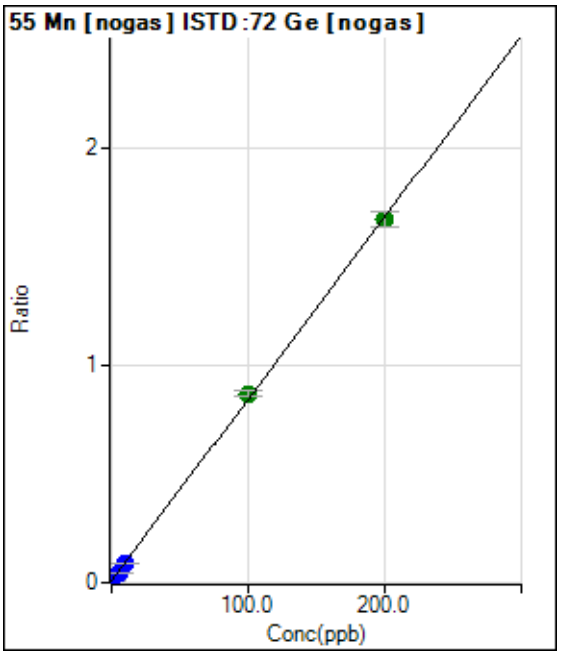


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	4597.30	0.0061	P	3.4
2	☐	2.000	1.867	16257.30	0.0214	P	3.3
3	☐	5.000	4.784	35978.61	0.0454	P	1.3
4	☐	10.000	9.709	66251.86	0.0858	P	1.5
5	☐	100.000	99.373	616895.43	0.8220	P	1.4
6	☐	200.000	200.335	1225420.61	1.6509	A	3.2
7	☐	1.000					

y = 0.0082 * x + 0.0061
R = 1.0000
DL = 0.07617
BEC = 0.7421

Weight: <None>
Min Conc: <None>

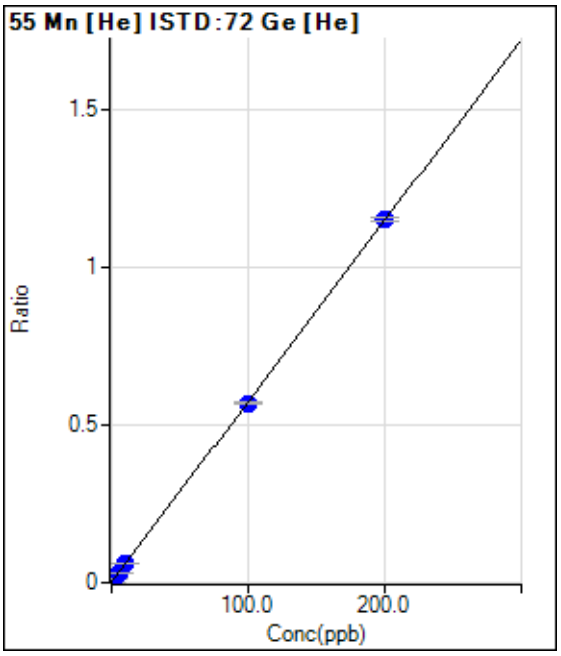
Calibration for 129_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	27807.86	0.0087	P	0.8
2	☐	2.000	1.686	74188.43	0.0228	P	1.7
3	☐	5.000	4.699	162791.83	0.0480	P	1.1
4	☐	10.000	9.328	287456.10	0.0868	P	3.8
5	☐	100.000	102.828	2743316.41	0.8696	A	2.8
6	☐	200.000	198.630	5212488.15	1.6718	A	4.1
7	☐	1.000					

y = 0.0084 * x + 0.0087
R = 0.9998
DL = 0.02612
BEC = 1.036

Weight: <None>
Min Conc: <None>

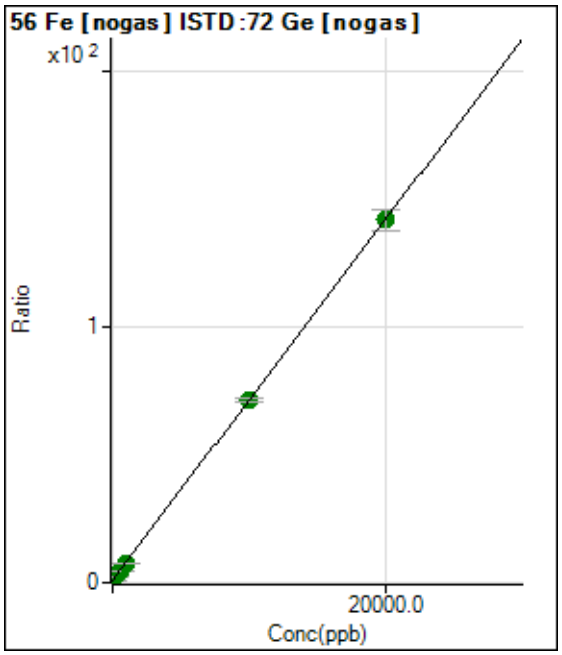


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1256.73	0.0017	P	3.9
2	☐	2.000	1.970	9842.76	0.0130	P	1.3
3	☐	5.000	4.923	23715.60	0.0299	P	0.9
4	☐	10.000	9.988	45526.55	0.0590	P	2.2
5	☐	100.000	99.099	427894.37	0.5701	P	1.7
6	☐	200.000	200.454	854743.11	1.1515	P	1.0
7	☐	1.000					

y = 0.0057 * x + 0.0017
R = 1.0000
DL = 0.03398
BEC = 0.2903

Weight: <None>
Min Conc: <None>

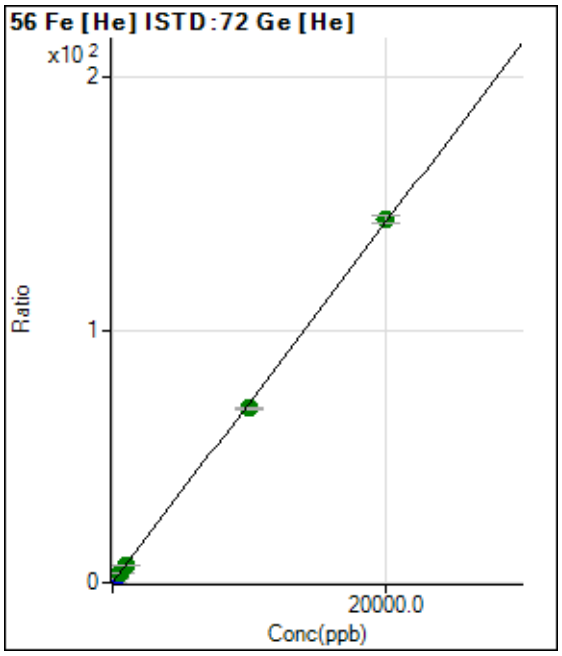
Calibration for 129_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	2809088.74	0.8760	A	0.7
2	☐	200.000	189.203	7193806.41	2.2096	A	2.1
3	☐	500.000	473.883	14293152.92	4.2160	A	1.5
4	☐	1000.000	958.960	25285242.23	7.6350	A	4.1
5	☐	10000.00	10026.192	225714363.3	71.5426	A	1.7
6	☐	20000.00	19989.717	441805293.2	141.767	A	5.6
7	☐	100.000					

y = 0.0070 * x + 0.8760
R = 1.0000
DL = 2.691
BEC = 124.3

Weight: <None>
Min Conc: <None>

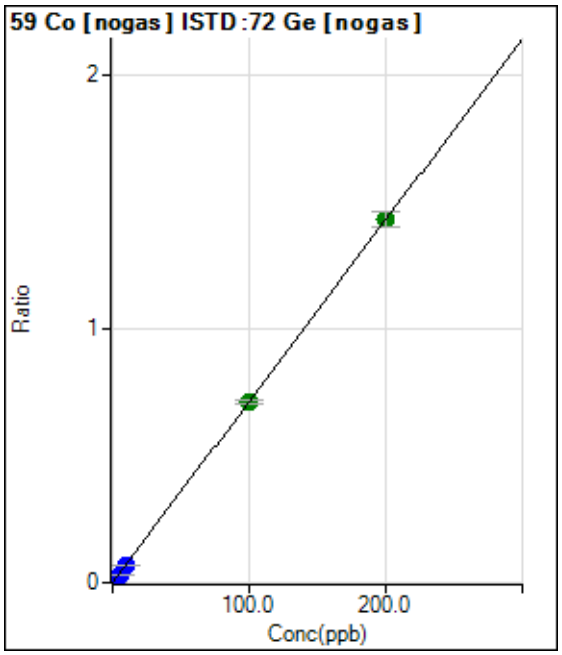


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	11797.23	0.0156	P	2.6
2	☐	200.000	199.295	1088582.51	1.4341	P	1.4
3	☐	500.000	495.867	2811433.19	3.5449	A	3.8
4	☐	1000.000	984.982	5424213.25	7.0261	A	3.1
5	☐	10000.00	9671.886	51671207.56	68.8543	A	1.5
6	☐	20000.00	20164.918	106540595.0	143.537	A	2.2
7	☐	100.000					

y = 0.0071 * x + 0.0156
R = 0.9998
DL = 0.1681
BEC = 2.196

Weight: <None>
Min Conc: <None>

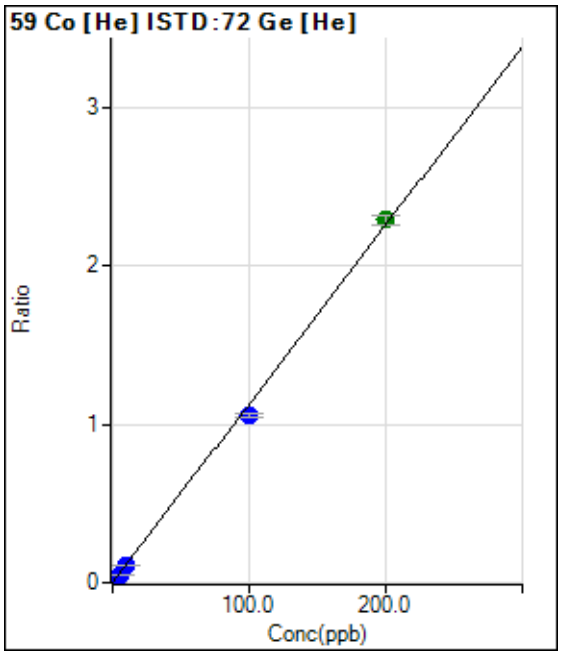
Calibration for 129_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	823.36	0.0003	P	13.
2	☐	2.000	1.931	45800.60	0.0141	P	2.3
3	☐	5.000	4.541	111007.64	0.0327	P	2.7
4	☐	10.000	9.334	221975.59	0.0670	P	3.2
5	☐	100.000	99.830	2253591.58	0.7143	A	1.5
6	☐	200.000	200.131	4462955.14	1.4316	A	4.3
7	☐	1.000					

y = 0.0072 * x + 2.5681E-004
R = 1.0000
DL = 0.01409
BEC = 0.03591

Weight: <None>
Min Conc: <None>

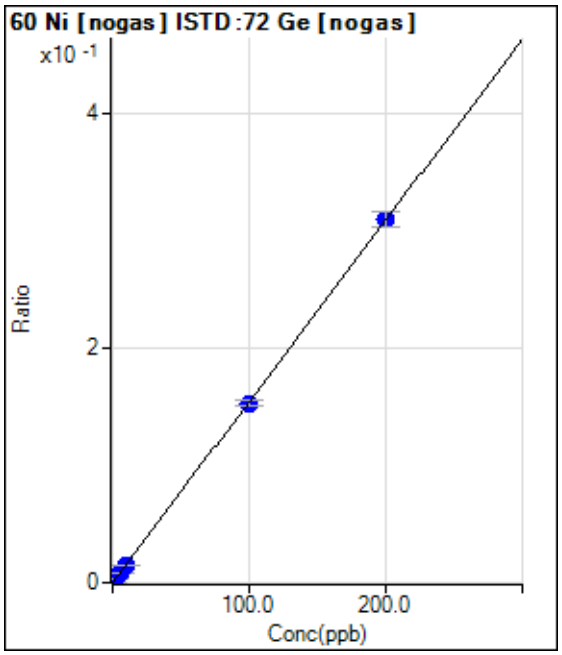


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	303.34	0.0004	P	34.
2	☐	2.000	2.008	17481.91	0.0230	P	3.6
3	☐	5.000	4.625	41647.48	0.0525	P	1.0
4	☐	10.000	9.577	83632.45	0.1083	P	4.2
5	☐	100.000	93.961	794999.44	1.0594	P	1.9
6	☐	200.000	203.050	1698959.71	2.2890	A	2.8
7	☐	1.000					

y = 0.0113 * x + 4.0067E-004
R = 0.9994
DL = 0.03644
BEC = 0.03555

Weight: <None>
Min Conc: <None>

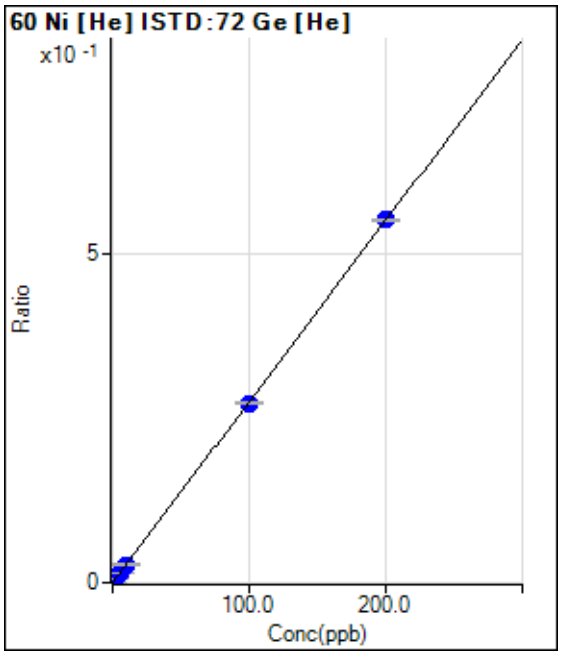
Calibration for 129_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.164	466.68	0.0001	P	14.
2	☐	2.000	2.273	11060.15	0.0034	P	5.2
3	☐	5.000	5.045	26012.14	0.0077	P	4.6
4	☐	10.000	9.871	50081.84	0.0151	P	0.9
5	☐	100.000	99.287	482568.22	0.1530	P	3.1
6	☐	200.000	200.359	962911.47	0.3089	P	4.1
7	☐	1.000					

y = 0.0015 * x - 1.0791E-004
R = 1.0000
DL = 0.0401
BEC = -0.06998

Weight: <None>
Min Conc: <None>

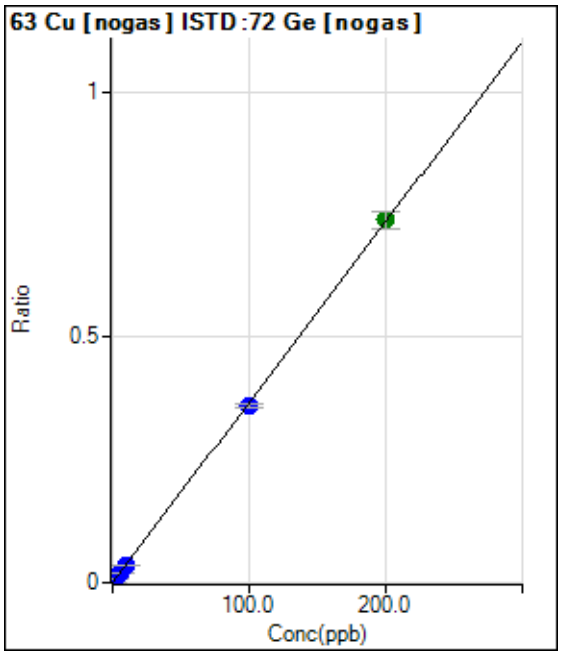


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.182	136.67	0.0002	P	27.
2	☐	2.000	2.306	4577.31	0.0060	P	7.6
3	☐	5.000	5.035	10746.59	0.0136	P	0.3
4	☐	10.000	9.957	20928.95	0.0271	P	5.1
5	☐	100.000	99.044	204531.13	0.2726	P	1.1
6	☐	200.000	200.476	409741.28	0.5520	P	0.8
7	☐	1.000					

y = 0.0028 * x - 3.1895E-004
R = 1.0000
DL = 0.05336
BEC = -0.1158

Weight: <None>
Min Conc: <None>

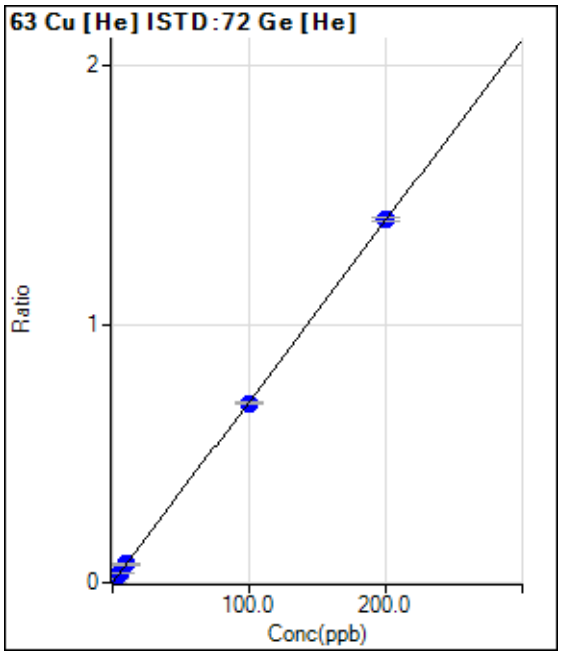
Calibration for 129_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1483.42	0.0005	P	6.5
2	☐	2.000	2.046	25972.06	0.0080	P	5.5
3	☐	5.000	4.903	62661.18	0.0185	P	0.9
4	☐	10.000	9.574	118091.77	0.0356	P	1.1
5	☐	100.000	97.756	1134783.24	0.3597	P	2.6
6	☐	200.000	201.145	2305482.72	0.7397	A	4.9
7	☐	1.000					

y = 0.0037 * x + 4.6260E-004
R = 0.9999
DL = 0.02447
BEC = 0.1259

Weight: <None>
Min Conc: <None>

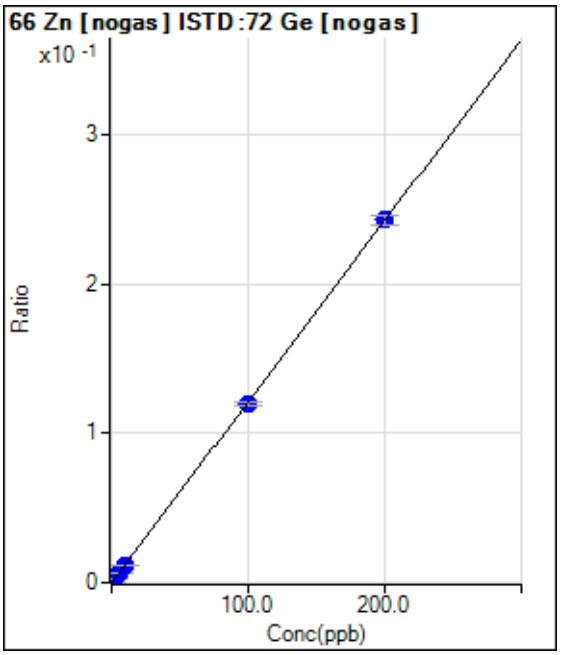


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.129	643.36	0.0009	P	13.
2	☐	2.000	2.160	11443.73	0.0151	P	5.0
3	☐	5.000	5.021	27858.12	0.0351	P	2.7
4	☐	10.000	10.108	54648.24	0.0708	P	4.3
5	☐	100.000	99.179	521586.57	0.6950	P	0.6
6	☐	200.000	200.403	1042534.70	1.4045	P	1.1
7	☐	1.000					

y = 0.0070 * x - 5.1993E-005
R = 1.0000
DL = 0.04848
BEC = -0.007419

Weight: <None>
Min Conc: <None>

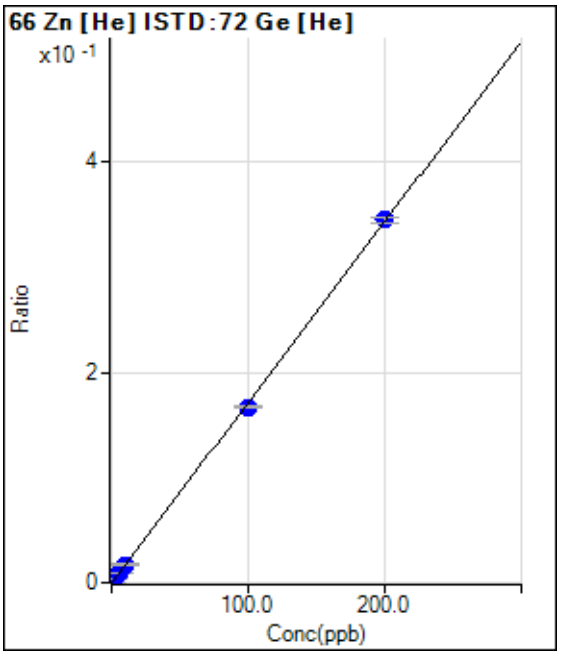
Calibration for 129_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.213	656.69	0.0002	P	1.1
2	☐	2.000	2.099	8108.57	0.0025	P	2.2
3	☐	5.000	5.451	22220.47	0.0066	P	1.9
4	☐	10.000	9.832	39309.16	0.0119	P	1.6
5	☐	100.000	98.817	377717.74	0.1197	P	2.3
6	☐	200.000	200.588	758180.98	0.2431	P	2.8
7	☐	1.000					

y = 0.0012 * x - 5.3672E-005
R = 1.0000
DL = 0.005603
BEC = -0.04428

Weight: <None>
Min Conc: <None>

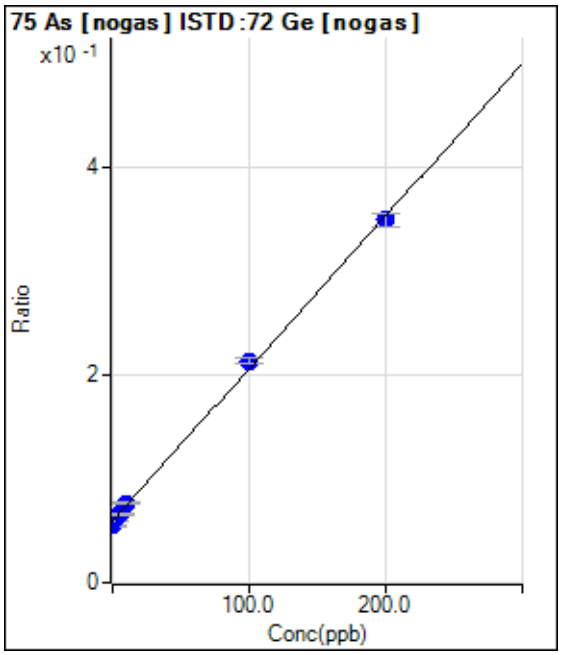


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.350	136.67	0.0002	P	5.1
2	☐	2.000	2.336	2726.91	0.0036	P	9.1
3	☐	5.000	5.428	7051.43	0.0089	P	0.9
4	☐	10.000	10.146	13118.21	0.0170	P	4.6
5	☐	100.000	97.522	125242.89	0.1669	P	1.5
6	☐	200.000	201.218	255917.88	0.3448	P	1.4
7	☐	1.000					

y = 0.0017 * x - 4.1943E-004
R = 0.9999
DL = 0.01621
BEC = -0.2445

Weight: <None>
Min Conc: <None>

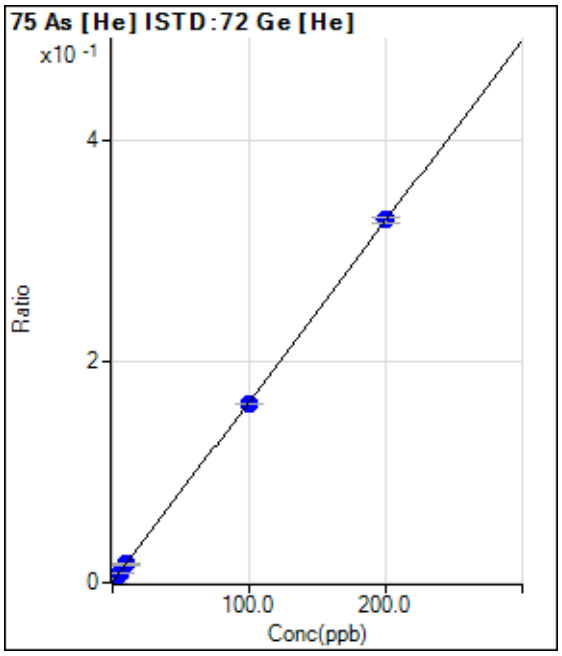
Calibration for 129_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-2.922	176956.50	0.0552	P	3.2
2	☐	2.000	1.313	199835.54	0.0614	P	4.7
3	☐	5.000	4.609	224623.49	0.0662	P	2.3
4	☐	10.000	11.544	253155.24	0.0764	P	3.3
5	☐	100.000	105.033	674391.92	0.2138	P	2.5
6	☐	200.000	197.423	1089834.52	0.3495	P	3.5
7	☐	1.000					

y = 0.0015 * x + 0.0595
R = 0.9993
DL = 3.566
BEC = 40.48

Weight: <None>
Min Conc: <None>

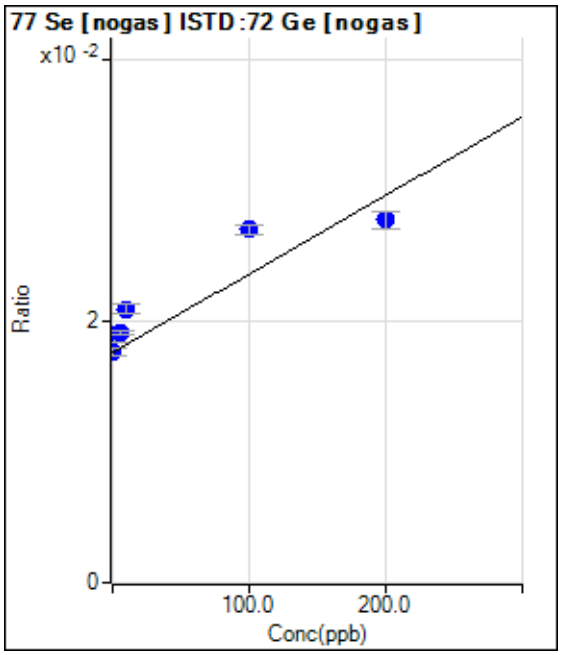


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	587.79	0.0008	P	12.
2	☐	2.000	2.092	3179.19	0.0042	P	3.8
3	☐	5.000	4.757	6767.95	0.0085	P	1.0
4	☐	10.000	9.694	12804.53	0.0166	P	1.9
5	☐	100.000	98.743	121406.67	0.1618	P	0.5
6	☐	200.000	200.649	243420.94	0.3279	P	1.5
7	☐	1.000					

y = 0.0016 * x + 7.7857E-004
R = 1.0000
DL = 0.1832
BEC = 0.4775

Weight: <None>
Min Conc: <None>

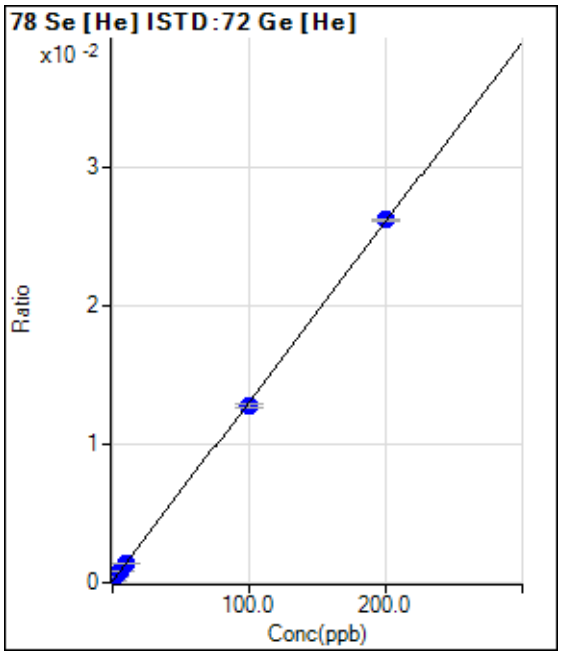
Calibration for 129_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	56517.86	0.0176	P	3.6
2	☐	2.000	22.371	61734.53	0.0190	P	5.5
3	☐	5.000	24.659	64798.32	0.0191	P	1.3
4	☐	10.000	55.367	69418.67	0.0210	P	3.2
5	☐	100.000	156.673	85332.25	0.0271	P	2.7
6	☐	200.000	168.700	86585.12	0.0278	P	4.6
7	☐	1.000					

y = 6.0169E-005 * x + 0.0176
R = 0.9224
DL = 31.38
BEC = 292.9

Weight: <None>
Min Conc: <None>

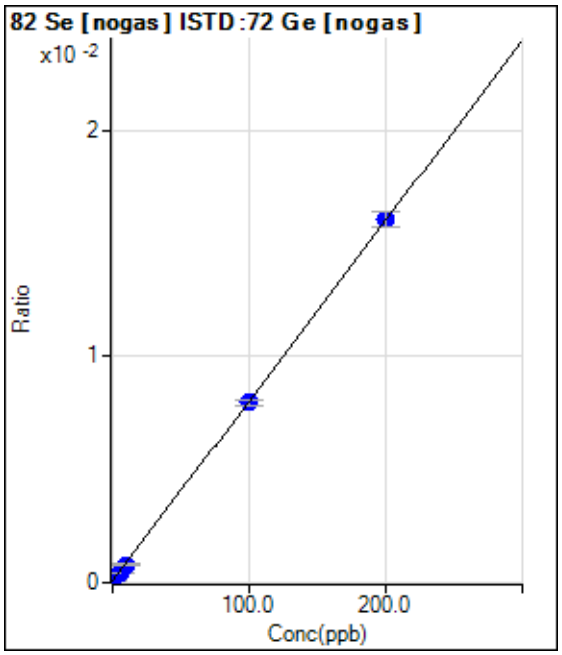


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.440	122.67	0.0002	P	5.6
2	☐	2.000	2.465	323.33	0.0004	P	8.1
3	☐	5.000	5.241	623.34	0.0008	P	0.8
4	☐	10.000	9.964	1080.70	0.0014	P	2.0
5	☐	100.000	97.799	9609.88	0.0128	P	1.9
6	☐	200.000	201.092	19463.03	0.0262	P	0.6
7	☐	1.000					

y = 1.2987E-004 * x + 1.0549E-004
R = 0.9999
DL = 0.2113
BEC = 0.8123

Weight: <None>
Min Conc: <None>

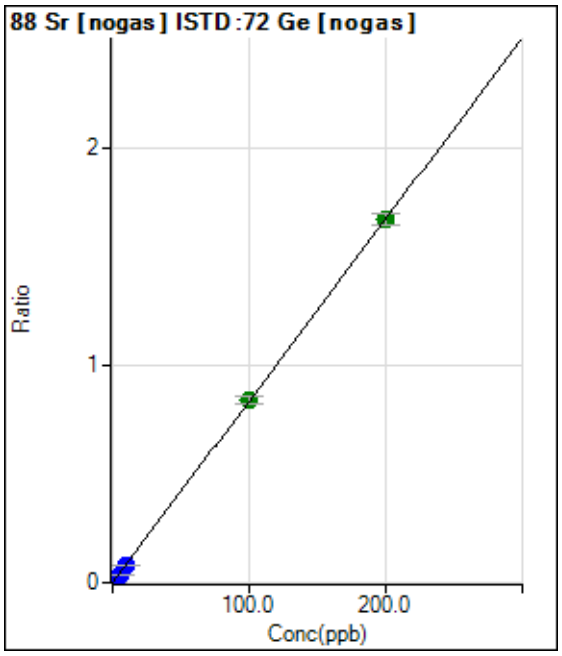
Calibration for 129_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	246.67	0.0001	P	26.
2	☐	2.000	2.248	833.37	0.0003	P	14.
3	☐	5.000	4.650	1516.75	0.0004	P	3.4
4	☐	10.000	9.068	2650.24	0.0008	P	3.9
5	☐	100.000	99.137	25164.51	0.0080	P	3.2
6	☐	200.000	200.485	50052.68	0.0161	P	4.1
7	☐	1.000					

y = 7.9697E-005 * x + 7.6897E-005
R = 1.0000
DL = 0.7576
BEC = 0.9649

Weight: <None>
Min Conc: <None>

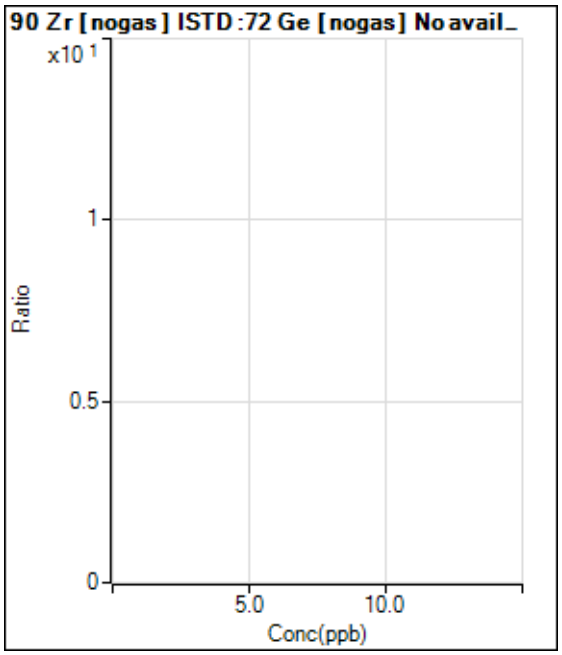


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	866.70	0.0003	P	11.
2	☐	2.000	1.940	53710.75	0.0165	P	2.5
3	☐	5.000	4.609	131562.39	0.0388	P	3.3
4	☐	10.000	9.294	258306.50	0.0780	P	5.2
5	☐	100.000	100.673	2656690.90	0.8422	A	3.5
6	☐	200.000	199.709	5208977.74	1.6704	A	3.2
7	☐	1.000					

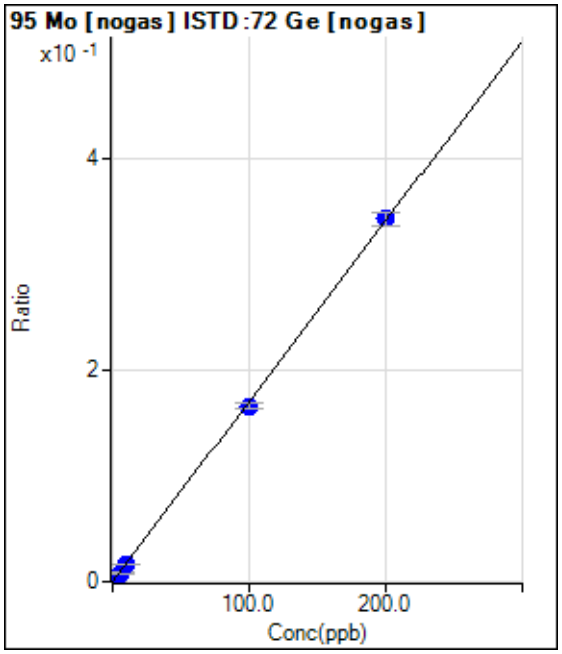
y = 0.0084 * x + 2.7023E-004
R = 1.0000
DL = 0.01099
BEC = 0.03231

Weight: <None>
Min Conc: <None>

Calibration for 129_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000					
2	☐	2.000					
3	☐	5.000					
4	☐	10.000					
5	☐	100.000					
6	☐	200.000					
7	☐	1.000					

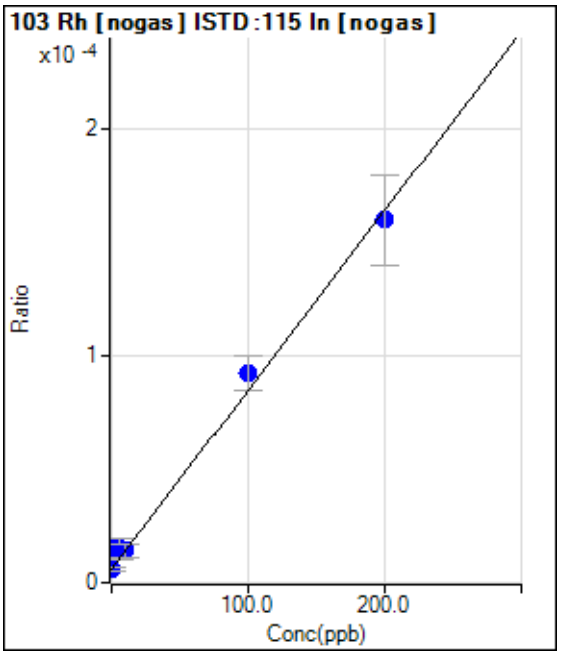


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	496.68	0.0002	P	11.
2	☐	2.000	1.886	10960.19	0.0034	P	5.8
3	☐	5.000	4.668	27484.93	0.0081	P	3.7
4	☐	10.000	9.532	54296.62	0.0164	P	3.5
5	☐	100.000	97.436	523950.83	0.1661	P	3.7
6	☐	200.000	201.315	1069772.80	0.3431	P	3.9
7	☐	1.000					

y = 0.0017 * x + 1.5487E-004
R = 0.9999
DL = 0.03185
BEC = 0.09092

Weight: <None>
Min Conc: <None>

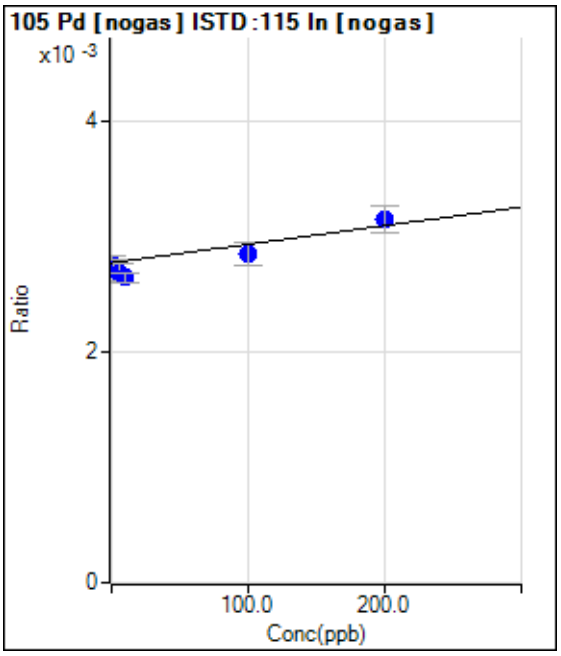
Calibration for 129_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	16.67	0.0000	P	33.
2	☐	2.000	11.751	43.33	0.0000	P	13.
3	☐	5.000	11.758	43.33	0.0000	P	60.
4	☐	10.000	10.351	40.00	0.0000	P	45.
5	☐	100.000	109.576	253.34	0.0001	P	16.
6	☐	200.000	194.928	433.35	0.0002	P	25.
7	☐	1.000					

y = 7.8982E-007 * x + 5.8977E-006
R = 0.9977
DL = 7.401
BEC = 7.467

Weight: <None>
Min Conc: <None>

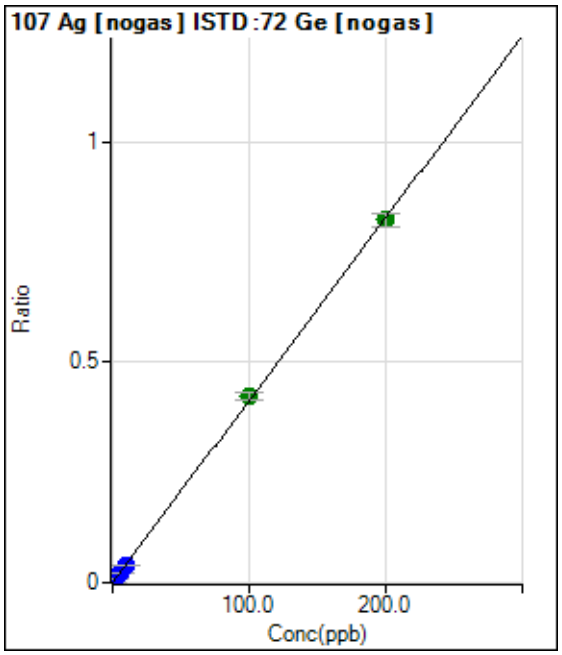


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	7811.87	0.0028	P	4.0
2	☐	2.000	-24.485	7818.53	0.0027	P	5.4
3	☐	5.000	-50.386	7751.84	0.0027	P	5.9
4	☐	10.000	-76.600	7601.77	0.0027	P	3.2
5	☐	100.000	50.731	7801.88	0.0029	P	7.1
6	☐	200.000	230.614	8575.56	0.0031	P	7.3
7	☐	1.000					

y = 1.6147E-006 * x + 0.0028
R = 0.9515
DL = 207.7
BEC = 1720

Weight: <None>
Min Conc: <None>

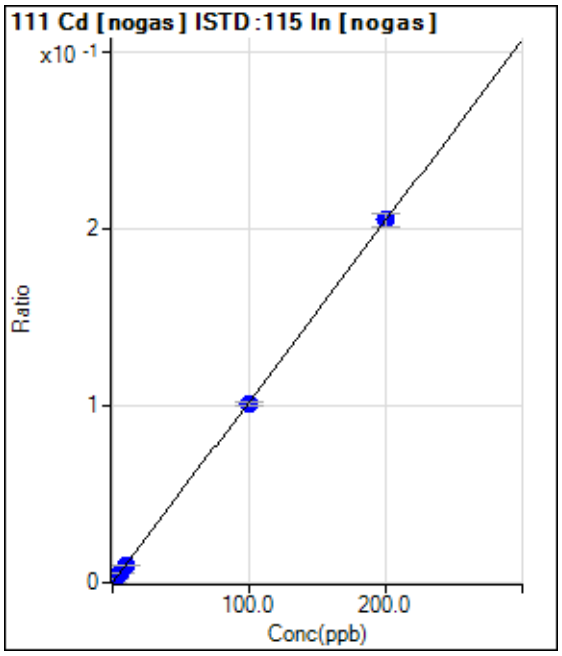
Calibration for 129_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	93.33	0.0000	P	32.
2	☐	2.000	2.027	27351.63	0.0084	P	5.2
3	☐	5.000	4.797	67315.62	0.0199	P	1.4
4	☐	10.000	9.436	129290.62	0.0390	P	1.1
5	☐	100.000	101.924	1328341.75	0.4212	A	4.3
6	☐	200.000	199.071	2566118.56	0.8227	A	4.0
7	☐	1.000					

y = 0.0041 * x + 2.9096E-005
R = 0.9999
DL = 0.006881
BEC = 0.007041

Weight: <None>
Min Conc: <None>

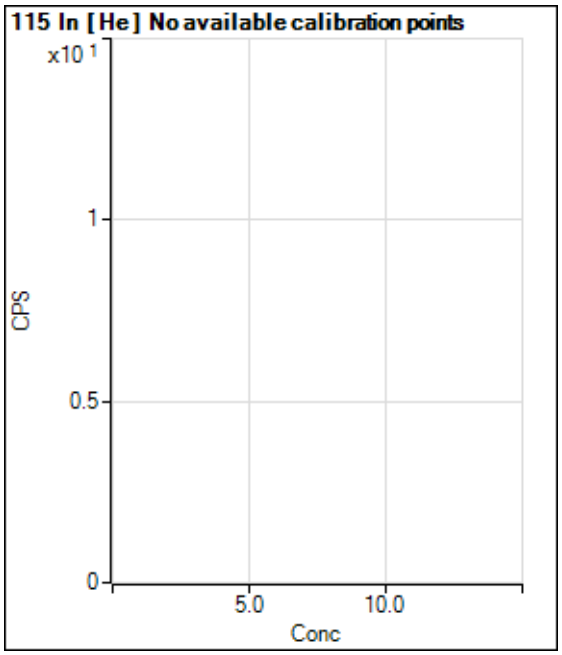


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	20.00	0.0000	P	2.8
2	☐	2.000	1.972	5784.38	0.0020	P	6.5
3	☐	5.000	4.899	14449.45	0.0050	P	3.9
4	☐	10.000	9.543	28029.17	0.0098	P	1.3
5	☐	100.000	99.088	277142.05	0.1015	P	2.4
6	☐	200.000	200.481	558850.07	0.2053	P	3.8
7	☐	1.000					

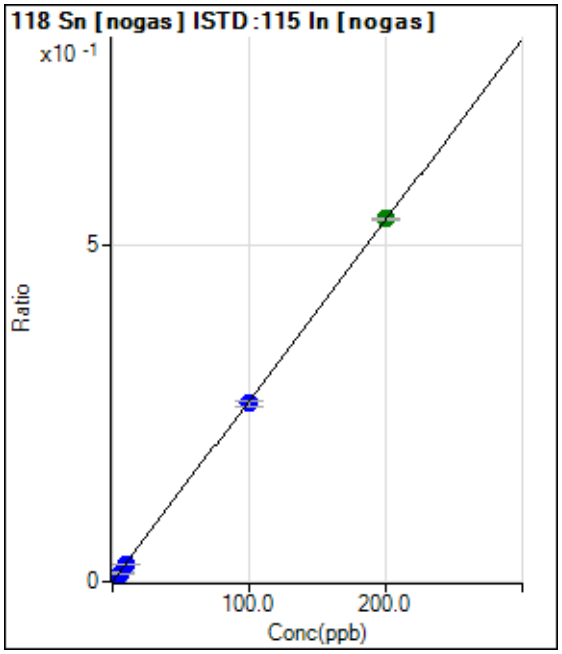
y = 0.0010 * x + 7.1151E-006
R = 1.0000
DL = 0.0005885
BEC = 0.006947

Weight: <None>
Min Conc: <None>

Calibration for 129_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐			924588.48		P	2.6
2	☐			938696.40		P	1.2
3	☐			932803.78		P	0.6
4	☐			927555.38		P	1.4
5	☐			896048.56		P	2.1
6	☐			876757.50		P	1.0
7	☐						

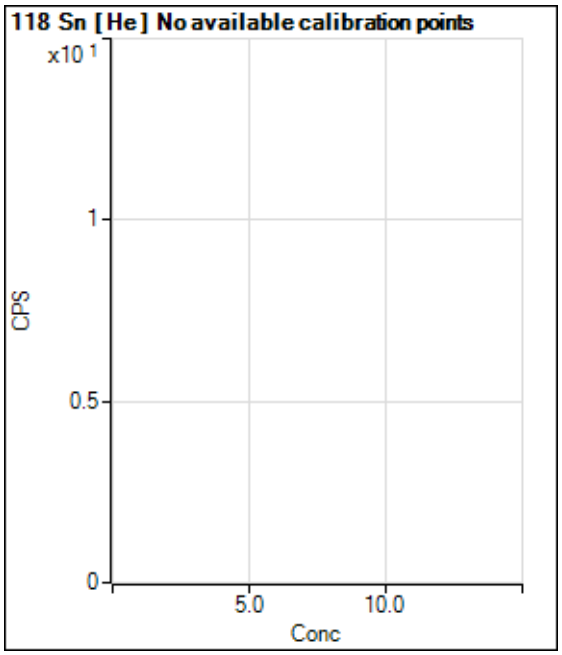


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1126.72	0.0004	P	3.4
2	☐	2.000	1.825	15113.47	0.0053	P	3.9
3	☐	5.000	4.625	36809.40	0.0128	P	1.8
4	☐	10.000	9.399	73307.27	0.0256	P	2.1
5	☐	100.000	98.638	722784.34	0.2647	P	3.4
6	☐	200.000	200.722	1465774.77	0.5383	A	0.8
7	☐	1.000					

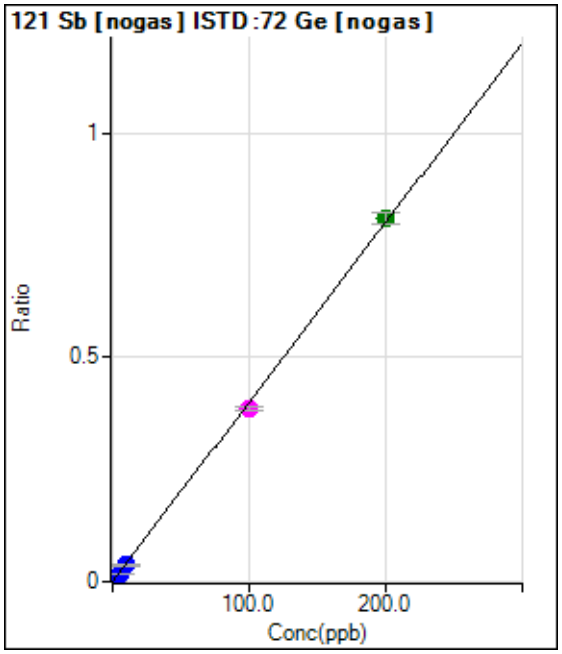
y = 0.0027 * x + 4.0036E-004
R = 1.0000
DL = 0.0152
BEC = 0.1494

Weight: <None>
Min Conc: <None>

Calibration for 129_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐			373.34		P	17.
2	☐			5847.76		P	3.3
3	☐			14269.29		P	0.8
4	☐			27832.47		P	1.0
5	☐			265444.29		P	1.5
6	☐			543348.95		P	1.8
7	☐						

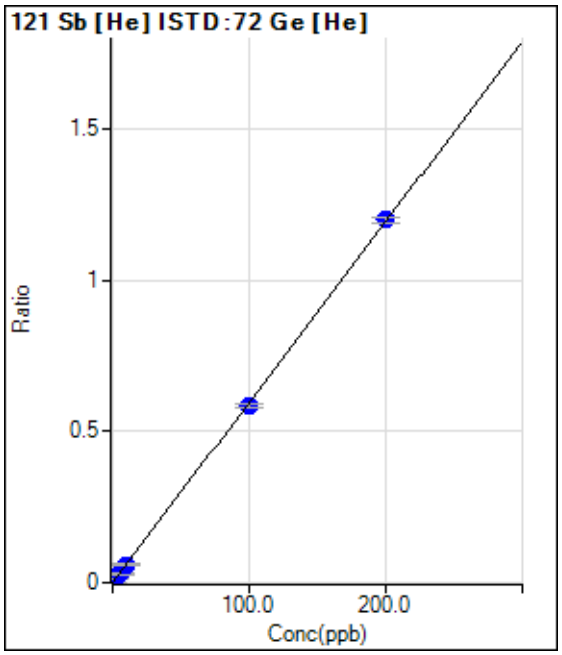


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1043.38	0.0003	P	15.
2	☐	2.000	1.857	25245.26	0.0078	P	4.7
3	☐	5.000	4.597	63499.05	0.0187	P	0.4
4	☐	10.000	9.115	121934.04	0.0368	P	2.6
5	☐	100.000	95.907	1212061.60	0.3842	M	2.4
6	☐	200.000	202.102	2523836.73	0.8093	A	3.2
7	☐	1.000					

y = 0.0040 * x + 3.2531E-004
R = 0.9997
DL = 0.03833
BEC = 0.08127

Weight: <None>
Min Conc: <None>

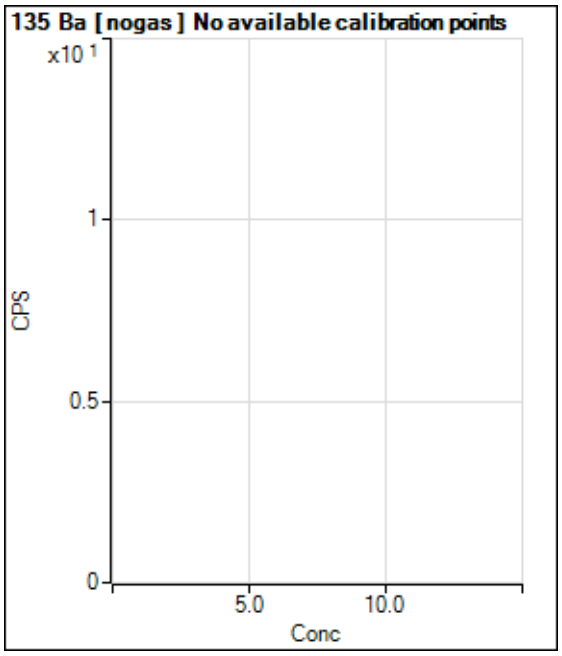
Calibration for 129_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	476.68	0.0006	P	17.
2	☐	2.000	1.995	9522.71	0.0125	P	3.1
3	☐	5.000	4.727	22875.24	0.0288	P	3.6
4	☐	10.000	9.774	45516.07	0.0590	P	5.2
5	☐	100.000	97.885	438848.72	0.5848	P	2.3
6	☐	200.000	201.076	891259.91	1.2007	P	1.8
7	☐	1.000					

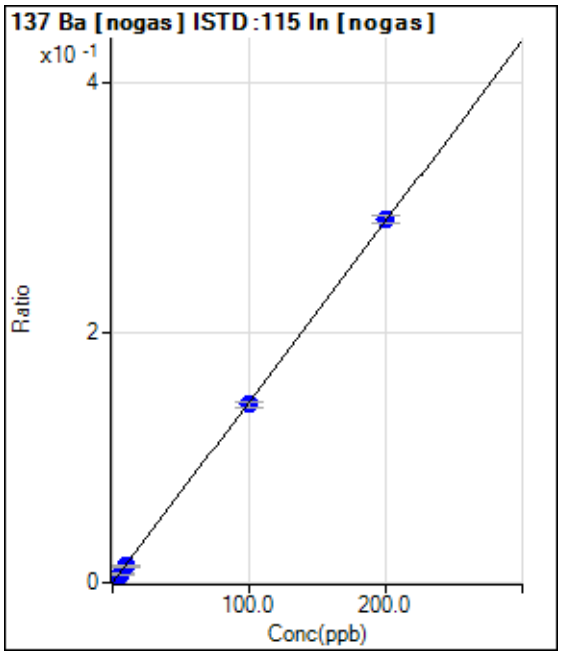
y = 0.0060 * x + 6.3200E-004
R = 0.9999
DL = 0.05422
BEC = 0.1059

Weight: <None>
Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐			63.33		P	32.
2	☐			4587.34		P	9.2
3	☐			11730.85		P	3.5
4	☐			22027.74		P	1.8
5	☐			228028.79		P	0.9
6	☐			456665.88		P	0.2
7	☐						

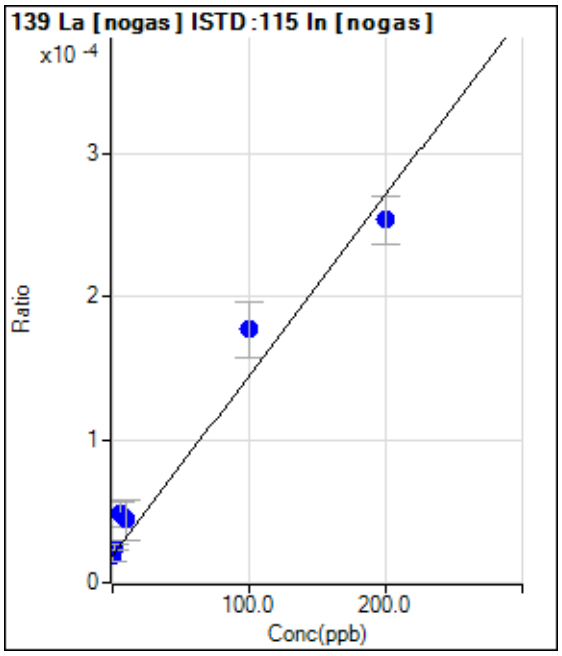
Calibration for 129_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	113.33	0.0000	P	24.
2	☐	2.000	2.023	8465.55	0.0030	P	4.3
3	☐	5.000	4.754	19901.80	0.0069	P	2.0
4	☐	10.000	9.158	38019.18	0.0133	P	5.6
5	☐	100.000	98.556	389153.08	0.1425	P	3.0
6	☐	200.000	200.770	790275.46	0.2903	P	2.2
7	☐	1.000					

y = 0.0014 * x + 4.0122E-005
R = 1.0000
DL = 0.02041
BEC = 0.02775

Weight: <None>
Min Conc: <None>

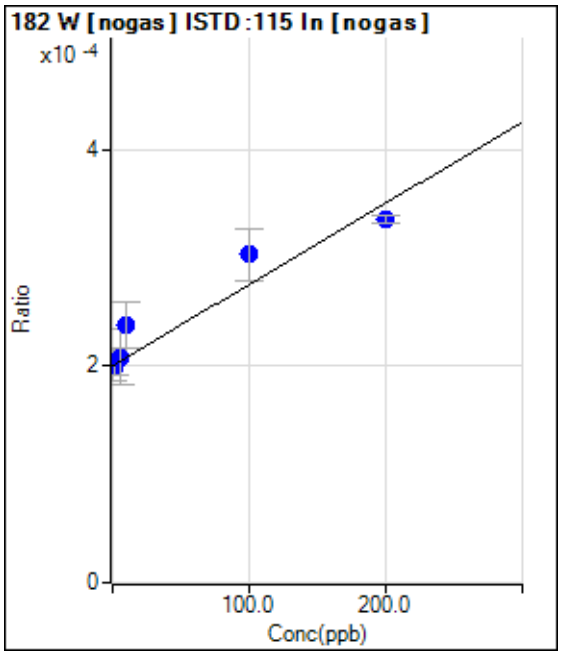


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	53.33	0.0000	P	38.
2	☐	2.000	4.455	70.00	0.0000	P	15.
3	☐	5.000	22.918	136.67	0.0000	P	37.
4	☐	10.000	19.984	126.67	0.0000	P	63.
5	☐	100.000	125.352	483.35	0.0002	P	21.
6	☐	200.000	186.352	690.02	0.0003	P	13.
7	☐	1.000					

y = 1.2589E-006 * x + 1.8927E-005
R = 0.9863
DL = 17.18
BEC = 15.03

Weight: <None>
Min Conc: <None>

Calibration for 129_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	563.35	0.0002	P	13.
2	☐	2.000	-2.765	566.69	0.0002	P	6.3
3	☐	5.000	10.883	600.02	0.0002	P	23.
4	☐	10.000	50.125	680.03	0.0002	P	18.
5	☐	100.000	137.124	826.70	0.0003	P	15.
6	☐	200.000	179.332	913.37	0.0003	P	2.2
7	☐	1.000					

y = 7.5110E-007 * x + 2.0057E-004

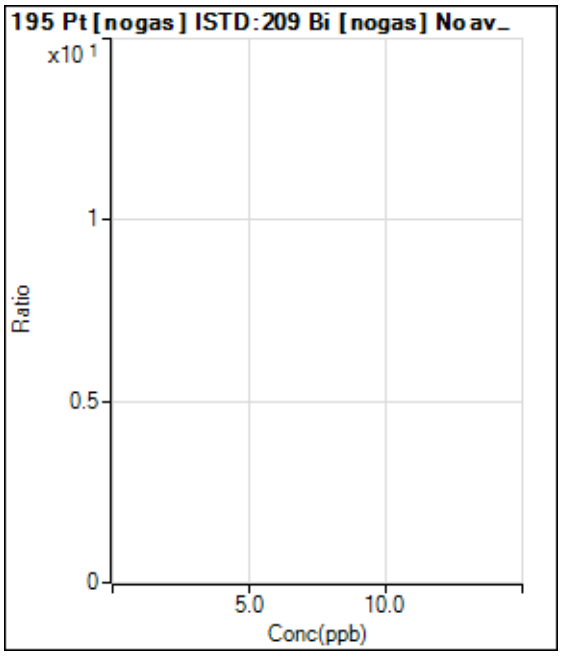
R = 0.9553

DL = 111

BEC = 267

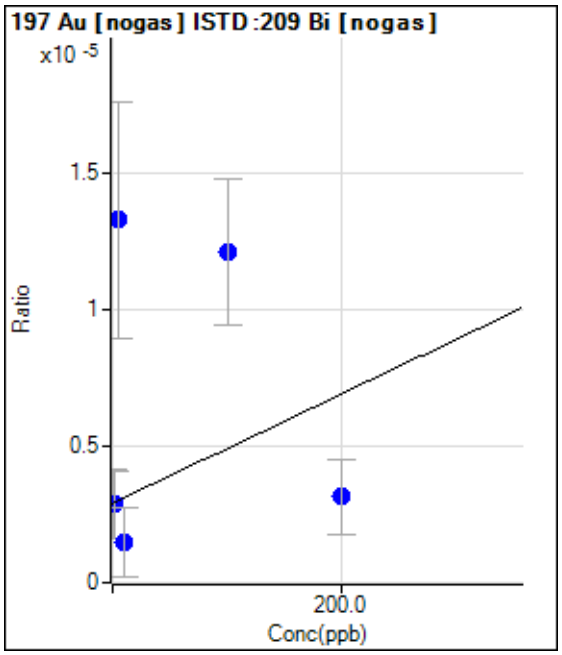
Weight: <None>

Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000					
2	☐	2.000					
3	☐	5.000					
4	☐	10.000					
5	☐	100.000					
6	☐	200.000					
7	☐	1.000					

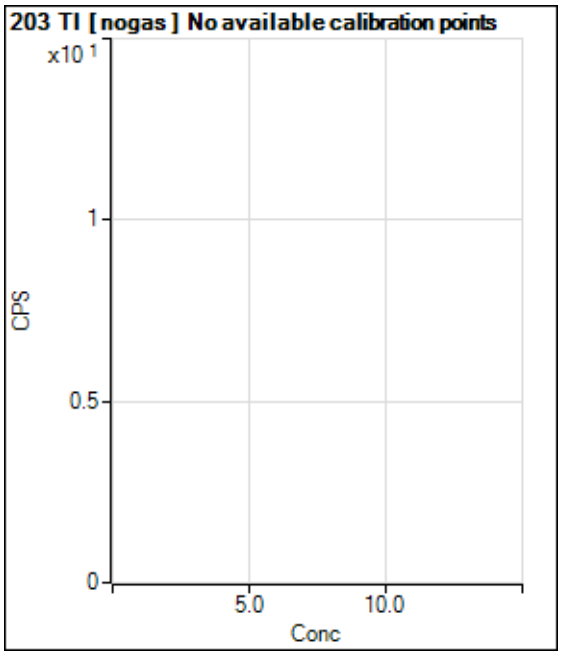
Calibration for 129_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	6.67	0.0000	P	86.
2	☐	2.000	-2.739	6.67	0.0000	P	86.
3	☐	5.000	517.822	30.00	0.0000	P	65.
4	☐	10.000	-72.509	3.33	0.0000	P	173
5	☐	100.000	458.676	26.67	0.0000	P	44.
6	☐	200.000	12.014	6.67	0.0000	P	86.
7	☐	1.000					

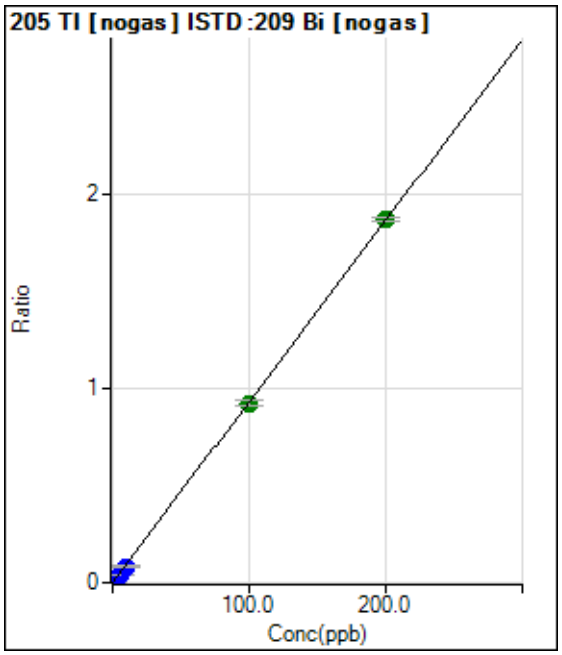
y = 2.0072E-008 * x + 2.9169E-006
R = 0.0175
DL = 377.8
BEC = 145.3

Weight: <None>
Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐			206.67		P	22.
2	☐			15477.57		P	3.1
3	☐			40122.92		P	3.0
4	☐			78697.21		P	2.4
5	☐			807880.77		P	1.0
6	☐			1654189.30		A	2.6
7	☐						

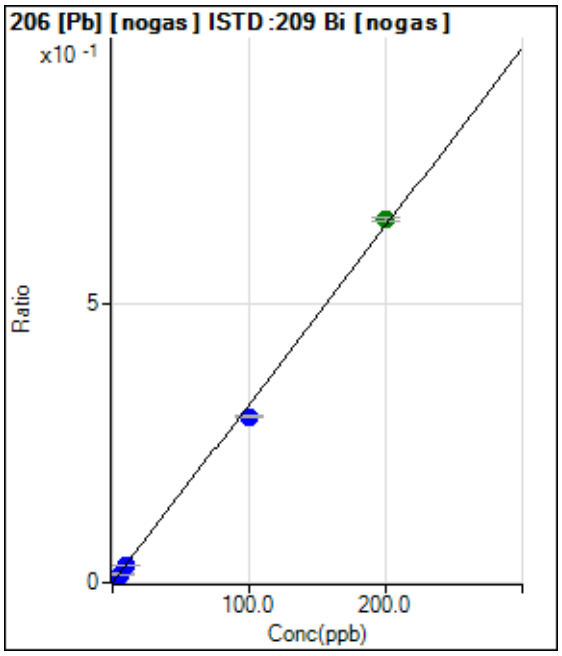
Calibration for 129_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	563.36	0.0002	P	11.
2	☐	2.000	1.731	37546.73	0.0164	P	4.4
3	☐	5.000	4.545	95807.61	0.0426	P	6.4
4	☐	10.000	9.002	187552.39	0.0841	P	3.4
5	☐	100.000	99.263	2038051.48	0.9248	A	2.8
6	☐	200.000	200.432	3971253.48	1.8672	A	1.1
7	☐	1.000					

y = 0.0093 * x + 2.4203E-004
R = 1.0000
DL = 0.008693
BEC = 0.02598

Weight: <None>
Min Conc: <None>

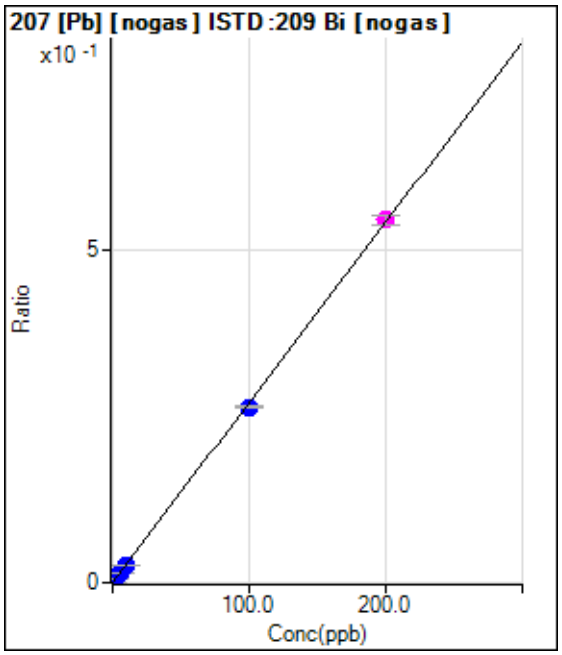


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	433.35	0.0002	P	4.9
2	☐	2.000	1.855	13999.62	0.0061	P	2.9
3	☐	5.000	4.743	34453.53	0.0153	P	5.5
4	☐	10.000	9.241	66161.27	0.0297	P	2.3
5	☐	100.000	93.101	654697.63	0.2971	P	1.6
6	☐	200.000	203.495	1380705.40	0.6491	A	1.2
7	☐	1.000					

y = 0.0032 * x + 1.8642E-004
R = 0.9992
DL = 0.008565
BEC = 0.05846

Weight: <None>
Min Conc: <None>

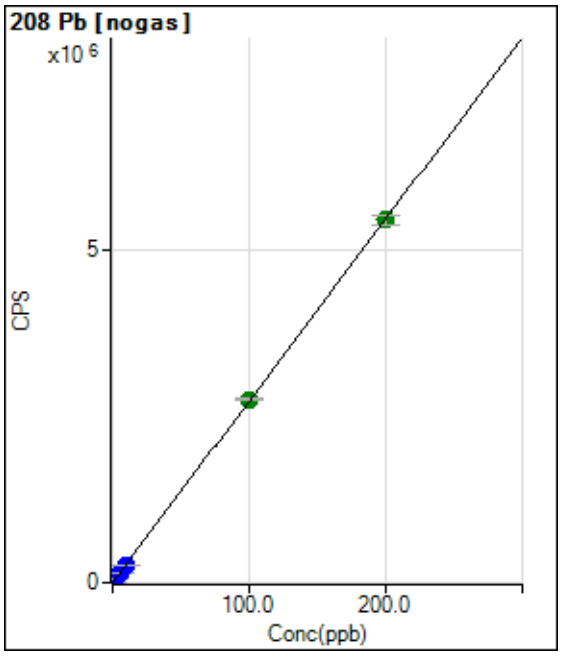
Calibration for 129_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	330.01	0.0001	P	34.
2	☐	2.000	1.923	12281.46	0.0053	P	0.3
3	☐	5.000	4.813	29667.48	0.0132	P	1.3
4	☐	10.000	9.462	57468.60	0.0258	P	2.5
5	☐	100.000	97.255	580556.16	0.2634	P	1.3
6	☐	200.000	201.405	1160139.85	0.5454	M	2.8
7	☐	1.000					

y = 0.0027 * x + 1.4312E-004
R = 0.9999
DL = 0.05483
BEC = 0.05287

Weight: <None>
Min Conc: <None>

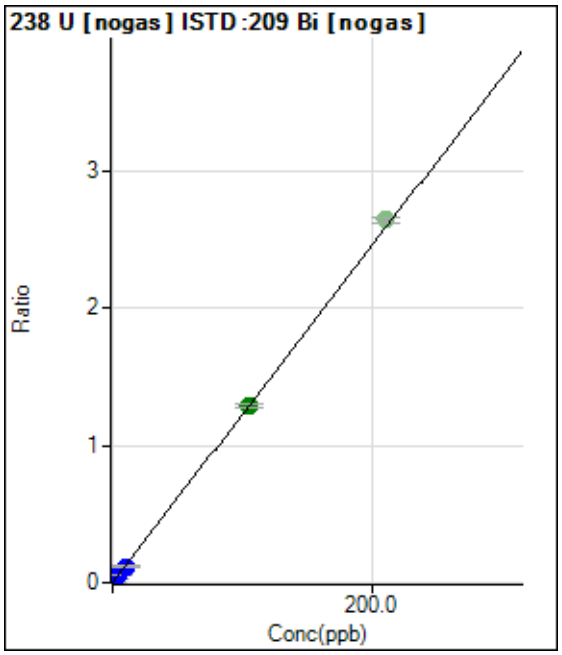


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1573.39		P	15.
2	☐	2.000	1.958	55103.58		P	1.3
3	☐	5.000	4.922	136140.68		P	1.0
4	☐	10.000	9.620	264590.69		P	1.6
5	☐	100.000	100.698	2754631.90		A	1.1
6	☐	200.000	199.672	5460578.44		A	2.7
7	☐	1.000					

y = 27339.8019 * x + 1573.3867
R = 1.0000
DL = 0.02693
BEC = 0.05755

Weight: <None>
Min Conc: <None>

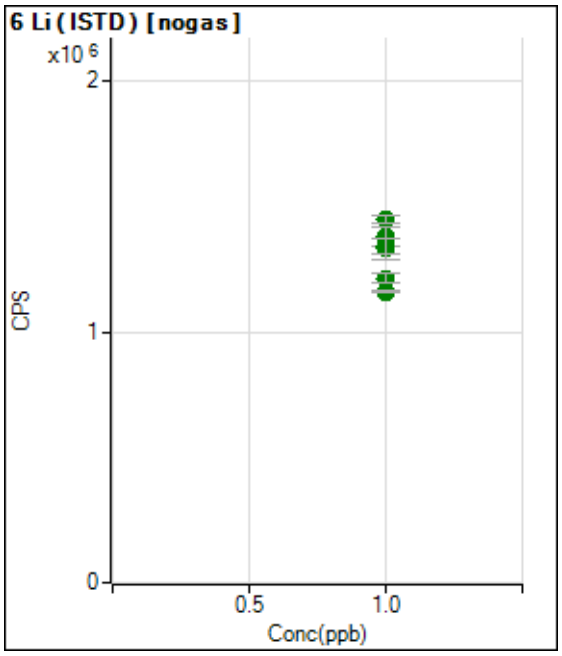
Calibration for 129_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	103.33	0.0000	P	19.
2	☐	2.000	1.902	53848.33	0.0235	P	1.9
3	☐	5.000	4.838	134181.11	0.0596	P	4.2
4	☐	10.000	9.609	263964.47	0.1184	P	4.9
5	☐	105.000	105.047	2850735.37	1.2936	A	1.7
6	☑	210.000		5626737.83	2.6457	A	1.3
7	☐	1.000					

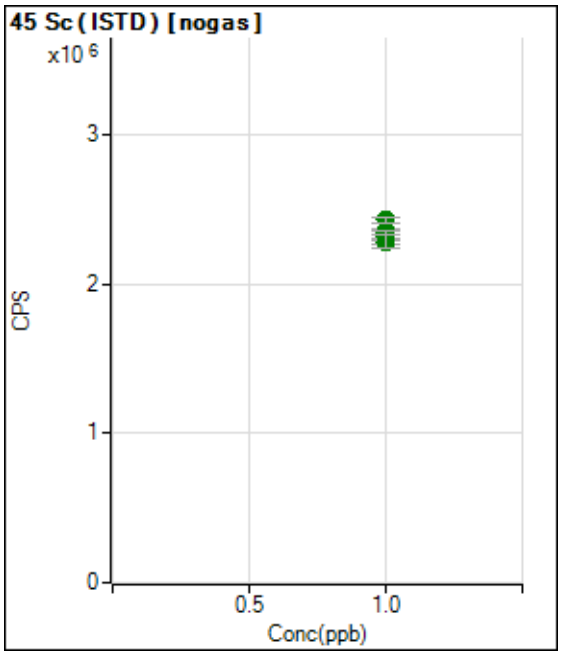
y = 0.0123 * x + 4.4356E-005
R = 1.0000
DL = 0.002109
BEC = 0.003602

Weight: <None>
Min Conc: <None>

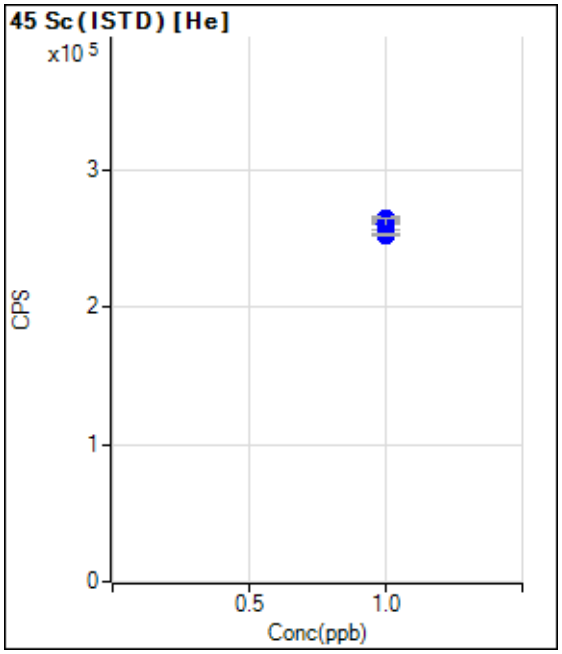


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		1446752.57		A	2.1
2	☐	1.000		1379209.18		A	5.2
3	☐	1.000		1333091.36		A	6.3
4	☐	1.000		1343071.92		A	4.5
5	☐	1.000		1213625.72		A	3.2
6	☐	1.000		1159034.25		A	0.5
7	☐	1.000					

Calibration for 129_ICV.d

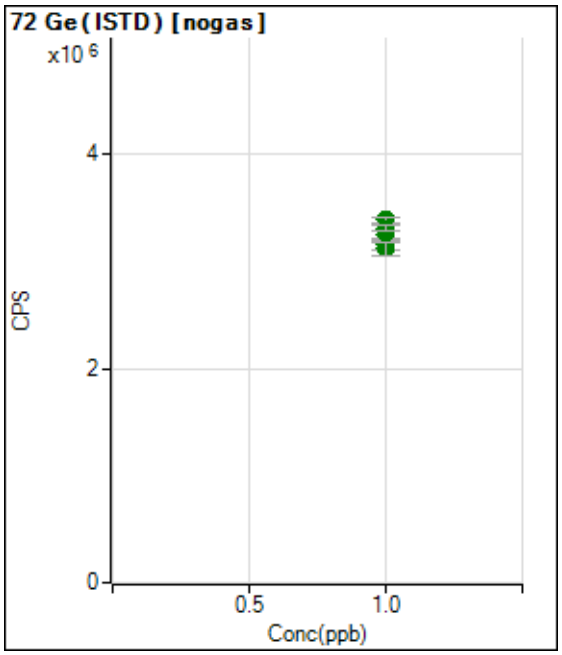


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		2309011.32		A	1.7
2	☐	1.000		2428765.17		A	1.4
3	☐	1.000		2316466.74		A	4.2
4	☐	1.000		2357261.94		A	4.3
5	☐	1.000		2345627.52		A	1.3
6	☐	1.000		2282837.62		A	3.8
7	☐	1.000					

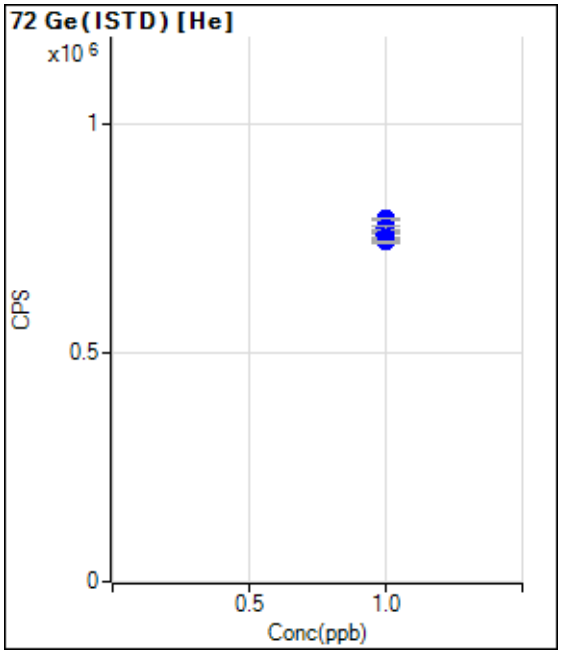


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		262357.18		P	0.7
2	☐	1.000		264294.63		P	1.9
3	☐	1.000		264479.17		P	1.0
4	☐	1.000		261102.73		P	3.0
5	☐	1.000		253211.31		P	0.8
6	☐	1.000		252623.69		P	0.7
7	☐	1.000					

Calibration for 129_ICV.d

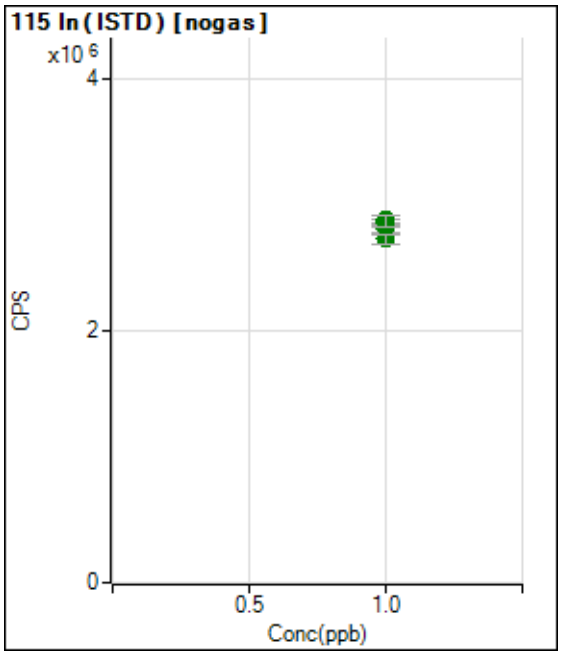


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		3206703.70		A	0.2
2	☐	1.000		3256494.54		A	2.1
3	☐	1.000		3390666.51		A	1.4
4	☐	1.000		3313199.85		A	1.7
5	☐	1.000		3155984.95		A	2.9
6	☐	1.000		3121229.43		A	4.3
7	☐	1.000					

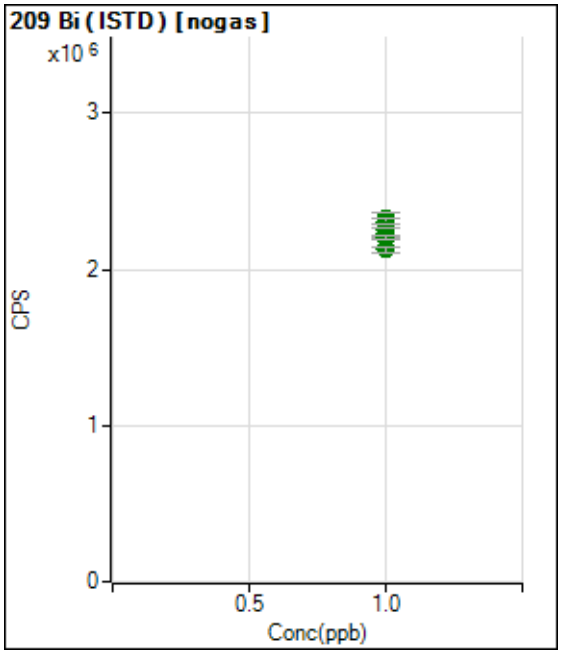


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		754516.31		P	1.5
2	☐	1.000		759218.17		P	2.0
3	☐	1.000		792957.05		P	0.8
4	☐	1.000		772137.67		P	1.0
5	☐	1.000		750459.39		P	0.8
6	☐	1.000		742295.35		P	0.5
7	☐	1.000					

Calibration for 129_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		2812441.48		A	2.8
2	☐	1.000		2856142.23		A	1.5
3	☐	1.000		2877773.69		A	3.0
4	☐	1.000		2866425.42		A	3.5
5	☐	1.000		2731957.65		A	3.1
6	☐	1.000		2723277.97		A	2.9
7	☐	1.000					



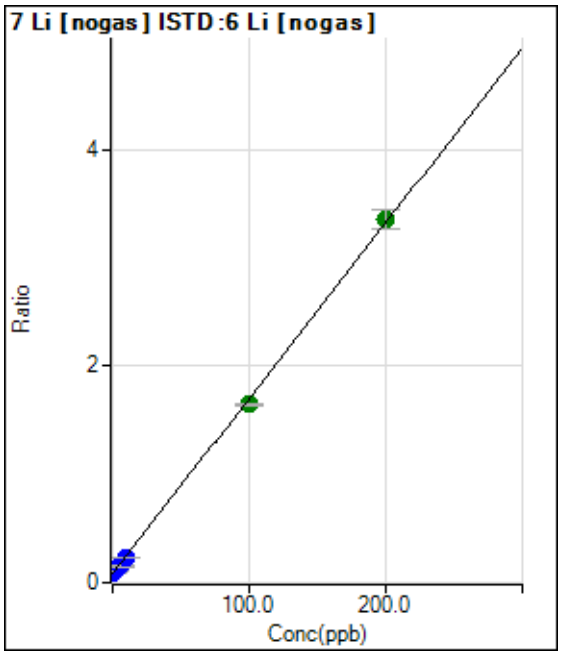
	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		2322159.81		A	3.3
2	☐	1.000		2295873.82		A	2.7
3	☐	1.000		2252571.94		A	2.9
4	☐	1.000		2231631.69		A	2.4
5	☐	1.000		2203864.45		A	0.7
6	☐	1.000		2126871.01		A	1.7
7	☐	1.000					

Calibration for 237_ICV.d

Batch Folder: C:\Agilent\ICPMH\1\DATA\122418A.b\
Analysis File: 122418A.batch.bin
DA Date-Time: 2018-12-24 22:52:36
Calibration Title:
Calibration Method: External Calibration
VIS Interpolation Fit:

Level	Standard Data File	Sample Name	Acq. Date-Time
1	231CALB.d	CAL BLK	2018-12-24 22:39:46
2	232CALS.d	2/10/200	2018-12-24 22:41:46
3	233CALS.d	5/25/500	2018-12-24 22:43:44
4	234CALS.d	10/50/1000	2018-12-24 22:45:43
5	235CALS.d	100/500/10K	2018-12-24 22:47:41
6	236CALS.d	200/1000/20K	2018-12-24 22:49:41
7			

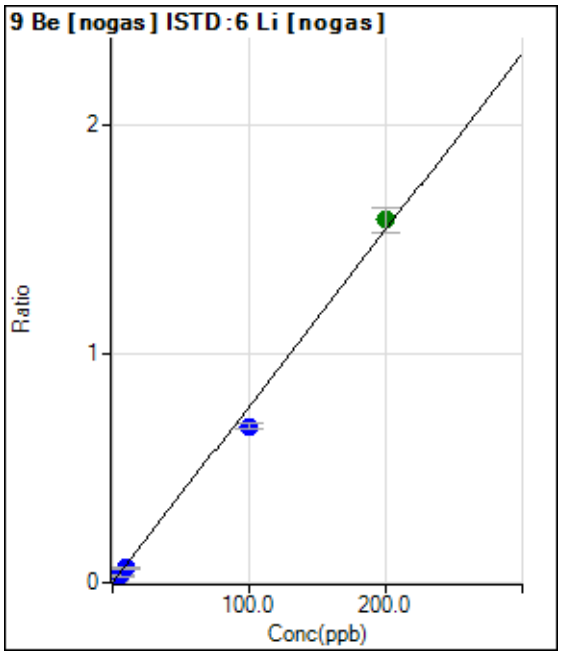
Calibration for 237_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	100282.20	0.0839	P	2.8
2	☐	2.000	1.791	131914.44	0.1129	P	2.8
3	☐	5.000	4.401	178581.34	0.1552	P	11.
4	☐	10.000	8.924	258322.35	0.2284	P	4.7
5	☐	100.000	96.401	1745197.84	1.6449	A	2.0
6	☐	200.000	201.871	3462610.88	3.3528	A	5.4
7	☐	1.000					

y = 0.0162 * x + 0.0839
R = 0.9998
DL = 0.4311
BEC = 5.182

Weight: <None>
Min Conc: <None>

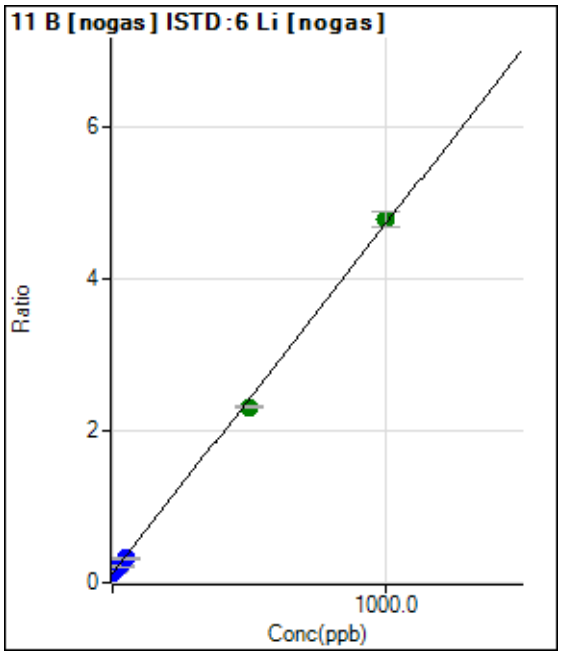


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	86.67	0.0001	P	30.
2	☐	2.000	1.617	14652.45	0.0125	P	3.6
3	☐	5.000	4.042	35793.66	0.0313	P	15.
4	☐	10.000	8.270	72216.09	0.0639	P	5.5
5	☐	100.000	88.782	726394.57	0.6849	P	3.7
6	☐	200.000	205.723	1638982.79	1.5870	A	7.0
7	☐	1.000					

y = 0.0077 * x + 7.2804E-005
R = 0.9979
DL = 0.008732
BEC = 0.009438

Weight: <None>
Min Conc: <None>

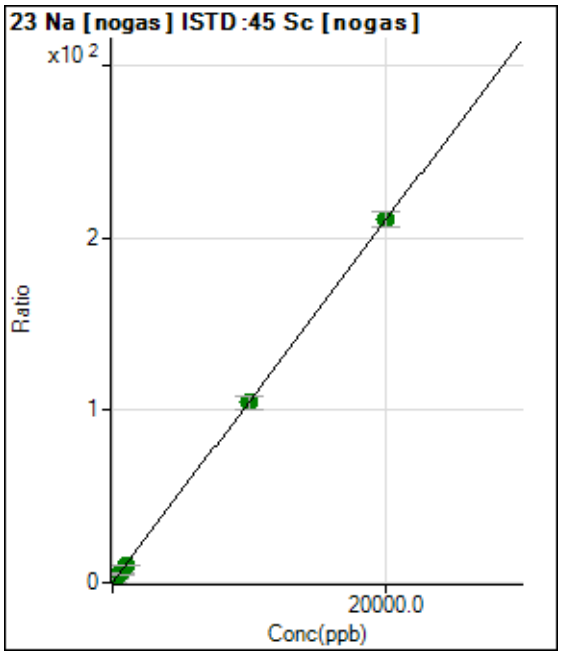
Calibration for 237_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	146565.61	0.1226	P	1.5
2	☐	10.000	7.909	185683.78	0.1590	P	3.3
3	☐	25.000	21.823	255437.83	0.2230	P	15.
4	☐	50.000	42.817	361363.28	0.3195	P	4.5
5	☐	500.000	476.507	2454033.14	2.3135	A	1.9
6	☐	1000.000	1012.206	4934583.05	4.7765	A	4.1
7	☐	5.000					

y = 0.0046 * x + 0.1226
R = 0.9996
DL = 1.191
BEC = 26.67

Weight: <None>
Min Conc: <None>

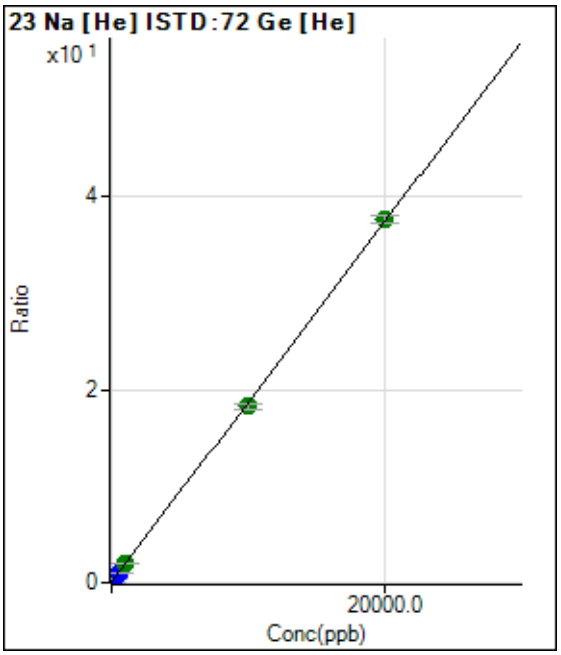


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	331428.93	0.1292	P	4.5
2	☐	200.000	193.251	5578139.71	2.1574	A	5.7
3	☐	500.000	477.044	13289388.58	5.1360	A	10.
4	☐	1000.000	960.287	26451403.72	10.2078	A	6.3
5	☐	10000.00	9941.907	259402164.1	104.473	A	7.3
6	☐	20000.00	20031.674	528973661.8	210.370	A	4.2
7	☐	100.000					

y = 0.0105 * x + 0.1292
R = 1.0000
DL = 1.657
BEC = 12.31

Weight: <None>
Min Conc: <None>

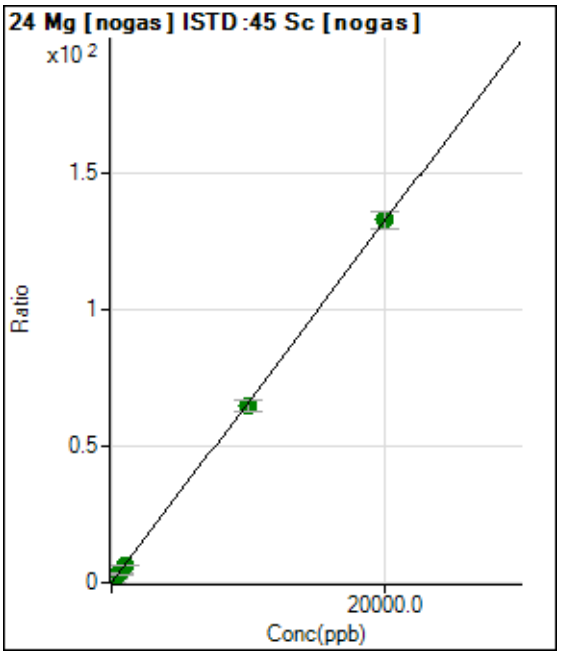
Calibration for 237_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	41901.40	0.0500	P	4.8
2	☐	200.000	191.960	342970.00	0.4085	P	2.5
3	☐	500.000	486.986	795148.82	0.9595	P	1.9
4	☐	1000.000	1035.445	1638657.99	1.9837	A	4.2
5	☐	10000.00	9749.808	15297982.69	18.2576	A	3.9
6	☐	20000.00	20123.729	30809609.54	37.6308	A	2.0
7	☐	100.000					

y = 0.0019 * x + 0.0500
R = 0.9999
DL = 3.853
BEC = 26.8

Weight: <None>
Min Conc: <None>

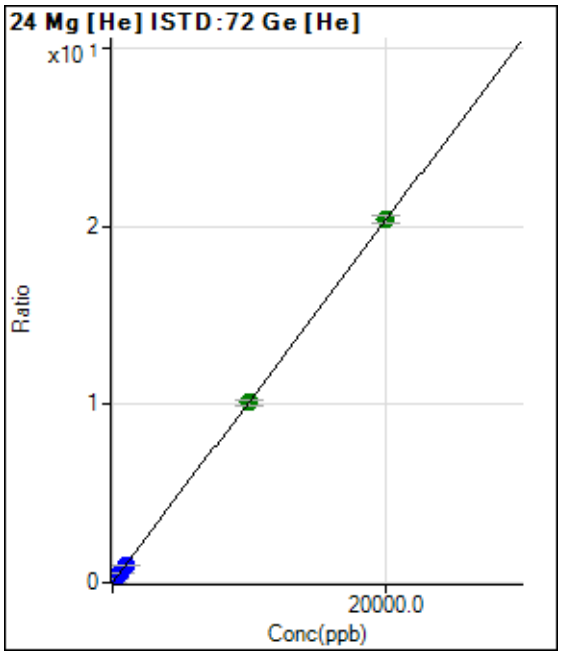


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	30464.54	0.0119	P	7.1
2	☐	200.000	196.489	3393444.87	1.3123	A	5.4
3	☐	500.000	487.773	8405434.04	3.2400	A	5.0
4	☐	1000.000	971.147	16702194.13	6.4391	A	3.5
5	☐	10000.00	9812.306	161352099.4	64.9513	A	6.8
6	☐	20000.00	20095.630	334413790.8	133.008	A	4.6
7	☐	100.000					

y = 0.0066 * x + 0.0119
R = 0.9999
DL = 0.383
BEC = 1.794

Weight: <None>
Min Conc: <None>

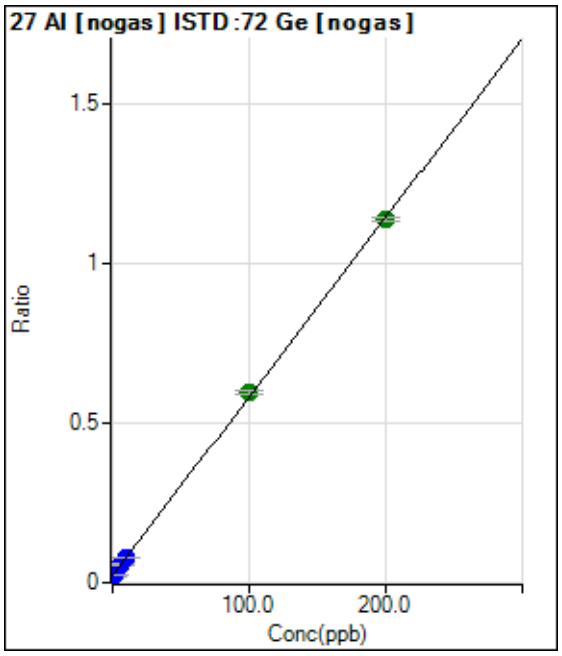
Calibration for 237_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1586.76	0.0019	P	11.
2	☐	200.000	194.116	167203.86	0.1992	P	2.3
3	☐	500.000	494.618	418151.05	0.5045	P	1.4
4	☐	1000.000	975.086	820275.85	0.9928	P	2.6
5	☐	10000.00	9930.966	8458521.33	10.0942	A	2.6
6	☐	20000.00	20035.956	16672742.25	20.3634	A	2.1
7	☐	100.000					

y = 0.0010 * x + 0.0019
R = 1.0000
DL = 0.6604
BEC = 1.863

Weight: <None>
Min Conc: <None>

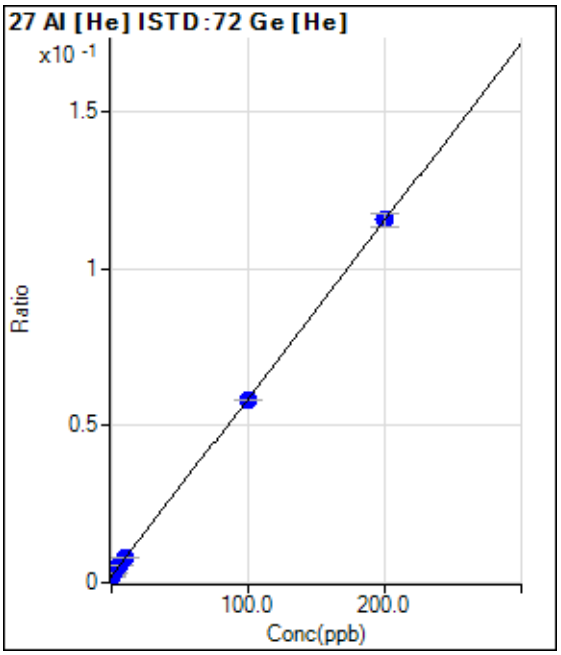


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	77457.87	0.0218	P	8.6
2	☐	2.000	0.667	91527.10	0.0256	P	3.3
3	☐	5.000	6.204	201937.25	0.0566	P	4.7
4	☐	10.000	10.379	287698.43	0.0800	P	1.7
5	☐	100.000	102.274	2058982.05	0.5953	A	1.9
6	☐	200.000	198.827	4165751.08	1.1368	A	1.0
7	☐	1.000					

y = 0.0056 * x + 0.0218
R = 0.9999
DL = 0.9989
BEC = 3.894

Weight: <None>
Min Conc: <None>

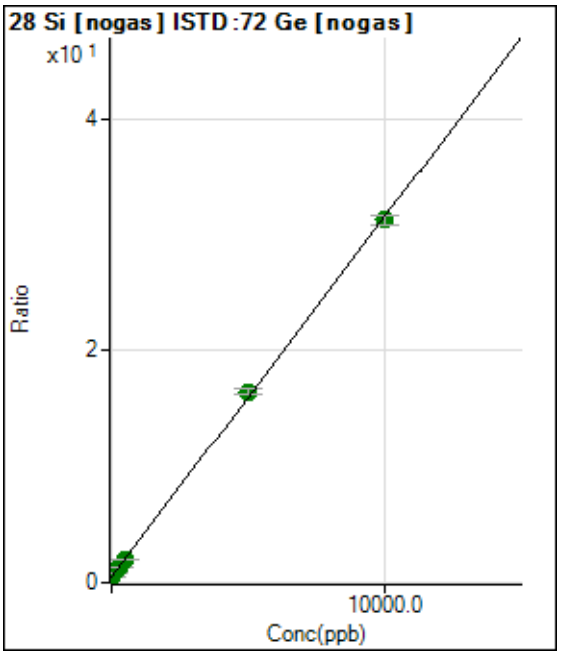
Calibration for 237_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-0.003	1763.45	0.0021	P	9.4
2	☐	2.000	1.485	2476.87	0.0029	P	11.
3	☐	5.000	5.705	4423.92	0.0053	P	4.2
4	☐	10.000	10.339	6584.58	0.0080	P	7.5
5	☐	100.000	99.007	48759.78	0.0582	P	0.7
6	☐	200.000	200.467	94669.15	0.1157	P	3.5
7	☐	1.000					

y = 5.6640E-004 * x + 0.0021
R = 1.0000
DL = 1.053
BEC = 3.72

Weight: <None>
Min Conc: <None>

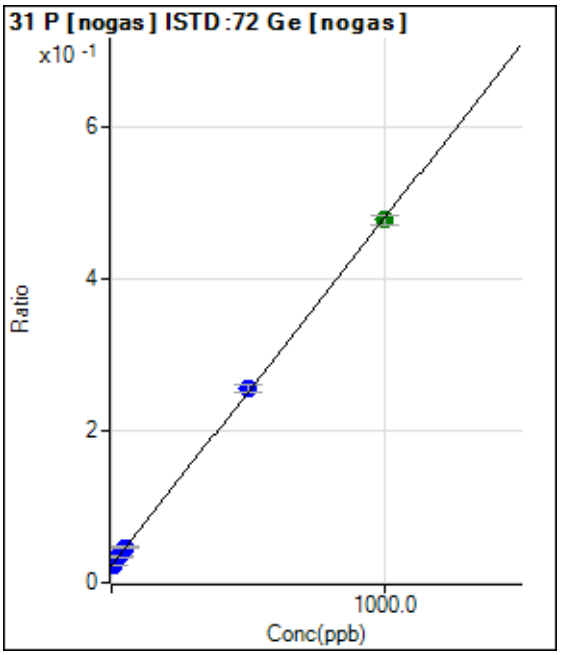


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1786795.86	0.5033	A	3.0
2	☐	100.000	87.831	2777141.21	0.7758	A	2.1
3	☐	250.000	254.258	4591023.16	1.2922	A	5.5
4	☐	500.000	487.963	7250697.18	2.0173	A	2.7
5	☐	5000.000	5153.189	57019467.49	16.4923	A	2.9
6	☐	10000.00	9924.022	114625554.9	31.2949	A	2.7
7	☐	5.000					

y = 0.0031 * x + 0.5033
R = 0.9998
DL = 14.44
BEC = 162.2

Weight: <None>
Min Conc: <None>

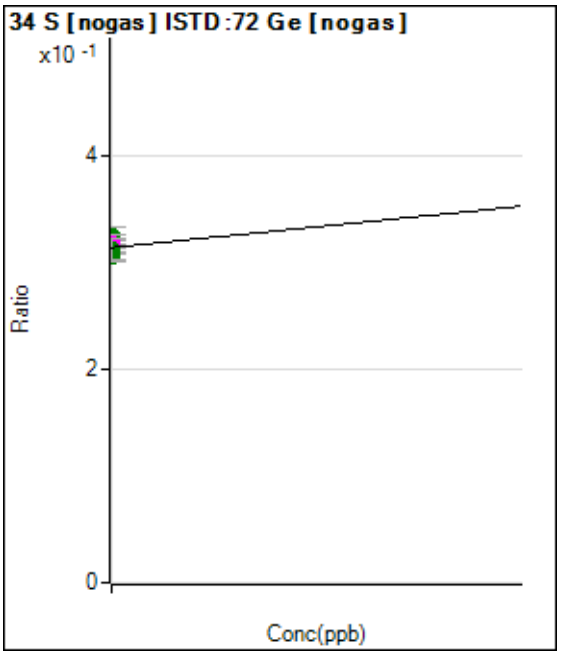
Calibration for 237_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	80236.18	0.0226	P	3.4
2	☐	10.000	-0.139	80633.97	0.0225	P	4.1
3	☐	25.000	26.987	123922.83	0.0349	P	9.8
4	☐	50.000	52.754	167931.26	0.0467	P	3.5
5	☐	500.000	509.447	883777.23	0.2557	P	3.3
6	☐	1000.000	995.190	1750887.01	0.4779	A	2.3
7	☐	5.000					

y = 4.5752E-004 * x + 0.0226
R = 0.9999
DL = 4.974
BEC = 49.4

Weight: <None>
Min Conc: <None>

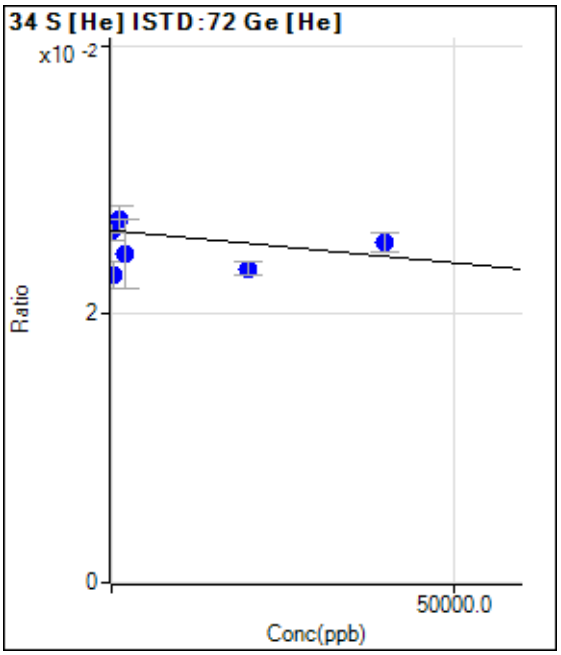


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1113053.57	0.3134	M	3.8
2	☐	400.000	-27825656.57	1097233.46	0.3063	A	2.5
3	☐	1000.000	41489022.92	1152275.19	0.3242	A	5.3
4	☐	2000.000	36090880.65	1161027.37	0.3228	A	1.3
5	☐	20000.00	14108207.03	1096116.82	0.3171	M	2.9
6	☐	40000.00	-9567487.560	1138341.66	0.3110	A	6.8
7	☐	100.000					

y = 2.5821E-010 * x + 0.3134
R = -0.2609
DL = 1.375E+08
BEC = 1.214E+09

Weight: <None>
Min Conc: <None>

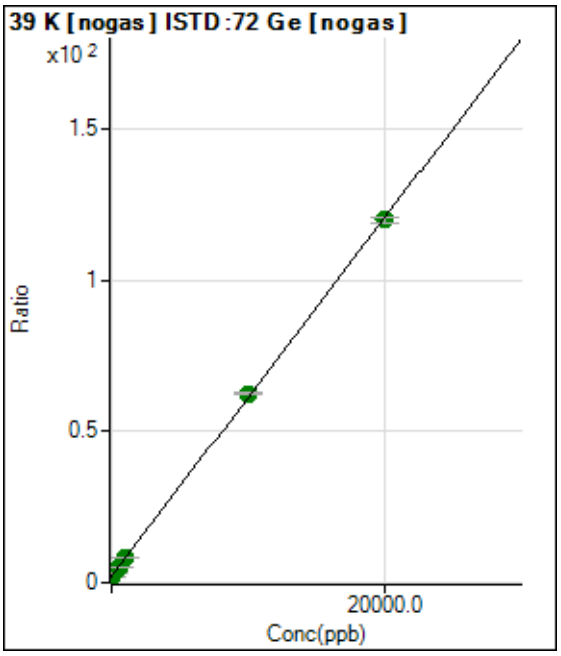
Calibration for 237_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	21950.22	0.0262	P	5.6
2	☐	400.000	68262.296	19246.23	0.0229	P	8.6
3	☐	1000.000	-16293.142	22384.11	0.0270	P	7.5
4	☐	2000.000	37018.140	20148.30	0.0244	P	20.
5	☐	20000.00	59369.552	19580.39	0.0234	P	4.5
6	☐	40000.00	18318.022	20748.34	0.0253	P	6.0
7	☐	100.000					

y = -4.8102E-008 * x + 0.0262
R = -0.0898
DL = -9.232E+04
BEC = -5.45E+05

Weight: <None>
Min Conc: <None>

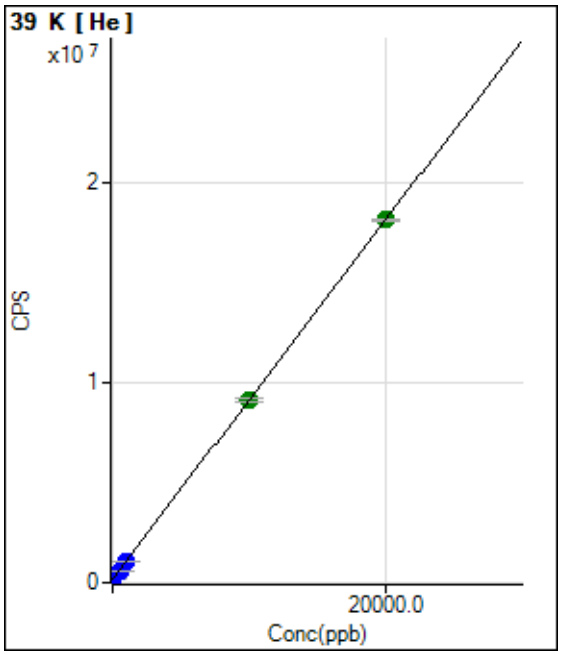


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	7580101.73	2.1349	A	2.4
2	☐	200.000	202.537	11936197.14	3.3352	A	2.9
3	☐	500.000	510.936	18312033.74	5.1630	A	9.1
4	☐	1000.000	1011.498	29212752.74	8.1297	A	3.2
5	☐	10000.00	10207.707	216604788.1	62.6332	A	1.3
6	☐	20000.00	19895.273	439767909.8	120.048	A	1.8
7	☐	100.000					

y = 0.0059 * x + 2.1349
R = 0.9999
DL = 26.13
BEC = 360.2

Weight: <None>
Min Conc: <None>

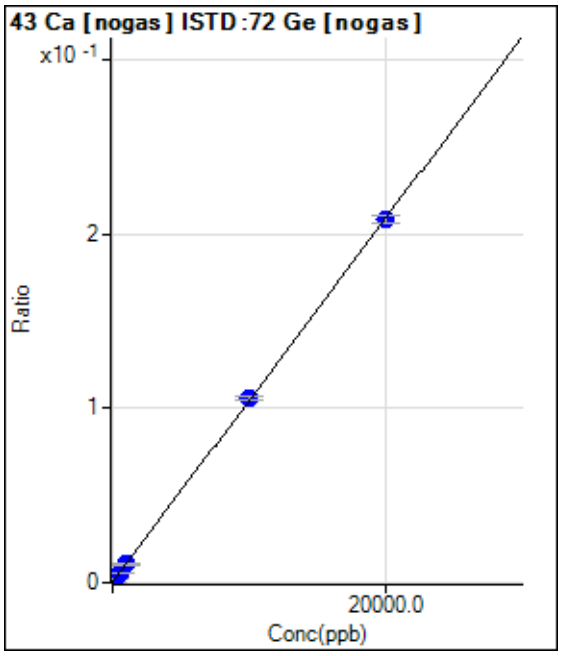
Calibration for 237_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	170285.97		P	0.3
2	☐	200.000	201.047	350759.06		P	0.7
3	☐	500.000	492.010	611946.24		P	1.1
4	☐	1000.000	968.975	1040100.25		P	0.7
5	☐	10000.00	9989.647	9137636.95		A	1.7
6	☐	20000.00	20006.917	18129783.90		A	0.5
7	☐	100.000					

y = 897.6644 * x + 170285.9667
R = 1.0000
DL = 1.483
BEC = 189.7

Weight: <None>
Min Conc: <None>

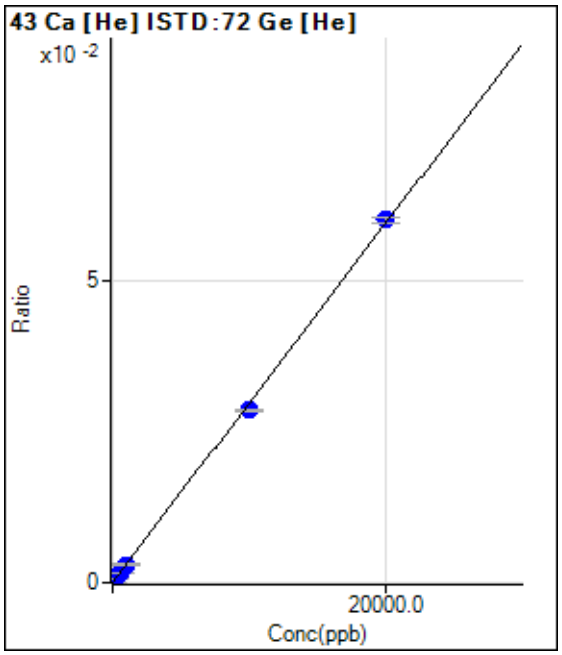


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	823.37	0.0002	P	11.
2	☐	200.000	198.398	8231.93	0.0023	P	2.7
3	☐	500.000	499.213	19320.28	0.0054	P	4.6
4	☐	1000.000	990.750	37928.98	0.0106	P	4.5
5	☐	10000.00	10146.229	366611.83	0.1060	P	1.4
6	☐	20000.00	19927.384	761679.34	0.2079	P	2.3
7	☐	100.000					

y = 1.0423E-005 * x + 2.3215E-004
R = 1.0000
DL = 7.682
BEC = 22.27

Weight: <None>
Min Conc: <None>

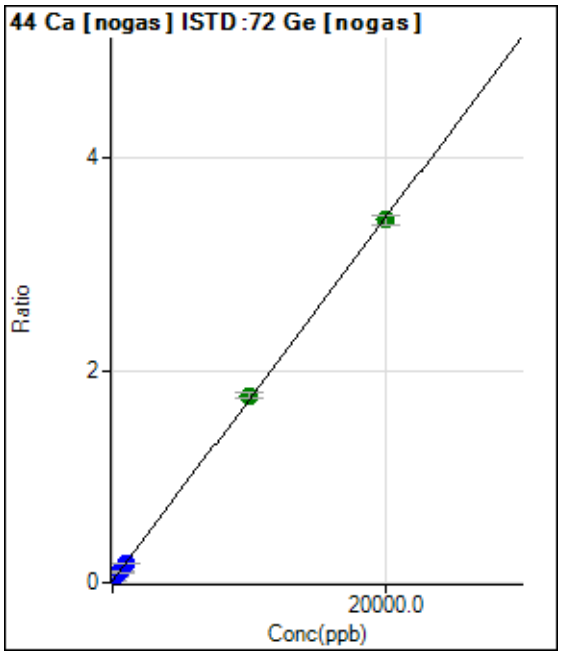
Calibration for 237_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	36.67	0.0000	P	78.
2	☐	200.000	176.102	476.68	0.0006	P	3.8
3	☐	500.000	506.136	1283.40	0.0015	P	9.9
4	☐	1000.000	993.585	2476.87	0.0030	P	9.6
5	☐	10000.00	9588.297	23948.89	0.0286	P	1.6
6	☐	20000.00	20206.258	49271.69	0.0602	P	1.8
7	☐	100.000					

y = 2.9757E-006 * x + 4.3619E-005
R = 0.9997
DL = 34.29
BEC = 14.66

Weight: <None>
Min Conc: <None>

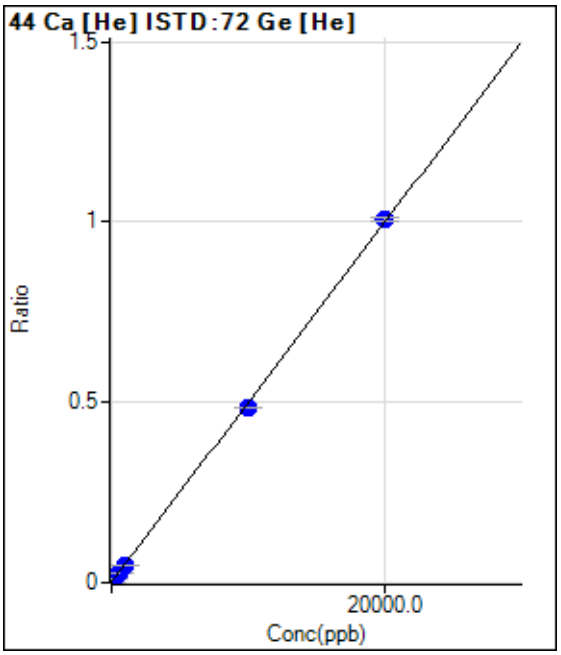


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	54583.02	0.0154	P	4.3
2	☐	200.000	191.137	172085.82	0.0481	P	2.7
3	☐	500.000	495.058	354984.02	0.1001	P	8.9
4	☐	1000.000	970.672	652308.58	0.1814	P	1.2
5	☐	10000.00	10226.911	6101094.91	1.7650	A	3.3
6	☐	20000.00	19888.223	12519365.23	3.4179	A	3.0
7	☐	100.000					

y = 1.7108E-004 * x + 0.0154
R = 0.9999
DL = 11.57
BEC = 89.89

Weight: <None>
Min Conc: <None>

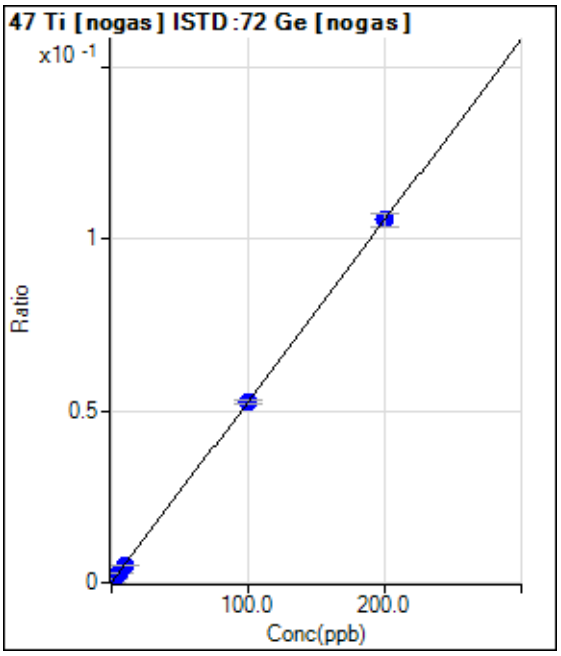
Calibration for 237_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	916.71	0.0011	P	13.
2	☐	200.000	195.242	9095.68	0.0108	P	1.7
3	☐	500.000	489.347	21132.21	0.0255	P	3.2
4	☐	1000.000	962.277	40547.68	0.0491	P	4.8
5	☐	10000.00	9714.364	406952.36	0.4856	P	0.9
6	☐	20000.00	20145.018	823613.63	1.0058	P	1.1
7	☐	100.000					

y = 4.9875E-005 * x + 0.0011
R = 0.9999
DL = 9.082
BEC = 21.96

Weight: <None>
Min Conc: <None>

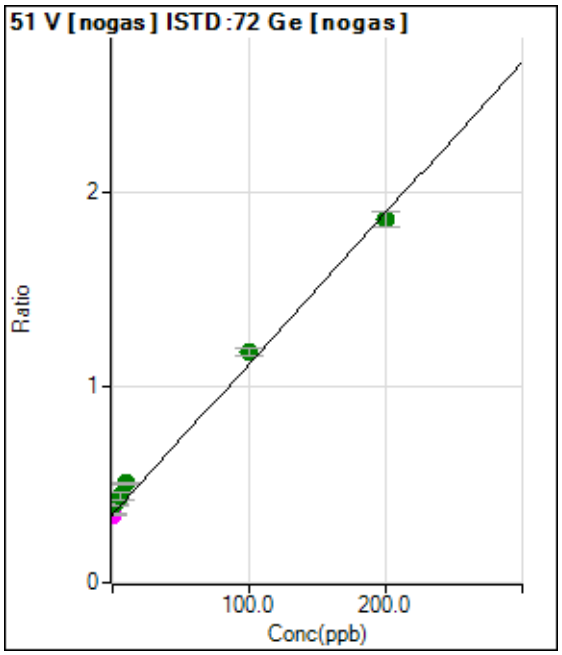


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	283.34	0.0001	P	41.
2	☐	2.000	1.783	3643.75	0.0010	P	10.
3	☐	5.000	4.942	9529.26	0.0027	P	7.9
4	☐	10.000	9.421	18139.09	0.0050	P	2.1
5	☐	100.000	99.521	181696.77	0.0525	P	2.2
6	☐	200.000	200.272	386985.39	0.1057	P	3.4
7	☐	1.000					

y = 5.2719E-004 * x + 7.9746E-005
R = 1.0000
DL = 0.1862
BEC = 0.1513

Weight: <None>
Min Conc: <None>

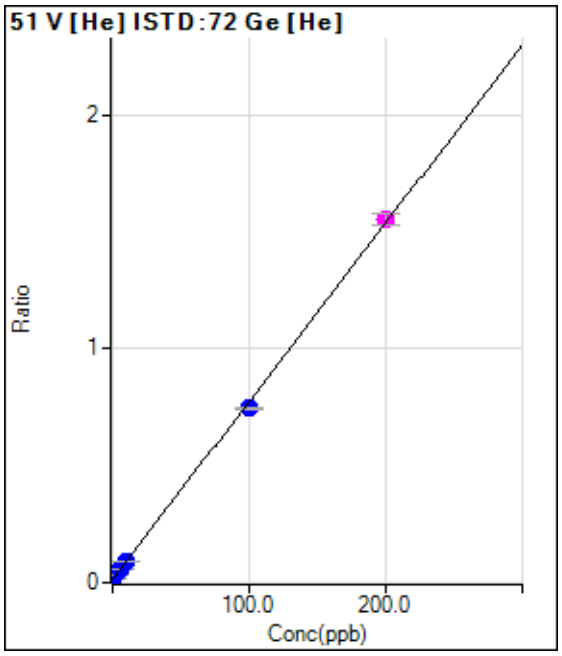
Calibration for 237_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1238421.94	0.3488	M	4.1
2	☐	2.000	6.452	1427472.62	0.3985	A	1.0
3	☐	5.000	12.441	1577439.88	0.4447	A	9.0
4	☐	10.000	20.625	1826105.38	0.5078	A	2.4
5	☐	100.000	107.948	4082141.63	1.1811	A	3.5
6	☐	200.000	195.264	6790929.32	1.8542	A	4.1
7	☐	1.000					

y = 0.0077 * x + 0.3488
R = 0.9982
DL = 5.552
BEC = 45.24

Weight: <None>
Min Conc: <None>

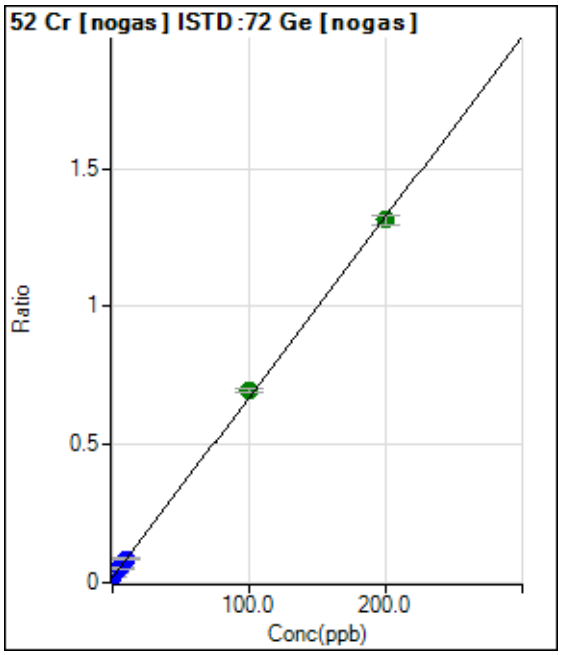


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.474	14259.45	0.0170	P	1.5
2	☐	2.000	2.475	27090.25	0.0323	P	0.5
3	☐	5.000	5.536	46057.91	0.0556	P	1.5
4	☐	10.000	10.508	77214.15	0.0934	P	1.3
5	☐	100.000	96.102	624534.88	0.7453	P	1.1
6	☐	200.000	201.905	1270034.29	1.5510	M	3.2
7	☐	1.000					

y = 0.0076 * x + 0.0134
R = 0.9997
DL = 0.1009
BEC = 1.762

Weight: <None>
Min Conc: <None>

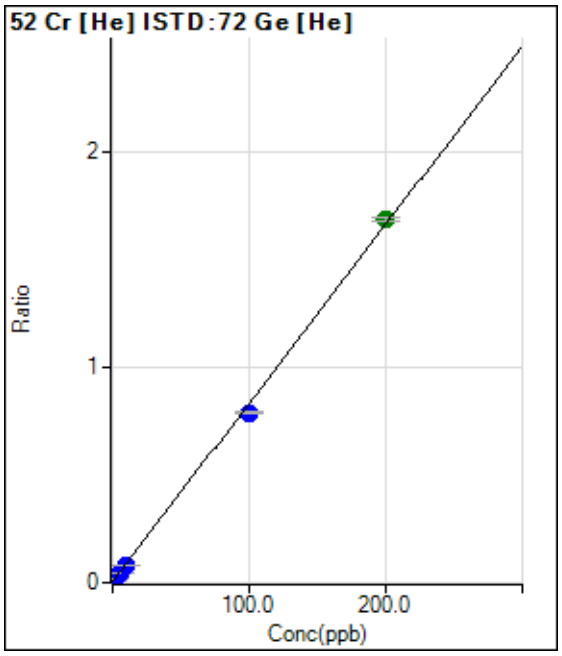
Calibration for 237_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	68853.87	0.0194	P	1.9
2	☐	2.000	1.992	115869.71	0.0324	P	5.1
3	☐	5.000	5.184	189061.97	0.0532	P	6.3
4	☐	10.000	10.108	306749.05	0.0854	P	3.9
5	☐	100.000	103.412	2401368.77	0.6945	A	2.3
6	☐	200.000	198.284	4813022.43	1.3139	A	2.6
7	☐	1.000					

y = 0.0065 * x + 0.0194
R = 0.9998
DL = 0.1677
BEC = 2.97

Weight: <None>
Min Conc: <None>

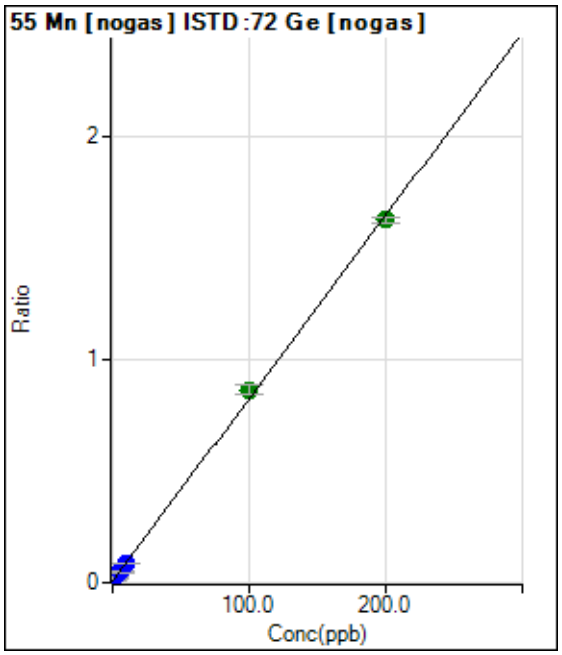


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	4123.86	0.0049	P	7.9
2	☐	2.000	1.841	16961.33	0.0202	P	4.4
3	☐	5.000	4.823	37254.53	0.0450	P	1.4
4	☐	10.000	9.406	68580.62	0.0830	P	0.5
5	☐	100.000	94.594	661999.05	0.7900	P	0.9
6	☐	200.000	202.739	1381847.06	1.6874	A	1.0
7	☐	1.000					

y = 0.0083 * x + 0.0049
R = 0.9995
DL = 0.1411
BEC = 0.5935

Weight: <None>
Min Conc: <None>

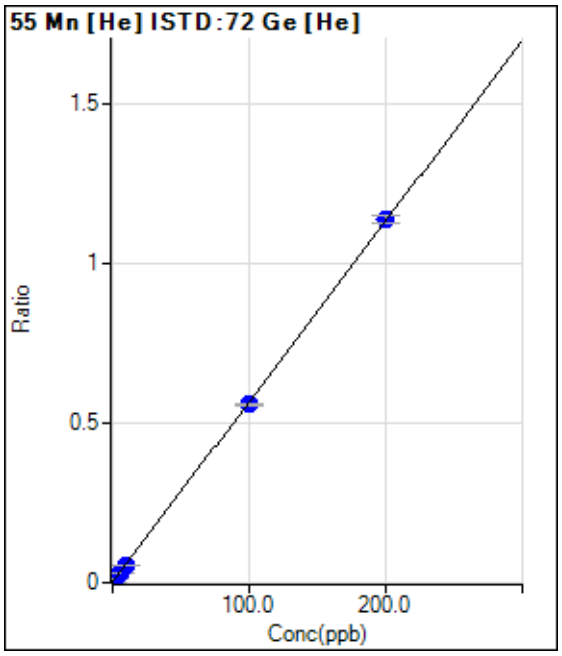
Calibration for 237_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	23391.62	0.0066	P	2.2
2	☐	2.000	1.830	77277.42	0.0216	P	4.2
3	☐	5.000	5.053	170429.78	0.0480	P	9.0
4	☐	10.000	9.837	313711.41	0.0873	P	2.9
5	☐	100.000	104.638	2988634.12	0.8650	A	4.7
6	☐	200.000	197.689	5965128.45	1.6283	A	1.8
7	☐	1.000					

y = 0.0082 * x + 0.0066
R = 0.9996
DL = 0.05259
BEC = 0.8029

Weight: <None>
Min Conc: <None>

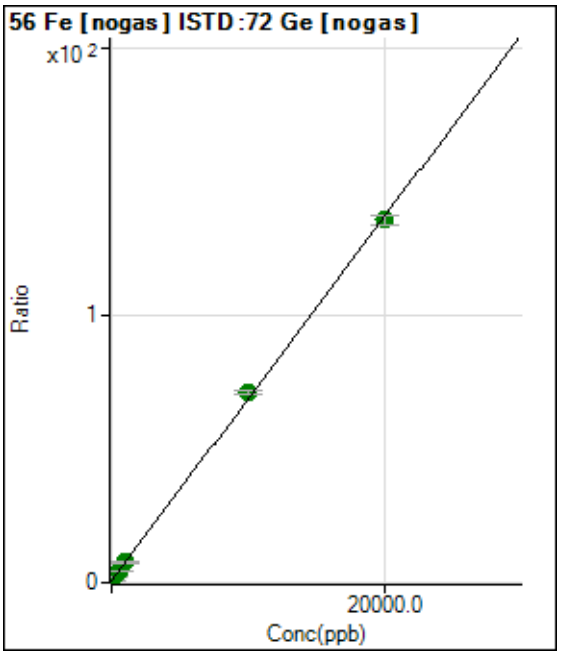


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1073.38	0.0013	P	1.3
2	☐	2.000	1.903	10109.54	0.0120	P	1.8
3	☐	5.000	5.007	24523.30	0.0296	P	2.3
4	☐	10.000	9.795	46836.19	0.0567	P	1.7
5	☐	100.000	98.581	468165.88	0.5586	P	1.0
6	☐	200.000	200.721	930186.86	1.1361	P	2.1
7	☐	1.000					

y = 0.0057 * x + 0.0013
R = 1.0000
DL = 0.00862
BEC = 0.2267

Weight: <None>
Min Conc: <None>

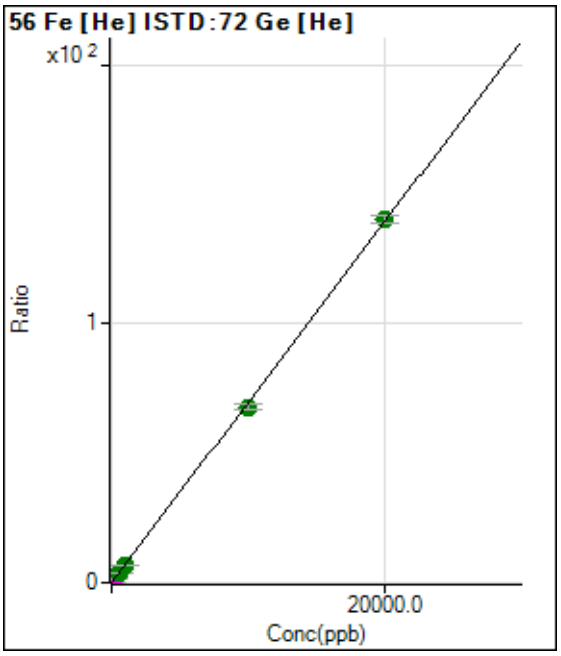
Calibration for 237_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	2564814.12	0.7225	A	3.4
2	☐	200.000	202.138	7515341.57	2.1001	A	3.7
3	☐	500.000	502.916	14726538.35	4.1501	A	8.1
4	☐	1000.000	1003.383	27184109.98	7.5610	A	3.4
5	☐	10000.00	10349.989	246346363.8	71.2630	A	2.9
6	☐	20000.00	19824.742	497565694.4	135.838	A	2.9
7	☐	100.000					

y = 0.0068 * x + 0.7225
R = 0.9998
DL = 10.95
BEC = 106

Weight: <None>
Min Conc: <None>

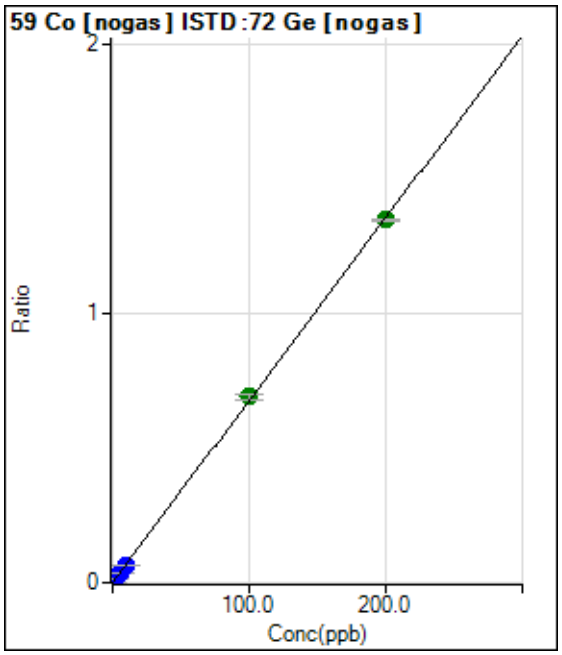


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	26058.62	0.0311	P	2.7
2	☐	200.000	195.537	1169440.84	1.3926	M	3.6
3	☐	500.000	506.315	2947197.25	3.5564	A	2.8
4	☐	1000.000	997.225	5763138.04	6.9744	A	1.4
5	☐	10000.00	9750.429	56918027.49	67.9201	A	2.9
6	☐	20000.00	20124.811	114749171.6	140.153	A	1.9
7	☐	100.000					

y = 0.0070 * x + 0.0311
R = 0.9999
DL = 0.3597
BEC = 4.468

Weight: <None>
Min Conc: <None>

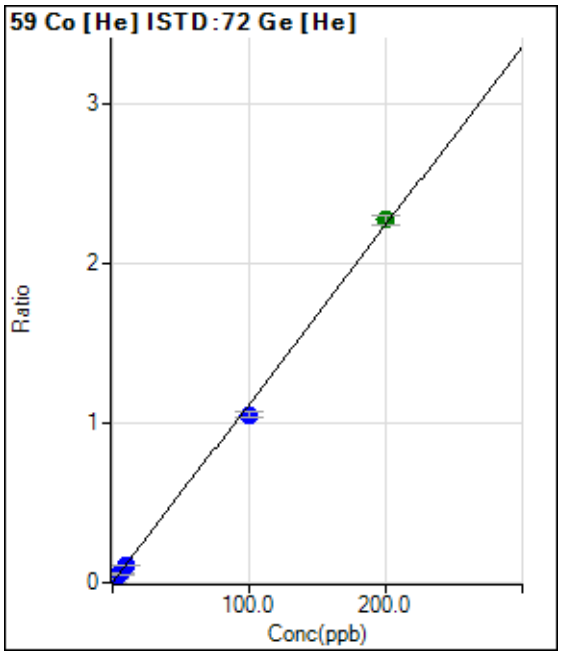
Calibration for 237_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	833.37	0.0002	P	23.
2	☐	2.000	1.968	48547.84	0.0136	P	3.8
3	☐	5.000	5.035	121849.42	0.0343	P	8.8
4	☐	10.000	9.823	240024.07	0.0668	P	2.5
5	☐	100.000	101.857	2385751.06	0.6902	A	3.3
6	☐	200.000	199.080	4942486.70	1.3488	A	0.4
7	☐	1.000					

y = 0.0068 * x + 2.3546E-004
R = 0.9999
DL = 0.0246
BEC = 0.03476

Weight: <None>
Min Conc: <None>

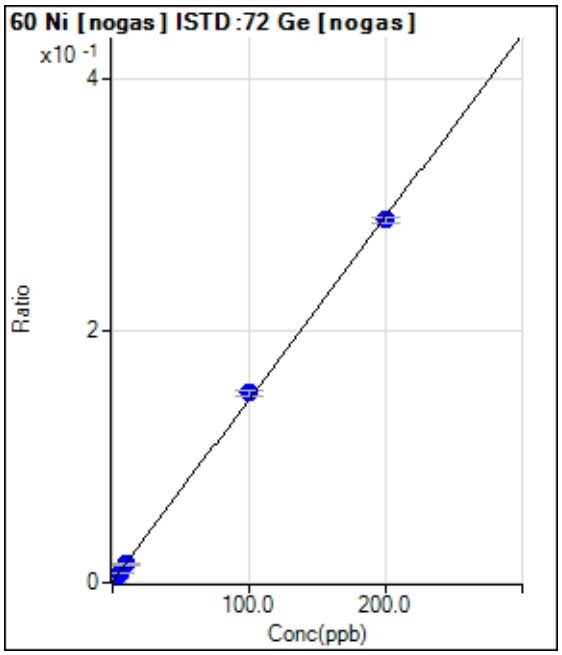


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	200.00	0.0002	P	19.
2	☐	2.000	1.909	18122.51	0.0216	P	3.9
3	☐	5.000	4.826	44908.45	0.0542	P	3.9
4	☐	10.000	9.659	89413.80	0.1082	P	2.9
5	☐	100.000	93.892	879775.77	1.0499	P	3.1
6	☐	200.000	203.076	1859116.69	2.2705	A	2.3
7	☐	1.000					

y = 0.0112 * x + 2.3910E-004
R = 0.9994
DL = 0.01221
BEC = 0.02139

Weight: <None>
Min Conc: <None>

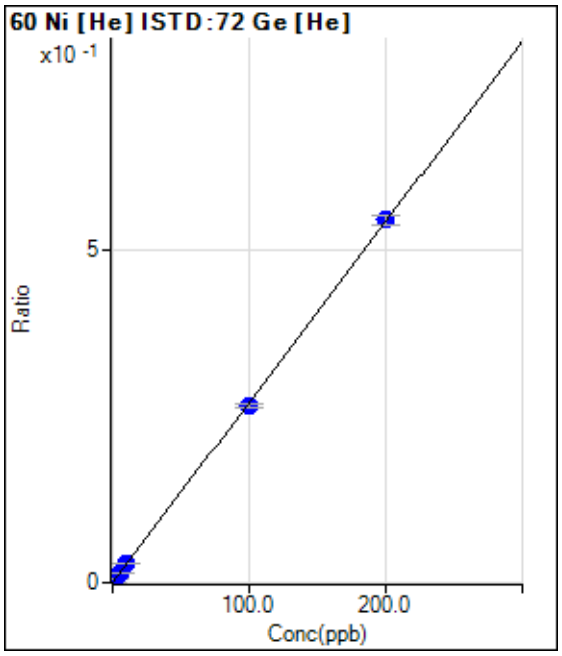
Calibration for 237_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-0.567	323.34	0.0001	P	33.
2	☐	2.000	1.559	11323.63	0.0032	P	2.8
3	☐	5.000	4.714	27387.42	0.0077	P	9.8
4	☐	10.000	9.584	53023.58	0.0148	P	5.1
5	☐	100.000	103.354	519375.60	0.1503	P	3.8
6	☐	200.000	198.355	1053570.63	0.2876	P	1.6
7	☐	1.000					

y = 0.0014 * x + 9.1050E-004
R = 0.9998
DL = 0.06411
BEC = 0.63

Weight: <None>
Min Conc: <None>

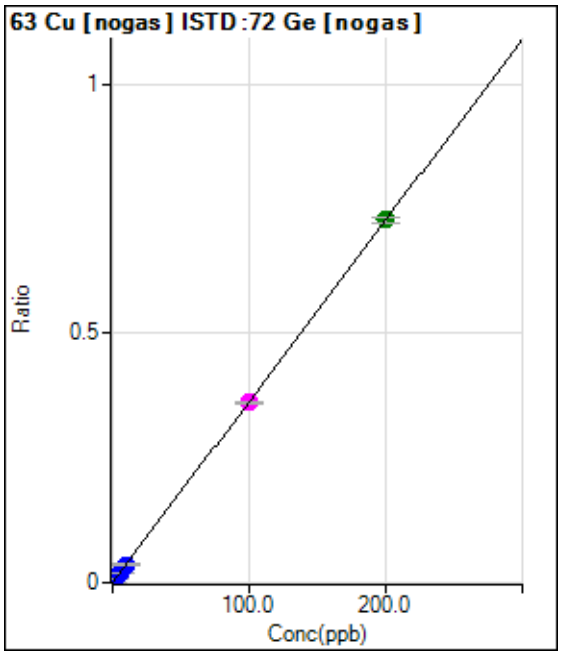


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.161	136.67	0.0002	P	41.
2	☐	2.000	2.157	4694.00	0.0056	P	4.9
3	☐	5.000	5.286	11683.86	0.0141	P	2.0
4	☐	10.000	10.568	23505.24	0.0285	P	5.5
5	☐	100.000	97.733	222439.34	0.2654	P	2.3
6	☐	200.000	201.096	447375.24	0.5465	P	2.7
7	☐	1.000					

y = 0.0027 * x - 2.7316E-004
R = 0.9999
DL = 0.07395
BEC = -0.1005

Weight: <None>
Min Conc: <None>

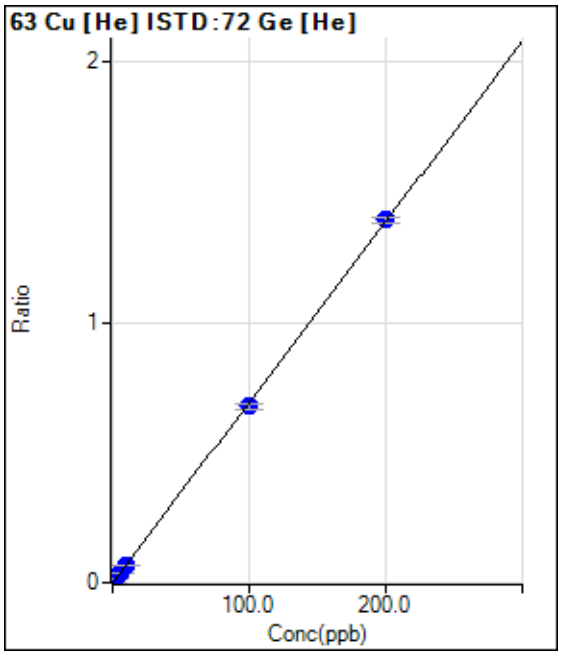
Calibration for 237_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1536.76	0.0004	P	7.2
2	☐	2.000	1.980	27267.28	0.0076	P	6.3
3	☐	5.000	5.096	67119.88	0.0189	P	9.8
4	☐	10.000	9.859	130176.97	0.0362	P	2.6
5	☐	100.000	99.382	1249207.25	0.3612	M	1.4
6	☐	200.000	200.314	2665951.31	0.7276	A	1.5
7	☐	1.000					

y = 0.0036 * x + 4.3227E-004
R = 1.0000
DL = 0.02555
BEC = 0.1191

Weight: <None>
Min Conc: <None>

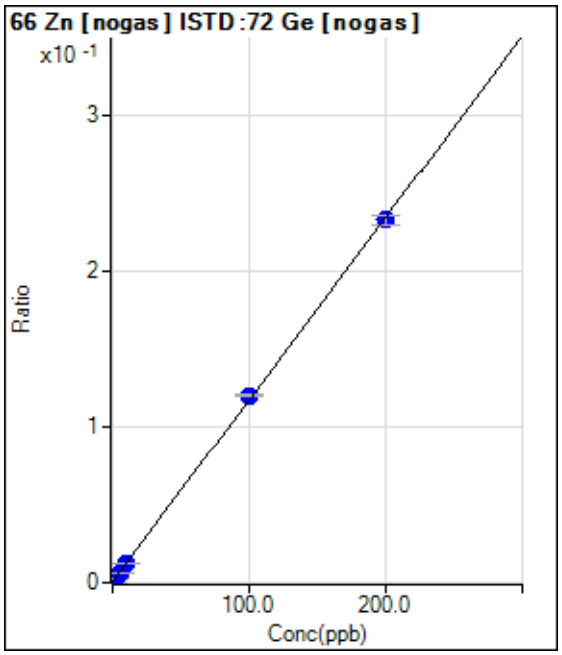


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.354	663.35	0.0008	P	6.9
2	☐	2.000	2.253	11717.23	0.0140	P	2.5
3	☐	5.000	5.415	29744.31	0.0359	P	1.2
4	☐	10.000	10.145	56751.49	0.0687	P	1.6
5	☐	100.000	97.706	566330.52	0.6758	P	2.3
6	☐	200.000	201.127	1140693.89	1.3930	P	1.7
7	☐	1.000					

y = 0.0069 * x - 0.0017
R = 0.9999
DL = 0.02375
BEC = -0.24

Weight: <None>
Min Conc: <None>

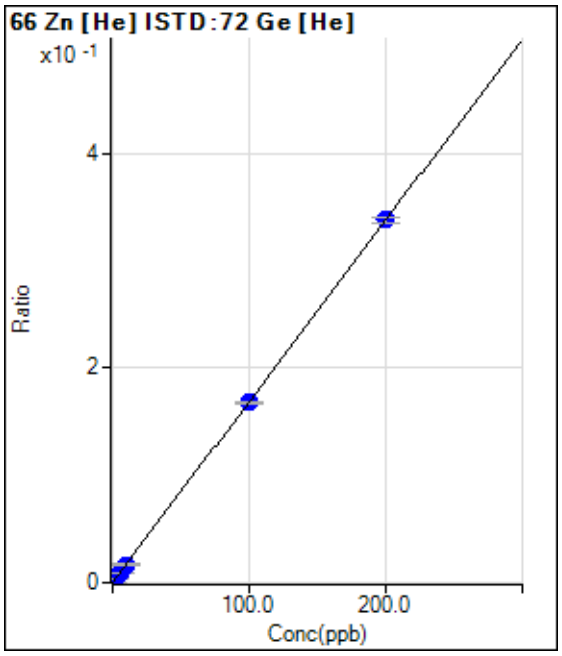
Calibration for 237_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-0.358	940.04	0.0003	P	11.
2	☐	2.000	1.539	8885.64	0.0025	P	2.6
3	☐	5.000	4.957	22994.75	0.0065	P	6.3
4	☐	10.000	9.742	43381.86	0.0121	P	1.5
5	☐	100.000	102.201	415264.80	0.1201	P	1.2
6	☐	200.000	198.918	853679.49	0.2331	P	2.6
7	☐	1.000					

y = 0.0012 * x + 6.8307E-004
R = 0.9999
DL = 0.07476
BEC = 0.5847

Weight: <None>
Min Conc: <None>

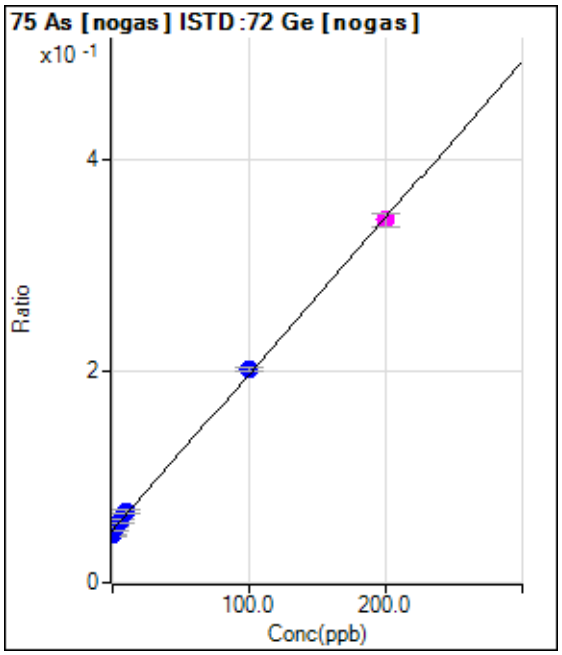


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.098	293.34	0.0004	P	8.1
2	☐	2.000	2.070	3083.65	0.0037	P	8.9
3	☐	5.000	5.272	7518.32	0.0091	P	0.8
4	☐	10.000	9.888	13932.20	0.0169	P	5.0
5	☐	100.000	99.347	140491.93	0.1676	P	1.7
6	☐	200.000	200.325	276667.38	0.3379	P	1.3
7	☐	1.000					

y = 0.0017 * x + 1.8448E-004
R = 1.0000
DL = 0.0504
BEC = 0.1094

Weight: <None>
Min Conc: <None>

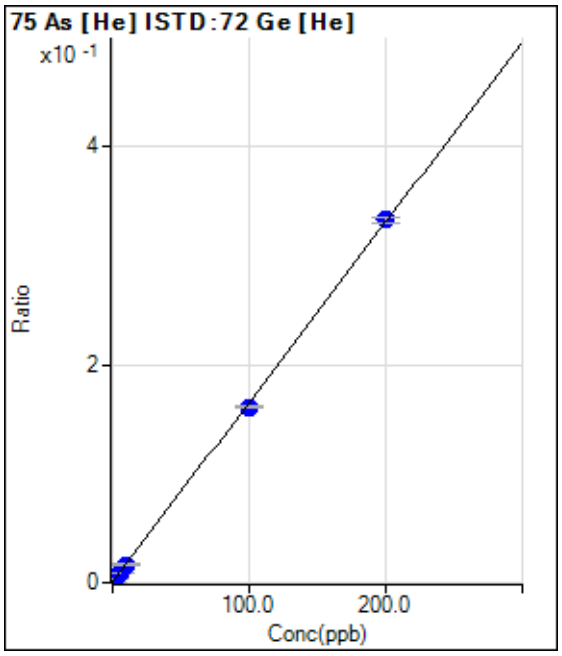
Calibration for 237_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-2.979	160545.89	0.0452	P	3.6
2	☐	2.000	0.732	181430.39	0.0507	P	5.6
3	☐	5.000	6.124	208319.85	0.0587	P	7.6
4	☐	10.000	11.865	241432.28	0.0672	P	3.9
5	☐	100.000	102.732	697353.22	0.2017	P	1.9
6	☐	200.000	198.525	1258438.00	0.3434	M	3.5
7	☐	1.000					

y = 0.0015 * x + 0.0496
R = 0.9996
DL = 3.285
BEC = 33.53

Weight: <None>
Min Conc: <None>

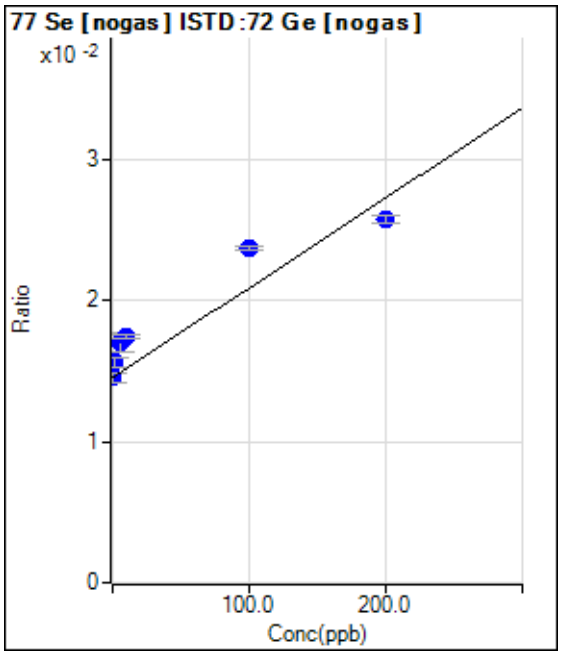


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	517.79	0.0006	P	4.1
2	☐	2.000	1.974	3250.30	0.0039	P	3.8
3	☐	5.000	4.759	7013.60	0.0085	P	1.1
4	☐	10.000	9.753	13794.13	0.0167	P	1.7
5	☐	100.000	97.310	134927.85	0.1610	P	1.5
6	☐	200.000	201.364	272270.03	0.3325	P	1.5
7	☐	1.000					

y = 0.0016 * x + 6.1815E-004
R = 0.9999
DL = 0.0466
BEC = 0.375

Weight: <None>
Min Conc: <None>

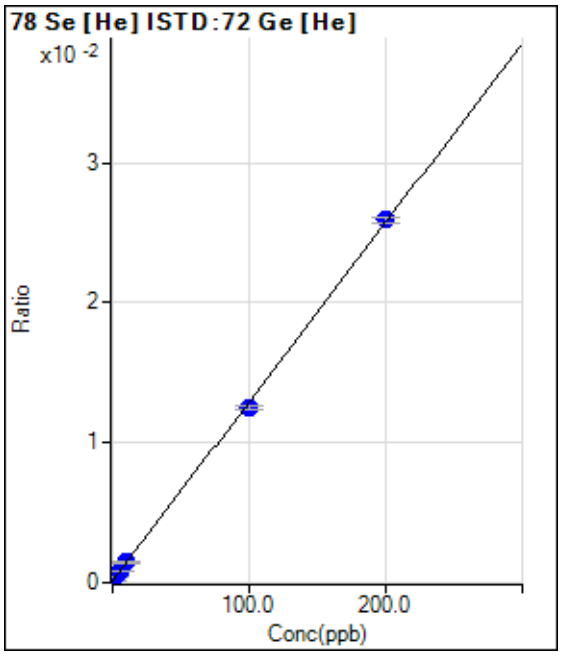
Calibration for 237_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	51536.35	0.0145	P	4.4
2	☐	2.000	17.552	55932.62	0.0156	P	4.5
3	☐	5.000	40.226	60607.48	0.0171	P	8.1
4	☐	10.000	45.725	62674.42	0.0174	P	1.1
5	☐	100.000	143.713	81930.11	0.0237	P	1.3
6	☐	200.000	175.321	94138.40	0.0257	P	2.2
7	☐	1.000					

y = 6.3804E-005 * x + 0.0145
R = 0.9502
DL = 30.25
BEC = 227.5

Weight: <None>
Min Conc: <None>

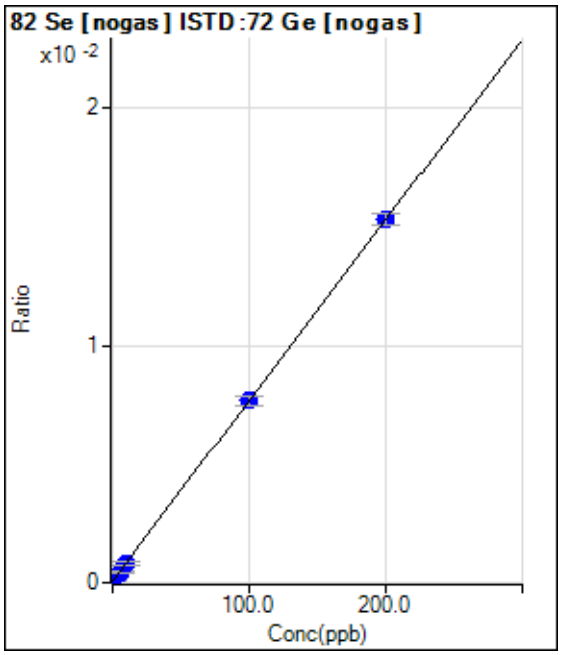


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.465	160.67	0.0002	P	11.
2	☐	2.000	2.298	358.00	0.0004	P	7.1
3	☐	5.000	5.553	698.68	0.0008	P	5.4
4	☐	10.000	10.265	1194.71	0.0014	P	2.0
5	☐	100.000	96.897	10495.03	0.0125	P	2.7
6	☐	200.000	201.522	21213.01	0.0259	P	1.7
7	☐	1.000					

y = 1.2789E-004 * x + 1.3247E-004
R = 0.9998
DL = 0.5215
BEC = 1.036

Weight: <None>
Min Conc: <None>

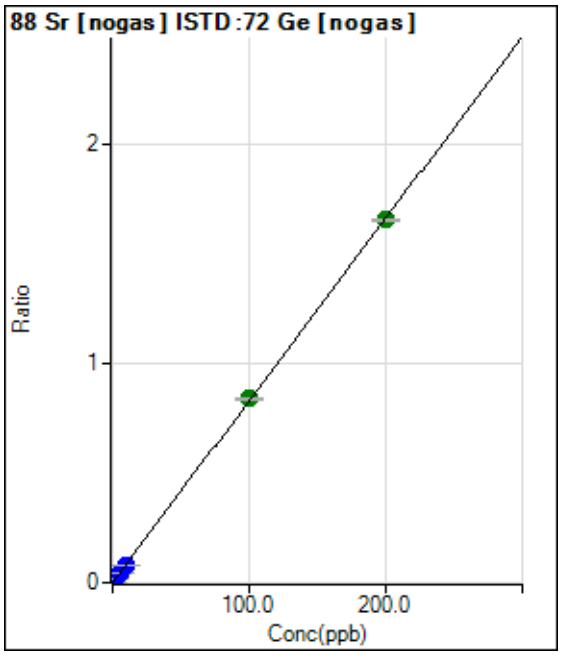
Calibration for 237_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	233.34	0.0001	P	31.
2	☐	2.000	1.895	753.36	0.0002	P	4.8
3	☐	5.000	4.759	1516.75	0.0004	P	10.
4	☐	10.000	9.753	2903.61	0.0008	P	12.
5	☐	100.000	99.844	26466.36	0.0077	P	5.1
6	☐	200.000	200.097	55986.64	0.0153	P	3.2
7	☐	1.000					

y = 7.6063E-005 * x + 6.5945E-005
R = 1.0000
DL = 0.8149
BEC = 0.867

Weight: <None>
Min Conc: <None>

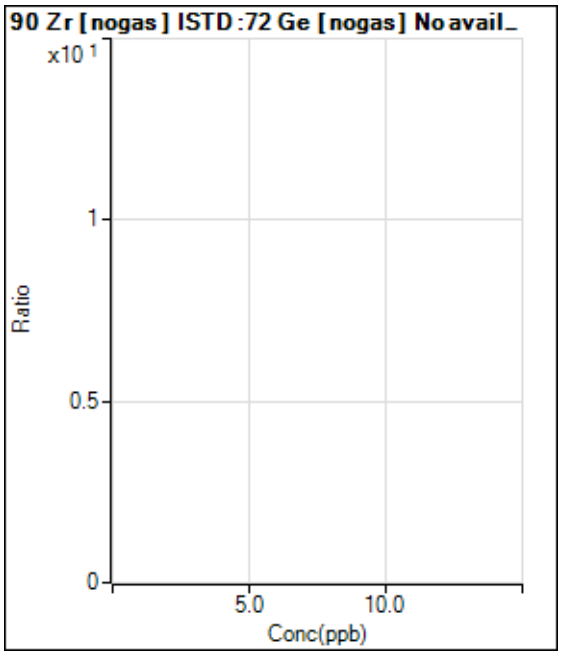


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1203.39	0.0003	P	12.
2	☐	2.000	1.967	59542.57	0.0166	P	3.6
3	☐	5.000	4.960	147098.93	0.0414	P	7.5
4	☐	10.000	9.678	289603.17	0.0805	P	3.4
5	☐	100.000	101.327	2905616.62	0.8401	A	1.0
6	☐	200.000	199.354	6055608.04	1.6525	A	0.5
7	☐	1.000					

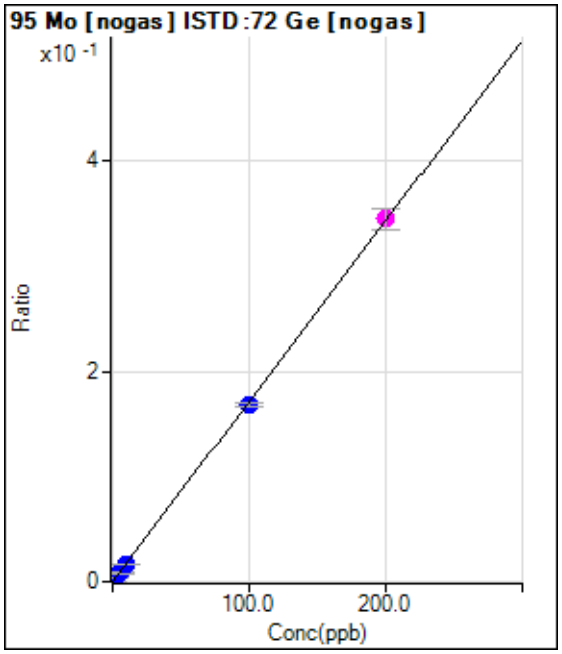
y = 0.0083 * x + 3.3852E-004
R = 1.0000
DL = 0.0149
BEC = 0.04085

Weight: <None>
Min Conc: <None>

Calibration for 237_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000					
2	☐	2.000					
3	☐	5.000					
4	☐	10.000					
5	☐	100.000					
6	☐	200.000					
7	☐	1.000					

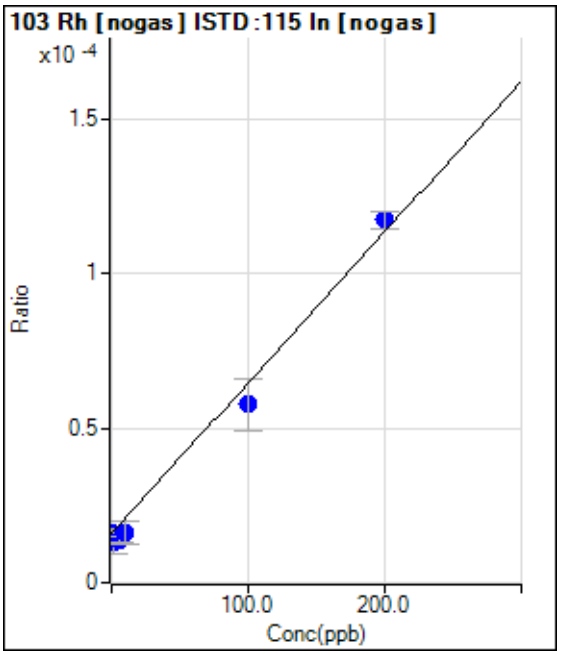


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	366.68	0.0001	P	11.
2	☐	2.000	1.897	12030.90	0.0034	P	1.0
3	☐	5.000	4.829	29718.45	0.0084	P	12.
4	☐	10.000	9.496	58958.25	0.0164	P	1.4
5	☐	100.000	97.915	581340.93	0.1681	P	2.3
6	☐	200.000	201.073	1263968.29	0.3452	M	5.6
7	☐	1.000					

y = 0.0017 * x + 1.0310E-004
R = 0.9999
DL = 0.02143
BEC = 0.06007

Weight: <None>
Min Conc: <None>

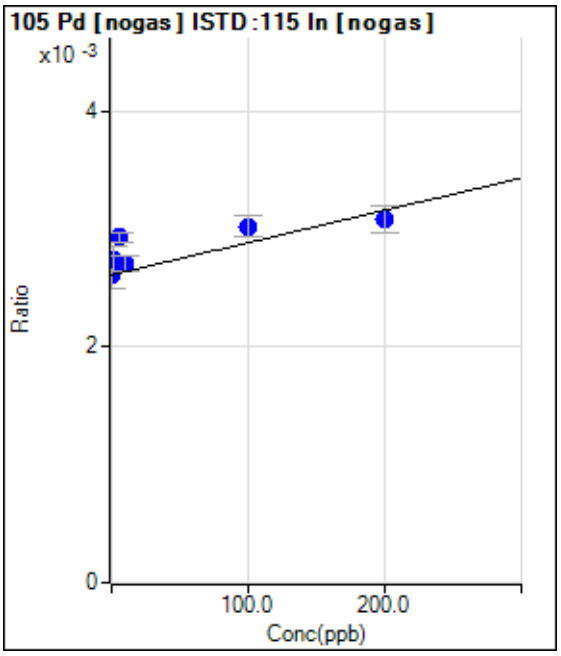
Calibration for 237_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	50.00	0.0000	P	18.
2	☐	2.000	-6.375	40.00	0.0000	P	53.
3	☐	5.000	-4.110	43.33	0.0000	P	16.
4	☐	10.000	0.625	50.00	0.0000	P	44.
5	☐	100.000	85.526	166.67	0.0001	P	29.
6	☐	200.000	208.017	370.01	0.0001	P	4.8
7	☐	1.000					

y = 4.8684E-007 * x + 1.5924E-005
R = 0.9968
DL = 18.05
BEC = 32.71

Weight: <None>
Min Conc: <None>

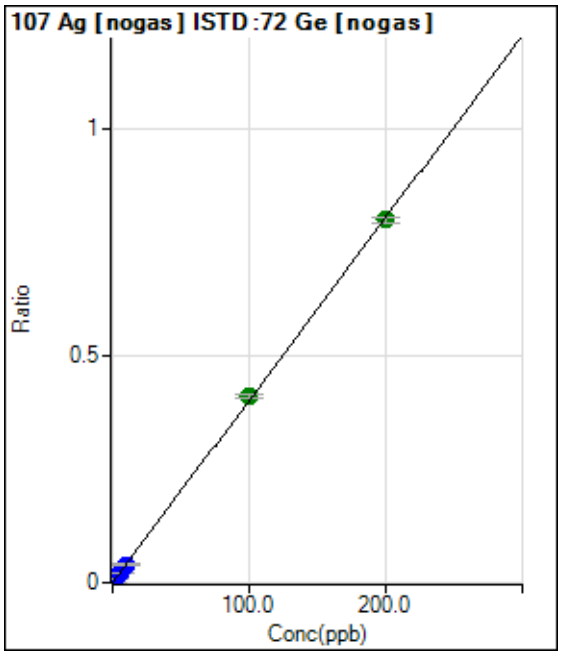


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	8185.39	0.0026	P	8.5
2	☐	2.000	49.327	8632.26	0.0027	P	7.7
3	☐	5.000	115.584	9175.86	0.0029	P	2.6
4	☐	10.000	34.068	8422.14	0.0027	P	4.8
5	☐	100.000	150.972	8842.37	0.0030	P	6.4
6	☐	200.000	170.073	9722.85	0.0031	P	7.3
7	☐	1.000					

y = 2.7432E-006 * x + 0.0026
R = 0.8071
DL = 244
BEC = 952.3

Weight: <None>
Min Conc: <None>

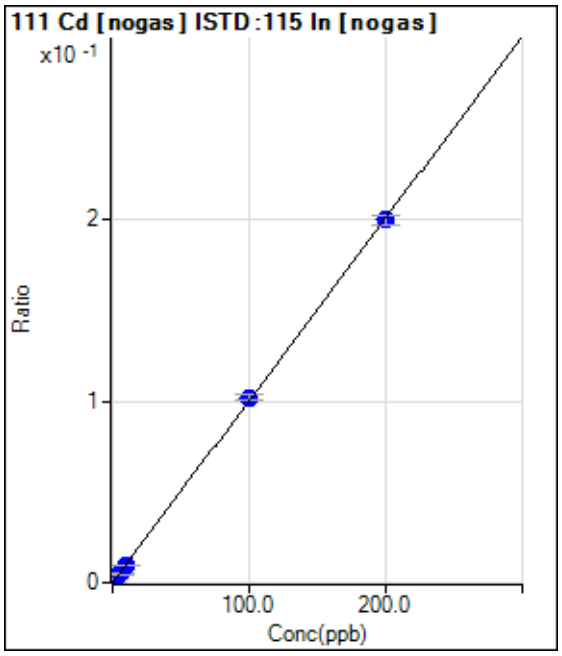
Calibration for 237_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	106.67	0.0000	P	26.
2	☐	2.000	1.969	28470.00	0.0080	P	4.9
3	☐	5.000	5.007	71682.94	0.0202	P	7.7
4	☐	10.000	9.955	144161.09	0.0401	P	3.6
5	☐	100.000	102.200	1423334.30	0.4116	A	2.3
6	☐	200.000	198.903	2935946.62	0.8011	A	1.7
7	☐	1.000					

y = 0.0040 * x + 3.0181E-005
R = 0.9999
DL = 0.005888
BEC = 0.007494

Weight: <None>
Min Conc: <None>

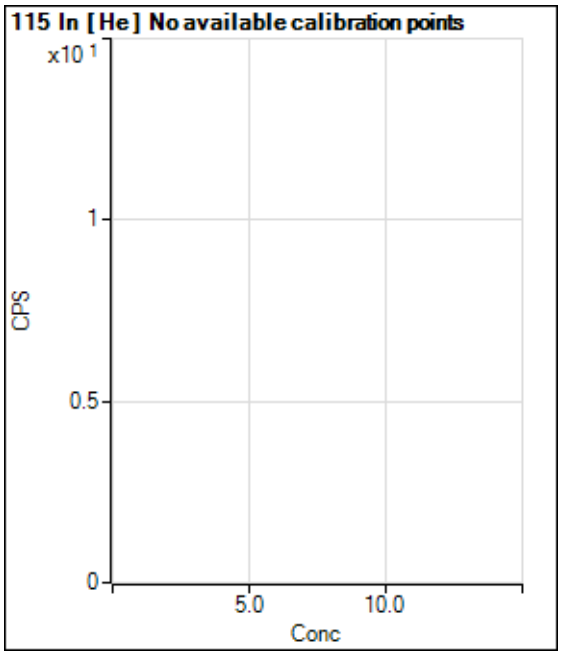


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	30.00	0.0000	P	34.
2	☐	2.000	1.955	6194.56	0.0020	P	5.4
3	☐	5.000	4.899	15313.56	0.0049	P	12.
4	☐	10.000	9.562	29909.14	0.0096	P	0.8
5	☐	100.000	101.672	298090.90	0.1020	P	3.6
6	☐	200.000	199.189	630632.96	0.1998	P	2.9
7	☐	1.000					

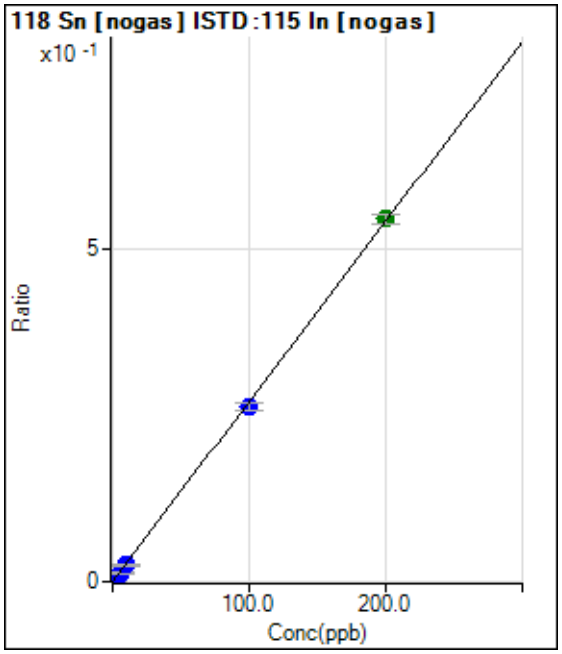
y = 0.0010 * x + 9.5819E-006
R = 0.9999
DL = 0.009776
BEC = 0.009553

Weight: <None>
Min Conc: <None>

Calibration for 237_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐			971469.59		P	0.4
2	☐			996597.28		P	1.5
3	☐			978413.97		P	1.3
4	☐			968391.47		P	1.3
5	☐			972463.34		P	1.3
6	☐			957539.97		P	1.9
7	☐						

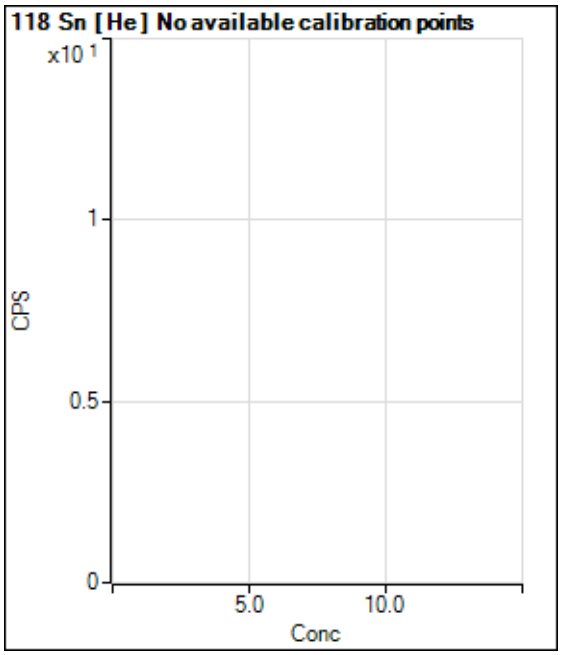


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1396.74	0.0004	P	4.8
2	☐	2.000	1.789	16651.44	0.0053	P	2.9
3	☐	5.000	4.591	40106.35	0.0129	P	10.
4	☐	10.000	9.120	78295.66	0.0252	P	4.4
5	☐	100.000	96.994	769397.70	0.2633	P	4.3
6	☐	200.000	201.559	1726992.22	0.5467	A	2.7
7	☐	1.000					

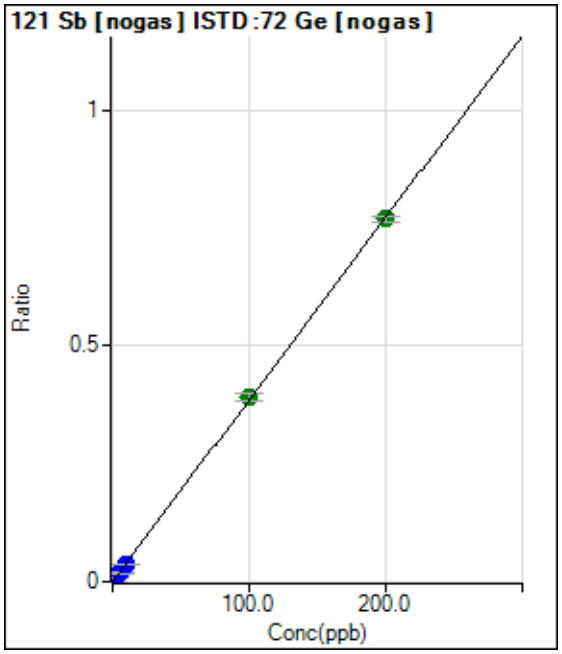
y = 0.0027 * x + 4.4587E-004
R = 0.9998
DL = 0.02353
BEC = 0.1645

Weight: <None>
Min Conc: <None>

Calibration for 237_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐			463.35		P	21.
2	☐			6037.80		P	1.6
3	☐			15483.77		P	3.0
4	☐			29081.10		P	2.2
5	☐			294483.25		P	1.4
6	☐			595594.91		P	0.5
7	☐						

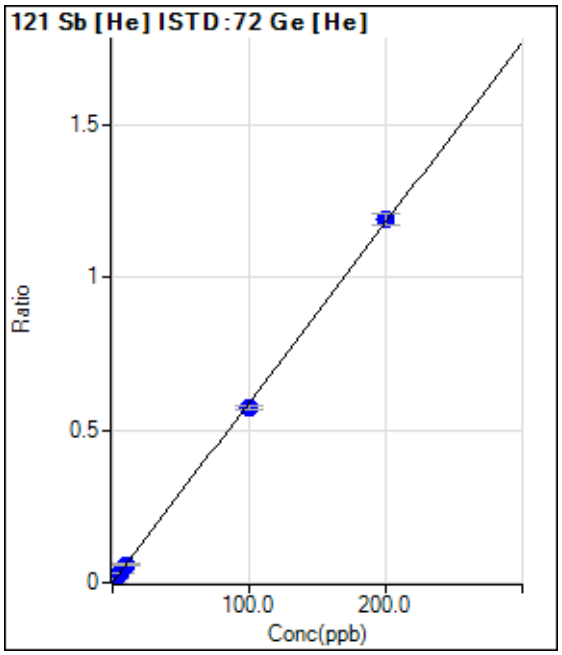


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	286.68	0.0001	P	4.7
2	☐	2.000	2.018	28126.33	0.0079	P	3.5
3	☐	5.000	4.909	67460.12	0.0190	P	7.6
4	☐	10.000	9.774	135630.07	0.0378	P	4.7
5	☐	100.000	101.191	1348371.80	0.3901	A	4.0
6	☐	200.000	199.418	2816753.71	0.7687	A	1.5
7	☐	1.000					

y = 0.0039 * x + 8.0707E-005
R = 1.0000
DL = 0.002945
BEC = 0.02094

Weight: <None>
Min Conc: <None>

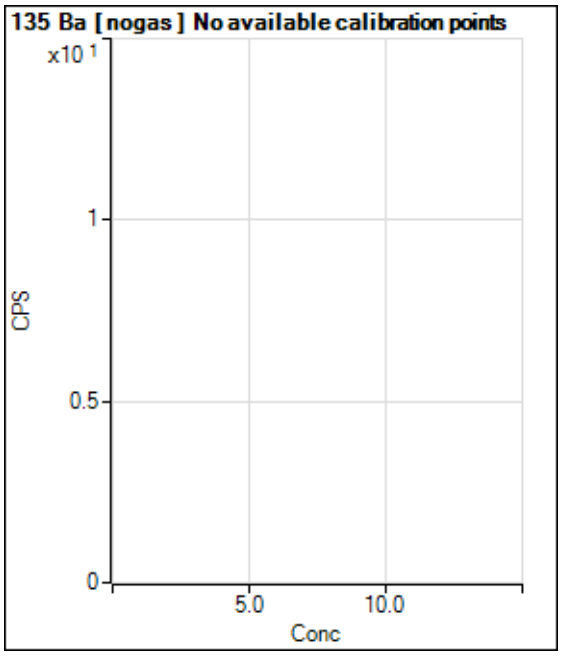
Calibration for 237_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	96.67	0.0001	P	47.
2	☐	2.000	1.920	9612.77	0.0114	P	0.6
3	☐	5.000	4.924	24190.25	0.0292	P	1.4
4	☐	10.000	10.064	49185.62	0.0595	P	3.5
5	☐	100.000	96.999	479992.53	0.5728	P	2.3
6	☐	200.000	201.500	974034.72	1.1898	P	3.0
7	☐	1.000					

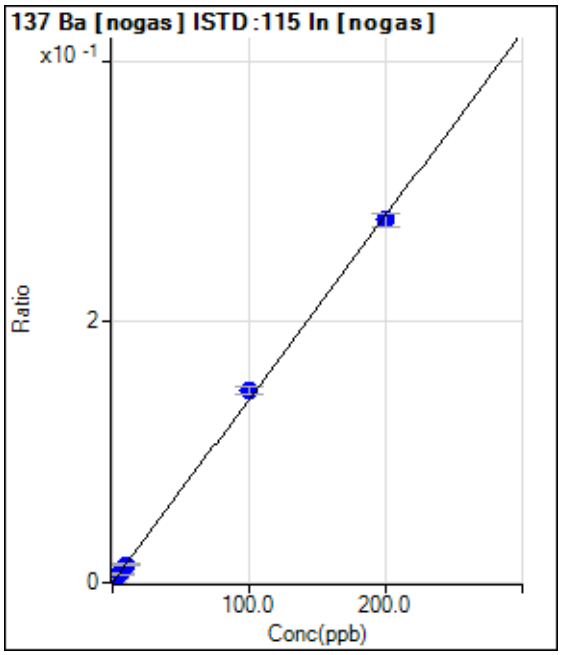
y = 0.0059 * x + 1.1517E-004
R = 0.9998
DL = 0.02749
BEC = 0.01951

Weight: <None>
Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐			133.33		P	11.
2	☐			5024.13		P	6.5
3	☐			12828.29		P	4.7
4	☐			24280.82		P	4.1
5	☐			249783.18		P	1.8
6	☐			511235.85		P	0.8
7	☐						

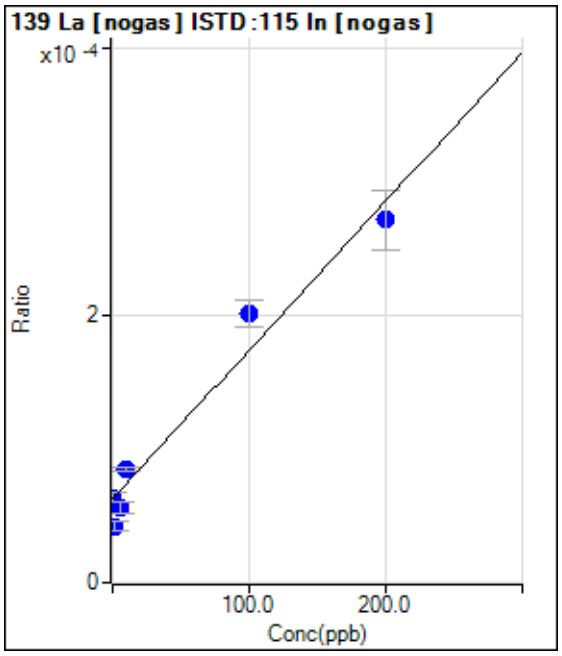
Calibration for 237_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	200.00	0.0001	P	31.
2	☐	2.000	1.970	8915.78	0.0028	P	3.0
3	☐	5.000	4.773	21053.14	0.0068	P	12.
4	☐	10.000	9.866	43341.16	0.0139	P	6.2
5	☐	100.000	104.606	429972.42	0.1471	P	4.0
6	☐	200.000	197.710	877489.42	0.2780	P	3.8
7	☐	1.000					

y = 0.0014 * x + 6.3940E-005
R = 0.9996
DL = 0.04272
BEC = 0.04548

Weight: <None>
Min Conc: <None>

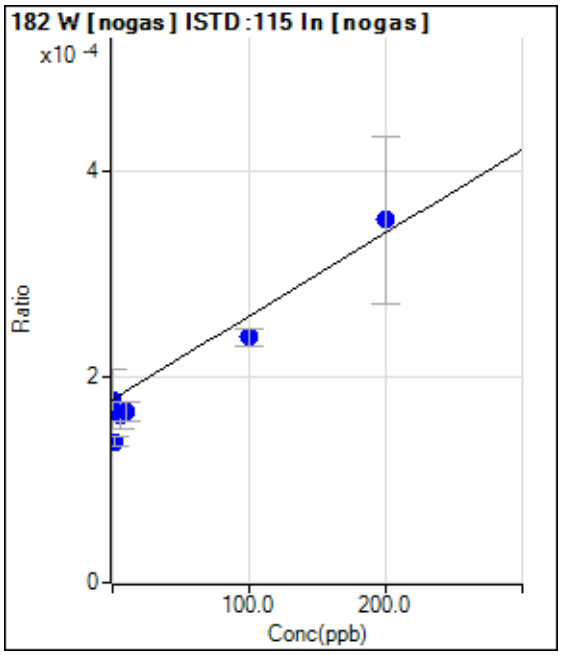


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	196.67	0.0001	P	13.
2	☐	2.000	-18.561	133.33	0.0000	P	18.
3	☐	5.000	-6.340	173.33	0.0001	P	15.
4	☐	10.000	19.422	263.34	0.0001	P	3.0
5	☐	100.000	125.119	590.02	0.0002	P	10.
6	☐	200.000	187.458	856.70	0.0003	P	16.
7	☐	1.000					

y = 1.1149E-006 * x + 6.2864E-005
R = 0.9802
DL = 22.99
BEC = 56.39

Weight: <None>
Min Conc: <None>

Calibration for 237_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	560.06	0.0002	P	32.
2	☐	2.000	-50.727	433.34	0.0001	P	7.4
3	☐	5.000	-19.118	516.68	0.0002	P	16.
4	☐	10.000	-15.695	516.68	0.0002	P	11.
5	☐	100.000	74.191	696.69	0.0002	P	7.6
6	☐	200.000	215.320	1123.86	0.0004	P	46.
7	☐	1.000					

y = 8.1069E-007 * x + 1.7857E-004

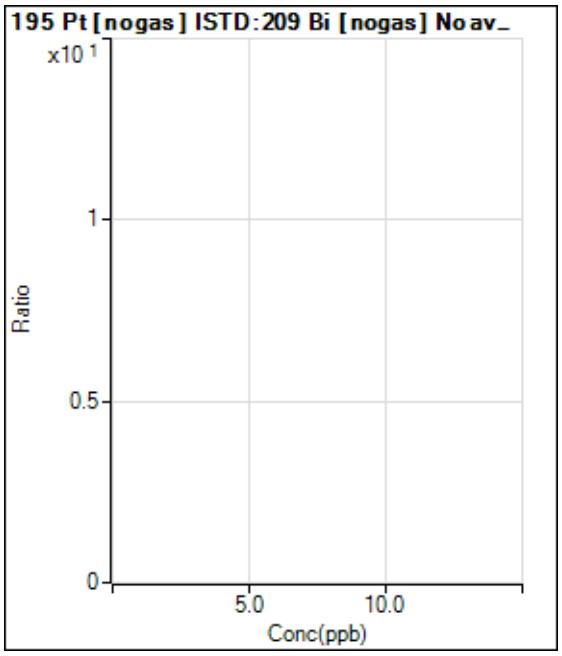
R = 0.9819

DL = 216.1

BEC = 220.3

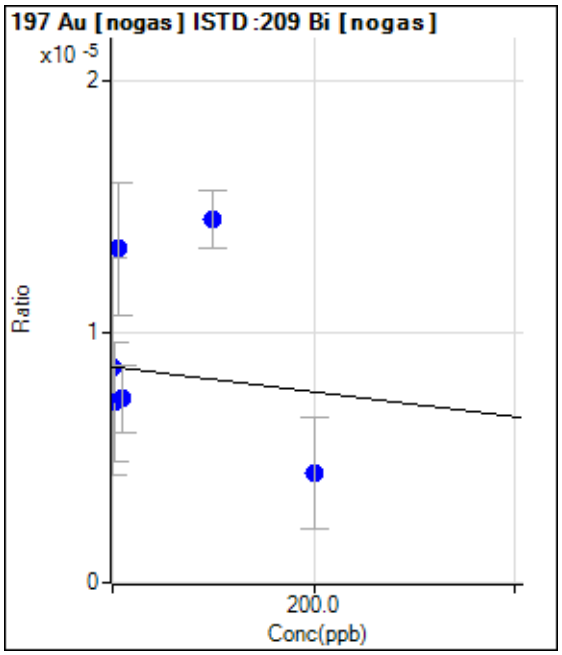
Weight: <None>

Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000					
2	☐	2.000					
3	☐	5.000					
4	☐	10.000					
5	☐	100.000					
6	☐	200.000					
7	☐	1.000					

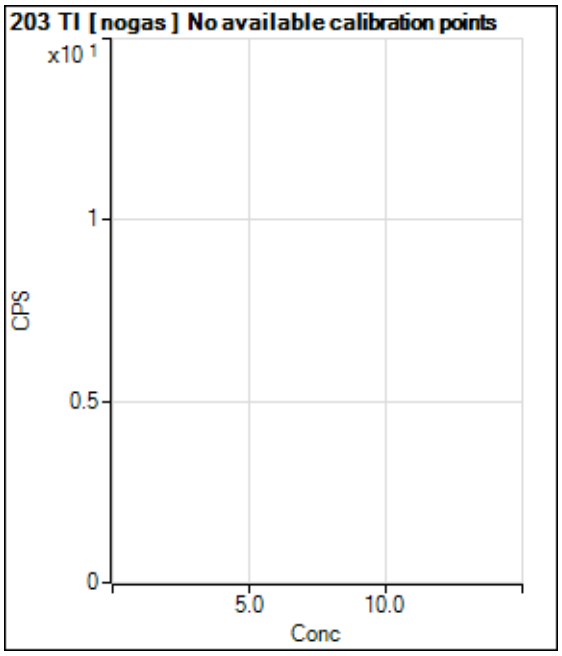
Calibration for 237_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	20.00	0.0000	P	100
2	☐	2.000	286.194	16.67	0.0000	P	66.
3	☐	5.000	-948.969	30.00	0.0000	P	39.
4	☐	10.000	257.538	16.67	0.0000	P	36.
5	☐	100.000	-1176.891	33.33	0.0000	P	16.
6	☐	200.000	847.076	10.00	0.0000	P	101
7	☐	1.000					

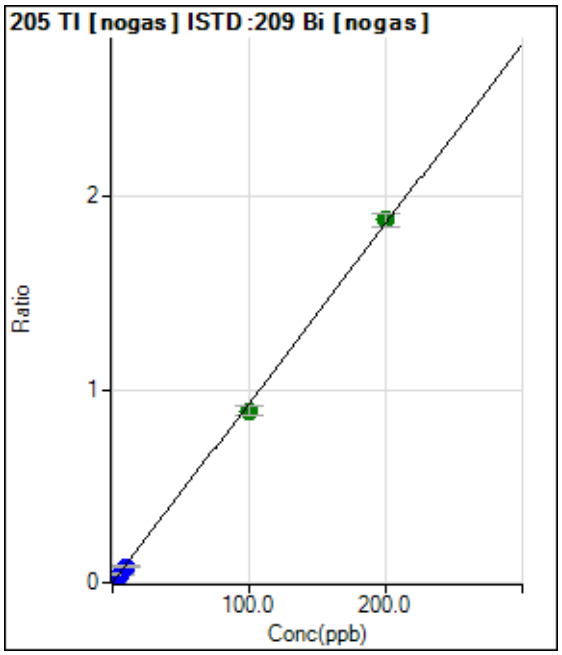
y = -4.9793E-009 * x + 8.6093E-006
R = -0.2783
DL = -5221
BEC = -1729

Weight: <None>
Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐			213.34		P	29.
2	☐			16331.70		P	5.6
3	☐			40684.41		P	5.7
4	☐			80267.70		P	0.2
5	☐			819156.65		P	1.2
6	☐			1844820.39		A	2.8
7	☐						

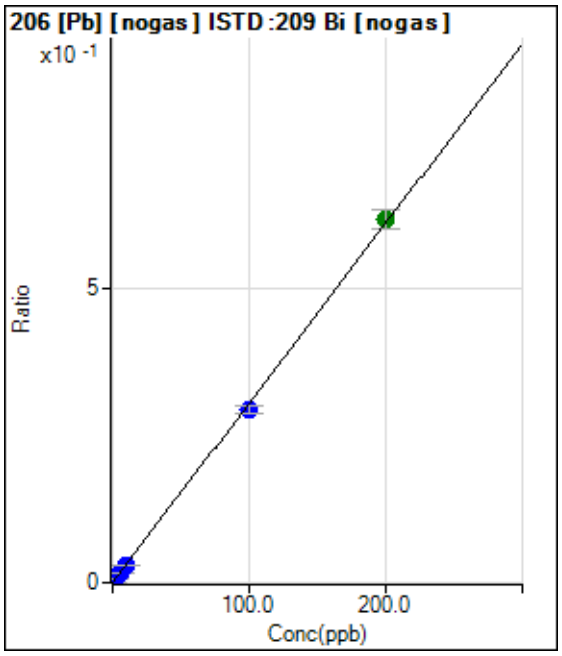
Calibration for 237_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	380.01	0.0002	P	38.
2	☐	2.000	1.830	39274.31	0.0172	P	7.1
3	☐	5.000	4.641	98185.70	0.0433	P	12.
4	☐	10.000	9.085	193554.71	0.0846	P	6.1
5	☐	100.000	95.704	2045124.29	0.8893	A	5.5
6	☐	200.000	202.204	4279644.73	1.8787	A	3.5
7	☐	1.000					

y = 0.0093 * x + 1.6261E-004
R = 0.9997
DL = 0.02021
BEC = 0.0175

Weight: <None>
Min Conc: <None>

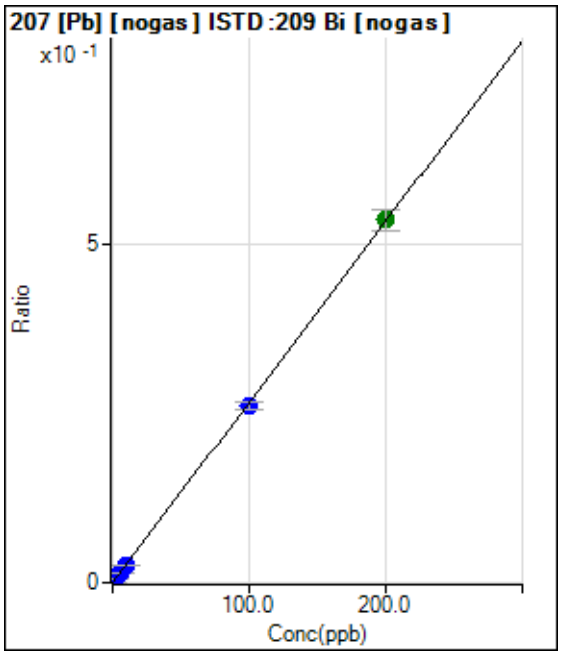


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	336.68	0.0001	P	3.5
2	☐	2.000	1.988	14209.77	0.0062	P	6.1
3	☐	5.000	5.119	35776.53	0.0158	P	10.
4	☐	10.000	9.725	68239.95	0.0298	P	5.3
5	☐	100.000	95.882	672926.50	0.2926	P	4.4
6	☐	200.000	202.070	1403975.03	0.6165	A	5.2
7	☐	1.000					

y = 0.0031 * x + 1.4405E-004
R = 0.9997
DL = 0.004993
BEC = 0.04723

Weight: <None>
Min Conc: <None>

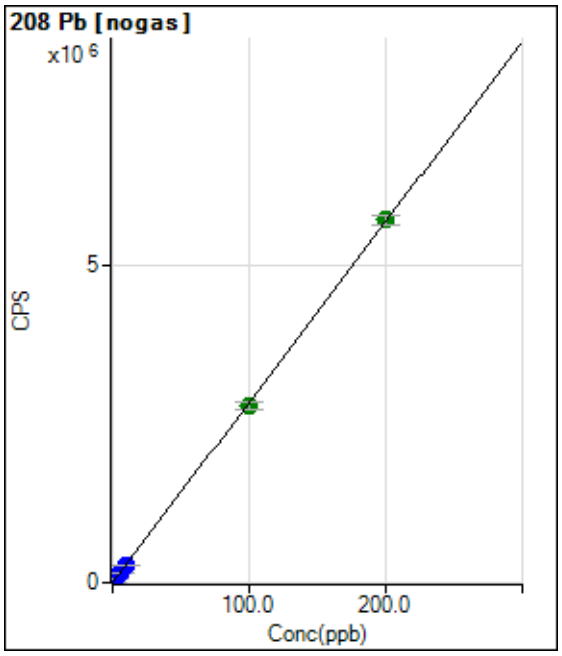
Calibration for 237_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	266.67	0.0001	P	12.
2	☐	2.000	1.941	12074.65	0.0053	P	5.6
3	☐	5.000	5.059	30829.73	0.0136	P	8.9
4	☐	10.000	9.759	59689.44	0.0261	P	3.6
5	☐	100.000	98.015	599558.95	0.2607	P	3.9
6	☐	200.000	201.004	1218131.49	0.5345	A	5.5
7	☐	1.000					

y = 0.0027 * x + 1.1419E-004
R = 0.9999
DL = 0.01632
BEC = 0.04295

Weight: <None>
Min Conc: <None>

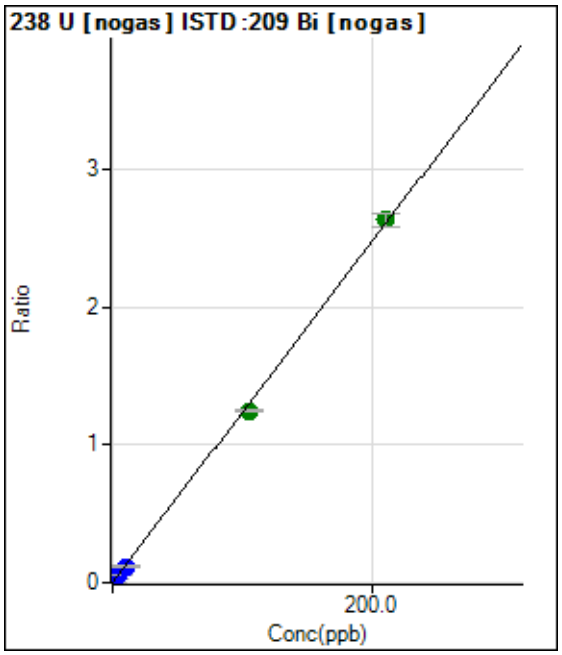


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1156.70		P	4.9
2	☐	2.000	1.929	55911.63		P	1.7
3	☐	5.000	4.909	140517.76		P	2.2
4	☐	10.000	9.642	274873.43		P	0.8
5	☐	100.000	97.879	2779809.90		A	3.6
6	☐	200.000	201.081	5709558.25		A	2.6
7	☐	1.000					

y = 28388.5398 * x + 1156.7000
R = 0.9999
DL = 0.006009
BEC = 0.04075

Weight: <None>
Min Conc: <None>

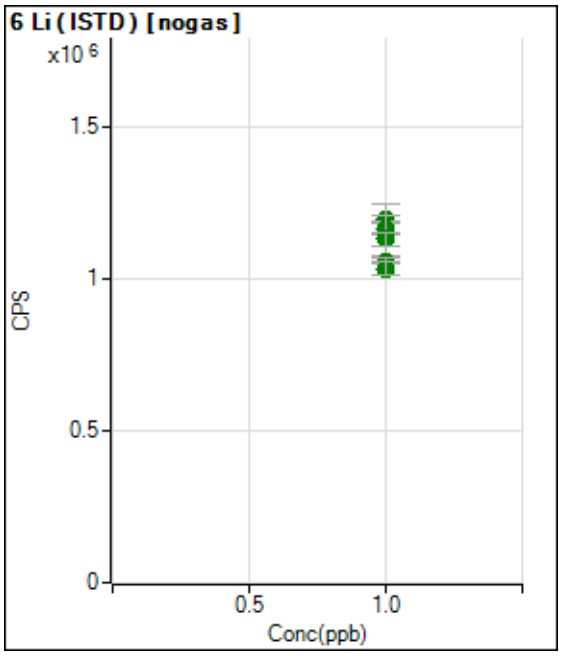
Calibration for 237_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	113.33	0.0000	P	33.
2	☐	2.000	1.908	54252.90	0.0237	P	4.5
3	☐	5.000	4.681	131925.35	0.0581	P	10.
4	☐	10.000	9.479	269102.50	0.1175	P	4.8
5	☐	105.000	100.536	2866775.68	1.2461	A	1.4
6	☐	210.000	212.265	5994404.08	2.6309	A	3.4
7	☐	1.000					

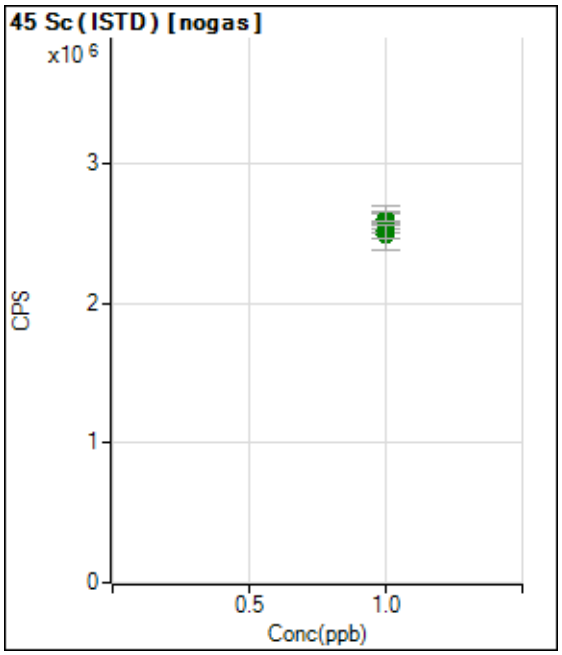
y = 0.0124 * x + 4.8561E-005
R = 0.9997
DL = 0.003965
BEC = 0.003918

Weight: <None>
Min Conc: <None>

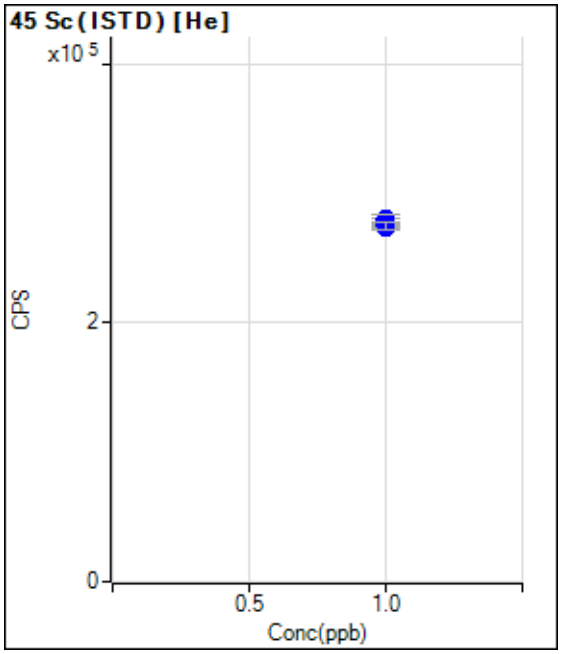


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		1195275.88		A	2.0
2	☐	1.000		1168683.46		A	3.7
3	☐	1.000		1163476.39		A	14.
4	☐	1.000		1132234.16		A	3.7
5	☐	1.000		1060926.36		A	1.5
6	☐	1.000		1034178.70		A	4.0
7	☐	1.000					

Calibration for 237_ICV.d

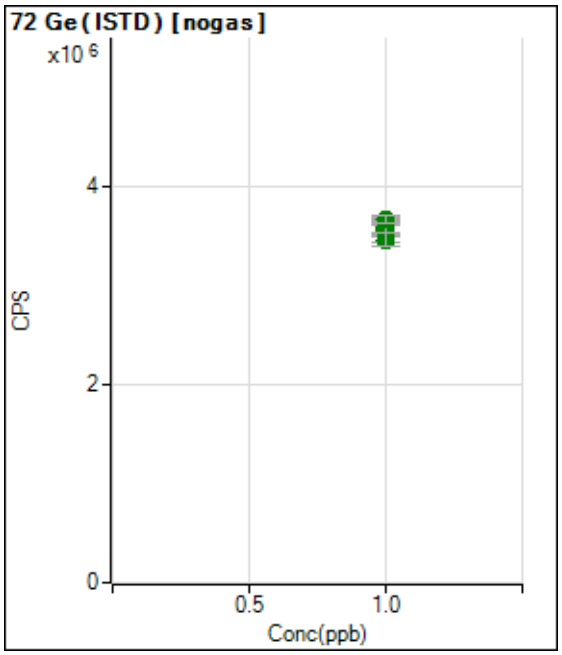


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		2566071.68		A	0.7
2	☐	1.000		2589550.74		A	4.1
3	☐	1.000		2599959.86		A	7.4
4	☐	1.000		2596425.69		A	4.8
5	☐	1.000		2492914.81		A	8.3
6	☐	1.000		2517040.22		A	3.7
7	☐	1.000					

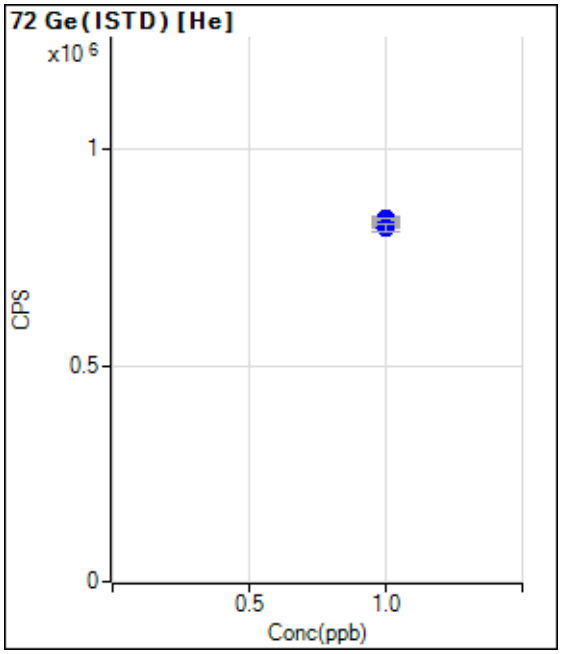


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		279368.62		P	1.3
2	☐	1.000		280028.35		P	2.6
3	☐	1.000		275242.97		P	1.8
4	☐	1.000		272484.55		P	0.7
5	☐	1.000		276038.34		P	1.1
6	☐	1.000		274476.28		P	2.6
7	☐	1.000					

Calibration for 237_ICV.d

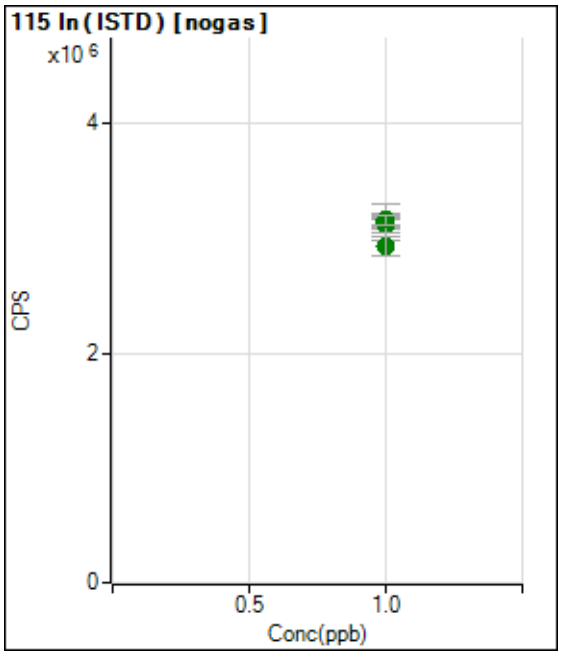


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		3552236.82		A	2.9
2	☐	1.000		3581534.84		A	4.0
3	☐	1.000		3561727.86		A	6.9
4	☐	1.000		3596075.88		A	3.7
5	☐	1.000		3459543.90		A	4.0
6	☐	1.000		3664189.63		A	2.2
7	☐	1.000					

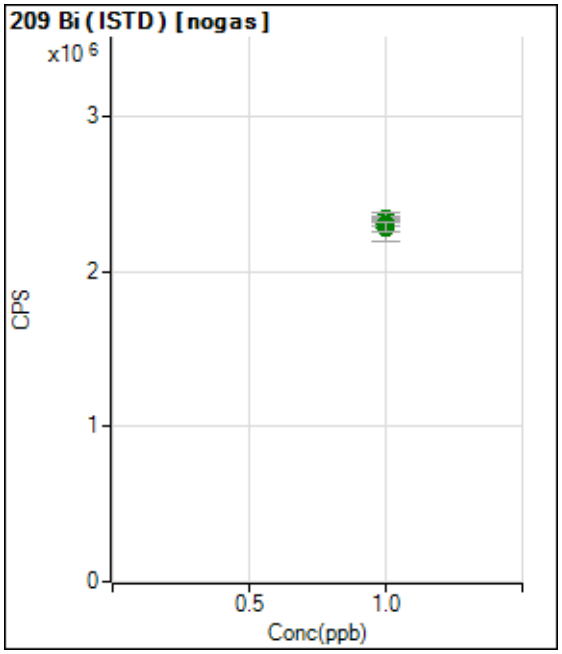


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		837497.54		P	1.0
2	☐	1.000		839654.65		P	0.9
3	☐	1.000		828863.79		P	1.3
4	☐	1.000		826445.74		P	1.7
5	☐	1.000		838051.13		P	0.7
6	☐	1.000		818977.98		P	2.3
7	☐	1.000					

Calibration for 237_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		3134247.07		A	2.1
2	☐	1.000		3148097.36		A	4.4
3	☐	1.000		3134209.51		A	10.
4	☐	1.000		3115479.65		A	4.6
5	☐	1.000		2926930.47		A	5.9
6	☐	1.000		3158107.90		A	2.9
7	☐	1.000					



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		2336630.64		A	1.1
2	☐	1.000		2292528.61		A	3.8
3	☐	1.000		2284348.25		A	8.3
4	☐	1.000		2292360.33		A	3.7
5	☐	1.000		2300731.79		A	1.3
6	☐	1.000		2279274.91		A	2.7
7	☐	1.000					

Calibration Blank Report

Sample Table

Sample Name	CAL BLK
Data File Name	013CALB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T11:33:27-06:00
Sample Type	CalBlk
Level	1
Dilution	1
Comment	

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	57	35.96
Na	23	1	nogas	417457	0.00
Mg	24	1	nogas	5902	0.09
Al	27	1	nogas	27888	0.01
K	39	1	nogas	7950834	0.00
Ti	47	1	nogas	293	1.78
V	51	1	nogas	2231667	0.00
Cr	52	1	nogas	123314	0.00
Mn	55	1	nogas	30719	0.00
Co	59	1	nogas	1063	0.97
Ni	60	1	nogas	450	1.31
Cu	63	1	nogas	2390	0.17
Zn	66	1	nogas	417	4.36
As	75	1	nogas	242661	0.00
Sr	88	1	nogas	810	0.40
Ag	107	1	nogas	313	6.14
Cd	111	1	nogas	17	207.85
Sb	121	1	nogas	220	2.07
Tl	205	1	nogas	950	2.93
Pb	208	1	nogas	5600	0.06
[Pb]	206	1	nogas	1443	0.32
[Pb]	207	1	nogas	1287	0.69
Na	23	2	He	54679	0.00
Mg	24	2	He	453	3.93
Al	27	2	He	643	1.33
K	39	2	He	191803	0.00
Ca	43	2	He	37	42.94
Ca	44	2	He	3250	0.24
V	51	2	He	27334	0.00
Cr	52	2	He	5294	0.09
Mn	55	2	He	2524	0.34
Fe	56	2	He	12284	0.04
Co	59	2	He	397	2.94
Ni	60	2	He	133	18.08
Cu	63	2	He	933	0.29
Zn	66	2	He	150	4.44
As	75	2	He	812	0.76
Se	78	2	He	142	6.50
B	11	1	nogas	30501	0.00
Si	28	1	nogas	1941965	0.00
Ca	43	1	nogas	1387	0.17
Ca	44	1	nogas	427470	0.00

Calibration Blank Report

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	3039832	0.00
Se	77	1	nogas	77722	0.00
Se	82	1	nogas	240	13.78
Mo	95	1	nogas	2347	0.31
Sn	118	1	nogas	900	2.16
Ba	137	1	nogas	50	120.00
Sb	121	2	He	93	35.07
Li	7	1	nogas	111278	0.00
P	31	1	nogas	81130	0.00
La	139	1	nogas	47	70.14

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Li	6	1	nogas	1359891	4.87
Ge	72	1	nogas	3145209	1.18
In	115	1	nogas	2761164	3.66
Bi	209	1	nogas	2190177	1.88
Ge	72	2	He	785020	1.85

Calibration Standard Report

Sample Table

Sample Name	2/10/200
Data File Name	014CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T11:35:28-06:00
Sample Type	CalStd
Level	2
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	15760	0.02
Na	23	1	nogas	5379648	0.00
Mg	24	1	nogas	3271575	0.00
Al	27	1	nogas	67748	0.01
K	39	1	nogas	11954392	0.00
Ti	47	1	nogas	3840	0.11
V	51	1	nogas	2409766	0.00
Cr	52	1	nogas	169204	0.00
Mn	55	1	nogas	78209	0.00
Co	59	1	nogas	46295	0.00
Ni	60	1	nogas	10797	0.03
Cu	63	1	nogas	25732	0.01
Zn	66	1	nogas	8425	0.04
As	75	1	nogas	271445	0.00
Sr	88	1	nogas	53470	0.01
Ag	107	1	nogas	27058	0.01
Cd	111	1	nogas	5661	0.11
Sb	121	1	nogas	23726	0.01
Tl	205	1	nogas	36979	0.01
Pb	208	1	nogas	55658	0.00
[Pb]	206	1	nogas	13960	0.01
[Pb]	207	1	nogas	12171	0.02
Na	23	2	He	360618	0.00
Mg	24	2	He	169302	0.00
Al	27	2	He	1767	0.53
K	39	2	He	370065	0.00
Ca	43	2	He	510	3.15
Ca	44	2	He	11457	0.02
V	51	2	He	40946	0.00
Cr	52	2	He	17759	0.00
Mn	55	2	He	10697	0.04
Fe	56	2	He	1104283	0.00
Co	59	2	He	17575	0.03
Ni	60	2	He	4481	0.17
Cu	63	2	He	11984	0.03
Zn	66	2	He	2677	0.17
As	75	2	He	3525	0.14
Se	78	2	He	340	3.06
B	11	1	nogas	75501	0.00
Si	28	1	nogas	2979670	0.00

Calibration Standard Report

Ca	43	1	nogas	8302	0.07
Ca	44	1	nogas	521914	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	7507901	0.00
Se	77	1	nogas	84207	0.00
Se	82	1	nogas	690	3.18
Mo	95	1	nogas	12691	0.01
Sn	118	1	nogas	14713	0.03
Ba	137	1	nogas	7428	0.01
Sb	121	2	He	8886	0.03
P	31	1	nogas	82335	0.00
La	139	1	nogas	37	154.83

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1344971	6.02	1359891	98.90	70	125	
Ge	72	1	nogas	3213341	0.87	3145209	102.17	70	125	
In	115	1	nogas	2864141	4.82	2761164	103.73	70	125	
Bi	209	1	nogas	2096933	1.01	2190177	95.74	70	125	
Ge	72	2	He	800122	1.86	785020	101.92	70	125	

Calibration Standard Report

Sample Table

Sample Name	5/25/500
Data File Name	015CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T11:37:27-06:00
Sample Type	CalStd
Level	3
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	38125	0.01
Na	23	1	nogas	12786651	0.00
Mg	24	1	nogas	7926348	0.00
Al	27	1	nogas	146244	0.00
K	39	1	nogas	17719817	0.00
Ti	47	1	nogas	8542	0.04
V	51	1	nogas	2567511	0.00
Cr	52	1	nogas	240004	0.00
Mn	55	1	nogas	162684	0.00
Co	59	1	nogas	112057	0.00
Ni	60	1	nogas	26109	0.01
Cu	63	1	nogas	62089	0.00
Zn	66	1	nogas	21159	0.02
As	75	1	nogas	297594	0.00
Sr	88	1	nogas	129199	0.00
Ag	107	1	nogas	64140	0.00
Cd	111	1	nogas	13619	0.02
Sb	121	1	nogas	59291	0.00
Tl	205	1	nogas	90890	0.00
Pb	208	1	nogas	128327	0.00
[Pb]	206	1	nogas	31471	0.01
[Pb]	207	1	nogas	28181	0.00
Na	23	2	He	816356	0.00
Mg	24	2	He	421391	0.00
Al	27	2	He	3350	0.27
K	39	2	He	627525	0.00
Ca	43	2	He	1203	1.16
Ca	44	2	He	24113	0.02
V	51	2	He	58867	0.00
Cr	52	2	He	37014	0.01
Mn	55	2	He	25187	0.01
Fe	56	2	He	2763312	0.00
Co	59	2	He	43214	0.00
Ni	60	2	He	10997	0.05
Cu	63	2	He	28603	0.01
Zn	66	2	He	6991	0.02
As	75	2	He	7310	0.02
Se	78	2	He	623	1.62
B	11	1	nogas	141991	0.00
Si	28	1	nogas	4555457	0.00

Calibration Standard Report

Ca	43	1	nogas	18640	0.01
Ca	44	1	nogas	681187	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	14164128	0.00
Se	77	1	nogas	88340	0.00
Se	82	1	nogas	1353	0.55
Mo	95	1	nogas	28617	0.01
Sn	118	1	nogas	35383	0.01
Ba	137	1	nogas	19078	0.02
Sb	121	2	He	22201	0.00
P	31	1	nogas	122879	0.00
La	139	1	nogas	133	22.73

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1379508	5.03	1359891	101.44	70	125	
Ge	72	1	nogas	3154458	0.48	3145209	100.29	70	125	
In	115	1	nogas	2819103	1.99	2761164	102.10	70	125	
Bi	209	1	nogas	2078205	4.29	2190177	94.89	70	125	
Ge	72	2	He	770398	2.31	785020	98.14	70	125	

Calibration Standard Report

Sample Table

Sample Name	10/50/1000
Data File Name	016CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T11:39:27-06:00
Sample Type	CalStd
Level	4
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	76314	0.00
Na	23	1	nogas	24675953	0.00
Mg	24	1	nogas	15657513	0.00
Al	27	1	nogas	238008	0.00
K	39	1	nogas	27236219	0.00
Ti	47	1	nogas	17422	0.01
V	51	1	nogas	2722696	0.00
Cr	52	1	nogas	345311	0.00
Mn	55	1	nogas	291039	0.00
Co	59	1	nogas	219440	0.00
Ni	60	1	nogas	50316	0.01
Cu	63	1	nogas	119632	0.00
Zn	66	1	nogas	39713	0.00
As	75	1	nogas	326589	0.00
Sr	88	1	nogas	253599	0.00
Ag	107	1	nogas	127993	0.00
Cd	111	1	nogas	27168	0.01
Sb	121	1	nogas	119295	0.00
Tl	205	1	nogas	177387	0.00
Pb	208	1	nogas	248511	0.00
[Pb]	206	1	nogas	61835	0.00
[Pb]	207	1	nogas	54920	0.01
Na	23	2	He	1592790	0.00
Mg	24	2	He	816216	0.00
Al	27	2	He	5758	0.13
K	39	2	He	1058041	0.00
Ca	43	2	He	2364	0.15
Ca	44	2	He	42709	0.01
V	51	2	He	86589	0.00
Cr	52	2	He	67102	0.00
Mn	55	2	He	48354	0.00
Fe	56	2	He	5485165	0.00
Co	59	2	He	84932	0.00
Ni	60	2	He	21439	0.01
Cu	63	2	He	53572	0.00
Zn	66	2	He	13001	0.03
As	75	2	He	13302	0.02
Se	78	2	He	1120	0.12
B	11	1	nogas	259170	0.00
Si	28	1	nogas	7109444	0.00

Calibration Standard Report

Ca	43	1	nogas	35377	0.01
Ca	44	1	nogas	938665	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	24575026	0.00
Se	77	1	nogas	92788	0.00
Se	82	1	nogas	2757	0.05
Mo	95	1	nogas	54099	0.01
Sn	118	1	nogas	70961	0.00
Ba	137	1	nogas	37117	0.01
Sb	121	2	He	44554	0.01
P	31	1	nogas	166448	0.00
La	139	1	nogas	120	13.89

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1345500	2.35	1359891	98.94	70	125	
Ge	72	1	nogas	3156957	1.79	3145209	100.37	70	125	
In	115	1	nogas	2761827	3.07	2761164	100.02	70	125	
Bi	209	1	nogas	2075764	0.81	2190177	94.78	70	125	
Ge	72	2	He	771369	2.21	785020	98.26	70	125	

Calibration Standard Report

Sample Table

Sample Name	100/500/10K
Data File Name	017CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T11:41:25-06:00
Sample Type	CalStd
Level	5
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	796336	0.00
Na	23	1	nogas	242452630	0.00
Mg	24	1	nogas	154983028	0.00
Al	27	1	nogas	1956520	0.00
K	39	1	nogas	197795388	0.00
Ti	47	1	nogas	169281	0.00
V	51	1	nogas	4705399	0.00
Cr	52	1	nogas	2257468	0.00
Mn	55	1	nogas	2632426	0.00
Co	59	1	nogas	2207039	0.00
Ni	60	1	nogas	489051	0.00
Cu	63	1	nogas	1151187	0.00
Zn	66	1	nogas	379268	0.00
As	75	1	nogas	749783	0.00
Sr	88	1	nogas	2563409	0.00
Ag	107	1	nogas	1297880	0.00
Cd	111	1	nogas	273999	0.00
Sb	121	1	nogas	1141842	0.00
Tl	205	1	nogas	1871199	0.00
Pb	208	1	nogas	2517964	0.00
[Pb]	206	1	nogas	612634	0.00
[Pb]	207	1	nogas	541908	0.00
Na	23	2	He	15131846	0.00
Mg	24	2	He	8087589	0.00
Al	27	2	He	48475	0.00
K	39	2	He	8772076	0.00
Ca	43	2	He	23949	0.02
Ca	44	2	He	395861	0.00
V	51	2	He	590836	0.00
Cr	52	2	He	626074	0.00
Mn	55	2	He	447094	0.00
Fe	56	2	He	53558118	0.00
Co	59	2	He	819858	0.00
Ni	60	2	He	208204	0.00
Cu	63	2	He	521095	0.00
Zn	66	2	He	127289	0.00
As	75	2	He	127952	0.00
Se	78	2	He	10318	0.02
B	11	1	nogas	2379058	0.00
Si	28	1	nogas	53576003	0.00

Calibration Standard Report

Ca	43	1	nogas	337419	0.00
Ca	44	1	nogas	5961691	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	220141372	0.00
Se	77	1	nogas	106429	0.00
Se	82	1	nogas	25131	0.00
Mo	95	1	nogas	526516	0.00
Sn	118	1	nogas	700596	0.00
Ba	137	1	nogas	377867	0.00
Sb	121	2	He	433079	0.00
P	31	1	nogas	861074	0.00
La	139	1	nogas	540	2.14

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1246084	3.43	1359891	91.63	70	125	
Ge	72	1	nogas	3121481	0.75	3145209	99.25	70	125	
In	115	1	nogas	2781244	1.71	2761164	100.73	70	125	
Bi	209	1	nogas	2060333	1.98	2190177	94.07	70	125	
Ge	72	2	He	750724	2.40	785020	95.63	70	125	

Calibration Standard Report

Sample Table

Sample Name	200/1000/20K
Data File Name	018CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T11:43:24-06:00
Sample Type	CalStd
Level	6
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	1661599	0.00
Na	23	1	nogas	494803094	0.00
Mg	24	1	nogas	311533324	0.00
Al	27	1	nogas	3801722	0.00
K	39	1	nogas	388084200	0.00
Ti	47	1	nogas	339934	0.00
V	51	1	nogas	6578225	0.00
Cr	52	1	nogas	4253262	0.00
Mn	55	1	nogas	5075225	0.00
Co	59	1	nogas	4388040	0.00
Ni	60	1	nogas	969722	0.00
Cu	63	1	nogas	2346112	0.00
Zn	66	1	nogas	767982	0.00
As	75	1	nogas	1172252	0.00
Sr	88	1	nogas	5250985	0.00
Ag	107	1	nogas	2548997	0.00
Cd	111	1	nogas	551808	0.00
Sb	121	1	nogas	2449177	0.00
Tl	205	1	nogas	3729505	0.00
Pb	208	1	nogas	5176180	0.00
[Pb]	206	1	nogas	1276227	0.00
[Pb]	207	1	nogas	1103715	0.00
Na	23	2	He	29835738	0.00
Mg	24	2	He	16222332	0.00
Al	27	2	He	96019	0.00
K	39	2	He	17588618	0.00
Ca	43	2	He	47213	0.01
Ca	44	2	He	798401	0.00
V	51	2	He	1169325	0.00
Cr	52	2	He	1244110	0.00
Mn	55	2	He	883838	0.00
Fe	56	2	He	107380422	0.00
Co	59	2	He	1696001	0.00
Ni	60	2	He	415856	0.00
Cu	63	2	He	1063553	0.00
Zn	66	2	He	261125	0.00
As	75	2	He	257380	0.00
Se	78	2	He	20842	0.00
B	11	1	nogas	4863368	0.00
Si	28	1	nogas	107207228	0.00

Calibration Standard Report

Ca	43	1	nogas	694444	0.00
Ca	44	1	nogas	11581260	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	437250960	0.00
Se	77	1	nogas	110539	0.00
Se	82	1	nogas	51393	0.01
Mo	95	1	nogas	1060405	0.00
Sn	118	1	nogas	1444717	0.00
Ba	137	1	nogas	749344	0.00
Sb	121	2	He	895150	0.00
P	31	1	nogas	1677933	0.00
La	139	1	nogas	697	0.97

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1131774	0.15	1359891	83.23	70	125	
Ge	72	1	nogas	3050027	2.04	3145209	96.97	70	125	
In	115	1	nogas	2642790	2.60	2761164	95.71	70	125	
Bi	209	1	nogas	1989047	3.85	2190177	90.82	70	125	
Ge	72	2	He	742606	0.91	785020	94.60	70	125	

Sample Report

Sample Table

Sample Name	LLICV2
Data File Name	021SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T11:49:21-06:00
Sample Type	Sample
Dilution	1
Comment	
ISTD Ref FileName	013CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	1.709	1.709	0.77	16974	0.01	2000	
Na	23	1	nogas	212.815	212.815	2.06	5737076	0.00	200000	
Mg	24	1	nogas	217.117	217.117	3.32	3435474	0.01	200000	
Al	27	1	nogas	2.163	2.163	4.03	70217	0.00	2000	
K	39	1	nogas	212.202	212.202	1.03	12132281	0.00	200000	
Ti	47	1	nogas	2.136	2.136	6.14	4027	0.05	2000	
V	51	1	nogas	-22.939	-22.939	-6.95	1702410	0.00	2000	
Cr	52	1	nogas	1.180	1.180	4.92	148996	0.00	2000	
Mn	55	1	nogas	1.900	1.900	3.88	80502	0.00	2000	
Co	59	1	nogas	2.113	2.113	2.34	48858	0.00	2000	
Ni	60	1	nogas	2.341	2.341	2.84	11570	0.02	2000	
Cu	63	1	nogas	2.050	2.050	5.25	27044	0.01	2000	
Zn	66	1	nogas	2.332	2.332	2.35	8435	0.03	2000	
As	75	1	nogas	-8.548	-8.548	-19.04	224000	0.00	2000	
Sr	88	1	nogas	2.044	2.044	2.28	55807	0.00	2000	
Ag	107	1	nogas	2.039	2.039	5.42	27171	0.01	2000	
Cd	111	1	nogas	1.991	1.991	1.97	5764	0.03	2000	
Sb	121	1	nogas	2.412	2.412	3.30	30236	0.01	2000	
Tl	205	1	nogas	2.311	2.311	5.73	46584	0.00	2000	
Pb	208	1	nogas	2.090	2.090	2.21	59317	0.00	2000	
U	238	1	nogas	2.108	2.108	2.47	55825	0.00	2000	
[Pb]	206	1	nogas	2.000	2.000	2.90	14784	0.01	2000	
[Pb]	207	1	nogas	1.990	1.990	2.18	12809	0.02	2000	
Na	23	2	He	203.646	203.646	2.15	364998	0.06	200000	
Mg	24	2	He	210.488	210.488	2.36	175457	0.12	200000	
Al	27	2	He	2.046	2.046	16.52	1713	0.12	2000	
K	39	2	He	201.924	201.924	0.63	366968	0.06	200000	
Ca	43	2	He	199.726	199.726	1.90	520	38.41	200000	
Ca	44	2	He	188.018	188.018	5.48	10807	1.74	200000	
V	51	2	He	0.962	0.962	5.49	31838	0.00	2000	
Cr	52	2	He	1.873	1.873	1.97	17058	0.01	2000	
Mn	55	2	He	1.886	1.886	1.80	10997	0.02	2000	
Fe	56	2	He	201.929	201.929	1.72	1123251	0.02	200000	
Co	59	2	He	1.980	1.980	4.47	17485	0.01	2000	
Ni	60	2	He	2.226	2.226	2.51	4621	0.05	2000	
Cu	63	2	He	2.495	2.495	0.24	12271	0.02	2000	
Zn	66	2	He	2.589	2.589	2.65	2944	0.09	2000	
As	75	2	He	2.038	2.038	1.69	3468	0.06	2000	
Se	78	2	He	2.568	2.568	11.00	343	0.75	2000	
B	11	1	nogas	17.275	17.275	9.31	130770	0.01	2000	
Si	28	1	nogas	87.540	87.540	2.96	2894276	0.00	2000	
Ca	43	1	nogas	195.960	195.960	6.85	8342	2.35	200000	
Ca	44	1	nogas	77.831	77.831	2.17	473544	0.02	200000	
Fe	56	1	nogas	179.878	179.878	5.86	7073659	0.00	200000	
Se	77	1	nogas	-45.564	-45.564	-21.51	68462	-0.07	2000	
Se	82	1	nogas	2.031	2.031	16.98	773	0.26	2000	

Sample Report

Mo	95	1	nogas	2.236	2.236	8.08	14519	0.02	2000	
Sn	118	1	nogas	2.173	2.173	4.14	17239	0.01	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Ba	137	1	nogas	2.000	2.000	0.72	7909	0.03	2000	
Sb	121	2	He	2.461	2.461	3.19	11314	0.02	2000	
La	139	1	nogas	-5.469	-5.469	-76.91	27	-20.51	2000	
Au	197	1	nogas	-178.475	-178.475	-213.63	17	-1070.85	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1384555	2.53	1359891	101.81	70	125	
Ge	72	1	nogas	3155369	0.15	3145209	100.32	70	125	
In	115	1	nogas	2795560	2.50	2761164	101.25	70	125	
Bi	209	1	nogas	2118182	2.58	2190177	96.71	70	125	
Ge	72	2	He	763289	0.78	785020	97.23	70	125	

Low Level Initial Calibration Verification (LLICV) Report

Sample Table

Sample Name	LLICV5
Data File Name	022LICV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T11:51:21-06:00
Sample Type	LLICV
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High	QC Flag
Be	9	1	nogas	4.174	5.114	39164	1.77	5	83.5	70	130	
Na	23	1	nogas	502.599	3.335	12874329	1.41	500	100.5	70	130	
Mg	24	1	nogas	515.793	5.643	8083463	2.35	500	103.2	70	130	
Al	27	1	nogas	5.858	0.840	142554	0.64	5	117.2	70	130	
K	39	1	nogas	486.190	1.901	17519631	1.39	500	97.2	70	130	
Ti	47	1	nogas	4.747	1.098	8602	1.54	5	94.9	70	130	
V	51	1	nogas	-10.788	-16.663	1989136	2.11	5	-215.8	70	130	LLICV Main CR1 Failed
Cr	52	1	nogas	4.480	1.108	219990	0.61	5	89.6	70	130	
Mn	55	1	nogas	5.069	0.947	163563	1.05	5	101.4	70	130	
Co	59	1	nogas	4.844	1.674	110777	2.13	5	96.9	70	130	
Ni	60	1	nogas	5.184	2.566	25828	3.06	5	103.7	70	130	
Cu	63	1	nogas	4.849	0.870	60778	0.97	5	97.0	70	130	
Zn	66	1	nogas	5.494	0.955	20952	1.45	5	109.9	70	130	
As	75	1	nogas	-0.852	-109.424	261150	2.05	5	-17.0	70	130	LLICV Main CR1 Failed
Sr	88	1	nogas	4.723	1.482	128075	1.93	5	94.5	70	130	
Ag	107	1	nogas	4.897	0.505	64906	0.69	5	97.9	70	130	
Cd	111	1	nogas	4.969	1.811	14096	4.13	5	99.4	70	130	
Sb	121	1	nogas	5.157	1.099	64489	1.36	5	103.1	70	130	
Tl	205	1	nogas	4.422	6.055	89677	4.69	5	88.4	70	130	
Pb	208	1	nogas	4.828	1.428	129689	1.37	5	96.6	70	130	
U	238	1	nogas	4.681	0.969	125966	0.61	5	93.6	70	130	
[Pb]	206	1	nogas	4.476	3.061	31892	1.50	5	89.5	70	130	
[Pb]	207	1	nogas	4.612	4.941	28515	3.35	5	92.2	70	130	
Na	23	2	He	500.362	1.325	813261	0.86	500	100.1	70	130	
Mg	24	2	He	510.748	3.130	421959	2.75	500	102.1	70	130	
Al	27	2	He	5.806	5.547	3527	4.54	5	116.1	70	130	
K	39	2	He	490.951	1.710	617693	1.18	500	98.2	70	130	
Ca	43	2	He	526.842	8.206	1303	7.68	500	105.4	70	130	
Ca	44	2	He	494.135	3.933	23088	3.07	500	98.8	70	130	
V	51	2	He	4.347	0.999	51267	0.45	5	86.9	70	130	
Cr	52	2	He	5.155	1.199	37638	0.96	5	103.1	70	130	
Mn	55	2	He	5.082	4.065	25281	3.51	5	101.6	70	130	
Fe	56	2	He	508.044	0.726	2787234	0.98	500	101.6	70	130	
Co	59	2	He	4.962	4.127	42924	3.81	5	99.2	70	130	
Ni	60	2	He	5.463	1.332	11444	1.58	5	109.3	70	130	
Cu	63	2	He	5.589	1.492	28886	1.86	5	111.8	70	130	
Zn	66	2	He	5.922	2.434	7342	2.95	5	118.4	70	130	
As	75	2	He	4.836	1.427	7090	0.90	5	96.7	70	130	
Se	78	2	He	5.116	3.340	609	2.67	5	102.3	70	130	
B	11	1	nogas	26.535	2.752	174722	1.55	25	106.1	70	130	
Si	28	1	nogas	233.175	0.868	4473684	0.37	25	932.7	70	130	LLICV Main CR1 Failed
Ca	43	1	nogas	486.797	1.493	18683	1.71	500	97.4	70	130	
Ca	44	1	nogas	338.868	1.385	624135	0.15	500	67.8	70	130	LLICV Main CR1 Failed
Fe	56	1	nogas	469.057	1.663	13558763	1.53	500	93.8	70	130	
Se	77	1	nogas	-10.436	-122.028	75898	3.96	5	-208.7	70	130	LLICV Main CR1 Failed
Se	82	1	nogas	5.040	13.068	1563	10.82	5	100.8	70	130	
Mo	95	1	nogas	4.898	0.911	29034	0.93	5	98.0	70	130	
Sn	118	1	nogas	4.733	5.029	35784	1.66	5	94.7	70	130	
Ba	137	1	nogas	4.889	4.426	18891	1.38	5	97.8	70	130	
Sb	121	2	He	5.369	2.593	24394	2.74	5	107.4	70	130	
Li	7	1	nogas	4.454	6.655	197703	0.37	5	89.1	70	130	
P	31	1	nogas	25.940	2.751	124087	0.54	25	103.8	70	130	
La	139	1	nogas	10.918	64.626	87	29.04	5	218.4	70	130	LLICV Main CR1 Failed
Au	197	1	nogas	717.052	283.933	30	100.00	5	14341.0	70	130	LLICV Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1312445	3.32	1359891	96.51	70	125	
Ge	72	1	nogas	3159412	0.48	3145209	100.45	70	125	
In	115	1	nogas	2744168	3.20	2761164	99.38	70	125	
Bi	209	1	nogas	2154629	1.46	2190177	98.38	70	125	

Low Level Initial Calibration Verification (LLICV) Report

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	2	He	757610	0.38	785020	96.51	70	125	

Initial Calibration Blank (ICB) Report

Sample Table

Sample Name	ICB
Data File Name	023_ICB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T11:53:21-06:00
Sample Type	ICB
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.022	7.4	253	4.6	1	
Na	23	1	nogas	2.816	3.2	475313	3.4	100	
Mg	24	1	nogas	2.476	5.1	43758	5.8	100	
Al	27	1	nogas	0.947	2.0	45147	0.7	5	
K	39	1	nogas	6.201	106.6	7865893	0.7	100	
Ti	47	1	nogas	0.053	11.9	377	3.1	2.5	
V	51	1	nogas	-7.345	-13.6	2007772	1.1	2.5	
Cr	52	1	nogas	-0.092	-130.4	118247	2.7	2.5	
Mn	55	1	nogas	0.041	42.4	30973	0.7	2.5	
Co	59	1	nogas	0.021	17.9	1490	6.5	2.5	
Ni	60	1	nogas	0.194	9.2	803	11.8	2.5	
Cu	63	1	nogas	0.019	25.2	2547	1.9	1	
Zn	66	1	nogas	0.438	5.7	927	10.6	2.5	
As	75	1	nogas	-4.560	-15.8	236122	2.2	2.5	
Sr	88	1	nogas	0.039	4.5	1803	2.3	2.5	
Ag	107	1	nogas	0.027	14.2	653	7.2	2.5	
Cd	111	1	nogas	0.024	47.8	80	37.5	1	
Sb	121	1	nogas	0.275	2.6	3544	1.3	2.5	
Tl	205	1	nogas	0.065	37.0	2127	18.6	1	
Pb	208	1	nogas	-0.018	-52.6	5127	4.9	2.5	
U	238	1	nogas	0.028	19.8	787	16.9	2.5	
[Pb]	206	1	nogas	0.001	2718.3	1363	8.5	2.5	
[Pb]	207	1	nogas	-0.028	-72.3	1053	6.7	2.5	
Na	23	2	He	2.852	33.1	56674	1.8	100	
Mg	24	2	He	2.219	2.9	2254	5.1	100	
Al	27	2	He	0.954	52.0	1157	17.5	5	
K	39	2	He	-4.431	-46.2	187959	0.9	100	
Ca	43	2	He	7.639	84.5	53	28.6	100	
Ca	44	2	He	-1.300	-80.5	3060	4.1	100	
V	51	2	He	-0.218	-65.3	24546	1.5	2.5	
Cr	52	2	He	0.023	12.7	5221	3.7	2.5	
Mn	55	2	He	0.068	15.0	2724	1.8	2.5	
Fe	56	2	He	2.075	5.1	23031	4.8	100	
Co	59	2	He	0.001	603.8	390	16.0	2.5	
Ni	60	2	He	0.169	26.4	227	40.0	2.5	
Cu	63	2	He	0.424	6.1	990	17.5	1	
Zn	66	2	He	0.625	5.8	317	16.2	2.5	
As	75	2	He	0.028	86.7	814	2.1	2.5	
Se	78	2	He	0.623	17.4	135	11.3	1	
B	11	1	nogas	4.387	20.4	52104	1.7	10	
Si	28	1	nogas	-5.570	-118.8	1833433	2.4	5	
Ca	43	1	nogas	4.686	33.2	1513	4.4	100	
Ca	44	1	nogas	-136.192	-5.0	340644	0.3	100	
Fe	56	1	nogas	-15.384	-14.5	2628266	0.7	100	
Se	77	1	nogas	2.132	10.8	76169	1.4	2.5	
Se	82	1	nogas	0.272	66.4	303	13.7	1	

Initial Calibration Blank (ICB) Report

Mo	95	1	nogas	-0.020	-202.1	2180	8.4	2.5	
Sn	118	1	nogas	0.051	35.8	1213	8.1	5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Ba	137	1	nogas	0.043	36.5	207	28.4	2.5	
Sb	121	2	He	0.265	14.9	1277	12.5	2.5	
P	31	1	nogas	0.916	129.3	80524	2.4	10	
La	139	1	nogas	9.998	73.9	80	33.1	2.5	ICB Main CR1 Failed
Au	197	1	nogas	554.422	198.1	27	57.3	2.5	ICB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1284061	7.78	1359891	94.42	70	125	
Ge	72	1	nogas	3065001	1.44	3145209	97.45	70	125	
In	115	1	nogas	2622503	2.58	2761164	94.98	70	125	
Bi	209	1	nogas	2067529	4.45	2190177	94.40	70	125	
Ge	72	2	He	752035	3.44	785020	95.80	70	125	

Initial Calibration Verification (ICV) Report

Sample Table

Sample Name	ICV
Data File Name	025_ICV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T12:13:20-06:00
Sample Type	ICV
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High	QC Flag
Be	9	1	nogas	86.278	7.101	788269	0.87	100	86.3	90	110	ICV Main CR1 Failed
Na	23	1	nogas	9835.947	3.389	247382022	5.53	10000	98.4	90	110	
Mg	24	1	nogas	9774.600	2.568	155052749	2.65	10000	97.7	90	110	
Al	27	1	nogas	99.512	2.704	1946605	3.69	100	99.5	90	110	
K	39	1	nogas	9915.206	4.341	199452296	1.52	10000	99.2	90	110	
Ti	47	1	nogas	98.680	2.638	170521	0.48	100	98.7	90	110	
V	51	1	nogas	109.991	5.857	4748856	1.02	100	110.0	90	110	
Cr	52	1	nogas	102.420	5.132	2287925	2.73	100	102.4	90	110	
Mn	55	1	nogas	103.177	4.151	2692605	2.03	100	103.2	90	110	
Co	59	1	nogas	99.431	2.905	2221032	0.32	100	99.4	90	110	
Ni	60	1	nogas	97.326	2.563	480569	0.31	100	97.3	90	110	
Cu	63	1	nogas	95.347	1.804	1134262	1.33	100	95.3	90	110	
Zn	66	1	nogas	98.877	1.385	384862	1.91	100	98.9	90	110	
As	75	1	nogas	104.155	3.535	753131	0.64	100	104.2	90	110	
Sr	88	1	nogas	98.158	1.102	2608702	2.01	100	98.2	90	110	
Ag	107	1	nogas	97.958	2.606	1274157	1.81	100	98.0	90	110	
Cd	111	1	nogas	96.514	1.365	270878	0.99	100	96.5	90	110	
Sb	121	1	nogas	92.612	2.792	1138283	2.68	100	92.6	90	110	
Tl	205	1	nogas	95.528	3.474	1857320	2.88	100	95.5	90	110	
Pb	208	1	nogas	98.619	1.214	2540456	1.21	100	98.6	90	110	
U	238	1	nogas	100.972	1.695	2628695	1.84	100	101.0	90	110	
[Pb]	206	1	nogas	92.352	3.212	610013	3.04	100	92.4	90	110	
[Pb]	207	1	nogas	94.744	3.567	543016	0.91	100	94.7	90	110	
Na	23	2	He	10051.013	1.491	15112106	0.53	10000	100.5	90	110	
Mg	24	2	He	10214.835	3.764	8310797	2.82	10000	102.1	90	110	
Al	27	2	He	99.157	1.120	48165	1.13	100	99.2	90	110	
K	39	2	He	9937.260	0.822	8812172	0.80	10000	99.4	90	110	
Ca	43	2	He	9668.727	3.205	22984	3.62	10000	96.7	90	110	
Ca	44	2	He	9774.487	0.757	392242	0.67	10000	97.7	90	110	
V	51	2	He	99.204	1.198	593851	0.87	100	99.2	90	110	
Cr	52	2	He	98.054	0.491	615025	0.71	100	98.1	90	110	
Mn	55	2	He	99.824	1.199	444759	0.25	100	99.8	90	110	
Fe	56	2	He	9975.439	0.848	53735766	0.36	10000	99.8	90	110	
Co	59	2	He	97.805	2.181	827079	1.06	100	97.8	90	110	
Ni	60	2	He	100.737	2.217	210262	1.17	100	100.7	90	110	
Cu	63	2	He	98.771	1.892	524582	0.74	100	98.8	90	110	
Zn	66	2	He	97.943	1.344	127503	0.81	100	97.9	90	110	
As	75	2	He	97.414	1.577	125990	1.02	100	97.4	90	110	
Se	78	2	He	97.012	0.971	10156	0.61	100	97.0	90	110	
B	11	1	nogas	450.167	8.096	2428887	2.24	500	90.0	90	110	
Si	28	1	nogas	4947.472	2.024	54719164	3.13	5000	98.9	90	110	
Ca	43	1	nogas	9776.353	3.579	343708	2.99	10000	97.8	90	110	
Ca	44	1	nogas	9751.848	3.584	5947167	1.71	10000	97.5	90	110	
Fe	56	1	nogas	9935.397	4.796	222306388	2.90	10000	99.4	90	110	
Se	77	1	nogas	146.148	3.350	107103	2.24	100	146.1	90	110	ICV Main CR1 Failed
Se	82	1	nogas	98.113	2.380	25615	1.44	100	98.1	90	110	
Mo	95	1	nogas	99.123	1.162	534676	2.38	100	99.1	90	110	
Sn	118	1	nogas	95.187	0.718	696674	0.90	100	95.2	90	110	
Ba	137	1	nogas	98.937	1.792	378120	0.25	100	98.9	90	110	
Sb	121	2	He	96.957	1.005	432768	0.54	100	97.0	90	110	
Li	7	1	nogas	89.962	6.707	1880704	0.43	100	90.0	90	110	ICV Main CR1 Failed
P	31	1	nogas	487.791	1.616	870045	1.80	500	97.6	90	110	
La	139	1	nogas	112.367	21.626	457	18.23	100	112.4	90	110	ICV Main CR1 Failed
Au	197	1	nogas	1024.820	164.588	33	69.28	100	1024.8	90	110	ICV Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1281982	6.39	1359891	94.27	70	125	
Ge	72	1	nogas	3116223	2.81	3145209	99.08	70	125	
In	115	1	nogas	2718798	1.59	2761164	98.47	70	125	
Bi	209	1	nogas	2085992	3.21	2190177	95.24	70	125	

Initial Calibration Verification (ICV) Report

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	2	He	746958	1.19	785020	95.15	70	125	

Interference Check Solution A (ICS-A) Report

Sample Table

Sample Name	ICSA
Data File Name	026ICSA.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T12:27:37-06:00
Sample Type	ICSA
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	-0.003	-45.4	27	43.3	0	ICSA Main CR1 Failed
Na	23	1	nogas	99772.419	2.6	2268122384	1.6	0	
Mg	24	1	nogas	98284.273	1.1	1412465198	2.0	0	
Al	27	1	nogas	91269.915	3.0	1627286056	2.1	0	
K	39	1	nogas	100855.122	2.2	1810364040	1.4	0	
Ti	47	1	nogas	2111.723	1.2	3370309	1.1	0	
V	51	1	nogas	-35.932	-0.7	1277173	0.7	0	ICSA Main CR1 Failed
Cr	52	1	nogas	-0.515	-9.4	102886	1.4	0	ICSA Main CR1 Failed
Mn	55	1	nogas	0.883	6.0	49239	3.5	0	ICSA Main CR1 Failed
Co	59	1	nogas	0.478	0.6	10850	1.3	0	ICSA Main CR1 Failed
Ni	60	1	nogas	1.509	0.4	6765	1.0	0	ICSA Main CR1 Failed
Cu	63	1	nogas	1.054	5.0	13765	4.2	0	ICSA Main CR1 Failed
Zn	66	1	nogas	3.426	3.1	11647	2.5	0	ICSA Main CR1 Failed
As	75	1	nogas	-14.028	-10.0	180601	2.5	0	ICSA Main CR1 Failed
Sr	88	1	nogas	0.845	1.9	21513	1.6	0	ICSA Main CR1 Failed
Ag	107	1	nogas	0.037	26.3	727	16.8	0	ICSA Main CR1 Failed
Cd	111	1	nogas	1.887	5.1	4861	3.3	0	ICSA Main CR1 Failed
Sb	121	1	nogas	1.289	11.4	14867	12.1	0	ICSA Main CR1 Failed
Tl	205	1	nogas	0.050	83.5	1894	51.3	0	ICSA Main CR1 Failed
Pb	208	1	nogas	0.111	38.4	8444	12.9	0	ICSA Main CR1 Failed
[Pb]	206	1	nogas	0.131	26.0	2210	14.7	0	ICSA Main CR1 Failed
[Pb]	207	1	nogas	0.091	30.5	1727	13.7	0	ICSA Main CR1 Failed
Na	23	2	He	97693.153	1.3	141335218	1.7	0	
Mg	24	2	He	97265.766	1.4	76387947	1.7	0	
Al	27	2	He	91579.752	0.5	42312337	1.4	0	
K	39	2	He	94564.302	1.0	82224395	1.0	0	
Ca	43	2	He	93346.096	2.9	213857	3.2	0	
Ca	44	2	He	97704.215	1.5	3757513	2.3	0	
V	51	2	He	-1.531	-3.7	16283	1.8	0	ICSA Main CR1 Failed
Cr	52	2	He	0.266	25.5	6465	6.1	0	ICSA Main CR1 Failed
Mn	55	2	He	0.675	7.2	5207	3.6	0	ICSA Main CR1 Failed
Fe	56	2	He	96155.471	0.6	499799473	0.3	0	
Co	59	2	He	0.246	9.4	2367	7.1	0	ICSA Main CR1 Failed
Ni	60	2	He	0.719	9.9	1327	11.3	0	ICSA Main CR1 Failed
Cu	63	2	He	0.752	3.0	2630	5.0	0	ICSA Main CR1 Failed
Zn	66	2	He	2.156	1.0	2234	0.5	0	ICSA Main CR1 Failed
As	75	2	He	0.041	68.5	798	5.2	0	ICSA Main CR1 Failed
Se	78	2	He	0.700	21.0	137	11.1	0	ICSA Main CR1 Failed
B	11	1	nogas	1.423	38.1	37567	4.5	0	ICSA Main CR1 Failed
Si	28	1	nogas	71.978	8.3	2489176	1.5	0	
Ca	43	1	nogas	95597.549	1.5	3098104	2.3	0	
Ca	44	1	nogas	96363.689	1.0	50888596	0.2	0	
Fe	56	1	nogas	98346.164	2.0	2011258512	1.2	0	
Se	77	1	nogas	-70.143	-13.1	57829	2.2	0	ICSA Main CR1 Failed
Se	82	1	nogas	0.278	59.1	287	13.2	0	ICSA Main CR1 Failed
Mo	95	1	nogas	1966.748	2.1	9770045	2.0	0	
Sn	118	1	nogas	0.195	15.8	2123	11.8	0	ICSA Main CR1 Failed
Ba	137	1	nogas	0.238	14.5	880	15.9	0	ICSA Main CR1 Failed
Sb	121	2	He	0.939	3.9	4131	3.4	0	ICSA Main CR1 Failed

Interference Check Solution A (ICS-A) Report

P	31	1	nogas	95539.734	1.6	143110505	0.7	0	
La	139	1	nogas	66.059	13.3	263	9.6	0	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1325005	3.60	1359891	97.43	70	125	
Ge	72	1	nogas	2881516	0.91	3145209	91.62	70	125	
In	115	1	nogas	2489400	2.22	2761164	90.16	70	125	
Bi	209	1	nogas	2056783	8.29	2190177	93.91	70	125	
Ge	72	2	He	720869	0.83	785020	91.83	70	125	

Interference Check Solution AB (ICS-AB) Report

Sample Table

Sample Name	ICSAB
Data File Name	027ICSB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T12:29:40-06:00
Sample Type	ICSB
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High	QC Flag
Be	9	1	nogas	88.896	7.631	826908	0.53	100	88.9	80	120	
Na	23	1	nogas	107475.280	6.996	2496804056	0.21	100	107475.3	80	120	ICSB Main CR1 Failed
Mg	24	1	nogas	104767.308	8.522	1537287468	1.60	100	104767.3	80	120	ICSB Main CR1 Failed
Al	27	1	nogas	89501.065	6.489	1635600669	0.84	100	89501.1	80	120	ICSB Main CR1 Failed
K	39	1	nogas	106208.920	6.969	1953231644	0.86	100	106208.9	80	120	ICSB Main CR1 Failed
Ti	47	1	nogas	2184.702	5.537	3575601	2.72	100	2184.7	80	120	ICSB Main CR1 Failed
V	51	1	nogas	84.153	10.178	3940234	2.22	100	84.2	80	120	ICSB Main CR1 Failed
Cr	52	1	nogas	106.120	2.684	2248532	4.98	100	106.1	80	120	
Mn	55	1	nogas	109.119	1.679	2706396	6.77	100	109.1	80	120	
Co	59	1	nogas	108.027	2.536	2291703	4.04	100	108.0	80	120	
Ni	60	1	nogas	106.971	6.590	500763	0.83	100	107.0	80	120	
Cu	63	1	nogas	103.370	6.564	1165497	1.32	100	103.4	80	120	
Zn	66	1	nogas	110.844	6.542	409045	1.71	100	110.8	80	120	
As	75	1	nogas	99.913	10.639	694935	1.33	100	99.9	80	120	
Sr	88	1	nogas	106.906	2.308	2699990	6.74	100	106.9	80	120	
Ag	107	1	nogas	99.024	6.987	1220737	0.49	100	99.0	80	120	
Cd	111	1	nogas	108.286	3.933	284388	2.08	100	108.3	80	120	
Sb	121	1	nogas	104.806	5.416	1221638	1.76	100	104.8	80	120	
Tl	205	1	nogas	107.582	3.091	1847373	6.61	100	107.6	80	120	
Pb	208	1	nogas	96.871	6.416	2495535	6.40	100	96.9	80	120	
U	238	1	nogas	117.360	4.268	2694410	2.99	100	117.4	80	120	
[Pb]	206	1	nogas	106.892	7.419	621587	1.38	100	106.9	80	120	
[Pb]	207	1	nogas	107.937	7.726	544763	1.53	100	107.9	80	120	
Na	23	2	He	106806.913	2.230	155707248	2.06	100	106806.9	80	120	
Mg	24	2	He	105680.566	1.366	83634235	0.36	100	105680.6	80	120	
Al	27	2	He	89413.345	0.471	41631124	0.85	100	89413.3	80	120	ICSB Main CR1 Failed
K	39	2	He	105046.267	0.664	91317285	0.66	100	105046.3	80	120	
Ca	43	2	He	102464.222	0.437	236569	1.37	100	102464.2	80	120	
Ca	44	2	He	107334.985	1.617	4159308	1.74	100	107335.0	80	120	
V	51	2	He	104.576	0.666	607511	0.47	100	104.6	80	120	
Cr	52	2	He	104.304	0.708	636023	1.58	100	104.3	80	120	
Mn	55	2	He	107.790	1.529	466980	2.40	100	107.8	80	120	
Fe	56	2	He	106340.940	0.882	557089938	1.81	100	106340.9	80	120	
Co	59	2	He	104.046	0.847	855814	0.19	100	104.0	80	120	
Ni	60	2	He	106.452	2.151	216120	1.64	100	106.5	80	120	
Cu	63	2	He	103.551	1.564	535015	1.59	100	103.6	80	120	
Zn	66	2	He	107.351	1.635	135978	1.87	100	107.4	80	120	
As	75	2	He	105.233	0.241	132323	0.82	100	105.2	80	120	
Se	78	2	He	106.610	1.027	10850	2.02	100	106.6	80	120	
B	11	1	nogas	449.643	7.894	2470720	1.63	100	449.6	80	120	
Si	28	1	nogas	5381.151	7.053	56232369	0.34	100	5381.2	80	120	ICSB Main CR1 Failed
Ca	43	1	nogas	105287.348	8.179	3493725	1.60	100	105287.3	80	120	
Ca	44	1	nogas	105851.660	6.889	57243939	1.32	100	105851.7	80	120	
Fe	56	1	nogas	105420.584	4.862	2211100116	2.18	100	105420.6	80	120	ICSB Main CR1 Failed
Se	77	1	nogas	59.857	56.308	84609	1.29	100	59.9	80	120	ICSB Main CR1 Failed
Se	82	1	nogas	107.720	5.571	26650	1.61	100	107.7	80	120	
Mo	95	1	nogas	2069.610	5.399	10541086	1.18	100	2069.6	80	120	
Sn	118	1	nogas	104.910	4.972	718104	1.49	100	104.9	80	120	
Ba	137	1	nogas	109.134	4.275	390261	1.76	100	109.1	80	120	
Sb	121	2	He	107.148	1.025	465148	0.83	100	107.1	80	120	
La	139	1	nogas	240.588	6.523	867	4.05	100	240.6	80	120	ICSB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1305981	7.06	1359891	96.04	70	125	
Ge	72	1	nogas	2961308	6.55	3145209	94.15	70	125	
In	115	1	nogas	2547892	6.13	2761164	92.28	70	125	
Bi	209	1	nogas	1842791	7.32	2190177	84.14	70	125	
Ge	72	2	He	726482	1.00	785020	92.54	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	039_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T13:12:56-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	82.581	4.416	731555	0.94	100	82.6	90	110	CCV Main CR1-2 Failed
Na	23	1	nogas	9534.220	0.951	233218130	1.31	10000	95.3	90	110	
Mg	24	1	nogas	9729.392	1.174	150187274	1.59	10000	97.3	90	110	
Al	27	1	nogas	114.025	1.651	2272225	1.51	100	114.0	90	110	CCV Main CR1-2 Failed
K	39	1	nogas	9403.535	4.665	193492221	1.80	10000	94.0	90	110	
Ti	47	1	nogas	94.023	2.202	165882	1.13	100	94.0	90	110	
V	51	1	nogas	88.641	9.067	4343756	2.37	100	88.6	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	94.363	2.955	2162226	0.85	100	94.4	90	110	
Mn	55	1	nogas	96.837	4.544	2581103	1.37	100	96.8	90	110	
Co	59	1	nogas	93.619	4.322	2134156	1.48	100	93.6	90	110	
Ni	60	1	nogas	92.348	2.509	465475	0.99	100	92.3	90	110	
Cu	63	1	nogas	90.028	4.450	1092858	2.11	100	90.0	90	110	
Zn	66	1	nogas	93.492	2.903	371300	0.41	100	93.5	90	110	
As	75	1	nogas	85.298	2.877	678016	1.50	100	85.3	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	96.941	1.717	2629593	1.51	100	96.9	90	110	
Ag	107	1	nogas	95.934	1.678	1273939	1.81	100	95.9	90	110	
Cd	111	1	nogas	96.242	1.367	273977	0.58	100	96.2	90	110	
Sb	121	1	nogas	89.518	2.825	1122878	0.73	100	89.5	90	110	CCV Main CR1-2 Failed
Tl	205	1	nogas	96.005	0.857	1912662	1.77	100	96.0	90	110	
Pb	208	1	nogas	97.695	2.651	2516717	2.64	100	97.7	90	110	
U	238	1	nogas	98.363	3.842	2622706	2.63	100	98.4	90	110	
[Pb]	206	1	nogas	90.186	2.464	610277	1.74	100	90.2	90	110	
[Pb]	207	1	nogas	91.278	3.329	536100	2.19	100	91.3	90	110	
Na	23	2	He	9623.064	3.235	14415564	1.68	10000	96.2	90	110	
Mg	24	2	He	9540.055	1.642	7734491	0.19	10000	95.4	90	110	
Al	27	2	He	107.256	1.192	51865	2.95	100	107.3	90	110	
K	39	2	He	9322.177	1.535	8278600	1.50	10000	93.2	90	110	
Ca	43	2	He	9498.496	2.213	22494	1.34	10000	95.0	90	110	
Ca	44	2	He	9331.236	2.330	373183	1.11	10000	93.3	90	110	
V	51	2	He	93.345	2.417	558196	1.25	100	93.3	90	110	
Cr	52	2	He	94.422	2.820	590140	1.03	100	94.4	90	110	
Mn	55	2	He	93.055	1.725	413235	0.34	100	93.1	90	110	
Fe	56	2	He	9491.722	1.050	50950106	1.93	10000	94.9	90	110	
Co	59	2	He	93.403	0.242	787182	1.78	100	93.4	90	110	
Ni	60	2	He	95.865	0.471	199406	1.94	100	95.9	90	110	
Cu	63	2	He	95.724	2.377	506501	1.50	100	95.7	90	110	
Zn	66	2	He	95.179	1.678	123436	0.78	100	95.2	90	110	
As	75	2	He	92.664	0.757	119458	1.12	100	92.7	90	110	
Se	78	2	He	93.170	1.117	9721	0.93	100	93.2	90	110	
B	11	1	nogas	433.350	1.839	2270764	3.33	500	86.7	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	4547.796	1.635	51492616	1.59	5000	91.0	90	110	
Ca	43	1	nogas	9148.026	4.787	328218	1.64	10000	91.5	90	110	
Ca	44	1	nogas	8874.170	5.333	5560960	1.88	10000	88.7	90	110	CCV Main CR1-2 Failed
Fe	56	1	nogas	9453.672	1.340	216186963	1.85	10000	94.5	90	110	
Se	77	1	nogas	52.203	33.980	89512	1.23	100	52.2	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	93.835	4.194	25008	1.16	100	93.8	90	110	
Mo	95	1	nogas	94.673	3.017	521161	0.18	100	94.7	90	110	
Sn	118	1	nogas	91.988	1.885	682853	0.71	100	92.0	90	110	
Ba	137	1	nogas	96.340	1.964	373465	0.74	100	96.3	90	110	
Sb	121	2	He	93.010	2.014	413602	0.60	100	93.0	90	110	
Li	7	1	nogas	96.477	3.818	1809007	1.98	100	96.5	90	110	
P	31	1	nogas	444.547	2.197	816596	1.56	500	88.9	90	110	CCV Main CR1-2 Failed
La	139	1	nogas	156.420	17.540	627	15.17	100	156.4	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	271.125	292.305	23	49.49	100	271.1	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1241092	5.04	1359891	91.26	70	125	
Ge	72	1	nogas	3181162	3.09	3145209	101.14	70	125	
In	115	1	nogas	2757635	1.24	2761164	99.87	70	125	
Bi	209	1	nogas	2136405	1.24	2190177	97.54	70	125	

Ge	72	2	He	744285	1.78	785020	94.81	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	040_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T13:14:54-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.029	56.4	330	47.6	1	
Na	23	1	nogas	8.110	23.9	628294	5.8	100	
Mg	24	1	nogas	5.524	31.5	93958	27.5	100	
Al	27	1	nogas	19.975	4.0	426475	2.1	5	CCB Main CR1 Failed
K	39	1	nogas	-14.388	-133.8	7847500	0.6	100	
Ti	47	1	nogas	0.095	72.4	467	21.5	2.5	
V	51	1	nogas	-7.112	-37.1	2114627	1.5	2.5	
Cr	52	1	nogas	-1.421	-13.5	95109	2.0	2.5	
Mn	55	1	nogas	0.153	50.7	35494	1.8	2.5	
Co	59	1	nogas	0.031	40.6	1790	11.7	2.5	
Ni	60	1	nogas	0.201	17.1	873	15.9	2.5	
Cu	63	1	nogas	0.012	171.5	2584	5.1	2	
Zn	66	1	nogas	0.603	9.8	1633	10.0	2.5	
As	75	1	nogas	-8.727	-15.2	227700	2.0	2.5	
Sr	88	1	nogas	0.375	9.7	11104	5.9	2.5	
Ag	107	1	nogas	0.016	53.9	537	17.3	2.5	
Cd	111	1	nogas	0.042	88.7	143	76.9	1	
Sb	121	1	nogas	1.928	27.7	24528	22.8	2.5	
Tl	205	1	nogas	0.115	71.1	3254	51.0	1	
Pb	208	1	nogas	-0.011	-357.9	5327	18.4	2.5	
U	238	1	nogas	0.133	64.9	3634	64.2	2.5	
[Pb]	206	1	nogas	-0.002	-803.1	1403	9.0	2.5	
[Pb]	207	1	nogas	-0.010	-442.3	1210	21.4	2.5	
Na	23	2	He	7.836	7.2	64051	1.3	100	
Mg	24	2	He	3.613	7.8	3387	7.5	100	
Al	27	2	He	20.645	2.6	10623	1.1	5	CCB Main CR1 Failed
K	39	2	He	-13.863	-15.0	179777	1.0	100	
Ca	43	2	He	71.958	42.3	207	35.7	100	
Ca	44	2	He	57.380	4.1	5398	1.0	100	
V	51	2	He	-0.066	-94.6	25371	0.7	2.5	
Cr	52	2	He	-0.017	-214.6	4957	3.9	2.5	
Mn	55	2	He	0.070	34.4	2724	3.9	2.5	
Fe	56	2	He	3.397	5.2	30125	4.1	100	
Co	59	2	He	0.002	425.2	393	15.5	2.5	
Ni	60	2	He	0.176	12.9	240	20.8	2.5	
Cu	63	2	He	0.443	10.7	1083	22.2	2	
Zn	66	2	He	0.766	5.6	500	10.0	2.5	
As	75	2	He	0.060	101.2	853	8.7	2.5	
Se	78	2	He	0.629	19.5	135	8.4	2	
B	11	1	nogas	4.069	8.9	52001	3.5	10	
Si	28	1	nogas	-28.516	-29.5	1672283	1.5	5	
Ca	43	1	nogas	77.086	15.6	4201	5.9	100	
Ca	44	1	nogas	-316.270	-4.0	252410	1.6	100	
Fe	56	1	nogas	-18.838	-54.1	2677824	4.2	100	
Se	77	1	nogas	-35.408	-40.2	71999	2.1	2.5	
Se	82	1	nogas	0.073	283.3	267	22.6	2	
Mo	95	1	nogas	0.156	123.5	3240	28.1	2.5	
Sn	118	1	nogas	0.207	31.9	2567	19.3	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.262	13.6	1123	12.2	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	1.229	9.8	5601	10.8	2.5	
P	31	1	nogas	-1.781	-74.9	80079	1.8	10	
La	139	1	nogas	70.702	17.2	327	15.4	2.5	CCB Main CR1 Failed
Au	197	1	nogas	477.217	324.2	27	86.6	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1318699	2.38	1359891	96.97	70	125	
Ge	72	1	nogas	3222207	4.42	3145209	102.45	70	125	
In	115	1	nogas	2910199	0.94	2761164	105.40	70	125	
Bi	209	1	nogas	2155319	0.75	2190177	98.41	70	125	
Ge	72	2	He	750098	1.35	785020	95.55	70	125	

Sample Report

Sample Table

Sample Name	HS18120736-01
Data File Name	049SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T13:38:36-06:00
Sample Type	Sample
Dilution	50
Comment	TW135804Mn
ISTD Ref FileName	013CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	0.002	0.113	251.99	73	0.00	2000	
Na	23	1	nogas	14850.284	742514.224	2.02	372255283	0.00	200000	
Mg	24	1	nogas	2087.080	104354.003	3.81	33023050	0.01	200000	
Al	27	1	nogas	1.374	68.687	32.08	54626	0.00	2000	
K	39	1	nogas	2.463	123.175	543.42	8017623	0.00	200000	
Ti	47	1	nogas	0.377	18.829	13.51	953	0.04	2000	
V	51	1	nogas	2.368	118.414	127.52	2292262	0.00	2000	
Cr	52	1	nogas	-1.306	-65.322	-11.84	95602	0.00	2000	
Mn	55	1	nogas	102.011	5100.569	4.47	2694784	0.00	2000	
Co	59	1	nogas	0.146	7.317	4.30	4374	0.00	2000	
Ni	60	1	nogas	0.351	17.552	6.68	1613	0.02	2000	
Cu	63	1	nogas	0.040	1.986	23.78	2874	0.00	2000	
Zn	66	1	nogas	0.535	26.756	2.81	1337	0.04	2000	
As	75	1	nogas	-8.461	-423.070	-6.90	224333	0.00	2000	
Sr	88	1	nogas	65.753	3287.645	2.81	1768892	0.00	2000	
Ag	107	1	nogas	-0.012	-0.623	-31.29	150	-0.01	2000	
Cd	111	1	nogas	0.002	0.096	190.24	23	0.01	2000	
Sb	121	1	nogas	0.071	3.552	13.27	1107	0.01	2000	
Tl	205	1	nogas	-0.018	-0.922	-19.82	560	0.00	2000	
Pb	208	1	nogas	-0.106	-5.298	-2.24	2877	0.00	2000	
U	238	1	nogas	0.014	0.700	20.27	437	0.00	2000	
[Pb]	206	1	nogas	-0.096	-4.786	-12.11	767	-0.01	2000	
[Pb]	207	1	nogas	-0.118	-5.907	-11.35	567	-0.02	2000	
Na	23	2	He	15110.358	755517.914	2.72	22555186	0.07	200000	
Mg	24	2	He	2172.375	108618.766	1.04	1757875	0.12	200000	
Al	27	2	He	1.073	53.654	25.81	1203	0.09	2000	
K	39	2	He	-3.551	-177.574	-47.03	188722	0.00	200000	
Ca	43	2	He	3093.337	154666.843	2.73	7332	42.19	200000	
Ca	44	2	He	3174.667	158733.332	0.64	128718	2.47	200000	
V	51	2	He	0.693	34.665	12.80	29436	0.00	2000	
Cr	52	2	He	0.031	1.565	202.81	5201	0.00	2000	
Mn	55	2	He	96.484	4824.185	1.53	427394	0.02	2000	
Fe	56	2	He	668.868	33443.406	2.44	3591885	0.02	200000	
Co	59	2	He	0.140	6.978	12.79	1550	0.01	2000	
Ni	60	2	He	0.227	11.338	15.02	343	0.07	2000	
Cu	63	2	He	0.428	21.401	1.86	993	0.04	2000	
Zn	66	2	He	0.626	31.303	4.47	313	0.20	2000	
As	75	2	He	0.196	9.821	3.40	1020	0.02	2000	
Se	78	2	He	0.756	37.810	19.16	147	0.52	2000	
B	11	1	nogas	0.072	3.582	372.94	29346	0.00	2000	
Si	28	1	nogas	427.945	21397.242	4.06	6566841	0.01	2000	
Ca	43	1	nogas	3172.904	158645.208	1.83	113890	2.79	200000	
Ca	44	1	nogas	2887.517	144375.831	2.22	2084540	0.14	200000	
Fe	56	1	nogas	672.852	33642.622	3.30	18082593	0.00	200000	
Se	77	1	nogas	-30.020	-1501.022	-16.44	71660	-0.04	2000	
Se	82	1	nogas	-0.119	-5.952	-206.79	210	-0.06	2000	

Sample Report

Mo	95	1	nogas	-0.074	-3.714	-59.56	1947	0.00	2000	
Sn	118	1	nogas	-0.009	-0.426	-100.70	867	0.00	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Ba	137	1	nogas	3.252	162.605	6.02	13082	0.02	2000	
Sb	121	2	He	0.060	2.994	24.82	353	0.02	2000	
La	139	1	nogas	3.864	193.188	98.43	63	6.10	2000	
Au	197	1	nogas	-855.801	-42790.040	-45.88	7	-12837.01	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1290800	4.06	1359891	94.92	70	125	
Ge	72	1	nogas	3154059	2.82	3145209	100.28	70	125	
In	115	1	nogas	2853837	4.86	2761164	103.36	70	125	
Bi	209	1	nogas	2149612	2.83	2190177	98.15	70	125	
Ge	72	2	He	742560	1.83	785020	94.59	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	051_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T13:42:32-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	85.242	6.233	746063	1.73	100	85.2	90	110	CCV Main CR1-2 Failed
Na	23	1	nogas	10106.138	2.238	246517314	3.04	10000	101.1	90	110	
Mg	24	1	nogas	9753.154	0.324	150136603	1.50	10000	97.5	90	110	
Al	27	1	nogas	115.336	0.376	2224526	2.15	100	115.3	90	110	CCV Main CR1-2 Failed
K	39	1	nogas	9662.862	0.870	192340267	1.47	10000	96.6	90	110	
Ti	47	1	nogas	95.923	2.146	163795	1.48	100	95.9	90	110	
V	51	1	nogas	89.335	8.821	4220449	2.78	100	89.3	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	98.016	2.515	2170398	4.15	100	98.0	90	110	
Mn	55	1	nogas	99.358	2.694	2564559	3.81	100	99.4	90	110	
Co	59	1	nogas	97.725	1.543	2157428	2.10	100	97.7	90	110	
Ni	60	1	nogas	95.974	2.462	468269	2.20	100	96.0	90	110	
Cu	63	1	nogas	93.300	2.775	1096403	0.78	100	93.3	90	110	
Zn	66	1	nogas	95.730	3.590	367953	1.40	100	95.7	90	110	
As	75	1	nogas	87.720	2.643	667491	0.75	100	87.7	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	95.720	3.206	2512412	1.60	100	95.7	90	110	
Ag	107	1	nogas	95.939	5.097	1232494	3.63	100	95.9	90	110	
Cd	111	1	nogas	94.231	4.648	268218	1.23	100	94.2	90	110	
Sb	121	1	nogas	95.509	0.887	1159997	2.50	100	95.5	90	110	
Tl	205	1	nogas	97.225	1.215	1894554	1.38	100	97.2	90	110	
Pb	208	1	nogas	99.053	2.991	2551610	2.98	100	99.1	90	110	
U	238	1	nogas	101.132	1.514	2638473	1.86	100	101.1	90	110	
[Pb]	206	1	nogas	94.107	2.097	622917	2.20	100	94.1	90	110	
[Pb]	207	1	nogas	95.903	1.744	551041	2.01	100	95.9	90	110	
Na	23	2	He	9649.507	2.347	14165282	1.26	10000	96.5	90	110	
Mg	24	2	He	9691.734	1.730	7699047	0.65	10000	96.9	90	110	
Al	27	2	He	110.540	1.509	52339	0.84	100	110.5	90	110	CCV Main CR1-2 Failed
K	39	2	He	9295.201	2.150	8255199	2.10	10000	93.0	90	110	
Ca	43	2	He	9536.295	0.885	22130	0.82	10000	95.4	90	110	
Ca	44	2	He	9331.597	1.256	365726	1.35	10000	93.3	90	110	
V	51	2	He	93.814	1.456	549598	0.05	100	93.8	90	110	
Cr	52	2	He	96.799	0.973	592797	0.61	100	96.8	90	110	
Mn	55	2	He	94.979	1.041	413254	0.70	100	95.0	90	110	
Fe	56	2	He	9516.557	0.942	50048763	0.84	10000	95.2	90	110	
Co	59	2	He	94.625	0.357	781346	1.15	100	94.6	90	110	
Ni	60	2	He	98.902	0.511	201557	0.87	100	98.9	90	110	
Cu	63	2	He	98.270	1.498	509545	0.32	100	98.3	90	110	
Zn	66	2	He	95.432	1.086	121289	1.93	100	95.4	90	110	
As	75	2	He	92.654	0.852	117034	0.85	100	92.7	90	110	
Se	78	2	He	91.542	1.101	9360	0.32	100	91.5	90	110	
B	11	1	nogas	446.060	3.907	2308220	1.49	500	89.2	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	4691.460	1.641	51348961	0.99	5000	93.8	90	110	
Ca	43	1	nogas	9441.217	1.581	328041	2.05	10000	94.4	90	110	
Ca	44	1	nogas	9164.330	1.999	5548196	1.65	10000	91.6	90	110	
Fe	56	1	nogas	9769.863	2.054	216224221	4.24	10000	97.7	90	110	
Se	77	1	nogas	61.316	19.398	88514	0.58	100	61.3	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	91.927	4.064	23719	1.89	100	91.9	90	110	
Mo	95	1	nogas	95.679	1.848	509849	0.74	100	95.7	90	110	
Sn	118	1	nogas	93.453	1.993	694199	2.66	100	93.5	90	110	
Ba	137	1	nogas	95.989	6.293	371905	2.14	100	96.0	90	110	
Sb	121	2	He	94.319	1.364	410995	0.68	100	94.3	90	110	
Li	7	1	nogas	96.753	5.390	1792971	3.83	100	96.8	90	110	
P	31	1	nogas	459.962	2.074	814948	0.37	500	92.0	90	110	
La	139	1	nogas	147.731	23.151	593	18.49	100	147.7	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	65.504	1805.300	20	86.60	100	65.5	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1226650	4.46	1359891	90.20	70	125	
Ge	72	1	nogas	3078432	2.24	3145209	97.88	70	125	
In	115	1	nogas	2760799	4.57	2761164	99.99	70	125	
Bi	209	1	nogas	2089691	0.60	2190177	95.41	70	125	

Ge	72	2	He	729245	1.34	785020	92.90	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	052_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T13:44:32-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.030	17.8	337	17.4	1	
Na	23	1	nogas	7.972	14.5	620749	3.9	100	
Mg	24	1	nogas	5.200	27.3	88363	24.7	100	
Al	27	1	nogas	19.442	2.2	419698	0.8	5	CCB Main CR1 Failed
K	39	1	nogas	-21.004	-43.6	7789812	0.6	100	
Ti	47	1	nogas	0.026	200.0	350	25.7	2.5	
V	51	1	nogas	-17.572	-12.9	1882430	3.3	2.5	
Cr	52	1	nogas	-1.778	-7.0	88145	3.2	2.5	
Mn	55	1	nogas	0.061	58.0	33360	1.3	2.5	
Co	59	1	nogas	0.020	99.1	1557	27.6	2.5	
Ni	60	1	nogas	0.209	20.9	927	22.2	2.5	
Cu	63	1	nogas	0.015	293.7	2647	18.6	2	
Zn	66	1	nogas	0.600	14.3	1637	19.3	2.5	
As	75	1	nogas	-12.684	-4.5	210322	2.2	2.5	
Sr	88	1	nogas	0.382	8.9	11410	7.6	2.5	
Ag	107	1	nogas	0.017	45.0	557	17.3	2.5	
Cd	111	1	nogas	0.032	89.5	107	71.6	1	
Sb	121	1	nogas	1.801	22.1	23263	20.2	2.5	
Tl	205	1	nogas	0.113	62.1	3337	46.7	1	
Pb	208	1	nogas	-0.036	-74.3	4684	14.5	2.5	
U	238	1	nogas	0.114	65.8	3254	67.2	2.5	
[Pb]	206	1	nogas	-0.032	-35.2	1240	9.3	2.5	
[Pb]	207	1	nogas	-0.058	-40.4	957	17.5	2.5	
Na	23	2	He	6.831	14.1	61138	1.6	100	
Mg	24	2	He	3.616	10.1	3314	9.2	100	
Al	27	2	He	19.200	6.6	9709	6.1	5	CCB Main CR1 Failed
K	39	2	He	-13.503	-31.0	180090	2.0	100	
Ca	43	2	He	71.055	14.4	200	13.2	100	
Ca	44	2	He	57.537	2.2	5284	2.1	100	
V	51	2	He	-0.521	-18.8	22241	0.6	2.5	
Cr	52	2	He	-0.042	-96.7	4689	3.9	2.5	
Mn	55	2	He	-0.019	-144.0	2277	3.2	2.5	
Fe	56	2	He	3.107	6.5	27931	5.9	100	
Co	59	2	He	-0.003	-116.6	347	6.0	2.5	
Ni	60	2	He	0.179	21.1	240	31.5	2.5	
Cu	63	2	He	0.415	3.4	913	8.4	2	
Zn	66	2	He	0.761	12.1	480	21.9	2.5	
As	75	2	He	0.026	278.1	791	9.1	2.5	
Se	78	2	He	0.672	30.2	136	14.2	2	
B	11	1	nogas	4.318	6.4	52489	3.7	10	
Si	28	1	nogas	-35.874	-15.5	1608009	5.6	5	
Ca	43	1	nogas	66.822	12.9	3870	6.4	100	
Ca	44	1	nogas	-359.633	-1.8	229096	0.6	100	
Fe	56	1	nogas	-20.693	-33.4	2662709	4.1	100	
Se	77	1	nogas	-52.315	-16.9	69037	1.7	2.5	
Se	82	1	nogas	0.158	206.3	290	28.2	2	
Mo	95	1	nogas	0.132	171.8	3150	38.2	2.5	
Sn	118	1	nogas	0.226	26.2	2607	12.5	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.258	1.9	1067	4.6	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	1.217	6.1	5421	7.4	2.5	
P	31	1	nogas	-1.912	-45.0	80584	0.6	10	
La	139	1	nogas	85.569	17.8	370	16.4	2.5	CCB Main CR1 Failed
Au	197	1	nogas	-27.213	-4753.9	20	100.0	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1296977	4.14	1359891	95.37	70	125	
Ge	72	1	nogas	3249536	1.87	3145209	103.32	70	125	
In	115	1	nogas	2798792	4.43	2761164	101.36	70	125	
Bi	209	1	nogas	2223599	3.08	2190177	101.53	70	125	
Ge	72	2	He	733533	3.03	785020	93.44	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	053_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T13:46:30-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	90.368	9.962	747571	0.68	100	90.4	90	110	
Na	23	1	nogas	9593.978	3.767	237573905	2.25	10000	95.9	90	110	
Mg	24	1	nogas	9547.284	3.352	149194324	1.46	10000	95.5	90	110	
Al	27	1	nogas	119.921	1.852	2275102	2.27	100	119.9	90	110	CCV Main CR1-2 Failed
K	39	1	nogas	9873.448	5.090	193108779	1.59	10000	98.7	90	110	
Ti	47	1	nogas	97.014	2.439	163023	1.21	100	97.0	90	110	
V	51	1	nogas	88.584	7.816	4136299	0.26	100	88.6	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	99.085	4.473	2156617	2.95	100	99.1	90	110	
Mn	55	1	nogas	100.306	2.333	2547094	1.96	100	100.3	90	110	
Co	59	1	nogas	97.255	2.302	2112769	1.60	100	97.3	90	110	
Ni	60	1	nogas	95.594	3.860	458860	1.30	100	95.6	90	110	
Cu	63	1	nogas	93.901	2.337	1086155	1.61	100	93.9	90	110	
Zn	66	1	nogas	97.100	2.322	367427	1.60	100	97.1	90	110	
As	75	1	nogas	89.380	5.368	664359	0.38	100	89.4	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	96.583	1.486	2496956	4.26	100	96.6	90	110	
Ag	107	1	nogas	96.700	2.042	1223158	2.00	100	96.7	90	110	
Cd	111	1	nogas	96.072	3.712	267828	1.14	100	96.1	90	110	
Sb	121	1	nogas	94.466	1.051	1129440	3.64	100	94.5	90	110	
Tl	205	1	nogas	96.544	5.096	1926371	3.06	100	96.5	90	110	
Pb	208	1	nogas	100.485	1.404	2588429	1.40	100	100.5	90	110	
U	238	1	nogas	99.352	3.108	2657124	5.23	100	99.4	90	110	
[Pb]	206	1	nogas	90.818	3.030	615788	1.16	100	90.8	90	110	
[Pb]	207	1	nogas	94.072	2.743	553673	0.86	100	94.1	90	110	
Na	23	2	He	9578.242	0.745	14197159	1.46	10000	95.8	90	110	
Mg	24	2	He	9508.536	2.207	7625536	1.84	10000	95.1	90	110	
Al	27	2	He	111.041	2.937	53071	2.45	100	111.0	90	110	CCV Main CR1-2 Failed
K	39	2	He	9329.340	2.402	8284814	2.35	10000	93.3	90	110	
Ca	43	2	He	8980.647	1.061	21042	1.78	10000	89.8	90	110	CCV Main CR1-2 Failed
Ca	44	2	He	9378.342	0.787	371025	0.51	10000	93.8	90	110	
V	51	2	He	92.449	1.718	547116	1.01	100	92.4	90	110	
Cr	52	2	He	95.230	1.886	588773	1.20	100	95.2	90	110	
Mn	55	2	He	93.043	0.444	408731	0.29	100	93.0	90	110	
Fe	56	2	He	9558.381	0.181	50747584	0.89	10000	95.6	90	110	
Co	59	2	He	92.916	0.430	774495	0.45	100	92.9	90	110	
Ni	60	2	He	95.727	0.981	196944	1.70	100	95.7	90	110	
Cu	63	2	He	96.187	1.838	503452	1.13	100	96.2	90	110	
Zn	66	2	He	94.123	2.979	120729	2.28	100	94.1	90	110	
As	75	2	He	92.640	0.339	118128	0.59	100	92.6	90	110	
Se	78	2	He	91.354	4.538	9428	3.78	100	91.4	90	110	
B	11	1	nogas	465.693	8.979	2276480	1.53	500	93.1	90	110	
Si	28	1	nogas	4733.570	2.114	50974519	1.73	5000	94.7	90	110	
Ca	43	1	nogas	9536.096	4.468	325862	1.11	10000	95.4	90	110	
Ca	44	1	nogas	9637.238	5.332	5718126	2.90	10000	96.4	90	110	
Fe	56	1	nogas	9813.913	5.086	213491396	1.71	10000	98.1	90	110	
Se	77	1	nogas	51.381	26.338	85118	0.74	100	51.4	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	95.239	0.974	24193	2.94	100	95.2	90	110	
Mo	95	1	nogas	97.206	2.345	509775	1.88	100	97.2	90	110	
Sn	118	1	nogas	95.603	3.005	695156	1.93	100	95.6	90	110	
Ba	137	1	nogas	97.031	3.832	368365	1.06	100	97.0	90	110	
Sb	121	2	He	93.344	0.406	410632	0.38	100	93.3	90	110	
Li	7	1	nogas	98.575	6.181	1730151	7.36	100	98.6	90	110	
P	31	1	nogas	470.188	3.669	817951	0.47	500	94.0	90	110	
La	139	1	nogas	186.390	13.941	727	16.99	100	186.4	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	-640.567	-102.870	10	100.00	100	-640.6	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1164707	9.61	1359891	85.65	70	125	
Ge	72	1	nogas	3030619	3.70	3145209	96.36	70	125	
In	115	1	nogas	2703077	4.34	2761164	97.90	70	125	
Bi	209	1	nogas	2141308	2.17	2190177	97.77	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	736138	0.73	785020	93.77	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	054_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T13:48:28-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.043	48.6	457	41.0	1	
Na	23	1	nogas	8.160	31.2	619447	6.9	100	
Mg	24	1	nogas	5.870	27.3	97810	22.4	100	
Al	27	1	nogas	20.026	1.6	419687	1.7	5	CCB Main CR1 Failed
K	39	1	nogas	-10.580	-12.6	7782219	0.5	100	
Ti	47	1	nogas	0.112	44.7	490	17.4	2.5	
V	51	1	nogas	-17.498	-11.2	1832599	2.9	2.5	
Cr	52	1	nogas	-1.633	-4.6	88842	2.2	2.5	
Mn	55	1	nogas	0.088	21.6	33163	1.5	2.5	
Co	59	1	nogas	0.027	42.2	1673	15.0	2.5	
Ni	60	1	nogas	0.222	4.3	967	5.3	2.5	
Cu	63	1	nogas	0.012	157.2	2544	8.7	2	
Zn	66	1	nogas	0.612	9.0	1643	13.0	2.5	
As	75	1	nogas	-11.362	-8.0	210875	2.1	2.5	
Sr	88	1	nogas	0.395	1.0	11467	0.7	2.5	
Ag	107	1	nogas	0.023	53.3	623	26.1	2.5	
Cd	111	1	nogas	0.043	49.4	147	45.4	1	
Sb	121	1	nogas	1.918	21.3	24121	20.9	2.5	
Tl	205	1	nogas	0.140	68.8	3831	50.7	1	
Pb	208	1	nogas	-0.027	-156.0	4894	22.5	2.5	
U	238	1	nogas	0.141	66.3	3951	64.4	2.5	
[Pb]	206	1	nogas	-0.026	-119.4	1273	16.2	2.5	
[Pb]	207	1	nogas	-0.063	-57.6	920	22.8	2.5	
Na	23	2	He	6.332	17.8	60402	2.2	100	
Mg	24	2	He	4.097	3.9	3697	3.7	100	
Al	27	2	He	19.422	7.0	9813	6.4	5	CCB Main CR1 Failed
K	39	2	He	-15.256	-15.2	178569	1.1	100	
Ca	43	2	He	86.999	32.6	237	27.2	100	
Ca	44	2	He	55.840	0.3	5217	1.4	100	
V	51	2	He	-0.676	-10.5	21374	0.7	2.5	
Cr	52	2	He	-0.007	-674.8	4904	4.7	2.5	
Mn	55	2	He	0.021	130.1	2450	3.7	2.5	
Fe	56	2	He	3.581	3.4	30425	3.3	100	
Co	59	2	He	0.004	79.1	403	5.2	2.5	
Ni	60	2	He	0.144	8.5	170	15.6	2.5	
Cu	63	2	He	0.410	6.8	890	17.3	2	
Zn	66	2	He	0.746	3.7	463	7.6	2.5	
As	75	2	He	0.026	238.6	791	8.6	2.5	
Se	78	2	He	0.749	23.6	144	12.7	2	
B	11	1	nogas	5.665	13.8	60813	4.1	10	
Si	28	1	nogas	-33.448	-15.6	1589172	3.1	5	
Ca	43	1	nogas	74.227	6.8	4030	4.3	100	
Ca	44	1	nogas	-348.767	-0.5	229086	0.7	100	
Fe	56	1	nogas	-18.613	-20.5	2637835	2.9	100	
Se	77	1	nogas	-47.999	-14.2	68061	2.3	2.5	
Se	82	1	nogas	0.184	165.8	290	27.6	2	
Mo	95	1	nogas	0.138	121.0	3107	28.9	2.5	
Sn	118	1	nogas	0.214	14.3	2577	9.2	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.255	11.0	1073	7.8	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	1.376	1.7	6118	2.9	2.5	
P	31	1	nogas	-0.298	-148.5	81036	1.0	10	
La	139	1	nogas	98.010	16.0	427	17.6	2.5	CCB Main CR1 Failed
Au	197	1	nogas	-442.743	-224.9	13	114.6	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1320998	3.17	1359891	97.14	70	125	
Ge	72	1	nogas	3160184	0.43	3145209	100.48	70	125	
In	115	1	nogas	2855874	3.49	2761164	103.43	70	125	
Bi	209	1	nogas	2212615	0.95	2190177	101.02	70	125	
Ge	72	2	He	733334	1.27	785020	93.42	70	125	

Sample Report

Sample Table

Sample Name	HS18120736-01
Data File Name	061SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T14:02:20-06:00
Sample Type	Sample
Dilution	50
Comment	Diss135805Mn
ISTD Ref FileName	013CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	0.001	0.073	261.07	70	0.00	2000	
Na	23	1	nogas	13011.526	650576.315	3.48	318618215	0.00	200000	
Mg	24	1	nogas	1815.332	90766.606	4.65	28062768	0.01	200000	
Al	27	1	nogas	1.341	67.045	2.37	54278	0.00	2000	
K	39	1	nogas	2.096	104.792	303.07	8033542	0.00	200000	
Ti	47	1	nogas	0.359	17.959	10.42	923	0.04	2000	
V	51	1	nogas	-4.175	-208.736	-22.17	2145379	0.00	2000	
Cr	52	1	nogas	-1.447	-72.373	-3.65	92871	0.00	2000	
Mn	55	1	nogas	89.786	4489.318	2.92	2382672	0.00	2000	
Co	59	1	nogas	0.121	6.064	2.31	3817	0.00	2000	
Ni	60	1	nogas	0.304	15.175	8.55	1377	0.02	2000	
Cu	63	1	nogas	0.024	1.199	40.85	2690	0.00	2000	
Zn	66	1	nogas	0.450	22.524	10.33	1007	0.04	2000	
As	75	1	nogas	-9.579	-478.975	-2.34	219514	0.00	2000	
Sr	88	1	nogas	58.453	2922.633	1.58	1576540	0.00	2000	
Ag	107	1	nogas	-0.015	-0.736	-16.10	120	-0.01	2000	
Cd	111	1	nogas	0.001	0.043	36.09	20	0.00	2000	
Sb	121	1	nogas	0.113	5.652	6.37	1630	0.01	2000	
Tl	205	1	nogas	-0.018	-0.879	-22.08	577	0.00	2000	
Pb	208	1	nogas	-0.120	-6.012	-8.41	2510	0.00	2000	
U	238	1	nogas	0.014	0.675	5.96	423	0.00	2000	
[Pb]	206	1	nogas	-0.106	-5.303	-6.44	693	-0.02	2000	
[Pb]	207	1	nogas	-0.126	-6.298	-2.04	520	-0.02	2000	
Na	23	2	He	13017.222	650861.103	3.28	19386562	0.07	200000	
Mg	24	2	He	1900.621	95031.058	5.54	1533250	0.12	200000	
Al	27	2	He	1.173	58.630	43.12	1250	0.09	2000	
K	39	2	He	-3.636	-181.824	-28.03	188648	0.00	200000	
Ca	43	2	He	2692.207	134610.369	5.06	6368	42.28	200000	
Ca	44	2	He	2736.379	136818.955	2.35	111063	2.46	200000	
V	51	2	He	0.195	9.752	50.22	26529	0.00	2000	
Cr	52	2	He	0.000	-0.022	-11520.72	4994	0.00	2000	
Mn	55	2	He	84.418	4220.905	1.27	373275	0.02	2000	
Fe	56	2	He	604.869	30243.429	3.13	3241176	0.02	200000	
Co	59	2	He	0.107	5.363	16.74	1273	0.01	2000	
Ni	60	2	He	0.224	11.198	17.31	337	0.07	2000	
Cu	63	2	He	0.426	21.298	0.96	980	0.04	2000	
Zn	66	2	He	0.676	33.776	0.71	377	0.18	2000	
As	75	2	He	0.166	8.293	36.31	979	0.02	2000	
Se	78	2	He	0.574	28.691	19.41	127	0.45	2000	
B	11	1	nogas	-0.116	-5.798	-225.30	29597	0.00	2000	
Si	28	1	nogas	367.031	18351.575	1.74	5926124	0.01	2000	
Ca	43	1	nogas	2614.549	130727.431	4.09	94291	2.77	200000	
Ca	44	1	nogas	2330.625	116531.252	4.09	1769399	0.13	200000	
Fe	56	1	nogas	597.564	29878.203	0.76	16446765	0.00	200000	
Se	77	1	nogas	-39.044	-1952.199	-8.93	69961	-0.06	2000	
Se	82	1	nogas	0.134	6.716	284.41	277	0.05	2000	

Sample Report

Mo	95	1	nogas	-0.198	-9.898	-21.38	1280	-0.02	2000	
Sn	118	1	nogas	-0.023	-1.146	-29.00	763	0.00	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Ba	137	1	nogas	2.960	148.010	4.64	12001	0.02	2000	
Sb	121	2	He	0.117	5.859	9.05	607	0.02	2000	
La	139	1	nogas	0.090	4.483	9880.20	50	0.18	2000	
Au	197	1	nogas	-854.323	-42716.131	-46.10	7	-12814.84	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1347612	2.72	1359891	99.10	70	125	
Ge	72	1	nogas	3161555	1.22	3145209	100.52	70	125	
In	115	1	nogas	2875182	4.48	2761164	104.13	70	125	
Bi	209	1	nogas	2141836	2.62	2190177	97.79	70	125	
Ge	72	2	He	740581	1.23	785020	94.34	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	065_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T14:10:18-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	84.030	2.983	747275	0.89	100	84.0	90	110	CCV Main CR1-2 Failed
Na	23	1	nogas	9718.500	6.889	241232972	3.35	10000	97.2	90	110	
Mg	24	1	nogas	9486.793	5.035	148666299	0.20	10000	94.9	90	110	
Al	27	1	nogas	111.770	2.280	2181116	1.59	100	111.8	90	110	CCV Main CR1-2 Failed
K	39	1	nogas	9672.968	0.905	194755579	0.46	10000	96.7	90	110	
Ti	47	1	nogas	93.669	0.797	161834	1.70	100	93.7	90	110	
V	51	1	nogas	86.759	4.931	4211268	2.02	100	86.8	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	96.546	2.836	2164102	3.60	100	96.5	90	110	
Mn	55	1	nogas	100.714	3.108	2628924	3.46	100	100.7	90	110	
Co	59	1	nogas	97.628	0.888	2180229	1.28	100	97.6	90	110	
Ni	60	1	nogas	94.674	0.744	467342	1.65	100	94.7	90	110	
Cu	63	1	nogas	93.612	0.465	1113153	1.39	100	93.6	90	110	
Zn	66	1	nogas	96.061	0.900	373651	0.82	100	96.1	90	110	
As	75	1	nogas	86.737	2.376	670605	0.56	100	86.7	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	96.629	0.720	2566521	1.45	100	96.6	90	110	
Ag	107	1	nogas	99.873	3.595	1298716	4.27	100	99.9	90	110	
Cd	111	1	nogas	94.779	1.881	270017	1.38	100	94.8	90	110	
Sb	121	1	nogas	93.547	1.738	1149140	1.66	100	93.5	90	110	
Tl	205	1	nogas	90.605	1.718	1882106	3.13	100	90.6	90	110	
Pb	208	1	nogas	101.662	2.801	2618675	2.79	100	101.7	90	110	
U	238	1	nogas	99.708	2.569	2772504	3.01	100	99.7	90	110	
[Pb]	206	1	nogas	88.164	1.064	622059	1.54	100	88.2	90	110	CCV Main CR1-2 Failed
[Pb]	207	1	nogas	90.351	1.226	553360	1.73	100	90.4	90	110	
Na	23	2	He	9678.006	0.923	14225419	1.52	10000	96.8	90	110	
Mg	24	2	He	9682.787	1.259	7700863	0.46	10000	96.8	90	110	
Al	27	2	He	115.023	2.521	54489	1.22	100	115.0	90	110	CCV Main CR1-2 Failed
K	39	2	He	9402.050	1.601	8347889	1.56	10000	94.0	90	110	
Ca	43	2	He	9448.418	0.457	21953	1.71	10000	94.5	90	110	
Ca	44	2	He	9395.441	1.469	368594	0.58	10000	94.0	90	110	
V	51	2	He	93.613	1.116	549110	0.80	100	93.6	90	110	
Cr	52	2	He	95.528	1.579	585756	1.81	100	95.5	90	110	
Mn	55	2	He	94.844	2.185	413157	2.41	100	94.8	90	110	
Fe	56	2	He	9712.651	2.126	51132256	1.26	10000	97.1	90	110	
Co	59	2	He	94.268	1.256	779197	0.31	100	94.3	90	110	
Ni	60	2	He	97.527	2.499	198954	1.81	100	97.5	90	110	
Cu	63	2	He	97.719	2.490	507224	1.64	100	97.7	90	110	
Zn	66	2	He	95.237	1.444	121158	0.70	100	95.2	90	110	
As	75	2	He	93.352	1.473	118033	0.34	100	93.4	90	110	
Se	78	2	He	90.869	3.548	9300	2.12	100	90.9	90	110	
B	11	1	nogas	437.566	5.335	2298706	3.21	500	87.5	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	4671.641	0.437	51739239	1.34	5000	93.4	90	110	
Ca	43	1	nogas	9428.537	1.984	331375	1.67	10000	94.3	90	110	
Ca	44	1	nogas	9088.714	2.844	5569923	2.62	10000	90.9	90	110	
Fe	56	1	nogas	9642.451	1.451	215844896	2.31	10000	96.4	90	110	
Se	77	1	nogas	45.031	23.558	86203	1.97	100	45.0	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	93.429	3.075	24393	3.12	100	93.4	90	110	
Mo	95	1	nogas	94.456	0.962	509287	1.72	100	94.5	90	110	
Sn	118	1	nogas	91.618	1.203	680731	1.74	100	91.6	90	110	
Ba	137	1	nogas	96.287	4.067	373403	1.32	100	96.3	90	110	
Sb	121	2	He	94.704	2.273	413182	2.65	100	94.7	90	110	
Li	7	1	nogas	95.337	4.565	1794920	2.40	100	95.3	90	110	
P	31	1	nogas	456.604	0.863	819121	1.60	500	91.3	90	110	
La	139	1	nogas	181.158	11.806	720	11.37	100	181.2	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	833.064	111.744	33	45.83	100	833.1	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1244588	2.12	1359891	91.52	70	125	
Ge	72	1	nogas	3113742	0.92	3145209	99.00	70	125	
In	115	1	nogas	2760370	2.91	2761164	99.97	70	125	
Bi	209	1	nogas	2227461	2.33	2190177	101.70	70	125	

Ge	72	2	He	730077	1.55	785020	93.00	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	066_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T14:12:17-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.039	37.2	443	29.0	1	
Na	23	1	nogas	10.866	13.4	670765	5.3	100	
Mg	24	1	nogas	6.202	18.3	100961	17.3	100	
Al	27	1	nogas	19.828	1.3	424873	2.4	5	CCB Main CR1 Failed
K	39	1	nogas	-14.951	-45.9	7862592	0.7	100	
Ti	47	1	nogas	0.087	54.6	457	17.6	2.5	
V	51	1	nogas	-21.480	-5.6	1777174	2.8	2.5	
Cr	52	1	nogas	-1.796	-3.1	87190	1.4	2.5	
Mn	55	1	nogas	0.060	30.3	33150	0.7	2.5	
Co	59	1	nogas	0.033	55.4	1857	21.8	2.5	
Ni	60	1	nogas	0.237	20.4	1063	22.1	2.5	
Cu	63	1	nogas	0.020	48.5	2694	3.2	2	
Zn	66	1	nogas	0.581	6.6	1553	8.7	2.5	
As	75	1	nogas	-13.362	-4.7	205660	1.7	2.5	
Sr	88	1	nogas	0.387	3.5	11490	3.7	2.5	
Ag	107	1	nogas	0.028	30.6	703	15.7	2.5	
Cd	111	1	nogas	0.049	23.0	157	18.4	1	
Sb	121	1	nogas	1.657	21.7	21290	20.3	2.5	
Tl	205	1	nogas	0.129	66.5	3727	46.5	1	
Pb	208	1	nogas	-0.044	-76.8	4474	19.4	2.5	
U	238	1	nogas	0.116	60.2	3351	56.7	2.5	
[Pb]	206	1	nogas	-0.055	-32.8	1107	11.2	2.5	
[Pb]	207	1	nogas	-0.062	-61.6	953	22.4	2.5	
Na	23	2	He	6.386	19.8	61563	2.1	100	
Mg	24	2	He	4.313	4.6	3940	5.3	100	
Al	27	2	He	20.018	3.4	10273	2.7	5	CCB Main CR1 Failed
K	39	2	He	-11.824	-18.0	181546	1.0	100	
Ca	43	2	He	91.911	40.7	253	35.8	100	
Ca	44	2	He	48.128	5.0	5004	2.2	100	
V	51	2	He	-0.802	-4.2	21038	0.6	2.5	
Cr	52	2	He	-0.093	-16.4	4457	1.0	2.5	
Mn	55	2	He	-0.055	-65.4	2157	6.9	2.5	
Fe	56	2	He	3.633	11.3	31237	6.7	100	
Co	59	2	He	0.004	132.8	413	12.2	2.5	
Ni	60	2	He	0.178	14.7	243	23.7	2.5	
Cu	63	2	He	0.433	1.2	1027	3.7	2	
Zn	66	2	He	0.775	6.7	510	14.1	2.5	
As	75	2	He	0.055	69.6	843	6.4	2.5	
Se	78	2	He	0.731	22.2	145	11.2	2	
B	11	1	nogas	3.822	23.2	53324	5.8	10	
Si	28	1	nogas	-40.245	-30.6	1547600	7.6	5	
Ca	43	1	nogas	68.120	13.8	3894	7.5	100	
Ca	44	1	nogas	-376.219	-1.5	217915	0.6	100	
Fe	56	1	nogas	-19.758	-29.7	2668004	3.8	100	
Se	77	1	nogas	-60.697	-5.8	66826	1.6	2.5	
Se	82	1	nogas	0.111	8.6	277	2.1	2	
Mo	95	1	nogas	0.142	120.1	3194	28.5	2.5	
Sn	118	1	nogas	0.226	36.8	2577	24.8	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.286	20.3	1157	19.8	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	1.048	6.0	4764	6.3	2.5	
P	31	1	nogas	0.875	99.8	84752	0.8	10	
La	139	1	nogas	80.810	23.2	347	22.0	2.5	CCB Main CR1 Failed
Au	197	1	nogas	576.966	109.1	30	33.3	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1391875	4.52	1359891	102.35	70	125	
Ge	72	1	nogas	3228810	1.21	3145209	102.66	70	125	
In	115	1	nogas	2749225	2.08	2761164	99.57	70	125	
Bi	209	1	nogas	2289745	3.47	2190177	104.55	70	125	
Ge	72	2	He	746487	1.15	785020	95.09	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	070_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T14:20:17-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	80.564	2.167	752794	2.03	100	80.6	90	110	CCV Main CR1-2 Failed
Na	23	1	nogas	9714.897	4.961	236686914	2.88	10000	97.1	90	110	
Mg	24	1	nogas	9640.629	2.894	148266416	0.30	10000	96.4	90	110	
Al	27	1	nogas	112.601	2.304	2225662	2.10	100	112.6	90	110	CCV Main CR1-2 Failed
K	39	1	nogas	9403.085	1.183	191997288	1.30	10000	94.0	90	110	
Ti	47	1	nogas	92.590	3.648	162026	3.56	100	92.6	90	110	
V	51	1	nogas	80.346	0.517	4116000	0.47	100	80.3	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	93.742	3.282	2131691	3.35	100	93.7	90	110	
Mn	55	1	nogas	99.328	0.944	2626399	0.56	100	99.3	90	110	
Co	59	1	nogas	95.818	0.646	2167381	0.34	100	95.8	90	110	
Ni	60	1	nogas	92.440	1.729	462169	1.60	100	92.4	90	110	
Cu	63	1	nogas	90.086	1.177	1085073	0.80	100	90.1	90	110	
Zn	66	1	nogas	92.984	0.366	366334	0.63	100	93.0	90	110	
As	75	1	nogas	84.341	1.186	667880	1.08	100	84.3	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	96.137	3.476	2586363	3.52	100	96.1	90	110	
Ag	107	1	nogas	94.903	2.712	1249808	2.59	100	94.9	90	110	
Cd	111	1	nogas	92.505	1.356	274151	3.29	100	92.5	90	110	
Sb	121	1	nogas	91.000	1.547	1132366	1.92	100	91.0	90	110	
Tl	205	1	nogas	100.910	0.449	1981863	2.53	100	100.9	90	110	
Pb	208	1	nogas	98.472	1.531	2536672	1.53	100	98.5	90	110	
U	238	1	nogas	100.679	0.931	2647304	2.52	100	100.7	90	110	
[Pb]	206	1	nogas	93.253	1.744	621983	0.84	100	93.3	90	110	
[Pb]	207	1	nogas	93.192	0.878	539636	1.42	100	93.2	90	110	
Na	23	2	He	9667.026	1.478	14308121	1.56	10000	96.7	90	110	
Mg	24	2	He	9758.610	1.904	7817162	3.00	10000	97.6	90	110	
Al	27	2	He	109.756	1.745	52406	2.85	100	109.8	90	110	
K	39	2	He	9292.220	1.049	8252613	1.02	10000	92.9	90	110	
Ca	43	2	He	9503.449	2.367	22230	1.22	10000	95.0	90	110	
Ca	44	2	He	9426.638	2.543	372367	1.58	10000	94.3	90	110	
V	51	2	He	93.157	2.020	550333	0.82	100	93.2	90	110	
Cr	52	2	He	94.328	1.652	582440	0.50	100	94.3	90	110	
Mn	55	2	He	93.871	0.984	411786	1.01	100	93.9	90	110	
Fe	56	2	He	9567.227	2.513	50720341	2.04	10000	95.7	90	110	
Co	59	2	He	93.193	0.974	775730	0.63	100	93.2	90	110	
Ni	60	2	He	96.856	1.983	198977	1.61	100	96.9	90	110	
Cu	63	2	He	96.255	2.054	503204	2.64	100	96.3	90	110	
Zn	66	2	He	94.657	1.738	121285	2.78	100	94.7	90	110	
As	75	2	He	92.483	1.913	117758	1.02	100	92.5	90	110	
Se	78	2	He	91.203	1.732	9401	1.37	100	91.2	90	110	
B	11	1	nogas	412.178	2.969	2277104	1.12	500	82.4	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	4567.310	1.793	51276331	1.36	5000	91.3	90	110	
Ca	43	1	nogas	9087.777	1.291	323596	1.52	10000	90.9	90	110	
Ca	44	1	nogas	8582.125	0.448	5351323	0.27	10000	85.8	90	110	CCV Main CR1-2 Failed
Fe	56	1	nogas	9623.248	2.423	218189247	2.61	10000	96.2	90	110	
Se	77	1	nogas	39.883	22.838	86247	1.86	100	39.9	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	91.485	3.283	24200	3.37	100	91.5	90	110	
Mo	95	1	nogas	94.326	1.851	515121	1.70	100	94.3	90	110	
Sn	118	1	nogas	89.591	2.164	692288	2.82	100	89.6	90	110	CCV Main CR1-2 Failed
Ba	137	1	nogas	92.430	3.651	372780	1.13	100	92.4	90	110	
Sb	121	2	He	94.228	2.753	413889	1.76	100	94.2	90	110	
Li	7	1	nogas	93.017	0.539	1843280	2.17	100	93.0	90	110	
P	31	1	nogas	453.830	1.181	825104	0.98	500	90.8	90	110	
La	139	1	nogas	170.533	21.702	710	22.67	100	170.5	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	-172.412	-221.503	17	34.64	100	-172.4	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1307344	1.83	1359891	96.14	70	125	
Ge	72	1	nogas	3153911	0.38	3145209	100.28	70	125	
In	115	1	nogas	2871676	4.53	2761164	104.00	70	125	
Bi	209	1	nogas	2106084	2.09	2190177	96.16	70	125	

Ge	72	2	He	735155	1.17	785020	93.65	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	071_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T14:22:16-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.043	26.3	467	23.7	1	
Na	23	1	nogas	8.090	18.8	623864	4.8	100	
Mg	24	1	nogas	6.083	22.4	102329	19.3	100	
Al	27	1	nogas	20.074	5.9	422190	1.3	5	CCB Main CR1 Failed
K	39	1	nogas	-6.602	-328.0	7889992	0.4	100	
Ti	47	1	nogas	0.082	99.2	437	28.3	2.5	
V	51	1	nogas	-19.277	-20.8	1798084	2.8	2.5	
Cr	52	1	nogas	-1.629	-9.3	89320	1.5	2.5	
Mn	55	1	nogas	0.068	179.1	32736	4.9	2.5	
Co	59	1	nogas	0.032	60.4	1787	19.6	2.5	
Ni	60	1	nogas	0.208	1.7	903	5.5	2.5	
Cu	63	1	nogas	0.017	178.7	2614	11.3	2	
Zn	66	1	nogas	0.576	8.4	1503	7.7	2.5	
As	75	1	nogas	-11.229	-22.7	212323	2.7	2.5	
Sr	88	1	nogas	0.391	18.6	11337	12.2	2.5	
Ag	107	1	nogas	0.025	61.0	643	27.4	2.5	
Cd	111	1	nogas	0.047	64.7	160	60.3	1	
Sb	121	1	nogas	1.710	27.0	21514	22.7	2.5	
Tl	205	1	nogas	0.138	67.0	3814	49.0	1	
Pb	208	1	nogas	-0.052	-35.5	4260	11.2	2.5	
U	238	1	nogas	0.128	64.2	3597	61.8	2.5	
[Pb]	206	1	nogas	-0.045	-51.0	1143	12.8	2.5	
[Pb]	207	1	nogas	-0.065	-51.2	910	23.2	2.5	
Na	23	2	He	6.399	18.0	60894	2.4	100	
Mg	24	2	He	4.420	4.8	3980	3.9	100	
Al	27	2	He	20.254	5.7	10266	4.1	5	CCB Main CR1 Failed
K	39	2	He	-11.944	-15.9	181442	0.9	100	
Ca	43	2	He	94.450	39.7	257	35.4	100	
Ca	44	2	He	42.765	8.2	4737	3.7	100	
V	51	2	He	-0.695	-9.2	21404	0.7	2.5	
Cr	52	2	He	-0.078	-43.0	4504	5.3	2.5	
Mn	55	2	He	-0.098	-15.3	1947	2.6	2.5	
Fe	56	2	He	3.790	3.9	31734	3.4	100	
Co	59	2	He	0.006	145.6	420	16.5	2.5	
Ni	60	2	He	0.194	19.5	273	29.6	2.5	
Cu	63	2	He	0.430	3.8	1000	7.8	2	
Zn	66	2	He	0.757	11.9	480	24.0	2.5	
As	75	2	He	0.027	212.6	798	8.1	2.5	
Se	78	2	He	0.611	32.5	131	15.3	2	
B	11	1	nogas	4.695	11.8	56504	5.2	10	
Si	28	1	nogas	-29.824	-33.1	1634119	1.6	5	
Ca	43	1	nogas	66.223	25.2	3747	10.8	100	
Ca	44	1	nogas	-379.380	-4.5	212348	0.6	100	
Fe	56	1	nogas	-19.939	-42.5	2616656	2.4	100	
Se	77	1	nogas	-46.556	-47.4	68619	4.2	2.5	
Se	82	1	nogas	-0.093	-270.2	217	27.0	2	
Mo	95	1	nogas	0.001	10528.5	2360	24.5	2.5	
Sn	118	1	nogas	0.216	27.3	2627	19.9	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.249	12.6	1063	14.6	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	1.166	6.6	5231	7.6	2.5	
P	31	1	nogas	1.432	175.6	84207	0.2	10	
La	139	1	nogas	67.892	13.9	313	14.4	2.5	CCB Main CR1 Failed
Au	197	1	nogas	-438.731	-229.4	13	114.6	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1343762	1.49	1359891	98.81	70	125	
Ge	72	1	nogas	3177961	5.10	3145209	101.04	70	125	
In	115	1	nogas	2885254	2.71	2761164	104.49	70	125	
Bi	209	1	nogas	2222796	1.44	2190177	101.49	70	125	
Ge	72	2	He	738075	1.27	785020	94.02	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	083_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T17:00:51-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.062	13.3	667	10.6	1	
Na	23	1	nogas	29.264	8.1	1122579	3.9	100	
Mg	24	1	nogas	9.489	16.7	151945	14.8	100	
Al	27	1	nogas	20.159	1.3	421847	1.9	5	CCB Main CR1 Failed
K	39	1	nogas	12.688	126.2	8225653	0.8	100	
Ti	47	1	nogas	0.079	12.5	433	3.5	2.5	
V	51	1	nogas	-31.887	-3.8	1494711	4.6	2.5	
Cr	52	1	nogas	-2.062	-4.0	79556	2.5	2.5	
Mn	55	1	nogas	0.190	39.9	35775	2.3	2.5	
Co	59	1	nogas	0.061	16.7	2444	6.9	2.5	
Ni	60	1	nogas	0.312	14.3	1413	12.8	2.5	
Cu	63	1	nogas	0.079	24.9	3347	5.8	2	
Zn	66	1	nogas	0.618	11.1	1663	13.2	2.5	
As	75	1	nogas	-17.069	-5.2	183322	1.5	2.5	
Sr	88	1	nogas	0.441	5.3	12671	2.2	2.5	
Ag	107	1	nogas	0.042	29.6	863	15.8	2.5	
Cd	111	1	nogas	0.068	65.8	210	60.8	1	
Sb	121	1	nogas	0.137	10.0	1927	6.4	2.5	
Tl	205	1	nogas	0.605	65.1	13157	61.9	1	
Pb	208	1	nogas	-0.014	-271.3	5230	19.2	2.5	
U	238	1	nogas	0.151	47.9	4161	48.6	2.5	
[Pb]	206	1	nogas	-0.020	-170.2	1287	19.1	2.5	
[Pb]	207	1	nogas	-0.023	-253.8	1137	31.3	2.5	
Na	23	2	He	22.508	6.4	85383	1.5	100	
Mg	24	2	He	7.584	2.9	6575	2.8	100	
Al	27	2	He	20.943	3.8	10680	4.7	5	CCB Main CR1 Failed
K	39	2	He	-0.969	-121.0	190963	0.5	100	
Ca	43	2	He	85.578	19.9	237	16.0	100	
Ca	44	2	He	49.281	6.5	5031	2.4	100	
V	51	2	He	-1.386	-2.5	17631	1.9	2.5	
Cr	52	2	He	-0.004	-703.5	4994	3.5	2.5	
Mn	55	2	He	0.063	59.0	2670	5.0	2.5	
Fe	56	2	He	6.469	9.8	46312	6.3	100	
Co	59	2	He	0.039	33.2	703	15.7	2.5	
Ni	60	2	He	0.222	12.3	333	16.5	2.5	
Cu	63	2	He	0.443	4.4	1073	10.0	2	
Zn	66	2	He	0.738	8.7	460	19.0	2.5	
As	75	2	He	-0.050	-52.6	707	5.9	2.5	
Se	78	2	He	0.685	19.4	139	8.8	2	
B	11	1	nogas	5.836	16.4	64883	7.2	10	
Si	28	1	nogas	-29.597	-22.2	1628314	1.6	5	
Ca	43	1	nogas	70.202	14.5	3877	6.1	100	
Ca	44	1	nogas	-445.331	-2.2	173334	0.4	100	
Fe	56	1	nogas	-25.754	-29.0	2472802	3.8	100	
Se	77	1	nogas	-92.997	-5.9	58594	2.2	2.5	
Se	82	1	nogas	-0.040	-413.7	230	15.7	2	
Mo	95	1	nogas	0.106	179.4	2914	31.8	2.5	
Sn	118	1	nogas	0.282	26.7	2970	19.6	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.286	2.5	1150	4.6	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.097	3.0	520	1.9	2.5	
P	31	1	nogas	3.794	53.6	87618	0.9	10	
La	139	1	nogas	75.823	24.1	327	23.0	2.5	CCB Main CR1 Failed
Au	197	1	nogas	-414.995	-97.2	13	43.3	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1387049	1.70	1359891	102.00	70	125	
Ge	72	1	nogas	3157720	3.12	3145209	100.40	70	125	
In	115	1	nogas	2734738	2.44	2761164	99.04	70	125	
Bi	209	1	nogas	2159308	1.77	2190177	98.59	70	125	
Ge	72	2	He	743688	1.13	785020	94.73	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	084_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T17:05:07-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	87.005	2.572	788394	0.81	100	87.0	90	110	CCV Main CR1-2 Failed
Na	23	1	nogas	10296.773	2.910	246228039	1.10	10000	103.0	90	110	
Mg	24	1	nogas	10191.867	3.440	153829612	2.56	10000	101.9	90	110	
Al	27	1	nogas	105.822	2.917	2002895	2.86	100	105.8	90	110	
K	39	1	nogas	10155.845	1.701	197801621	2.14	10000	101.6	90	110	
Ti	47	1	nogas	99.853	0.541	167185	2.08	100	99.9	90	110	
V	51	1	nogas	89.502	1.209	4143023	1.38	100	89.5	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	100.068	1.068	2169045	0.89	100	100.1	90	110	
Mn	55	1	nogas	103.134	1.587	2608311	2.31	100	103.1	90	110	
Co	59	1	nogas	103.791	4.936	2245161	3.36	100	103.8	90	110	
Ni	60	1	nogas	100.669	1.517	481547	0.88	100	100.7	90	110	
Cu	63	1	nogas	97.030	1.734	1118259	2.98	100	97.0	90	110	
Zn	66	1	nogas	98.709	0.799	372121	0.94	100	98.7	90	110	
As	75	1	nogas	94.568	1.778	685814	1.97	100	94.6	90	110	
Sr	88	1	nogas	100.231	1.806	2580061	2.39	100	100.2	90	110	
Ag	107	1	nogas	102.514	1.086	1291949	2.74	100	102.5	90	110	
Cd	111	1	nogas	96.592	2.501	272319	2.04	100	96.6	90	110	
Sb	121	1	nogas	98.042	2.093	1167213	2.20	100	98.0	90	110	
Tl	205	1	nogas	93.424	4.118	1921521	1.37	100	93.4	90	110	
Pb	208	1	nogas	101.230	0.944	2607582	0.94	100	101.2	90	110	
U	238	1	nogas	99.630	4.033	2743538	1.56	100	99.6	90	110	
[Pb]	206	1	nogas	90.731	4.667	633819	0.55	100	90.7	90	110	
[Pb]	207	1	nogas	93.241	5.895	565175	1.60	100	93.2	90	110	
Na	23	2	He	9924.085	2.070	14715864	0.86	10000	99.2	90	110	
Mg	24	2	He	9966.378	2.759	7997483	1.70	10000	99.7	90	110	
Al	27	2	He	99.103	2.451	47470	1.18	100	99.1	90	110	
K	39	2	He	9765.013	2.729	8662752	2.67	10000	97.7	90	110	
Ca	43	2	He	9603.067	0.264	22514	1.38	10000	96.0	90	110	
Ca	44	2	He	9655.031	2.478	382114	1.63	10000	96.6	90	110	
V	51	2	He	96.015	0.378	567727	1.63	100	96.0	90	110	
Cr	52	2	He	96.700	0.510	598260	0.76	100	96.7	90	110	
Mn	55	2	He	98.304	1.621	432010	1.51	100	98.3	90	110	
Fe	56	2	He	9988.294	2.063	53060028	0.98	10000	99.9	90	110	
Co	59	2	He	96.671	1.323	806305	0.18	100	96.7	90	110	
Ni	60	2	He	100.002	2.173	205854	1.11	100	100.0	90	110	
Cu	63	2	He	98.261	1.807	514685	0.58	100	98.3	90	110	
Zn	66	2	He	98.198	1.292	126078	0.77	100	98.2	90	110	
As	75	2	He	94.497	1.441	120559	0.64	100	94.5	90	110	
Se	78	2	He	96.980	2.171	10013	1.63	100	97.0	90	110	
B	11	1	nogas	450.809	2.865	2414011	3.71	500	90.2	90	110	
Si	28	1	nogas	4893.989	1.882	52433873	1.19	5000	97.9	90	110	
Ca	43	1	nogas	9823.491	0.859	334599	2.17	10000	98.2	90	110	
Ca	44	1	nogas	9456.412	1.025	5599707	0.69	10000	94.6	90	110	
Fe	56	1	nogas	10091.338	2.819	218752097	2.55	10000	100.9	90	110	
Se	77	1	nogas	79.226	4.945	90376	1.52	100	79.2	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	96.442	5.038	24394	4.81	100	96.4	90	110	
Mo	95	1	nogas	99.697	1.940	520942	3.52	100	99.7	90	110	
Sn	118	1	nogas	95.477	2.127	701880	1.08	100	95.5	90	110	
Ba	137	1	nogas	99.459	1.676	381903	2.08	100	99.5	90	110	
Sb	121	2	He	97.420	2.372	428802	1.19	100	97.4	90	110	
Li	7	1	nogas	99.324	3.702	1901974	3.91	100	99.3	90	110	
P	31	1	nogas	485.793	0.832	839560	0.93	500	97.2	90	110	
La	139	1	nogas	115.400	17.925	470	14.89	100	115.4	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	-21.764	-2731.739	20	50.00	100	-21.8	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1268052	1.93	1359891	93.25	70	125	
Ge	72	1	nogas	3017813	1.65	3145209	95.95	70	125	
In	115	1	nogas	2731094	1.33	2761164	98.91	70	125	
Bi	209	1	nogas	2208247	4.50	2190177	100.83	70	125	

Ge	72	2	He	736688	1.26	785020	93.84	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	092_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T17:24:05-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.064	13.4	697	6.8	1	
Na	23	1	nogas	26.644	8.7	1046678	3.5	100	
Mg	24	1	nogas	10.031	3.8	158718	3.9	100	
Al	27	1	nogas	20.471	1.5	427281	1.1	5	CCB Main CR1 Failed
K	39	1	nogas	0.301	773.7	7975381	0.3	100	
Ti	47	1	nogas	0.101	23.8	470	9.3	2.5	
V	51	1	nogas	-45.862	-1.2	1165180	1.2	2.5	
Cr	52	1	nogas	-2.525	-2.9	69523	1.9	2.5	
Mn	55	1	nogas	0.120	21.3	33935	2.2	2.5	
Co	59	1	nogas	0.071	17.1	2667	10.7	2.5	
Ni	60	1	nogas	0.293	5.9	1320	6.2	2.5	
Cu	63	1	nogas	0.097	10.0	3560	3.7	2	
Zn	66	1	nogas	0.621	3.2	1677	4.3	2.5	
As	75	1	nogas	-22.700	-4.2	156173	2.7	2.5	
Sr	88	1	nogas	0.438	5.5	12588	5.5	2.5	
Ag	107	1	nogas	0.038	37.5	810	23.1	2.5	
Cd	111	1	nogas	0.071	29.0	220	25.3	1	
Sb	121	1	nogas	1.346	14.6	16959	14.7	2.5	
Tl	205	1	nogas	0.317	54.8	7759	47.8	1	
Pb	208	1	nogas	-0.037	-55.4	4637	11.5	2.5	
U	238	1	nogas	0.137	43.0	3981	42.2	2.5	
[Pb]	206	1	nogas	-0.054	-13.1	1120	4.7	2.5	
[Pb]	207	1	nogas	-0.044	-94.9	1070	24.5	2.5	
Na	23	2	He	17.268	8.0	78220	1.6	100	
Mg	24	2	He	8.083	12.2	7031	10.3	100	
Al	27	2	He	20.831	4.3	10713	4.3	5	CCB Main CR1 Failed
K	39	2	He	-6.792	-26.1	185911	0.8	100	
Ca	43	2	He	81.927	15.0	230	11.5	100	
Ca	44	2	He	55.245	10.5	5311	3.8	100	
V	51	2	He	-2.077	-1.5	13802	0.6	2.5	
Cr	52	2	He	-0.090	-54.5	4504	7.9	2.5	
Mn	55	2	He	0.064	64.2	2700	6.4	2.5	
Fe	56	2	He	7.218	7.7	50753	4.7	100	
Co	59	2	He	0.039	13.3	713	5.3	2.5	
Ni	60	2	He	0.213	10.0	317	13.1	2.5	
Cu	63	2	He	0.492	6.4	1343	11.6	2	
Zn	66	2	He	0.758	5.6	490	10.8	2.5	
As	75	2	He	-0.074	-54.6	681	6.5	2.5	
Se	78	2	He	0.602	13.2	132	6.9	2	
B	11	1	nogas	12.116	13.1	101926	3.6	10	CCB Main CR1 Failed
Si	28	1	nogas	-23.283	-9.8	1695065	1.5	5	
Ca	43	1	nogas	78.734	6.4	4181	4.6	100	
Ca	44	1	nogas	-443.355	-0.2	174281	0.2	100	
Fe	56	1	nogas	-23.142	-11.4	2530181	2.4	100	
Se	77	1	nogas	-131.096	-4.3	50567	2.2	2.5	
Se	82	1	nogas	0.149	42.4	280	6.2	2	
Mo	95	1	nogas	0.089	98.7	2837	17.0	2.5	
Sn	118	1	nogas	0.286	16.8	3057	9.4	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.293	12.1	1197	8.4	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.984	4.9	4497	4.4	2.5	
P	31	1	nogas	4.647	13.6	88928	0.8	10	
La	139	1	nogas	75.934	12.5	333	12.1	2.5	CCB Main CR1 Failed
Au	197	1	nogas	156.515	231.1	23	24.7	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1400382	5.40	1359891	102.98	70	125	
Ge	72	1	nogas	3152228	0.41	3145209	100.22	70	125	
In	115	1	nogas	2794576	3.28	2761164	101.21	70	125	
Bi	209	1	nogas	2293933	0.96	2190177	104.74	70	125	
Ge	72	2	He	749964	1.19	785020	95.53	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	094_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T17:32:55-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	86.504	1.884	796478	0.71	100	86.5	90	110	CCV Main CR1-2 Failed
Na	23	1	nogas	10259.893	5.486	247743922	1.35	10000	102.6	90	110	
Mg	24	1	nogas	10099.943	3.412	154007349	0.83	10000	101.0	90	110	
Al	27	1	nogas	99.187	2.071	1940040	1.03	100	99.2	90	110	
K	39	1	nogas	9853.819	1.023	198393971	0.75	10000	98.5	90	110	
Ti	47	1	nogas	96.371	0.395	166610	1.34	100	96.4	90	110	
V	51	1	nogas	79.821	4.509	4053736	0.47	100	79.8	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	99.499	1.900	2227928	2.44	100	99.5	90	110	
Mn	55	1	nogas	103.552	2.976	2704690	4.20	100	103.6	90	110	
Co	59	1	nogas	100.211	1.083	2239355	0.50	100	100.2	90	110	
Ni	60	1	nogas	97.807	0.073	483162	1.51	100	97.8	90	110	
Cu	63	1	nogas	96.175	2.072	1144177	0.61	100	96.2	90	110	
Zn	66	1	nogas	98.307	1.759	382645	0.22	100	98.3	90	110	
As	75	1	nogas	89.158	1.166	682573	0.99	100	89.2	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	99.198	3.198	2635843	1.61	100	99.2	90	110	
Ag	107	1	nogas	98.635	1.507	1283579	2.82	100	98.6	90	110	
Cd	111	1	nogas	97.136	2.691	276426	1.69	100	97.1	90	110	
Sb	121	1	nogas	98.556	0.871	1211543	0.71	100	98.6	90	110	
Tl	205	1	nogas	98.897	2.974	1973409	2.54	100	98.9	90	110	
Pb	208	1	nogas	103.057	1.048	2654527	1.05	100	103.1	90	110	
U	238	1	nogas	104.005	0.832	2778699	0.23	100	104.0	90	110	
[Pb]	206	1	nogas	95.112	2.910	644661	2.27	100	95.1	90	110	
[Pb]	207	1	nogas	96.435	2.356	567386	1.74	100	96.4	90	110	
Na	23	2	He	9906.302	0.339	14581438	1.59	10000	99.1	90	110	
Mg	24	2	He	10042.396	0.538	7999488	1.65	10000	100.4	90	110	
Al	27	2	He	97.329	3.466	46283	3.13	100	97.3	90	110	
K	39	2	He	9533.132	0.309	8461600	0.30	10000	95.3	90	110	
Ca	43	2	He	9656.450	2.663	22470	3.57	10000	96.6	90	110	
Ca	44	2	He	9653.701	1.469	379200	0.92	10000	96.5	90	110	
V	51	2	He	97.466	2.411	571449	1.22	100	97.5	90	110	
Cr	52	2	He	98.356	1.209	603798	0.75	100	98.4	90	110	
Mn	55	2	He	98.278	1.103	428635	1.00	100	98.3	90	110	
Fe	56	2	He	10050.643	1.571	52989324	0.39	10000	100.5	90	110	
Co	59	2	He	97.125	1.270	804018	1.41	100	97.1	90	110	
Ni	60	2	He	99.039	2.010	202330	0.75	100	99.0	90	110	
Cu	63	2	He	100.560	2.882	522754	2.06	100	100.6	90	110	
Zn	66	2	He	97.996	2.318	124859	1.59	100	98.0	90	110	
As	75	2	He	96.478	0.750	122153	1.43	100	96.5	90	110	
Se	78	2	He	94.329	1.565	9668	1.62	100	94.3	90	110	
B	11	1	nogas	446.875	2.776	2430521	1.00	500	89.4	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	4755.042	1.807	52658589	0.22	5000	95.1	90	110	
Ca	43	1	nogas	9500.408	3.657	334045	2.08	10000	95.0	90	110	
Ca	44	1	nogas	9098.566	2.526	5578895	1.43	10000	91.0	90	110	
Fe	56	1	nogas	10018.598	1.135	224311588	2.18	10000	100.2	90	110	
Se	77	1	nogas	50.938	16.751	87479	0.64	100	50.9	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	94.211	3.149	24607	1.59	100	94.2	90	110	
Mo	95	1	nogas	99.500	3.401	536595	2.27	100	99.5	90	110	
Sn	118	1	nogas	95.774	0.295	710912	2.10	100	95.8	90	110	
Ba	137	1	nogas	98.895	2.753	383224	0.61	100	98.9	90	110	
Sb	121	2	He	100.801	1.915	440343	0.67	100	100.8	90	110	
Li	7	1	nogas	97.483	2.030	1898321	1.83	100	97.5	90	110	
P	31	1	nogas	474.614	2.324	848708	0.70	500	94.9	90	110	
La	139	1	nogas	107.163	21.532	443	16.93	100	107.2	90	110	
Au	197	1	nogas	487.563	81.155	27	21.65	100	487.6	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1288484	2.61	1359891	94.75	70	125	
Ge	72	1	nogas	3116163	1.57	3145209	99.08	70	125	
In	115	1	nogas	2757260	2.24	2761164	99.86	70	125	
Bi	209	1	nogas	2140093	0.68	2190177	97.71	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	731118	1.26	785020	93.13	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	103_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T17:50:44-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	87.309	5.651	779798	0.91	100	87.3	90	110	CCV Main CR1-2 Failed
Na	23	1	nogas	10329.644	3.724	245290539	1.58	10000	103.3	90	110	
Mg	24	1	nogas	10029.838	3.837	150307858	1.15	10000	100.3	90	110	
Al	27	1	nogas	97.737	3.407	1913733	3.79	100	97.7	90	110	
K	39	1	nogas	9703.465	1.843	195612138	1.57	10000	97.0	90	110	
Ti	47	1	nogas	96.222	1.672	166464	2.19	100	96.2	90	110	
V	51	1	nogas	68.720	2.173	3800313	0.57	100	68.7	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	100.919	3.136	2259087	2.58	100	100.9	90	110	
Mn	55	1	nogas	103.054	4.024	2692423	3.50	100	103.1	90	110	
Co	59	1	nogas	100.858	7.439	2254762	6.89	100	100.9	90	110	
Ni	60	1	nogas	95.307	1.592	471062	1.19	100	95.3	90	110	
Cu	63	1	nogas	94.051	0.868	1119859	1.13	100	94.1	90	110	
Zn	66	1	nogas	96.728	1.202	376787	1.68	100	96.7	90	110	
As	75	1	nogas	84.388	0.202	660476	0.56	100	84.4	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	98.189	4.588	2611103	4.22	100	98.2	90	110	
Ag	107	1	nogas	105.294	5.805	1370589	5.33	100	105.3	90	110	
Cd	111	1	nogas	96.101	1.755	276572	3.88	100	96.1	90	110	
Sb	121	1	nogas	102.456	12.279	1259786	11.73	100	102.5	90	110	
Tl	205	1	nogas	99.422	1.020	2040585	4.55	100	99.4	90	110	
Pb	208	1	nogas	104.476	2.123	2691005	2.12	100	104.5	90	110	
U	238	1	nogas	101.358	5.926	2780217	1.10	100	101.4	90	110	
[Pb]	206	1	nogas	91.979	6.448	640068	1.76	100	92.0	90	110	
[Pb]	207	1	nogas	92.696	5.599	560135	1.72	100	92.7	90	110	
Na	23	2	He	9967.136	3.927	14529269	3.38	10000	99.7	90	110	
Mg	24	2	He	10068.846	2.432	7943662	1.91	10000	100.7	90	110	
Al	27	2	He	97.743	1.753	46040	1.24	100	97.7	90	110	
K	39	2	He	9574.604	3.208	8497576	3.14	10000	95.7	90	110	
Ca	43	2	He	9783.857	0.729	22547	0.20	10000	97.8	90	110	
Ca	44	2	He	9844.691	1.225	383001	0.74	10000	98.4	90	110	
V	51	2	He	96.682	0.370	561787	0.81	100	96.7	90	110	
Cr	52	2	He	99.526	1.744	605153	1.38	100	99.5	90	110	
Mn	55	2	He	98.614	1.806	426029	1.55	100	98.6	90	110	
Fe	56	2	He	10086.179	0.737	52679304	0.78	10000	100.9	90	110	
Co	59	2	He	97.794	3.497	801862	3.24	100	97.8	90	110	
Ni	60	2	He	101.586	2.952	205593	2.69	100	101.6	90	110	
Cu	63	2	He	99.691	1.890	513391	1.57	100	99.7	90	110	
Zn	66	2	He	99.249	2.794	125286	3.01	100	99.2	90	110	
As	75	2	He	96.312	0.552	120786	0.29	100	96.3	90	110	
Se	78	2	He	95.610	1.922	9706	1.99	100	95.6	90	110	
B	11	1	nogas	450.315	2.284	2378365	2.41	500	90.1	90	110	
Si	28	1	nogas	4731.874	1.988	52454666	2.44	5000	94.6	90	110	
Ca	43	1	nogas	9324.015	1.615	328174	1.49	10000	93.2	90	110	
Ca	44	1	nogas	8880.845	1.185	5459733	1.17	10000	88.8	90	110	CCV Main CR1-2 Failed
Fe	56	1	nogas	9658.433	2.421	216457447	1.96	10000	96.6	90	110	
Se	77	1	nogas	22.409	18.680	81662	0.53	100	22.4	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	93.338	3.578	24400	3.04	100	93.3	90	110	
Mo	95	1	nogas	95.848	0.531	517431	0.26	100	95.8	90	110	
Sn	118	1	nogas	93.308	4.250	699559	0.41	100	93.3	90	110	
Ba	137	1	nogas	98.090	2.969	384208	1.67	100	98.1	90	110	
Sb	121	2	He	101.481	2.411	439149	1.97	100	101.5	90	110	
Li	7	1	nogas	98.989	2.529	1870517	3.69	100	99.0	90	110	
P	31	1	nogas	463.793	0.578	831844	0.65	500	92.8	90	110	
La	139	1	nogas	125.777	20.347	517	14.53	100	125.8	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	863.675	29.758	33	17.32	100	863.7	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1251628	4.61	1359891	92.04	70	125	
Ge	72	1	nogas	3117959	0.53	3145209	99.13	70	125	
In	115	1	nogas	2788278	4.47	2761164	100.98	70	125	
Bi	209	1	nogas	2201715	5.39	2190177	100.53	70	125	

Ge	72	2	He	724192	0.53	785020	92.25	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	104_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T17:52:41-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.052	16.0	550	14.4	1	
Na	23	1	nogas	13.867	19.0	756707	6.0	100	
Mg	24	1	nogas	5.777	21.1	95896	17.2	100	
Al	27	1	nogas	0.102	23.6	29917	1.1	5	
K	39	1	nogas	-8.733	-139.3	7791166	0.7	100	
Ti	47	1	nogas	0.095	33.7	460	11.5	2.5	
V	51	1	nogas	-42.275	-3.1	1248831	4.7	2.5	
Cr	52	1	nogas	-2.327	-1.8	73723	2.4	2.5	
Mn	55	1	nogas	0.036	61.9	31707	0.8	2.5	
Co	59	1	nogas	0.052	28.1	2237	12.4	2.5	
Ni	60	1	nogas	0.236	8.4	1033	9.3	2.5	
Cu	63	1	nogas	0.041	20.1	2890	3.3	2	
Zn	66	1	nogas	0.441	0.4	963	2.2	2.5	
As	75	1	nogas	-20.238	-3.1	167886	3.6	2.5	
Sr	88	1	nogas	0.064	21.4	2527	13.0	2.5	
Ag	107	1	nogas	0.028	25.9	687	12.4	2.5	
Cd	111	1	nogas	0.055	59.7	170	56.7	1	
Sb	121	1	nogas	1.104	21.1	13902	18.4	2.5	
Tl	205	1	nogas	0.282	70.2	6695	58.2	1	
Pb	208	1	nogas	-0.076	-36.6	3657	19.5	2.5	
U	238	1	nogas	0.126	51.7	3517	48.5	2.5	
[Pb]	206	1	nogas	-0.061	-68.7	1023	25.5	2.5	
[Pb]	207	1	nogas	-0.087	-21.7	770	11.7	2.5	
Na	23	2	He	9.830	12.5	66666	3.2	100	
Mg	24	2	He	3.951	1.4	3640	0.5	100	
Al	27	2	He	0.389	60.2	883	13.5	5	
K	39	2	He	-15.581	-23.5	178286	1.8	100	
Ca	43	2	He	-3.462	-183.3	27	57.3	100	
Ca	44	2	He	-40.173	-8.3	1490	10.0	100	
V	51	2	He	-1.971	-1.9	14331	0.7	2.5	
Cr	52	2	He	-0.042	-32.1	4774	1.2	2.5	
Mn	55	2	He	-0.126	-42.1	1843	11.8	2.5	
Fe	56	2	He	3.847	7.5	32359	4.7	100	
Co	59	2	He	0.020	116.2	547	35.5	2.5	
Ni	60	2	He	0.164	22.2	213	35.2	2.5	
Cu	63	2	He	0.434	4.1	1030	10.2	2	
Zn	66	2	He	0.640	6.0	333	15.1	2.5	
As	75	2	He	-0.107	-16.7	634	2.5	2.5	
Se	78	2	He	0.704	60.3	142	31.8	2	
B	11	1	nogas	4.662	16.5	53582	6.9	10	

Continuing Calibration Blank (CCB) Report

Si	28	1	nogas	-30.138	-34.4	1618622	4.8	5	
Ca	43	1	nogas	-15.217	-7.7	850	3.1	100	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Ca	44	1	nogas	-547.123	-0.9	114696	0.9	100	
Fe	56	1	nogas	-25.414	-22.4	2476263	2.9	100	
Se	77	1	nogas	-112.280	-4.7	54472	3.8	2.5	
Se	82	1	nogas	-0.092	-248.7	217	27.0	2	
Mo	95	1	nogas	-0.037	-406.7	2140	35.2	2.5	
Sn	118	1	nogas	0.194	37.3	2287	22.3	5	
Ba	137	1	nogas	0.088	6.5	383	3.0	2.5	
Sb	121	2	He	0.758	2.3	3467	3.1	2.5	
P	31	1	nogas	8.229	12.2	94726	0.6	10	
La	139	1	nogas	0.352	2061.8	47	53.9	2.5	
Au	197	1	nogas	-1086.852	-35.4	3	173.2	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1339493	5.37	1359891	98.50	70	125	
Ge	72	1	nogas	3150615	2.28	3145209	100.17	70	125	
In	115	1	nogas	2700027	2.84	2761164	97.79	70	125	
Bi	209	1	nogas	2210528	3.82	2190177	100.93	70	125	
Ge	72	2	He	745712	1.16	785020	94.99	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	113_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T18:33:07-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	91.027	6.203	768390	1.98	100	91.0	90	110	
Na	23	1	nogas	9911.914	5.260	237655589	1.63	10000	99.1	90	110	
Mg	24	1	nogas	10092.400	3.062	152806091	1.54	10000	100.9	90	110	
Al	27	1	nogas	100.703	2.355	1943447	3.08	100	100.7	90	110	
K	39	1	nogas	9756.080	4.952	193737971	0.30	10000	97.6	90	110	
Ti	47	1	nogas	96.904	3.383	165240	1.87	100	96.9	90	110	
V	51	1	nogas	87.826	10.525	4179048	0.44	100	87.8	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	100.608	4.956	2219518	0.12	100	100.6	90	110	
Mn	55	1	nogas	101.330	4.348	2609988	2.15	100	101.3	90	110	
Co	59	1	nogas	100.041	1.248	2206587	3.56	100	100.0	90	110	
Ni	60	1	nogas	95.426	4.549	464897	3.19	100	95.4	90	110	
Cu	63	1	nogas	92.995	5.368	1090864	1.89	100	93.0	90	110	
Zn	66	1	nogas	97.644	4.234	374800	0.69	100	97.6	90	110	
As	75	1	nogas	93.195	6.840	691848	0.96	100	93.2	90	110	
Sr	88	1	nogas	97.264	2.516	2550579	2.49	100	97.3	90	110	
Ag	107	1	nogas	101.749	2.810	1307861	6.93	100	101.7	90	110	
Cd	111	1	nogas	95.714	4.449	274579	1.26	100	95.7	90	110	
Sb	121	1	nogas	96.183	4.570	1165792	0.53	100	96.2	90	110	
Tl	205	1	nogas	97.000	4.405	1957504	3.33	100	97.0	90	110	
Pb	208	1	nogas	103.281	0.704	2660287	0.70	100	103.3	90	110	
U	238	1	nogas	103.764	3.219	2803894	2.57	100	103.8	90	110	
[Pb]	206	1	nogas	92.027	2.121	630964	0.65	100	92.0	90	110	
[Pb]	207	1	nogas	95.788	2.523	570047	1.47	100	95.8	90	110	
Na	23	2	He	9822.871	1.990	14312438	2.07	10000	98.2	90	110	
Mg	24	2	He	9964.856	1.302	7856922	0.95	10000	99.6	90	110	
Al	27	2	He	95.220	1.689	44840	1.18	100	95.2	90	110	
K	39	2	He	9463.572	0.664	8401258	0.65	10000	94.6	90	110	
Ca	43	2	He	9900.468	3.742	22804	4.24	10000	99.0	90	110	
Ca	44	2	He	9620.873	1.056	374130	1.05	10000	96.2	90	110	
V	51	2	He	96.251	1.240	559037	1.44	100	96.3	90	110	
Cr	52	2	He	98.926	0.516	601168	0.51	100	98.9	90	110	
Mn	55	2	He	97.733	0.521	421992	1.01	100	97.7	90	110	
Fe	56	2	He	9859.495	0.456	51463333	0.95	10000	98.6	90	110	
Co	59	2	He	95.221	1.430	780325	1.53	100	95.2	90	110	
Ni	60	2	He	97.869	1.045	197956	1.54	100	97.9	90	110	
Cu	63	2	He	98.652	0.882	507708	0.43	100	98.7	90	110	
Zn	66	2	He	99.495	1.339	125507	0.92	100	99.5	90	110	
As	75	2	He	96.278	1.297	120669	1.46	100	96.3	90	110	
Se	78	2	He	93.595	0.727	9496	0.68	100	93.6	90	110	
B	11	1	nogas	459.256	5.877	2319083	2.98	500	91.9	90	110	
Si	28	1	nogas	4669.768	3.971	51043859	1.84	5000	93.4	90	110	
Ca	43	1	nogas	9616.145	6.266	333292	2.13	10000	96.2	90	110	
Ca	44	1	nogas	9193.067	8.063	5550277	4.03	10000	91.9	90	110	
Fe	56	1	nogas	9699.768	4.199	214235096	1.55	10000	97.0	90	110	
Se	77	1	nogas	88.786	25.360	93941	0.17	100	88.8	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	94.156	1.305	24283	4.24	100	94.2	90	110	
Mo	95	1	nogas	96.519	4.194	513456	0.67	100	96.5	90	110	
Sn	118	1	nogas	93.515	4.532	699561	1.43	100	93.5	90	110	
Ba	137	1	nogas	96.994	3.945	379121	3.62	100	97.0	90	110	
Sb	121	2	He	100.280	1.346	433704	1.40	100	100.3	90	110	
Li	7	1	nogas	92.949	1.224	1865625	5.16	100	92.9	90	110	
P	31	1	nogas	466.033	3.663	823549	1.63	500	93.2	90	110	
La	139	1	nogas	88.870	18.808	380	17.26	100	88.9	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	233.999	422.642	23	65.47	100	234.0	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1324116	4.92	1359891	97.37	70	125	
Ge	72	1	nogas	3076636	4.77	3145209	97.82	70	125	
In	115	1	nogas	2781876	4.05	2761164	100.75	70	125	
Bi	209	1	nogas	2164882	1.51	2190177	98.85	70	125	

Ge	72	2	He	723722	0.49	785020	92.19	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	114_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T18:35:05-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.054	32.2	527	29.4	1	
Na	23	1	nogas	10.349	32.0	641042	8.0	100	
Mg	24	1	nogas	6.276	39.6	98736	33.0	100	
Al	27	1	nogas	0.121	90.8	29697	3.2	5	
K	39	1	nogas	-3.461	-613.8	7745088	0.2	100	
Ti	47	1	nogas	0.062	89.3	393	20.7	2.5	
V	51	1	nogas	-26.907	-4.4	1579748	6.6	2.5	
Cr	52	1	nogas	-1.936	-7.6	80558	2.5	2.5	
Mn	55	1	nogas	0.170	56.9	34506	2.0	2.5	
Co	59	1	nogas	0.055	58.2	2237	26.0	2.5	
Ni	60	1	nogas	0.225	14.5	957	12.2	2.5	
Cu	63	1	nogas	0.035	141.3	2747	15.7	2	
Zn	66	1	nogas	0.460	9.8	1017	11.7	2.5	
As	75	1	nogas	-13.783	-10.3	194965	2.1	2.5	
Sr	88	1	nogas	0.060	46.5	2350	25.8	2.5	
Ag	107	1	nogas	0.023	40.2	603	14.5	2.5	
Cd	111	1	nogas	0.059	45.8	180	38.9	1	
Sb	121	1	nogas	1.067	26.7	13132	21.1	2.5	
Tl	205	1	nogas	0.321	62.7	7622	56.0	1	
Pb	208	1	nogas	-0.070	-54.0	3814	25.3	2.5	
U	238	1	nogas	0.151	55.0	4267	55.3	2.5	
[Pb]	206	1	nogas	-0.059	-56.0	1050	23.3	2.5	
[Pb]	207	1	nogas	-0.078	-44.9	833	26.5	2.5	
Na	23	2	He	5.203	5.7	58225	0.5	100	
Mg	24	2	He	3.067	10.5	2850	9.8	100	
Al	27	2	He	-0.011	-1357.9	673	9.7	5	
K	39	2	He	-15.880	-2.3	178027	0.2	100	
Ca	43	2	He	-0.253	-4943.6	33	86.6	100	
Ca	44	2	He	-47.114	-8.7	1183	14.4	100	
V	51	2	He	-1.218	-2.0	18163	0.5	2.5	
Cr	52	2	He	-0.007	-671.3	4861	5.7	2.5	
Mn	55	2	He	-0.038	-32.5	2173	2.2	2.5	
Fe	56	2	He	3.193	10.5	28122	6.8	100	
Co	59	2	He	0.021	61.5	540	20.0	2.5	
Ni	60	2	He	0.170	5.5	220	9.1	2.5	
Cu	63	2	He	0.412	9.1	890	22.4	2	
Zn	66	2	He	0.574	2.9	240	8.3	2.5	
As	75	2	He	0.042	84.4	804	4.6	2.5	
Se	78	2	He	0.651	43.2	133	20.6	2	
B	11	1	nogas	3.162	26.8	46484	9.3	10	

Continuing Calibration Blank (CCB) Report

Si	28	1	nogas	-27.354	-33.1	1618000	0.8	5	
Ca	43	1	nogas	-14.249	-16.3	867	4.8	100	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Ca	44	1	nogas	-571.267	-2.3	98870	2.4	100	
Fe	56	1	nogas	-16.559	-36.0	2624823	2.4	100	
Se	77	1	nogas	-65.256	-15.8	63056	1.8	2.5	
Se	82	1	nogas	-0.113	-136.2	207	15.6	2	
Mo	95	1	nogas	0.006	3187.0	2310	36.5	2.5	
Sn	118	1	nogas	0.210	46.7	2397	26.6	5	
Ba	137	1	nogas	0.103	39.8	437	32.6	2.5	
Sb	121	2	He	0.721	7.2	3220	7.8	2.5	
P	31	1	nogas	9.542	30.6	95037	0.8	10	
La	139	1	nogas	1.050	685.1	50	52.9	2.5	
Au	197	1	nogas	-215.528	-635.2	17	124.9	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1351813	1.88	1359891	99.41	70	125	
Ge	72	1	nogas	3095115	5.02	3145209	98.41	70	125	
In	115	1	nogas	2701826	3.73	2761164	97.85	70	125	
Bi	209	1	nogas	2216122	1.20	2190177	101.18	70	125	
Ge	72	2	He	726803	0.89	785020	92.58	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	118_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T18:49:57-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	96.700	1.963	783523	1.51	100	96.7	90	110	
Na	23	1	nogas	10242.178	0.797	245346164	1.44	10000	102.4	90	110	
Mg	24	1	nogas	10305.105	3.127	155792799	3.29	10000	103.1	90	110	
Al	27	1	nogas	102.039	4.546	1984207	4.47	100	102.0	90	110	
K	39	1	nogas	9950.587	0.339	199167625	1.13	10000	99.5	90	110	
Ti	47	1	nogas	96.005	1.189	165051	1.12	100	96.0	90	110	
V	51	1	nogas	68.817	6.619	3778913	2.42	100	68.8	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	96.501	2.313	2152149	1.58	100	96.5	90	110	
Mn	55	1	nogas	100.903	3.423	2620537	2.70	100	100.9	90	110	
Co	59	1	nogas	99.319	1.312	2207195	1.17	100	99.3	90	110	
Ni	60	1	nogas	97.208	1.591	477510	1.54	100	97.2	90	110	
Cu	63	1	nogas	95.696	2.045	1132318	1.83	100	95.7	90	110	
Zn	66	1	nogas	98.043	2.246	379508	1.57	100	98.0	90	110	
As	75	1	nogas	82.487	2.574	647425	0.77	100	82.5	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	98.743	1.141	2609811	0.56	100	98.7	90	110	
Ag	107	1	nogas	99.093	1.880	1282341	2.85	100	99.1	90	110	
Cd	111	1	nogas	96.404	2.945	273554	0.79	100	96.4	90	110	
Sb	121	1	nogas	98.681	2.623	1206601	3.51	100	98.7	90	110	
Tl	205	1	nogas	97.752	2.473	1940284	1.64	100	97.8	90	110	
Pb	208	1	nogas	102.612	0.309	2643106	0.31	100	102.6	90	110	
U	238	1	nogas	103.897	1.901	2761020	0.48	100	103.9	90	110	
[Pb]	206	1	nogas	94.908	2.191	639894	1.00	100	94.9	90	110	
[Pb]	207	1	nogas	96.355	1.781	563937	0.39	100	96.4	90	110	
Na	23	2	He	9647.815	0.905	14255185	0.72	10000	96.5	90	110	
Mg	24	2	He	9836.313	1.889	7864143	1.36	10000	98.4	90	110	
Al	27	2	He	94.018	2.366	44900	1.28	100	94.0	90	110	
K	39	2	He	9499.093	1.508	8432071	1.47	10000	95.0	90	110	
Ca	43	2	He	9571.467	1.817	22357	2.74	10000	95.7	90	110	
Ca	44	2	He	9569.290	1.086	377374	1.46	10000	95.7	90	110	
V	51	2	He	94.641	1.360	557797	1.09	100	94.6	90	110	
Cr	52	2	He	96.962	0.731	597615	1.18	100	97.0	90	110	
Mn	55	2	He	96.382	0.891	422034	1.43	100	96.4	90	110	
Fe	56	2	He	9796.663	0.779	51850966	0.46	10000	98.0	90	110	
Co	59	2	He	95.268	0.393	791661	0.73	100	95.3	90	110	
Ni	60	2	He	99.200	0.552	203460	0.87	100	99.2	90	110	
Cu	63	2	He	98.512	1.548	514082	0.97	100	98.5	90	110	
Zn	66	2	He	97.601	1.086	124836	0.14	100	97.6	90	110	
As	75	2	He	93.580	0.540	118962	1.65	100	93.6	90	110	
Se	78	2	He	93.373	0.713	9607	0.91	100	93.4	90	110	
B	11	1	nogas	490.077	1.791	2372749	1.30	500	98.0	90	110	
Si	28	1	nogas	4757.427	1.207	52398789	1.37	5000	95.1	90	110	
Ca	43	1	nogas	9638.702	1.251	337149	2.20	10000	96.4	90	110	
Ca	44	1	nogas	9130.681	1.808	5566356	0.73	10000	91.3	90	110	
Fe	56	1	nogas	9711.833	2.598	216284705	1.88	10000	97.1	90	110	
Se	77	1	nogas	10.413	49.457	78699	0.70	100	10.4	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	93.625	2.303	24323	1.42	100	93.6	90	110	
Mo	95	1	nogas	98.133	1.527	526409	0.56	100	98.1	90	110	
Sn	118	1	nogas	96.290	1.821	712646	1.60	100	96.3	90	110	
Ba	137	1	nogas	99.573	3.117	384764	0.80	100	99.6	90	110	
Sb	121	2	He	98.690	2.223	432759	1.09	100	98.7	90	110	
Li	7	1	nogas	97.880	3.544	1876630	3.27	100	97.9	90	110	
P	31	1	nogas	469.825	2.090	836365	1.35	500	94.0	90	110	
La	139	1	nogas	94.120	32.360	393	25.97	100	94.1	90	110	
Au	197	1	nogas	-1083.363	-36.082	3	173.21	100	-1083.4	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1268610	0.50	1359891	93.29	70	125	
Ge	72	1	nogas	3098768	0.97	3145209	98.52	70	125	
In	115	1	nogas	2749695	2.33	2761164	99.58	70	125	
Bi	209	1	nogas	2128987	1.43	2190177	97.21	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	733900	1.12	785020	93.49	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	119_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T18:51:57-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.051	23.8	490	23.2	1	
Na	23	1	nogas	8.641	26.2	627778	3.4	100	
Mg	24	1	nogas	5.450	29.0	90333	20.5	100	
Al	27	1	nogas	0.155	39.0	30618	1.8	5	
K	39	1	nogas	-1.661	-569.5	7844785	0.5	100	
Ti	47	1	nogas	0.027	114.8	337	14.0	2.5	
V	51	1	nogas	-43.373	-4.0	1209871	4.9	2.5	
Cr	52	1	nogas	-2.421	-2.6	70938	3.2	2.5	
Mn	55	1	nogas	0.110	27.1	33277	0.3	2.5	
Co	59	1	nogas	0.045	29.6	2043	12.3	2.5	
Ni	60	1	nogas	0.217	4.1	930	3.2	2.5	
Cu	63	1	nogas	0.020	137.8	2604	10.8	2	
Zn	66	1	nogas	0.460	17.8	1027	29.1	2.5	
As	75	1	nogas	-21.878	-3.1	158336	4.0	2.5	
Sr	88	1	nogas	0.058	16.2	2354	9.2	2.5	
Ag	107	1	nogas	0.025	46.0	630	21.5	2.5	
Cd	111	1	nogas	0.043	53.3	143	44.9	1	
Sb	121	1	nogas	0.969	22.1	12091	19.6	2.5	
Tl	205	1	nogas	0.382	48.1	9313	47.3	1	
Pb	208	1	nogas	-0.087	-36.9	3374	24.4	2.5	
U	238	1	nogas	0.131	53.3	3904	56.9	2.5	
[Pb]	206	1	nogas	-0.097	-14.2	813	16.7	2.5	
[Pb]	207	1	nogas	-0.109	-15.7	670	20.9	2.5	
Na	23	2	He	3.600	38.9	58101	3.3	100	
Mg	24	2	He	3.296	10.5	3150	9.1	100	
Al	27	2	He	0.049	437.0	730	14.5	5	
K	39	2	He	-12.854	-13.1	180652	0.8	100	
Ca	43	2	He	6.125	65.8	50	20.0	100	
Ca	44	2	He	-41.375	-8.7	1460	9.5	100	
V	51	2	He	-2.121	-3.1	13657	3.5	2.5	
Cr	52	2	He	-0.076	-10.1	4624	1.4	2.5	
Mn	55	2	He	-0.111	-36.6	1937	9.7	2.5	
Fe	56	2	He	3.289	5.8	29748	3.0	100	
Co	59	2	He	0.009	58.0	460	9.5	2.5	
Ni	60	2	He	0.175	16.7	240	25.3	2.5	
Cu	63	2	He	0.407	4.5	900	11.8	2	
Zn	66	2	He	0.632	3.9	327	9.4	2.5	
As	75	2	He	-0.115	-48.5	632	10.8	2.5	
Se	78	2	He	0.365	5.6	108	1.9	2	
B	11	1	nogas	3.838	14.0	49337	7.3	10	
Si	28	1	nogas	-33.061	-4.6	1571735	3.1	5	
Ca	43	1	nogas	-13.628	-5.0	897	0.6	100	
Ca	44	1	nogas	-561.325	-0.9	105405	0.8	100	
Fe	56	1	nogas	-17.110	-14.3	2634236	1.5	100	
Se	77	1	nogas	-126.878	-3.1	50875	3.5	2.5	
Se	82	1	nogas	-0.111	-258.7	210	36.0	2	
Mo	95	1	nogas	-0.034	-334.6	2137	26.5	2.5	
Sn	118	1	nogas	0.181	37.1	2320	17.5	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.149	44.6	657	44.1	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.632	8.4	2944	7.5	2.5	
P	31	1	nogas	9.320	17.4	95456	0.7	10	
La	139	1	nogas	52.151	184.6	257	149.6	2.5	CCB Main CR1 Failed
Au	197	1	nogas	-682.662	-4.1	10	0.0	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1334937	2.40	1359891	98.16	70	125	
Ge	72	1	nogas	3116553	2.08	3145209	99.09	70	125	
In	115	1	nogas	2864732	4.32	2761164	103.75	70	125	
Bi	209	1	nogas	2303506	4.57	2190177	105.17	70	125	
Ge	72	2	He	755645	0.72	785020	96.26	70	125	

Calibration Blank Report

Sample Table

Sample Name	CAL BLK
Data File Name	123CALB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T18:59:56-06:00
Sample Type	CalBlk
Level	1
Dilution	1
Comment	

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	70	53.99
Na	23	1	nogas	400649	0.00
Mg	24	1	nogas	8170	0.20
Al	27	1	nogas	21442	0.02
K	39	1	nogas	7853188	0.00
Ti	47	1	nogas	237	11.48
V	51	1	nogas	1345870	0.00
Cr	52	1	nogas	77474	0.00
Mn	55	1	nogas	27808	0.00
Co	59	1	nogas	823	1.56
Ni	60	1	nogas	467	3.06
Cu	63	1	nogas	1483	0.44
Zn	66	1	nogas	657	0.13
As	75	1	nogas	176957	0.00
Sr	88	1	nogas	867	1.33
Ag	107	1	nogas	93	35.07
Cd	111	1	nogas	20	0.00
Sb	121	1	nogas	1043	1.53
Tl	205	1	nogas	563	2.55
Pb	208	1	nogas	1573	0.99
[Pb]	206	1	nogas	433	1.87
[Pb]	207	1	nogas	330	9.72
Na	23	2	He	45585	0.00
Mg	24	2	He	583	2.63
Al	27	2	He	437	3.79
K	39	2	He	181917	0.00
Ca	43	2	He	10	1732.05
Ca	44	2	He	1077	0.30
V	51	2	He	15473	0.01
Cr	52	2	He	4597	0.08
Mn	55	2	He	1257	0.41
Fe	56	2	He	11797	0.03
Co	59	2	He	303	11.62
Ni	60	2	He	137	18.80
Cu	63	2	He	643	1.97
Zn	66	2	He	137	3.09
As	75	2	He	588	2.31
Se	78	2	He	123	3.84
B	11	1	nogas	18916	0.01
Si	28	1	nogas	1541532	0.00
Ca	43	1	nogas	563	2.62
Ca	44	1	nogas	95928	0.00

Calibration Blank Report

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	2809089	0.00
Se	77	1	nogas	56518	0.01
Se	82	1	nogas	247	10.69
Mo	95	1	nogas	497	2.38
Sn	118	1	nogas	1127	0.55
Ba	137	1	nogas	113	23.78
Sb	121	2	He	477	3.56
Li	7	1	nogas	109987	0.00
P	31	1	nogas	90462	0.00
La	139	1	nogas	53	73.18

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Li	6	1	nogas	1446753	2.09
Ge	72	1	nogas	3206704	0.23
In	115	1	nogas	2812441	2.84
Bi	209	1	nogas	2322160	3.31
Ge	72	2	He	754516	1.50

Calibration Standard Report

Sample Table

Sample Name	2/10/200
Data File Name	124CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T19:01:55-06:00
Sample Type	CalStd
Level	2
Dilution	1
Comment	
ISTD Ref File Name	123CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	16017	0.01
Na	23	1	nogas	5490362	0.00
Mg	24	1	nogas	3430176	0.00
Al	27	1	nogas	62002	0.00
K	39	1	nogas	11948324	0.00
Ti	47	1	nogas	3690	0.22
V	51	1	nogas	1551445	0.00
Cr	52	1	nogas	122257	0.00
Mn	55	1	nogas	74188	0.00
Co	59	1	nogas	45801	0.00
Ni	60	1	nogas	11060	0.04
Cu	63	1	nogas	25972	0.01
Zn	66	1	nogas	8109	0.02
As	75	1	nogas	199836	0.00
Sr	88	1	nogas	53711	0.00
Ag	107	1	nogas	27352	0.01
Cd	111	1	nogas	5784	0.09
Sb	121	1	nogas	25245	0.01
Tl	205	1	nogas	37547	0.01
Pb	208	1	nogas	55104	0.00
[Pb]	206	1	nogas	14000	0.01
[Pb]	207	1	nogas	12281	0.02
Na	23	2	He	338997	0.00
Mg	24	2	He	163588	0.00
Al	27	2	He	1553	0.65
K	39	2	He	350064	0.00
Ca	43	2	He	503	2.54
Ca	44	2	He	8882	0.04
V	51	2	He	27508	0.01
Cr	52	2	He	16257	0.01
Mn	55	2	He	9843	0.03
Fe	56	2	He	1088583	0.00
Co	59	2	He	17482	0.01
Ni	60	2	He	4577	0.13
Cu	63	2	He	11444	0.03
Zn	66	2	He	2727	0.41
As	75	2	He	3179	0.07
Se	78	2	He	323	2.97
B	11	1	nogas	63562	0.00
Si	28	1	nogas	2570600	0.00

Calibration Standard Report

Ca	43	1	nogas	7758	0.04
Ca	44	1	nogas	203607	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	7193806	0.00
Se	77	1	nogas	61735	0.01
Se	82	1	nogas	833	1.72
Mo	95	1	nogas	10960	0.04
Sn	118	1	nogas	15113	0.02
Ba	137	1	nogas	8466	0.04
Sb	121	2	He	9523	0.05
P	31	1	nogas	87960	0.00
La	139	1	nogas	70	20.41

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1379209	5.18	1446753	95.33	70	125	
Ge	72	1	nogas	3256495	2.07	3206704	101.55	70	125	
In	115	1	nogas	2856142	1.49	2812441	101.55	70	125	
Bi	209	1	nogas	2295874	2.67	2322160	98.87	70	125	
Ge	72	2	He	759218	2.00	754516	100.62	70	125	

Calibration Standard Report

Sample Table

Sample Name	5/25/500
Data File Name	125CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T19:03:54-06:00
Sample Type	CalStd
Level	3
Dilution	1
Comment	
ISTD Ref File Name	123CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	40216	0.01
Na	23	1	nogas	12844224	0.00
Mg	24	1	nogas	8008673	0.00
Al	27	1	nogas	140606	0.00
K	39	1	nogas	17872186	0.00
Ti	47	1	nogas	8675	0.03
V	51	1	nogas	1716980	0.00
Cr	52	1	nogas	191122	0.00
Mn	55	1	nogas	162792	0.00
Co	59	1	nogas	111008	0.00
Ni	60	1	nogas	26012	0.02
Cu	63	1	nogas	62661	0.00
Zn	66	1	nogas	22220	0.00
As	75	1	nogas	224623	0.00
Sr	88	1	nogas	131562	0.00
Ag	107	1	nogas	67316	0.00
Cd	111	1	nogas	14449	0.02
Sb	121	1	nogas	63499	0.00
Tl	205	1	nogas	95808	0.00
Pb	208	1	nogas	136141	0.00
[Pb]	206	1	nogas	34454	0.01
[Pb]	207	1	nogas	29667	0.01
Na	23	2	He	782020	0.00
Mg	24	2	He	404819	0.00
Al	27	2	He	3467	0.06
K	39	2	He	597599	0.00
Ca	43	2	He	1307	0.69
Ca	44	2	He	20271	0.02
V	51	2	He	45060	0.00
Cr	52	2	He	35979	0.01
Mn	55	2	He	23716	0.01
Fe	56	2	He	2811433	0.00
Co	59	2	He	41647	0.00
Ni	60	2	He	10747	0.01
Cu	63	2	He	27858	0.01
Zn	66	2	He	7051	0.01
As	75	2	He	6768	0.02
Se	78	2	He	623	0.23
B	11	1	nogas	130646	0.00
Si	28	1	nogas	4181613	0.00

Calibration Standard Report

Ca	43	1	nogas	18202	0.01
Ca	44	1	nogas	374777	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	14293153	0.00
Se	77	1	nogas	64798	0.00
Se	82	1	nogas	1517	0.13
Mo	95	1	nogas	27485	0.01
Sn	118	1	nogas	36809	0.01
Ba	137	1	nogas	19902	0.03
Sb	121	2	He	22875	0.02
P	31	1	nogas	131060	0.00
La	139	1	nogas	137	26.41

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1333091	6.34	1446753	92.14	70	125	
Ge	72	1	nogas	3390667	1.43	3206704	105.74	70	125	
In	115	1	nogas	2877774	3.00	2812441	102.32	70	125	
Bi	209	1	nogas	2252572	2.89	2322160	97.00	70	125	
Ge	72	2	He	792957	0.80	754516	105.09	70	125	

Calibration Standard Report

Sample Table

Sample Name	10/50/1000
Data File Name	126CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T19:05:53-06:00
Sample Type	CalStd
Level	4
Dilution	1
Comment	
ISTD Ref File Name	123CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	77148	0.00
Na	23	1	nogas	25250872	0.00
Mg	24	1	nogas	15834310	0.00
Al	27	1	nogas	232008	0.00
K	39	1	nogas	27175799	0.00
Ti	47	1	nogas	16658	0.02
V	51	1	nogas	1868880	0.00
Cr	52	1	nogas	291583	0.00
Mn	55	1	nogas	287456	0.00
Co	59	1	nogas	221976	0.00
Ni	60	1	nogas	50082	0.01
Cu	63	1	nogas	118092	0.00
Zn	66	1	nogas	39309	0.00
As	75	1	nogas	253155	0.00
Sr	88	1	nogas	258307	0.00
Ag	107	1	nogas	129291	0.00
Cd	111	1	nogas	28029	0.01
Sb	121	1	nogas	121934	0.00
Tl	205	1	nogas	187552	0.00
Pb	208	1	nogas	264591	0.00
[Pb]	206	1	nogas	66161	0.00
[Pb]	207	1	nogas	57469	0.00
Na	23	2	He	1603255	0.00
Mg	24	2	He	815126	0.00
Al	27	2	He	5628	0.09
K	39	2	He	1000101	0.00
Ca	43	2	He	2324	0.13
Ca	44	2	He	38974	0.00
V	51	2	He	72881	0.00
Cr	52	2	He	66252	0.00
Mn	55	2	He	45527	0.01
Fe	56	2	He	5424213	0.00
Co	59	2	He	83632	0.00
Ni	60	2	He	20929	0.02
Cu	63	2	He	54648	0.01
Zn	66	2	He	13118	0.04
As	75	2	He	12805	0.01
Se	78	2	He	1081	0.27
B	11	1	nogas	244624	0.00
Si	28	1	nogas	6670116	0.00

Calibration Standard Report

Ca	43	1	nogas	35027	0.00
Ca	44	1	nogas	641708	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	25285242	0.00
Se	77	1	nogas	69419	0.00
Se	82	1	nogas	2650	0.21
Mo	95	1	nogas	54297	0.01
Sn	118	1	nogas	73307	0.00
Ba	137	1	nogas	38019	0.01
Sb	121	2	He	45516	0.01
P	31	1	nogas	174335	0.00
La	139	1	nogas	127	50.38

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1343072	4.51	1446753	92.83	70	125	
Ge	72	1	nogas	3313200	1.72	3206704	103.32	70	125	
In	115	1	nogas	2866425	3.53	2812441	101.92	70	125	
Bi	209	1	nogas	2231632	2.44	2322160	96.10	70	125	
Ge	72	2	He	772138	1.02	754516	102.34	70	125	

Calibration Standard Report

Sample Table

Sample Name	100/500/10K
Data File Name	127CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T19:07:51-06:00
Sample Type	CalStd
Level	5
Dilution	1
Comment	
ISTD Ref File Name	123CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	770857	0.00
Na	23	1	nogas	242498655	0.00
Mg	24	1	nogas	154874208	0.00
Al	27	1	nogas	1990080	0.00
K	39	1	nogas	197878504	0.00
Ti	47	1	nogas	165246	0.00
V	51	1	nogas	3915446	0.00
Cr	52	1	nogas	2212534	0.00
Mn	55	1	nogas	2743316	0.00
Co	59	1	nogas	2253592	0.00
Ni	60	1	nogas	482568	0.00
Cu	63	1	nogas	1134783	0.00
Zn	66	1	nogas	377718	0.00
As	75	1	nogas	674392	0.00
Sr	88	1	nogas	2656691	0.00
Ag	107	1	nogas	1328342	0.00
Cd	111	1	nogas	277142	0.00
Sb	121	1	nogas	1212062	0.00
Tl	205	1	nogas	2038051	0.00
Pb	208	1	nogas	2754632	0.00
[Pb]	206	1	nogas	654698	0.00
[Pb]	207	1	nogas	580556	0.00
Na	23	2	He	14697812	0.00
Mg	24	2	He	7992094	0.00
Al	27	2	He	45588	0.00
K	39	2	He	8452403	0.00
Ca	43	2	He	22631	0.01
Ca	44	2	He	377153	0.00
V	51	2	He	565139	0.00
Cr	52	2	He	616895	0.00
Mn	55	2	He	427894	0.00
Fe	56	2	He	51671208	0.00
Co	59	2	He	794999	0.00
Ni	60	2	He	204531	0.00
Cu	63	2	He	521587	0.00
Zn	66	2	He	125243	0.00
As	75	2	He	121407	0.00
Se	78	2	He	9610	0.02
B	11	1	nogas	2325500	0.00
Si	28	1	nogas	52692804	0.00

Calibration Standard Report

Ca	43	1	nogas	340306	0.00
Ca	44	1	nogas	5719862	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	225714363	0.00
Se	77	1	nogas	85332	0.00
Se	82	1	nogas	25165	0.01
Mo	95	1	nogas	523951	0.00
Sn	118	1	nogas	722784	0.00
Ba	137	1	nogas	389153	0.00
Sb	121	2	He	438849	0.00
P	31	1	nogas	846504	0.00
La	139	1	nogas	483	4.72

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1213626	3.21	1446753	83.89	70	125	
Ge	72	1	nogas	3155985	2.86	3206704	98.42	70	125	
In	115	1	nogas	2731958	3.08	2812441	97.14	70	125	
Bi	209	1	nogas	2203864	0.68	2322160	94.91	70	125	
Ge	72	2	He	750459	0.80	754516	99.46	70	125	

Calibration Standard Report

Sample Table

Sample Name	200/1000/20K
Data File Name	128CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T19:09:49-06:00
Sample Type	CalStd
Level	6
Dilution	1
Comment	
ISTD Ref File Name	123CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	1635048	0.00
Na	23	1	nogas	487938144	0.00
Mg	24	1	nogas	311599649	0.00
Al	27	1	nogas	3720619	0.00
K	39	1	nogas	387013200	0.00
Ti	47	1	nogas	337307	0.00
V	51	1	nogas	5847592	0.00
Cr	52	1	nogas	4260513	0.00
Mn	55	1	nogas	5212488	0.00
Co	59	1	nogas	4462955	0.00
Ni	60	1	nogas	962911	0.00
Cu	63	1	nogas	2305483	0.00
Zn	66	1	nogas	758181	0.00
As	75	1	nogas	1089835	0.00
Sr	88	1	nogas	5208978	0.00
Ag	107	1	nogas	2566119	0.00
Cd	111	1	nogas	558850	0.00
Sb	121	1	nogas	2523837	0.00
Tl	205	1	nogas	3971253	0.00
Pb	208	1	nogas	5460578	0.00
[Pb]	206	1	nogas	1380705	0.00
[Pb]	207	1	nogas	1160140	0.00
Na	23	2	He	28670345	0.00
Mg	24	2	He	15925250	0.00
Al	27	2	He	88687	0.00
K	39	2	He	16988162	0.00
Ca	43	2	He	45786	0.00
Ca	44	2	He	763233	0.00
V	51	2	He	1118348	0.00
Cr	52	2	He	1225421	0.00
Mn	55	2	He	854743	0.00
Fe	56	2	He	106540595	0.00
Co	59	2	He	1698960	0.00
Ni	60	2	He	409741	0.00
Cu	63	2	He	1042535	0.00
Zn	66	2	He	255918	0.00
As	75	2	He	243421	0.00
Se	78	2	He	19463	0.00
B	11	1	nogas	4747092	0.00
Si	28	1	nogas	102886088	0.00

Calibration Standard Report

Ca	43	1	nogas	669375	0.00
Ca	44	1	nogas	11178438	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	441805293	0.00
Se	77	1	nogas	86585	0.00
Se	82	1	nogas	50053	0.00
Mo	95	1	nogas	1069773	0.00
Sn	118	1	nogas	1465775	0.00
Ba	137	1	nogas	790275	0.00
Sb	121	2	He	891260	0.00
P	31	1	nogas	1628622	0.00
La	139	1	nogas	690	1.87

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1159034	0.52	1446753	80.11	70	125	
Ge	72	1	nogas	3121229	4.29	3206704	97.33	70	125	
In	115	1	nogas	2723278	2.90	2812441	96.83	70	125	
Bi	209	1	nogas	2126871	1.71	2322160	91.59	70	125	
Ge	72	2	He	742295	0.54	754516	98.38	70	125	

Initial Calibration Verification (ICV) Report

Sample Table

Sample Name	ICCV
Data File Name	129_ICV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T19:11:49-06:00
Sample Type	ICV
Dilution	1
Comment	
ISTD Ref File Name	123CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High	QC Flag
Be	9	1	nogas	90.301	4.598	786718	2.51	100	90.3	90	110	
Na	23	1	nogas	10384.490	4.839	254714922	1.49	10000	103.8	90	110	
Mg	24	1	nogas	10216.194	4.105	159942195	1.00	10000	102.2	90	110	
Al	27	1	nogas	100.587	5.820	1978560	2.61	100	100.6	90	110	
K	39	1	nogas	10263.903	4.337	210149896	1.02	10000	102.6	90	110	
Ti	47	1	nogas	100.515	5.206	175305	2.20	100	100.5	90	110	
V	51	1	nogas	78.579	5.035	3273331	2.45	100	78.6	90	110	ICV Main CR1 Failed
Cr	52	1	nogas	95.915	0.426	2172786	3.25	100	95.9	90	110	
Mn	55	1	nogas	98.108	3.002	2694291	1.34	100	98.1	90	110	
Co	59	1	nogas	97.795	2.315	2271185	0.95	100	97.8	90	110	
Ni	60	1	nogas	97.599	4.497	487945	1.48	100	97.6	90	110	
Cu	63	1	nogas	96.507	2.348	1152762	1.19	100	96.5	90	110	
Zn	66	1	nogas	98.631	2.099	387944	1.34	100	98.6	90	110	
As	75	1	nogas	88.407	5.316	614466	0.51	100	88.4	90	110	ICV Main CR1 Failed
Sr	88	1	nogas	100.095	2.438	2717900	1.04	100	100.1	90	110	
Ag	107	1	nogas	96.628	1.502	1296693	2.79	100	96.6	90	110	
Cd	111	1	nogas	101.761	1.019	285954	1.10	100	101.8	90	110	
Sb	121	1	nogas	100.652	0.288	1309455	3.17	100	100.7	90	110	
Tl	205	1	nogas	100.746	4.261	2013533	4.36	100	100.7	90	110	
Pb	208	1	nogas	97.632	2.193	2670818	2.19	100	97.6	90	110	
U	238	1	nogas	89.697	1.525	2413131	1.56	100	89.7	90	110	ICV Main CR1 Failed
[Pb]	206	1	nogas	98.621	1.406	675010	0.65	100	98.6	90	110	
[Pb]	207	1	nogas	96.898	1.884	562952	0.91	100	96.9	90	110	
Na	23	2	He	10474.107	2.100	15647264	0.58	10000	104.7	90	110	
Mg	24	2	He	10151.008	1.080	8378945	1.49	10000	101.5	90	110	
Al	27	2	He	101.205	2.229	47076	1.36	100	101.2	90	110	
K	39	2	He	10491.084	0.429	8969435	0.42	10000	104.9	90	110	
Ca	43	2	He	10065.061	3.960	23815	3.76	10000	100.7	90	110	
Ca	44	2	He	10033.963	2.027	396076	0.67	10000	100.3	90	110	
V	51	2	He	98.605	1.094	578483	0.64	100	98.6	90	110	
Cr	52	2	He	96.922	1.559	617857	0.49	100	96.9	90	110	
Mn	55	2	He	99.040	1.904	439081	2.12	100	99.0	90	110	
Fe	56	2	He	9957.403	2.767	54623416	2.72	10000	99.6	90	110	
Co	59	2	He	94.907	1.887	824547	1.17	100	94.9	90	110	
Ni	60	2	He	99.154	2.596	210237	1.87	100	99.2	90	110	
Cu	63	2	He	99.383	1.107	536715	1.70	100	99.4	90	110	
Zn	66	2	He	98.604	1.440	130032	1.95	100	98.6	90	110	
As	75	2	He	99.804	2.341	125983	1.29	100	99.8	90	110	
Se	78	2	He	98.760	3.198	9962	1.69	100	98.8	90	110	
B	11	1	nogas	437.724	2.810	2239070	2.43	500	87.5	90	110	ICV Main CR1 Failed
Si	28	1	nogas	507.303	6.864	6908083	2.09	5000	10.1	90	110	ICV Main CR1 Failed
Ca	43	1	nogas	9993.413	4.144	348511	1.52	10000	99.9	90	110	
Ca	44	1	nogas	9827.861	3.325	5768005	1.71	10000	98.3	90	110	
Fe	56	1	nogas	9810.284	5.205	227146205	2.03	10000	98.1	90	110	
Se	77	1	nogas	28.175	49.147	62688	1.61	100	28.2	90	110	ICV Main CR1 Failed
Se	82	1	nogas	95.569	5.992	24954	2.86	100	95.6	90	110	
Mo	95	1	nogas	96.081	3.743	531609	1.03	100	96.1	90	110	
Sn	118	1	nogas	102.400	1.837	753861	0.40	100	102.4	90	110	
Ba	137	1	nogas	99.957	1.470	396552	0.55	100	100.0	90	110	
Sb	121	2	He	101.772	0.899	468578	1.72	100	101.8	90	110	
Li	7	1	nogas	99.125	3.686	1937876	1.69	100	99.1	90	110	
P	31	1	nogas	445.692	5.088	802166	1.30	500	89.1	90	110	ICV Main CR1 Failed
La	139	1	nogas	139.329	16.802	533	15.61	100	139.3	90	110	ICV Main CR1 Failed
Au	197	1	nogas	238.391	200.378	17	124.90	100	238.4	90	110	ICV Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1261564	2.14	1446753	87.20	70	125	
Ge	72	1	nogas	3247576	3.27	3206704	101.27	70	125	
In	115	1	nogas	2743656	1.57	2812441	97.55	70	125	
Bi	209	1	nogas	2145193	1.08	2322160	92.38	70	125	

Initial Calibration Verification (ICV) Report

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	2	He	770652	1.61	754516	102.14	70	125	

Low Level Initial Calibration Verification (LLICV) Report

Sample Table

Sample Name	LLCCV5
Data File Name	131LICV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T19:15:48-06:00
Sample Type	LLICV
Dilution	1
Comment	
ISTD Ref File Name	123CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High	QC Flag
Be	9	1	nogas	4.255	3.454	37998	2.70	5	85.1	70	130	
Na	23	1	nogas	499.242	2.195	12873645	2.74	500	99.8	70	130	
Mg	24	1	nogas	512.335	3.599	8184982	4.27	500	102.5	70	130	
Al	27	1	nogas	6.095	2.904	141154	3.05	5	121.9	70	130	
K	39	1	nogas	486.238	5.330	17624482	1.33	500	97.2	70	130	
Ti	47	1	nogas	5.232	7.021	9420	9.15	5	104.6	70	130	
V	51	1	nogas	-6.283	-22.118	1216227	2.87	5	-125.7	70	130	LLICV Main CR1 Failed
Cr	52	1	nogas	4.473	0.892	177047	2.39	5	89.5	70	130	
Mn	55	1	nogas	5.009	1.429	165200	1.51	5	100.2	70	130	
Co	59	1	nogas	4.733	4.242	111279	2.42	5	94.7	70	130	
Ni	60	1	nogas	5.315	1.560	26396	0.80	5	106.3	70	130	
Cu	63	1	nogas	5.045	2.503	62005	0.18	5	100.9	70	130	
Zn	66	1	nogas	5.552	3.479	21783	1.98	5	111.0	70	130	
As	75	1	nogas	-2.705	-11.160	181175	2.69	5	-54.1	70	130	LLICV Main CR1 Failed
Sr	88	1	nogas	4.780	1.920	131338	0.41	5	95.6	70	130	
Ag	107	1	nogas	4.957	1.445	66943	0.84	5	99.1	70	130	
Cd	111	1	nogas	4.876	5.119	14386	2.78	5	97.5	70	130	
Sb	121	1	nogas	5.026	3.099	66704	1.22	5	100.5	70	130	
Tl	205	1	nogas	4.611	3.786	96348	4.14	5	92.2	70	130	
Pb	208	1	nogas	4.932	2.201	136423	2.18	5	98.6	70	130	
U	238	1	nogas	4.789	0.734	134083	2.16	5	95.8	70	130	
[Pb]	206	1	nogas	4.732	2.820	34076	3.37	5	94.6	70	130	
[Pb]	207	1	nogas	4.809	4.102	29343	2.62	5	96.2	70	130	
Na	23	2	He	498.970	4.063	792259	1.09	500	99.8	70	130	
Mg	24	2	He	494.997	4.875	410285	1.85	500	99.0	70	130	
Al	27	2	He	5.852	7.510	3527	5.25	5	117.0	70	130	
K	39	2	He	506.396	2.047	606084	1.43	500	101.3	70	130	
Ca	43	2	He	491.416	14.325	1173	10.52	500	98.3	70	130	
Ca	44	2	He	496.079	4.147	20692	0.88	500	99.2	70	130	
V	51	2	He	4.386	5.926	40180	0.32	5	87.7	70	130	
Cr	52	2	He	4.874	6.575	35625	2.28	5	97.5	70	130	
Mn	55	2	He	5.090	5.175	23849	1.62	5	101.8	70	130	
Fe	56	2	He	504.862	2.218	2790513	1.75	500	101.0	70	130	
Co	59	2	He	4.795	3.819	42098	3.30	5	95.9	70	130	
Ni	60	2	He	5.348	1.558	11154	4.76	5	107.0	70	130	
Cu	63	2	He	5.165	2.576	27965	4.78	5	103.3	70	130	
Zn	66	2	He	5.473	6.880	6928	4.04	5	109.5	70	130	
As	75	2	He	4.975	3.427	6872	0.50	5	99.5	70	130	
Se	78	2	He	5.009	13.099	583	8.04	5	100.2	70	130	
B	11	1	nogas	30.841	3.806	177033	2.05	25	123.4	70	130	
Si	28	1	nogas	249.369	3.184	4214325	2.02	25	997.5	70	130	LLICV Main CR1 Failed
Ca	43	1	nogas	509.856	6.326	18416	4.14	500	102.0	70	130	
Ca	44	1	nogas	474.314	2.975	372822	1.35	500	94.9	70	130	
Fe	56	1	nogas	478.755	2.307	13872788	2.19	500	95.8	70	130	
Se	77	1	nogas	-24.944	-3.683	52633	2.27	5	-498.9	70	130	LLICV Main CR1 Failed
Se	82	1	nogas	4.839	17.649	1507	12.76	5	96.8	70	130	
Mo	95	1	nogas	4.829	0.906	27351	1.49	5	96.6	70	130	
Sn	118	1	nogas	4.772	2.072	37958	1.83	5	95.4	70	130	
Ba	137	1	nogas	4.742	4.076	19838	1.91	5	94.8	70	130	
Sb	121	2	He	5.265	4.079	24788	3.90	5	105.3	70	130	
Li	7	1	nogas	5.160	4.362	196270	2.54	5	103.2	70	130	
P	31	1	nogas	28.079	5.950	137092	0.42	25	112.3	70	130	
La	139	1	nogas	9.723	50.979	90	22.22	5	194.5	70	130	LLICV Main CR1 Failed
Au	197	1	nogas	301.460	2.209	20	0.00	5	6029.2	70	130	LLICV Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1290480	1.84	1446753	89.20	70	125	
Ge	72	1	nogas	3264303	2.29	3206704	101.80	70	125	
In	115	1	nogas	2878758	2.35	2812441	102.36	70	125	
Bi	209	1	nogas	2230517	1.48	2322160	96.05	70	125	

Low Level Initial Calibration Verification (LLICV) Report

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	2	He	773591	3.51	754516	102.53	70	125	

Initial Calibration Blank (ICB) Report

Sample Table

Sample Name	ICCB
Data File Name	132_ICB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T19:17:46-06:00
Sample Type	ICB
Dilution	1
Comment	
ISTD Ref File Name	123CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.013	4.8	167	3.5	1	
Na	23	1	nogas	0.207	280.8	412239	2.5	100	
Mg	24	1	nogas	0.620	26.4	18112	8.7	100	
Al	27	1	nogas	2.320	102.5	69027	73.1	5	
K	39	1	nogas	-8.421	-138.7	7898197	0.8	100	
Ti	47	1	nogas	0.021	141.8	280	16.4	2.5	
V	51	1	nogas	-8.276	-5.8	1179353	4.6	2.5	
Cr	52	1	nogas	-0.384	-19.7	71092	2.4	2.5	
Mn	55	1	nogas	-0.015	-280.8	28148	3.7	2.5	
Co	59	1	nogas	-0.006	-51.6	700	14.3	2.5	
Ni	60	1	nogas	0.181	2.3	563	7.4	2.5	
Cu	63	1	nogas	0.037	16.8	1970	2.2	1	
Zn	66	1	nogas	0.269	5.7	897	7.6	2.5	
As	75	1	nogas	-6.762	-9.3	163234	2.5	2.5	
Sr	88	1	nogas	0.022	24.7	1500	8.8	2.5	
Ag	107	1	nogas	0.004	34.4	153	16.4	2.5	
Cd	111	1	nogas	0.012	65.2	57	44.4	1	
Sb	121	1	nogas	0.157	9.7	3140	4.1	2.5	
Tl	205	1	nogas	0.093	43.0	2510	36.4	1	
Pb	208	1	nogas	0.011	58.4	1863	9.1	2.5	
U	238	1	nogas	0.015	30.6	533	28.7	2.5	
[Pb]	206	1	nogas	0.001	454.9	423	8.9	2.5	
[Pb]	207	1	nogas	0.018	20.0	430	4.0	2.5	
Na	23	2	He	-0.581	-104.0	46597	1.6	100	
Mg	24	2	He	0.607	18.6	1117	7.6	100	
Al	27	2	He	0.447	31.4	1067	6.0	5	
K	39	2	He	-2.860	-88.1	179521	1.2	100	
Ca	43	2	He	12.124	117.0	40	86.6	100	
Ca	44	2	He	2.221	142.5	1210	9.9	100	
V	51	2	He	-0.476	-12.0	12512	2.3	2.5	
Cr	52	2	He	-0.075	-48.7	4301	4.6	2.5	
Mn	55	2	He	0.068	45.2	1617	9.0	2.5	
Fe	56	2	He	0.433	9.9	14706	2.5	100	
Co	59	2	He	-0.008	-47.9	243	13.2	2.5	
Ni	60	2	He	0.220	17.7	227	38.0	2.5	
Cu	63	2	He	0.145	11.1	760	12.6	1	
Zn	66	2	He	0.435	4.0	257	9.0	2.5	
As	75	2	He	-0.006	-317.5	604	3.0	2.5	
Se	78	2	He	0.626	20.9	147	8.2	1	
B	11	1	nogas	6.668	5.8	49812	1.3	10	
Si	28	1	nogas	0.052	8967.4	1584000	1.4	5	
Ca	43	1	nogas	9.121	54.2	903	20.9	100	
Ca	44	1	nogas	-0.468	-1366.5	98243	0.7	100	
Fe	56	1	nogas	-10.589	-37.4	2639254	0.1	100	

Initial Calibration Blank (ICB) Report

Se	77	1	nogas	-30.346	-17.1	52075	4.0	2.5	
Se	82	1	nogas	-0.029	-417.0	247	16.4	1	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Mo	95	1	nogas	0.035	83.0	703	19.9	2.5	
Sn	118	1	nogas	0.039	67.2	1420	9.9	5	
Ba	137	1	nogas	0.017	6.4	183	6.3	2.5	
Sb	121	2	He	0.123	27.9	1073	15.1	2.5	
P	31	1	nogas	-0.016	-5605.1	92937	2.9	10	
La	139	1	nogas	5.719	90.3	73	20.8	2.5	ICB Main CR1 Failed
Au	197	1	nogas	162.485	222.8	13	114.6	2.5	ICB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1297781	3.56	1446753	89.70	70	125	
Ge	72	1	nogas	3296160	3.64	3206704	102.79	70	125	
In	115	1	nogas	2824301	3.91	2812441	100.42	70	125	
Bi	209	1	nogas	2246613	5.11	2322160	96.75	70	125	
Ge	72	2	He	785684	0.89	754516	104.13	70	125	

Sample Report

Sample Table

Sample Name	LLCCV2
Data File Name	133SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T19:19:46-06:00
Sample Type	Sample
Dilution	1
Comment	
ISTD Ref FileName	123CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	1.882	1.882	5.62	15770	0.01	2000	
Na	23	1	nogas	201.336	201.336	2.88	5469477	0.00	200000	
Mg	24	1	nogas	205.217	205.217	3.10	3303223	0.01	200000	
Al	27	1	nogas	1.933	1.933	3.87	61601	0.00	2000	
K	39	1	nogas	185.801	185.801	4.93	12054502	0.00	200000	
Ti	47	1	nogas	1.806	1.806	4.19	3517	0.05	2000	
V	51	1	nogas	-6.160	-6.160	-14.00	1258913	0.00	2000	
Cr	52	1	nogas	1.455	1.455	10.77	114367	0.00	2000	
Mn	55	1	nogas	1.651	1.651	7.03	75799	0.00	2000	
Co	59	1	nogas	1.840	1.840	4.00	45193	0.00	2000	
Ni	60	1	nogas	2.090	2.090	3.98	10500	0.02	2000	
Cu	63	1	nogas	1.917	1.917	3.45	25308	0.01	2000	
Zn	66	1	nogas	2.084	2.084	2.76	8335	0.03	2000	
As	75	1	nogas	-4.977	-4.977	-26.69	175762	0.00	2000	
Sr	88	1	nogas	1.912	1.912	2.87	54784	0.00	2000	
Ag	107	1	nogas	1.965	1.965	4.33	27458	0.01	2000	
Cd	111	1	nogas	2.001	2.001	2.31	5994	0.03	2000	
Sb	121	1	nogas	1.906	1.906	2.02	26811	0.01	2000	
Tl	205	1	nogas	1.816	1.816	7.34	39168	0.00	2000	
Pb	208	1	nogas	1.957	1.957	1.65	55080	0.00	2000	
U	238	1	nogas	1.904	1.904	3.13	53621	0.00	2000	
[Pb]	206	1	nogas	1.863	1.863	2.76	13996	0.01	2000	
[Pb]	207	1	nogas	1.906	1.906	0.63	12111	0.02	2000	
Na	23	2	He	196.462	196.462	0.70	349443	0.06	200000	
Mg	24	2	He	198.864	198.864	0.86	169682	0.12	200000	
Al	27	2	He	1.431	1.431	18.44	1540	0.09	2000	
K	39	2	He	202.776	202.776	1.30	351766	0.06	200000	
Ca	43	2	He	246.074	246.074	21.96	610	40.34	200000	
Ca	44	2	He	191.830	191.830	1.03	8912	2.15	200000	
V	51	2	He	1.557	1.557	2.27	24613	0.01	2000	
Cr	52	2	He	1.692	1.692	0.69	15864	0.01	2000	
Mn	55	2	He	1.873	1.873	3.83	9849	0.02	2000	
Fe	56	2	He	192.979	192.979	1.59	1102649	0.02	200000	
Co	59	2	He	1.896	1.896	2.10	17282	0.01	2000	
Ni	60	2	He	2.085	2.085	6.24	4307	0.05	2000	
Cu	63	2	He	2.038	2.038	2.10	11294	0.02	2000	
Zn	66	2	He	2.293	2.293	7.40	2790	0.08	2000	
As	75	2	He	1.932	1.932	1.48	3119	0.06	2000	
Se	78	2	He	2.240	2.240	2.71	315	0.71	2000	
B	11	1	nogas	13.939	13.939	6.27	86879	0.02	2000	
Si	28	1	nogas	90.823	90.823	5.09	2614779	0.00	2000	
Ca	43	1	nogas	188.371	188.371	2.11	7405	2.54	200000	

Sample Report

Ca	44	1	nogas	170.299	170.299	2.45	202849	0.08	200000	
Fe	56	1	nogas	176.064	176.064	4.53	7133054	0.00	200000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Se	77	1	nogas	-26.984	-26.984	-2.66	53930	-0.05	2000	
Se	82	1	nogas	1.877	1.877	0.88	763	0.25	2000	
Mo	95	1	nogas	1.909	1.909	2.06	11481	0.02	2000	
Sn	118	1	nogas	1.823	1.823	5.27	15400	0.01	2000	
Ba	137	1	nogas	1.970	1.970	7.76	8416	0.02	2000	
Sb	121	2	He	2.007	2.007	4.82	10006	0.02	2000	
La	139	1	nogas	-7.752	-7.752	-21.51	27	-29.07	2000	
Au	197	1	nogas	437.229	437.229	29.88	27	1639.61	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1316939	3.63	1446753	91.03	70	125	
Ge	72	1	nogas	3370304	1.34	3206704	105.10	70	125	
In	115	1	nogas	2915299	1.61	2812441	103.66	70	125	
Bi	209	1	nogas	2283724	1.07	2322160	98.34	70	125	
Ge	72	2	He	793775	0.77	754516	105.20	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	138_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T19:33:43-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	123CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.034	32.1	357	26.1	1	
Na	23	1	nogas	8.695	38.6	619732	5.4	100	
Mg	24	1	nogas	4.329	35.2	76039	23.2	100	
Al	27	1	nogas	3.334	4.1	85623	1.7	5	
K	39	1	nogas	3.908	261.5	7935173	1.1	100	
Ti	47	1	nogas	0.071	50.4	360	18.2	2.5	
V	51	1	nogas	-10.161	-1.0	1103147	3.0	2.5	
Cr	52	1	nogas	-0.455	-18.2	67716	1.5	2.5	
Mn	55	1	nogas	0.835	5.9	50258	0.9	2.5	
Co	59	1	nogas	0.060	22.4	2197	11.1	2.5	
Ni	60	1	nogas	0.274	4.3	1010	3.0	2.5	
Cu	63	1	nogas	0.103	19.1	2697	8.5	2	
Zn	66	1	nogas	0.548	6.5	1957	5.5	2.5	
As	75	1	nogas	-7.871	-10.2	153746	0.7	2.5	
Sr	88	1	nogas	0.049	28.1	2184	13.9	2.5	
Ag	107	1	nogas	0.029	13.7	473	8.5	2.5	
Cd	111	1	nogas	0.044	50.9	147	41.7	1	
Sb	121	1	nogas	0.977	27.0	13539	22.3	2.5	
Tl	205	1	nogas	0.369	56.7	8410	56.0	1	
Pb	208	1	nogas	0.051	52.5	2957	24.6	2.5	
U	238	1	nogas	0.139	61.5	4007	63.0	2.5	
[Pb]	206	1	nogas	0.033	83.8	663	31.4	2.5	
[Pb]	207	1	nogas	0.053	30.6	653	18.5	2.5	
Na	23	2	He	7.915	11.9	57831	2.4	100	
Mg	24	2	He	2.673	10.9	2777	9.5	100	
Al	27	2	He	2.569	8.4	1997	3.7	5	
K	39	2	He	1.563	161.5	183226	1.2	100	
Ca	43	2	He	6.977	34.8	27	21.7	100	
Ca	44	2	He	9.659	3.4	1467	1.4	100	
V	51	2	He	-0.495	-5.6	12053	0.5	2.5	
Cr	52	2	He	-0.027	-76.0	4481	2.5	2.5	
Mn	55	2	He	0.853	6.4	5007	4.8	2.5	
Fe	56	2	He	3.313	9.4	29938	5.1	100	
Co	59	2	He	0.032	37.7	580	16.6	2.5	
Ni	60	2	He	0.282	8.5	350	15.9	2.5	
Cu	63	2	He	0.213	8.5	1097	7.1	2	
Zn	66	2	He	0.727	7.7	633	12.9	2.5	
As	75	2	He	0.001	3616.8	596	6.0	2.5	
Se	78	2	He	0.554	61.2	135	24.0	2	
B	11	1	nogas	9.981	7.6	68838	6.0	10	
Si	28	1	nogas	5.313	30.7	1598930	3.4	5	CCB Main CR1 Failed
Ca	43	1	nogas	15.667	5.1	1103	1.4	100	
Ca	44	1	nogas	2.448	207.5	97385	0.3	100	
Fe	56	1	nogas	-17.295	-46.9	2417812	4.9	100	
Se	77	1	nogas	-39.790	-11.7	48882	1.5	2.5	
Se	82	1	nogas	-0.064	-228.4	230	15.1	2	

Continuing Calibration Blank (CCB) Report

Mo	95	1	nogas	0.353	47.3	2410	34.5	2.5	
Sn	118	1	nogas	0.243	40.4	2980	20.8	5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Ba	137	1	nogas	0.065	33.6	383	21.7	2.5	
Sb	121	2	He	0.692	9.4	3634	6.8	2.5	
P	31	1	nogas	6.323	34.3	100485	1.3	10	
La	139	1	nogas	-3.812	-85.5	40	25.0	2.5	
Au	197	1	nogas	227.151	208.2	17	124.9	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1349535	1.36	1446753	93.28	70	125	
Ge	72	1	nogas	3210634	3.09	3206704	100.12	70	125	
In	115	1	nogas	2854242	4.17	2812441	101.49	70	125	
Bi	209	1	nogas	2266004	3.07	2322160	97.58	70	125	
Ge	72	2	He	763674	1.80	754516	101.21	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	141_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T19:41:27-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	123CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	102.812	3.292	795235	2.22	100	102.8	90	110	
Na	23	1	nogas	10340.483	2.172	255082981	1.86	10000	103.4	90	110	
Mg	24	1	nogas	10062.903	3.553	158367295	1.64	10000	100.6	90	110	
Al	27	1	nogas	97.706	1.884	1888953	0.61	100	97.7	90	110	
K	39	1	nogas	10467.538	2.061	210404055	2.73	10000	104.7	90	110	
Ti	47	1	nogas	100.690	1.427	172538	0.99	100	100.7	90	110	
V	51	1	nogas	101.563	1.884	3762915	1.39	100	101.6	90	110	
Cr	52	1	nogas	100.273	2.268	2225655	1.25	100	100.3	90	110	
Mn	55	1	nogas	100.838	2.787	2718536	2.31	100	100.8	90	110	
Co	59	1	nogas	101.097	4.476	2304952	3.64	100	101.1	90	110	
Ni	60	1	nogas	99.660	3.112	489389	2.00	100	99.7	90	110	
Cu	63	1	nogas	97.470	1.514	1143128	0.23	100	97.5	90	110	
Zn	66	1	nogas	100.054	0.756	386412	0.74	100	100.1	90	110	
As	75	1	nogas	101.369	1.547	664239	0.99	100	101.4	90	110	
Sr	88	1	nogas	103.326	4.120	2754507	3.42	100	103.3	90	110	
Ag	107	1	nogas	102.557	3.834	1350925	3.74	100	102.6	90	110	
Cd	111	1	nogas	98.383	0.869	288138	0.13	100	98.4	90	110	
Sb	121	1	nogas	102.522	3.257	1308764	2.00	100	102.5	90	110	
Tl	205	1	nogas	102.511	6.470	2132674	1.73	100	102.5	90	110	
Pb	208	1	nogas	100.066	3.028	2737353	3.03	100	100.1	90	110	
U	238	1	nogas	88.815	3.127	2445212	2.90	100	88.8	90	110	CCV Main CR1-2 Failed
[Pb]	206	1	nogas	93.339	6.660	665109	2.58	100	93.3	90	110	
[Pb]	207	1	nogas	92.365	4.473	559268	3.84	100	92.4	90	110	
Na	23	2	He	10540.257	2.502	15329537	1.74	10000	105.4	90	110	
Mg	24	2	He	10273.068	1.083	8254690	0.23	10000	102.7	90	110	
Al	27	2	He	101.254	3.206	45852	2.74	100	101.3	90	110	
K	39	2	He	10456.458	2.356	8940433	2.31	10000	104.6	90	110	
Ca	43	2	He	10208.892	1.111	23518	1.42	10000	102.1	90	110	
Ca	44	2	He	10384.631	0.455	399093	1.05	10000	103.8	90	110	
V	51	2	He	101.688	1.780	580312	1.15	100	101.7	90	110	
Cr	52	2	He	100.269	1.996	622205	2.44	100	100.3	90	110	
Mn	55	2	He	102.015	1.065	440245	0.79	100	102.0	90	110	
Fe	56	2	He	10160.819	2.283	54259449	1.52	10000	101.6	90	110	
Co	59	2	He	96.621	2.055	817210	1.32	100	96.6	90	110	
Ni	60	2	He	101.382	3.156	209279	2.67	100	101.4	90	110	
Cu	63	2	He	102.238	1.594	537465	1.02	100	102.2	90	110	
Zn	66	2	He	98.935	1.620	127001	0.77	100	98.9	90	110	
As	75	2	He	102.351	0.299	125785	1.14	100	102.4	90	110	
Se	78	2	He	102.187	1.326	10034	0.50	100	102.2	90	110	
B	11	1	nogas	457.541	4.746	2134011	0.91	500	91.5	90	110	
Si	28	1	nogas	485.486	0.407	6562317	1.60	5000	9.7	90	110	CCV Main CR1-2 Failed
Ca	43	1	nogas	10236.072	1.117	350670	1.98	10000	102.4	90	110	
Ca	44	1	nogas	10091.318	2.995	5813739	2.86	10000	100.9	90	110	
Fe	56	1	nogas	10039.854	2.717	228322572	2.28	10000	100.4	90	110	
Se	77	1	nogas	102.366	1.568	75810	1.09	100	102.4	90	110	
Se	82	1	nogas	98.580	1.539	25285	0.53	100	98.6	90	110	
Mo	95	1	nogas	96.190	1.639	522713	0.58	100	96.2	90	110	
Sn	118	1	nogas	98.748	2.361	757826	2.28	100	98.7	90	110	
Ba	137	1	nogas	96.297	3.275	398138	2.29	100	96.3	90	110	
Sb	121	2	He	101.639	1.280	455531	0.51	100	101.6	90	110	
Li	7	1	nogas	108.415	0.288	1962769	4.85	100	108.4	90	110	
P	31	1	nogas	459.663	0.076	809994	1.36	500	91.9	90	110	
La	139	1	nogas	112.708	8.028	460	7.84	100	112.7	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	156.141	167.682	13	86.60	100	156.1	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1220140	5.12	1446753	84.34	70	125	
Ge	72	1	nogas	3187513	1.29	3206704	99.40	70	125	
In	115	1	nogas	2859495	1.00	2812441	101.67	70	125	
Bi	209	1	nogas	2237658	4.90	2322160	96.36	70	125	

Ge	72	2	He	750211	0.86	754516	99.43	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	147_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T19:53:20-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	123CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	100.098	6.666	777669	1.61	100	100.1	90	110	
Na	23	1	nogas	10321.189	4.890	250356081	1.73	10000	103.2	90	110	
Mg	24	1	nogas	10223.789	3.802	158311658	1.97	10000	102.2	90	110	
Al	27	1	nogas	104.558	5.640	2023351	1.57	100	104.6	90	110	
K	39	1	nogas	10030.938	5.820	202260767	1.88	10000	100.3	90	110	
Ti	47	1	nogas	102.108	3.332	175380	2.08	100	102.1	90	110	
V	51	1	nogas	86.769	3.694	3418815	3.03	100	86.8	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	97.861	1.319	2181601	5.20	100	97.9	90	110	
Mn	55	1	nogas	98.906	1.603	2676280	5.34	100	98.9	90	110	
Co	59	1	nogas	98.935	4.108	2261816	3.82	100	98.9	90	110	
Ni	60	1	nogas	97.546	3.540	480128	0.79	100	97.5	90	110	
Cu	63	1	nogas	96.916	3.481	1139211	0.93	100	96.9	90	110	
Zn	66	1	nogas	99.377	2.539	384762	2.22	100	99.4	90	110	
As	75	1	nogas	93.103	4.874	626920	1.04	100	93.1	90	110	
Sr	88	1	nogas	104.161	4.050	2783763	3.15	100	104.2	90	110	
Ag	107	1	nogas	98.657	3.570	1302396	0.89	100	98.7	90	110	
Cd	111	1	nogas	99.568	5.051	284769	1.96	100	99.6	90	110	
Sb	121	1	nogas	99.088	7.094	1267428	5.04	100	99.1	90	110	
Tl	205	1	nogas	102.826	6.816	2042064	7.56	100	102.8	90	110	
Pb	208	1	nogas	97.148	1.113	2657590	1.11	100	97.1	90	110	
U	238	1	nogas	92.603	1.618	2430110	2.21	100	92.6	90	110	
[Pb]	206	1	nogas	98.972	1.824	672913	1.27	100	99.0	90	110	
[Pb]	207	1	nogas	97.694	3.833	563696	2.45	100	97.7	90	110	
Na	23	2	He	10168.292	0.763	15099804	1.14	10000	101.7	90	110	
Mg	24	2	He	10061.984	0.209	8253815	0.90	10000	100.6	90	110	
Al	27	2	He	100.373	1.211	46414	1.91	100	100.4	90	110	
K	39	2	He	10252.470	0.212	8769568	0.21	10000	102.5	90	110	
Ca	43	2	He	10055.173	1.556	23645	1.31	10000	100.6	90	110	
Ca	44	2	He	10091.529	2.272	395879	1.52	10000	100.9	90	110	
V	51	2	He	99.097	1.138	577684	0.49	100	99.1	90	110	
Cr	52	2	He	97.225	1.301	616010	1.93	100	97.2	90	110	
Mn	55	2	He	99.325	0.637	437593	0.47	100	99.3	90	110	
Fe	56	2	He	10032.096	0.710	54692263	0.81	10000	100.3	90	110	
Co	59	2	He	94.864	0.381	819129	0.74	100	94.9	90	110	
Ni	60	2	He	99.541	1.725	209754	0.80	100	99.5	90	110	
Cu	63	2	He	99.129	2.779	531913	1.88	100	99.1	90	110	
Zn	66	2	He	97.982	1.482	128410	2.15	100	98.0	90	110	
As	75	2	He	100.041	0.871	125511	0.68	100	100.0	90	110	
Se	78	2	He	98.655	2.732	9891	1.73	100	98.7	90	110	
B	11	1	nogas	472.280	7.270	2212422	1.13	500	94.5	90	110	
Si	28	1	nogas	496.346	8.308	6683269	2.29	5000	9.9	90	110	CCV Main CR1-2 Failed
Ca	43	1	nogas	9976.656	5.079	342356	0.93	10000	99.8	90	110	
Ca	44	1	nogas	9847.424	5.776	5686667	3.60	10000	98.5	90	110	
Fe	56	1	nogas	9901.329	2.506	225806405	2.54	10000	99.0	90	110	
Se	77	1	nogas	55.954	31.335	67023	0.91	100	56.0	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	95.577	2.944	24584	2.19	100	95.6	90	110	
Mo	95	1	nogas	98.344	4.641	535433	0.49	100	98.3	90	110	
Sn	118	1	nogas	99.238	4.175	743825	0.96	100	99.2	90	110	
Ba	137	1	nogas	97.909	2.120	395716	3.03	100	97.9	90	110	
Sb	121	2	He	101.105	1.590	462572	1.21	100	101.1	90	110	
Li	7	1	nogas	105.849	5.883	1926457	3.09	100	105.8	90	110	
P	31	1	nogas	448.209	4.482	793643	0.98	500	89.6	90	110	CCV Main CR1-2 Failed
La	139	1	nogas	130.154	10.808	510	7.07	100	130.2	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	637.362	57.958	33	45.83	100	637.4	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1227694	6.59	1446753	84.86	70	125	
Ge	72	1	nogas	3197421	4.25	3206704	99.71	70	125	
In	115	1	nogas	2796582	5.01	2812441	99.44	70	125	
Bi	209	1	nogas	2131008	1.38	2322160	91.77	70	125	

Ge	72	2	He	765831	1.10	754516	101.50	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	148_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T19:55:18-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	123CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.061	32.3	570	25.3	1	
Na	23	1	nogas	17.047	14.7	833421	3.8	100	
Mg	24	1	nogas	6.237	25.1	107433	19.5	100	
Al	27	1	nogas	3.314	5.0	86122	2.3	5	
K	39	1	nogas	8.210	234.2	8097944	0.8	100	
Ti	47	1	nogas	0.104	16.0	420	6.3	2.5	
V	51	1	nogas	-18.661	-8.2	908686	6.9	2.5	
Cr	52	1	nogas	-0.764	-8.8	61702	2.6	2.5	
Mn	55	1	nogas	0.777	12.5	49179	1.5	2.5	
Co	59	1	nogas	0.069	30.2	2417	16.2	2.5	
Ni	60	1	nogas	0.310	2.3	1200	4.2	2.5	
Cu	63	1	nogas	0.120	36.7	2924	14.0	2	
Zn	66	1	nogas	0.556	2.1	2013	2.5	2.5	
As	75	1	nogas	-11.844	-4.3	136474	3.3	2.5	
Sr	88	1	nogas	0.072	22.0	2824	11.2	2.5	
Ag	107	1	nogas	0.039	32.1	617	23.1	2.5	
Cd	111	1	nogas	0.056	12.9	183	12.6	1	
Sb	121	1	nogas	0.522	13.9	7809	8.8	2.5	
Tl	205	1	nogas	0.769	62.7	16434	60.4	1	
Pb	208	1	nogas	0.060	47.7	3200	24.2	2.5	
U	238	1	nogas	0.147	52.8	4114	51.3	2.5	
[Pb]	206	1	nogas	0.051	77.8	777	36.1	2.5	
[Pb]	207	1	nogas	0.079	52.3	790	31.2	2.5	
Na	23	2	He	15.472	17.0	68540	4.1	100	
Mg	24	2	He	4.287	3.7	4070	1.6	100	
Al	27	2	He	2.420	20.3	1917	10.3	5	
K	39	2	He	4.765	38.5	185909	0.8	100	
Ca	43	2	He	18.614	67.7	53	54.1	100	
Ca	44	2	He	17.171	14.8	1750	7.0	100	
V	51	2	He	-0.722	-2.8	10706	0.9	2.5	
Cr	52	2	He	-0.001	-3292.1	4621	3.5	2.5	
Mn	55	2	He	0.840	7.5	4924	6.7	2.5	
Fe	56	2	He	4.440	9.9	35828	5.1	100	
Co	59	2	He	0.045	21.9	687	10.9	2.5	
Ni	60	2	He	0.257	8.6	297	16.6	2.5	
Cu	63	2	He	0.213	9.2	1093	8.2	2	
Zn	66	2	He	0.639	7.8	513	11.4	2.5	
As	75	2	He	-0.054	-72.0	523	7.7	2.5	
Se	78	2	He	0.709	12.4	150	6.9	2	
B	11	1	nogas	12.149	18.7	78187	9.1	10	CCB Main CR1 Failed
Si	28	1	nogas	10.023	70.5	1663537	0.8	5	CCB Main CR1 Failed
Ca	43	1	nogas	18.341	34.6	1203	14.5	100	
Ca	44	1	nogas	0.067	8720.5	97014	0.4	100	
Fe	56	1	nogas	-13.397	-66.0	2530743	4.1	100	
Se	77	1	nogas	-67.312	-2.8	44040	3.7	2.5	
Se	82	1	nogas	0.043	959.9	260	40.7	2	

Continuing Calibration Blank (CCB) Report

Mo	95	1	nogas	0.438	45.9	2897	34.2	2.5	
Sn	118	1	nogas	0.298	30.6	3394	16.4	5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Ba	137	1	nogas	0.104	21.5	540	13.0	2.5	
Sb	121	2	He	0.431	5.0	2434	2.6	2.5	
P	31	1	nogas	5.293	34.0	99898	1.3	10	
La	139	1	nogas	1.838	303.1	60	28.9	2.5	
Au	197	1	nogas	601.050	77.1	33	62.4	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1326497	5.41	1446753	91.69	70	125	
Ge	72	1	nogas	3244478	3.79	3206704	101.18	70	125	
In	115	1	nogas	2847870	3.71	2812441	101.26	70	125	
Bi	209	1	nogas	2219885	0.68	2322160	95.60	70	125	
Ge	72	2	He	759079	1.55	754516	100.60	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	159_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T20:17:04-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	123CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	103.960	4.988	788231	1.56	100	104.0	90	110	
Na	23	1	nogas	10259.326	1.218	254488314	0.96	10000	102.6	90	110	
Mg	24	1	nogas	10091.346	0.918	159772699	2.43	10000	100.9	90	110	
Al	27	1	nogas	100.470	5.061	1936392	1.37	100	100.5	90	110	
K	39	1	nogas	10728.759	3.033	214946438	1.96	10000	107.3	90	110	
Ti	47	1	nogas	104.238	4.626	178113	0.46	100	104.2	90	110	
V	51	1	nogas	100.850	8.654	3734390	1.46	100	100.8	90	110	
Cr	52	1	nogas	101.197	6.665	2239156	4.14	100	101.2	90	110	
Mn	55	1	nogas	101.045	4.345	2717178	1.93	100	101.0	90	110	
Co	59	1	nogas	99.371	2.298	2261453	2.62	100	99.4	90	110	
Ni	60	1	nogas	99.278	4.998	486173	0.13	100	99.3	90	110	
Cu	63	1	nogas	98.934	4.759	1157057	0.36	100	98.9	90	110	
Zn	66	1	nogas	100.419	2.467	387014	2.65	100	100.4	90	110	
As	75	1	nogas	100.819	5.137	660007	1.18	100	100.8	90	110	
Sr	88	1	nogas	102.255	4.272	2719070	0.60	100	102.3	90	110	
Ag	107	1	nogas	100.428	2.722	1320027	2.37	100	100.4	90	110	
Cd	111	1	nogas	99.814	1.082	284692	2.23	100	99.8	90	110	
Sb	121	1	nogas	103.435	5.354	1316899	2.40	100	103.4	90	110	
Tl	205	1	nogas	98.427	5.989	2029796	5.71	100	98.4	90	110	
Pb	208	1	nogas	99.002	0.800	2708274	0.80	100	99.0	90	110	
U	238	1	nogas	89.831	2.873	2448207	0.93	100	89.8	90	110	CCV Main CR1-2 Failed
[Pb]	206	1	nogas	95.749	3.659	676152	2.11	100	95.7	90	110	
[Pb]	207	1	nogas	94.536	1.635	566812	0.93	100	94.5	90	110	
Na	23	2	He	10575.884	3.846	15452084	1.59	10000	105.8	90	110	
Mg	24	2	He	10399.832	3.366	8395441	1.55	10000	104.0	90	110	
Al	27	2	He	102.480	2.501	46621	0.58	100	102.5	90	110	
K	39	2	He	10375.651	1.673	8872747	1.64	10000	103.8	90	110	
Ca	43	2	He	10182.161	1.280	23575	2.53	10000	101.8	90	110	
Ca	44	2	He	10090.987	1.421	389758	1.98	10000	100.9	90	110	
V	51	2	He	101.702	2.362	583175	0.50	100	101.7	90	110	
Cr	52	2	He	99.254	1.936	618866	0.52	100	99.3	90	110	
Mn	55	2	He	101.031	1.211	438179	1.57	100	101.0	90	110	
Fe	56	2	He	10174.869	2.605	54598609	1.54	10000	101.7	90	110	
Co	59	2	He	97.431	2.860	827978	1.04	100	97.4	90	110	
Ni	60	2	He	101.725	4.799	210925	2.66	100	101.7	90	110	
Cu	63	2	He	101.818	3.004	537764	0.75	100	101.8	90	110	
Zn	66	2	He	99.810	1.792	128757	1.03	100	99.8	90	110	
As	75	2	He	101.203	1.848	124974	0.46	100	101.2	90	110	
Se	78	2	He	101.348	0.938	10002	1.35	100	101.3	90	110	
B	11	1	nogas	473.013	6.810	2161676	1.37	500	94.6	90	110	
Si	28	1	nogas	485.909	5.283	6549028	1.12	5000	9.7	90	110	CCV Main CR1-2 Failed
Ca	43	1	nogas	10239.294	4.633	349762	0.33	10000	102.4	90	110	
Ca	44	1	nogas	10005.055	5.446	5747401	0.58	10000	100.1	90	110	
Fe	56	1	nogas	10090.460	3.278	228930030	1.62	10000	100.9	90	110	
Se	77	1	nogas	98.227	16.644	74813	0.68	100	98.2	90	110	
Se	82	1	nogas	101.457	4.908	25942	0.33	100	101.5	90	110	
Mo	95	1	nogas	97.445	5.423	527943	0.64	100	97.4	90	110	
Sn	118	1	nogas	100.535	3.014	751069	1.35	100	100.5	90	110	
Ba	137	1	nogas	100.286	2.008	403781	1.49	100	100.3	90	110	
Sb	121	2	He	101.698	1.169	458067	1.46	100	101.7	90	110	
Li	7	1	nogas	105.962	4.516	1881192	2.15	100	106.0	90	110	
P	31	1	nogas	460.175	5.056	808506	0.78	500	92.0	90	110	
La	139	1	nogas	136.995	2.865	533	5.73	100	137.0	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	378.334	31.524	23	24.74	100	378.3	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1197250	6.32	1446753	82.75	70	125	
Ge	72	1	nogas	3183053	4.78	3206704	99.26	70	125	
In	115	1	nogas	2785286	3.29	2812441	99.03	70	125	
Bi	209	1	nogas	2214088	2.32	2322160	95.35	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	754009	2.28	754516	99.93	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	160_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T20:19:01-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	123CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.046	19.4	440	15.9	1	
Na	23	1	nogas	12.809	12.1	734140	3.0	100	
Mg	24	1	nogas	5.667	22.4	99378	18.2	100	
Al	27	1	nogas	3.408	2.8	86508	1.4	5	
K	39	1	nogas	13.562	60.0	8072156	0.6	100	
Ti	47	1	nogas	0.283	111.7	717	74.6	2.5	
V	51	1	nogas	-11.423	-14.0	1065497	2.9	2.5	
Cr	52	1	nogas	-0.373	-2.8	69068	1.8	2.5	
Mn	55	1	nogas	0.799	5.4	48992	1.1	2.5	
Co	59	1	nogas	0.068	24.4	2377	14.8	2.5	
Ni	60	1	nogas	0.322	2.9	1240	2.9	2.5	
Cu	63	1	nogas	0.097	12.4	2607	4.3	2	
Zn	66	1	nogas	0.555	5.1	1977	6.6	2.5	
As	75	1	nogas	-8.138	-11.6	151588	4.1	2.5	
Sr	88	1	nogas	0.069	25.2	2704	15.9	2.5	
Ag	107	1	nogas	0.035	30.9	553	24.5	2.5	
Cd	111	1	nogas	0.053	82.8	173	68.8	1	
Sb	121	1	nogas	0.051	47.9	1690	17.3	2.5	
Tl	205	1	nogas	0.731	59.1	15613	58.6	1	
Pb	208	1	nogas	0.059	38.5	3197	19.6	2.5	
U	238	1	nogas	0.137	56.7	3824	56.6	2.5	
[Pb]	206	1	nogas	0.053	11.6	783	5.2	2.5	
[Pb]	207	1	nogas	0.062	58.7	687	32.9	2.5	
Na	23	2	He	11.656	1.3	62526	0.3	100	
Mg	24	2	He	3.790	10.2	3640	8.4	100	
Al	27	2	He	2.805	12.4	2077	7.8	5	
K	39	2	He	4.445	165.4	185640	3.3	100	
Ca	43	2	He	25.848	57.6	70	49.5	100	
Ca	44	2	He	14.654	21.7	1640	7.8	100	
V	51	2	He	-0.320	-14.1	12877	1.7	2.5	
Cr	52	2	He	0.003	962.9	4611	4.3	2.5	
Mn	55	2	He	0.761	7.6	4544	5.7	2.5	
Fe	56	2	He	3.819	11.0	32262	7.0	100	
Co	59	2	He	0.045	16.1	687	9.2	2.5	
Ni	60	2	He	0.272	7.4	323	12.5	2.5	
Cu	63	2	He	0.218	11.5	1110	11.5	2	
Zn	66	2	He	0.693	8.0	580	11.9	2.5	
As	75	2	He	-0.027	-30.1	553	1.6	2.5	
Se	78	2	He	0.598	31.5	138	12.9	2	
B	11	1	nogas	7.477	11.4	54104	8.0	10	
Si	28	1	nogas	8.191	18.2	1618137	1.5	5	CCB Main CR1 Failed
Ca	43	1	nogas	17.426	5.5	1157	2.8	100	
Ca	44	1	nogas	-7.461	-33.7	91171	0.7	100	
Fe	56	1	nogas	-13.329	-64.3	2492840	6.6	100	
Se	77	1	nogas	-34.875	-12.5	49527	3.0	2.5	
Se	82	1	nogas	-0.086	-82.9	223	6.8	2	

Continuing Calibration Blank (CCB) Report

Mo	95	1	nogas	0.351	59.0	2394	45.8	2.5	
Sn	118	1	nogas	0.238	41.6	2974	21.5	5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Ba	137	1	nogas	0.101	34.9	537	26.6	2.5	
Sb	121	2	He	0.001	1187.4	480	9.1	2.5	
P	31	1	nogas	6.704	25.2	100459	1.3	10	
La	139	1	nogas	-3.930	-186.9	40	66.1	2.5	
Au	197	1	nogas	153.406	221.1	13	114.6	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1304191	3.41	1446753	90.15	70	125	
Ge	72	1	nogas	3189465	1.47	3206704	99.46	70	125	
In	115	1	nogas	2884666	4.12	2812441	102.57	70	125	
Bi	209	1	nogas	2203694	1.44	2322160	94.90	70	125	
Ge	72	2	He	753619	0.46	754516	99.88	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	168_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T20:34:46-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	123CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	106.169	0.951	724460	0.90	100	106.2	90	110	
Na	23	1	nogas	10222.546	4.778	262375206	2.88	10000	102.2	90	110	
Mg	24	1	nogas	9870.243	3.028	161697770	1.11	10000	98.7	90	110	
Al	27	1	nogas	101.644	0.520	2033078	0.44	100	101.6	90	110	
K	39	1	nogas	10367.424	0.700	215722096	0.27	10000	103.7	90	110	
Ti	47	1	nogas	103.352	1.148	183279	0.31	100	103.4	90	110	
V	51	1	nogas	98.046	4.291	3806926	1.91	100	98.0	90	110	
Cr	52	1	nogas	102.129	2.490	2344578	1.65	100	102.1	90	110	
Mn	55	1	nogas	101.438	1.782	2830369	1.94	100	101.4	90	110	
Co	59	1	nogas	97.918	0.685	2310999	0.40	100	97.9	90	110	
Ni	60	1	nogas	100.043	2.457	508493	1.92	100	100.0	90	110	
Cu	63	1	nogas	100.676	2.390	1221929	1.84	100	100.7	90	110	
Zn	66	1	nogas	100.553	1.939	401875	1.06	100	100.6	90	110	
As	75	1	nogas	98.412	2.259	673090	1.11	100	98.4	90	110	
Sr	88	1	nogas	102.509	0.975	2828727	1.13	100	102.5	90	110	
Ag	107	1	nogas	96.662	0.810	1317785	0.81	100	96.7	90	110	
Cd	111	1	nogas	99.600	1.656	291656	1.46	100	99.6	90	110	
Sb	121	1	nogas	104.611	1.966	1382247	1.04	100	104.6	90	110	
Tl	205	1	nogas	102.529	3.337	1988130	1.89	100	102.5	90	110	
Pb	208	1	nogas	97.054	1.593	2655018	1.59	100	97.1	90	110	
U	238	1	nogas	93.161	3.899	2387296	1.59	100	93.2	90	110	
[Pb]	206	1	nogas	98.846	4.652	656292	2.54	100	98.8	90	110	
[Pb]	207	1	nogas	98.169	2.266	553492	1.39	100	98.2	90	110	
Na	23	2	He	10499.901	3.520	16016712	2.21	10000	105.0	90	110	
Mg	24	2	He	10017.487	3.217	8442024	1.92	10000	100.2	90	110	
Al	27	2	He	98.983	0.373	47045	1.35	100	99.0	90	110	
K	39	2	He	11002.774	2.123	9398036	2.08	10000	110.0	90	110	CCV Main CR1-2 Failed
Ca	43	2	He	10331.871	2.108	24967	2.17	10000	103.3	90	110	
Ca	44	2	He	10281.543	1.277	414482	1.25	10000	102.8	90	110	
V	51	2	He	101.396	2.517	606967	1.17	100	101.4	90	110	
Cr	52	2	He	99.575	0.070	648186	1.26	100	99.6	90	110	
Mn	55	2	He	101.139	1.328	457924	2.40	100	101.1	90	110	
Fe	56	2	He	10121.089	0.603	56705459	1.82	10000	101.2	90	110	
Co	59	2	He	96.677	2.303	857683	1.04	100	96.7	90	110	
Ni	60	2	He	103.013	3.565	223031	2.27	100	103.0	90	110	
Cu	63	2	He	101.587	3.055	560131	2.02	100	101.6	90	110	
Zn	66	2	He	99.270	0.922	133682	0.71	100	99.3	90	110	
As	75	2	He	102.570	1.611	132212	0.65	100	102.6	90	110	
Se	78	2	He	100.516	3.385	10353	2.08	100	100.5	90	110	
B	11	1	nogas	2272.710	9.279	9296038	8.52	500	454.5	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	564.091	2.364	7633273	1.16	5000	11.3	90	110	CCV Main CR1-2 Failed
Ca	43	1	nogas	10633.821	1.299	376971	1.39	10000	106.3	90	110	
Ca	44	1	nogas	10292.644	1.412	6134662	0.46	10000	102.9	90	110	
Fe	56	1	nogas	10056.283	2.041	236678139	1.29	10000	100.6	90	110	
Se	77	1	nogas	95.294	2.454	77052	0.49	100	95.3	90	110	
Se	82	1	nogas	101.050	4.082	26813	3.14	100	101.1	90	110	
Mo	95	1	nogas	101.746	1.461	572246	1.58	100	101.7	90	110	
Sn	118	1	nogas	100.710	1.213	772788	1.83	100	100.7	90	110	
Ba	137	1	nogas	97.276	0.585	402188	0.31	100	97.3	90	110	
Sb	121	2	He	101.693	3.546	478004	2.37	100	101.7	90	110	
Li	7	1	nogas	111.250	2.256	1772833	1.65	100	111.3	90	110	CCV Main CR1-2 Failed
P	31	1	nogas	449.201	1.190	821268	0.75	500	89.8	90	110	CCV Main CR1-2 Failed
La	139	1	nogas	155.429	17.227	613	15.41	100	155.4	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	173.556	79.018	13	43.30	100	173.6	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1075314	1.37	1446753	74.33	70	125	
Ge	72	1	nogas	3298798	0.95	3206704	102.87	70	125	
In	115	1	nogas	2858972	0.65	2812441	101.65	70	125	
Bi	209	1	nogas	2082212	2.43	2322160	89.67	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	786980	1.30	754516	104.30	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	169_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T20:36:44-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	123CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.064	26.7	560	23.4	1	
Na	23	1	nogas	95.761	8.0	2912460	2.0	100	
Mg	24	1	nogas	8.433	18.3	148156	11.6	100	
Al	27	1	nogas	3.550	2.3	92429	0.7	5	
K	39	1	nogas	18.674	63.5	8463341	0.8	100	
Ti	47	1	nogas	0.081	39.6	387	12.2	2.5	
V	51	1	nogas	-5.729	-47.7	1245510	6.8	2.5	
Cr	52	1	nogas	-0.142	-22.7	76658	1.4	2.5	
Mn	55	1	nogas	0.848	9.2	52080	1.7	2.5	
Co	59	1	nogas	0.082	37.6	2767	23.7	2.5	
Ni	60	1	nogas	0.516	6.5	2270	5.8	2.5	
Cu	63	1	nogas	0.242	13.7	4464	8.2	2	
Zn	66	1	nogas	0.600	7.6	2224	7.3	2.5	
As	75	1	nogas	-5.087	-10.6	171807	2.1	2.5	
Sr	88	1	nogas	0.111	6.4	3951	5.2	2.5	
Ag	107	1	nogas	0.041	32.8	650	25.3	2.5	
Cd	111	1	nogas	0.063	17.6	213	16.5	1	
Sb	121	1	nogas	0.336	2.5	5518	2.9	2.5	
Tl	205	1	nogas	0.659	63.2	14405	61.4	1	
Pb	208	1	nogas	0.052	69.5	3004	33.1	2.5	
U	238	1	nogas	0.139	59.4	3967	58.6	2.5	
[Pb]	206	1	nogas	0.054	67.3	807	32.9	2.5	
[Pb]	207	1	nogas	0.047	49.1	610	23.6	2.5	
Na	23	2	He	91.360	2.9	187800	1.1	100	
Mg	24	2	He	6.372	11.3	6014	8.9	100	
Al	27	2	He	2.756	4.2	2160	0.8	5	
K	39	2	He	16.515	16.5	195751	1.2	100	
Ca	43	2	He	55.164	110.6	143	101.0	100	
Ca	44	2	He	32.174	65.3	2425	33.2	100	
V	51	2	He	-0.137	-33.8	14614	0.9	2.5	
Cr	52	2	He	0.048	79.5	5141	3.2	2.5	
Mn	55	2	He	0.884	7.6	5341	6.9	2.5	
Fe	56	2	He	8.058	11.2	57839	9.3	100	
Co	59	2	He	0.044	3.6	707	0.8	2.5	
Ni	60	2	He	0.267	14.0	330	22.9	2.5	
Cu	63	2	He	0.253	14.8	1360	14.2	2	
Zn	66	2	He	0.694	6.7	610	8.7	2.5	
As	75	2	He	0.066	20.6	702	4.3	2.5	
Se	78	2	He	0.704	17.1	156	7.8	2	
B	11	1	nogas	981.451	4.1	4601279	5.2	10	CCB Main CR1 Failed
Si	28	1	nogas	29.712	27.3	1906442	2.9	5	CCB Main CR1 Failed
Ca	43	1	nogas	168.723	5.5	6558	2.9	100	CCB Main CR1 Failed
Ca	44	1	nogas	21.978	17.0	111728	0.8	100	
Fe	56	1	nogas	-13.578	-69.5	2575101	6.2	100	
Se	77	1	nogas	-16.693	-8.2	54916	2.1	2.5	
Se	82	1	nogas	0.290	73.8	330	15.7	2	

Continuing Calibration Blank (CCB) Report

Mo	95	1	nogas	1.093	23.4	6645	19.5	2.5	
Sn	118	1	nogas	0.307	41.2	3627	24.6	5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Ba	137	1	nogas	0.142	5.1	730	6.8	2.5	
Sb	121	2	He	0.236	16.9	1617	11.7	2.5	
P	31	1	nogas	1.680	138.6	95885	1.7	10	
La	139	1	nogas	13.289	40.9	107	21.7	2.5	CCB Main CR1 Failed
Au	197	1	nogas	147.764	226.8	13	114.6	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1229035	1.29	1446753	84.95	70	125	
Ge	72	1	nogas	3304307	2.36	3206704	103.04	70	125	
In	115	1	nogas	2980582	2.90	2812441	105.98	70	125	
Bi	209	1	nogas	2254777	0.70	2322160	97.10	70	125	
Ge	72	2	He	792420	1.80	754516	105.02	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	178_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T20:54:25-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	123CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	107.563	1.874	731375	0.78	100	107.6	90	110	
Na	23	1	nogas	10091.516	0.731	260743664	1.33	10000	100.9	90	110	
Mg	24	1	nogas	9758.920	2.090	160878495	0.74	10000	97.6	90	110	
Al	27	1	nogas	102.746	2.679	2030892	2.38	100	102.7	90	110	
K	39	1	nogas	10652.651	0.698	218859955	0.30	10000	106.5	90	110	
Ti	47	1	nogas	103.870	0.598	182065	0.92	100	103.9	90	110	
V	51	1	nogas	104.253	2.568	3914874	1.95	100	104.3	90	110	
Cr	52	1	nogas	100.939	1.075	2291564	1.48	100	100.9	90	110	
Mn	55	1	nogas	103.320	2.285	2848648	1.96	100	103.3	90	110	
Co	59	1	nogas	100.175	1.145	2336714	0.77	100	100.2	90	110	
Ni	60	1	nogas	102.202	0.703	513469	0.38	100	102.2	90	110	
Cu	63	1	nogas	103.891	2.398	1246437	2.86	100	103.9	90	110	
Zn	66	1	nogas	102.510	1.426	404958	1.01	100	102.5	90	110	
As	75	1	nogas	102.770	1.420	686151	0.56	100	102.8	90	110	
Sr	88	1	nogas	108.083	1.782	2947668	1.40	100	108.1	90	110	
Ag	107	1	nogas	103.517	2.732	1394860	2.86	100	103.5	90	110	
Cd	111	1	nogas	97.827	0.879	298139	0.64	100	97.8	90	110	
Sb	121	1	nogas	103.126	1.721	1346994	2.14	100	103.1	90	110	
Tl	205	1	nogas	101.834	1.471	2045506	1.58	100	101.8	90	110	
Pb	208	1	nogas	102.046	1.643	2791483	1.64	100	102.0	90	110	
U	238	1	nogas	90.107	5.690	2390700	3.54	100	90.1	90	110	
[Pb]	206	1	nogas	99.942	0.183	687638	2.08	100	99.9	90	110	
[Pb]	207	1	nogas	98.675	2.233	576131	0.84	100	98.7	90	110	
Na	23	2	He	10283.694	2.193	15614934	2.23	10000	102.8	90	110	
Mg	24	2	He	10020.446	1.158	8404626	0.27	10000	100.2	90	110	
Al	27	2	He	100.538	3.529	47537	3.68	100	100.5	90	110	
K	39	2	He	10879.850	1.576	9295073	1.55	10000	108.8	90	110	
Ca	43	2	He	9873.796	1.516	23745	2.23	10000	98.7	90	110	
Ca	44	2	He	10090.920	3.848	404717	2.62	10000	100.9	90	110	
V	51	2	He	102.018	0.695	607699	0.74	100	102.0	90	110	
Cr	52	2	He	99.598	1.446	645102	1.09	100	99.6	90	110	
Mn	55	2	He	99.897	3.247	450007	2.86	100	99.9	90	110	
Fe	56	2	He	10198.383	4.302	56851709	4.21	10000	102.0	90	110	
Co	59	2	He	98.093	1.240	866092	1.16	100	98.1	90	110	
Ni	60	2	He	100.671	0.905	216949	1.38	100	100.7	90	110	
Cu	63	2	He	99.370	0.937	545312	0.91	100	99.4	90	110	
Zn	66	2	He	97.461	2.994	130586	2.55	100	97.5	90	110	
As	75	2	He	103.110	1.256	132257	0.51	100	103.1	90	110	
Se	78	2	He	99.399	3.113	10190	2.26	100	99.4	90	110	
B	11	1	nogas	698.239	2.424	2856827	1.36	500	139.6	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	519.893	1.828	7076587	1.26	5000	10.4	90	110	CCV Main CR1-2 Failed
Ca	43	1	nogas	10566.872	0.885	370240	0.75	10000	105.7	90	110	
Ca	44	1	nogas	10385.476	1.564	6117304	1.22	10000	103.9	90	110	
Fe	56	1	nogas	10390.176	1.720	241607114	1.27	10000	103.9	90	110	
Se	77	1	nogas	106.960	7.576	78442	1.63	100	107.0	90	110	
Se	82	1	nogas	102.641	2.201	26920	2.05	100	102.6	90	110	
Mo	95	1	nogas	100.070	1.970	556244	1.53	100	100.1	90	110	
Sn	118	1	nogas	99.066	1.294	791075	0.56	100	99.1	90	110	
Ba	137	1	nogas	95.579	1.972	411299	2.38	100	95.6	90	110	
Sb	121	2	He	100.744	1.074	471349	1.42	100	100.7	90	110	
Li	7	1	nogas	112.232	0.960	1781672	0.44	100	112.2	90	110	CCV Main CR1-2 Failed
P	31	1	nogas	452.041	1.611	816269	1.24	500	90.4	90	110	
La	139	1	nogas	142.467	7.956	590	7.39	100	142.5	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	83.203	275.182	10	100.00	100	83.2	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1071602	1.27	1446753	74.07	70	125	
Ge	72	1	nogas	3260364	0.46	3206704	101.67	70	125	
In	115	1	nogas	2975481	0.93	2812441	105.80	70	125	
Bi	209	1	nogas	2156260	2.10	2322160	92.86	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	783119	1.25	754516	103.79	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	179_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T20:56:24-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	123CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.060	31.2	510	25.7	1	
Na	23	1	nogas	29.484	6.1	1207165	0.9	100	
Mg	24	1	nogas	6.131	25.3	111523	19.6	100	
Al	27	1	nogas	4.444	19.2	111108	13.8	5	
K	39	1	nogas	2.019	373.3	8212336	0.2	100	
Ti	47	1	nogas	0.097	20.4	420	7.1	2.5	
V	51	1	nogas	-5.864	-48.5	1254556	6.7	2.5	
Cr	52	1	nogas	-0.324	-8.2	73361	1.8	2.5	
Mn	55	1	nogas	0.744	7.5	49703	1.9	2.5	
Co	59	1	nogas	0.074	20.6	2614	11.9	2.5	
Ni	60	1	nogas	0.364	9.5	1513	10.2	2.5	
Cu	63	1	nogas	0.150	21.1	3377	9.5	2	
Zn	66	1	nogas	0.603	7.6	2260	6.5	2.5	
As	75	1	nogas	-7.039	-3.3	163963	1.5	2.5	
Sr	88	1	nogas	0.080	14.9	3130	8.6	2.5	
Ag	107	1	nogas	0.033	47.4	543	37.2	2.5	
Cd	111	1	nogas	0.046	34.3	163	28.3	1	
Sb	121	1	nogas	0.030	79.1	1483	19.5	2.5	
Tl	205	1	nogas	0.526	66.8	11486	63.7	1	
Pb	208	1	nogas	0.048	67.0	2880	30.4	2.5	
U	238	1	nogas	0.132	60.8	3714	59.2	2.5	
[Pb]	206	1	nogas	0.046	73.1	747	32.2	2.5	
[Pb]	207	1	nogas	0.050	53.8	623	26.1	2.5	
Na	23	2	He	33.664	2.1	98526	0.6	100	
Mg	24	2	He	4.339	7.7	4257	7.9	100	
Al	27	2	He	3.529	2.3	2500	1.6	5	
K	39	2	He	10.734	28.1	190908	1.3	100	
Ca	43	2	He	25.970	79.3	73	68.6	100	
Ca	44	2	He	13.165	32.1	1647	8.6	100	
V	51	2	He	-0.189	-17.4	14177	1.5	2.5	
Cr	52	2	He	-0.051	-86.8	4454	5.8	2.5	
Mn	55	2	He	0.829	5.8	5037	3.4	2.5	
Fe	56	2	He	8.823	2.2	61579	3.1	100	
Co	59	2	He	0.037	36.4	637	17.2	2.5	
Ni	60	2	He	0.288	5.7	373	11.2	2.5	
Cu	63	2	He	0.236	1.9	1260	2.9	2	
Zn	66	2	He	0.685	8.2	593	13.6	2.5	
As	75	2	He	0.059	45.4	687	6.3	2.5	
Se	78	2	He	0.704	23.2	155	11.1	2	
B	11	1	nogas	161.530	4.6	751912	1.0	10	CCB Main CR1 Failed
Si	28	1	nogas	19.410	38.2	1813970	2.7	5	CCB Main CR1 Failed
Ca	43	1	nogas	39.055	19.5	1987	14.9	100	
Ca	44	1	nogas	-22.749	-11.3	86324	0.9	100	
Fe	56	1	nogas	-12.847	-83.4	2618170	7.7	100	
Se	77	1	nogas	-33.786	-6.6	52031	1.2	2.5	
Se	82	1	nogas	-0.051	-339.2	243	19.4	2	

Continuing Calibration Blank (CCB) Report

Mo	95	1	nogas	0.407	40.6	2817	31.3	2.5	
Sn	118	1	nogas	0.226	49.4	3027	27.6	5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Ba	137	1	nogas	0.107	21.8	587	15.3	2.5	
Sb	121	2	He	-0.012	-248.6	440	31.2	2.5	
P	31	1	nogas	-2.088	-62.8	90706	1.7	10	
La	139	1	nogas	9.650	119.4	93	44.6	2.5	CCB Main CR1 Failed
Au	197	1	nogas	373.899	123.2	23	89.2	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1200688	3.57	1446753	82.99	70	125	
Ge	72	1	nogas	3337458	2.02	3206704	104.08	70	125	
In	115	1	nogas	3022626	2.14	2812441	107.47	70	125	
Bi	209	1	nogas	2235581	1.38	2322160	96.27	70	125	
Ge	72	2	He	785091	1.64	754516	104.05	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	190_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T21:18:13-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	123CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	109.023	2.722	730878	1.06	100	109.0	90	110	
Na	23	1	nogas	10367.449	5.763	261920789	2.90	10000	103.7	90	110	
Mg	24	1	nogas	10062.041	5.296	162212699	0.78	10000	100.6	90	110	
Al	27	1	nogas	100.829	3.912	2038320	1.49	100	100.8	90	110	
K	39	1	nogas	10130.921	2.768	213288846	1.89	10000	101.3	90	110	
Ti	47	1	nogas	101.477	1.100	181982	2.54	100	101.5	90	110	
V	51	1	nogas	102.685	4.161	3964509	1.15	100	102.7	90	110	
Cr	52	1	nogas	99.385	2.866	2308572	0.35	100	99.4	90	110	
Mn	55	1	nogas	102.809	2.847	2899057	0.63	100	102.8	90	110	
Co	59	1	nogas	98.385	4.190	2346470	1.52	100	98.4	90	110	
Ni	60	1	nogas	97.197	2.923	499363	0.29	100	97.2	90	110	
Cu	63	1	nogas	96.751	0.960	1187503	1.94	100	96.8	90	110	
Zn	66	1	nogas	100.440	0.968	405914	1.81	100	100.4	90	110	
As	75	1	nogas	100.479	2.185	690641	1.13	100	100.5	90	110	
Sr	88	1	nogas	102.688	3.157	2864259	1.89	100	102.7	90	110	
Ag	107	1	nogas	99.612	3.106	1372545	0.53	100	99.6	90	110	
Cd	111	1	nogas	99.261	0.591	299874	0.64	100	99.3	90	110	
Sb	121	1	nogas	100.664	1.220	1344952	1.43	100	100.7	90	110	
Tl	205	1	nogas	98.316	1.549	2057284	2.97	100	98.3	90	110	
Pb	208	1	nogas	101.634	2.080	2780240	2.08	100	101.6	90	110	
U	238	1	nogas	87.541	2.788	2421032	3.56	100	87.5	90	110	CCV Main CR1-2 Failed
[Pb]	206	1	nogas	96.546	1.000	691844	2.13	100	96.5	90	110	
[Pb]	207	1	nogas	96.367	1.276	586194	2.41	100	96.4	90	110	
Na	23	2	He	10409.044	1.576	15560005	1.65	10000	104.1	90	110	
Mg	24	2	He	10091.378	1.236	8333714	1.60	10000	100.9	90	110	
Al	27	2	He	97.196	1.771	45271	1.86	100	97.2	90	110	
K	39	2	He	10478.139	0.889	8958593	0.87	10000	104.8	90	110	
Ca	43	2	He	9822.292	5.651	23241	4.06	10000	98.2	90	110	
Ca	44	2	He	9944.985	3.678	392674	1.78	10000	99.4	90	110	
V	51	2	He	101.819	1.895	597083	0.17	100	101.8	90	110	
Cr	52	2	He	99.778	0.756	636383	2.43	100	99.8	90	110	
Mn	55	2	He	98.277	1.800	435860	0.21	100	98.3	90	110	
Fe	56	2	He	10138.108	2.685	55629329	0.76	10000	101.4	90	110	
Co	59	2	He	97.208	4.067	844655	2.11	100	97.2	90	110	
Ni	60	2	He	102.509	4.064	217400	2.15	100	102.5	90	110	
Cu	63	2	He	103.094	3.117	556912	2.32	100	103.1	90	110	
Zn	66	2	He	99.869	1.895	131775	2.63	100	99.9	90	110	
As	75	2	He	100.845	3.408	127327	1.45	100	100.8	90	110	
Se	78	2	He	99.664	2.288	10058	0.60	100	99.7	90	110	
B	11	1	nogas	602.997	2.113	2434612	0.67	500	120.6	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	474.841	4.818	6747808	1.16	5000	9.5	90	110	CCV Main CR1-2 Failed
Ca	43	1	nogas	10149.708	1.140	363812	1.52	10000	101.5	90	110	
Ca	44	1	nogas	10036.793	1.104	6053513	3.70	10000	100.4	90	110	
Fe	56	1	nogas	10332.408	2.934	245736380	0.94	10000	103.3	90	110	
Se	77	1	nogas	97.883	7.402	78415	0.88	100	97.9	90	110	
Se	82	1	nogas	100.102	4.347	26857	3.43	100	100.1	90	110	
Mo	95	1	nogas	96.834	1.796	550639	1.80	100	96.8	90	110	
Sn	118	1	nogas	99.773	1.889	789737	1.09	100	99.8	90	110	
Ba	137	1	nogas	96.906	2.672	413293	1.82	100	96.9	90	110	
Sb	121	2	He	101.343	1.911	466738	0.06	100	101.3	90	110	
Li	7	1	nogas	110.381	4.823	1728290	2.27	100	110.4	90	110	CCV Main CR1-2 Failed
P	31	1	nogas	437.580	1.498	811292	1.36	500	87.5	90	110	CCV Main CR1-2 Failed
La	139	1	nogas	160.095	27.901	650	25.19	100	160.1	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	297.717	128.449	20	86.60	100	297.7	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1056780	2.30	1446753	73.04	70	125	
Ge	72	1	nogas	3335844	2.63	3206704	104.03	70	125	
In	115	1	nogas	2949511	0.87	2812441	104.87	70	125	
Bi	209	1	nogas	2245617	1.48	2322160	96.70	70	125	

Ge	72	2	He	771054	1.98	754516	102.19	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	191_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T21:20:13-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	123CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.068	28.4	543	19.9	1	
Na	23	1	nogas	22.778	21.6	942411	0.3	100	
Mg	24	1	nogas	6.263	27.1	103436	12.1	100	
Al	27	1	nogas	4.160	24.3	100207	9.3	5	
K	39	1	nogas	23.235	179.2	8251191	0.4	100	
Ti	47	1	nogas	0.097	39.6	400	6.6	2.5	
V	51	1	nogas	-7.862	-46.1	1151109	2.7	2.5	
Cr	52	1	nogas	-0.204	-125.4	72695	2.2	2.5	
Mn	55	1	nogas	0.851	21.4	50339	0.1	2.5	
Co	59	1	nogas	0.070	34.9	2387	14.0	2.5	
Ni	60	1	nogas	0.326	15.5	1250	9.7	2.5	
Cu	63	1	nogas	0.117	4.4	2857	9.2	2	
Zn	66	1	nogas	0.626	14.5	2240	8.6	2.5	
As	75	1	nogas	-5.364	-57.2	164488	2.7	2.5	
Sr	88	1	nogas	0.072	33.4	2747	14.4	2.5	
Ag	107	1	nogas	0.036	27.4	560	12.9	2.5	
Cd	111	1	nogas	0.047	29.1	157	20.5	1	
Sb	121	1	nogas	0.134	13.1	2744	3.1	2.5	
Tl	205	1	nogas	0.618	60.5	12393	51.4	1	
Pb	208	1	nogas	0.038	31.9	2600	12.6	2.5	
U	238	1	nogas	0.112	47.7	2960	38.9	2.5	
[Pb]	206	1	nogas	0.039	40.7	657	9.9	2.5	
[Pb]	207	1	nogas	0.042	26.9	543	11.2	2.5	
Na	23	2	He	23.165	7.1	82089	2.5	100	
Mg	24	2	He	4.422	6.6	4297	5.2	100	
Al	27	2	He	3.181	8.4	2324	4.2	5	
K	39	2	He	8.089	2.3	188692	0.1	100	
Ca	43	2	He	30.379	6.1	83	6.9	100	
Ca	44	2	He	11.850	6.5	1587	4.1	100	
V	51	2	He	-0.329	-4.2	13283	2.0	2.5	
Cr	52	2	He	-0.007	-373.8	4711	4.7	2.5	
Mn	55	2	He	0.804	4.1	4901	3.8	2.5	
Fe	56	2	He	6.254	3.4	46943	3.9	100	
Co	59	2	He	0.051	30.1	760	19.6	2.5	
Ni	60	2	He	0.274	6.3	340	12.8	2.5	
Cu	63	2	He	0.231	12.6	1223	14.7	2	
Zn	66	2	He	0.702	7.5	613	13.6	2.5	
As	75	2	He	0.055	20.5	678	4.0	2.5	
Se	78	2	He	0.859	8.6	169	3.8	2	
B	11	1	nogas	85.735	8.9	384397	0.6	10	CCB Main CR1 Failed
Si	28	1	nogas	15.803	117.2	1693468	1.7	5	CCB Main CR1 Failed
Ca	43	1	nogas	30.922	6.8	1630	12.8	100	
Ca	44	1	nogas	-23.212	-72.3	82062	1.8	100	
Fe	56	1	nogas	-13.469	-94.8	2485607	1.8	100	
Se	77	1	nogas	-18.032	-70.8	52857	4.8	2.5	
Se	82	1	nogas	0.167	128.6	290	23.9	2	

Continuing Calibration Blank (CCB) Report

Mo	95	1	nogas	0.307	36.3	2134	17.7	2.5	
Sn	118	1	nogas	0.248	34.2	2994	15.6	5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Ba	137	1	nogas	0.121	12.5	610	12.4	2.5	
Sb	121	2	He	0.103	28.2	973	15.7	2.5	
P	31	1	nogas	5.702	128.3	98685	1.9	10	
La	139	1	nogas	8.584	176.3	83	60.4	2.5	CCB Main CR1 Failed
Au	197	1	nogas	787.140	73.8	40	66.1	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1139544	8.09	1446753	78.77	70	125	
Ge	72	1	nogas	3204804	9.17	3206704	99.94	70	125	
In	115	1	nogas	2837543	5.85	2812441	100.89	70	125	
Bi	209	1	nogas	2119125	6.58	2322160	91.26	70	125	
Ge	72	2	He	780405	2.19	754516	103.43	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	199_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T21:36:11-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	123CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	105.963	3.667	758935	1.52	100	106.0	90	110	
Na	23	1	nogas	10269.909	0.903	261157281	1.93	10000	102.7	90	110	
Mg	24	1	nogas	10214.768	2.077	165741112	1.82	10000	102.1	90	110	
Al	27	1	nogas	147.794	14.013	3010165	13.13	100	147.8	90	110	CCV Main CR1-2 Failed
K	39	1	nogas	9980.316	3.447	212558659	1.56	10000	99.8	90	110	
Ti	47	1	nogas	103.105	2.480	186903	0.94	100	103.1	90	110	
V	51	1	nogas	69.979	2.880	3183140	0.16	100	70.0	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	97.160	1.615	2284563	1.58	100	97.2	90	110	
Mn	55	1	nogas	101.145	4.230	2884150	2.44	100	101.1	90	110	
Co	59	1	nogas	96.933	1.079	2339080	1.81	100	96.9	90	110	
Ni	60	1	nogas	98.631	0.971	512552	0.81	100	98.6	90	110	
Cu	63	1	nogas	98.659	0.808	1224352	1.07	100	98.7	90	110	
Zn	66	1	nogas	102.286	1.022	417998	1.60	100	102.3	90	110	
As	75	1	nogas	83.733	1.020	615458	1.23	100	83.7	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	103.404	0.893	2917198	1.07	100	103.4	90	110	
Ag	107	1	nogas	101.238	1.703	1410937	1.09	100	101.2	90	110	
Cd	111	1	nogas	100.529	2.738	309393	1.12	100	100.5	90	110	
Sb	121	1	nogas	101.534	1.247	1371877	2.18	100	101.5	90	110	
Tl	205	1	nogas	102.649	2.740	2164239	0.96	100	102.6	90	110	
Pb	208	1	nogas	103.037	1.236	2818579	1.24	100	103.0	90	110	
U	238	1	nogas	90.297	3.543	2516131	1.84	100	90.3	90	110	
[Pb]	206	1	nogas	99.166	0.621	716262	1.25	100	99.2	90	110	
[Pb]	207	1	nogas	97.332	1.635	596704	1.17	100	97.3	90	110	
Na	23	2	He	9660.603	1.411	14967809	1.26	10000	96.6	90	110	
Mg	24	2	He	9533.278	0.241	8157990	0.46	10000	95.3	90	110	
Al	27	2	He	111.180	2.664	53536	2.72	100	111.2	90	110	CCV Main CR1-2 Failed
K	39	2	He	10332.649	0.509	8836728	0.50	10000	103.3	90	110	
Ca	43	2	He	9629.485	4.266	23625	4.46	10000	96.3	90	110	
Ca	44	2	He	9775.627	1.211	400143	1.43	10000	97.8	90	110	
V	51	2	He	97.492	0.507	593159	0.29	100	97.5	90	110	
Cr	52	2	He	97.910	1.108	647077	0.91	100	97.9	90	110	
Mn	55	2	He	98.544	0.585	452933	0.80	100	98.5	90	110	
Fe	56	2	He	9802.638	1.186	55751918	1.35	10000	98.0	90	110	
Co	59	2	He	95.347	0.216	858874	0.41	100	95.3	90	110	
Ni	60	2	He	100.812	1.332	221637	1.42	100	100.8	90	110	
Cu	63	2	He	99.351	0.688	556228	0.88	100	99.4	90	110	
Zn	66	2	He	97.395	1.700	133147	1.85	100	97.4	90	110	
As	75	2	He	99.782	0.526	130600	0.61	100	99.8	90	110	
Se	78	2	He	96.907	2.853	10138	2.71	100	96.9	90	110	
B	11	1	nogas	563.851	4.596	2432269	1.17	500	112.8	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	513.383	2.972	7247443	0.73	5000	10.3	90	110	CCV Main CR1-2 Failed
Ca	43	1	nogas	10244.423	2.124	371288	1.82	10000	102.4	90	110	
Ca	44	1	nogas	10156.515	1.637	6190007	0.43	10000	101.6	90	110	
Fe	56	1	nogas	10067.602	2.284	242218597	0.70	10000	100.7	90	110	
Se	77	1	nogas	-26.637	-9.837	54040	2.24	100	-26.6	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	98.157	3.387	26633	1.62	100	98.2	90	110	
Mo	95	1	nogas	97.475	1.344	560466	0.84	100	97.5	90	110	
Sn	118	1	nogas	98.720	0.509	796502	2.94	100	98.7	90	110	
Ba	137	1	nogas	100.285	3.962	435653	1.15	100	100.3	90	110	
Sb	121	2	He	100.602	0.667	480185	0.77	100	100.6	90	110	
Li	7	1	nogas	109.838	2.422	1839051	2.26	100	109.8	90	110	
P	31	1	nogas	432.694	1.294	812283	1.22	500	86.5	90	110	CCV Main CR1-2 Failed
La	139	1	nogas	420.605	28.930	1640	24.97	100	420.6	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	294.395	73.482	20	50.00	100	294.4	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1129481	3.55	1446753	78.07	70	125	
Ge	72	1	nogas	3372768	1.76	3206704	105.18	70	125	
In	115	1	nogas	3006134	2.86	2812441	106.89	70	125	
Bi	209	1	nogas	2263748	1.86	2322160	97.48	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	798901	0.22	754516	105.88	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	200_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T21:38:11-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	123CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.075	31.4	673	29.0	1	
Na	23	1	nogas	13.233	12.9	762480	4.7	100	
Mg	24	1	nogas	8.644	19.5	150903	17.2	100	
Al	27	1	nogas	13.670	53.6	304933	50.9	5	CCB Main CR1 Failed
K	39	1	nogas	-26.164	-29.1	7843630	1.1	100	
Ti	47	1	nogas	0.173	17.9	570	9.3	2.5	
V	51	1	nogas	-35.315	-2.3	531389	3.5	2.5	
Cr	52	1	nogas	-1.598	-3.3	45950	2.1	2.5	
Mn	55	1	nogas	0.780	8.7	52060	3.3	2.5	
Co	59	1	nogas	0.080	23.9	2827	15.8	2.5	
Ni	60	1	nogas	0.286	4.7	1140	7.0	2.5	
Cu	63	1	nogas	0.162	13.1	3624	8.0	2	
Zn	66	1	nogas	0.581	3.9	2227	4.1	2.5	
As	75	1	nogas	-21.639	-3.4	94816	3.8	2.5	
Sr	88	1	nogas	0.124	24.4	4477	19.1	2.5	
Ag	107	1	nogas	0.045	44.4	743	38.2	2.5	
Cd	111	1	nogas	0.060	24.2	200	18.0	1	
Sb	121	1	nogas	0.095	10.7	2417	6.3	2.5	
Tl	205	1	nogas	0.738	64.0	16648	61.8	1	
Pb	208	1	nogas	0.072	45.8	3540	25.4	2.5	
U	238	1	nogas	0.128	54.2	3794	52.7	2.5	
[Pb]	206	1	nogas	0.060	58.2	883	29.2	2.5	
[Pb]	207	1	nogas	0.066	45.2	750	26.0	2.5	
Na	23	2	He	12.134	6.1	64077	2.2	100	
Mg	24	2	He	6.073	6.4	5558	5.9	100	
Al	27	2	He	6.244	11.6	3664	9.9	5	CCB Main CR1 Failed
K	39	2	He	-6.511	-62.9	176463	1.9	100	
Ca	43	2	He	28.286	6.9	77	7.5	100	
Ca	44	2	He	23.419	16.1	2003	6.9	100	
V	51	2	He	-1.536	-2.6	6159	2.1	2.5	
Cr	52	2	He	-0.098	-25.9	4044	5.3	2.5	
Mn	55	2	He	0.909	2.9	5254	2.4	2.5	
Fe	56	2	He	7.753	11.4	54127	10.2	100	
Co	59	2	He	0.058	24.3	803	14.6	2.5	
Ni	60	2	He	0.292	12.9	370	21.6	2.5	
Cu	63	2	He	0.243	6.9	1260	5.5	2	
Zn	66	2	He	0.733	1.6	640	2.7	2.5	
As	75	2	He	-0.128	-23.6	436	8.5	2.5	
Se	78	2	He	0.723	35.4	152	15.2	2	
B	11	1	nogas	56.773	4.5	293036	2.9	10	CCB Main CR1 Failed
Si	28	1	nogas	1.130	198.9	1659430	2.6	5	
Ca	43	1	nogas	44.564	37.4	2240	27.2	100	
Ca	44	1	nogas	-17.489	-51.5	91804	5.6	100	
Fe	56	1	nogas	-19.471	-45.4	2530138	8.1	100	
Se	77	1	nogas	-148.399	-3.6	29785	3.7	2.5	
Se	82	1	nogas	-0.025	-380.3	257	9.8	2	
Mo	95	1	nogas	0.356	49.0	2604	38.6	2.5	
Sn	118	1	nogas	0.223	37.6	2927	18.9	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.360	24.8	1647	19.6	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.042	57.6	677	17.8	2.5	
P	31	1	nogas	-3.628	-50.0	90509	2.7	10	
La	139	1	nogas	57.325	40.7	267	28.6	2.5	CCB Main CR1 Failed
Au	197	1	nogas	1.272	19964.0	7	173.2	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1281708	3.91	1446753	88.59	70	125	
Ge	72	1	nogas	3425422	1.18	3206704	106.82	70	125	
In	115	1	nogas	2951342	4.02	2812441	104.94	70	125	
Bi	209	1	nogas	2335081	3.02	2322160	100.56	70	125	
Ge	72	2	He	763822	1.60	754516	101.23	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	211_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T22:00:10-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	123CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	109.744	5.238	750975	1.07	100	109.7	90	110	
Na	23	1	nogas	9941.517	2.735	269524356	1.65	10000	99.4	90	110	
Mg	24	1	nogas	9966.554	1.116	172462725	1.95	10000	99.7	90	110	
Al	27	1	nogas	175.118	16.945	3691247	16.47	100	175.1	90	110	CCV Main CR1-2 Failed
K	39	1	nogas	10405.391	3.191	229260372	1.95	10000	104.1	90	110	
Ti	47	1	nogas	103.697	2.033	194761	0.63	100	103.7	90	110	
V	51	1	nogas	94.203	0.230	3932631	1.72	100	94.2	90	110	
Cr	52	1	nogas	101.226	0.268	2462680	1.71	100	101.2	90	110	
Mn	55	1	nogas	103.473	2.204	3057270	1.86	100	103.5	90	110	
Co	59	1	nogas	101.423	3.421	2534721	1.83	100	101.4	90	110	
Ni	60	1	nogas	100.360	2.018	540311	1.44	100	100.4	90	110	
Cu	63	1	nogas	100.911	3.277	1297241	2.68	100	100.9	90	110	
Zn	66	1	nogas	100.457	2.284	425270	1.77	100	100.5	90	110	
As	75	1	nogas	95.915	1.090	700160	0.85	100	95.9	90	110	
Sr	88	1	nogas	105.682	2.077	3088549	1.05	100	105.7	90	110	
Ag	107	1	nogas	100.293	3.490	1447930	2.39	100	100.3	90	110	
Cd	111	1	nogas	99.536	0.929	311655	1.77	100	99.5	90	110	
Sb	121	1	nogas	103.581	1.974	1449791	1.85	100	103.6	90	110	
Tl	205	1	nogas	102.035	4.190	2185705	2.11	100	102.0	90	110	
Pb	208	1	nogas	105.727	2.997	2892122	3.00	100	105.7	90	110	
U	238	1	nogas	88.520	1.381	2507386	1.45	100	88.5	90	110	CCV Main CR1-2 Failed
[Pb]	206	1	nogas	99.346	0.607	729264	2.16	100	99.3	90	110	
[Pb]	207	1	nogas	97.375	0.964	606745	2.13	100	97.4	90	110	
Na	23	2	He	10004.291	1.384	16209107	1.19	10000	100.0	90	110	
Mg	24	2	He	9887.381	1.562	8848515	1.15	10000	98.9	90	110	
Al	27	2	He	133.074	2.530	66839	2.74	100	133.1	90	110	CCV Main CR1-2 Failed
K	39	2	He	11151.701	1.440	9522780	1.41	10000	111.5	90	110	CCV Main CR1-2 Failed
Ca	43	2	He	9859.021	1.828	25297	2.33	10000	98.6	90	110	
Ca	44	2	He	9916.431	1.131	424503	1.46	10000	99.2	90	110	
V	51	2	He	100.996	0.790	642065	0.58	100	101.0	90	110	
Cr	52	2	He	97.796	2.186	675959	2.05	100	97.8	90	110	
Mn	55	2	He	98.793	1.520	474871	1.08	100	98.8	90	110	
Fe	56	2	He	9843.026	1.947	58542711	1.19	10000	98.4	90	110	
Co	59	2	He	96.223	1.505	906489	1.36	100	96.2	90	110	
Ni	60	2	He	100.879	2.759	231941	2.58	100	100.9	90	110	
Cu	63	2	He	99.387	1.259	581946	1.43	100	99.4	90	110	
Zn	66	2	He	95.549	0.965	136608	1.38	100	95.5	90	110	
As	75	2	He	101.844	1.493	139392	1.13	100	101.8	90	110	
Se	78	2	He	96.860	1.244	10598	0.75	100	96.9	90	110	
B	11	1	nogas	546.574	5.678	2253653	1.96	500	109.3	90	110	
Si	28	1	nogas	541.639	3.318	7829344	1.05	5000	10.8	90	110	CCV Main CR1-2 Failed
Ca	43	1	nogas	10233.898	2.228	384241	0.88	10000	102.3	90	110	
Ca	44	1	nogas	10063.326	1.843	6355161	0.51	10000	100.6	90	110	
Fe	56	1	nogas	10313.795	0.635	257063356	1.27	10000	103.1	90	110	
Se	77	1	nogas	64.207	12.220	75074	1.67	100	64.2	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	99.338	0.523	27932	1.37	100	99.3	90	110	
Mo	95	1	nogas	98.867	2.457	588908	1.51	100	98.9	90	110	
Sn	118	1	nogas	101.002	2.563	828429	1.24	100	101.0	90	110	
Ba	137	1	nogas	100.090	1.352	442422	0.66	100	100.1	90	110	
Sb	121	2	He	100.739	1.281	502866	0.79	100	100.7	90	110	
Li	7	1	nogas	117.533	5.590	1874442	3.54	100	117.5	90	110	CCV Main CR1-2 Failed
P	31	1	nogas	436.458	1.719	848016	1.41	500	87.3	90	110	CCV Main CR1-2 Failed
La	139	1	nogas	972.731	35.484	3787	33.44	100	972.7	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	509.576	86.184	30	66.67	100	509.6	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1080526	6.00	1446753	74.69	70	125	
Ge	72	1	nogas	3494299	1.59	3206704	108.97	70	125	
In	115	1	nogas	3057011	1.91	2812441	108.70	70	125	
Bi	209	1	nogas	2300762	2.77	2322160	99.08	70	125	

Ge	72	2	He	835546	0.83	754516	110.74	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	212_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T22:02:11-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	123CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.052	37.2	460	31.4	1	
Na	23	1	nogas	10.373	14.1	714582	1.9	100	
Mg	24	1	nogas	7.940	22.2	144115	17.0	100	
Al	27	1	nogas	17.788	19.0	395476	17.1	5	CCB Main CR1 Failed
K	39	1	nogas	-39.486	-25.4	7712879	2.1	100	
Ti	47	1	nogas	0.147	48.6	533	24.5	2.5	
V	51	1	nogas	-16.718	-2.5	1028212	1.7	2.5	
Cr	52	1	nogas	-0.773	-5.0	66208	1.2	2.5	
Mn	55	1	nogas	0.817	8.4	54139	2.8	2.5	
Co	59	1	nogas	0.071	36.6	2657	23.8	2.5	
Ni	60	1	nogas	0.287	3.6	1167	4.1	2.5	
Cu	63	1	nogas	0.119	17.5	3137	7.9	2	
Zn	66	1	nogas	0.613	5.2	2407	6.7	2.5	
As	75	1	nogas	-12.193	-3.8	145113	1.8	2.5	
Sr	88	1	nogas	0.090	13.4	3570	9.0	2.5	
Ag	107	1	nogas	0.033	11.9	580	9.1	2.5	
Cd	111	1	nogas	0.034	16.6	130	15.4	1	
Sb	121	1	nogas	0.009	136.1	1260	12.8	2.5	
Tl	205	1	nogas	0.604	60.3	14135	59.5	1	
Pb	208	1	nogas	0.061	43.9	3254	22.7	2.5	
U	238	1	nogas	0.118	54.4	3607	54.6	2.5	
[Pb]	206	1	nogas	0.056	53.1	873	27.2	2.5	
[Pb]	207	1	nogas	0.059	27.4	723	15.5	2.5	
Na	23	2	He	7.665	13.8	62004	1.1	100	
Mg	24	2	He	5.507	5.0	5501	6.5	100	
Al	27	2	He	11.299	5.7	6425	6.3	5	CCB Main CR1 Failed
K	39	2	He	-5.417	-39.0	177380	1.0	100	
Ca	43	2	He	37.591	42.4	107	39.0	100	
Ca	44	2	He	11.986	29.3	1680	7.9	100	
V	51	2	He	-0.669	-3.7	11947	2.5	2.5	
Cr	52	2	He	-0.062	-72.2	4601	4.4	2.5	
Mn	55	2	He	0.897	5.2	5614	3.8	2.5	
Fe	56	2	He	10.837	7.8	76526	8.6	100	
Co	59	2	He	0.030	14.1	613	7.4	2.5	
Ni	60	2	He	0.265	4.7	340	10.2	2.5	
Cu	63	2	He	0.211	6.7	1173	7.2	2	
Zn	66	2	He	0.756	7.2	723	10.0	2.5	
As	75	2	He	-0.077	-38.9	538	5.3	2.5	
Se	78	2	He	0.792	39.7	171	18.3	2	
B	11	1	nogas	44.680	3.2	221136	1.9	10	CCB Main CR1 Failed
Si	28	1	nogas	17.871	15.1	1881138	0.6	5	CCB Main CR1 Failed
Ca	43	1	nogas	36.257	19.9	1970	12.8	100	
Ca	44	1	nogas	-42.891	-11.7	77808	3.0	100	
Fe	56	1	nogas	-8.133	-144.8	2857002	9.4	100	
Se	77	1	nogas	-73.013	-6.4	46205	3.0	2.5	
Se	82	1	nogas	-0.232	-142.7	203	44.6	2	

Continuing Calibration Blank (CCB) Report

Mo	95	1	nogas	0.302	56.4	2334	42.7	2.5	
Sn	118	1	nogas	0.214	40.7	3014	21.5	5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Ba	137	1	nogas	0.245	9.5	1227	5.9	2.5	
Sb	121	2	He	-0.024	-21.4	403	7.6	2.5	
P	31	1	nogas	-8.287	-13.4	84280	2.5	10	
La	139	1	nogas	160.616	40.2	683	33.9	2.5	CCB Main CR1 Failed
Au	197	1	nogas	762.601	84.6	43	70.5	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1209527	1.10	1446753	83.60	70	125	
Ge	72	1	nogas	3491653	1.02	3206704	108.89	70	125	
In	115	1	nogas	3109819	2.59	2812441	110.57	70	125	
Bi	209	1	nogas	2395987	1.68	2322160	103.18	70	125	
Ge	72	2	He	824251	2.20	754516	109.24	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	223_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T22:23:51-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	123CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	109.517	1.837	736165	1.84	100	109.5	90	110	
Na	23	1	nogas	9896.047	6.073	267727589	1.75	10000	99.0	90	110	
Mg	24	1	nogas	9805.076	4.940	169329179	0.99	10000	98.1	90	110	
Al	27	1	nogas	112.091	3.896	2404943	2.03	100	112.1	90	110	CCV Main CR1-2 Failed
K	39	1	nogas	10210.366	2.622	228314063	1.74	10000	102.1	90	110	
Ti	47	1	nogas	100.016	3.134	190471	0.86	100	100.0	90	110	
V	51	1	nogas	86.262	5.846	3775697	1.73	100	86.3	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	96.626	2.441	2387298	1.45	100	96.6	90	110	
Mn	55	1	nogas	98.721	3.456	2958562	1.35	100	98.7	90	110	
Co	59	1	nogas	96.998	5.126	2457285	2.11	100	97.0	90	110	
Ni	60	1	nogas	99.358	3.028	542340	0.96	100	99.4	90	110	
Cu	63	1	nogas	100.086	2.481	1305349	3.91	100	100.1	90	110	
Zn	66	1	nogas	99.480	1.391	427184	2.85	100	99.5	90	110	
As	75	1	nogas	89.884	4.559	678418	0.63	100	89.9	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	103.683	0.994	3074003	2.96	100	103.7	90	110	
Ag	107	1	nogas	100.611	3.035	1472972	1.51	100	100.6	90	110	
Cd	111	1	nogas	97.024	2.437	315550	0.46	100	97.0	90	110	
Sb	121	1	nogas	99.390	2.071	1410760	1.82	100	99.4	90	110	
Tl	205	1	nogas	102.566	3.635	2182623	1.49	100	102.6	90	110	
Pb	208	1	nogas	104.133	0.674	2848545	0.67	100	104.1	90	110	
U	238	1	nogas	88.553	2.854	2491021	0.74	100	88.6	90	110	CCV Main CR1-2 Failed
[Pb]	206	1	nogas	97.822	3.439	712953	0.80	100	97.8	90	110	
[Pb]	207	1	nogas	95.746	2.801	592417	0.43	100	95.7	90	110	
Na	23	2	He	9854.404	0.974	15942207	0.60	10000	98.5	90	110	
Mg	24	2	He	9607.042	1.302	8584426	0.97	10000	96.1	90	110	
Al	27	2	He	110.706	2.298	55669	2.36	100	110.7	90	110	CCV Main CR1-2 Failed
K	39	2	He	11289.247	1.095	9637991	1.07	10000	112.9	90	110	CCV Main CR1-2 Failed
Ca	43	2	He	10078.164	1.912	25818	2.08	10000	100.8	90	110	
Ca	44	2	He	9901.816	0.514	423208	0.41	10000	99.0	90	110	
V	51	2	He	98.886	0.612	628011	0.22	100	98.9	90	110	
Cr	52	2	He	97.003	2.682	669448	2.30	100	97.0	90	110	
Mn	55	2	He	97.133	0.874	466203	0.65	100	97.1	90	110	
Fe	56	2	He	9828.631	2.693	58370346	2.62	10000	98.3	90	110	
Co	59	2	He	96.227	1.600	905109	1.34	100	96.2	90	110	
Ni	60	2	He	101.170	1.289	232252	0.96	100	101.2	90	110	
Cu	63	2	He	100.743	2.189	588970	2.26	100	100.7	90	110	
Zn	66	2	He	96.736	2.059	138094	2.21	100	96.7	90	110	
As	75	2	He	100.474	0.625	137316	0.36	100	100.5	90	110	
Se	78	2	He	95.638	1.222	10449	0.87	100	95.6	90	110	
B	11	1	nogas	542.736	1.827	2198400	1.75	500	108.5	90	110	
Si	28	1	nogas	530.537	4.021	7811003	0.96	5000	10.6	90	110	CCV Main CR1-2 Failed
Ca	43	1	nogas	10207.701	4.270	388484	0.61	10000	102.1	90	110	
Ca	44	1	nogas	10020.231	5.748	6412303	2.08	10000	100.2	90	110	
Fe	56	1	nogas	9928.592	3.292	250975922	1.00	10000	99.3	90	110	
Se	77	1	nogas	33.897	31.117	69653	0.75	100	33.9	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	99.506	2.322	28376	3.10	100	99.5	90	110	
Mo	95	1	nogas	95.748	2.254	578409	1.53	100	95.7	90	110	
Sn	118	1	nogas	97.611	1.640	831954	0.81	100	97.6	90	110	
Ba	137	1	nogas	96.139	1.639	441597	2.44	100	96.1	90	110	
Sb	121	2	He	100.220	1.897	499501	1.62	100	100.2	90	110	
Li	7	1	nogas	113.125	3.062	1774552	2.83	100	113.1	90	110	CCV Main CR1-2 Failed
P	31	1	nogas	422.612	3.770	835569	0.46	500	84.5	90	110	CCV Main CR1-2 Failed
La	139	1	nogas	269.702	14.992	1137	12.51	100	269.7	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	80.215	486.985	10	173.21	100	80.2	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1059214	0.09	1446753	73.21	70	125	
Ge	72	1	nogas	3544923	3.75	3206704	110.55	70	125	
In	115	1	nogas	3176231	2.04	2812441	112.94	70	125	
Bi	209	1	nogas	2285557	2.90	2322160	98.42	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	834235	0.37	754516	110.57	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	224_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T22:25:50-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	123CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.074	15.2	600	12.0	1	
Na	23	1	nogas	7.733	19.4	665828	6.4	100	
Mg	24	1	nogas	6.928	21.8	131687	20.4	100	
Al	27	1	nogas	10.335	12.7	244304	9.0	5	CCB Main CR1 Failed
K	39	1	nogas	-46.645	-25.2	7714249	0.8	100	
Ti	47	1	nogas	0.162	38.6	570	18.2	2.5	
V	51	1	nogas	-19.527	-5.4	974167	2.6	2.5	
Cr	52	1	nogas	-1.064	-10.6	60569	2.5	2.5	
Mn	55	1	nogas	0.658	7.5	50506	1.0	2.5	
Co	59	1	nogas	0.069	20.7	2660	13.1	2.5	
Ni	60	1	nogas	0.260	14.2	1040	18.0	2.5	
Cu	63	1	nogas	0.095	39.3	2889	15.1	2	
Zn	66	1	nogas	0.545	15.3	2160	16.1	2.5	
As	75	1	nogas	-14.377	-4.1	136630	0.8	2.5	
Sr	88	1	nogas	0.088	9.2	3574	4.6	2.5	
Ag	107	1	nogas	0.042	24.2	723	18.7	2.5	
Cd	111	1	nogas	0.046	11.3	163	7.1	1	
Sb	121	1	nogas	0.013	186.0	1347	24.2	2.5	
Tl	205	1	nogas	0.690	58.8	15513	57.8	1	
Pb	208	1	nogas	0.076	45.3	3660	25.8	2.5	
U	238	1	nogas	0.134	65.5	3957	65.1	2.5	
[Pb]	206	1	nogas	0.087	20.6	1077	13.0	2.5	
[Pb]	207	1	nogas	0.063	59.1	730	33.2	2.5	
Na	23	2	He	6.180	13.3	59242	0.8	100	
Mg	24	2	He	5.233	4.9	5217	1.4	100	
Al	27	2	He	9.400	8.5	5451	4.4	5	CCB Main CR1 Failed
K	39	2	He	-6.621	-24.8	176371	0.8	100	
Ca	43	2	He	23.308	57.7	70	49.5	100	
Ca	44	2	He	13.132	17.5	1717	4.1	100	
V	51	2	He	-0.688	-9.2	11752	2.0	2.5	
Cr	52	2	He	-0.034	-74.3	4761	4.5	2.5	
Mn	55	2	He	0.803	7.1	5131	2.7	2.5	
Fe	56	2	He	10.749	3.0	75407	0.6	100	
Co	59	2	He	0.047	13.8	763	5.0	2.5	
Ni	60	2	He	0.257	4.5	320	11.3	2.5	
Cu	63	2	He	0.216	8.9	1193	7.8	2	
Zn	66	2	He	0.767	4.7	733	4.4	2.5	
As	75	2	He	-0.101	-40.3	502	8.9	2.5	
Se	78	2	He	1.081	17.1	201	10.3	2	
B	11	1	nogas	37.653	4.1	181958	3.3	10	CCB Main CR1 Failed
Si	28	1	nogas	16.297	29.1	1901084	0.6	5	CCB Main CR1 Failed
Ca	43	1	nogas	29.809	3.7	1767	4.8	100	
Ca	44	1	nogas	-58.924	-8.1	69228	1.8	100	
Fe	56	1	nogas	-10.844	-127.1	2844146	9.7	100	
Se	77	1	nogas	-89.430	-7.4	43633	4.0	2.5	
Se	82	1	nogas	-0.121	-62.2	240	11.0	2	

Continuing Calibration Blank (CCB) Report

Mo	95	1	nogas	0.314	55.8	2440	40.7	2.5	
Sn	118	1	nogas	0.270	40.1	3340	21.3	5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Ba	137	1	nogas	0.209	3.5	1023	1.1	2.5	
Sb	121	2	He	-0.034	-42.7	353	19.9	2.5	
P	31	1	nogas	-8.395	-19.9	85784	0.9	10	
La	139	1	nogas	110.528	30.5	470	22.2	2.5	CCB Main CR1 Failed
Au	197	1	nogas	213.916	59.6	17	34.6	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1165420	1.77	1446753	80.55	70	125	
Ge	72	1	nogas	3563819	2.52	3206704	111.14	70	125	
In	115	1	nogas	2995581	4.15	2812441	106.51	70	125	
Bi	209	1	nogas	2318074	1.43	2322160	99.82	70	125	
Ge	72	2	He	818849	3.07	754516	108.53	70	125	

Calibration Blank Report

Sample Table

Sample Name	CAL BLK
Data File Name	231CALB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T22:39:46-06:00
Sample Type	CalBlk
Level	1
Dilution	1
Comment	

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	87	33.51
Na	23	1	nogas	331429	0.00
Mg	24	1	nogas	30465	0.02
Al	27	1	nogas	77458	0.01
K	39	1	nogas	7580102	0.00
Ti	47	1	nogas	283	14.44
V	51	1	nogas	1238422	0.00
Cr	52	1	nogas	68854	0.00
Mn	55	1	nogas	23392	0.01
Co	59	1	nogas	833	2.61
Ni	60	1	nogas	323	9.63
Cu	63	1	nogas	1537	0.60
Zn	66	1	nogas	940	0.88
As	75	1	nogas	160546	0.00
Sr	88	1	nogas	1203	1.09
Ag	107	1	nogas	107	22.12
Cd	111	1	nogas	30	111.11
Sb	121	1	nogas	287	1.86
Tl	205	1	nogas	380	10.20
Pb	208	1	nogas	1157	0.42
[Pb]	206	1	nogas	337	1.35
[Pb]	207	1	nogas	267	4.52
Na	23	2	He	41901	0.01
Mg	24	2	He	1587	0.80
Al	27	2	He	1763	0.57
K	39	2	He	170286	0.00
Ca	43	2	He	37	214.72
Ca	44	2	He	917	1.43
V	51	2	He	14259	0.00
Cr	52	2	He	4124	0.18
Mn	55	2	He	1073	0.13
Fe	56	2	He	26059	0.01
Co	59	2	He	200	9.01
Ni	60	2	He	137	29.49
Cu	63	2	He	663	1.14
Zn	66	2	He	293	2.92
As	75	2	He	518	0.93
Se	78	2	He	161	6.59
B	11	1	nogas	146566	0.00
Si	28	1	nogas	1786796	0.00
Ca	43	1	nogas	823	1.19
Ca	44	1	nogas	54583	0.00

Calibration Blank Report

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	2564814	0.00
Se	77	1	nogas	51536	0.01
Se	82	1	nogas	233	12.50
Mo	95	1	nogas	367	3.67
Sn	118	1	nogas	1397	0.24
Ba	137	1	nogas	200	15.21
Sb	121	2	He	97	49.43
Li	7	1	nogas	100282	0.00
P	31	1	nogas	80236	0.00
La	139	1	nogas	197	5.97

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Li	6	1	nogas	1195276	2.00
Ge	72	1	nogas	3552237	2.91
In	115	1	nogas	3134247	2.05
Bi	209	1	nogas	2336631	1.06
Ge	72	2	He	837498	0.96

Calibration Standard Report

Sample Table

Sample Name	2/10/200
Data File Name	232CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T22:41:46-06:00
Sample Type	CalStd
Level	2
Dilution	1
Comment	
ISTD Ref File Name	231CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	14652	0.01
Na	23	1	nogas	5578140	0.00
Mg	24	1	nogas	3393445	0.00
Al	27	1	nogas	91527	0.00
K	39	1	nogas	11936197	0.00
Ti	47	1	nogas	3644	0.21
V	51	1	nogas	1427473	0.00
Cr	52	1	nogas	115870	0.00
Mn	55	1	nogas	77277	0.00
Co	59	1	nogas	48548	0.00
Ni	60	1	nogas	11324	0.02
Cu	63	1	nogas	27267	0.02
Zn	66	1	nogas	8886	0.05
As	75	1	nogas	181430	0.00
Sr	88	1	nogas	59543	0.00
Ag	107	1	nogas	28470	0.00
Cd	111	1	nogas	6195	0.04
Sb	121	1	nogas	28126	0.00
Tl	205	1	nogas	39274	0.01
Pb	208	1	nogas	55912	0.00
[Pb]	206	1	nogas	14210	0.02
[Pb]	207	1	nogas	12075	0.02
Na	23	2	He	342970	0.00
Mg	24	2	He	167204	0.00
Al	27	2	He	2477	0.49
K	39	2	He	350759	0.00
Ca	43	2	He	477	0.92
Ca	44	2	He	9096	0.02
V	51	2	He	27090	0.00
Cr	52	2	He	16961	0.02
Mn	55	2	He	10110	0.02
Fe	56	2	He	1169441	0.00
Co	59	2	He	18123	0.03
Ni	60	2	He	4694	0.10
Cu	63	2	He	11717	0.02
Zn	66	2	He	3084	0.27
As	75	2	He	3250	0.09
Se	78	2	He	358	1.95
B	11	1	nogas	185684	0.00
Si	28	1	nogas	2777141	0.00

Calibration Standard Report

Ca	43	1	nogas	8232	0.02
Ca	44	1	nogas	172086	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	7515342	0.00
Se	77	1	nogas	55933	0.00
Se	82	1	nogas	753	1.17
Mo	95	1	nogas	12031	0.04
Sn	118	1	nogas	16651	0.01
Ba	137	1	nogas	8916	0.03
Sb	121	2	He	9613	0.01
P	31	1	nogas	80634	0.00
La	139	1	nogas	133	16.24

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1168683	3.75	1195276	97.78	70	125	
Ge	72	1	nogas	3581535	3.98	3552237	100.82	70	125	
In	115	1	nogas	3148097	4.38	3134247	100.44	70	125	
Bi	209	1	nogas	2292529	3.78	2336631	98.11	70	125	
Ge	72	2	He	839655	0.93	837498	100.26	70	125	

Calibration Standard Report

Sample Table

Sample Name	5/25/500
Data File Name	233CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T22:43:44-06:00
Sample Type	CalStd
Level	3
Dilution	1
Comment	
ISTD Ref File Name	231CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	35794	0.01
Na	23	1	nogas	13289389	0.00
Mg	24	1	nogas	8405434	0.00
Al	27	1	nogas	201937	0.01
K	39	1	nogas	18312034	0.00
Ti	47	1	nogas	9529	0.01
V	51	1	nogas	1577440	0.00
Cr	52	1	nogas	189062	0.00
Mn	55	1	nogas	170430	0.00
Co	59	1	nogas	121849	0.00
Ni	60	1	nogas	27387	0.01
Cu	63	1	nogas	67120	0.00
Zn	66	1	nogas	22995	0.01
As	75	1	nogas	208320	0.00
Sr	88	1	nogas	147099	0.00
Ag	107	1	nogas	71683	0.00
Cd	111	1	nogas	15314	0.04
Sb	121	1	nogas	67460	0.00
Tl	205	1	nogas	98186	0.00
Pb	208	1	nogas	140518	0.00
[Pb]	206	1	nogas	35777	0.01
[Pb]	207	1	nogas	30830	0.00
Na	23	2	He	795149	0.00
Mg	24	2	He	418151	0.00
Al	27	2	He	4424	0.08
K	39	2	He	611946	0.00
Ca	43	2	He	1283	0.67
Ca	44	2	He	21132	0.01
V	51	2	He	46058	0.00
Cr	52	2	He	37255	0.00
Mn	55	2	He	24523	0.01
Fe	56	2	He	2947197	0.00
Co	59	2	He	44908	0.01
Ni	60	2	He	11684	0.01
Cu	63	2	He	29744	0.01
Zn	66	2	He	7518	0.01
As	75	2	He	7014	0.00
Se	78	2	He	699	0.91
B	11	1	nogas	255438	0.00
Si	28	1	nogas	4591023	0.00

Calibration Standard Report

Ca	43	1	nogas	19320	0.01
Ca	44	1	nogas	354984	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	14726538	0.00
Se	77	1	nogas	60607	0.00
Se	82	1	nogas	1517	0.25
Mo	95	1	nogas	29718	0.02
Sn	118	1	nogas	40106	0.01
Ba	137	1	nogas	21053	0.01
Sb	121	2	He	24190	0.00
P	31	1	nogas	123923	0.00
La	139	1	nogas	173	5.08

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1163476	14.78	1195276	97.34	70	125	
Ge	72	1	nogas	3561728	6.92	3552237	100.27	70	125	
In	115	1	nogas	3134210	10.14	3134247	100.00	70	125	
Bi	209	1	nogas	2284348	8.33	2336631	97.76	70	125	
Ge	72	2	He	828864	1.32	837498	98.97	70	125	

Calibration Standard Report

Sample Table

Sample Name	10/50/1000
Data File Name	234CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T22:45:43-06:00
Sample Type	CalStd
Level	4
Dilution	1
Comment	
ISTD Ref File Name	231CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	72216	0.00
Na	23	1	nogas	26451404	0.00
Mg	24	1	nogas	16702194	0.00
Al	27	1	nogas	287698	0.00
K	39	1	nogas	29212753	0.00
Ti	47	1	nogas	18139	0.01
V	51	1	nogas	1826105	0.00
Cr	52	1	nogas	306749	0.00
Mn	55	1	nogas	313711	0.00
Co	59	1	nogas	240024	0.00
Ni	60	1	nogas	53024	0.00
Cu	63	1	nogas	130177	0.00
Zn	66	1	nogas	43382	0.01
As	75	1	nogas	241432	0.00
Sr	88	1	nogas	289603	0.00
Ag	107	1	nogas	144161	0.00
Cd	111	1	nogas	29909	0.02
Sb	121	1	nogas	135630	0.00
Tl	205	1	nogas	193555	0.00
Pb	208	1	nogas	274873	0.00
[Pb]	206	1	nogas	68240	0.00
[Pb]	207	1	nogas	59689	0.00
Na	23	2	He	1638658	0.00
Mg	24	2	He	820276	0.00
Al	27	2	He	6585	0.13
K	39	2	He	1040100	0.00
Ca	43	2	He	2477	0.32
Ca	44	2	He	40548	0.01
V	51	2	He	77214	0.00
Cr	52	2	He	68581	0.00
Mn	55	2	He	46836	0.01
Fe	56	2	He	5763138	0.00
Co	59	2	He	89414	0.00
Ni	60	2	He	23505	0.02
Cu	63	2	He	56751	0.00
Zn	66	2	He	13932	0.04
As	75	2	He	13794	0.01
Se	78	2	He	1195	0.31
B	11	1	nogas	361363	0.00
Si	28	1	nogas	7250697	0.00

Calibration Standard Report

Ca	43	1	nogas	37929	0.00
Ca	44	1	nogas	652309	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	27184110	0.00
Se	77	1	nogas	62674	0.01
Se	82	1	nogas	2904	0.43
Mo	95	1	nogas	58958	0.00
Sn	118	1	nogas	78296	0.00
Ba	137	1	nogas	43341	0.01
Sb	121	2	He	49186	0.00
P	31	1	nogas	167931	0.00
La	139	1	nogas	263	2.20

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1132234	3.66	1195276	94.73	70	125	
Ge	72	1	nogas	3596076	3.70	3552237	101.23	70	125	
In	115	1	nogas	3115480	4.58	3134247	99.40	70	125	
Bi	209	1	nogas	2292360	3.72	2336631	98.11	70	125	
Ge	72	2	He	826446	1.69	837498	98.68	70	125	

Calibration Standard Report

Sample Table

Sample Name	100/500/10K
Data File Name	235CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T22:47:41-06:00
Sample Type	CalStd
Level	5
Dilution	1
Comment	
ISTD Ref File Name	231CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	726395	0.00
Na	23	1	nogas	259402164	0.00
Mg	24	1	nogas	161352099	0.00
Al	27	1	nogas	2058982	0.00
K	39	1	nogas	216604788	0.00
Ti	47	1	nogas	181697	0.00
V	51	1	nogas	4082142	0.00
Cr	52	1	nogas	2401369	0.00
Mn	55	1	nogas	2988634	0.00
Co	59	1	nogas	2385751	0.00
Ni	60	1	nogas	519376	0.00
Cu	63	1	nogas	1249207	0.00
Zn	66	1	nogas	415265	0.00
As	75	1	nogas	697353	0.00
Sr	88	1	nogas	2905617	0.00
Ag	107	1	nogas	1423334	0.00
Cd	111	1	nogas	298091	0.00
Sb	121	1	nogas	1348372	0.00
Tl	205	1	nogas	2045124	0.00
Pb	208	1	nogas	2779810	0.00
[Pb]	206	1	nogas	672927	0.00
[Pb]	207	1	nogas	599559	0.00
Na	23	2	He	15297983	0.00
Mg	24	2	He	8458521	0.00
Al	27	2	He	48760	0.00
K	39	2	He	9137637	0.00
Ca	43	2	He	23949	0.01
Ca	44	2	He	406952	0.00
V	51	2	He	624535	0.00
Cr	52	2	He	661999	0.00
Mn	55	2	He	468166	0.00
Fe	56	2	He	56918027	0.00
Co	59	2	He	879776	0.00
Ni	60	2	He	222439	0.00
Cu	63	2	He	566331	0.00
Zn	66	2	He	140492	0.00
As	75	2	He	134928	0.00
Se	78	2	He	10495	0.02
B	11	1	nogas	2454033	0.00
Si	28	1	nogas	57019467	0.00

Calibration Standard Report

Ca	43	1	nogas	366612	0.00
Ca	44	1	nogas	6101095	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	246346364	0.00
Se	77	1	nogas	81930	0.01
Se	82	1	nogas	26466	0.01
Mo	95	1	nogas	581341	0.00
Sn	118	1	nogas	769398	0.00
Ba	137	1	nogas	429972	0.00
Sb	121	2	He	479993	0.00
P	31	1	nogas	883777	0.00
La	139	1	nogas	590	0.76

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1060926	1.54	1195276	88.76	70	125	
Ge	72	1	nogas	3459544	4.03	3552237	97.39	70	125	
In	115	1	nogas	2926930	5.89	3134247	93.39	70	125	
Bi	209	1	nogas	2300732	1.28	2336631	98.46	70	125	
Ge	72	2	He	838051	0.73	837498	100.07	70	125	

Calibration Standard Report

Sample Table

Sample Name	200/1000/20K
Data File Name	236CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T22:49:41-06:00
Sample Type	CalStd
Level	6
Dilution	1
Comment	
ISTD Ref File Name	231CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	1638983	0.00
Na	23	1	nogas	528973662	0.00
Mg	24	1	nogas	334413791	0.00
Al	27	1	nogas	4165751	0.00
K	39	1	nogas	439767910	0.00
Ti	47	1	nogas	386985	0.00
V	51	1	nogas	6790929	0.00
Cr	52	1	nogas	4813022	0.00
Mn	55	1	nogas	5965128	0.00
Co	59	1	nogas	4942487	0.00
Ni	60	1	nogas	1053571	0.00
Cu	63	1	nogas	2665951	0.00
Zn	66	1	nogas	853679	0.00
As	75	1	nogas	1258438	0.00
Sr	88	1	nogas	6055608	0.00
Ag	107	1	nogas	2935947	0.00
Cd	111	1	nogas	630633	0.00
Sb	121	1	nogas	2816754	0.00
Tl	205	1	nogas	4279645	0.00
Pb	208	1	nogas	5709558	0.00
[Pb]	206	1	nogas	1403975	0.00
[Pb]	207	1	nogas	1218131	0.00
Na	23	2	He	30809610	0.00
Mg	24	2	He	16672742	0.00
Al	27	2	He	94669	0.00
K	39	2	He	18129784	0.00
Ca	43	2	He	49272	0.00
Ca	44	2	He	823614	0.00
V	51	2	He	1270034	0.00
Cr	52	2	He	1381847	0.00
Mn	55	2	He	930187	0.00
Fe	56	2	He	114749172	0.00
Co	59	2	He	1859117	0.00
Ni	60	2	He	447375	0.00
Cu	63	2	He	1140694	0.00
Zn	66	2	He	276667	0.00
As	75	2	He	272270	0.00
Se	78	2	He	21213	0.01
B	11	1	nogas	4934583	0.00
Si	28	1	nogas	114625555	0.00

Calibration Standard Report

Ca	43	1	nogas	761679	0.00
Ca	44	1	nogas	12519365	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	497565694	0.00
Se	77	1	nogas	94138	0.00
Se	82	1	nogas	55987	0.00
Mo	95	1	nogas	1263968	0.00
Sn	118	1	nogas	1726992	0.00
Ba	137	1	nogas	877489	0.00
Sb	121	2	He	974035	0.00
P	31	1	nogas	1750887	0.00
La	139	1	nogas	857	1.70

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1034179	4.01	1195276	86.52	70	125	
Ge	72	1	nogas	3664190	2.17	3552237	103.15	70	125	
In	115	1	nogas	3158108	2.87	3134247	100.76	70	125	
Bi	209	1	nogas	2279275	2.70	2336631	97.55	70	125	
Ge	72	2	He	818978	2.26	837498	97.79	70	125	

Initial Calibration Verification (ICV) Report

Sample Table

Sample Name	ICCV
Data File Name	237_ICV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T22:51:40-06:00
Sample Type	ICV
Dilution	1
Comment	
ISTD Ref File Name	231CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High	QC Flag
Be	9	1	nogas	83.848	0.814	744799	1.68	100	83.8	90	110	ICV Main CR1 Failed
Na	23	1	nogas	9473.067	5.158	257674256	1.59	10000	94.7	90	110	
Mg	24	1	nogas	9458.791	3.408	162157504	2.39	10000	94.6	90	110	
Al	27	1	nogas	123.163	6.727	2519908	2.50	100	123.2	90	110	ICV Main CR1 Failed
K	39	1	nogas	10070.174	5.002	218747330	1.47	10000	100.7	90	110	
Ti	47	1	nogas	98.615	4.900	184262	2.22	100	98.6	90	110	
V	51	1	nogas	98.785	7.338	3929371	2.24	100	98.8	90	110	
Cr	52	1	nogas	99.376	6.943	2363220	2.85	100	99.4	90	110	
Mn	55	1	nogas	96.139	5.599	2813361	1.63	100	96.1	90	110	
Co	59	1	nogas	98.503	7.880	2360011	3.78	100	98.5	90	110	
Ni	60	1	nogas	100.308	5.793	516068	1.85	100	100.3	90	110	
Cu	63	1	nogas	97.046	4.866	1248080	0.78	100	97.0	90	110	
Zn	66	1	nogas	99.904	3.042	415569	1.07	100	99.9	90	110	
As	75	1	nogas	94.192	3.025	669338	1.83	100	94.2	90	110	
Sr	88	1	nogas	98.328	5.314	2884457	1.68	100	98.3	90	110	
Ag	107	1	nogas	99.452	3.828	1418022	2.48	100	99.5	90	110	
Cd	111	1	nogas	96.549	1.316	298612	2.35	100	96.5	90	110	
Sb	121	1	nogas	101.649	7.001	1385989	3.36	100	101.6	90	110	
Tl	205	1	nogas	96.489	5.000	2071395	3.23	100	96.5	90	110	
Pb	208	1	nogas	97.753	1.335	2776234	1.33	100	97.8	90	110	
U	238	1	nogas	99.133	2.988	2839626	1.94	100	99.1	90	110	
[Pb]	206	1	nogas	95.225	4.964	671276	2.54	100	95.2	90	110	
[Pb]	207	1	nogas	97.381	2.566	598545	0.93	100	97.4	90	110	
Na	23	2	He	9545.903	2.850	14839266	0.64	10000	95.5	90	110	
Mg	24	2	He	9556.307	3.231	8062486	1.00	10000	95.6	90	110	
Al	27	2	He	115.494	1.159	56063	1.12	100	115.5	90	110	ICV Main CR1 Failed
K	39	2	He	9904.423	0.473	9061134	0.46	10000	99.0	90	110	
Ca	43	2	He	9659.751	3.386	23909	4.40	10000	96.6	90	110	
Ca	44	2	He	9743.988	1.700	404385	0.57	10000	97.4	90	110	
V	51	2	He	94.206	2.359	606696	0.37	100	94.2	90	110	
Cr	52	2	He	93.363	2.651	647309	1.31	100	93.4	90	110	
Mn	55	2	He	96.404	1.324	453614	1.04	100	96.4	90	110	
Fe	56	2	He	9562.688	1.193	55312104	1.86	10000	95.6	90	110	
Co	59	2	He	93.457	2.764	867467	0.58	100	93.5	90	110	
Ni	60	2	He	97.000	4.252	218644	2.03	100	97.0	90	110	
Cu	63	2	He	95.689	4.025	549293	1.81	100	95.7	90	110	
Zn	66	2	He	94.294	2.680	132120	2.57	100	94.3	90	110	
As	75	2	He	96.645	1.892	132758	0.41	100	96.6	90	110	
Se	78	2	He	95.670	3.454	10266	1.33	100	95.7	90	110	
B	11	1	nogas	449.770	1.233	2522051	1.40	500	90.0	90	110	ICV Main CR1 Failed
Si	28	1	nogas	5024.767	3.947	56961241	0.29	5000	100.5	90	110	
Ca	43	1	nogas	10068.410	3.841	372307	2.19	10000	100.7	90	110	
Ca	44	1	nogas	10091.344	3.500	6165577	0.74	10000	100.9	90	110	
Fe	56	1	nogas	9859.966	2.794	240470664	1.30	10000	98.6	90	110	
Se	77	1	nogas	90.576	11.463	71848	2.72	100	90.6	90	110	
Se	82	1	nogas	100.935	3.252	27411	1.03	100	100.9	90	110	
Mo	95	1	nogas	95.675	3.362	581598	1.07	100	95.7	90	110	
Sn	118	1	nogas	93.246	2.550	780269	1.00	100	93.2	90	110	
Ba	137	1	nogas	98.047	2.279	425148	1.98	100	98.0	90	110	
Sb	121	2	He	99.497	1.789	487836	1.57	100	99.5	90	110	
Li	7	1	nogas	93.698	4.466	1843806	4.90	100	93.7	90	110	
P	31	1	nogas	503.287	4.209	895021	1.33	500	100.7	90	110	
La	139	1	nogas	158.627	15.772	740	13.03	100	158.6	90	110	ICV Main CR1 Failed
Au	197	1	nogas	271.390	486.350	17	91.65	100	271.4	90	110	ICV Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1151366	1.39	1195276	96.33	70	125	
Ge	72	1	nogas	3542945	4.01	3552237	99.74	70	125	
In	115	1	nogas	3084221	3.57	3134247	98.40	70	125	
Bi	209	1	nogas	2312209	3.10	2336631	98.95	70	125	

Initial Calibration Verification (ICV) Report

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	2	He	830435	2.25	837498	99.16	70	125	

Sample Report

Sample Table

Sample Name	LLCCV2
Data File Name	238SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T22:53:38-06:00
Sample Type	Sample
Dilution	1
Comment	
ISTD Ref FileName	231CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	1.628	1.628	11.47	16020	0.01	2000	
Na	23	1	nogas	207.294	207.294	2.13	6001586	0.00	200000	
Mg	24	1	nogas	205.541	205.541	3.69	3571595	0.01	200000	
Al	27	1	nogas	0.431	0.431	25.46	88441	0.00	2000	
K	39	1	nogas	220.006	220.006	6.80	12540609	0.00	200000	
Ti	47	1	nogas	2.230	2.230	0.68	4581	0.05	2000	
V	51	1	nogas	8.852	8.852	25.57	1521333	0.00	2000	
Cr	52	1	nogas	2.253	2.253	6.07	124331	0.00	2000	
Mn	55	1	nogas	1.881	1.881	4.21	80287	0.00	2000	
Co	59	1	nogas	2.103	2.103	3.00	52816	0.00	2000	
Ni	60	1	nogas	1.662	1.662	5.85	12077	0.01	2000	
Cu	63	1	nogas	2.078	2.078	3.04	29087	0.01	2000	
Zn	66	1	nogas	1.745	1.745	9.52	9916	0.02	2000	
As	75	1	nogas	1.863	1.863	32.54	191066	0.00	2000	
Sr	88	1	nogas	2.004	2.004	1.98	61817	0.00	2000	
Ag	107	1	nogas	2.072	2.072	1.01	30550	0.01	2000	
Cd	111	1	nogas	1.938	1.938	2.12	6408	0.03	2000	
Sb	121	1	nogas	3.159	3.159	5.57	44687	0.01	2000	
Tl	205	1	nogas	2.268	2.268	13.54	52492	0.00	2000	
Pb	208	1	nogas	2.139	2.139	1.55	61887	0.00	2000	
U	238	1	nogas	2.026	2.026	6.08	62203	0.00	2000	
[Pb]	206	1	nogas	1.993	1.993	6.96	15377	0.01	2000	
[Pb]	207	1	nogas	2.023	2.023	2.74	13589	0.01	2000	
Na	23	2	He	209.802	209.802	1.99	369617	0.06	200000	
Mg	24	2	He	213.119	213.119	0.65	182803	0.12	200000	
Al	27	2	He	0.994	0.994	26.74	2234	0.04	2000	
K	39	2	He	219.547	219.547	0.46	367366	0.06	200000	
Ca	43	2	He	191.411	191.411	6.41	513	37.29	200000	
Ca	44	2	He	196.609	196.609	2.93	9122	2.16	200000	
V	51	2	He	2.918	2.918	2.97	29813	0.01	2000	
Cr	52	2	He	1.961	1.961	3.50	17739	0.01	2000	
Mn	55	2	He	2.065	2.065	5.86	10843	0.02	2000	
Fe	56	2	He	210.766	210.766	3.42	1253761	0.02	200000	
Co	59	2	He	2.048	2.048	4.05	19344	0.01	2000	
Ni	60	2	He	2.342	2.342	7.24	5097	0.05	2000	
Cu	63	2	He	2.529	2.529	6.57	13268	0.02	2000	
Zn	66	2	He	2.087	2.087	1.06	3097	0.07	2000	
As	75	2	He	2.176	2.176	0.56	3518	0.06	2000	
Se	78	2	He	2.810	2.810	8.05	411	0.68	2000	
B	11	1	nogas	13.867	13.867	15.71	237077	0.01	2000	
Si	28	1	nogas	99.677	99.677	14.63	2963510	0.00	2000	
Ca	43	1	nogas	208.155	208.155	2.27	8759	2.38	200000	

Sample Report

Ca	44	1	nogas	197.239	197.239	2.30	179157	0.11	200000	
Fe	56	1	nogas	209.399	209.399	6.85	7837006	0.00	200000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Se	77	1	nogas	26.571	26.571	46.96	59116	0.04	2000	
Se	82	1	nogas	2.370	2.370	15.23	897	0.26	2000	
Mo	95	1	nogas	2.253	2.253	8.30	14463	0.02	2000	
Sn	118	1	nogas	2.103	2.103	3.08	20172	0.01	2000	
Ba	137	1	nogas	1.981	1.981	3.96	9343	0.02	2000	
Sb	121	2	He	3.107	3.107	2.70	15444	0.02	2000	
La	139	1	nogas	-37.203	-37.203	-8.32	70	-53.15	2000	
Au	197	1	nogas	649.630	649.630	186.19	13	4872.23	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1275207	7.51	1195276	106.69	70	125	
Ge	72	1	nogas	3647931	2.22	3552237	102.69	70	125	
In	115	1	nogas	3280686	2.68	3134247	104.67	70	125	
Bi	209	1	nogas	2475617	4.11	2336631	105.95	70	125	
Ge	72	2	He	836673	1.49	837498	99.90	70	125	

Low Level Initial Calibration Verification (LLICV) Report

Sample Table

Sample Name	LLCCV5
Data File Name	239LICV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T22:55:37-06:00
Sample Type	LLICV
Dilution	1
Comment	
ISTD Ref File Name	231CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High	QC Flag
Be	9	1	nogas	4.530	9.453	37901	1.37	5	90.6	70	130	
Na	23	1	nogas	468.673	10.476	13683101	3.06	500	93.7	70	130	
Mg	24	1	nogas	468.089	9.387	8433335	2.81	500	93.6	70	130	
Al	27	1	nogas	4.734	6.322	181334	3.53	5	94.7	70	130	
K	39	1	nogas	498.228	6.152	19061074	0.11	500	99.6	70	130	
Ti	47	1	nogas	4.705	6.193	9586	2.65	5	94.1	70	130	
V	51	1	nogas	20.671	21.678	1906283	8.33	5	413.4	70	130	LLICV Main CR1 Failed
Cr	52	1	nogas	5.178	7.065	199255	0.95	5	103.6	70	130	
Mn	55	1	nogas	4.808	4.378	172449	0.94	5	96.2	70	130	
Co	59	1	nogas	4.805	5.906	122761	2.66	5	96.1	70	130	
Ni	60	1	nogas	4.684	7.140	28763	4.19	5	93.7	70	130	
Cu	63	1	nogas	4.813	6.059	67046	3.27	5	96.3	70	130	
Zn	66	1	nogas	4.743	6.717	23305	2.48	5	94.9	70	130	
As	75	1	nogas	6.789	34.112	223455	2.24	5	135.8	70	130	LLICV Main CR1 Failed
Sr	88	1	nogas	4.822	3.420	150992	0.61	5	96.4	70	130	
Ag	107	1	nogas	4.879	2.723	73754	2.35	5	97.6	70	130	
Cd	111	1	nogas	4.976	4.174	15921	0.57	5	99.5	70	130	
Sb	121	1	nogas	5.342	4.712	77424	1.15	5	106.8	70	130	
Tl	205	1	nogas	4.975	1.935	101479	1.48	5	99.5	70	130	
Pb	208	1	nogas	5.034	2.373	144051	2.35	5	100.7	70	130	
U	238	1	nogas	5.139	2.329	139440	0.78	5	102.8	70	130	
[Pb]	206	1	nogas	5.405	3.777	36381	3.16	5	108.1	70	130	
[Pb]	207	1	nogas	5.370	4.884	31464	2.27	5	107.4	70	130	
Na	23	2	He	501.112	1.227	822290	1.00	500	100.2	70	130	
Mg	24	2	He	503.854	2.023	428633	1.30	500	100.8	70	130	
Al	27	2	He	4.762	16.015	4007	9.10	5	95.2	70	130	
K	39	2	He	508.721	0.350	626947	0.25	500	101.7	70	130	
Ca	43	2	He	463.254	10.843	1187	11.19	500	92.7	70	130	
Ca	44	2	He	509.433	0.991	22110	2.47	500	101.9	70	130	
V	51	2	He	5.915	2.841	48755	0.77	5	118.3	70	130	
Cr	52	2	He	4.903	2.277	38056	3.21	5	98.1	70	130	
Mn	55	2	He	5.126	1.692	25241	1.38	5	102.5	70	130	
Fe	56	2	He	504.462	1.773	2955918	2.51	500	100.9	70	130	
Co	59	2	He	4.878	2.450	45684	2.41	5	97.6	70	130	
Ni	60	2	He	5.428	5.165	12081	5.17	5	108.6	70	130	
Cu	63	2	He	5.413	2.735	29911	1.30	5	108.3	70	130	
Zn	66	2	He	5.094	4.879	7315	4.52	5	101.9	70	130	
As	75	2	He	5.025	3.440	7425	4.15	5	100.5	70	130	
Se	78	2	He	6.027	3.636	753	2.41	5	120.5	70	130	
B	11	1	nogas	30.057	13.879	282626	0.67	25	120.2	70	130	
Si	28	1	nogas	240.868	14.210	4682363	6.32	25	963.5	70	130	LLICV Main CR1 Failed
Ca	43	1	nogas	487.462	5.687	19898	2.33	500	97.5	70	130	
Ca	44	1	nogas	472.137	4.437	360231	0.67	500	94.4	70	130	
Fe	56	1	nogas	491.450	4.324	15257974	2.17	500	98.3	70	130	
Se	77	1	nogas	47.180	32.878	65621	2.32	5	943.6	70	130	LLICV Main CR1 Failed
Se	82	1	nogas	4.849	2.638	1630	4.02	5	97.0	70	130	
Mo	95	1	nogas	4.673	5.813	30420	2.35	5	93.5	70	130	
Sn	118	1	nogas	4.775	4.284	42625	2.59	5	95.5	70	130	
Ba	137	1	nogas	4.915	3.456	22208	2.21	5	98.3	70	130	
Sb	121	2	He	5.474	1.513	27051	1.07	5	109.5	70	130	
Li	7	1	nogas	5.564	17.680	188357	1.10	5	111.3	70	130	
P	31	1	nogas	27.947	14.489	132540	2.34	25	111.8	70	130	
La	139	1	nogas	6.001	342.949	220	29.81	5	120.0	70	130	
Au	197	1	nogas	-91.200	-949.432	20	50.00	5	-1824.0	70	130	LLICV Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1087629	7.70	1195276	90.99	70	125	
Ge	72	1	nogas	3749725	3.63	3552237	105.56	70	125	
In	115	1	nogas	3186690	3.57	3134247	101.67	70	125	
Bi	209	1	nogas	2188629	2.80	2336631	93.67	70	125	

Low Level Initial Calibration Verification (LLICV) Report

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	2	He	834160	1.58	837498	99.60	70	125	

Initial Calibration Blank (ICB) Report

Sample Table

Sample Name	ICCB
Data File Name	240_ICB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T22:57:35-06:00
Sample Type	ICB
Dilution	1
Comment	
ISTD Ref File Name	231CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.022	33.5	287	26.2	1	
Na	23	1	nogas	3.189	35.7	384853	3.7	100	
Mg	24	1	nogas	1.016	38.6	43794	3.6	100	
Al	27	1	nogas	-0.380	-64.1	66457	1.2	5	
K	39	1	nogas	40.124	72.0	8002143	0.8	100	
Ti	47	1	nogas	0.126	166.2	477	68.7	2.5	
V	51	1	nogas	17.152	29.5	1621827	1.6	2.5	ICB Main CR1 Failed
Cr	52	1	nogas	0.858	25.9	84337	2.1	2.5	
Mn	55	1	nogas	0.087	74.6	24610	1.3	2.5	
Co	59	1	nogas	0.001	834.3	807	11.1	2.5	
Ni	60	1	nogas	-0.510	-1.6	587	1.0	2.5	
Cu	63	1	nogas	0.057	22.9	2157	3.3	1	
Zn	66	1	nogas	-0.349	-6.0	927	1.6	2.5	
As	75	1	nogas	5.554	40.1	195257	2.3	2.5	ICB Main CR1 Failed
Sr	88	1	nogas	0.020	40.0	1690	7.7	2.5	
Ag	107	1	nogas	0.005	86.7	173	29.6	2.5	
Cd	111	1	nogas	0.016	30.3	73	20.8	1	
Sb	121	1	nogas	0.257	3.4	3624	4.7	2.5	
Tl	205	1	nogas	0.090	43.4	2144	30.0	1	
Pb	208	1	nogas	0.003	125.1	1253	9.7	2.5	
U	238	1	nogas	0.014	29.1	493	20.3	2.5	
[Pb]	206	1	nogas	0.002	696.1	323	20.6	2.5	
[Pb]	207	1	nogas	0.007	121.0	290	15.0	2.5	
Na	23	2	He	2.300	38.3	44729	3.2	100	
Mg	24	2	He	1.038	12.8	2427	5.0	100	
Al	27	2	He	0.191	277.8	1823	13.7	5	
K	39	2	He	15.090	13.3	183831	1.0	100	
Ca	43	2	He	8.488	74.2	57	27.0	100	
Ca	44	2	He	2.081	47.4	987	3.6	100	
V	51	2	He	1.200	2.2	18565	1.4	2.5	
Cr	52	2	He	0.058	17.0	4451	2.1	2.5	
Mn	55	2	He	0.068	23.2	1370	5.1	2.5	
Fe	56	2	He	0.104	486.7	26203	11.2	100	
Co	59	2	He	0.003	220.3	223	26.2	2.5	
Ni	60	2	He	0.206	12.7	237	24.4	2.5	
Cu	63	2	He	0.395	3.7	887	9.7	1	
Zn	66	2	He	0.138	30.2	343	16.6	2.5	
As	75	2	He	0.086	65.7	626	12.0	2.5	
Se	78	2	He	0.762	26.3	189	11.6	1	
B	11	1	nogas	3.281	40.0	159852	2.6	10	
Si	28	1	nogas	7.551	152.6	1776849	1.2	5	ICB Main CR1 Failed
Ca	43	1	nogas	6.277	19.1	1007	7.5	100	
Ca	44	1	nogas	6.129	106.2	55415	1.0	100	
Fe	56	1	nogas	8.009	125.4	2618680	2.3	100	

Initial Calibration Blank (ICB) Report

Se	77	1	nogas	65.522	24.2	63119	3.5	2.5	ICB Main CR1 Failed
Se	82	1	nogas	-0.025	-217.1	217	9.6	1	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Mo	95	1	nogas	0.031	32.7	527	12.4	2.5	
Sn	118	1	nogas	0.013	178.8	1380	6.3	5	
Ba	137	1	nogas	0.029	76.7	297	22.4	2.5	
Sb	121	2	He	0.261	6.9	1363	6.1	2.5	
P	31	1	nogas	5.499	75.8	84699	0.4	10	
La	139	1	nogas	-16.882	-9.2	127	4.6	2.5	
Au	197	1	nogas	806.992	7.4	10	0.0	2.5	ICB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1161998	4.83	1195276	97.22	70	125	
Ge	72	1	nogas	3385374	7.82	3552237	95.30	70	125	
In	115	1	nogas	2881253	7.72	3134247	91.93	70	125	
Bi	209	1	nogas	2184286	6.51	2336631	93.48	70	125	
Ge	72	2	He	823081	0.55	837498	98.28	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	252_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T23:21:23-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	231CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	86.986	4.957	747728	1.22	100	87.0	90	110	CCV Main CR1-2 Failed
Na	23	1	nogas	10445.514	0.351	282560673	2.13	10000	104.5	90	110	
Mg	24	1	nogas	10115.302	1.611	172357862	2.17	10000	101.2	90	110	
Al	27	1	nogas	111.418	5.099	2251866	0.28	100	111.4	90	110	CCV Main CR1-2 Failed
K	39	1	nogas	10659.147	6.487	227342897	1.63	10000	106.6	90	110	
Ti	47	1	nogas	101.182	5.359	186021	0.67	100	101.2	90	110	
V	51	1	nogas	128.716	4.983	4672770	1.51	100	128.7	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	101.495	4.686	2378656	6.21	100	101.5	90	110	
Mn	55	1	nogas	101.172	3.658	2919480	7.24	100	101.2	90	110	
Co	59	1	nogas	99.828	4.093	2356538	0.76	100	99.8	90	110	
Ni	60	1	nogas	103.247	5.355	522772	0.79	100	103.2	90	110	
Cu	63	1	nogas	96.636	7.627	1222207	3.14	100	96.6	90	110	
Zn	66	1	nogas	100.708	4.093	412200	0.66	100	100.7	90	110	
As	75	1	nogas	110.350	4.666	741953	1.52	100	110.3	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	101.161	3.714	2922477	2.12	100	101.2	90	110	
Ag	107	1	nogas	100.143	4.117	1405201	1.66	100	100.1	90	110	
Cd	111	1	nogas	98.636	2.864	295347	0.64	100	98.6	90	110	
Sb	121	1	nogas	100.023	3.737	1343594	1.96	100	100.0	90	110	
Tl	205	1	nogas	99.834	0.958	2010797	0.79	100	99.8	90	110	
Pb	208	1	nogas	92.751	2.827	2634221	2.83	100	92.8	90	110	
U	238	1	nogas	85.700	2.006	2302180	0.35	100	85.7	90	110	CCV Main CR1-2 Failed
[Pb]	206	1	nogas	98.188	2.189	649389	0.96	100	98.2	90	110	
[Pb]	207	1	nogas	94.486	5.172	544532	4.09	100	94.5	90	110	
Na	23	2	He	10801.288	0.275	16808372	1.67	10000	108.0	90	110	
Mg	24	2	He	10287.141	0.348	8691425	1.71	10000	102.9	90	110	
Al	27	2	He	105.962	2.105	51628	0.65	100	106.0	90	110	
K	39	2	He	10644.298	0.776	9725294	0.76	10000	106.4	90	110	
Ca	43	2	He	10304.580	0.270	25524	1.64	10000	103.0	90	110	
Ca	44	2	He	10363.457	1.309	430502	0.94	10000	103.6	90	110	
V	51	2	He	98.868	0.738	636938	0.97	100	98.9	90	110	
Cr	52	2	He	94.391	0.966	655256	2.21	100	94.4	90	110	
Mn	55	2	He	99.414	3.584	468126	2.41	100	99.4	90	110	
Fe	56	2	He	9761.148	1.914	56508889	1.09	10000	97.6	90	110	
Co	59	2	He	92.601	1.858	860524	0.47	100	92.6	90	110	
Ni	60	2	He	97.011	2.593	218963	1.52	100	97.0	90	110	
Cu	63	2	He	95.412	2.123	548444	1.14	100	95.4	90	110	
Zn	66	2	He	93.814	0.662	131591	1.20	100	93.8	90	110	
As	75	2	He	97.803	1.873	134482	0.56	100	97.8	90	110	
Se	78	2	He	97.982	0.980	10526	1.45	100	98.0	90	110	
B	11	1	nogas	619.414	4.036	3310898	1.20	500	123.9	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	555.125	5.911	7752419	1.23	5000	11.1	90	110	CCV Main CR1-2 Failed
Ca	43	1	nogas	10657.415	5.749	387586	1.64	10000	106.6	90	110	
Ca	44	1	nogas	10455.927	6.997	6279410	2.44	10000	104.6	90	110	
Fe	56	1	nogas	10238.822	3.934	245884455	5.65	10000	102.4	90	110	
Se	77	1	nogas	209.743	8.568	97174	0.61	100	209.7	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	99.319	5.519	26536	1.73	100	99.3	90	110	
Mo	95	1	nogas	91.802	4.168	549206	1.33	100	91.8	90	110	
Sn	118	1	nogas	95.955	0.702	777906	2.46	100	96.0	90	110	
Ba	137	1	nogas	99.351	3.799	417102	1.93	100	99.4	90	110	
Sb	121	2	He	97.913	1.343	480556	0.81	100	97.9	90	110	
Li	7	1	nogas	96.445	4.701	1834127	2.28	100	96.4	90	110	
P	31	1	nogas	473.343	5.372	832948	0.83	500	94.7	90	110	
La	139	1	nogas	199.325	11.967	850	6.55	100	199.3	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	-442.941	-435.383	23	89.21	100	-442.9	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1115999	4.98	1195276	93.37	70	125	
Ge	72	1	nogas	3488105	4.84	3552237	98.19	70	125	
In	115	1	nogas	2986720	2.93	3134247	95.29	70	125	
Bi	209	1	nogas	2167806	1.66	2336631	92.77	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	831202	1.41	837498	99.25	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	253_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T23:23:23-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	231CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.079	27.5	830	21.7	1	
Na	23	1	nogas	367.394	6.7	10106001	1.1	100	CCB Main CR1 Failed
Mg	24	1	nogas	18.654	14.1	342464	7.6	100	
Al	27	1	nogas	2.756	1.6	126404	0.8	5	
K	39	1	nogas	73.620	5.1	8716121	1.2	100	
Ti	47	1	nogas	0.149	19.5	537	10.9	2.5	
V	51	1	nogas	17.404	21.0	1636644	4.8	2.5	CCB Main CR1 Failed
Cr	52	1	nogas	0.424	17.8	75088	1.1	2.5	
Mn	55	1	nogas	1.104	3.4	53053	3.2	2.5	
Co	59	1	nogas	0.102	20.7	3140	16.6	2.5	
Ni	60	1	nogas	1.350	6.8	9696	3.4	2.5	
Cu	63	1	nogas	0.643	0.7	9376	0.8	2	
Zn	66	1	nogas	0.499	9.0	4291	4.2	2.5	
As	75	1	nogas	4.398	40.8	190232	3.6	2.5	CCB Main CR1 Failed
Sr	88	1	nogas	0.392	6.0	12174	6.6	2.5	
Ag	107	1	nogas	0.072	17.9	1087	17.1	2.5	
Cd	111	1	nogas	0.067	44.9	230	35.6	1	
Sb	121	1	nogas	0.134	21.7	2027	19.8	2.5	
Tl	205	1	nogas	0.902	56.7	19384	55.7	1	
Pb	208	1	nogas	0.088	45.1	3644	30.8	2.5	
U	238	1	nogas	0.171	48.3	4904	47.4	2.5	
[Pb]	206	1	nogas	0.077	46.6	857	28.9	2.5	
[Pb]	207	1	nogas	0.094	37.5	823	25.7	2.5	
Na	23	2	He	375.898	4.2	627445	2.3	100	CCB Main CR1 Failed
Mg	24	2	He	21.051	11.1	19430	9.7	100	
Al	27	2	He	3.287	3.8	3314	3.7	5	
K	39	2	He	39.126	6.4	205408	1.1	100	
Ca	43	2	He	25.702	33.8	100	20.0	100	
Ca	44	2	He	31.599	4.2	2230	4.0	100	
V	51	2	He	1.368	3.4	19893	1.1	2.5	
Cr	52	2	He	0.101	36.7	4814	5.4	2.5	
Mn	55	2	He	0.956	8.8	5581	6.2	2.5	
Fe	56	2	He	7.398	7.7	68928	3.1	100	
Co	59	2	He	0.077	8.3	920	6.8	2.5	
Ni	60	2	He	0.340	8.5	543	10.8	2.5	
Cu	63	2	He	0.475	3.4	1360	5.8	2	
Zn	66	2	He	0.410	10.8	730	7.2	2.5	
As	75	2	He	0.170	17.3	749	4.0	2.5	
Se	78	2	He	0.895	19.1	206	7.6	2	
B	11	1	nogas	177.387	9.1	1141533	4.5	10	CCB Main CR1 Failed
Si	28	1	nogas	25.836	12.9	1977801	1.7	5	CCB Main CR1 Failed
Ca	43	1	nogas	41.427	18.7	2250	12.0	100	
Ca	44	1	nogas	46.577	3.7	79157	2.6	100	
Fe	56	1	nogas	53.311	11.5	3681656	4.8	100	
Se	77	1	nogas	51.555	29.8	60340	5.1	2.5	CCB Main CR1 Failed
Se	82	1	nogas	0.026	546.4	230	15.1	2	
Mo	95	1	nogas	0.478	40.4	3140	36.8	2.5	
Sn	118	1	nogas	0.256	31.3	3417	14.8	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.218	33.9	1107	23.2	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.124	23.1	707	18.8	2.5	
P	31	1	nogas	6.887	13.2	87294	1.0	10	
La	139	1	nogas	-18.657	-65.7	127	32.9	2.5	
Au	197	1	nogas	257.284	524.0	17	91.7	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1219280	4.78	1195276	102.01	70	125	
Ge	72	1	nogas	3390051	1.32	3552237	95.43	70	125	
In	115	1	nogas	3013427	4.53	3134247	96.15	70	125	
Bi	209	1	nogas	2268399	0.43	2336631	97.08	70	125	
Ge	72	2	He	834717	1.92	837498	99.67	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	264_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T23:45:19-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	231CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	87.096	2.669	753350	2.24	100	87.1	90	110	CCV Main CR1-2 Failed
Na	23	1	nogas	10371.125	3.451	271943106	1.66	10000	103.7	90	110	
Mg	24	1	nogas	10167.893	2.619	167980516	1.76	10000	101.7	90	110	
Al	27	1	nogas	113.354	2.985	2182729	2.47	100	113.4	90	110	CCV Main CR1-2 Failed
K	39	1	nogas	11358.738	1.619	230634547	2.63	10000	113.6	90	110	CCV Main CR1-2 Failed
Ti	47	1	nogas	107.627	3.818	188561	0.60	100	107.6	90	110	
V	51	1	nogas	117.291	5.274	4159320	2.58	100	117.3	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	106.520	3.833	2372744	2.52	100	106.5	90	110	
Mn	55	1	nogas	108.748	6.502	2980584	3.29	100	108.7	90	110	
Co	59	1	nogas	107.085	3.898	2408282	1.86	100	107.1	90	110	
Ni	60	1	nogas	106.648	4.511	514445	1.24	100	106.6	90	110	
Cu	63	1	nogas	101.206	2.681	1220988	0.91	100	101.2	90	110	
Zn	66	1	nogas	102.769	2.938	400777	1.54	100	102.8	90	110	
As	75	1	nogas	107.757	2.827	694201	1.25	100	107.8	90	110	
Sr	88	1	nogas	107.660	2.283	2964268	3.51	100	107.7	90	110	
Ag	107	1	nogas	105.883	3.397	1415401	0.11	100	105.9	90	110	
Cd	111	1	nogas	99.511	2.244	292953	0.95	100	99.5	90	110	
Sb	121	1	nogas	103.757	3.597	1327631	1.65	100	103.8	90	110	
Tl	205	1	nogas	99.995	0.921	2031167	3.00	100	100.0	90	110	
Pb	208	1	nogas	94.831	3.171	2693257	3.17	100	94.8	90	110	
U	238	1	nogas	87.015	2.961	2356580	1.77	100	87.0	90	110	CCV Main CR1-2 Failed
[Pb]	206	1	nogas	100.023	1.226	667069	1.58	100	100.0	90	110	
[Pb]	207	1	nogas	94.940	1.831	551810	1.33	100	94.9	90	110	
Na	23	2	He	10468.489	1.550	16012758	2.26	10000	104.7	90	110	
Mg	24	2	He	10459.216	0.611	8685904	2.20	10000	104.6	90	110	
Al	27	2	He	106.833	1.647	51149	0.83	100	106.8	90	110	
K	39	2	He	10673.170	2.487	9751211	2.44	10000	106.7	90	110	
Ca	43	2	He	10084.810	4.259	24540	2.17	10000	100.8	90	110	
Ca	44	2	He	10216.425	2.719	417050	0.47	10000	102.2	90	110	
V	51	2	He	98.121	1.379	621371	1.26	100	98.1	90	110	
Cr	52	2	He	94.468	2.442	644347	0.20	100	94.5	90	110	
Mn	55	2	He	99.399	1.765	460098	0.50	100	99.4	90	110	
Fe	56	2	He	9940.074	0.475	56574426	2.48	10000	99.4	90	110	
Co	59	2	He	93.848	2.642	857549	4.15	100	93.8	90	110	
Ni	60	2	He	98.691	2.132	218996	2.68	100	98.7	90	110	
Cu	63	2	He	97.127	2.672	548715	1.17	100	97.1	90	110	
Zn	66	2	He	96.184	1.489	132597	1.57	100	96.2	90	110	
As	75	2	He	97.008	1.879	131110	0.79	100	97.0	90	110	
Se	78	2	He	97.921	0.518	10340	1.76	100	97.9	90	110	
B	11	1	nogas	734.652	5.522	3922075	2.64	500	146.9	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	619.251	6.286	8044260	1.71	5000	12.4	90	110	CCV Main CR1-2 Failed
Ca	43	1	nogas	10818.810	3.150	375061	1.14	10000	108.2	90	110	
Ca	44	1	nogas	10814.241	3.490	6192753	2.60	10000	108.1	90	110	
Fe	56	1	nogas	10614.070	2.923	242517922	0.94	10000	106.1	90	110	
Se	77	1	nogas	156.226	7.427	81264	1.72	100	156.2	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	104.622	4.299	26630	2.63	100	104.6	90	110	
Mo	95	1	nogas	96.099	2.410	547826	0.92	100	96.1	90	110	
Sn	118	1	nogas	97.048	0.658	773423	2.47	100	97.0	90	110	
Ba	137	1	nogas	101.742	2.322	419981	0.87	100	101.7	90	110	
Sb	121	2	He	100.436	0.248	484615	2.53	100	100.4	90	110	
Li	7	1	nogas	96.803	3.712	1851175	1.98	100	96.8	90	110	
P	31	1	nogas	598.157	7.880	982856	5.22	500	119.6	90	110	CCV Main CR1-2 Failed
La	139	1	nogas	209.530	15.389	870	11.95	100	209.5	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	-1971.920	-86.092	40	43.30	100	-1971.9	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1122032	4.54	1195276	93.87	70	125	
Ge	72	1	nogas	3321355	3.34	3552237	93.50	70	125	
In	115	1	nogas	2936215	3.13	3134247	93.68	70	125	
Bi	209	1	nogas	2185904	2.54	2336631	93.55	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	817052	2.28	837498	97.56	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	265_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T23:47:18-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	231CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.076	33.1	793	25.5	1	
Na	23	1	nogas	125.336	9.2	3523086	2.6	100	CCB Main CR1 Failed
Mg	24	1	nogas	13.816	25.1	250642	16.3	100	
Al	27	1	nogas	2.293	6.4	116198	1.6	5	
K	39	1	nogas	155.734	8.5	10240559	0.9	100	CCB Main CR1 Failed
Ti	47	1	nogas	0.411	34.5	990	23.3	2.5	
V	51	1	nogas	6.074	45.7	1326165	7.1	2.5	CCB Main CR1 Failed
Cr	52	1	nogas	0.663	5.1	79456	1.7	2.5	
Mn	55	1	nogas	1.388	1.5	60191	1.0	2.5	
Co	59	1	nogas	0.147	11.8	4131	8.2	2.5	
Ni	60	1	nogas	-0.136	-42.4	2390	9.9	2.5	
Cu	63	1	nogas	0.300	14.4	5091	8.4	2	
Zn	66	1	nogas	0.200	42.0	3070	10.7	2.5	
As	75	1	nogas	1.294	62.1	172710	4.1	2.5	
Sr	88	1	nogas	0.218	18.9	7182	14.0	2.5	
Ag	107	1	nogas	0.070	9.5	1043	7.7	2.5	
Cd	111	1	nogas	0.098	45.9	327	40.0	1	
Sb	121	1	nogas	0.288	10.5	3981	7.9	2.5	
Tl	205	1	nogas	0.976	53.1	20573	54.9	1	
Pb	208	1	nogas	0.099	48.0	3970	34.0	2.5	
U	238	1	nogas	0.212	55.6	5971	57.4	2.5	
[Pb]	206	1	nogas	0.087	51.5	913	36.1	2.5	
[Pb]	207	1	nogas	0.099	54.8	840	41.2	2.5	
Na	23	2	He	121.939	6.9	229267	2.2	100	CCB Main CR1 Failed
Mg	24	2	He	11.996	6.7	11630	4.3	100	
Al	27	2	He	2.535	31.6	2917	8.2	5	
K	39	2	He	103.286	1.1	263002	0.4	100	CCB Main CR1 Failed
Ca	43	2	He	31.876	58.4	113	36.7	100	
Ca	44	2	He	25.081	5.8	1940	6.2	100	
V	51	2	He	0.705	26.3	15496	2.7	2.5	
Cr	52	2	He	0.070	49.3	4547	1.9	2.5	
Mn	55	2	He	1.068	8.0	6038	2.1	2.5	
Fe	56	2	He	7.513	6.5	68896	2.2	100	
Co	59	2	He	0.119	15.4	1297	8.9	2.5	
Ni	60	2	He	0.314	0.7	480	5.5	2.5	
Cu	63	2	He	0.523	5.0	1623	10.3	2	
Zn	66	2	He	0.427	5.3	747	4.3	2.5	
As	75	2	He	0.109	54.0	658	10.1	2.5	
Se	78	2	He	1.138	38.9	229	18.8	2	
B	11	1	nogas	203.047	9.6	1278371	3.9	10	CCB Main CR1 Failed
Si	28	1	nogas	54.289	10.9	2249803	2.1	5	CCB Main CR1 Failed
Ca	43	1	nogas	63.208	7.0	2984	4.4	100	
Ca	44	1	nogas	70.107	12.3	91637	3.5	100	
Fe	56	1	nogas	33.063	30.2	3172265	5.3	100	
Se	77	1	nogas	31.669	9.5	55394	2.9	2.5	CCB Main CR1 Failed
Se	82	1	nogas	0.573	19.5	367	6.3	2	
Mo	95	1	nogas	0.489	56.8	3137	48.7	2.5	
Sn	118	1	nogas	0.319	37.1	3967	22.0	5	
Ba	137	1	nogas	0.222	24.4	1140	18.1	2.5	

Continuing Calibration Blank (CCB) Report

Sb	121	2	He	0.237	6.4	1250	7.9	2.5	
P	31	1	nogas	21.447	16.2	108526	3.2	10	CCB Main CR1 Failed
La	139	1	nogas	-24.976	-16.3	107	14.3	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Au	197	1	nogas	-1627.090	-89.8	37	41.7	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1213799	5.29	1195276	101.55	70	125	
Ge	72	1	nogas	3349960	1.85	3552237	94.31	70	125	
In	115	1	nogas	3042287	2.61	3134247	97.07	70	125	
Bi	209	1	nogas	2211162	2.71	2336631	94.63	70	125	
Ge	72	2	He	826869	5.10	837498	98.73	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	268_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T23:53:12-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	231CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	85.009	1.863	750986	0.84	100	85.0	90	110	CCV Main CR1-2 Failed
Na	23	1	nogas	10337.709	5.012	263320848	2.07	10000	103.4	90	110	
Mg	24	1	nogas	10313.860	5.918	165426145	1.62	10000	103.1	90	110	
Al	27	1	nogas	112.635	5.285	2206420	3.53	100	112.6	90	110	CCV Main CR1-2 Failed
K	39	1	nogas	10814.002	1.682	223706480	0.68	10000	108.1	90	110	
Ti	47	1	nogas	102.995	1.931	183688	1.48	100	103.0	90	110	
V	51	1	nogas	115.791	3.875	4193468	1.94	100	115.8	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	101.725	6.789	2308106	5.65	100	101.7	90	110	
Mn	55	1	nogas	101.476	4.822	2834606	5.05	100	101.5	90	110	
Co	59	1	nogas	104.527	2.762	2392616	2.37	100	104.5	90	110	
Ni	60	1	nogas	103.430	4.116	507860	2.32	100	103.4	90	110	
Cu	63	1	nogas	96.530	3.615	1184854	1.74	100	96.5	90	110	
Zn	66	1	nogas	99.495	2.826	394851	0.97	100	99.5	90	110	
As	75	1	nogas	107.510	3.917	704994	1.12	100	107.5	90	110	
Sr	88	1	nogas	104.558	3.506	2928233	3.11	100	104.6	90	110	
Ag	107	1	nogas	100.290	2.748	1364376	1.68	100	100.3	90	110	
Cd	111	1	nogas	100.266	5.016	294426	0.42	100	100.3	90	110	
Sb	121	1	nogas	104.997	2.300	1367523	2.63	100	105.0	90	110	
Tl	205	1	nogas	97.605	6.862	2030841	3.85	100	97.6	90	110	
Pb	208	1	nogas	95.249	2.492	2705149	2.49	100	95.2	90	110	
U	238	1	nogas	86.383	6.105	2397543	2.02	100	86.4	90	110	CCV Main CR1-2 Failed
[Pb]	206	1	nogas	97.183	6.667	663985	2.98	100	97.2	90	110	
[Pb]	207	1	nogas	93.605	5.934	557533	2.51	100	93.6	90	110	
Na	23	2	He	10341.013	1.460	15593669	1.02	10000	103.4	90	110	
Mg	24	2	He	10238.993	0.418	8382361	0.95	10000	102.4	90	110	
Al	27	2	He	109.057	3.064	51450	3.21	100	109.1	90	110	
K	39	2	He	10367.453	1.898	9476780	1.86	10000	103.7	90	110	
Ca	43	2	He	10272.065	3.196	24657	3.63	10000	102.7	90	110	
Ca	44	2	He	10386.182	1.860	418069	1.14	10000	103.9	90	110	
V	51	2	He	98.618	0.991	615662	0.31	100	98.6	90	110	
Cr	52	2	He	95.481	1.076	642158	0.63	100	95.5	90	110	
Mn	55	2	He	100.691	2.890	459468	1.68	100	100.7	90	110	
Fe	56	2	He	10080.647	4.451	56541154	3.51	10000	100.8	90	110	
Co	59	2	He	93.785	4.023	844400	2.88	100	93.8	90	110	
Ni	60	2	He	98.145	2.449	214672	1.42	100	98.1	90	110	
Cu	63	2	He	97.820	1.483	544972	1.55	100	97.8	90	110	
Zn	66	2	He	96.810	0.821	131583	1.24	100	96.8	90	110	
As	75	2	He	97.878	1.460	130424	0.35	100	97.9	90	110	
Se	78	2	He	98.962	3.187	10298	1.97	100	99.0	90	110	
B	11	1	nogas	647.088	2.781	3546885	1.13	500	129.4	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	565.946	5.461	7629022	2.36	5000	11.3	90	110	CCV Main CR1-2 Failed
Ca	43	1	nogas	10743.652	2.437	379006	0.55	10000	107.4	90	110	
Ca	44	1	nogas	10404.255	3.959	6062831	2.06	10000	104.0	90	110	
Fe	56	1	nogas	10292.923	3.531	239373672	2.49	10000	102.9	90	110	
Se	77	1	nogas	171.580	10.022	85979	2.76	100	171.6	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	101.285	3.948	26239	2.32	100	101.3	90	110	
Mo	95	1	nogas	94.726	4.632	549331	3.27	100	94.7	90	110	
Sn	118	1	nogas	97.670	3.862	776461	1.57	100	97.7	90	110	
Ba	137	1	nogas	99.917	4.356	411573	2.46	100	99.9	90	110	
Sb	121	2	He	100.004	1.530	475603	0.27	100	100.0	90	110	
Li	7	1	nogas	96.244	5.199	1880210	3.68	100	96.2	90	110	
P	31	1	nogas	501.467	2.762	851241	0.65	500	100.3	90	110	
La	139	1	nogas	205.193	25.659	850	16.47	100	205.2	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	-407.821	-365.258	23	65.47	100	-407.8	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1145347	2.03	1195276	95.82	70	125	
Ge	72	1	nogas	3378546	1.88	3552237	95.11	70	125	
In	115	1	nogas	2932676	5.39	3134247	93.57	70	125	
Bi	209	1	nogas	2243494	4.90	2336631	96.01	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	805459	1.26	837498	96.17	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	269_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T23:55:13-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	231CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.090	29.7	923	23.0	1	
Na	23	1	nogas	101.048	10.0	2904419	1.3	100	CCB Main CR1 Failed
Mg	24	1	nogas	12.395	24.1	227940	13.3	100	
Al	27	1	nogas	2.256	6.5	114987	2.6	5	
K	39	1	nogas	132.225	18.0	9723561	0.9	100	CCB Main CR1 Failed
Ti	47	1	nogas	0.405	8.9	977	5.2	2.5	
V	51	1	nogas	11.462	6.6	1458297	4.0	2.5	CCB Main CR1 Failed
Cr	52	1	nogas	0.762	18.8	81186	0.7	2.5	
Mn	55	1	nogas	1.296	5.9	57392	0.7	2.5	
Co	59	1	nogas	0.131	23.2	3737	14.2	2.5	
Ni	60	1	nogas	-0.206	-1.7	2043	4.5	2.5	
Cu	63	1	nogas	0.257	11.5	4551	5.0	2	
Zn	66	1	nogas	0.166	24.2	2924	2.5	2.5	
As	75	1	nogas	2.327	17.6	176991	3.0	2.5	
Sr	88	1	nogas	0.191	21.3	6375	13.4	2.5	
Ag	107	1	nogas	0.081	17.6	1180	12.3	2.5	
Cd	111	1	nogas	0.070	23.7	230	19.0	1	
Sb	121	1	nogas	0.275	16.6	3784	11.3	2.5	
Tl	205	1	nogas	0.941	57.8	20106	56.8	1	
Pb	208	1	nogas	0.088	46.5	3664	31.8	2.5	
U	238	1	nogas	0.192	56.0	5485	55.0	2.5	
[Pb]	206	1	nogas	0.084	38.5	903	24.8	2.5	
[Pb]	207	1	nogas	0.092	33.0	810	22.5	2.5	
Na	23	2	He	98.828	1.7	191978	1.3	100	
Mg	24	2	He	10.887	1.2	10603	1.6	100	
Al	27	2	He	2.287	14.7	2784	5.2	5	
K	39	2	He	82.690	3.9	244514	1.2	100	
Ca	43	2	He	9.888	120.5	60	50.0	100	
Ca	44	2	He	25.050	8.9	1920	6.8	100	
V	51	2	He	0.765	10.4	15741	1.0	2.5	
Cr	52	2	He	0.079	32.9	4564	2.4	2.5	
Mn	55	2	He	1.056	6.2	5934	3.8	2.5	
Fe	56	2	He	7.962	2.6	70846	3.7	100	
Co	59	2	He	0.110	17.3	1203	13.0	2.5	
Ni	60	2	He	0.284	15.2	410	25.7	2.5	
Cu	63	2	He	0.520	1.0	1590	2.3	2	
Zn	66	2	He	0.432	14.8	747	10.8	2.5	
As	75	2	He	0.106	11.0	649	0.3	2.5	
Se	78	2	He	1.073	13.1	221	6.0	2	
B	11	1	nogas	206.061	8.5	1292034	3.2	10	CCB Main CR1 Failed
Si	28	1	nogas	47.064	25.5	2162808	1.7	5	CCB Main CR1 Failed
Ca	43	1	nogas	76.383	14.4	3420	7.1	100	
Ca	44	1	nogas	70.318	11.8	91311	1.5	100	
Fe	56	1	nogas	28.541	54.7	3049600	7.4	100	
Se	77	1	nogas	42.324	2.1	57421	3.8	2.5	CCB Main CR1 Failed
Se	82	1	nogas	0.488	41.3	343	14.7	2	

Continuing Calibration Blank (CCB) Report

Mo	95	1	nogas	0.449	55.1	2877	44.3	2.5	
Sn	118	1	nogas	0.346	58.5	3981	35.2	5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Ba	137	1	nogas	0.196	8.3	987	7.3	2.5	
Sb	121	2	He	0.245	6.2	1280	5.4	2.5	
P	31	1	nogas	17.011	22.0	101212	1.7	10	CCB Main CR1 Failed
La	139	1	nogas	-19.369	-31.6	120	16.7	2.5	
Au	197	1	nogas	540.846	95.1	13	43.3	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1210124	4.48	1195276	101.24	70	125	
Ge	72	1	nogas	3335904	3.95	3552237	93.91	70	125	
In	115	1	nogas	2910023	4.03	3134247	92.85	70	125	
Bi	209	1	nogas	2254062	1.90	2336631	96.47	70	125	
Ge	72	2	He	818433	2.16	837498	97.72	70	125	

Low Level Initial Calibration Verification (LLICV) Report

Sample Table

Sample Name	LLCCV5
Data File Name	270LICV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T23:57:12-06:00
Sample Type	LLICV
Dilution	1
Comment	
ISTD Ref File Name	231CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High	QC Flag
Be	9	1	nogas	3.988	1.405	38051	3.80	5	79.8	70	130	
Na	23	1	nogas	594.913	5.530	15456887	1.82	500	119.0	70	130	
Mg	24	1	nogas	526.157	7.033	8469084	1.92	500	105.2	70	130	
Al	27	1	nogas	4.462	2.630	159413	0.55	5	89.2	70	130	
K	39	1	nogas	607.413	2.925	19509654	0.69	500	121.5	70	130	
Ti	47	1	nogas	5.346	5.596	9859	5.00	5	106.9	70	130	
V	51	1	nogas	22.839	5.014	1785758	1.27	5	456.8	70	130	LLICV Main CR1 Failed
Cr	52	1	nogas	5.918	1.817	197400	0.31	5	118.4	70	130	
Mn	55	1	nogas	5.366	0.950	172180	0.91	5	107.3	70	130	
Co	59	1	nogas	4.965	2.448	115223	1.08	5	99.3	70	130	
Ni	60	1	nogas	4.915	1.983	27264	0.49	5	98.3	70	130	
Cu	63	1	nogas	5.106	0.927	64540	1.80	5	102.1	70	130	
Zn	66	1	nogas	4.905	3.163	21820	2.80	5	98.1	70	130	
As	75	1	nogas	12.418	18.707	231295	3.86	5	248.4	70	130	LLICV Main CR1 Failed
Sr	88	1	nogas	5.070	2.405	144102	1.75	5	101.4	70	130	
Ag	107	1	nogas	5.032	2.088	69051	0.84	5	100.6	70	130	
Cd	111	1	nogas	5.012	7.904	14463	1.96	5	100.2	70	130	
Sb	121	1	nogas	5.107	4.594	67229	3.58	5	102.1	70	130	
Tl	205	1	nogas	4.530	4.526	93843	2.39	5	90.6	70	130	
Pb	208	1	nogas	4.613	0.389	132102	0.39	5	92.3	70	130	
U	238	1	nogas	4.692	4.024	129317	2.30	5	93.8	70	130	
[Pb]	206	1	nogas	4.958	3.388	33916	1.41	5	99.2	70	130	
[Pb]	207	1	nogas	4.888	4.190	29120	1.97	5	97.8	70	130	
Na	23	2	He	570.944	1.790	917151	0.52	500	114.2	70	130	
Mg	24	2	He	498.123	2.687	417416	0.76	500	99.6	70	130	
Al	27	2	He	4.996	10.881	4054	4.33	5	99.9	70	130	
K	39	2	He	548.704	1.251	662838	0.93	500	109.7	70	130	
Ca	43	2	He	543.253	6.536	1363	4.88	500	108.7	70	130	
Ca	44	2	He	506.627	3.493	21660	2.64	500	101.3	70	130	
V	51	2	He	5.677	0.619	46554	1.60	5	113.5	70	130	
Cr	52	2	He	4.674	3.565	35912	1.39	5	93.5	70	130	
Mn	55	2	He	5.292	6.357	25625	4.44	5	105.8	70	130	
Fe	56	2	He	478.635	1.276	2764151	2.05	500	95.7	70	130	
Co	59	2	He	4.705	2.222	43408	1.00	5	94.1	70	130	
Ni	60	2	He	4.968	6.141	10867	4.32	5	99.4	70	130	
Cu	63	2	He	5.342	3.592	29060	2.11	5	106.8	70	130	
Zn	66	2	He	5.013	4.908	7095	4.88	5	100.3	70	130	
As	75	2	He	4.716	1.755	6898	3.68	5	94.3	70	130	
Se	78	2	He	5.172	6.528	653	6.50	5	103.4	70	130	
B	11	1	nogas	189.859	5.575	1227276	2.35	25	759.4	70	130	LLICV Main CR1 Failed
Si	28	1	nogas	280.924	2.821	4677439	0.57	25	1123.7	70	130	LLICV Main CR1 Failed
Ca	43	1	nogas	577.336	1.450	21266	2.23	500	115.5	70	130	
Ca	44	1	nogas	544.355	1.483	369174	1.12	500	108.9	70	130	
Fe	56	1	nogas	522.506	1.198	14573826	0.77	500	104.5	70	130	
Se	77	1	nogas	84.076	14.586	67632	4.09	5	1681.5	70	130	LLICV Main CR1 Failed
Se	82	1	nogas	5.019	6.081	1523	5.51	5	100.4	70	130	
Mo	95	1	nogas	4.966	5.617	29341	4.83	5	99.3	70	130	
Sn	118	1	nogas	4.958	2.748	39951	3.72	5	99.2	70	130	
Ba	137	1	nogas	5.203	6.463	21200	1.09	5	104.1	70	130	
Sb	121	2	He	4.845	4.842	23616	6.91	5	96.9	70	130	
Li	7	1	nogas	4.068	5.193	184897	5.21	5	81.4	70	130	
P	31	1	nogas	35.966	3.044	132892	1.84	25	143.9	70	130	LLICV Main CR1 Failed
La	139	1	nogas	-7.207	-207.031	157	26.57	5	-144.1	70	130	LLICV Main CR1 Failed
Au	197	1	nogas	220.306	477.045	17	69.28	5	4406.1	70	130	LLICV Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1233854	2.97	1195276	103.23	70	125	
Ge	72	1	nogas	3402500	1.38	3552237	95.78	70	125	
In	115	1	nogas	2880269	5.73	3134247	91.90	70	125	
Bi	209	1	nogas	2223022	2.65	2336631	95.14	70	125	

Low Level Initial Calibration Verification (LLICV) Report

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	2	He	821806	2.06	837498	98.13	70	125	

Sample Report

Sample Table

Sample Name	LLCCV2
Data File Name	271SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-24T23:59:10-06:00
Sample Type	Sample
Dilution	1
Comment	
ISTD Ref FileName	231CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	1.627	1.627	2.50	15053	0.01	2000	
Na	23	1	nogas	249.638	249.638	1.88	7100862	0.00	200000	
Mg	24	1	nogas	194.388	194.388	1.40	3355377	0.01	200000	
Al	27	1	nogas	0.248	0.248	103.00	80522	0.00	2000	
K	39	1	nogas	279.208	279.208	7.34	13141152	0.00	200000	
Ti	47	1	nogas	2.243	2.243	7.31	4374	0.05	2000	
V	51	1	nogas	20.530	20.530	24.29	1756824	0.00	2000	
Cr	52	1	nogas	2.468	2.468	6.54	123119	0.00	2000	
Mn	55	1	nogas	2.075	2.075	5.47	81847	0.00	2000	
Co	59	1	nogas	1.991	1.991	7.08	47552	0.00	2000	
Ni	60	1	nogas	1.598	1.598	11.11	11157	0.01	2000	
Cu	63	1	nogas	2.083	2.083	5.08	27714	0.01	2000	
Zn	66	1	nogas	1.606	1.606	6.08	8879	0.02	2000	
As	75	1	nogas	8.032	8.032	26.08	213231	0.00	2000	
Sr	88	1	nogas	2.067	2.067	4.57	60572	0.00	2000	
Ag	107	1	nogas	1.968	1.968	4.01	27578	0.01	2000	
Cd	111	1	nogas	1.900	1.900	10.58	5941	0.03	2000	
Sb	121	1	nogas	2.038	2.038	1.65	27532	0.01	2000	
Tl	205	1	nogas	1.887	1.887	6.06	39756	0.00	2000	
Pb	208	1	nogas	1.874	1.874	3.12	54367	0.00	2000	
U	238	1	nogas	1.885	1.885	4.05	52621	0.00	2000	
[Pb]	206	1	nogas	1.901	1.901	4.65	13369	0.01	2000	
[Pb]	207	1	nogas	1.960	1.960	6.59	11961	0.02	2000	
Na	23	2	He	266.634	266.634	1.00	450199	0.06	200000	
Mg	24	2	He	200.675	200.675	3.38	169105	0.12	200000	
Al	27	2	He	0.312	0.312	18.31	1877	0.02	2000	
K	39	2	He	246.834	246.834	0.89	391860	0.06	200000	
Ca	43	2	He	235.915	235.915	5.03	613	38.46	200000	
Ca	44	2	He	200.862	200.862	6.12	9126	2.20	200000	
V	51	2	He	2.814	2.814	4.94	28616	0.01	2000	
Cr	52	2	He	1.744	1.744	5.18	15927	0.01	2000	
Mn	55	2	He	2.093	2.093	5.22	10763	0.02	2000	
Fe	56	2	He	193.195	193.195	5.22	1129490	0.02	200000	
Co	59	2	He	1.909	1.909	3.17	17722	0.01	2000	
Ni	60	2	He	2.237	2.237	4.38	4767	0.05	2000	
Cu	63	2	He	2.361	2.361	2.83	12074	0.02	2000	
Zn	66	2	He	1.929	1.929	8.90	2824	0.07	2000	
As	75	2	He	1.884	1.884	1.72	3060	0.06	2000	
Se	78	2	He	2.578	2.578	14.87	381	0.68	2000	
B	11	1	nogas	157.333	157.333	6.55	1007568	0.02	2000	
Si	28	1	nogas	112.891	112.891	5.69	2961235	0.00	2000	
Ca	43	1	nogas	247.817	247.817	9.02	9756	2.54	200000	

Sample Report

Ca	44	1	nogas	230.648	230.648	4.05	190189	0.12	200000	
Fe	56	1	nogas	215.517	215.517	6.70	7596452	0.00	200000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Se	77	1	nogas	67.543	67.543	15.96	65264	0.10	2000	
Se	82	1	nogas	2.171	2.171	18.49	800	0.27	2000	
Mo	95	1	nogas	1.880	1.880	1.18	11551	0.02	2000	
Sn	118	1	nogas	1.752	1.752	1.20	16151	0.01	2000	
Ba	137	1	nogas	1.934	1.934	3.62	8646	0.02	2000	
Sb	121	2	He	2.051	2.051	3.90	10036	0.02	2000	
La	139	1	nogas	-28.466	-28.466	-7.56	97	-29.45	2000	
Au	197	1	nogas	549.704	549.704	84.38	13	4122.78	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1192689	4.12	1195276	99.78	70	125	
Ge	72	1	nogas	3469998	3.27	3552237	97.68	70	125	
In	115	1	nogas	3109113	3.47	3134247	99.20	70	125	
Bi	209	1	nogas	2249644	3.67	2336631	96.28	70	125	
Ge	72	2	He	821667	3.58	837498	98.11	70	125	

Interference Check Solution A (ICS-A) Report

Sample Table

Sample Name	ICSA
Data File Name	272ICSA.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-25T00:01:09-06:00
Sample Type	ICSA
Dilution	1
Comment	
ISTD Ref File Name	231CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.007	25.3	137	4.2	0	ICSA Main CR1 Failed
Na	23	1	nogas	101367.269	8.2	2349594453	1.7	0	
Mg	24	1	nogas	101831.323	9.4	1487158067	0.3	0	
Al	27	1	nogas	101285.905	10.9	1742370801	1.8	0	
K	39	1	nogas	108230.766	10.6	1974944177	2.7	0	
Ti	47	1	nogas	2321.774	8.8	3759910	0.7	0	
V	51	1	nogas	8.626	97.6	1270737	7.2	0	
Cr	52	1	nogas	1.366	34.2	86849	1.6	0	ICSA Main CR1 Failed
Mn	55	1	nogas	0.916	20.3	43267	2.5	0	ICSA Main CR1 Failed
Co	59	1	nogas	0.468	8.2	10460	2.3	0	ICSA Main CR1 Failed
Ni	60	1	nogas	1.035	14.0	7392	0.9	0	ICSA Main CR1 Failed
Cu	63	1	nogas	1.051	6.7	13068	3.6	0	ICSA Main CR1 Failed
Zn	66	1	nogas	3.046	14.7	13001	3.2	0	ICSA Main CR1 Failed
As	75	1	nogas	7.880	60.6	187948	2.4	0	
Sr	88	1	nogas	0.979	10.3	25936	1.9	0	ICSA Main CR1 Failed
Ag	107	1	nogas	0.025	18.8	397	6.3	0	ICSA Main CR1 Failed
Cd	111	1	nogas	1.693	5.1	4504	6.2	0	ICSA Main CR1 Failed
Sb	121	1	nogas	0.250	18.8	3197	8.2	0	ICSA Main CR1 Failed
Tl	205	1	nogas	0.044	27.5	1097	11.1	0	ICSA Main CR1 Failed
Pb	208	1	nogas	0.045	18.8	2433	9.9	0	ICSA Main CR1 Failed
[Pb]	206	1	nogas	0.066	43.3	660	19.7	0	ICSA Main CR1 Failed
[Pb]	207	1	nogas	0.059	16.7	523	1.1	0	ICSA Main CR1 Failed
Na	23	2	He	98411.987	2.5	137346271	1.2	0	
Mg	24	2	He	97925.606	1.6	74359109	0.3	0	
Al	27	2	He	94308.093	2.3	39912231	1.4	0	
K	39	2	He	92206.860	0.5	82941105	0.5	0	
Ca	43	2	He	96797.106	1.3	215258	0.3	0	
Ca	44	2	He	101586.698	1.0	3787366	2.2	0	
V	51	2	He	0.496	4.5	12850	0.9	0	ICSA Main CR1 Failed
Cr	52	2	He	0.236	9.2	5144	2.5	0	ICSA Main CR1 Failed
Mn	55	2	He	0.748	1.3	4117	1.6	0	ICSA Main CR1 Failed
Fe	56	2	He	97302.219	4.4	506125179	3.2	0	
Co	59	2	He	0.282	3.2	2534	1.6	0	ICSA Main CR1 Failed
Ni	60	2	He	0.782	3.4	1383	2.7	0	ICSA Main CR1 Failed
Cu	63	2	He	0.674	4.0	2250	6.8	0	ICSA Main CR1 Failed
Zn	66	2	He	1.839	7.0	2454	5.9	0	ICSA Main CR1 Failed
As	75	2	He	0.186	12.5	691	5.1	0	ICSA Main CR1 Failed
Se	78	2	He	0.793	41.0	175	17.4	0	ICSA Main CR1 Failed
B	11	1	nogas	155.367	13.9	901144	4.0	0	
Si	28	1	nogas	85.893	26.3	2363991	0.0	0	
Ca	43	1	nogas	107666.168	10.0	3445245	1.6	0	
Ca	44	1	nogas	105903.726	9.8	55666348	0.7	0	
Fe	56	1	nogas	104925.232	11.4	2195304782	2.2	0	
Se	77	1	nogas	76.857	46.5	59537	2.6	0	
Se	82	1	nogas	0.486	117.1	310	32.7	0	ICSA Main CR1 Failed
Mo	95	1	nogas	2049.112	11.4	10785464	2.2	0	
Sn	118	1	nogas	0.092	49.4	1854	24.0	0	ICSA Main CR1 Failed
Ba	137	1	nogas	0.263	17.0	1137	8.4	0	ICSA Main CR1 Failed
Sb	121	2	He	0.228	4.1	1093	2.8	0	ICSA Main CR1 Failed

Interference Check Solution A (ICS-A) Report

P	31	1	nogas	104595.665	12.0	146775791	2.8	0	
La	139	1	nogas	28.821	30.1	250	6.9	0	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1083094	7.51	1195276	90.61	70	125	
Ge	72	1	nogas	3087359	8.77	3552237	86.91	70	125	
In	115	1	nogas	2646821	10.32	3134247	84.45	70	125	
Bi	209	1	nogas	1938124	8.13	2336631	82.95	70	125	
Ge	72	2	He	747291	1.32	837498	89.23	70	125	

Interference Check Solution AB (ICS-AB) Report

Sample Table

Sample Name	ICSAB
Data File Name	273ICSB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-25T00:03:11-06:00
Sample Type	ICSB
Dilution	1
Comment	
ISTD Ref File Name	231CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High	QC Flag
Be	9	1	nogas	106.335	13.777	772121	0.42	100	106.3	80	120	
Na	23	1	nogas	120547.122	12.828	2636618259	0.17	100	120547.1	80	120	ICSB Main CR1 Failed
Mg	24	1	nogas	117328.144	14.124	1616265869	1.82	100	117328.1	80	120	ICSB Main CR1 Failed
Al	27	1	nogas	104664.465	12.831	1706755761	0.25	100	104664.5	80	120	ICSB Main CR1 Failed
K	39	1	nogas	123908.011	12.539	2142302715	0.20	100	123908.0	80	120	ICSB Main CR1 Failed
Ti	47	1	nogas	2514.916	10.251	3863700	2.22	100	2514.9	80	120	ICSB Main CR1 Failed
V	51	1	nogas	130.437	14.157	3945968	1.98	100	130.4	80	120	ICSB Main CR1 Failed
Cr	52	1	nogas	124.132	11.644	2416175	1.94	100	124.1	80	120	ICSB Main CR1 Failed
Mn	55	1	nogas	121.557	14.297	2916099	2.25	100	121.6	80	120	ICSB Main CR1 Failed
Co	59	1	nogas	123.888	11.931	2442995	0.93	100	123.9	80	120	ICSB Main CR1 Failed
Ni	60	1	nogas	124.704	13.125	526724	1.68	100	124.7	80	120	ICSB Main CR1 Failed
Cu	63	1	nogas	119.195	14.817	1257539	2.20	100	119.2	80	120	
Zn	66	1	nogas	126.841	13.533	432640	0.96	100	126.8	80	120	ICSB Main CR1 Failed
As	75	1	nogas	128.313	14.318	697378	1.18	100	128.3	80	120	ICSB Main CR1 Failed
Sr	88	1	nogas	121.442	14.372	2924263	1.74	100	121.4	80	120	ICSB Main CR1 Failed
Ag	107	1	nogas	117.824	14.074	1378626	1.52	100	117.8	80	120	
Cd	111	1	nogas	124.944	13.744	303488	1.33	100	124.9	80	120	ICSB Main CR1 Failed
Sb	121	1	nogas	126.956	12.961	1423132	1.79	100	127.0	80	120	ICSB Main CR1 Failed
Tl	205	1	nogas	122.974	8.920	2077038	2.90	100	123.0	80	120	ICSB Main CR1 Failed
Pb	208	1	nogas	98.827	1.054	2806718	1.05	100	98.8	80	120	
U	238	1	nogas	131.189	11.900	2948829	1.00	100	131.2	80	120	ICSB Main CR1 Failed
[Pb]	206	1	nogas	123.573	11.873	683822	1.05	100	123.6	80	120	ICSB Main CR1 Failed
[Pb]	207	1	nogas	124.166	10.318	599567	1.53	100	124.2	80	120	ICSB Main CR1 Failed
Na	23	2	He	110269.342	2.780	154082611	1.70	100	110269.3	80	120	
Mg	24	2	He	108970.204	1.867	82847489	0.80	100	108970.2	80	120	
Al	27	2	He	94571.275	2.271	40072659	1.16	100	94571.3	80	120	ICSB Main CR1 Failed
K	39	2	He	99930.370	1.812	89874225	1.81	100	99930.4	80	120	ICSB Main CR1 Failed
Ca	43	2	He	105499.893	0.451	234924	1.19	100	105499.9	80	120	
Ca	44	2	He	111136.897	0.752	4148237	1.58	100	111136.9	80	120	
V	51	2	He	107.074	1.619	620061	0.64	100	107.1	80	120	
Cr	52	2	He	103.381	1.091	645583	0.82	100	103.4	80	120	
Mn	55	2	He	109.463	1.363	463985	0.82	100	109.5	80	120	
Fe	56	2	He	108165.335	1.451	563524258	1.97	100	108165.3	80	120	
Co	59	2	He	104.465	1.307	873894	0.53	100	104.5	80	120	
Ni	60	2	He	108.631	1.060	220765	0.50	100	108.6	80	120	
Cu	63	2	He	107.299	1.021	555475	2.05	100	107.3	80	120	
Zn	66	2	He	108.753	1.642	137294	1.87	100	108.8	80	120	
As	75	2	He	108.163	0.919	133843	0.22	100	108.2	80	120	
Se	78	2	He	110.618	2.030	10683	1.56	100	110.6	80	120	
B	11	1	nogas	681.333	15.432	3060974	0.61	100	681.3	80	120	
Si	28	1	nogas	6235.205	12.431	57763436	1.89	100	6235.2	80	120	ICSB Main CR1 Failed
Ca	43	1	nogas	123526.457	13.748	3741967	1.25	100	123526.5	80	120	ICSB Main CR1 Failed
Ca	44	1	nogas	124180.887	15.110	61714852	2.44	100	124180.9	80	120	ICSB Main CR1 Failed
Fe	56	1	nogas	120143.232	12.915	2383171587	0.58	100	120143.2	80	120	ICSB Main CR1 Failed
Se	77	1	nogas	202.393	18.099	80039	4.32	100	202.4	80	120	ICSB Main CR1 Failed
Se	82	1	nogas	124.846	14.787	27765	2.02	100	124.8	80	120	ICSB Main CR1 Failed
Mo	95	1	nogas	2245.357	12.315	11211017	1.78	100	2245.4	80	120	ICSB Main CR1 Failed
Sn	118	1	nogas	119.841	12.782	788088	0.49	100	119.8	80	120	
Ba	137	1	nogas	127.425	14.067	433831	1.87	100	127.4	80	120	ICSB Main CR1 Failed
Sb	121	2	He	112.272	1.712	496037	1.77	100	112.3	80	120	
La	139	1	nogas	269.373	13.116	883	8.57	100	269.4	80	120	ICSB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	952813	13.25	1195276	79.71	70	125	
Ge	72	1	nogas	2937900	11.93	3552237	82.71	70	125	
In	115	1	nogas	2448930	12.30	3134247	78.13	70	125	
Bi	209	1	nogas	1829652	11.20	2336631	78.30	70	125	
Ge	72	2	He	748210	1.09	837498	89.34	70	125	

Tune Report

Batch Folder C:\Agilent\ICPMH\1\DATA\122418A.b
Report Comment
Instrument Name G3281A JP11080910

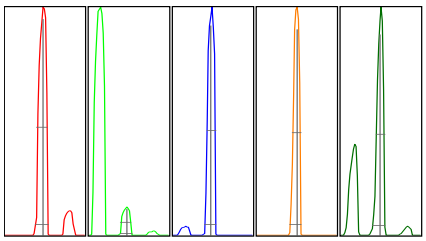
[nogas]

Mass	Range	Count (Actual)	Response (Actual) [cps/ug/l]	Response (Required) [cps/ug/l]	Response (Flag)	Resp Ratio (Actual)	Resp Ratio (Required)	Resp Ratio (Flag)
9		21396				NaN	-	
24		43271				NaN	-	
59		48170				NaN	-	
115		42261				NaN	-	
208		26050				NaN	-	

Mass	RSD% (Actual)	RSD% (Required)	RSD% (Flag)	Background (Actual)	Background (Required)	Background (Flag)
9	0.71	5.00				
24	0.24	5.00				
59	0.34	5.00				
115	1.73	5.00				
208	0.65	5.00				

Mass	Replicate 1 Count	Replicate 2 Count	Replicate 3 Count	Replicate 4 Count	Replicate 5 Count
9	21443	21454	21266	21221	21596
24	43115	43333	43234	43289	43386
59	48457	48041	48109	48090	48153
115	41738	41896	41658	42659	43355
208	26336	26067	25969	25909	25970

Integration Time [sec] 0.1



Mass	Peak Height	Axis (Actual)	Axis (Required)	Axis (Flag)	W-50%	W-X% (Actual)	W-X% (Required)	W-X% (Flag)
9	6029.04	8.95	8.9 - 9.1		0.37	0.467	0.750	
24	12180.39	23.95	23.9 - 24.1		0.36	0.445	0.750	
59	14533.27	58.95	58.9 - 59.1		0.33	0.436	0.750	
115	13634.77	115.05	114.9 - 115.1		0.29	0.433	0.750	
208	7923.62	208.00	207.9 - 208.1		0.31	0.486	0.750	

X = 5 **Integration Time [sec]** 0.1 **Acquisition Time [sec]** 168.5 **Y Axis** Linear

Tune Parameters
Plasma Paramters

RF Power	1600 W	Carrier Gas	0.40 L/min	S/C Temp	2 ℃
RF Matching	1.70 V	Option Gas	0.0 %	Makeup/Dilution Gas	0.40 L/min
Smpl Depth	8.0 mm	Nebulizer Pump	0.10 rps	Gas Switch	Dilution Gas

Lenses Parameters

Extract 1	0.0 V	Omega Lens	8.0 V	Deflect	15.0 V
Extract 2	-200.0 V	Cell Entrance	-30 V	Plate Bias	-50 V
Omega Bias	-100 V	Cell Exit	-58 V		

Cell Parameters

OctP Bias	-8.0 V	He Flow	0.0 mL/min	Energy Discrimination	5.0 V
OctP RF	190 V	H2 Flow	0.0 mL/min		
Use Gas	true	3rd Gas Flow	0 %		

[He]

Mass	Range	Count (Actual)	Response (Actual) [cps/ug/l]	Response (Required) [cps/ug/l]	Response (Flag)	Resp Ratio (Actual)	Resp Ratio (Required)	Resp Ratio (Flag)
9		376				NaN	-	
24		2579				NaN	-	
59		19689				NaN	-	

Tune Report

Mass	RSD% (Actual)	RSD% (Required)	RSD% (Flag)	Background (Actual)	Background (Required)	Background (Flag)
9	3.23	5.00				
24	2.44	5.00				
59	1.03	5.00				

Mass	Replicate 1 Count	Replicate 2 Count	Replicate 3 Count	Replicate 4 Count	Replicate 5 Count
9	366	393	364	383	377
24	2549	2663	2627	2511	2547
59	19803	19591	19429	19663	19960

Integration Time [sec] 0.1

Mass	Peak Height	Axis (Actual)	Axis (Required)	Axis (Flag)	W-50%	W-X% (Actual)	W-X% (Required)	W-X% (Flag)
9	103.64	8.95	8.9 - 9.1		0.37	0.482	0.750	
24	721.03	23.95	23.9 - 24.1		0.37	0.444	0.750	
59	6137.87	58.95	58.9 - 59.1		0.31	0.431	0.750	

X = 5 **Integration Time [sec]** 0.1 **Acquisition Time [sec]** 100.6 **Y Axis** Linear

Tune Parameters

Plasma Paramters

RF Power	1600 W	Carrier Gas	0.40 L/min	S/C Temp	2 ℃
RF Matching	1.70 V	Option Gas	0.0 %	Makeup/Dilution Gas	0.40 L/min
Smpl Depth	8.0 mm	Nebulizer Pump	0.10 rps	Gas Switch	Dilution Gas

Lenses Parameters

Extract 1	0.0 V	Omega Lens	8.0 V	Deflect	2.0 V
Extract 2	-200.0 V	Cell Entrance	-32 V	Plate Bias	-60 V
Omega Bias	-100 V	Cell Exit	-70 V		

Cell Parameters

OctP Bias	-18.0 V	He Flow	4.0 mL/min	Energy Discrimination	5.0 V
OctP RF	190 V	H2 Flow	0.0 mL/min		
Use Gas	true	3rd Gas Flow	0 %		

HS18120736 Wet Chem Raw Data

ALS WO# HS18120736

HS18120736

00947544

PREP BATCH REPORT

Batch ID: **135984**

Prep Code: **P_TW_PR**

InitSampWt/Vol 0

FinSampVol: 50

Start Date: **24-Dec-18 12:00 pm**

End Date: **24-Dec-18 01:30 pm**

OriginalFac: 1

Technician:

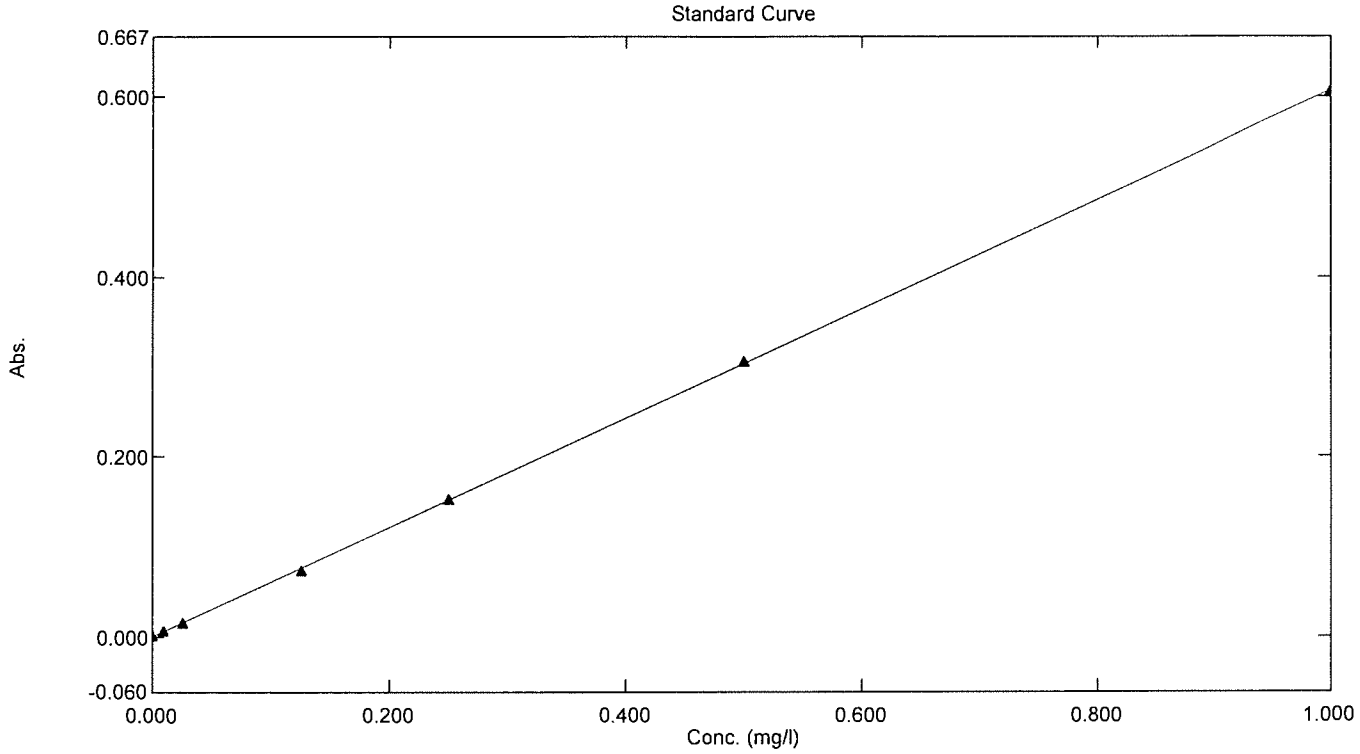
PrepUnitFac: 1

SampID	Frac	Matrix	pH	Init Wt/Vol	FinalVol (mL)	PrepFac	SpkFac	Comments
HS18120736-01	H	Groundwater		5	50	10	10	
HS18120736-02	H	Groundwater		5	50	10	10	
HS18120736-03	H	Groundwater		50	50	1	1	
HS18120736-04	H	Groundwater		50	50	1	1	
HS18120973-02	B	Water		50	50	1	1	
HS18120973-02MS	A			50	50	1	1	
HS18120973-02MSD	A			50	50	1	1	
HS18120996-01	D	Water		50	50	1	1	
LCS-135984	A			50	50	1	1	
MBLK-135984	A			50	50	1	1	

Standard Table Report

01/21/2019 04:59:12 PM

File Name: C:\Program Files (x86)\Shimadzu\UVProbe\Data\T_PO4_UNKNOWN\2018P_TW\181224_P_TW_.pho



Correlation Coefficient r2 = 0.99993

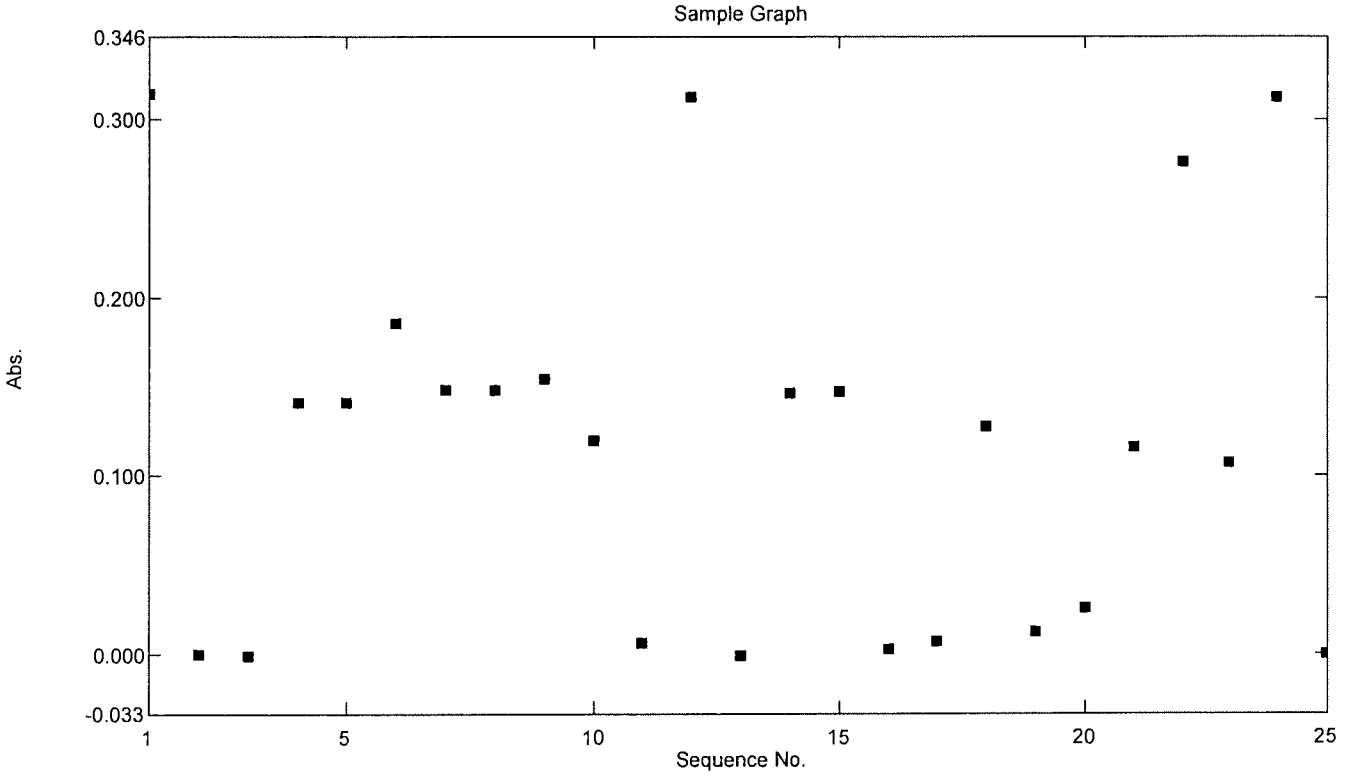
Standard Table

	Sample ID	Type	Ex	Conc	WL880.0	Wgt.Facto	Comments
1	STD1	Standard		0.000	0.001	1.000	
2	STD2	Standard		0.010	0.007	1.000	
3	STD3	Standard		0.025	0.016	1.000	
4	STD4	Standard		0.125	0.073	1.000	
5	STD5	Standard		0.250	0.153	1.000	
6	STD6	Standard		0.500	0.307	1.000	
7	STD7	Standard		1.000	0.606	1.000	
8							

Sample Table Report

01/21/2019 04:59:15 PM

File Name: C:\Program Files (x86)\Shimadzu\UVProbe\Data\T_PO4_UNKNOWN\2018P_TW\181224_P_TW_.pho



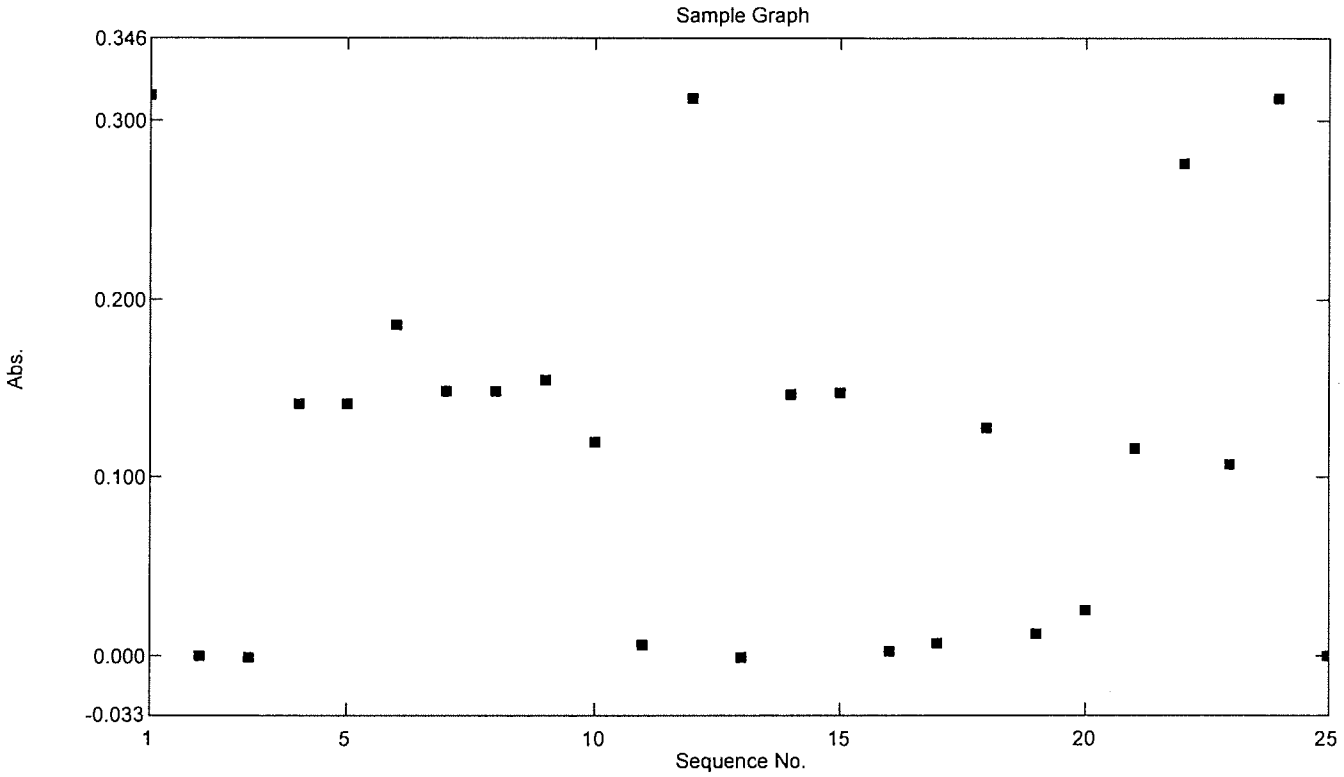
Sample Table

	Sample ID	Type	Ex	Conc	WL880.0	Comments
1	CCV	Unknown		0.518	0.315	
2	CCB	Unknown		-0.001	0.000	
3	MBLK	Unknown		-0.003	-0.001	
4	LCS	Unknown		0.232	0.141	
5	LCSD	Unknown		0.231	0.141	
6	18120736.01	Unknown		0.305	0.186	PF:10X
7	18120736.02	Unknown		0.243	0.148	PF:10X
8	18120736.03	Unknown		0.244	0.149	
9	18120736.04	Unknown		0.253	0.154	
10	18120973.01	Unknown		0.196	0.120	
11	18120973.02	Unknown		0.009	0.006	
12	CCV2	Unknown		0.514	0.313	
13	CCB2	Unknown		-0.002	-0.001	
14	18120973.02MS	Unknown		0.240	0.147	
15	18120973.02MSD	Unknown		0.241	0.147	
16	18120973.03	Unknown		0.003	0.003	
17	18120973.04	Unknown		0.010	0.007	
18	18120996.01	Unknown		0.209	0.128	
19	18121055.01	Unknown		0.019	0.013	

Sample Table Report

01/21/2019 04:59:15 PM

File Name: C:\Program Files (x86)\Shimadzu\UVProbe\Data\T_PO4_UNKNOWN\2018P_TW\181224_P_TW_.pho



Sample Table

	Sample ID	Type	Ex	Conc	WL880.0	Comments
20	18121055.02	Unknown		0.041	0.026	
21	18121130.01	Unknown		0.191	0.116	
22	18121231.01	Unknown		0.454	0.276	PF:10X
23	18121231.02	Unknown		0.176	0.108	
24	CCV3	Unknown		0.514	0.312	
25	CCB3	Unknown		-0.001	0.000	
26						

00947548

HS18120736

Reagent ID:	Prep. Date:		Date/Time:	12/19/18 19:00	Reported by:	JHD/
2970207917			Batch ID:		Reviewed by:	
2970207820					Log Book #:	
2970207101			LCS ID# :	2970206703 →	Prep. Date:	
308055203	10/31/18		MS ID# :	2970206703 →	Prep. Date:	

Calculated Iodine Normality => 0.0251666666666667 Iodine (N)

WO	WO	Sx Vol. (mL)	Iodine (mL)	Titrant used (mL)	Sod. Thio. (N)	Iodine (N)	Init. Conc.	Final Conc.
STD1	STD1	0	20	20.00	0.0250	0.02500		
STD2	STD2	0	20	20.10	0.0250	0.02513	0.0252	
STD3	STD3	0	20	20.30	0.0250	0.02538	Iodine (N)	(mg/L)
BLK	BLK	200	20	20.20	0.0250	0.0252		-0.08
LCS	LCS	200	20	8.90	0.0250	0.0252		22.52
LCSD	LCSD	200	20	9.10	0.0250	0.0252		22.12
HS18120736-01	SAMP	200	20	19.90	0.0250	0.0252		0.52
HS18120736-02	SAMP	10	20	20.20	0.0250	0.0252		-1.60
HS18120736-03	SAMP	200	20	20.10	0.0250	0.0252		0.12
HS18120736-04	SAMP	200	20	20.10	0.0250	0.0252		0.12
HS18120825-14	SAMP	200	20	16.90	0.0250	0.0252		6.52
HS18120825-18	SAMP	200	20	17.90	0.0250	0.0252		4.52
HS18120825-21	SAMP	200	20	16.20	0.0250	0.0252		7.92
HS18120825-22	SAMP	200	20	14.10	0.0250	0.0252		12.12
HS18120736-04MS	MS	200	20	6.10	0.0250	0.0252		28.12
HS18120825-06	SAMP	200	20	18.30	0.0250	0.0252		3.72
HS18120825-07	SAMP	200	20	10.00	0.0250	0.0252		20.32
HS18120825-10	SAMP	200	20	15.00	0.0250	0.0252		10.32
HS18120825-11	SAMP	200	20	19.70	0.0250	0.0252		0.92
					0.0250			
					0.0250			
					0.0250			
					0.0250			
					0.0250			
					0.0250			
					0.0250			

HS181207 36

Report Date: 12/20/2018 : 8:27

PC-TitratION PLUS
Calibration Report

Calibration Record # 2064

Calibration Settings

Calibration ID	PH CAL 4-7-10	Date	12/20/2018
Channel	1	Time	8:27 PM
Probe Type	pH	Temperature	295.99 K 22.84 C
Probe ID	PH ELECTRODE	Analysis Type	Single Line Fit

Calibration Results

Slope	-57.452	CorrCoeff	0.9997
Intercept	3.867	Equation: Y = (-57.452) X + (3.867)	

Calibration Validity True Operator

	Result	Minimum	Maximum
Slope	-57.452	-65.00	-53.00
Intercept	3.867	-100.00	100.00
Correlation Coefficient	0.9997	0.99	1.00

Note: "True" means the calibration was within the specified ranges
"False" means the calibration was NOT within the specified ranges

AIKA: 329695
AIKB: 329699
AIKC: 329700

Calibration Data	Standard	Reading
	4.00	178.58
	7.00	-0.85
	10.00	-166.13

PC-TitratION PLUS by Man-Tech Associates, Inc.
CALRPRTLive1.SRW
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Report Date: 12/21/2018 : 7:56 AM

PC-TitratION PLUS
Water Analysis Report

Run Number 3446 **Order Number** 20181220-7

SampleID	RunDate	RunTime	Temp	cond (uS)	pH	palk-ppm	talk-ppm	bcarb-ppm	carb-ppm	hydr-ppm	mLs @ 8.3	mLs @ 4.5	mLs @ 4.2
ICV-PH	12/20/2018	8:34 PM	22.92	-1.00	6.05	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
TAP WATER	12/20/2018	8:41 PM	23.33	-1.00	7.72	.00	149.66	149.66	.00	.00	.00	1.43	1.43
WBLKW1-181220	12/20/2018	8:45 PM	22.78	-1.00	5.84	.00	.34	.34	.00	.00	.00	.02	.02
LCS1-181220	12/20/2018	8:54 PM	22.86	-1.00	10.95	547.45	1,060.90	.00	1,026.91	33.99	5.21	10.10	10.10
LCSD1-181220	12/20/2018	9:04 PM	22.86	-1.00	10.95	544.55	1,056.90	.00	1,024.69	32.21	5.19	10.07	10.07
HS18120569-01	12/20/2018	9:13 PM	22.74	-1.00	6.90	.00	1,193.63	1,193.63	.00	.00	.00	11.37	11.37
HS18120569-02	12/20/2018	9:18 PM	22.60	-1.00	5.95	.00	45.86	45.86	.00	.00	.00	.44	.44
HS18120569-03	12/20/2018	9:24 PM	22.43	-1.00	6.56	.00	198.03	198.03	.00	.00	.00	1.89	1.89
HS18120569-04	12/20/2018	9:34 PM	22.35	-1.00	6.11	.00	1,109.93	1,109.93	.00	.00	.00	10.57	10.57
HS18120569-05	12/20/2018	9:45 PM	22.49	-1.00	7.25	.00	1,637.90	1,637.90	.00	.00	.00	15.60	15.60
HS18120642-01	12/20/2018	9:55 PM	22.57	-1.00	6.13	.00	1,212.56	1,212.56	.00	.00	.00	11.55	11.55
CCV-PH	12/20/2018	9:57 PM	22.70	-1.00	7.08	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
CCV-ALK	12/20/2018	10:06 PM	22.42	-1.00	10.92	542.50	1,065.15	.00	1,045.28	19.86	5.17	10.14	10.14
DI RINSE	12/20/2018	10:11 PM	22.37	-1.00	5.87	.00	.51	.51	.00	.00	.00	.02	.02
HS18120642-02	12/20/2018	10:22 PM	22.26	-1.00	6.34	.00	1,429.21	1,429.21	.00	.00	.00	13.61	13.61
HS18120642-03	12/20/2018	10:27 PM	22.23	-1.00	6.42	.00	281.92	281.92	.00	.00	.00	2.68	2.68
HS18120927-01	12/20/2018	10:34 PM	22.16	-1.00	7.56	.00	511.17	511.17	.00	.00	.00	4.87	4.87
HS18120927-03	12/20/2018	10:42 PM	22.08	-1.00	7.65	.00	515.51	515.51	.00	.00	.00	4.91	4.91
HS18120927-04	12/20/2018	10:50 PM	22.08	-1.00	7.41	.00	869.76	869.76	.00	.00	.00	8.28	8.28
HS18120927-05	12/20/2018	10:57 PM	22.13	-1.00	7.99	.00	647.59	647.59	.00	.00	.00	6.17	6.17
HS18120927-05DUP	12/20/2018	11:05 PM	22.07	-1.00	7.98	.00	650.20	650.20	.00	.00	.00	6.19	6.19
HS18120736-01DF5	12/20/2018	11:12 PM	21.87	-1.00	7.26	.00	172.44	172.44	.00	.00	.00	1.64	1.64
HS18120736-02DF10	12/20/2018	11:18 PM	21.71	-1.00	7.72	.00	342.28	342.28	.00	.00	.00	3.26	3.26
CCV-PH	12/20/2018	11:21 PM	21.56	-1.00	7.08	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
CCV-ALK	12/20/2018	11:29 PM	21.34	-1.00	10.92	542.29	1,061.88	.00	1,039.18	22.70	5.16	10.11	10.11
DI RINSE	12/20/2018	11:34 PM	21.45	-1.00	6.11	.00	.52	.52	.00	.00	.00	.02	.02
HS18120736-03	12/20/2018	11:39 PM	21.40	-1.00	6.15	.00	50.38	50.38	.00	.00	.00	.48	.48

PC-TitratION PLUS by Man-Tech Associates, Inc.

GENERAL RESULTS REPORT.SRW

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Run Number 3446 **Order Number** 20181220-7

SampleID	RunDate	RunTime	Temp	cond (uS)	pH	palk-ppm	talk-ppm	bcarb-ppm	carb-ppm	hydr-ppm	mLs @ 8.3	mLs @ 4.5	mLs @ 4.2
HS18120736-04	12/20/2018	11:45 PM	21.41	-1.00	6.13	.00	55.09	55.09	.00	.00	.00	.52	.52
HS18120779-23	12/20/2018	11:49 PM	21.58	-1.00	5.76	.00	.44	.44	.00	.00	.00	.02	.02
HS18120927-06	12/20/2018	11:57 PM	21.48	-1.00	7.87	.00	97.35	97.35	.00	.00	.00	.93	.93
HS18120927-07	12/21/2018	12:03 AM	21.38	-1.00	7.66	.00	514.19	514.19	.00	.00	.00	4.90	4.90
HS18120927-08	12/21/2018	12:11 AM	21.31	-1.00	7.79	.00	289.56	289.56	.00	.00	.00	2.76	2.76
WBLKW2-181220	12/21/2018	12:15 AM	21.19	-1.00	5.84	.00	.42	.42	.00	.00	.00	.02	.02
WLCS2-181220	12/21/2018	12:24 AM	21.06	-1.00	10.91	543.38	1,065.28	.00	1,043.80	21.48	5.18	10.15	10.15
WLCSD2-181220	12/21/2018	12:33 AM	21.06	-1.00	10.91	540.17	1,057.87	.00	1,035.40	22.47	5.14	10.07	10.07
CCV-PH	12/21/2018	12:35 AM	21.03	-1.00	7.08	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
CCV-ALK	12/21/2018	12:44 AM	20.94	-1.00	10.90	543.35	1,065.58	.00	1,044.46	21.12	5.17	10.15	10.15
DI RINSE	12/21/2018	12:49 AM	21.21	-1.00	6.13	.00	.63	.63	.00	.00	.00	.02	.02
HS18120779-01	12/21/2018	12:56 AM	21.06	-1.00	8.63	16.83	478.96	445.31	33.65	.00	.16	4.56	4.56
HS18120779-02	12/21/2018	1:03 AM	20.96	-1.00	7.51	.00	322.36	322.36	.00	.00	.00	3.07	3.07
HS18120779-02DUP	12/21/2018	1:09 AM	20.89	-1.00	7.52	.00	321.87	321.87	.00	.00	.00	3.07	3.07
HS18120779-03	12/21/2018	1:16 AM	20.81	-1.00	7.54	.00	412.60	412.60	.00	.00	.00	3.93	3.93
HS18120779-04	12/21/2018	1:23 AM	20.78	-1.00	7.72	.00	466.80	466.80	.00	.00	.00	4.45	4.45
HS18120779-05	12/21/2018	1:31 AM	20.74	-1.00	8.22	.00	634.92	634.92	.00	.00	.00	6.05	6.05
HS18120779-06	12/21/2018	1:38 AM	20.73	-1.00	8.17	.00	664.91	664.91	.00	.00	.00	6.33	6.33
HS18120779-07	12/21/2018	1:46 AM	20.91	-1.00	8.48	11.64	501.47	478.19	23.27	.00	.11	4.78	4.78
HS18120779-08	12/21/2018	1:52 AM	20.83	-1.00	7.36	.00	231.19	231.19	.00	.00	.00	2.20	2.20
CCV-PH	12/21/2018	1:55 AM	20.63	-1.00	7.08	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
CCV-ALK	12/21/2018	2:04 AM	20.48	-1.00	10.89	541.68	1,070.54	.00	1,057.72	12.82	5.16	10.20	10.20
DI RINSE	12/21/2018	2:09 AM	20.49	-1.00	6.10	.00	.57	.57	.00	.00	.00	.02	.02
HS18120779-09	12/21/2018	2:17 AM	20.43	-1.00	7.98	.00	926.02	926.02	.00	.00	.00	8.82	8.82
HS18120779-10	12/21/2018	2:22 AM	20.40	-1.00	6.01	.00	.79	.79	.00	.00	.00	.02	.02
HS18120779-12	12/21/2018	2:29 AM	20.40	-1.00	7.93	.00	515.07	515.07	.00	.00	.00	4.91	4.91
HS18120779-13	12/21/2018	2:38 AM	20.41	-1.00	8.08	.00	731.43	731.43	.00	.00	.00	6.97	6.97
HS18120779-14	12/21/2018	2:44 AM	20.49	-1.00	7.70	.00	453.37	453.37	.00	.00	.00	4.32	4.32
HS18120779-15	12/21/2018	2:51 AM	20.36	-1.00	7.50	.00	247.94	247.94	.00	.00	.00	2.36	2.36
HS18120779-16	12/21/2018	2:58 AM	20.25	-1.00	7.70	.00	395.33	395.33	.00	.00	.00	3.77	3.77

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00947552

Run Number 3446 Order Number 20181220-7

SampleID	RunDate	RunTime	Temp	cond (uS)	pH	palk-ppm	talk-ppm	bcarb-ppm	carb-ppm	hydr-ppm	mLs @ 8.3	mLs @ 4.5	mLs @ 4.2
HS18120779-17	12/21/2018	3:05 AM	20.19	-1.00	8.41	7.88	401.51	385.76	15.76	.00	.08	3.82	3.82
HS18120779-18	12/21/2018	3:12 AM	20.08	-1.00	7.57	.00	722.42	722.42	.00	.00	.00	6.88	6.88
CCV-PH	12/21/2018	3:15 AM	20.00	-1.00	7.07	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
CCV-ALK	12/21/2018	3:24 AM	19.92	-1.00	10.87	539.52	1,065.42	.00	1,051.80	13.62	5.14	10.15	10.15
DI RINSE	12/21/2018	3:29 AM	19.96	-1.00	6.08	.00	.53	.53	.00	.00	.00	.02	.02
HS18120779-19	12/21/2018	3:38 AM	20.15	-1.00	7.51	.00	1,226.68	1,226.68	.00	.00	.00	11.68	11.68
HS18120779-20	12/21/2018	3:47 AM	20.00	-1.00	7.48	.00	951.67	951.67	.00	.00	.00	9.06	9.06
HS18120779-21	12/21/2018	3:54 AM	19.92	-1.00	7.48	.00	681.28	681.28	.00	.00	.00	6.49	6.49
WBLKW3-181220	12/21/2018	4:00 AM	20.00	-1.00	6.38	.00	26.88	26.88	.00	.00	.00	.26	.26
LCS3-181220	12/21/2018	4:09 AM	19.68	-1.00	10.87	542.57	1,069.49	.00	1,053.85	15.64	5.17	10.19	10.19
LCSD3-181220	12/21/2018	4:18 AM	19.71	-1.00	10.87	538.56	1,061.72	.00	1,046.31	15.41	5.13	10.11	10.11
HS18121010-01	12/21/2018	4:24 AM	19.63	-1.00	6.76	.00	298.43	298.43	.00	.00	.00	2.84	2.84
HS18121010-01DUP	12/21/2018	4:30 AM	19.56	-1.00	6.78	.00	296.07	296.07	.00	.00	.00	2.82	2.82
HS18121010-02	12/21/2018	4:36 AM	19.50	-1.00	6.68	.00	267.13	267.13	.00	.00	.00	2.54	2.54
CCV-PH	12/21/2018	4:39 AM	19.63	-1.00	7.07	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
CCV-ALK	12/21/2018	4:48 AM	19.59	-1.00	10.84	539.66	1,072.45	.00	1,065.58	6.87	5.14	10.21	10.21
DI RINSE	12/21/2018	4:53 AM	19.55	-1.00	6.08	.00	.49	.49	.00	.00	.00	.02	.02
HS18120779-22	12/21/2018	5:02 AM	19.51	-1.00	7.57	.00	1,240.44	1,240.44	.00	.00	.00	11.81	11.81
HS18120832-01DF5	12/21/2018	5:09 AM	19.43	-1.00	6.96	.00	8.33	8.33	.00	.00	.00	.10	.10
HS18120918-01	12/21/2018	5:17 AM	19.38	-1.00	8.64	33.51	956.57	889.54	67.02	.00	.32	9.11	9.11
HS18120829-01	12/21/2018	5:26 AM	19.35	-1.00	7.22	.00	1,007.30	1,007.30	.00	.00	.00	9.59	9.59
HS18120829-02	12/21/2018	5:34 AM	19.22	-1.00	7.11	.00	755.96	755.96	.00	.00	.00	7.20	7.20
HS18120829-03	12/21/2018	5:41 AM	19.36	-1.00	7.16	.00	758.73	758.73	.00	.00	.00	7.23	7.23
HS18120829-04	12/21/2018	5:54 AM	19.31	-1.00	7.52	.00	1,902.18	1,902.18	.00	.00	.00	18.12	18.12
HS18120829-05	12/21/2018	6:03 AM	19.24	-1.00	7.26	.00	895.16	895.16	.00	.00	.00	8.53	8.53
HS18120829-06	12/21/2018	6:11 AM	19.23	-1.00	7.21	.00	920.45	920.45	.00	.00	.00	8.77	8.77
CCV-PH	12/21/2018	6:13 AM	19.05	-1.00	7.07	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
CCV-ALK	12/21/2018	6:22 AM	18.96	-1.00	10.84	536.26	1,061.91	.00	1,051.30	10.61	5.11	10.11	10.11
DI RINSE	12/21/2018	6:26 AM	18.94	-1.00	6.07	.00	.43	.43	.00	.00	.00	.02	.02
HS18120829-07	12/21/2018	6:37 AM	18.93	-1.00	7.56	.00	1,303.08	1,303.08	.00	.00	.00	12.41	12.41

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00947553

Run Number 3446 Order Number 20181220-7

SampleID	RunDate	RunTime	Temp	cond (uS)	pH	palk-ppm	talk-ppm	bcarb-ppm	carb-ppm	hydr-ppm	mLs @ 8.3	mLs @ 4.5	mLs @ 4.2
HS18120829-08	12/21/2018	6:44 AM	18.93	-1.00	7.31	.00	774.69	774.69	.00	.00	.00	7.38	7.38
HS18120829-09	12/21/2018	6:57 AM	19.10	-1.00	7.51	.00	1,910.33	1,910.33	.00	.00	.00	18.19	18.19
HS18120947-01	12/21/2018	7:05 AM	19.18	-1.00	7.67	.00	925.75	925.75	.00	.00	.00	8.82	8.82
HS18120991-05	12/21/2018	7:10 AM	19.10	-1.00	6.41	.00	1.04	1.04	.00	.00	.00	.03	.03
HS18120991-06	12/21/2018	7:16 AM	19.07	-1.00	6.19	.00	.73	.73	.00	.00	.00	.02	.02
HS18120991-07	12/21/2018	7:24 AM	19.07	-1.00	11.73	246.49	310.75	.00	128.53	182.23	2.35	2.96	2.96
HS18120992-04	12/21/2018	7:31 AM	19.09	-1.00	7.42	.00	355.60	355.60	.00	.00	.00	3.39	3.39
HS18120992-05	12/21/2018	7:38 AM	19.05	-1.00	7.84	00	247.09	247.09	.00	.00	.00	2.35	2.35
CCV-PH	12/21/2018	7:41 AM	19.02	-1.00	7.08	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
CCV-ALK	12/21/2018	7:49 AM	19.17	-1.00	10.80	527.01	1,061.96	7.93	1,054.03	.00	5.02	10.11	10.11
DI RINSE	12/21/2018	7:53 AM	19.38	-1.00	6.00	.00	.55	.55	.00	.00	.00	.02	.02

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Sequence: 121318 HS18120736
Operator: alshs.nouser

Printed: 12/26/2018 3:46:36 PM

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\01-2018
Timebase: ICS2100
#Samples: 153

Created: 12/13/2018 7:20:14 PM by alshs.nouser
(Modified, not saved)

No.	Name	Comment	Type	Pos.	Dil. Factor	Inj. Vol.	*Initial_Vol_Wt	*Final_Volume
1	STD1		Standard	91	1.0000	10.0	1.00	1.00
2	STD2		Standard	92	1.0000	10.0	1.00	1.00
3	STD3		Standard	93	1.0000	10.0	1.00	1.00
4	STD4		Standard	94	1.0000	10.0	1.00	1.00
5	STD5		Standard	95	1.0000	10.0	1.00	1.00
6	STD6		Standard	96	1.0000	10.0	1.00	1.00
7	ICV		Unknown	97	1.0000	10.0	1.00	1.00
8	ICB		Unknown	98	1.0000	10.0	1.00	1.00
9	CCV		Unknown	1	1.0000	10.0	1.00	1.00
10	CCB		Unknown	2	1.0000	10.0	1.00	1.00
11	MBLK-135564		Unknown	11	1.0000	10.0	1.00	1.00
12	LCS-135564		Unknown	12	1.0000	10.0	1.00	1.00
13	LCSD-135564		Unknown	13	1.0000	10.0	1.00	1.00
14	HS18120413-02DF10		Unknown	14	10.0000	10.0	1.00	1.00
15	HS18120413-04		Unknown	15	1.0000	10.0	1.00	1.00
16	HS18120413-06DF5		Unknown	16	5.0000	10.0	1.00	1.00
17	HS18120413-08DF20		Unknown	17	20.0000	10.0	1.00	1.00
18	HS18120413-08MSDF20		Unknown	18	20.0000	10.0	1.00	1.00
19	HS18120413-08MSDDF20		Unknown	19	20.0000	10.0	1.00	1.00
20	HS18120413-10DF10		Unknown	20	10.0000	10.0	1.00	1.00
21	CCV1		Unknown	3	1.0000	10.0	1.00	1.00
22	CCB		Unknown	4	1.0000	10.0	1.00	1.00
23	WBLKW1-121318	9056_W	Unknown	21	1.0000	10.0	1.00	1.00
24	WLCSW1-121318		Unknown	22	1.0000	10.0	1.00	1.00
25	WLCSDW1-121318		Unknown	23	1.0000	10.0	1.00	1.00
26	HS18120736-03		Unknown	28	1.0000	10.0	1.00	1.00
27	HS18120736-03DF5		Unknown	29	5.0000	10.0	1.00	1.00
28	HS18120736-04		Unknown	30	1.0000	10.0	1.00	1.00
29	HS18120736-04MS		Unknown	31	1.0000	10.0	1.00	1.00
30	HS18120736-04MSD		Unknown	32	1.0000	10.0	1.00	1.00
31	HS18120783-01		Unknown	42	1.0000	10.0	1.00	1.00
32	HS18111386-01		Unknown	36	1.0000	10.0	1.00	1.00
33	CCV		Unknown	1	1.0000	10.0	1.00	1.00
34	CCB		Unknown	2	1.0000	10.0	1.00	1.00
35	HS18120736-01DF2		Unknown	24	2.0000	10.0	1.00	1.00
36	HS18120736-01DF50		Unknown	25	50.0000	10.0	1.00	1.00
37	HS18120736-02DF2		Unknown	26	2.0000	10.0	1.00	1.00
38	HS18120736-02DF50		Unknown	27	50.0000	10.0	1.00	1.00
39	HS18120736-01		Unknown	45	1.0000	10.0	1.00	1.00
40	HS18120757-01		Unknown	37	1.0000	10.0	1.00	1.00
41	HS18120757-02		Unknown	38	1.0000	10.0	1.00	1.00
42	HS18120757-02MS		Unknown	39	1.0000	10.0	1.00	1.00

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Sequence: 121318
Operator: alshs.nouser

Printed: 12/26/2018 3:46:36 PM

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\01-2018
Timebase: ICS2100
#Samples: 153

Created: 12/13/2018 7:20:14 PM by alshs.nouser
(Modified, not saved)

No.	Name	Method	Status	Inj. Date/Time	Program
1	STD1	121218	Finished	12/12/2018 3:52:35 PM	Anions Gradient Program
2	STD2	121218	Finished	12/12/2018 4:07:08 PM	Anions Gradient Program
3	STD3	121218	Finished	12/12/2018 4:21:41 PM	Anions Gradient Program
4	STD4	121218	Finished	12/12/2018 4:36:13 PM	Anions Gradient Program
5	STD5	121218	Finished	12/12/2018 4:50:46 PM	Anions Gradient Program
6	STD6	121218	Finished	12/12/2018 5:05:19 PM	Anions Gradient Program
7	ICV	121218	Finished	12/12/2018 5:19:52 PM	Anions Gradient Program
8	ICB	121218	Finished	12/12/2018 5:34:25 PM	Anions Gradient Program
9	CCV	121218	Finished	12/13/2018 12:10:57 PM	Anions Gradient Program
10	CCB	121218	Finished	12/13/2018 12:25:30 PM	Anions Gradient Program
11	MBLK-135564	121218	Finished	12/13/2018 1:17:50 PM	Anions Gradient Program
12	LCS-135564	121218	Finished	12/13/2018 1:32:23 PM	Anions Gradient Program
13	LCSD-135564	121218	Finished	12/13/2018 1:46:56 PM	Anions Gradient Program
14	HS18120413-02DF10	121218	Finished	12/13/2018 2:01:29 PM	Anions Gradient Program
15	HS18120413-04	121218	Finished	12/13/2018 2:16:03 PM	Anions Gradient Program
16	HS18120413-06DF5	121218	Finished	12/13/2018 2:30:35 PM	Anions Gradient Program
17	HS18120413-08DF20	121218	Finished	12/13/2018 2:45:08 PM	Anions Gradient Program
18	HS18120413-08MSDF20	121218	Finished	12/13/2018 2:59:41 PM	Anions Gradient Program
19	HS18120413-08MSDDF20	121218	Finished	12/13/2018 3:14:13 PM	Anions Gradient Program
20	HS18120413-10DF10	121218	Finished	12/13/2018 3:28:46 PM	Anions Gradient Program
21	CCV1	121218	Finished	12/13/2018 3:43:18 PM	Anions Gradient Program
22	CCB	121218	Finished	12/13/2018 3:57:51 PM	Anions Gradient Program
23	WBLKW1-121318	121218	Finished	12/13/2018 4:12:24 PM	Anions Gradient Program
24	WLCSW1-121318	121218	Finished	12/13/2018 4:26:57 PM	Anions Gradient Program
25	WLCSDW1-121318	121218	Finished	12/13/2018 4:41:30 PM	Anions Gradient Program
26	HS18120736-03	121218	Finished	12/13/2018 4:56:02 PM	Anions Gradient Program
27	HS18120736-03DF5	121218	Finished	12/13/2018 5:10:35 PM	Anions Gradient Program
28	HS18120736-04	121218	Finished	12/13/2018 5:25:08 PM	Anions Gradient Program
29	HS18120736-04MS	121218	Finished	12/13/2018 5:39:41 PM	Anions Gradient Program
30	HS18120736-04MSD	121218	Finished	12/13/2018 5:54:13 PM	Anions Gradient Program
31	HS18120783-01	121218	Finished	12/13/2018 6:08:46 PM	Anions Gradient Program
32	HS18111386-01	121218	Finished	12/13/2018 6:23:19 PM	Anions Gradient Program
33	CCV	121218	Finished	12/13/2018 6:37:51 PM	Anions Gradient Program
34	CCB	121218	Finished	12/13/2018 6:52:24 PM	Anions Gradient Program
35	HS18120736-01DF2	121218	Finished	12/13/2018 7:24:41 PM	Anions Gradient Program
36	HS18120736-01DF50	121218	Finished	12/13/2018 7:39:14 PM	Anions Gradient Program
37	HS18120736-02DF2	121218	Finished	12/13/2018 7:53:48 PM	Anions Gradient Program
38	HS18120736-02DF50	121218	Finished	12/13/2018 8:08:20 PM	Anions Gradient Program
39	HS18120736-01	121218	Finished	12/13/2018 8:37:43 PM	Anions Gradient Program
40	HS18120757-01	121218	Finished	12/13/2018 8:52:16 PM	Anions Gradient Program
41	HS18120757-02	121218	Finished	12/13/2018 9:06:49 PM	Anions Gradient Program
42	HS18120757-02MS	121218	Finished	12/13/2018 9:21:22 PM	Anions Gradient Program

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Sequence: 121318
Operator: alshs.nouser

Printed: 12/26/2018 3:46:36 PM

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\01-2018
Timebase: ICS2100
#Samples: 153
Created: 12/13/2018 7:20:14 PM by alshs.nouser
(Modified, not saved)

No.	Name	GUID
1	STD1	1ad81188-fe58-11e8-b6da-a24899608423
2	STD2	2312cf21-fe5a-11e8-b6da-a24899608423
3	STD3	2b6c8b0b-fe5c-11e8-b6da-a24899608423
4	STD4	3332765f-fe5e-11e8-b6da-a24899608423
5	STD5	3b9f44f1-fe60-11e8-b6da-a24899608423
6	STD6	43711bee-fe62-11e8-b6da-a24899608423
7	ICV	4be5117f-fe64-11e8-b6da-a24899608423
8	ICB	544d1b67-fe66-11e8-b6da-a24899608423
9	CCV	4f2554d2-ff02-11e8-b6da-a24899608423
10	CCB	56f004d0-ff04-11e8-b6da-a24899608423
11	MBLK-135564	47503773-ff0b-11e8-b6da-a24899608423
12	LCS-135564	ae81b8c5-ff0d-11e8-b6da-a24899608423
13	LCSD-135564	b7255cfa-ff0f-11e8-b6da-a24899608423
14	HS18120413-02DF10	bf918c4f-ff11-11e8-b6da-a24899608423
15	HS18120413-04	c87b2097-ff13-11e8-b6da-a24899608423
16	HS18120413-06DF5	d0bc1d17-ff15-11e8-b6da-a24899608423
17	HS18120413-08DF20	d8f9c809-ff17-11e8-b6da-a24899608423
18	HS18120413-08MSDF20	e0deb1ae-ff19-11e8-b6da-a24899608423
19	HS18120413-08MSDDF20	e91bd19c-ff1b-11e8-b6da-a24899608423
20	HS18120413-10DF10	f164dd33-ff1d-11e8-b6da-a24899608423
21	CCV1	f94e8b82-ff1f-11e8-b6da-a24899608423
22	CCB	0167e875-ff22-11e8-b6da-a24899608423
23	WBLKW1-121318	09a50863-ff24-11e8-b6da-a24899608423
24	WLCSW1-121318	11dfc5fc-ff26-11e8-b6da-a24899608423
25	WLCSDW1-121318	1a2ff892-ff28-11e8-b6da-a24899608423
26	HS18120736-03	226ab62b-ff2a-11e8-b6da-a24899608423
27	HS18120736-03DF5	2a4adb26-ff2c-11e8-b6da-a24899608423
28	HS18120736-04	32b54763-ff2e-11e8-b6da-a24899608423
29	HS18120736-04MS	3afe52fa-ff30-11e8-b6da-a24899608423
30	HS18120736-04MSD	43344be9-ff32-11e8-b6da-a24899608423
31	HS18120783-01	4b16d339-ff34-11e8-b6da-a24899608423
32	HS18111386-01	536e2cce-ff36-11e8-b6da-a24899608423
33	CCV	5ba425bd-ff38-11e8-b6da-a24899608423
34	CCB	63ed3154-ff3a-11e8-b6da-a24899608423
35	HS18120736-01DF2	876241de-ff3e-11e8-b6da-a24899608423
36	HS18120736-01DF50	eeb2c181-ff40-11e8-b6da-a24899608423
37	HS18120736-02DF2	f72dde11-ff42-11e8-b6da-a24899608423
38	HS18120736-02DF50	ff8c5ea5-ff44-11e8-b6da-a24899608423
39	HS18120736-01	bb0e010d-ff48-11e8-b6da-a24899608423
40	HS18120757-01	229c7d52-ff4b-11e8-b6da-a24899608423
41	HS18120757-02	2ae588e9-ff4d-11e8-b6da-a24899608423
42	HS18120757-02MS	3348ce27-ff4f-11e8-b6da-a24899608423

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Sequence: 121318
Operator: alshs.nouser

Printed: 12/26/2018 3:46:36 PM

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\01-2018
Timebase: ICS2100
#Samples: 153
Created: 12/13/2018 7:20:14 PM by alshs.nouser
(Modified, not saved)

No.	Name	Comment	Type	Pos.	Dil. Factor	Inj. Vol.	*Initial_Vol_Wt	*Final_Volume
43	HS18120757-02MSD		Unknown	40	1.0000	10.0	1.00	1.00
44	HS18120642-02DF50	SO4 9056_W	Unknown	46	50.0000	10.0	1.00	1.00
45	CCV1		Unknown	3	1.0000	10.0	1.00	1.00
46	CCB		Unknown	4	1.0000	10.0	1.00	1.00
47	HS18111386-01DF2		Unknown	44	2.0000	10.0	1.00	1.00
48	HS18120741-01DF10		Unknown	41	10.0000	10.0	1.00	1.00
49	HS18111369-01DF20		Unknown	33	20.0000	10.0	1.00	1.00
50	HS18111369-01DF400		Unknown	34	400.0000	10.0	1.00	1.00
51	HS18111369-01DF4000		Unknown	35	4000.0000	10.0	1.00	1.00
52	HS18111473-01DF20		Unknown	47	20.0000	10.0	1.00	1.00
53	HS18111473-01DF400		Unknown	48	400.0000	10.0	1.00	1.00
54	HS18111473-02DF20		Unknown	49	20.0000	10.0	1.00	1.00
55	HS18111473-02DF400		Unknown	50	400.0000	10.0	1.00	1.00
56	HS18111377-12DF50		Unknown	51	50.0000	10.0	1.00	1.00
57	CCV		Unknown	1	1.0000	10.0	1.00	1.00
58	CCB		Unknown	2	1.0000	10.0	1.00	1.00
59	HS18111377-14		Unknown	52	1.0000	10.0	1.00	1.00
60	HS18111377-13DF50		Unknown	53	50.0000	10.0	1.00	1.00
61	HS18111377-11DF10		Unknown	54	10.0000	10.0	1.00	1.00
62	HS18111377-10		Unknown	55	1.0000	10.0	1.00	1.00
63	HS18111377-09		Unknown	56	1.0000	10.0	1.00	1.00
64	HS18111377-08DF5		Unknown	57	5.0000	10.0	1.00	1.00
65	HS18120449-02		Unknown	70	1.0000	10.0	1.00	1.00
66	HS18120449-03		Unknown	71	1.0000	10.0	1.00	1.00
67	HS18120312-01		Unknown	76	1.0000	10.0	1.00	1.00
68	HS18120312-02		Unknown	77	1.0000	10.0	1.00	1.00
69	CCV1		Unknown	3	1.0000	10.0	1.00	1.00
70	CCB		Unknown	4	1.0000	10.0	1.00	1.00
71	HS18120305-01		Unknown	72	1.0000	10.0	1.00	1.00
72	HS18120305-01MS		Unknown	73	1.0000	10.0	1.00	1.00
73	HS18120305-01MSD		Unknown	74	1.0000	10.0	1.00	1.00
74	HS18120306-01		Unknown	75	1.0000	10.0	1.00	1.00
75	HS18120315-01		Unknown	78	1.0000	10.0	1.00	1.00
76	HS18120315-02		Unknown	79	1.0000	10.0	1.00	1.00
77	HS18120432-01		Unknown	80	1.0000	10.0	1.00	1.00
78	HS18120432-02		Unknown	81	1.0000	10.0	1.00	1.00
79	HS18120435-01		Unknown	82	1.0000	10.0	1.00	1.00
80	HS18120435-02		Unknown	83	1.0000	10.0	1.00	1.00
81	CCV		Unknown	1	1.0000	10.0	1.00	1.00
82	CCB		Unknown	2	1.0000	10.0	1.00	1.00
83	WBLKW1-121418		Unknown	67	1.0000	10.0	1.00	1.00
84	WLCSW1-121418		Unknown	68	1.0000	10.0	1.00	1.00

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Sequence: 121318
Operator: alshs.nouser

Printed: 12/26/2018 3:46:36 PM

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\01-2018
Timebase: ICS2100
#Samples: 153

Created: 12/13/2018 7:20:14 PM by alshs.nouser
(Modified, not saved)

No.	Name	Method	Status	Inj. Date/Time	Program
43	HS18120757-02MSD	121218	Finished	12/13/2018 9:35:55 PM	Anions Gradient Program
44	HS18120642-02DF50	121218	Finished	12/13/2018 9:50:28 PM	Anions Gradient Program
45	CCV1	121218	Finished	12/13/2018 10:05:00 PM	Anions Gradient Program
46	CCB	121218	Finished	12/13/2018 10:19:32 PM	Anions Gradient Program
47	HS18111386-01DF2	121218	Finished	12/13/2018 10:44:24 PM	Anions Gradient Program
48	HS18120741-01DF10	121218	Finished	12/13/2018 10:58:57 PM	Anions Gradient Program
49	HS18111369-01DF20	121218	Finished	12/13/2018 11:13:30 PM	Anions Gradient Program
50	HS18111369-01DF400	121218	Finished	12/13/2018 11:28:03 PM	Anions Gradient Program
51	HS18111369-01DF4000	121218	Finished	12/13/2018 11:42:36 PM	Anions Gradient Program
52	HS18111473-01DF20	121218	Finished	12/13/2018 11:57:09 PM	Anions Gradient Program
53	HS18111473-01DF400	121218	Finished	12/14/2018 12:11:41 AM	Anions Gradient Program
54	HS18111473-02DF20	121218	Finished	12/14/2018 12:26:14 AM	Anions Gradient Program
55	HS18111473-02DF400	121218	Finished	12/14/2018 12:40:47 AM	Anions Gradient Program
56	HS18111377-12DF50	121218	Finished	12/14/2018 12:55:20 AM	Anions Gradient Program
57	CCV	121218	Finished	12/14/2018 1:09:52 AM	Anions Gradient Program
58	CCB	121218	Finished	12/14/2018 1:24:25 AM	Anions Gradient Program
59	HS18111377-14	121218	Finished	12/14/2018 1:38:58 AM	Anions Gradient Program
60	HS18111377-13DF50	121218	Finished	12/14/2018 1:53:31 AM	Anions Gradient Program
61	HS18111377-11DF10	121218	Finished	12/14/2018 2:08:03 AM	Anions Gradient Program
62	HS18111377-10	121218	Finished	12/14/2018 2:22:36 AM	Anions Gradient Program
63	HS18111377-09	121218	Finished	12/14/2018 2:37:09 AM	Anions Gradient Program
64	HS18111377-08DF5	121218	Finished	12/14/2018 2:51:42 AM	Anions Gradient Program
65	HS18120449-02	121218	Finished	12/14/2018 3:06:15 AM	Anions Gradient Program
66	HS18120449-03	121218	Finished	12/14/2018 3:20:48 AM	Anions Gradient Program
67	HS18120312-01	121218	Finished	12/14/2018 3:35:21 AM	Anions Gradient Program
68	HS18120312-02	121218	Finished	12/14/2018 3:49:54 AM	Anions Gradient Program
69	CCV1	121218	Finished	12/14/2018 4:04:27 AM	Anions Gradient Program
70	CCB	121218	Finished	12/14/2018 4:19:00 AM	Anions Gradient Program
71	HS18120305-01	121218	Finished	12/14/2018 4:33:32 AM	Anions Gradient Program
72	HS18120305-01MS	121218	Finished	12/14/2018 4:48:05 AM	Anions Gradient Program
73	HS18120305-01MSD	121218	Finished	12/14/2018 5:02:38 AM	Anions Gradient Program
74	HS18120306-01	121218	Finished	12/14/2018 5:17:10 AM	Anions Gradient Program
75	HS18120315-01	121218	Finished	12/14/2018 5:31:43 AM	Anions Gradient Program
76	HS18120315-02	121218	Finished	12/14/2018 5:46:16 AM	Anions Gradient Program
77	HS18120432-01	121218	Finished	12/14/2018 6:00:49 AM	Anions Gradient Program
78	HS18120432-02	121218	Finished	12/14/2018 6:15:22 AM	Anions Gradient Program
79	HS18120435-01	121218	Finished	12/14/2018 6:29:55 AM	Anions Gradient Program
80	HS18120435-02	121218	Finished	12/14/2018 6:44:28 AM	Anions Gradient Program
81	CCV	121218	Finished	12/14/2018 6:59:00 AM	Anions Gradient Program
82	CCB	121218	Finished	12/14/2018 7:13:33 AM	Anions Gradient Program
83	WBLKW1-121418	121218	Finished	12/14/2018 7:28:06 AM	Anions Gradient Program
84	WLCSW1-121418	121218	Finished	12/14/2018 7:42:39 AM	Anions Gradient Program

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Sequence: 121318
Operator: alshs.nouser

Printed: 12/26/2018 3:46:36 PM

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\01-2018
Timebase: ICS2100
#Samples: 153
Created: 12/13/2018 7:20:14 PM by alshs.nouser (Modified, not saved)

No.	Name	GUID
43	HS18120757-02MSD	3b6bb46e-ff51-11e8-b6da-a24899608423
44	HS18120642-02DF50	43a8d45c-ff53-11e8-b6da-a24899608423
45	CCV1	4ba332fe-ff55-11e8-b6da-a24899608423
46	CCB	53704551-ff57-11e8-b6da-a24899608423
47	HS18111386-01DF2	6d8ae74a-ff5a-11e8-b6da-a24899608423
48	HS18120741-01DF10	d4fa653e-ff5c-11e8-b6da-a24899608423
49	HS18111369-01DF20	dd67217e-ff5e-11e8-b6da-a24899608423
50	HS18111369-01DF400	e5c2afae-ff60-11e8-b6da-a24899608423
51	HS18111369-01DF4000	edf94b5d-ff62-11e8-b6da-a24899608423
52	HS18111473-01DF20	f63408f6-ff64-11e8-b6da-a24899608423
53	HS18111473-01DF400	fe8dc4e0-ff66-11e8-b6da-a24899608423
54	HS18111473-02DF20	06c3bdcf-ff69-11e8-b6da-a24899608423
55	HS18111473-02DF400	0f118e10-ff6b-11e8-b6da-a24899608423
56	HS18111377-12DF50	17668550-ff6d-11e8-b6da-a24899608423
57	CCV	1f2ed2f9-ff6f-11e8-b6da-a24899608423
58	CCB	27757c3b-ff71-11e8-b6da-a24899608423
59	HS18111377-14	2fadd77f-ff73-11e8-b6da-a24899608423
60	HS18111377-13DF50	37e632c3-ff75-11e8-b6da-a24899608423
61	HS18111377-11DF10	400b7b5f-ff77-11e8-b6da-a24899608423
62	HS18111377-10	4856e94b-ff79-11e8-b6da-a24899608423
63	HS18111377-09	508ce23a-ff7b-11e8-b6da-a24899608423
64	HS18111377-08DF5	58d85026-ff7d-11e8-b6da-a24899608423
65	HS18120449-02	610e4915-ff7f-11e8-b6da-a24899608423
66	HS18120449-03	69bdd8f3-ff81-11e8-b6da-a24899608423
67	HS18120312-01	72048235-ff83-11e8-b6da-a24899608423
68	HS18120312-02	7a1ddf28-ff85-11e8-b6da-a24899608423
69	CCV1	82694d14-ff87-11e8-b6da-a24899608423
70	CCB	8aaff656-ff89-11e8-b6da-a24899608423
71	HS18120305-01	92a5904e-ff8b-11e8-b6da-a24899608423
72	HS18120305-01MS	9adb893d-ff8d-11e8-b6da-a24899608423
73	HS18120305-01MSD	a31646d6-ff8f-11e8-b6da-a24899608423
74	HS18120306-01	ab6da06b-ff91-11e8-b6da-a24899608423
75	HS18120315-01	b3a5fbaf-ff93-11e8-b6da-a24899608423
76	HS18120315-02	bc0e0597-ff95-11e8-b6da-a24899608423
77	HS18120432-01	c430ebde-ff97-11e8-b6da-a24899608423
78	HS18120432-02	cc8380c9-ff99-11e8-b6da-a24899608423
79	HS18120435-01	d4b979b8-ff9b-11e8-b6da-a24899608423
80	HS18120435-02	dd0c0ea3-ff9d-11e8-b6da-a24899608423
81	CCV	e552b7e5-ff9f-11e8-b6da-a24899608423
82	CCB	ed923a28-ffa1-11e8-b6da-a24899608423
83	WBLKW1-121418	f5d68115-ffa3-11e8-b6da-a24899608423
84	WLCSW1-121418	fe0a17af-ffa5-11e8-b6da-a24899608423

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Sequence: 121318
Operator: alshs.nouser

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\01-2018
Timebase: ICS2100
#Samples: 153

Created: 12/13/2018 7:20:14 PM by alshs.nouser
(Modified, not saved)

No.	Name	Comment	Type	Pos.	Dil. Factor	Inj. Vol.	*Initial_Vol_Wt	*Final_Volume
85	WLCSDW1-121418		Unknown	69	1.0000	10.0	1.00	1.00
86	HS18111377-01DF50		Unknown	58	50.0000	10.0	1.00	1.00
87	HS18111377-02DF10		Unknown	59	10.0000	10.0	1.00	1.00
88	HS18111377-02MSDF10		Unknown	60	10.0000	10.0	1.00	1.00
89	HS18111377-02MSDDF10		Unknown	61	10.0000	10.0	1.00	1.00
90	HS18111377-03DF10		Unknown	62	10.0000	10.0	1.00	1.00
91	HS18111377-04DF10		Unknown	63	10.0000	10.0	1.00	1.00
92	HS18111377-05DF10		Unknown	64	10.0000	10.0	1.00	1.00
93	CCV1		Unknown	3	1.0000	10.0	1.00	1.00
94	CCB		Unknown	4	1.0000	10.0	1.00	1.00
95	HS18111377-06DF10		Unknown	65	10.0000	10.0	1.00	1.00
96	HS18111377-07DF10		Unknown	66	10.0000	10.0	1.00	1.00
97	HS18120653-01		Unknown	84	1.0000	10.0	1.00	1.00
98	HS18120825-07		Unknown	85	1.0000	10.0	1.00	1.00
99	HS18120825-11		Unknown	86	1.0000	10.0	1.00	1.00
100	HS18120825-10		Unknown	87	1.0000	10.0	1.00	1.00
101	HS18120825-06		Unknown	88	1.0000	10.0	1.00	1.00
102	HS18120825-22		Unknown	89	1.0000	10.0	1.00	1.00
103	HS18120825-21		Unknown	90	1.0000	10.0	1.00	1.00
104	DI H2O		Unknown	10	1.0000	10.0	1.00	1.00
105	CCV		Unknown	1	1.0000	10.0	1.00	1.00
106	CCB		Unknown	2	1.0000	10.0	1.00	1.00
107	HS18120828-01		Unknown	93	1.0000	10.0	1.00	1.00
108	HS18120828-01DF20		Unknown	94	20.0000	10.0	1.00	1.00
109	HS18120828-02		Unknown	95	1.0000	10.0	1.00	1.00
110	HS18120828-02DF20		Unknown	96	20.0000	10.0	1.00	1.00
111	HS18120825-14		Unknown	91	1.0000	10.0	1.00	1.00
112	HS18120825-18		Unknown	92	1.0000	10.0	1.00	1.00
113	CCV1		Unknown	3	1.0000	10.0	1.00	1.00
114	CCB		Unknown	4	1.0000	10.0	1.00	1.00
115	HS18120417-02DF2500		Unknown	97	2500.0000	10.0	1.00	1.00
116	CCV		Unknown	1	1.0000	10.0	1.00	1.00
117	CCB		Unknown	2	1.0000	10.0	1.00	1.00
118	MBLK-135586		Unknown	11	1.0000	10.0	1.00	1.00
119	LCS-135586		Unknown	12	1.0000	10.0	1.00	1.00
120	LCSD-135586		Unknown	13	1.0000	10.0	1.00	1.00
121	HS18111388-01		Unknown	14	1.0000	10.0	1.00	1.00
122	HS18111388-01MS		Unknown	15	1.0000	10.0	1.00	1.00
123	HS18111388-01MSD		Unknown	16	1.0000	10.0	1.00	1.00
124	HS18111388-02		Unknown	17	1.0000	10.0	1.00	1.00
125	HS18111388-03		Unknown	18	1.0000	10.0	1.00	1.00
126	HS18111388-04		Unknown	19	1.0000	10.0	1.00	1.00

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Sequence: 121318
Operator: alshs.nouser

Printed: 12/26/2018 3:46:36 PM

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\01-2018
Timebase: ICS2100
#Samples: 153

Created: 12/13/2018 7:20:14 PM by alshs.nouser
(Modified, not saved)

No.	Name	Method	Status	Inj. Date/Time	Program
85	WLCSDW1-121418	121218	Finished	12/14/2018 7:57:12 AM	Anions Gradient Program
86	HS18111377-01DF50	121218	Finished	12/14/2018 8:11:45 AM	Anions Gradient Program
87	HS18111377-02DF10	121218	Finished	12/14/2018 8:26:18 AM	Anions Gradient Program
88	HS18111377-02MSDF10	121218	Finished	12/14/2018 8:40:51 AM	Anions Gradient Program
89	HS18111377-02MSDDF10	121218	Finished	12/14/2018 8:55:24 AM	Anions Gradient Program
90	HS18111377-03DF10	121218	Finished	12/14/2018 9:09:57 AM	Anions Gradient Program
91	HS18111377-04DF10	121218	Finished	12/14/2018 9:24:29 AM	Anions Gradient Program
92	HS18111377-05DF10	121218	Finished	12/14/2018 9:39:02 AM	Anions Gradient Program
93	CCV1	121218	Finished	12/14/2018 9:53:34 AM	Anions Gradient Program
94	CCB	121218	Finished	12/14/2018 10:08:07 AM	Anions Gradient Program
95	HS18111377-06DF10	121218	Finished	12/14/2018 10:22:40 AM	Anions Gradient Program
96	HS18111377-07DF10	121218	Finished	12/14/2018 10:37:13 AM	Anions Gradient Program
97	HS18120653-01	121218	Finished	12/14/2018 10:55:46 AM	Anions Gradient Program
98	HS18120825-07	121218	Finished	12/14/2018 12:50:27 PM	Anions Gradient Program
99	HS18120825-11	121218	Finished	12/14/2018 1:04:59 PM	Anions Gradient Program
100	HS18120825-10	121218	Finished	12/14/2018 1:19:32 PM	Anions Gradient Program
101	HS18120825-06	121218	Finished	12/14/2018 1:34:04 PM	Anions Gradient Program
102	HS18120825-22	121218	Finished	12/14/2018 1:48:37 PM	Anions Gradient Program
103	HS18120825-21	121218	Finished	12/14/2018 2:03:10 PM	Anions Gradient Program
104	DI H2O	121218	Finished	12/14/2018 2:17:43 PM	Anions Gradient Program
105	CCV	121218	Finished	12/14/2018 2:32:16 PM	Anions Gradient Program
106	CCB	121218	Finished	12/14/2018 2:46:49 PM	Anions Gradient Program
107	HS18120828-01	121218	Finished	12/14/2018 3:01:21 PM	Anions Gradient Program
108	HS18120828-01DF20	121218	Finished	12/14/2018 3:15:54 PM	Anions Gradient Program
109	HS18120828-02	121218	Finished	12/14/2018 3:30:27 PM	Anions Gradient Program
110	HS18120828-02DF20	121218	Finished	12/14/2018 3:45:00 PM	Anions Gradient Program
111	HS18120825-14	121218	Finished	12/14/2018 3:59:33 PM	Anions Gradient Program
112	HS18120825-18	121218	Finished	12/14/2018 4:14:05 PM	Anions Gradient Program
113	CCV1	121218	Finished	12/14/2018 4:28:38 PM	Anions Gradient Program
114	CCB	121218	Finished	12/14/2018 4:43:11 PM	Anions Gradient Program
115	HS18120417-02DF2500	121218	Finished	12/14/2018 6:39:16 PM	Anions Gradient Program
116	CCV	121218	Finished	12/14/2018 7:32:29 PM	Anions Gradient Program
117	CCB	121218	Finished	12/14/2018 7:47:02 PM	Anions Gradient Program
118	MBLK-135586	121218	Finished	12/14/2018 8:01:34 PM	Anions Gradient Program
119	LCS-135586	121218	Finished	12/14/2018 8:16:08 PM	Anions Gradient Program
120	LCSD-135586	121218	Finished	12/14/2018 8:30:40 PM	Anions Gradient Program
121	HS18111388-01	121218	Finished	12/14/2018 8:45:13 PM	Anions Gradient Program
122	HS18111388-01MS	121218	Finished	12/14/2018 8:59:46 PM	Anions Gradient Program
123	HS18111388-01MSD	121218	Finished	12/14/2018 9:14:19 PM	Anions Gradient Program
124	HS18111388-02	121218	Finished	12/14/2018 9:28:51 PM	Anions Gradient Program
125	HS18111388-03	121218	Finished	12/14/2018 9:43:24 PM	Anions Gradient Program
126	HS18111388-04	121218	Finished	12/14/2018 9:57:57 PM	Anions Gradient Program

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Sequence: 121318
Operator: alshs.nouser

Printed: 12/26/2018 3:46:36 PM

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\01-2018
Timebase: ICS2100
#Samples: 153

Created: 12/13/2018 7:20:14 PM by alshs.nouser
(Modified, not saved)

No.	Name	GUID
85	WLCSDW1-121418	066635ee-ffa8-11e8-b6da-a24899608423
86	HS18111377-01DF50	0e9e9132-ffaa-11e8-b6da-a24899608423
87	HS18111377-02DF10	170b2711-ffac-11e8-b6da-a24899608423
88	HS18111377-02MSDF10	1f505dd0-ffae-11e8-b6da-a24899608423
89	HS18111377-02MSDDF10	27a567f9-ffb0-11e8-b6da-a24899608423
90	HS18111377-03DF10	2fd8fe93-ffb2-11e8-b6da-a24899608423
91	HS18111377-04DF10	381d4580-ffb4-11e8-b6da-a24899608423
92	HS18111377-05DF10	3ff6437c-ffb6-11e8-b6da-a24899608423
93	CCV1	485988ba-ffb8-11e8-b6da-a24899608423
94	CCB	50754802-ffba-11e8-b6da-a24899608423
95	HS18111377-06DF10	58be5399-ffbc-11e8-b6da-a24899608423
96	HS18111377-07DF10	60ef87de-ffbe-11e8-b6da-a24899608423
97	HS18120653-01	99253417-ffc0-11e8-b6da-a24899608423
98	HS18120825-07	9e8f06a7-ffd0-11e8-b6da-a24899608423
99	HS18120825-11	05b239fb-ffd3-11e8-b6da-a24899608423
100	HS18120825-10	0e17e18e-ffd5-11e8-b6da-a24899608423
101	HS18120825-06	15ec1ae0-ffd7-11e8-b6da-a24899608423
102	HS18120825-22	1e13c5d1-ffd9-11e8-b6da-a24899608423
103	HS18120825-21	264c2115-ffdb-11e8-b6da-a24899608423
104	DI H2O	2e86deae-ffdd-11e8-b6da-a24899608423
105	CCV	36cd87f0-ffdf-11e8-b6da-a24899608423
106	CCB	3f201cdb-ffe1-11e8-b6da-a24899608423
107	HS18120828-01	475f9f1e-ffe3-11e8-b6da-a24899608423
108	HS18120828-01DF20	4fa8aab5-ffe5-11e8-b6da-a24899608423
109	HS18120828-02	57f67af6-ffe7-11e8-b6da-a24899608423
110	HS18120828-02DF20	602a1190-ffe9-11e8-b6da-a24899608423
111	HS18120825-14	687f08d0-ffeb-11e8-b6da-a24899608423
112	HS18120825-18	709f8cc2-ffed-11e8-b6da-a24899608423
113	CCV1	78ce5eb2-ffef-11e8-b6da-a24899608423
114	CCB	812cdf46-fff1-11e8-b6da-a24899608423
115	HS18120417-02DF2500	59a934d2-0001-11e9-b6da-a24899608423
116	CCV	c8486479-0008-11e9-b6da-a24899608423
117	CCB	2fc6306b-000b-11e9-b6da-a24899608423
118	MBLK-135586	37fc295a-000d-11e9-b6da-a24899608423
119	LCS-135586	404534f1-000f-11e9-b6da-a24899608423
120	LCSD-135586	487d9035-0011-11e9-b6da-a24899608423
121	HS18111388-01	50b5eb79-0013-11e9-b6da-a24899608423
122	HS18111388-01MS	58ee46bd-0015-11e9-b6da-a24899608423
123	HS18111388-01MSD	61375254-0017-11e9-b6da-a24899608423
124	HS18111388-02	696fad98-0019-11e9-b6da-a24899608423
125	HS18111388-03	71b8b92f-001b-11e9-b6da-a24899608423
126	HS18111388-04	7a33d5bf-001d-11e9-b6da-a24899608423

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Sequence: 121318
Operator: alshs.nouser

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\01-2018
Timebase: ICS2100
#Samples: 153

Created: 12/13/2018 7:20:14 PM by alshs.nouser
(Modified, not saved)

No.	Name	Comment	Type	Pos.	Dil. Factor	Inj. Vol.	*Initial_Vol_Wt	*Final_Volume
127	HS18111388-05		Unknown	20	1.0000	10.0	1.00	1.00
128	CCV1		Unknown	3	1.0000	10.0	1.00	1.00
129	CCB		Unknown	4	1.0000	10.0	1.00	1.00
130	HS18111388-06		Unknown	21	1.0000	10.0	1.00	1.00
131	HS18111388-07		Unknown	22	1.0000	10.0	1.00	1.00
132	HS18111388-08		Unknown	23	1.0000	10.0	1.00	1.00
133	HS18111388-09		Unknown	24	1.0000	10.0	1.00	1.00
134	HS18111388-10		Unknown	25	1.0000	10.0	1.00	1.00
135	HS18111388-11DF10		Unknown	26	10.0000	10.0	1.00	1.00
136	HS18111388-12DF10		Unknown	27	10.0000	10.0	1.00	1.00
137	HS18111390-01		Unknown	28	1.0000	10.0	1.00	1.00
138	HS18111390-02DF10		Unknown	29	10.0000	10.0	1.00	1.00
139	HS18111390-03DF10		Unknown	30	10.0000	10.0	1.00	1.00
140	CCV		Unknown	1	1.0000	10.0	1.00	1.00
141	CCB		Unknown	2	1.0000	10.0	1.00	1.00
142	HS18111390-04		Unknown	31	1.0000	10.0	1.00	1.00
143	HS18111390-05		Unknown	32	1.0000	10.0	1.00	1.00
144	HS18111390-06DF10		Unknown	33	10.0000	10.0	1.00	1.00
145	HS18111390-07		Unknown	34	1.0000	10.0	1.00	1.00
146	HS18111390-08DF10		Unknown	35	10.0000	10.0	1.00	1.00
147	CCV1		Unknown	3	1.0000	10.0	1.00	1.00
148	CCB		Unknown	4	1.0000	10.0	1.00	1.00
149	DI H2O		Unknown	10	1.0000	10.0	1.00	1.00
150	DI H2O		Unknown	10	1.0000	10.0	1.00	1.00
151	DI H2O		Unknown	10	1.0000	10.0	1.00	1.00
152	CCV1		Unknown	3	1.0000	10.0	1.00	1.00
153	CCB		Unknown	4	1.0000	10.0	1.00	1.00

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Sequence: 121318
Operator: alshs.nouser

Printed: 12/26/2018 3:46:36 PM

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\01-2018
Timebase: ICS2100
#Samples: 153

Created: 12/13/2018 7:20:14 PM by alshs.nouser
(Modified, not saved)

No.	Name	Method	Status	Inj. Date/Time	Program
127	HS18111388-05	121218	Finished	12/14/2018 10:12:30 PM	Anions Gradient Program
128	CCV1	121218	Finished	12/14/2018 10:27:03 PM	Anions Gradient Program
129	CCB	121218	Finished	12/14/2018 10:41:36 PM	Anions Gradient Program
130	HS18111388-06	121218	Finished	12/14/2018 10:56:09 PM	Anions Gradient Program
131	HS18111388-07	121218	Finished	12/14/2018 11:10:42 PM	Anions Gradient Program
132	HS18111388-08	121218	Finished	12/14/2018 11:25:15 PM	Anions Gradient Program
133	HS18111388-09	121218	Finished	12/14/2018 11:39:48 PM	Anions Gradient Program
134	HS18111388-10	121218	Finished	12/14/2018 11:54:20 PM	Anions Gradient Program
135	HS18111388-11DF10	121218	Finished	12/15/2018 12:08:53 AM	Anions Gradient Program
136	HS18111388-12DF10	121218	Finished	12/15/2018 12:23:26 AM	Anions Gradient Program
137	HS18111390-01	121218	Finished	12/15/2018 12:37:59 AM	Anions Gradient Program
138	HS18111390-02DF10	121218	Finished	12/15/2018 12:52:32 AM	Anions Gradient Program
139	HS18111390-03DF10	121218	Finished	12/15/2018 1:07:05 AM	Anions Gradient Program
140	CCV	121218	Finished	12/15/2018 1:21:38 AM	Anions Gradient Program
141	CCB	121218	Finished	12/15/2018 1:36:10 AM	Anions Gradient Program
142	HS18111390-04	121218	Finished	12/15/2018 1:50:43 AM	Anions Gradient Program
143	HS18111390-05	121218	Finished	12/15/2018 2:05:16 AM	Anions Gradient Program
144	HS18111390-06DF10	121218	Finished	12/15/2018 2:19:49 AM	Anions Gradient Program
145	HS18111390-07	121218	Finished	12/15/2018 2:34:22 AM	Anions Gradient Program
146	HS18111390-08DF10	121218	Finished	12/15/2018 2:48:55 AM	Anions Gradient Program
147	CCV1	121218	Finished	12/15/2018 3:03:28 AM	Anions Gradient Program
148	CCB	121218	Finished	12/15/2018 3:18:01 AM	Anions Gradient Program
149	DI H2O	121218	Finished	12/15/2018 3:32:33 AM	Anions Gradient Program
150	DI H2O	121218	Finished	12/15/2018 1:18:17 PM	Anions Gradient Program
151	DI H2O	121218	Finished	12/15/2018 1:32:50 PM	Anions Gradient Program
152	CCV1	121218	Finished	12/15/2018 1:47:22 PM	Anions Gradient Program
153	CCB	121218	Finished	12/15/2018 2:01:55 PM	Anions Gradient Program

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Sequence:	121318		Page 12 of 12
Operator:	alshs.nouser		Printed: 12/26/2018 3:46:36 PM
Title:			
Datasource:	DB7CGHK1_local		
Location:	ICS2100\Sequences and Data\01-2018		
Timebase:	ICS2100	Created:	12/13/2018 7:20:14 PM by alshs.nouser
#Samples:	153		(Modified, not saved)

No.	Name	GUID
127	HS18111388-05	824ad05d-001f-11e9-b6da-a24899608423
128	CCV1	8a832ba1-0021-11e9-b6da-a24899608423
129	CCB	92dce78b-0023-11e9-b6da-a24899608423
130	HS18111388-06	9b7964c1-0025-11e9-b6da-a24899608423
131	HS18111388-07	a3b4225a-0027-11e9-b6da-a24899608423
132	HS18111388-08	abfacb9c-0029-11e9-b6da-a24899608423
133	HS18111388-09	b422768d-002b-11e9-b6da-a24899608423
134	HS18111388-10	bc5ad1d1-002d-11e9-b6da-a24899608423
135	HS18111388-11DF10	c4b48dbb-002f-11e9-b6da-a24899608423
136	HS18111388-12DF10	ccece8ff-0031-11e9-b6da-a24899608423
137	HS18111390-01	d546a4e9-0033-11e9-b6da-a24899608423
138	HS18111390-02DF10	dd7f002d-0035-11e9-b6da-a24899608423
139	HS18111390-03DF10	e5b75b71-0037-11e9-b6da-a24899608423
140	CCV	ee052bb2-0039-11e9-b6da-a24899608423
141	CCB	f64bd4f4-003b-11e9-b6da-a24899608423
142	HS18111390-04	fe7aa6e4-003d-11e9-b6da-a24899608423
143	HS18111390-05	06abdb29-0040-11e9-b6da-a24899608423
144	HS18111390-06DF10	0ef9ab6a-0042-11e9-b6da-a24899608423
145	HS18111390-07	1766a750-0044-11e9-b6da-a24899608423
146	HS18111390-08DF10	1fa946c5-0046-11e9-b6da-a24899608423
147	CCV1	27e6bf8b-0048-11e9-b6da-a24899608423
148	CCB	3028a423-004a-11e9-b6da-a24899608423
149	DI H2O	386361bc-004c-11e9-b6da-a24899608423
150	DI H2O	ac9e3da8-009d-11e9-b6da-a24899608423
151	DI H2O	141e6bef-00a0-11e9-b6da-a24899608423
152	CCV1	1c00f33f-00a2-11e9-b6da-a24899608423
153	CCB	24479c81-00a4-11e9-b6da-a24899608423

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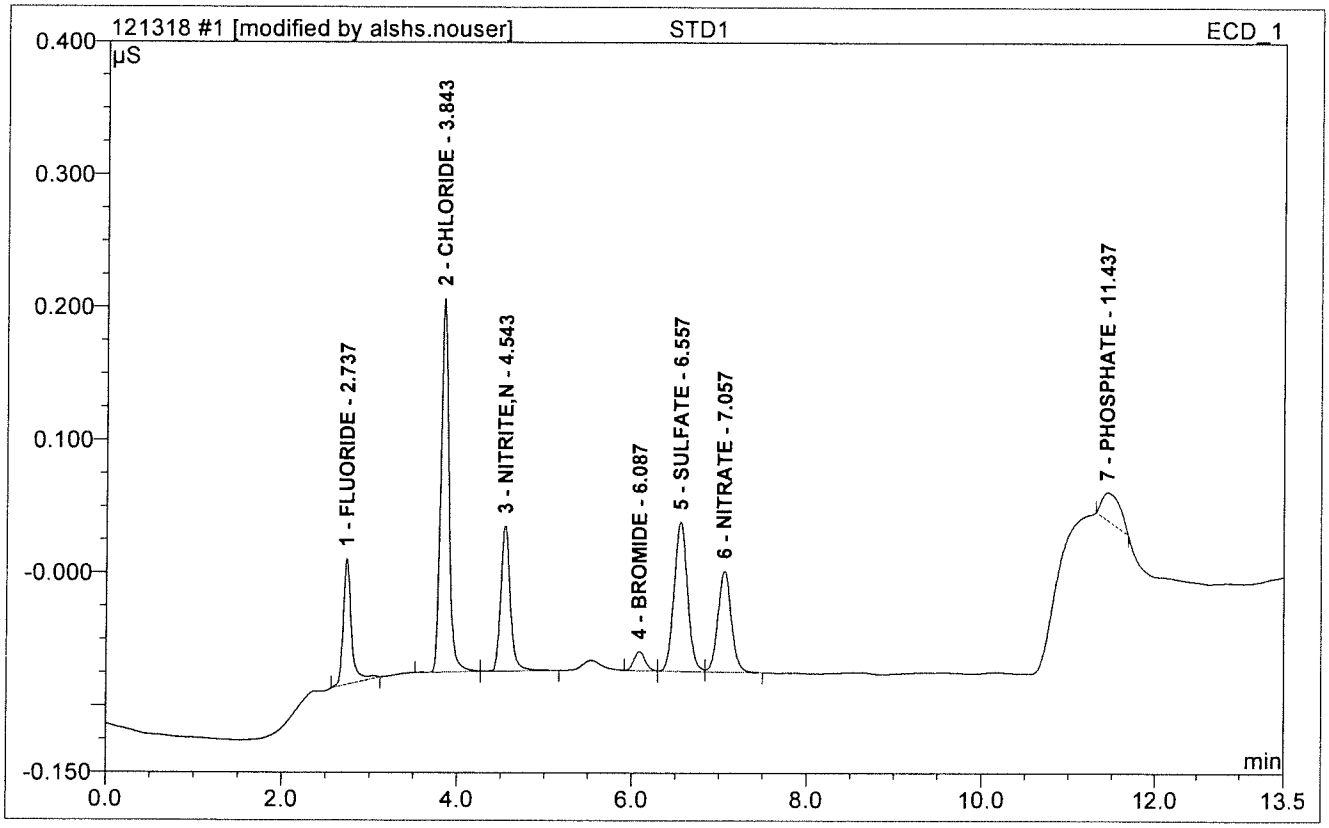
1 STD1

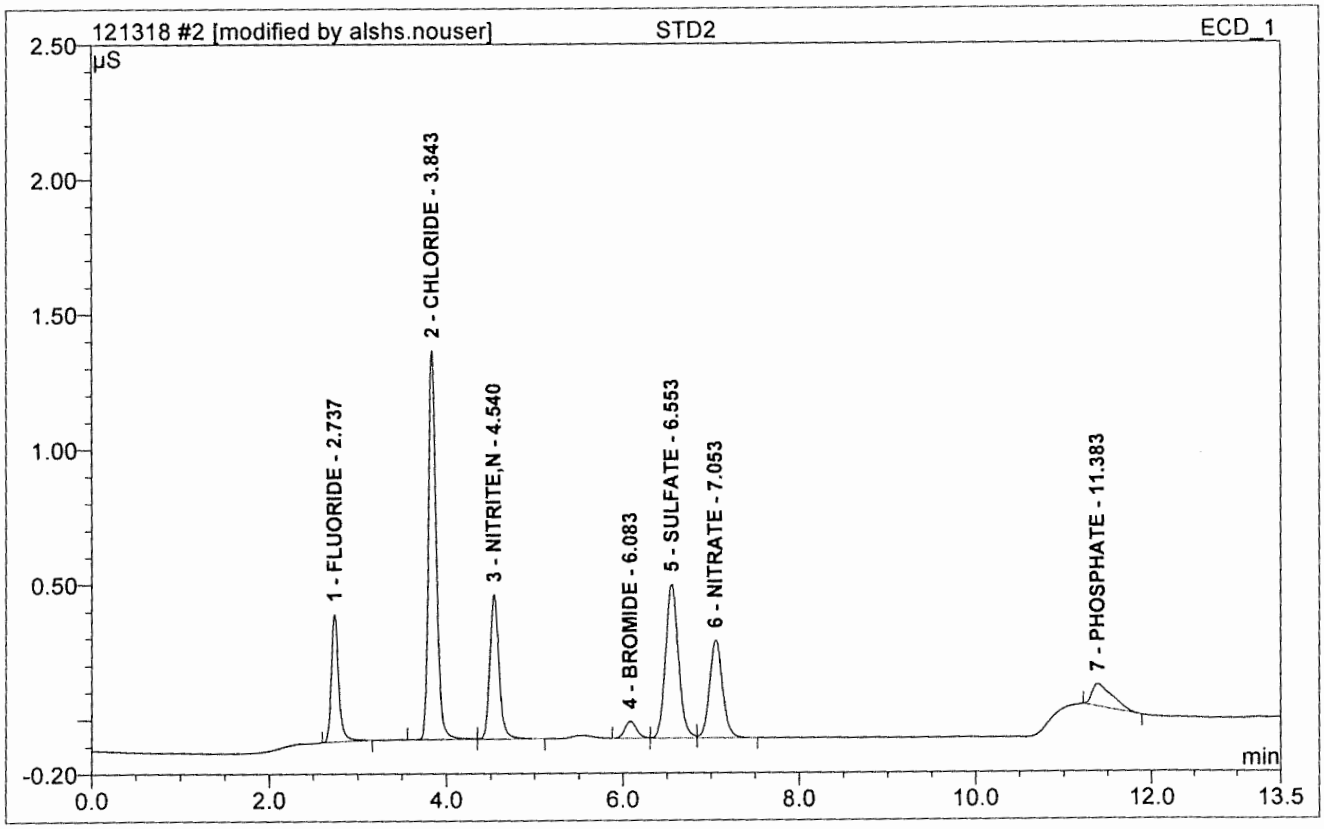
Sample Name:	**STD1**	*Injection Volume:*	**10.0**
Vial Number:	**91**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**121218**	*Dilution Factor:*	**1.**
Recording Time:	**12/12/2018 15:52**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.74	FLUORIDE	0.095	0.010	10.60	0.106	1.
2	3.84	CHLORIDE	0.281	0.030	31.72	0.532	1.
3	4.54	NITRITE,N	0.110	0.014	14.54	0.096	1.
4	6.09	BROMIDE	0.015	0.002	2.26	0.137	1.
5	6.56	SULFATE	0.112	0.020	21.05	0.571	1.
6	7.06	NITRATE	0.076	0.014	14.23	0.121	1.
7	11.44	PHOSPHATE	0.021	0.005	5.60	0.138	1.
Total:			0.709	0.096	100.00	1.701	

2 STD2

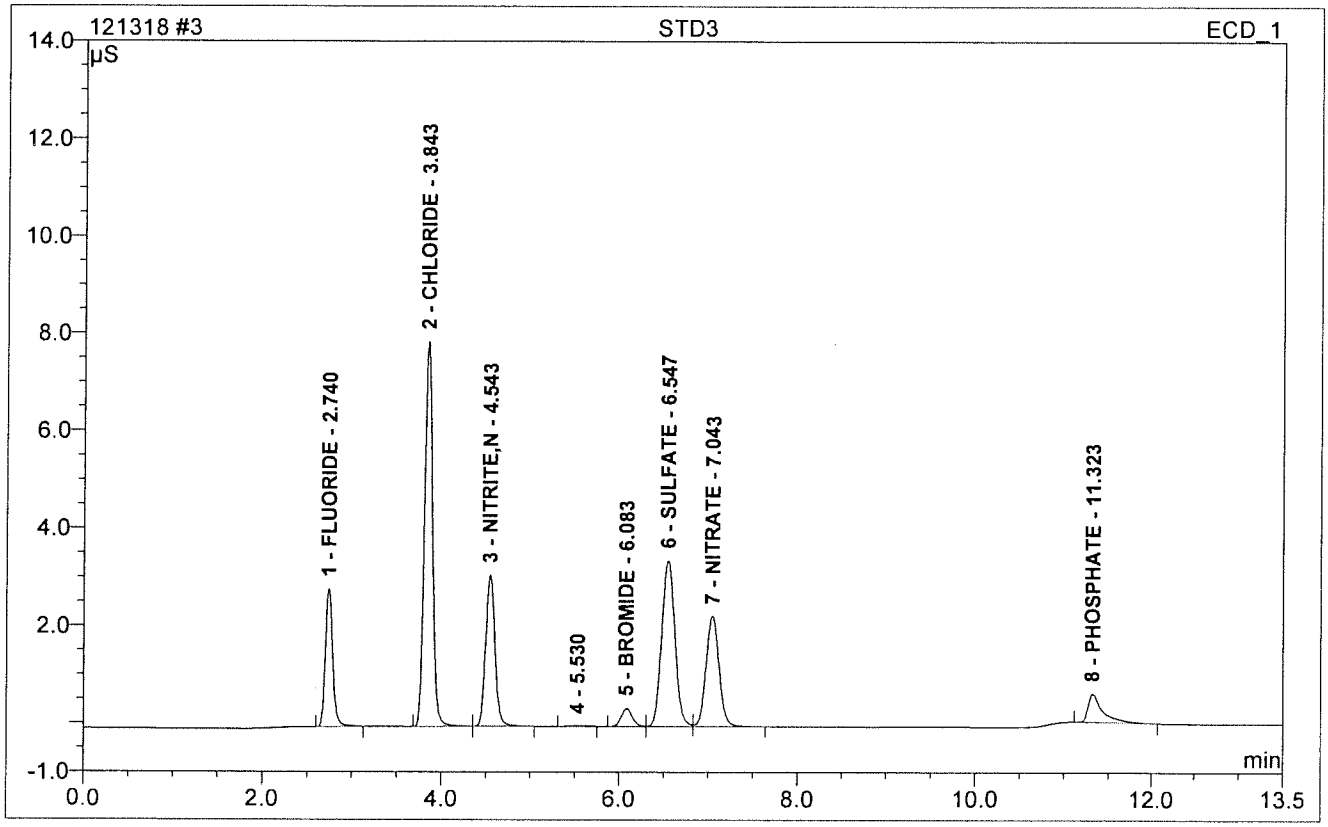
Sample Name:	**STD2**	*Injection Volume:*	**10.0**
Vial Number:	**92**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**121218**	*Dilution Factor:*	**1.**
Recording Time:	**12/12/2018 16:07**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.74	FLUORIDE	0.474	0.046	10.15	0.359	1.
2	3.84	CHLORIDE	1.439	0.149	33.19	1.875	1.
3	4.54	NITRITE,N	0.535	0.064	14.31	0.366	1.
4	6.08	BROMIDE	0.063	0.010	2.13	0.348	1.
5	6.55	SULFATE	0.568	0.097	21.51	1.771	1.
6	7.05	NITRATE	0.361	0.062	13.74	0.341	1.
7	11.38	PHOSPHATE	0.083	0.022	4.97	0.367	1.
Total:			3.522	0.449	100.00	5.427	

3 STD3

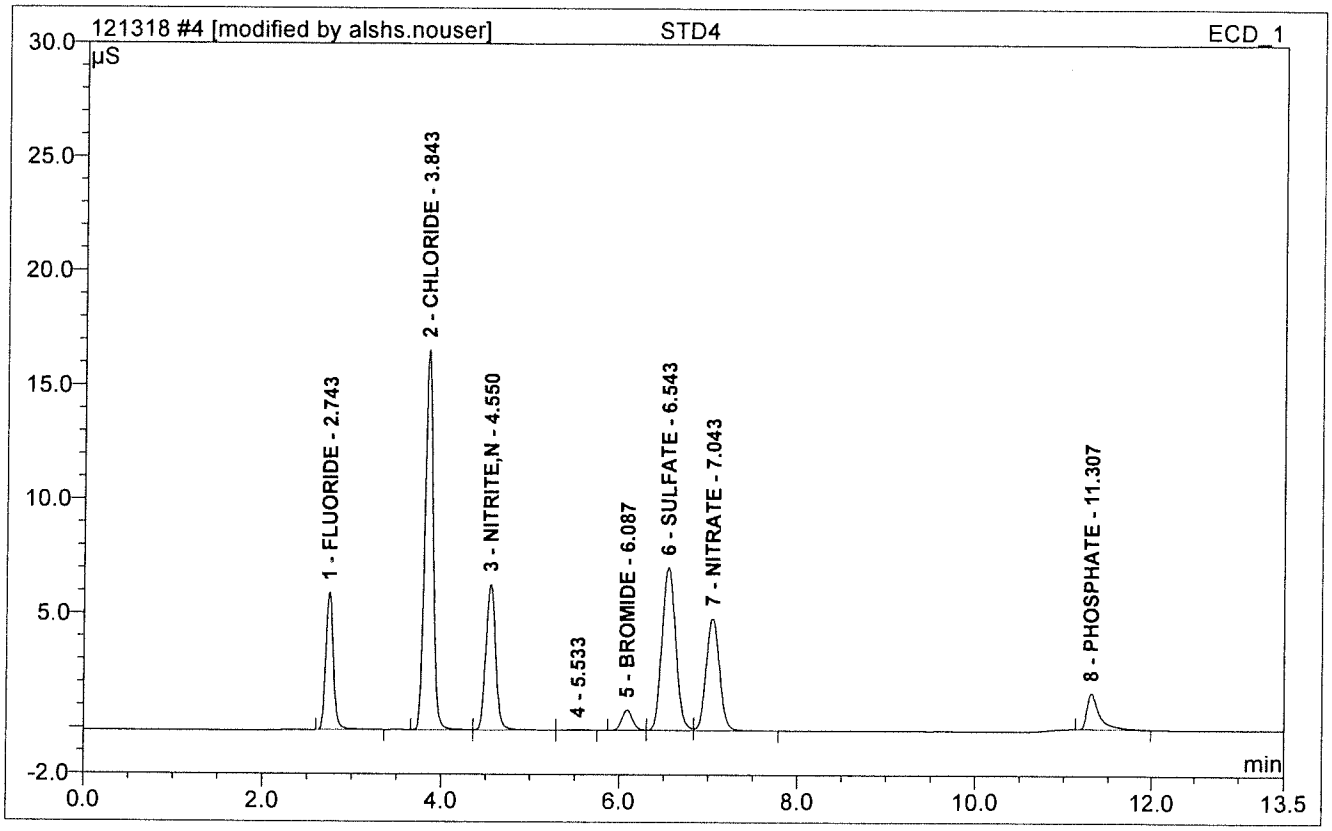
Sample Name:	**STD3**	*Injection Volume:*	**10.0**
Vial Number:	**93**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**121218**	*Dilution Factor:*	**1.**
Recording Time:	**12/12/2018 16:21**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.74	FLUORIDE	2.841	0.270	10.24	1.964	1.
2	3.84	CHLORIDE	7.900	0.843	31.93	9.717	1.
3	4.54	NITRITE,N	3.116	0.382	14.47	2.062	1.
5	6.08	BROMIDE	0.372	0.054	2.05	1.614	1.
6	6.55	SULFATE	3.415	0.589	22.31	9.497	1.
7	7.04	NITRATE	2.279	0.388	14.71	1.837	1.
8	11.32	PHOSPHATE	0.580	0.109	4.15	1.542	1.
Total:			20.503	2.635	99.86	28.233	

4 STD4

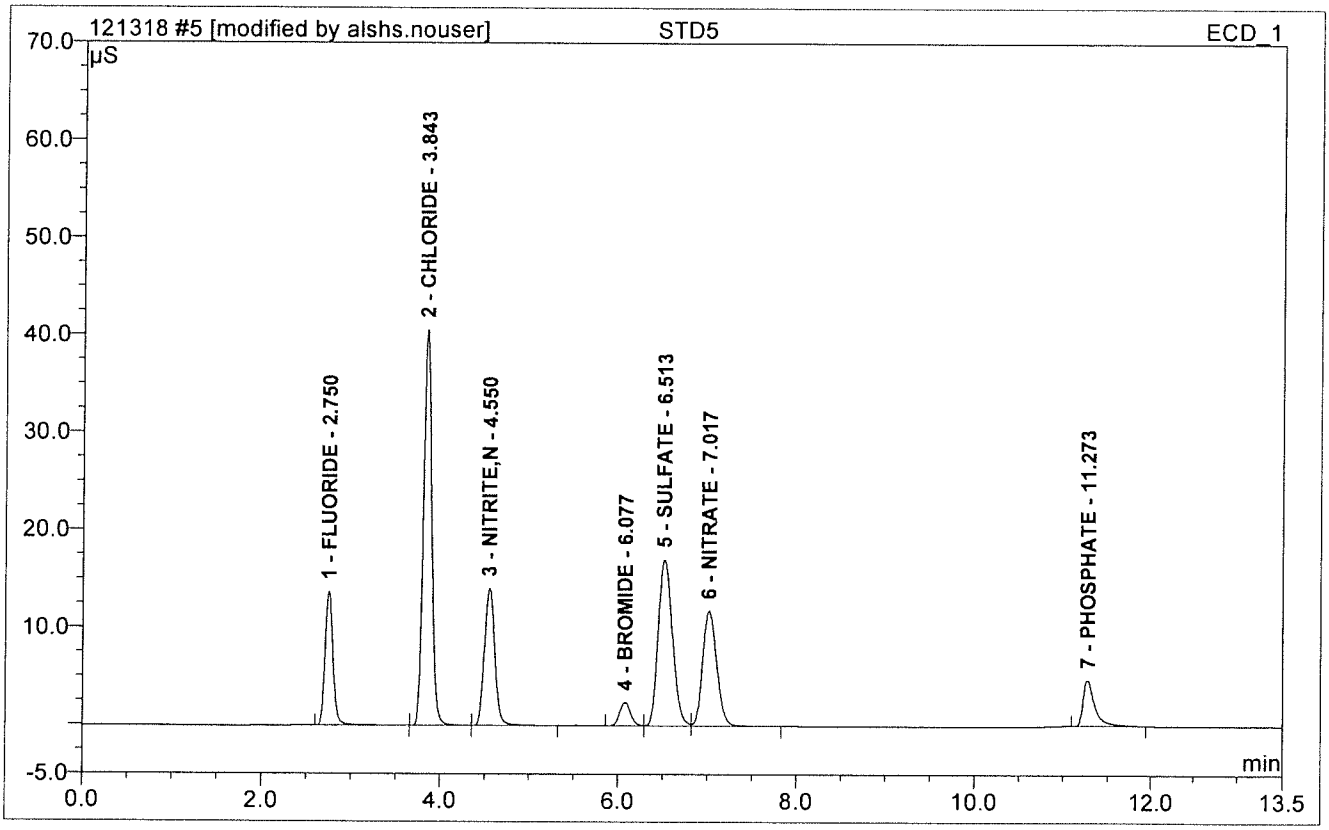
Sample Name:	**STD4**	*Injection Volume:*	**10.0**
Vial Number:	**94**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**121218**	*Dilution Factor:*	**1.**
Recording Time:	**12/12/2018 16:36**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.74	FLUORIDE	6.010	0.591	10.29	4.251	1.
2	3.84	CHLORIDE	16.630	1.799	31.33	20.529	1.
3	4.55	NITRITE,N	6.372	0.816	14.22	4.383	1.
5	6.09	BROMIDE	0.887	0.126	2.20	3.675	1.
6	6.54	SULFATE	7.129	1.281	22.31	20.357	1.
7	7.04	NITRATE	4.918	0.866	15.08	4.025	1.
8	11.31	PHOSPHATE	1.568	0.258	4.49	3.545	1.
Total:			43.514	5.736	99.92	60.764	

5 STD5

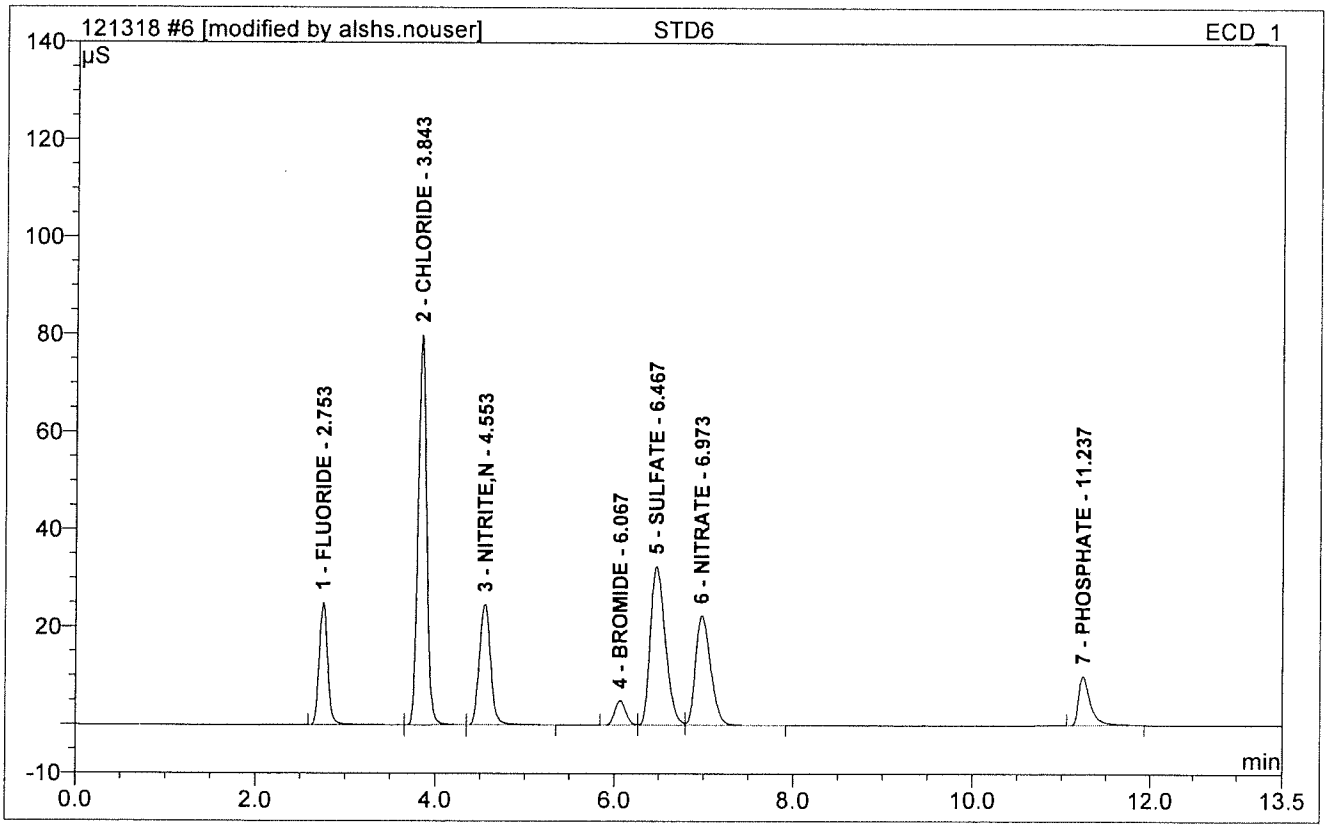
Sample Name:	**STD5**	*Injection Volume:*	**10.0**
Vial Number:	**95**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**121218**	*Dilution Factor:*	**1.**
Recording Time:	**12/12/2018 16:50**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.75	FLUORIDE	13.744	1.431	10.06	10.252	1.
2	3.84	CHLORIDE	40.596	4.426	31.11	50.239	1.
3	4.55	NITRITE,N	14.095	1.927	13.54	10.316	1.
4	6.08	BROMIDE	2.438	0.346	2.43	9.945	1.
5	6.51	SULFATE	17.140	3.186	22.39	50.267	1.
6	7.02	NITRATE	11.863	2.183	15.35	10.062	1.
7	11.27	PHOSPHATE	4.736	0.728	5.12	9.884	1.
Total:			104.613	14.227	100.00	150.965	

6 STD6

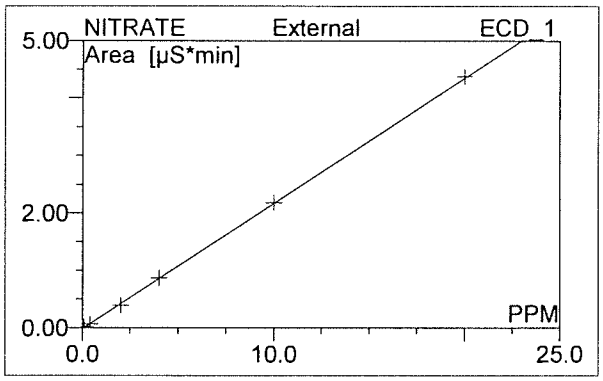
Sample Name:	**STD6**	*Injection Volume:*	**10.0**
Vial Number:	**96**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**121218**	*Dilution Factor:*	**1.**
Recording Time:	**12/12/2018 17:05**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**

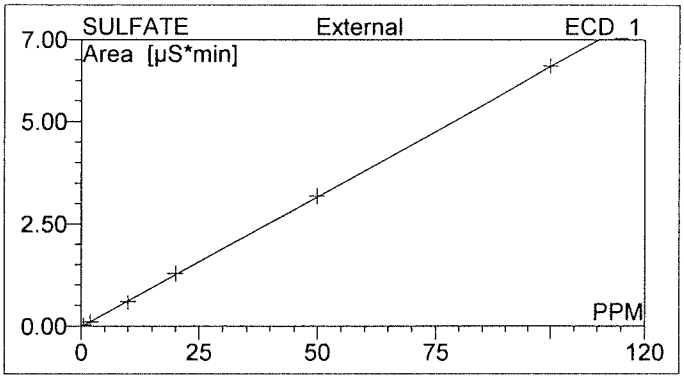


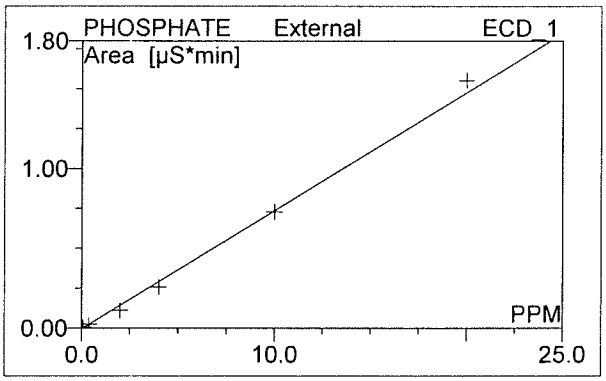
No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.75	FLUORIDE	25.094	2.735	9.72	19.570	1.
2	3.84	CHLORIDE	80.004	8.792	31.24	99.609	1.
3	4.55	NITRITE,N	24.712	3.604	12.80	19.277	1.
4	6.07	BROMIDE	5.012	0.727	2.58	20.782	1.
5	6.47	SULFATE	32.586	6.356	22.58	100.037	1.
6	6.97	NITRATE	22.506	4.377	15.55	20.113	1.
7	11.24	PHOSPHATE	10.023	1.553	5.52	21.023	1.
Total:			199.937	28.145	100.00	300.410	

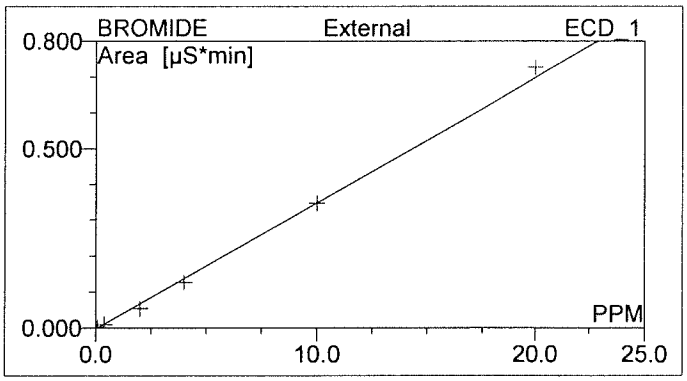
6 STD6

Sample Name:	**STD6**	*Injection Volume:*	**10.0**
Vial Number:	**96**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**121218**	*Dilution Factor:*	**1.**
Recording Time:	**###############**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**









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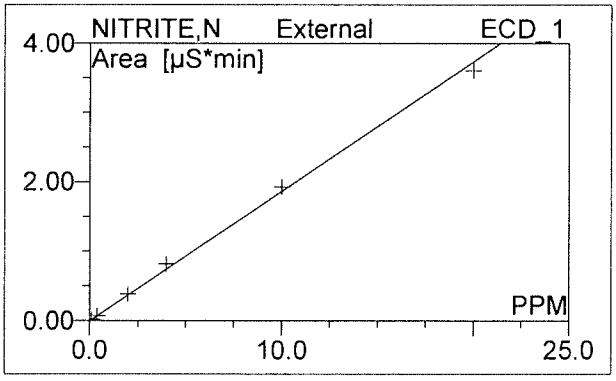
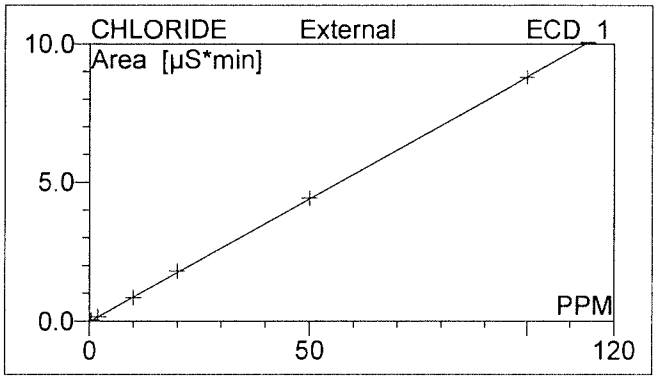
No.	Ret.Time min	Peak Name	Cal.Type	Points	Coeff.Det. %	Offset	Slope	Curve
1	2.75	FLUORIDE	XLOff	6	99.892	-0.0046	0.1400	0.000
2	3.84	CHLORIDE	XLOff	6	99.980	-0.0166	0.0884	0.000
3	4.55	NITRITE,N	XLOff	6	99.770	-0.0041	0.1872	0.000
4	6.07	BROMIDE	XLOff	6	99.551	-0.0026	0.0351	0.000
5	6.47	SULFATE	XLOff	6	99.959	-0.0162	0.0637	0.000
6	6.97	NITRATE	XLOff	6	99.919	-0.0128	0.2183	0.000
7	11.24	PHOSPHATE	XLOff	6	99.331	-0.0049	0.0741	0.000
Average:					99.7718	-0.0088	0.1153	0.0000

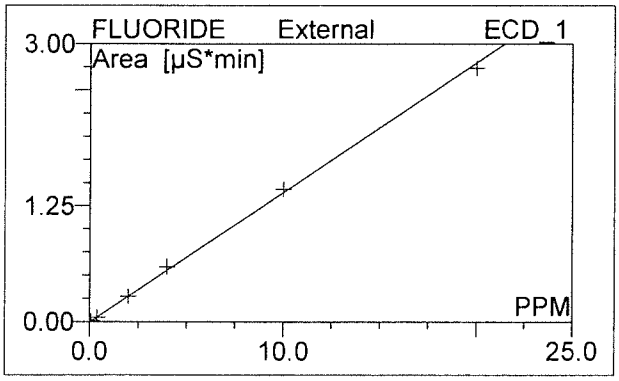
No.	Ret.Time min	Peak Name	Cal.Type	Points	Corr.Coeff. %	RF-Value	Std.Dev.	RSD %
1	2.75	FLUORIDE	XLOff	6	99.946	7.143	0.009	15.424
2	3.84	CHLORIDE	XLOff	6	99.990	11.308	0.012	6.781
3	4.55	NITRITE,N	XLOff	6	99.885	5.343	0.017	21.923
4	6.07	BROMIDE	XLOff	6	99.775	28.489	0.005	35.074
5	6.47	SULFATE	XLOff	6	99.980	15.698	0.013	9.916
6	6.97	NITRATE	XLOff	6	99.959	4.582	0.012	14.239
7	11.24	PHOSPHATE	XLOff	6	99.665	13.491	0.012	41.812
Average:					99.8858	12.2932	0.0114	20.7385

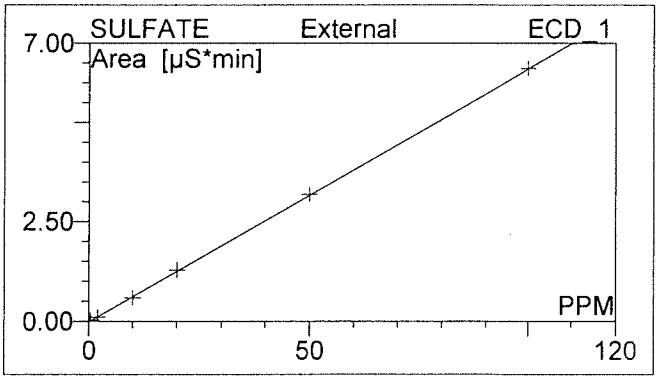
6 STD6

Sample Name:	**STD6**	*Injection Volume:*	**10.0**
Vial Number:	**96**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**121218**	*Dilution Factor:*	**1.000**
Recording Time:	**12/12/2018 17:05**	*Sample Weight/Volume:*	**1.000**
Run Time (min):	**13.50**	*Final Volume:*	**1.000**









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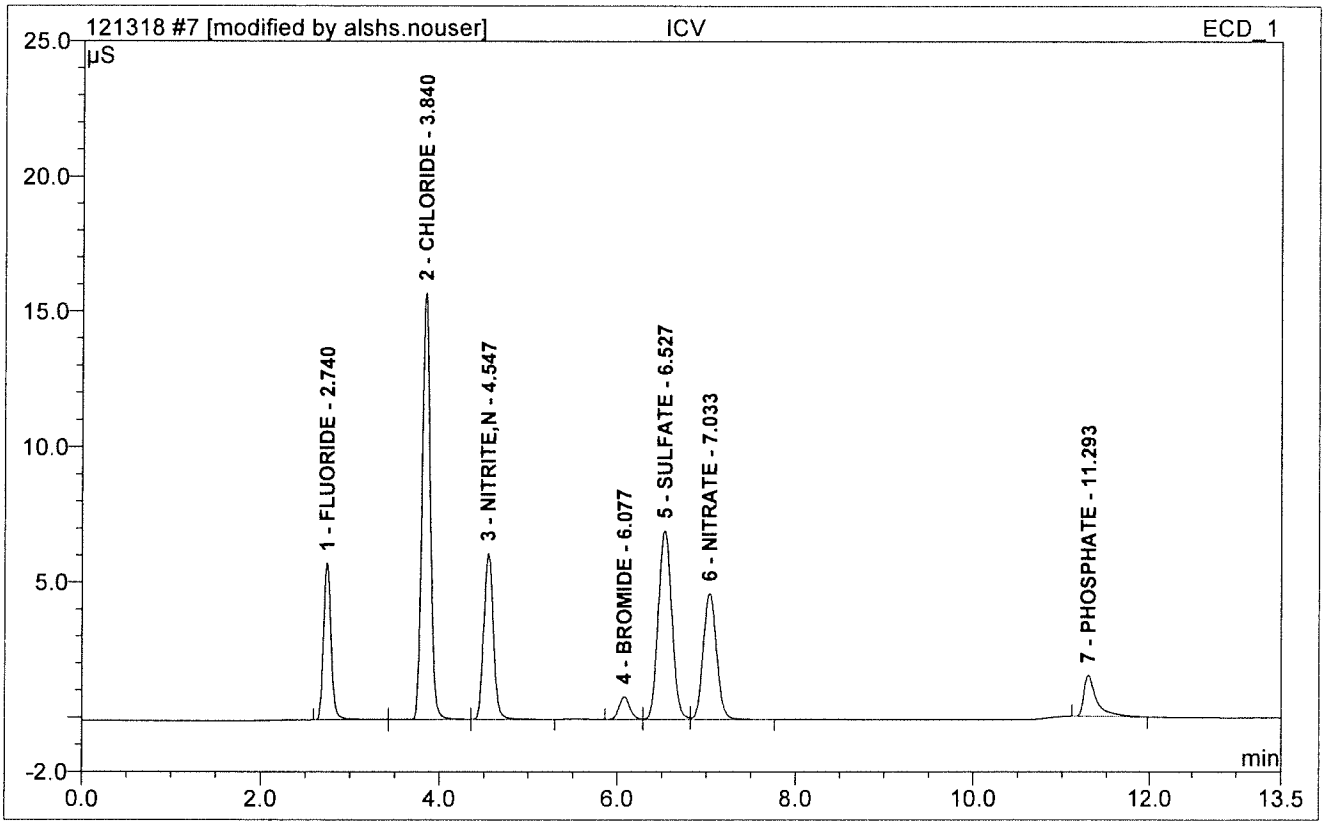
No.	Ret.Time min	Peak Name	Cal.Type	Points	Coeff.Det. %	Offset	Slope	Curve
1	2.75	FLUORIDE	XLOff	6	99.8920	-0.0046	0.1400	0.000
2	3.84	CHLORIDE	XLOff	6	99.9796	-0.0166	0.0884	0.000
3	4.55	NITRITE,N	XLOff	6	99.7703	-0.0041	0.1872	0.000
4	6.07	BROMIDE	XLOff	6	99.5513	-0.0026	0.0351	0.000
5	6.47	SULFATE	XLOff	6	99.9591	-0.0162	0.0637	0.000
6	6.97	NITRATE	XLOff	6	99.9189	-0.0128	0.2183	0.000
7	11.24	PHOSPHATE	XLOff	6	99.3314	-0.0049	0.0741	0.000
Average:					99.7718	-0.0088	0.1153	0.000

No.	Ret.Time min	Peak Name	Cal.Type	Points	Corr.Coeff. %	RF-Value	Std.Dev.	RSD %
1	2.75	FLUORIDE	XLOff	6	99.946	7.143	0.009	15.424
2	3.84	CHLORIDE	XLOff	6	99.990	11.308	0.012	6.781
3	4.55	NITRITE,N	XLOff	6	99.885	5.343	0.017	21.923
4	6.07	BROMIDE	XLOff	6	99.775	28.489	0.005	35.074
5	6.47	SULFATE	XLOff	6	99.980	15.698	0.013	9.916
6	6.97	NITRATE	XLOff	6	99.959	4.582	0.012	14.239
7	11.24	PHOSPHATE	XLOff	6	99.665	13.491	0.012	41.812
Average:					99.8858	12.293	0.011	20.739

7 ICV

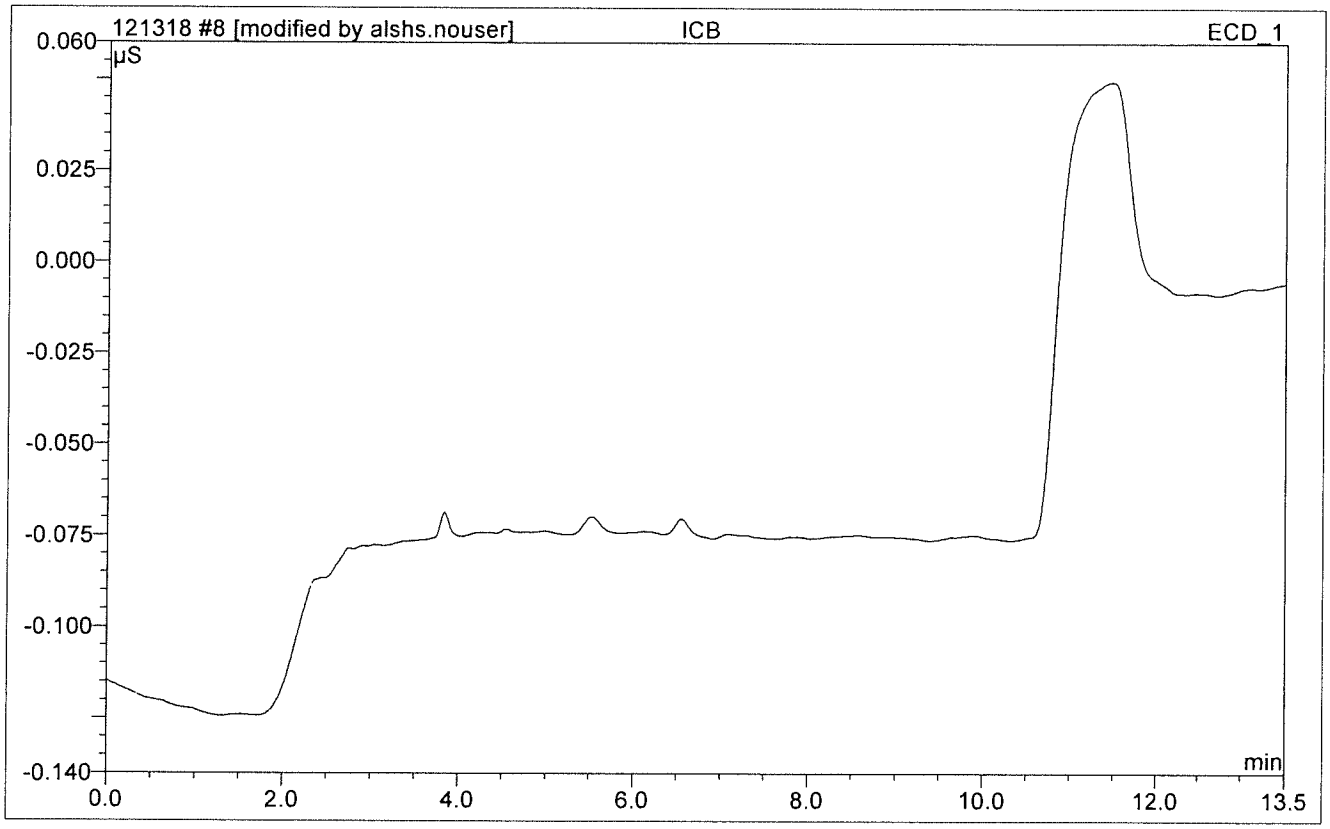
Sample Name:	**ICV**	*Injection Volume:*	**10.0**
Vial Number:	**97**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**121218**	*Dilution Factor:*	**1.**
Recording Time:	**12/12/2018 17:19**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.74	FLUORIDE	5.803	0.572	10.40	4.119	1.
2	3.84	CHLORIDE	15.767	1.715	31.18	19.578	1.
3	4.55	NITRITE,N	6.151	0.786	14.30	4.224	1.
4	6.08	BROMIDE	0.844	0.120	2.19	3.506	1.
5	6.53	SULFATE	6.990	1.234	22.43	19.619	1.
6	7.03	NITRATE	4.677	0.820	14.90	3.813	1.
7	11.29	PHOSPHATE	1.523	0.252	4.58	3.465	1.
Total:			41.755	5.499	100.00	58.324	

8 ICB

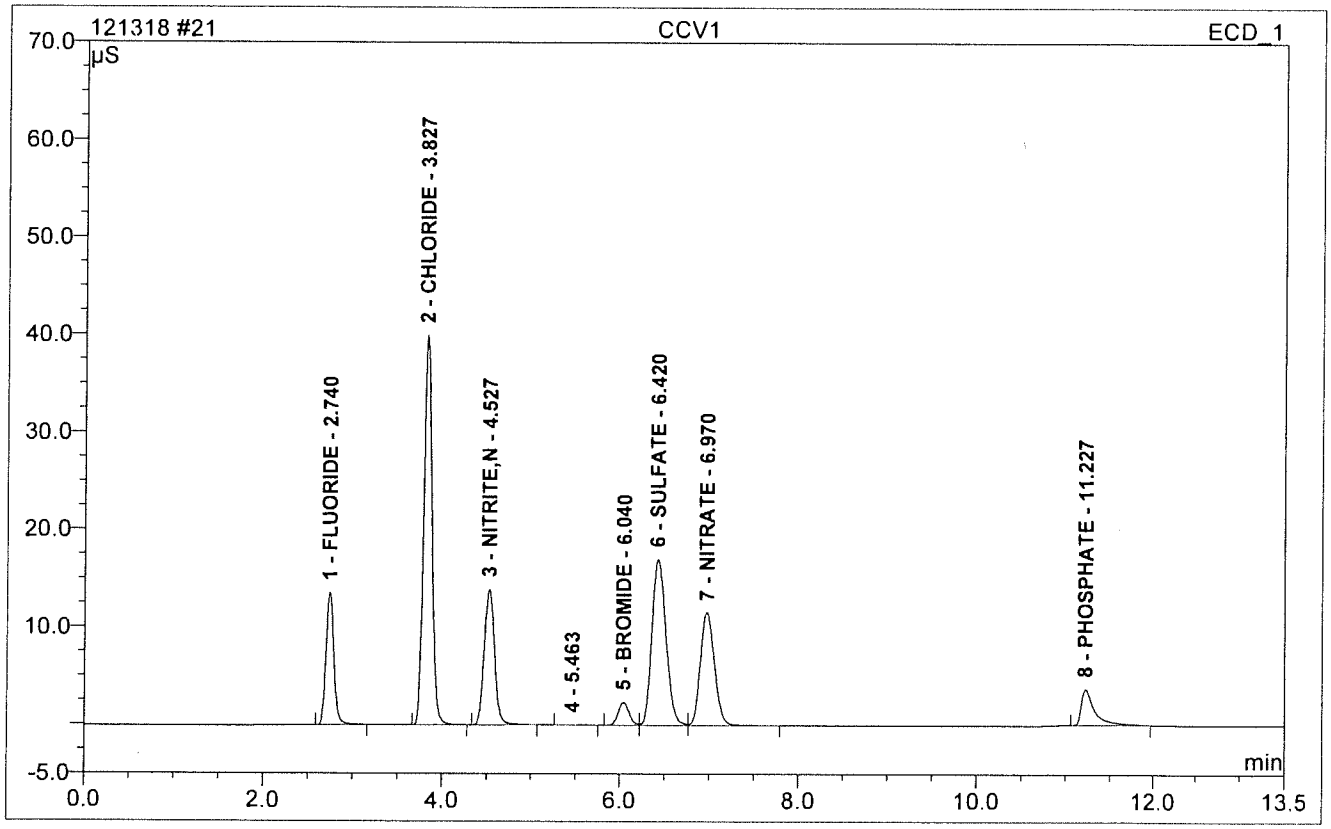
Sample Name:	**ICB**	*Injection Volume:*	**10.0**
Vial Number:	**98**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**121218**	*Dilution Factor:*	**1.**
Recording Time:	**12/12/2018 17:34**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
Total:			0.000	0.000	0.00	0.000	

21 CCV1

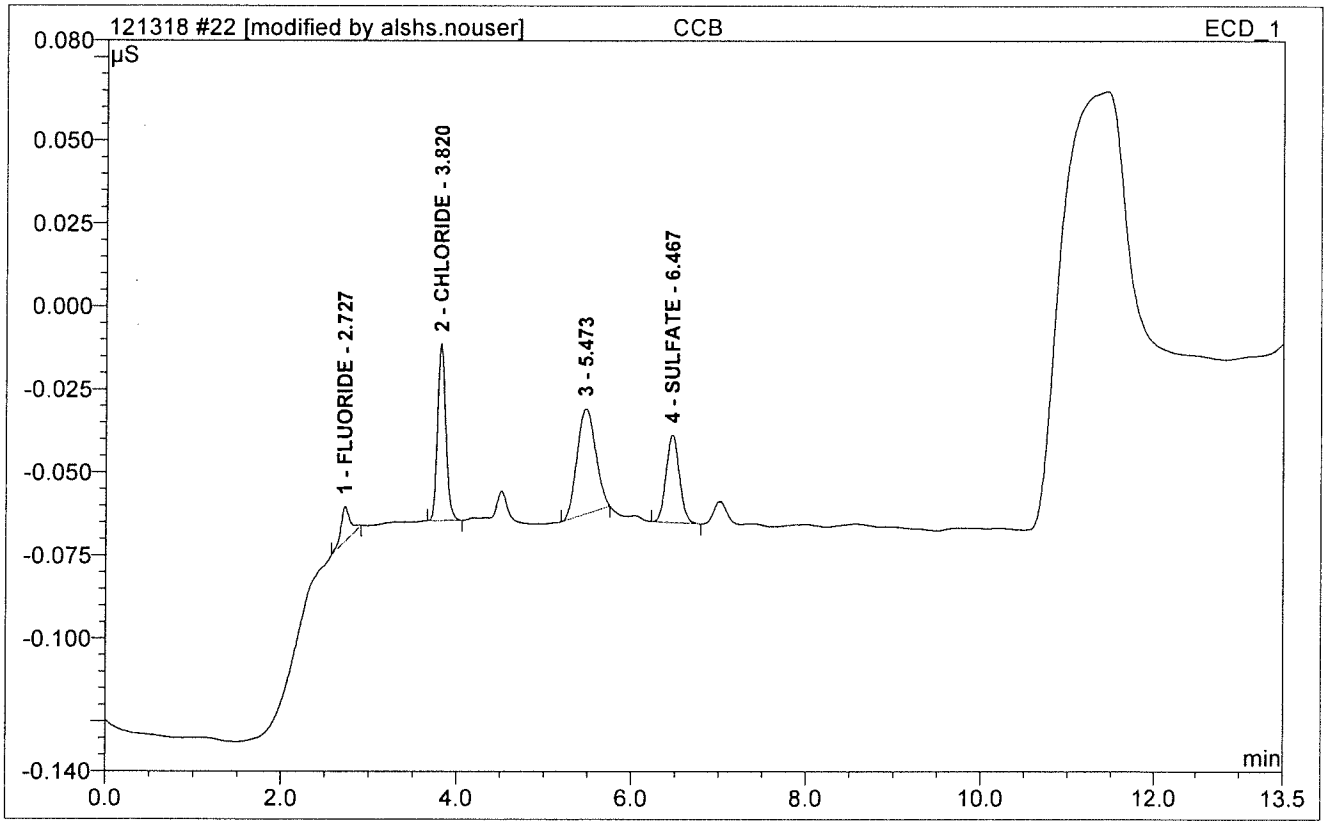
Sample Name:	**CCV1**	*Injection Volume:*	**10.0**
Vial Number:	**3**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**121218**	*Dilution Factor:*	**1.**
Recording Time:	**12/13/2018 15:43**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.74	FLUORIDE	13.559	1.393	10.04	9.981	1.
2	3.83	CHLORIDE	39.956	4.347	31.33	49.341	1.
3	4.53	NITRITE,N	13.899	1.889	13.62	10.117	1.
5	6.04	BROMIDE	2.328	0.332	2.39	9.536	1.
6	6.42	SULFATE	17.031	3.132	22.58	49.421	1.
7	6.97	NITRATE	11.597	2.134	15.38	9.837	1.
8	11.23	PHOSPHATE	3.684	0.640	4.61	8.694	1.
Total:			102.053	13.867	99.96	146.927	

22 CCB

Sample Name:	**CCB**	*Injection Volume:*	**10.0**
Vial Number:	**4**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**121218**	*Dilution Factor:*	**1.**
Recording Time:	**12/13/2018 15:57**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**

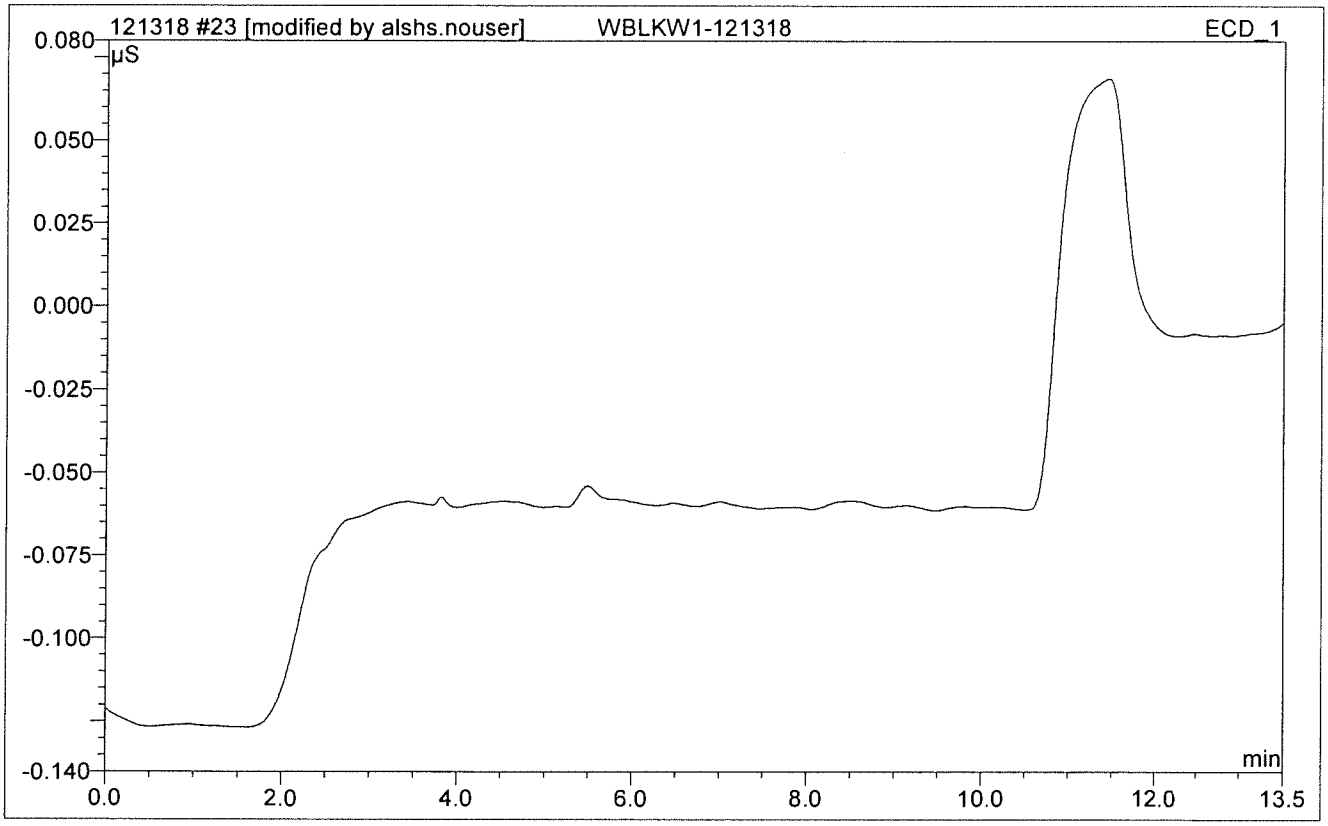


No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.73	FLUORIDE	0.010	0.001	6.29	0.042	1.
2	3.82	CHLORIDE	0.053	0.006	29.83	0.254	1.
4	6.47	SULFATE	0.026	0.005	24.07	0.328	1.
Total:			0.090	0.012	60.18	0.623	

23 WBLKW1-121318

9056_W

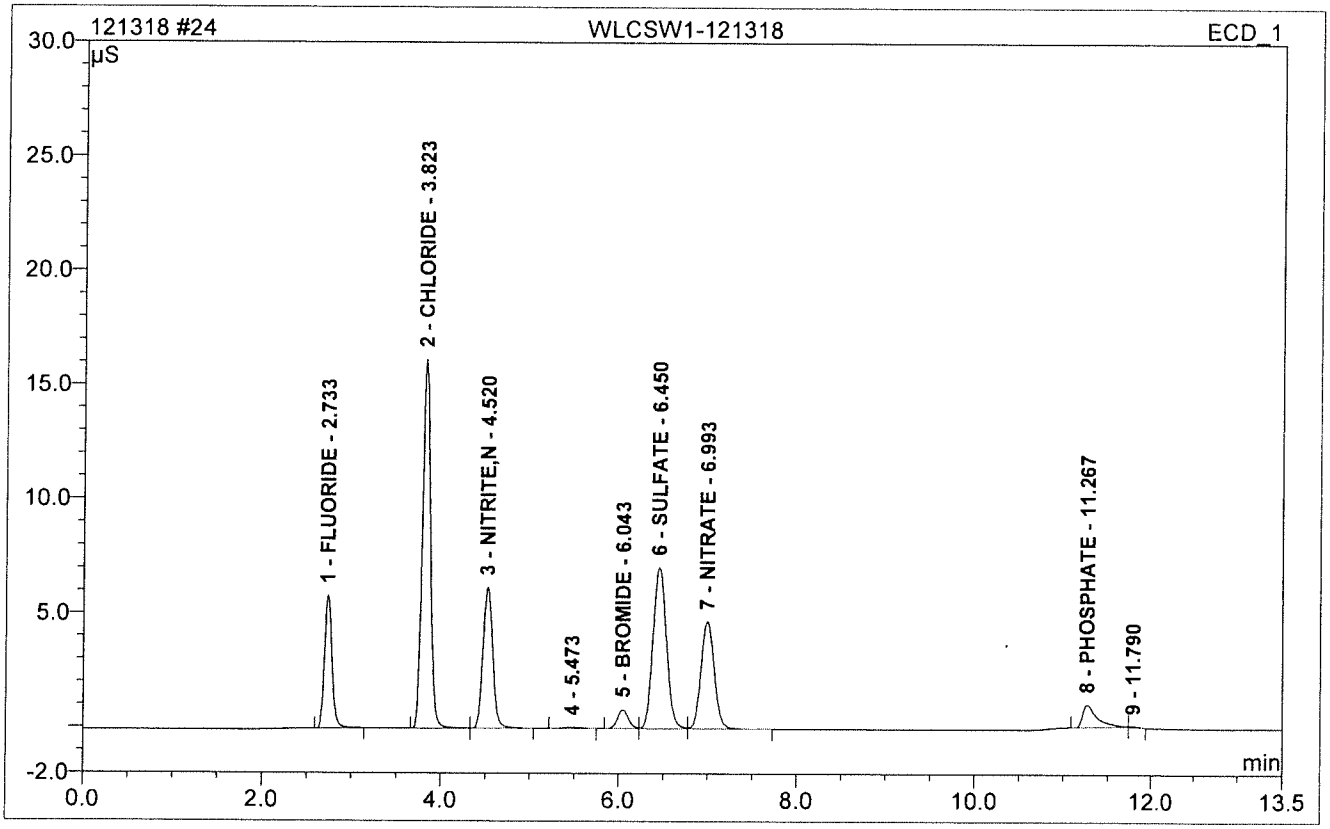
Sample Name:	**WBLKW1-121318**	*Injection Volume:*	**10.0**
Vial Number:	**21**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**121218**	*Dilution Factor:*	**1.**
Recording Time:	**12/13/2018 16:12**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
Total:			0.000	0.000	0.00	0.000	

24 WLCSW1-121318

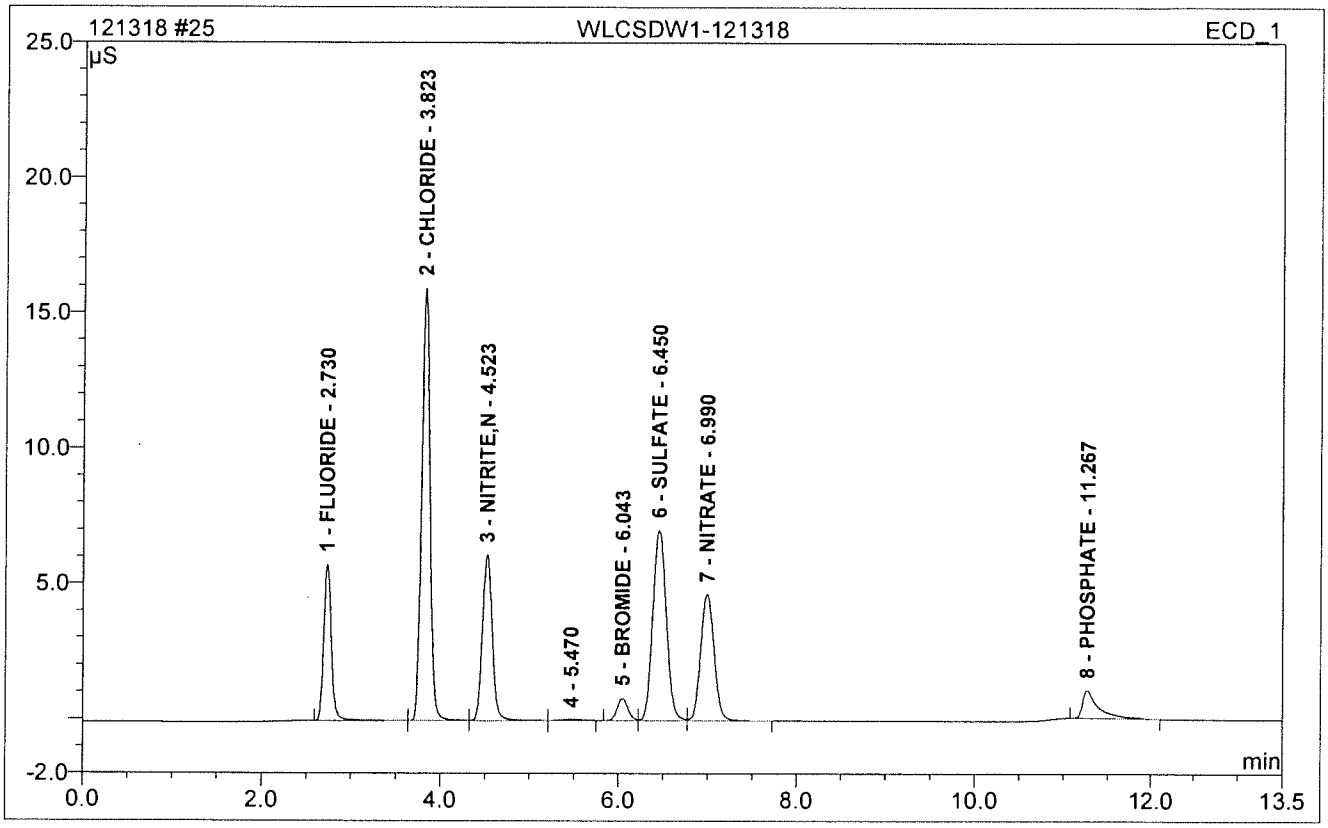
Sample Name:	**WLCSW1-121318**	*Injection Volume:*	**10.0**
Vial Number:	**22**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**121218**	*Dilution Factor:*	**1.**
Recording Time:	**12/13/2018 16:26**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.73	FLUORIDE	5.834	0.569	10.38	4.101	1.
2	3.82	CHLORIDE	16.157	1.739	31.70	19.851	1.
3	4.52	NITRITE,N	6.180	0.787	14.35	4.228	1.
5	6.04	BROMIDE	0.828	0.118	2.15	3.428	1.
6	6.45	SULFATE	7.090	1.251	22.81	19.895	1.
7	6.99	NITRATE	4.732	0.825	15.05	3.840	1.
8	11.27	PHOSPHATE	0.988	0.183	3.34	2.537	1.
Total:			41.807	5.473	99.77	57.880	

25 WLCSDW1-121318

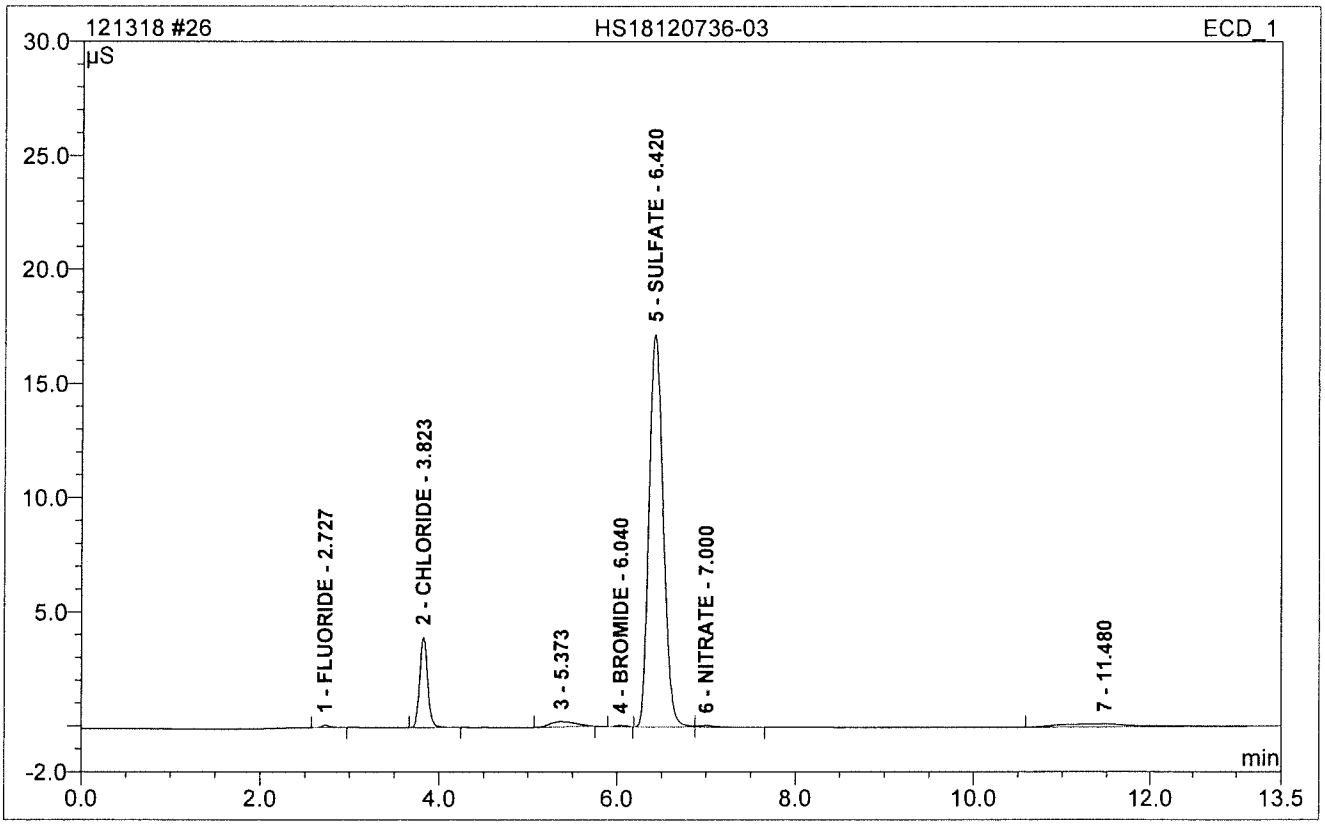
Sample Name:	**WLCSDW1-121318**	*Injection Volume:*	**10.0**
Vial Number:	**23**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**121218**	*Dilution Factor:*	**1.**
Recording Time:	**12/13/2018 16:41**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.73	FLUORIDE	5.764	0.571	10.43	4.109	1.
2	3.82	CHLORIDE	15.977	1.726	31.54	19.706	1.
3	4.52	NITRITE,N	6.115	0.783	14.31	4.204	1.
5	6.04	BROMIDE	0.819	0.116	2.13	3.390	1.
6	6.45	SULFATE	7.032	1.238	22.62	19.688	1.
7	6.99	NITRATE	4.680	0.815	14.90	3.794	1.
8	11.27	PHOSPHATE	1.020	0.212	3.88	2.931	1.
Total:			41.407	5.462	99.81	57.822	

26 HS18120736-03

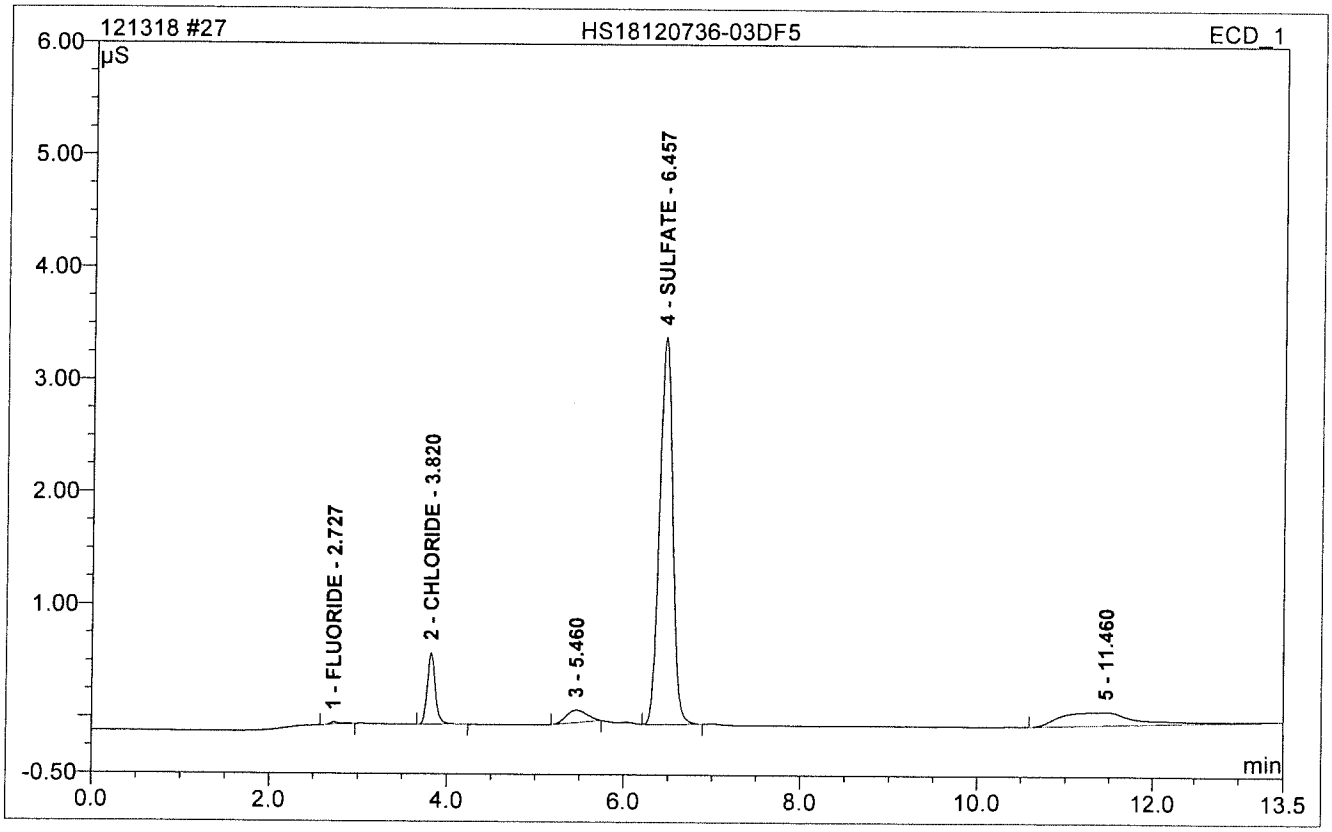
Sample Name:	**HS18120736-03**	*Injection Volume:*	**10.0**
Vial Number:	**28**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**121218**	*Dilution Factor:*	**1.**
Recording Time:	**12/13/2018 16:56**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.73	FLUORIDE	0.102	0.011	0.29	0.112	1.
2	3.82	CHLORIDE	3.951	0.410	10.68	4.827	1.
4	6.04	BROMIDE	0.059	0.008	0.20	0.296	1.
5	6.42	SULFATE	17.210	3.186	82.95	50.275	1.
6	7.00	NITRATE	0.074	0.016	0.41	0.131	1.
Total:			21.396	3.632	94.54	55.642	

27 HS18120736-03DF5

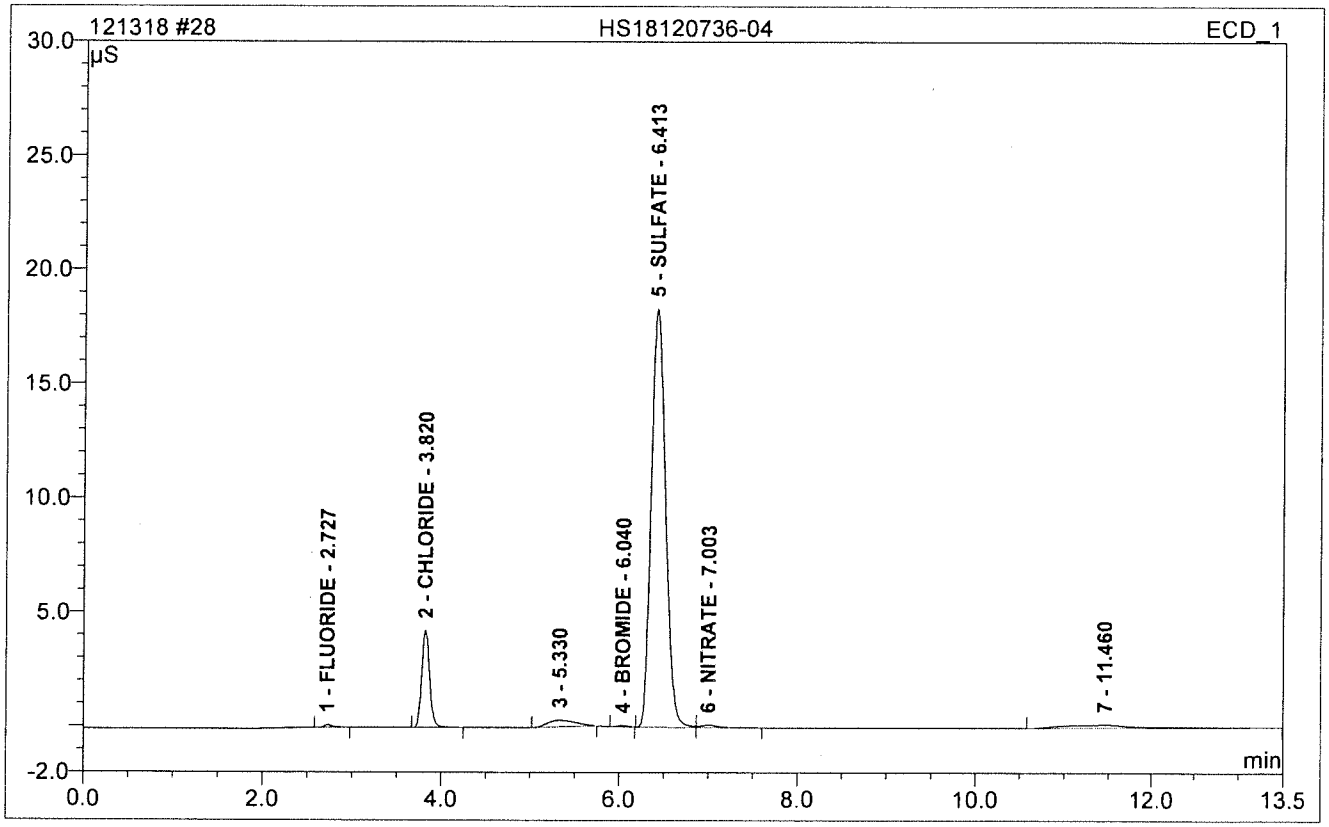
Sample Name:	**HS18120736-03DF5**	*Injection Volume:*	**10.0**
Vial Number:	**29**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**121218**	*Dilution Factor:*	**5.**
Recording Time:	**12/13/2018 17:10**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.73	FLUORIDE	0.020	0.003	0.34	0.263	5.
2	3.82	CHLORIDE	0.635	0.066	8.12	4.683	5.
4	6.46	SULFATE	3.449	0.591	72.51	47.643	5.
Total:			4.104	0.660	80.97	52.588	

28 HS18120736-04

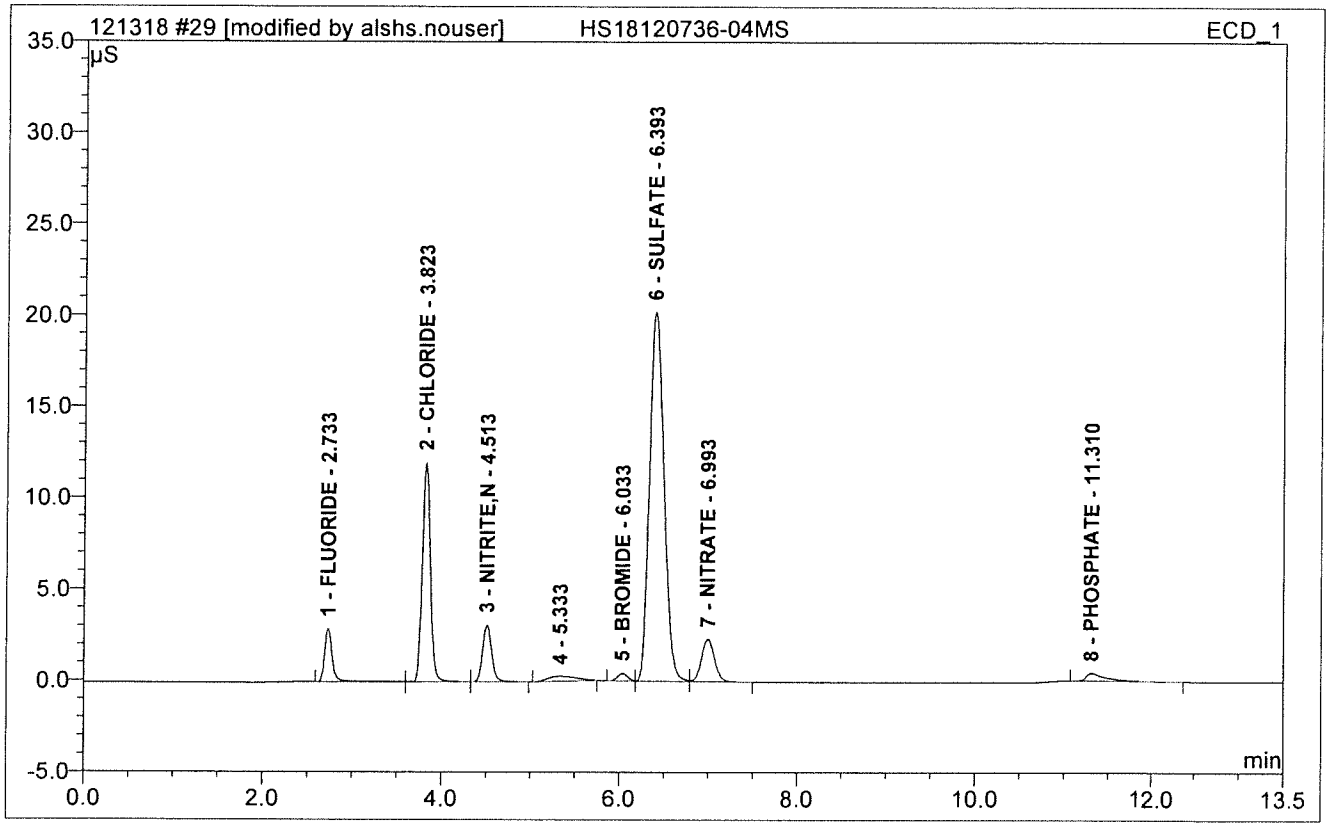
Sample Name:	**HS18120736-04**	*Injection Volume:*	**10.0**
Vial Number:	**30**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**121218**	*Dilution Factor:*	**1.**
Recording Time:	**12/13/2018 17:25**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.73	FLUORIDE	0.119	0.013	0.31	0.123	1.
2	3.82	CHLORIDE	4.254	0.440	10.71	5.166	1.
4	6.04	BROMIDE	0.060	0.008	0.19	0.295	1.
5	6.41	SULFATE	18.307	3.387	82.39	53.420	1.
6	7.00	NITRATE	0.107	0.022	0.53	0.159	1.
Total:			22.846	3.869	94.12	59.163	

29 HS18120736-04MS

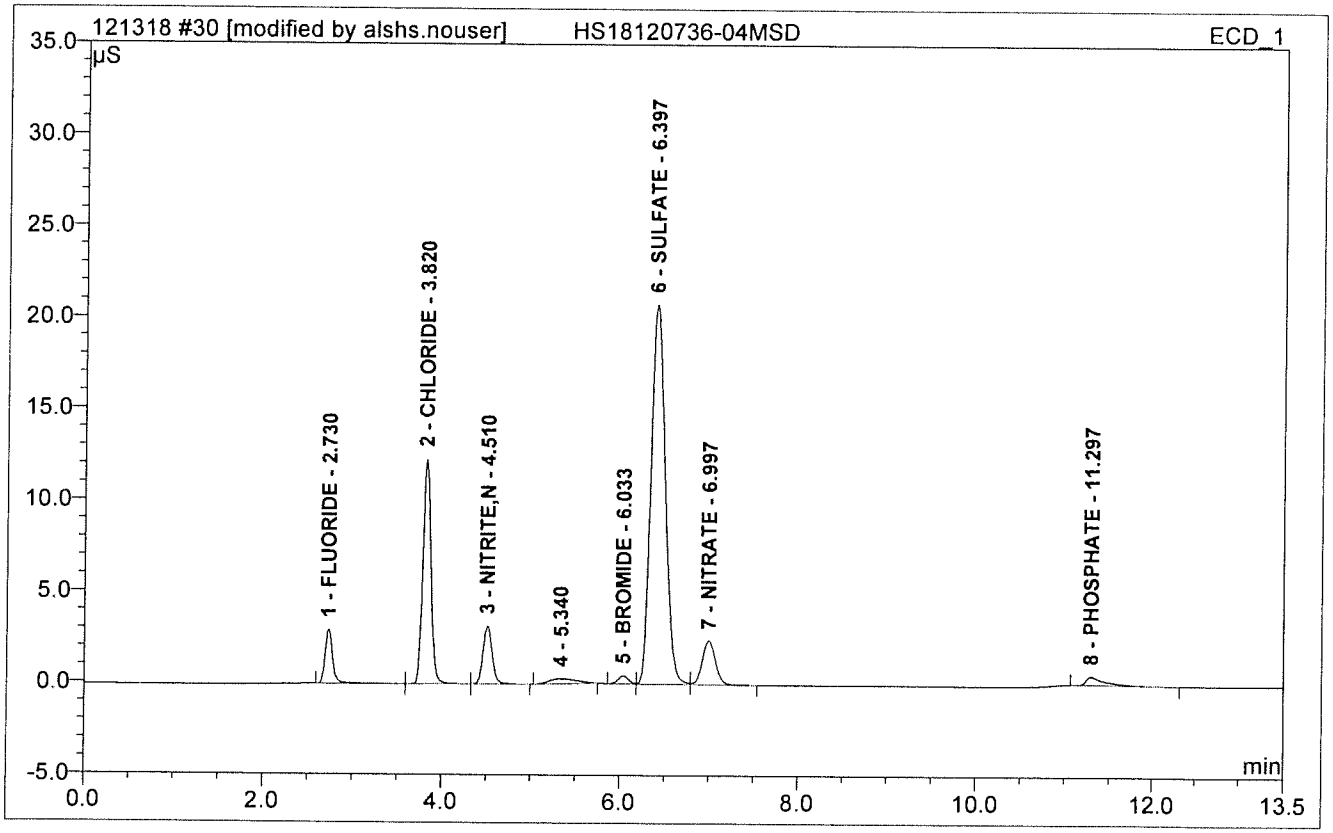
Sample Name:	**HS18120736-04MS**	*Injection Volume:*	**10.0**
Vial Number:	**31**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**121218**	*Dilution Factor:*	**1.**
Recording Time:	**12/13/2018 17:39**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.73	FLUORIDE	2.885	0.281	4.39	2.040	1.
2	3.82	CHLORIDE	11.974	1.272	19.89	14.571	1.
3	4.51	NITRITE,N	3.092	0.368	5.75	1.988	1.
5	6.03	BROMIDE	0.416	0.056	0.88	1.674	1.
6	6.39	SULFATE	20.209	3.818	59.70	60.183	1.
7	6.99	NITRATE	2.327	0.398	6.23	1.884	1.
8	11.31	PHOSPHATE	0.422	0.103	1.61	1.451	1.
Total:			41.326	6.296	98.45	83.790	

30 HS18120736-04MSD

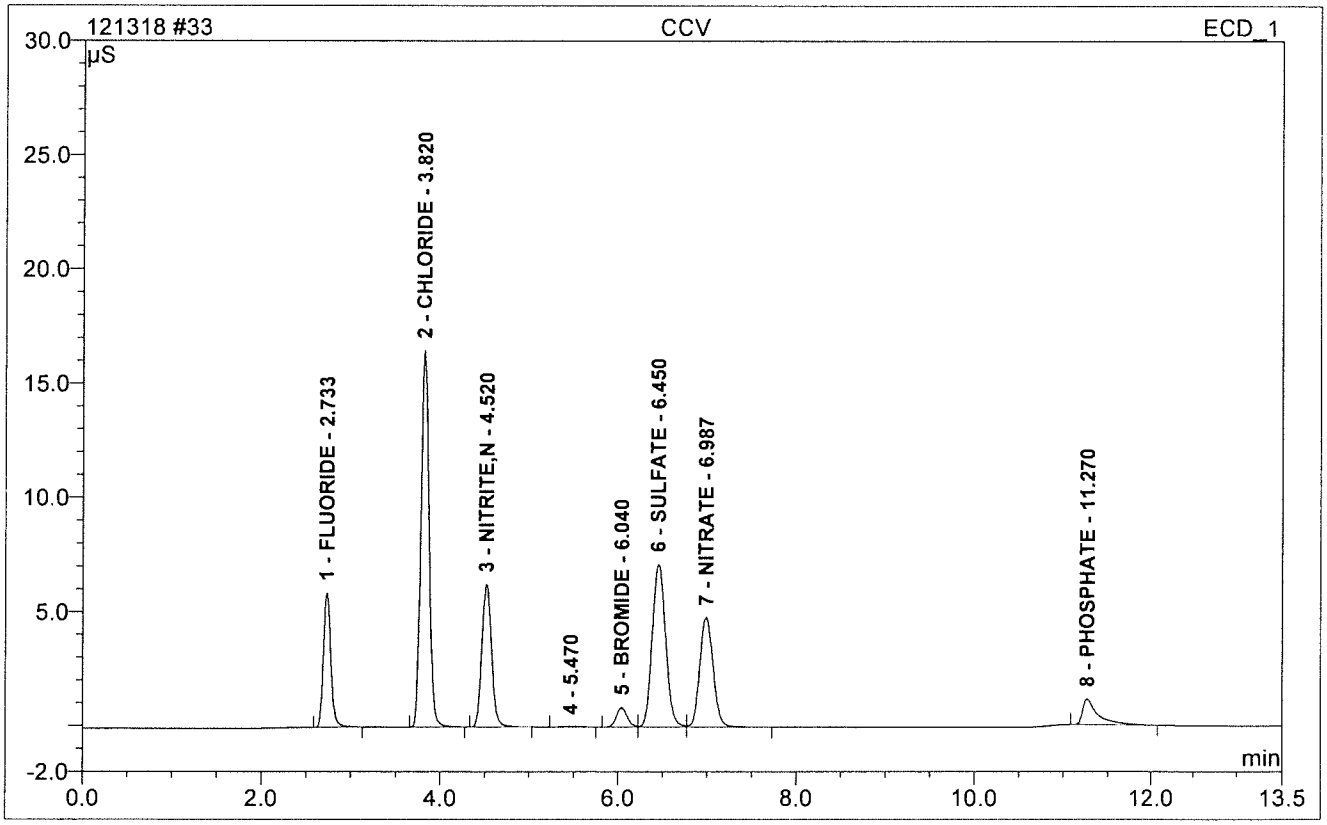
Sample Name:	**HS18120736-04MSD**	*Injection Volume:*	**10.0**
Vial Number:	**32**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**121218**	*Dilution Factor:*	**1.**
Recording Time:	**12/13/2018 17:54**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.73	FLUORIDE	2.960	0.289	4.41	2.097	1.
2	3.82	CHLORIDE	12.293	1.307	19.92	14.967	1.
3	4.51	NITRITE,N	3.171	0.379	5.78	2.047	1.
5	6.03	BROMIDE	0.431	0.058	0.89	1.741	1.
6	6.40	SULFATE	20.774	3.910	59.59	61.632	1.
7	7.00	NITRATE	2.403	0.411	6.27	1.942	1.
8	11.30	PHOSPHATE	0.458	0.109	1.66	1.533	1.
Total:			42.490	6.463	98.51	85.961	

33 CCV

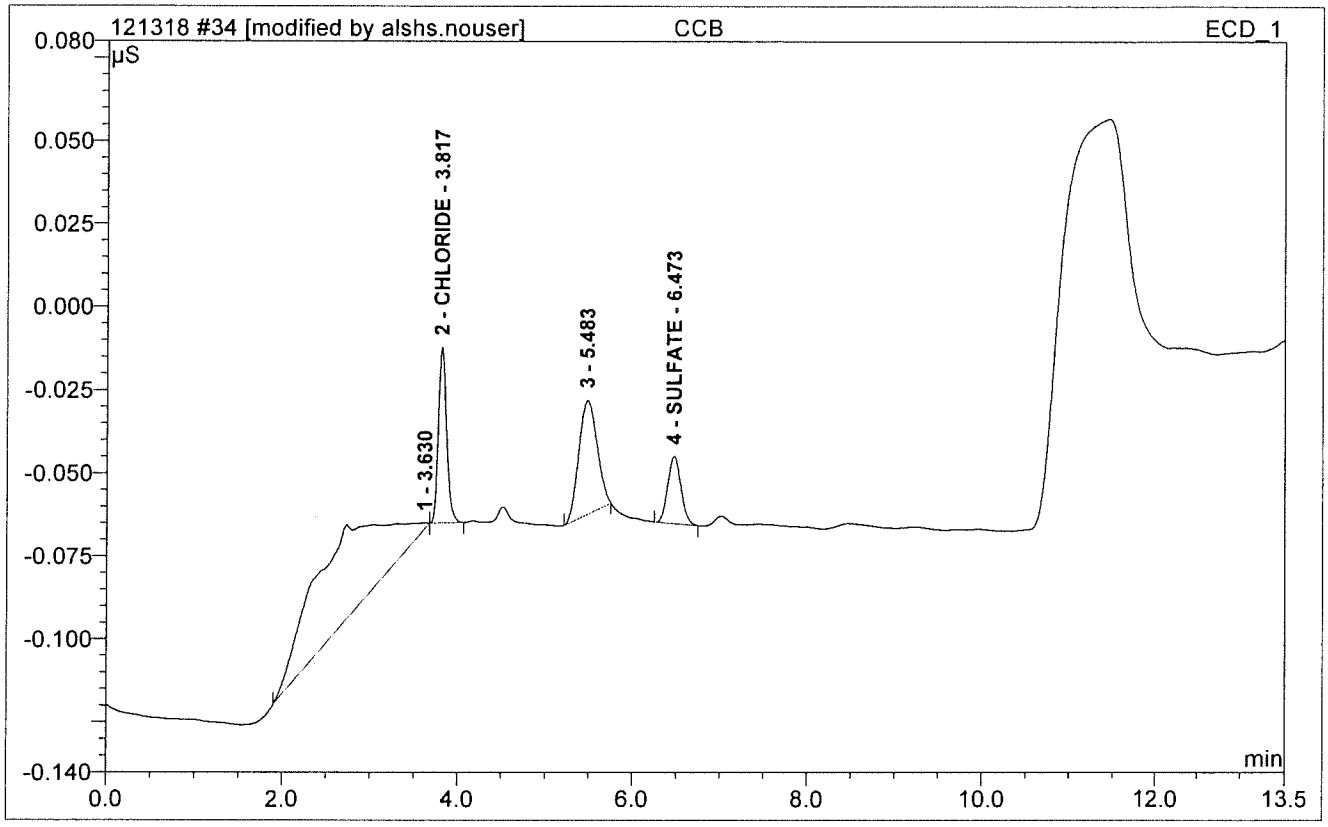
Sample Name:	**CCV**	*Injection Volume:*	**10.0**
Vial Number:	**1**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**121218**	*Dilution Factor:*	**1.**
Recording Time:	**12/13/2018 18:37**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.73	FLUORIDE	5.902	0.575	10.28	4.139	1.
2	3.82	CHLORIDE	16.494	1.771	31.66	20.218	1.
3	4.52	NITRITE,N	6.262	0.794	14.20	4.266	1.
5	6.04	BROMIDE	0.854	0.121	2.16	3.519	1.
6	6.45	SULFATE	7.135	1.260	22.52	20.028	1.
7	6.99	NITRATE	4.828	0.843	15.07	3.921	1.
8	11.27	PHOSPHATE	1.132	0.225	4.02	3.096	1.
Total:			42.607	5.589	99.90	59.187	

34 CCB

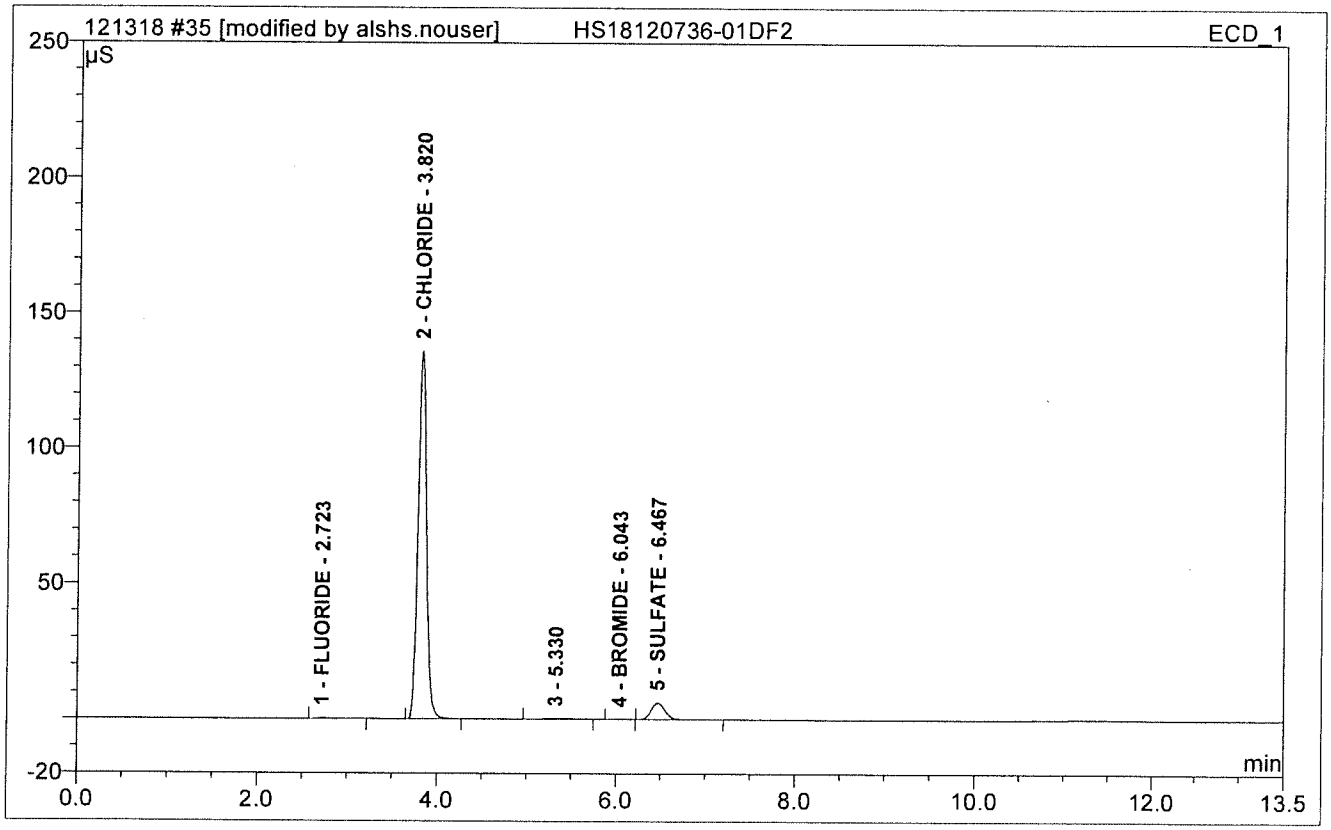
Sample Name:	**CCB**	*Injection Volume:*	**10.0**
Vial Number:	**2**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**121218**	*Dilution Factor:*	**1.**
Recording Time:	**12/13/2018 18:52**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
2	3.82	CHLORIDE	0.053	0.006	12.77	0.253	1.
4	6.47	SULFATE	0.020	0.004	7.95	0.310	1.
Total:			0.073	0.009	20.72	0.563	

35 HS18120736-01DF2

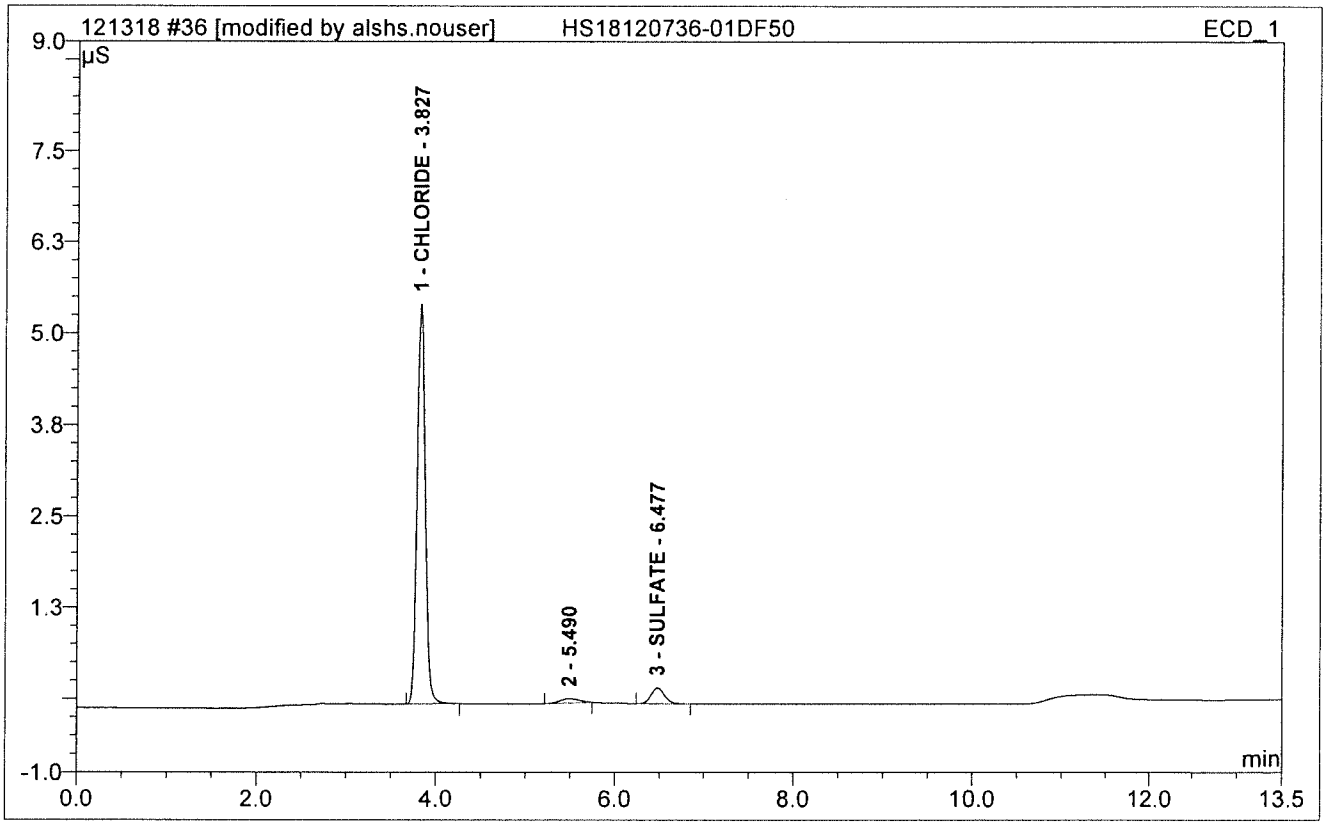
Sample Name:	**HS18120736-01DF2**	*Injection Volume:*	**10.0**
Vial Number:	**24**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**121218**	*Dilution Factor:*	**2.**
Recording Time:	**12/13/2018 19:24**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.72	FLUORIDE	0.308	0.046	0.29	0.726	2.
2	3.82	CHLORIDE	135.899	14.886	92.14	337.035	2.
4	6.04	BROMIDE	0.131	0.018	0.11	1.186	2.
5	6.47	SULFATE	6.159	1.104	6.83	35.169	2.
Total:			142.498	16.054	99.37	374.116	

36 HS18120736-01DF50

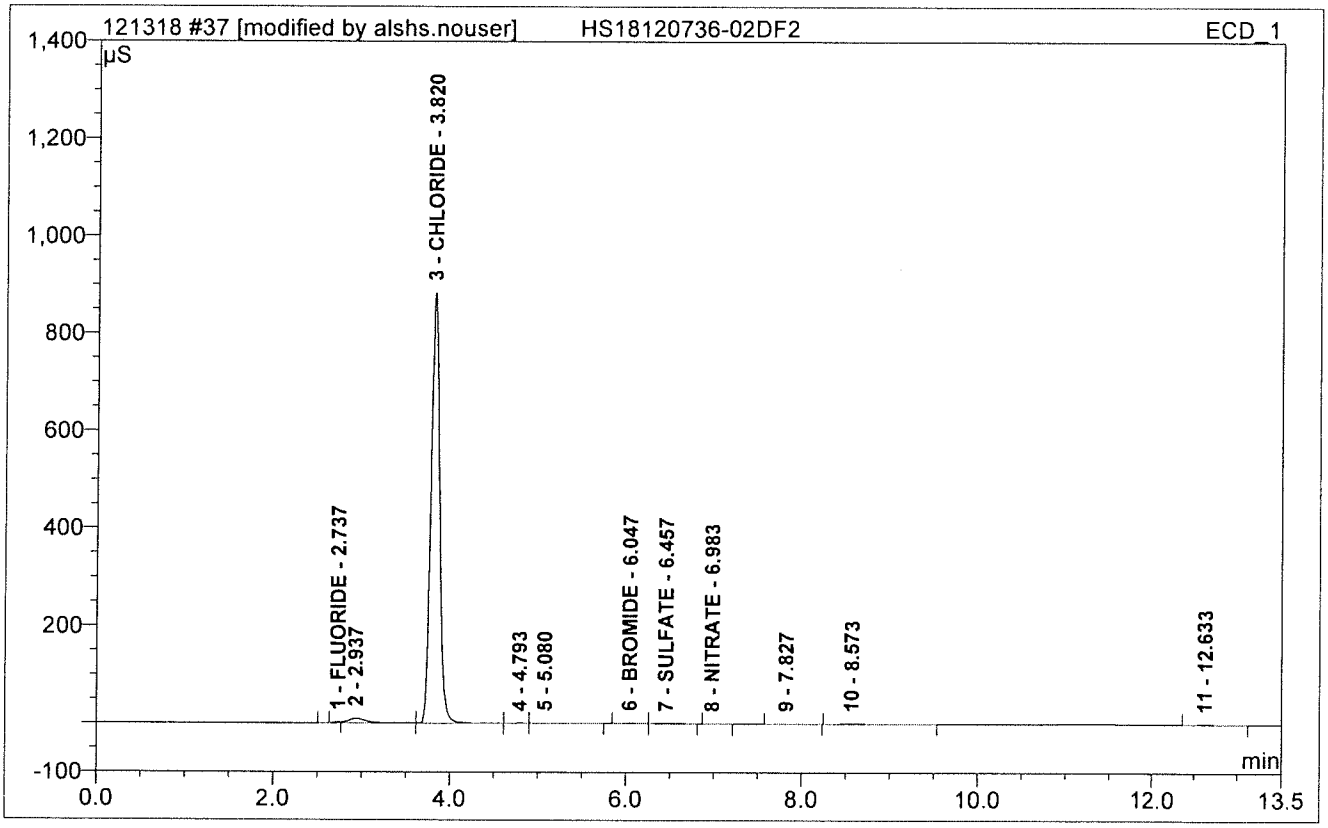
Sample Name:	**HS18120736-01DF50**	*Injection Volume:*	**10.0**
Vial Number:	**25**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**121218**	*Dilution Factor:*	**50.**
Recording Time:	**12/13/2018 19:39**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	3.83	CHLORIDE	5.475	0.577	91.65	335.736	50.
3	6.48	SULFATE	0.218	0.038	6.01	42.409	50.
Total:			5.693	0.615	97.66	378.145	

37 HS18120736-02DF2

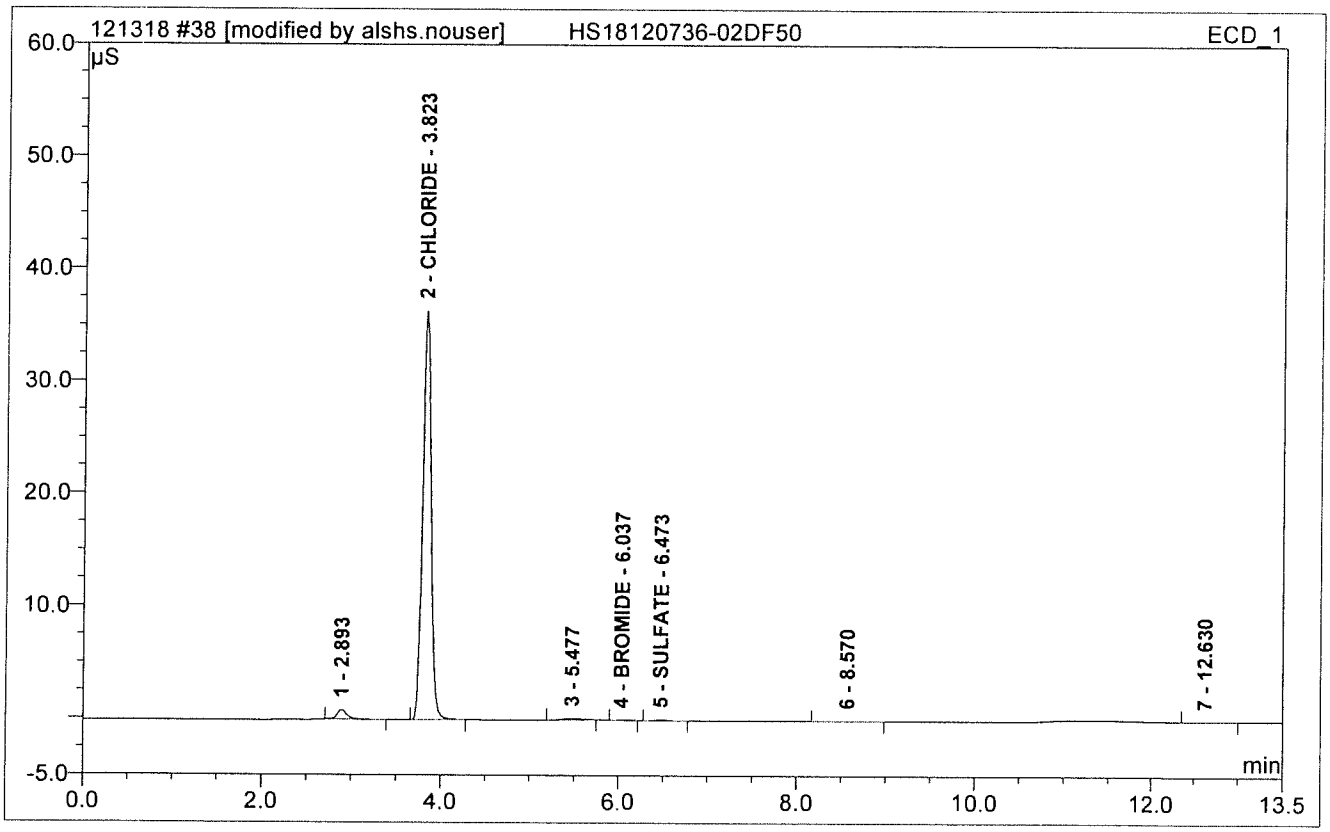
Sample Name:	**HS18120736-02DF2**	*Injection Volume:*	**10.0**
Vial Number:	**26**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**121218**	*Dilution Factor:*	**2.**
Recording Time:	**12/13/2018 19:53**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.74	FLUORIDE	0.438	0.040	0.04	0.632	2.
3	3.82	CHLORIDE	884.637	100.549	96.92	2274.367	2.
6	6.05	BROMIDE	1.210	0.183	0.18	10.551	2.
7	6.46	SULFATE	0.708	0.136	0.13	4.763	2.
8	6.98	NITRATE	0.017	0.003	0.00	0.147	2.
Total:			887.010	100.910	97.27	2290.460	

38 HS18120736-02DF50

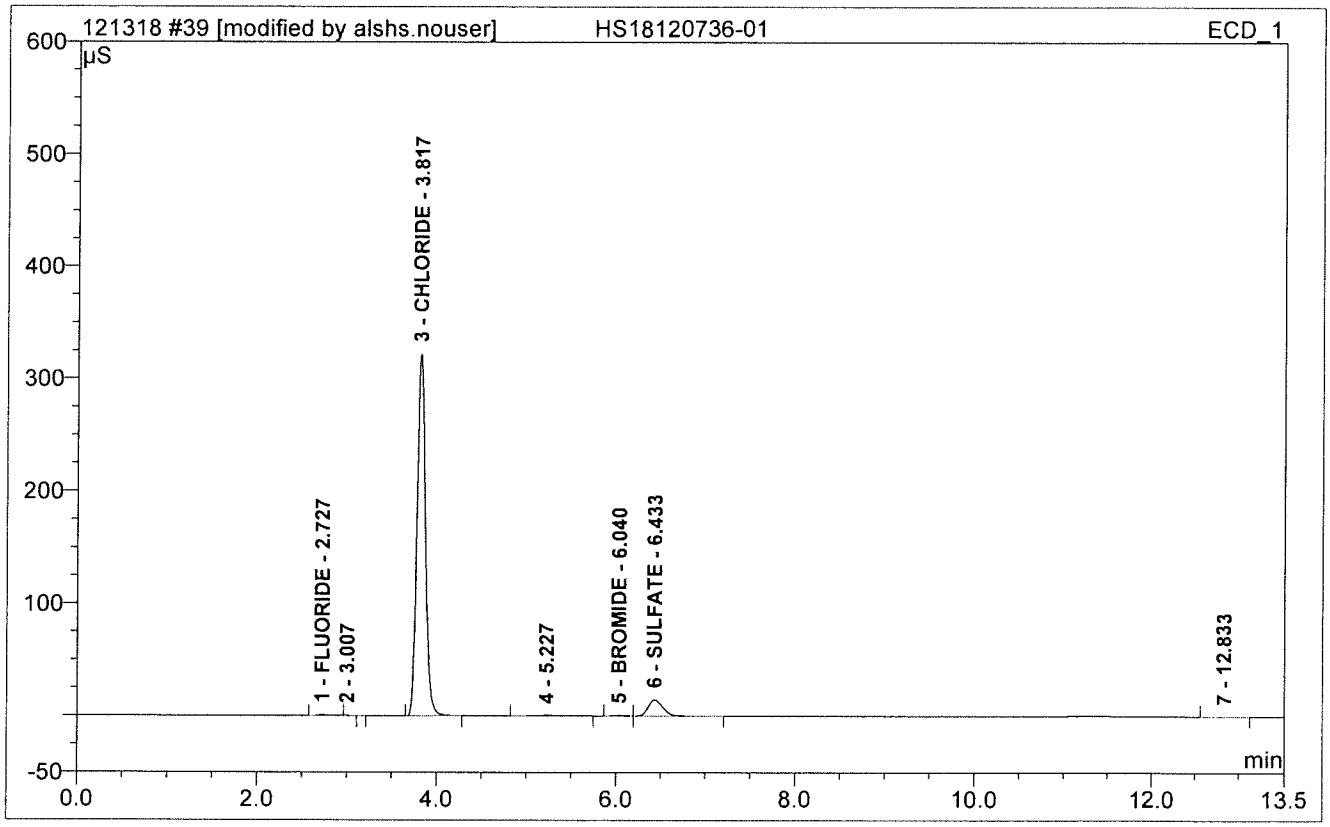
Sample Name:	**HS18120736-02DF50**	*Injection Volume:*	**10.0**
Vial Number:	**27**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**121218**	*Dilution Factor:*	**50.**
Recording Time:	**12/13/2018 20:08**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
2	3.82	CHLORIDE	36.332	3.951	96.34	2243.187	50.
4	6.04	BROMIDE	0.028	0.004	0.09	9.086	50.
5	6.47	SULFATE	0.050	0.009	0.21	19.594	50.
Total:			36.410	3.963	96.64	2271.868	

39 HS18120736-01

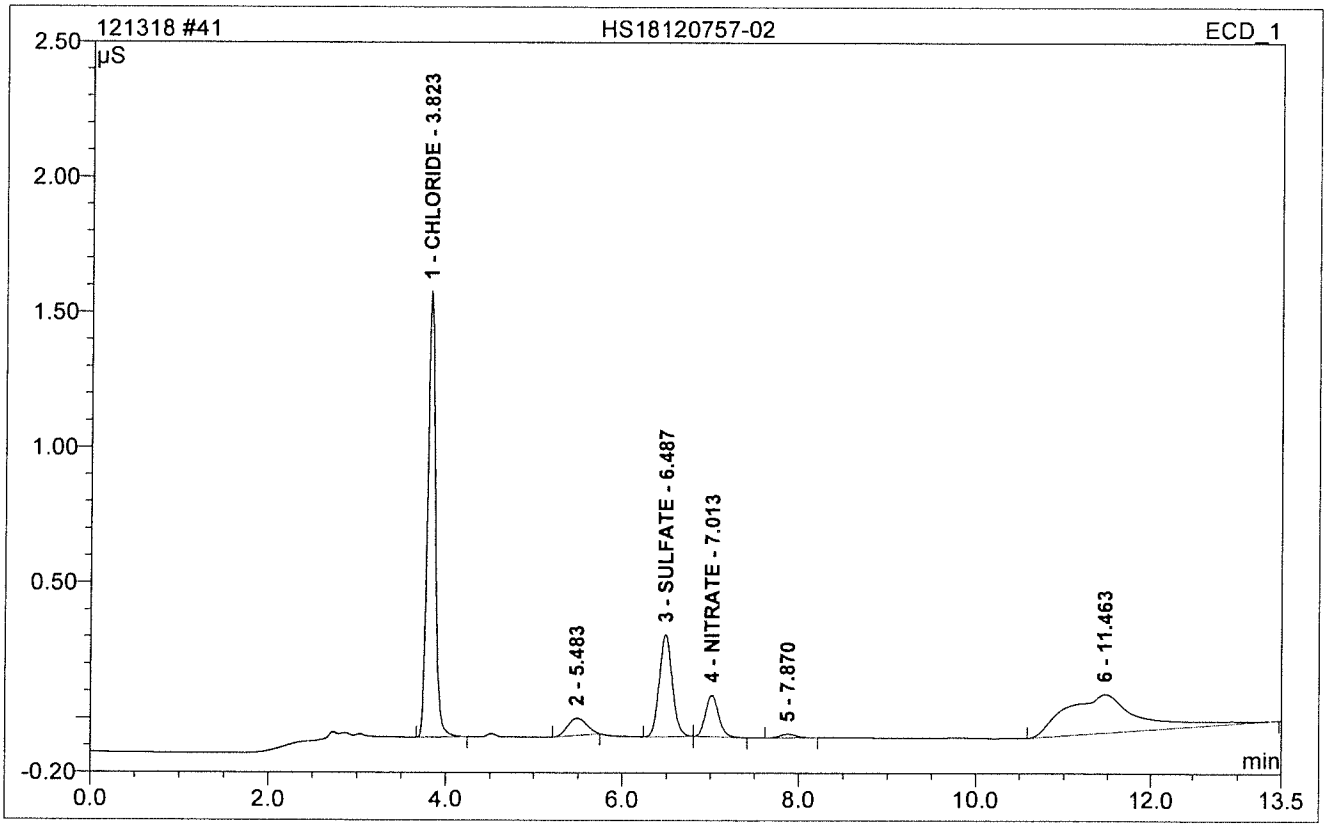
Sample Name:	**HS18120736-01**	*Injection Volume:*	**10.0**
Vial Number:	**45**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**121218**	*Dilution Factor:*	**1.**
Recording Time:	**12/13/2018 20:37**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.73	FLUORIDE	0.839	0.125	0.32	0.925	1.
3	3.82	CHLORIDE	321.714	35.640	92.14	403.196	1.
5	6.04	BROMIDE	0.364	0.050	0.13	1.495	1.
6	6.43	SULFATE	14.279	2.710	7.00	42.789	1.
Total:			337.197	38.524	99.59	448.405	

41 HS18120757-02

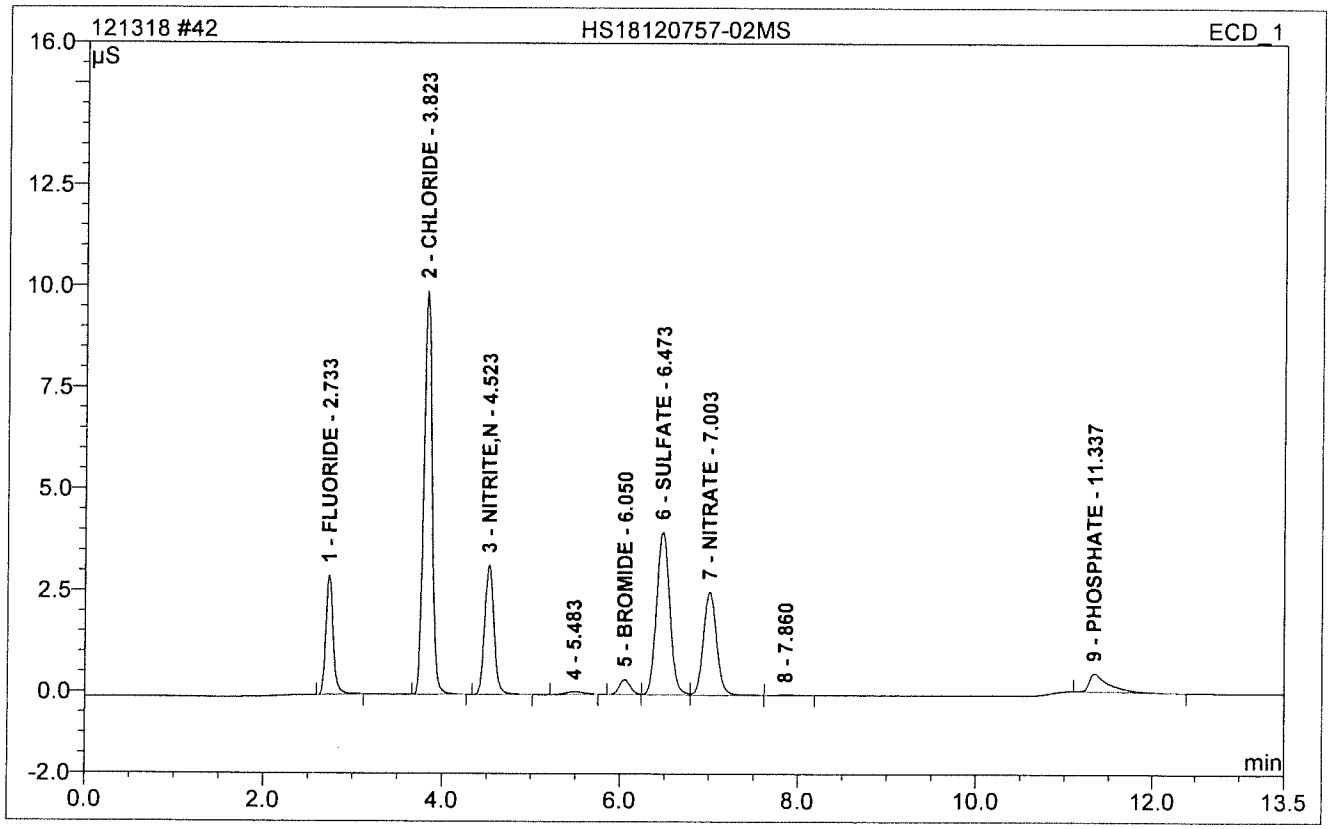
Sample Name:	**HS18120757-02**	*Injection Volume:*	**10.0**
Vial Number:	**38**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**121218**	*Dilution Factor:*	**1.**
Recording Time:	**12/13/2018 21:06**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	3.82	CHLORIDE	1.647	0.170	40.54	2.107	1.
3	6.49	SULFATE	0.376	0.065	15.44	1.268	1.
4	7.01	NITRATE	0.155	0.027	6.39	0.181	1.
Total:			2.177	0.261	62.36	3.556	

42 HS18120757-02MS

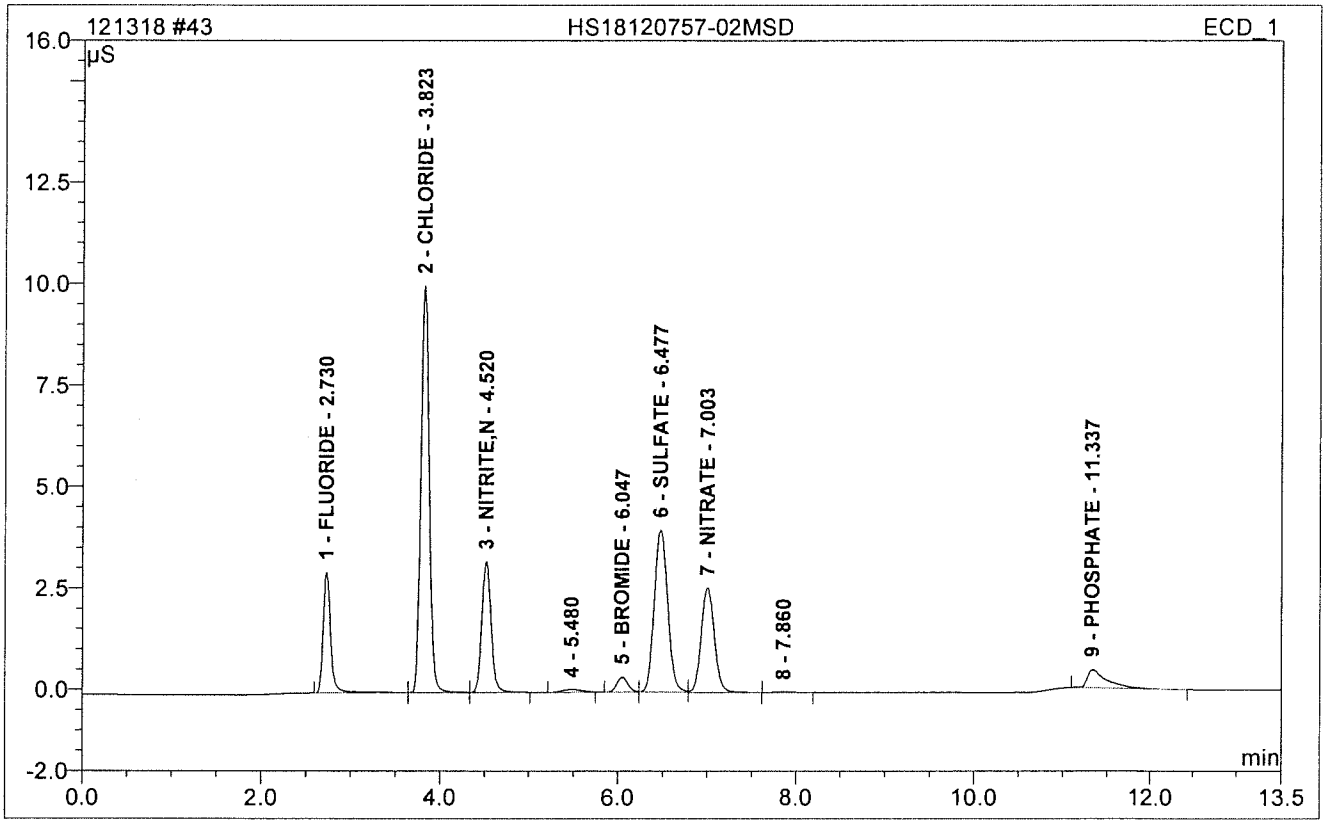
Sample Name:	**HS18120757-02MS**	*Injection Volume:*	**10.0**
Vial Number:	**39**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**121218**	*Dilution Factor:*	**1.**
Recording Time:	**12/13/2018 21:21**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.73	FLUORIDE	2.953	0.284	9.28	2.064	1.
2	3.82	CHLORIDE	9.949	1.067	34.83	12.251	1.
3	4.52	NITRITE,N	3.199	0.392	12.81	2.117	1.
5	6.05	BROMIDE	0.374	0.054	1.76	1.610	1.
6	6.47	SULFATE	4.024	0.698	22.78	11.204	1.
7	7.00	NITRATE	2.560	0.438	14.29	2.063	1.
9	11.34	PHOSPHATE	0.451	0.111	3.62	1.560	1.
Total:			23.509	3.043	99.36	32.870	

43 HS18120757-02MSD

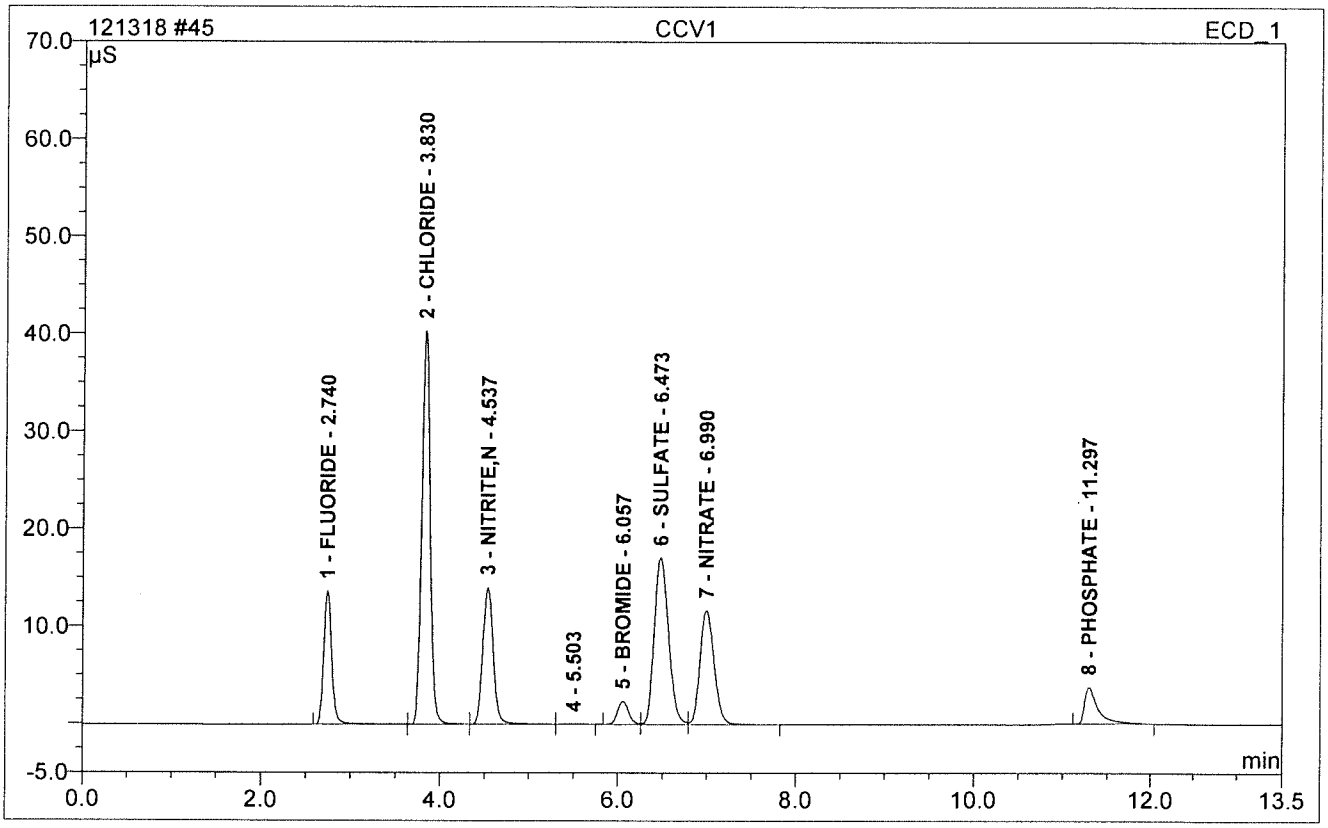
Sample Name:	**HS18120757-02MSD**	*Injection Volume:*	**10.0**
Vial Number:	**40**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**121218**	*Dilution Factor:*	**1.**
Recording Time:	**12/13/2018 21:35**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.73	FLUORIDE	2.975	0.293	9.50	2.125	1.
2	3.82	CHLORIDE	10.006	1.072	34.78	12.306	1.
3	4.52	NITRITE,N	3.218	0.394	12.80	2.129	1.
5	6.05	BROMIDE	0.373	0.054	1.75	1.611	1.
6	6.48	SULFATE	3.997	0.699	22.67	11.220	1.
7	7.00	NITRATE	2.580	0.439	14.24	2.069	1.
9	11.34	PHOSPHATE	0.447	0.111	3.62	1.570	1.
Total:			23.596	3.062	99.37	33.029	

45 CCV1

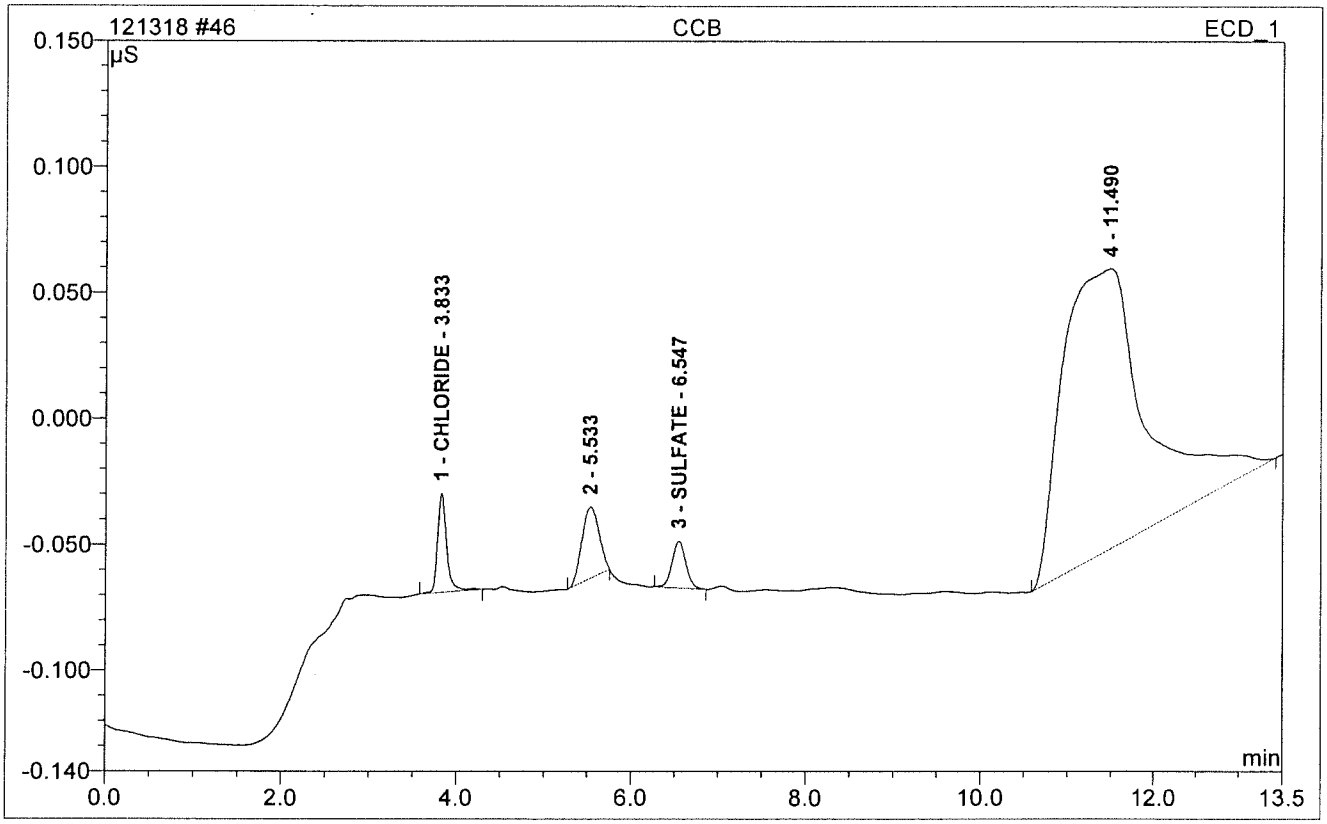
Sample Name:	**CCV1**	*Injection Volume:*	**10.0**
Vial Number:	**3**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**121218**	*Dilution Factor:*	**1.**
Recording Time:	**12/13/2018 22:05**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.74	FLUORIDE	13.665	1.428	10.10	10.233	1.
2	3.83	CHLORIDE	40.386	4.423	31.29	50.206	1.
3	4.54	NITRITE,N	14.054	1.935	13.68	10.358	1.
5	6.06	BROMIDE	2.367	0.339	2.40	9.741	1.
6	6.47	SULFATE	17.142	3.178	22.48	50.142	1.
7	6.99	NITRATE	11.745	2.172	15.37	10.012	1.
8	11.30	PHOSPHATE	3.766	0.654	4.63	8.889	1.
Total:			103.127	14.130	99.94	149.582	

46 CCB

Sample Name:	**CCB**	*Injection Volume:*	**10.0**
Vial Number:	**4**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**121218**	*Dilution Factor:*	**1.**
Recording Time:	**12/13/2018 22:19**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	3.83	CHLORIDE	0.039	0.005	3.31	0.241	1.
3	6.55	SULFATE	0.019	0.003	2.40	0.307	1.
Total:			0.058	0.008	5.71	0.548	

HS18120913 Cover Page

ALS WO# HS18120913

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WorkOrder: HS18120913

LHAAP-58

Bhate Environmental Associates, Inc.

Marcia Olive
445 Union Blvd Ste 129
Lakewood CO 80228

28-Jan-2019

HS18120913 LHAAP58 Final

ALS WO# HS18120913

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December 27, 2018

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

Work Order: **HS18120913**

Laboratory Results for: **LHAAP-58**

Dear Marcia,

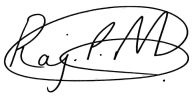
ALS Environmental received 8 sample(s) on Dec 15, 2018 for the analysis presented in the following report.

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

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

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

Sincerely,



Generated By: DAYNA.FISHER
RJ Modashia
Project Manager

ALS Houston, US Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Work Order: HS18120913

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS18120913-01	LHSMW06_121318	Groundwater		13-Dec-2018 11:00	15-Dec-2018 09:40	☐
HS18120913-02	LHSMW06_121318_a	Groundwater		13-Dec-2018 11:00	15-Dec-2018 09:40	☐
HS18120913-03	34AWW21_121318	Groundwater		13-Dec-2018 11:55	15-Dec-2018 09:40	☐
HS18120913-04	35AWW01_121318	Groundwater		13-Dec-2018 13:40	15-Dec-2018 09:40	☐
HS18120913-05	35AWW14_121318	Groundwater		13-Dec-2018 14:00	15-Dec-2018 09:40	☐
HS18120913-06	35AWW22_121418	Groundwater		14-Dec-2018 09:15	15-Dec-2018 09:40	☐
HS18120913-07	35AWW12_121418	Groundwater		14-Dec-2018 10:10	15-Dec-2018 09:40	☐
HS18120913-08	Trip Blank	Water		14-Dec-2018 00:00	15-Dec-2018 09:40	☐

ALS Houston, US Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Work Order: HS18120913

CASE NARRATIVE

GCMS Volatiles by Method SW8260

Batch ID: R329894

Sample ID: 34AWW21_121318 (HS18120913-03MS)

- MS/MSD failed QC limits for select target cmompounds.

Metals by Method SW6020

Batch ID: 135804

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

ALS Houston, US Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: LHSMW06_121318
Collection Date: 13-Dec-2018 11:00

ANALYTICAL REPORT
WorkOrder:HS18120913
Lab ID:HS18120913-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 13:59
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 13:59
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 13:59
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 13:59
1,1-Dichloroethane	**8.2**		**0.20**	**0.50**	**1.0**	**UG/L**	1	24-Dec-2018 13:59
1,1-Dichloroethene	**19**		**0.20**	**0.50**	**1.0**	**UG/L**	1	24-Dec-2018 13:59
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 13:59
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 13:59
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 13:59
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 13:59
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 13:59
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 13:59
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 13:59
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 13:59
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 13:59
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 13:59
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 13:59
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 13:59
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 13:59
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 13:59
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 13:59
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Dec-2018 13:59
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 13:59
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	24-Dec-2018 13:59
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 13:59
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 13:59
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	24-Dec-2018 13:59
Acetone	2.0	U	0.40	2.0	2.0	UG/L	1	24-Dec-2018 13:59
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 13:59
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 13:59
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 13:59
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 13:59
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 13:59
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 13:59
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	24-Dec-2018 13:59
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 13:59
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 13:59
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 13:59
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 13:59

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

ALS Houston, US Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: LHSMW06_121318
Collection Date: 13-Dec-2018 11:00

ANALYTICAL REPORT
WorkOrder:HS18120913
Lab ID:HS18120913-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 13:59
cis-1,2-Dichloroethene	**55**		**0.20**	**0.50**	**1.0**	**UG/L**	1	24-Dec-2018 13:59
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Dec-2018 13:59
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 13:59
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 13:59
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 13:59
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 13:59
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	24-Dec-2018 13:59
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 13:59
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Dec-2018 13:59
Methylene chloride	0.50	U	0.40	0.50	2.0	UG/L	1	24-Dec-2018 13:59
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 13:59
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 13:59
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 13:59
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 13:59
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 13:59
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 13:59
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 13:59
Tetrachloroethene	**1.6**		**0.30**	**0.50**	**1.0**	**UG/L**	1	24-Dec-2018 13:59
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 13:59
trans-1,2-Dichloroethene	**0.91**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	24-Dec-2018 13:59
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 13:59
Trichloroethene	**16**		**0.20**	**0.50**	**1.0**	**UG/L**	1	24-Dec-2018 13:59
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 13:59
Vinyl chloride	**5.0**		**0.20**	**0.50**	**1.0**	**UG/L**	1	24-Dec-2018 13:59
Surr: 1,2-Dichloroethane-d4	*96.7*			**0**	*81-118*	*%REC*	*1*	*24-Dec-2018 13:59*
Surr: 4-Bromofluorobenzene	*97.1*			**0**	*85-114*	*%REC*	*1*	*24-Dec-2018 13:59*
Surr: Dibromofluoromethane	*89.9*			**0**	*80-119*	*%REC*	*1*	*24-Dec-2018 13:59*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*1*	*24-Dec-2018 13:59*
ICP-MS METALS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 19-Dec-2018		Analyst: JCJ
Arsenic	0.00100	U	0.000400	0.00100	0.00200	mg/L	1	21-Dec-2018 21:48

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

ALS Houston, US Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: LHSMW06_121318_a
Collection Date: 13-Dec-2018 11:00

ANALYTICAL REPORT
WorkOrder:HS18120913
Lab ID:HS18120913-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 14:24
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 14:24
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 14:24
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 14:24
1,1-Dichloroethane	**8.1**		**0.20**	**0.50**	**1.0**	**UG/L**	1	24-Dec-2018 14:24
1,1-Dichloroethene	**20**		**0.20**	**0.50**	**1.0**	**UG/L**	1	24-Dec-2018 14:24
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 14:24
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 14:24
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 14:24
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 14:24
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 14:24
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 14:24
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 14:24
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 14:24
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 14:24
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 14:24
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 14:24
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 14:24
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 14:24
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 14:24
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 14:24
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Dec-2018 14:24
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 14:24
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	24-Dec-2018 14:24
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 14:24
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 14:24
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	24-Dec-2018 14:24
Acetone	2.0	U	0.40	2.0	2.0	UG/L	1	24-Dec-2018 14:24
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 14:24
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 14:24
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 14:24
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 14:24
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 14:24
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 14:24
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	24-Dec-2018 14:24
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 14:24
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 14:24
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 14:24
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 14:24

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

ALS Houston, US Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: LHSMW06_121318_a
Collection Date: 13-Dec-2018 11:00

ANALYTICAL REPORT
WorkOrder:HS18120913
Lab ID:HS18120913-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 14:24
cis-1,2-Dichloroethene	**55**		**0.20**	**0.50**	**1.0**	**UG/L**	1	24-Dec-2018 14:24
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Dec-2018 14:24
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 14:24
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 14:24
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 14:24
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 14:24
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	24-Dec-2018 14:24
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 14:24
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Dec-2018 14:24
Methylene chloride	0.50	U	0.40	0.50	2.0	UG/L	1	24-Dec-2018 14:24
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 14:24
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 14:24
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 14:24
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 14:24
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 14:24
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 14:24
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 14:24
Tetrachloroethene	**1.5**		**0.30**	**0.50**	**1.0**	**UG/L**	1	24-Dec-2018 14:24
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 14:24
trans-1,2-Dichloroethene	**0.94**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	24-Dec-2018 14:24
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 14:24
Trichloroethene	**16**		**0.20**	**0.50**	**1.0**	**UG/L**	1	24-Dec-2018 14:24
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 14:24
Vinyl chloride	**5.0**		**0.20**	**0.50**	**1.0**	**UG/L**	1	24-Dec-2018 14:24
Surr: 1,2-Dichloroethane-d4	*98.0*			**0**	*81-118*	*%REC*	*1*	*24-Dec-2018 14:24*
Surr: 4-Bromofluorobenzene	*97.0*			**0**	*85-114*	*%REC*	*1*	*24-Dec-2018 14:24*
Surr: Dibromofluoromethane	*90.5*			**0**	*80-119*	*%REC*	*1*	*24-Dec-2018 14:24*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*1*	*24-Dec-2018 14:24*
ICP-MS METALS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 19-Dec-2018		Analyst: JCJ
Arsenic	0.00100	U	0.000400	0.00100	0.00200	mg/L	1	21-Dec-2018 21:50

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

ALS Houston, US Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 34AWW21_121318
Collection Date: 13-Dec-2018 11:55

ANALYTICAL REPORT
WorkOrder:HS18120913
Lab ID:HS18120913-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 11:55
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 11:55
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 11:55
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 11:55
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 11:55
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 11:55
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 11:55
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 11:55
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 11:55
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 11:55
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 11:55
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 11:55
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 11:55
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 11:55
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 11:55
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 11:55
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 11:55
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 11:55
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 11:55
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 11:55
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 11:55
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Dec-2018 11:55
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 11:55
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	24-Dec-2018 11:55
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 11:55
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 11:55
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	24-Dec-2018 11:55
Acetone	2.0	U	0.40	2.0	2.0	UG/L	1	24-Dec-2018 11:55
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 11:55
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 11:55
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 11:55
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 11:55
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 11:55
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 11:55
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	24-Dec-2018 11:55
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 11:55
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 11:55
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 11:55
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 11:55

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

ALS Houston, US Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 34AWW21_121318
Collection Date: 13-Dec-2018 11:55

ANALYTICAL REPORT
WorkOrder:HS18120913
Lab ID:HS18120913-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 11:55
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 11:55
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Dec-2018 11:55
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 11:55
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 11:55
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 11:55
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 11:55
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	24-Dec-2018 11:55
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 11:55
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Dec-2018 11:55
Methylene chloride	0.50	U	0.40	0.50	2.0	UG/L	1	24-Dec-2018 11:55
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 11:55
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 11:55
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 11:55
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 11:55
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 11:55
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 11:55
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 11:55
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 11:55
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 11:55
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 11:55
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 11:55
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 11:55
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 11:55
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 11:55
Surr: 1,2-Dichloroethane-d4	*94.8*			**0**	*81-118*	*%REC*	*1*	*24-Dec-2018 11:55*
Surr: 4-Bromofluorobenzene	*98.6*			**0**	*85-114*	*%REC*	*1*	*24-Dec-2018 11:55*
Surr: Dibromofluoromethane	*89.4*			**0**	*80-119*	*%REC*	*1*	*24-Dec-2018 11:55*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*1*	*24-Dec-2018 11:55*

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

ALS Houston, US Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW01_121318
Collection Date: 13-Dec-2018 13:40

ANALYTICAL REPORT
WorkOrder:HS18120913
Lab ID:HS18120913-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 17:18
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 17:18
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 17:18
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 17:18
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 17:18
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 17:18
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 17:18
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 17:18
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 17:18
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 17:18
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 17:18
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 17:18
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 17:18
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 17:18
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 17:18
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 17:18
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 17:18
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 17:18
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 17:18
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 17:18
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 17:18
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Dec-2018 17:18
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 17:18
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	24-Dec-2018 17:18
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 17:18
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 17:18
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	24-Dec-2018 17:18
Acetone	2.0	U	0.40	2.0	2.0	UG/L	1	24-Dec-2018 17:18
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 17:18
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 17:18
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 17:18
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 17:18
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 17:18
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 17:18
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	24-Dec-2018 17:18
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 17:18
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 17:18
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 17:18
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 17:18

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

ALS Houston, US Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW01_121318
Collection Date: 13-Dec-2018 13:40

ANALYTICAL REPORT
WorkOrder:HS18120913
Lab ID:HS18120913-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 17:18
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 17:18
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Dec-2018 17:18
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 17:18
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 17:18
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 17:18
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 17:18
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	24-Dec-2018 17:18
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 17:18
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Dec-2018 17:18
Methylene chloride	0.50	U	0.40	0.50	2.0	UG/L	1	24-Dec-2018 17:18
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 17:18
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 17:18
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 17:18
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 17:18
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 17:18
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 17:18
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 17:18
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 17:18
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 17:18
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 17:18
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 17:18
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 17:18
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 17:18
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 17:18
Surr: 1,2-Dichloroethane-d4	*98.6*			**0**	*81-118*	*%REC*	*1*	*24-Dec-2018 17:18*
Surr: 4-Bromofluorobenzene	*96.8*			**0**	*85-114*	*%REC*	*1*	*24-Dec-2018 17:18*
Surr: Dibromofluoromethane	*90.5*			**0**	*80-119*	*%REC*	*1*	*24-Dec-2018 17:18*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*1*	*24-Dec-2018 17:18*
ICP-MS METALS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 19-Dec-2018		Analyst: JCJ
Arsenic	0.00100	U	0.000400	0.00100	0.00200	mg/L	1	21-Dec-2018 22:08

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

ALS Houston, US Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW14_121318
Collection Date: 13-Dec-2018 14:00

ANALYTICAL REPORT
WorkOrder:HS18120913
Lab ID:HS18120913-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 17:43
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 17:43
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 17:43
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 17:43
1,1-Dichloroethane	**15**		**0.20**	**0.50**	**1.0**	**UG/L**	1	24-Dec-2018 17:43
1,1-Dichloroethene	**10**		**0.20**	**0.50**	**1.0**	**UG/L**	1	24-Dec-2018 17:43
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 17:43
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 17:43
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 17:43
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 17:43
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 17:43
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 17:43
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 17:43
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 17:43
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 17:43
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 17:43
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 17:43
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 17:43
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 17:43
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 17:43
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 17:43
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Dec-2018 17:43
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 17:43
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	24-Dec-2018 17:43
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 17:43
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 17:43
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	24-Dec-2018 17:43
Acetone	2.0	U	0.40	2.0	2.0	UG/L	1	24-Dec-2018 17:43
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 17:43
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 17:43
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 17:43
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 17:43
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 17:43
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 17:43
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	24-Dec-2018 17:43
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 17:43
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 17:43
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 17:43
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 17:43

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

ALS Houston, US Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW14_121318
Collection Date: 13-Dec-2018 14:00

ANALYTICAL REPORT
WorkOrder:HS18120913
Lab ID:HS18120913-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 17:43
cis-1,2-Dichloroethene	**4.6**		**0.20**	**0.50**	**1.0**	**UG/L**	1	24-Dec-2018 17:43
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Dec-2018 17:43
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 17:43
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 17:43
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 17:43
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 17:43
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	24-Dec-2018 17:43
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 17:43
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Dec-2018 17:43
Methylene chloride	0.50	U	0.40	0.50	2.0	UG/L	1	24-Dec-2018 17:43
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 17:43
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 17:43
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 17:43
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 17:43
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 17:43
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 17:43
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 17:43
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 17:43
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 17:43
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 17:43
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 17:43
Trichloroethene	**9.4**		**0.20**	**0.50**	**1.0**	**UG/L**	1	24-Dec-2018 17:43
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 17:43
Vinyl chloride	**1.3**		**0.20**	**0.50**	**1.0**	**UG/L**	1	24-Dec-2018 17:43
Surr: 1,2-Dichloroethane-d4	*99.3*			**0**	*81-118*	*%REC*	*1*	*24-Dec-2018 17:43*
Surr: 4-Bromofluorobenzene	*96.3*			**0**	*85-114*	*%REC*	*1*	*24-Dec-2018 17:43*
Surr: Dibromofluoromethane	*92.0*			**0**	*80-119*	*%REC*	*1*	*24-Dec-2018 17:43*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*24-Dec-2018 17:43*

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

ALS Houston, US Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW22_121418
Collection Date: 14-Dec-2018 09:15

ANALYTICAL REPORT
WorkOrder:HS18120913
Lab ID:HS18120913-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:08
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:08
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 18:08
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:08
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:08
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:08
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:08
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 18:08
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 18:08
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 18:08
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:08
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:08
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:08
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 18:08
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:08
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 18:08
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:08
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 18:08
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:08
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 18:08
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:08
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Dec-2018 18:08
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:08
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	24-Dec-2018 18:08
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 18:08
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:08
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	24-Dec-2018 18:08
Acetone	2.0	U	0.40	2.0	2.0	UG/L	1	24-Dec-2018 18:08
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:08
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 18:08
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:08
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:08
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 18:08
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 18:08
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	24-Dec-2018 18:08
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 18:08
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:08
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:08
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:08

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

ALS Houston, US Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW22_121418
Collection Date: 14-Dec-2018 09:15

ANALYTICAL REPORT
WorkOrder:HS18120913
Lab ID:HS18120913-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:08
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:08
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Dec-2018 18:08
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:08
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:08
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:08
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:08
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	24-Dec-2018 18:08
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:08
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Dec-2018 18:08
Methylene chloride	0.50	U	0.40	0.50	2.0	UG/L	1	24-Dec-2018 18:08
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 18:08
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:08
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:08
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:08
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:08
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:08
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:08
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:08
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:08
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:08
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:08
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:08
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:08
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:08
Surr: 1,2-Dichloroethane-d4	*99.5*			**0**	*81-118*	*%REC*	*1*	*24-Dec-2018 18:08*
Surr: 4-Bromofluorobenzene	*96.8*			**0**	*85-114*	*%REC*	*1*	*24-Dec-2018 18:08*
Surr: Dibromofluoromethane	*91.8*			**0**	*80-119*	*%REC*	*1*	*24-Dec-2018 18:08*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*1*	*24-Dec-2018 18:08*

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

ALS Houston, US Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW12_121418
Collection Date: 14-Dec-2018 10:10

ANALYTICAL REPORT
WorkOrder:HS18120913
Lab ID:HS18120913-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:32
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:32
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 18:32
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:32
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:32
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:32
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:32
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 18:32
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 18:32
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 18:32
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:32
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:32
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:32
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 18:32
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:32
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 18:32
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:32
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 18:32
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:32
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 18:32
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:32
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Dec-2018 18:32
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:32
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	24-Dec-2018 18:32
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 18:32
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:32
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	24-Dec-2018 18:32
Acetone	**3.2**		**0.40**	**2.0**	**2.0**	**UG/L**	1	24-Dec-2018 18:32
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:32
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 18:32
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:32
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:32
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 18:32
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 18:32
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	24-Dec-2018 18:32
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 18:32
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:32
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:32
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:32

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

ALS Houston, US Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW12_121418
Collection Date: 14-Dec-2018 10:10

ANALYTICAL REPORT
WorkOrder:HS18120913
Lab ID:HS18120913-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:32
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:32
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Dec-2018 18:32
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:32
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:32
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:32
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:32
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	24-Dec-2018 18:32
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:32
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Dec-2018 18:32
Methylene chloride	0.50	U	0.40	0.50	2.0	UG/L	1	24-Dec-2018 18:32
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 18:32
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:32
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:32
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:32
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:32
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:32
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:32
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:32
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:32
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:32
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:32
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:32
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:32
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:32
Surr: 1,2-Dichloroethane-d4	*99.3*			**0**	*81-118*	*%REC*	*1*	*24-Dec-2018 18:32*
Surr: 4-Bromofluorobenzene	*96.7*			**0**	*85-114*	*%REC*	*1*	*24-Dec-2018 18:32*
Surr: Dibromofluoromethane	*91.1*			**0**	*80-119*	*%REC*	*1*	*24-Dec-2018 18:32*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*1*	*24-Dec-2018 18:32*

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

ALS Houston, US Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: Trip Blank
Collection Date: 14-Dec-2018 00:00

ANALYTICAL REPORT
WorkOrder:HS18120913
Lab ID:HS18120913-08
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 16:28
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 16:28
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 16:28
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 16:28
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 16:28
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 16:28
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 16:28
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 16:28
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 16:28
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 16:28
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 16:28
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 16:28
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 16:28
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 16:28
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 16:28
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 16:28
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 16:28
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 16:28
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 16:28
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 16:28
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 16:28
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Dec-2018 16:28
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 16:28
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	24-Dec-2018 16:28
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 16:28
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 16:28
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	24-Dec-2018 16:28
Acetone	**3.2**		**0.40**	**2.0**	**2.0**	**UG/L**	1	24-Dec-2018 16:28
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 16:28
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 16:28
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 16:28
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 16:28
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 16:28
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 16:28
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	24-Dec-2018 16:28
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 16:28
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 16:28
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 16:28
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 16:28

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

ALS Houston, US Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: Trip Blank
Collection Date: 14-Dec-2018 00:00

ANALYTICAL REPORT
WorkOrder:HS18120913
Lab ID:HS18120913-08
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 16:28
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 16:28
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Dec-2018 16:28
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 16:28
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 16:28
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 16:28
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 16:28
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	24-Dec-2018 16:28
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 16:28
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Dec-2018 16:28
Methylene chloride	0.50	U	0.40	0.50	2.0	UG/L	1	24-Dec-2018 16:28
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 16:28
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 16:28
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 16:28
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 16:28
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 16:28
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 16:28
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 16:28
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 16:28
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 16:28
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 16:28
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 16:28
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 16:28
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 16:28
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 16:28
Surr: 1,2-Dichloroethane-d4	*98.2*			**0**	*81-118*	*%REC*	*1*	*24-Dec-2018 16:28*
Surr: 4-Bromofluorobenzene	*97.6*			**0**	*85-114*	*%REC*	*1*	*24-Dec-2018 16:28*
Surr: Dibromofluoromethane	*91.8*			**0**	*80-119*	*%REC*	*1*	*24-Dec-2018 16:28*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*1*	*24-Dec-2018 16:28*

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

WEIGHT LOG

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120913

Batch ID: 135804 **Method:** ICP-MS METALS BY SW6020A **Prep:** 3010A

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS18120913-01	1	10	10 (mL)	1
HS18120913-02	1	10	10 (mL)	1
HS18120913-04	1	10	10 (mL)	1

ALS Houston, US Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120913

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID 135804	**Test Name :** ICP-MS METALS BY SW6020A			**Matrix:** Groundwater		
HS18120913-01	LHSMW06_121318	13 Dec 2018 11:00		19 Dec 2018 13:00	21 Dec 2018 21:48	1
HS18120913-02	LHSMW06_121318_a	13 Dec 2018 11:00		19 Dec 2018 13:00	21 Dec 2018 21:50	1
HS18120913-04	35AWW01_121318	13 Dec 2018 13:40		19 Dec 2018 13:00	21 Dec 2018 22:08	1
Batch ID R329894	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C			**Matrix:** Water		
HS18120913-08	Trip Blank	14 Dec 2018 00:00			24 Dec 2018 16:28	1
Batch ID R329894	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C			**Matrix:** Groundwater		
HS18120913-01	LHSMW06_121318	13 Dec 2018 11:00			24 Dec 2018 13:59	1
HS18120913-02	LHSMW06_121318_a	13 Dec 2018 11:00			24 Dec 2018 14:24	1
HS18120913-03	34AWW21_121318	13 Dec 2018 11:55			24 Dec 2018 11:55	1
HS18120913-04	35AWW01_121318	13 Dec 2018 13:40			24 Dec 2018 17:18	1
HS18120913-05	35AWW14_121318	13 Dec 2018 14:00			24 Dec 2018 17:43	1
HS18120913-06	35AWW22_121418	14 Dec 2018 09:15			24 Dec 2018 18:08	1
HS18120913-07	35AWW12_121418	14 Dec 2018 10:10			24 Dec 2018 18:32	1

ALS Houston, US Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120913

QC BATCH REPORT

Batch ID: 135804 **Instrument: ICPMS04** **Method: SW6020**

MBLK Sample ID: **MBLK-135804** Units: **mg/L** Analysis Date: **21-Dec-2018 21:07**
Client ID: Run ID: **ICPMS04_329719** SeqNo: **4879116** PrepDate: **19-Dec-2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.00100	0.00200								U

LCS Sample ID: **LCS-135804** Units: **mg/L** Analysis Date: **21-Dec-2018 21:10**
Client ID: Run ID: **ICPMS04_329719** SeqNo: **4879117** PrepDate: **19-Dec-2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.04962	0.00200	0.05	0	99.2	80 - 120				

MS Sample ID: **HS18120913-04MS** Units: **mg/L** Analysis Date: **21-Dec-2018 22:12**
Client ID: **35AWW01_121318** Run ID: **ICPMS04_329719** SeqNo: **4879142** PrepDate: **19-Dec-2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05079	0.00200	0.05	0.000056	101	80 - 120				

MSD Sample ID: **HS18120913-04MSD** Units: **mg/L** Analysis Date: **21-Dec-2018 22:14**
Client ID: **35AWW01_121318** Run ID: **ICPMS04_329719** SeqNo: **4879143** PrepDate: **19-Dec-2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.04889	0.00200	0.05	0.000056	97.7	80 - 120	0.05079	3.81	20	

PDS Sample ID: **HS18120913-04PDS** Units: **mg/L** Analysis Date: **21-Dec-2018 22:17**
Client ID: **35AWW01_121318** Run ID: **ICPMS04_329719** SeqNo: **4879144** PrepDate: **19-Dec-2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.1074	0.00200	0.1	0.000056	107	75 - 125				

SD Sample ID: **HS18120913-04SD** Units: **mg/L** Analysis Date: **21-Dec-2018 22:10**
Client ID: **35AWW01_121318** Run ID: **ICPMS04_329719** SeqNo: **4879141** PrepDate: **19-Dec-2018** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Arsenic	0.00500	0.0100					0.000056	0	10	U

The following samples were analyzed in this batch: HS18120913-01 HS18120913-02 HS18120913-04

ALS Houston, US Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120913

QC BATCH REPORT

Batch ID: R329894 **Instrument: VOA9** **Method: SW8260**

MBLK Sample ID: **VBLKW-181224** Units: **UG/L** Analysis Date: **24-Dec-2018 11:06**
Client ID: Run ID: **VOA9_329894** SeqNo: **4881347** PrepDate: DF: **1**

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

ALS Houston, US Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120913

QC BATCH REPORT

Batch ID: R329894 **Instrument: VOA9** **Method: SW8260**

MBLK Sample ID: **VBLKW-181224** Units: **UG/L** Analysis Date: **24-Dec-2018 11:06**
Client ID: Run ID: **VOA9_329894** SeqNo: **4881347** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	1.0	2.0								U
Carbon tetrachloride	0.50	1.0								U
Chlorobenzene	0.50	1.0								U
Chloroethane	0.50	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	0.50	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	0.50	1.0								U
Ethylbenzene	0.50	1.0								U
Hexachlorobutadiene	1.0	1.0								U
Isopropylbenzene	0.50	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	0.50	2.0								U
Naphthalene	0.50	1.0								U
n-Butylbenzene	0.50	1.0								U
n-Propylbenzene	0.50	1.0								U
o-Xylene	0.50	1.0								U
sec-Butylbenzene	0.50	1.0								U
Styrene	0.50	1.0								U
tert-Butylbenzene	0.50	1.0								U
Tetrachloroethene	0.50	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	0.50	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*47.4*	*1.0*	*50*	*0*	*94.8*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*48.2*	*1.0*	*50*	*0*	*96.4*	*85 - 114*				
Surr: Dibromofluoromethane	*44.37*	*1.0*	*50*	*0*	*88.7*	*80 - 119*				
Surr: Toluene-d8	*52.27*	*1.0*	*50*	*0*	*105*	*89 - 112*				

ALS Houston, US Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120913

QC BATCH REPORT

Batch ID: R329894 **Instrument: VOA9** **Method: SW8260**

LCS Sample ID: **VLCSW-1812024** Units: **UG/L** Analysis Date: **24-Dec-2018 10:17**
Client ID: Run ID: **VOA9_329894** SeqNo: **4881346** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	20.16	1.0	20	0	101	78 - 124				
1,1,1-Trichloroethane	21.11	1.0	20	0	106	74 - 131				
1,1,2,2-Tetrachloroethane	20.07	1.0	20	0	100	71 - 121				
1,1,2-Trichloroethane	21.18	1.0	20	0	106	80 - 119				
1,1-Dichloroethane	21.09	1.0	20	0	105	77 - 125				
1,1-Dichloroethene	20.42	1.0	20	0	102	71 - 131				
1,1-Dichloropropene	20.99	1.0	20	0	105	78 - 125				
1,2,3-Trichlorobenzene	20.31	1.0	20	0	102	69 - 129				
1,2,3-Trichloropropane	20.24	1.0	20	0	101	73 - 122				
1,2,4-Trichlorobenzene	21.21	1.0	20	0	106	69 - 130				
1,2,4-Trimethylbenzene	22.29	1.0	20	0	111	76 - 124				
1,2-Dibromo-3-chloropropane	18.25	1.0	20	0	91.2	62 - 128				
1,2-Dibromoethane	21.18	1.0	20	0	106	77 - 121				
1,2-Dichlorobenzene	20.6	1.0	20	0	103	80 - 119				
1,2-Dichloroethane	21.54	1.0	20	0	108	73 - 128				
1,2-Dichloropropane	20.78	1.0	20	0	104	78 - 122				
1,3,5-Trimethylbenzene	22.13	1.0	20	0	111	75 - 124				
1,3-Dichlorobenzene	20.97	1.0	20	0	105	80 - 119				
1,3-Dichloropropane	21.09	1.0	20	0	105	80 - 119				
1,4-Dichlorobenzene	20.29	1.0	20	0	101	79 - 118				
2,2-Dichloropropane	22	1.0	20	0	110	60 - 139				
2-Butanone	38.79	2.0	40	0	97.0	56 - 143				
2-Chlorotoluene	21.45	1.0	20	0	107	79 - 122				
2-Hexanone	40.62	2.0	40	0	102	57 - 139				
4-Chlorotoluene	21.76	1.0	20	0	109	78 - 122				
4-Isopropyltoluene	22.33	1.0	20	0	112	77 - 127				
4-Methyl-2-pentanone	40.91	2.0	40	0	102	67 - 130				
Acetone	40.17	2.0	40	0	100	39 - 160				
Benzene	21.12	1.0	20	0	106	79 - 120				
Bromobenzene	20.81	1.0	20	0	104	80 - 120				
Bromochloromethane	21.94	1.0	20	0	110	78 - 123				
Bromodichloromethane	21.19	1.0	20	0	106	79 - 125				
Bromoform	18.69	1.0	20	0	93.4	66 - 130				
Bromomethane	23.72	1.0	20	0	119	53 - 141				

ALS Houston, US Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120913

QC BATCH REPORT

Batch ID: R329894 **Instrument: VOA9** **Method: SW8260**

LCS Sample ID: **VLCSW-1812024** Units: **UG/L** Analysis Date: **24-Dec-2018 10:17**
Client ID: Run ID: **VOA9_329894** SeqNo: **4881346** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	41.71	2.0	40	0	104	64 - 133				
Carbon tetrachloride	20.11	1.0	20	0	101	72 - 136				
Chlorobenzene	21	1.0	20	0	105	82 - 118				
Chloroethane	21.28	1.0	20	0	106	60 - 138				
Chloroform	21	1.0	20	0	105	79 - 124				
Chloromethane	24	1.0	20	0	120	50 - 139				
cis-1,2-Dichloroethene	21.07	1.0	20	0	105	78 - 123				
cis-1,3-Dichloropropene	19.85	1.0	20	0	99.2	75 - 124				
Dibromochloromethane	19.36	1.0	20	0	96.8	74 - 126				
Dibromomethane	21.38	1.0	20	0	107	79 - 123				
Dichlorodifluoromethane	20.2	1.0	20	0	101	32 - 152				
Ethylbenzene	21.65	1.0	20	0	108	79 - 121				
Hexachlorobutadiene	19.46	1.0	20	0	97.3	66 - 134				
Isopropylbenzene	22.24	1.0	20	0	111	72 - 131				
m,p-Xylene	43.9	2.0	40	0	110	80 - 121				
Methylene chloride	21.23	2.0	20	0	106	74 - 124				
Naphthalene	19.59	1.0	20	0	98.0	61 - 128				
n-Butylbenzene	22.04	1.0	20	0	110	75 - 128				
n-Propylbenzene	22.34	1.0	20	0	112	76 - 126				
o-Xylene	21.97	1.0	20	0	110	78 - 122				
sec-Butylbenzene	22.08	1.0	20	0	110	77 - 126				
Styrene	22.39	1.0	20	0	112	78 - 123				
tert-Butylbenzene	22.16	1.0	20	0	111	78 - 124				
Tetrachloroethene	20.33	1.0	20	0	102	74 - 129				
Toluene	21.58	1.0	20	0	108	80 - 121				
trans-1,2-Dichloroethene	21.03	1.0	20	0	105	75 - 124				
trans-1,3-Dichloropropene	19.56	1.0	20	0	97.8	73 - 127				
Trichloroethene	20.92	1.0	20	0	105	79 - 123				
Trichlorofluoromethane	21.1	1.0	20	0	105	65 - 141				
Vinyl chloride	21.62	1.0	20	0	108	58 - 137				
Surr: 1,2-Dichloroethane-d4	*52.09*	*1.0*	*50*	*0*	*104*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.83*	*1.0*	*50*	*0*	*104*	*85 - 114*				
Surr: Dibromofluoromethane	*50.79*	*1.0*	*50*	*0*	*102*	*80 - 119*				
Surr: Toluene-d8	*50.79*	*1.0*	*50*	*0*	*102*	*89 - 112*				

ALS Houston, US Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120913

QC BATCH REPORT

Batch ID: R329894 **Instrument: VOA9** **Method: SW8260**

MS Sample ID: **HS18120913-03MS** Units: **UG/L** Analysis Date: **24-Dec-2018 15:14**
Client ID: **34AWW21_121318** Run ID: **VOA9_329894** SeqNo: **4881357** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	23.21	1.0	20	0	116	78 - 124				
1,1,1-Trichloroethane	22.95	1.0	20	0	115	74 - 131				
1,1,2,2-Tetrachloroethane	24.2	1.0	20	0	121	71 - 121				S
1,1,2-Trichloroethane	25.3	1.0	20	0	127	80 - 119				S
1,1-Dichloroethane	22.71	1.0	20	0	114	77 - 125				
1,1-Dichloroethene	23.04	1.0	20	0	115	71 - 131				
1,1-Dichloropropene	25.45	1.0	20	0	127	78 - 125				S
1,2,3-Trichlorobenzene	22.1	1.0	20	0	111	69 - 129				
1,2,3-Trichloropropane	23.35	1.0	20	0	117	73 - 122				
1,2,4-Trichlorobenzene	22.37	1.0	20	0	112	69 - 130				
1,2,4-Trimethylbenzene	25.22	1.0	20	0	126	76 - 124				S
1,2-Dibromo-3-chloropropane	20.81	1.0	20	0	104	62 - 128				
1,2-Dibromoethane	25.44	1.0	20	0	127	77 - 121				S
1,2-Dichlorobenzene	23.76	1.0	20	0	119	80 - 119				
1,2-Dichloroethane	25.48	1.0	20	0	127	73 - 128				
1,2-Dichloropropane	24.78	1.0	20	0	124	78 - 122				S
1,3,5-Trimethylbenzene	25.58	1.0	20	0	128	75 - 124				S
1,3-Dichlorobenzene	23.33	1.0	20	0	117	80 - 119				
1,3-Dichloropropane	24.94	1.0	20	0	125	80 - 119				S
1,4-Dichlorobenzene	23.26	1.0	20	0	116	79 - 118				
2,2-Dichloropropane	22.8	1.0	20	0	114	60 - 139				
2-Butanone	45.46	2.0	40	0	114	56 - 143				
2-Chlorotoluene	24.95	1.0	20	0	125	79 - 122				S
2-Hexanone	52.86	2.0	40	0	132	57 - 139				
4-Chlorotoluene	25.12	1.0	20	0	126	78 - 122				S
4-Isopropyltoluene	25.22	1.0	20	0	126	77 - 127				
4-Methyl-2-pentanone	51.36	2.0	40	0	128	67 - 130				
Acetone	51.25	2.0	40	0	128	39 - 160				
Benzene	25.09	1.0	20	0	125	79 - 120				S
Bromobenzene	23.78	1.0	20	0	119	80 - 120				
Bromochloromethane	24.02	1.0	20	0	120	78 - 123				
Bromodichloromethane	24.47	1.0	20	0	122	79 - 125				
Bromoform	21.34	1.0	20	0	107	66 - 130				
Bromomethane	24.97	1.0	20	0	125	53 - 141				

ALS Houston, US Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120913

QC BATCH REPORT

Batch ID: R329894 **Instrument: VOA9** **Method: SW8260**

MS Sample ID: **HS18120913-03MS** Units: **UG/L** Analysis Date: **24-Dec-2018 15:14**
Client ID: **34AWW21_121318** Run ID: **VOA9_329894** SeqNo: **4881357** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	43.18	2.0	40	0	108	64 - 133				
Carbon tetrachloride	23.76	1.0	20	0	119	72 - 136				
Chlorobenzene	24.99	1.0	20	0	125	82 - 118				S
Chloroethane	21.76	1.0	20	0	109	60 - 138				
Chloroform	22.96	1.0	20	0	115	79 - 124				
Chloromethane	22.1	1.0	20	0	111	50 - 139				
cis-1,2-Dichloroethene	24.28	1.0	20	0	121	78 - 123				
cis-1,3-Dichloropropene	21.7	1.0	20	0	109	75 - 124				
Dibromochloromethane	22.33	1.0	20	0	112	74 - 126				
Dibromomethane	25.07	1.0	20	0	125	79 - 123				S
Dichlorodifluoromethane	14.71	1.0	20	0	73.6	32 - 152				
Ethylbenzene	25.65	1.0	20	0	128	79 - 121				S
Hexachlorobutadiene	19.31	1.0	20	0	96.5	66 - 134				
Isopropylbenzene	26.47	1.0	20	0	132	72 - 131				S
m,p-Xylene	51.94	2.0	40	0	130	80 - 121				S
Methylene chloride	22.91	2.0	20	0	115	74 - 124				
Naphthalene	22.43	1.0	20	0	112	61 - 128				
n-Butylbenzene	24.46	1.0	20	0	122	75 - 128				
n-Propylbenzene	25.91	1.0	20	0	130	76 - 126				S
o-Xylene	25.64	1.0	20	0	128	78 - 122				S
sec-Butylbenzene	25.41	1.0	20	0	127	77 - 126				S
Styrene	26.3	1.0	20	0	131	78 - 123				S
tert-Butylbenzene	25.39	1.0	20	0	127	78 - 124				S
Tetrachloroethene	24.22	1.0	20	0	121	74 - 129				
Toluene	26.12	1.0	20	0	131	80 - 121				S
trans-1,2-Dichloroethene	23.07	1.0	20	0	115	75 - 124				
trans-1,3-Dichloropropene	21.38	1.0	20	0	107	73 - 127				
Trichloroethene	26.19	1.0	20	0	131	79 - 123				S
Trichlorofluoromethane	22.5	1.0	20	0	113	65 - 141				
Vinyl chloride	21.27	1.0	20	0	106	58 - 137				
Surr: 1,2-Dichloroethane-d4	*47.14*	*1.0*	*50*	*0*	*94.3*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.68*	*1.0*	*50*	*0*	*103*	*85 - 114*				
Surr: Dibromofluoromethane	*45.74*	*1.0*	*50*	*0*	*91.5*	*80 - 119*				
Surr: Toluene-d8	*53.29*	*1.0*	*50*	*0*	*107*	*89 - 112*				

ALS Houston, US Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120913

QC BATCH REPORT

Batch ID: R329894 **Instrument: VOA9** **Method: SW8260**

MSD Sample ID: **HS18120913-03MSD** Units: **UG/L** Analysis Date: **24-Dec-2018 15:39**
Client ID: **34AWW21_121318** Run ID: **VOA9_329894** SeqNo: **4881358** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	23.48	1.0	20	0	117	78 - 124	23.21	1.12	20	
1,1,1-Trichloroethane	23.85	1.0	20	0	119	74 - 131	22.95	3.86	20	
1,1,2,2-Tetrachloroethane	25.53	1.0	20	0	128	71 - 121	24.2	5.32	20	S
1,1,2-Trichloroethane	25.33	1.0	20	0	127	80 - 119	25.3	0.11	20	S
1,1-Dichloroethane	23.23	1.0	20	0	116	77 - 125	22.71	2.24	20	
1,1-Dichloroethene	23.12	1.0	20	0	116	71 - 131	23.04	0.317	20	
1,1-Dichloropropene	25.23	1.0	20	0	126	78 - 125	25.45	0.901	20	S
1,2,3-Trichlorobenzene	23.31	1.0	20	0	117	69 - 129	22.1	5.31	20	
1,2,3-Trichloropropane	24.69	1.0	20	0	123	73 - 122	23.35	5.58	20	S
1,2,4-Trichlorobenzene	23.66	1.0	20	0	118	69 - 130	22.37	5.62	20	
1,2,4-Trimethylbenzene	26.26	1.0	20	0	131	76 - 124	25.22	4.02	20	S
1,2-Dibromo-3-chloropropane	22.44	1.0	20	0	112	62 - 128	20.81	7.53	20	
1,2-Dibromoethane	25.59	1.0	20	0	128	77 - 121	25.44	0.588	20	S
1,2-Dichlorobenzene	24.61	1.0	20	0	123	80 - 119	23.76	3.52	20	S
1,2-Dichloroethane	25.75	1.0	20	0	129	73 - 128	25.48	1.02	20	S
1,2-Dichloropropane	24.75	1.0	20	0	124	78 - 122	24.78	0.143	20	S
1,3,5-Trimethylbenzene	26.32	1.0	20	0	132	75 - 124	25.58	2.86	20	S
1,3-Dichlorobenzene	24.37	1.0	20	0	122	80 - 119	23.33	4.36	20	S
1,3-Dichloropropane	25.46	1.0	20	0	127	80 - 119	24.94	2.04	20	S
1,4-Dichlorobenzene	23.85	1.0	20	0	119	79 - 118	23.26	2.5	20	S
2,2-Dichloropropane	22.69	1.0	20	0	113	60 - 139	22.8	0.477	20	
2-Butanone	48.23	2.0	40	0	121	56 - 143	45.46	5.92	20	
2-Chlorotoluene	25.59	1.0	20	0	128	79 - 122	24.95	2.53	20	S
2-Hexanone	54.29	2.0	40	0	136	57 - 139	52.86	2.68	20	
4-Chlorotoluene	25.92	1.0	20	0	130	78 - 122	25.12	3.12	20	S
4-Isopropyltoluene	26.15	1.0	20	0	131	77 - 127	25.22	3.63	20	S
4-Methyl-2-pentanone	53.35	2.0	40	0	133	67 - 130	51.36	3.81	20	S
Acetone	56.13	2.0	40	0	140	39 - 160	51.25	9.1	20	
Benzene	25.56	1.0	20	0	128	79 - 120	25.09	1.85	20	S
Bromobenzene	24.7	1.0	20	0	123	80 - 120	23.78	3.78	20	S
Bromochloromethane	24.56	1.0	20	0	123	78 - 123	24.02	2.24	20	
Bromodichloromethane	24.72	1.0	20	0	124	79 - 125	24.47	1.04	20	
Bromoform	21.74	1.0	20	0	109	66 - 130	21.34	1.83	20	
Bromomethane	24.74	1.0	20	0	124	53 - 141	24.97	0.929	20	

ALS Houston, US Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120913

QC BATCH REPORT

Batch ID: R329894 **Instrument: VOA9** **Method: SW8260**

MSD Sample ID: **HS18120913-03MSD** Units: **UG/L** Analysis Date: **24-Dec-2018 15:39**
Client ID: **34AWW21_121318** Run ID: **VOA9_329894** SeqNo: **4881358** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Carbon disulfide	43.81	2.0	40	0	110	64 - 133	43.18	1.44	20	
Carbon tetrachloride	23.83	1.0	20	0	119	72 - 136	23.76	0.262	20	
Chlorobenzene	25.13	1.0	20	0	126	82 - 118	24.99	0.573	20	S
Chloroethane	22.25	1.0	20	0	111	60 - 138	21.76	2.2	20	
Chloroform	23.5	1.0	20	0	118	79 - 124	22.96	2.35	20	
Chloromethane	22.78	1.0	20	0	114	50 - 139	22.1	3.04	20	
cis-1,2-Dichloroethene	23.76	1.0	20	0	119	78 - 123	24.28	2.17	20	
cis-1,3-Dichloropropene	22.27	1.0	20	0	111	75 - 124	21.7	2.58	20	
Dibromochloromethane	22.83	1.0	20	0	114	74 - 126	22.33	2.25	20	
Dibromomethane	25.35	1.0	20	0	127	79 - 123	25.07	1.12	20	S
Dichlorodifluoromethane	15.5	1.0	20	0	77.5	32 - 152	14.71	5.21	20	
Ethylbenzene	25.77	1.0	20	0	129	79 - 121	25.65	0.469	20	S
Hexachlorobutadiene	19.88	1.0	20	0	99.4	66 - 134	19.31	2.89	20	
Isopropylbenzene	26.75	1.0	20	0	134	72 - 131	26.47	1.03	20	S
m,p-Xylene	52.36	2.0	40	0	131	80 - 121	51.94	0.81	20	S
Methylene chloride	23.35	2.0	20	0	117	74 - 124	22.91	1.88	20	
Naphthalene	23.92	1.0	20	0	120	61 - 128	22.43	6.43	20	
n-Butylbenzene	25.47	1.0	20	0	127	75 - 128	24.46	4.06	20	
n-Propylbenzene	26.51	1.0	20	0	133	76 - 126	25.91	2.27	20	S
o-Xylene	26.1	1.0	20	0	130	78 - 122	25.64	1.78	20	S
sec-Butylbenzene	26.21	1.0	20	0	131	77 - 126	25.41	3.1	20	S
Styrene	26.53	1.0	20	0	133	78 - 123	26.3	0.883	20	S
tert-Butylbenzene	26.17	1.0	20	0	131	78 - 124	25.39	3	20	S
Tetrachloroethene	24.34	1.0	20	0	122	74 - 129	24.22	0.488	20	
Toluene	25.86	1.0	20	0	129	80 - 121	26.12	0.978	20	S
trans-1,2-Dichloroethene	23.18	1.0	20	0	116	75 - 124	23.07	0.473	20	
trans-1,3-Dichloropropene	21.86	1.0	20	0	109	73 - 127	21.38	2.21	20	
Trichloroethene	25.67	1.0	20	0	128	79 - 123	26.19	2	20	S
Trichlorofluoromethane	22.74	1.0	20	0	114	65 - 141	22.5	1.05	20	
Vinyl chloride	21.67	1.0	20	0	108	58 - 137	21.27	1.89	20	
Surr: 1,2-Dichloroethane-d4	*47.33*	*1.0*	*50*	*0*	*94.7*	*81 - 118*	*47.14*	*0.404*	*20*	
Surr: 4-Bromofluorobenzene	*51.76*	*1.0*	*50*	*0*	*104*	*85 - 114*	*51.68*	*0.153*	*20*	
Surr: Dibromofluoromethane	*45.85*	*1.0*	*50*	*0*	*91.7*	*80 - 119*	*45.74*	*0.237*	*20*	
Surr: Toluene-d8	*53.06*	*1.0*	*50*	*0*	*106*	*89 - 112*	*53.29*	*0.432*	*20*	

ALS Houston, US Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120913

QC BATCH REPORT

Batch ID: R329894 **Instrument: VOA9** **Method: SW8260**

The following samples were analyzed in this batch:

HS18120913-01	HS18120913-02	HS18120913-03	HS18120913-04
HS18120913-05	HS18120913-06	HS18120913-07	HS18120913-08

ALS Houston, US Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: **HS18120913**

QUALIFIERS, ACRONYMS, UNITS

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

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

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
North Carolina	624-2018	31-Dec-2018
Arkansas	88-0356	27-Mar-2019
Texas	T10470231-18-21	30-Apr-2019
North Dakota	R193 2018-2019	30-Apr-2019
Illinois	004438	29-Jun-2019
Louisiana	03087	30-Jun-2019
Kentucky	123043 - 2018	30-Apr-2019
Kansas	E-10352 2018-2019	31-Jul-2019
Oklahoma	2018-156	31-Aug-2019

ALS Houston, US Date: 27-Dec-18

Sample Receipt Checklist

Client Name: Bhate Environmental
Work Order: HS18120913
Date/Time Received: **15-Dec-2018 09:40**
Received by: **PJM**

Checklist completed by: *Nilesh D. Ranchod* eSignature 17-Dec-2018 Date
Reviewed by: *Corey Grandits* eSignature 17-Dec-2018 Date

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

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
TX1005 solids received in hermetically sealed vials?	Yes ☐	No ☐	N/A ☑
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	0.4C / 0.7C UC/C	IR # 25	
Cooler(s)/Kit(s):	44564		
Date/Time sample(s) sent to storage:	12/15/2018 14:00		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

bhate ENVIRONMENTAL ASSOCIATES INCORPORATED

1608 13th Avenue South, Suite 300
Birmingham Alabama 35205
Tel: 205-918-4000
Fax: 205-918-4050

Chain of Custody and Analytical Request

Page: of

Project/Phase No: NWO1312.0150

COC Number(1):

LIMS Number:

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / Site 58

Client Name:

Collected by: Scott Beesinger

Sample Analysis Requested (5) | Quality Assurance Samples (6)

Field Sample ID (30 Characters Max)	ERPIMS LOCID (15 Characters Max)	Date Collected (dd-mmm-yyyy)	Time Collected (Military) (hhmm)	Sample Depth (beginning - ending)	SA Code (2)	Sample Number (3)	Sample Matrix (4)	Number of containers	VOC	MEE	TOC	Carbon Dioxide	Total Phosphorous	Total Manganese & Iron	Dissolved Manganese & Iron	Sulfide	Arsenic		Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
LHSMW06-121318		13DEC2018	1100	-	N		WG	4	X								X					
LHSMW06_121318_a		13DEC2018	1100	-	FD		WG	4	X								X					
35AWW21_121318		13 DEC 2018	1155	-	N		WG	3	X													
35AWW21_121318_MS		13 DEC 2018	1155		MS		WG	3	X													
35AWW21_121318_MSD		13 DEC 2018	1155		SD		WG	3	X													
35AWW08_121318		13DEC2018	1340	-	N		WG	4	X								X					
35AWW14_121318		13DEC2018	1400	-	N		WG	3	X													
35AWW22_121418		14DEC2018	0915	-	N		WG	3	X													
35AWW12_121418		14DEC2018	1010	-	N		WG	3	X													
Trip Blank		14DEC2018		-	TB		W	2	X													
				-																		

COMMENTS:

HS18120913

Bhate Environmental Associates, Inc.
LHAAP-58

Custody Transfers Prior to Receipt by Laboratory

	Relinquished By (Signed)	Date	Time	Received By (signed)	Date	Time
1.	Scott Beesinger	12/14/18	12:00	P.M.	12/15/18	09:40
2.						
3.						

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: Shipped No.:

Method of Shipment:

Fed Ex Airbill Number:

Analytical Lab: ALS 10450 Stanciff Rd. Suite 210 Houston, TX 77099 (281) 530-5656

ATTN: SONIA WEST Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01)

2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-c) Sample, FD = Field Duplicate (-a) Samples, FR = Field Replicate (-b) Samples, EB = Equipment Blank (-d) Samples, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-e)

3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)

4.) Matrix Codes: GS = Soil Gas, WG = Groundwater, WS = Surface Water, SO = Soil, SE = Sediment, SL = Sludge, SS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blanks

5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each.

6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 10109901 in the Equipment Blank Lot Control

44564

SIC. 0.93. 4.26. 40.30

ALS

00947639

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

CUSTODY SEAL

Date: 12/1[illegible] Time: 1200
Name: [illegible] Beesinger
Company: [illegible]

Seal Broken By:

Date:

Must Deliver Next Business Day
Time and Tempature Sensitive!

ORIGIN ID:SGRA (903) 930-6193
SCOTT BEESINER
BHATE ENVIRONMENTAL ASSOCIATES
1203-B EAST GRAND AVE. PMB202

MARSHALL, TX 75670
UNITED STATES US

SHIP DATE: 19JUL18
ACTWGT: 1.00 LB MAN
CAD: 300130/CAFE3111
DIMS: 26x14x14 IN

TO CLIENT SERVICES
ALS LABORATORY GROUP
10450 STANCLIFF ROAD
SUITE 210
HOUSTON TX 77099
(281) 630-6656
REF: LHAAP 58 – RJ

RMA:

FedEx Express

E

FedEx.
TRK# 0221 4380 9530 9434

SATURDAY 12:00P
PRIORITY OVERNIGHT

X0 SGRA

77099
TX-US
IAH

FID 779552 14DEC10 GGGA 553C1/FIFE/8C8A

HS18120913 8260 Raw Data

ALS WO# HS18120913

MSVOA09 -Logbook

Batch: 34002
Date: 12-21-2018
Method: 8260
Comments:

Analyst: Presenta Cabascango
Reviewer:
Laboratory: Houston

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	12-21-2018 01:25 pm	1.00	50 mL	50 mL	U122101.D	Liquid	Y	NA
	Auto find/purged									
2	VSTD00.25	ICAL1	12-21-2018 01:49 pm	1.00	50 mL	50 mL	U122102.D	Liquid	Y	NA
	0.25 uL cal std/250 mL DI									
3	VSTD00.5	ICAL2	12-21-2018 02:14 pm	1.00	50 mL	50 mL	U122103.D	Liquid	Y	NA
	0.5 uL cal std/250 mL DI									
4	VSTD001	ICAL3	12-21-2018 03:03 pm	1.00	50 mL	50 mL	U122104.D	Liquid	Y	NA
	1 uL cal std/250 mL DI									
5	VSTD002	ICAL4	12-21-2018 03:28 pm	1.00	50 mL	50 mL	U122105.D	Liquid	Y	NA
	2 uL cal std/250 mL DI									
6	VSTD005	ICAL5	12-21-2018 03:52 pm	1.00	50 mL	50 mL	U122106.D	Liquid	Y	NA
	5 uL cal std/250 mL DI									
7	VSTD020	ICAL6	12-21-2018 04:17 pm	1.00	50 mL	50 mL	U122107.D	Liquid	Y	NA
	4 uL cal std/50 mL DI									
8	VSTD050	ICAL7	12-21-2018 04:41 pm	1.00	50 mL	50 mL	U122108.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
9	VSTD100	ICAL8	12-21-2018 05:06 pm	1.00	50 mL	50 mL	U122109.D	Liquid	Y	NA
	20 uL cal std/50 mL DI									
10	VSTD150	ICAL9	12-21-2018 05:31 pm	1.00	50 mL	50 mL	U122110.D	Liquid	Y	NA
	30 uL cal std/50 mL DI									
11	VSTD200	ICAL	12-21-2018 05:55 pm	1.00	50 mL	50 mL	U122111.D	Liquid	Y	NA
	40 uL cal std/50 mL DI									
12	BLANK	SAMP	12-21-2018 06:20 pm	1.00	50 mL	50 mL	U122112.D	Liquid	Y	NA
	Cleanup blk									
13	VSTD050	ICV	12-21-2018 06:45 pm	1.00	50 mL	50 mL	U122113.D	Liquid	Y	NA
	10 uL ICV std/50 mL DI									
14	BLANK	SAMP	12-21-2018 07:09 pm	1.00	50 mL	50 mL	U122114.D	Liquid	Y	NA
15	VLCSW-1812021	LCS	12-21-2018 07:34 pm	1.00	50 mL	50 mL	U122115.D	Liquid	Y	NA
	4 uL ICV std/50 mL DI									
16	BLANK	SAMP	12-21-2018 07:59 pm	1.00	50 mL	50 mL	U122116.D	Liquid	Y	NA
17	VBLKW-181221	MBLK	12-21-2018 08:24 pm	1.00	50 mL	50 mL	U122117.D	Liquid	Y	NA
18	HS18120782-01	SAMP	12-21-2018 08:48 pm	1.00	50 mL	50 mL	U122118.D	Liquid	Y	<2
19	HS18121172-01	SAMP	12-21-2018 09:13 pm	1.00	50 mL	50 mL	U122119.D	Liquid	Y	<2
20	HS18120947-01	SAMP	12-21-2018 09:38 pm	10.00	5 mL	50 mL	U122120.D	Liquid	Y	<2
21	HS18121172-01MS	MS	12-21-2018 10:03 pm	1.00	50 mL	50 mL	U122121.D	Liquid	Y	<2
	3.5 uL cal std/40 mL Sample									
22	HS18121172-01MSD	MSD	12-21-2018 10:27 pm	1.00	50 mL	50 mL	U122122.D	Liquid	Y	<2
	3.5 uL cal std/40 mL Sample									
23	HS18121172-02	SAMP	12-21-2018 10:52 pm	1.00	50 mL	50 mL	U122123.D	Liquid	Y	<2
24	HS18121172-03	SAMP	12-21-2018 11:17 pm	1.00	50 mL	50 mL	U122124.D	Liquid	Y	<2
25	HS18121172-04	SAMP	12-21-2018 11:42 pm	1.00	50 mL	50 mL	U122125.D	Liquid	Y	<2
26	HS18121172-05	SAMP	12-22-2018 12:06 am	1.00	50 mL	50 mL	U122126.D	Liquid	Y	<2
27	HS18121172-06	SAMP	12-22-2018 12:31 am	1.00	50 mL	50 mL	U122127.D	Liquid	Y	<2

MSVOA09 -Logbook

Chemical	Value
SURR SPK ID	30502-52-03
IS ID	30502-52-04
ICV STD ID	30603-46-01
LCS/MS ID	30603-46-01
CAL STD ID	30502-56-01/02
BFB ID	30502-52-03

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS18120913

Matrix Spike - Sample No.: VSTD050

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
cis-1,3-Dichloropropene	50.00	48.91	98	80-120
trans-1,3-Dichloroprope	50.00	48.93	98	80-120
1,3-Dichlorobenzene	50.00	48.27	96	80-120
2,2-Dichloropropane	50.00	53.09	106	80-120
1,1-Dichloropropene	50.00	47.46	95	80-120
Dibromomethane	50.00	50.89	102	80-120
1,2-Dibromoethane	50.00	51.16	102	80-120
trans-1,2-Dichloroethen	50.00	48.02	96	80-120
1,1,1,2-Tetrachloroetha	50.00	48.43	97	80-120
1,1,1-Trichloroethane	50.00	49.36	99	80-120
1,1,2,2-Tetrachloroetha	50.00	49.55	99	80-120
Freon TF	50.00	45.07	90	80-120
1,1,2-Trichloroethane	50.00	49.30	99	80-120
1,1-Dichloroethane	50.00	47.96	96	80-120
1,1-Dichloroethene	50.00	45.82	92	80-120
Trichlorofluoromethane	50.00	45.85	92	80-120
1,2,3-Trichlorobenzene	50.00	47.80	96	80-120
Toluene	50.00	49.27	98	80-120
1,2,4-Trichlorobenzene	50.00	50.37	101	80-120
1,2,4-Trimethylbenzene	50.00	50.13	100	80-120
Tetrachloroethene	50.00	45.93	92	80-120
Trichloroethene	50.00	48.84	98	80-120
1,2-Dichlorobenzene	50.00	48.36	97	80-120
1,2-Dichloroethane	50.00	50.35	101	80-120
1,2-Dichloropropane	50.00	49.19	98	80-120
1,3,5-Trimethylbenzene	50.00	50.06	100	80-120
1,3-Dichloropropane	50.00	49.40	99	80-120
1,4-Dichlorobenzene	50.00	47.08	94	80-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

_____

FORM III VOA

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS18120913

Matrix Spike - Sample No.: VSTD050

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
2-Butanone	100.00	104.35	104	80-120
2-Chlorotoluene	50.00	49.32	99	80-120
2-Hexanone	100.00	109.16	109	80-120
4-Chlorotoluene	50.00	49.71	99	80-120
tert-Butylbenzene	50.00	47.93	96	80-120
4-Methyl-2-Pentanone	100.00	106.57	106	80-120
Acetone	100.00	114.45	114	80-120
Benzene	50.00	48.82	98	80-120
Bromobenzene	50.00	49.77	100	80-120
Bromochloromethane	50.00	56.76	114	80-120
Bromodichloromethane	50.00	52.06	104	80-120
Bromoform	50.00	47.92	96	80-120
Bromomethane	50.00	54.05	108	80-120
Carbon Disulfide	100.00	96.00	96	80-120
Carbon Tetrachloride	50.00	44.88	90	80-120
Chlorobenzene	50.00	48.25	96	80-120
Chloroethane	50.00	46.15	92	80-120
Chloroform	50.00	48.45	97	80-120
Chloromethane	50.00	48.96	98	80-120
cis-1,2-Dichloroethene	50.00	48.93	98	80-120
Dibromochloromethane	50.00	48.57	97	80-120
Dichlorodifluoromethane	50.00	46.21	92	80-120
Ethylbenzene	50.00	49.30	99	80-120
Hexachlorobutadiene	50.00	46.17	92	80-120
Isopropylbenzene	50.00	49.07	98	80-120
m,p-Xylenes	100.00	99.88	100	80-120
Methylene Chloride	50.00	49.75	100	80-120
n-Butylbenzene	50.00	46.94	94	80-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

_____

FORM III VOA

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS18120913

Matrix Spike - Sample No.: VSTD050

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
n-Propylbenzene	50.00	49.11	98	80-120
Naphthalene	50.00	49.46	99	80-120
o-Xylene	50.00	49.89	100	80-120
sec-Butylbenzene	50.00	47.69	95	80-120
Styrene	50.00	52.73	105	80-120
Vinyl Chloride	50.00	46.02	92	80-120
1,2,3-Trichloropropane	50.00	53.26	106	80-120
p-Isopropyltoluene	50.00	49.19	98	80-120
1,2-Dibromo-3-Chloropro	50.00	49.92	100	80-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

_____

FORM III VOA

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS18120913

Lab File ID: U122101 BFB Injection Date: 12/21/18

Instrument ID: VOA9 BFB Injection Time: 1325

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	19.6
75	30.0 - 60.0% of mass 95	50.4
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.0
173	Less than 2.0% of mass 174	0.5 (0.8)1
174	Greater than 50.0% of mass 95	66.8
175	5.0 - 9.0% of mass 174	5.1 (7.7)1
176	95.0 - 101.0% of mass 174	63.8 (95.6)1
177	5.0 - 9.0% of mass 176	4.5 (7.0)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD00.25	VSTD00.25	U122102	12/21/18	1349
02	VSTD00.5	VSTD00.5	U122103	12/21/18	1414
03	VSTD001	VSTD001	U122104	12/21/18	1503
04	VSTD002	VSTD002	U122105	12/21/18	1528
05	VSTD005	VSTD005	U122106	12/21/18	1552
06	VSTD020	VSTD020	U122107	12/21/18	1617
07	VSTD050	VSTD050	U122108	12/21/18	1641
08	VSTD100	VSTD100	U122109	12/21/18	1706
09	VSTD150	VSTD150	U122110	12/21/18	1731
10	VSTD200	VSTD200	U122111	12/21/18	1755
11	VSTD050	VSTD050	U122113	12/21/18	1845
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS18120913

Instrument ID: VOA9 Calibration Date(s): 12/21/18 12/21/18

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1349 1755

LAB FILE ID: RF0.25: U122102 RF0.5: U122103 RF1: U122104
RF2: U122105 RF5: U122106 RF20: U122107

COMPOUND	RF0.25	RF0.5	RF1	RF2	RF5	RF20
cis-1,3-Dichloropropene		2152	7273	13732	38403	162454
trans-1,3-Dichloropropene		1633	5668	10646	30725	135347
1,3-Dichlorobenzene		1.191	1.700	1.605	1.568	1.456
2,2-Dichloropropane		0.485	0.763	0.625	0.645	0.634
1,1-Dichloropropene		0.322	0.521	0.477	0.458	0.439
Dibromomethane		0.143	0.229	0.212	0.217	0.208
1,2-Dibromoethane		0.251	0.393	0.345	0.364	0.358
trans-1,2-Dichloroethene		0.432	0.724	0.620	0.614	0.598
1,1,1,2-Tetrachloroethane		1272	4208	8522	21878	89389
1,1,1-Trichloroethane		0.521	0.866	0.775	0.824	0.806
1,1,2,2-Tetrachloroethane		0.818	1.359	1.245	1.216	1.139
Freon TF		0.306	0.503	0.450	0.439	0.408
1,1,2-Trichloroethane		0.224	0.351	0.317	0.320	0.302
1,1-Dichloroethane		0.726	1.305	1.174	1.154	1.100
1,1-Dichloroethene		0.403	0.563	0.526	0.486	0.447
Trichlorofluoromethane		1919	7922	14026	37144	130957
1,2,3-Trichlorobenzene		1324	6631	12385	31113	126752
Toluene		1.131	1.662	1.581	1.624	1.525
1,2,4-Trichlorobenzene		0.721	1.015	0.905	0.905	0.901
1,2,4-Trimethylbenzene		1.826	2.823	2.656	2.819	2.701
Tetrachloroethene		0.219	0.326	0.277	0.272	0.254
Trichloroethene		0.245	0.382	0.322	0.344	0.317
1,2-Dichlorobenzene		1.166	1.777	1.606	1.586	1.444
1,2-Dichloroethane		2385	8970	15708	41415	149131
1,2-Dichloropropane		0.265	0.415	0.367	0.371	0.353
1,3,5-Trimethylbenzene		1.672	2.689	2.445	2.682	2.616
1,3-Dichloropropane		0.478	0.748	0.679	0.708	0.655
1,4-Dichlorobenzene		1.357	1.906	1.683	1.662	1.508
2-Butanone		2109	6369	11299	29605	119433
2-Chlorotoluene		1.700	2.636	2.392	2.490	2.333
2-Hexanone		0.182	0.278	0.270	0.285	0.300
4-Chlorotoluene		1.938	2.990	2.793	2.876	2.698
tert-Butylbenzene		1.429	2.338	2.197	2.340	2.218
4-Methyl-2-Pentanone		0.264	0.428	0.396	0.407	0.423
Acetone		3366	5582	8219	19230	73380
Benzene		0.975	1.562	1.399	1.435	1.337
Bromobenzene		0.564	0.890	0.814	0.813	0.765
Bromochloromethane		773	2865	5148	13786	51515
Bromodichloromethane		0.250	0.393	0.362	0.383	0.380
Bromoform		762	2343	4574	12962	53922
Bromomethane		822	2293	4588	12245	47148
Carbon Disulfide		1.468	2.043	1.806	1.808	1.714
Carbon Tetrachloride		1510	5463	10077	26439	104210
Chlorobenzene		0.762	1.142	1.012	1.020	0.962

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS1812091

Instrument ID: VOA9 Calibration Date(s): 12/21/18 12/21/18

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1349 1755

LAB FILE ID: RF0.25: U122102 RF0.5: U122103 RF1: U122104
RF2: U122105 RF5: U122106 RF20: U122107

COMPOUND	RF0.25	RF0.5	RF1	RF2	RF5	RF20
Chloroethane		2753	3213	8179	22172	73150
Chloroform		0.705	1.253	1.110	1.148	1.060
Chloromethane		1695	4689	8693	20682	79075
cis-1,2-Dichloroethene		0.459	0.806	0.684	0.699	0.678
Dibromochloromethane		1194	4051	7740	20846	89836
Dichlorodifluoromethane		2033	6583	11371	26580	98486
Ethylbenzene		0.353	0.556	0.512	0.523	0.497
Hexachlorobutadiene		0.453	0.398	0.322	0.324	0.310
Isopropylbenzene		0.918	1.542	1.455	1.530	1.485
m,p-Xylenes		0.432	0.668	0.621	0.648	0.629
Methylene Chloride		3346	8113	13726	31487	109403
n-Butylbenzene		1.993	2.818	2.596	2.666	2.520
n-Propylbenzene		2.596	4.144	3.755	4.032	3.835
Naphthalene		5535	16505	32897	91300	413229
o-Xylene		0.413	0.703	0.613	0.642	0.637
sec-Butylbenzene		2.047	3.385	3.201	3.334	3.199
Styrene		0.640	1.035	0.996	1.084	1.092
Vinyl Chloride		1815	6308	12656	29272	111713
1,2,3-Trichloropropane		0.777	1.295	1.203	1.184	1.156
p-Isopropyltoluene		1.912	2.733	2.516	2.786	2.704
1,2-Dibromo-3-Chloropropane		272	861	1910	4931	22196
1,2-Dichloroethane-d4		8601	10907	17881	38943	131494
Dibromofluoromethane		6036	8005	12720	28568	98984
Toluene-d8		27052	32175	54444	117010	408521
4-Bromofluorobenzene		9627	12547	20092	42900	153183

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS1812091

Instrument ID: VOA9 Calibration Date(s): 12/21/18 12/21/18

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1349 1755

LAB FILE ID: RF50: U122108 RF100: U122109 RF150: U122110
RF200: U122111

COMPOUND	RF50	RF100	RF150	RF200
cis-1,3-Dichloropropene	449225	944095	1468956	1986544
trans-1,3-Dichloropropene	381258	811224	1271771	1721394
1,3-Dichlorobenzene	1.440	1.476	1.485	1.441
2,2-Dichloropropane	0.635	0.683	0.695	0.673
1,1-Dichloropropene	0.427	0.455	0.457	0.448
Dibromomethane	0.207	0.207	0.205	0.205
1,2-Dibromoethane	0.349	0.345	0.342	0.340
trans-1,2-Dichloroethene	0.564	0.579	0.576	0.559
1,1,1,2-Tetrachloroethane	235446	493177	766622	1032567
1,1,1-Trichloroethane	0.788	0.846	0.852	0.826
1,1,2,2-Tetrachloroethane	1.127	1.090	1.080	1.060
Freon TF	0.397	0.445	0.445	0.434
1,1,2-Trichloroethane	0.296	0.295	0.290	0.286
1,1-Dichloroethane	1.058	1.079	1.066	1.028
1,1-Dichloroethene	0.441	0.480	0.472	0.461
Trichlorofluoromethane	330010	753769	1146930	1561606
1,2,3-Trichlorobenzene	334600	694931	1085027	1453309
Toluene	1.488	1.490	1.464	1.421
1,2,4-Trichlorobenzene	0.926	0.982	1.001	0.974
1,2,4-Trimethylbenzene	2.661	2.738	2.712	2.610
Tetrachloroethene	0.243	0.257	0.257	0.251
Trichloroethene	0.311	0.321	0.328	0.321
1,2-Dichlorobenzene	1.442	1.463	1.459	1.417
1,2-Dichloroethane	376591	747337	1129116	1504782
1,2-Dichloropropane	0.350	0.357	0.353	0.348
1,3,5-Trimethylbenzene	2.579	2.685	2.665	2.582
1,3-Dichloropropane	0.642	0.630	0.620	0.613
1,4-Dichlorobenzene	1.482	1.511	1.509	1.472
2-Butanone	304044	587152	880878	1199902
2-Chlorotoluene	2.295	2.323	2.315	2.248
2-Hexanone	0.302	0.295	0.297	0.293
4-Chlorotoluene	2.665	2.704	2.694	2.601
tert-Butylbenzene	2.197	2.301	2.300	2.225
4-Methyl-2-Pentanone	0.427	0.421	0.419	0.415
Acetone	187964	331678	520533	723113
Benzene	1.319	1.335	1.317	1.294
Bromobenzene	0.765	0.778	0.792	0.773
Bromochloromethane	129496	244429	348533	453685
Bromodichloromethane	0.388	0.406	0.411	0.408
Bromoform	154855	331336	522892	718878
Bromomethane	117780	281859	444174	585856
Carbon Disulfide	1.656	1.742	1.730	1.622
Carbon Tetrachloride	274507	601960	939611	1268610
Chlorobenzene	0.940	0.949	0.943	0.916

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS1812091

Instrument ID: VOA9 Calibration Date(s): 12/21/18 12/21/18

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1349 1755

LAB FILE ID: RF50: U122108 RF100: U122109 RF150: U122110
RF200: U122111

COMPOUND	RF50	RF100	RF150	RF200
Chloroethane	179707	384958	684109	859472
Chloroform	1.027	1.035	1.016	0.978
Chloromethane	197328	441603	746873	1095269
cis-1,2-Dichloroethene	0.650	0.655	0.653	0.630
Dibromochloromethane	242061	512845	791728	1081017
Dichlorodifluoromethane	248322	553841	873891	1151588
Ethylbenzene	0.490	0.504	0.504	0.495
Hexachlorobutadiene	0.324	0.352	0.356	
Isopropylbenzene	1.450	1.506	1.482	1.428
m,p-Xylenes	0.612	0.626	0.616	0.600
Methylene Chloride	274258	554902	841220	1131189
n-Butylbenzene	2.535	2.661	2.637	
n-Propylbenzene	3.794	3.919	3.867	3.682
Naphthalene	1107938	2231968	3430934	4589381
o-Xylene	0.622	0.631	0.627	0.612
sec-Butylbenzene	3.182	3.378	3.341	3.190
Styrene	1.084	1.087	1.074	1.044
Vinyl Chloride	283791	629175	1000865	1348117
1,2,3-Trichloropropane	1.210	1.222	1.246	1.245
p-Isopropyltoluene	2.733	2.856	2.837	2.735
1,2-Dibromo-3-Chloropropane	61793	125814	200384	274280
1,2-Dichloroethane-d4	320796	635081	949266	1274051
Dibromofluoromethane	245007	495628	745399	1006329
Toluene-d8	1010127	2029223	3016887	4010125
4-Bromofluorobenzene	382581	764798	1153874	1540801

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS1812091

Instrument ID: VOA9 Calibration Date(s): 12/21/18 12/21/18

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1349 1755

COMPOUND	CURVE	COEFFICENTS A0	A1	A2	%RSD OR R^2	MAX %RSD OR R^2
cis-1,3-Dichloropropene	LINR	2.529e-002	1.70725996		0.9997580	0.9900000
trans-1,3-Dichloropropene	LINR	3.3e-002	1.96902158		0.9995927	0.9900000
1,3-Dichlorobenzene	AVRG		1.48472992		9.494	20.000
2,2-Dichloropropane	AVRG		0.64891526		11.509	20.000
1,1-Dichloropropene	AVRG		0.44488137		11.968	20.000
Dibromomethane	AVRG		0.20390294		11.744	20.000
1,2-Dibromoethane	AVRG		0.34310644		11.102	20.000
trans-1,2-Dichloroethene	AVRG		0.58526565		12.993	20.000
1,1,1,2-Tetrachloroethane	LINR	1.17e-002	3.11489679		0.9998991	0.9900000
1,1,1-Trichloroethane	AVRG		0.78949465		13.294	20.000
1,1,2,2-Tetrachloroethane	AVRG		1.12601556		13.302	20.000
Freon TF	AVRG		0.42507305		12.611	20.000
1,1,2-Trichloroethane	AVRG		0.29788801		11.475	20.000
1,1-Dichloroethane	AVRG		1.07678494		14.456	20.000
1,1-Dichloroethene	AVRG		0.47540572		9.911	20.000
Trichlorofluoromethane	LINR	1.25e-002	1.19826122		0.9992799	0.9900000
1,2,3-Trichlorobenzene	LINR	1.266e-002	1.04791842		0.9997493	0.9900000
Toluene	AVRG		1.48733738		10.393	20.000
1,2,4-Trichlorobenzene	AVRG		0.92571167		9.562	20.000
1,2,4-Trimethylbenzene	AVRG		2.61651384		11.645	20.000
Tetrachloroethene	AVRG		0.26176272		11.269	20.000
Trichloroethene	AVRG		0.32119921		11.118	20.000
1,2-Dichlorobenzene	AVRG		1.48461871		11.211	20.000
1,2-Dichloroethane	LINR	-1.47e-002	2.25247271		0.9997943	0.9900000
1,2-Dichloropropane	AVRG		0.35329723		11.023	20.000
1,3,5-Trimethylbenzene	AVRG		2.51283681		12.919	20.000
1,3-Dichloropropane	AVRG		0.64163858		11.739	20.000
1,4-Dichlorobenzene	AVRG		1.56545234		10.298	20.000
2-Butanone	LINR	-4.87e-002	3.13274512		0.9994657	0.9900000
2-Chlorotoluene	AVRG		2.30373097		11.091	20.000
2-Hexanone	AVRG		0.27803053		13.505	20.000
4-Chlorotoluene	AVRG		2.66220268		11.134	20.000
tert-Butylbenzene	AVRG		2.17187412		13.092	20.000
4-Methyl-2-Pentanone	AVRG		0.40004668		13.000	20.000
Acetone	LINR	-6.05e-002	5.27806885		0.9991782	0.9900000
Benzene	AVRG		1.33049482		11.804	20.000
Bromobenzene	AVRG		0.77253354		11.330	20.000
Bromochloromethane	LINR	-6.22e-002	4.05290698		0.9951390	0.9900000
Bromodichloromethane	AVRG		0.37570006		13.249	20.000
Bromoform	LINR	3.523e-002	4.49538839		0.9994690	0.9900000
Bromomethane	LINR	2.677e-002	3.15194291		0.9981331	0.9900000
Carbon Disulfide	AVRG		1.73224763		9.031	20.000
Carbon Tetrachloride	LINR	2.798e-002	2.67309140		0.9994430	0.9900000
Chlorobenzene	AVRG		0.96069061		10.497	20.000

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS1812091

Instrument ID: VOA9 Calibration Date(s): 12/21/18 12/21/18

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1349 1755

COMPOUND	CURVE	COEFFICENTS A0	COEFFICENTS A1	COEFFICENTS A2	%RSD OR R^2	MAX %RSD OR R^2
Chloroethane	2ORDR	9.363e-003	2.27118996	-8.34e-002	0.9953360	0.9900000
Chloroform	AVRG		1.03699562		14.439	20.000
Chloromethane	LINR	6.638e-002	1.75757606		0.9946541	0.9900000
cis-1,2-Dichloroethene	AVRG		0.65721728		13.730	20.000
Dibromochloromethane	LINR	1.95e-002	2.98429229		0.9998675	0.9900000
Dichlorodifluoromethane	LINR	9.706e-003	1.60963706		0.9988360	0.9900000
Ethylbenzene	AVRG		0.49273054		11.389	20.000
Hexachlorobutadiene	AVRG		0.35465839		13.679	20.000
Isopropylbenzene	AVRG		1.42182513		13.532	20.000
m,p-Xylenes	AVRG		0.60575037		11.285	20.000
Methylene Chloride	LINR	-2.41e-002	1.65721813		0.9996145	0.9900000
n-Butylbenzene	AVRG		2.55335964		9.575	20.000
n-Propylbenzene	AVRG		3.73602785		12.044	20.000
Naphthalene	2ORDR	1.313e-002	0.32140252	9.017e-004	0.9999007	0.9900000
o-Xylene	AVRG		0.61109521		12.917	20.000
sec-Butylbenzene	AVRG		3.13985879		13.327	20.000
Styrene	AVRG		1.01526757		14.203	20.000
Vinyl Chloride	LINR	1.938e-002	1.38661185		0.9992348	0.9900000
1,2,3-Trichloropropane	AVRG		1.17088717		13.058	20.000
p-Isopropyltoluene	AVRG		2.64580193		11.042	20.000
1,2-Dibromo-3-Chloropropane	LINR	2.904e-002	5.59224209		0.9995363	0.9900000
1,2-Dichloroethane-d4	LINR	-4.34e-002	1.47435424		0.9993295	0.9900000
Dibromofluoromethane	LINR	-3.06e-002	1.86777807		0.9996249	0.9900000
Toluene-d8	LINR	-3.57e-002	0.80216996		0.9994439	0.9900000
4-Bromofluorobenzene	LINR	-2.86e-002	2.09274699		0.9997553	0.9900000

FORM VI VOA

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122101.D

Date : 21-DEC-2018 13:25

Client ID: BFB

Instrument: VOA9.i

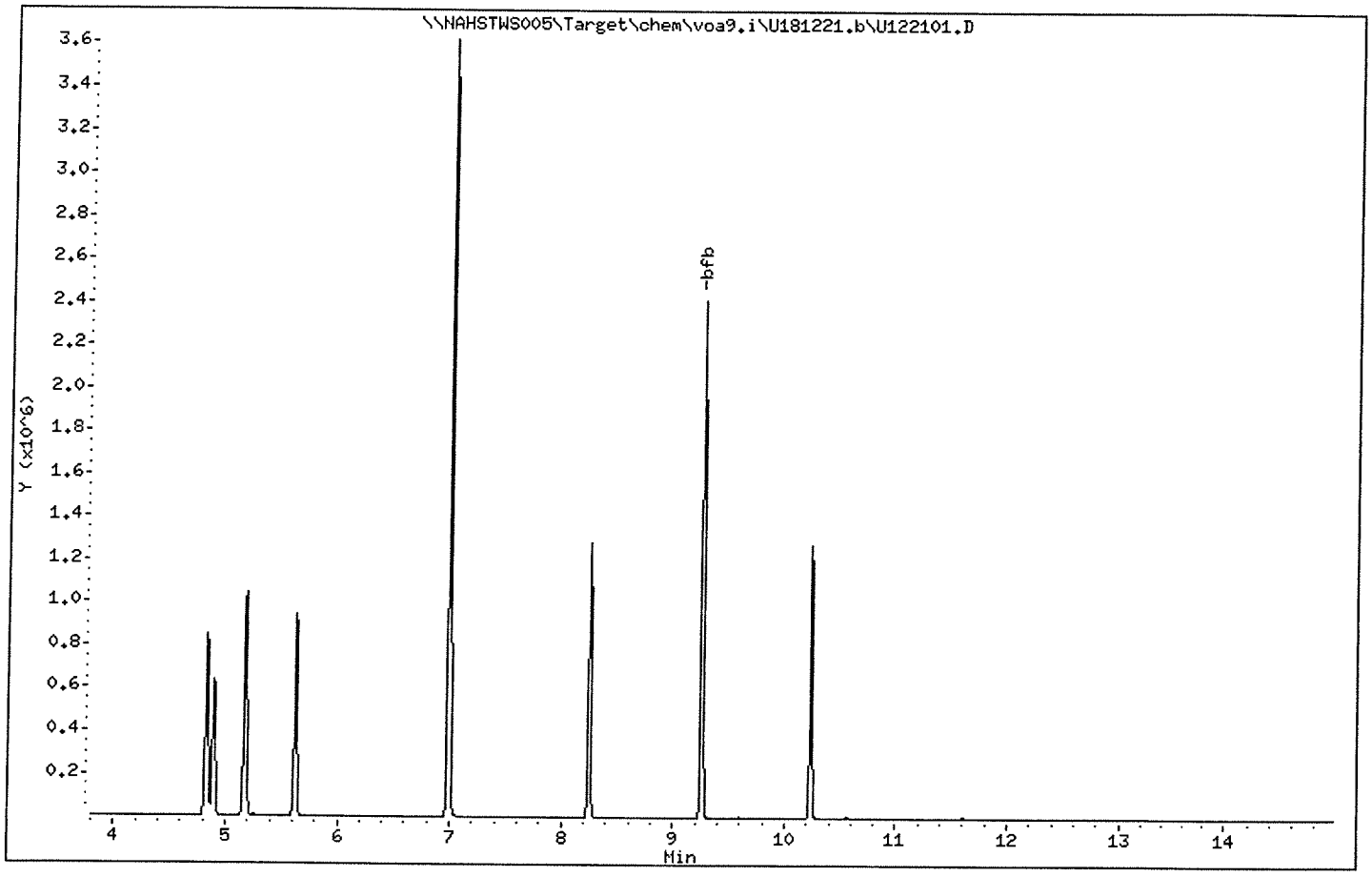
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122101.D Page 3

Date : 21-DEC-2018 13:25

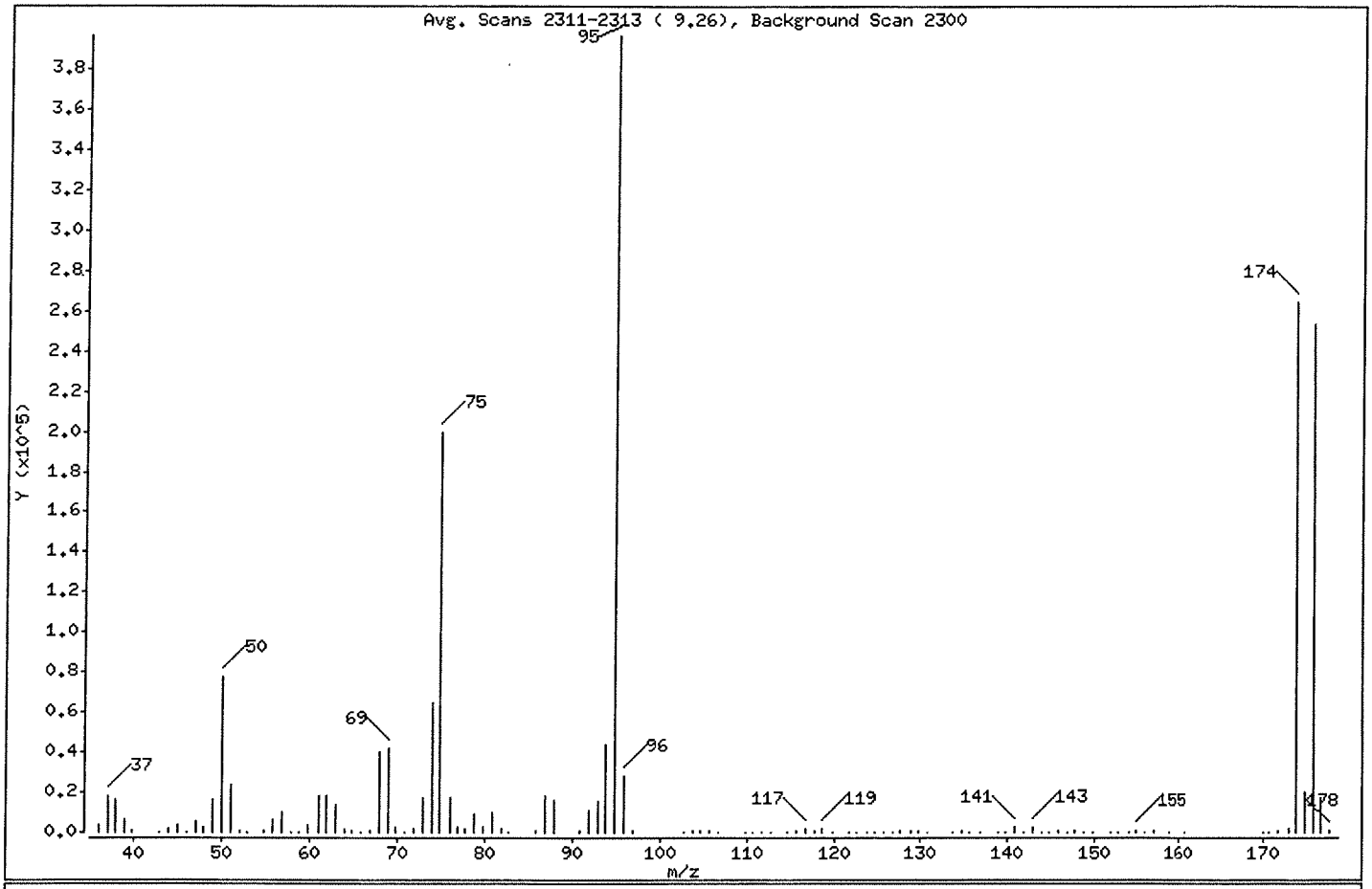
Client ID: BFB Instrument: VOA9.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0 Operator: PC

Column phase: DB624 Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	19.64
75	30.00 - 60.00% of mass 95	50.36
96	5.00 - 9.00% of mass 95	7.02
173	Less than 2.00% of mass 174	0.53 (0.79)
174	Greater than 50.00% of mass 95	66.76
175	5.00 - 9.00% of mass 174	5.12 (7.67)
176	95.00 - 101.00% of mass 174	63.79 (95.55)
177	5.00 - 9.00% of mass 176	4.47 (7.01)

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122101.D

Date : 21-DEC-2018 13:25

Client ID: BFB

Instrument: VOA9.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

Data File: U122101.D

Spectrum: Avg. Scans 2311-2313 (9.26), Background Scan 2300

Location of Maximum: 94.95

Number of points: 113

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	3522	67.90	40024	105.80	1268	141.70	302
37.00	18528	68.90	41568	106.80	285	142.80	2909
38.00	16159	69.90	3074	109.80	127	143.80	180
39.00	6598	70.90	134	110.70	307	144.70	380
39.90	601	71.90	2102	111.70	156	145.70	457
42.90	115	73.00	17344	112.80	260	146.70	229
43.90	2066	73.90	64968	114.70	321	147.70	676
45.00	3408	74.90	199680	115.70	1039	148.60	185
46.10	284	76.00	17352	116.80	1890	149.70	381
47.00	5059	76.90	2402	117.70	1164	151.70	195
47.90	2352	77.80	1696	118.70	1600	152.70	221
49.00	16317	78.90	8933	119.80	55	153.80	245
50.00	77856	79.90	2552	121.70	99	154.70	869
51.00	23912	80.90	9833	122.70	71	155.70	141
52.00	1198	81.90	1903	123.80	148	156.70	599
52.90	102	82.80	214	124.70	101	158.60	297
54.90	806	85.90	533	125.70	152	160.70	273
55.90	6021	86.90	18088	126.70	123	169.90	51
56.90	10148	87.90	16848	127.70	1127	170.60	105
57.90	434	90.80	1233	128.80	534	171.70	1051
58.70	68	91.90	10521	129.70	1152	172.80	2098
59.90	3925	92.90	15269	130.70	419	173.70	264704
61.00	18160	93.90	43328	133.70	53	174.70	20304
61.90	18216	94.90	396480	134.70	496	175.70	252928
63.00	13327	95.90	27824	135.60	96	176.70	17720
64.00	1507	96.90	709	136.70	369	177.70	520
64.90	816	102.80	137	138.90	62		
65.80	130	103.80	1364	139.70	200		
67.00	910	104.70	463	140.80	2707		

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122102.D Page 1
Report Date: 28-Jan-2019 11:36

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122102.D
Lab Smp Id: VSTD00.25 Client Smp ID: VSTD00.25
Inj Date : 21-DEC-2018 13:49
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD00.25;VSTD00.25;1;1;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 13:49 Cal File: U122102.D
Als bottle: 2 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

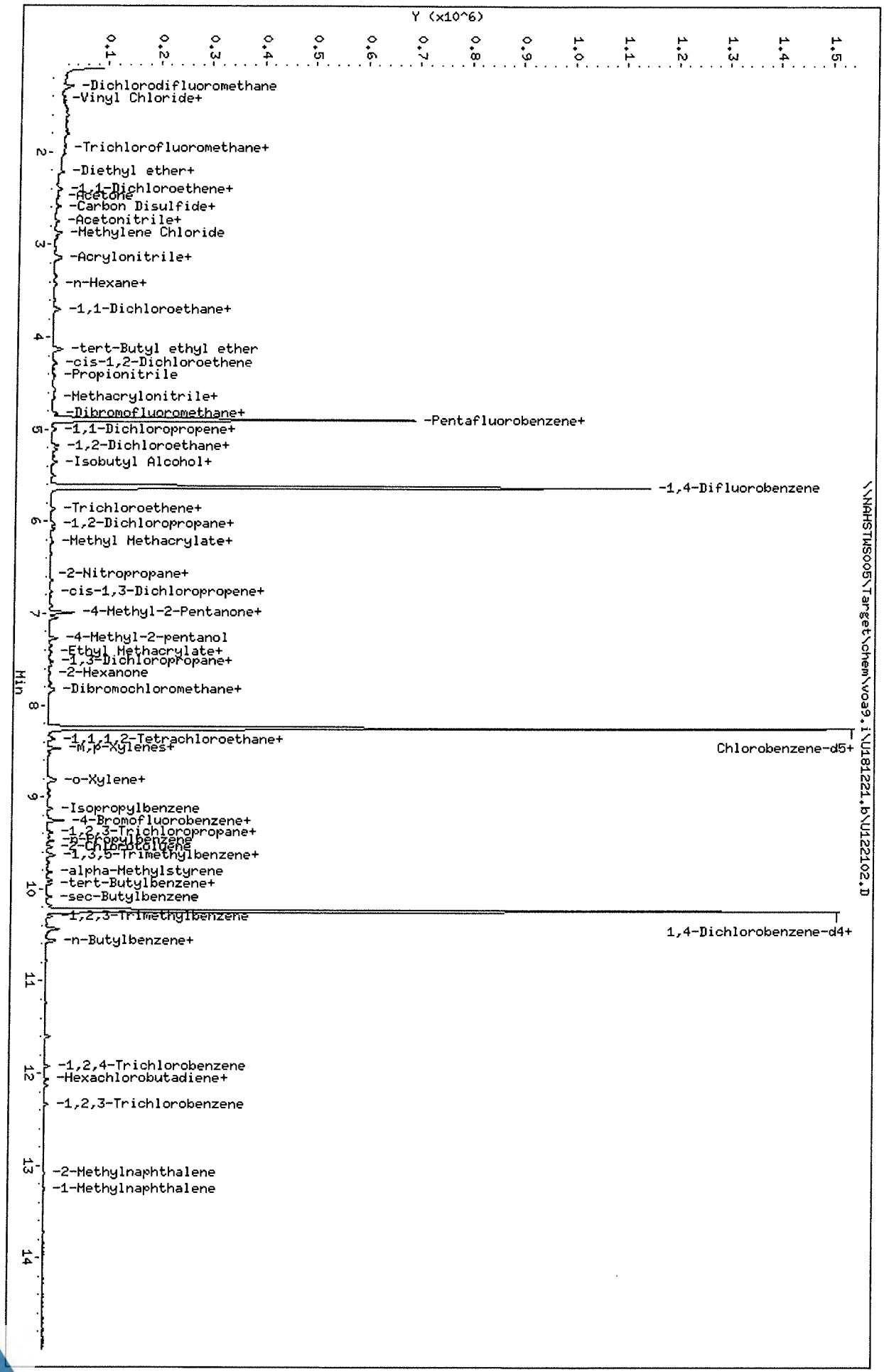
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.894	4.890	(1.000)	428138	50.0000	
* 36 1,4-Difluorobenzene	114	5.625	5.625	(1.000)	818709	50.0000	
* 47 Chlorobenzene-d5	117	8.249	8.249	(1.000)	747851	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	340535	50.0000	
$ 30 Dibromofluoromethane	113	4.830	4.826	(0.987)	4885	0.25000	(a)
$ 35 1,2-Dichloroethane-d4	65	5.175	5.171	(1.057)	7874	0.25000	(a)
$ 48 Toluene-d8	98	6.986	6.989	(0.847)	25629	0.25000	(a)
$ 69 4-Bromofluorobenzene	95	9.257	9.257	(1.122)	9480	0.25000	(a)
60 1,1,1,2-Tetrachloroethane	131	8.350	8.350	(1.012)	1214	0.25000	0.83(a)
31 1,1,1-Trichloroethane	97	4.826	4.826	(0.986)	2037	0.25000	0.30(a)
138 Freon TF	101	2.401	2.394	(0.491)	1292	0.25000	0.35(a)
53 1,1,2-Trichloroethane	83	7.421	7.421	(0.900)	1492	0.25000	0.33(a)
22 1,1-Dichloroethane	63	3.601	3.597	(0.736)	2808	0.25000	0.30(Ta)
11 1,1-Dichloroethene	96	2.397	2.394	(0.490)	1606	0.25000	0.39(a)
32 1,1-Dichloropropene	75	5.003	5.003	(0.889)	2559	0.25000	0.35(a)
93 1,2,3-Trichlorobenzene	180	12.335	12.335	(1.205)	2119	0.25000	0.95(a)
71 1,2,3-Trichloropropane	75	9.426	9.430	(0.921)	2311	0.25000	0.28(a)
90 1,2,4-Trichlorobenzene	180	11.923	11.926	(1.165)	1867	0.25000	0.29(a)
79 1,2,4-Trimethylbenzene	105	9.940	9.943	(0.971)	5702	0.25000	0.31(a)
57 1,2-Dibromoethane	107	7.852	7.852	(0.952)	1463	0.25000	0.28(a)
88 1,2-Dichlorobenzene	146	10.573	10.573	(1.033)	3604	0.25000	0.35(a)
33 1,2-Dichloroethane	62	5.254	5.250	(0.934)	2468	0.25000	(a)
42 1,2-Dichloropropane	63	6.079	6.078	(1.081)	1752	0.25000	0.30(a)

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122102.D Page 2
Report Date: 28-Jan-2019 11:36

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
75 1,3,5-Trimethylbenzene	105	9.625	9.628	(0.940)	5173	0.25000	0.30(a)
83 1,3-Dichlorobenzene	146	10.180	10.180	(0.995)	3530	0.25000	0.34(a)
54 1,3-Dichloropropane	76	7.563	7.563	(0.917)	3033	0.25000	0.31(a)
84 1,4-Dichlorobenzene	146	10.255	10.258	(1.002)	4184	0.25000	0.39(a)
76 2-Chlorotoluene	91	9.546	9.550	(0.933)	5370	0.25000	0.34(a)
52 2-Hexanone	43	7.649	7.653	(0.927)	2221	0.50000	0.53(a)
77 4-Chlorotoluene	91	9.640	9.640	(0.942)	6065	0.25000	0.33(a)
82 p-Isopropyltoluene	119	10.210	10.213	(0.997)	5637	0.25000	0.31(a)
45 4-Methyl-2-Pentanone	43	6.914	6.914	(0.838)	3388	0.50000	0.56(a)
10 Acetone	43	2.480	2.476	(0.507)	3620	0.50000	(a)
37 Benzene	78	5.216	5.216	(0.927)	7659	0.25000	0.35(a)
74 Bromobenzene	156	9.381	9.385	(0.917)	1549	0.25000	0.29(a)
19 Carbon Disulfide	76	2.588	2.585	(0.529)	12805	0.50000	0.86(a)
34 Carbon Tetrachloride	117	4.988	4.991	(0.887)	1501	0.25000	1.64(a)
59 Chlorobenzene	112	8.272	8.275	(1.003)	5314	0.25000	0.36(a)
28 Chloroform	83	4.654	4.654	(0.951)	3005	0.25000	0.33(a)
27 cis-1,2-Dichloroethene	96	4.283	4.283	(0.875)	1960	0.25000	0.34(a)
46 cis-1,3-Dichloropropene	75	6.757	6.757	(1.201)	2017	0.25000	1.47(a)
55 Dibromochloromethane	129	7.758	7.758	(0.940)	1084	0.25000	1.19(a)
2 Dichlorodifluoromethane	85	1.201	1.198	(0.246)	2264	0.25000	0.91(a)
61 Ethylbenzene	106	8.369	8.373	(1.015)	2474	0.25000	0.33(a)
91 Hexachlorobutadiene	225	12.061	12.065	(1.178)	1019	0.25000	0.42(a)
67 Isopropylbenzene	105	9.126	9.126	(1.106)	6811	0.25000	0.32(a)
62 m,p-Xylenes	106	8.474	8.474	(1.027)	5829	0.50000	0.64(a)
17 Methylene Chloride	84	2.870	2.866	(0.586)	3269	0.25000	(a)
87 n-Butylbenzene	91	10.554	10.558	(1.031)	6526	0.25000	0.37(a)
73 n-Propylbenzene	91	9.475	9.479	(0.926)	8427	0.25000	0.33(a)
92 Naphthalene	128	12.133	12.133	(1.185)	4657	0.25000	0.87(a)
63 o-Xylene	106	8.811	8.811	(1.068)	2975	0.25000	0.32(a)
81 sec-Butylbenzene	105	10.086	10.090	(0.985)	6928	0.25000	0.32(a)
64 Styrene	104	8.823	8.826	(1.070)	4467	0.25000	0.29(a)
78 tert-Butylbenzene	119	9.902	9.902	(0.967)	4611	0.25000	0.31(a)
56 Tetrachloroethene	164	7.522	7.525	(0.912)	1622	0.25000	0.41(a)
50 Toluene	91	7.046	7.046	(0.854)	7336	0.25000	0.32(a)
20 trans-1,2-Dichloroethene	96	3.136	3.136	(0.641)	1833	0.25000	0.36(a)
38 Trichloroethene	130	5.861	5.861	(1.042)	2028	0.25000	0.38(a)
8 Trichlorofluoromethane	101	1.955	1.944	(0.400)	2465	0.25000	0.97(a)
5 Vinyl Chloride	62	1.419	1.415	(0.290)	2098	0.25000	1.30(a)

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122102.D
Date : 21-DEC-2018 13:49
Client ID: VSTD00.25
Sample Info: VSTD00.25;VSTD00.25;1;1;
Purge Volume: 5.0
Column phase: DB624

\\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122102.D
Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122103.D Page 1
Report Date: 28-Jan-2019 11:25

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122103.D
Lab Smp Id: VSTD00.5 Client Smp ID: VSTD00.5
Inj Date : 21-DEC-2018 14:14
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD00.5;VSTD00.5;1;2;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 13:49 Cal File: U122102.D
Als bottle: 3 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

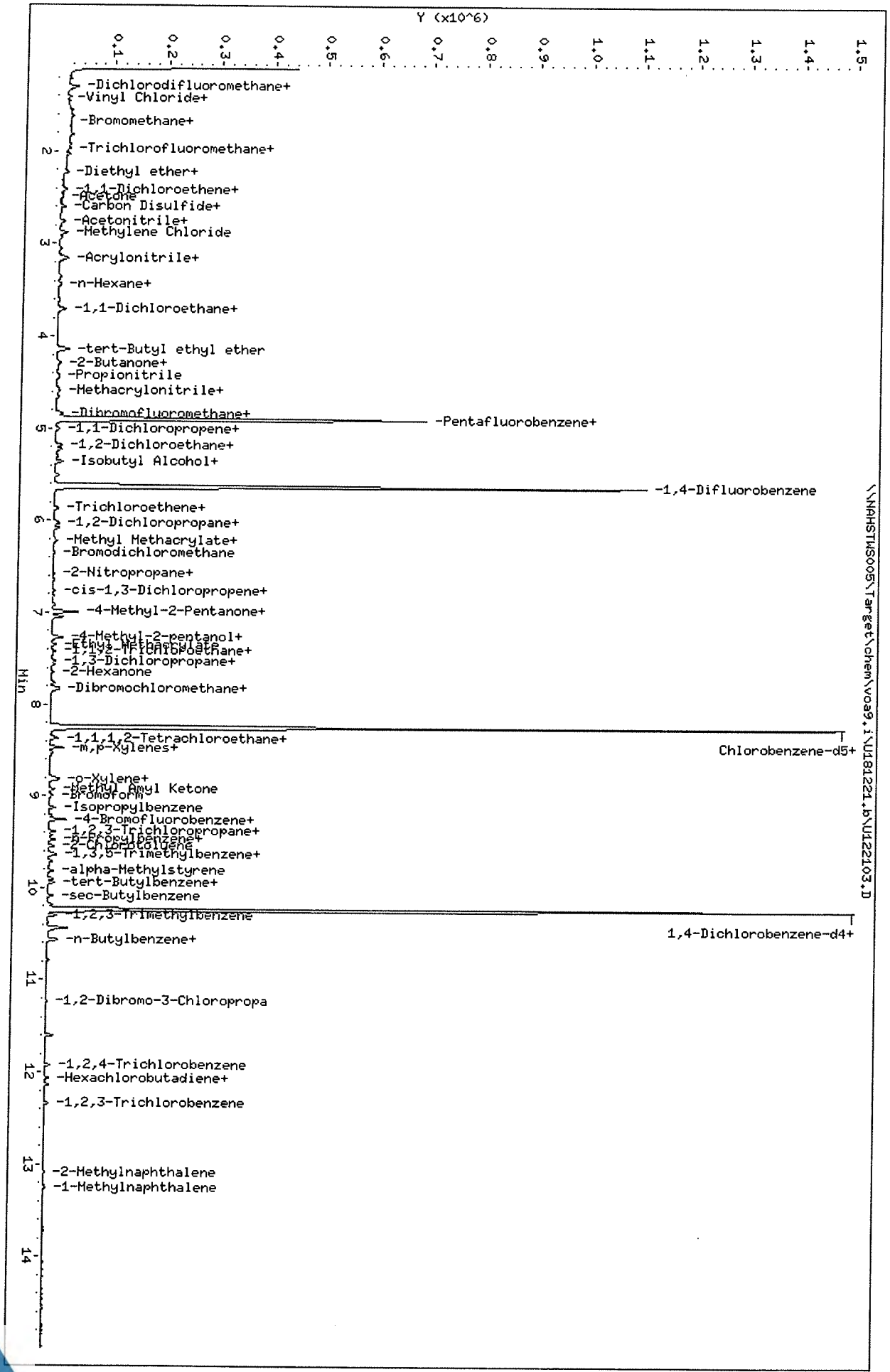
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.898	4.898	(1.000)	422356	50.0000	
* 36 1,4-Difluorobenzene	114	5.629	5.629	(1.000)	796827	50.0000	
* 47 Chlorobenzene-d5	117	8.249	8.249	(1.000)	725774	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	333300	50.0000	
$ 30 Dibromofluoromethane	113	4.834	4.834	(0.987)	6036	0.50000	(a)
$ 35 1,2-Dichloroethane-d4	65	5.179	5.179	(1.057)	8601	0.50000	(a)
$ 48 Toluene-d8	98	6.989	6.989	(0.847)	27052	0.50000	(a)
$ 69 4-Bromofluorobenzene	95	9.257	9.257	(1.122)	9627	0.50000	(a)
60 1,1,1,2-Tetrachloroethane	131	8.350	8.350	(1.012)	1272	0.50000	0.85(a)
31 1,1,1-Trichloroethane	97	4.830	4.830	(0.986)	2201	0.50000	0.33(a)
68 1,1,2,2-Tetrachloroethane	83	9.392	9.392	(0.918)	2725	0.50000	0.36(aM)
138 Freon TF	101	2.412	2.412	(0.493)	1292	0.50000	0.35(a)
53 1,1,2-Trichloroethane	83	7.421	7.421	(0.900)	1629	0.50000	0.37(a)
22 1,1-Dichloroethane	63	3.612	3.612	(0.737)	3066	0.50000	0.33(Ta)
11 1,1-Dichloroethene	96	2.409	2.409	(0.492)	1703	0.50000	0.42(a)
32 1,1-Dichloropropene	75	5.010	5.010	(0.890)	2565	0.50000	0.36(a)
93 1,2,3-Trichlorobenzene	180	12.335	12.335	(1.205)	1324	0.50000	0.84(a)
71 1,2,3-Trichloropropane	75	9.426	9.426	(0.921)	2591	0.50000	0.33(a)
90 1,2,4-Trichlorobenzene	180	11.923	11.923	(1.165)	2402	0.50000	0.38(a)
79 1,2,4-Trimethylbenzene	105	9.943	9.943	(0.971)	6088	0.50000	0.34(a)
89 1,2-Dibromo-3-Chloropropane	155	11.233	11.233	(1.097)	272	0.50000	1.68(aM)
57 1,2-Dibromoethane	107	7.852	7.852	(0.952)	1825	0.50000	0.36(a)

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122103.D Page 2
Report Date: 28-Jan-2019 11:25

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88 1,2-Dichlorobenzene	146	10.573	10.573	(1.033)	3885	0.50000	0.39(a)
33 1,2-Dichloroethane	62	5.258	5.258	(0.934)	2385	0.50000	(a)
42 1,2-Dichloropropane	63	6.082	6.082	(1.081)	2114	0.50000	0.37(a)
75 1,3,5-Trimethylbenzene	105	9.625	9.625	(0.940)	5574	0.50000	0.33(a)
83 1,3-Dichlorobenzene	146	10.180	10.180	(0.995)	3970	0.50000	0.40(a)
54 1,3-Dichloropropane	76	7.563	7.563	(0.917)	3471	0.50000	0.37(a)
84 1,4-Dichlorobenzene	146	10.255	10.255	(1.002)	4522	0.50000	0.43(a)
26 2,2-Dichloropropane	77	4.279	4.279	(0.874)	2050	0.50000	0.37(aM)
24 2-Butanone	43	4.354	4.354	(0.889)	2109	1.00000	(a)
76 2-Chlorotoluene	91	9.550	9.550	(0.933)	5666	0.50000	0.36(a)
52 2-Hexanone	43	7.649	7.649	(0.927)	2639	1.00000	0.65(a)
77 4-Chlorotoluene	91	9.640	9.640	(0.942)	6459	0.50000	0.36(a)
82 p-Isopropyltoluene	119	10.210	10.210	(0.997)	6372	0.50000	0.36(a)
45 4-Methyl-2-Pentanone	43	6.914	6.914	(0.838)	3831	1.00000	0.65(a)
10 Acetone	43	2.491	2.491	(0.509)	3366	1.00000	(a)
37 Benzene	78	5.220	5.220	(0.927)	7772	0.50000	0.36(a)
74 Bromobenzene	156	9.381	9.381	(0.917)	1879	0.50000	0.36(a)
29 Bromochloromethane	128	4.553	4.553	(0.930)	773	0.50000	(a)
39 Bromodichloromethane	83	6.348	6.348	(1.128)	1990	0.50000	0.33(aM)
66 Bromoform	173	8.984	8.984	(1.089)	762	0.50000	1.99(aM)
6 Bromomethane	94	1.681	1.681	(0.343)	822	0.50000	1.64(a)
19 Carbon Disulfide	76	2.596	2.596	(0.530)	12403	1.00000	0.84(a)
34 Carbon Tetrachloride	117	4.999	4.999	(0.888)	1510	0.50000	1.65(a)
59 Chlorobenzene	112	8.275	8.275	(1.003)	5533	0.50000	0.39(a)
7 Chloroethane	64	1.764	1.764	(0.360)	2753	0.50000	1.20(aM)
28 Chloroform	83	4.662	4.662	(0.952)	2977	0.50000	0.33(a)
3 Chloromethane	50	1.348	1.348	(0.275)	1695	0.50000	3.67(aM)
27 cis-1,2-Dichloroethene	96	4.294	4.294	(0.877)	1939	0.50000	0.34(a)
46 cis-1,3-Dichloropropene	75	6.761	6.761	(1.201)	2152	0.50000	1.49(a)
55 Dibromochloromethane	129	7.758	7.758	(0.940)	1194	0.50000	1.22(a)
44 Dibromomethane	93	6.195	6.195	(1.101)	1143	0.50000	0.35(aM)
2 Dichlorodifluoromethane	85	1.213	1.213	(0.248)	2033	0.50000	0.87(aM)
61 Ethylbenzene	106	8.369	8.369	(1.015)	2560	0.50000	0.35(a)
91 Hexachlorobutadiene	225	12.065	12.065	(1.179)	1509	0.50000	0.63(a)
67 Isopropylbenzene	105	9.126	9.126	(1.106)	6665	0.50000	0.32(a)
62 m,p-Xylenes	106	8.474	8.474	(1.027)	6264	1.00000	0.71(a)
17 Methylene Chloride	84	2.877	2.877	(0.587)	3346	0.50000	(a)
87 n-Butylbenzene	91	10.558	10.558	(1.031)	6644	0.50000	0.39(a)
73 n-Propylbenzene	91	9.475	9.475	(0.926)	8654	0.50000	0.34(a)
92 Naphthalene	128	12.136	12.136	(1.186)	5535	0.50000	0.92(a)
63 o-Xylene	106	8.811	8.811	(1.068)	3001	0.50000	0.33(a)
81 sec-Butylbenzene	105	10.086	10.086	(0.985)	6823	0.50000	0.32(a)
64 Styrene	104	8.826	8.826	(1.070)	4646	0.50000	0.31(a)
78 tert-Butylbenzene	119	9.902	9.902	(0.967)	4764	0.50000	0.32(a)
56 Tetrachloroethene	164	7.526	7.526	(0.912)	1587	0.50000	0.41(a)
50 Toluene	91	7.049	7.049	(0.855)	8207	0.50000	0.38(a)
20 trans-1,2-Dichloroethene	96	3.151	3.151	(0.643)	1825	0.50000	0.36(a)
51 trans-1,3-Dichloropropene	75	7.263	7.263	(1.290)	1633	0.50000	1.85(aM)
38 Trichloroethene	130	5.865	5.865	(1.042)	1953	0.50000	0.38(a)
8 Trichlorofluoromethane	101	1.966	1.966	(0.402)	1919	0.50000	0.89(a)
5 Vinyl Chloride	62	1.430	1.430	(0.292)	1815	0.50000	1.26(a)

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



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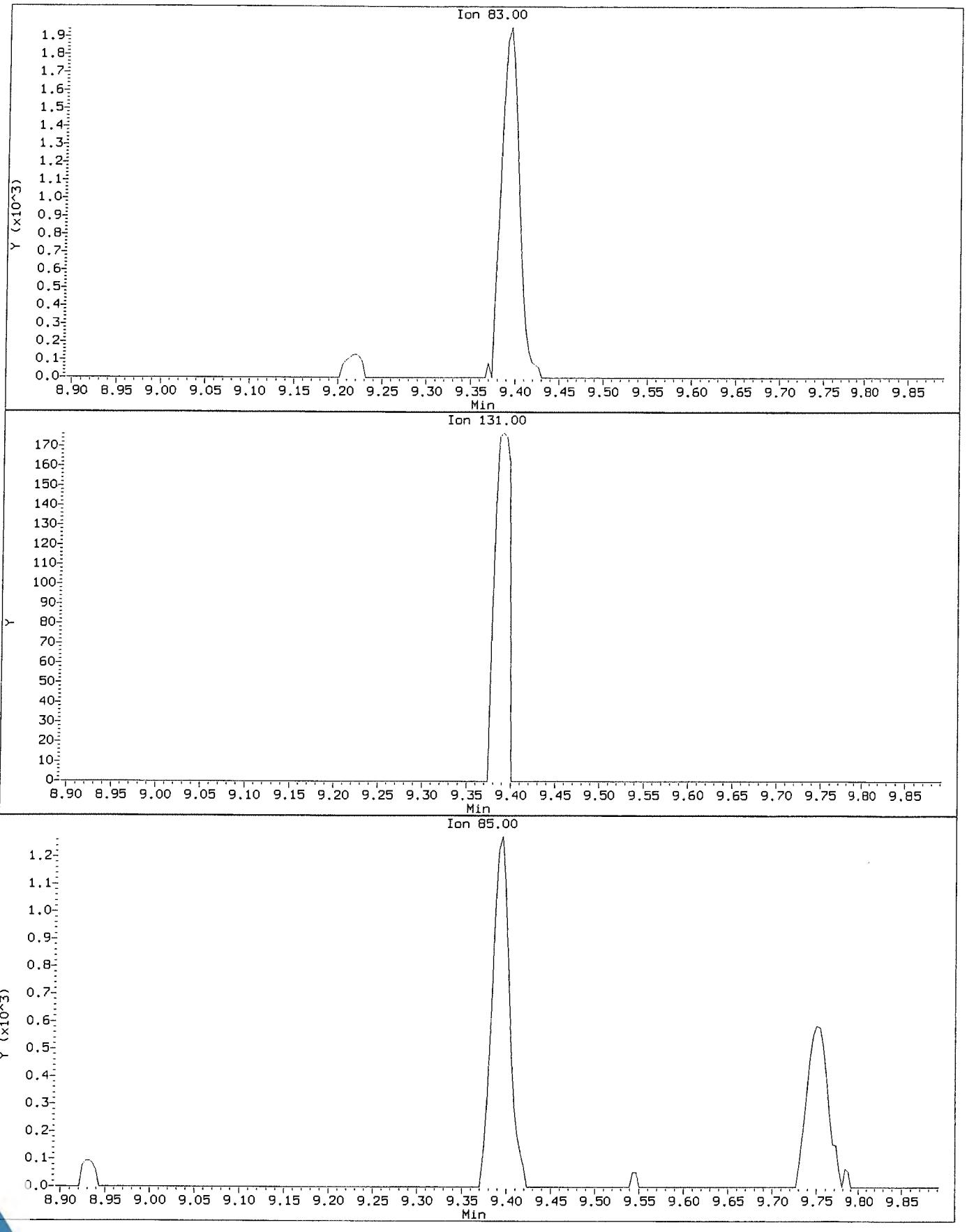
Sample Info: VSTD00,5;VSTD00,5;1;2;
Purge Volume: 5.0
Column phase: DB624

\\NAHSTWS005\Target\chem\voa9,i\U181221.b\U122103.D
Instrument: VOA9,i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122103.D
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5



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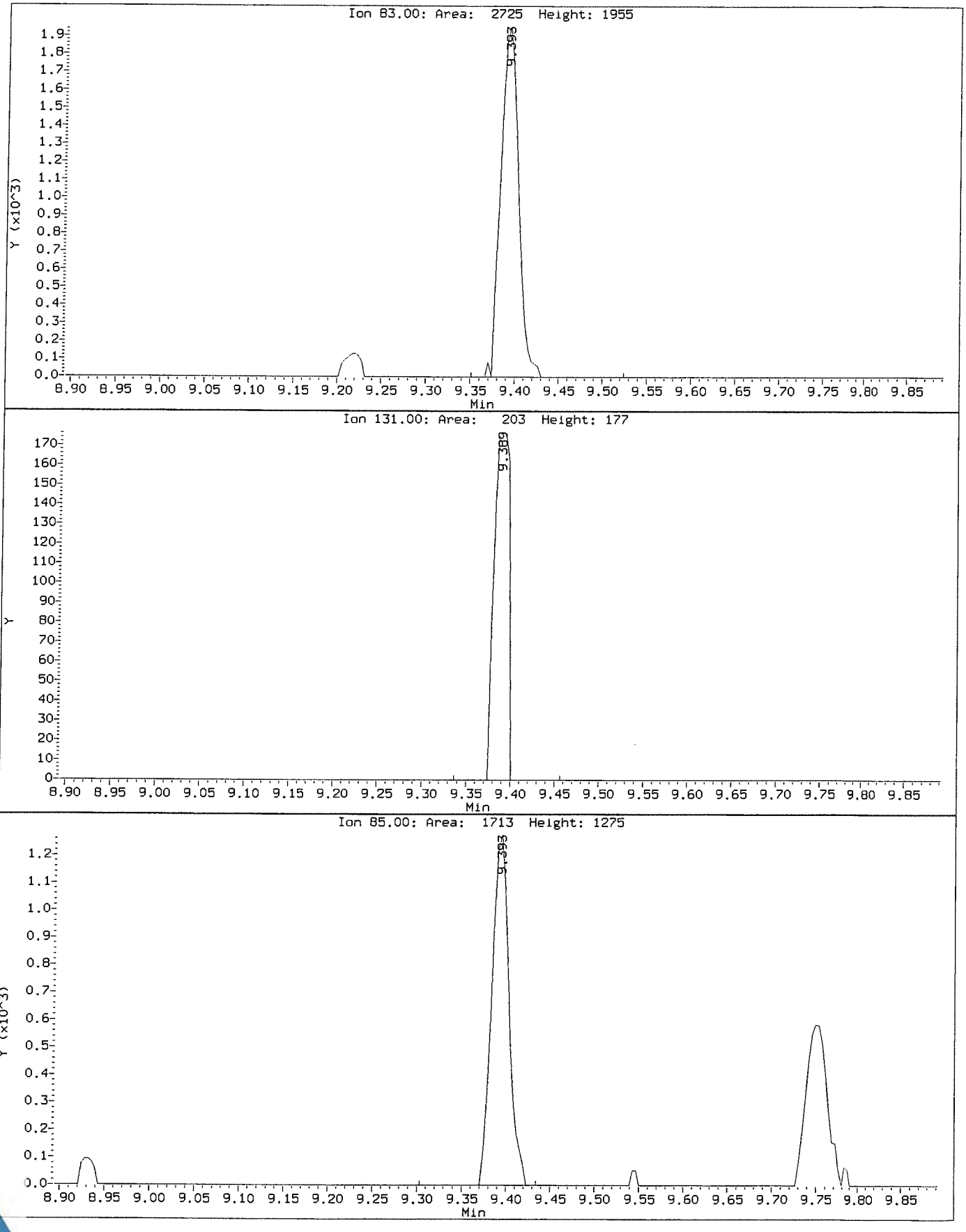
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5



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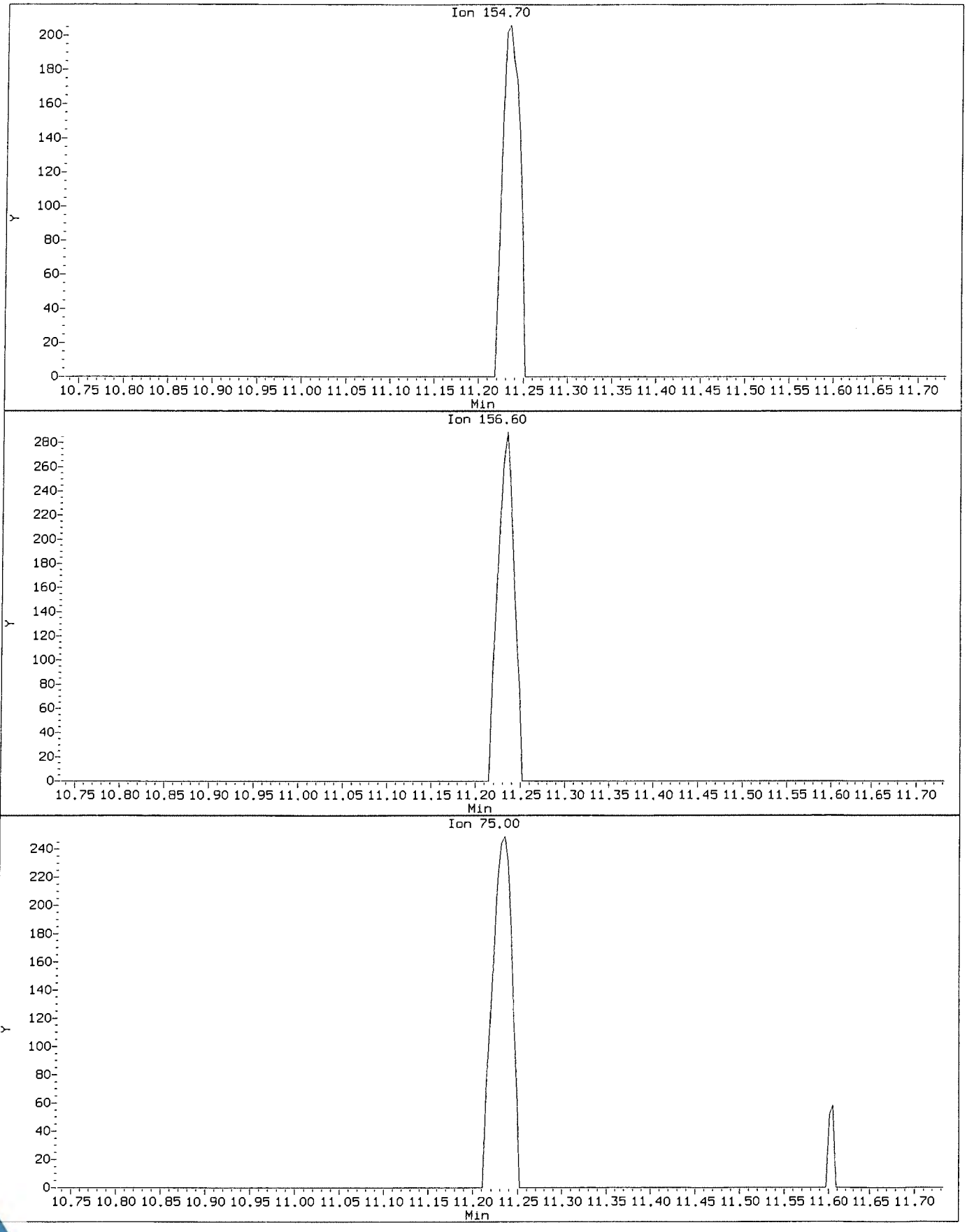
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8



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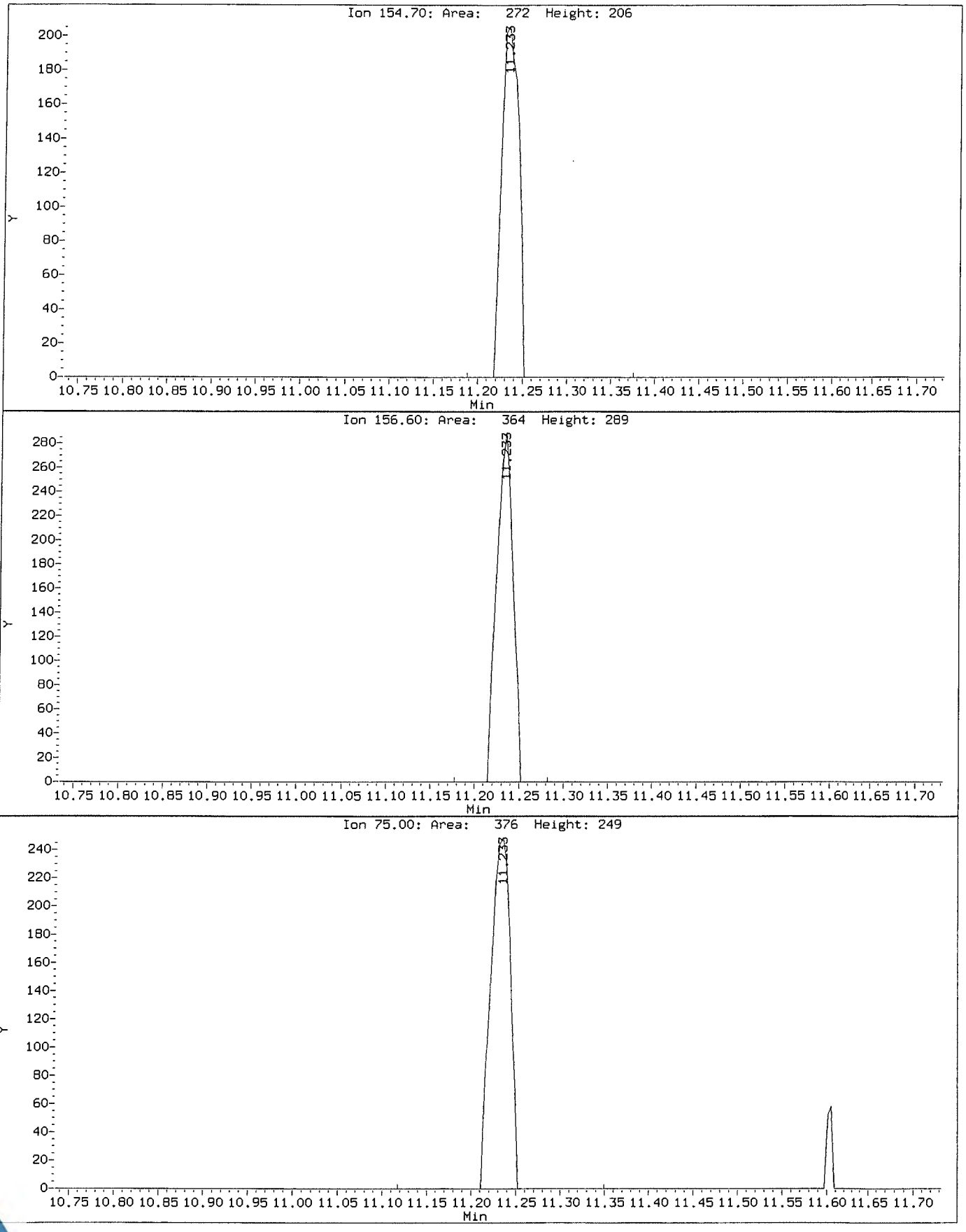
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8



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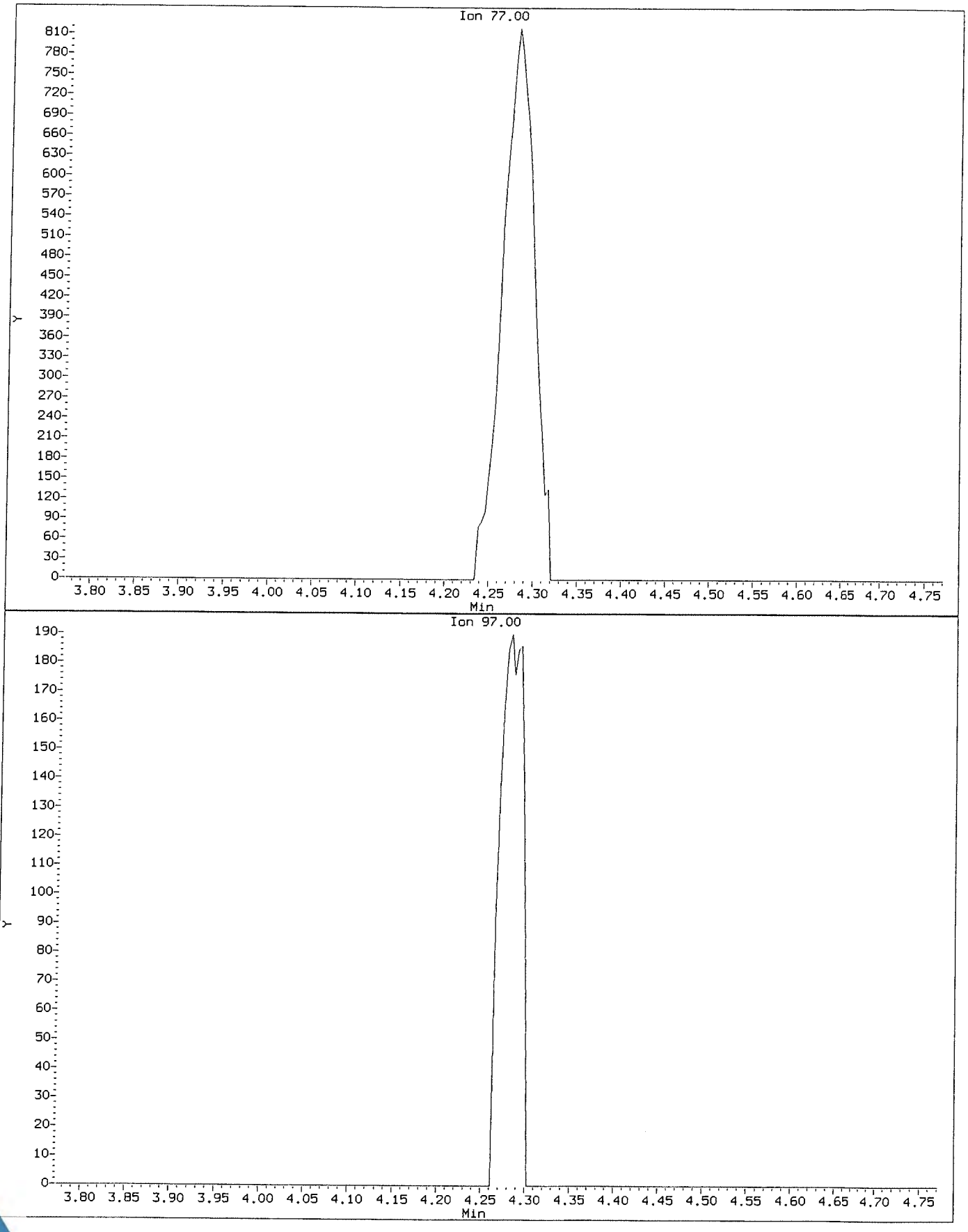
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: 2,2-Dichloropropane
CAS Number: 594-20-7



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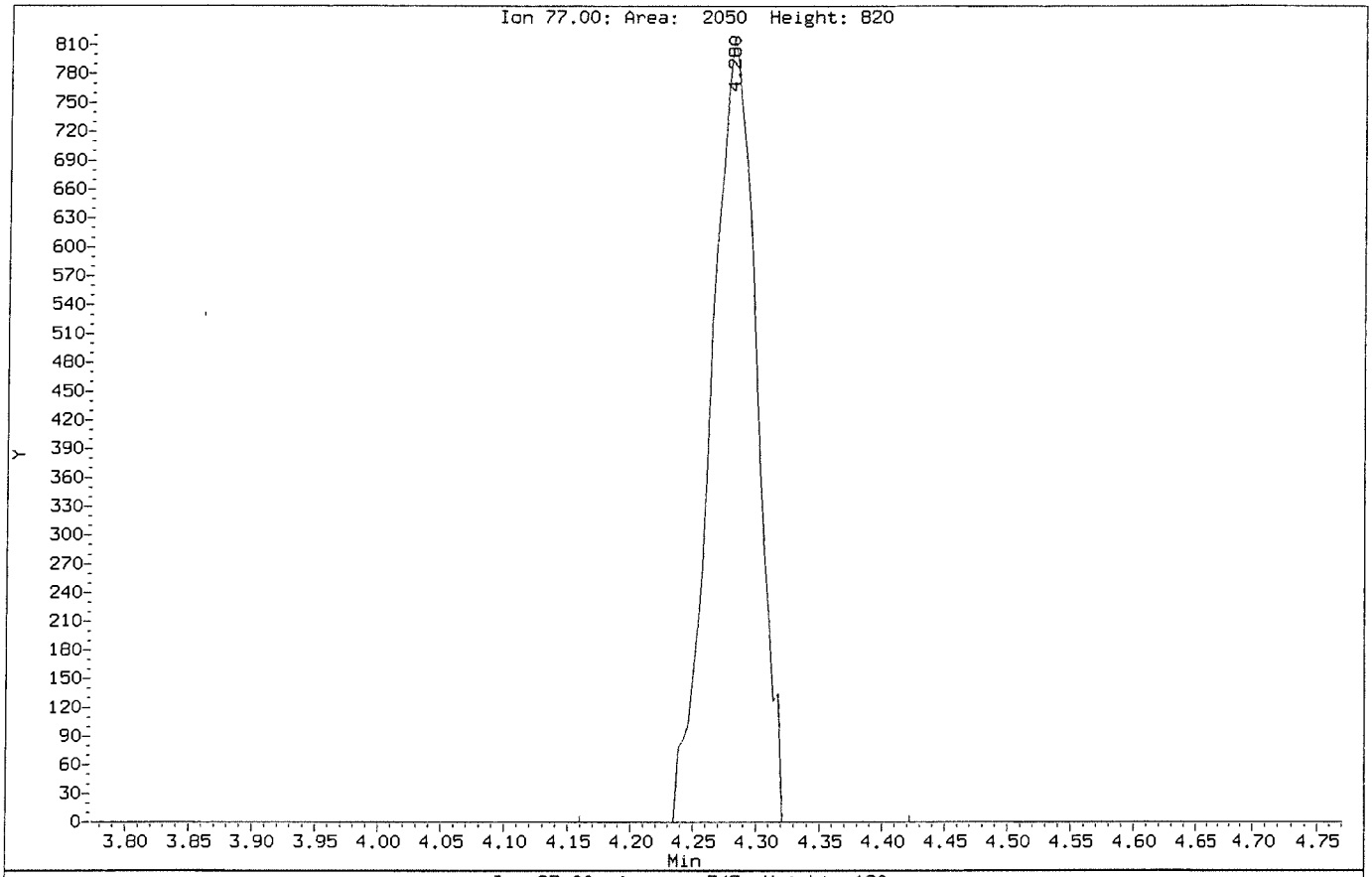
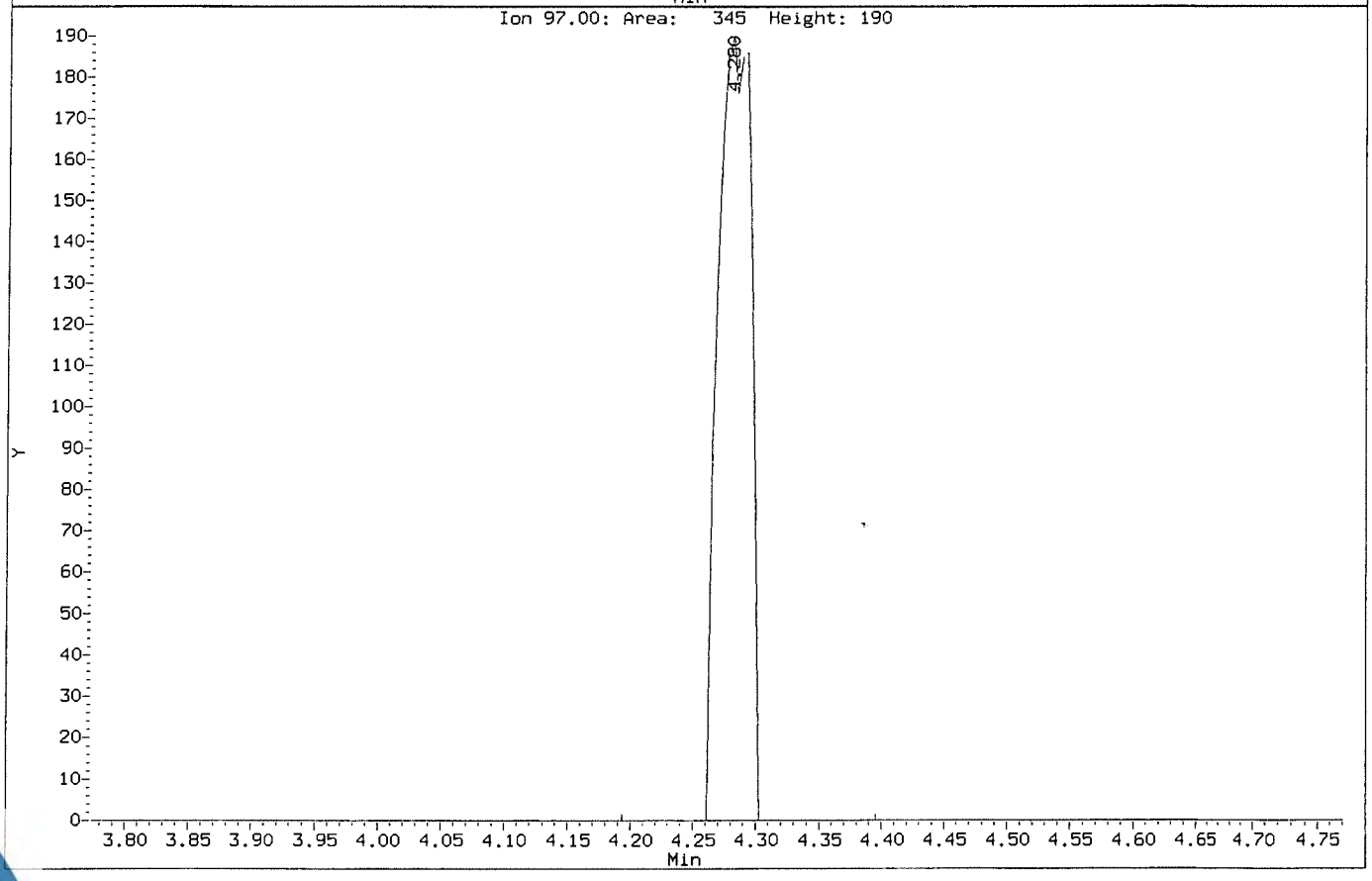
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: 2,2-Dichloropropane
CAS Number: 594-20-7





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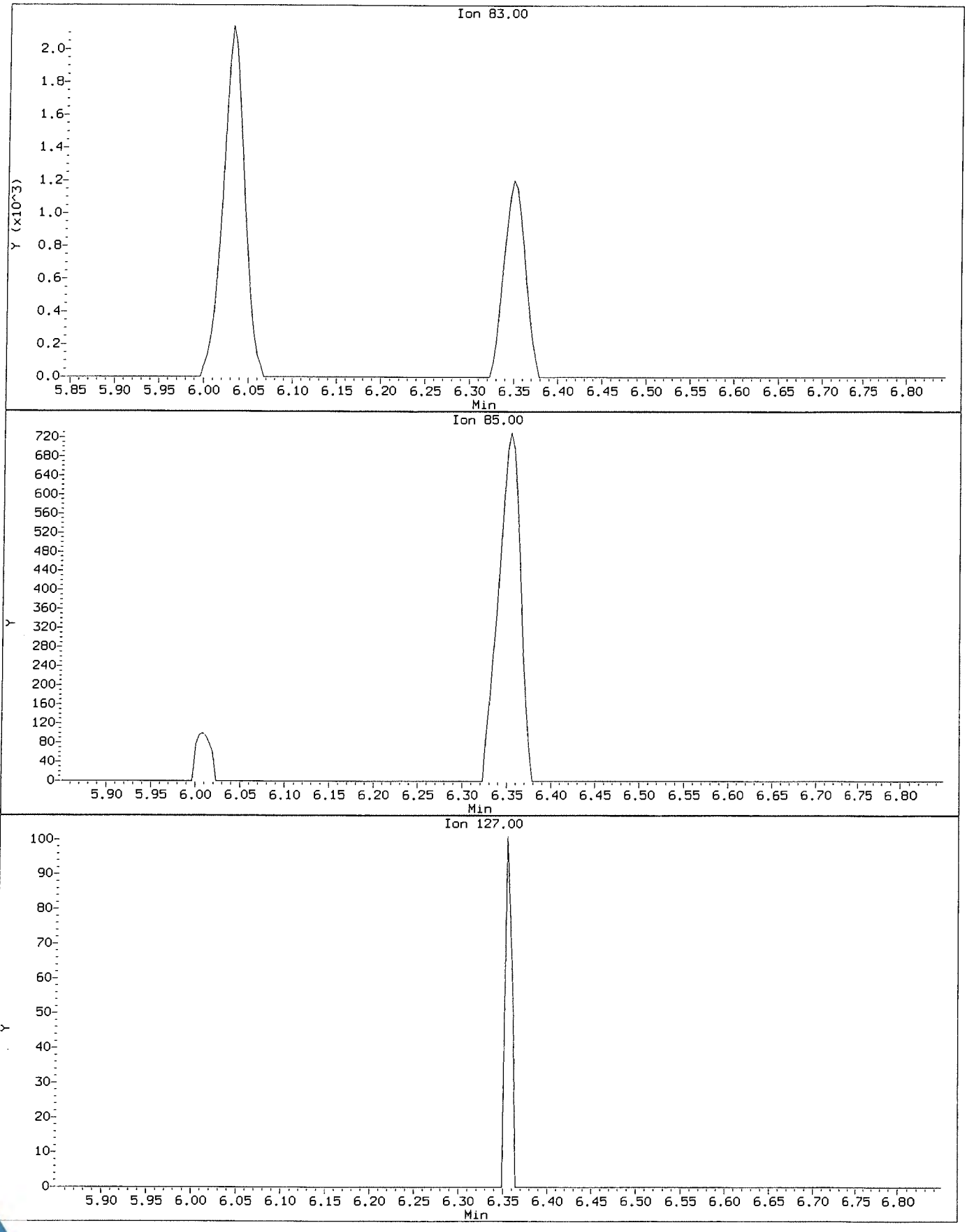
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Bromodichloromethane
CAS Number: 75-27-4



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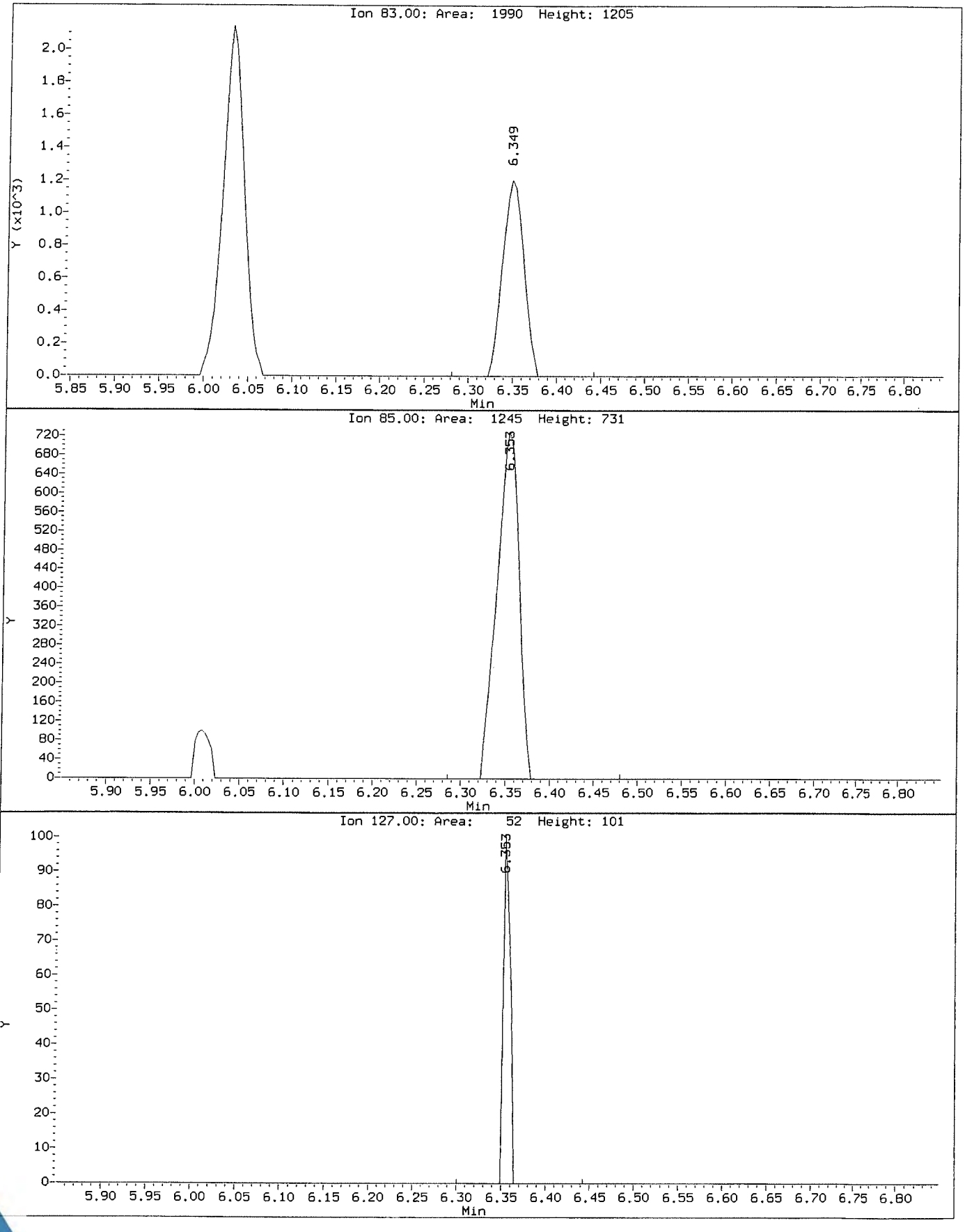
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Bromodichloromethane
CAS Number: 75-27-4



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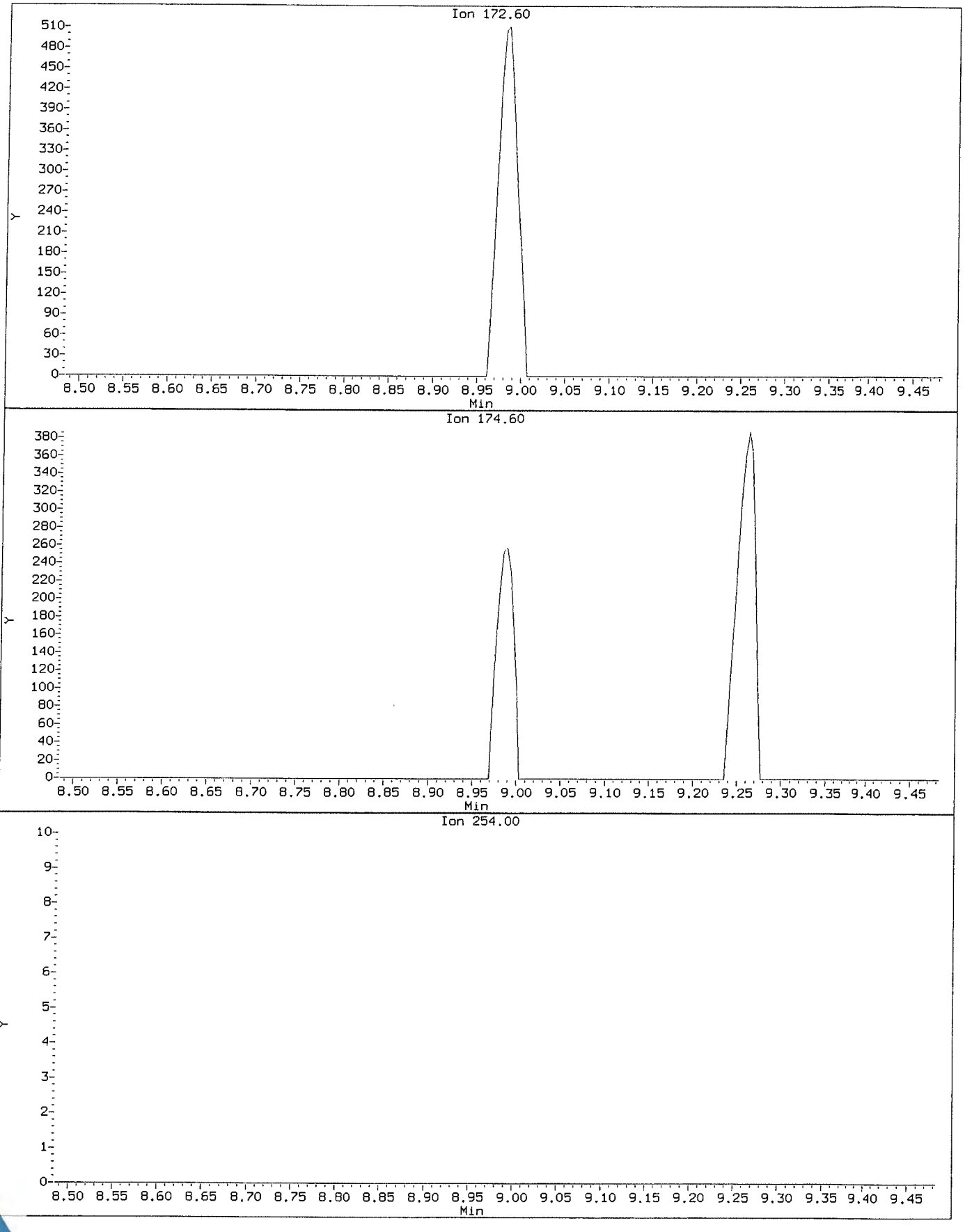
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Bromoform
CAS Number: 75-25-2



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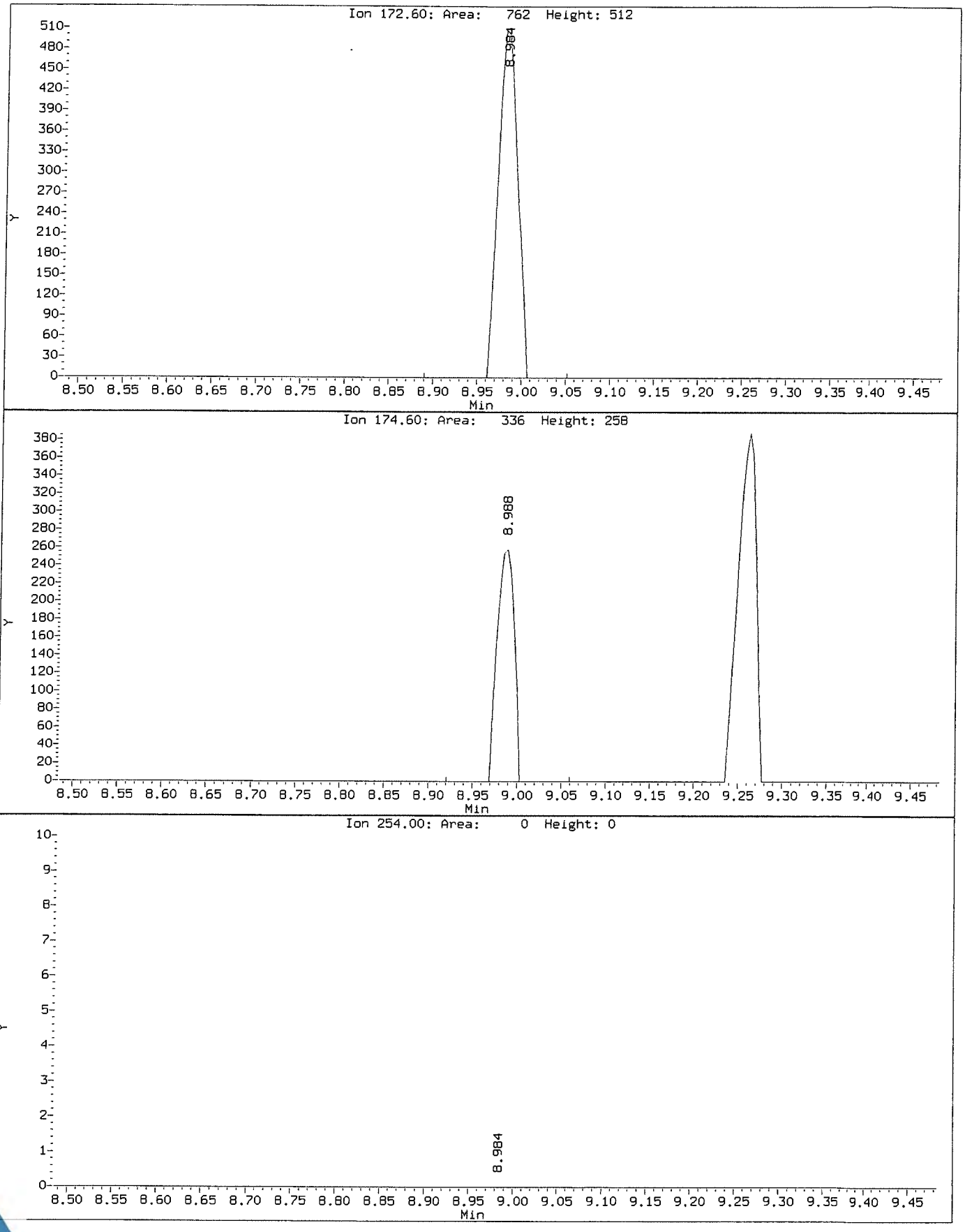
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Bromoform
CAS Number: 75-25-2



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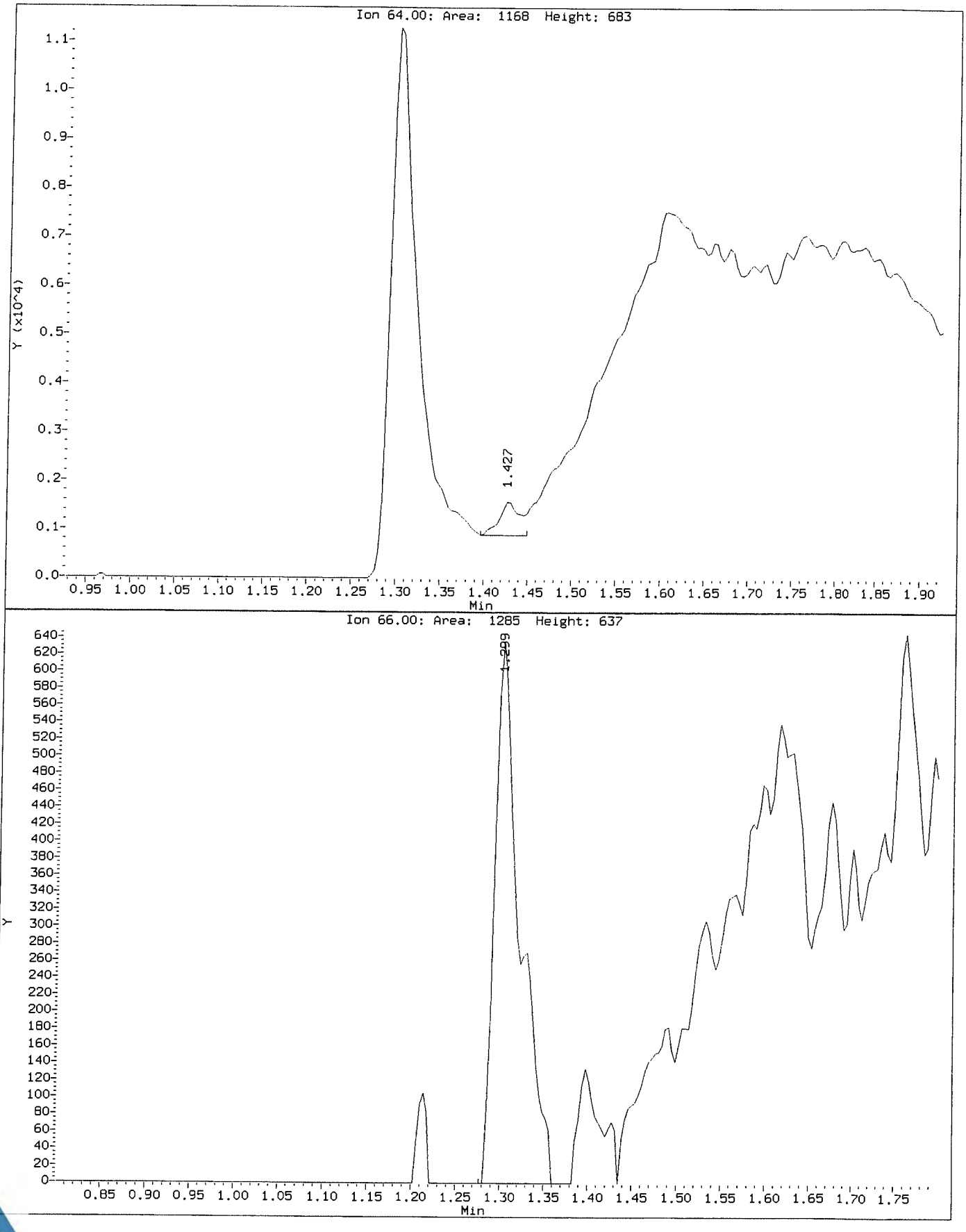
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Chloroethane
CAS Number: 75-00-3



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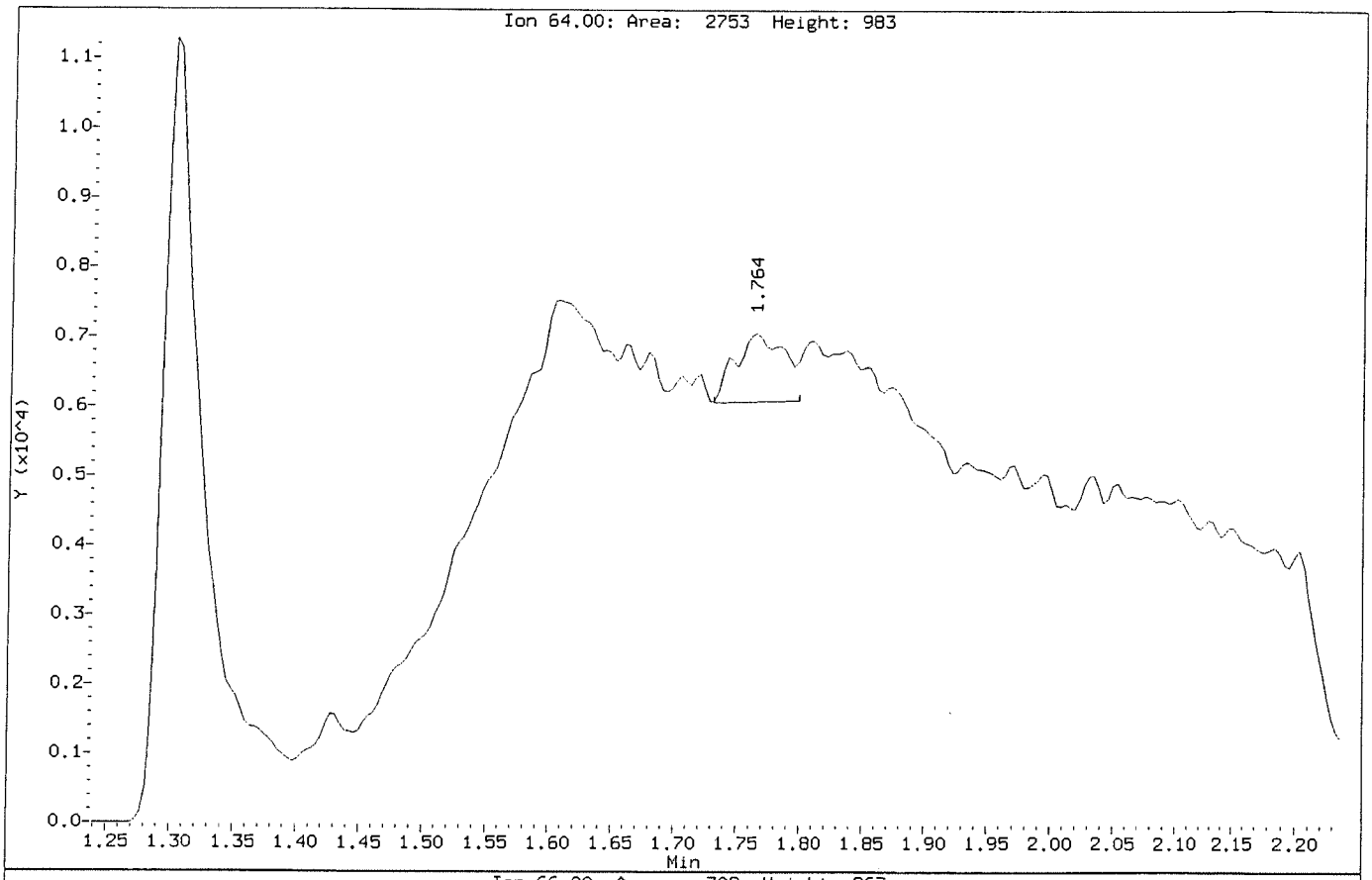
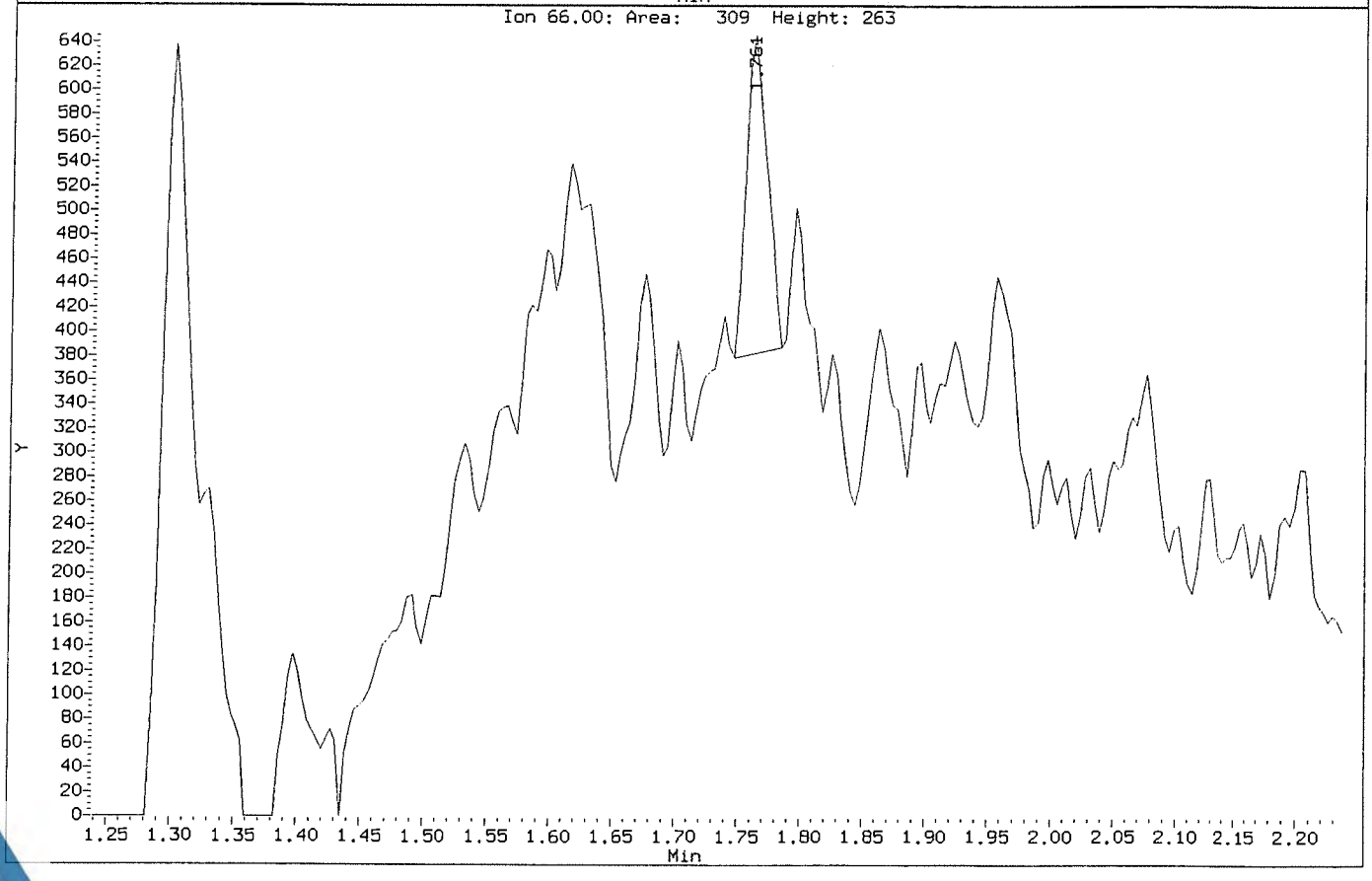
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Chloroethane
CAS Number: 75-00-3





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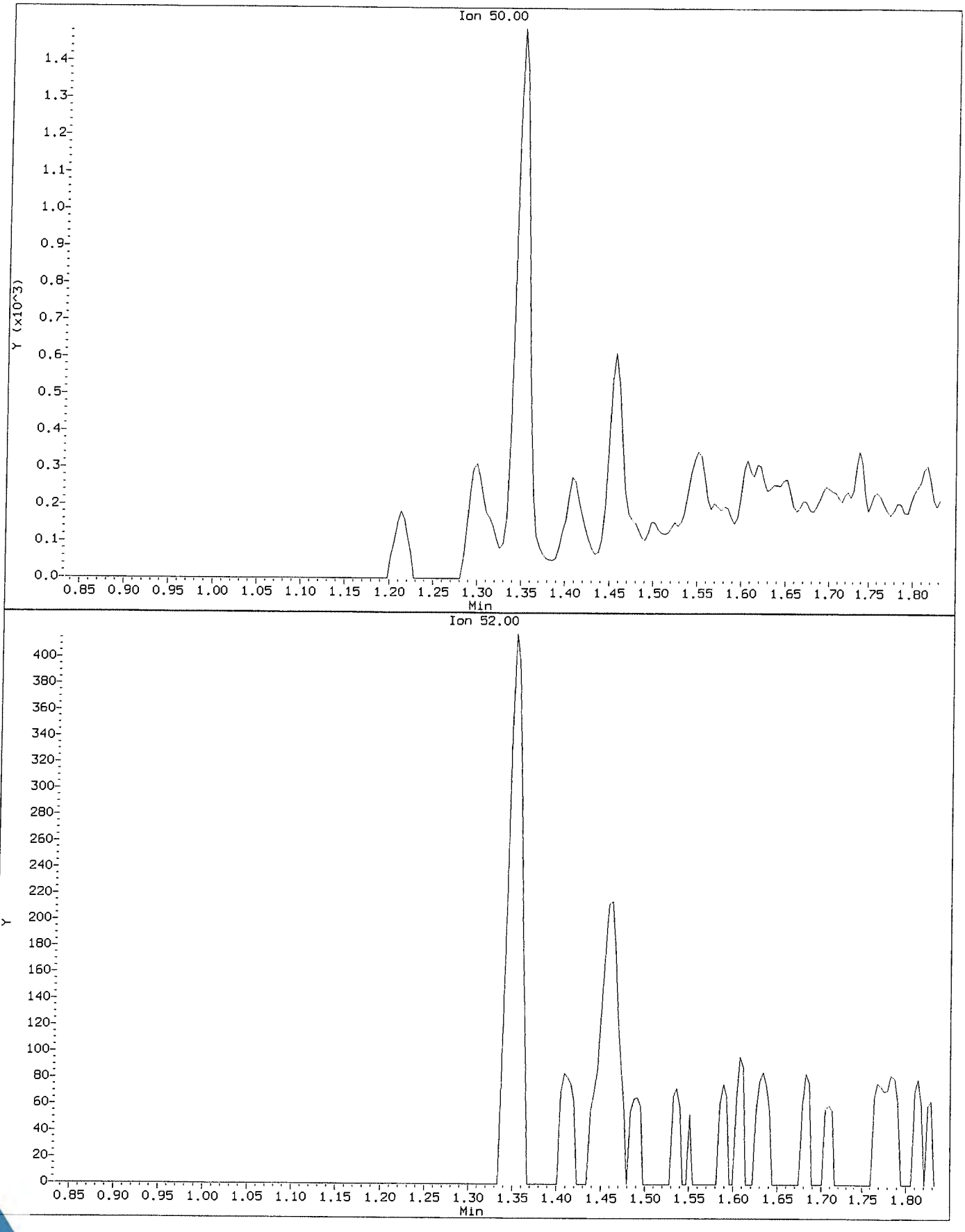
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Chloromethane
CAS Number: 74-87-3



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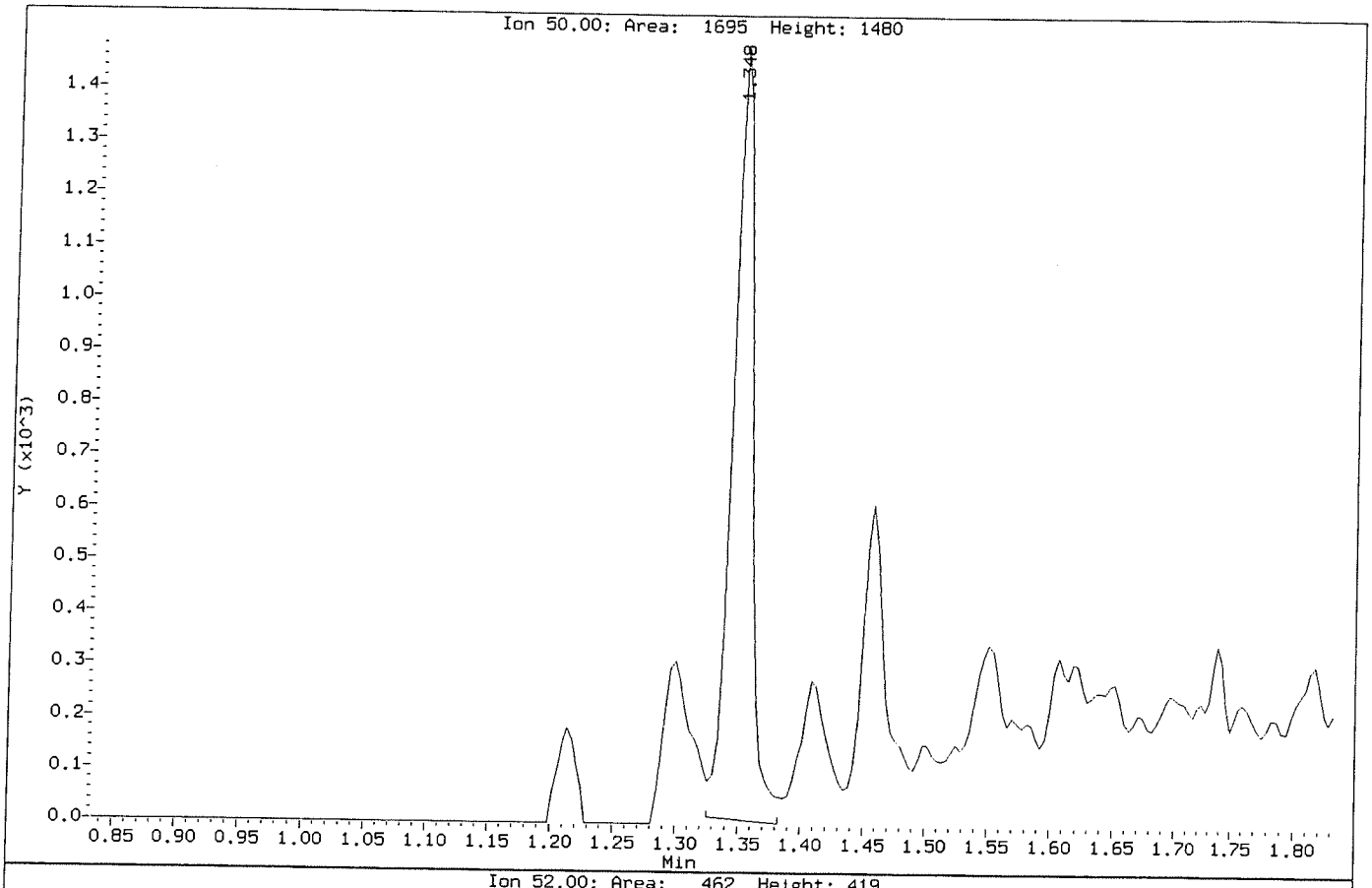
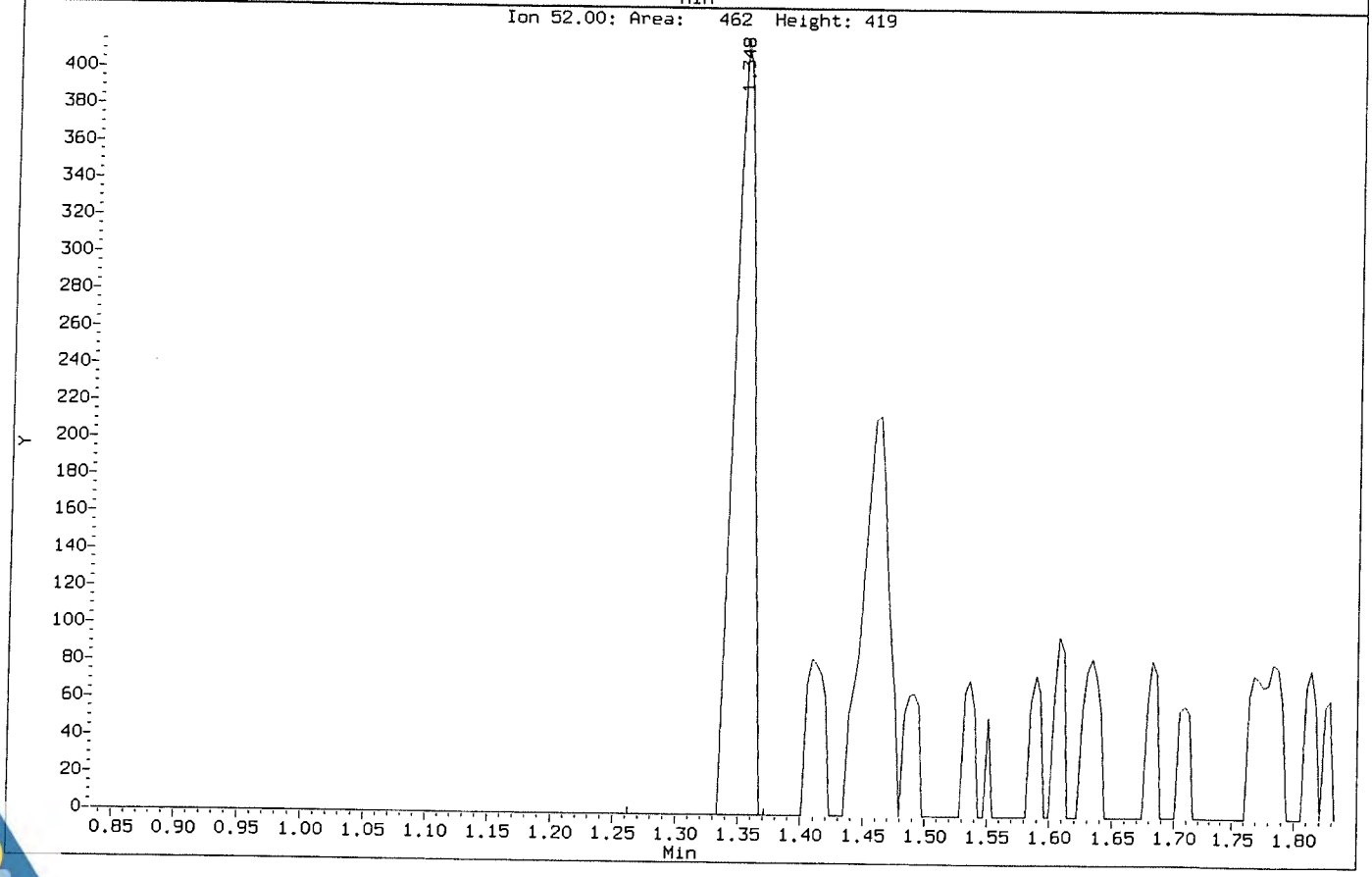
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Chloromethane
CAS Number: 74-87-3





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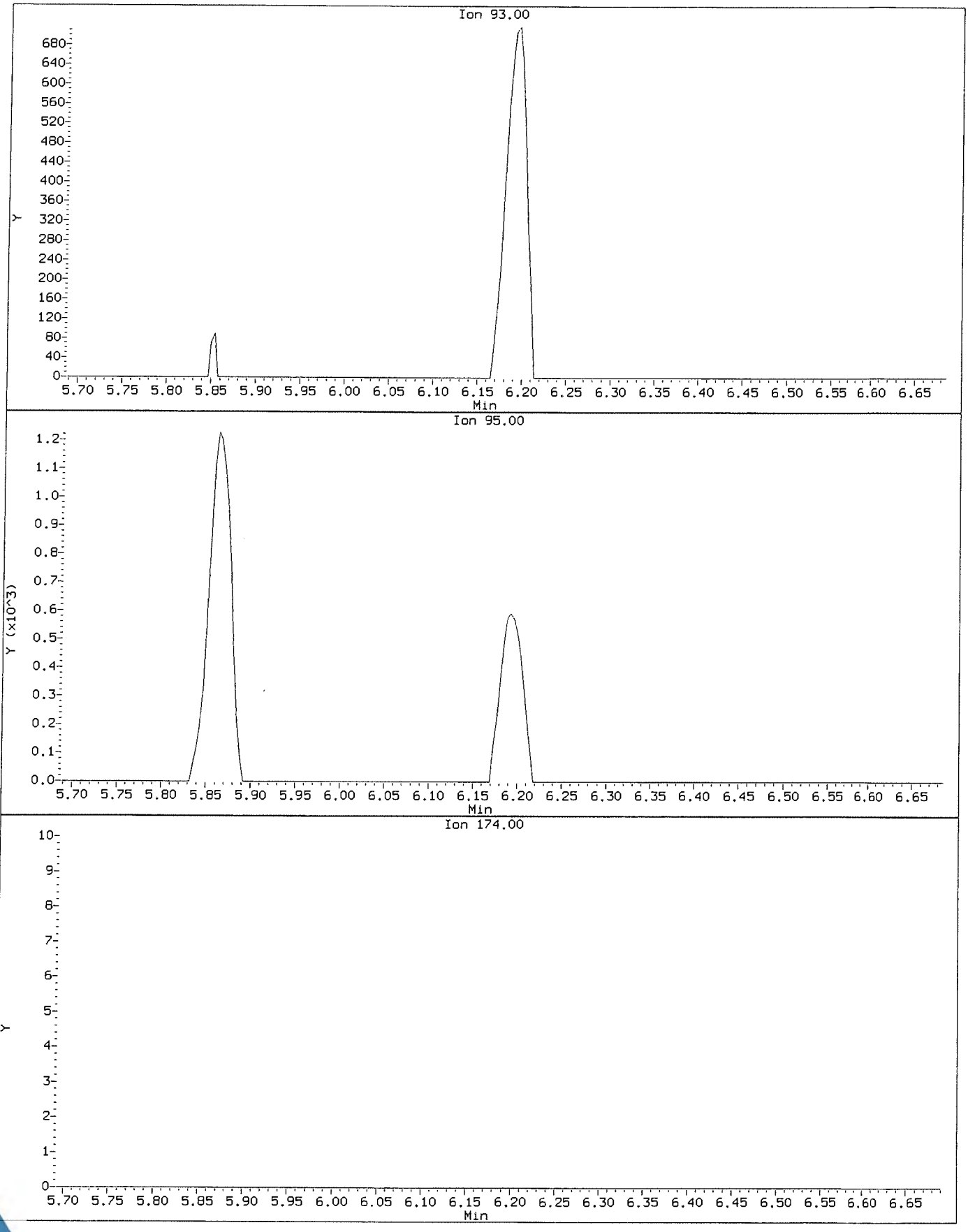
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Dibromomethane
CAS Number: 74-95-3



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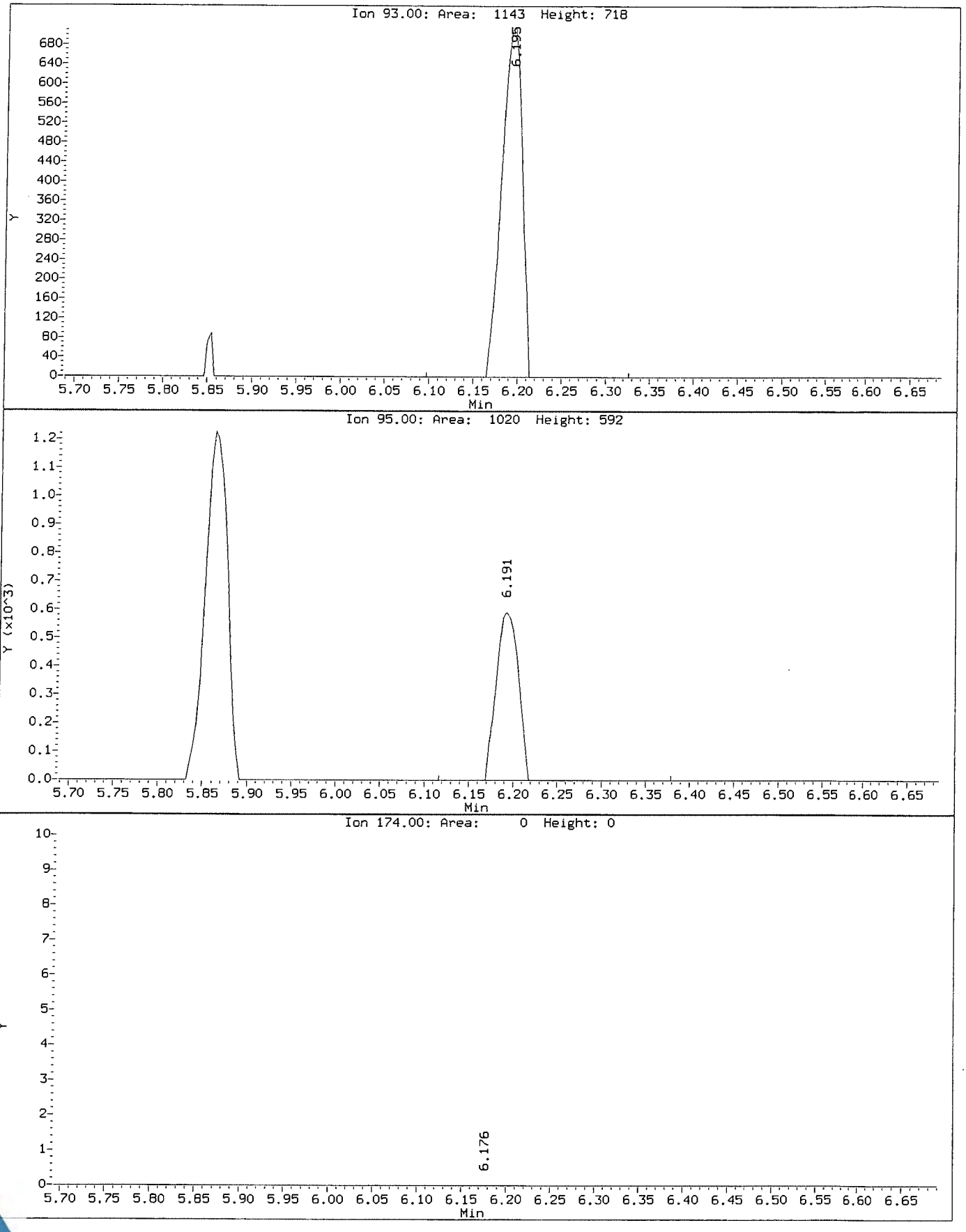
Client Sample ID: VSTD00.5

Compound: Dibromomethane
CAS Number: 74-95-3



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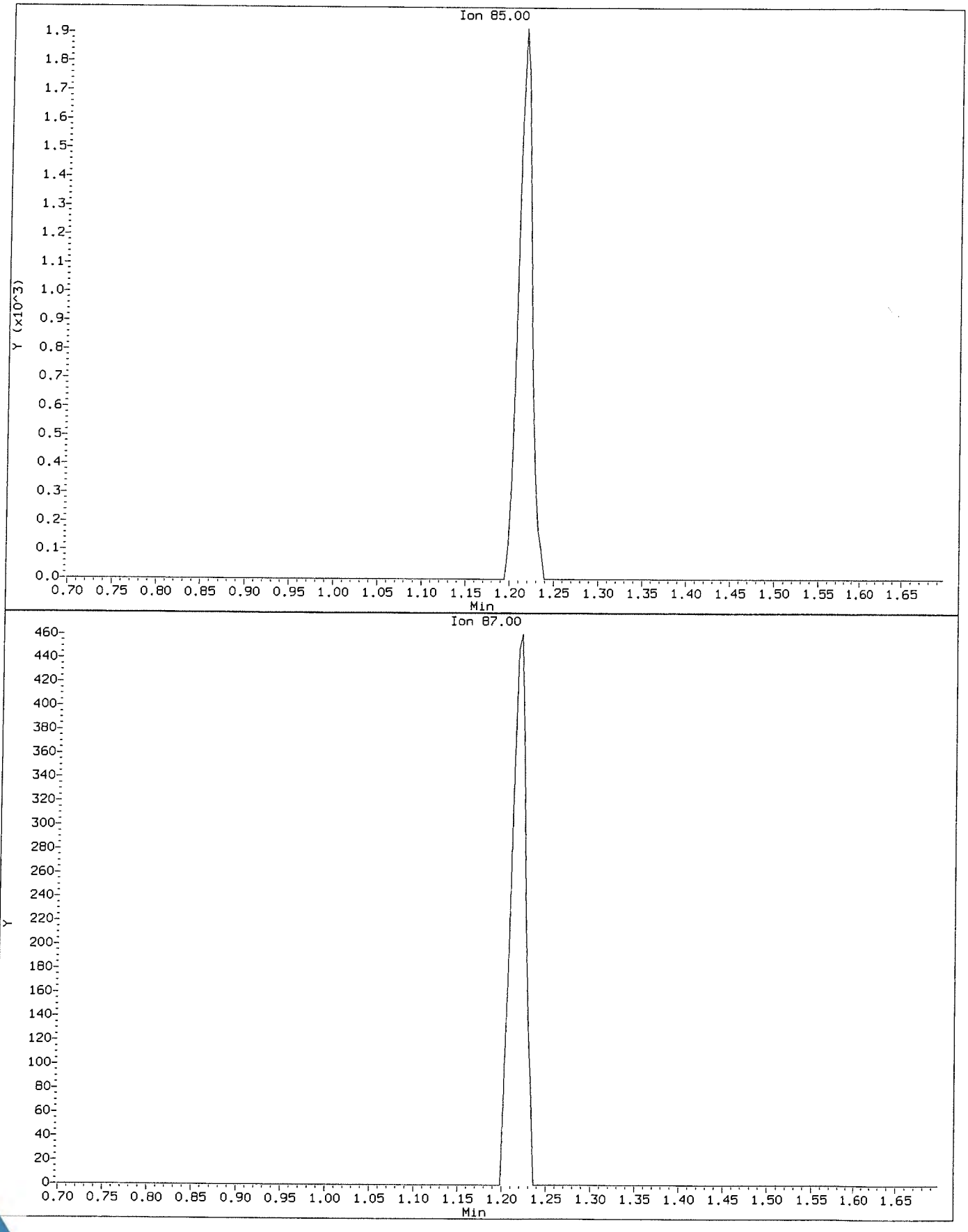
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Dichlorodifluoromethane
CAS Number: 75-71-8



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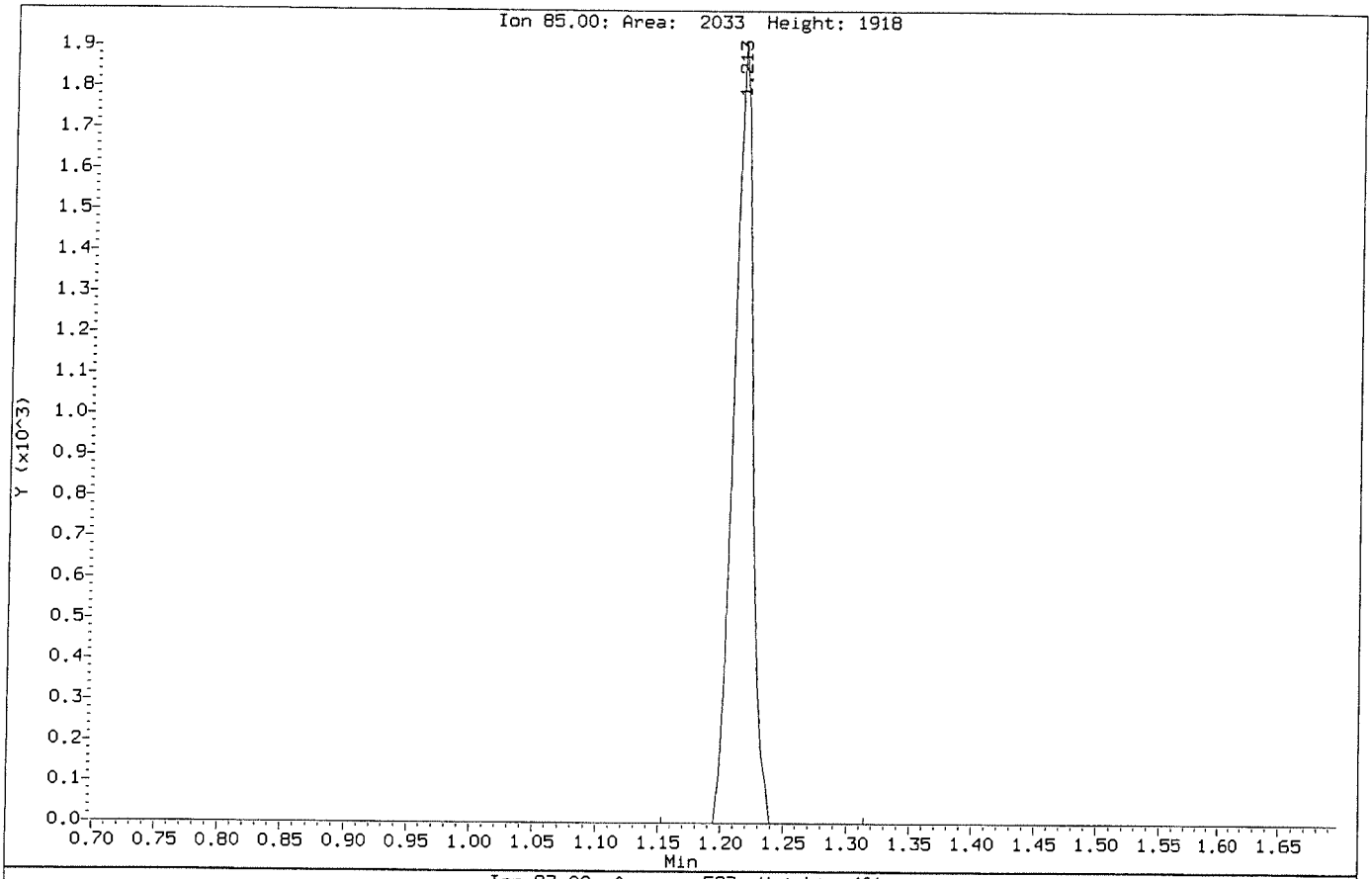
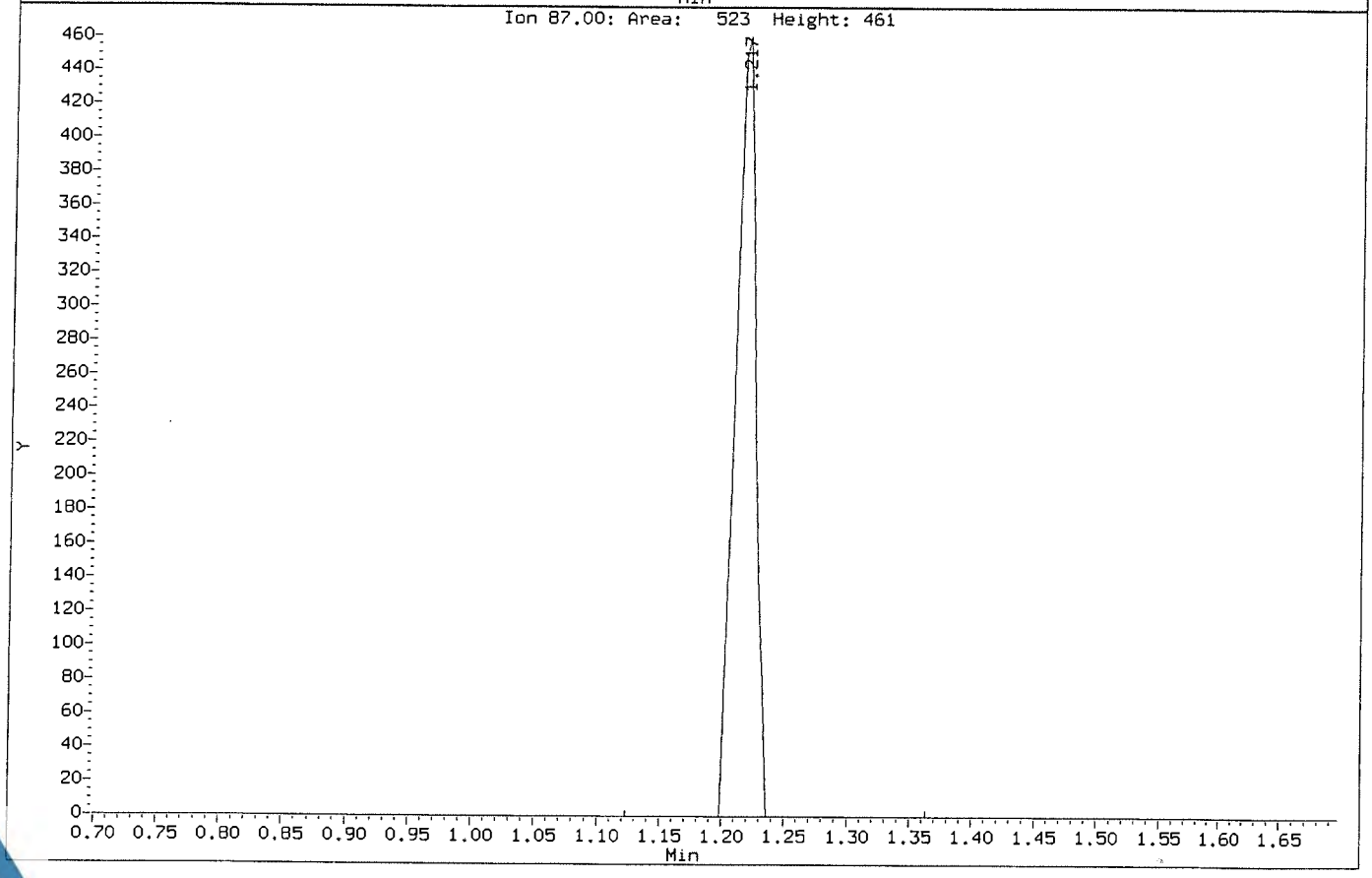
Client Sample ID: VSTD00.5

Compound: Dichlorodifluoromethane
CAS Number: 75-71-8





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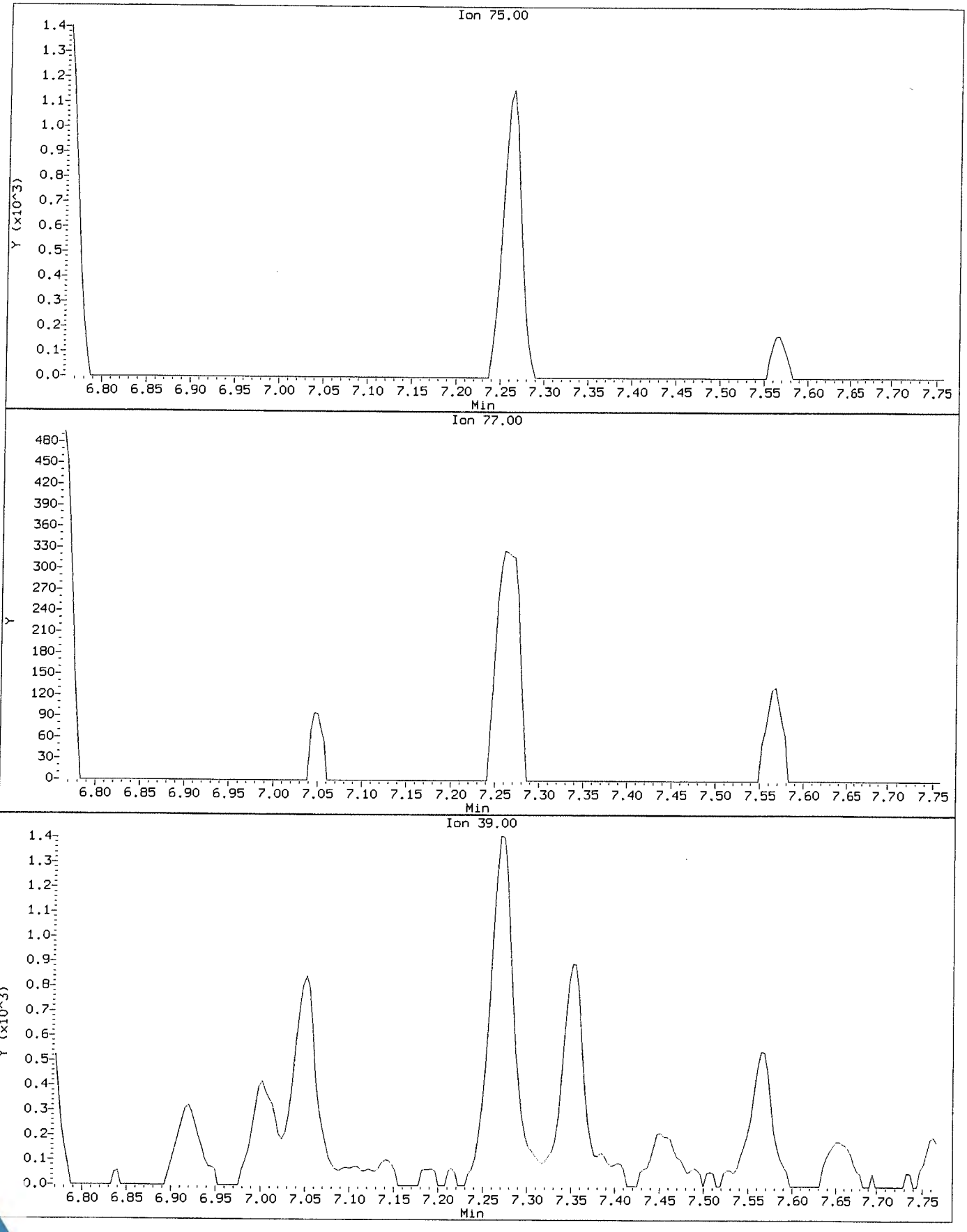
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: trans-1,3-Dichloropropene
CAS Number: 10061-02-6



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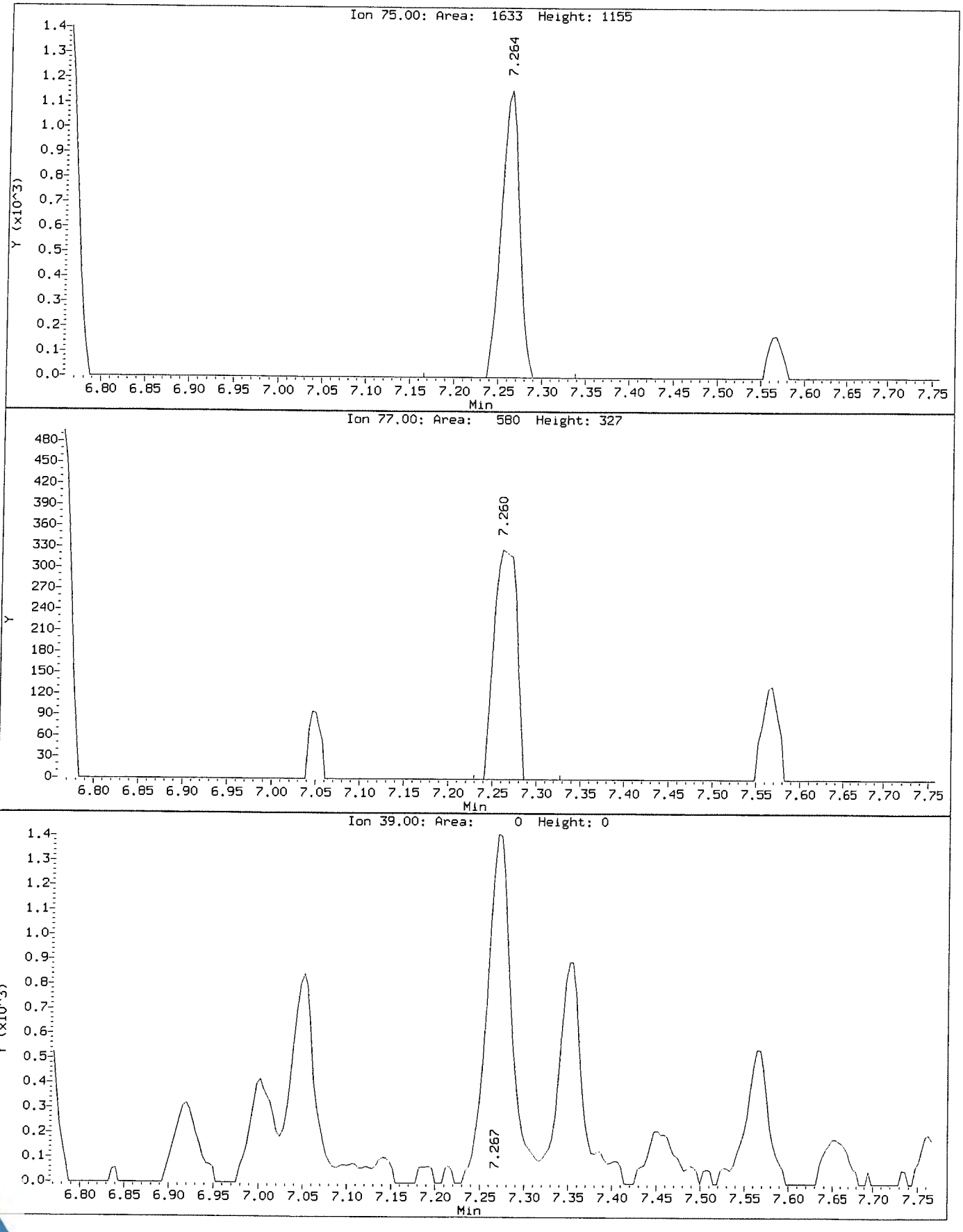
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: trans-1,3-Dichloropropene
CAS Number: 10061-02-6



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122104.D Page 1
Report Date: 28-Jan-2019 11:25

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122104.D
Lab Smp Id: VSTD001 Client Smp ID: VSTD001
Inj Date : 21-DEC-2018 15:03
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD001;VSTD001;1;3;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 14:14 Cal File: U122103.D
Als bottle: 5 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

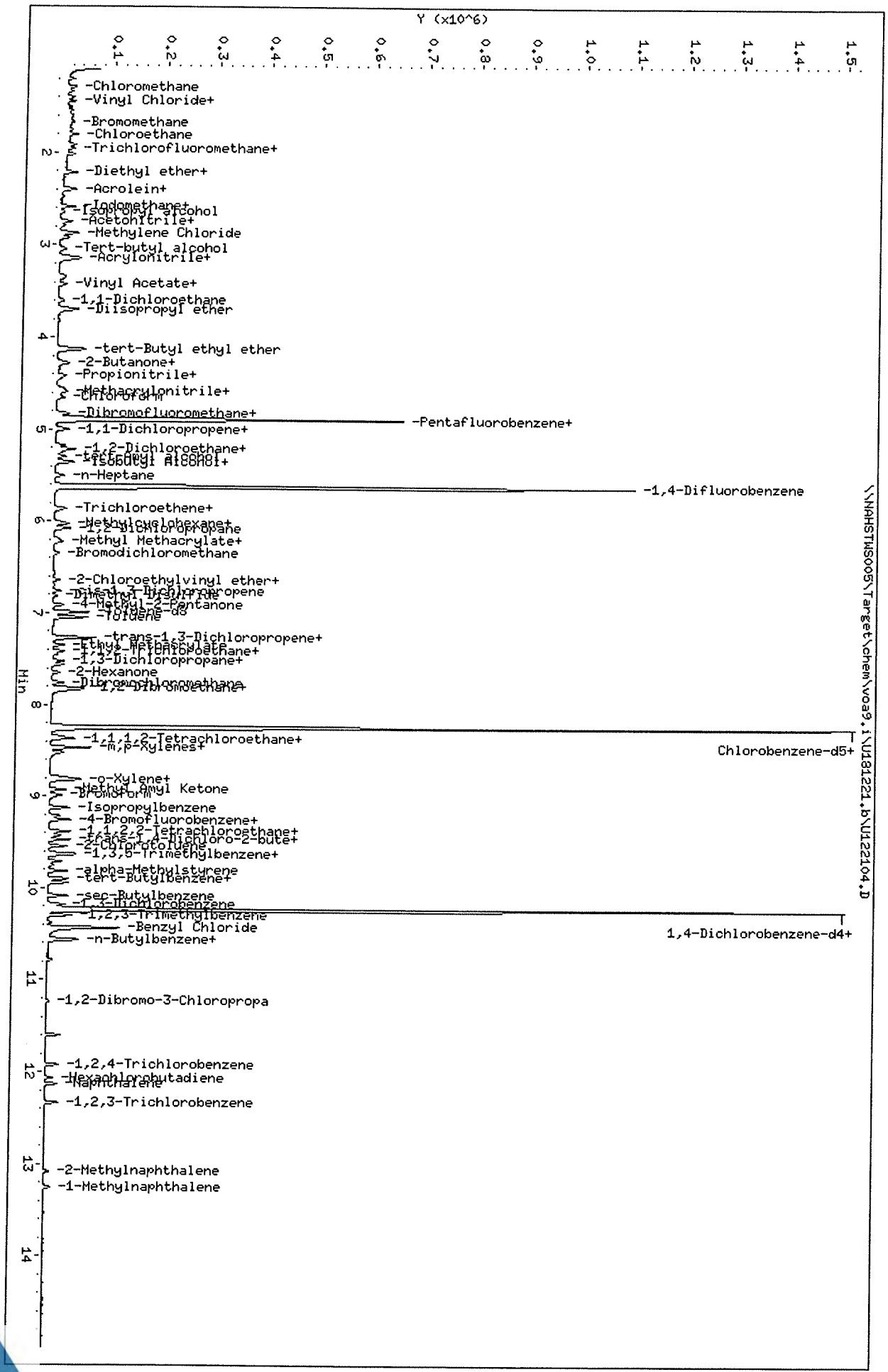
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.894	4.894	(1.000)	408613	50.0000	
* 36 1,4-Difluorobenzene	114	5.625	5.625	(1.000)	790484	50.0000	
* 47 Chlorobenzene-d5	117	8.249	8.249	(1.000)	731112	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	336061	50.0000	
$ 30 Dibromofluoromethane	113	4.826	4.826	(0.986)	8005	1.00000	0.30(a)
$ 35 1,2-Dichloroethane-d4	65	5.175	5.175	(1.057)	10907	1.00000	(a)
$ 48 Toluene-d8	98	6.989	6.989	(0.847)	32175	1.00000	(a)
$ 69 4-Bromofluorobenzene	95	9.257	9.257	(1.122)	12547	1.00000	0.36(a)
60 1,1,1,2-Tetrachloroethane	131	8.350	8.350	(1.012)	4208	1.00000	1.48(a)
31 1,1,1-Trichloroethane	97	4.826	4.826	(0.986)	7082	1.00000	1.09(a)
68 1,1,2,2-Tetrachloroethane	83	9.392	9.392	(0.918)	9134	1.00000	1.20(a)
138 Freon TF	101	2.401	2.401	(0.491)	4108	1.00000	1.18(a)
53 1,1,2-Trichloroethane	83	7.421	7.421	(0.900)	5137	1.00000	1.17(a)
22 1,1-Dichloroethane	63	3.604	3.604	(0.737)	10662	1.00000	1.21(a)
11 1,1-Dichloroethene	96	2.397	2.397	(0.490)	4598	1.00000	1.18(a)
32 1,1-Dichloropropene	75	5.003	5.003	(0.889)	8232	1.00000	1.17(a)
93 1,2,3-Trichlorobenzene	180	12.335	12.335	(1.205)	6631	1.00000	1.66(a)
71 1,2,3-Trichloropropane	75	9.426	9.426	(0.921)	8706	1.00000	1.10(a)
90 1,2,4-Trichlorobenzene	180	11.923	11.923	(1.165)	6820	1.00000	1.09(a)
79 1,2,4-Trimethylbenzene	105	9.943	9.943	(0.971)	18977	1.00000	1.07(a)
89 1,2-Dibromo-3-Chloropropane	155	11.233	11.233	(1.097)	861	1.00000	2.16(a)
57 1,2-Dibromoethane	107	7.852	7.852	(0.952)	5748	1.00000	1.14(a)

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122104.D Page 2
Report Date: 28-Jan-2019 11:25

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88 1,2-Dichlorobenzene	146	10.569	10.569	(1.033)	11945	1.00000	1.19(a)
33 1,2-Dichloroethane	62	5.250	5.250	(0.933)	8970	1.00000	0.54(a)
42 1,2-Dichloropropane	63	6.078	6.078	(1.081)	6565	1.00000	1.17(a)
75 1,3,5-Trimethylbenzene	105	9.625	9.625	(0.940)	18075	1.00000	1.07(a)
83 1,3-Dichlorobenzene	146	10.180	10.180	(0.995)	11430	1.00000	1.14(a)
54 1,3-Dichloropropane	76	7.563	7.563	(0.917)	10939	1.00000	1.16(a)
84 1,4-Dichlorobenzene	146	10.255	10.255	(1.002)	12811	1.00000	1.21(a)
26 2,2-Dichloropropane	77	4.272	4.272	(0.873)	6236	1.00000	1.17(a)
24 2-Butanone	43	4.343	4.343	(0.887)	6369	2.00000	0.00(a)
76 2-Chlorotoluene	91	9.546	9.546	(0.933)	17719	1.00000	1.14(a)
52 2-Hexanone	43	7.649	7.649	(0.927)	8136	2.00000	2.00(a)
77 4-Chlorotoluene	91	9.640	9.640	(0.942)	20099	1.00000	1.12(a)
82 p-Isopropyltoluene	119	10.210	10.210	(0.997)	18371	1.00000	1.03(a)
45 4-Methyl-2-Pentanone	43	6.914	6.914	(0.838)	12526	2.00000	2.14(a)
10 Acetone	43	2.480	2.480	(0.507)	5582	2.00000	0.58(a)
37 Benzene	78	5.216	5.216	(0.927)	24701	1.00000	1.17(a)
74 Bromobenzene	156	9.381	9.381	(0.917)	5982	1.00000	1.15(a)
29 Bromochloromethane	128	4.553	4.553	(0.930)	2865	1.00000	(a)
39 Bromodichloromethane	83	6.348	6.348	(1.129)	6221	1.00000	1.04(aM)
66 Bromoform	173	8.984	8.984	(1.089)	2343	1.00000	2.48(Ta)
6 Bromomethane	94	1.670	1.670	(0.341)	2293	1.00000	2.22(a)
19 Carbon Disulfide	76	2.585	2.585	(0.528)	33391	2.00000	2.35(a)
34 Carbon Tetrachloride	117	4.991	4.991	(0.887)	5463	1.00000	2.32(a)
59 Chlorobenzene	112	8.275	8.275	(1.003)	16703	1.00000	1.18(a)
7 Chloroethane	64	1.749	1.749	(0.357)	3213	1.00000	1.36(aM)
28 Chloroform	83	4.654	4.654	(0.951)	10242	1.00000	1.20(a)
3 Chloromethane	50	1.336	1.336	(0.273)	4689	1.00000	4.32(a)
27 cis-1,2-Dichloroethene	96	4.283	4.283	(0.875)	6586	1.00000	1.22(a)
46 cis-1,3-Dichloropropene	75	6.757	6.757	(1.201)	7273	1.00000	2.04(a)
55 Dibromochloromethane	129	7.758	7.758	(0.940)	4051	1.00000	1.80(a)
44 Dibromomethane	93	6.187	6.187	(1.100)	3627	1.00000	1.12(aM)
2 Dichlorodifluoromethane	85	1.201	1.201	(0.246)	6583	1.00000	1.78(a)
61 Ethylbenzene	106	8.369	8.369	(1.015)	8132	1.00000	1.12(a)
91 Hexachlorobutadiene	225	12.065	12.065	(1.179)	2672	1.00000	1.12(a)
67 Isopropylbenzene	105	9.126	9.126	(1.106)	22547	1.00000	1.08(a)
62 m,p-Xylenes	106	8.470	8.470	(1.027)	19538	2.00000	2.20(a)
17 Methylene Chloride	84	2.866	2.866	(0.586)	8113	1.00000	0.44(a)
87 n-Butylbenzene	91	10.554	10.554	(1.031)	18944	1.00000	1.10(a)
73 n-Propylbenzene	91	9.475	9.475	(0.926)	27852	1.00000	1.10(a)
92 Naphthalene	128	12.133	12.133	(1.185)	16505	1.00000	1.44(a)
63 o-Xylene	106	8.811	8.811	(1.068)	10277	1.00000	1.15(a)
81 sec-Butylbenzene	105	10.086	10.086	(0.985)	22753	1.00000	1.07(a)
64 Styrene	104	8.826	8.826	(1.070)	15133	1.00000	1.01(a)
78 tert-Butylbenzene	119	9.902	9.902	(0.967)	15715	1.00000	1.07(a)
56 Tetrachloroethene	164	7.522	7.522	(0.912)	4775	1.00000	1.24(a)
50 Toluene	91	7.046	7.046	(0.854)	24298	1.00000	1.11(a)
20 trans-1,2-Dichloroethene	96	3.140	3.140	(0.642)	5920	1.00000	1.23(a)
51 trans-1,3-Dichloropropene	75	7.259	7.259	(1.291)	5668	1.00000	2.35(a)
38 Trichloroethene	130	5.861	5.861	(1.042)	6040	1.00000	1.18(a)
8 Trichlorofluoromethane	101	1.951	1.951	(0.399)	7922	1.00000	1.78(a)
5 Vinyl Chloride	62	1.415	1.415	(0.289)	6308	1.00000	2.03(a)

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



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Sample Info: VSTD001;VSTD001;1;3;
Purge Volume: 5.0
Column phase: DB624

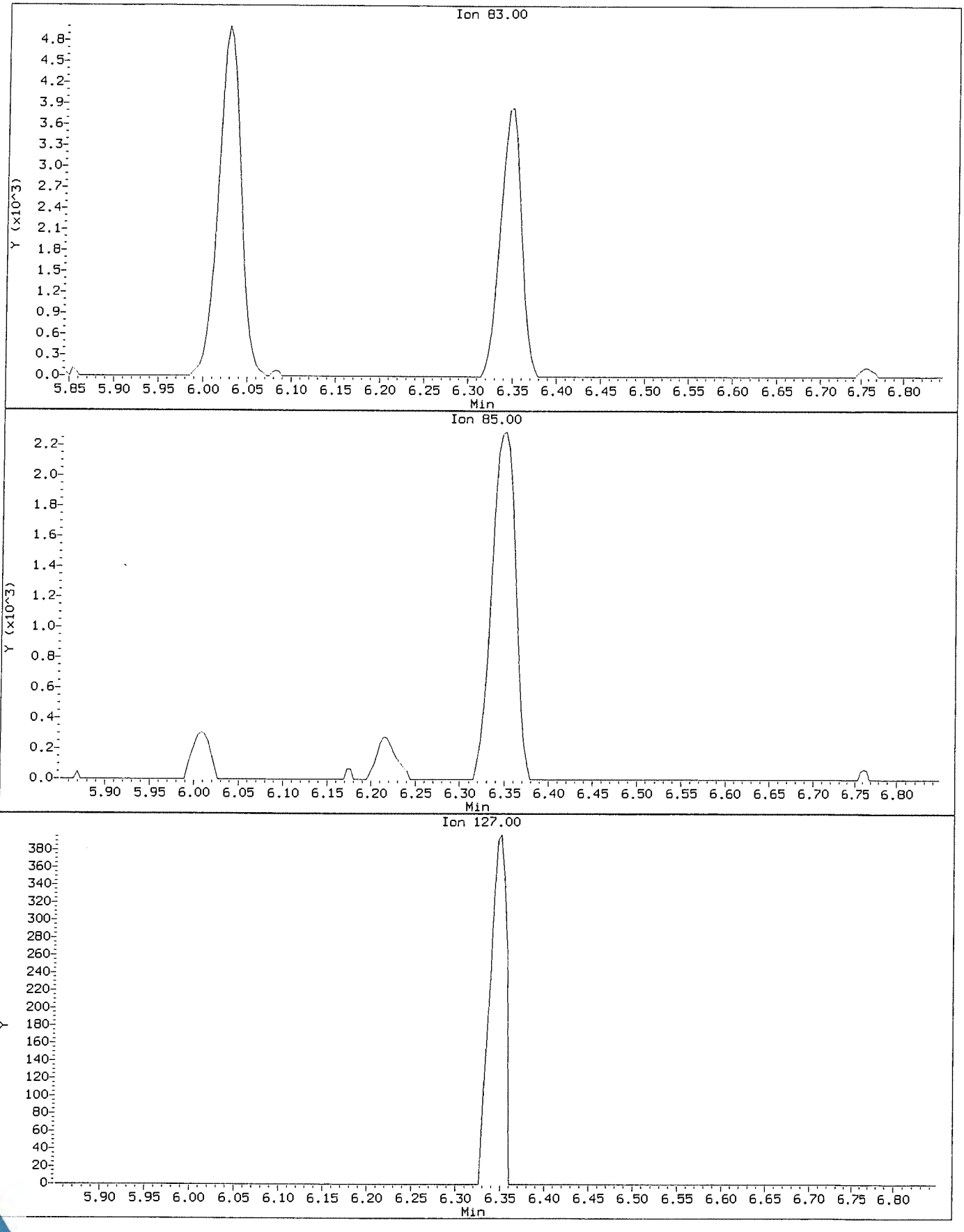
Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

\\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122104.D

Page 4

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122104.D
Injection Date: 21-DEC-2018 15:03
Instrument: VOA9.i
Client Sample ID: VSTD001

Compound: Bromodichloromethane
CAS Number: 75-27-4



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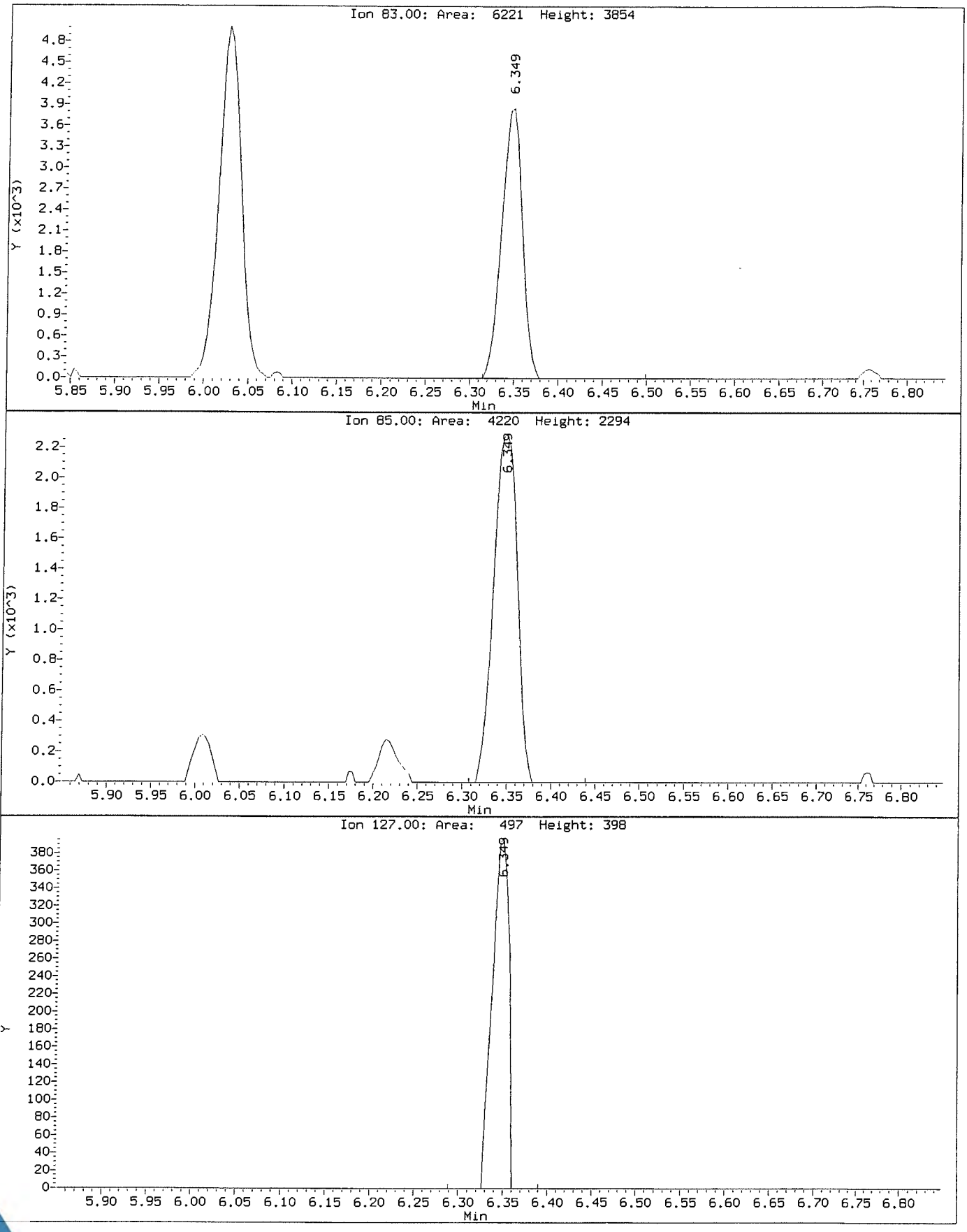
Instrument: VOA9.i
Client Sample ID: VSTD001

Compound: Bromodichloromethane
CAS Number: 75-27-4



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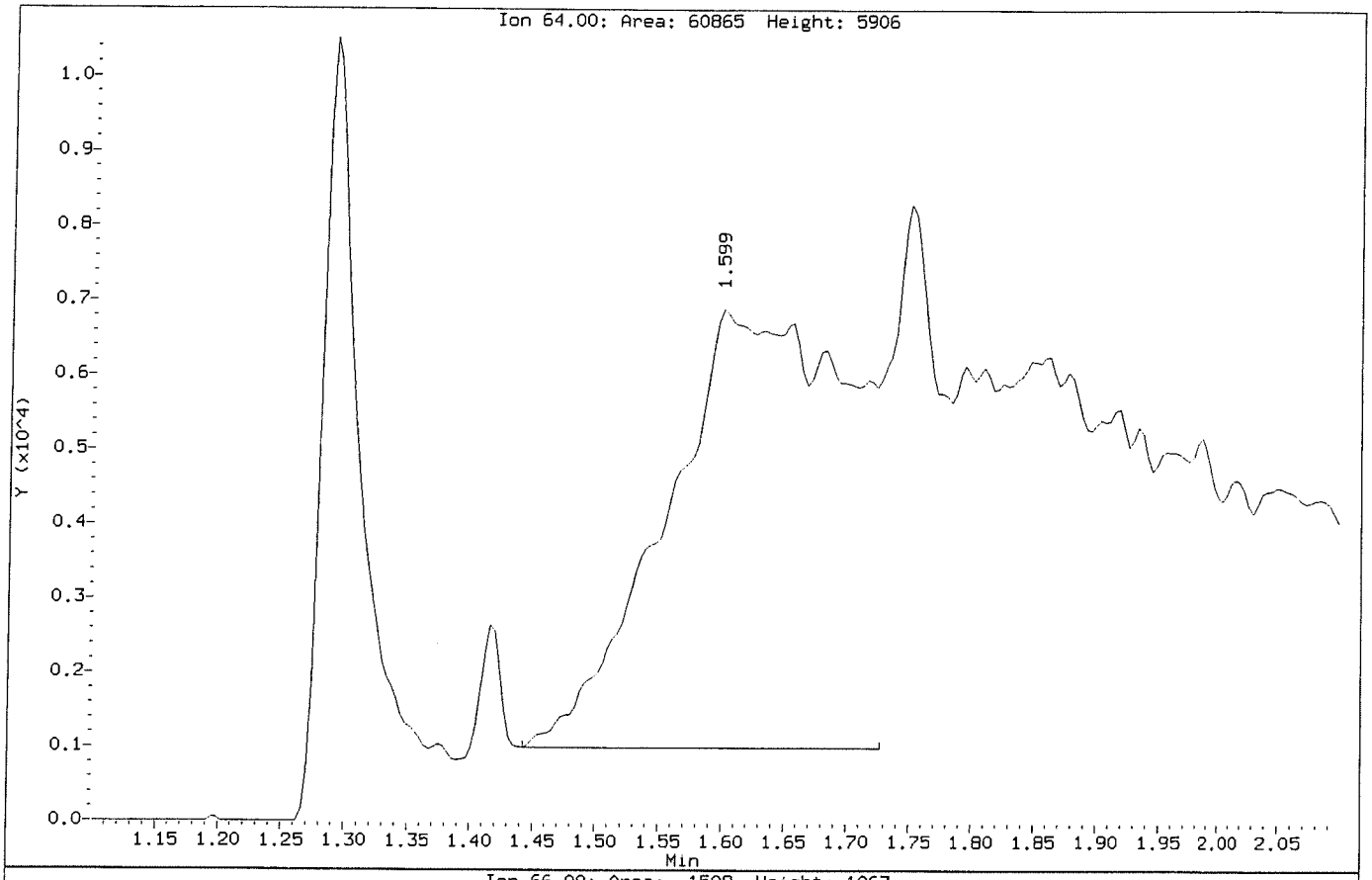
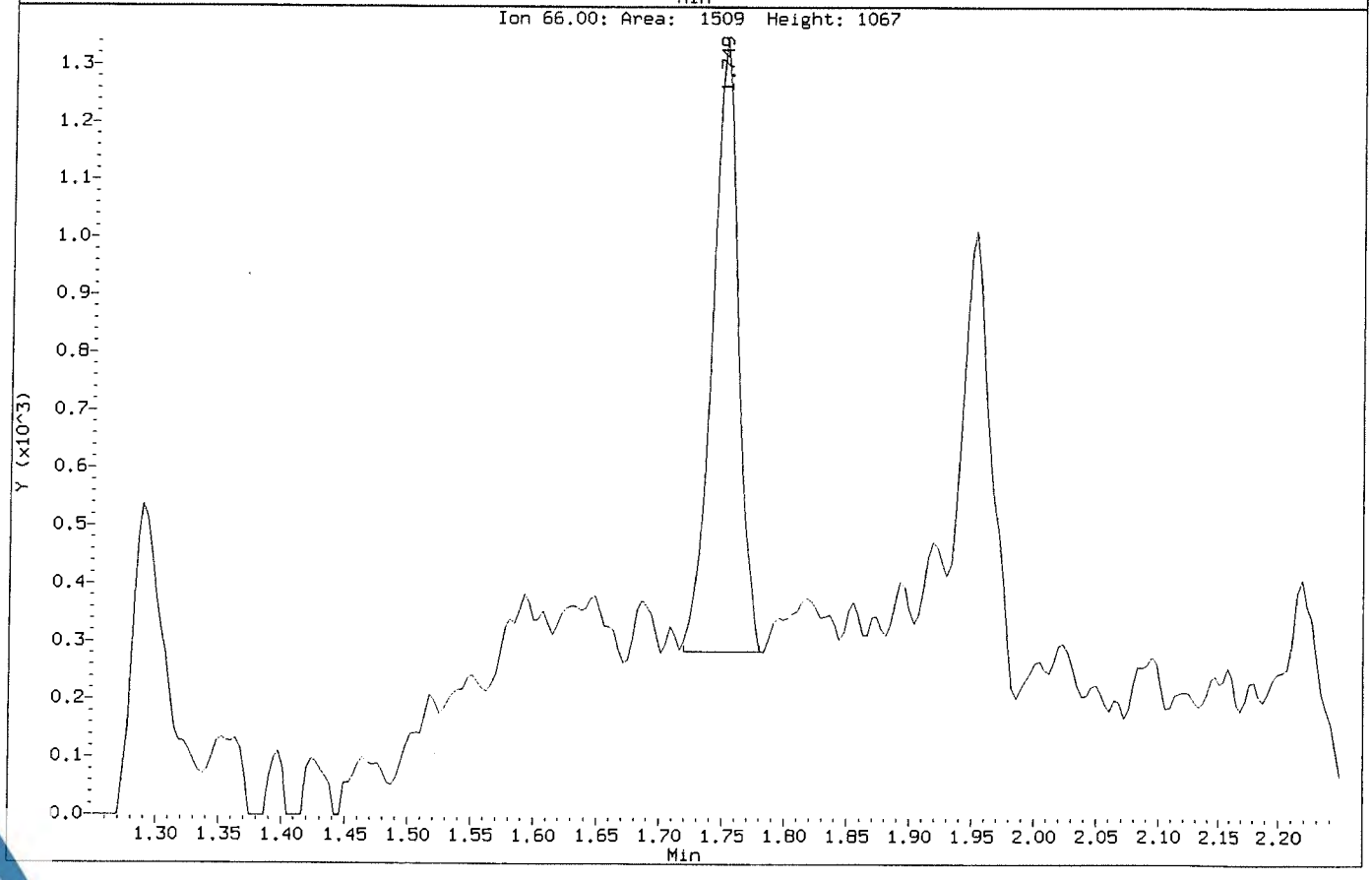
Instrument: VOA9.i
Client Sample ID: VSTD001

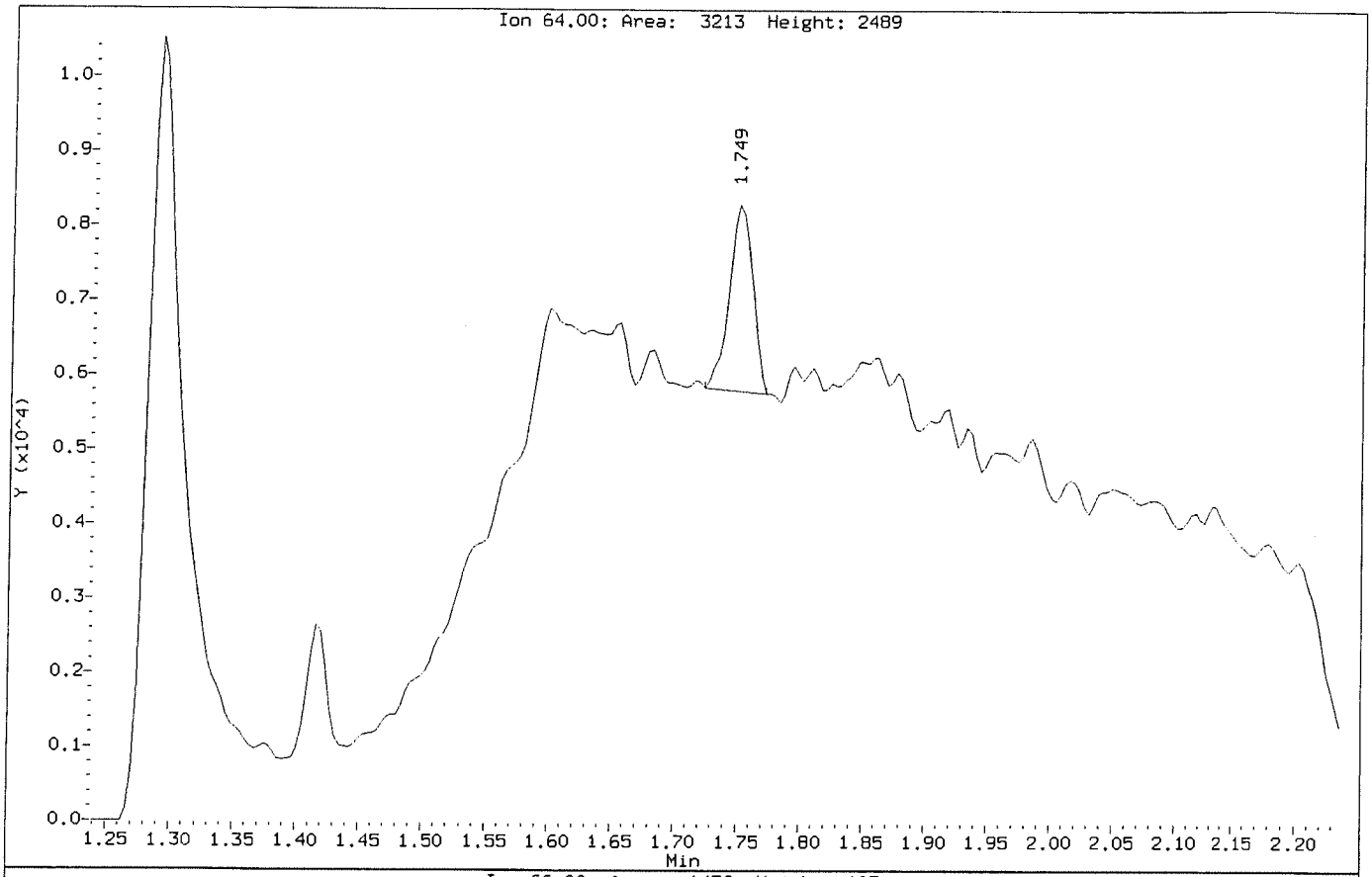
Compound: Chloroethane
CAS Number: 75-00-3

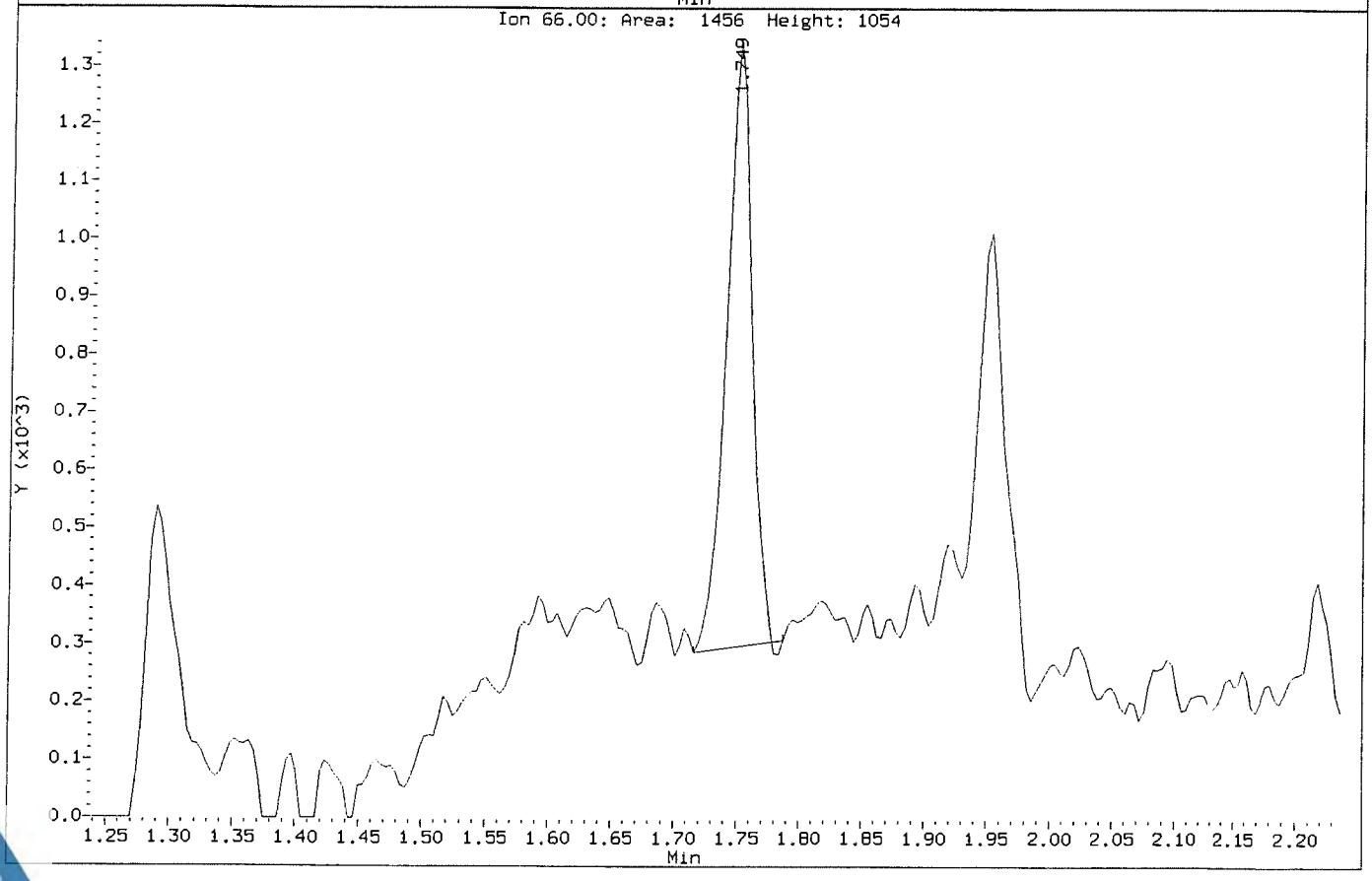




Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122104.D
Injection Date: 21-DEC-2018 15:03
Instrument: VOA9.i
Client Sample ID: VSTD001

Compound: Chloroethane
CAS Number: 75-00-3





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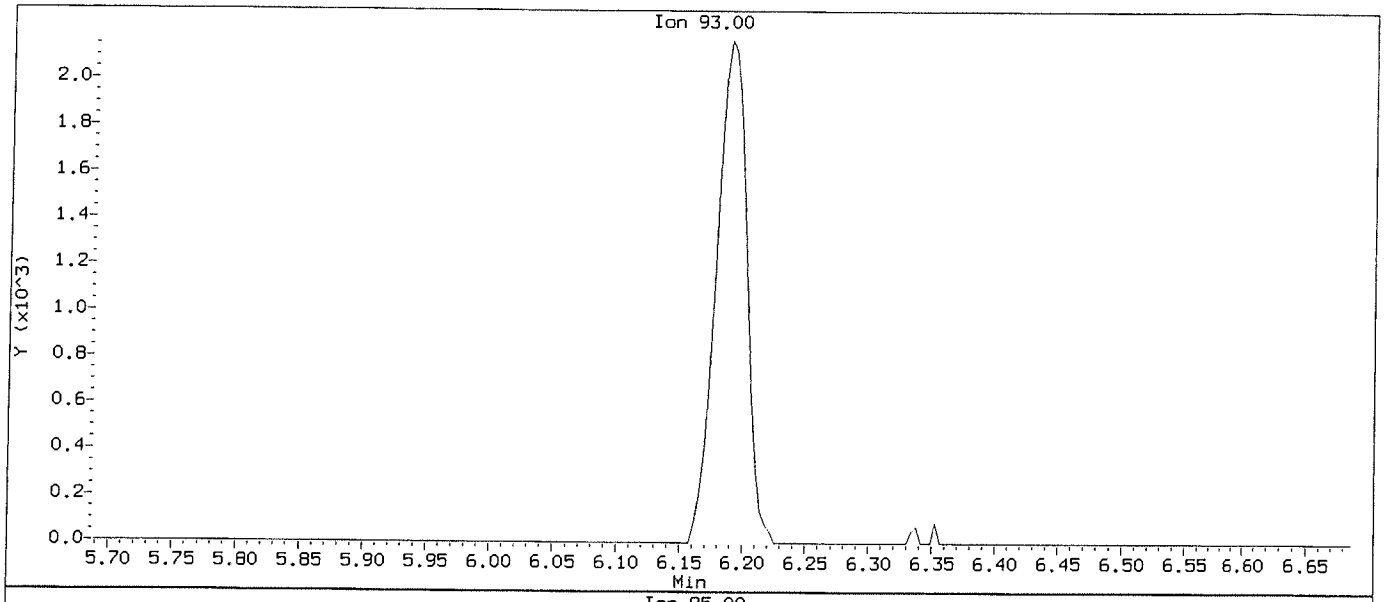
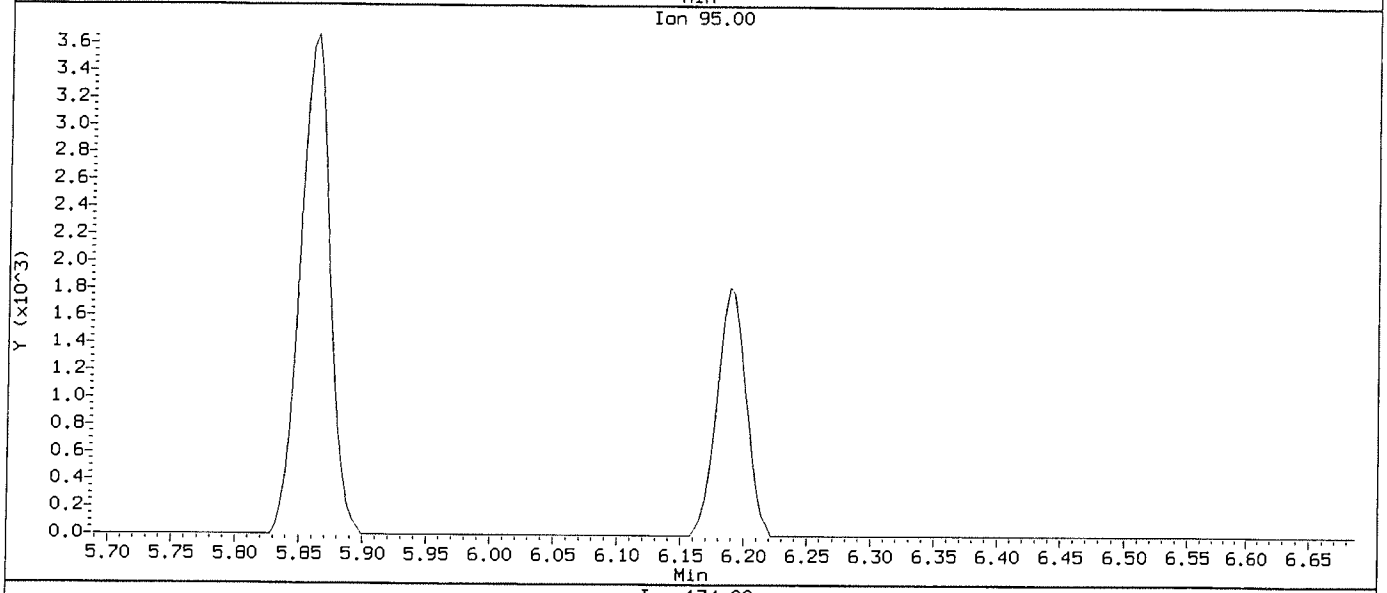
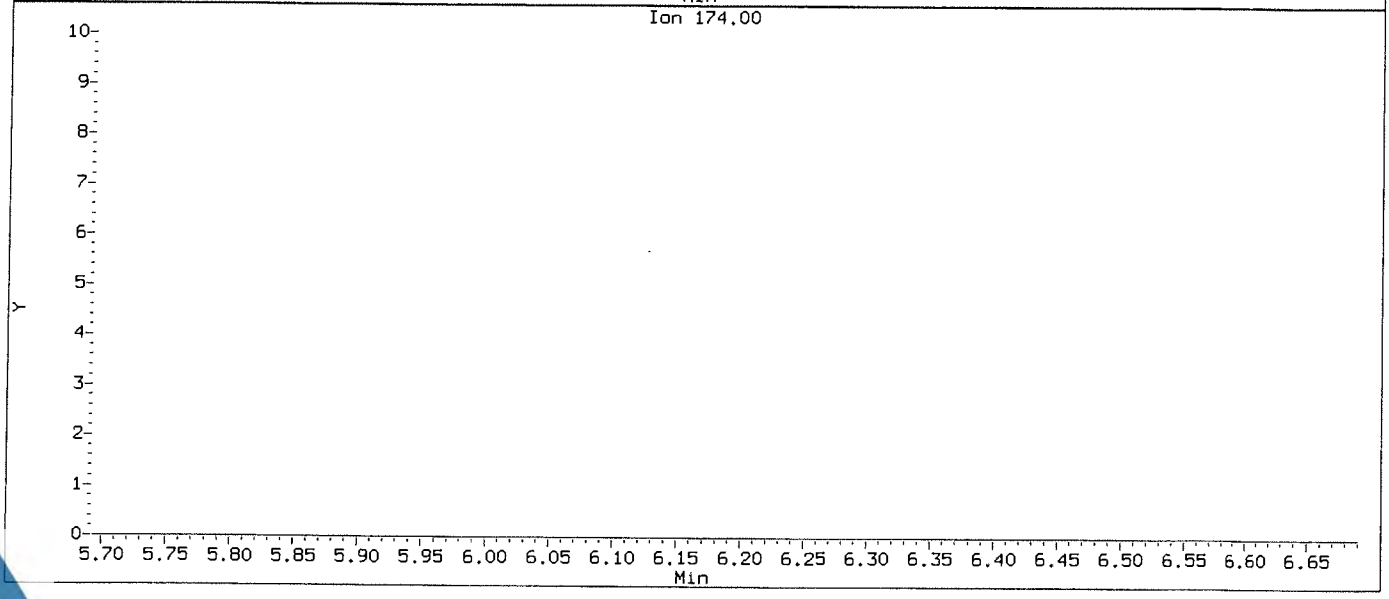
Injection Date: 21-DEC-2018 15:03
Instrument: VOA9.i
Client Sample ID: VSTD001

Compound: Dibromomethane
CAS Number: 74-95-3







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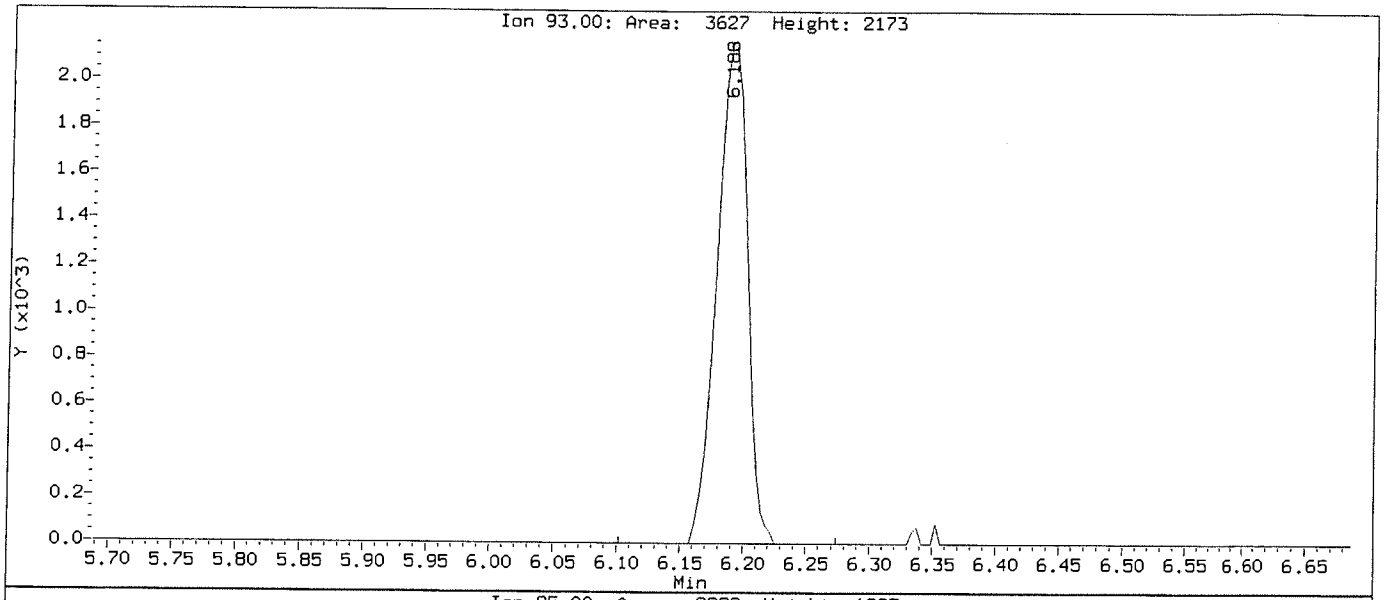
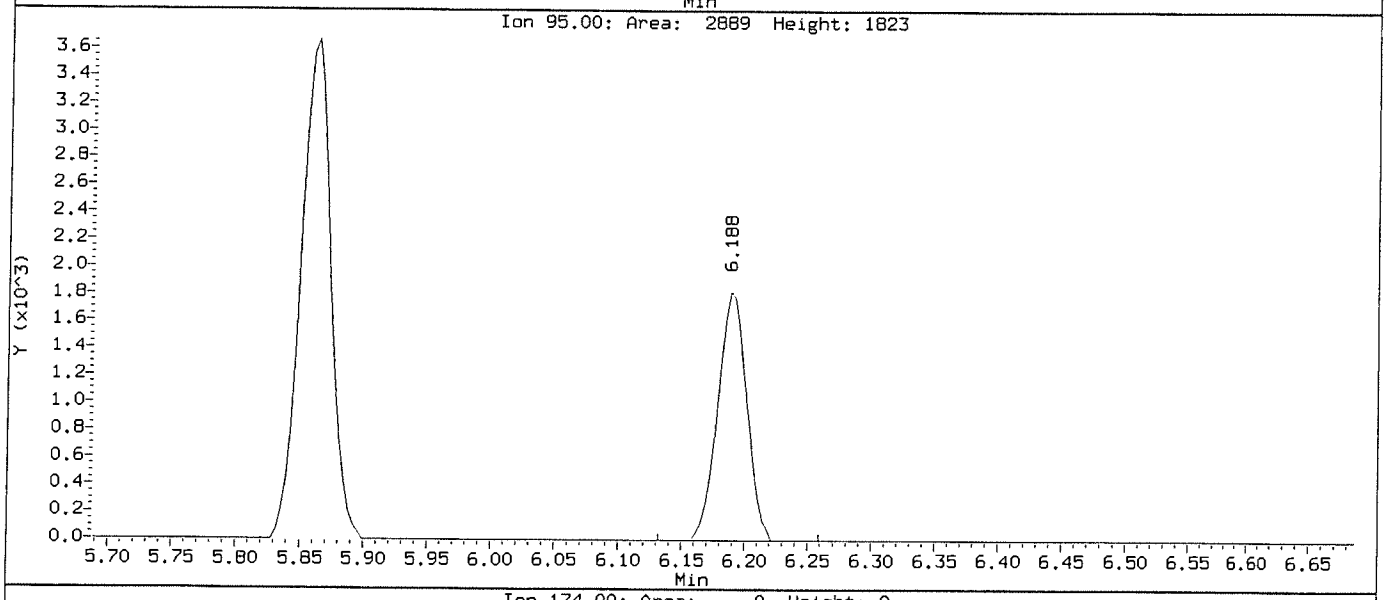
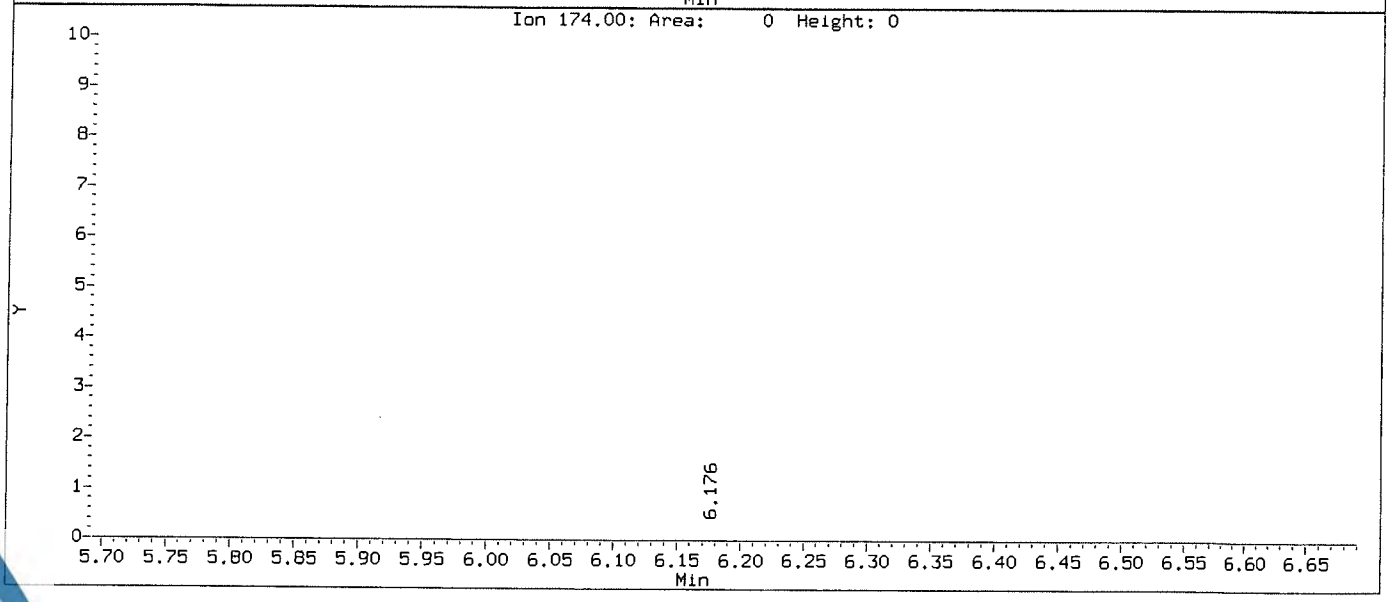
Injection Date: 21-DEC-2018 15:03
Instrument: VOA9.i
Client Sample ID: VSTD001

Compound: Dibromomethane
CAS Number: 74-95-3







Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122105.D Page 1
Report Date: 28-Jan-2019 11:25

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122105.D
Lab Smp Id: VSTD002 Client Smp ID: VSTD002
Inj Date : 21-DEC-2018 15:28
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD002;VSTD002;1;4;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 15:03 Cal File: U122104.D
Als bottle: 6 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

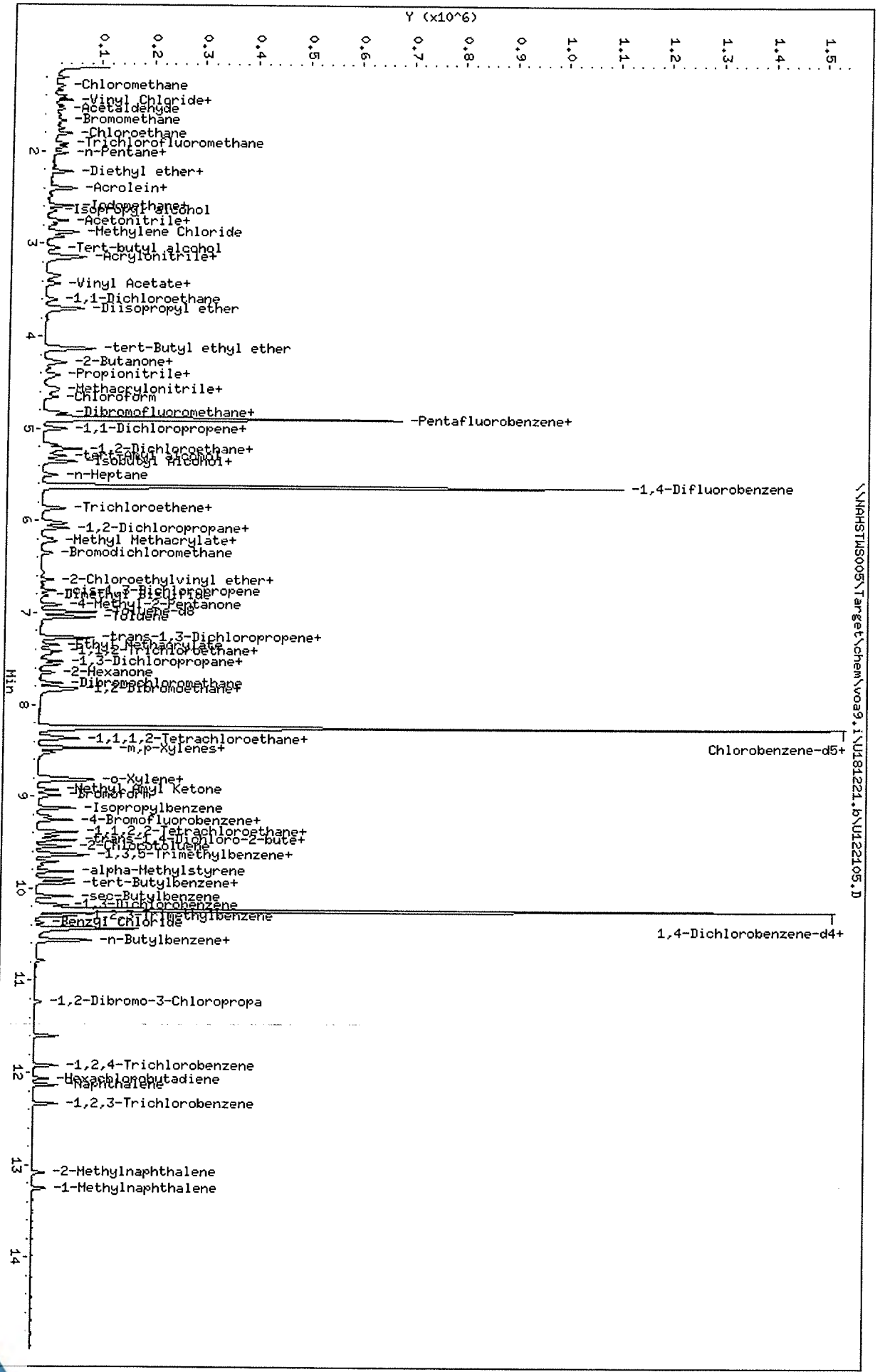
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.894	4.894	(1.000)	416245	50.0000	
*	36 1,4-Difluorobenzene	114	5.625	5.625	(1.000)	790380	50.0000	
*	47 Chlorobenzene-d5	117	8.249	8.249	(1.000)	728875	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	340088	50.0000	
$	30 Dibromofluoromethane	113	4.830	4.830	(0.987)	12720	2.00000	1.32(a)
$	35 1,2-Dichloroethane-d4	65	5.175	5.175	(1.057)	17881	2.00000	0.99(a)
$	48 Toluene-d8	98	6.989	6.989	(0.847)	54444	2.00000	1.21(a)
$	69 4-Bromofluorobenzene	95	9.257	9.257	(1.122)	20092	2.00000	1.45(a)
	60 1,1,1,2-Tetrachloroethane	131	8.347	8.347	(1.012)	8522	2.00000	2.40(a)
	31 1,1,1-Trichloroethane	97	4.827	4.827	(0.986)	12904	2.00000	1.96(a)
	68 1,1,2,2-Tetrachloroethane	83	9.392	9.392	(0.918)	16933	2.00000	2.21(a)
	138 Freon TF	101	2.401	2.401	(0.491)	7489	2.00000	2.11(a)
	53 1,1,2-Trichloroethane	83	7.421	7.421	(0.900)	9254	2.00000	2.13(a)
	22 1,1-Dichloroethane	63	3.604	3.604	(0.737)	19553	2.00000	2.18(a)
	11 1,1-Dichloroethene	96	2.401	2.401	(0.491)	8761	2.00000	2.21(a)
	32 1,1-Dichloropropene	75	5.006	5.006	(0.890)	15087	2.00000	2.14(a)
	93 1,2,3-Trichlorobenzene	180	12.335	12.335	(1.205)	12385	2.00000	2.54(a)
	71 1,2,3-Trichloropropane	75	9.426	9.426	(0.921)	16368	2.00000	2.05(a)
	90 1,2,4-Trichlorobenzene	180	11.923	11.923	(1.165)	12313	2.00000	1.95(a)
	79 1,2,4-Trimethylbenzene	105	9.943	9.943	(0.971)	36129	2.00000	2.03(a)
	89 1,2-Dibromo-3-Chloropropane	155	11.233	11.233	(1.097)	1910	2.00000	3.02(a)
	57 1,2-Dibromoethane	107	7.852	7.852	(0.952)	10069	2.00000	2.01(a)

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122105.D Page 2
Report Date: 28-Jan-2019 11:25

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88 1,2-Dichlorobenzene	146	10.569	10.569	(1.033)	21852	2.00000	2.16(a)
33 1,2-Dichloroethane	62	5.254	5.254	(0.934)	15708	2.00000	1.50(a)
42 1,2-Dichloropropane	63	6.079	6.079	(1.081)	11593	2.00000	2.07(a)
75 1,3,5-Trimethylbenzene	105	9.625	9.625	(0.940)	33264	2.00000	1.94(a)
83 1,3-Dichlorobenzene	146	10.180	10.180	(0.995)	21833	2.00000	2.16(a)
54 1,3-Dichloropropane	76	7.563	7.563	(0.917)	19804	2.00000	2.11(a)
84 1,4-Dichlorobenzene	146	10.255	10.255	(1.002)	22897	2.00000	2.15(a)
26 2,2-Dichloropropane	77	4.275	4.275	(0.874)	10414	2.00000	1.92(a)
24 2-Butanone	43	4.343	4.343	(0.887)	11299	4.00000	1.81(a)
76 2-Chlorotoluene	91	9.546	9.546	(0.933)	32538	2.00000	2.07(a)
52 2-Hexanone	43	7.653	7.653	(0.928)	15773	4.00000	3.89(a)
77 4-Chlorotoluene	91	9.640	9.640	(0.942)	38000	2.00000	2.09(a)
82 p-Isopropyltoluene	119	10.210	10.210	(0.997)	34224	2.00000	1.90(a)
45 4-Methyl-2-Pentanone	43	6.915	6.915	(0.838)	23124	4.00000	3.96(a)
10 Acetone	43	2.484	2.484	(0.508)	8219	4.00000	2.18(a)
37 Benzene	78	5.220	5.220	(0.928)	44238	2.00000	2.10(a)
74 Bromobenzene	156	9.381	9.381	(0.917)	11074	2.00000	2.10(a)
29 Bromochloromethane	128	4.557	4.557	(0.931)	5148	2.00000	(a)
39 Bromodichloromethane	83	6.348	6.348	(1.129)	11433	2.00000	1.92(a)
66 Bromoform	173	8.984	8.984	(1.089)	4574	2.00000	3.17(Ta)
6 Bromomethane	94	1.674	1.674	(0.342)	4588	2.00000	3.07(a)
19 Carbon Disulfide	76	2.589	2.589	(0.529)	60138	4.00000	4.17(a)
34 Carbon Tetrachloride	117	4.995	4.995	(0.888)	10077	2.00000	3.10(a)
59 Chlorobenzene	112	8.275	8.275	(1.003)	29501	2.00000	2.10(a)
7 Chloroethane	64	1.753	1.753	(0.358)	8179	2.00000	2.69(aM)
28 Chloroform	83	4.658	4.658	(0.952)	18482	2.00000	2.14(a)
3 Chloromethane	50	1.340	1.340	(0.274)	8693	2.00000	5.15
27 cis-1,2-Dichloroethene	96	4.287	4.287	(0.876)	11391	2.00000	2.08(a)
46 cis-1,3-Dichloropropene	75	6.757	6.757	(1.201)	13732	2.00000	2.74(a)
55 Dibromochloromethane	129	7.758	7.758	(0.940)	7740	2.00000	2.55(a)
44 Dibromomethane	93	6.191	6.191	(1.101)	6690	2.00000	2.07(aM)
2 Dichlorodifluoromethane	85	1.205	1.205	(0.246)	11371	2.00000	2.68(a)
61 Ethylbenzene	106	8.373	8.373	(1.015)	14915	2.00000	2.07(a)
91 Hexachlorobutadiene	225	12.065	12.065	(1.179)	4376	2.00000	1.81(a)
67 Isopropylbenzene	105	9.126	9.126	(1.106)	42416	2.00000	2.04(a)
62 m,p-Xylenes	106	8.474	8.474	(1.027)	36211	4.00000	4.10(a)
17 Methylene Chloride	84	2.873	2.873	(0.587)	13726	2.00000	1.52(a)
87 n-Butylbenzene	91	10.558	10.558	(1.031)	35309	2.00000	2.03(a)
73 n-Propylbenzene	91	9.475	9.475	(0.926)	51078	2.00000	2.01(a)
92 Naphthalene	128	12.133	12.133	(1.185)	32897	2.00000	2.21(a)
63 o-Xylene	106	8.811	8.811	(1.068)	17863	2.00000	2.00(a)
81 sec-Butylbenzene	105	10.086	10.086	(0.985)	43551	2.00000	2.03(a)
64 Styrene	104	8.826	8.826	(1.070)	29048	2.00000	1.96(a)
78 tert-Butylbenzene	119	9.902	9.902	(0.967)	29889	2.00000	2.02(a)
56 Tetrachloroethene	164	7.526	7.526	(0.912)	8071	2.00000	2.11(a)
50 Toluene	91	7.049	7.049	(0.855)	46092	2.00000	2.12(a)
20 trans-1,2-Dichloroethene	96	3.143	3.143	(0.642)	10325	2.00000	2.11(a)
51 trans-1,3-Dichloropropene	75	7.259	7.259	(1.291)	10646	2.00000	2.97(a)
38 Trichloroethene	130	5.861	5.861	(1.042)	10169	2.00000	2.00(a)
8 Trichlorofluoromethane	101	1.955	1.955	(0.400)	14026	2.00000	2.64(a)
5 Vinyl Chloride	62	1.419	1.419	(0.290)	12656	2.00000	3.07(a)

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



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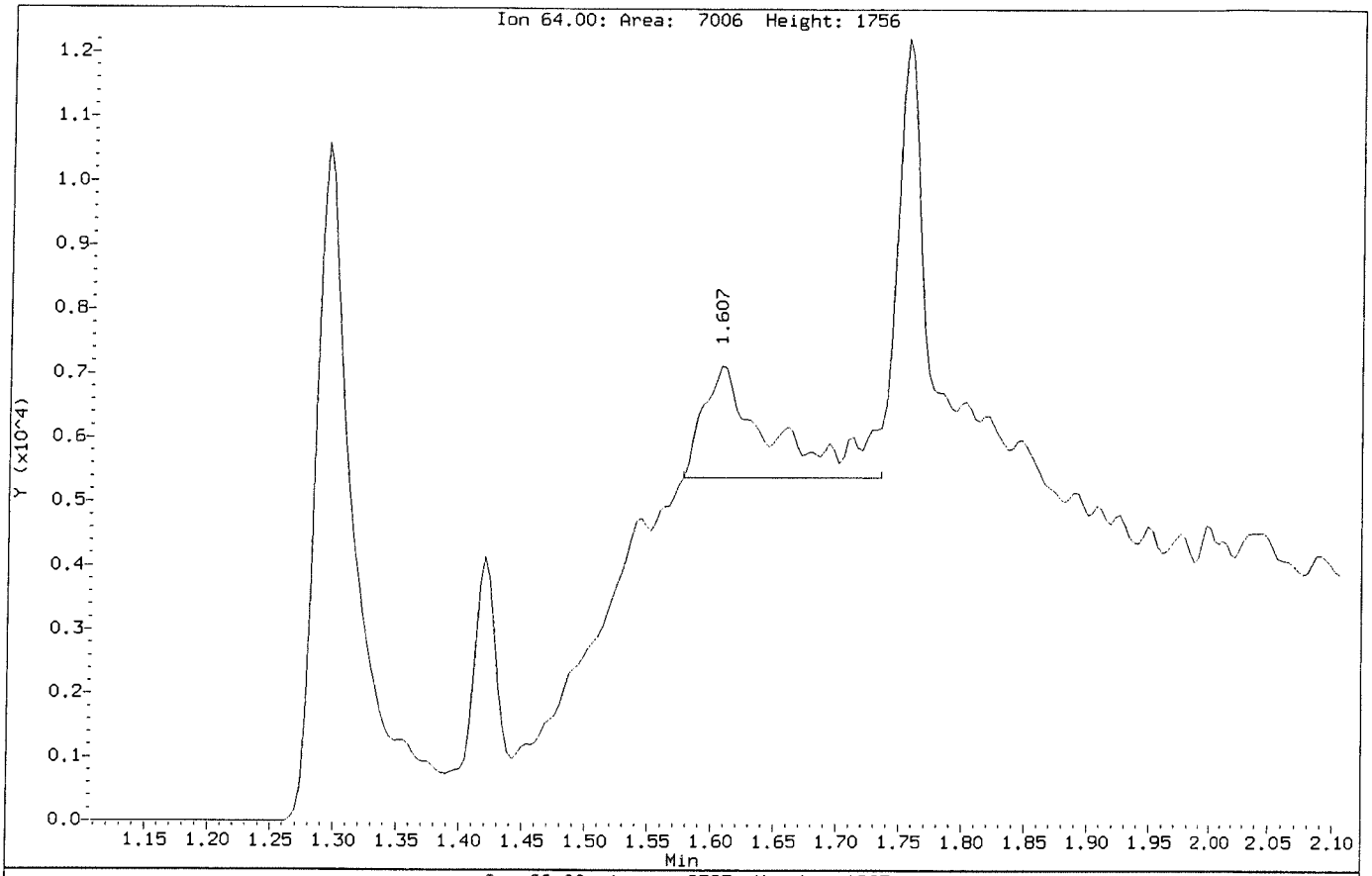
Sample Info: VSTD002;VSTD002;1;4;
Purge Volume: 5.0
Column phase: DB624

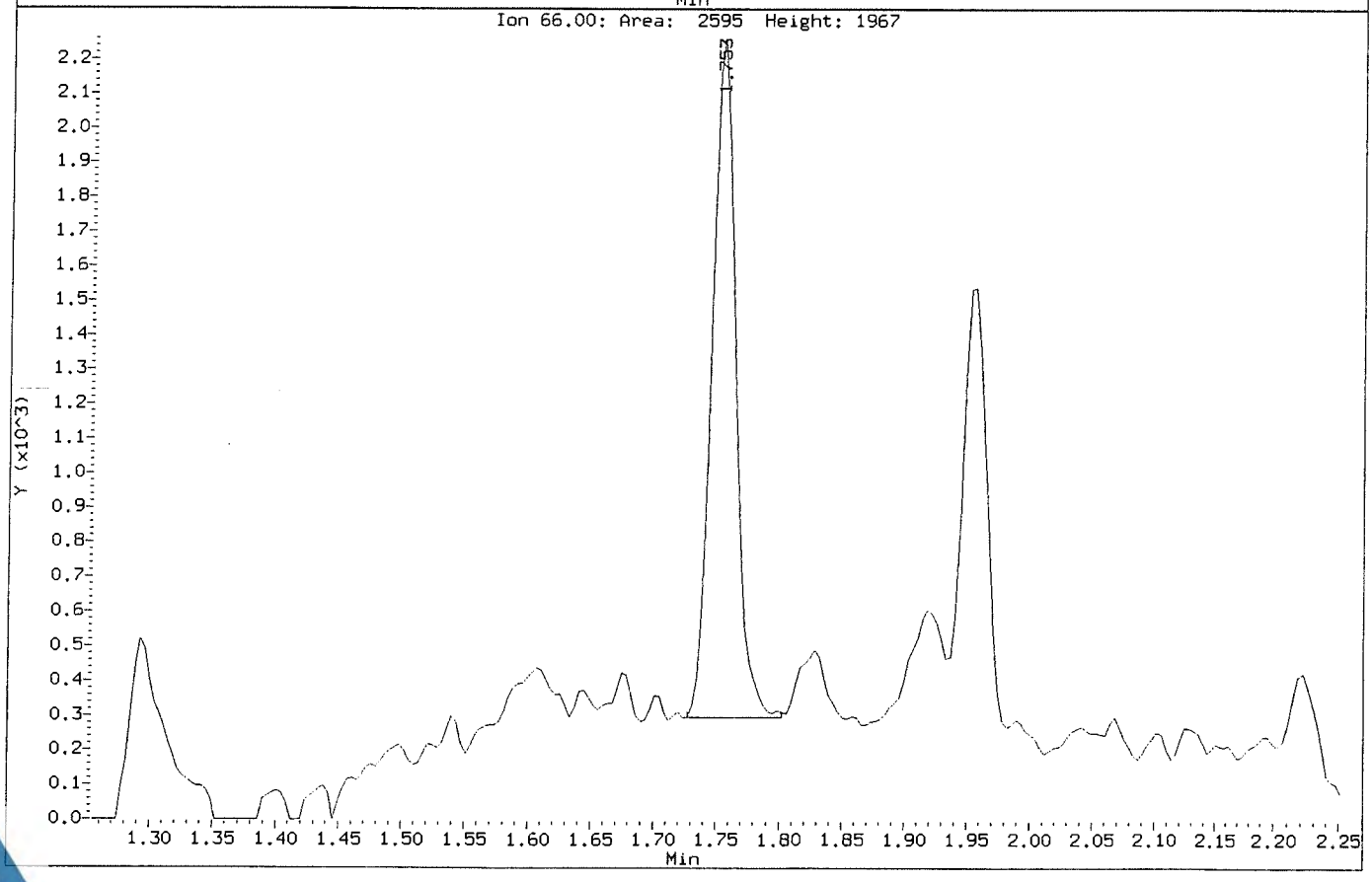
Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

\\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122105.D

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122105.D
Injection Date: 21-DEC-2018 15:28
Instrument: VOA9.i
Client Sample ID: VSTD002

Compound: Chloroethane
CAS Number: 75-00-3





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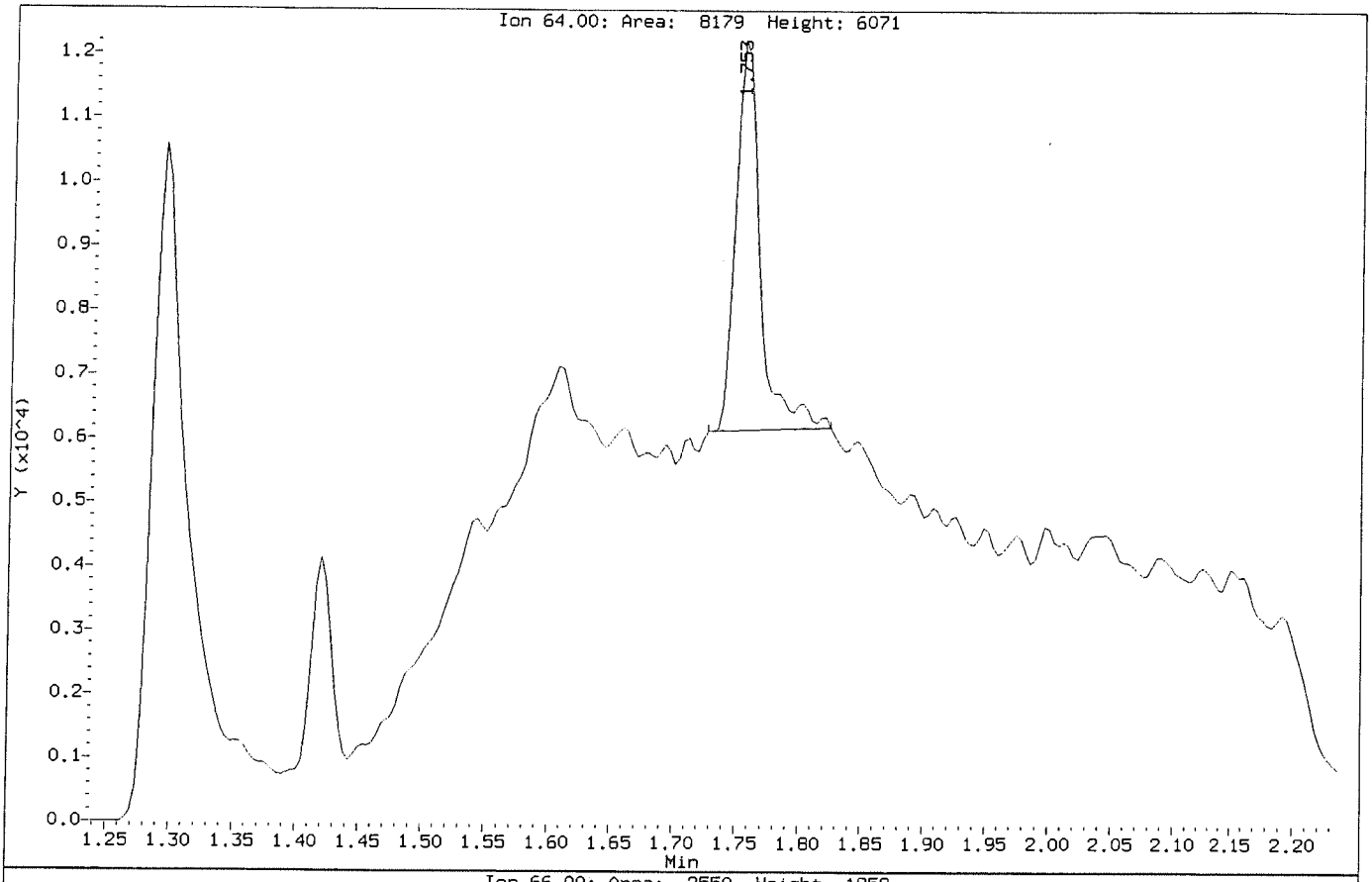
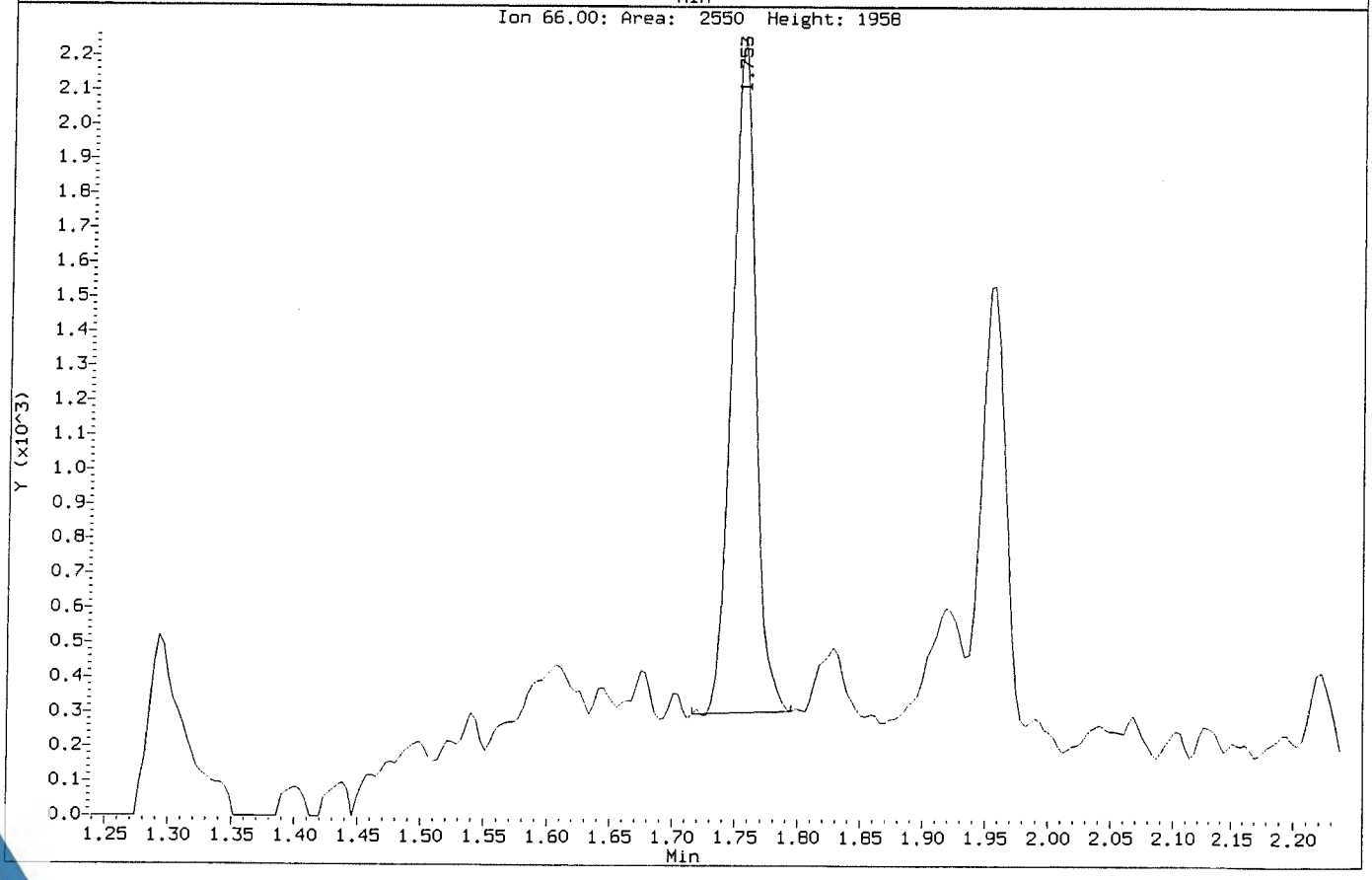
Instrument: VOA9.i
Client Sample ID: VSTD002

Compound: Chloroethane
CAS Number: 75-00-3





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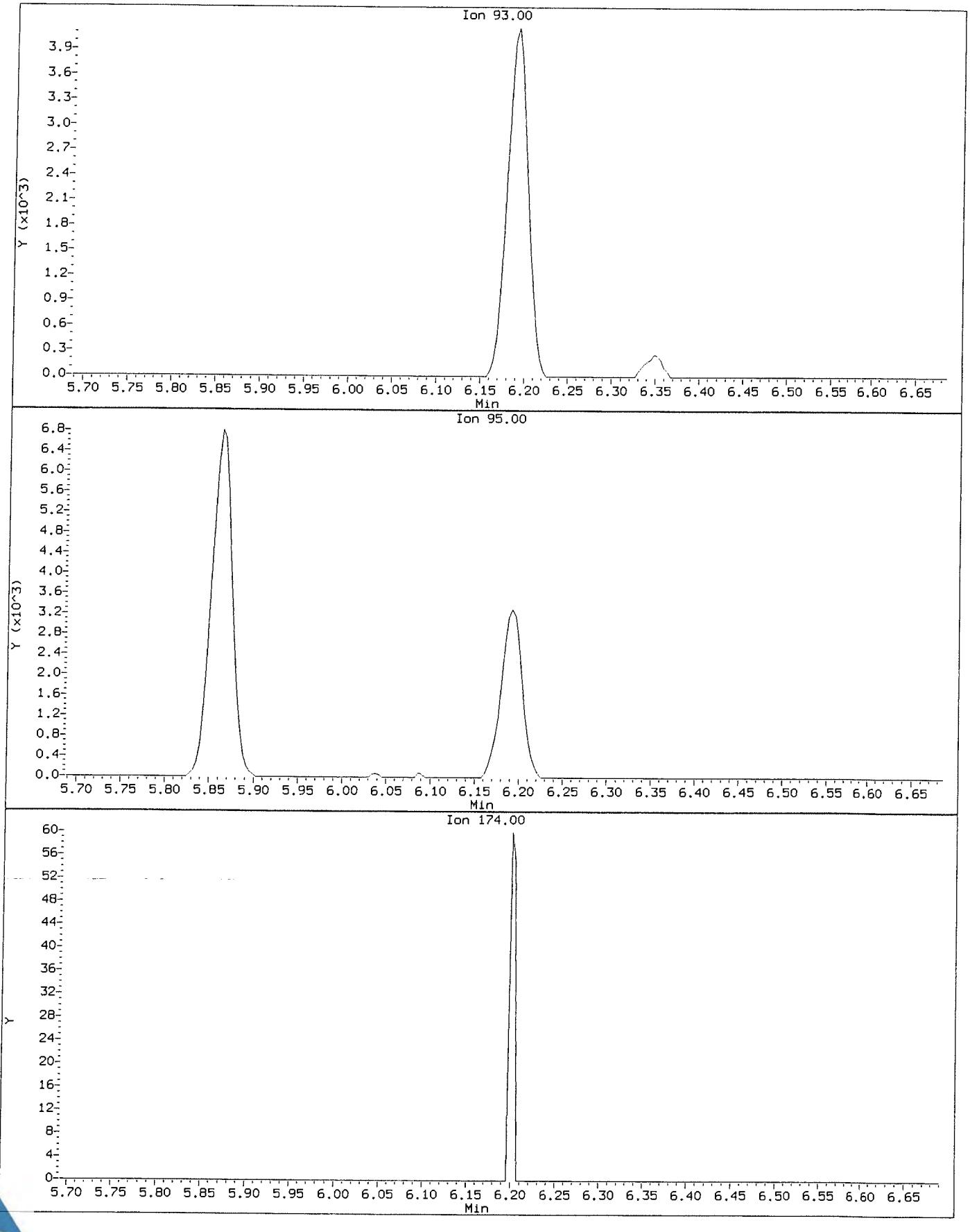
Injection Date: 21-DEC-2018 15:28
Instrument: VOA9.i
Client Sample ID: VSTD002

Compound: Dibromomethane
CAS Number: 74-95-3



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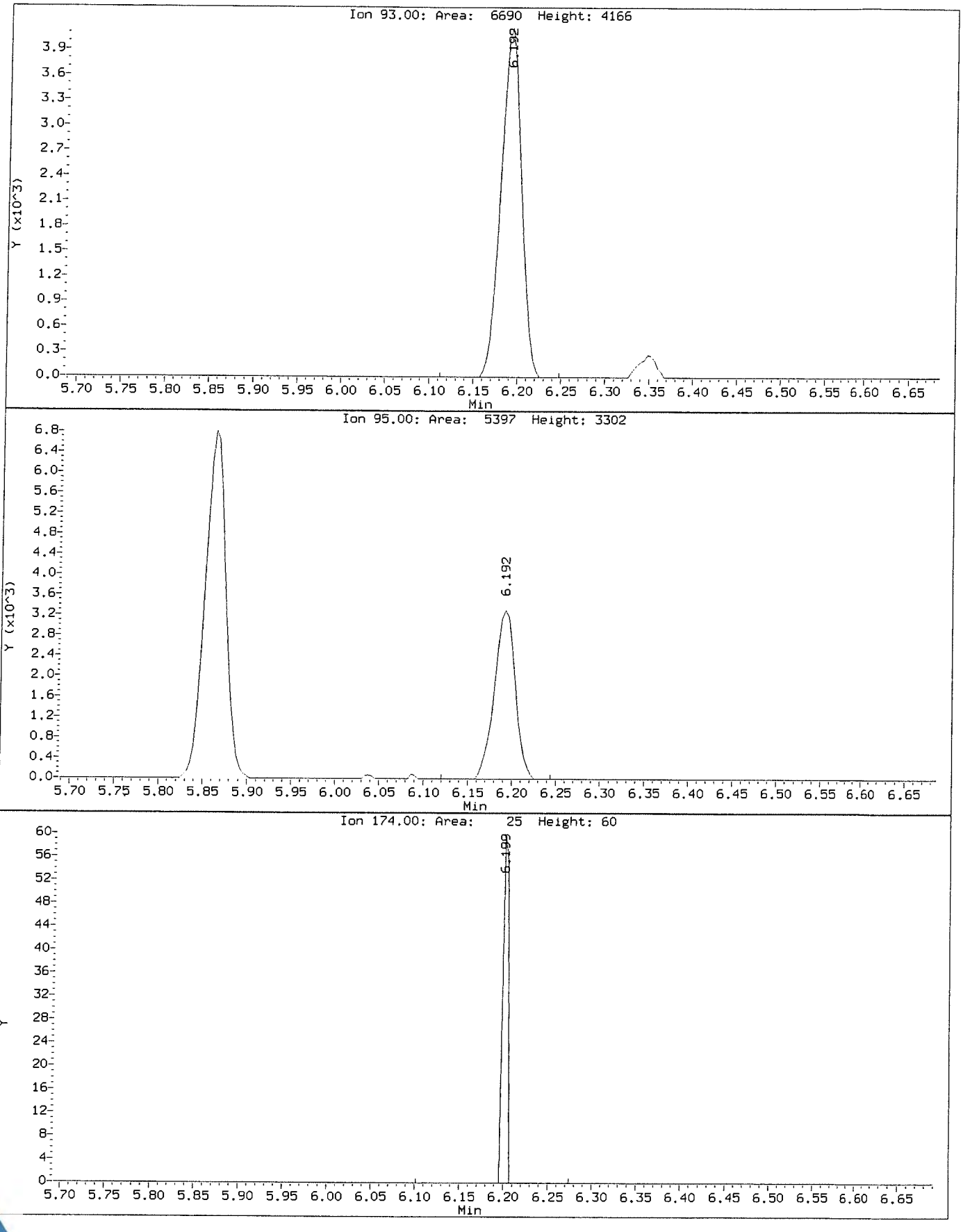
Injection Date: 21-DEC-2018 15:28
Instrument: VOA9.i
Client Sample ID: VSTD002

Compound: Dibromomethane
CAS Number: 74-95-3



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122106.D Page 1
Report Date: 28-Jan-2019 11:25

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122106.D
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Inj Date : 21-DEC-2018 15:52
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD005;VSTD005;1;5;
Misc Info : 180315V9;WATER;0;1;
Comment :
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Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 15:28 Cal File: U122105.D
Als bottle: 7 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

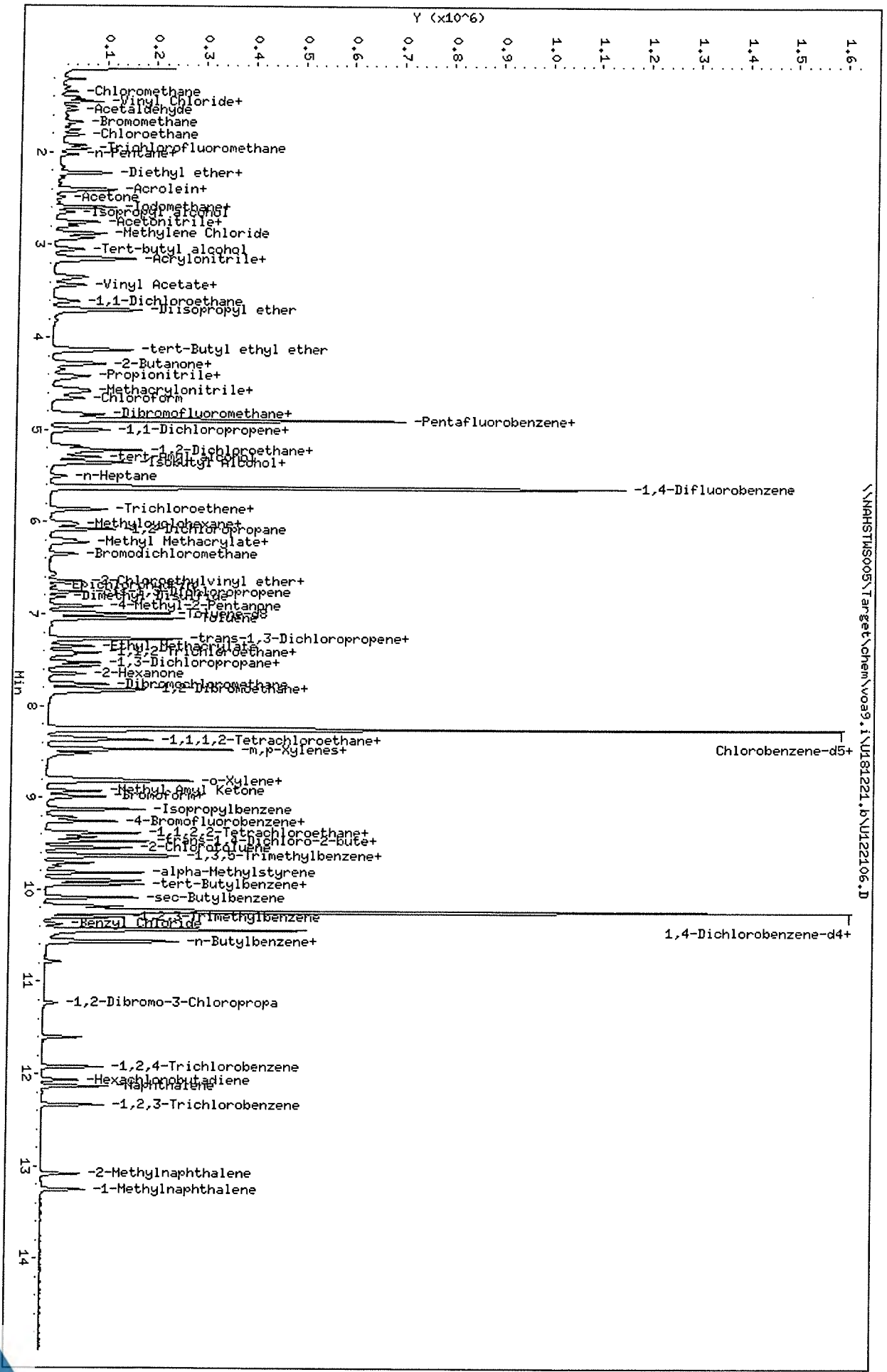
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.897	4.897	(1.000)	423551	50.0000	
* 36 1,4-Difluorobenzene	114	5.625	5.625	(1.000)	811321	50.0000	
* 47 Chlorobenzene-d5	117	8.249	8.249	(1.000)	744062	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	348718	50.0000	
$ 30 Dibromofluoromethane	113	4.830	4.830	(0.986)	28568	5.00000	4.77(a)
$ 35 1,2-Dichloroethane-d4	65	5.175	5.175	(1.057)	38943	5.00000	4.60(a)
$ 48 Toluene-d8	98	6.989	6.989	(0.847)	117010	5.00000	4.52(a)
$ 69 4-Bromofluorobenzene	95	9.257	9.257	(1.122)	42900	5.00000	4.60(a)
60 1,1,1,2-Tetrachloroethane	131	8.350	8.350	(1.012)	21878	5.00000	5.16
31 1,1,1-Trichloroethane	97	4.830	4.830	(0.986)	34906	5.00000	5.21
68 1,1,2,2-Tetrachloroethane	83	9.392	9.392	(0.918)	42397	5.00000	5.39
138 Freon TF	101	2.408	2.408	(0.492)	18593	5.00000	5.16
53 1,1,2-Trichloroethane	83	7.420	7.420	(0.900)	23788	5.00000	5.36
22 1,1-Dichloroethane	63	3.608	3.608	(0.737)	48869	5.00000	5.35
11 1,1-Dichloroethene	96	2.405	2.405	(0.491)	20607	5.00000	5.11
32 1,1-Dichloropropene	75	5.006	5.006	(0.890)	37139	5.00000	5.14
93 1,2,3-Trichlorobenzene	180	12.335	12.335	(1.205)	31113	5.00000	5.30
71 1,2,3-Trichloropropane	75	9.426	9.426	(0.921)	41282	5.00000	5.05
90 1,2,4-Trichlorobenzene	180	11.922	11.922	(1.165)	31564	5.00000	4.88(a)
79 1,2,4-Trimethylbenzene	105	9.943	9.943	(0.971)	98307	5.00000	5.38
89 1,2-Dibromo-3-Chloropropane	155	11.233	11.233	(1.097)	4931	5.00000	5.40
57 1,2-Dibromoethane	107	7.851	7.851	(0.952)	27067	5.00000	5.30

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	10.569	10.569	(1.033)	55324	5.00000	5.34
33	1,2-Dichloroethane	62	5.254	5.254	(0.934)	41415	5.00000	5.01
42	1,2-Dichloropropane	63	6.082	6.082	(1.081)	30107	5.00000	5.25
75	1,3,5-Trimethylbenzene	105	9.624	9.624	(0.940)	93516	5.00000	5.33
83	1,3-Dichlorobenzene	146	10.179	10.179	(0.995)	54677	5.00000	5.28
54	1,3-Dichloropropane	76	7.563	7.563	(0.917)	52651	5.00000	5.51
84	1,4-Dichlorobenzene	146	10.254	10.254	(1.002)	57942	5.00000	5.30
26	2,2-Dichloropropane	77	4.275	4.275	(0.873)	27335	5.00000	4.97(a)
24	2-Butanone	43	4.343	4.343	(0.887)	29605	10.0000	8.51
76	2-Chlorotoluene	91	9.546	9.546	(0.933)	86842	5.00000	5.40
52	2-Hexanone	43	7.649	7.649	(0.927)	42401	10.0000	10.24
77	4-Chlorotoluene	91	9.639	9.639	(0.942)	100274	5.00000	5.40
82	p-Isopropyltoluene	119	10.209	10.209	(0.997)	97160	5.00000	5.26
45	4-Methyl-2-Pentanone	43	6.914	6.914	(0.838)	60636	10.0000	10.18
10	Acetone	43	2.487	2.487	(0.508)	19230	10.0000	8.95
37	Benzene	78	5.220	5.220	(0.928)	116462	5.00000	5.39
74	Bromobenzene	156	9.381	9.381	(0.917)	28350	5.00000	5.26
29	Bromochloromethane	128	4.556	4.556	(0.930)	13786	5.00000	3.48(a)
39	Bromodichloromethane	83	6.348	6.348	(1.129)	31104	5.00000	5.10
66	Bromoform	173	8.983	8.983	(1.089)	12962	5.00000	5.67(T)
6	Bromomethane	94	1.674	1.674	(0.342)	12245	5.00000	5.89
19	Carbon Disulfide	76	2.592	2.592	(0.529)	153199	10.0000	10.44
34	Carbon Tetrachloride	117	4.999	4.999	(0.889)	26439	5.00000	5.75
59	Chlorobenzene	112	8.275	8.275	(1.003)	75901	5.00000	5.30
7	Chloroethane	64	1.756	1.756	(0.359)	22172	5.00000	6.40(M)
28	Chloroform	83	4.657	4.657	(0.951)	48639	5.00000	5.53
3	Chloromethane	50	1.344	1.344	(0.274)	20682	5.00000	7.61
27	cis-1,2-Dichloroethene	96	4.290	4.290	(0.876)	29626	5.00000	5.32
46	cis-1,3-Dichloropropene	75	6.760	6.760	(1.202)	38403	5.00000	5.30
55	Dibromochloromethane	129	7.758	7.758	(0.940)	20846	5.00000	5.15
44	Dibromomethane	93	6.191	6.191	(1.101)	17610	5.00000	5.32(M)
2	Dichlorodifluoromethane	85	1.209	1.209	(0.247)	26580	5.00000	5.53
61	Ethylbenzene	106	8.372	8.372	(1.015)	38926	5.00000	5.30
91	Hexachlorobutadiene	225	12.065	12.065	(1.179)	11286	5.00000	4.56(a)
67	Isopropylbenzene	105	9.126	9.126	(1.106)	113805	5.00000	5.37
62	m,p-Xylenes	106	8.474	8.474	(1.027)	96419	10.0000	10.69
17	Methylene Chloride	84	2.877	2.877	(0.587)	31487	5.00000	4.95(a)
87	n-Butylbenzene	91	10.554	10.554	(1.031)	92969	5.00000	5.22
73	n-Propylbenzene	91	9.475	9.475	(0.926)	140607	5.00000	5.39
92	Naphthalene	128	12.132	12.132	(1.185)	91300	5.00000	4.86(a)
63	o-Xylene	106	8.811	8.811	(1.068)	47745	5.00000	5.25
81	sec-Butylbenzene	105	10.086	10.086	(0.985)	116270	5.00000	5.30
64	Styrene	104	8.826	8.826	(1.070)	80690	5.00000	5.34
78	tert-Butylbenzene	119	9.902	9.902	(0.967)	81608	5.00000	5.38
56	Tetrachloroethene	164	7.525	7.525	(0.912)	20249	5.00000	5.19
50	Toluene	91	7.049	7.049	(0.855)	120808	5.00000	5.45
20	trans-1,2-Dichloroethene	96	3.147	3.147	(0.643)	25998	5.00000	5.24
51	trans-1,3-Dichloropropene	75	7.259	7.259	(1.291)	30725	5.00000	5.37
38	Trichloroethene	130	5.865	5.865	(1.043)	27950	5.00000	5.36
8	Trichlorofluoromethane	101	1.958	1.958	(0.400)	37144	5.00000	5.87
5	Vinyl Chloride	62	1.422	1.422	(0.291)	29272	5.00000	5.76

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



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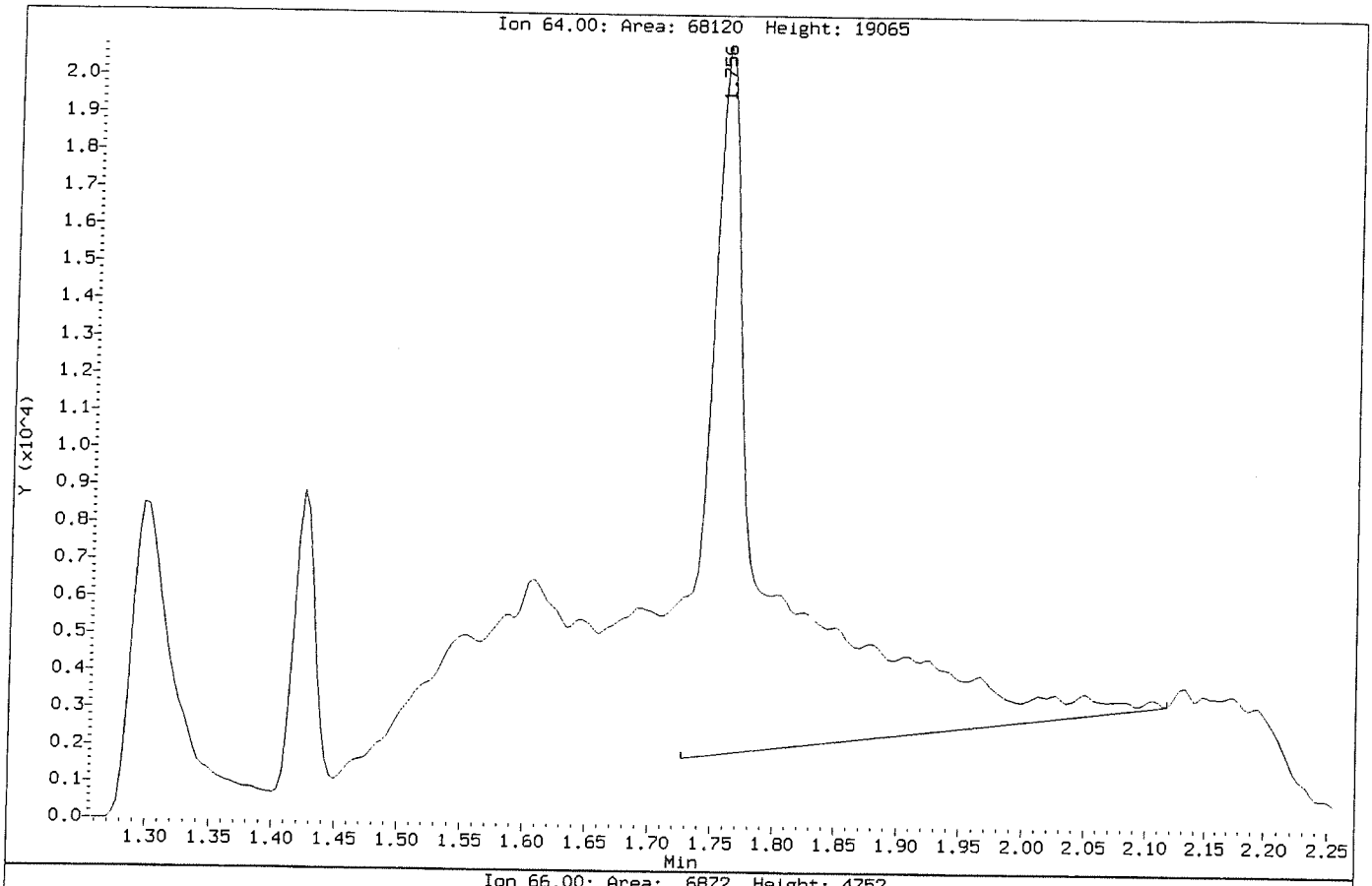
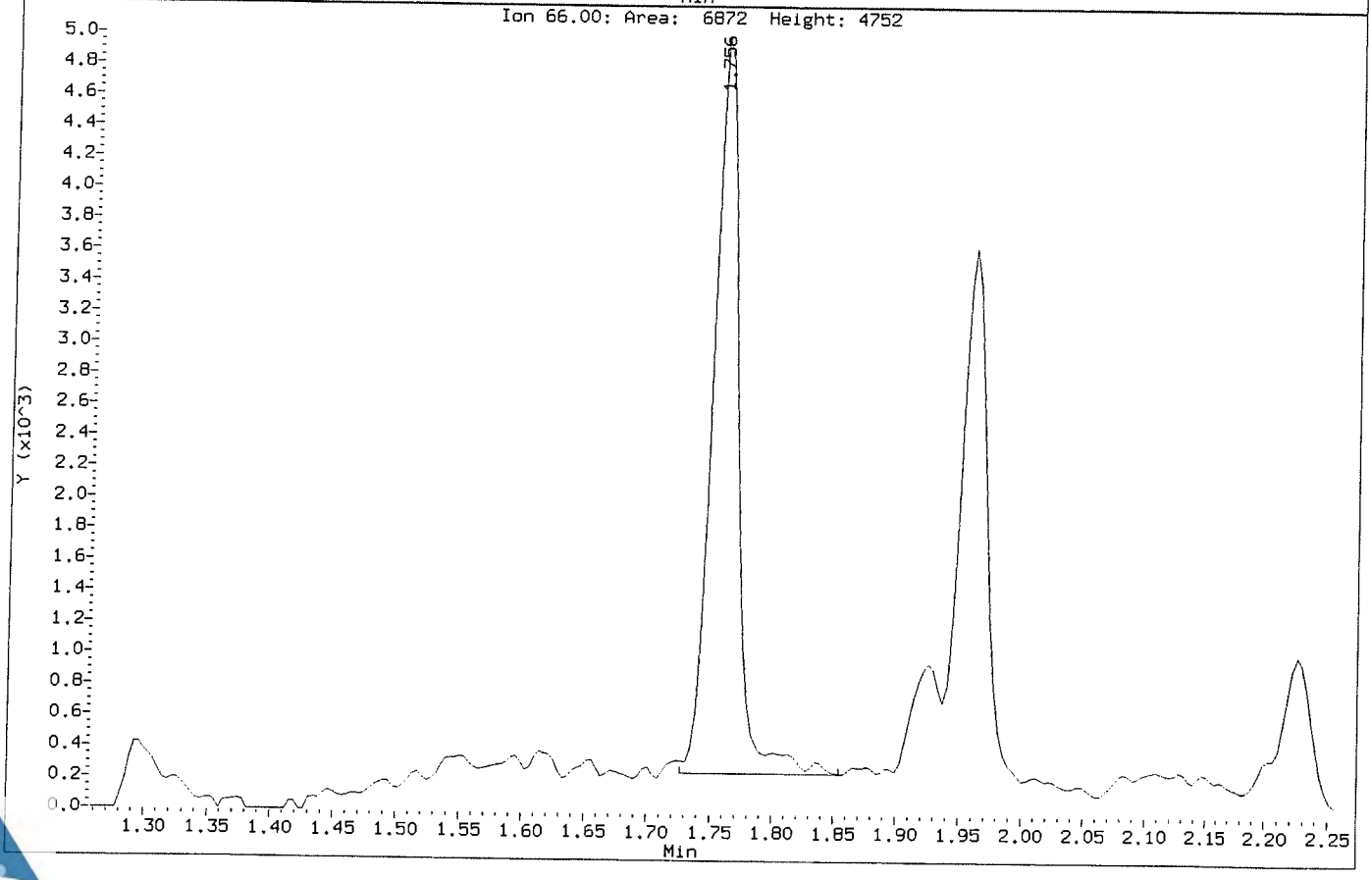
Date : 21-DEC-2018 15:52
Client ID: VSTD005
Sample Info: VSTD005;VSTD005;1;5;
Purge Volume: 5.0
Column phase: DB624

\\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122106.D
Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122106.D
Injection Date: 21-DEC-2018 15:52
Instrument: VOA9.i
Client Sample ID: VSTD005

Compound: Chloroethane
CAS Number: 75-00-3





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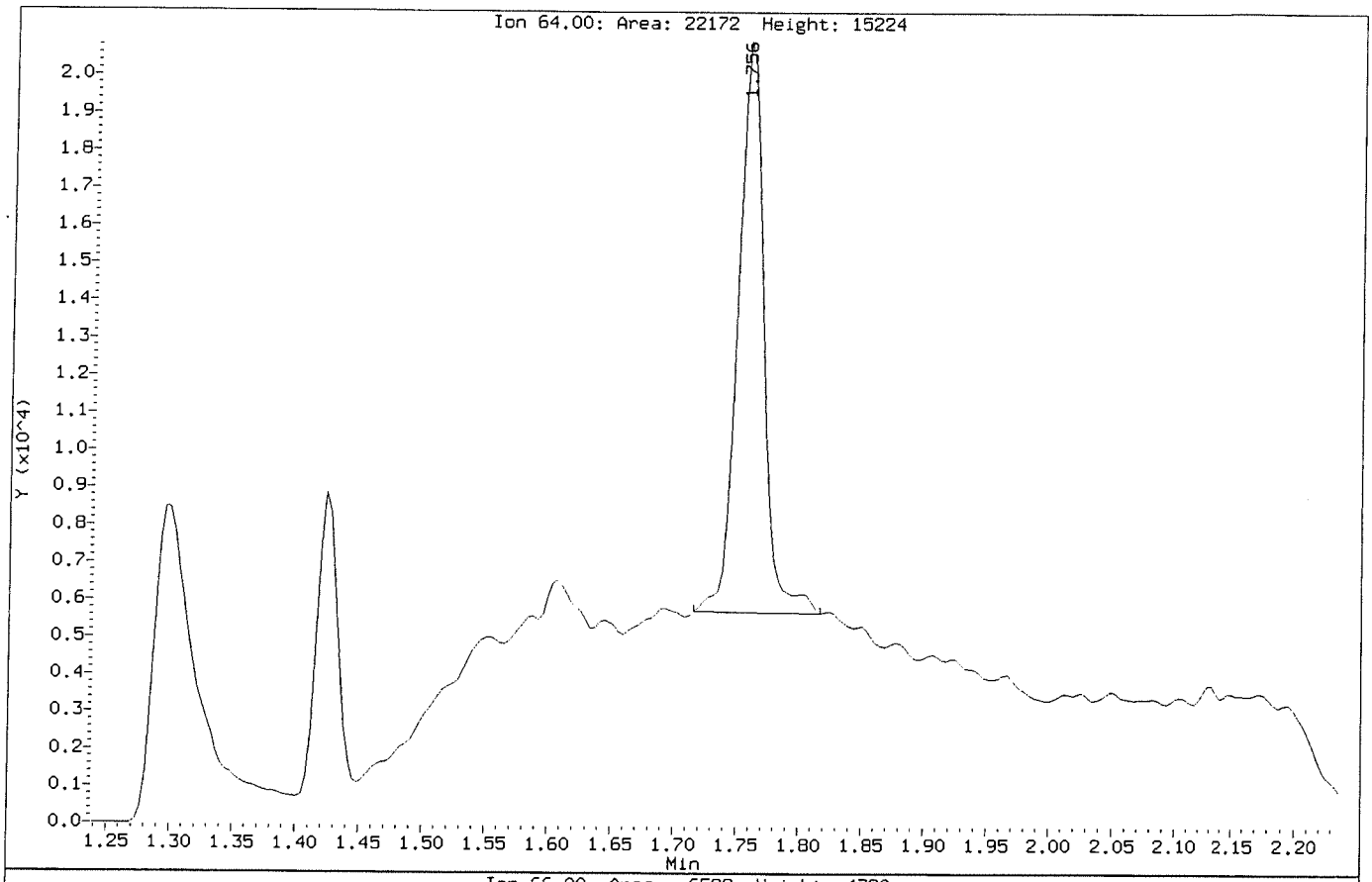
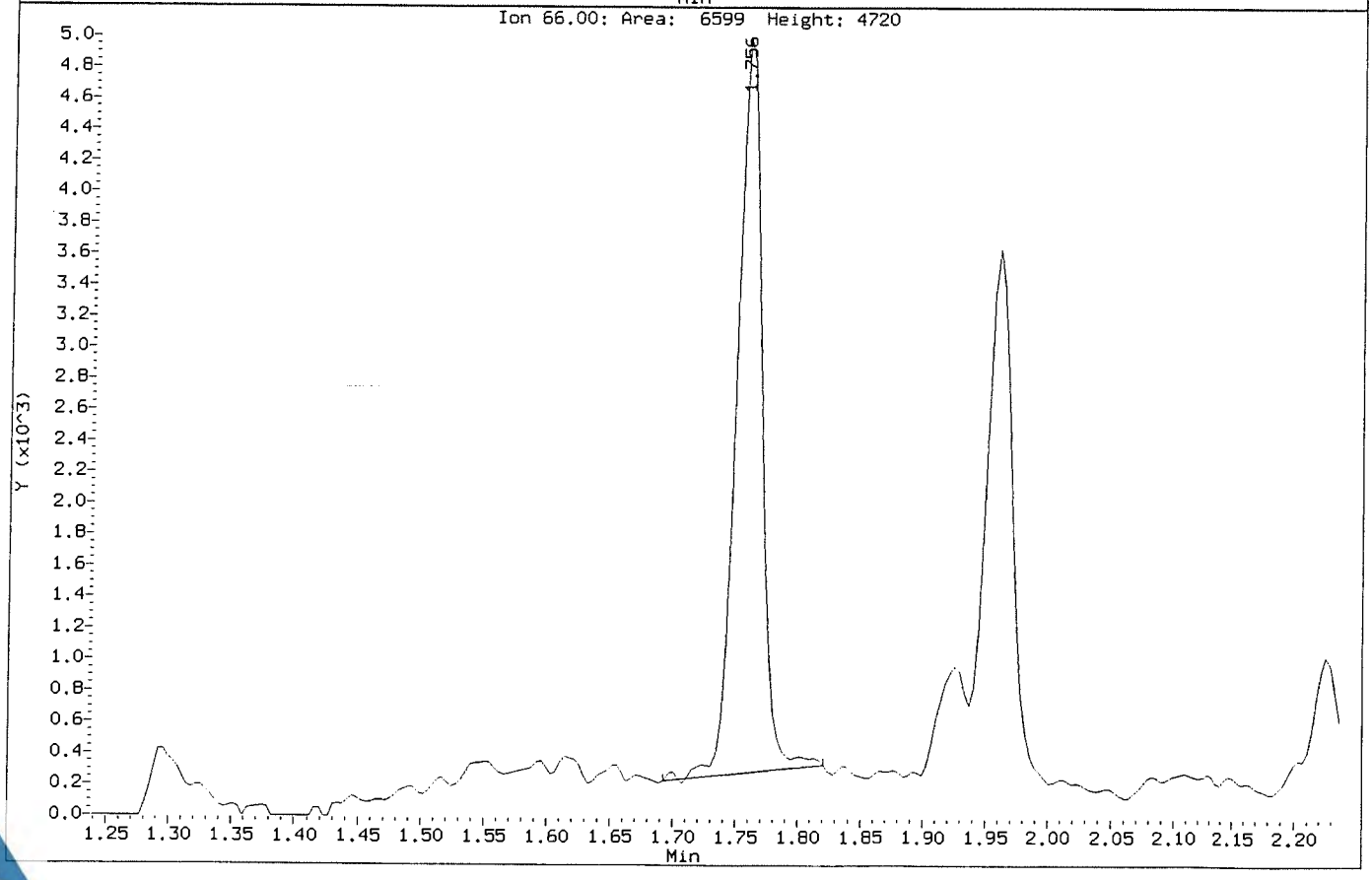
Instrument: VOA9.i
Client Sample ID: VSTD005

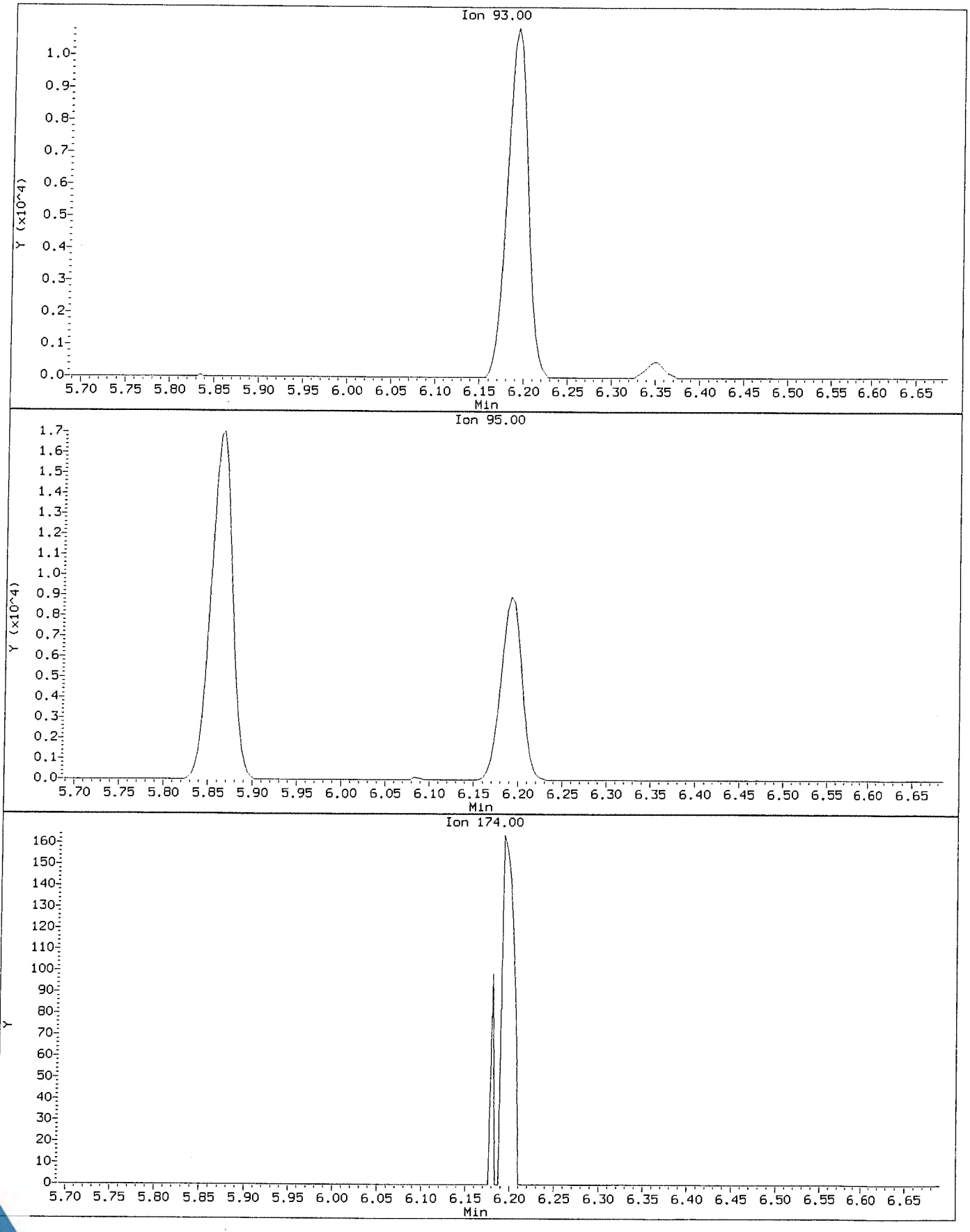
Compound: Chloroethane
CAS Number: 75-00-3





Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122106.D
Injection Date: 21-DEC-2018 15:52
Instrument: VOA9.i
Client Sample ID: VSTD005

Compound: Dibromomethane
CAS Number: 74-95-3



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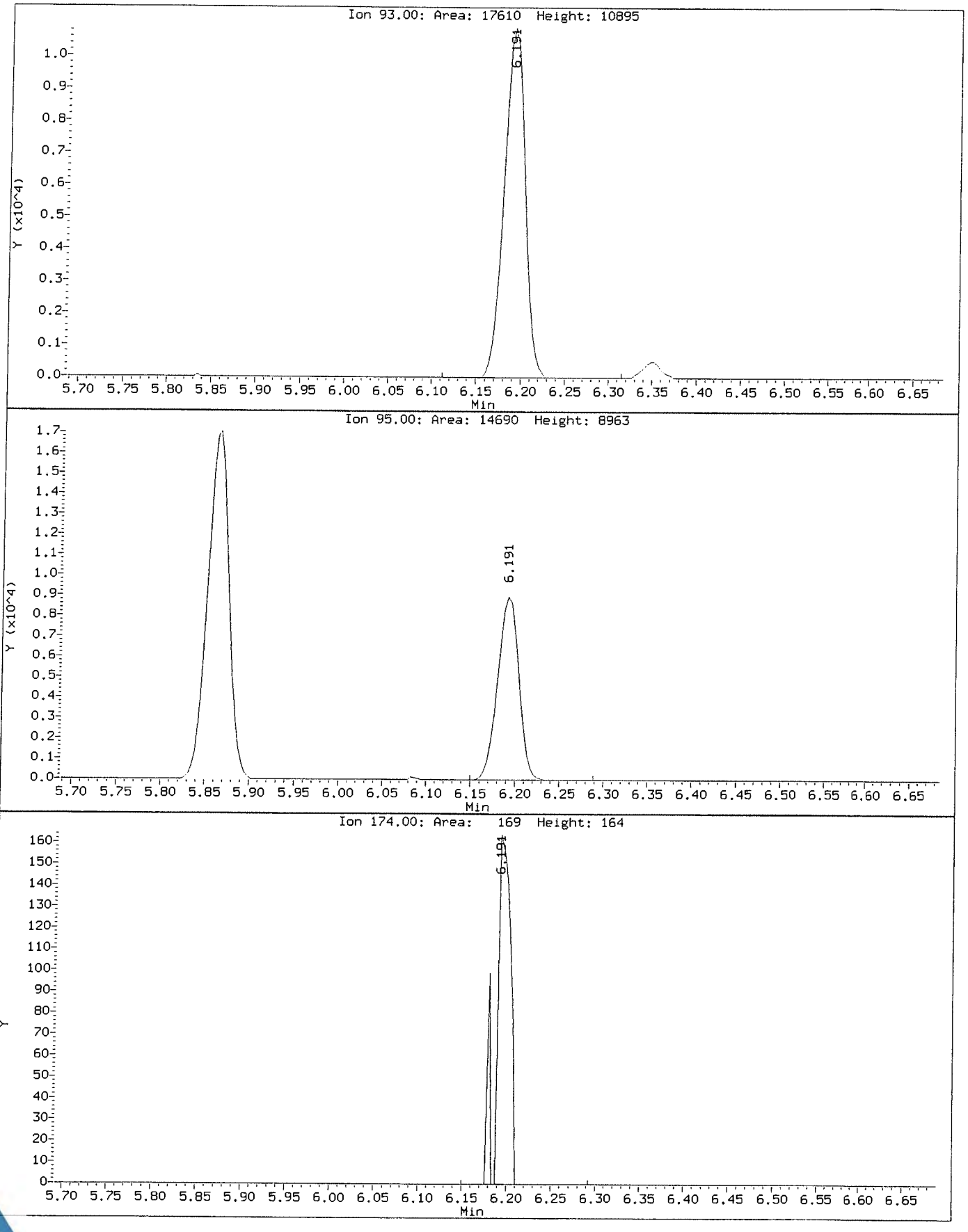
Injection Date: 21-DEC-2018 15:52
Instrument: VOA9.i
Client Sample ID: VSTD005

Compound: Dibromomethane
CAS Number: 74-95-3



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122107.D Page 1
Report Date: 28-Jan-2019 11:25

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122107.D
Lab Smp Id: VSTD020 Client Smp ID: VSTD020
Inj Date : 21-DEC-2018 16:17
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD020;VSTD020;1;6;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 15:52 Cal File: U122106.D
Als bottle: 8 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

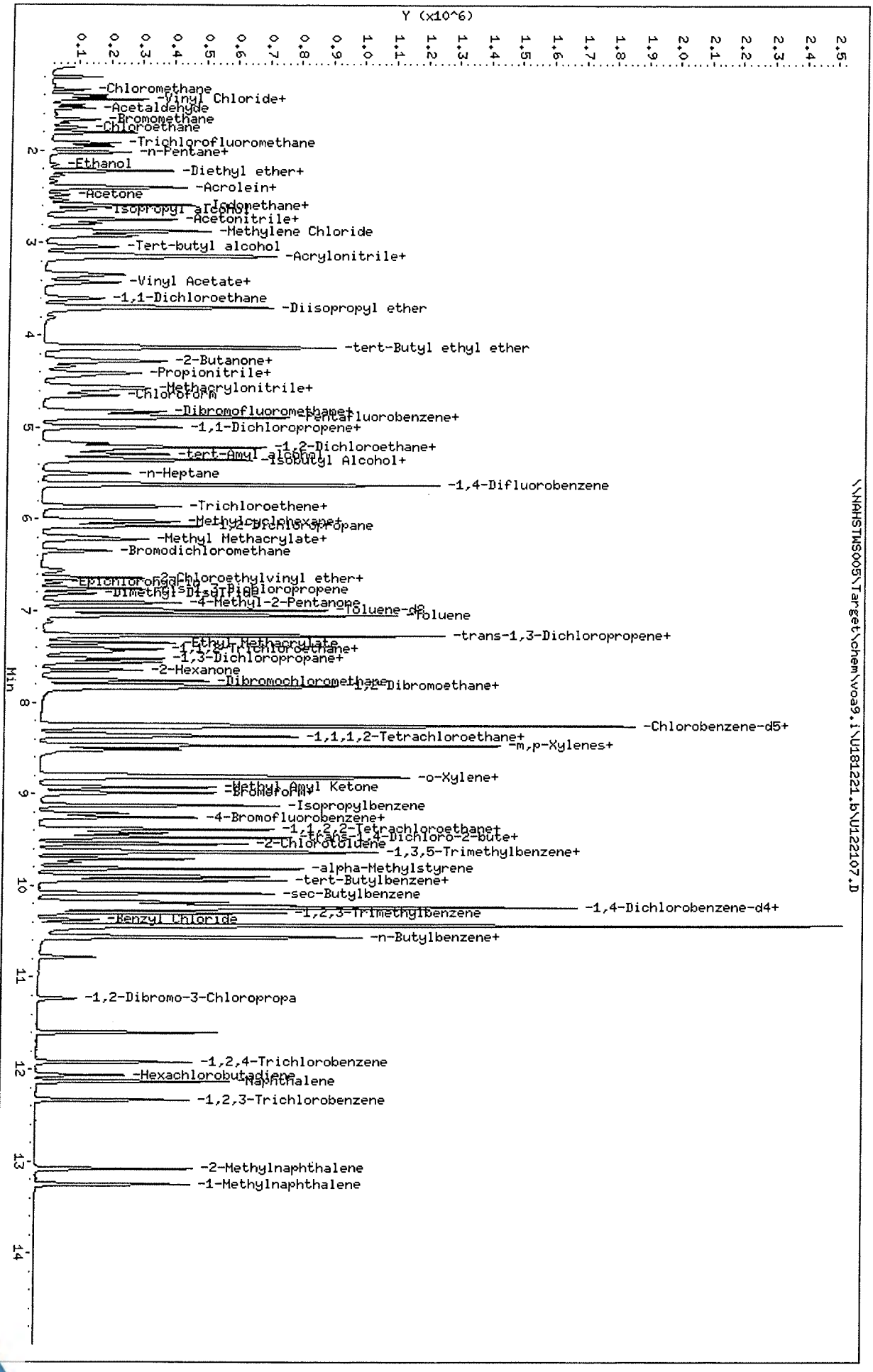
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.894	4.894	(1.000)	420221	50.0000	
* 36 1,4-Difluorobenzene	114	5.625	5.625	(1.000)	802033	50.0000	
* 47 Chlorobenzene-d5	117	8.249	8.249	(1.000)	739775	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	359235	50.0000	
$ 30 Dibromofluoromethane	113	4.830	4.830	(0.987)	98984	20.0000	20.47
$ 35 1,2-Dichloroethane-d4	65	5.175	5.175	(1.057)	131494	20.0000	20.89
$ 48 Toluene-d8	98	6.989	6.989	(0.847)	408521	20.0000	20.36
$ 69 4-Bromofluorobenzene	95	9.257	9.257	(1.122)	153183	20.0000	20.23
60 1,1,1,2-Tetrachloroethane	131	8.350	8.350	(1.012)	89389	20.0000	19.40
31 1,1,1-Trichloroethane	97	4.826	4.826	(0.986)	135496	20.0000	20.42
68 1,1,2,2-Tetrachloroethane	83	9.392	9.392	(0.918)	163701	20.0000	20.23
138 Freon TF	101	2.401	2.401	(0.491)	68573	20.0000	19.19
53 1,1,2-Trichloroethane	83	7.421	7.421	(0.900)	89267	20.0000	20.25
22 1,1-Dichloroethane	63	3.604	3.604	(0.737)	184998	20.0000	20.44
11 1,1-Dichloroethene	96	2.397	2.397	(0.490)	75169	20.0000	18.81
32 1,1-Dichloropropene	75	5.003	5.003	(0.889)	140960	20.0000	19.75
93 1,2,3-Trichlorobenzene	180	12.335	12.335	(1.205)	126752	20.0000	19.12
71 1,2,3-Trichloropropane	75	9.426	9.426	(0.921)	166045	20.0000	19.73
90 1,2,4-Trichlorobenzene	180	11.923	11.923	(1.165)	129526	20.0000	19.47
79 1,2,4-Trimethylbenzene	105	9.943	9.943	(0.971)	388189	20.0000	20.64
89 1,2-Dibromo-3-Chloropropane	155	11.233	11.233	(1.097)	22196	20.0000	18.72
57 1,2-Dibromoethane	107	7.852	7.852	(0.952)	105981	20.0000	20.87

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122107.D Page 2
Report Date: 28-Jan-2019 11:25

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	10.569	10.569	(1.033)	207507	20.0000	19.45
33	1,2-Dichloroethane	62	5.250	5.250	(0.933)	149131	20.0000	20.20
42	1,2-Dichloropropane	63	6.079	6.079	(1.081)	113309	20.0000	19.99
75	1,3,5-Trimethylbenzene	105	9.625	9.625	(0.940)	375852	20.0000	20.81
83	1,3-Dichlorobenzene	146	10.180	10.180	(0.995)	209196	20.0000	19.61
54	1,3-Dichloropropane	76	7.563	7.563	(0.917)	193920	20.0000	20.42
84	1,4-Dichlorobenzene	146	10.255	10.255	(1.002)	216649	20.0000	19.26
26	2,2-Dichloropropane	77	4.275	4.275	(0.874)	106667	20.0000	19.55
24	2-Butanone	43	4.339	4.339	(0.887)	119433	40.0000	42.08
76	2-Chlorotoluene	91	9.546	9.546	(0.933)	335289	20.0000	20.25
52	2-Hexanone	43	7.649	7.649	(0.927)	177404	40.0000	43.12
77	4-Chlorotoluene	91	9.640	9.640	(0.942)	387760	20.0000	20.27
82	p-Isopropyltoluene	119	10.210	10.210	(0.997)	388512	20.0000	20.43
45	4-Methyl-2-Pentanone	43	6.914	6.914	(0.838)	250121	40.0000	42.25
10	Acetone	43	2.480	2.480	(0.507)	73380	40.0000	43.05
37	Benzene	78	5.216	5.216	(0.927)	428833	20.0000	20.09
74	Bromobenzene	156	9.381	9.381	(0.917)	109892	20.0000	19.79
29	Bromochloromethane	128	4.553	4.553	(0.930)	51515	20.0000	21.73
39	Bromodichloromethane	83	6.348	6.348	(1.129)	121760	20.0000	20.20
66	Bromoform	173	8.984	8.984	(1.089)	53922	20.0000	18.14(T)
6	Bromomethane	94	1.666	1.666	(0.341)	47148	20.0000	19.02
19	Carbon Disulfide	76	2.588	2.588	(0.529)	576362	40.0000	39.58
34	Carbon Tetrachloride	117	4.995	4.995	(0.888)	104210	20.0000	18.76
59	Chlorobenzene	112	8.275	8.275	(1.003)	284621	20.0000	20.02
7	Chloroethane	64	1.749	1.749	(0.357)	73150	20.0000	20.10(M)
28	Chloroform	83	4.654	4.654	(0.951)	178122	20.0000	20.43
3	Chloromethane	50	1.336	1.336	(0.273)	79075	20.0000	19.85
27	cis-1,2-Dichloroethene	96	4.287	4.287	(0.876)	114056	20.0000	20.64
46	cis-1,3-Dichloropropene	75	6.757	6.757	(1.201)	162454	20.0000	18.55
55	Dibromochloromethane	129	7.758	7.758	(0.940)	89836	20.0000	19.09
44	Dibromomethane	93	6.187	6.187	(1.100)	66878	20.0000	20.44
2	Dichlorodifluoromethane	85	1.201	1.201	(0.246)	98486	20.0000	19.34
61	Ethylbenzene	106	8.369	8.369	(1.015)	147187	20.0000	20.18
91	Hexachlorobutadiene	225	12.065	12.065	(1.179)	44482	20.0000	17.45
67	Isopropylbenzene	105	9.126	9.126	(1.106)	439477	20.0000	20.89
62	m,p-Xylenes	106	8.474	8.474	(1.027)	372108	40.0000	41.51
17	Methylene Chloride	84	2.870	2.870	(0.586)	109403	20.0000	20.36
87	n-Butylbenzene	91	10.554	10.554	(1.031)	362066	20.0000	19.73
73	n-Propylbenzene	91	9.475	9.475	(0.926)	551133	20.0000	20.53
92	Naphthalene	128	12.133	12.133	(1.185)	413229	20.0000	19.20
63	o-Xylene	106	8.811	8.811	(1.068)	188442	20.0000	20.84
81	sec-Butylbenzene	105	10.086	10.086	(0.985)	459645	20.0000	20.37
64	Styrene	104	8.823	8.823	(1.070)	323232	20.0000	21.51
78	tert-Butylbenzene	119	9.902	9.902	(0.967)	318726	20.0000	20.42
56	Tetrachloroethene	164	7.522	7.522	(0.912)	75128	20.0000	19.39
50	Toluene	91	7.046	7.046	(0.854)	451178	20.0000	20.50
20	trans-1,2-Dichloroethene	96	3.140	3.140	(0.642)	100515	20.0000	20.43
51	trans-1,3-Dichloropropene	75	7.259	7.259	(1.291)	135347	20.0000	18.26
38	Trichloroethene	130	5.861	5.861	(1.042)	101824	20.0000	19.76
8	Trichlorofluoromethane	101	1.951	1.951	(0.399)	130957	20.0000	19.29
5	Vinyl Chloride	62	1.419	1.419	(0.290)	111713	20.0000	19.39

QC Flag Legend

T - Target compound detected outside RT window.
M - Compound response manually integrated.



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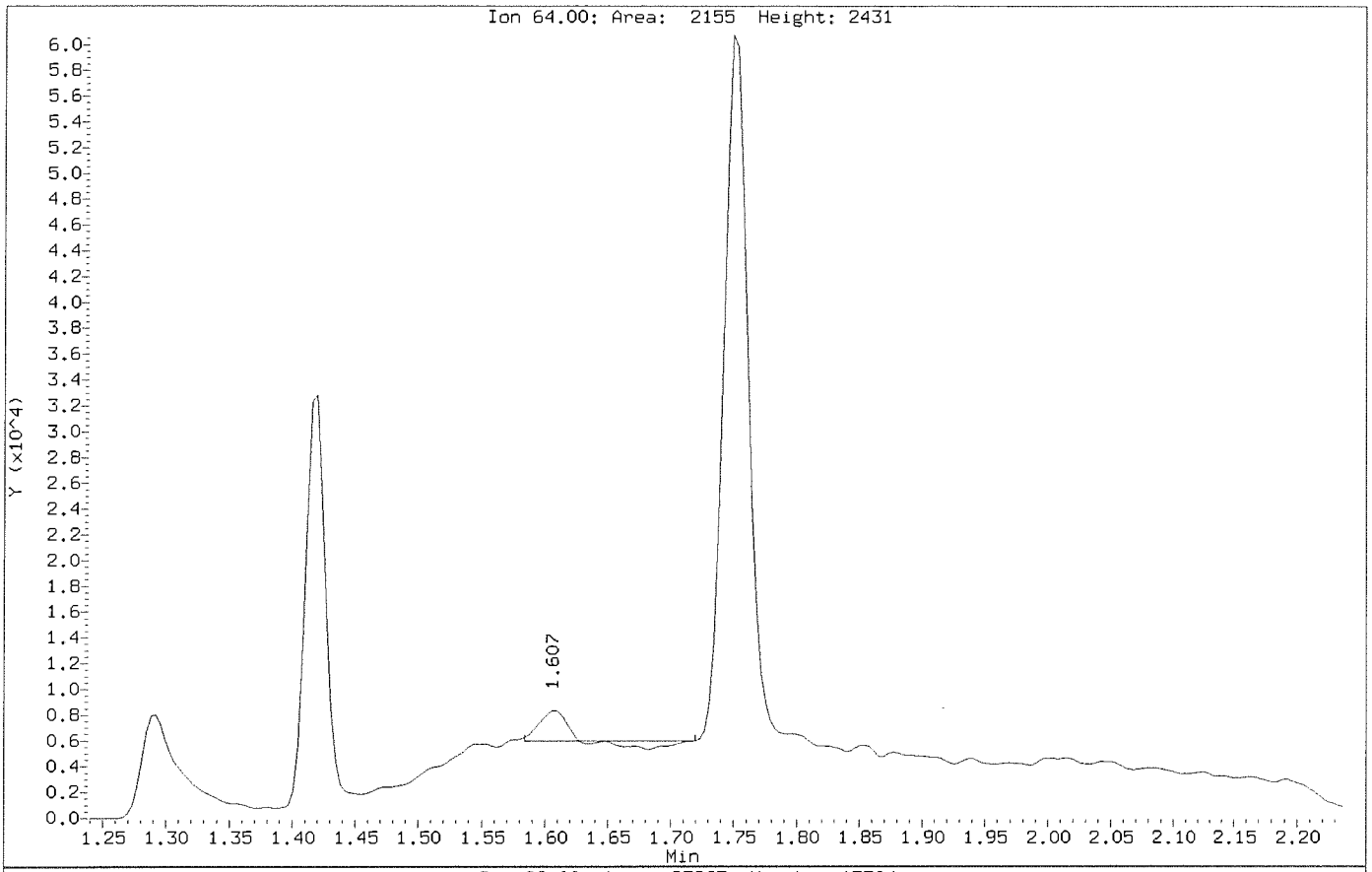
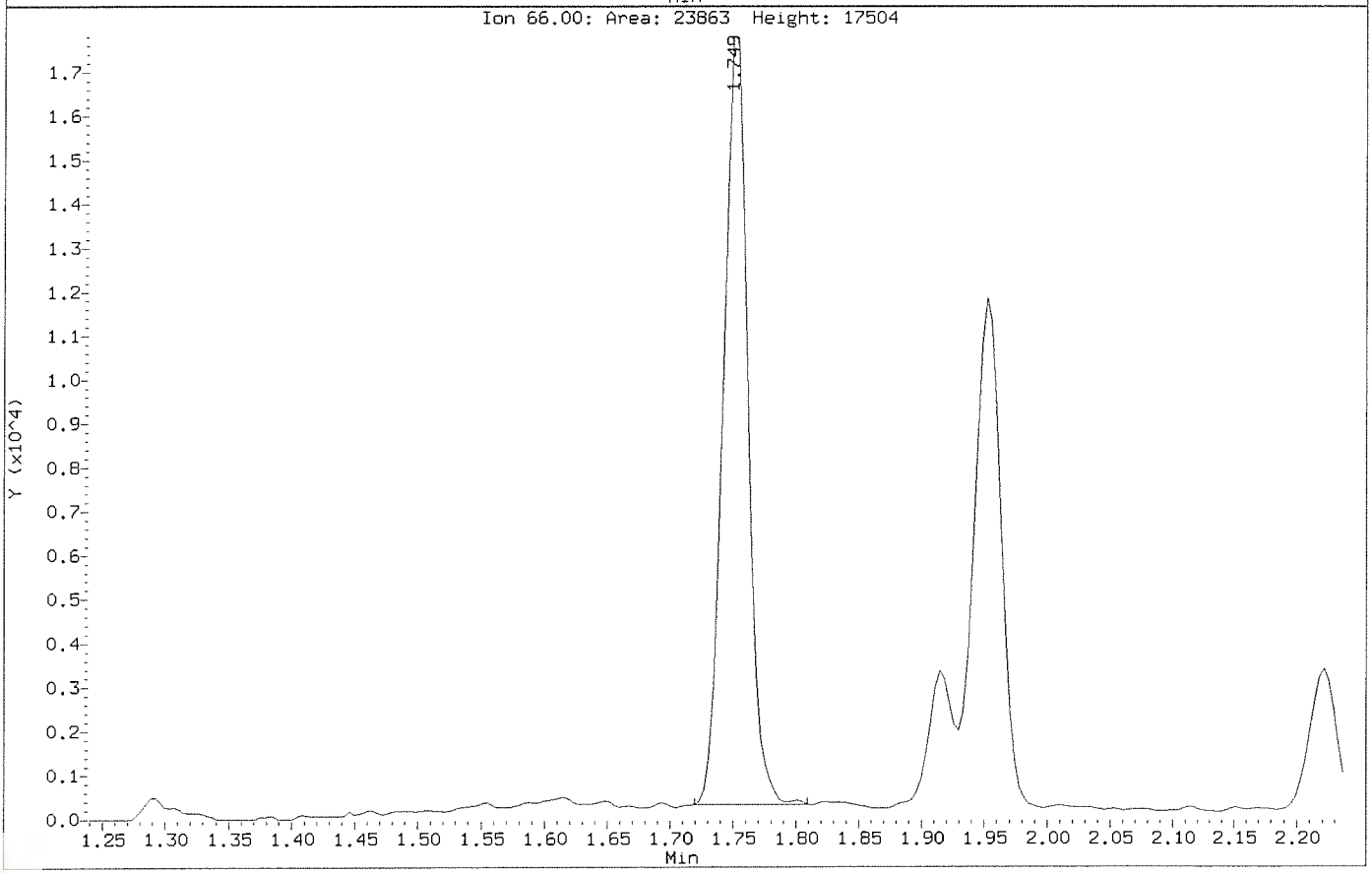
Date : 21-DEC-2018 16:17
Client ID: VSTD020
Sample Info: VSTD020;VSTD020;1;6;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122107.D
Injection Date: 21-DEC-2018 16:17
Instrument: VOA9.i
Client Sample ID: VSTD020

Compound: Chloroethane
CAS Number: 75-00-3





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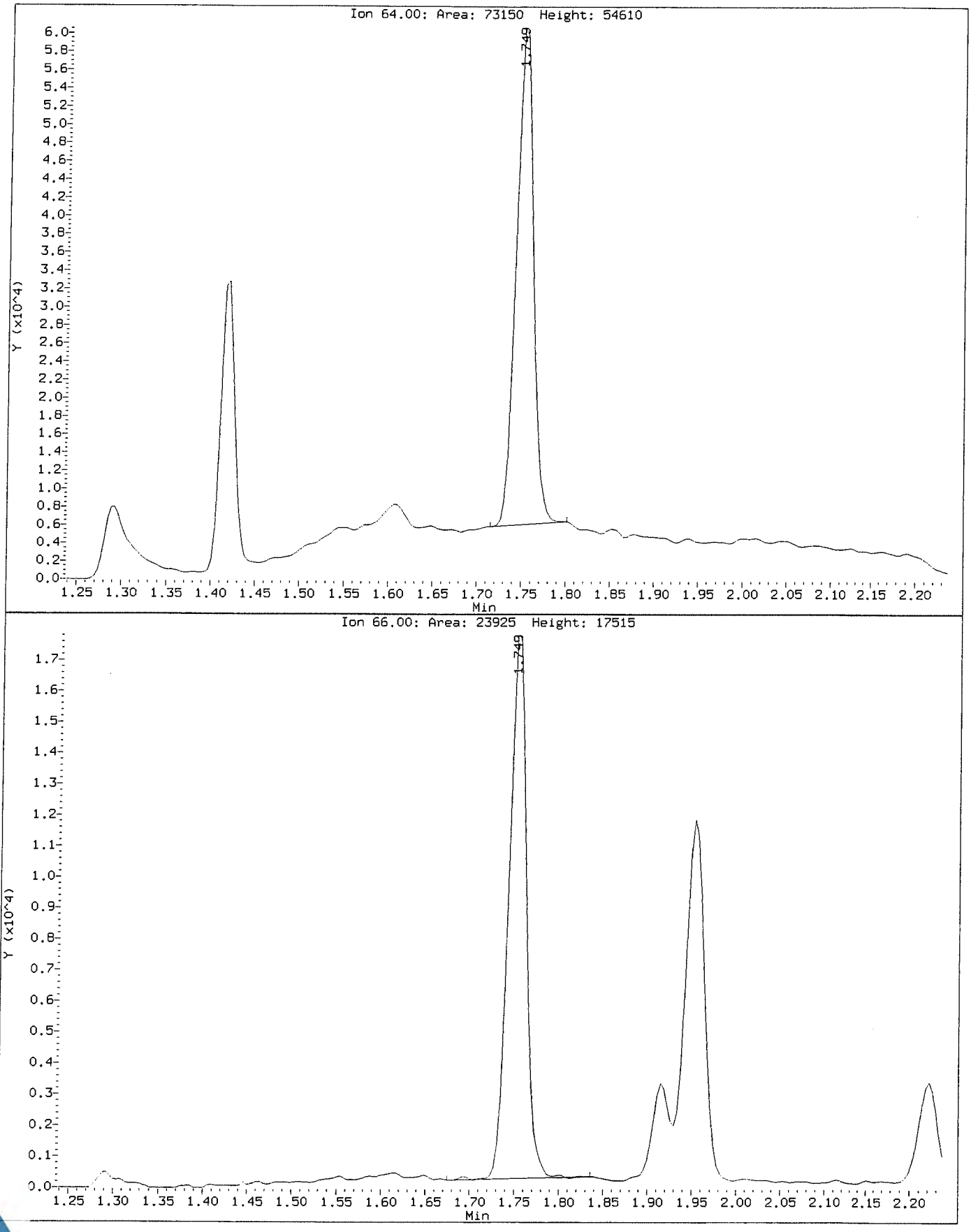
Injection Date: 21-DEC-2018 16:17
Instrument: VOA9.i
Client Sample ID: VSTD020

Compound: Chloroethane
CAS Number: 75-00-3



ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122108.D
Lab Smp Id: VSTD050 Client Smp ID: VSTD050
Inj Date : 21-DEC-2018 16:41
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD050;VSTD050;1;7;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:17 Cal File: U122107.D
Als bottle: 9 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

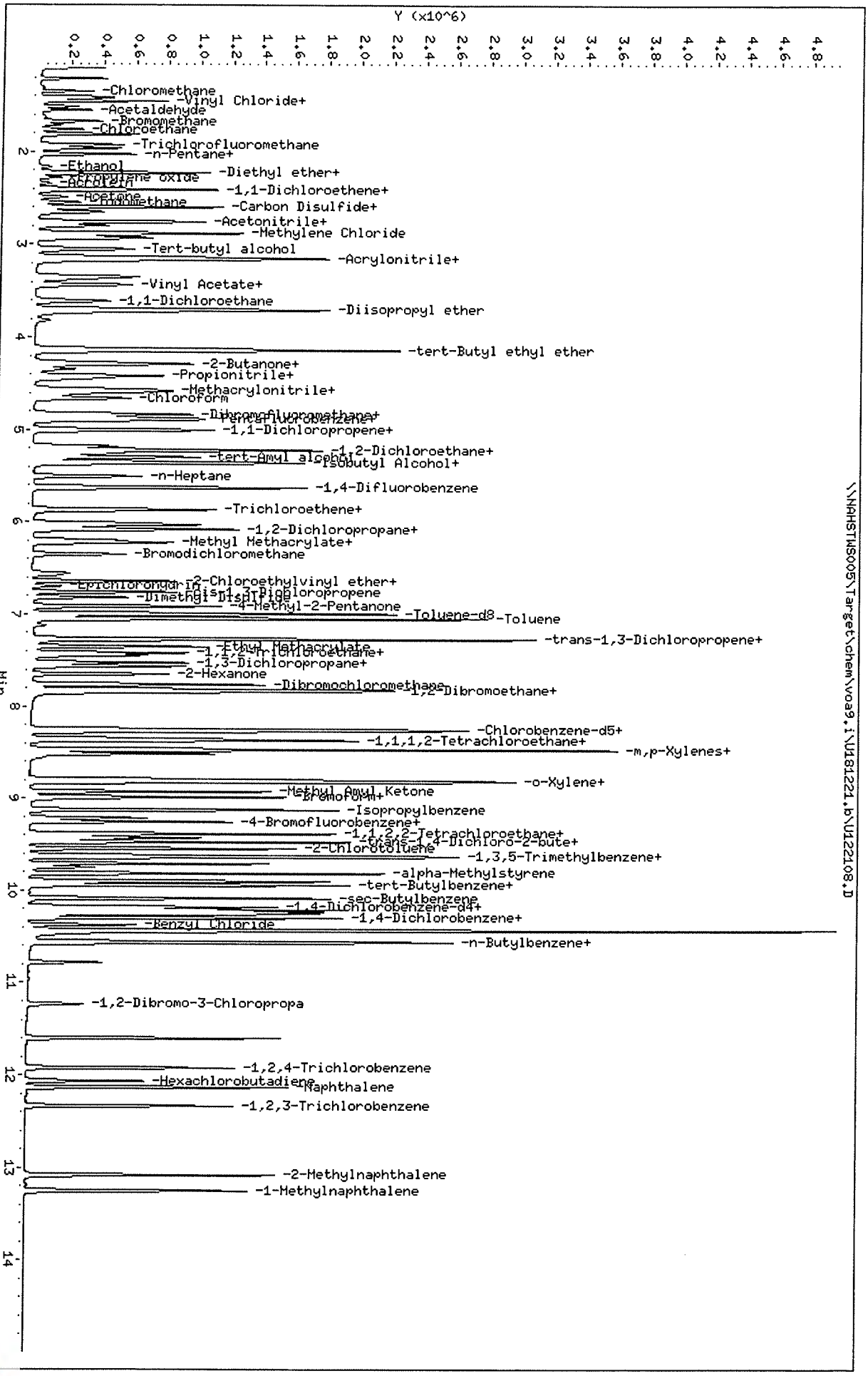
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.898	4.898	(1.000)	441118	50.0000	
* 36 1,4-Difluorobenzene	114	5.629	5.629	(1.000)	822734	50.0000	
* 47 Chlorobenzene-d5	117	8.249	8.249	(1.000)	764792	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	367345	50.0000	
$ 30 Dibromofluoromethane	113	4.834	4.834	(0.987)	245007	50.0000	50.34
$ 35 1,2-Dichloroethane-d4	65	5.179	5.179	(1.057)	320796	50.0000	51.44
$ 48 Toluene-d8	98	6.989	6.989	(0.847)	1010127	50.0000	51.19
$ 69 4-Bromofluorobenzene	95	9.257	9.257	(1.122)	382581	50.0000	50.91
60 1,1,1,2-Tetrachloroethane	131	8.350	8.350	(1.012)	235446	50.0000	48.53
31 1,1,1-Trichloroethane	97	4.830	4.830	(0.986)	347757	50.0000	49.92
68 1,1,2,2-Tetrachloroethane	83	9.392	9.392	(0.918)	414173	50.0000	50.06
138 Freon TF	101	2.412	2.412	(0.493)	175022	50.0000	46.67
53 1,1,2-Trichloroethane	83	7.421	7.421	(0.900)	226615	50.0000	49.73
22 1,1-Dichloroethane	63	3.612	3.612	(0.737)	466899	50.0000	49.14
11 1,1-Dichloroethene	96	2.409	2.409	(0.492)	194403	50.0000	46.35
32 1,1-Dichloropropene	75	5.010	5.010	(0.890)	351519	50.0000	48.01
93 1,2,3-Trichlorobenzene	180	12.335	12.335	(1.205)	334600	50.0000	48.35
71 1,2,3-Trichloropropane	75	9.426	9.426	(0.921)	444407	50.0000	51.66
90 1,2,4-Trichlorobenzene	180	11.923	11.923	(1.165)	340316	50.0000	50.03
79 1,2,4-Trimethylbenzene	105	9.943	9.943	(0.971)	977610	50.0000	50.85
89 1,2-Dibromo-3-Chloropropane	155	11.233	11.233	(1.097)	61793	50.0000	48.48
57 1,2-Dibromoethane	107	7.852	7.852	(0.952)	266705	50.0000	50.81

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122108.D Page 2
Report Date: 28-Jan-2019 11:25

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88 1,2-Dichlorobenzene	146	10.569	10.569	(1.033)	529898	50.0000	48.58
33 1,2-Dichloroethane	62	5.258	5.258	(0.934)	376591	50.0000	50.81
42 1,2-Dichloropropane	63	6.082	6.082	(1.081)	287570	50.0000	49.46
75 1,3,5-Trimethylbenzene	105	9.625	9.625	(0.940)	947470	50.0000	51.32
83 1,3-Dichlorobenzene	146	10.180	10.180	(0.995)	529098	50.0000	48.50
54 1,3-Dichloropropane	76	7.563	7.563	(0.917)	491255	50.0000	50.05
84 1,4-Dichlorobenzene	146	10.255	10.255	(1.002)	544274	50.0000	47.32
26 2,2-Dichloropropane	77	4.279	4.279	(0.874)	280126	50.0000	48.93
24 2-Butanone	43	4.343	4.343	(0.887)	304044	100.000	105.52
76 2-Chlorotoluene	91	9.546	9.546	(0.933)	843166	50.0000	49.81
52 2-Hexanone	43	7.653	7.653	(0.928)	461299	100.000	108.47
77 4-Chlorotoluene	91	9.640	9.640	(0.942)	978873	50.0000	50.04
82 p-Isopropyltoluene	119	10.210	10.210	(0.997)	1003937	50.0000	51.64
45 4-Methyl-2-Pentanone	43	6.914	6.914	(0.838)	653234	100.000	106.75
10 Acetone	43	2.487	2.487	(0.508)	187964	100.000	109.42
37 Benzene	78	5.220	5.220	(0.927)	1084861	50.0000	49.55
74 Bromobenzene	156	9.381	9.381	(0.917)	280874	50.0000	49.48
29 Bromochloromethane	128	4.560	4.560	(0.931)	129496	50.0000	56.37
39 Bromodichloromethane	83	6.348	6.348	(1.128)	319701	50.0000	51.71
66 Bromoform	173	8.984	8.984	(1.089)	154855	50.0000	47.27(T)
6 Bromomethane	94	1.674	1.674	(0.342)	117780	50.0000	43.41
19 Carbon Disulfide	76	2.600	2.600	(0.531)	1460668	100.000	95.57
34 Carbon Tetrachloride	117	4.999	4.999	(0.888)	274507	50.0000	45.99
59 Chlorobenzene	112	8.275	8.275	(1.003)	718560	50.0000	48.89
7 Chloroethane	64	1.760	1.760	(0.359)	179707	50.0000	46.03(M)
28 Chloroform	83	4.661	4.661	(0.952)	453061	50.0000	49.52
3 Chloromethane	50	1.348	1.348	(0.275)	197328	50.0000	42.63
27 cis-1,2-Dichloroethene	96	4.290	4.290	(0.876)	286659	50.0000	49.43
46 cis-1,3-Dichloropropene	75	6.761	6.761	(1.201)	449225	50.0000	47.87
55 Dibromochloromethane	129	7.758	7.758	(0.940)	242061	50.0000	48.20
44 Dibromomethane	93	6.191	6.191	(1.100)	170556	50.0000	50.83
2 Dichlorodifluoromethane	85	1.213	1.213	(0.248)	248322	50.0000	45.79
61 Ethylbenzene	106	8.373	8.373	(1.015)	374921	50.0000	49.74
91 Hexachlorobutadiene	225	12.065	12.065	(1.179)	119140	50.0000	45.72
67 Isopropylbenzene	105	9.126	9.126	(1.106)	1109213	50.0000	51.00
62 m,p-Xylenes	106	8.474	8.474	(1.027)	936911	100.000	101.11
17 Methylene Chloride	84	2.877	2.877	(0.587)	274258	50.0000	50.31
87 n-Butylbenzene	91	10.558	10.558	(1.031)	931396	50.0000	49.64
73 n-Propylbenzene	91	9.475	9.475	(0.926)	1393780	50.0000	50.77
92 Naphthalene	128	12.133	12.133	(1.185)	1107938	50.0000	49.53
63 o-Xylene	106	8.811	8.811	(1.068)	475748	50.0000	50.89
81 sec-Butylbenzene	105	10.086	10.086	(0.985)	1169025	50.0000	50.67
64 Styrene	104	8.826	8.826	(1.070)	828798	50.0000	53.36
78 tert-Butylbenzene	119	9.902	9.902	(0.967)	807157	50.0000	50.58
56 Tetrachloroethene	164	7.525	7.525	(0.912)	186057	50.0000	46.46
50 Toluene	91	7.049	7.049	(0.855)	1138194	50.0000	50.03
20 trans-1,2-Dichloroethene	96	3.147	3.147	(0.643)	248845	50.0000	48.19
51 trans-1,3-Dichloropropene	75	7.263	7.263	(1.290)	381258	50.0000	47.27
38 Trichloroethene	130	5.865	5.865	(1.042)	255628	50.0000	48.36
8 Trichlorofluoromethane	101	1.962	1.962	(0.401)	330010	50.0000	45.44
5 Vinyl Chloride	62	1.426	1.426	(0.291)	283791	50.0000	45.57

QC Flag Legend

T - Target compound detected outside RT window.
M - Compound response manually integrated.



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Date : 21-DEC-2018 16:41
Client ID: VSTD050
Sample Info: VSTD050;VSTD050;1;7;
Purge Volume: 5.0
Column phase: DB624

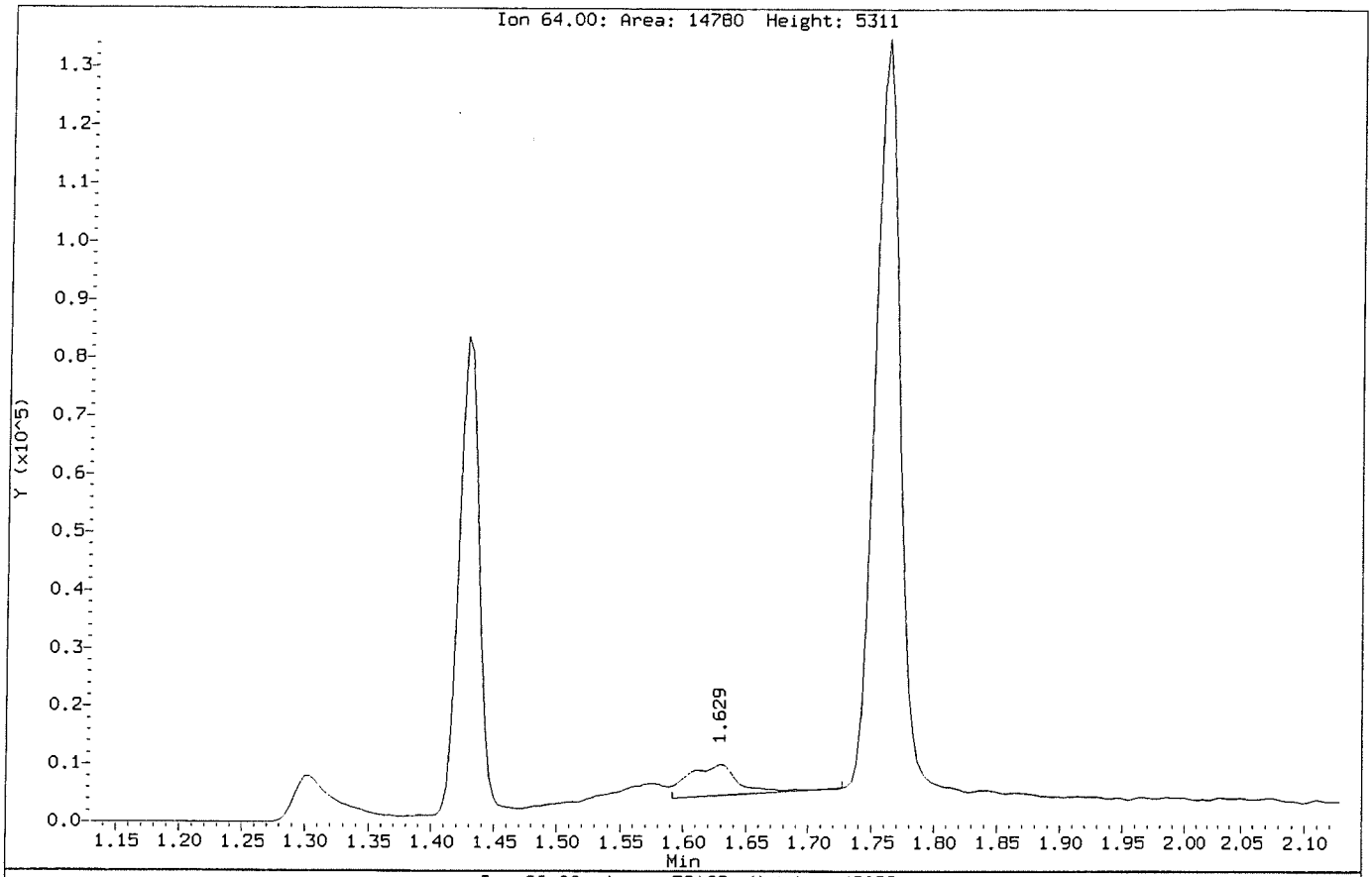
\\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122108.D

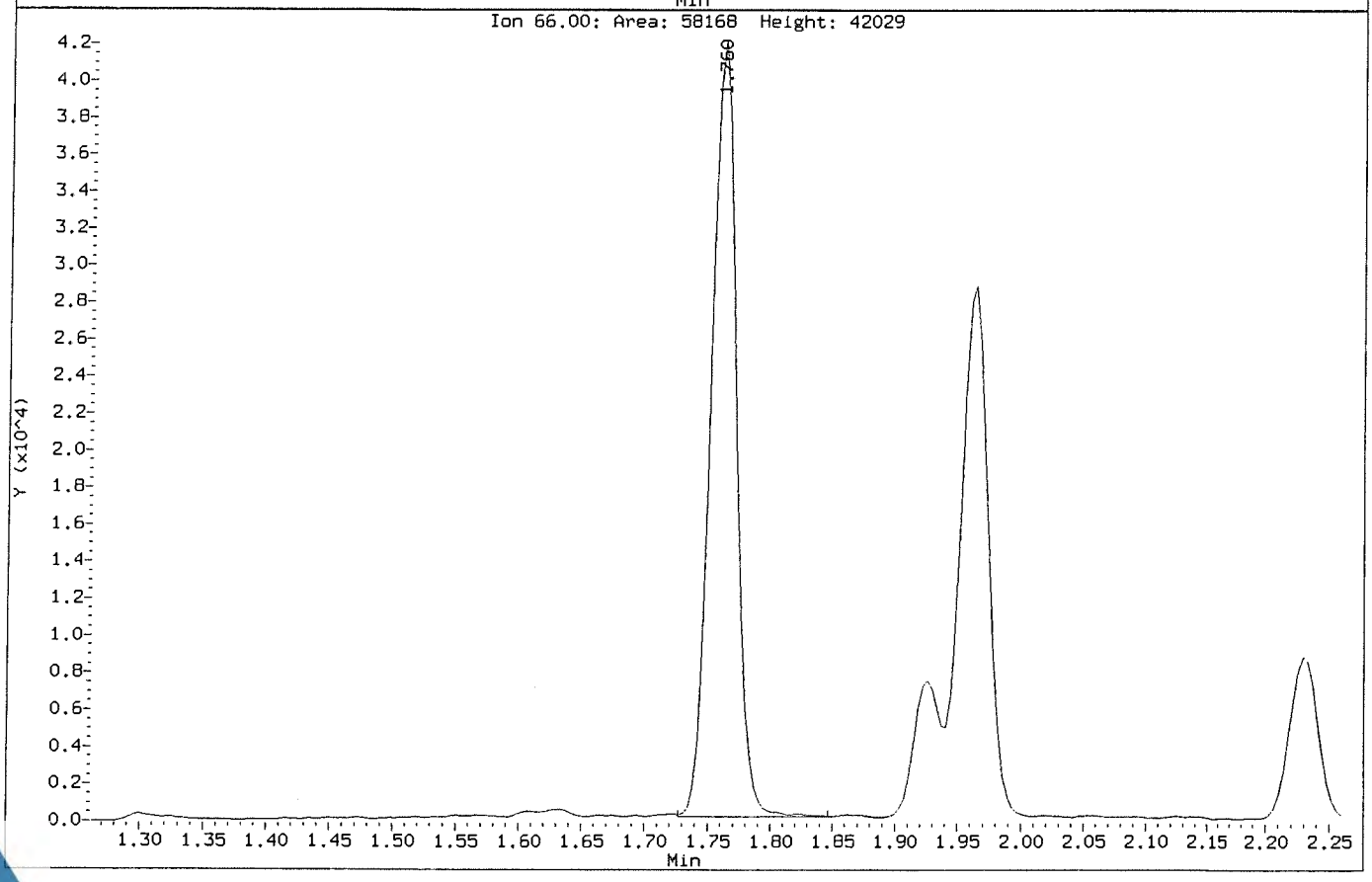
Instrument: VOa9.i

Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122108.D
Injection Date: 21-DEC-2018 16:41
Instrument: VOA9.i
Client Sample ID: VSTD050

Compound: Chloroethane
CAS Number: 75-00-3





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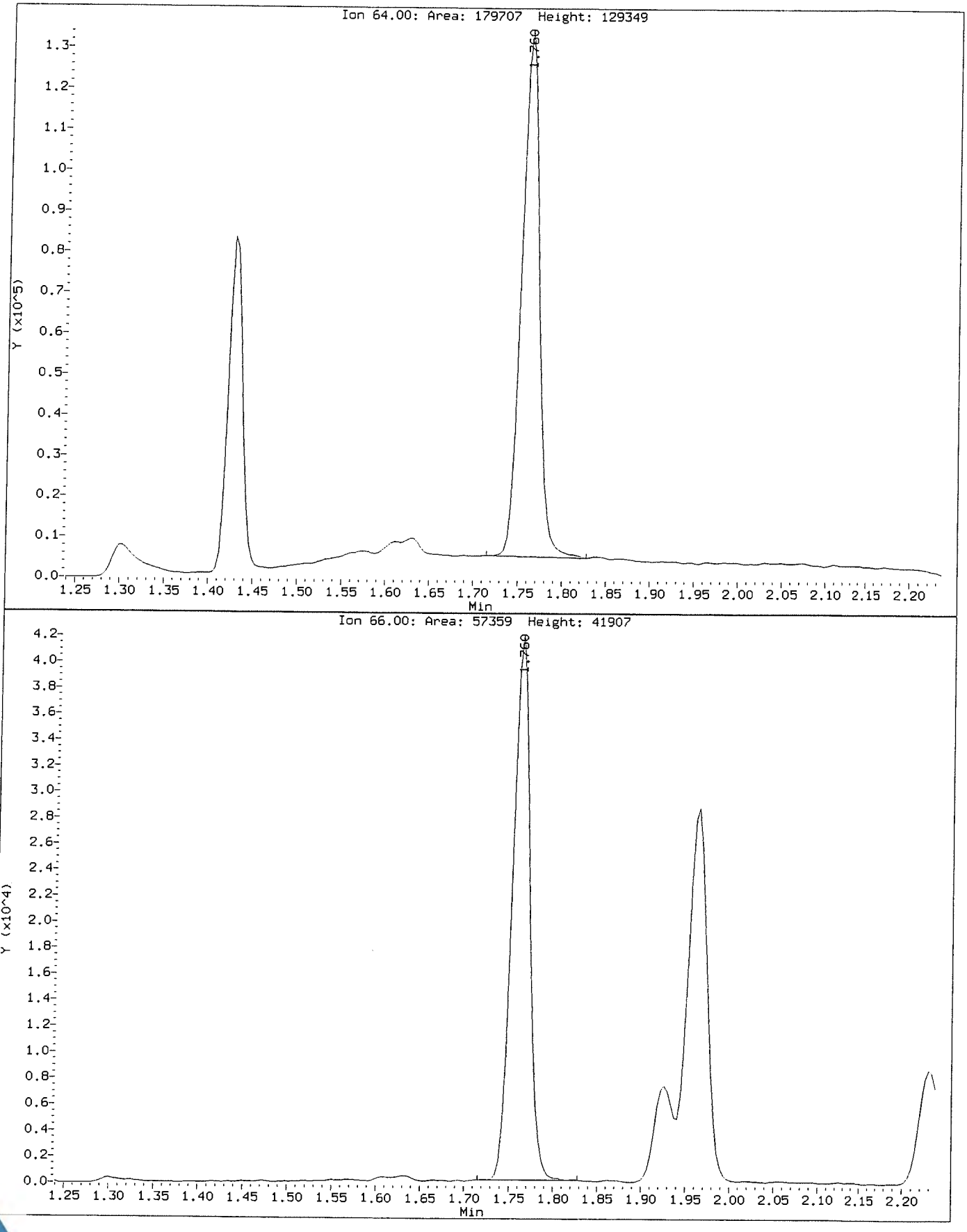
Injection Date: 21-DEC-2018 16:41
Instrument: VOA9.i
Client Sample ID: VSTD050

Compound: Chloroethane
CAS Number: 75-00-3



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122109.D Page 1
Report Date: 28-Jan-2019 11:25

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122109.D
Lab Smp Id: VSTD100 Client Smp ID: VSTD100
Inj Date : 21-DEC-2018 17:06
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD100;VSTD100;1;8;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 10 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

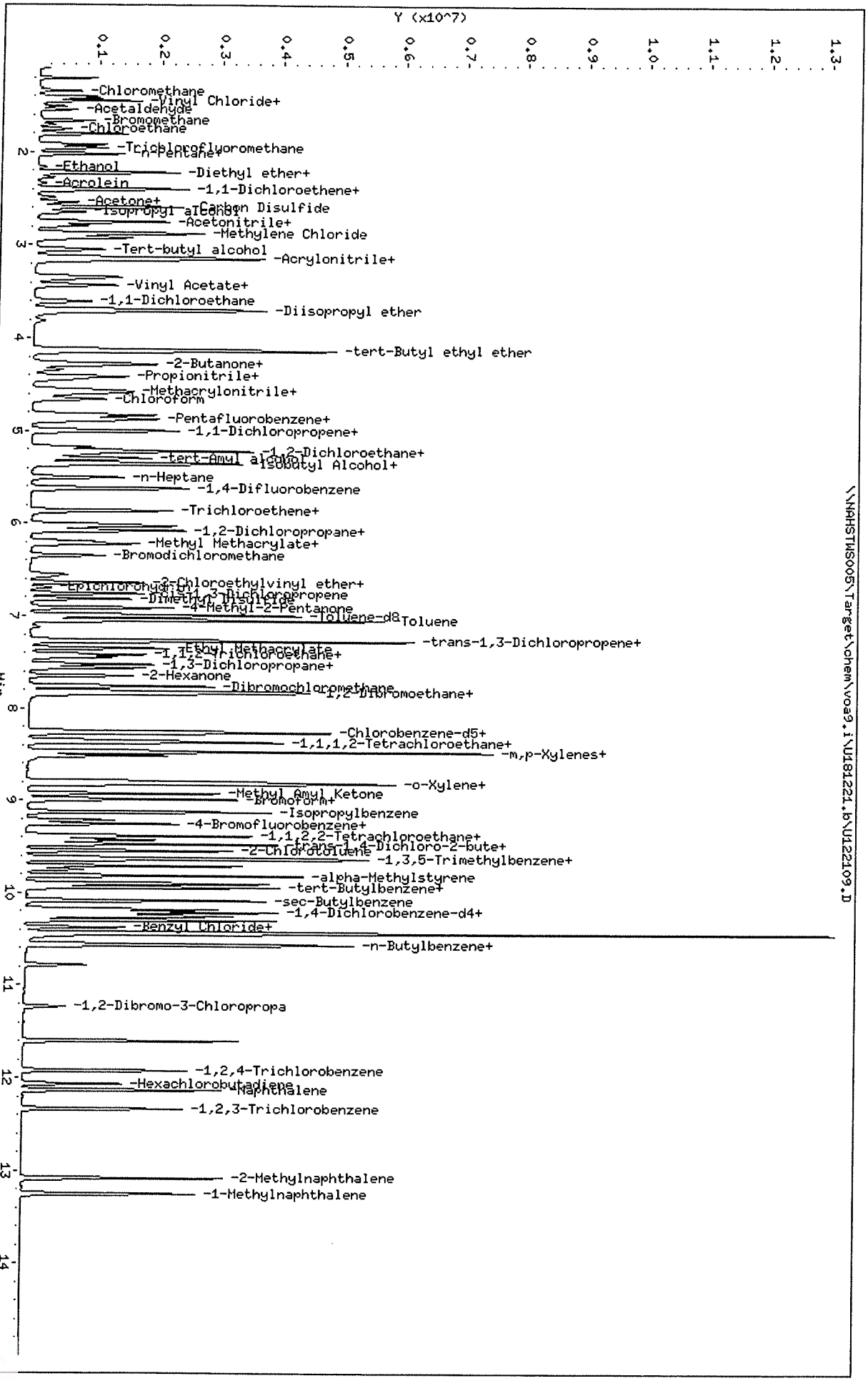
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.897	4.897	(1.000)	443466	50.0000	
* 36 1,4-Difluorobenzene	114	5.625	5.625	(1.000)	822102	50.0000	
* 47 Chlorobenzene-d5	117	8.252	8.252	(1.000)	772888	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.235	10.235	(1.000)	368944	50.0000	
$ 30 Dibromofluoromethane	113	4.830	4.830	(0.986)	495628	100.000	102.84
$ 35 1,2-Dichloroethane-d4	65	5.175	5.175	(1.057)	635081	100.000	103.40
$ 48 Toluene-d8	98	6.989	6.989	(0.847)	2029223	100.000	103.52
$ 69 4-Bromofluorobenzene	95	9.257	9.257	(1.122)	764798	100.000	102.11
60 1,1,1,2-Tetrachloroethane	131	8.350	8.350	(1.012)	493177	100.000	99.96
31 1,1,1-Trichloroethane	97	4.830	4.830	(0.986)	750490	100.000	107.17
68 1,1,2,2-Tetrachloroethane	83	9.392	9.392	(0.918)	804056	100.000	96.77
138 Freon TF	101	2.404	2.404	(0.491)	394668	100.000	104.68
53 1,1,2-Trichloroethane	83	7.420	7.420	(0.899)	455612	100.000	98.94
22 1,1-Dichloroethane	63	3.604	3.604	(0.736)	956686	100.000	100.17
11 1,1-Dichloroethene	96	2.401	2.401	(0.490)	425292	100.000	100.86
32 1,1-Dichloropropene	75	5.006	5.006	(0.890)	748488	100.000	102.32
93 1,2,3-Trichlorobenzene	180	12.335	12.335	(1.205)	694931	100.000	99.32
71 1,2,3-Trichloropropane	75	9.430	9.430	(0.921)	901833	100.000	104.38
90 1,2,4-Trichlorobenzene	180	11.926	11.926	(1.165)	724973	100.000	106.13
79 1,2,4-Trimethylbenzene	105	9.943	9.943	(0.971)	2020622	100.000	104.65
89 1,2-Dibromo-3-Chloropropane	155	11.233	11.233	(1.097)	125814	100.000	96.80
57 1,2-Dibromoethane	107	7.851	7.851	(0.951)	533692	100.000	100.62

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122109.D Page 2
Report Date: 28-Jan-2019 11:25

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88 1,2-Dichlorobenzene	146	10.573	10.573	(1.033)	1079683	100.000	98.55
33 1,2-Dichloroethane	62	5.253	5.253	(0.934)	747337	100.000	101.64
42 1,2-Dichloropropane	63	6.082	6.082	(1.081)	587293	100.000	101.10
75 1,3,5-Trimethylbenzene	105	9.628	9.628	(0.941)	1981203	100.000	106.84
83 1,3-Dichlorobenzene	146	10.179	10.179	(0.995)	1088889	100.000	99.39
54 1,3-Dichloropropane	76	7.563	7.563	(0.916)	974518	100.000	98.25
84 1,4-Dichlorobenzene	146	10.258	10.258	(1.002)	1115296	100.000	96.55
26 2,2-Dichloropropane	77	4.275	4.275	(0.873)	606051	100.000	105.30
24 2-Butanone	43	4.339	4.339	(0.886)	587152	200.000	204.95(A)
76 2-Chlorotoluene	91	9.549	9.549	(0.933)	1714248	100.000	100.84
52 2-Hexanone	43	7.649	7.649	(0.927)	912444	200.000	212.30(A)
77 4-Chlorotoluene	91	9.639	9.639	(0.942)	1995109	100.000	101.56
82 p-Isopropyltoluene	119	10.209	10.209	(0.997)	2107729	100.000	107.96
45 4-Methyl-2-Pentanone	43	6.914	6.914	(0.838)	1301011	200.000	210.38(A)
10 Acetone	43	2.483	2.483	(0.507)	331678	200.000	194.35
37 Benzene	78	5.220	5.220	(0.928)	2195227	100.000	100.34
74 Bromobenzene	156	9.385	9.385	(0.917)	573954	100.000	100.68
29 Bromochloromethane	128	4.556	4.556	(0.930)	244429	100.000	108.58
39 Bromodichloromethane	83	6.348	6.348	(1.129)	667511	100.000	108.05
66 Bromoform	173	8.983	8.983	(1.089)	331336	100.000	98.11(T)
6 Bromomethane	94	1.666	1.666	(0.340)	281859	100.000	101.50
19 Carbon Disulfide	76	2.592	2.592	(0.529)	3090544	200.000	201.15(A)
34 Carbon Tetrachloride	117	4.999	4.999	(0.889)	601960	100.000	99.26
59 Chlorobenzene	112	8.275	8.275	(1.003)	1466929	100.000	98.78
7 Chloroethane	64	1.752	1.752	(0.358)	384958	100.000	95.90(M)
28 Chloroform	83	4.657	4.657	(0.951)	918394	100.000	99.85
3 Chloromethane	50	1.344	1.344	(0.274)	441603	100.000	90.82
27 cis-1,2-Dichloroethene	96	4.286	4.286	(0.875)	580958	100.000	99.66
46 cis-1,3-Dichloropropene	75	6.760	6.760	(1.202)	944095	100.000	99.29
55 Dibromochloromethane	129	7.758	7.758	(0.940)	512845	100.000	99.98
44 Dibromomethane	93	6.191	6.191	(1.101)	341140	100.000	101.75
2 Dichlorodifluoromethane	85	1.209	1.209	(0.247)	553841	100.000	100.99
61 Ethylbenzene	106	8.372	8.372	(1.015)	779796	100.000	102.38
91 Hexachlorobutadiene	225	12.065	12.065	(1.179)	259405	100.000	99.12
67 Isopropylbenzene	105	9.126	9.126	(1.106)	2327627	100.000	105.90
62 m,p-Xylenes	106	8.474	8.474	(1.027)	1935465	200.000	206.70(A)
17 Methylene Chloride	84	2.873	2.873	(0.587)	554902	100.000	102.47
87 n-Butylbenzene	91	10.558	10.558	(1.031)	1963594	100.000	104.21
73 n-Propylbenzene	91	9.478	9.478	(0.926)	2891517	100.000	104.88
92 Naphthalene	128	12.132	12.132	(1.185)	2231968	100.000	99.52
63 o-Xylene	106	8.811	8.811	(1.068)	975544	100.000	103.27
81 sec-Butylbenzene	105	10.086	10.086	(0.985)	2492415	100.000	107.57
64 Styrene	104	8.826	8.826	(1.069)	1680613	100.000	107.08
78 tert-Butylbenzene	119	9.902	9.902	(0.967)	1698031	100.000	105.95
56 Tetrachloroethene	164	7.525	7.525	(0.912)	397169	100.000	98.15
50 Toluene	91	7.049	7.049	(0.854)	2304015	100.000	100.21
20 trans-1,2-Dichloroethene	96	3.143	3.143	(0.642)	513822	100.000	98.98
51 trans-1,3-Dichloropropene	75	7.263	7.263	(1.291)	811224	100.000	98.79
38 Trichloroethene	130	5.861	5.861	(1.042)	528149	100.000	100.00
8 Trichlorofluoromethane	101	1.955	1.955	(0.399)	753769	100.000	102.46
5 Vinyl Chloride	62	1.422	1.422	(0.290)	629175	100.000	99.33

QC Flag Legend

T - Target compound detected outside RT window.
A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.



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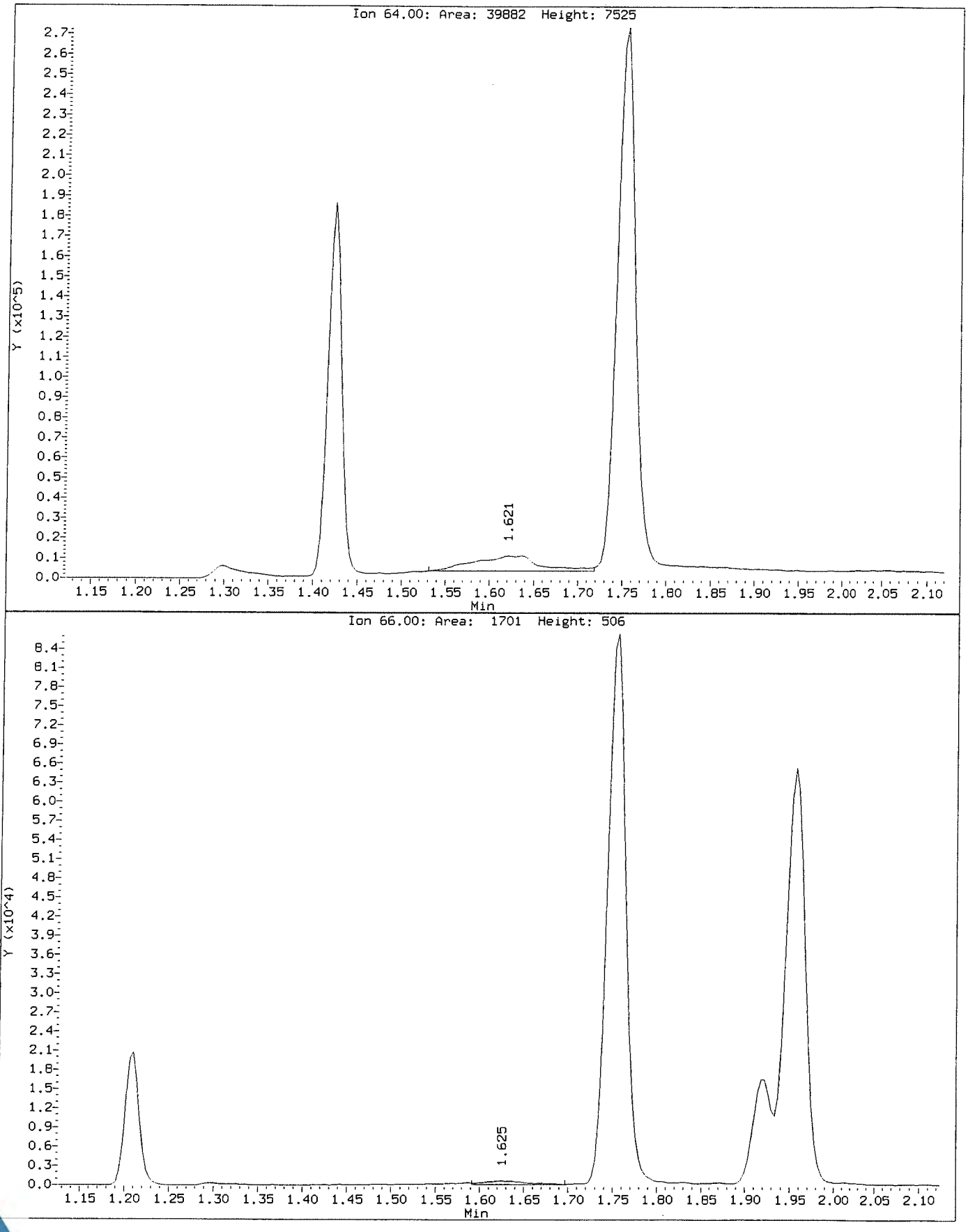
Client ID: VSTD100
Sample Info: VSTD100;VSTD100;1;8;
Purge Volume: 5.0
Column phase: DB624

\\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122109.D

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122109.D
Injection Date: 21-DEC-2018 17:06
Instrument: VOA9.i
Client Sample ID: VSTD100

Compound: Chloroethane
CAS Number: 75-00-3



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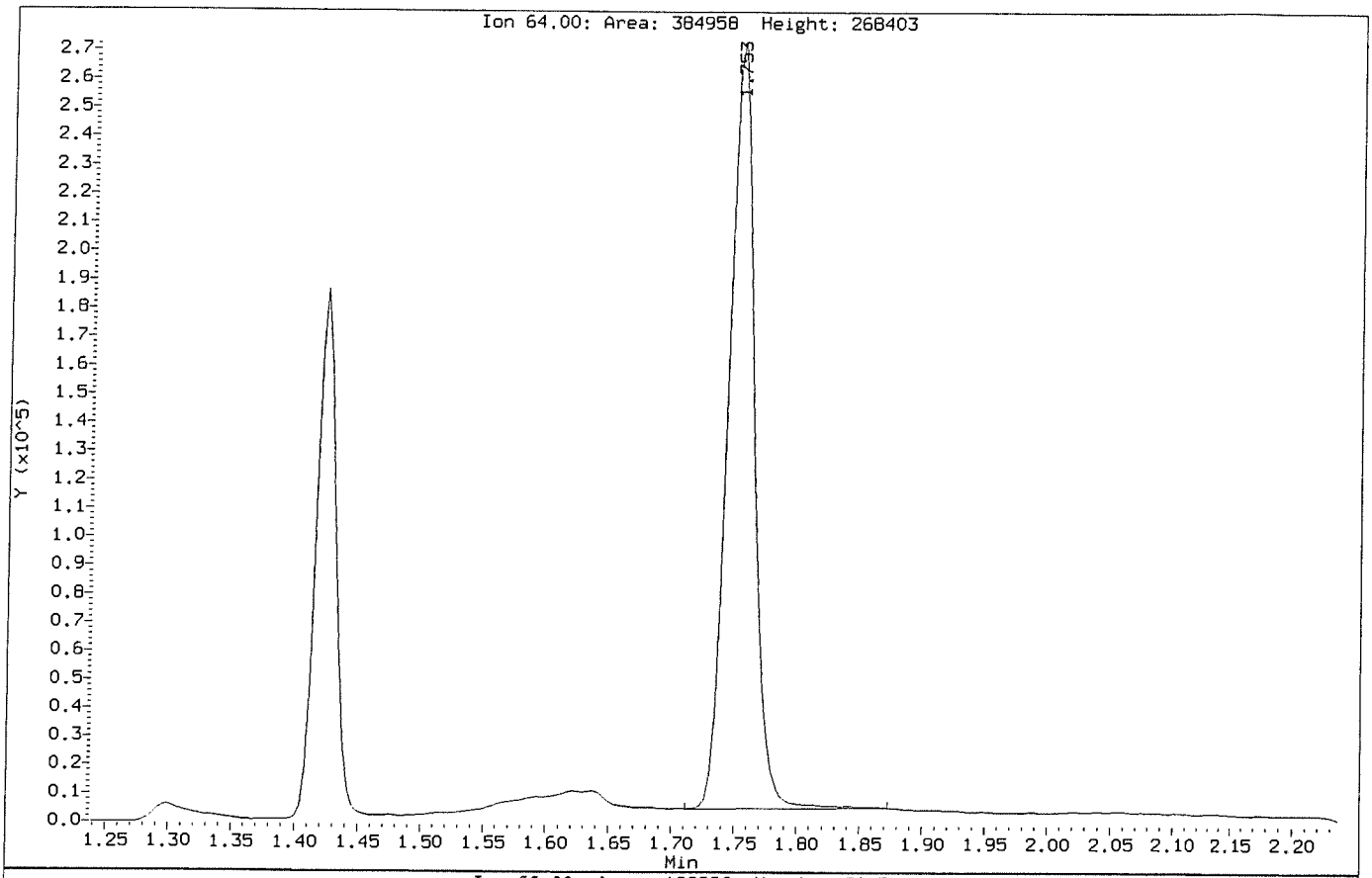
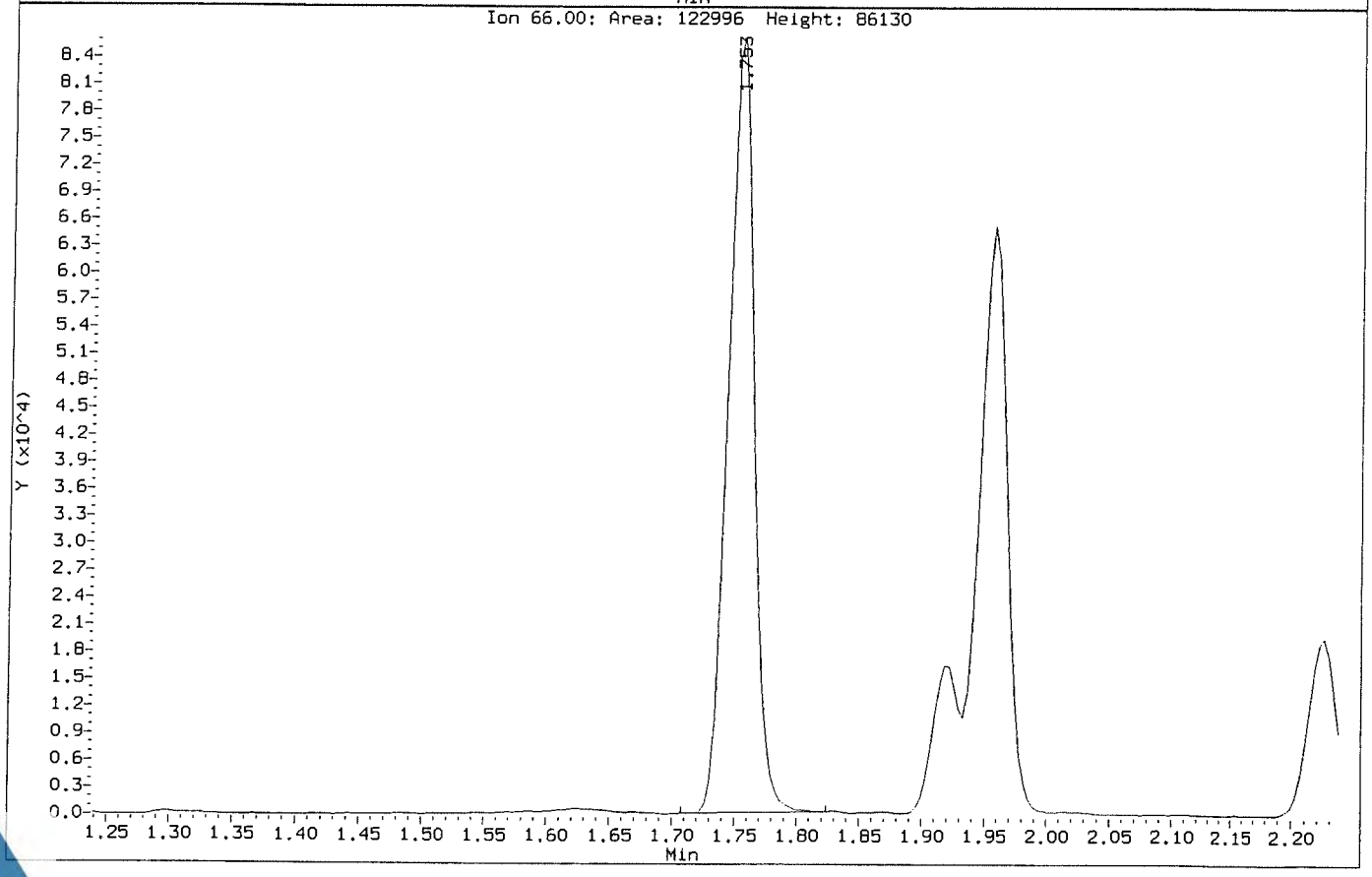
Instrument: VOA9.i
Client Sample ID: VSTD100

Compound: Chloroethane
CAS Number: 75-00-3





Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122110.D Page 1
Report Date: 28-Jan-2019 11:25

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122110.D
Lab Smp Id: VSTD150 Client Smp ID: VSTD150
Inj Date : 21-DEC-2018 17:31
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD150;VSTD150;1;9;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 17:06 Cal File: U122109.D
Als bottle: 11 Calibration Sample, Level: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

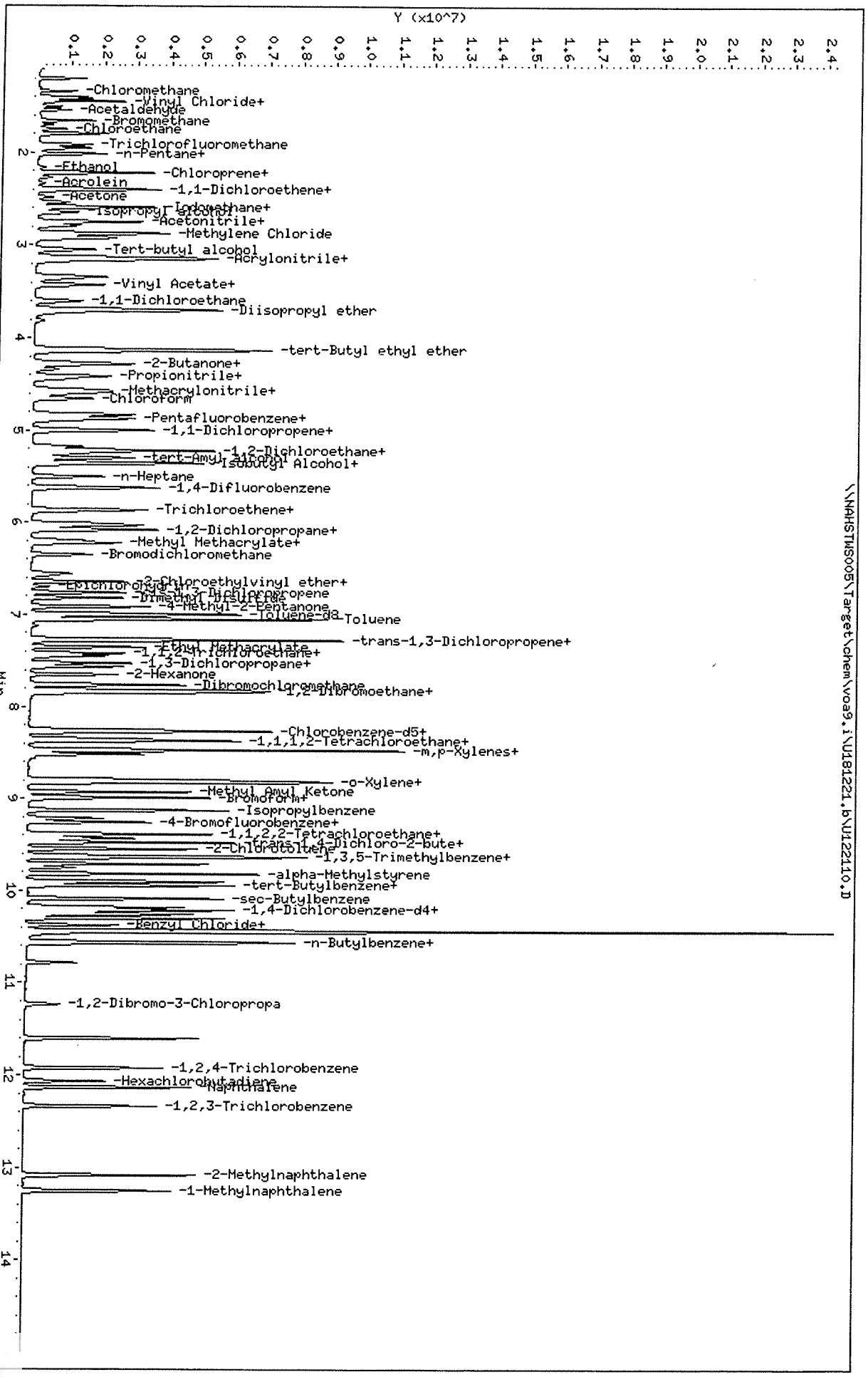
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.894	4.894	(1.000)	456327	50.0000	
* 36 1,4-Difluorobenzene	114	5.625	5.625	(1.000)	837974	50.0000	
* 47 Chlorobenzene-d5	117	8.249	8.249	(1.000)	793198	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	374825	50.0000	
$ 30 Dibromofluoromethane	113	4.830	4.830	(0.987)	745399	150.000	151.02
$ 35 1,2-Dichloroethane-d4	65	5.175	5.175	(1.057)	949266	150.000	151.18
$ 48 Toluene-d8	98	6.989	6.989	(0.847)	3016887	150.000	150.76
$ 69 4-Bromofluorobenzene	95	9.257	9.257	(1.122)	1153874	150.000	150.78
60 1,1,1,2-Tetrachloroethane	131	8.350	8.350	(1.012)	766622	150.000	151.11
31 1,1,1-Trichloroethane	97	4.826	4.826	(0.986)	1166981	150.000	161.96
68 1,1,2,2-Tetrachloroethane	83	9.392	9.392	(0.918)	1214939	150.000	143.93
138 Freon TF	101	2.401	2.401	(0.491)	609198	150.000	157.03
53 1,1,2-Trichloroethane	83	7.421	7.421	(0.900)	689788	150.000	145.96
22 1,1-Dichloroethane	63	3.604	3.604	(0.737)	1459691	150.000	148.53
11 1,1-Dichloroethene	96	2.397	2.397	(0.490)	645721	150.000	148.82
32 1,1-Dichloropropene	75	5.003	5.003	(0.889)	1147997	150.000	153.96
93 1,2,3-Trichlorobenzene	180	12.335	12.335	(1.205)	1085027	150.000	152.30
71 1,2,3-Trichloropropane	75	9.430	9.430	(0.921)	1401190	150.000	159.63
90 1,2,4-Trichlorobenzene	180	11.923	11.923	(1.165)	1126029	150.000	162.26
79 1,2,4-Trimethylbenzene	105	9.943	9.943	(0.971)	3050007	150.000	155.49
89 1,2-Dibromo-3-Chloropropane	155	11.233	11.233	(1.097)	200384	150.000	150.93
57 1,2-Dibromoethane	107	7.852	7.852	(0.952)	815175	150.000	149.76

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122110.D Page 2
Report Date: 28-Jan-2019 11:25

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
88 1,2-Dichlorobenzene	146	10.573	10.573	(1.033)	1640210	150.000	147.37
33 1,2-Dichloroethane	62	5.254	5.254	(0.934)	1129116	150.000	151.01
42 1,2-Dichloropropane	63	6.082	6.082	(1.081)	888346	150.000	150.03
75 1,3,5-Trimethylbenzene	105	9.625	9.625	(0.940)	2996671	150.000	159.08
83 1,3-Dichlorobenzene	146	10.180	10.180	(0.995)	1669910	150.000	150.03
54 1,3-Dichloropropane	76	7.563	7.563	(0.917)	1476732	150.000	145.07
84 1,4-Dichlorobenzene	146	10.255	10.255	(1.002)	1696761	150.000	144.58
26 2,2-Dichloropropane	77	4.275	4.275	(0.874)	951402	150.000	160.64
24 2-Butanone	43	4.335	4.335	(0.886)	880878	300.000	299.93(A)
76 2-Chlorotoluene	91	9.550	9.550	(0.933)	2603345	150.000	150.74
52 2-Hexanone	43	7.653	7.653	(0.928)	1413890	300.000	320.56(A)
77 4-Chlorotoluene	91	9.640	9.640	(0.942)	3029757	150.000	151.81
82 p-Isopropyltoluene	119	10.210	10.210	(0.997)	3190047	150.000	160.83
45 4-Methyl-2-Pentanone	43	6.914	6.914	(0.838)	1993190	300.000	314.06(A)
10 Acetone	43	2.480	2.480	(0.507)	520533	300.000	298.01(A)
37 Benzene	78	5.216	5.216	(0.927)	3311929	150.000	148.52
74 Bromobenzene	156	9.385	9.385	(0.917)	890701	150.000	153.79
29 Bromochloromethane	128	4.557	4.557	(0.931)	348533	150.000	151.66
39 Bromodichloromethane	83	6.348	6.348	(1.129)	1032680	150.000	164.00
66 Bromoform	173	8.984	8.984	(1.089)	522892	150.000	149.93
6 Bromomethane	94	1.659	1.659	(0.339)	444174	150.000	154.73
19 Carbon Disulfide	76	2.588	2.588	(0.529)	4735575	300.000	299.54(A)
34 Carbon Tetrachloride	117	4.995	4.995	(0.888)	939611	150.000	151.26
59 Chlorobenzene	112	8.275	8.275	(1.003)	2244427	150.000	147.26
7 Chloroethane	64	1.745	1.745	(0.357)	684109	150.000	161.33
28 Chloroform	83	4.658	4.658	(0.952)	1391091	150.000	146.98
3 Chloromethane	50	1.340	1.340	(0.274)	746873	150.000	147.15
27 cis-1,2-Dichloroethene	96	4.287	4.287	(0.876)	893807	150.000	149.01
46 cis-1,3-Dichloropropene	75	6.757	6.757	(1.201)	1468956	150.000	150.90
55 Dibromochloromethane	129	7.758	7.758	(0.940)	791728	150.000	149.91
44 Dibromomethane	93	6.191	6.191	(1.101)	516406	150.000	151.11
2 Dichlorodifluoromethane	85	1.205	1.205	(0.246)	873891	150.000	154.61
61 Ethylbenzene	106	8.373	8.373	(1.015)	1198529	150.000	153.33
91 Hexachlorobutadiene	225	12.065	12.065	(1.179)	400552	150.000	150.65
67 Isopropylbenzene	105	9.126	9.126	(1.106)	3526393	150.000	156.34
62 m,p-Xylenes	106	8.474	8.474	(1.027)	2933161	300.000	305.23(A)
17 Methylene Chloride	84	2.870	2.870	(0.586)	841220	150.000	151.54
87 n-Butylbenzene	91	10.558	10.558	(1.031)	2965307	150.000	154.91
73 n-Propylbenzene	91	9.479	9.479	(0.926)	4348220	150.000	155.25
92 Naphthalene	128	12.133	12.133	(1.185)	3430934	150.000	151.53
63 o-Xylene	106	8.811	8.811	(1.068)	1492877	150.000	153.99
81 sec-Butylbenzene	105	10.090	10.090	(0.986)	3757107	150.000	159.61
64 Styrene	104	8.826	8.826	(1.070)	2556162	150.000	158.70
78 tert-Butylbenzene	119	9.902	9.902	(0.967)	2586354	150.000	158.85
56 Tetrachloroethene	164	7.526	7.526	(0.912)	610669	150.000	147.05
50 Toluene	91	7.049	7.049	(0.855)	3483930	150.000	147.65
20 trans-1,2-Dichloroethene	96	3.140	3.140	(0.642)	789348	150.000	147.77
51 trans-1,3-Dichloropropene	75	7.263	7.263	(1.291)	1271771	150.000	151.06
38 Trichloroethene	130	5.861	5.861	(1.042)	823329	150.000	152.94
8 Trichlorofluoromethane	101	1.951	1.951	(0.399)	1146930	150.000	151.21
5 Vinyl Chloride	62	1.419	1.419	(0.290)	1000865	150.000	153.03

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122110.D
Date : 21-DEC-2018 17:31
Client ID: VSTD150
Sample Info: VSTD150;VSTD150;1;9;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122111.D Page 1
Report Date: 28-Jan-2019 11:25

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122111.D
Lab Smp Id: VSTD200 Client Smp ID: VSTD200
Inj Date : 21-DEC-2018 17:55
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD200;VSTD200;1;10;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 17:31 Cal File: U122110.D
Als bottle: 12 Calibration Sample, Level: 10
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

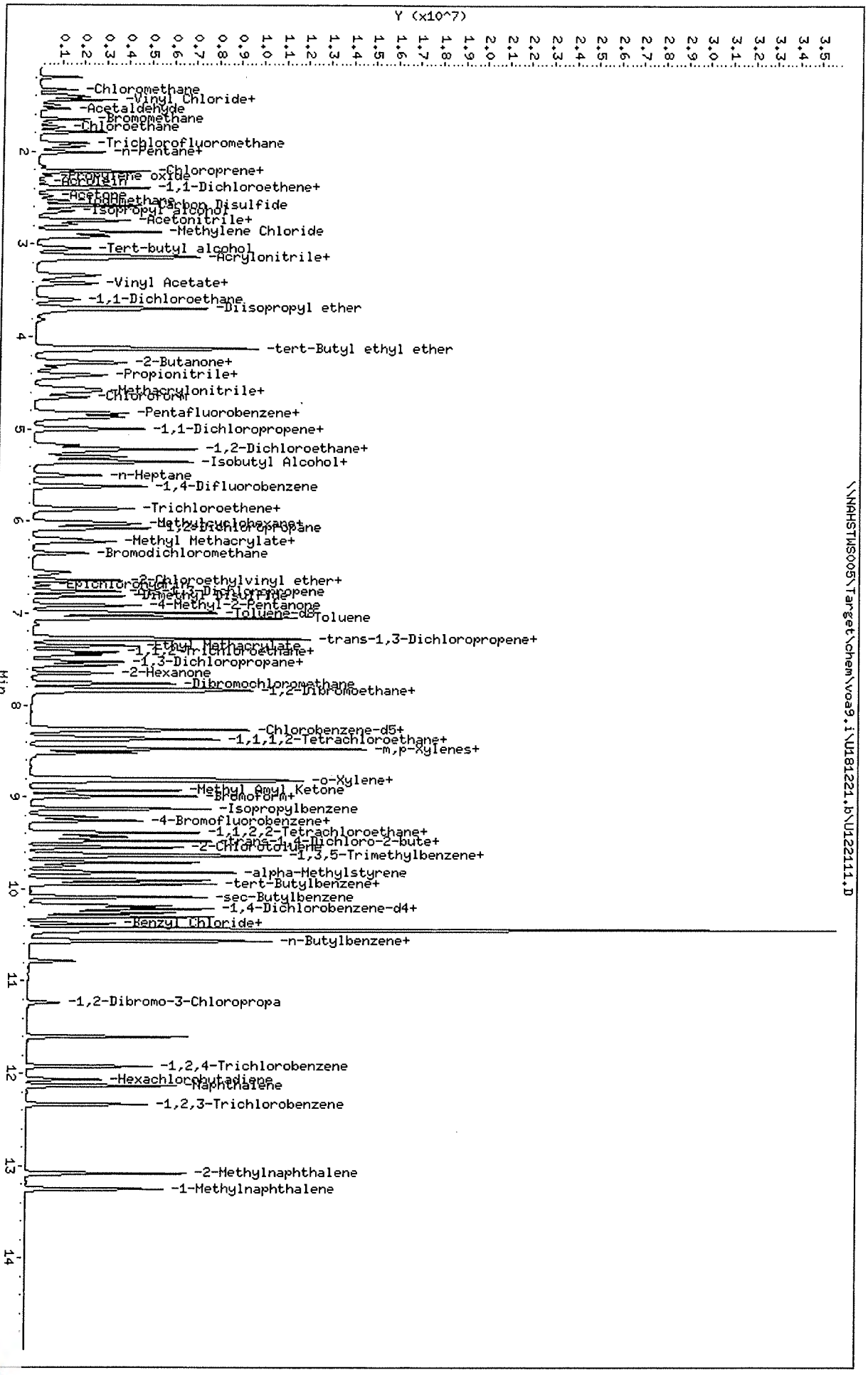
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.890	4.890	(1.000)	471928	50.0000	
* 36 1,4-Difluorobenzene	114	5.625	5.625	(1.000)	852109	50.0000	
* 47 Chlorobenzene-d5	117	8.249	8.249	(1.000)	808162	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	383807	50.0000	
$ 30 Dibromofluoromethane	113	4.826	4.826	(0.987)	1006329	200.000	197.61
$ 35 1,2-Dichloroethane-d4	65	5.171	5.171	(1.057)	1274051	200.000	196.84
$ 48 Toluene-d8	98	6.989	6.989	(0.847)	4010125	200.000	197.23
$ 69 4-Bromofluorobenzene	95	9.257	9.257	(1.122)	1540801	200.000	198.06
60 1,1,1,2-Tetrachloroethane	131	8.350	8.350	(1.012)	1032567	200.000	199.57
31 1,1,1-Trichloroethane	97	4.826	4.826	(0.987)	1558350	200.000	209.12(A)
68 1,1,2,2-Tetrachloroethane	83	9.392	9.392	(0.918)	1627647	200.000	188.30
138 Freon TF	101	2.394	2.394	(0.490)	818502	200.000	204.00(A)
53 1,1,2-Trichloroethane	83	7.421	7.421	(0.900)	922969	200.000	191.69
22 1,1-Dichloroethane	63	3.597	3.597	(0.736)	1941260	200.000	191.00
11 1,1-Dichloroethene	96	2.394	2.394	(0.490)	870210	200.000	193.93
32 1,1-Dichloropropene	75	5.003	5.003	(0.889)	1526453	200.000	201.33(A)
93 1,2,3-Trichlorobenzene	180	12.335	12.335	(1.205)	1453309	200.000	199.03
71 1,2,3-Trichloropropane	75	9.430	9.430	(0.921)	1910859	200.000	212.60(A)
90 1,2,4-Trichlorobenzene	180	11.926	11.926	(1.165)	1495400	200.000	210.44(A)
79 1,2,4-Trimethylbenzene	105	9.943	9.943	(0.971)	4007083	200.000	199.50
89 1,2-Dibromo-3-Chloropropane	155	11.233	11.233	(1.097)	274280	200.000	201.27(A)
57 1,2-Dibromoethane	107	7.852	7.852	(0.952)	1097675	200.000	197.93

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122111.D Page 2
Report Date: 28-Jan-2019 11:25

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88 1,2-Dichlorobenzene	146	10.573	10.573	(1.033)	2176108	200.000	190.95
33 1,2-Dichloroethane	62	5.250	5.250	(0.933)	1504782	200.000	198.15
42 1,2-Dichloropropane	63	6.078	6.078	(1.081)	1186343	200.000	197.03
75 1,3,5-Trimethylbenzene	105	9.628	9.628	(0.941)	3964216	200.000	205.51(A)
83 1,3-Dichlorobenzene	146	10.180	10.180	(0.995)	2212350	200.000	194.11
54 1,3-Dichloropropane	76	7.563	7.563	(0.917)	1981022	200.000	191.01
84 1,4-Dichlorobenzene	146	10.258	10.258	(1.002)	2259523	200.000	188.03
26 2,2-Dichloropropane	77	4.272	4.272	(0.874)	1270502	200.000	207.43(A)
24 2-Butanone	43	4.335	4.335	(0.887)	1199902	400.000	395.82(A)
76 2-Chlorotoluene	91	9.550	9.550	(0.933)	3451393	200.000	195.17
52 2-Hexanone	43	7.653	7.653	(0.928)	1896004	400.000	421.90(A)
77 4-Chlorotoluene	91	9.640	9.640	(0.942)	3993483	200.000	195.41
82 p-Isopropyltoluene	119	10.213	10.213	(0.998)	4198944	200.000	206.74(A)
45 4-Methyl-2-Pentanone	43	6.914	6.914	(0.838)	2681840	400.000	414.75(A)
10 Acetone	43	2.476	2.476	(0.506)	723113	400.000	401.34(A)
37 Benzene	78	5.216	5.216	(0.927)	4410809	200.000	194.52
74 Bromobenzene	156	9.385	9.385	(0.917)	1186255	200.000	200.04(A)
29 Bromochloromethane	128	4.553	4.553	(0.931)	453685	200.000	191.69
39 Bromodichloromethane	83	6.345	6.345	(1.128)	1391257	200.000	217.29(A)
66 Bromoform	173	8.984	8.984	(1.089)	718878	200.000	201.69(A)
6 Bromomethane	94	1.651	1.651	(0.338)	585856	200.000	196.98
19 Carbon Disulfide	76	2.585	2.585	(0.529)	6125723	400.000	374.66(A)
34 Carbon Tetrachloride	117	4.991	4.991	(0.887)	1268610	200.000	200.38(A)
59 Chlorobenzene	112	8.275	8.275	(1.003)	2961137	200.000	190.69
7 Chloroethane	64	1.737	1.737	(0.355)	859472	200.000	193.44
28 Chloroform	83	4.654	4.654	(0.952)	1846267	200.000	188.63
3 Chloromethane	50	1.333	1.333	(0.273)	1095269	200.000	207.27(A)
27 cis-1,2-Dichloroethene	96	4.283	4.283	(0.876)	1189323	200.000	191.72
46 cis-1,3-Dichloropropene	75	6.757	6.757	(1.201)	1986544	200.000	200.27(A)
55 Dibromochloromethane	129	7.758	7.758	(0.940)	1081017	200.000	200.56(A)
44 Dibromomethane	93	6.187	6.187	(1.100)	698521	200.000	201.01(A)
2 Dichlorodifluoromethane	85	1.198	1.198	(0.245)	1151588	200.000	196.87
61 Ethylbenzene	106	8.373	8.373	(1.015)	1600834	200.000	201.00(A)
91 Hexachlorobutadiene	225	12.065	12.065	(1.179)	534175	200.000	196.21
67 Isopropylbenzene	105	9.126	9.126	(1.106)	4617933	200.000	200.94(A)
62 m,p-Xylenes	106	8.474	8.474	(1.027)	3876248	400.000	395.90(A)
17 Methylene Chloride	84	2.866	2.866	(0.586)	1131189	200.000	197.41
87 n-Butylbenzene	91	10.558	10.558	(1.031)	3856663	200.000	196.76
73 n-Propylbenzene	91	9.479	9.479	(0.926)	5652456	200.000	197.09
92 Naphthalene	128	12.133	12.133	(1.185)	4589381	200.000	199.26
63 o-Xylene	106	8.811	8.811	(1.068)	1977764	200.000	200.23(A)
81 sec-Butylbenzene	105	10.090	10.090	(0.986)	4898290	200.000	203.23(A)
64 Styrene	104	8.826	8.826	(1.070)	3375201	200.000	205.67(A)
78 tert-Butylbenzene	119	9.902	9.902	(0.967)	3416506	200.000	204.92(A)
56 Tetrachloroethene	164	7.525	7.525	(0.912)	811202	200.000	191.73
50 Toluene	91	7.046	7.046	(0.854)	4594912	200.000	191.13
20 trans-1,2-Dichloroethene	96	3.136	3.136	(0.641)	1055077	200.000	190.99
51 trans-1,3-Dichloropropene	75	7.259	7.259	(1.291)	1721394	200.000	200.53(A)
38 Trichloroethene	130	5.861	5.861	(1.042)	1093007	200.000	199.67
8 Trichlorofluoromethane	101	1.944	1.944	(0.398)	1561606	200.000	198.87
5 Vinyl Chloride	62	1.415	1.415	(0.289)	1348117	200.000	199.01

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.



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Date : 21-DEC-2018 17:55
Client ID: VSTD200
Sample Info: VSTD200;VSTD200;1;10;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122113.D
Lab Smp Id: VSTD050 Client Smp ID: VSTD050
Inj Date : 21-DEC-2018 18:45
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD050;VSTD050;2;;ICV
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 17:55 Cal File: U122111.D
Als bottle: 14 QC Sample: METHSPIKE
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

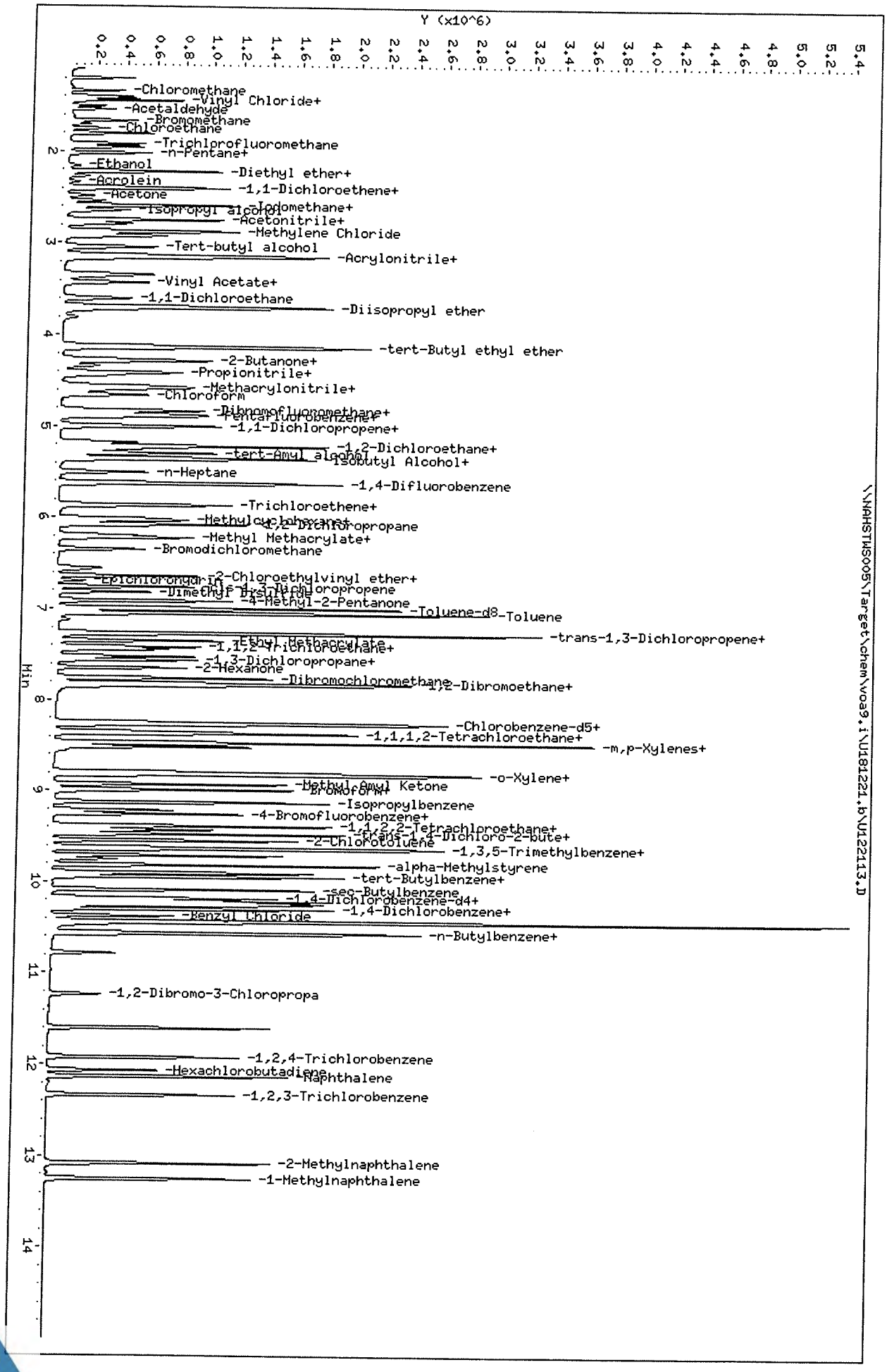
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.894	4.890	(1.000)	454236	50.0000	
* 36 1,4-Difluorobenzene	114	5.625	5.625	(1.000)	837452	50.0000	
* 47 Chlorobenzene-d5	117	8.249	8.249	(1.000)	785431	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	375418	50.0000	
$ 30 Dibromofluoromethane	113	4.830	4.826	(0.987)	255609	51.0245	51.02
$ 35 1,2-Dichloroethane-d4	65	5.175	5.171	(1.057)	329809	51.3551	51.35
$ 48 Toluene-d8	98	6.989	6.989	(0.847)	1045729	51.6161	51.61
$ 69 4-Bromofluorobenzene	95	9.257	9.257	(1.122)	396478	51.3902	51.39
60 1,1,1,2-Tetrachloroethane	131	8.350	8.350	(1.012)	241293	48.4317	48.43
31 1,1,1-Trichloroethane	97	4.826	4.826	(0.986)	354032	49.3608	49.36
68 1,1,2,2-Tetrachloroethane	83	9.392	9.392	(0.918)	418971	49.5558	49.55
138 Freon TF	101	2.401	2.394	(0.491)	174050	45.0712	45.07
53 1,1,2-Trichloroethane	83	7.420	7.421	(0.900)	230741	49.3099	49.30
22 1,1-Dichloroethane	63	3.604	3.597	(0.737)	469167	47.9609	47.96
11 1,1-Dichloroethene	96	2.397	2.394	(0.490)	197920	45.8262	45.82
32 1,1-Dichloropropene	75	5.003	5.003	(0.889)	353683	47.4657	47.46
93 1,2,3-Trichlorobenzene	180	12.335	12.335	(1.205)	338004	47.8072	47.80
71 1,2,3-Trichloropropane	75	9.426	9.430	(0.921)	468241	53.2610	53.26
90 1,2,4-Trichlorobenzene	180	11.923	11.926	(1.165)	350114	50.3719	50.37
79 1,2,4-Trimethylbenzene	105	9.943	9.943	(0.971)	985013	50.1388	50.13
89 1,2-Dibromo-3-Chloropropane	155	11.233	11.233	(1.097)	65081	49.9244	49.92
57 1,2-Dibromoethane	107	7.852	7.852	(0.952)	275792	51.1699	51.16

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122113.D Page 2
Report Date: 28-Jan-2019 11:25

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
88 1,2-Dichlorobenzene	146	10.573	10.573	(1.033)	539129	48.3652	48.36
33 1,2-Dichloroethane	62	5.254	5.250	(0.934)	379863	50.3501	50.35
42 1,2-Dichloropropane	63	6.082	6.078	(1.081)	291083	49.1911	49.19
75 1,3,5-Trimethylbenzene	105	9.625	9.628	(0.940)	944583	50.0646	50.06
83 1,3-Dichlorobenzene	146	10.180	10.180	(0.995)	538150	48.2737	48.27
54 1,3-Dichloropropane	76	7.563	7.563	(0.917)	498006	49.4090	49.40
84 1,4-Dichlorobenzene	146	10.254	10.258	(1.002)	553425	47.0841	47.08
26 2,2-Dichloropropane	77	4.275	4.272	(0.874)	312995	53.0931	53.09
24 2-Butanone	43	4.335	4.335	(0.886)	309683	104.354	104.35
76 2-Chlorotoluene	91	9.546	9.550	(0.933)	853147	49.3227	49.32
52 2-Hexanone	43	7.649	7.653	(0.927)	476780	109.166	109.16
77 4-Chlorotoluene	91	9.640	9.640	(0.942)	993815	49.7187	49.71
82 p-Isopropyltoluene	119	10.209	10.213	(0.997)	977284	49.1947	49.19
45 4-Methyl-2-Pentanone	43	6.914	6.914	(0.838)	669743	106.576	106.57
10 Acetone	43	2.480	2.476	(0.507)	202203	114.452	114.45
37 Benzene	78	5.216	5.216	(0.927)	1087936	48.8203	48.82
74 Bromobenzene	156	9.381	9.385	(0.917)	288693	49.7707	49.77
29 Bromochloromethane	128	4.553	4.553	(0.930)	134219	56.7663	56.76
39 Bromodichloromethane	83	6.348	6.345	(1.129)	327631	52.0660	52.06
66 Bromoform	173	8.984	8.984	(1.089)	161326	47.9288	47.92(T)
6 Bromomethane	94	1.666	1.651	(0.341)	151955	54.0592	54.05
19 Carbon Disulfide	76	2.588	2.585	(0.529)	1510901	96.0096	96.00
34 Carbon Tetrachloride	117	4.995	4.991	(0.888)	272477	44.8853	44.88
59 Chlorobenzene	112	8.275	8.275	(1.003)	728193	48.2531	48.25
7 Chloroethane	64	1.752	1.737	(0.358)	185529	46.1546	46.15(M)
28 Chloroform	83	4.658	4.654	(0.952)	456472	48.4536	48.45
3 Chloromethane	50	1.340	1.333	(0.274)	235959	48.9688	48.96
27 cis-1,2-Dichloroethene	96	4.287	4.283	(0.876)	292150	48.9311	48.93
46 cis-1,3-Dichloropropene	75	6.757	6.757	(1.201)	467498	48.9175	48.91
55 Dibromochloromethane	129	7.758	7.758	(0.940)	250542	48.5723	48.57
44 Dibromomethane	93	6.191	6.187	(1.101)	173822	50.8969	50.89
2 Dichlorodifluoromethane	85	1.205	1.198	(0.246)	258081	46.2123	46.21
61 Ethylbenzene	106	8.373	8.373	(1.015)	381593	49.3007	49.30
91 Hexachlorobutadiene	225	12.065	12.065	(1.179)	122959	46.1748	46.17
67 Isopropylbenzene	105	9.126	9.126	(1.106)	1096015	49.0718	49.07
62 m,p-Xylenes	106	8.474	8.474	(1.027)	950452	99.8846	99.88
17 Methylene Chloride	84	2.870	2.866	(0.586)	279368	49.7584	49.75
87 n-Butylbenzene	91	10.558	10.558	(1.031)	900081	46.9488	46.94
73 n-Propylbenzene	91	9.475	9.479	(0.926)	1377655	49.1117	49.11
92 Naphthalene	128	12.133	12.133	(1.185)	1130612	49.4621	49.46
63 o-Xylene	106	8.811	8.811	(1.068)	478939	49.8923	49.89
81 sec-Butylbenzene	105	10.086	10.090	(0.985)	1124348	47.6920	47.69
64 Styrene	104	8.826	8.826	(1.070)	841070	52.7368	52.73
78 tert-Butylbenzene	119	9.902	9.902	(0.967)	781669	47.9339	47.93
56 Tetrachloroethene	164	7.525	7.525	(0.912)	188872	45.9327	45.93
50 Toluene	91	7.046	7.046	(0.854)	1151259	49.2749	49.27
20 trans-1,2-Dichloroethene	96	3.139	3.136	(0.642)	255368	48.0288	48.02
51 trans-1,3-Dichloropropene	75	7.259	7.259	(1.291)	402226	48.9357	48.93
38 Trichloroethene	130	5.861	5.861	(1.042)	262761	48.8423	48.84
8 Trichlorofluoromethane	101	1.951	1.944	(0.399)	342884	45.8511	45.85
5 Vinyl Chloride	62	1.419	1.415	(0.290)	295169	46.0208	46.02

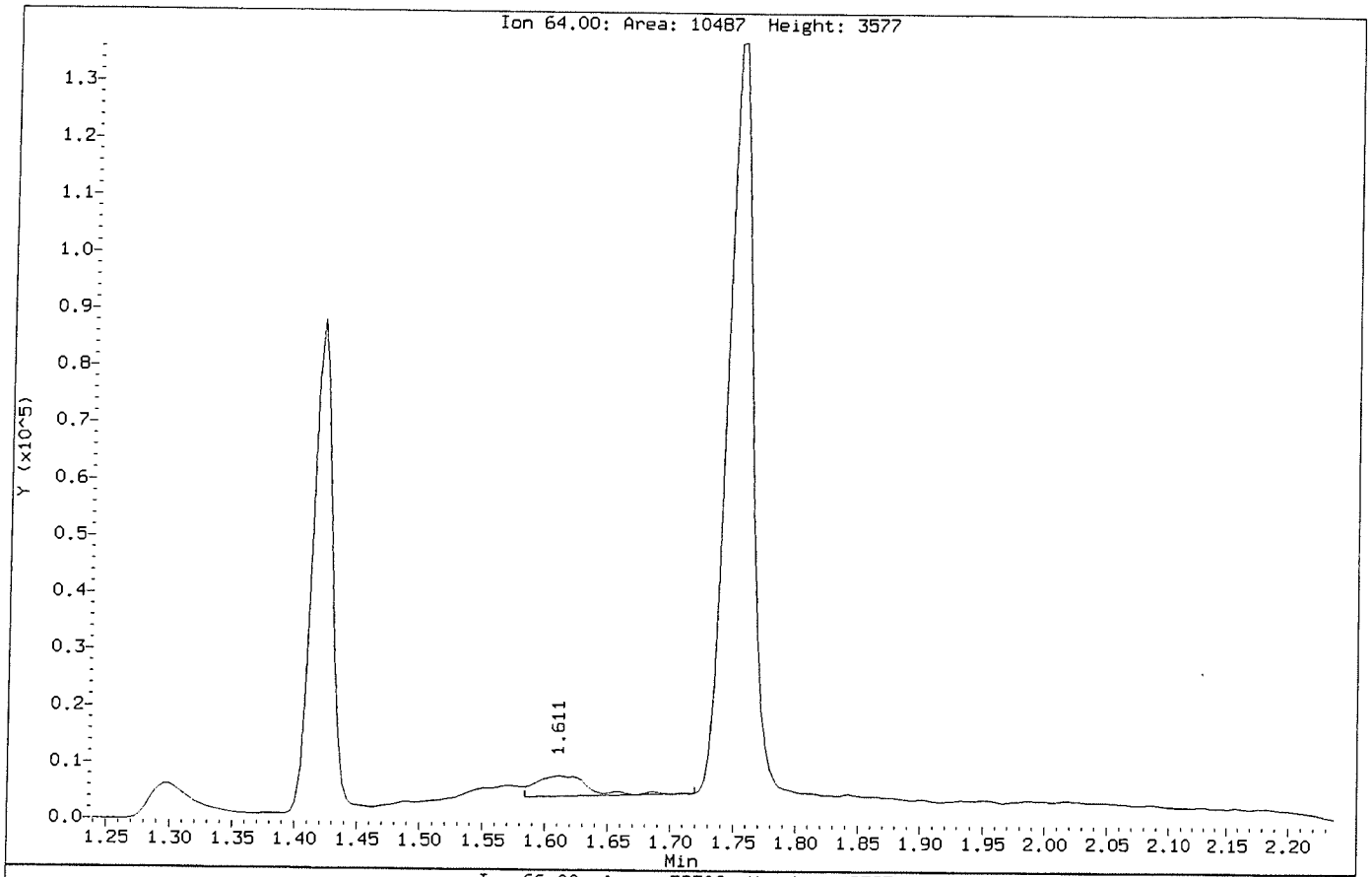
QC Flag Legend

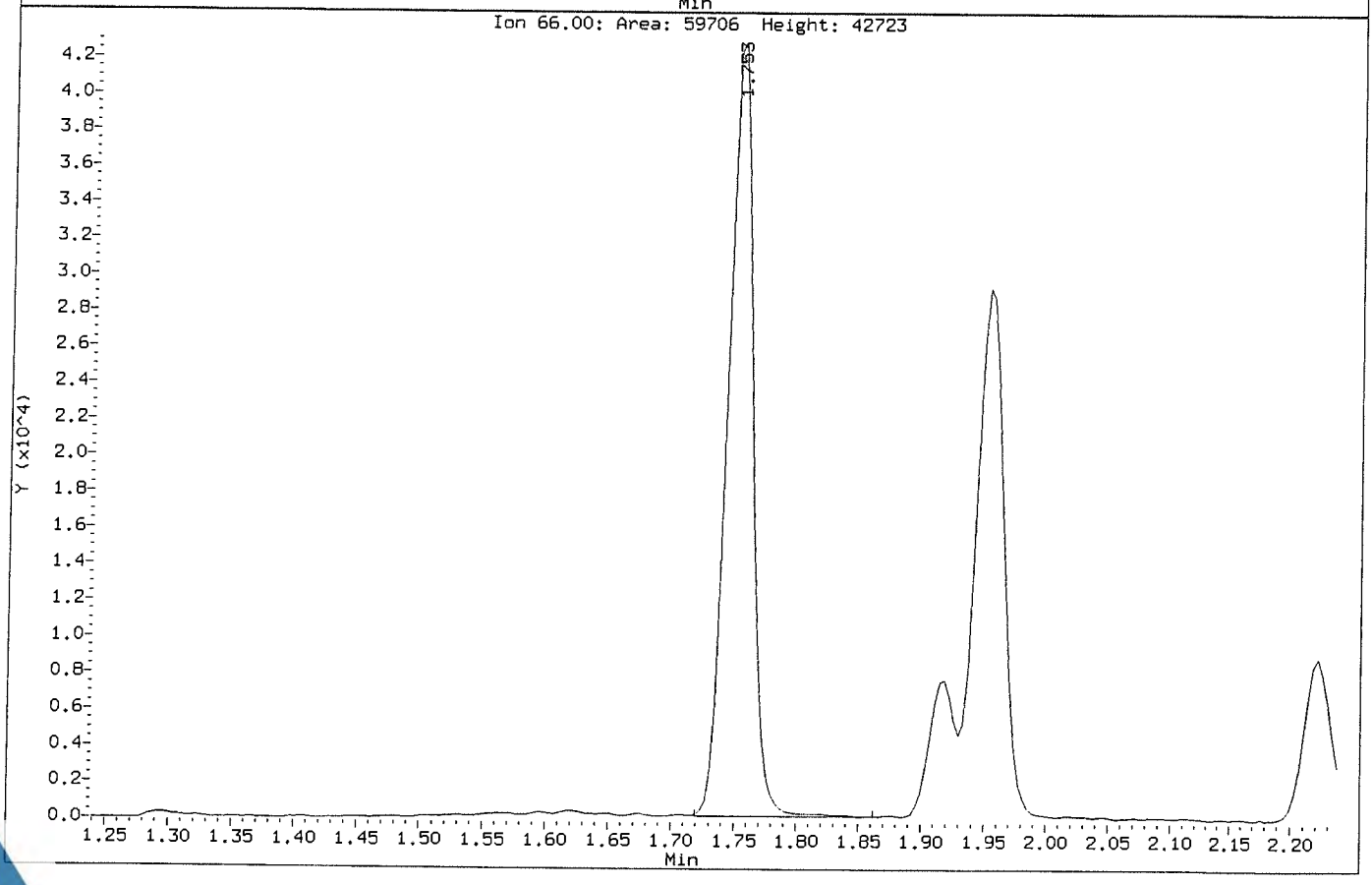
T - Target compound detected outside RT window.
M - Compound response manually integrated.


Y (x10^6)
Min
-Chloromethane
-Vinyl Chloride+
-Acetaldehyde
-Bromomethane
-Chloroethane
-Trichlorofluoromethane
-n-Pentane+
-Ethanol
-Diethyl ether+
-Acrolein
-1,1-Dichloroethene+
-Acetone
-Iodomethane+
-Isopropyl alcohol
-Acetonitrile+
-Methylene Chloride
-Tert-butyl alcohol
-Acrylonitrile+
-Vinyl Acetate+
-1,1-Dichloroethane
-Diisopropyl ether
-tert-Butyl ethyl ether
-2-Butanone+
-Propionitrile+
-Methacrylonitrile+
-Chloroform
-Dibromofluoromethane+
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-tert-Amyl alcohol
-Isobutyl Alcohol+
-n-Heptane
-1,4-Difluorobenzene
-Trichloroethene+
-Methylcyclohexane+
-1,2-Dichloropropane
-Methyl Methacrylate+
-Bromodichloromethane
-2-Chloroethylvinyl ether+
-cis-1,3-Dichloropropene
-Dimethyl disulfide
-4-Methyl-2-Pentanone
-Toluene-d8
-Toluene
-trans-1,3-Dichloropropene+
-Ethyl Methacrylate
-1,1,2-Trichloroethane+
-1,3-Dichloropropane+
-2-Hexanone
-Dibromochloromethane
-1,2-Dibromoethane+
-Chlorobenzene-d5+
-1,1,1,2-Tetrachloroethane+
-m,p-Xylenes+
-o-Xylene+
-Methyl Amyl Ketone
-Bromoform+
-Isopropylbenzene
-4-Bromofluorobenzene+
-1,1,2,2-Tetrachloroethane+
-trans-1,4-Dichloro-2-bute+
-2-Chlorotoluene
-1,3,5-Trimethylbenzene+
-alpha-Methylstyrene
-tert-Butylbenzene+
-sec-Butylbenzene
-1,4-Dichlorobenzene-d4+
-1,4-Dichlorobenzene+
-Benzyl Chloride
-n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Hexachlorobutadiene
-Naphthalene
-1,2,3-Trichlorobenzene
-2-Methylnaphthalene
-1-Methylnaphthalene
\\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122113.D
Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122113.D
Date : 21-DEC-2018 18:45
Client ID: VSTD050
Sample Info: VSTD050;VSTD050;2;;ICV
Purge Volume: 5.0
Column phase: DB624
Instrument: VOA9.i
Operator: PC
Column diameter: 0.18
Page 4

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122113.D
Injection Date: 21-DEC-2018 18:45
Instrument: VOA9.i
Client Sample ID: VSTD050

Compound: Chloroethane
CAS Number: 75-00-3





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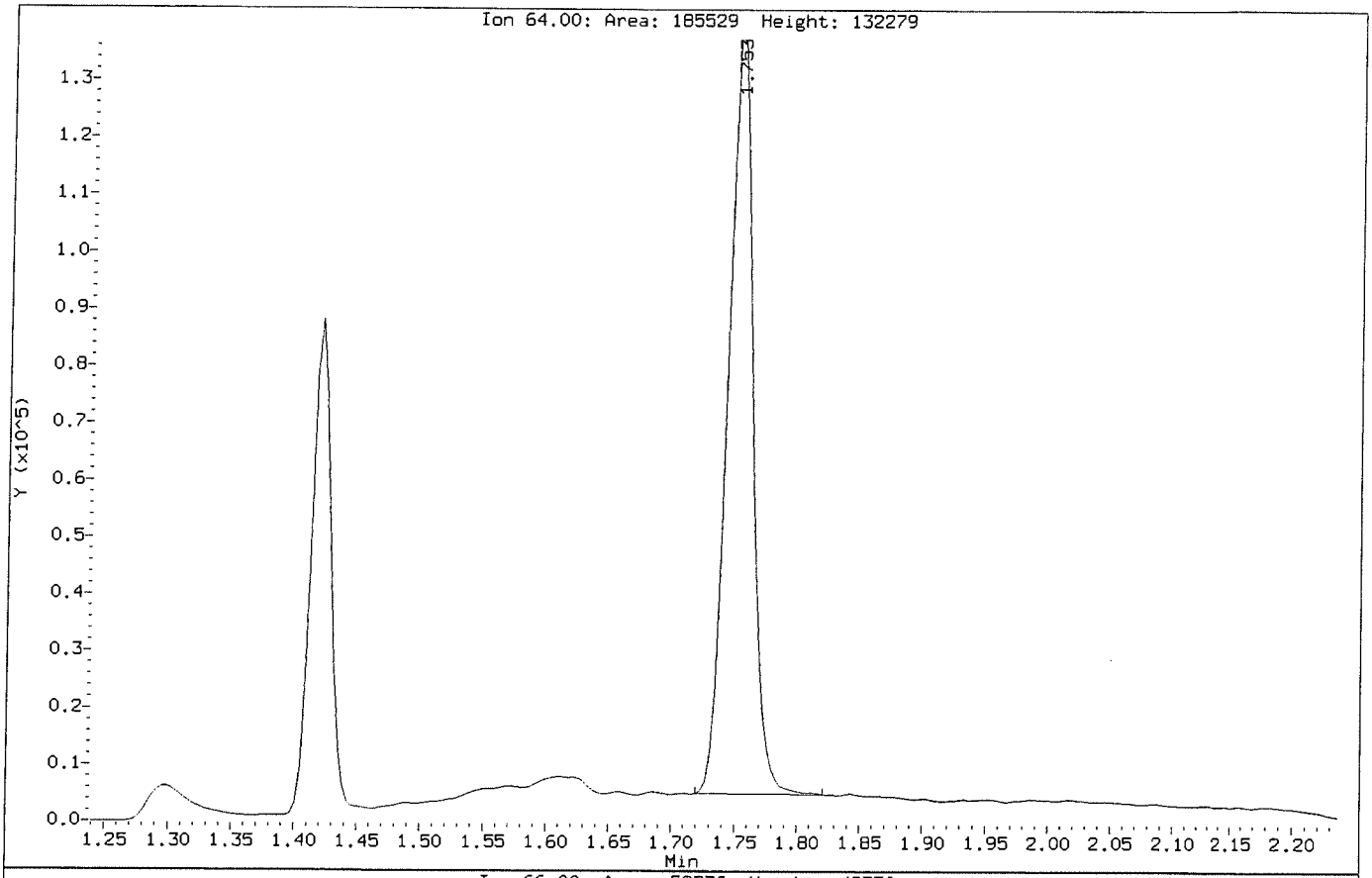
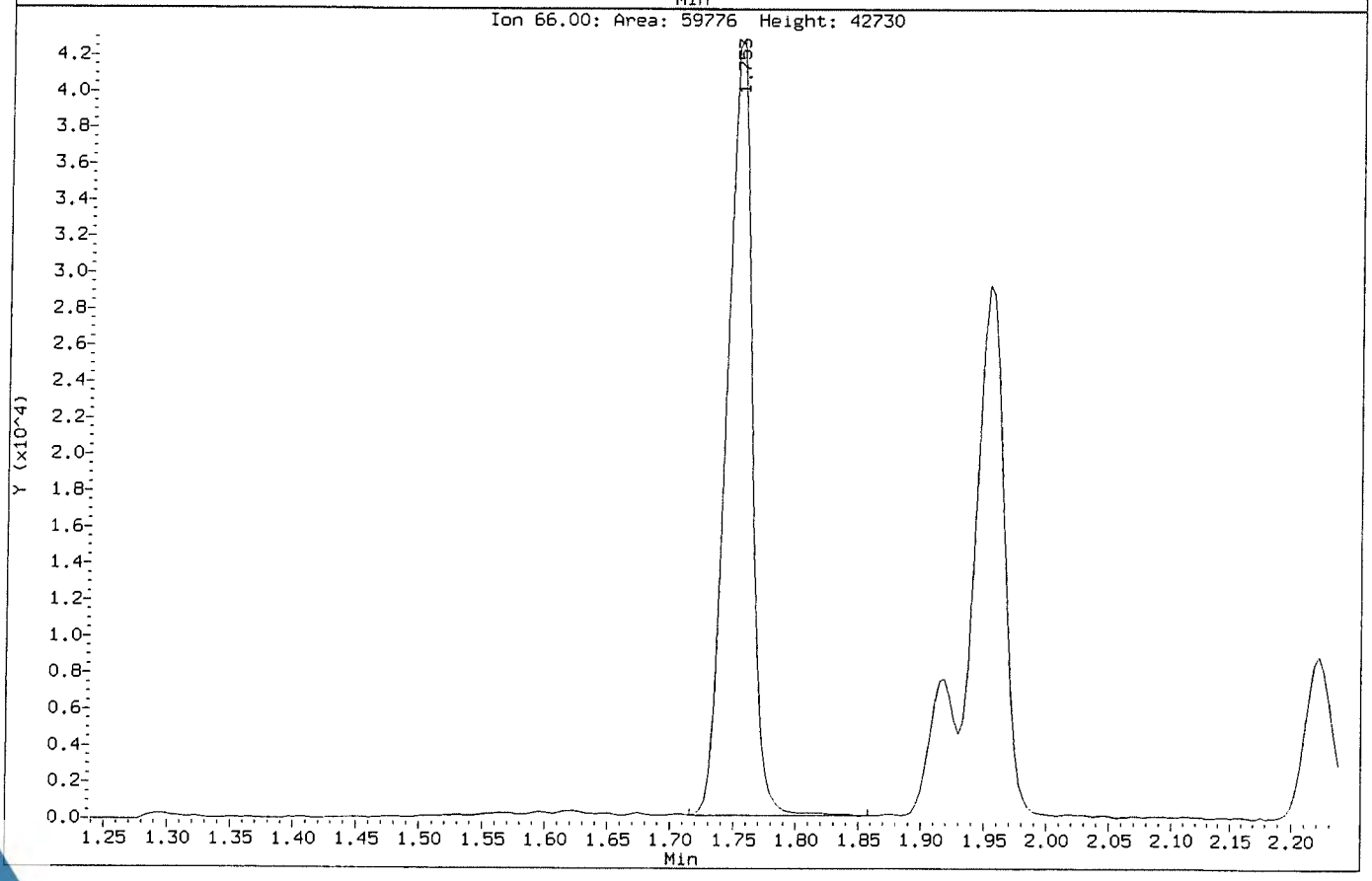
Injection Date: 21-DEC-2018 18:45
Instrument: VOA9.i
Client Sample ID: VSTD050

Compound: Chloroethane
CAS Number: 75-00-3





MSVOA09 -Logbook

Batch: 34004
Date: 12-24-2018
Method: 8260
Comments:

Analyst: Presenta Cabascango
Reviewer:
Laboratory: Houston

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	12-24-2018 09:28 am	1.00	50 mL	50 mL	U122401.D	Liquid	Y	NA
	Auto find/purged									
2	VSTD050	CCV	12-24-2018 09:52 am	1.00	50 mL	50 mL	U122402.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
3	VLCSW-1812024	LCS	12-24-2018 10:17 am	1.00	50 mL	50 mL	U122403.D	Liquid	Y	NA
	4 uL ICV std/50 mL DI									
4	BLANK	SAMP	12-24-2018 10:41 am	1.00	50 mL	50 mL	U122404.D	Liquid	Y	NA
5	VBLKW-181224	MBLK	12-24-2018 11:06 am	1.00	50 mL	50 mL	U122405.D	Liquid	Y	NA
6	HS18120736-09	SAMP	12-24-2018 11:31 am	1.00	50 mL	50 mL	U122406.D	Liquid	Y	<2
7	HS18120913-03	SAMP	12-24-2018 11:55 am	1.00	50 mL	50 mL	U122407.D	Liquid	Y	<2
8	HS18120736-05	SAMP	12-24-2018 12:20 pm	1.00	50 mL	50 mL	U122408.D	Liquid	Y	<2
9	HS18120736-06	SAMP	12-24-2018 12:45 pm	1.00	50 mL	50 mL	U122409.D	Liquid	Y	<2
10	HS18120736-07	SAMP	12-24-2018 01:10 pm	1.00	50 mL	50 mL	U122410.D	Liquid	Y	<2
11	HS18121093-02	SAMP	12-24-2018 01:35 pm	1.00	50 mL	50 mL	U122411.D	Liquid	Y	<2
12	HS18120913-01	SAMP	12-24-2018 01:59 pm	1.00	50 mL	50 mL	U122412.D	Liquid	Y	<2
13	HS18120913-02	SAMP	12-24-2018 02:24 pm	1.00	50 mL	50 mL	U122413.D	Liquid	Y	<2
14	HS18121093-01	SAMP	12-24-2018 02:49 pm	5.00	10 mL	50 mL	U122414.D	Liquid	Y	<2
15	HS18120913-03MS	MS	12-24-2018 03:14 pm	1.00	50 mL	50 mL	U122415.D	Liquid	Y	<2
	3.5 uL cal std/43 mL Sample									
16	HS18120913-03MSD	MSD	12-24-2018 03:39 pm	1.00	50 mL	50 mL	U122416.D	Liquid	Y	<2
	3.5 uL cal std/43 mL Sample									
17	HS18121093-01	SAMP	12-24-2018 04:03 pm	50.00	1 mL	50 mL	U122417.D	Liquid	Y	<2
18	HS18120913-08	SAMP	12-24-2018 04:28 pm	1.00	50 mL	50 mL	U122418.D	Liquid	Y	<2
19	HS18121030-05	SAMP	12-24-2018 04:53 pm	1.00	50 mL	50 mL	U122419.D	Liquid	Y	<2
20	HS18120913-04	SAMP	12-24-2018 05:18 pm	1.00	50 mL	50 mL	U122420.D	Liquid	Y	<2
21	HS18120913-05	SAMP	12-24-2018 05:43 pm	1.00	50 mL	50 mL	U122421.D	Liquid	Y	<2
22	HS18120913-06	SAMP	12-24-2018 06:08 pm	1.00	50 mL	50 mL	U122422.D	Liquid	Y	<2
23	HS18120913-07	SAMP	12-24-2018 06:32 pm	1.00	50 mL	50 mL	U122423.D	Liquid	Y	<2
24	HS18121030-01	SAMP	12-24-2018 06:57 pm	1.00	50 mL	50 mL	U122424.D	Liquid	Y	<2
25	HS18121030-02	SAMP	12-24-2018 07:22 pm	1.00	50 mL	50 mL	U122425.D	Liquid	Y	<2
26	HS18121030-03	SAMP	12-24-2018 07:47 pm	1.00	50 mL	50 mL	U122426.D	Liquid	Y	<2
27	HS18121030-04	SAMP	12-24-2018 08:12 pm	1.00	50 mL	50 mL	U122427.D	Liquid	Y	<2
28	VSTD050-END	CCV	12-24-2018 08:37 pm	1.00	50 mL	50 mL	U122428.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
29	BFB	TUNE	12-24-2018 09:01 pm	1.00	50 mL	50 mL	V122401.D	Liquid	Y	NA
	Auto find/purged									
30	VSTD050	CCV	12-24-2018 09:26 pm	1.00	50 mL	50 mL	V122402.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
31	BLANK	SAMP	12-24-2018 09:51 pm	1.00	50 mL	50 mL	V122403.D	Liquid	Y	NA
32	CCB	SAMP	12-24-2018 10:16 pm	1.00	50 mL	50 mL	V122404.D	Liquid	Y	NA
	CCB									
33	VLCSW-1812024	LCS	12-24-2018 10:40 pm	1.00	50 mL	50 mL	V122405.D	Liquid	Y	NA
	4 uL ICV std/50 mL DI									
34	BLANK	SAMP	12-24-2018 11:05 pm	1.00	50 mL	50 mL	V122406.D	Liquid	Y	NA
35	VBLKW-181224	MBLK	12-24-2018 11:30 pm	1.00	50 mL	50 mL	V122407.D	Liquid	Y	NA
36	HS18120845-05	SAMP	12-24-2018 11:55 pm	1.00	50 mL	50 mL	V122408.D	Liquid	Y	<2

MSVOA09 -Logbook

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
37	HS18120845-06	SAMP	12-25-2018 12:20 am	1.00	50 mL	50 mL	V122409.D	Liquid	Y	<2
38	HS18121097-07	SAMP	12-25-2018 12:45 am	1.00	50 mL	50 mL	V122410.D	Liquid	Y	<2
39	HS18121097-08	SAMP	12-25-2018 01:09 am	1.00	50 mL	50 mL	V122411.D	Liquid	Y	<2
40	HS18121097-09	SAMP	12-25-2018 01:34 am	1.00	50 mL	50 mL	V122412.D	Liquid	Y	<2
41	HS18121098-01	SAMP	12-25-2018 01:59 am	1.00	50 mL	50 mL	V122413.D	Liquid	Y	<2
42	HS18121098-02	SAMP	12-25-2018 02:24 am	1.00	50 mL	50 mL	V122414.D	Liquid	Y	<2
43	HS18121098-08	SAMP	12-25-2018 02:49 am	1.00	50 mL	50 mL	V122415.D	Liquid	Y	<2
44	HS18121098-03	SAMP	12-25-2018 03:14 am	1.00	50 mL	50 mL	V122416.D	Liquid	Y	<2
45	HS18121098-03MS	MS	12-25-2018 03:38 am	1.00	50 mL	50 mL	V122417.D	Liquid	Y	<2
	3.5 uL cal std/43 mL Sample									
46	HS18121098-03MSD	MSD	12-25-2018 04:03 am	1.00	50 mL	50 mL	V122418.D	Liquid	Y	<2
	3.5 uL cal std/43 mL Sample									
47	HS18121068-09	SAMP	12-25-2018 04:28 am	1.00	50 mL	50 mL	V122419.D	Liquid	Y	<2
48	HS18121097-01	SAMP	12-25-2018 04:53 am	1.00	50 mL	50 mL	V122420.D	Liquid	Y	<2
49	HS18121097-02	SAMP	12-25-2018 05:18 am	1.00	50 mL	50 mL	V122421.D	Liquid	Y	<2
50	HS18121097-03	SAMP	12-25-2018 05:43 am	1.00	50 mL	50 mL	V122422.D	Liquid	Y	<2
51	HS18121097-04	SAMP	12-25-2018 06:07 am	1.00	50 mL	50 mL	V122423.D	Liquid	Y	<2
52	HS18121097-05	SAMP	12-25-2018 06:32 am	1.00	50 mL	50 mL	V122424.D	Liquid	Y	<2
53	HS18121097-06	SAMP	12-25-2018 06:57 am	1.00	50 mL	50 mL	V122425.D	Liquid	Y	<2
54	HS18121098-04	SAMP	12-25-2018 07:22 am	1.00	50 mL	50 mL	V122426.D	Liquid	Y	<2
55	HS18121098-05	SAMP	12-25-2018 07:47 am	1.00	50 mL	50 mL	V122427.D	Liquid	Y	<2
56	HS18121098-06	SAMP	12-25-2018 08:11 am	1.00	50 mL	50 mL	V122428.D	Liquid	Y	<2
57	HS18121098-07	SAMP	12-25-2018 08:36 am	1.00	50 mL	50 mL	V122429.D	Liquid	Y	<2

Chemical	Value
SURR SPK ID	30502-52-03
IS ID	30502-52-04
ICV STD ID	30603-46-01
LCS/MS ID	30603-46-01
CAL STD ID	30502-57-01/02
BFB ID	30502-52-03

FORM 2
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS18120913

	CLIENT SAMPLE NO.	SMC1 (DCE)#	SMC2 #	SMC3 (TOL)#	OTHER #	TOT OUT
01	VLCSW-181224	104	102	102	104	0
02	VBLKW-181224	95	89	104	96	0
03	HS18120913-0	95	89	106	99	0
04	HS18120913-0	97	90	105	97	0
05	HS18120913-0	98	90	106	97	0
06	HS18120913-0	94	91	106	103	0
07	HS18120913-0	95	92	106	104	0
08	HS18120913-0	98	92	105	98	0
09	HS18120913-0	98	90	105	97	0
10	HS18120913-0	99	92	104	96	0
11	HS18120913-0	99	92	105	97	0
12	HS18120913-0	99	91	105	97	0
13						
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		QC LIMITS
SMC1 (DCE)	= 1,2-Dichloroethane-d4	(0-130)
SMC2	= Dibromofluoromethane	(0-130)
SMC3 (TOL)	= Toluene-d8	(0-130)
OTHER	= 4-Bromofluorobenzene	(0-130)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

FORM 4
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

VBLKW-181224

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS18120913

Lab File ID: U122405 Lab Sample ID: VBLKW-181224

Date Analyzed: 12/24/18 Time Analyzed: 1106

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: VOA9

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VLCSW-181224	VLCSW-1812024	U122403	1017
02	HS18120913-0	HS18120913-03	U122407	1155
03	HS18120913-0	HS18120913-01	U122412	1359
04	HS18120913-0	HS18120913-02	U122413	1424
05	HS18120913-0	HS18120913-03M	U122415	1514
06	HS18120913-0	HS18120913-03M	U122416	1539
07	HS18120913-0	HS18120913-08	U122418	1628
08	HS18120913-0	HS18120913-04	U122420	1718
09	HS18120913-0	HS18120913-05	U122421	1743
10	HS18120913-0	HS18120913-06	U122422	1808
11	HS18120913-0	HS18120913-07	U122423	1832
12				
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30				

COMMENTS:

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS18120913

Lab File ID: U122401 BFB Injection Date: 12/24/18

Instrument ID: VOA9 BFB Injection Time: 0928

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	19.5
75	30.0 - 60.0% of mass 95	50.9
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.1
173	Less than 2.0% of mass 174	0.7 (1.0)1
174	Greater than 50.0% of mass 95	66.6
175	5.0 - 9.0% of mass 174	4.9 (7.4)1
176	95.0 - 101.0% of mass 174	64.4 (96.7)1
177	5.0 - 9.0% of mass 176	4.4 (6.8)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD050	VSTD050	U122402	12/24/18	0952
02	VLCSW-181224	VLCSW-1812024	U122403	12/24/18	1017
03	VBLKW-181224	VBLKW-181224	U122405	12/24/18	1106
04	HS18120913-0	HS18120913-03	U122407	12/24/18	1155
05	HS18120913-0	HS18120913-01	U122412	12/24/18	1359
06	HS18120913-0	HS18120913-02	U122413	12/24/18	1424
07	HS18120913-0	HS18120913-03M	U122415	12/24/18	1514
08	HS18120913-0	HS18120913-03M	U122416	12/24/18	1539
09	HS18120913-0	HS18120913-08	U122418	12/24/18	1628
10	HS18120913-0	HS18120913-04	U122420	12/24/18	1718
11	HS18120913-0	HS18120913-05	U122421	12/24/18	1743
12	HS18120913-0	HS18120913-06	U122422	12/24/18	1808
13	HS18120913-0	HS18120913-07	U122423	12/24/18	1832
14	VSTD050-END	VSTD050-END	U122428	12/24/18	2037
15					
16					
17					
18					
19					
20					
21					
22					

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS18120913

Instrument ID: VOA9 Calibration Date: 12/24/18 Time: 0952

Lab File ID: U122402 Init. Calib. Date(s): 12/21/18 12/21/18

Init. Calib. Times: 1349 1755

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE	
cis-1,3-Dichloropropene	46.969001	50.000000	0.5381928	0.2	6.06	20.00	LINR	
trans-1,3-Dichloropropene	46.115718	50.000000	0.4606842	0.1	7.77	20.00	LINR	
1,3-Dichlorobenzene	1.4850000	1.4492226	1.4492226	0.6	2.41	20.00	AVRG	
2,2-Dichloropropane	0.6490000	0.5663916	0.5663916	0.1	12.73	20.00	AVRG	
1,1-Dichloropropene	0.4450000	0.4256150	0.4256150	0.1	4.36	20.00	AVRG	
Dibromomethane	0.2040000	0.2144626	0.2144626	0.1	-5.13	20.00	AVRG	
1,2-Dibromoethane	0.3430000	0.3597016	0.3597016	0.1	-4.87	20.00	AVRG	
trans-1,2-Dichloroethene	0.5850000	0.5850593	0.5850593	0.1	-0.01	20.00	AVRG	
1,1,1,2-Tetrachloroethane	46.940910	50.000000	0.3043937	0.1	6.12	20.00	LINR	
1,1,1-Trichloroethane	0.7890000	0.7935465	0.7935465	0.1	-0.58	20.00	AVRG	
1,1,2,2-Tetrachloroethane	1.1260000	1.1917002	1.1917002	0.3	-5.83	20.00	AVRG	
Freon TF	0.4250000	0.3989719	0.3989719	0.1	6.12	20.00	AVRG	
1,1,2-Trichloroethane	0.2980000	0.3097296	0.3097296	0.1	-3.94	20.00	AVRG	
1,1-Dichloroethane	1.0770000	1.0983183	1.0983183	0.2	-1.98	20.00	AVRG	
1,1-Dichloroethene	0.4750000	0.4595711	0.4595711	0.1	3.25	20.00	AVRG	
Trichlorofluoromethane	44.085746	50.000000	0.7886797	0.1	11.83	20.00	LINR	
1,2,3-Trichlorobenzene	43.749299	50.000000	0.9004990	0.1	12.50	20.00	LINR	
Toluene	1.4870000	1.4890724	1.4890724	0.4	-0.14	20.00	AVRG	
1,2,4-Trichlorobenzene	0.9260000	0.9128821	0.9128821	0.2	1.42	20.00	AVRG	
1,2,4-Trimethylbenzene	2.6160000	2.6703840	2.6703840	0.1	-2.08	20.00	AVRG	
Tetrachloroethene	0.2620000	0.2343416	0.2343416	0.2	10.56	20.00	AVRG	
Trichloroethene	0.3210000	0.3111153	0.3111153	0.2	3.08	20.00	AVRG	
1,2-Dichlorobenzene	1.4840000	1.4720949	1.4720949	0.4	0.80	20.00	AVRG	
1,2-Dichloroethane	49.720294	50.000000	0.4762008	0.1	0.56	20.00	LINR	
1,2-Dichloropropane	0.3530000	0.3595027	0.3595027	0.1	-1.84	20.00	AVRG	
1,3,5-Trimethylbenzene	2.5130000	2.5708391	2.5708391	0.1	-2.30	20.00	AVRG	
1,3-Dichloropropane	0.6410000	0.6628423	0.6628423	0.1	-3.41	20.00	AVRG	
1,4-Dichlorobenzene	1.5660000	1.4828544	1.4828544	0.4	5.31	20.00	AVRG	
2-Butanone	87.524774	100.00000	0.3885447	0.1	12.48	20.00	LINR	
2-Chlorotoluene	2.3040000	2.2915781	2.2915781	0.1	0.54	20.00	AVRG	
2-Hexanone	0.2780000	0.3355379	0.3355379	0.1	-20.70	20.00	AVRG	<-
4-Chlorotoluene	2.6620000	2.6823399	2.6823399	0.1	-0.76	20.00	AVRG	
tert-Butylbenzene	2.1720000	2.1680208	2.1680208	0.1	0.18	20.00	AVRG	
4-Methyl-2-Pentanone	0.4000000	0.4671265	0.4671265	0.1	-16.78	20.00	AVRG	
Acetone	88.945078	100.00000	0.2567717	0.1	11.05	20.00	LINR	
Benzene	1.3300000	1.3327330	1.3327330	0.5	-0.20	20.00	AVRG	
Bromobenzene	0.7730000	0.7689868	0.7689868	0.1	0.52	20.00	AVRG	
Bromochloromethane	54.738270	50.000000	0.2995106	0.1	-9.48	20.00	LINR	
Bromodichloromethane	0.3760000	0.3919790	0.3919790	0.2	-4.25	20.00	AVRG	
Bromoform	43.625632	50.000000	0.2006203	0.1	12.75	20.00	LINR	
Bromomethane	48.433994	50.000000	0.3215455	0.1	3.13	20.00	LINR	
Carbon Disulfide	1.7320000	1.6738989	1.6738989	0.1	3.35	20.00	AVRG	

FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS1812091

Instrument ID: VOA9 Calibration Date: 12/24/18 Time: 0952

Lab File ID: U122402 Init. Calib. Date(s): 12/21/18 12/21/18

Init. Calib. Times: 1349 1755

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Carbon Tetrachloride	42.908085	50.000000	0.3206431	0.1	14.18	20.00	LINR
Chlorobenzene	0.9610000	0.9517026	0.9517026	0.5	0.97	20.00	AVRG
Chloroethane	48.651727	50.000000	0.4376382	0.1	2.70	20.00	2RDR
Chloroform	1.0370000	1.0750225	1.0750225	0.2	-3.67	20.00	AVRG
Chloromethane	48.105273	50.000000	0.5006841	0.1	3.79	20.00	LINR
cis-1,2-Dichloroethene	0.6570000	0.6738882	0.6738882	0.1	-2.57	20.00	AVRG
Dibromochloromethane	46.378243	50.000000	0.3131343	0.1	7.24	20.00	LINR
Dichlorodifluoromethane	41.832474	50.000000	0.5469699	0.1	16.34	20.00	LINR
Ethylbenzene	0.4930000	0.4907710	0.4907710	0.1	0.45	20.00	AVRG
Hexachlorobutadiene	0.3550000	0.3075225	0.3075225	0.1	13.37	20.00	AVRG
Isopropylbenzene	1.4220000	1.4345733	1.4345733	0.1	-0.88	20.00	AVRG
m,p-Xylenes	0.6060000	0.6065328	0.6065328	0.1	-0.09	20.00	AVRG
Methylene Chloride	49.161284	50.000000	0.6598726	0.1	1.68	20.00	LINR
n-Butylbenzene	2.5530000	2.4878949	2.4878949	0.5	2.55	20.00	AVRG
n-Propylbenzene	3.7360000	3.7675955	3.7675955	0.1	-0.84	20.00	AVRG
Naphthalene	42.625569	50.000000	3.1185011	0.2	14.75	20.00	2RDR
o-Xylene	0.6110000	0.6247110	0.6247110	0.3	-2.24	20.00	AVRG
sec-Butylbenzene	3.1400000	3.1149837	3.1149837	0.1	0.80	20.00	AVRG
Styrene	1.0150000	1.0920948	1.0920948	0.3	-7.60	20.00	AVRG
Vinyl Chloride	44.382144	50.000000	0.6938894	0.1	11.24	20.00	LINR
1,2,3-Trichloropropane	1.1710000	1.2984150	1.2984150	0.1	-10.88	20.00	AVRG
p-Isopropyltoluene	2.6460000	2.6489186	2.6489186	0.1	-0.11	20.00	AVRG
1,2-Dibromo-3-Chloropropane	40.205727	50.000000	0.1753790	0.05	19.59	20.00	LINR
1,2-Dichloroethane-d4	50.883328	50.000000	0.7752248	0.1	-1.77	20.00	LINR
Dibromofluoromethane	51.294758	50.000000	0.5865296	0.1	-2.59	20.00	LINR
Toluene-d8	51.601871	50.000000	1.3137645	0.1	-3.20	20.00	LINR
4-Bromofluorobenzene	51.802881	50.000000	0.5048850	0.1	-3.60	20.00	LINR

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS18120736

Instrument ID: VOA9 Calibration Date: 12/24/18 Time: 2037

Lab File ID: U122428 Init. Calib. Date(s): 12/21/18 12/21/18

Init. Calib. Times: 1349 1755

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
cis-1,3-Dichloropropene	47.206327	50.000000	0.5381928	0.2	5.59	50.00	LINR
trans-1,3-Dichloropropene	47.004802	50.000000	0.4606842	0.1	5.99	50.00	LINR
1,3-Dichlorobenzene	1.4850000	1.4492226	1.4492226	0.6	2.41	50.00	AVRG
2,2-Dichloropropane	0.6490000	0.5663916	0.5663916	0.1	12.73	50.00	AVRG
1,1-Dichloropropene	0.4450000	0.4256150	0.4256150	0.1	4.36	50.00	AVRG
Dibromomethane	0.2040000	0.2144626	0.2144626	0.1	-5.13	50.00	AVRG
1,2-Dibromoethane	0.3430000	0.3597016	0.3597016	0.1	-4.87	50.00	AVRG
trans-1,2-Dichloroethene	0.5850000	0.5850593	0.5850593	0.1	-0.01	50.00	AVRG
1,1,1,2-Tetrachloroethane	47.992888	50.000000	0.3043937	0.1	4.01	50.00	LINR
1,1,1-Trichloroethane	0.7890000	0.7935465	0.7935465	0.1	-0.58	50.00	AVRG
1,1,2,2-Tetrachloroethane	1.1260000	1.1917002	1.1917002	0.3	-5.83	50.00	AVRG
Freon TF	0.4250000	0.3989719	0.3989719	0.1	6.12	50.00	AVRG
1,1,2-Trichloroethane	0.2980000	0.3097296	0.3097296	0.1	-3.94	50.00	AVRG
1,1-Dichloroethane	1.0770000	1.0983183	1.0983183	0.2	-1.98	50.00	AVRG
1,1-Dichloroethene	0.4750000	0.4595711	0.4595711	0.1	3.25	50.00	AVRG
Trichlorofluoromethane	47.877448	50.000000	0.7886797	0.1	4.24	50.00	LINR
1,2,3-Trichlorobenzene	47.815512	50.000000	0.9004990	0.1	4.37	50.00	LINR
Toluene	1.4870000	1.4890724	1.4890724	0.4	-0.14	50.00	AVRG
1,2,4-Trichlorobenzene	0.9260000	0.9128821	0.9128821	0.2	1.42	50.00	AVRG
1,2,4-Trimethylbenzene	2.6160000	2.6703840	2.6703840	0.1	-2.08	50.00	AVRG
Tetrachloroethene	0.2620000	0.2343416	0.2343416	0.2	10.56	50.00	AVRG
Trichloroethene	0.3210000	0.3111153	0.3111153	0.2	3.08	50.00	AVRG
1,2-Dichlorobenzene	1.4840000	1.4720949	1.4720949	0.4	0.80	50.00	AVRG
1,2-Dichloroethane	52.896221	50.000000	0.4762008	0.1	-5.79	50.00	LINR
1,2-Dichloropropane	0.3530000	0.3595027	0.3595027	0.1	-1.84	50.00	AVRG
1,3,5-Trimethylbenzene	2.5130000	2.5708391	2.5708391	0.1	-2.30	50.00	AVRG
1,3-Dichloropropane	0.6410000	0.6628423	0.6628423	0.1	-3.41	50.00	AVRG
1,4-Dichlorobenzene	1.5660000	1.4828544	1.4828544	0.4	5.31	50.00	AVRG
2-Butanone	119.28553	100.00000	0.3885447	0.1	-19.28	50.00	LINR
2-Chlorotoluene	2.3040000	2.2915781	2.2915781	0.1	0.54	50.00	AVRG
2-Hexanone	0.2780000	0.3355379	0.3355379	0.1	-20.70	50.00	AVRG
4-Chlorotoluene	2.6620000	2.6823399	2.6823399	0.1	-0.76	50.00	AVRG
tert-Butylbenzene	2.1720000	2.1680208	2.1680208	0.1	0.18	50.00	AVRG
4-Methyl-2-Pentanone	0.4000000	0.4671265	0.4671265	0.1	-16.78	50.00	AVRG
Acetone	132.50176	100.00000	0.2567717	0.1	-32.50	50.00	LINR
Benzene	1.3300000	1.3327330	1.3327330	0.5	-0.20	50.00	AVRG
Bromobenzene	0.7730000	0.7689868	0.7689868	0.1	0.52	50.00	AVRG
Bromochloromethane	57.582518	50.000000	0.2995106	0.1	-15.16	50.00	LINR
Bromodichloromethane	0.3760000	0.3919790	0.3919790	0.2	-4.25	50.00	AVRG
Bromoform	46.854942	50.000000	0.2006203	0.1	6.29	50.00	LINR
Bromomethane	52.013096	50.000000	0.3215455	0.1	-4.03	50.00	LINR
Carbon Disulfide	1.7320000	1.6738989	1.6738989	0.1	3.35	50.00	AVRG

FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS1812073

Instrument ID: VOA9 Calibration Date: 12/24/18 Time: 2037

Lab File ID: U122428 Init. Calib. Date(s): 12/21/18 12/21/18

Init. Calib. Times: 1349 1755

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Carbon Tetrachloride	44.254301	50.000000	0.3206431	0.1	11.49	50.00	LINR
Chlorobenzene	0.9610000	0.9517026	0.9517026	0.5	0.97	50.00	AVRG
Chloroethane	49.367103	50.000000	0.4376382	0.1	1.26	50.00	2RDR
Chloroform	1.0370000	1.0750225	1.0750225	0.2	-3.67	50.00	AVRG
Chloromethane	47.318479	50.000000	0.5006841	0.1	5.36	50.00	LINR
cis-1,2-Dichloroethene	0.6570000	0.6738882	0.6738882	0.1	-2.57	50.00	AVRG
Dibromochloromethane	47.699067	50.000000	0.3131343	0.1	4.60	50.00	LINR
Dichlorodifluoromethane	44.506477	50.000000	0.5469699	0.1	10.99	50.00	LINR
Ethylbenzene	0.4930000	0.4907710	0.4907710	0.1	0.45	50.00	AVRG
Hexachlorobutadiene	0.3550000	0.3075225	0.3075225	0.1	13.37	50.00	AVRG
Isopropylbenzene	1.4220000	1.4345733	1.4345733	0.1	-0.88	50.00	AVRG
m,p-Xylenes	0.6060000	0.6065328	0.6065328	0.1	-0.09	50.00	AVRG
Methylene Chloride	53.474221	50.000000	0.6598726	0.1	-6.95	50.00	LINR
n-Butylbenzene	2.5530000	2.4878949	2.4878949	0.5	2.55	50.00	AVRG
n-Propylbenzene	3.7360000	3.7675955	3.7675955	0.1	-0.84	50.00	AVRG
Naphthalene	51.209442	50.000000	3.1185011	0.2	-2.42	50.00	2RDR
o-Xylene	0.6110000	0.6247110	0.6247110	0.3	-2.24	50.00	AVRG
sec-Butylbenzene	3.1400000	3.1149837	3.1149837	0.1	0.80	50.00	AVRG
Styrene	1.0150000	1.0920948	1.0920948	0.3	-7.60	50.00	AVRG
Vinyl Chloride	49.076608	50.000000	0.6938894	0.1	1.85	50.00	LINR
1,2,3-Trichloropropane	1.1710000	1.2984150	1.2984150	0.1	-10.88	50.00	AVRG
p-Isopropyltoluene	2.6460000	2.6489186	2.6489186	0.1	-0.11	50.00	AVRG
1,2-Dibromo-3-Chloropropane	50.490014	50.000000	0.1753790	0.05	-0.98	50.00	LINR
1,2-Dichloroethane-d4	54.978385	50.000000	0.7752248	0.1	-9.96	50.00	LINR
Dibromofluoromethane	53.247810	50.000000	0.5865296	0.1	-6.50	50.00	LINR
Toluene-d8	50.908412	50.000000	1.3137645	0.1	-1.82	50.00	LINR
4-Bromofluorobenzene	51.400094	50.000000	0.5048850	0.1	-2.80	50.00	LINR

FORM VII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS18120913

Lab File ID (Standard): U122402 Date Analyzed: 12/24/18

Instrument ID: VOA9 Time Analyzed: 0952

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS1(DCB) AREA #	RT #	IS2(CBZ) AREA #	RT #	IS3(DFB) AREA #	RT #
	12 HOUR STD	352991	10.24	724498	8.25	785837	5.63
	UPPER LIMIT	705982	10.74	1448996	8.75	1571674	6.13
	LOWER LIMIT	176496	9.74	362249	7.75	392919	5.13
	CLIENT SAMPLE NO.						
01	VLCSW-181224	339524	10.24	703027	8.25	758509	5.63
02	VBLKW-181224	263882	10.24	571876	8.25	632508	5.63
03	HS18120913-0	260126	10.24	557826	8.25	616128	5.63
04	HS18120913-0	239609	10.24	523015	8.25	578134	5.63
05	HS18120913-0	238390	10.24	518136	8.25	575201	5.63
06	HS18120913-0	266360	10.24	543870	8.25	594715	5.63
07	HS18120913-0	254873	10.24	529623	8.25	576248	5.63
08	HS18120913-0	238700	10.24	519400	8.25	572577	5.63
09	HS18120913-0	238090	10.24	520680	8.25	574454	5.63
10	HS18120913-0	232339	10.24	514638	8.25	560574	5.63
11	HS18120913-0	228496	10.24	506791	8.25	558405	5.63
12	HS18120913-0	230671	10.24	507981	8.25	559358	5.63
13							
14							
15							
16							
17							
18							
19							
20							

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (CBZ) = Chlorobenzene-d5
IS3 (DFB) = 1,4-Difluorobenzene

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM VIII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS18120913

Lab File ID (Standard): U122402 Date Analyzed: 12/24/18

Instrument ID: VOA9 Time Analyzed: 0952

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS4 AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	423354	4.89				
	UPPER LIMIT	846708	5.39				
	LOWER LIMIT	211677	4.39				
	CLIENT SAMPLE NO.						
01	VLCSW-181224	406772	4.90				
02	VBLKW-181224	360724	4.90				
03	HS18120913-0	357809	4.89				
04	HS18120913-0	329698	4.89				
05	HS18120913-0	326911	4.89				
06	HS18120913-0	345000	4.90				
07	HS18120913-0	331424	4.89				
08	HS18120913-0	321626	4.90				
09	HS18120913-0	325737	4.90				
10	HS18120913-0	317953	4.89				
11	HS18120913-0	315819	4.90				
12	HS18120913-0	313434	4.90				
13							
14							
15							
16							
17							
18							
19							
20							

IS4 = Pentafluorobenzene

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM VIII VOA

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122401.D

Date : 24-DEC-2018 09:28

Client ID: BFB

Instrument: VOA9.i

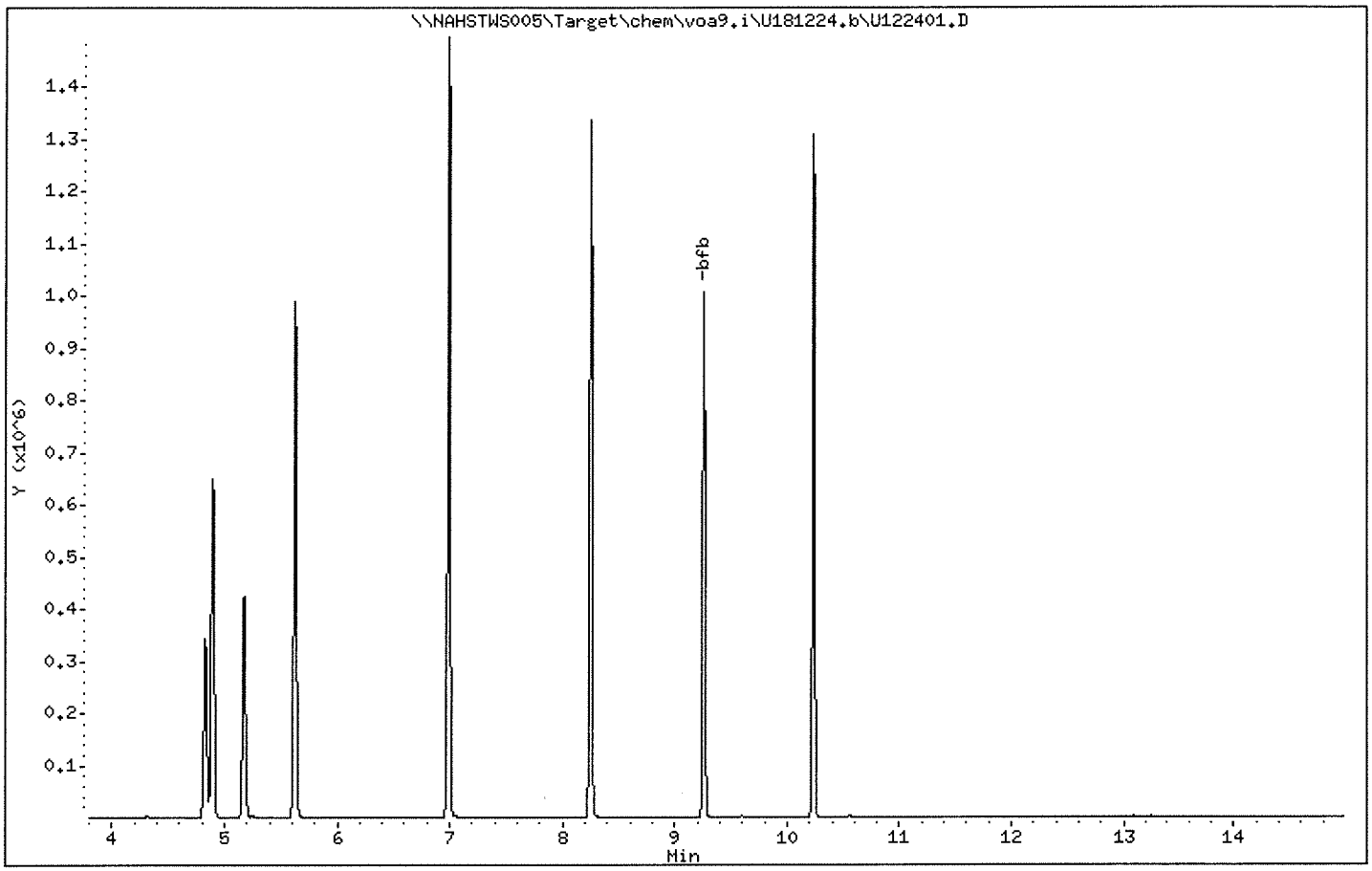
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122401.D

Date : 24-DEC-2018 09:28

Client ID: BFB

Instrument: VOA9.i

Sample Info: BFB;BFB;3;;BFB

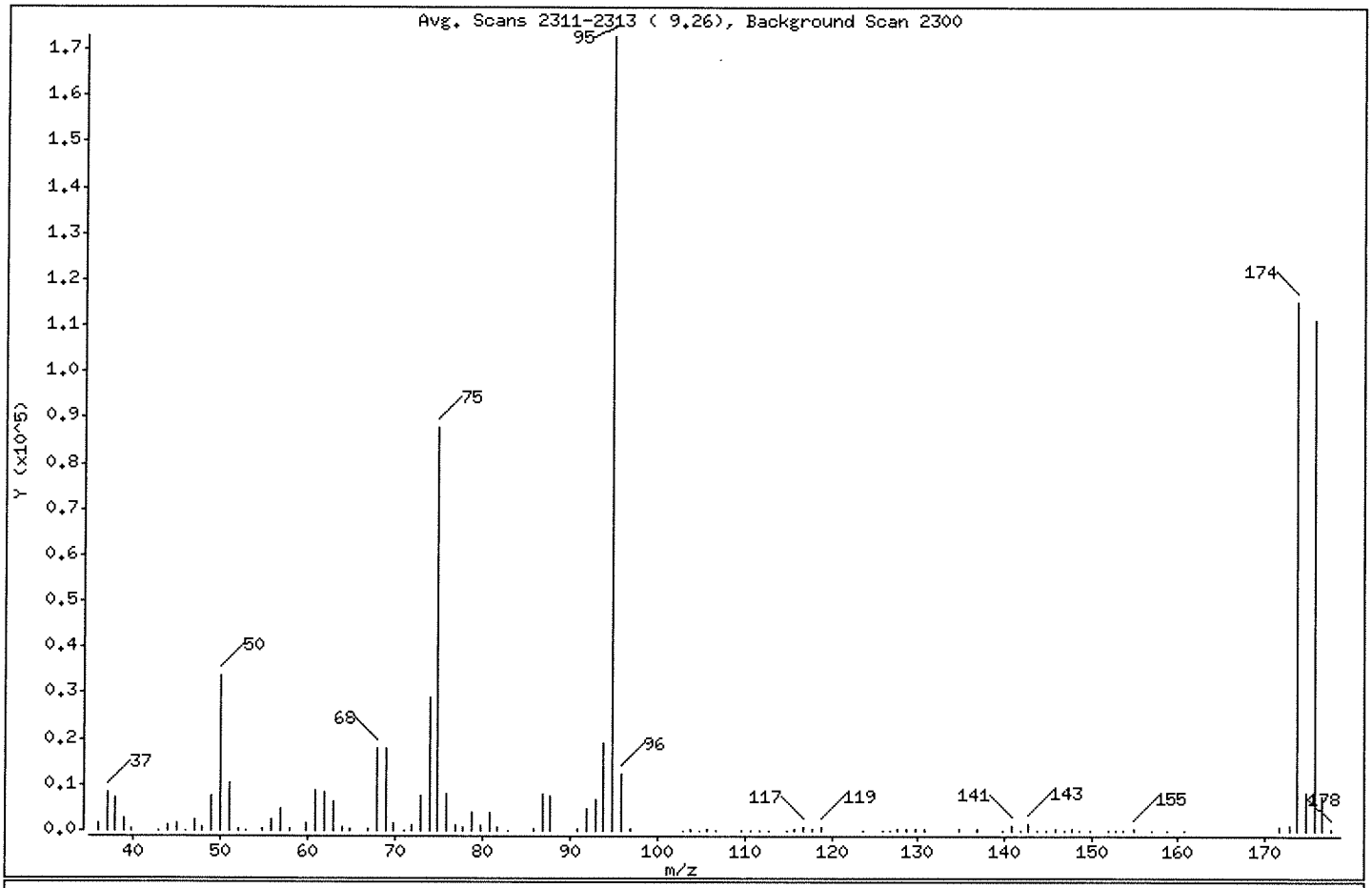
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	19.51
75	30.00 - 60.00% of mass 95	50.89
96	5.00 - 9.00% of mass 95	7.08
173	Less than 2.00% of mass 174	0.66 (0.98)
174	Greater than 50.00% of mass 95	66.63
175	5.00 - 9.00% of mass 174	4.91 (7.37)
176	95.00 - 101.00% of mass 174	64.42 (96.68)
177	5.00 - 9.00% of mass 176	4.35 (6.75)

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122401.D

Date : 24-DEC-2018 09:28

Client ID: BFB

Instrument: VOA9.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

Data File: U122401.D
Spectrum: Avg. Scans 2311-2313 (9.26), Background Scan 2300
Location of Maximum: 94.90
Number of points: 101

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	1458	66.90	489	96.90	358	141.70	125
37.00	8306	67.90	17736	102.90	83	142.70	1432
38.00	7224	68.90	17704	103.80	566	143.70	92
39.00	2852	69.90	1399	104.80	198	144.80	130
39.90	515	71.00	55	105.70	571	145.70	211
42.90	58	71.90	1002	106.70	150	146.80	93
43.90	1149	72.90	7684	109.70	67	147.60	307
45.00	1416	73.90	28936	110.70	106	148.50	71
46.00	144	74.90	87944	111.80	127	149.70	118
47.00	2331	75.90	7853	112.80	101	151.70	104
47.90	988	76.90	1152	114.80	164	152.70	119
48.90	7413	77.80	691	115.80	498	153.50	62
50.00	33712	78.90	3904	116.70	773	154.80	440
51.00	10257	79.90	1262	117.80	575	156.70	197
52.00	516	80.80	4127	118.80	642	158.60	130
52.90	79	81.80	955	123.70	117	160.70	97
54.90	360	83.00	125	125.90	58	171.70	672
55.90	2572	85.90	201	126.70	59	172.80	1133
57.00	4669	86.90	7827	127.70	540	173.70	115136
58.00	207	87.80	7508	128.70	266	174.70	8487
59.90	1649	90.80	470	129.70	553	175.70	111312
60.90	8598	91.90	4648	130.70	230	176.70	7518
61.90	8257	92.90	6773	134.70	224	177.70	226
62.90	6370	93.90	19208	136.80	276		
63.90	787	94.90	172800	139.70	105		
64.90	503	95.90	12233	140.70	1161		

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122402.D Page 1
Report Date: 28-Jan-2019 14:34

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122402.D
Lab Smp Id: VSTD050 Client Smp ID: VSTD050
Inj Date : 24-DEC-2018 09:52
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD050;VSTD050;2;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 2 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

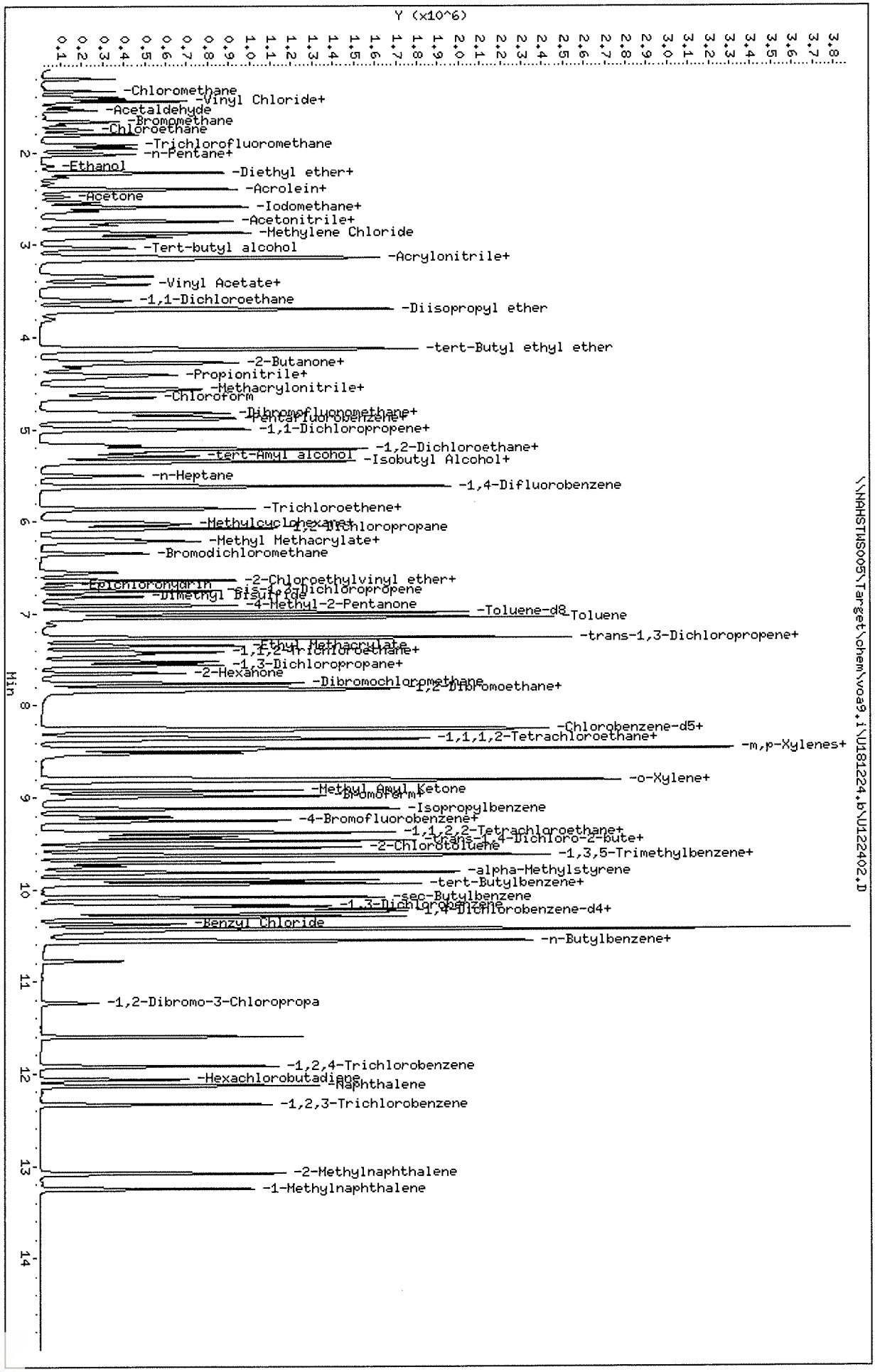
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.894	4.894	(1.000)	423354	50.0000	
*	36 1,4-Difluorobenzene	114	5.625	5.625	(1.000)	785837	50.0000	
*	47 Chlorobenzene-d5	117	8.249	8.249	(1.000)	724498	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	10.235	10.235	(1.000)	352991	50.0000	
$	30 Dibromofluoromethane	113	4.826	4.826	(0.986)	239456	50.0000	51.29
$	35 1,2-Dichloroethane-d4	65	5.171	5.171	(1.057)	304677	50.0000	50.88
$	48 Toluene-d8	98	6.989	6.989	(0.847)	964346	50.0000	51.60
$	69 4-Bromofluorobenzene	95	9.257	9.257	(1.122)	368577	50.0000	51.80
	60 1,1,1,2-Tetrachloroethane	131	8.350	8.350	(1.012)	215639	50.0000	46.94
	31 1,1,1-Trichloroethane	97	4.826	4.826	(0.986)	316440	50.0000	47.33
	68 1,1,2,2-Tetrachloroethane	83	9.392	9.392	(0.918)	355332	50.0000	44.69
	138 Freon TF	101	2.401	2.401	(0.491)	153951	50.0000	42.77
	53 1,1,2-Trichloroethane	83	7.420	7.420	(0.900)	207577	50.0000	48.09
	22 1,1-Dichloroethane	63	3.600	3.600	(0.736)	433057	50.0000	47.49
	11 1,1-Dichloroethene	96	2.401	2.401	(0.491)	181293	50.0000	45.03
	32 1,1-Dichloropropene	75	5.002	5.002	(0.889)	323333	50.0000	46.24
	93 1,2,3-Trichlorobenzene	180	12.335	12.335	(1.205)	290474	50.0000	43.74
	71 1,2,3-Trichloropropane	75	9.426	9.426	(0.921)	390574	50.0000	47.24
	90 1,2,4-Trichlorobenzene	180	11.922	11.922	(1.165)	305143	50.0000	46.69
	79 1,2,4-Trimethylbenzene	105	9.943	9.943	(0.971)	893982	50.0000	48.39
	89 1,2-Dibromo-3-Chloropropane	155	11.233	11.233	(1.097)	48924	50.0000	40.20
	57 1,2-Dibromoethane	107	7.851	7.851	(0.952)	242501	50.0000	48.77

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122402.D Page 2
Report Date: 28-Jan-2019 14:34

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	10.569	10.569	(1.033)	486970	50.0000	46.46
33	1,2-Dichloroethane	62	5.250	5.250	(0.933)	352056	50.0000	49.72
42	1,2-Dichloropropane	63	6.078	6.078	(1.081)	267418	50.0000	48.16
75	1,3,5-Trimethylbenzene	105	9.624	9.624	(0.940)	854241	50.0000	48.15
83	1,3-Dichlorobenzene	146	10.179	10.179	(0.995)	487011	50.0000	46.46
54	1,3-Dichloropropane	76	7.563	7.563	(0.917)	448896	50.0000	48.28
84	1,4-Dichlorobenzene	146	10.254	10.254	(1.002)	501619	50.0000	45.38
26	2,2-Dichloropropane	77	4.271	4.271	(0.873)	274613	50.0000	49.98
24	2-Butanone	43	4.335	4.335	(0.886)	243142	100.000	87.52
76	2-Chlorotoluene	91	9.546	9.546	(0.933)	777485	50.0000	47.80
52	2-Hexanone	43	7.649	7.649	(0.927)	368317	100.000	91.42
77	4-Chlorotoluene	91	9.639	9.639	(0.942)	907472	50.0000	48.28
82	p-Isopropyltoluene	119	10.209	10.209	(0.997)	884191	50.0000	47.33
45	4-Methyl-2-Pentanone	43	6.910	6.910	(0.838)	534634	100.000	92.23
10	Acetone	43	2.476	2.476	(0.506)	147537	100.000	88.94
37	Benzene	78	5.216	5.216	(0.927)	1004828	50.0000	48.05
74	Bromobenzene	156	9.381	9.381	(0.917)	258984	50.0000	47.48
29	Bromochloromethane	128	4.552	4.552	(0.930)	120857	50.0000	54.73
39	Bromodichloromethane	83	6.348	6.348	(1.129)	296500	50.0000	50.21
66	Bromoform	173	8.983	8.983	(1.089)	134940	50.0000	43.62(T)
6	Bromomethane	94	1.666	1.666	(0.341)	126513	50.0000	48.43
19	Carbon Disulfide	76	2.588	2.588	(0.529)	1200523	100.000	81.85
34	Carbon Tetrachloride	117	4.995	4.995	(0.888)	244058	50.0000	42.90
59	Chlorobenzene	112	8.275	8.275	(1.003)	671654	50.0000	48.24
7	Chloroethane	64	1.748	1.748	(0.357)	182521	50.0000	48.65
28	Chloroform	83	4.654	4.654	(0.951)	423382	50.0000	48.21
3	Chloromethane	50	1.336	1.336	(0.273)	215757	50.0000	48.10
27	cis-1,2-Dichloroethene	96	4.283	4.283	(0.875)	268280	50.0000	48.21
46	cis-1,3-Dichloropropene	75	6.757	6.757	(1.201)	420747	50.0000	46.96
55	Dibromochloromethane	129	7.758	7.758	(0.940)	220452	50.0000	46.37
44	Dibromomethane	93	6.187	6.187	(1.100)	155992	50.0000	48.67
2	Dichlorodifluoromethane	85	1.201	1.201	(0.246)	217496	50.0000	41.83
61	Ethylbenzene	106	8.369	8.369	(1.015)	346487	50.0000	48.53
91	Hexachlorobutadiene	225	12.065	12.065	(1.179)	111829	50.0000	44.66
67	Isopropylbenzene	105	9.126	9.126	(1.106)	987775	50.0000	47.94
62	m,p-Xylenes	106	8.474	8.474	(1.027)	860607	100.000	98.04
17	Methylene Chloride	84	2.869	2.869	(0.586)	257324	50.0000	49.16
87	n-Butylbenzene	91	10.558	10.558	(1.031)	832522	50.0000	46.18
73	n-Propylbenzene	91	9.474	9.474	(0.926)	1249543	50.0000	47.37
92	Naphthalene	128	12.132	12.132	(1.185)	915226	50.0000	42.62
63	o-Xylene	106	8.811	8.811	(1.068)	438615	50.0000	49.53
81	sec-Butylbenzene	105	10.086	10.086	(0.985)	1017399	50.0000	45.89
64	Styrene	104	8.822	8.822	(1.070)	765253	50.0000	52.01
78	tert-Butylbenzene	119	9.902	9.902	(0.967)	704838	50.0000	45.96
56	Tetrachloroethene	164	7.521	7.521	(0.912)	165998	50.0000	43.76
50	Toluene	91	7.045	7.045	(0.854)	1057144	50.0000	49.05
20	trans-1,2-Dichloroethene	96	3.139	3.139	(0.642)	235322	50.0000	47.48
51	trans-1,3-Dichloropropene	75	7.259	7.259	(1.291)	354926	50.0000	46.11
38	Trichloroethene	130	5.861	5.861	(1.042)	235763	50.0000	46.70
8	Trichlorofluoromethane	101	1.951	1.951	(0.399)	307098	50.0000	44.08
5	Vinyl Chloride	62	1.419	1.419	(0.290)	265095	50.0000	44.38

QC Flag Legend

T - Target compound detected outside RT window.



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122402.D
Date : 24-DEC-2018 09:52
Client ID: VSTD050
Sample Info: VSTD050;VSTD050;2;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122403.D
Lab Smp Id: VLCSW-1812024 Client Smp ID: VLCSW-181224
Inj Date : 24-DEC-2018 10:17
Operator : PC Inst ID: VOA9.i
Smp Info : VLCSW-1812024;VLCSW-181224;3;;LCS
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 3 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

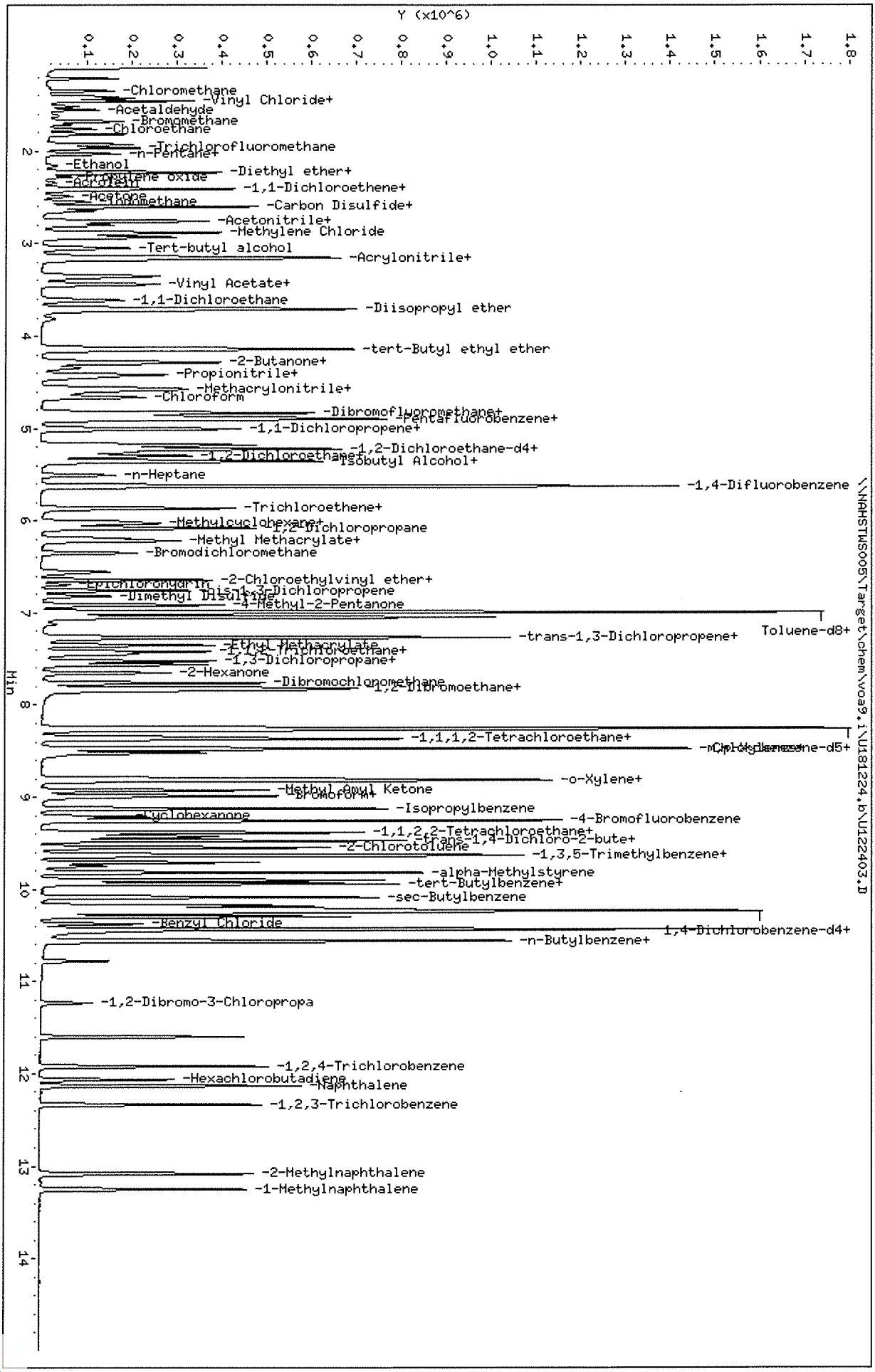
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.897	4.894	(1.000)	406772	50.0000	
* 36 1,4-Difluorobenzene	114	5.628	5.625	(1.000)	758509	50.0000	
* 47 Chlorobenzene-d5	117	8.249	8.249	(1.000)	703027	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.235	10.235	(1.000)	339524	50.0000	
$ 30 Dibromofluoromethane	113	4.834	4.826	(0.987)	227871	50.7883	50.78
$ 35 1,2-Dichloroethane-d4	65	5.178	5.171	(1.057)	299407	52.0910	52.09
$ 48 Toluene-d8	98	6.989	6.989	(0.847)	921570	50.7919	50.79
$ 69 4-Bromofluorobenzene	95	9.257	9.257	(1.122)	357826	51.8285	51.82
60 1,1,1,2-Tetrachloroethane	131	8.350	8.350	(1.012)	88375	20.1633	20.16
31 1,1,1-Trichloroethane	97	4.830	4.826	(0.986)	135603	21.1125	21.11
68 1,1,2,2-Tetrachloroethane	83	9.392	9.392	(0.918)	153489	20.0739	20.07
138 Freon TF	101	2.412	2.401	(0.493)	72333	20.9166	20.91
53 1,1,2-Trichloroethane	83	7.420	7.420	(0.900)	88710	21.1796	21.17
22 1,1-Dichloroethane	63	3.612	3.600	(0.737)	184709	21.0852	21.08
11 1,1-Dichloroethene	96	2.408	2.401	(0.492)	78960	20.4156	20.41
32 1,1-Dichloropropene	75	5.010	5.002	(0.890)	141680	20.9930	20.99
93 1,2,3-Trichlorobenzene	180	12.335	12.335	(1.205)	127493	20.3080	20.30
71 1,2,3-Trichloropropane	75	9.426	9.426	(0.921)	160947	20.2426	20.24
90 1,2,4-Trichlorobenzene	180	11.922	11.922	(1.165)	133328	21.2102	21.21
79 1,2,4-Trimethylbenzene	105	9.943	9.943	(0.971)	396053	22.2910	22.29
89 1,2-Dibromo-3-Chloropropane	155	11.233	11.233	(1.097)	20393	18.2464	18.24
57 1,2-Dibromoethane	107	7.851	7.851	(0.952)	102168	21.1780	21.17

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122403.D Page 2
Report Date: 28-Jan-2019 14:34

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
88	1,2-Dichlorobenzene	146	10.569	10.569	(1.033)	207631	20.5957	20.59
33	1,2-Dichloroethane	62	5.257	5.250	(0.934)	150051	21.5444	21.54
42	1,2-Dichloropropane	63	6.082	6.078	(1.081)	111360	20.7777	20.77
75	1,3,5-Trimethylbenzene	105	9.624	9.624	(0.940)	377636	22.1314	22.13
83	1,3-Dichlorobenzene	146	10.179	10.179	(0.995)	211456	20.9736	20.97
54	1,3-Dichloropropane	76	7.563	7.563	(0.917)	190232	21.0858	21.08
84	1,4-Dichlorobenzene	146	10.254	10.254	(1.002)	215686	20.2900	20.28
26	2,2-Dichloropropane	77	4.279	4.271	(0.874)	116146	22.0006	22.00
24	2-Butanone	43	4.343	4.335	(0.887)	107059	38.7900	38.78
76	2-Chlorotoluene	91	9.546	9.546	(0.933)	335605	21.4534	21.45
52	2-Hexanone	43	7.649	7.649	(0.927)	158802	40.6220	40.62
77	4-Chlorotoluene	91	9.639	9.639	(0.942)	393315	21.7570	21.75
82	p-Isopropyltoluene	119	10.209	10.209	(0.997)	401121	22.3263	22.32
45	4-Methyl-2-Pentanone	43	6.914	6.910	(0.838)	230112	40.9097	40.90
10	Acetone	43	2.487	2.476	(0.508)	66585	40.1746	40.17
37	Benzene	78	5.223	5.216	(0.928)	426379	21.1248	21.12
74	Bromobenzene	156	9.381	9.381	(0.917)	109171	20.8108	20.81
29	Bromochloromethane	128	4.560	4.552	(0.931)	50277	21.9350	21.93
39	Bromodichloromethane	83	6.348	6.348	(1.128)	120773	21.1903	21.19
66	Bromoform	173	8.983	8.983	(1.089)	52936	18.6861	18.68
6	Bromomethane	94	1.681	1.666	(0.343)	57771	23.7209	23.72
19	Carbon Disulfide	76	2.599	2.588	(0.531)	587803	41.7101	41.71
34	Carbon Tetrachloride	117	4.999	4.995	(0.888)	106164	20.1057	20.10
59	Chlorobenzene	112	8.275	8.275	(1.003)	283627	20.9972	20.99
7	Chloroethane	64	1.763	1.748	(0.360)	75051	21.2783	21.27(M)
28	Chloroform	83	4.661	4.654	(0.952)	177187	21.0026	21.00
3	Chloromethane	50	1.347	1.336	(0.275)	95716	23.9974	23.99
27	cis-1,2-Dichloroethene	96	4.290	4.283	(0.876)	112668	21.0722	21.07
46	cis-1,3-Dichloropropene	75	6.760	6.757	(1.201)	165133	19.8487	19.84
55	Dibromochloromethane	129	7.758	7.758	(0.940)	86605	19.3564	19.35
44	Dibromomethane	93	6.191	6.187	(1.100)	66144	21.3834	21.38
2	Dichlorodifluoromethane	85	1.212	1.201	(0.248)	99637	20.1990	20.19
61	Ethylbenzene	106	8.372	8.369	(1.015)	150022	21.6543	21.65
91	Hexachlorobutadiene	225	12.065	12.065	(1.179)	46864	19.4594	19.45
67	Isopropylbenzene	105	9.126	9.126	(1.106)	444629	22.2408	22.24
62	m,p-Xylenes	106	8.474	8.474	(1.027)	373925	43.9025	43.90
17	Methylene Chloride	84	2.881	2.869	(0.588)	110110	21.2264	21.22
87	n-Butylbenzene	91	10.558	10.558	(1.031)	382218	22.0444	22.04
73	n-Propylbenzene	91	9.474	9.474	(0.926)	566860	22.3442	22.34
92	Naphthalene	128	12.132	12.132	(1.185)	398777	19.5931	19.59
63	o-Xylene	106	8.811	8.811	(1.068)	188789	21.9718	21.97
81	sec-Butylbenzene	105	10.086	10.086	(0.985)	470724	22.0778	22.07
64	Styrene	104	8.826	8.822	(1.070)	319620	22.3899	22.38
78	tert-Butylbenzene	119	9.902	9.902	(0.967)	326809	22.1594	22.15
56	Tetrachloroethene	164	7.525	7.521	(0.912)	74823	20.3294	20.32
50	Toluene	91	7.049	7.045	(0.855)	451266	21.5785	21.57
20	trans-1,2-Dichloroethene	96	3.150	3.139	(0.643)	100128	21.0291	21.02
51	trans-1,3-Dichloropropene	75	7.263	7.259	(1.290)	137974	19.5584	19.55
38	Trichloroethene	130	5.864	5.861	(1.042)	101926	20.9180	20.91
8	Trichlorofluoromethane	101	1.966	1.951	(0.401)	138983	21.0959	21.09
5	Vinyl Chloride	62	1.430	1.419	(0.292)	121149	21.6176	21.61

QC Flag Legend

M - Compound response manually integrated.



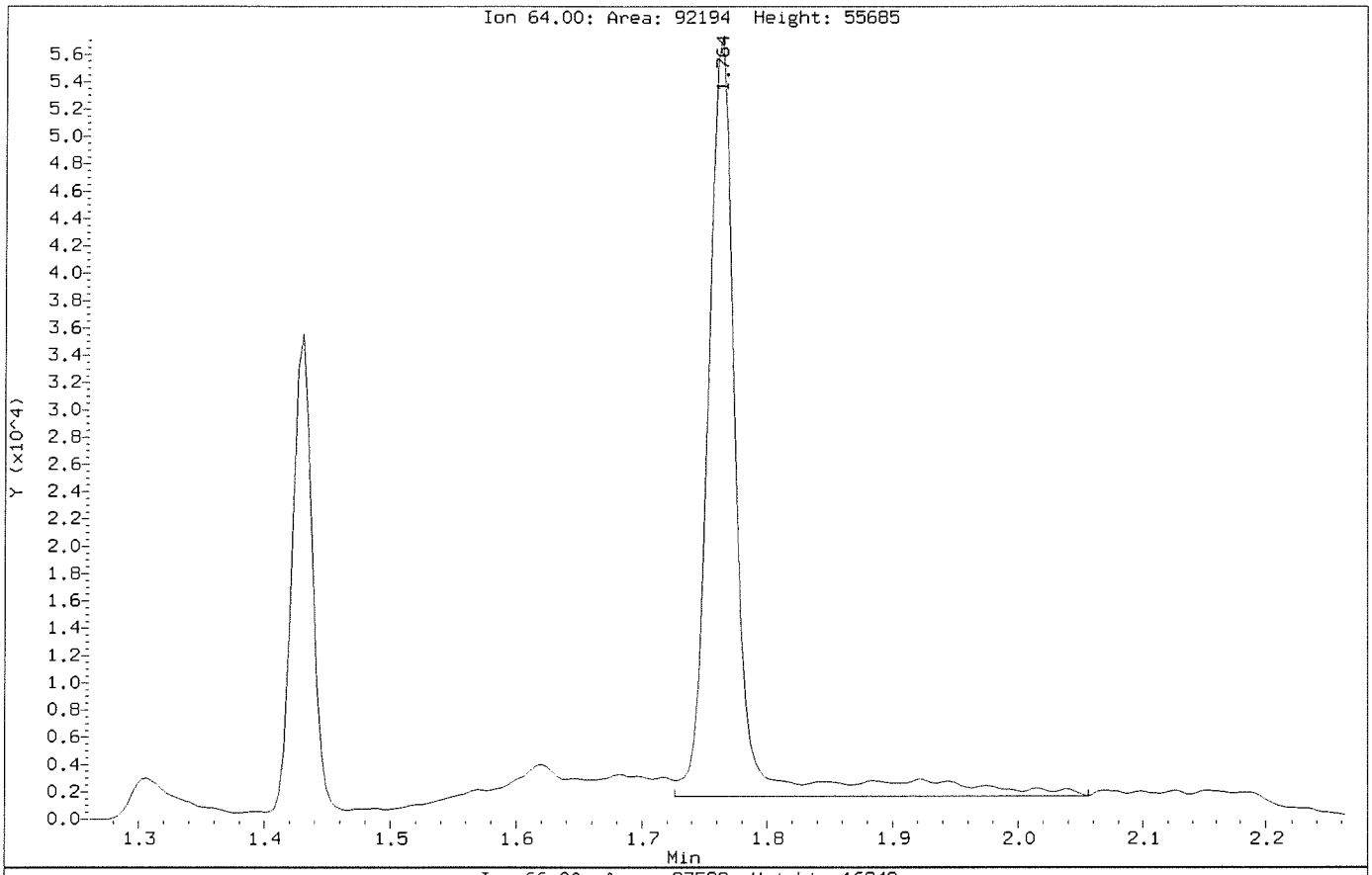
Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122403.D
Date : 24-DEC-2018 10:17
Client ID: VLCSW-181224
Sample Info: VLCSW-1812024;VLCSW-181224;3;;LCS
Purge Volume: 5.0
Column phase: DB624

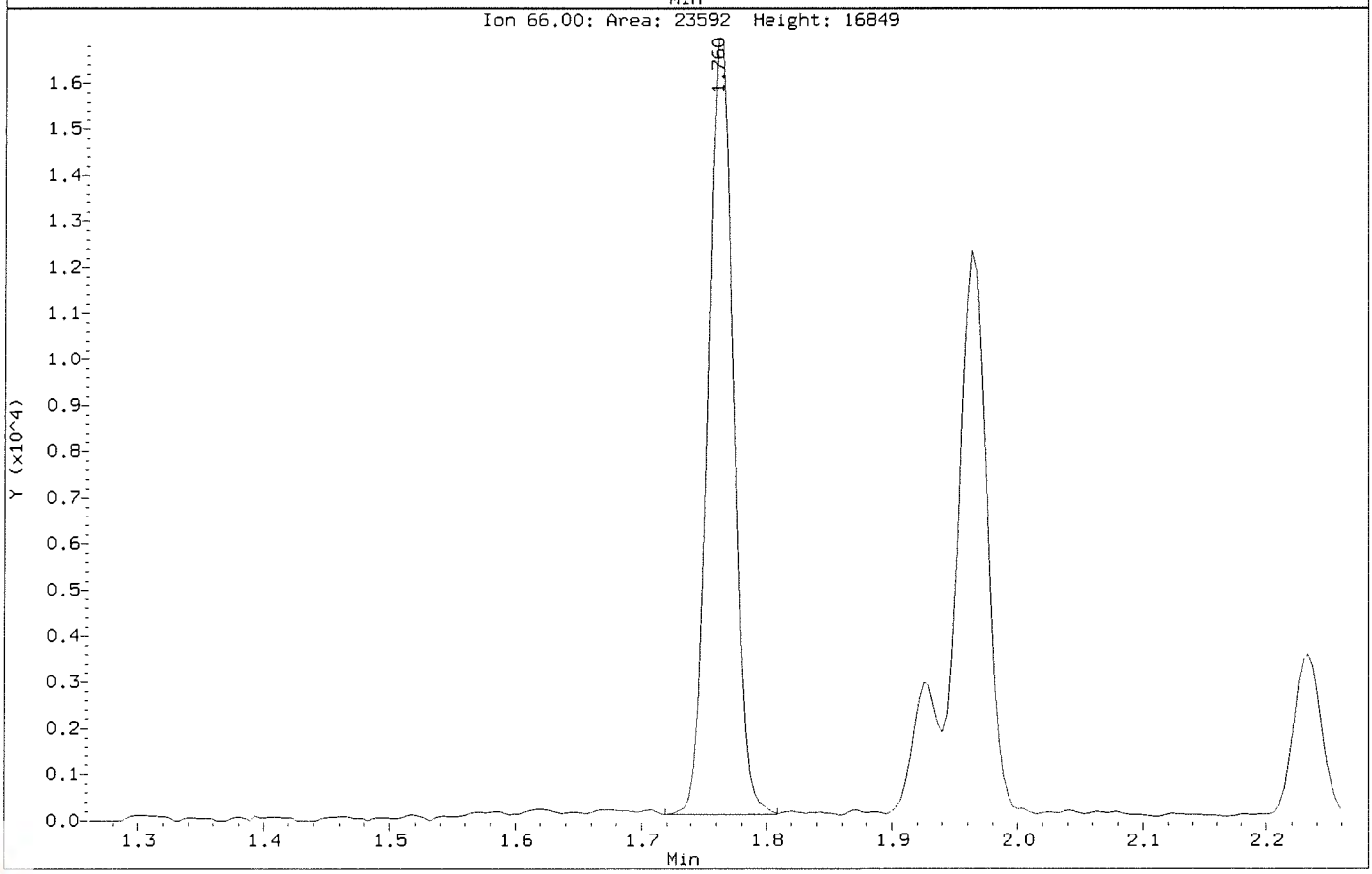
Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

\\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122403.D

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\Before\U122403.D
Injection Date: 24-DEC-2018 10:17
Instrument: VOA9.i
Client Sample ID: VLCSW-181224

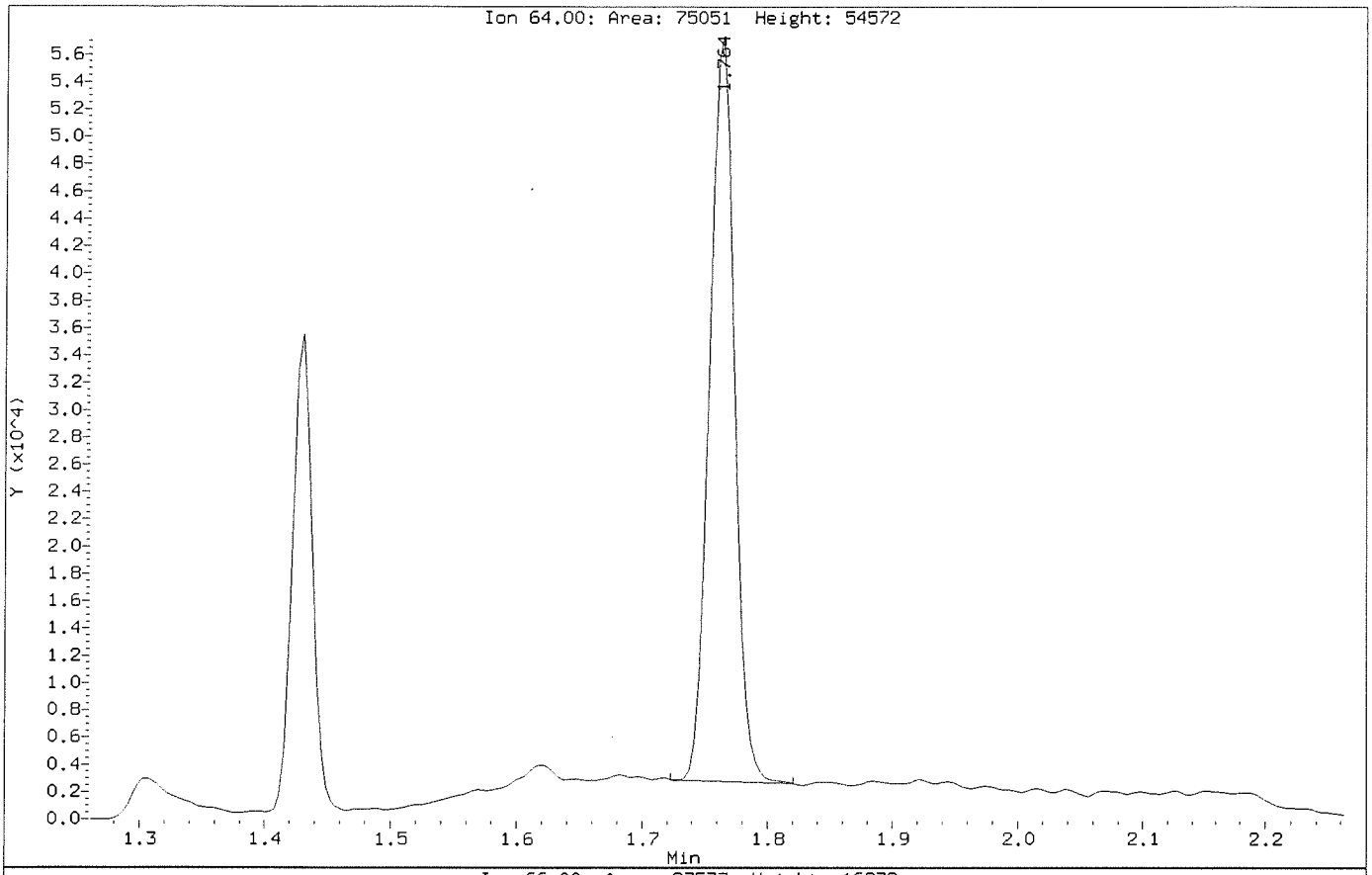
Compound: Chloroethane
CAS Number: 75-00-3

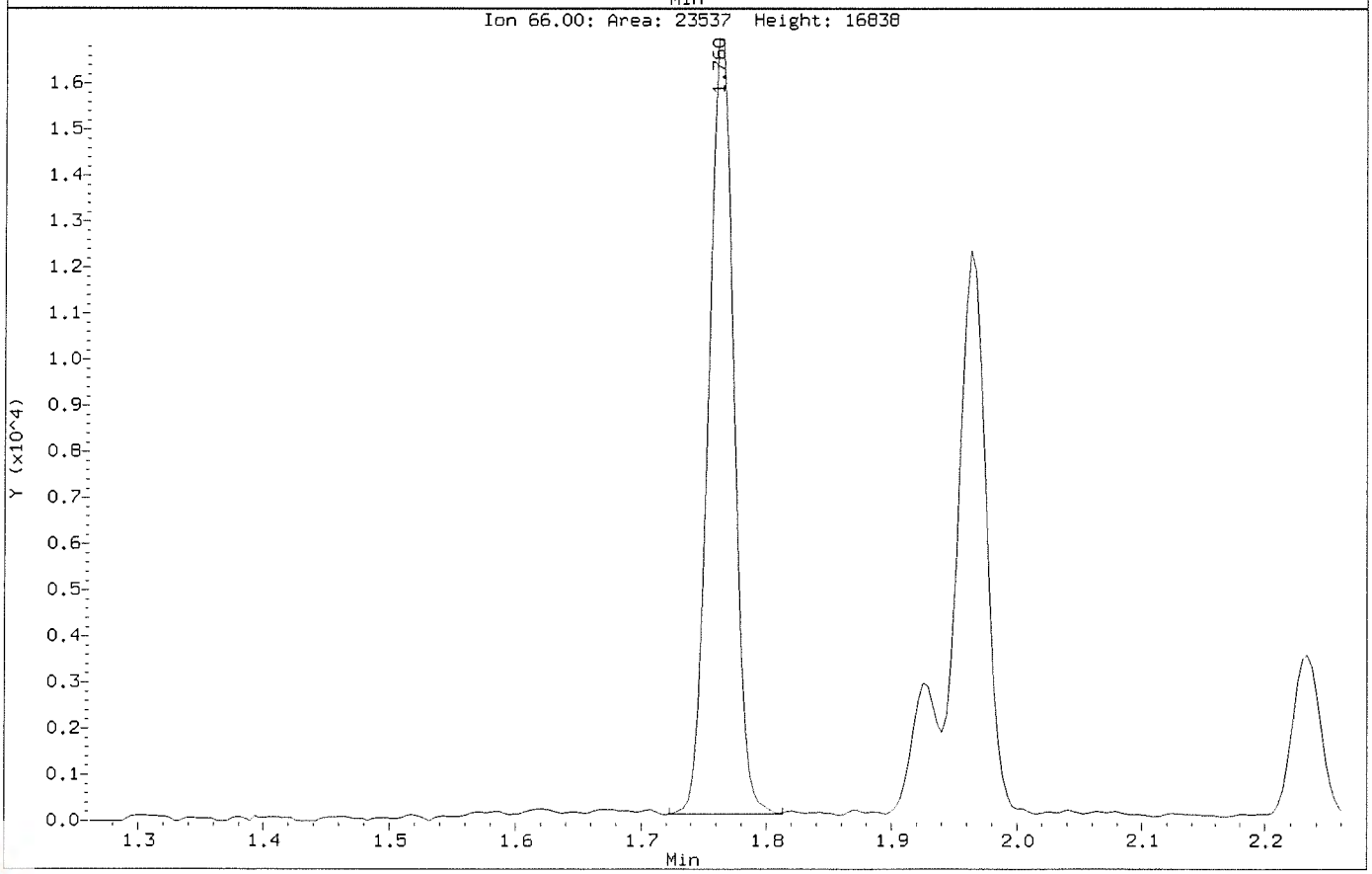




Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122403.D
Injection Date: 24-DEC-2018 10:17
Instrument: VOA9.i
Client Sample ID: VLCSW-181224

Compound: Chloroethane
CAS Number: 75-00-3





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Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122405.D
Lab Smp Id: VBLKW-181224 Client Smp ID: VBLKW-181224
Inj Date : 24-DEC-2018 11:06
Operator : PC Inst ID: VOA9.i
Smp Info : VBLKW-181224;VBLKW-181224;3;;BLANK
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 5 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.897	4.894	(1.000)	360724	50.0000	
* 36 1,4-Difluorobenzene	114	5.628	5.625	(1.000)	632508	50.0000	
* 47 Chlorobenzene-d5	117	8.249	8.249	(1.000)	571876	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.235	10.235	(1.000)	263882	50.0000	
$ 30 Dibromofluoromethane	113	4.834	4.826	(0.987)	177273	44.3672	44.36
$ 35 1,2-Dichloroethane-d4	65	5.179	5.171	(1.057)	242561	47.4005	47.40
$ 48 Toluene-d8	98	6.989	6.989	(0.847)	770698	52.2682	52.26
$ 69 4-Bromofluorobenzene	95	9.257	9.257	(1.122)	271263	48.2038	48.20

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122405.D

Date : 24-DEC-2018 11:06

Client ID: VBLKW-181224

Instrument: VOA9.i

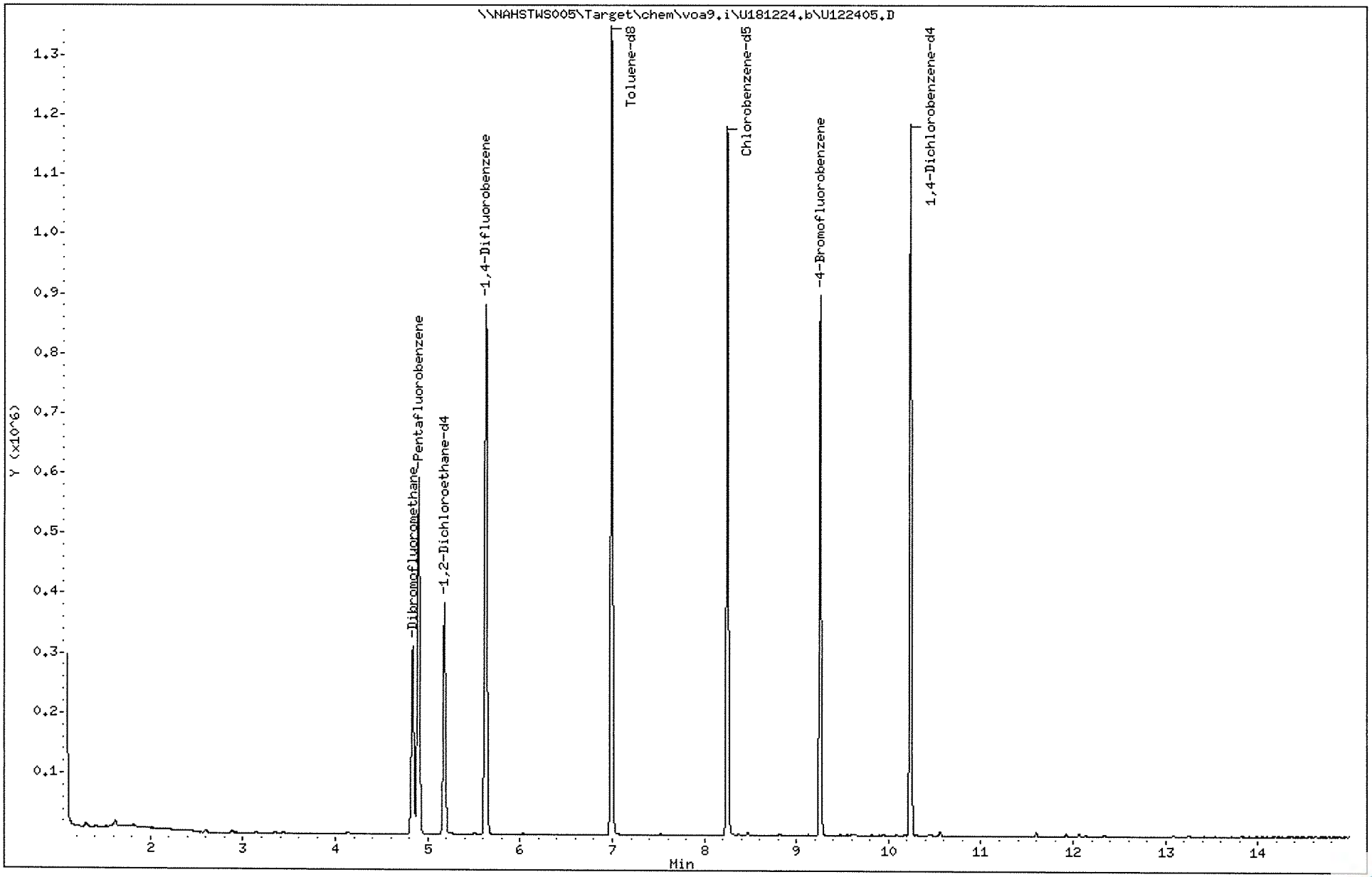
Sample Info: VBLKW-181224;VBLKW-181224;3;;BLANK

Purge Volume: 5.0

Operator: PC

Column phase: DB624

Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122407.D Page 1
Report Date: 28-Jan-2019 14:43

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122407.D
Lab Smp Id: HS18120913-03 Client Smp ID: HS18120913-03
Inj Date : 24-DEC-2018 11:55
Operator : PC Inst ID: VOA9.i
Smp Info : HS18120913-03;HS18120913-03;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

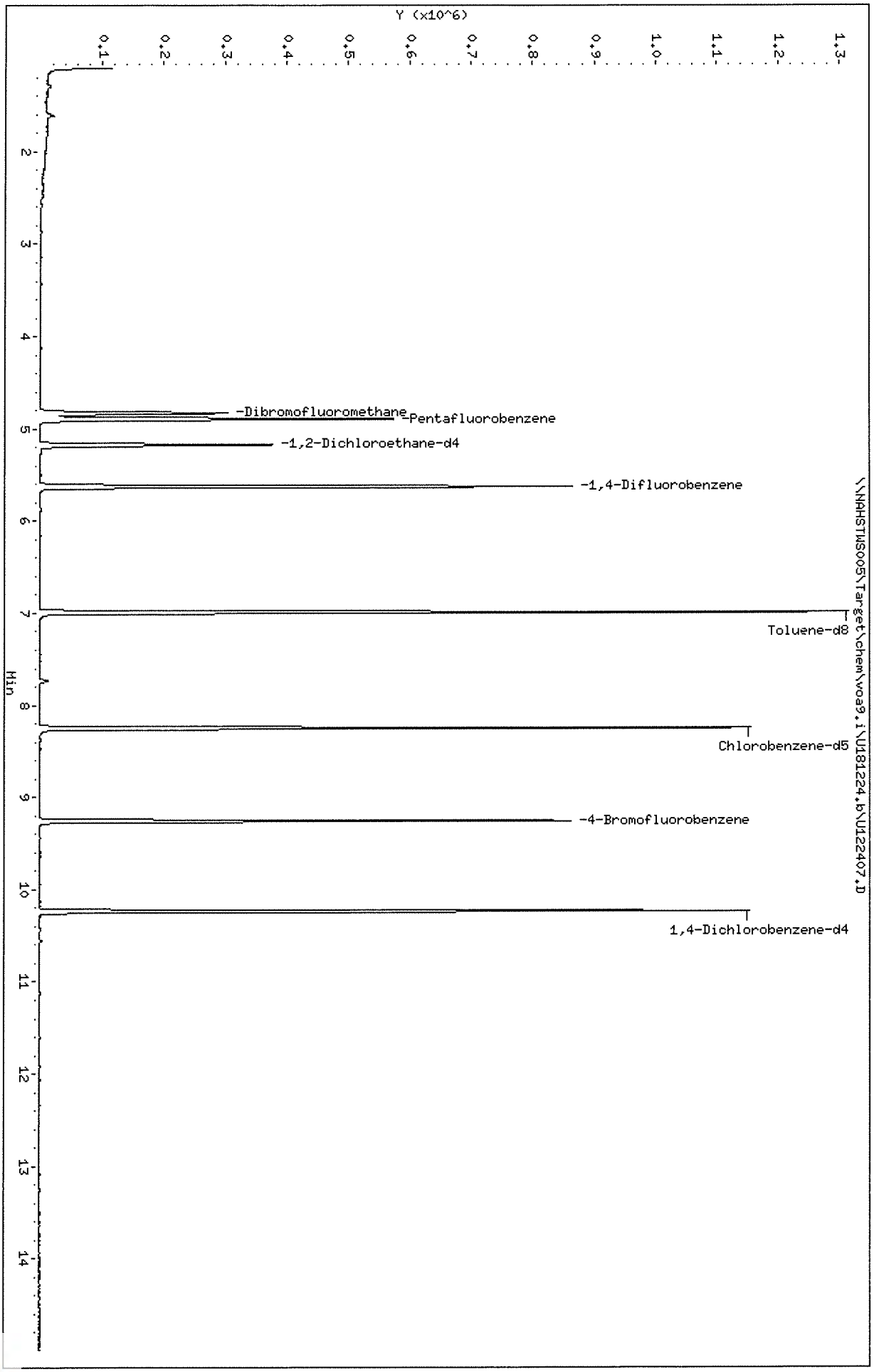
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.894	4.902	(1.000)	357809	50.0000	
* 36 1,4-Difluorobenzene	114	5.625	5.629	(1.000)	616128	50.0000	
* 47 Chlorobenzene-d5	117	8.249	8.253	(1.000)	557826	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	260126	50.0000	
$ 30 Dibromofluoromethane	113	4.826	4.834	(0.986)	177171	44.7145	44.71
$ 35 1,2-Dichloroethane-d4	65	5.171	5.179	(1.057)	240522	47.3842	47.38
$ 48 Toluene-d8	98	6.989	6.990	(0.847)	761578	52.9739	52.97
$ 69 4-Bromofluorobenzene	95	9.257	9.258	(1.122)	270514	49.3135	49.31

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122407.D
Date : 24-DEC-2018 11:55
Client ID: HS18120913-03
Sample Info: HS18120913-03;HS18120913-03;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122412.D
Lab Smp Id: HS18120913-01 Client Smp ID: HS18120913-01
Inj Date : 24-DEC-2018 13:59
Operator : PC Inst ID: VOA9.i
Smp Info : HS18120913-01;HS18120913-01;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 12
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

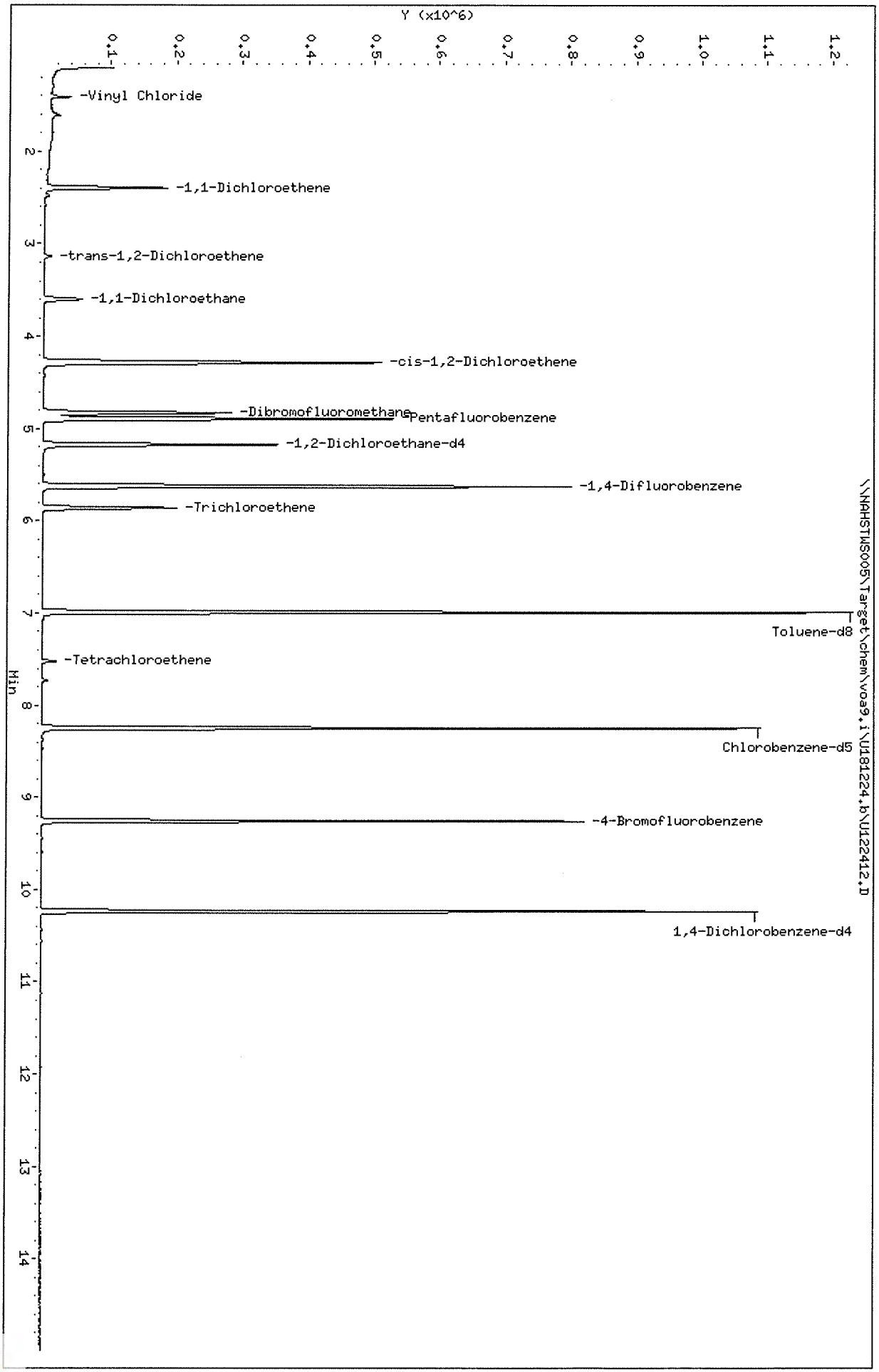
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.894	4.902	(1.000)	329698	50.0000	
* 36 1,4-Difluorobenzene	114	5.625	5.629	(1.000)	578134	50.0000	
* 47 Chlorobenzene-d5	117	8.249	8.253	(1.000)	523015	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	239609	50.0000	
$ 30 Dibromofluoromethane	113	4.826	4.834	(0.986)	164168	44.9740	44.97
$ 35 1,2-Dichloroethane-d4	65	5.171	5.179	(1.057)	226046	48.3726	48.37
$ 48 Toluene-d8	98	6.989	6.990	(0.847)	706093	52.3635	52.36
$ 69 4-Bromofluorobenzene	95	9.257	9.258	(1.122)	249872	48.5611	48.56
22 1,1-Dichloroethane	63	3.601	3.612	(0.736)	58072	8.17884	8.17
11 1,1-Dichloroethene	96	2.394	2.409	(0.489)	60832	19.4053	19.40
27 cis-1,2-Dichloroethene	96	4.283	4.294	(0.875)	236665	54.6108	54.61
56 Tetrachloroethene	164	7.526	7.526	(0.912)	4268	1.55874	1.55(a)
20 trans-1,2-Dichloroethene	96	3.136	3.151	(0.641)	3498	0.90640	0.90(a)
38 Trichloroethene	130	5.861	5.865	(1.042)	60368	16.2545	16.25
5 Vinyl Chloride	62	1.415	1.430	(0.289)	19087	4.98256	4.98(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122412.D
Date : 24-DEC-2018 13:59
Client ID: HS18120913-01
Sample Info: HS18120913-01;HS18120913-01;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122412.D

Date : 24-DEC-2018 13:59

Client ID: HS18120913-01

Instrument: VOA9.i

Sample Info: HS18120913-01;HS18120913-01;;;

Purge Volume: 5.0

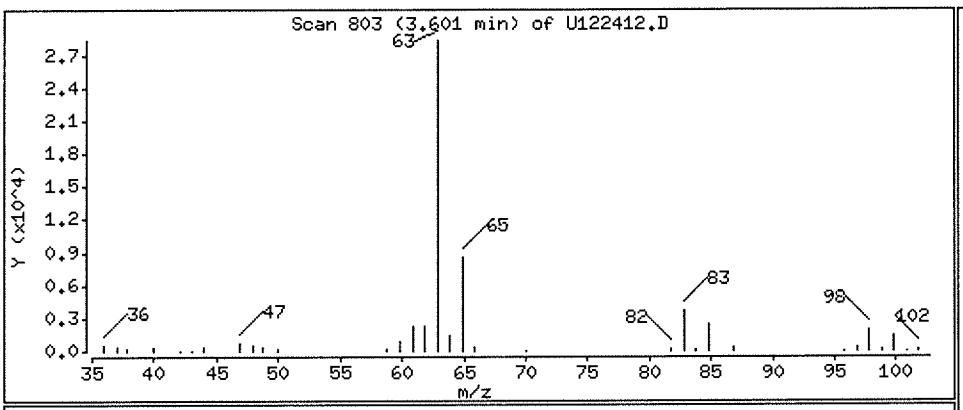
Operator: PC

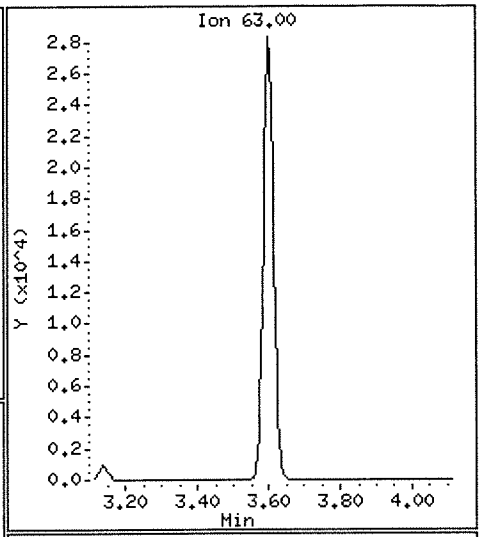
Column phase: DB624

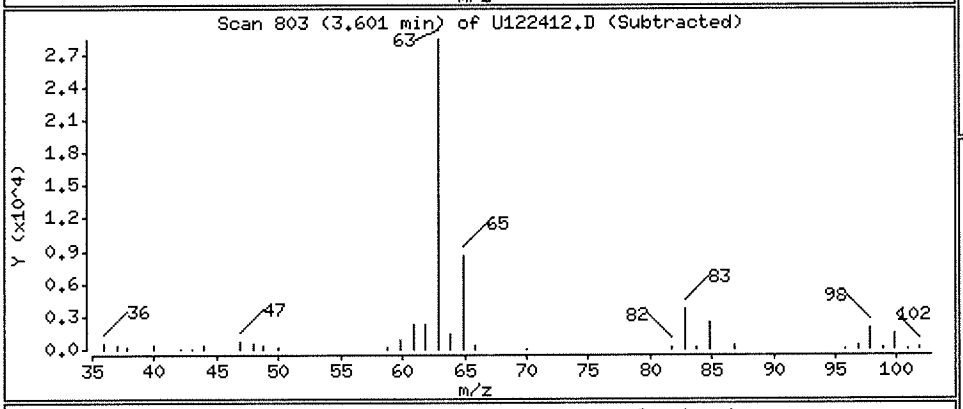
Column diameter: 0.18

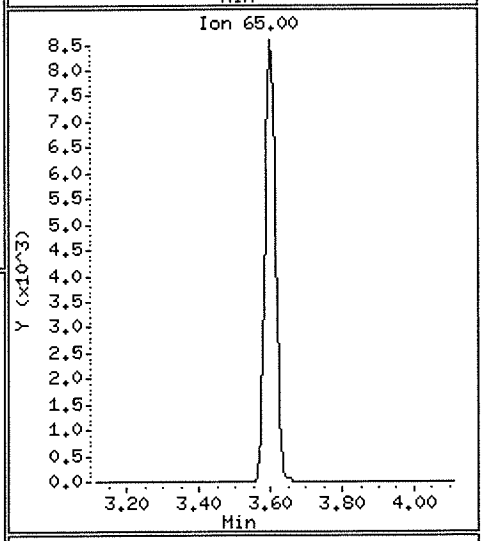
22 1,1-Dichloroethane

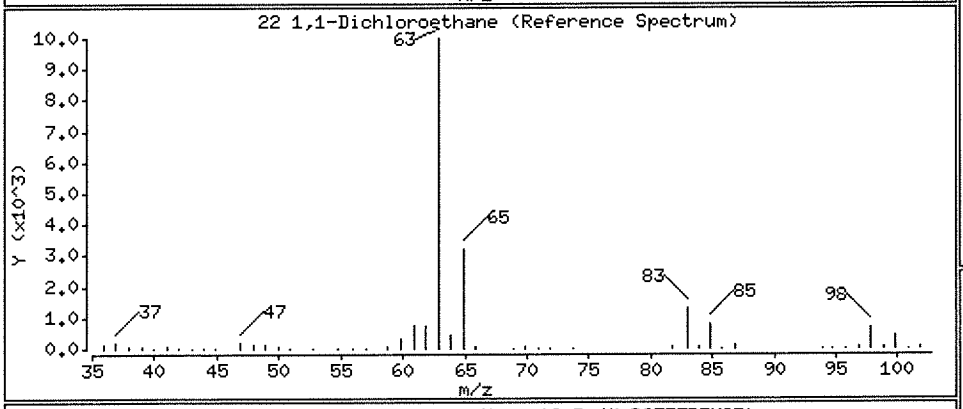
Concentration: 8.17 ug/l

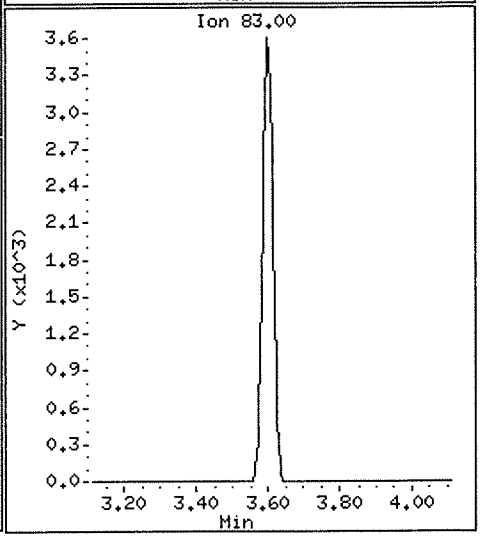


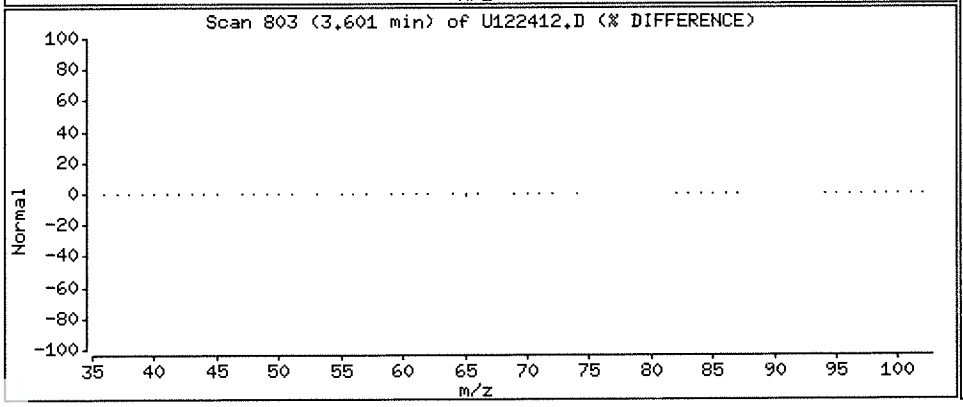












Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122412.D

Date : 24-DEC-2018 13:59

Client ID: HS18120913-01

Instrument: VOA9.i

Sample Info: HS18120913-01;HS18120913-01;;;

Purge Volume: 5.0

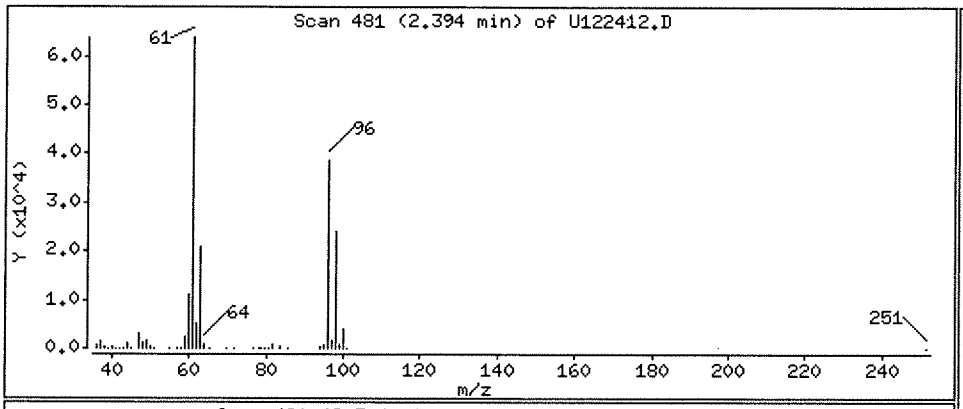
Operator: PC

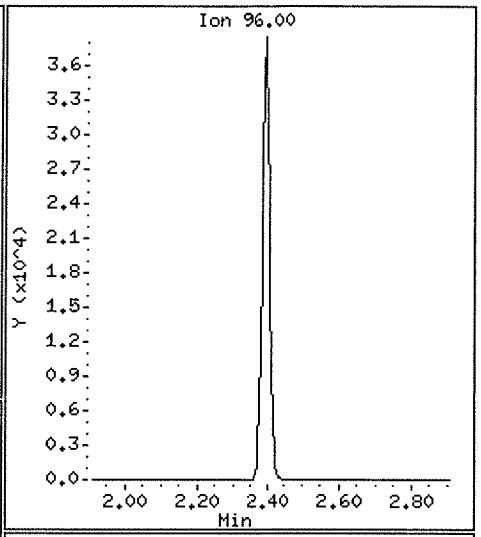
Column phase: DB624

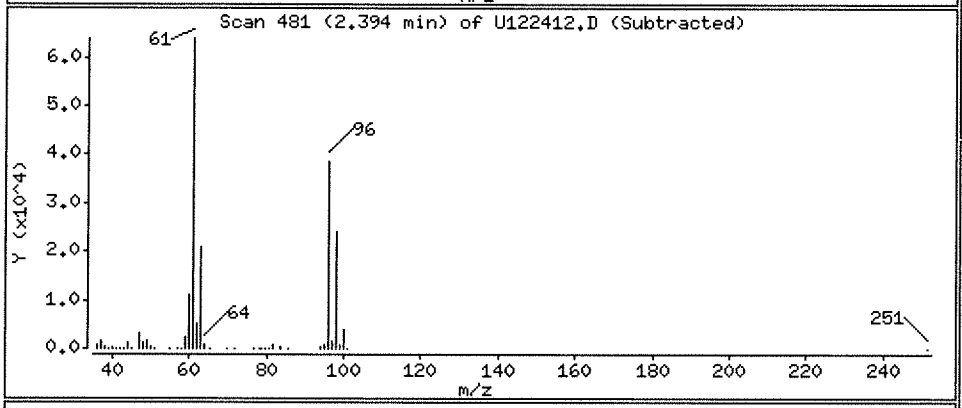
Column diameter: 0.18

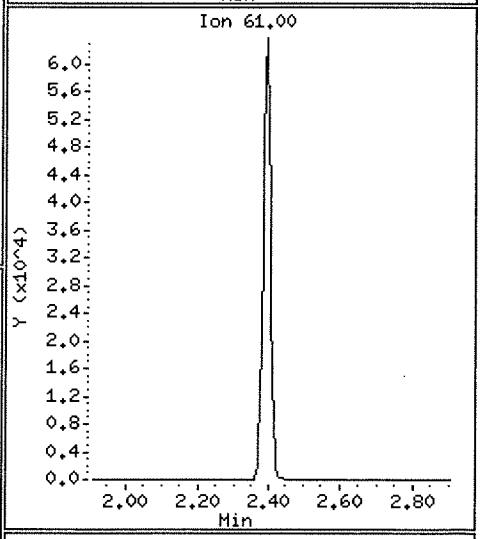
11 1,1-Dichloroethene

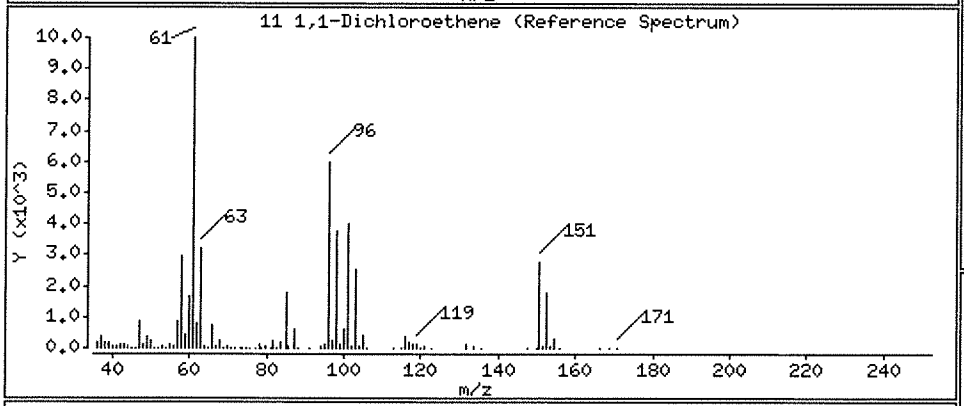
Concentration: 19.40 ug/l

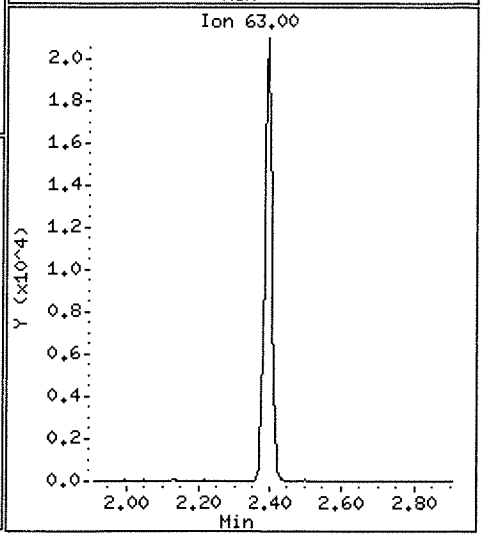


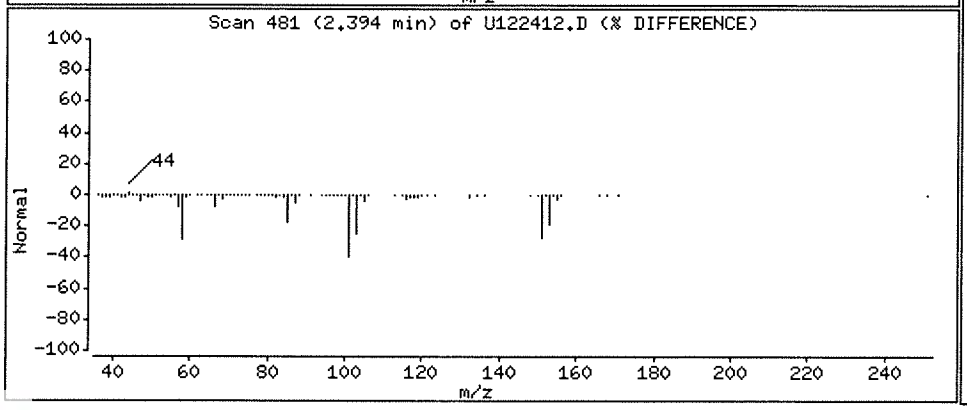












Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122412.D

Date : 24-DEC-2018 13:59

Client ID: HS18120913-01

Instrument: VOA9.i

Sample Info: HS18120913-01;HS18120913-01;;;

Purge Volume: 5.0

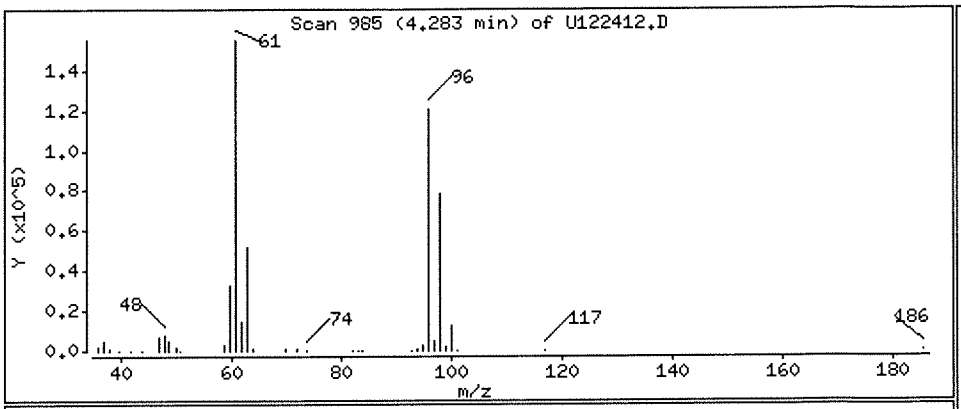
Operator: PC

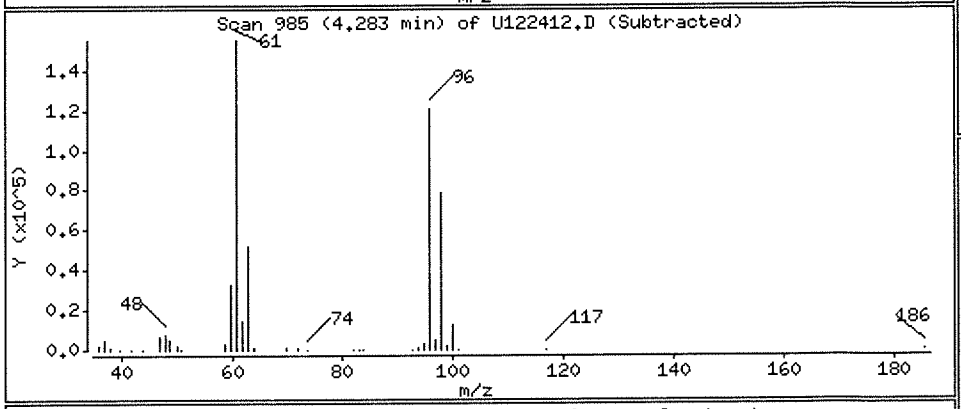
Column phase: DB624

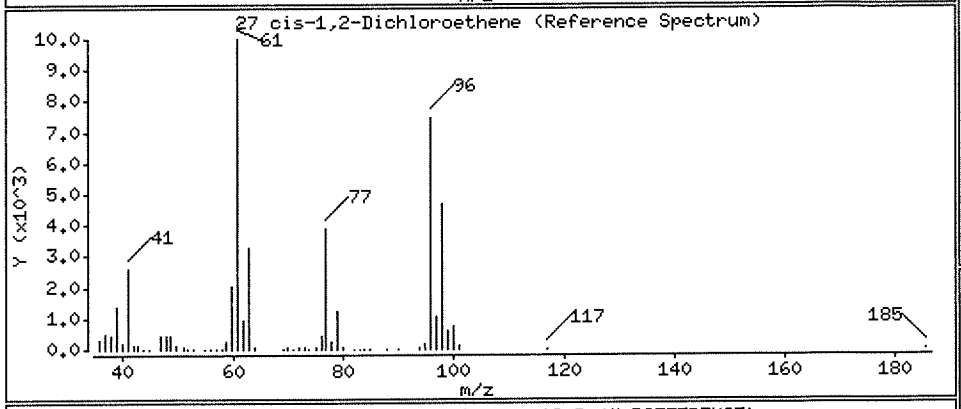
Column diameter: 0.18

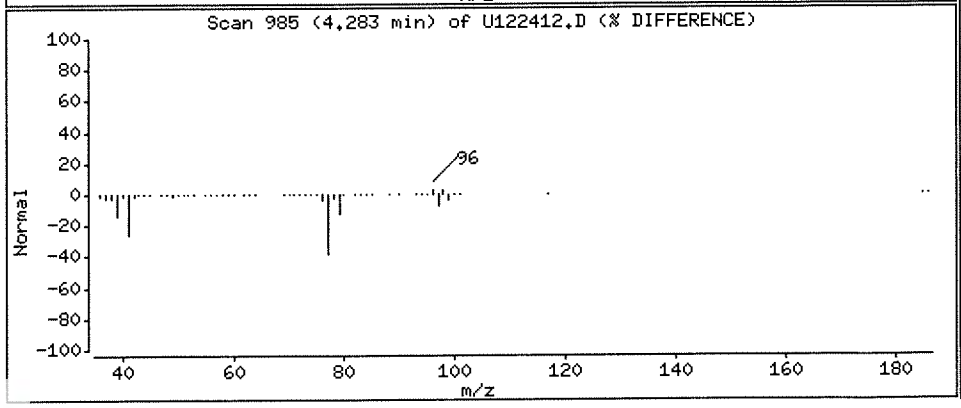
27 cis-1,2-Dichloroethene

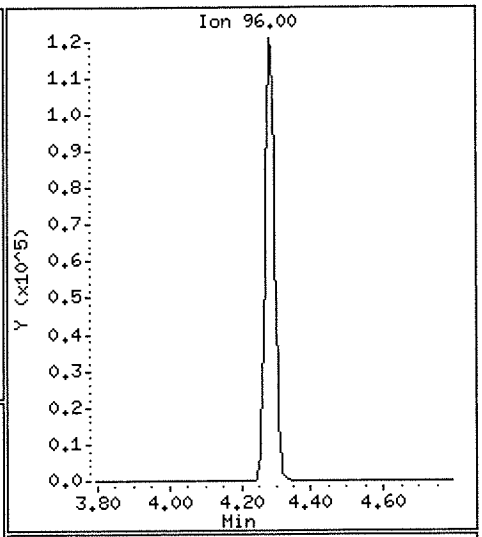
Concentration: 54.61 ug/l

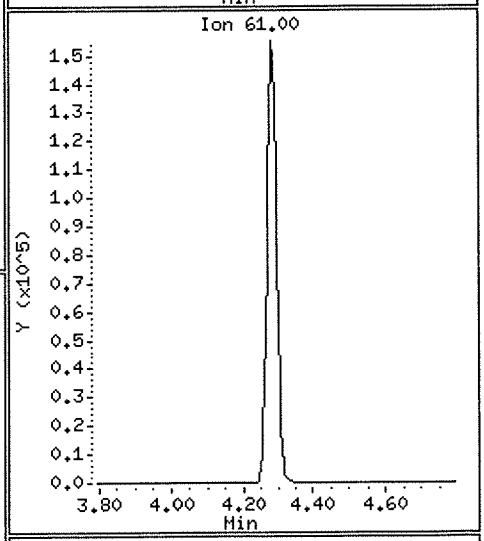


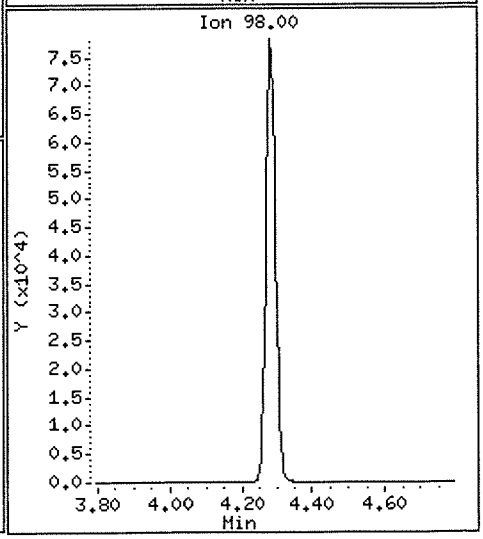












Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122412.D

Date : 24-DEC-2018 13:59

Client ID: HS18120913-01

Instrument: VOA9.i

Sample Info: HS18120913-01;HS18120913-01;;;

Purge Volume: 5.0

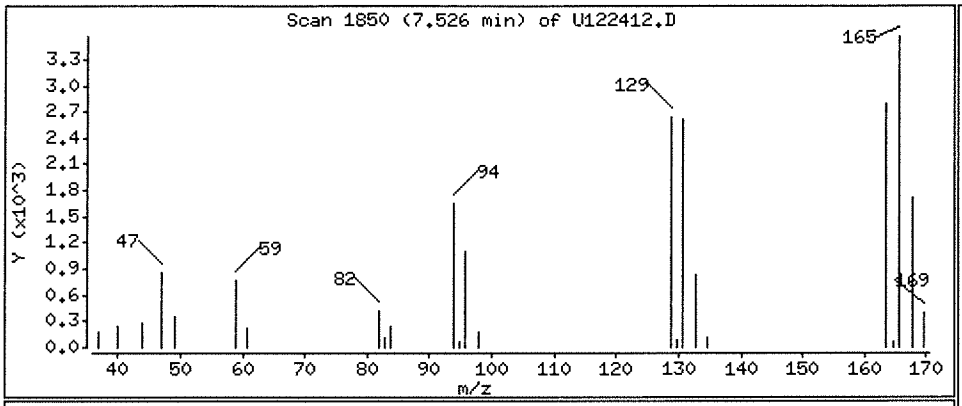
Operator: PC

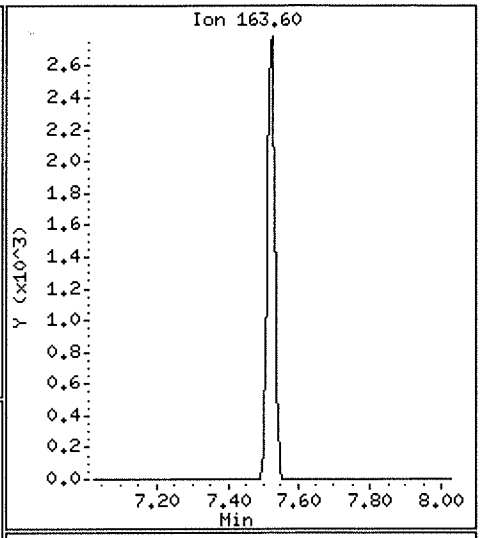
Column phase: DB624

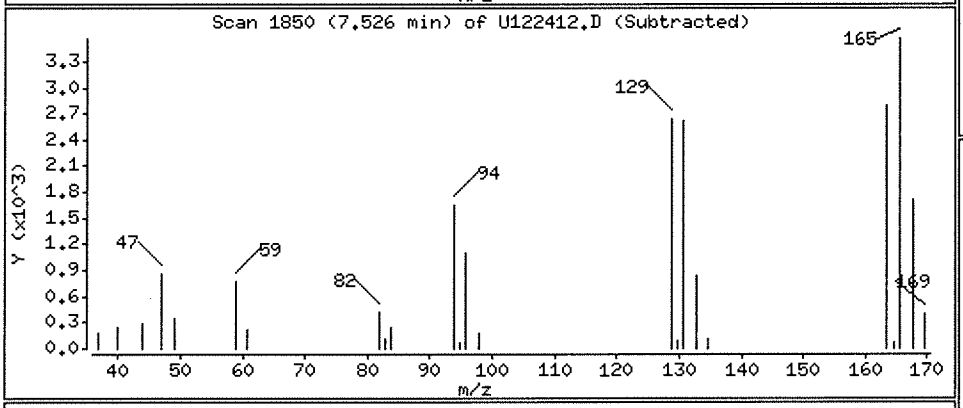
Column diameter: 0.18

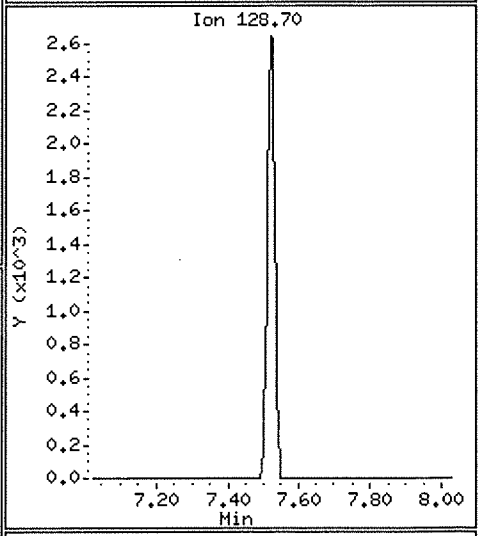
56 Tetrachloroethene

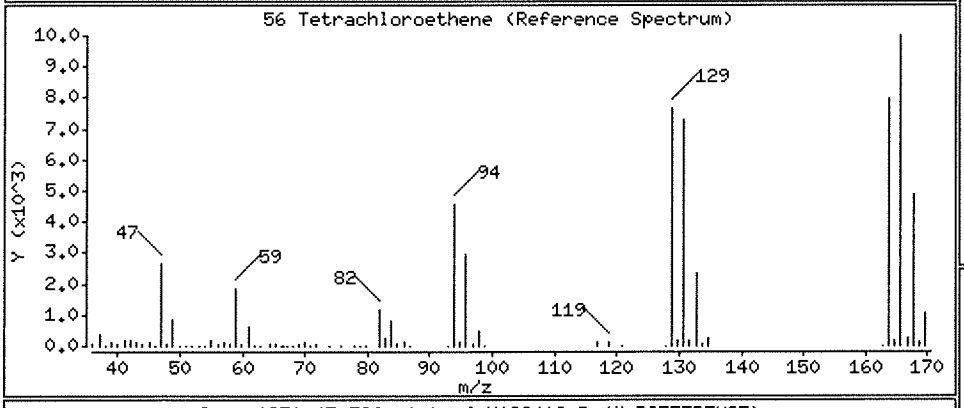
Concentration: 1.55 ug/l

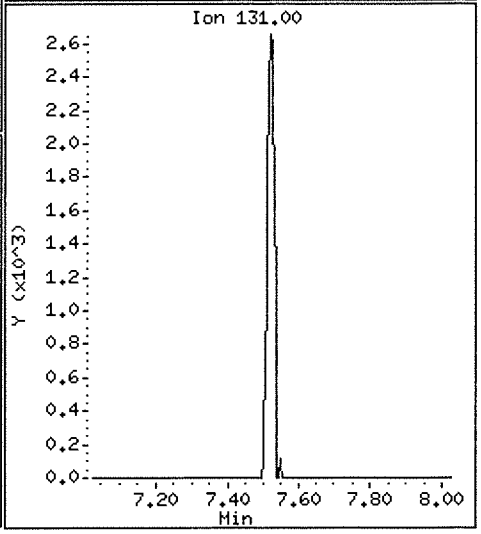


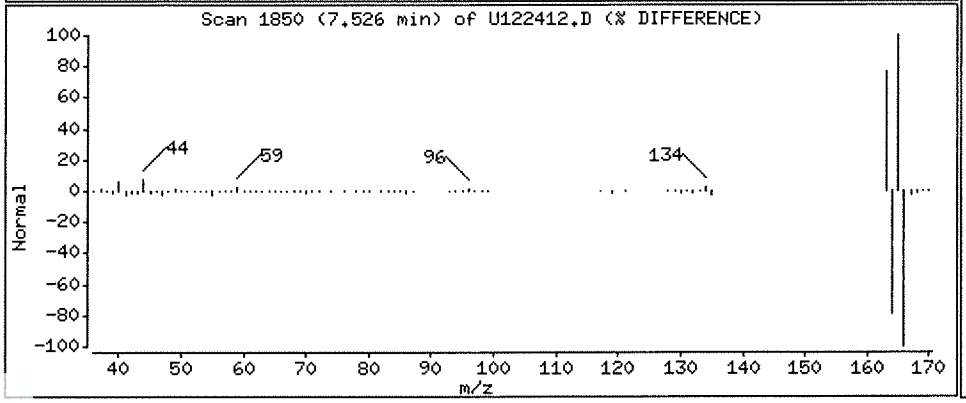












Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122412.D

Date : 24-DEC-2018 13:59

Client ID: HS18120913-01

Instrument: VOA9.i

Sample Info: HS18120913-01;HS18120913-01;;;

Purge Volume: 5.0

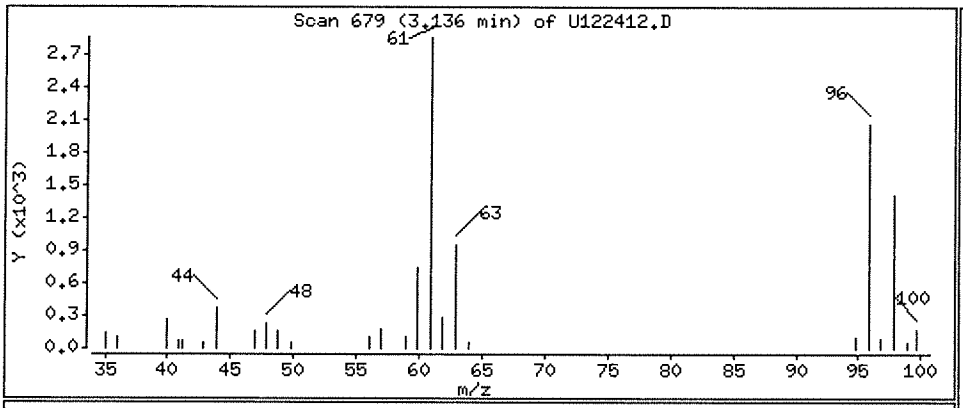
Operator: PC

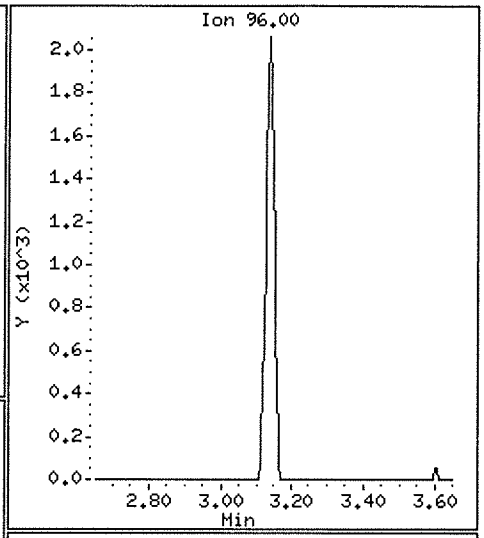
Column phase: DB624

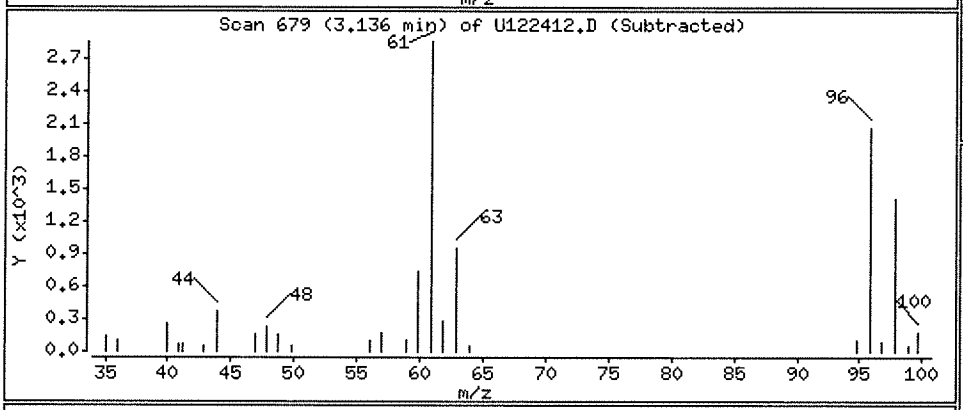
Column diameter: 0.18

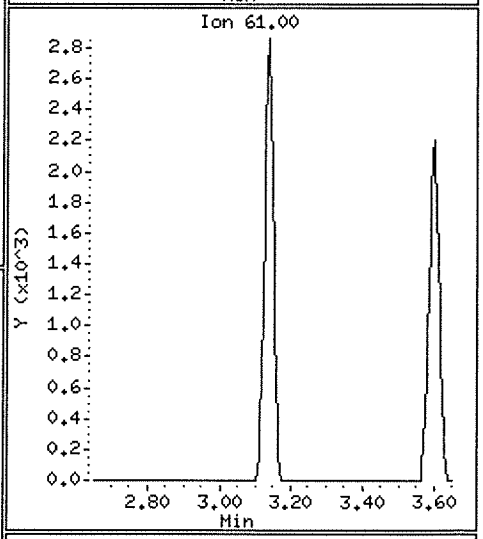
20 trans-1,2-Dichloroethene

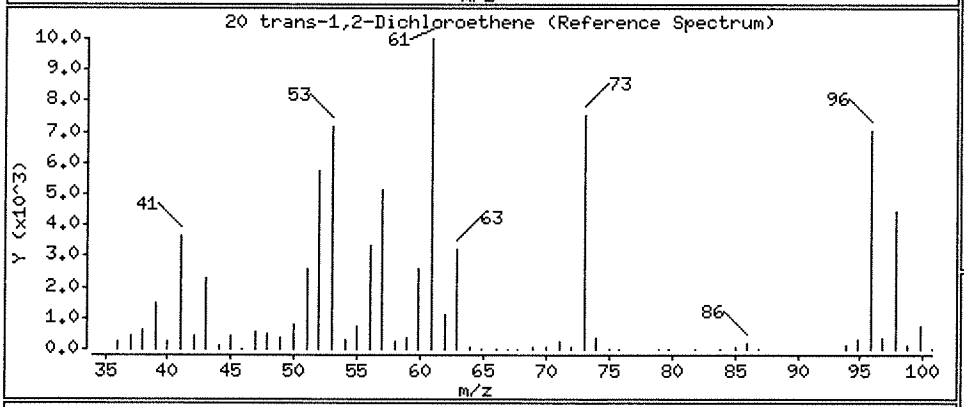
Concentration: 0.90 ug/l

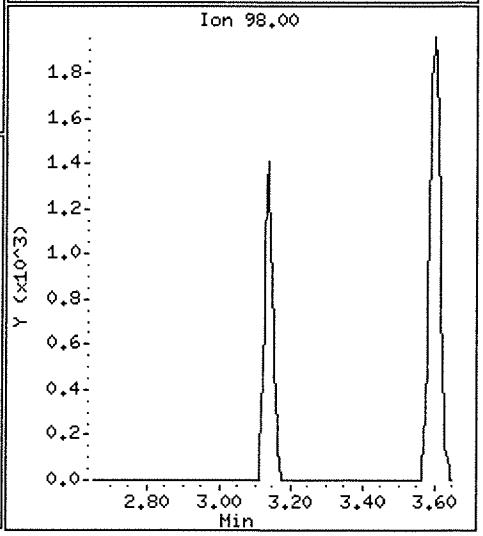


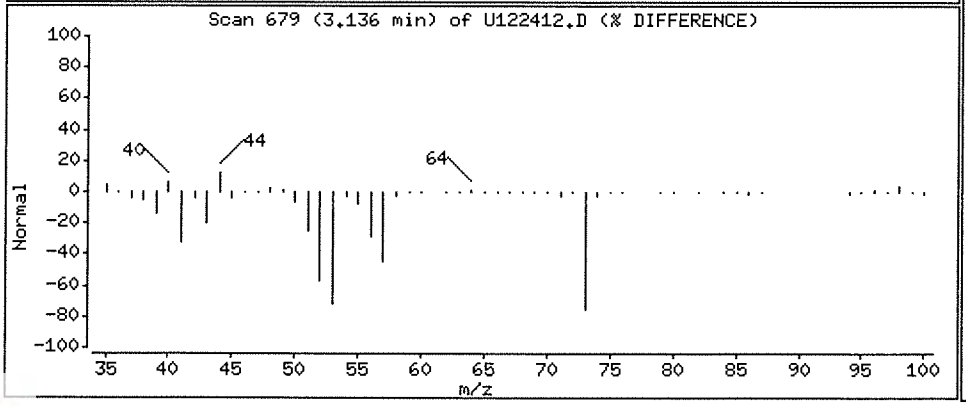












Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122412.D

Date : 24-DEC-2018 13:59

Client ID: HS18120913-01

Instrument: VOA9.i

Sample Info: HS18120913-01;HS18120913-01;;;

Purge Volume: 5.0

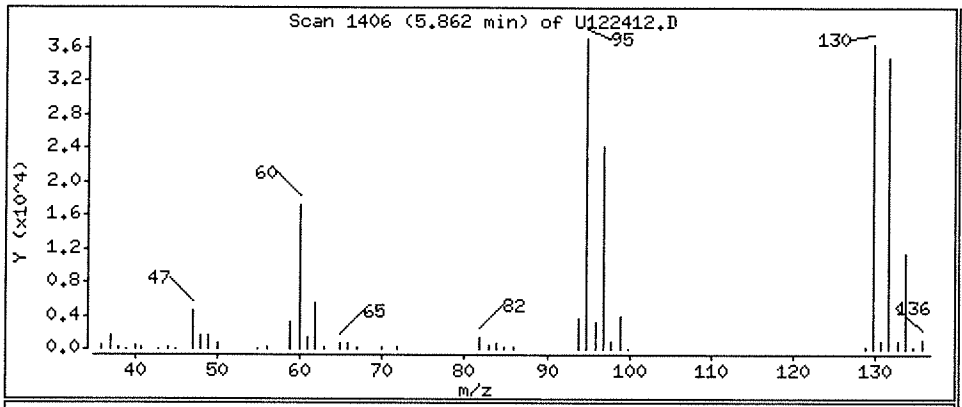
Operator: PC

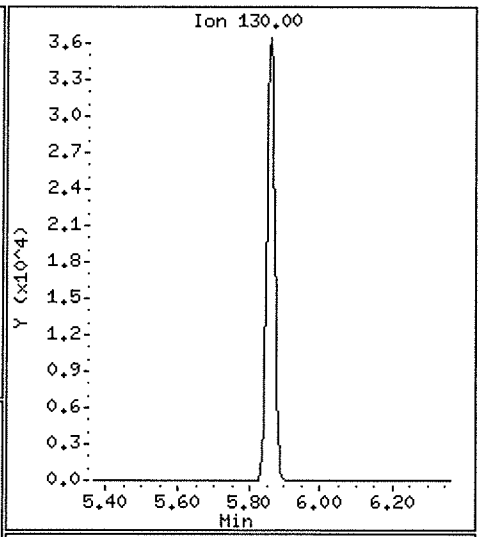
Column phase: DB624

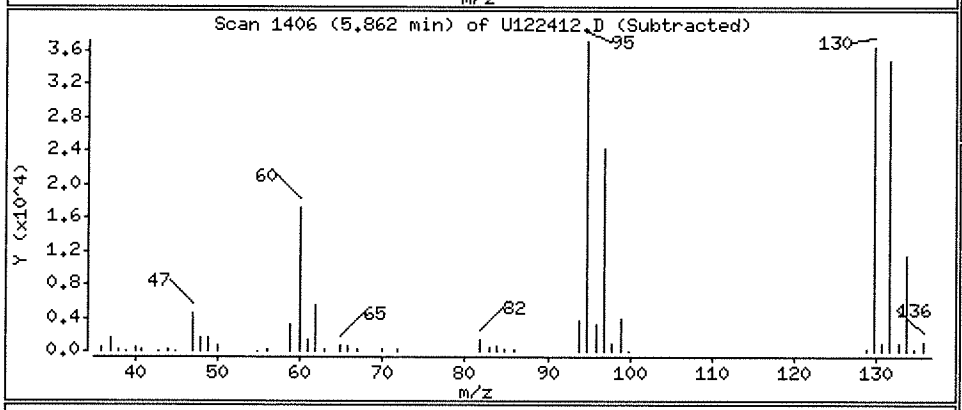
Column diameter: 0.18

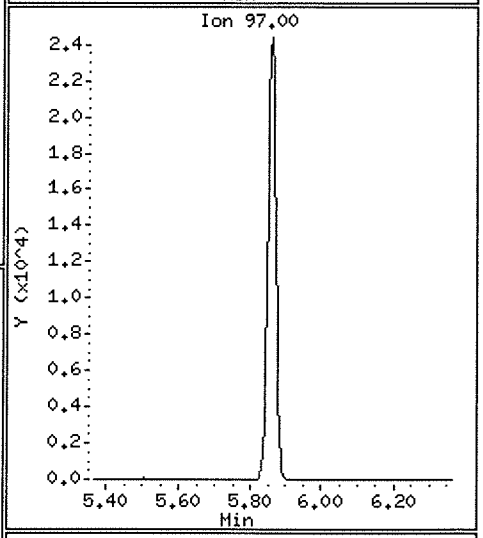
38 Trichloroethene

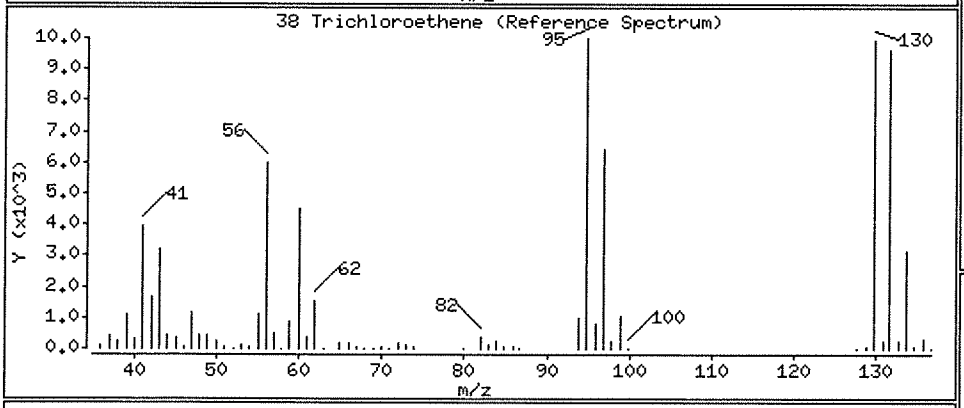
Concentration: 16.25 ug/l

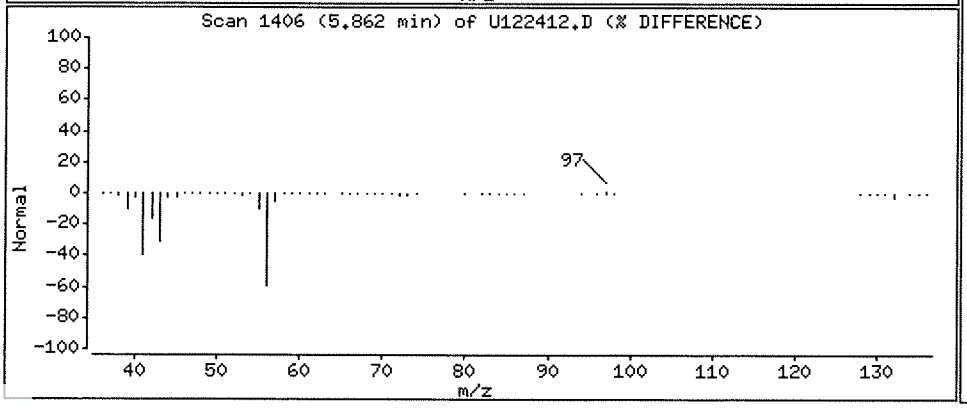


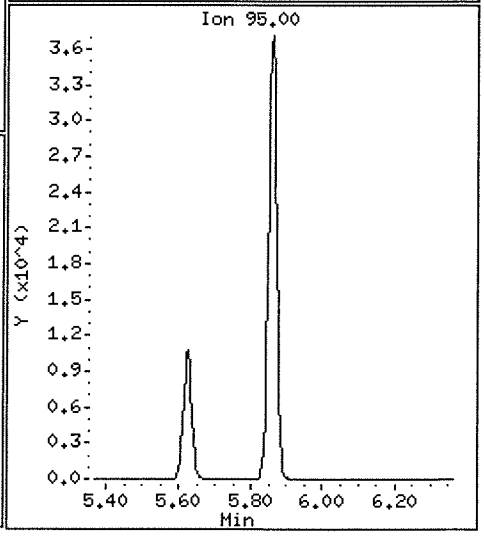












Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122412.D Page 9

Date : 24-DEC-2018 13:59

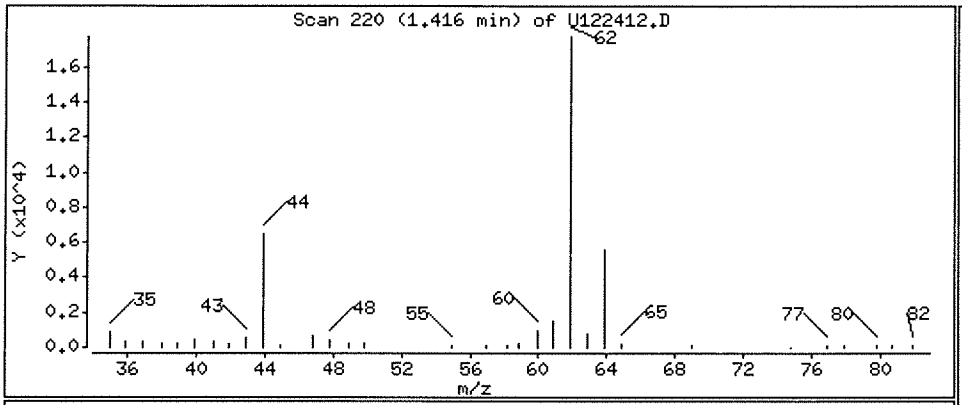
Client ID: HS18120913-01 Instrument: VOA9.i

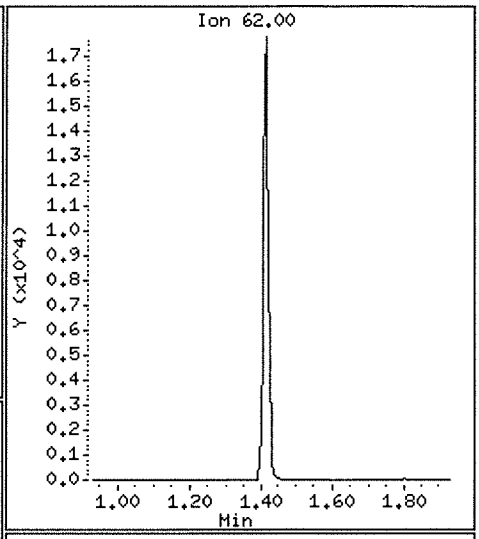
Sample Info: HS18120913-01;HS18120913-01;;;

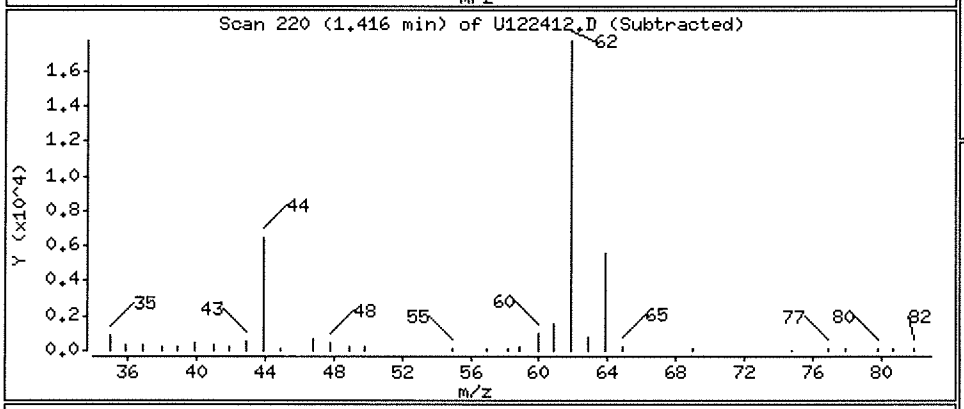
Purge Volume: 5.0 Operator: PC

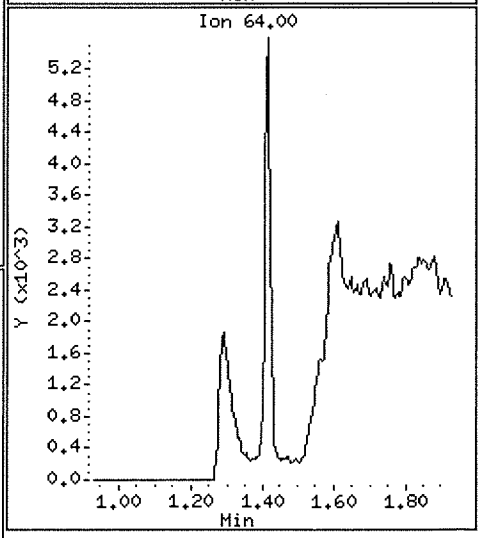
Column phase: DB624 Column diameter: 0.18

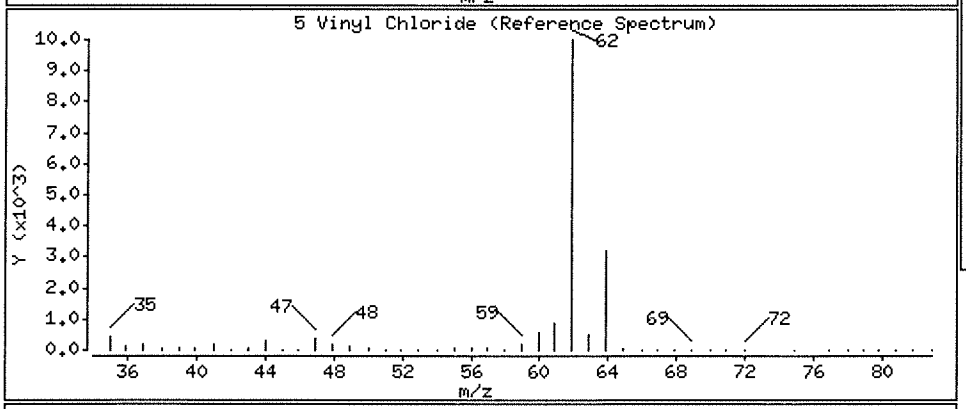
5 Vinyl Chloride Concentration: 4.98 ug/l

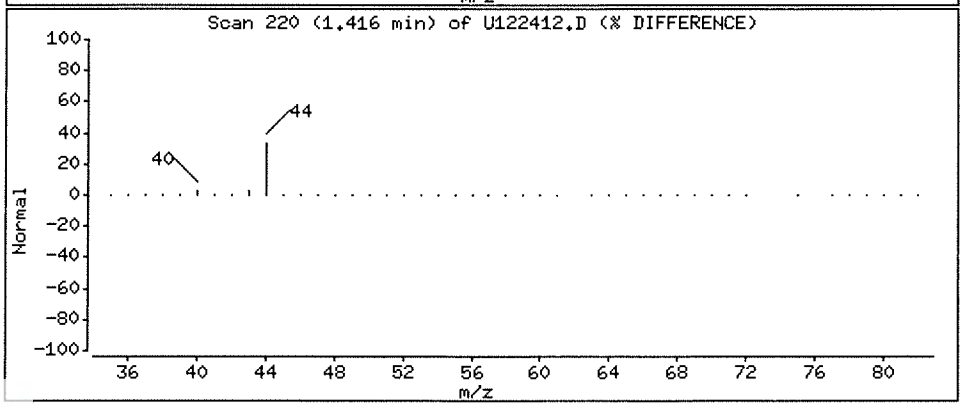












ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122413.D
Lab Smp Id: HS18120913-02 Client Smp ID: HS18120913-02
Inj Date : 24-DEC-2018 14:24
Operator : PC Inst ID: VOA9.i
Smp Info : HS18120913-02;HS18120913-02;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 13
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

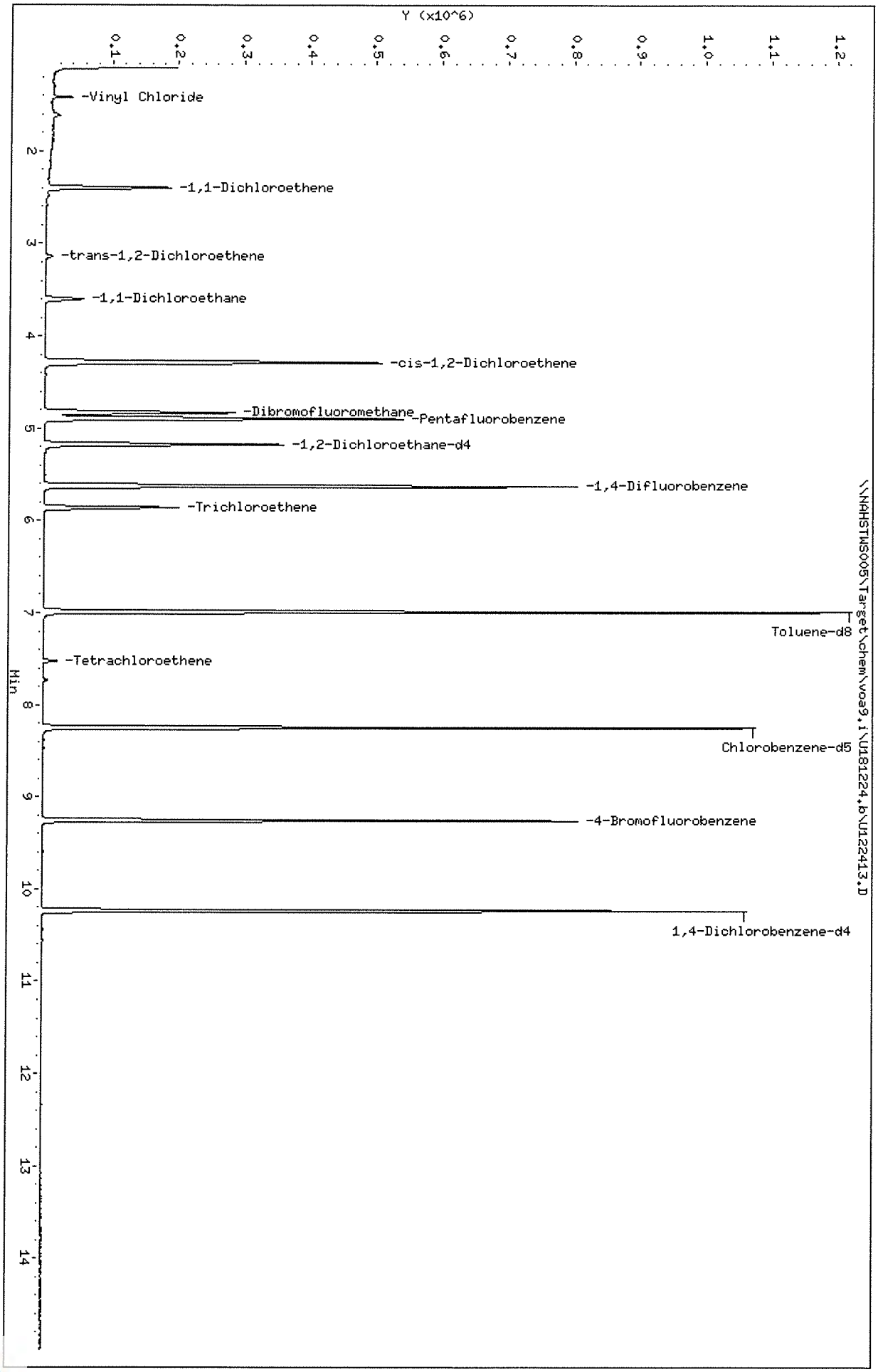
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.894	4.902	(1.000)	326911	50.0000	
* 36 1,4-Difluorobenzene	114	5.625	5.629	(1.000)	575201	50.0000	
* 47 Chlorobenzene-d5	117	8.249	8.253	(1.000)	518136	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	238390	50.0000	
$ 30 Dibromofluoromethane	113	4.830	4.834	(0.987)	163751	45.2513	45.25
$ 35 1,2-Dichloroethane-d4	65	5.175	5.179	(1.057)	226914	48.9992	48.99
$ 48 Toluene-d8	98	6.989	6.990	(0.847)	704773	52.7712	52.77
$ 69 4-Bromofluorobenzene	95	9.257	9.258	(1.122)	247211	48.4944	48.49
22 1,1-Dichloroethane	63	3.604	3.612	(0.737)	56864	8.07698	8.07
11 1,1-Dichloroethene	96	2.397	2.409	(0.490)	62020	19.9530	19.95
27 cis-1,2-Dichloroethene	96	4.286	4.294	(0.876)	236252	54.9803	54.98
56 Tetrachloroethene	164	7.522	7.526	(0.912)	4144	1.52770	1.52(a)
20 trans-1,2-Dichloroethene	96	3.143	3.151	(0.642)	3607	0.94261	0.94(a)
38 Trichloroethene	130	5.861	5.865	(1.042)	58820	15.9185	15.91
5 Vinyl Chloride	62	1.419	1.430	(0.290)	18958	4.98942	4.98(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).



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Date : 24-DEC-2018 14:24
Client ID: HS18120913-02
Sample Info: HS18120913-02;HS18120913-02;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9,i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122413.D

Date : 24-DEC-2018 14:24

Client ID: HS18120913-02

Instrument: VOA9.i

Sample Info: HS18120913-02;HS18120913-02;;;

Purge Volume: 5.0

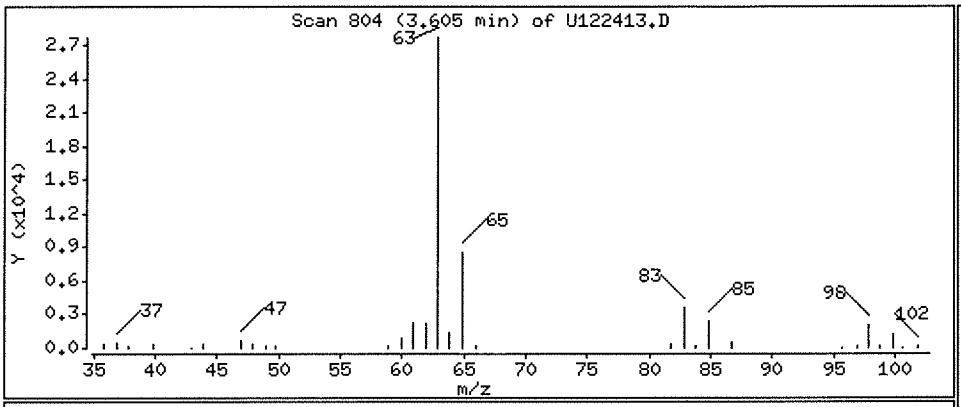
Operator: PC

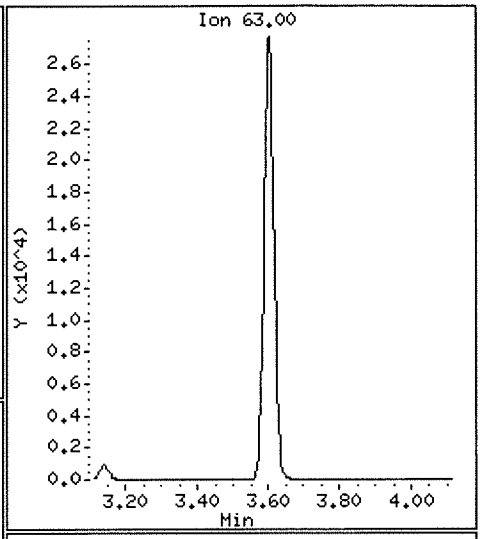
Column phase: DB624

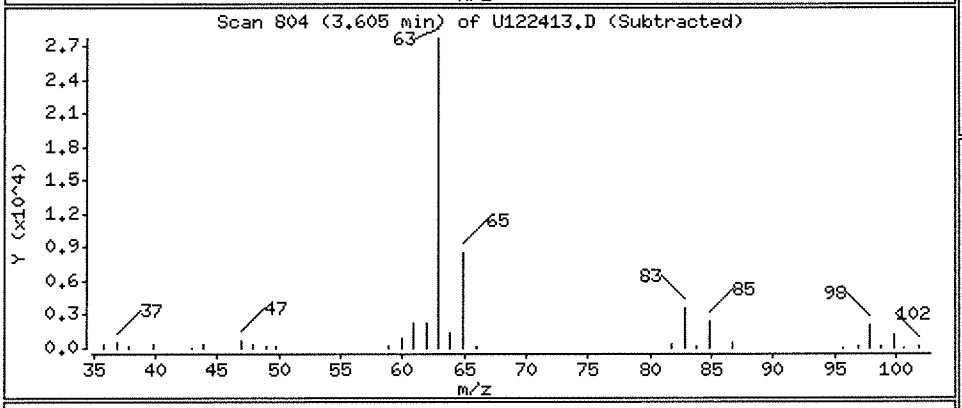
Column diameter: 0.18

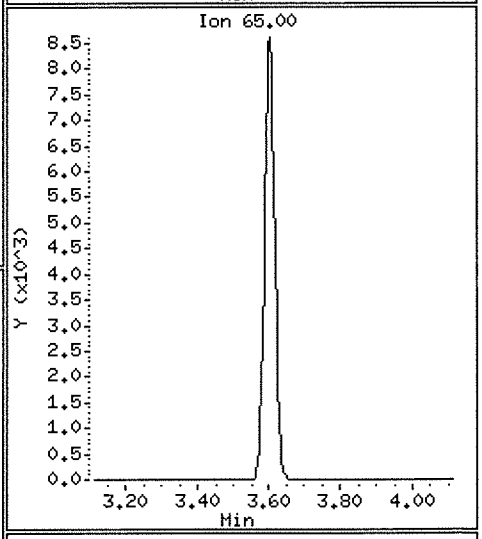
22 1,1-Dichloroethane

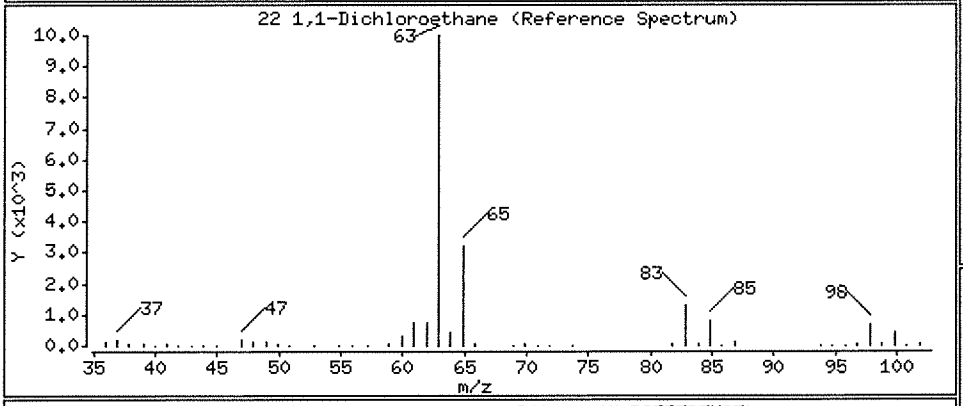
Concentration: 8.07 ug/l

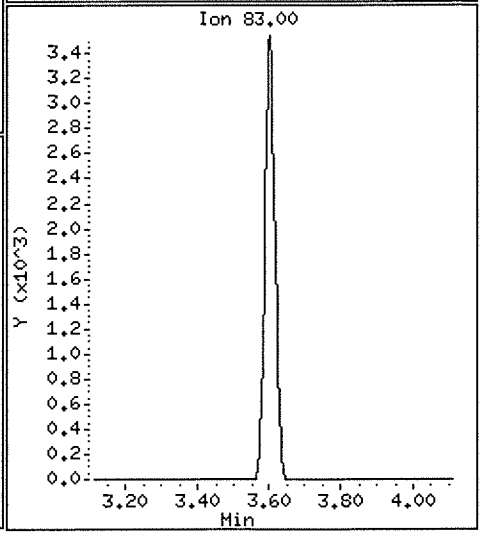


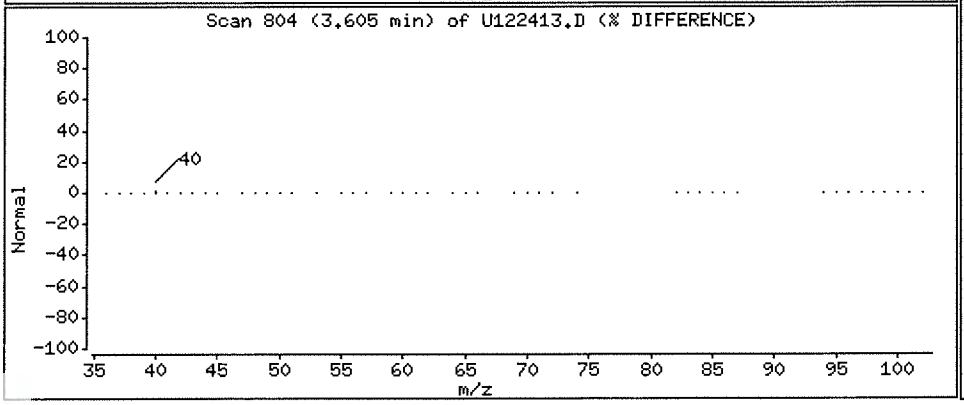












Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122413.D

Date : 24-DEC-2018 14:24

Client ID: HS18120913-02

Instrument: VOA9.i

Sample Info: HS18120913-02;HS18120913-02;;;

Purge Volume: 5.0

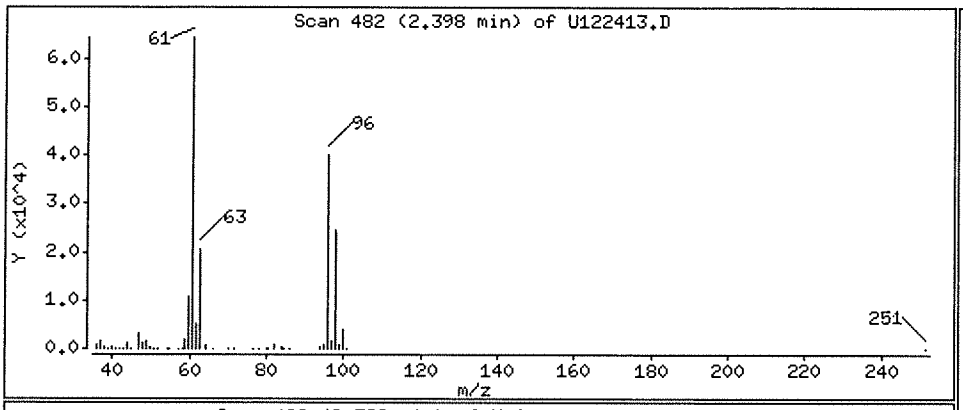
Operator: PC

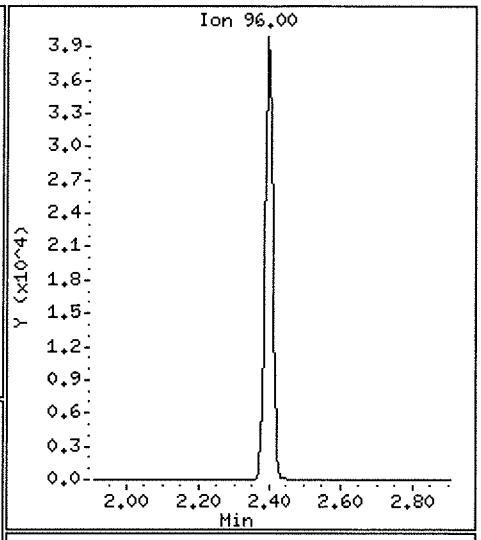
Column phase: DB624

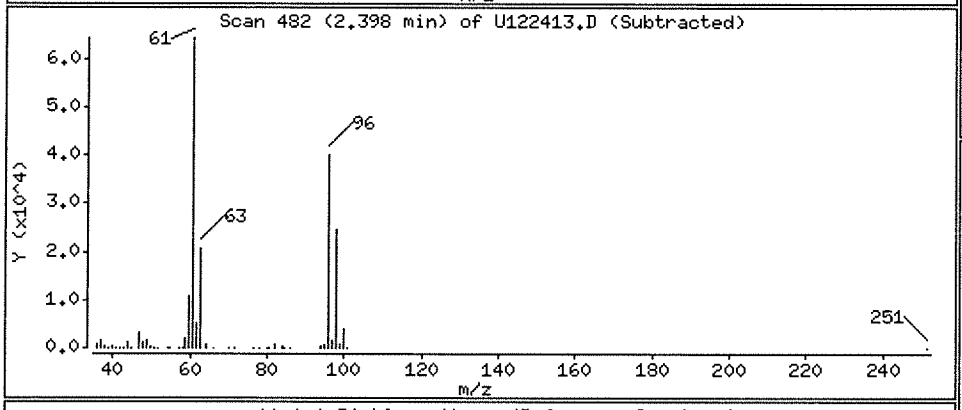
Column diameter: 0.18

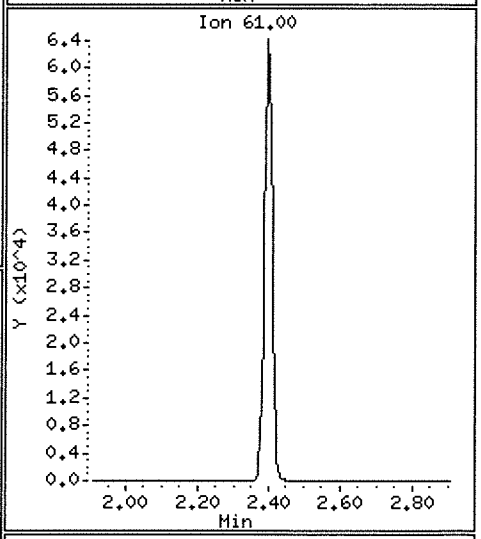
11 1,1-Dichloroethene

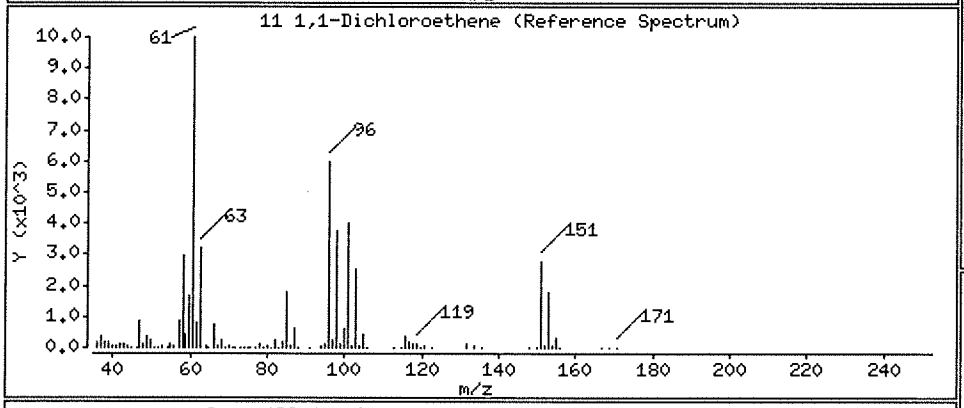
Concentration: 19.95 ug/l

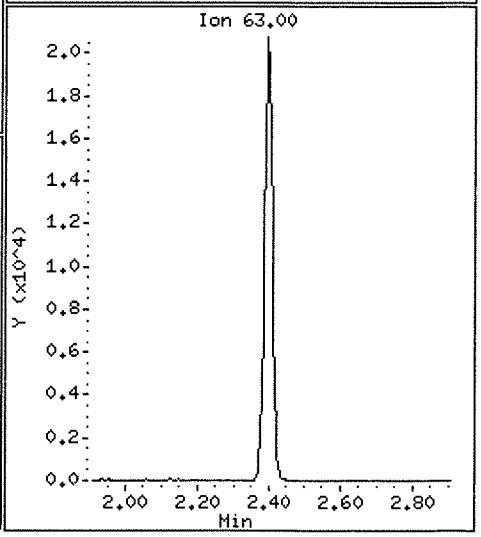


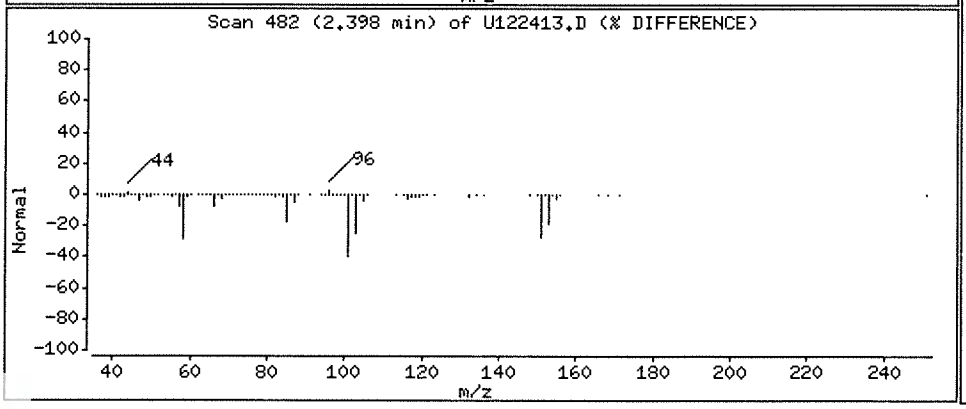












Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122413.D

Date : 24-DEC-2018 14:24

Client ID: HS18120913-02

Instrument: VOA9.i

Sample Info: HS18120913-02;HS18120913-02;;;

Purge Volume: 5.0

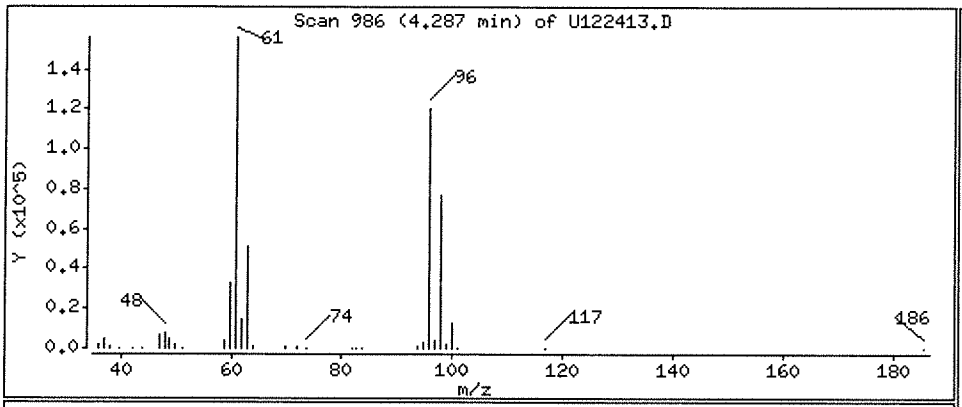
Operator: PC

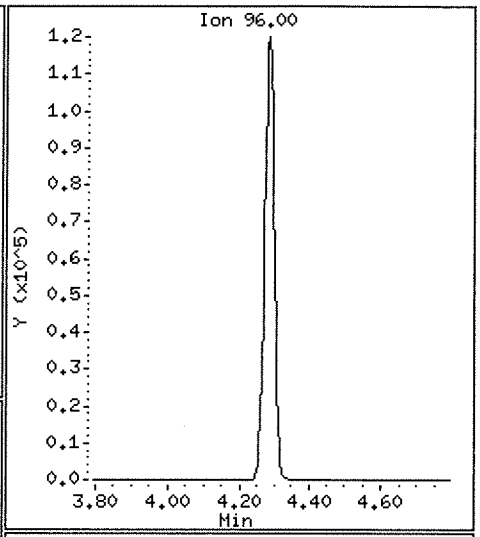
Column phase: DB624

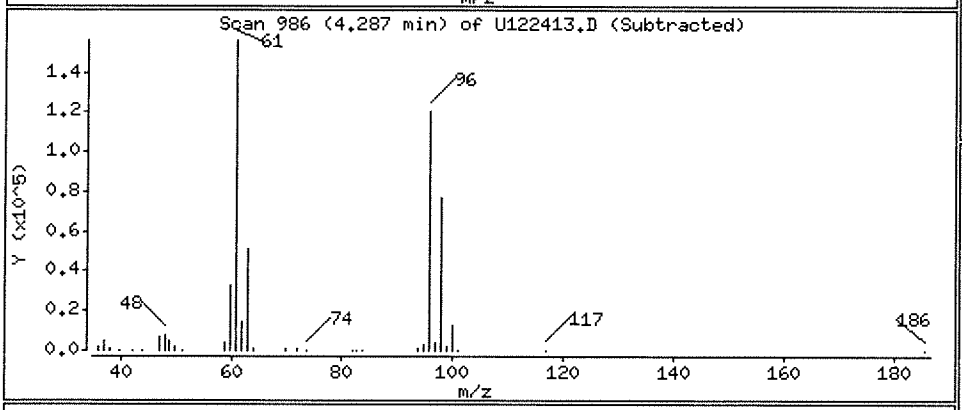
Column diameter: 0.18

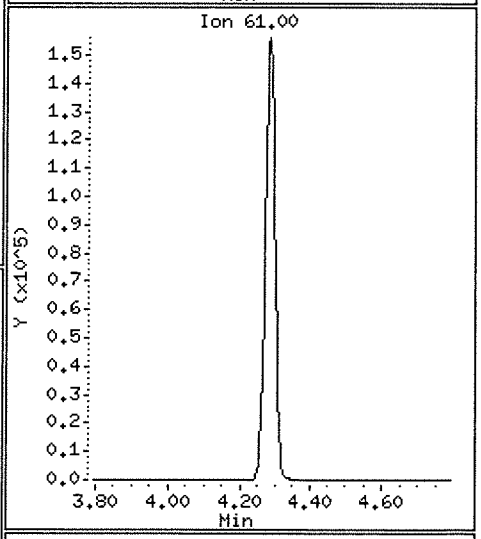
27 cis-1,2-Dichloroethene

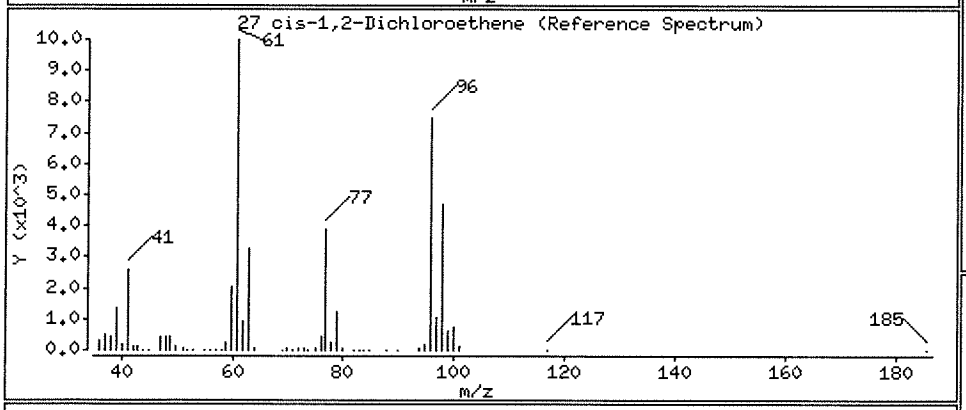
Concentration: 54.98 ug/l

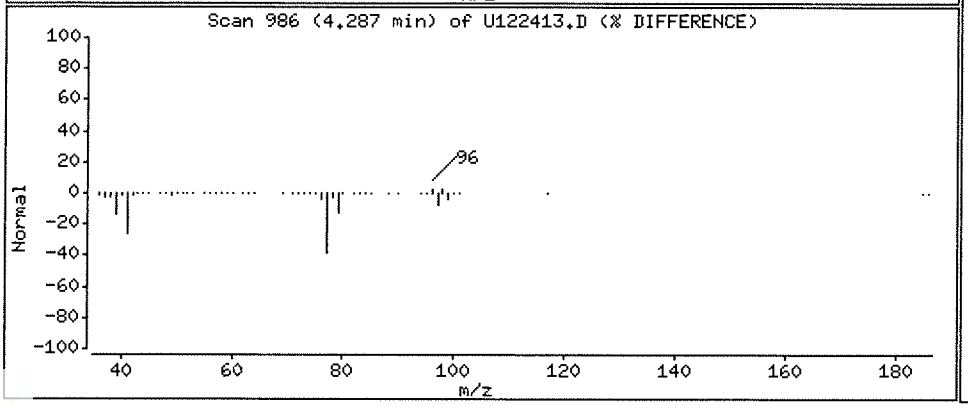


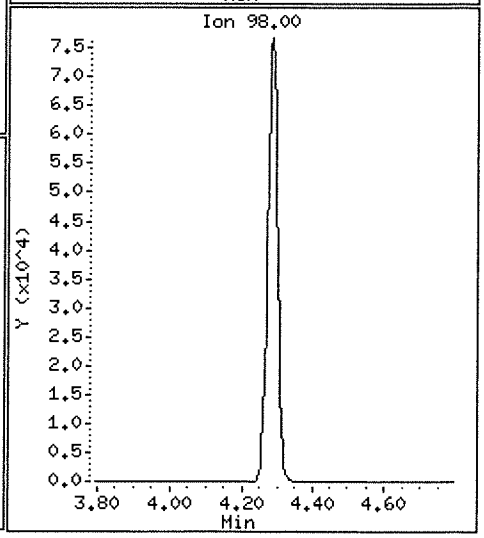












Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122413.D

Date : 24-DEC-2018 14:24

Client ID: HS18120913-02

Instrument: VOA9.i

Sample Info: HS18120913-02;HS18120913-02;;;

Purge Volume: 5.0

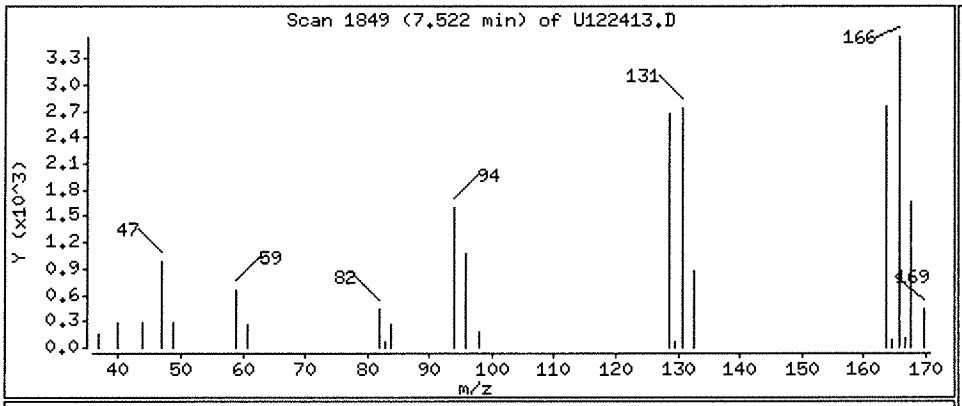
Operator: PC

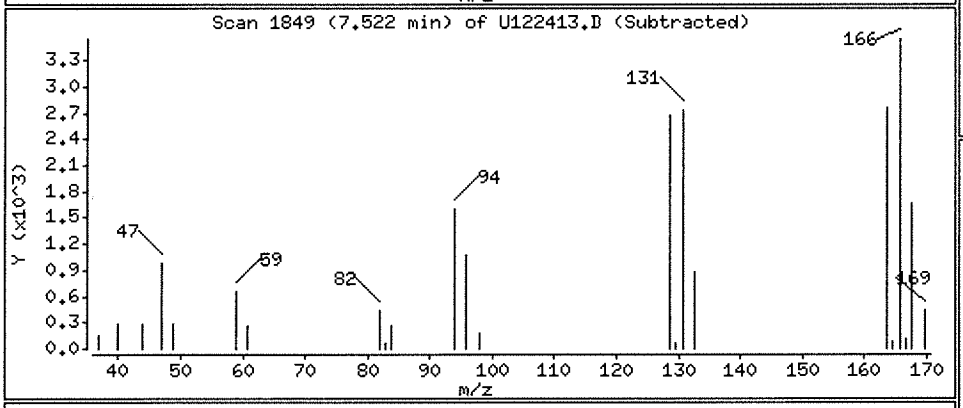
Column phase: DB624

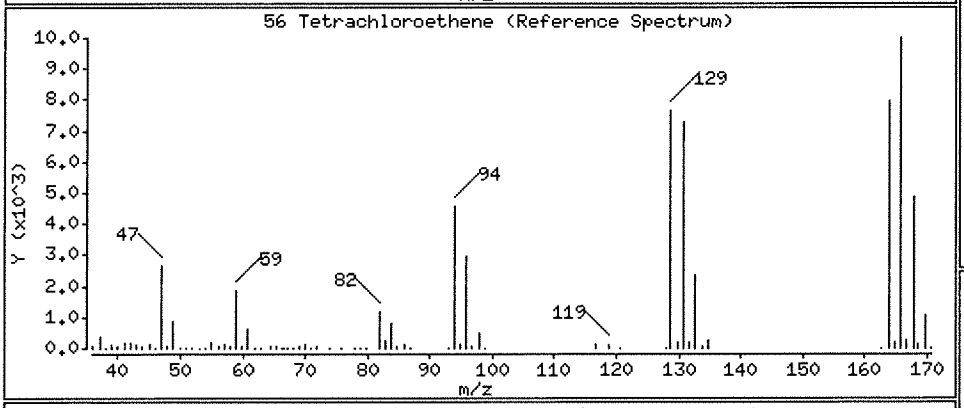
Column diameter: 0.18

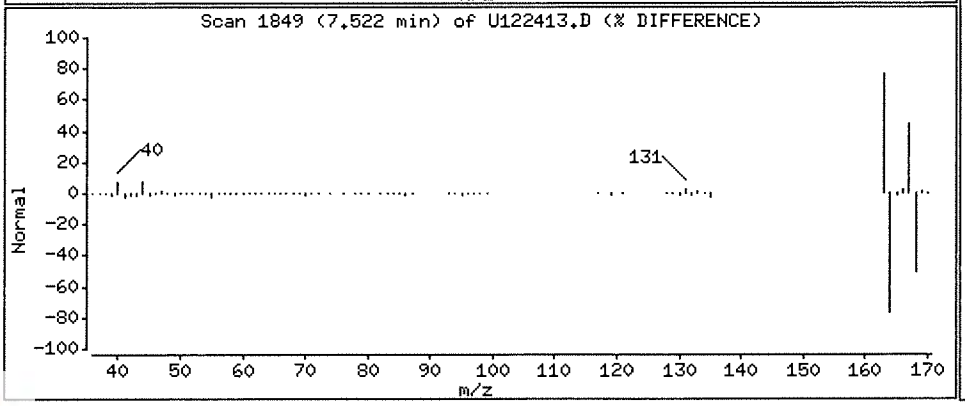
56 Tetrachloroethene

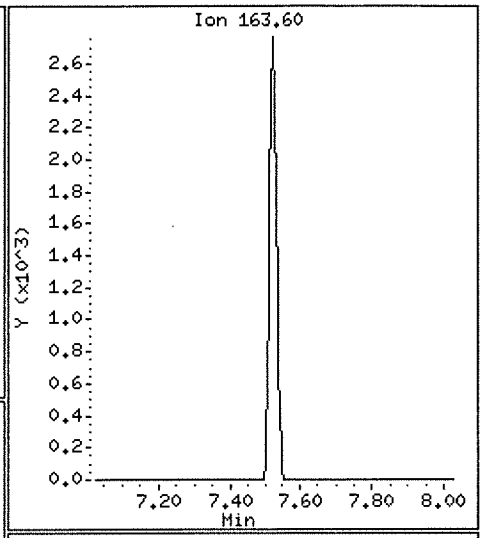
Concentration: 1.52 ug/l

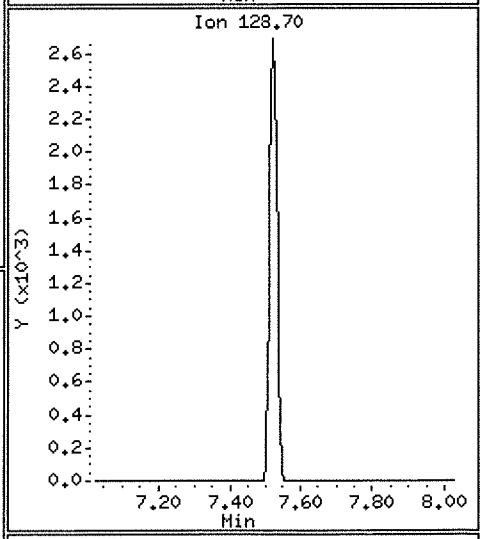


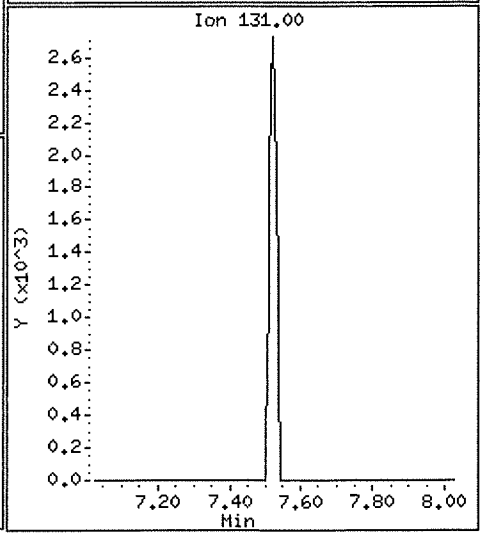












Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122413.D Page 7

Date : 24-DEC-2018 14:24

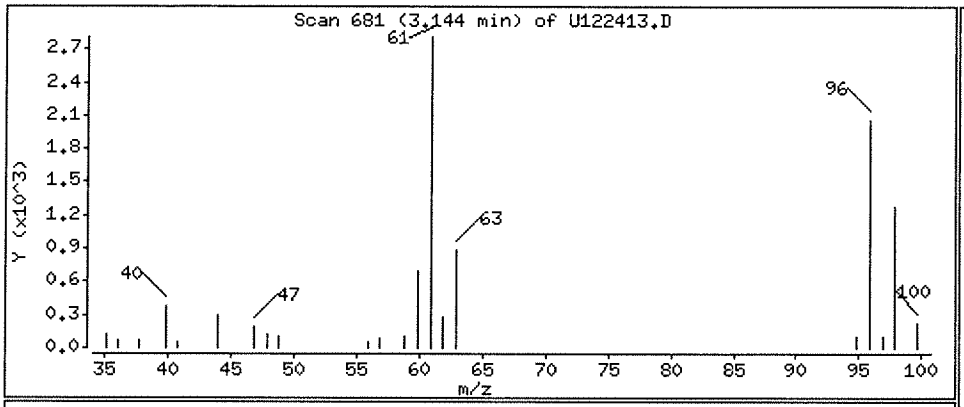
Client ID: HS18120913-02 Instrument: VOA9.i

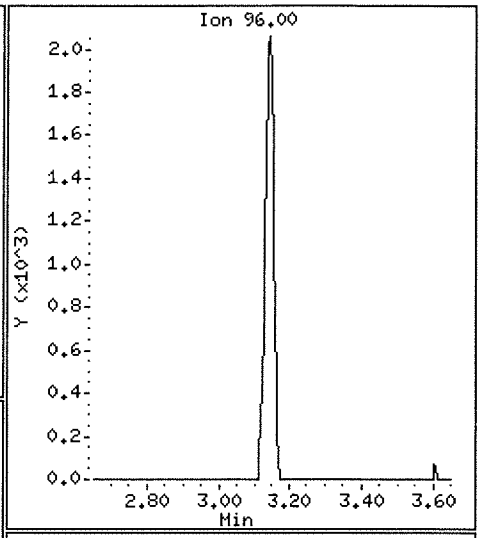
Sample Info: HS18120913-02;HS18120913-02;;;

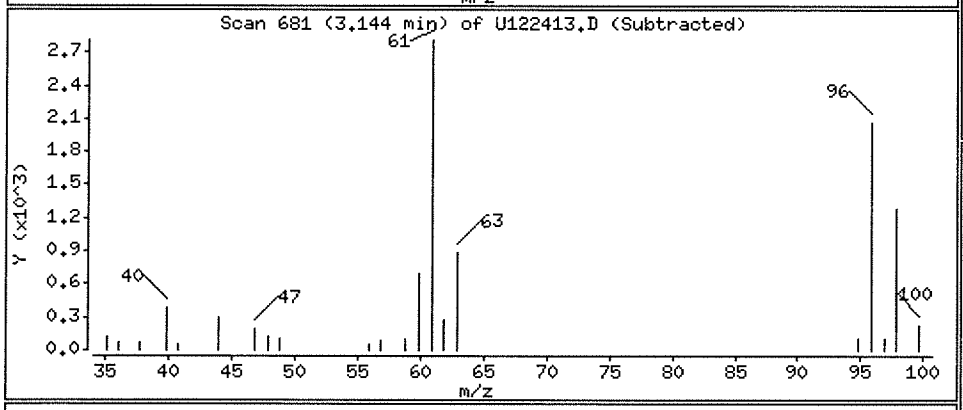
Purge Volume: 5.0 Operator: PC

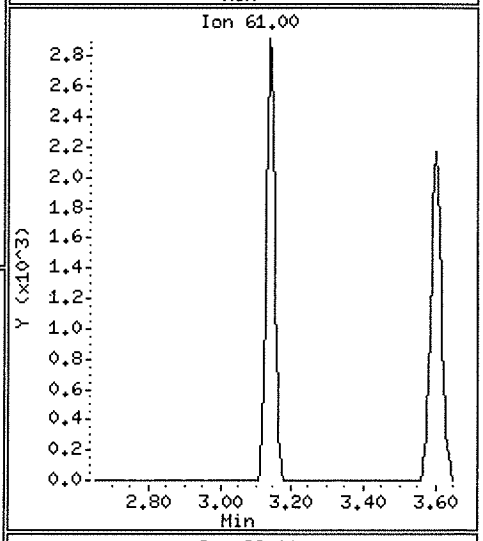
Column phase: DB624 Column diameter: 0.18

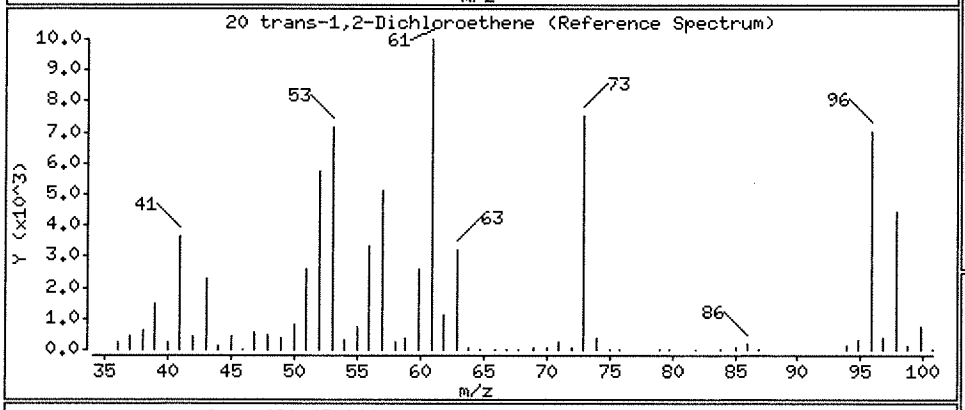
20 trans-1,2-Dichloroethene Concentration: 0.94 ug/l

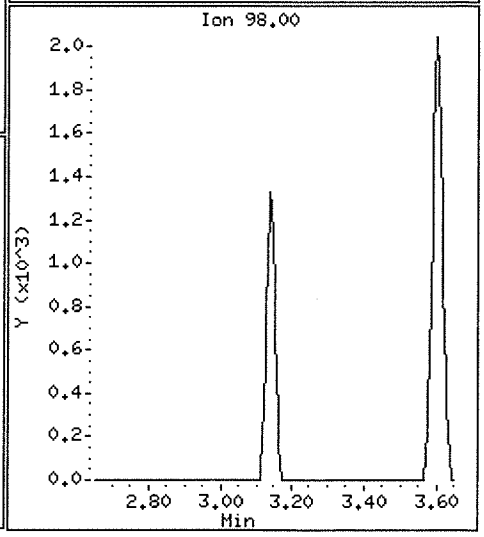


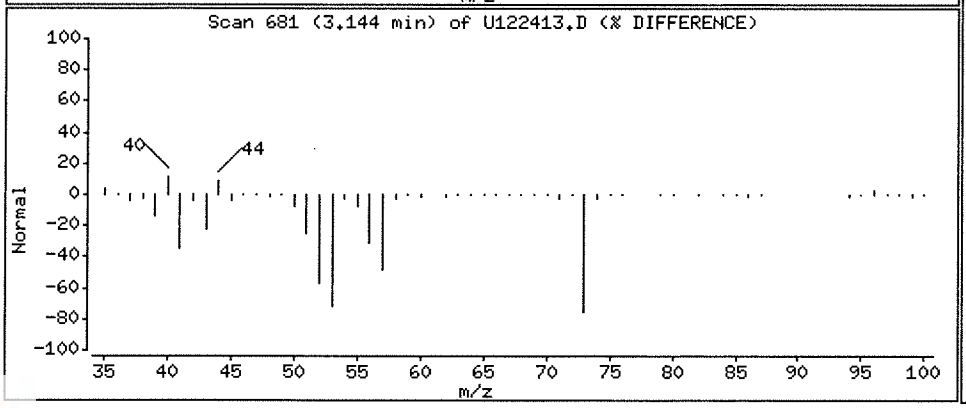












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Date : 24-DEC-2018 14:24

Client ID: HS18120913-02

Instrument: VOA9.i

Sample Info: HS18120913-02;HS18120913-02;;;

Purge Volume: 5.0

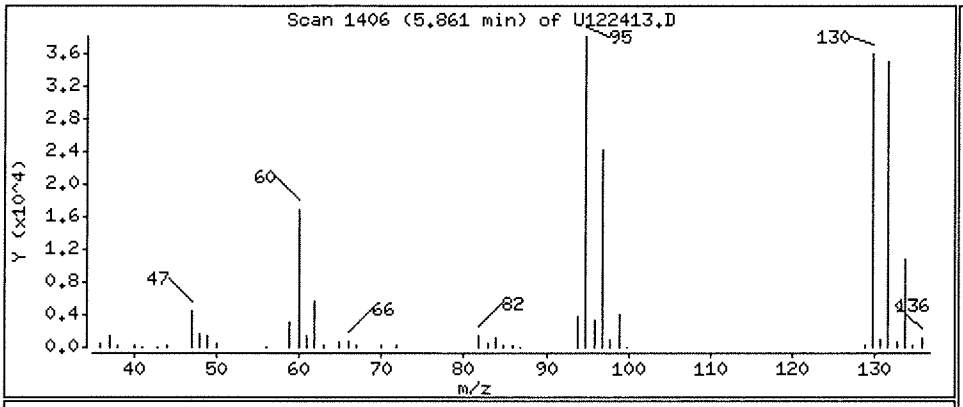
Operator: PC

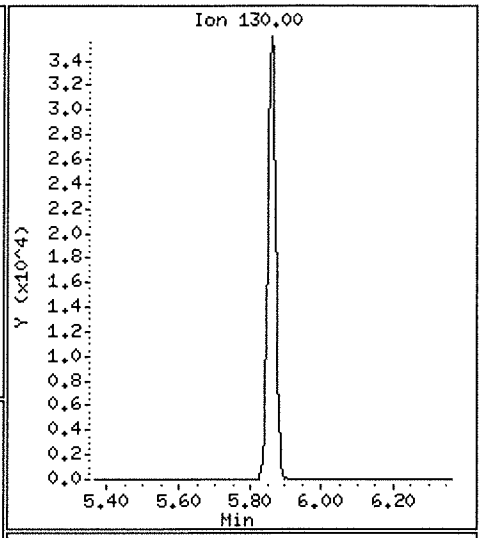
Column phase: DB624

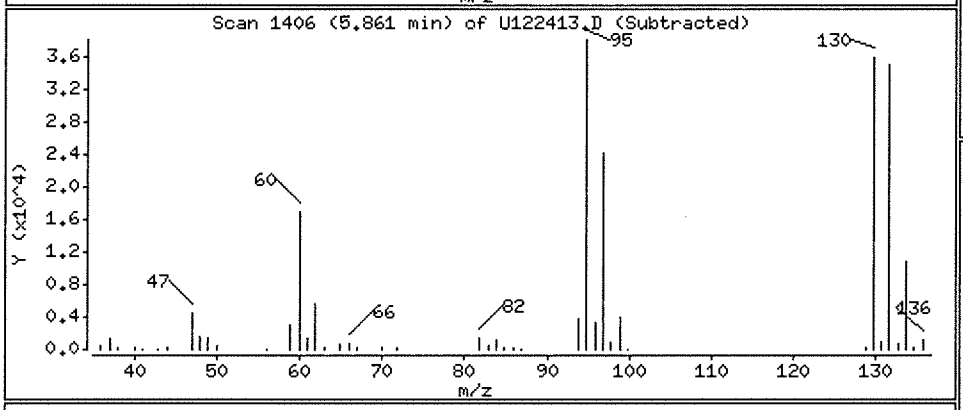
Column diameter: 0.18

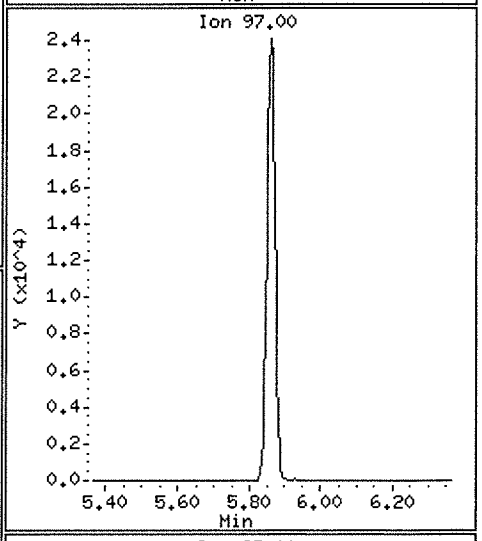
38 Trichloroethene

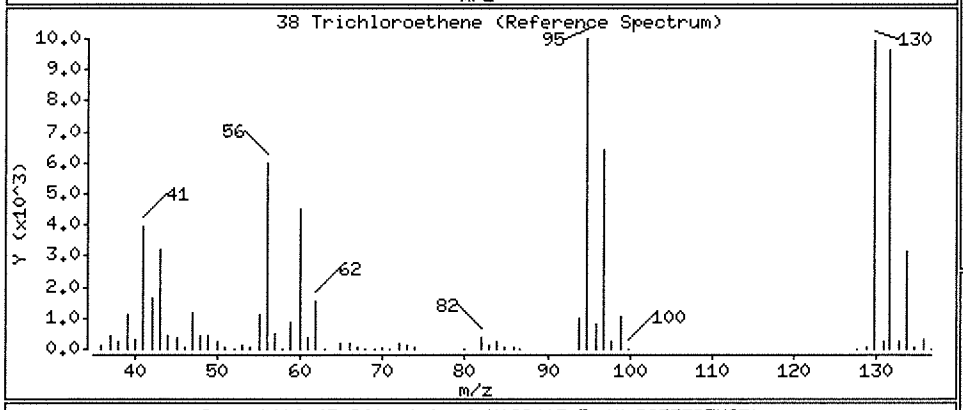
Concentration: 15.91 ug/l

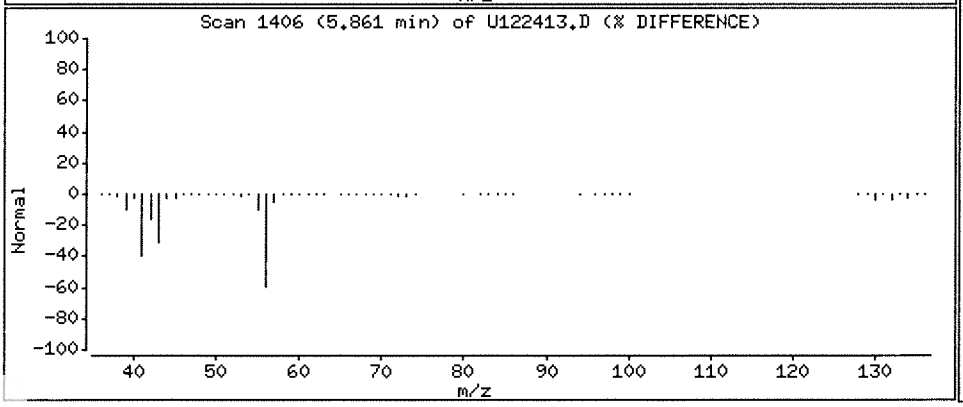


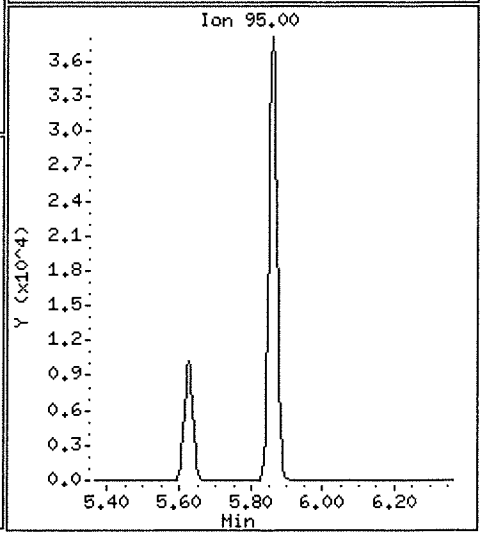












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Date : 24-DEC-2018 14:24

Client ID: HS18120913-02

Instrument: VOA9.i

Sample Info: HS18120913-02;HS18120913-02;;;

Purge Volume: 5.0

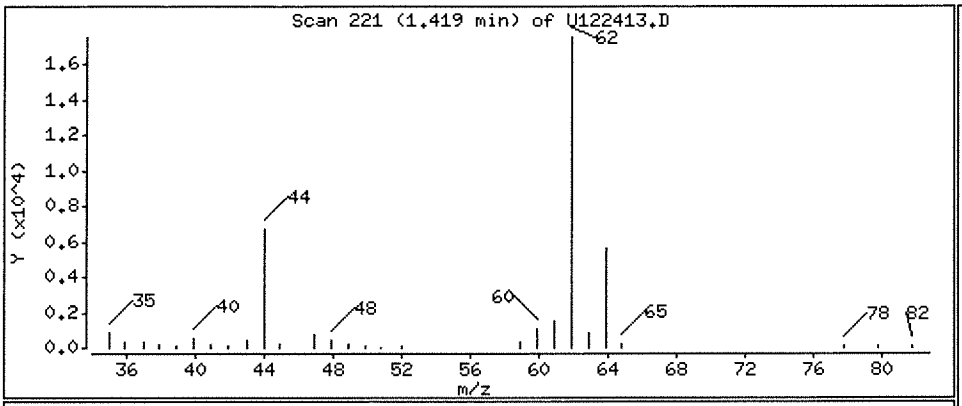
Operator: PC

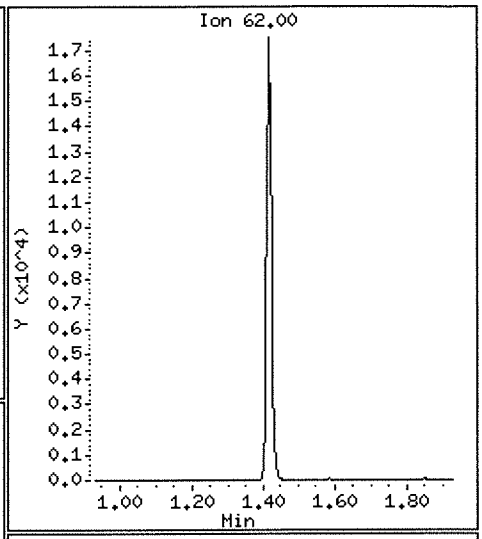
Column phase: DB624

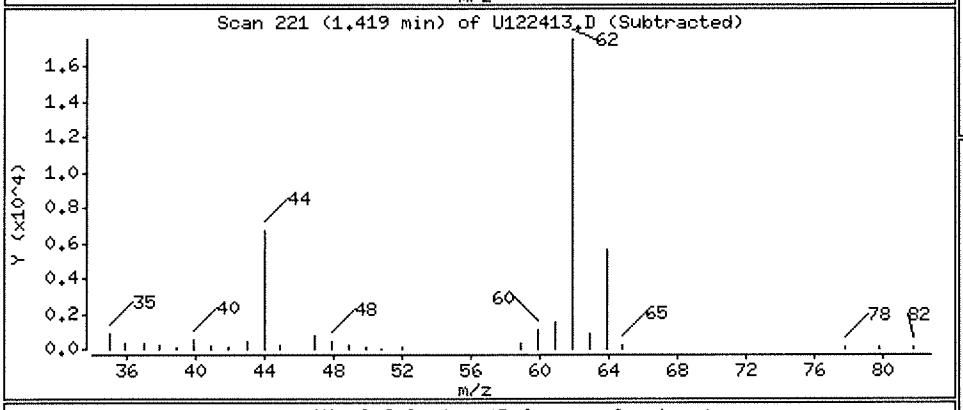
Column diameter: 0.18

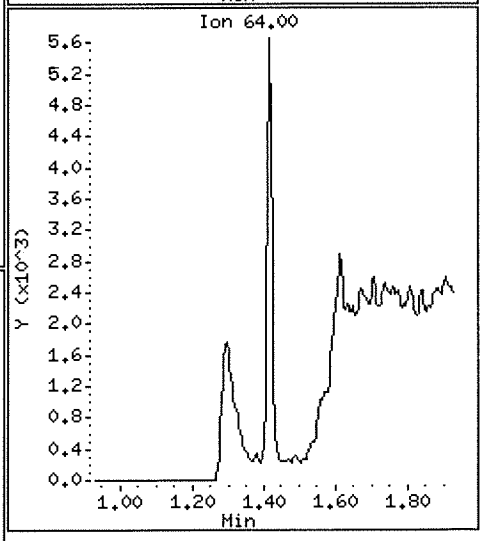
5 Vinyl Chloride

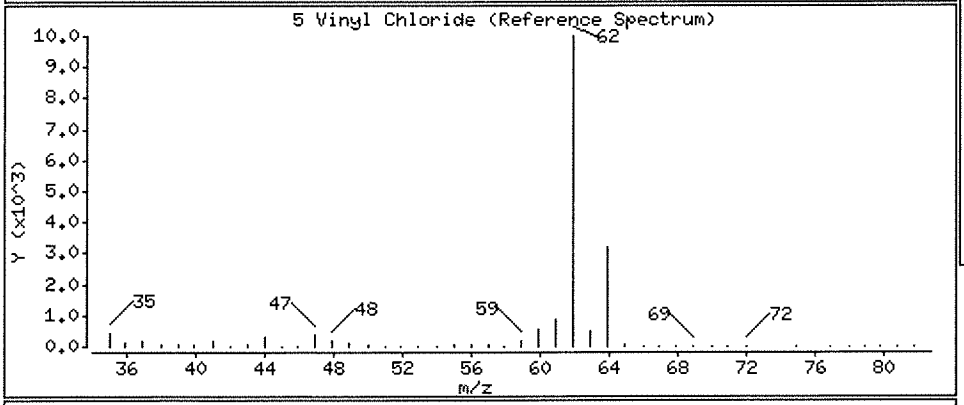
Concentration: 4.98 ug/l

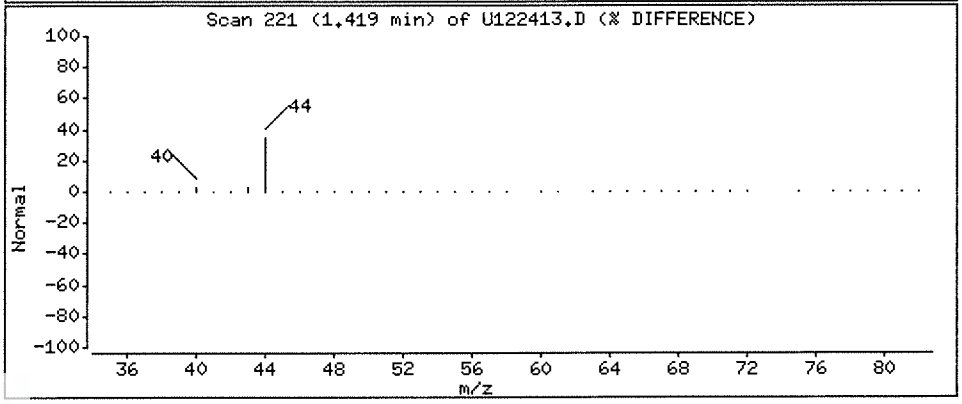












ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122415.D
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Inj Date : 24-DEC-2018 15:14
Operator : PC Inst ID: VOA9.i
Smp Info : HS18120913-03MS;HS18120913-03MS;3;;MS
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 15 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

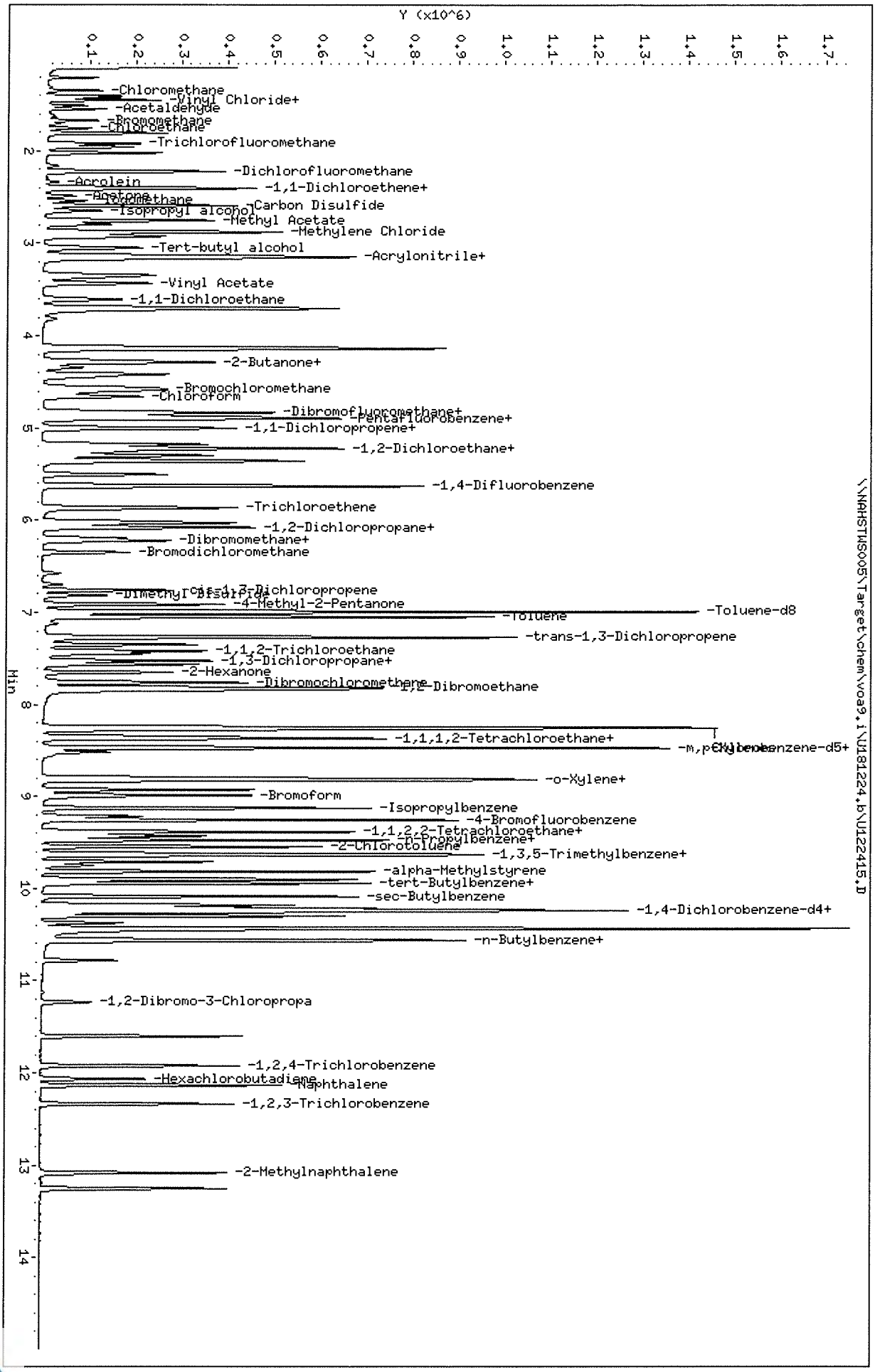
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.898	4.894	(1.000)	345000	50.0000	
* 36 1,4-Difluorobenzene	114	5.629	5.625	(1.000)	594715	50.0000	
* 47 Chlorobenzene-d5	117	8.249	8.249	(1.000)	543870	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.236	10.235	(1.000)	266360	50.0000	
$ 30 Dibromofluoromethane	113	4.830	4.826	(0.986)	174630	45.7435	45.74
$ 35 1,2-Dichloroethane-d4	65	5.179	5.171	(1.057)	230784	47.1432	47.14
$ 48 Toluene-d8	98	6.989	6.989	(0.847)	746782	53.2878	53.28
$ 69 4-Bromofluorobenzene	95	9.257	9.257	(1.122)	276028	51.6764	51.67
60 1,1,1,2-Tetrachloroethane	131	8.350	8.350	(1.012)	79024	23.2148	23.21
31 1,1,1-Trichloroethane	97	4.830	4.826	(0.986)	124996	22.9455	22.94
68 1,1,2,2-Tetrachloroethane	83	9.392	9.392	(0.918)	145185	24.2035	24.20
138 Freon TF	101	2.405	2.401	(0.491)	73723	25.1357	25.13
53 1,1,2-Trichloroethane	83	7.420	7.420	(0.900)	81989	25.3033	25.30
22 1,1-Dichloroethane	63	3.608	3.600	(0.737)	168755	22.7132	22.71
11 1,1-Dichloroethene	96	2.401	2.401	(0.490)	75592	23.0442	23.04
32 1,1-Dichloropropene	75	5.006	5.002	(0.889)	134692	25.4542	25.45
93 1,2,3-Trichlorobenzene	180	12.335	12.335	(1.205)	109130	22.1001	22.10
71 1,2,3-Trichloropropane	75	9.426	9.426	(0.921)	145667	23.3532	23.35
90 1,2,4-Trichlorobenzene	180	11.923	11.922	(1.165)	110324	22.3715	22.37
79 1,2,4-Trimethylbenzene	105	9.943	9.943	(0.971)	351572	25.2227	25.22
89 1,2-Dibromo-3-Chloropropane	155	11.233	11.233	(1.097)	18444	20.8136	20.81
57 1,2-Dibromoethane	107	7.852	7.851	(0.952)	94955	25.4427	25.44

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122415.D Page 2
Report Date: 28-Jan-2019 14:34

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
88	1,2-Dichlorobenzene	146	10.569	10.569	(1.033)	187882	23.7559	23.75
33	1,2-Dichloroethane	62	5.254	5.250	(0.933)	138450	25.4836	25.48
42	1,2-Dichloropropane	63	6.082	6.078	(1.081)	104134	24.7807	24.78
75	1,3,5-Trimethylbenzene	105	9.625	9.624	(0.940)	342429	25.5804	25.58
83	1,3-Dichlorobenzene	146	10.179	10.179	(0.995)	184561	23.3342	23.33
54	1,3-Dichloropropane	76	7.563	7.563	(0.917)	174086	24.9430	24.94
84	1,4-Dichlorobenzene	146	10.254	10.254	(1.002)	194001	23.2630	23.26
26	2,2-Dichloropropane	77	4.275	4.271	(0.873)	102083	22.7990	22.79
24	2-Butanone	43	4.343	4.335	(0.887)	105483	45.4559	45.45
76	2-Chlorotoluene	91	9.546	9.546	(0.933)	306257	24.9549	24.95
52	2-Hexanone	43	7.649	7.649	(0.927)	159855	52.8577	52.85
77	4-Chlorotoluene	91	9.640	9.639	(0.942)	356306	25.1237	25.12
82	p-Isopropyltoluene	119	10.209	10.209	(0.997)	355401	25.2152	25.21
45	4-Methyl-2-Pentanone	43	6.914	6.910	(0.838)	223482	51.3578	51.35
10	Acetone	43	2.487	2.476	(0.508)	70952	51.2497	51.24
37	Benzene	78	5.220	5.216	(0.927)	397101	25.0928	25.09
74	Bromobenzene	156	9.385	9.381	(0.917)	97879	23.7834	23.78
29	Bromochloromethane	128	4.556	4.552	(0.930)	46188	24.0179	24.01
39	Bromodichloromethane	83	6.348	6.348	(1.128)	109342	24.4685	24.46
66	Bromoform	173	8.984	8.983	(1.089)	47381	21.3431	21.34
6	Bromomethane	94	1.670	1.666	(0.341)	51729	24.9684	24.96
19	Carbon Disulfide	76	2.592	2.588	(0.529)	516135	43.1821	43.18
34	Carbon Tetrachloride	117	4.999	4.995	(0.888)	99519	23.7645	23.76
59	Chlorobenzene	112	8.275	8.275	(1.003)	261122	24.9882	24.98
7	Chloroethane	64	1.756	1.748	(0.359)	65153	21.7650	21.76(M)
28	Chloroform	83	4.658	4.654	(0.951)	164251	22.9552	22.95
3	Chloromethane	50	1.344	1.336	(0.274)	73734	22.1006	22.10
27	cis-1,2-Dichloroethene	96	4.290	4.283	(0.876)	110116	24.2824	24.28
46	cis-1,3-Dichloropropene	75	6.761	6.757	(1.201)	142392	21.7030	21.70
55	Dibromochloromethane	129	7.758	7.758	(0.940)	77822	22.3259	22.32
44	Dibromomethane	93	6.191	6.187	(1.100)	60796	25.0676	25.06
2	Dichlorodifluoromethane	85	1.209	1.201	(0.247)	60996	14.7145	14.71
61	Ethylbenzene	106	8.373	8.369	(1.015)	137460	25.6473	25.64
91	Hexachlorobutadiene	225	12.065	12.065	(1.179)	36483	19.3100	19.30
67	Isopropylbenzene	105	9.126	9.126	(1.106)	409452	26.4747	26.47
62	m,p-Xylenes	106	8.474	8.474	(1.027)	342200	51.9351	51.93
17	Methylene Chloride	84	2.873	2.869	(0.587)	100414	22.9137	22.91
87	n-Butylbenzene	91	10.554	10.558	(1.031)	332695	24.4588	24.45
73	n-Propylbenzene	91	9.475	9.474	(0.926)	515682	25.9103	25.91
92	Naphthalene	128	12.133	12.132	(1.185)	359474	22.4263	22.42
63	o-Xylene	106	8.811	8.811	(1.068)	170427	25.6392	25.63
81	sec-Butylbenzene	105	10.086	10.086	(0.985)	425090	25.4139	25.41
64	Styrene	104	8.826	8.822	(1.070)	290415	26.2974	26.29
78	tert-Butylbenzene	119	9.902	9.902	(0.967)	293816	25.3946	25.39
56	Tetrachloroethene	164	7.525	7.521	(0.912)	68956	24.2180	24.21
50	Toluene	91	7.049	7.045	(0.855)	422501	26.1152	26.11
20	trans-1,2-Dichloroethene	96	3.143	3.139	(0.642)	93150	23.0664	23.06
51	trans-1,3-Dichloropropene	75	7.263	7.259	(1.290)	119186	21.3804	21.38
38	Trichloroethene	130	5.865	5.861	(1.042)	100047	26.1873	26.18
8	Trichlorofluoromethane	101	1.959	1.951	(0.400)	125967	22.5008	22.50
5	Vinyl Chloride	62	1.423	1.419	(0.291)	101003	21.2662	21.26

QC Flag Legend

M - Compound response manually integrated.

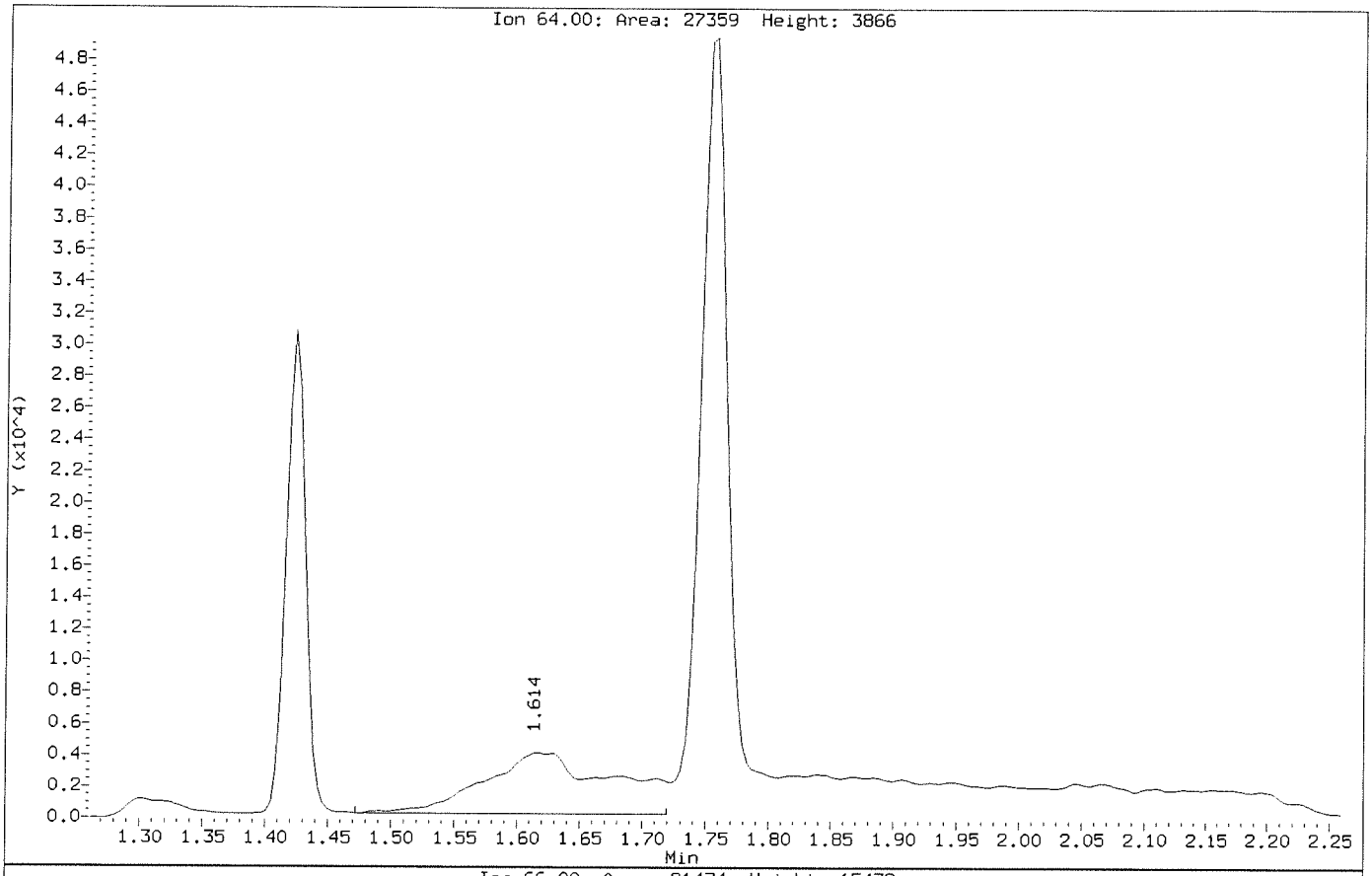


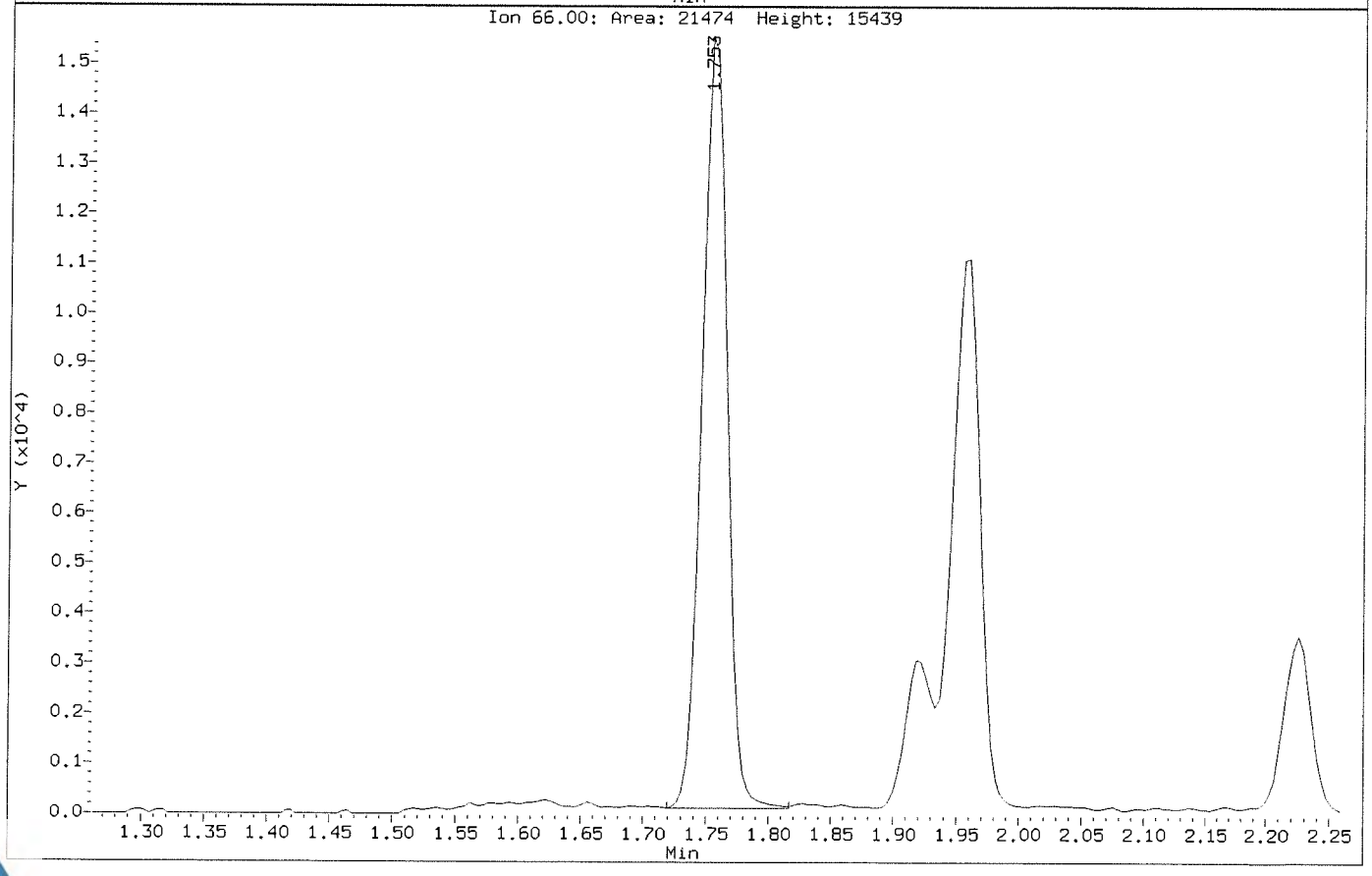
Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122415.D
Date : 24-DEC-2018 15:14
Client ID: HS18120913-03MS
Sample Info: HS18120913-03MS;HS18120913-03MS;3;;MS
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\Before\U122415.D
Injection Date: 24-DEC-2018 15:14
Instrument: VOA9.i
Client Sample ID: HS18120913-03MS

Compound: Chloroethane
CAS Number: 75-00-3





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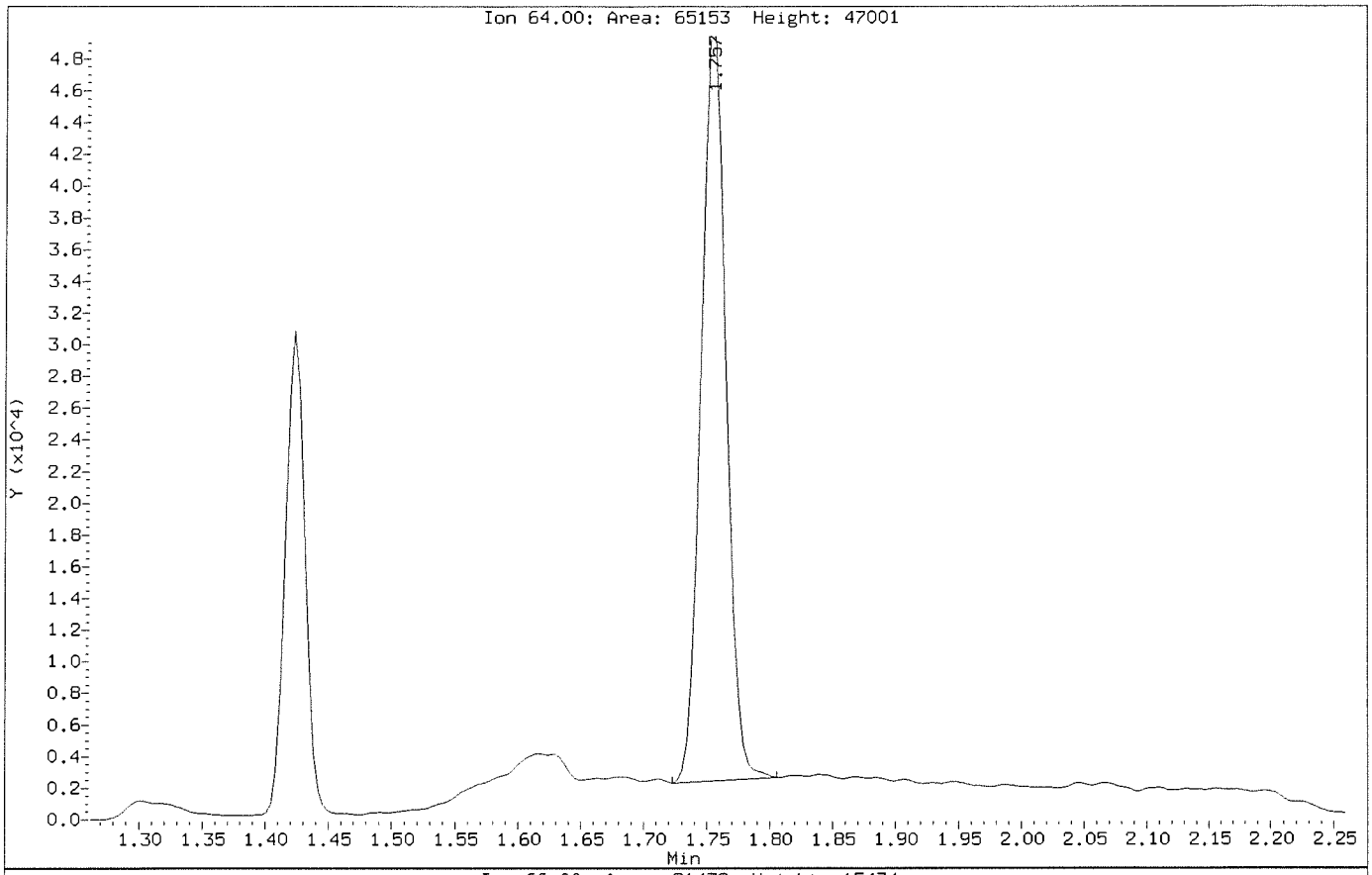
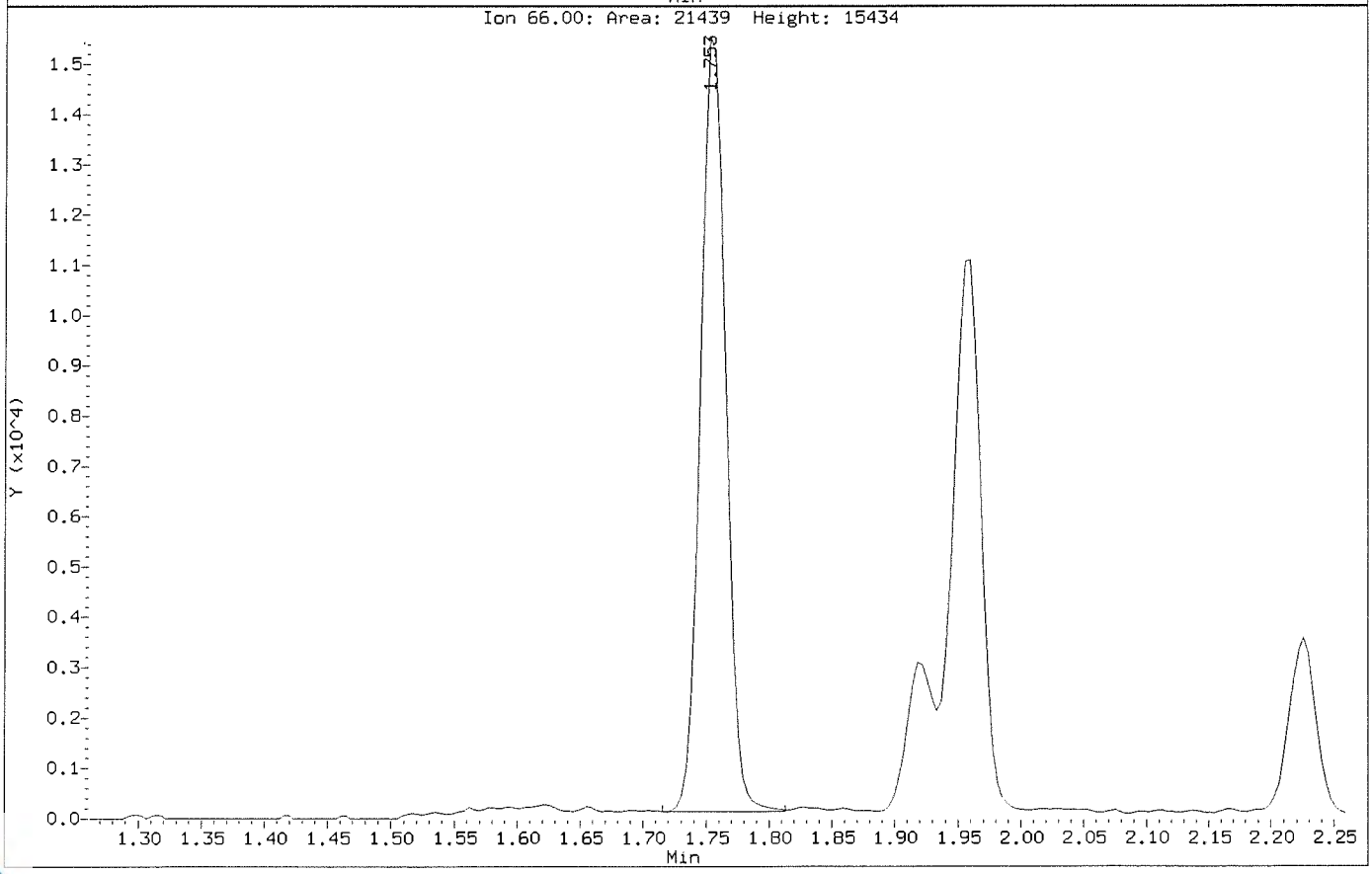
Injection Date: 24-DEC-2018 15:14
Instrument: VOA9.i
Client Sample ID: HS18120913-03MS

Compound: Chloroethane
CAS Number: 75-00-3





Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122416.D Page 1
Report Date: 28-Jan-2019 14:34

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122416.D
Lab Smp Id: HS18120913-03MSD Client Smp ID: HS18120913-03MSD
Inj Date : 24-DEC-2018 15:39
Operator : PC Inst ID: VOA9.i
Smp Info : HS18120913-03MSD;HS18120913-03MSD;3;;MSD
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 15 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

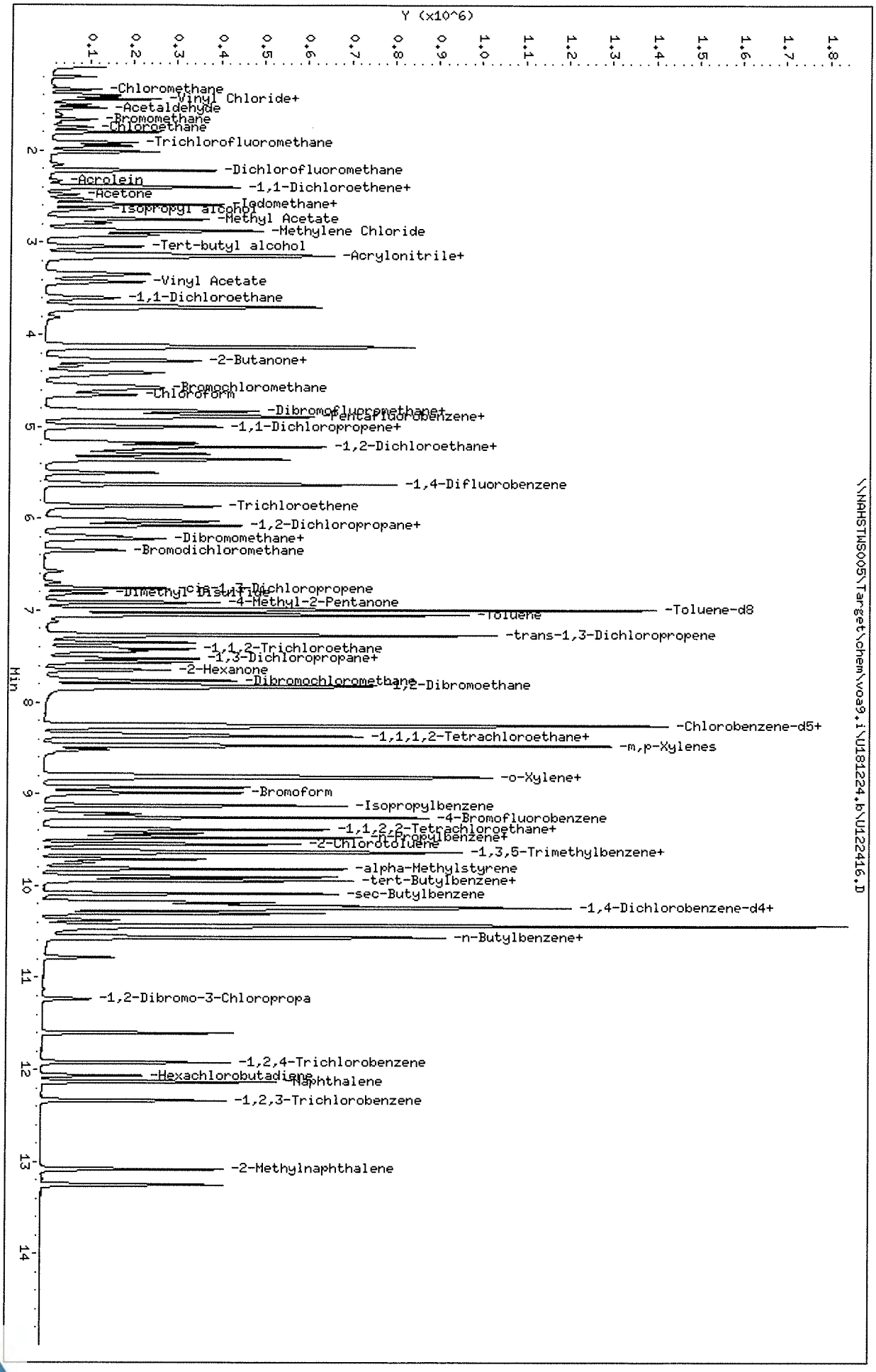
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.894	4.894	(1.000)	331424	50.0000	
* 36 1,4-Difluorobenzene	114	5.625	5.625	(1.000)	576248	50.0000	
* 47 Chlorobenzene-d5	117	8.249	8.249	(1.000)	529623	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.236	10.235	(1.000)	254873	50.0000	
$ 30 Dibromofluoromethane	113	4.827	4.826	(0.986)	168144	45.8522	45.85
$ 35 1,2-Dichloroethane-d4	65	5.175	5.171	(1.057)	222561	47.3342	47.33
$ 48 Toluene-d8	98	6.990	6.989	(0.847)	724188	53.0583	53.05
$ 69 4-Bromofluorobenzene	95	9.258	9.257	(1.122)	269198	51.7556	51.75
60 1,1,1,2-Tetrachloroethane	131	8.350	8.350	(1.012)	77847	23.4774	23.47
31 1,1,1-Trichloroethane	97	4.827	4.826	(0.986)	124807	23.8493	23.84
68 1,1,2,2-Tetrachloroethane	83	9.392	9.392	(0.918)	146512	25.5255	25.52
138 Freon TF	101	2.397	2.401	(0.490)	69274	24.5863	24.58
53 1,1,2-Trichloroethane	83	7.421	7.420	(0.900)	79929	25.3311	25.33
22 1,1-Dichloroethane	63	3.601	3.600	(0.736)	165784	23.2274	23.22
11 1,1-Dichloroethene	96	2.397	2.401	(0.490)	72848	23.1174	23.11
32 1,1-Dichloropropene	75	5.003	5.002	(0.889)	129339	25.2259	25.22
93 1,2,3-Trichlorobenzene	180	12.335	12.335	(1.205)	110289	23.3059	23.30
71 1,2,3-Trichloropropane	75	9.426	9.426	(0.921)	147392	24.6948	24.69
90 1,2,4-Trichlorobenzene	180	11.923	11.922	(1.165)	111669	23.6648	23.66
79 1,2,4-Trimethylbenzene	105	9.944	9.943	(0.971)	350216	26.2578	26.25
89 1,2-Dibromo-3-Chloropropane	155	11.233	11.233	(1.097)	19134	22.4432	22.44
57 1,2-Dibromoethane	107	7.852	7.851	(0.952)	93013	25.5928	25.59

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122416.D Page 2
Report Date: 28-Jan-2019 14:34

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
88	1,2-Dichlorobenzene	146	10.570	10.569	(1.033)	186214	24.6061	24.60
33	1,2-Dichloroethane	62	5.254	5.250	(0.934)	135491	25.7455	25.74
42	1,2-Dichloropropane	63	6.079	6.078	(1.081)	100756	24.7452	24.74
75	1,3,5-Trimethylbenzene	105	9.625	9.624	(0.940)	337155	26.3216	26.32
83	1,3-Dichlorobenzene	146	10.180	10.179	(0.995)	184469	24.3737	24.37
54	1,3-Dichloropropane	76	7.563	7.563	(0.917)	173022	25.4574	25.45
84	1,4-Dichlorobenzene	146	10.255	10.254	(1.002)	190330	23.8514	23.85
26	2,2-Dichloropropane	77	4.275	4.271	(0.874)	97599	22.6905	22.69
24	2-Butanone	43	4.339	4.335	(0.887)	107198	48.2282	48.22
76	2-Chlorotoluene	91	9.546	9.546	(0.933)	300561	25.5945	25.59
52	2-Hexanone	43	7.649	7.649	(0.927)	159891	54.2919	54.29
77	4-Chlorotoluene	91	9.640	9.639	(0.942)	351762	25.9211	25.92
82	p-Isopropyltoluene	119	10.210	10.209	(0.997)	352635	26.1465	26.14
45	4-Methyl-2-Pentanone	43	6.915	6.910	(0.838)	226082	53.3530	53.35
10	Acetone	43	2.480	2.476	(0.507)	74295	56.1349	56.13
37	Benzene	78	5.216	5.216	(0.927)	391973	25.5625	25.56
74	Bromobenzene	156	9.381	9.381	(0.917)	97267	24.6999	24.69
29	Bromochloromethane	128	4.553	4.552	(0.930)	45259	24.5612	24.56
39	Bromodichloromethane	83	6.349	6.348	(1.129)	107054	24.7242	24.72
66	Bromoform	173	8.984	8.983	(1.089)	47071	21.7383	21.73
6	Bromomethane	94	1.663	1.666	(0.340)	49208	24.7376	24.73
19	Carbon Disulfide	76	2.585	2.588	(0.528)	503010	43.8079	43.80
34	Carbon Tetrachloride	117	4.995	4.995	(0.888)	96698	23.8270	23.82
59	Chlorobenzene	112	8.275	8.275	(1.003)	255742	25.1317	25.13
7	Chloroethane	64	1.749	1.748	(0.357)	64023	22.2494	22.24(M)
28	Chloroform	83	4.654	4.654	(0.951)	161546	23.5020	23.50
3	Chloromethane	50	1.337	1.336	(0.273)	73406	22.7829	22.78
27	cis-1,2-Dichloroethene	96	4.287	4.283	(0.876)	103515	23.7619	23.76
46	cis-1,3-Dichloropropene	75	6.757	6.757	(1.201)	141799	22.2701	22.27
55	Dibromochloromethane	129	7.758	7.758	(0.940)	77586	22.8337	22.83
44	Dibromomethane	93	6.191	6.187	(1.101)	59570	25.3492	25.34
2	Dichlorodifluoromethane	85	1.202	1.201	(0.246)	61834	15.5009	15.50
61	Ethylbenzene	106	8.369	8.369	(1.015)	134489	25.7680	25.76
91	Hexachlorobutadiene	225	12.065	12.065	(1.179)	35933	19.8760	19.87
67	Isopropylbenzene	105	9.126	9.126	(1.106)	402846	26.7483	26.74
62	m,p-Xylenes	106	8.474	8.474	(1.027)	335947	52.3577	52.35
17	Methylene Chloride	84	2.870	2.869	(0.586)	98201	23.3483	23.34
87	n-Butylbenzene	91	10.558	10.558	(1.031)	331532	25.4718	25.47
73	n-Propylbenzene	91	9.475	9.474	(0.926)	504768	26.5050	26.50
92	Naphthalene	128	12.133	12.132	(1.185)	367426	23.9167	23.91
63	o-Xylene	106	8.811	8.811	(1.068)	168940	26.0992	26.09
81	sec-Butylbenzene	105	10.086	10.086	(0.985)	419576	26.2148	26.21
64	Styrene	104	8.826	8.822	(1.070)	285317	26.5308	26.53
78	tert-Butylbenzene	119	9.902	9.902	(0.967)	289715	26.1687	26.16
56	Tetrachloroethene	164	7.522	7.521	(0.912)	67478	24.3365	24.33
50	Toluene	91	7.046	7.045	(0.854)	407430	25.8611	25.86
20	trans-1,2-Dichloroethene	96	3.140	3.139	(0.642)	89909	23.1759	23.17
51	trans-1,3-Dichloropropene	75	7.259	7.259	(1.291)	118283	21.8584	21.85
38	Trichloroethene	130	5.861	5.861	(1.042)	95016	25.6675	25.66
8	Trichlorofluoromethane	101	1.951	1.951	(0.399)	122329	22.7392	22.73
5	Vinyl Chloride	62	1.415	1.419	(0.289)	98964	21.6711	21.67

QC Flag Legend

M - Compound response manually integrated.



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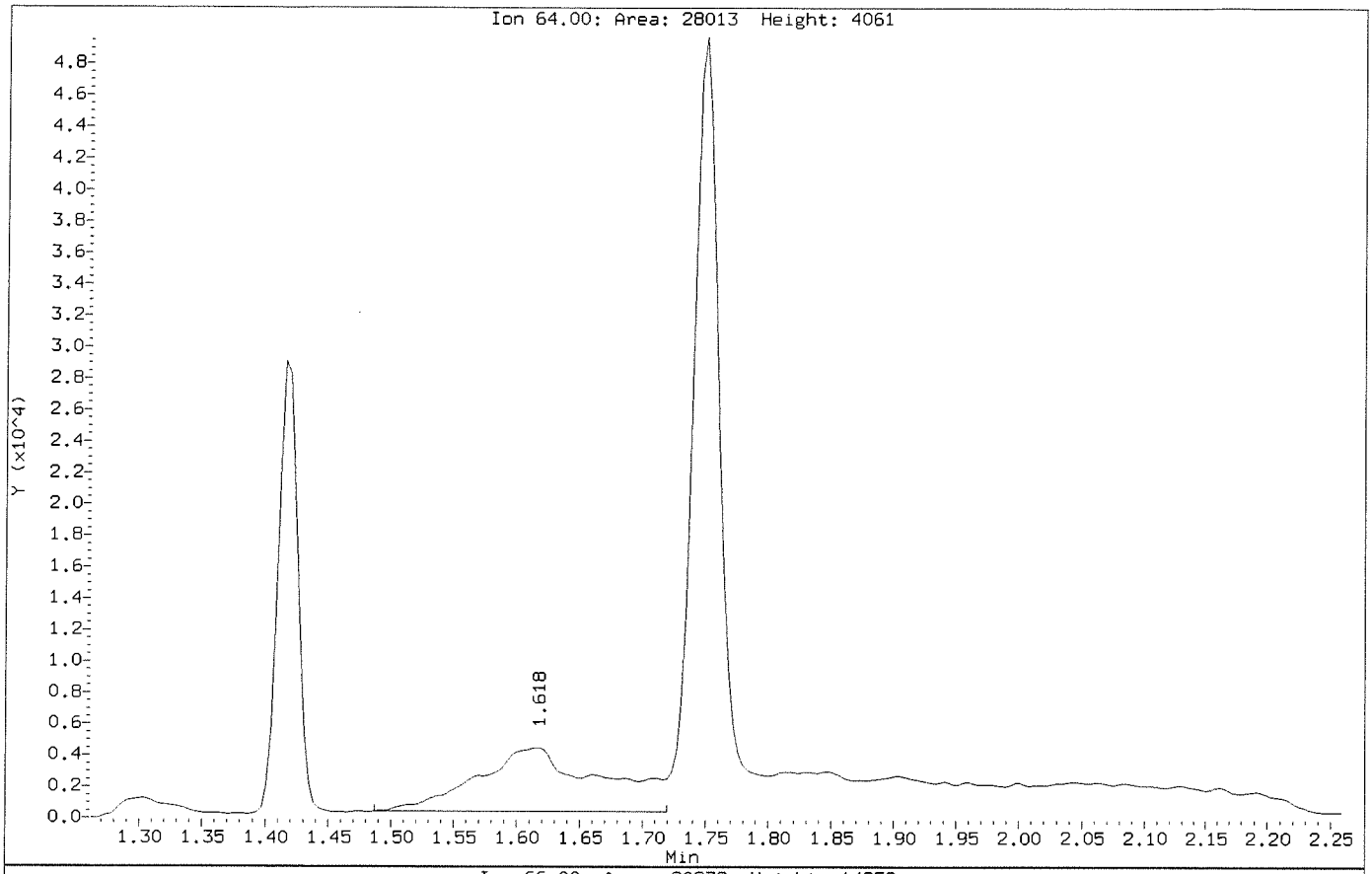
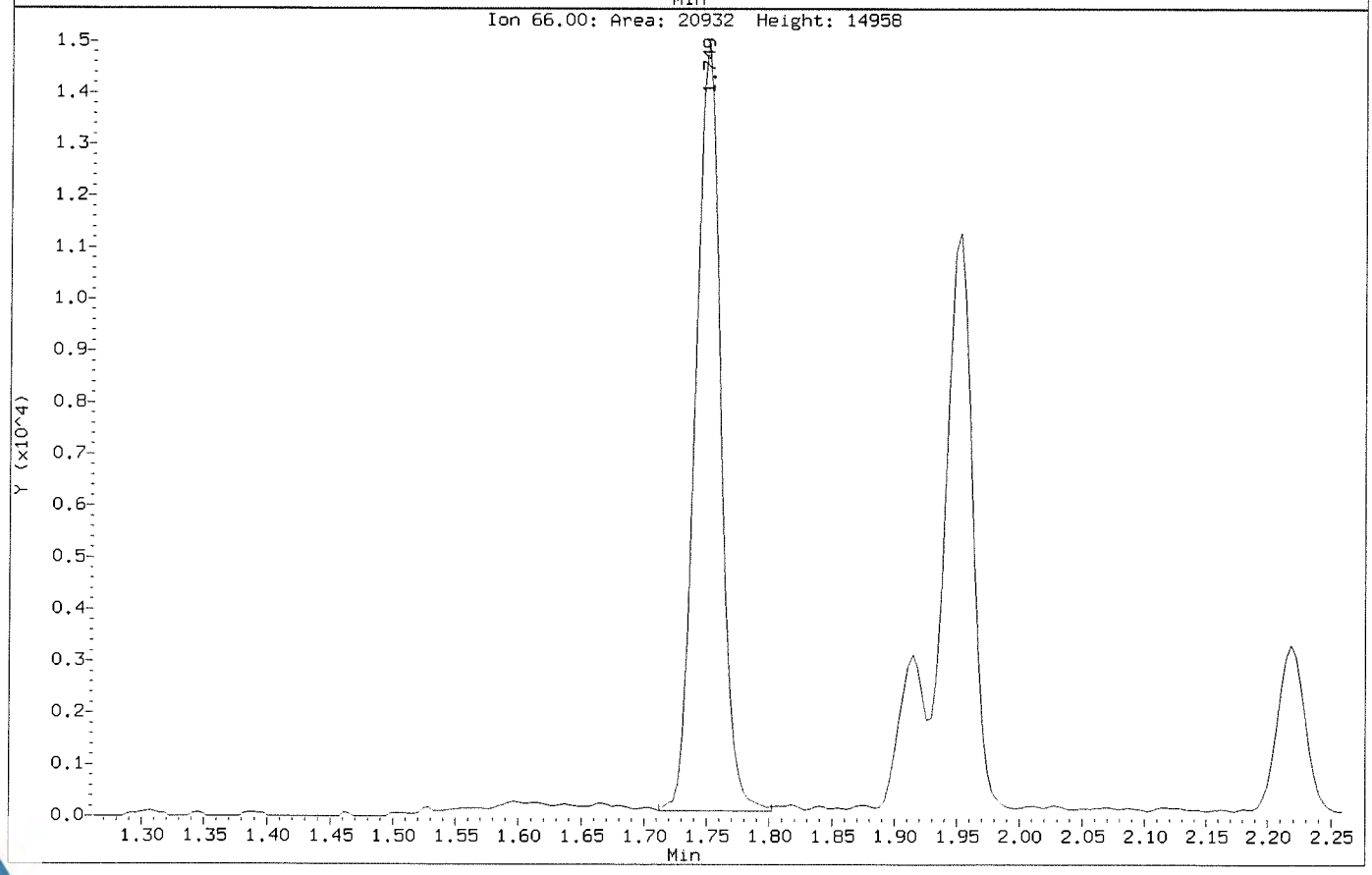
Client ID: HS18120913-03HSD
Sample Info: HS18120913-03HSD;HS18120913-03HSD;3;;HSD
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9,i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\Before\U122416.D
Injection Date: 24-DEC-2018 15:39
Instrument: VOA9.i
Client Sample ID: HS18120913-03MSD

Compound: Chloroethane
CAS Number: 75-00-3





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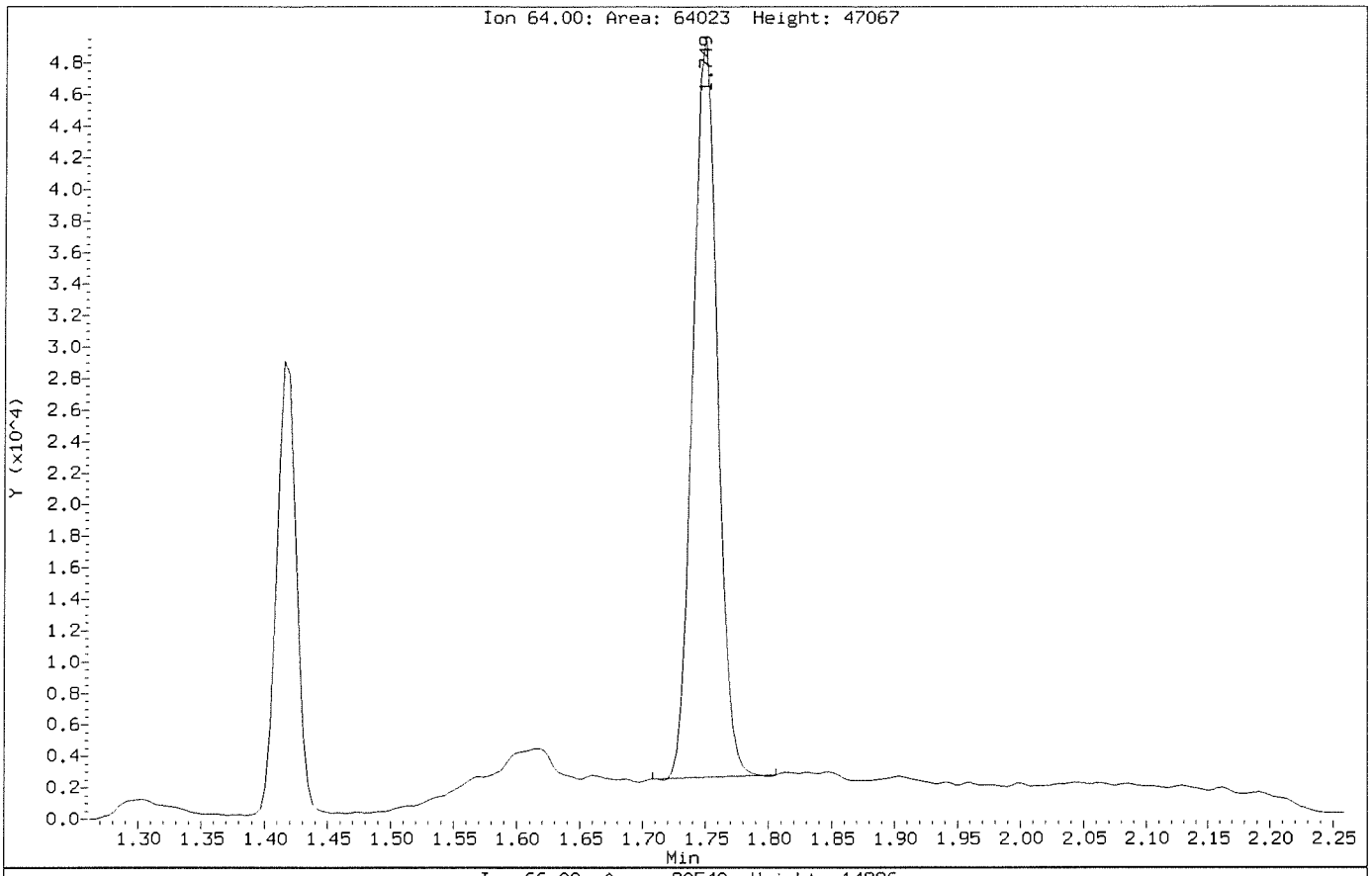
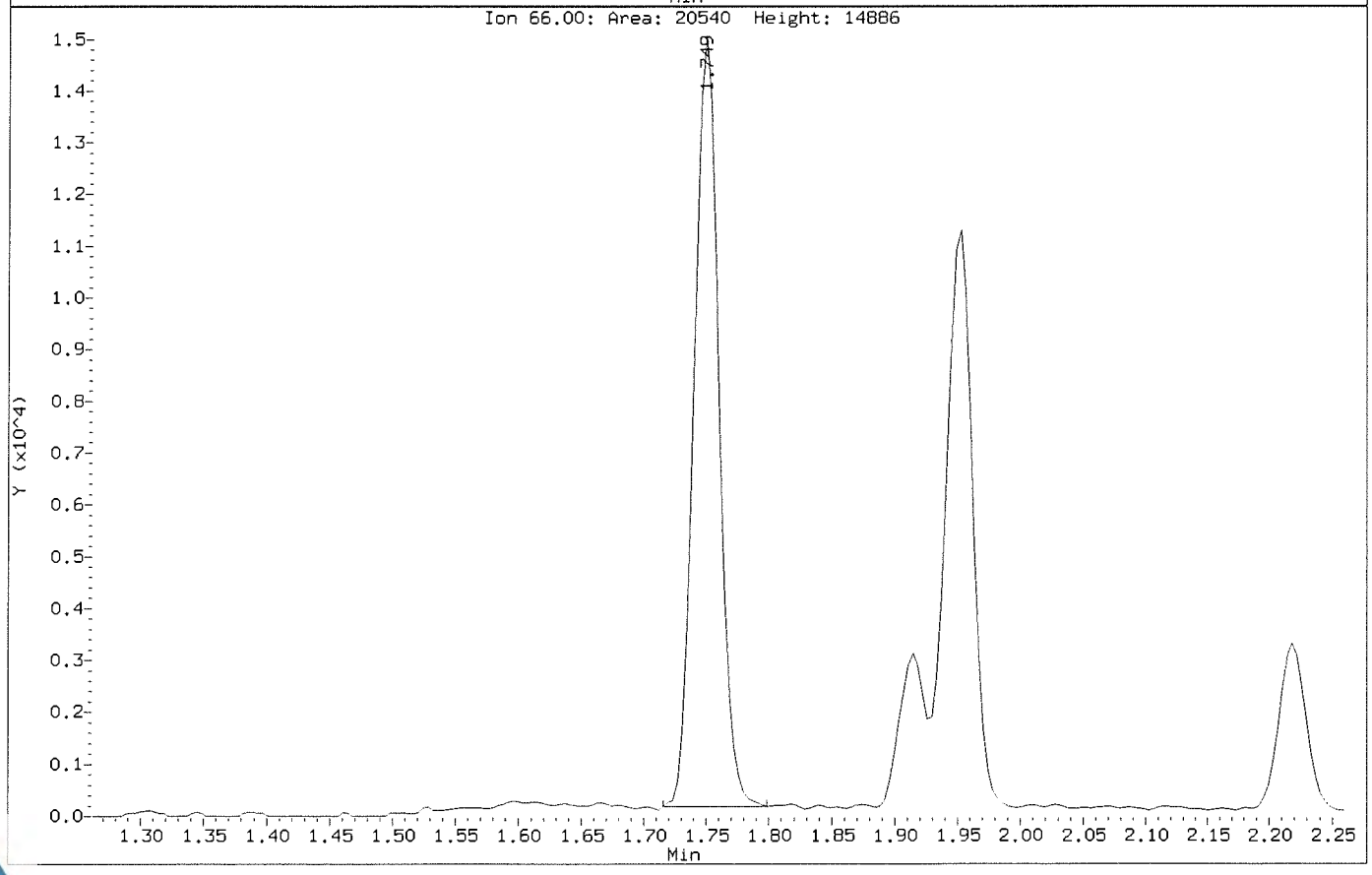
Injection Date: 24-DEC-2018 15:39
Instrument: VOA9.i
Client Sample ID: HS18120913-03MSD

Compound: Chloroethane
CAS Number: 75-00-3





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Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122418.D
Lab Smp Id: HS18120913-08 Client Smp ID: HS18120913-08
Inj Date : 24-DEC-2018 16:28
Operator : PC Inst ID: VOA9.i
Smp Info : HS18120913-08;HS18120913-08;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 17
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

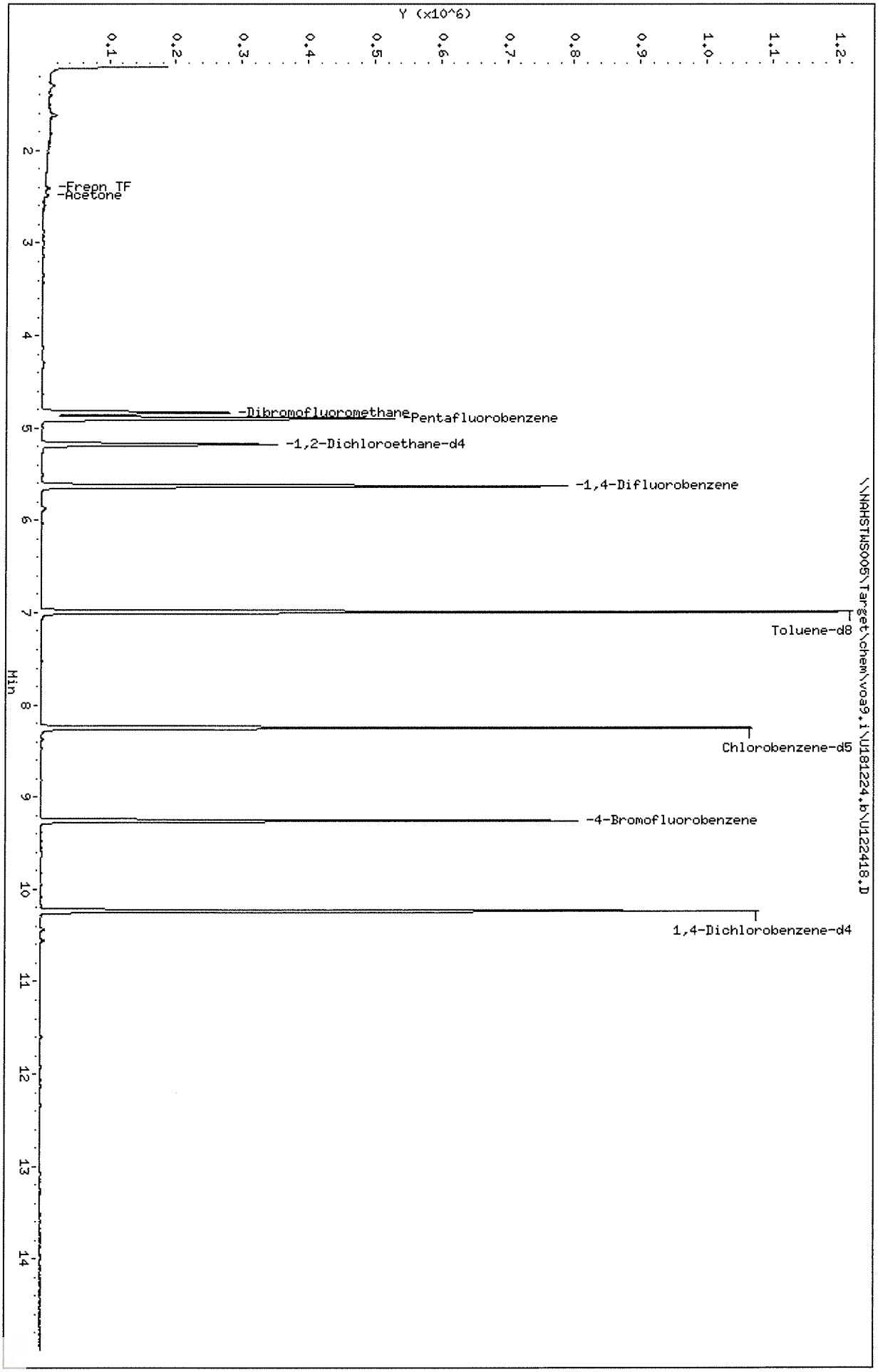
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.898	4.902	(1.000)	321626	50.0000	
* 36 1,4-Difluorobenzene	114	5.629	5.629	(1.000)	572577	50.0000	
* 47 Chlorobenzene-d5	117	8.253	8.253	(1.000)	519400	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	238700	50.0000	
$ 30 Dibromofluoromethane	113	4.834	4.834	(0.987)	163407	45.9201	45.92
$ 35 1,2-Dichloroethane-d4	65	5.179	5.179	(1.057)	223746	49.1139	49.11
$ 48 Toluene-d8	98	6.989	6.990	(0.847)	705160	52.6683	52.66
$ 69 4-Bromofluorobenzene	95	9.257	9.258	(1.122)	249340	48.8018	48.80
138 Freon TF	101	2.409	2.412	(0.492)	1913	0.69963	0.69(a)
10 Acetone	43	2.484	2.491	(0.507)	7569	3.18648	3.18(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122418.D
Date : 24-DEC-2018 16:28
Client ID: HS18120913-08
Sample Info: HS18120913-08;HS18120913-08;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



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Date : 24-DEC-2018 16:28

Client ID: HS18120913-08

Instrument: VOA9.i

Sample Info: HS18120913-08;HS18120913-08;;;

Purge Volume: 5.0

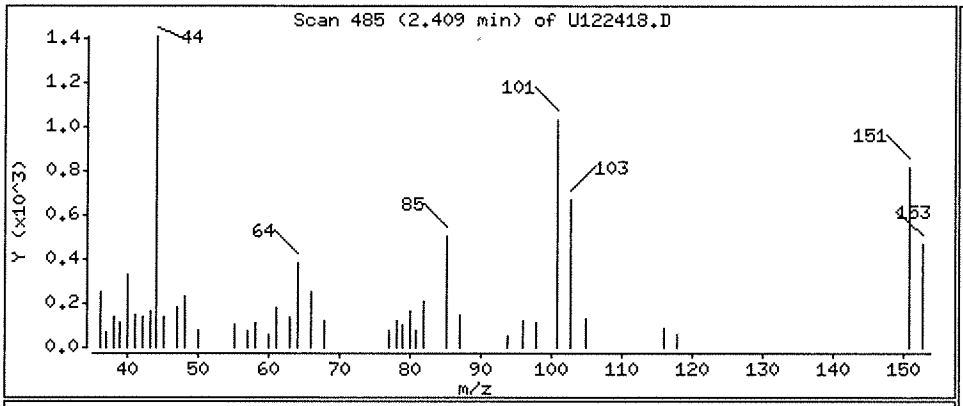
Operator: PC

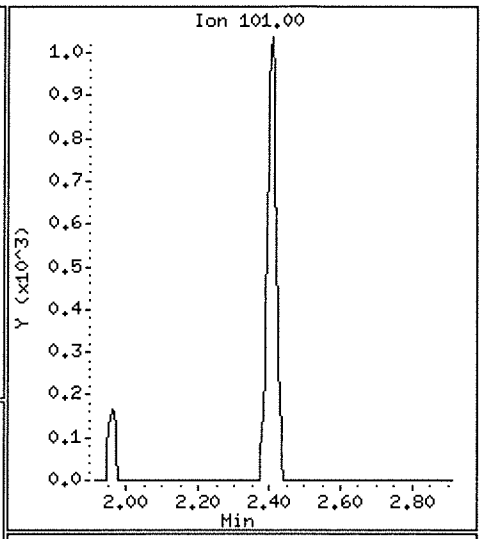
Column phase: DB624

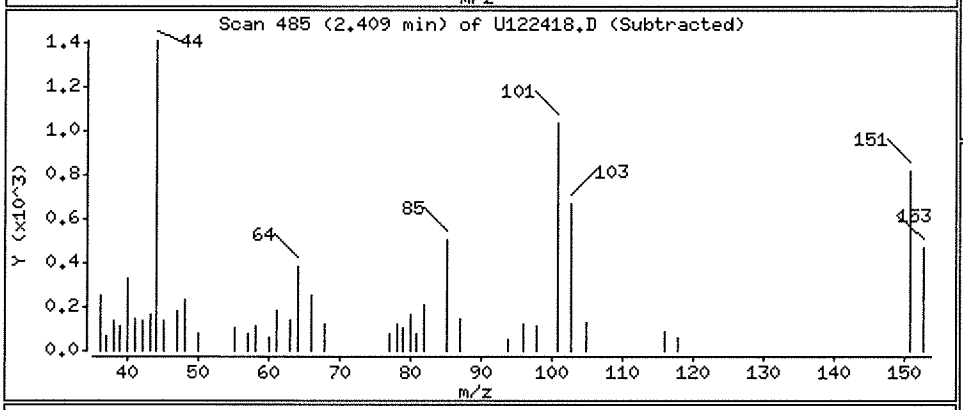
Column diameter: 0.18

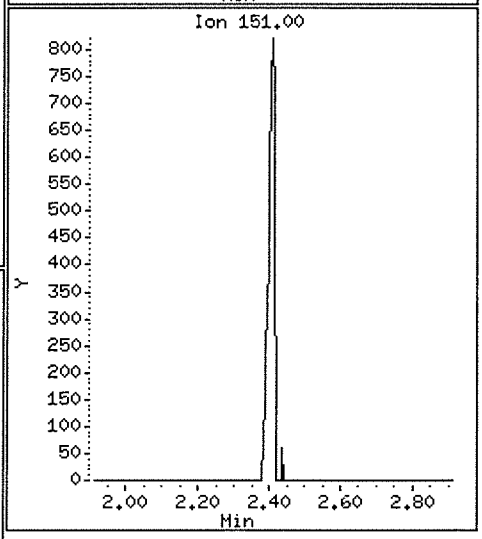
138 Freon TF

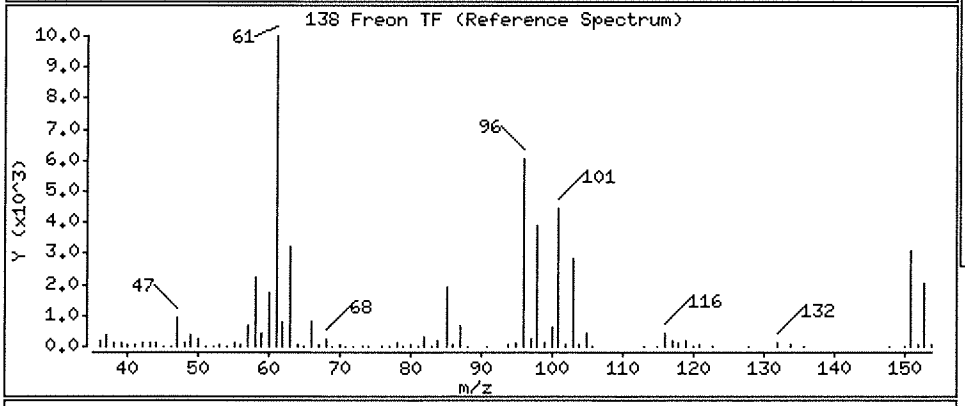
Concentration: 0.69 ug/l

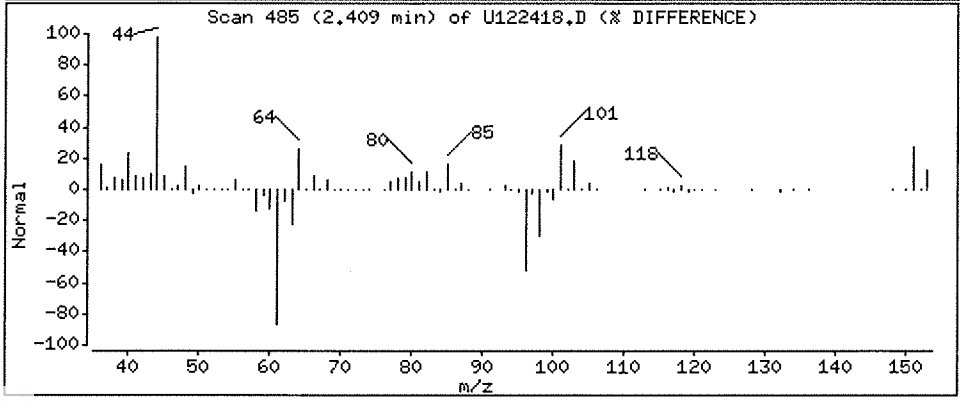












Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122418.D

Date : 24-DEC-2018 16:28

Client ID: HS18120913-08

Instrument: VOA9.i

Sample Info: HS18120913-08;HS18120913-08;;;

Purge Volume: 5.0

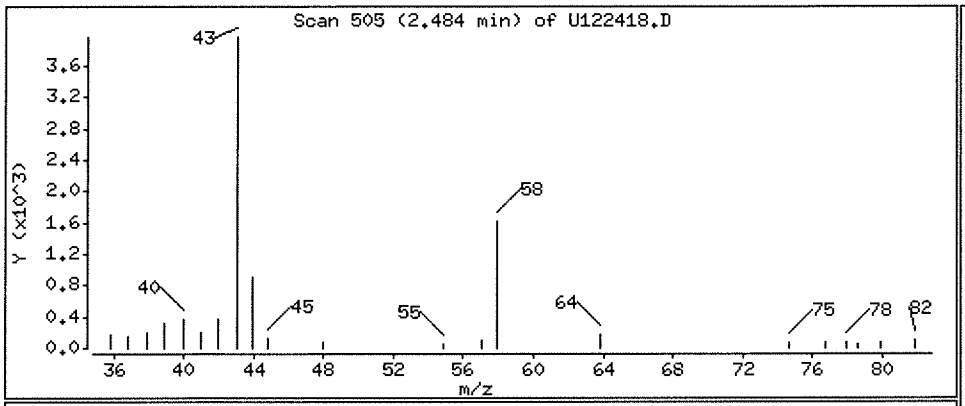
Operator: PC

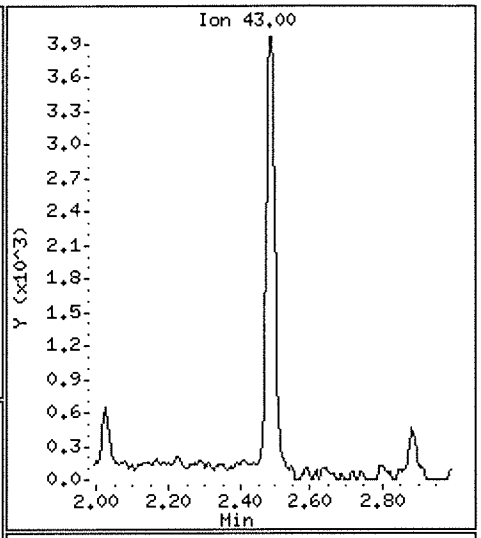
Column phase: DB624

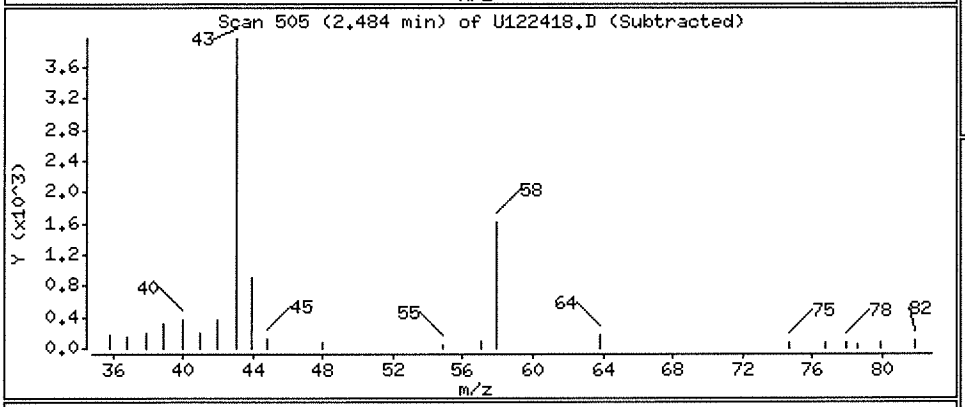
Column diameter: 0.18

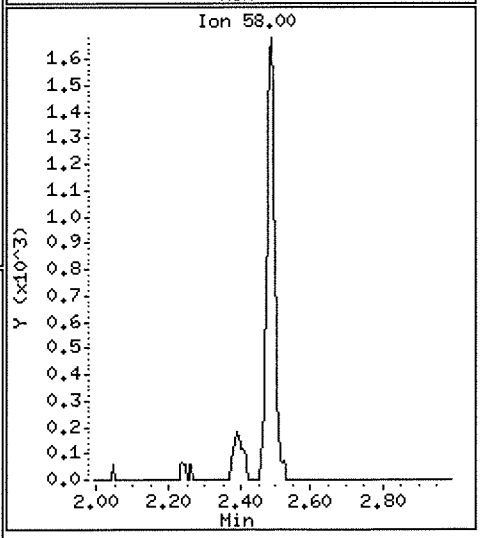
10 Acetone

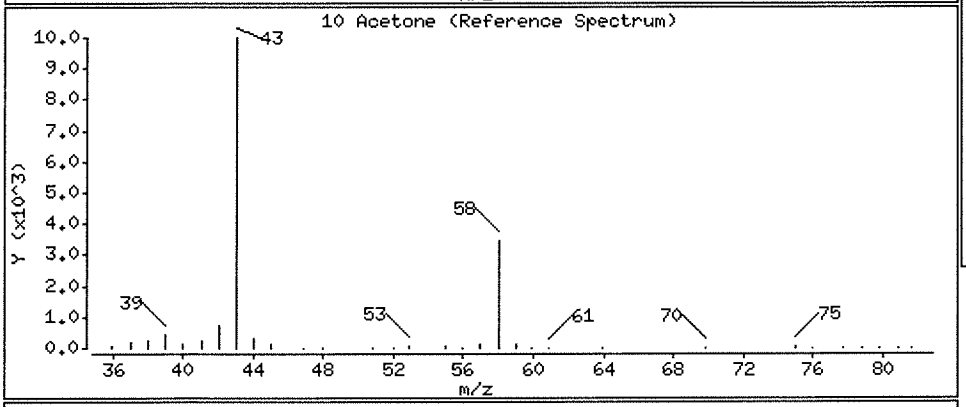
Concentration: 3.18 ug/l

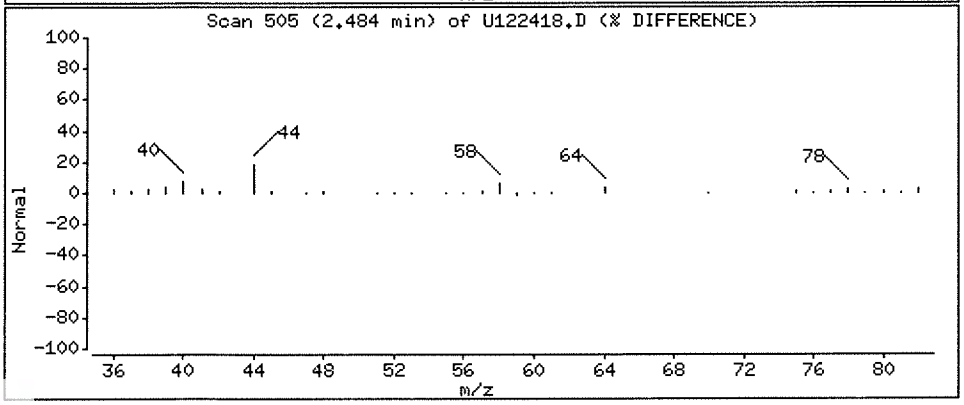












Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122420.D Page 1
Report Date: 28-Jan-2019 14:43

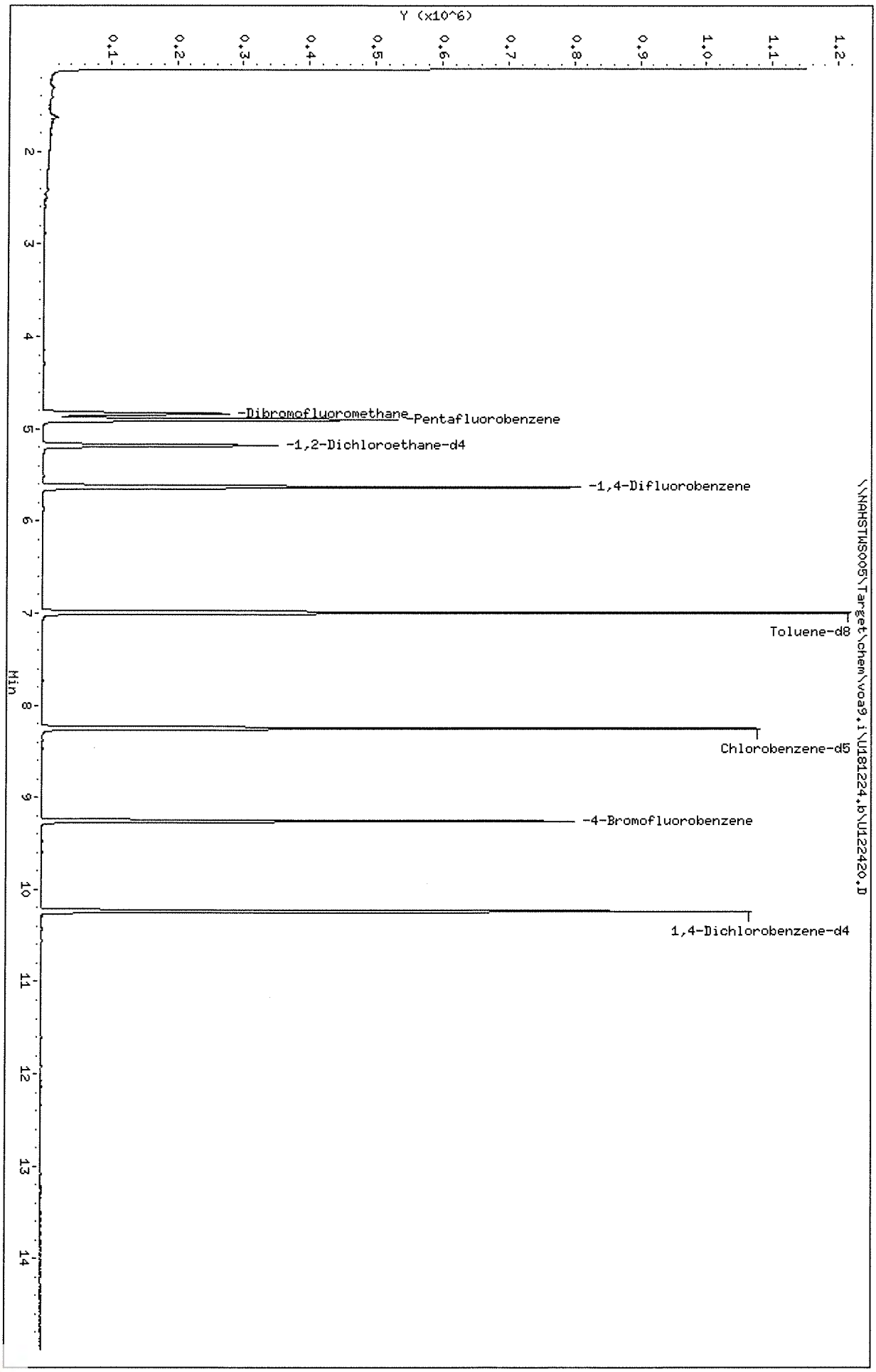
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122420.D
Lab Smp Id: HS18120913-04 Client Smp ID: HS18120913-04
Inj Date : 24-DEC-2018 17:18
Operator : PC Inst ID: VOA9.i
Smp Info : HS18120913-04;HS18120913-04;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 19
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.901	4.902	(1.000)	325737	50.0000	
* 36 1,4-Difluorobenzene	114	5.629	5.629	(1.000)	574454	50.0000	
* 47 Chlorobenzene-d5	117	8.253	8.253	(1.000)	520680	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	238090	50.0000	
$ 30 Dibromofluoromethane	113	4.838	4.834	(0.987)	163096	45.2321	45.23
$ 35 1,2-Dichloroethane-d4	65	5.179	5.179	(1.057)	227422	49.2986	49.29
$ 48 Toluene-d8	98	6.993	6.990	(0.847)	705933	52.5940	52.59
$ 69 4-Bromofluorobenzene	95	9.257	9.258	(1.122)	247865	48.3819	48.38



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Date : 24-DEC-2018 17:18
Client ID: HS18120913-04
Sample Info: HS18120913-04;HS18120913-04;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122421.D Page 1
Report Date: 28-Jan-2019 14:43

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122421.D
Lab Smp Id: HS18120913-05 Client Smp ID: HS18120913-05
Inj Date : 24-DEC-2018 17:43
Operator : PC Inst ID: VOA9.i
Smp Info : HS18120913-05;HS18120913-05;;;
Misc Info : 180315V9;WATER;0;1;
Comment   :
Method   : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 20
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

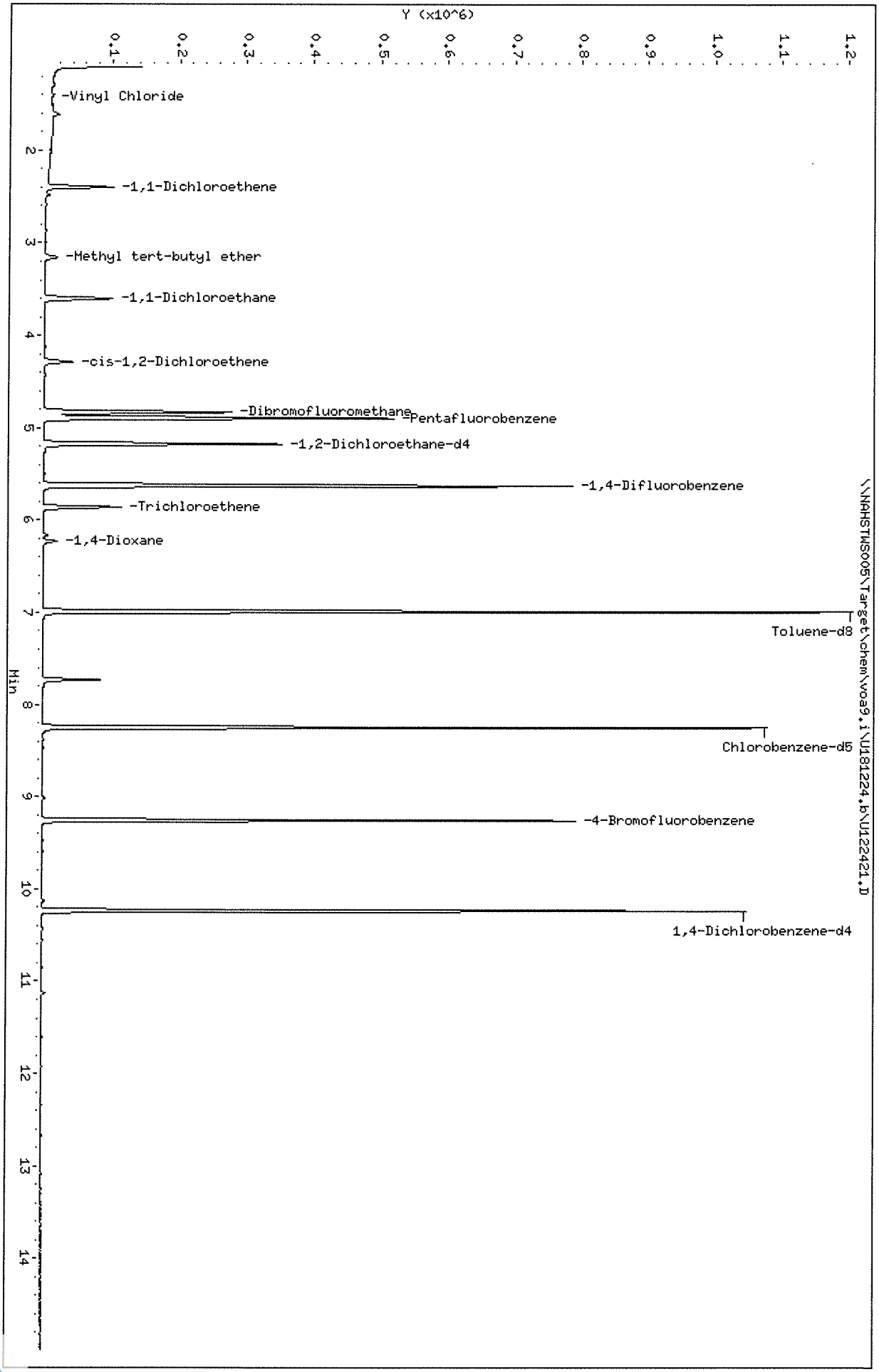
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.894	4.902	(1.000)	317953	50.0000	
* 36 1,4-Difluorobenzene	114	5.625	5.629	(1.000)	560574	50.0000	
* 47 Chlorobenzene-d5	117	8.249	8.253	(1.000)	514638	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	232339	50.0000	
$ 30 Dibromofluoromethane	113	4.830	4.834	(0.987)	161781	45.9906	45.99
$ 35 1,2-Dichloroethane-d4	65	5.175	5.179	(1.057)	223523	49.6546	49.65
$ 48 Toluene-d8	98	6.989	6.990	(0.847)	689364	51.9411	51.94
$ 69 4-Bromofluorobenzene	95	9.257	9.258	(1.122)	243771	48.1343	48.13
22 1,1-Dichloroethane	63	3.601	3.612	(0.736)	101571	14.8336	14.83
11 1,1-Dichloroethene	96	2.397	2.409	(0.490)	31500	10.4197	10.41
27 cis-1,2-Dichloroethene	96	4.287	4.294	(0.876)	19236	4.60270	4.60(a)
38 Trichloroethene	130	5.861	5.865	(1.042)	33724	9.36487	9.36
5 Vinyl Chloride	62	1.419	1.430	(0.290)	1416	1.27761	1.27(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).

Data File: \\NAHSTWS005\Target\chem\voa9,i\U181224,b\U122421.D
Date : 24-DEC-2018 17:43
Client ID: HS18120913-05
Sample Info: HS18120913-05;HS18120913-05;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9,i
Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122421.D Page 3

Date : 24-DEC-2018 17:43

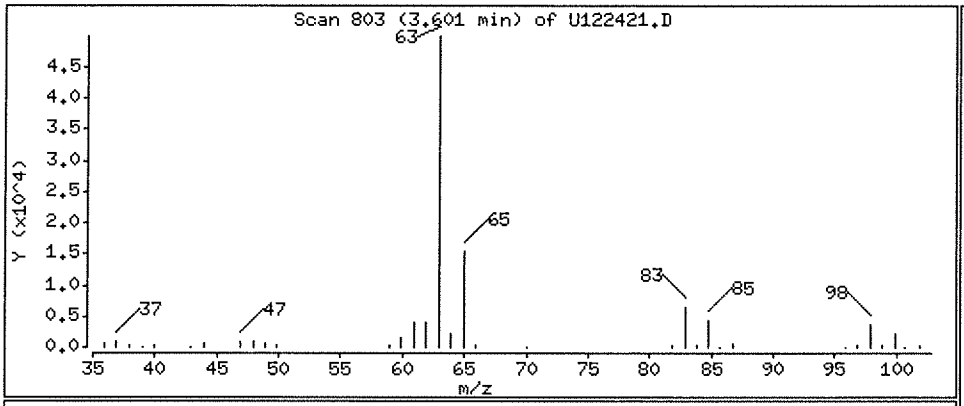
Client ID: HS18120913-05 Instrument: VOA9.i

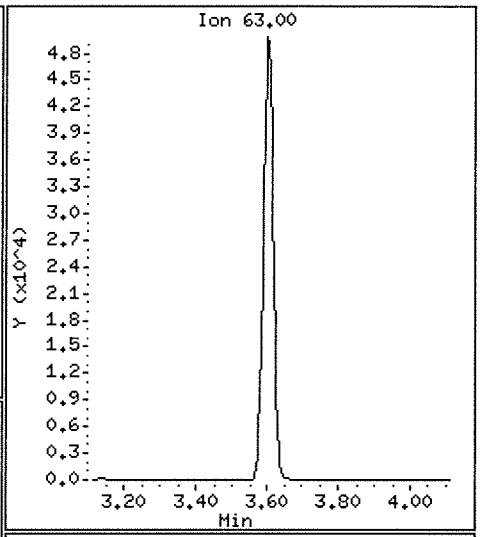
Sample Info: HS18120913-05;HS18120913-05;;;

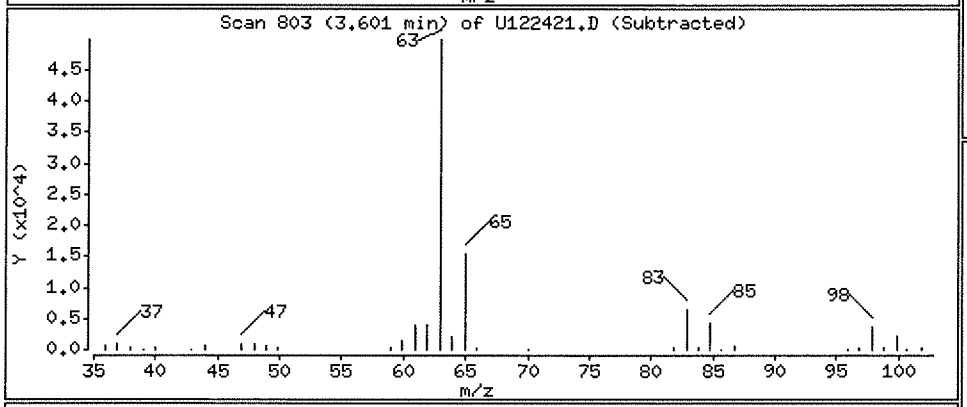
Purge Volume: 5.0 Operator: PC

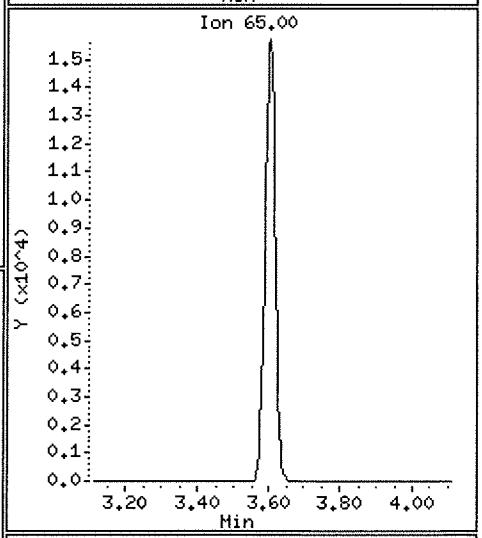
Column phase: DB624 Column diameter: 0.18

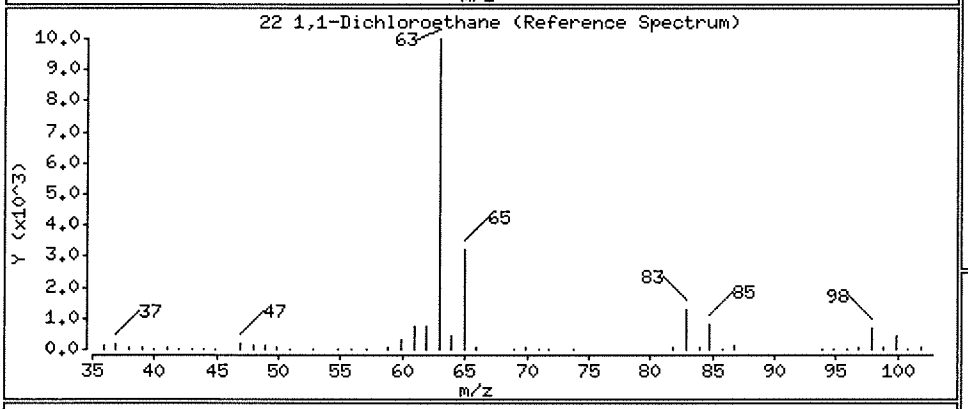
22 1,1-Dichloroethane Concentration: 14.83 ug/l

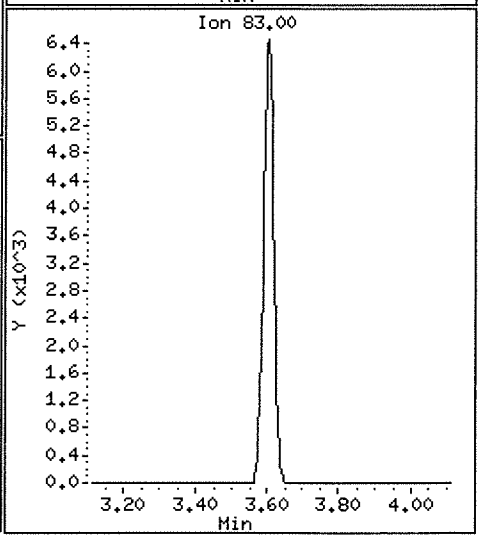


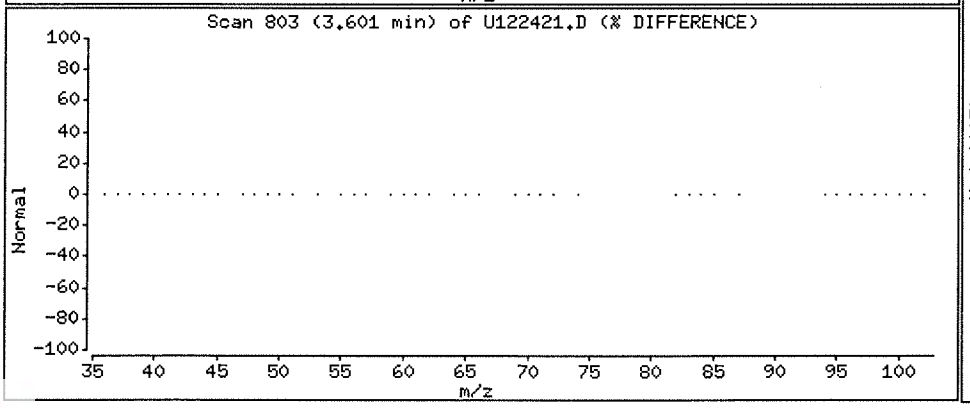












Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122421.D Page 4

Date : 24-DEC-2018 17:43

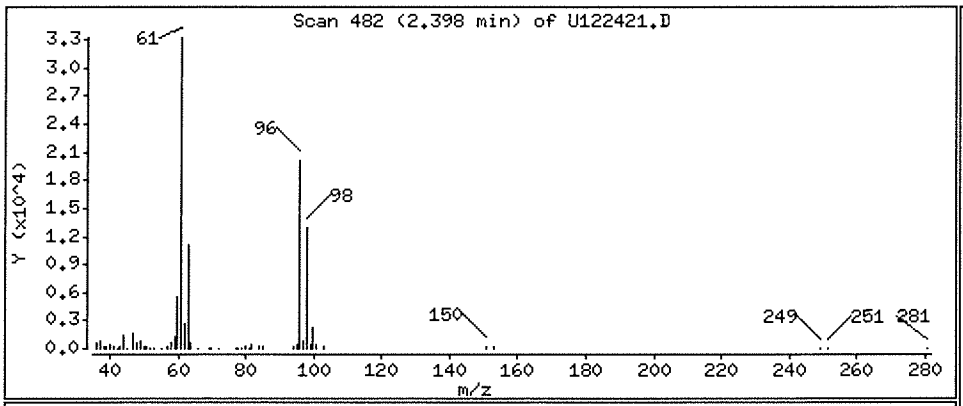
Client ID: HS18120913-05 Instrument: VOA9.i

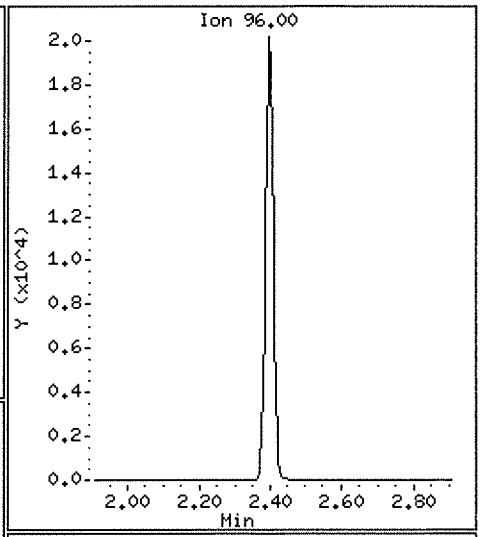
Sample Info: HS18120913-05;HS18120913-05;;;

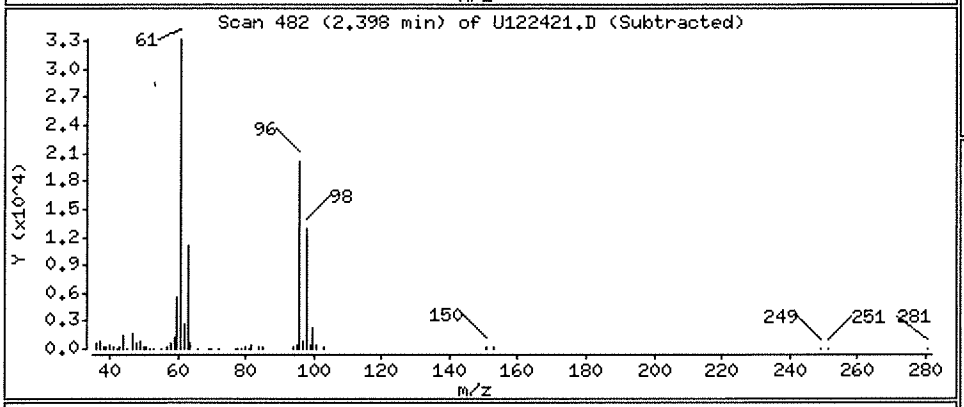
Purge Volume: 5.0 Operator: PC

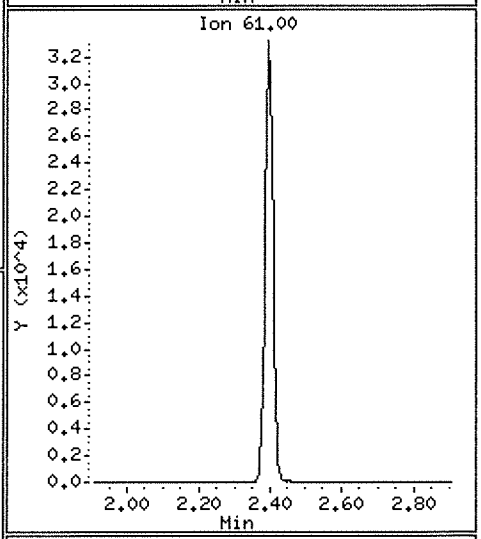
Column phase: DB624 Column diameter: 0.18

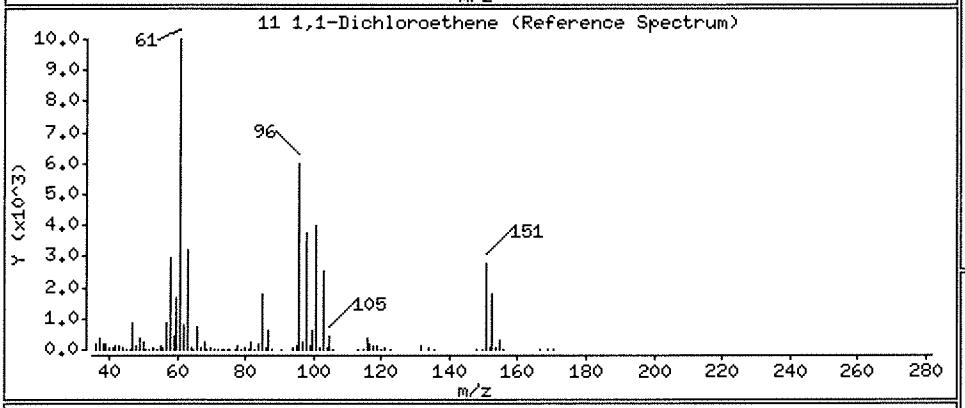
11 1,1-Dichloroethene Concentration: 10.41 ug/l

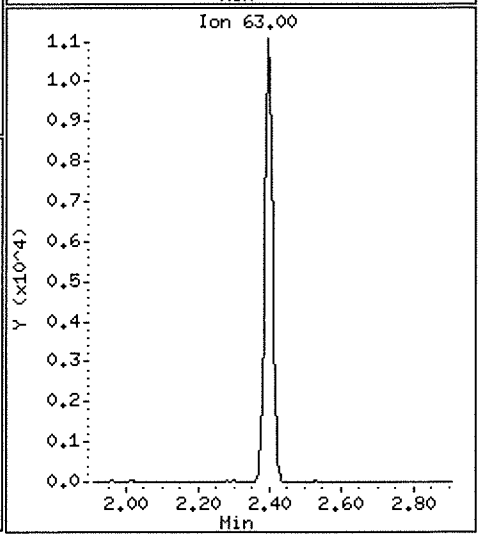


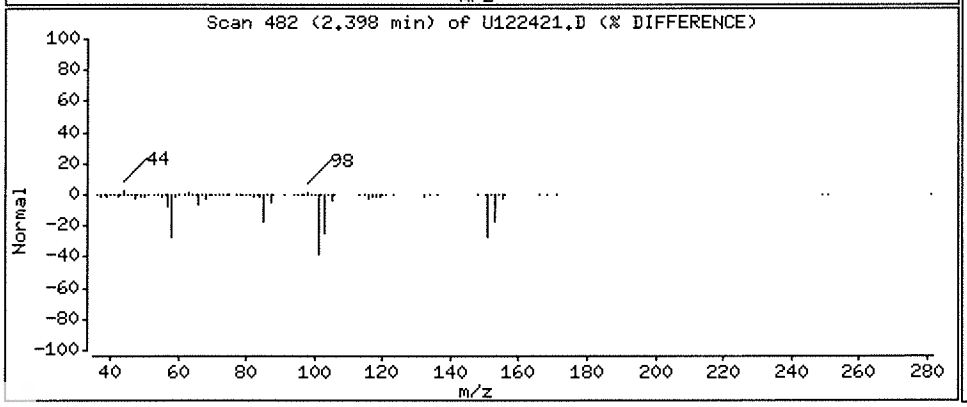












Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122421.D Page 5

Date : 24-DEC-2018 17:43

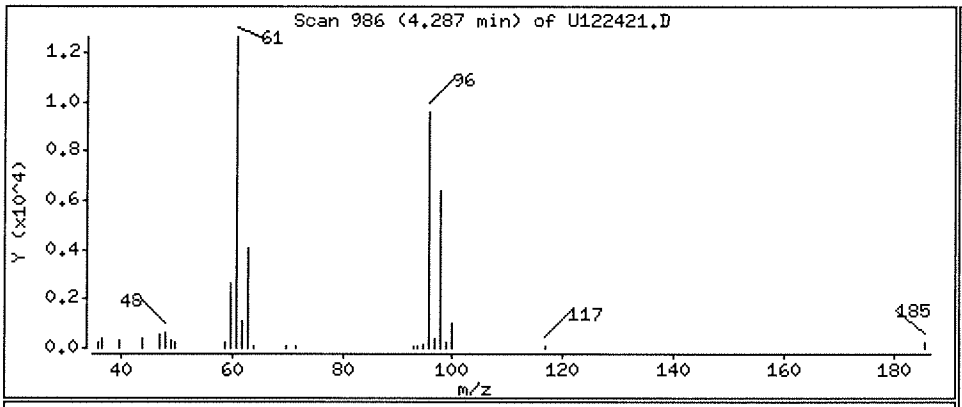
Client ID: HS18120913-05 Instrument: VOA9.i

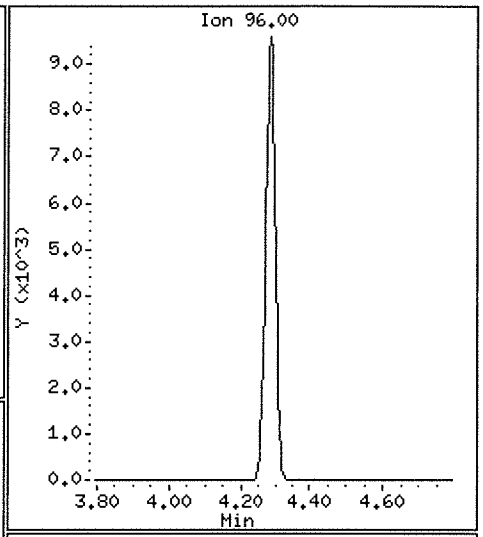
Sample Info: HS18120913-05;HS18120913-05;;;

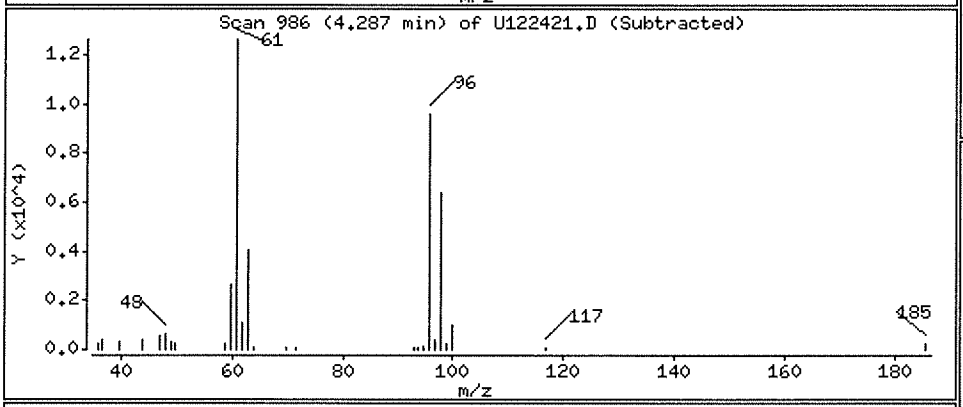
Purge Volume: 5.0 Operator: PC

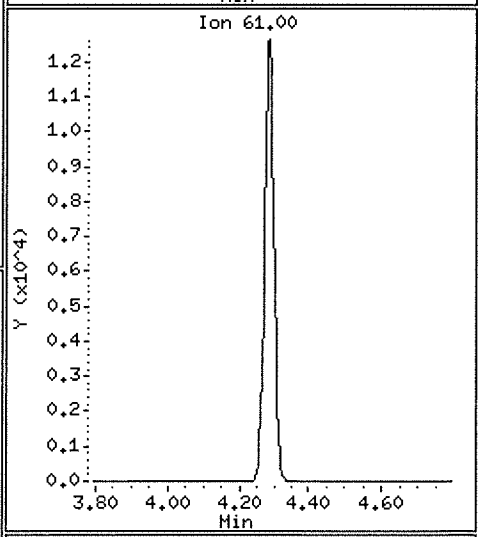
Column phase: DB624 Column diameter: 0.18

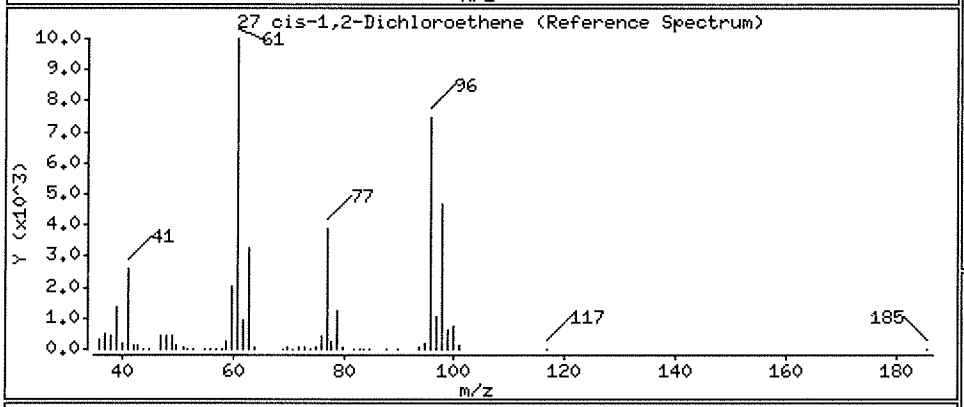
27 cis-1,2-Dichloroethene Concentration: 4.60 ug/l

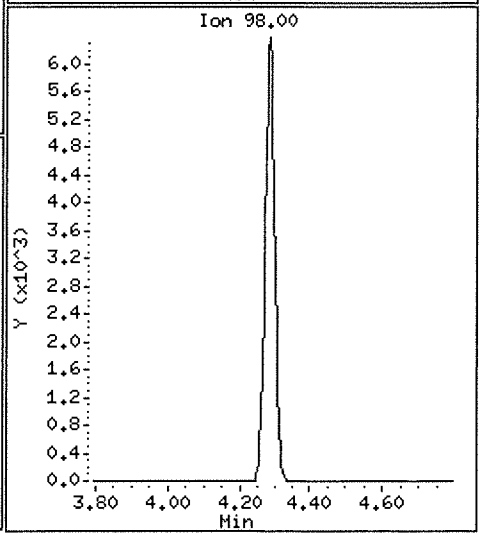


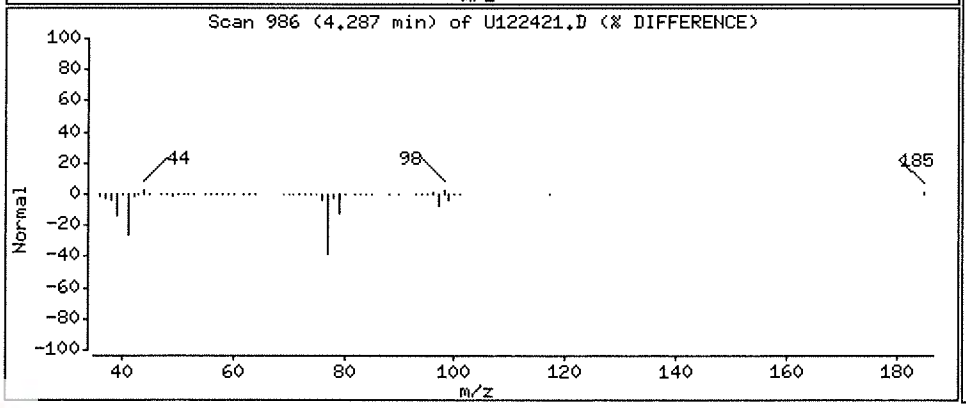












Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122421.D

Date : 24-DEC-2018 17:43

Client ID: HS18120913-05

Instrument: VOA9.i

Sample Info: HS18120913-05;HS18120913-05;;;

Purge Volume: 5.0

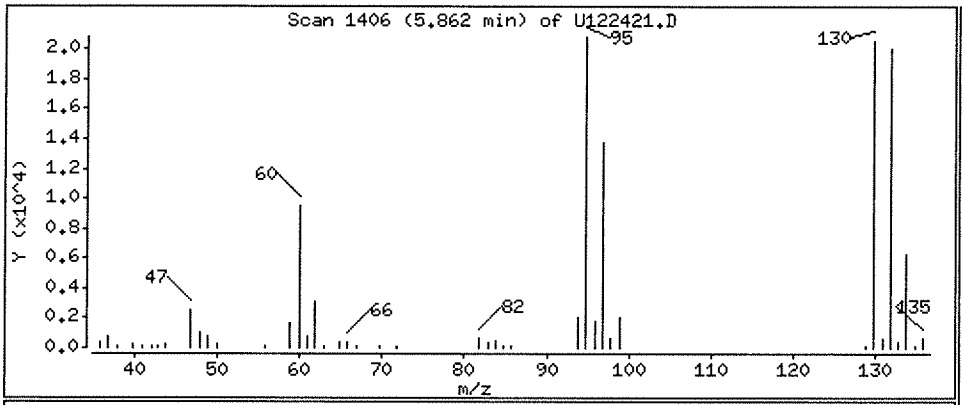
Operator: PC

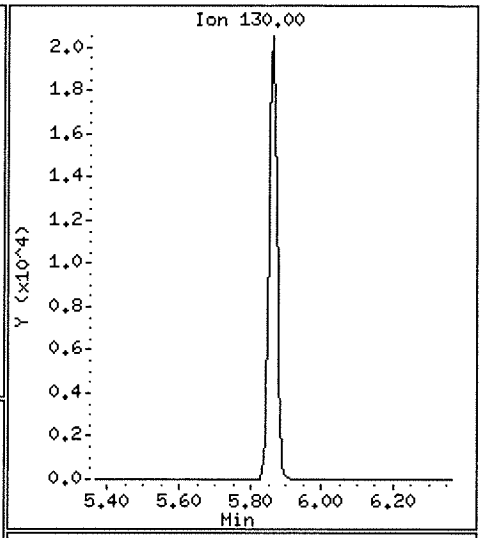
Column phase: DB624

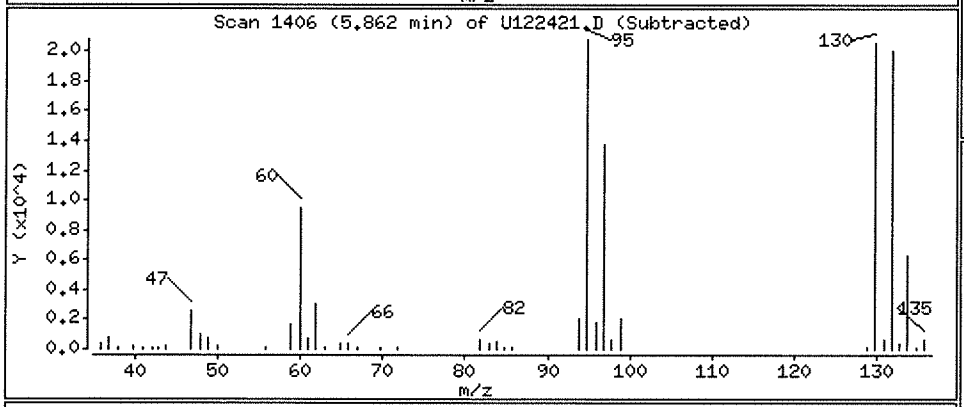
Column diameter: 0.18

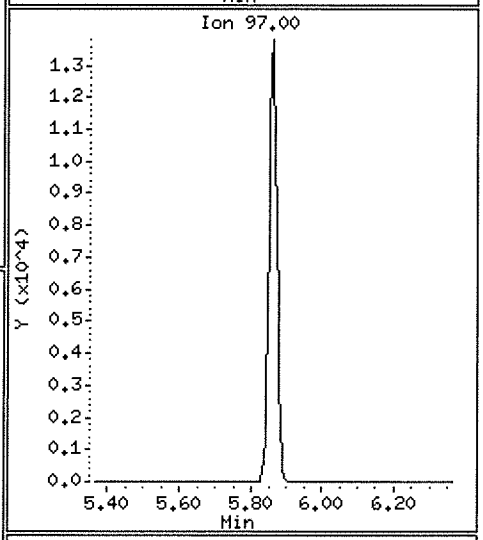
38 Trichloroethene

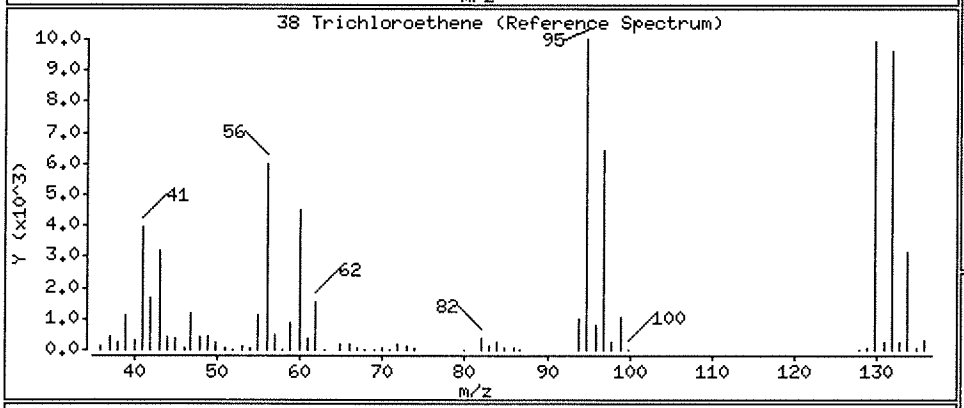
Concentration: 9.36 ug/l

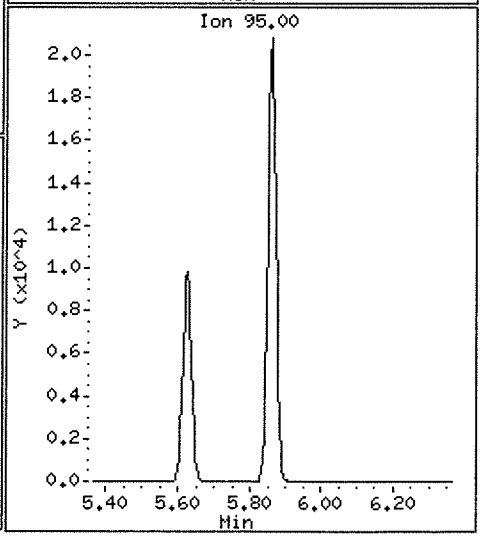


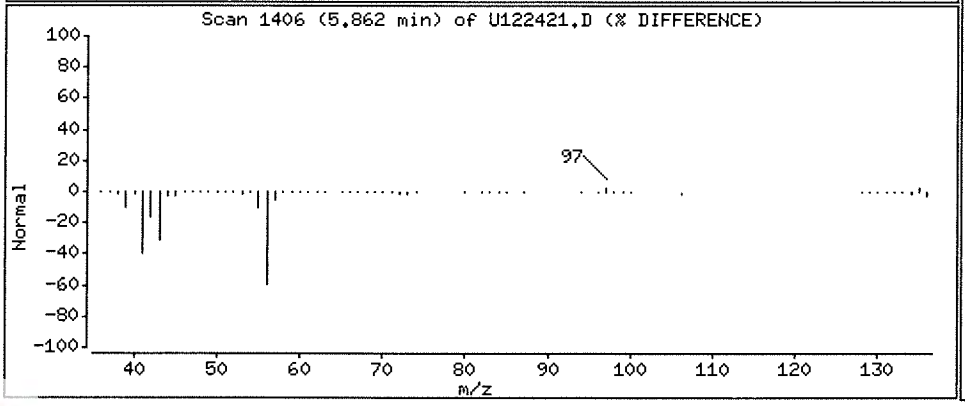












Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122421.D Page 7

Date : 24-DEC-2018 17:43

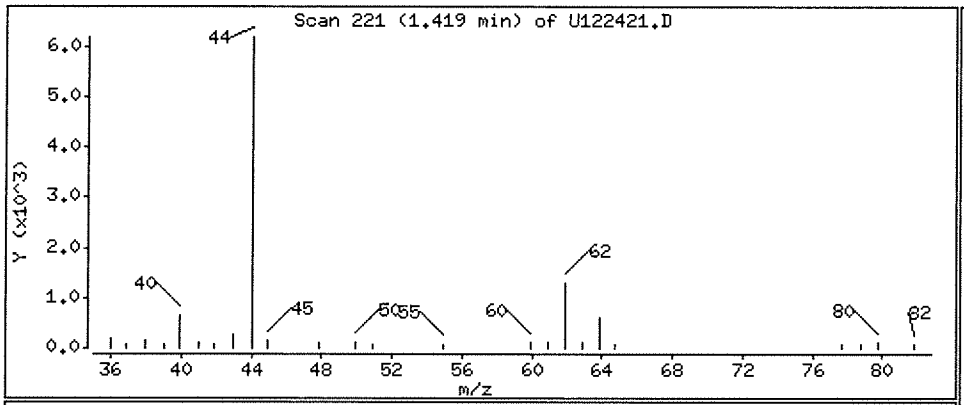
Client ID: HS18120913-05 Instrument: VOA9.i

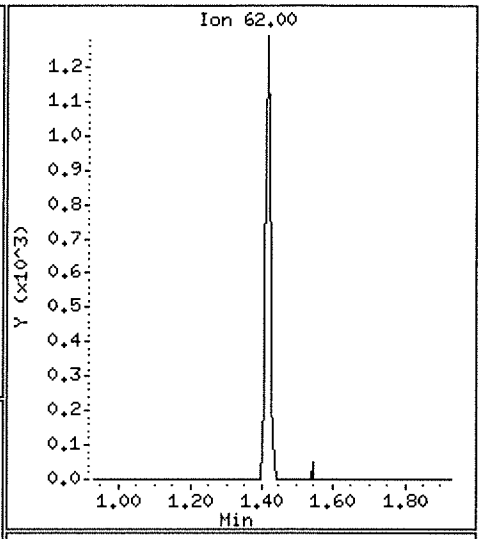
Sample Info: HS18120913-05;HS18120913-05;;;

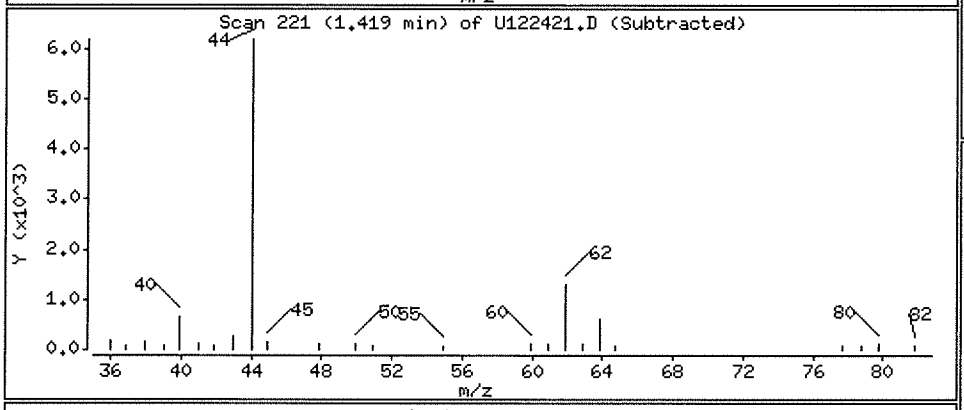
Purge Volume: 5.0 Operator: PC

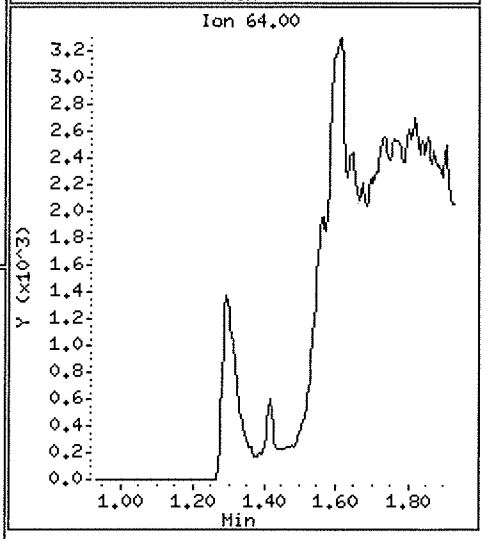
Column phase: DB624 Column diameter: 0.18

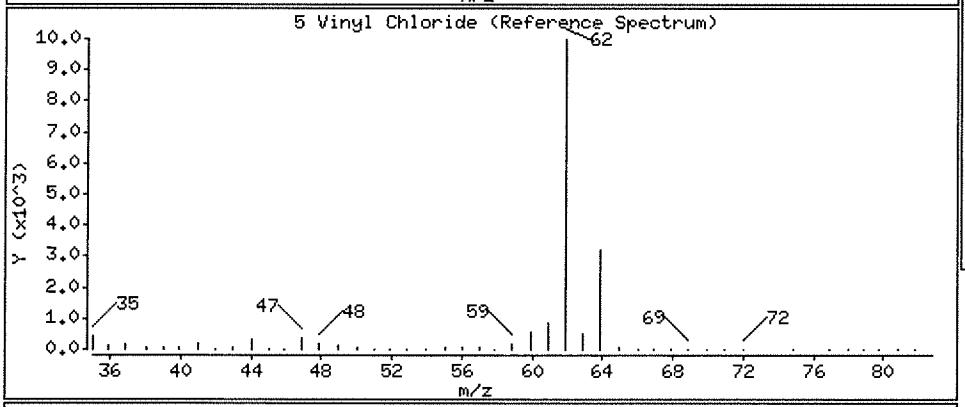
5 Vinyl Chloride Concentration: 1.27 ug/l

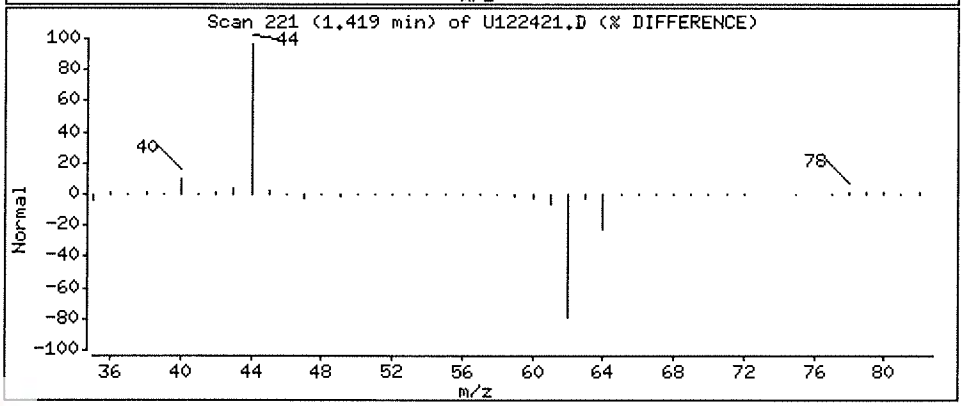












Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122422.D Page 1
Report Date: 28-Jan-2019 14:43

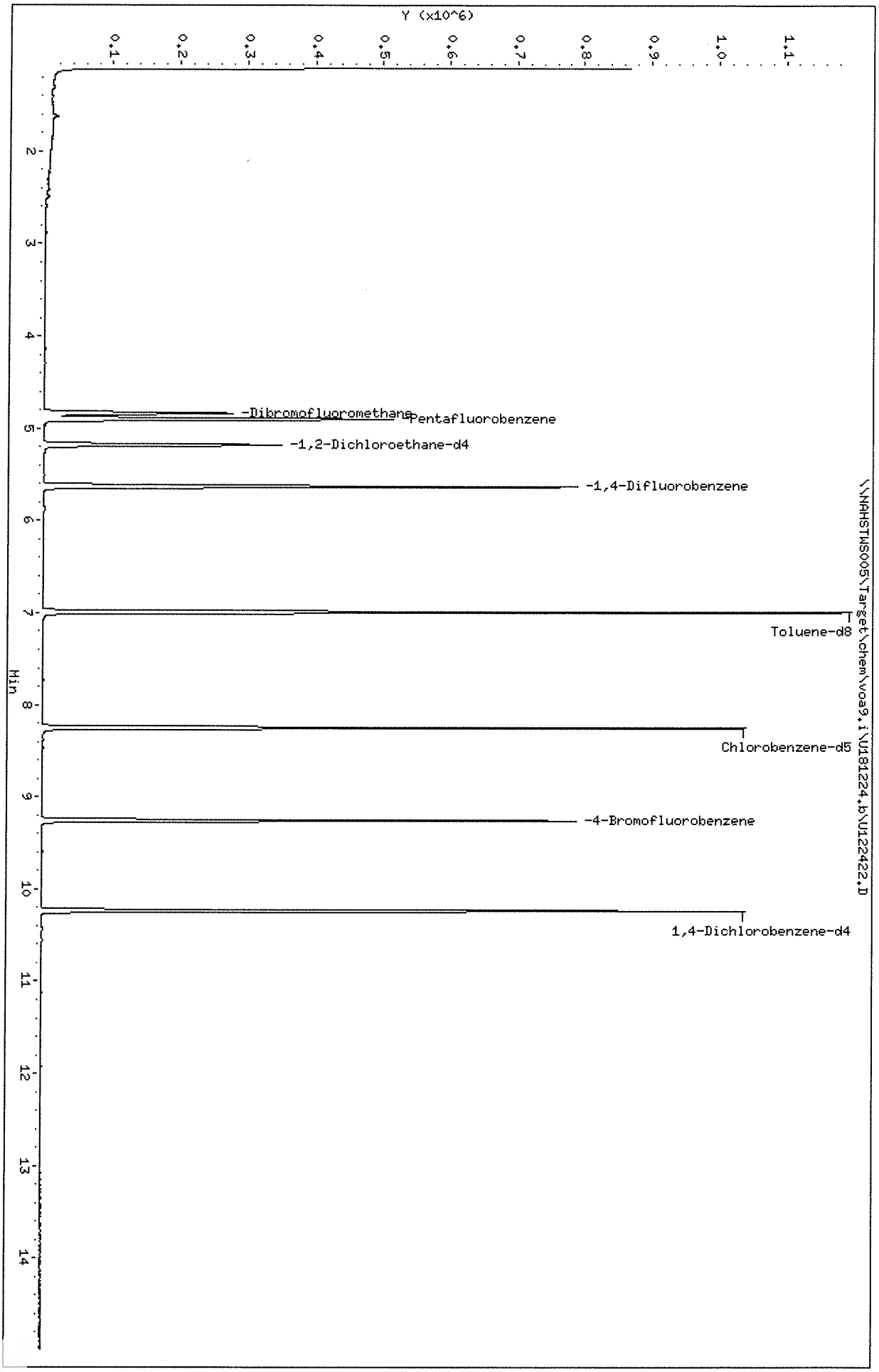
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122422.D
Lab Smp Id: HS18120913-06 Client Smp ID: HS18120913-06
Inj Date : 24-DEC-2018 18:08
Operator : PC Inst ID: VOA9.i
Smp Info : HS18120913-06;HS18120913-06;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 21
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.901	4.902	(1.000)	315819	50.0000	
* 36 1,4-Difluorobenzene	114	5.629	5.629	(1.000)	558405	50.0000	
* 47 Chlorobenzene-d5	117	8.253	8.253	(1.000)	506791	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	228496	50.0000	
$ 30 Dibromofluoromethane	113	4.834	4.834	(0.986)	160418	45.9087	45.90
$ 35 1,2-Dichloroethane-d4	65	5.179	5.179	(1.057)	222373	49.7364	49.73
$ 48 Toluene-d8	98	6.989	6.990	(0.847)	688966	52.7415	52.74
$ 69 4-Bromofluorobenzene	95	9.257	9.258	(1.122)	241356	48.4031	48.40



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Date : 24-DEC-2018 18:08
Client ID: HS18120913-06
Sample Info: HS18120913-06;HS18120913-06;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122423.D Page 1
Report Date: 28-Jan-2019 14:43

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122423.D
Lab Smp Id: HS18120913-07 Client Smp ID: HS18120913-07
Inj Date : 24-DEC-2018 18:32
Operator : PC Inst ID: VOA9.i
Smp Info : HS18120913-07;HS18120913-07;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 22
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

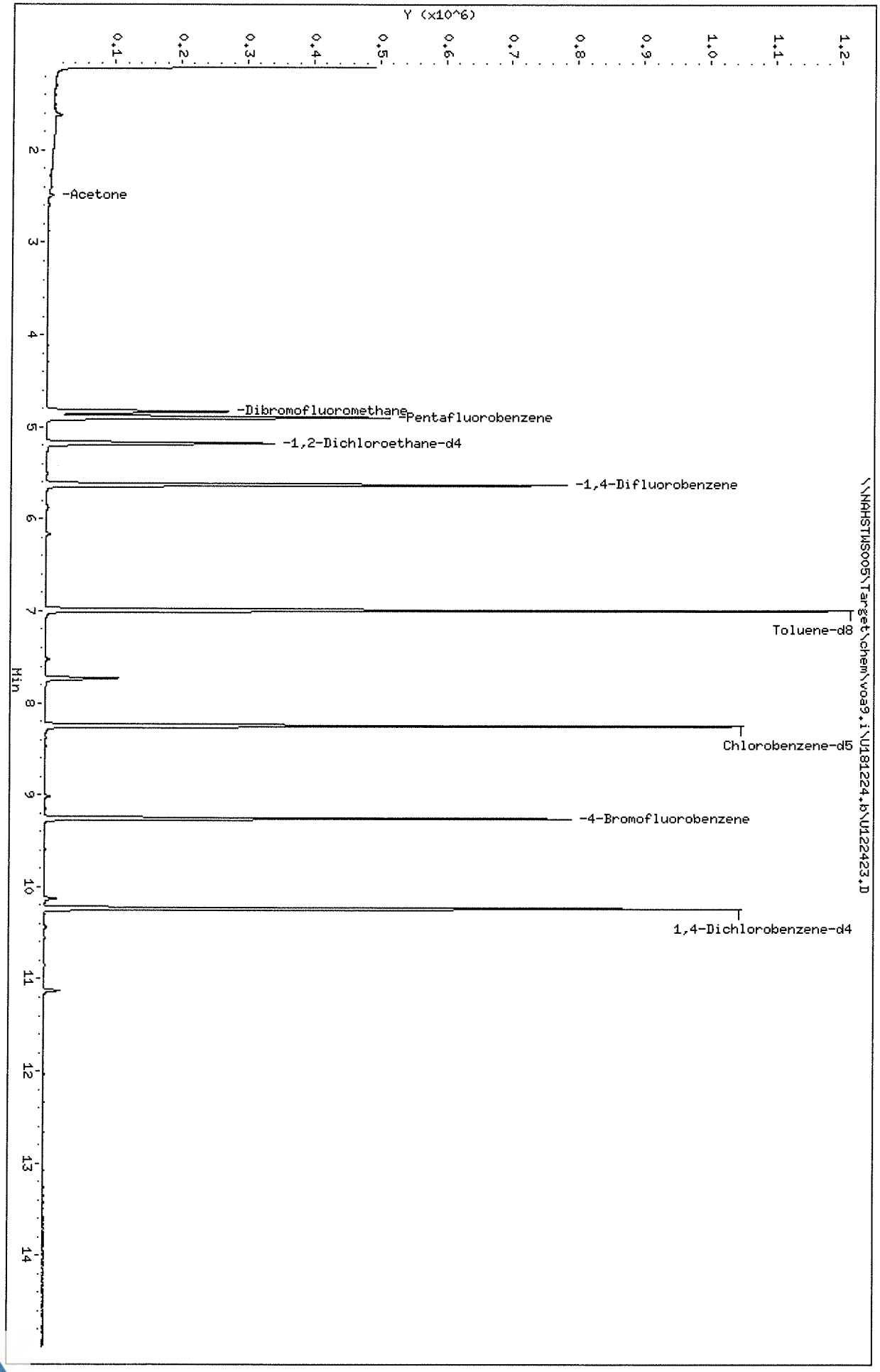
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.898	4.902	(1.000)	313434	50.0000	
*	36 1,4-Difluorobenzene	114	5.629	5.629	(1.000)	559358	50.0000	
*	47 Chlorobenzene-d5	117	8.249	8.253	(1.000)	507981	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	230671	50.0000	
$	30 Dibromofluoromethane	113	4.830	4.834	(0.986)	158045	45.5626	45.56
$	35 1,2-Dichloroethane-d4	65	5.175	5.179	(1.057)	220399	49.6670	49.66
$	48 Toluene-d8	98	6.990	6.990	(0.847)	686171	52.3931	52.39
$	69 4-Bromofluorobenzene	95	9.258	9.258	(1.122)	241692	48.3556	48.35
	10 Acetone	43	2.487	2.491	(0.508)	7369	3.18040	3.18(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

Data File: \\NAHSTWS005\Target\chem\voa9,i\U181224,b\U122423.D
Date : 24-DEC-2018 18:32
Client ID: HS18120913-07
Sample Info: HS18120913-07;HS18120913-07;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9,i
Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122423.D Page 3

Date : 24-DEC-2018 18:32

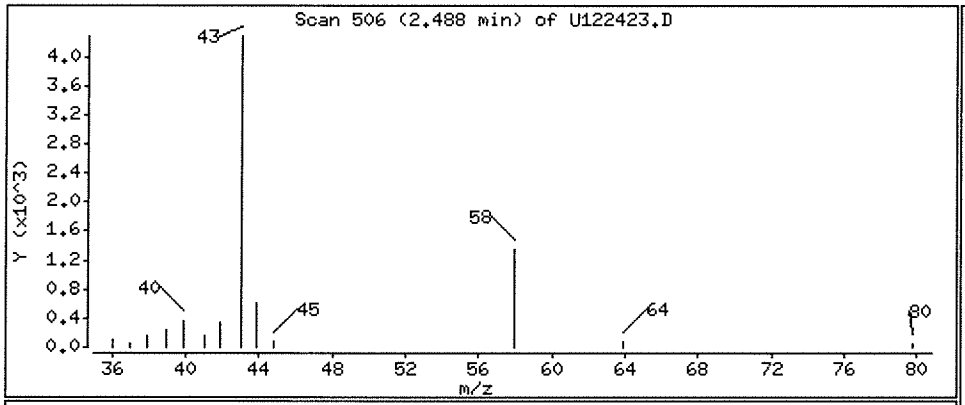
Client ID: HS18120913-07 Instrument: VOA9.i

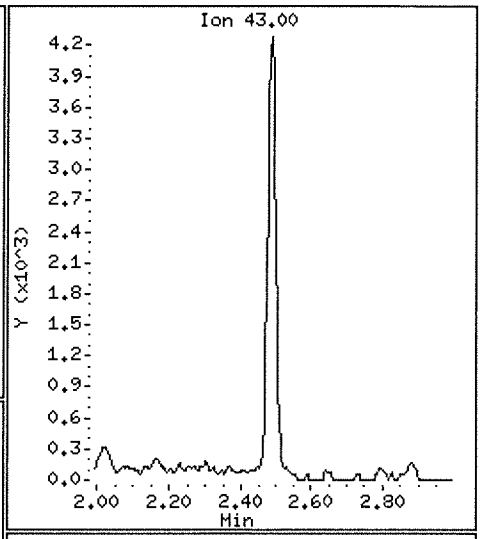
Sample Info: HS18120913-07;HS18120913-07;;;

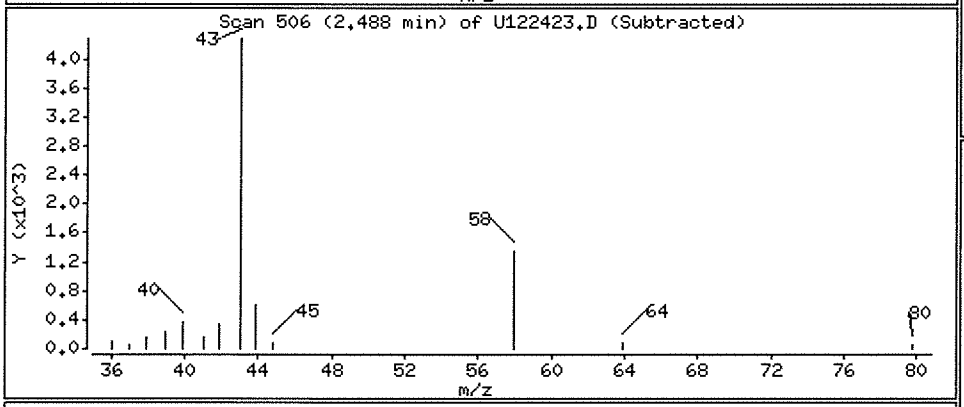
Purge Volume: 5.0 Operator: PC

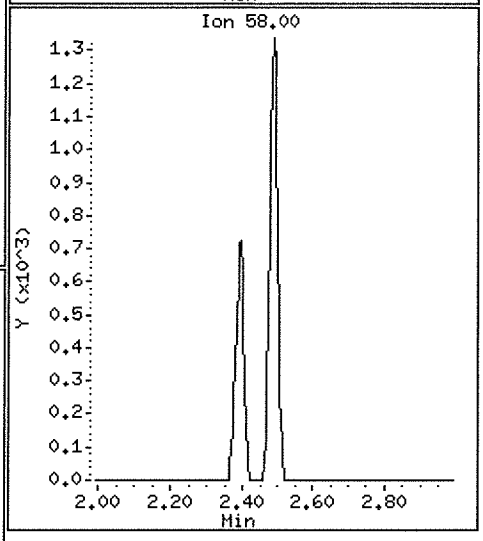
Column phase: DB624 Column diameter: 0.18

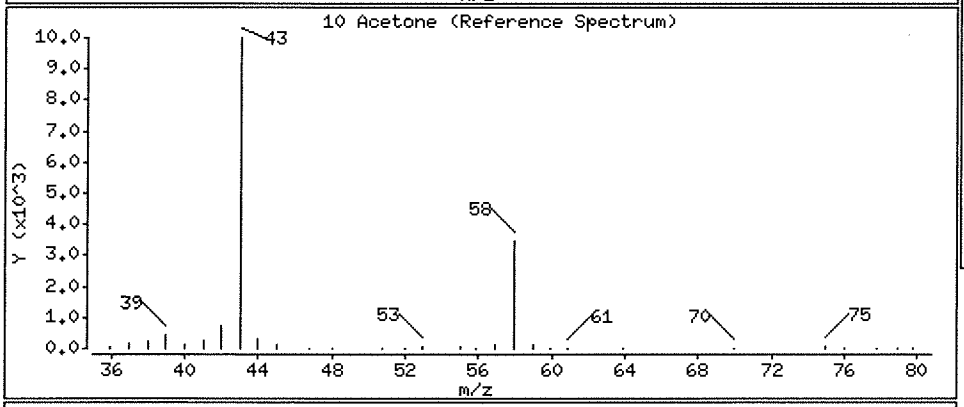
10 Acetone Concentration: 3.18 ug/l

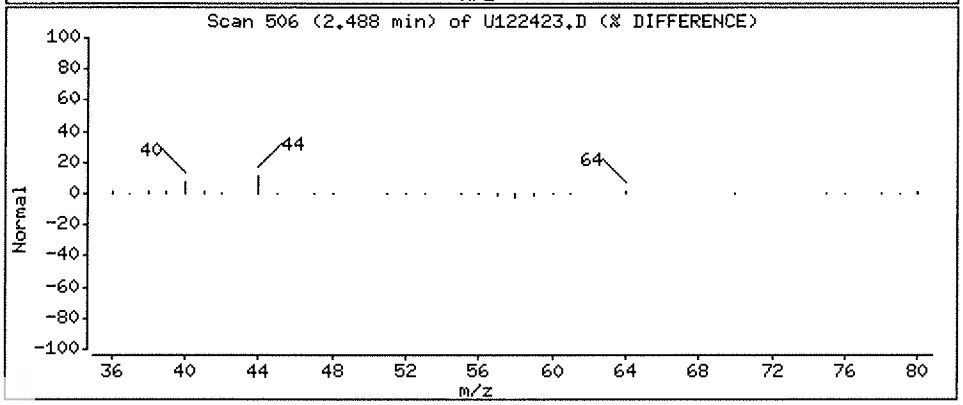












ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122428.D
Lab Smp Id: VSTD050-END Client Smp ID: VSTD050-END
Inj Date : 24-DEC-2018 20:37
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD050-END;VSTD050-END;2;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 27 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

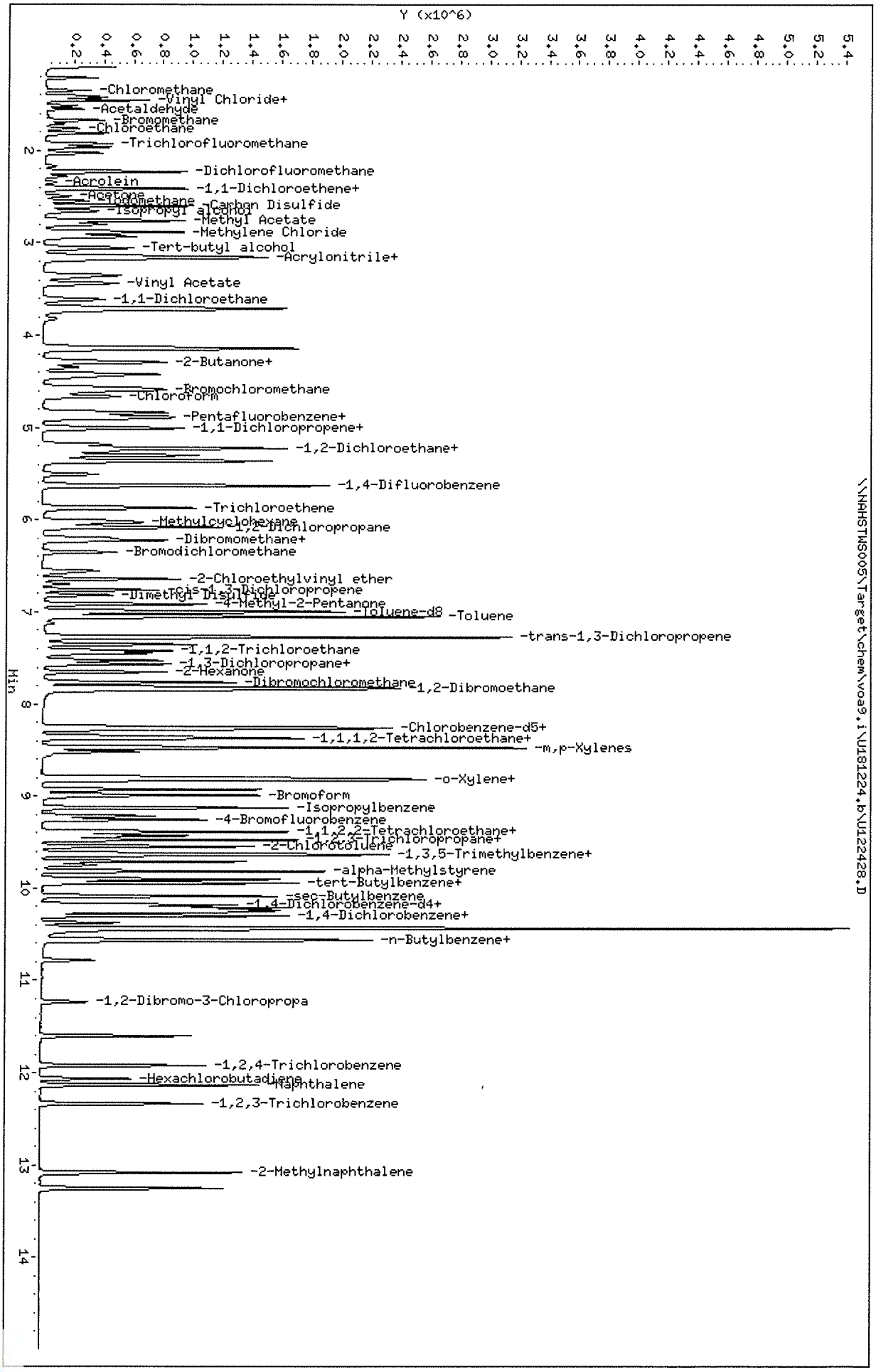
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.902	4.902	(1.000)	372728	50.0000	
*	36 1,4-Difluorobenzene	114	5.629	5.629	(1.000)	712334	50.0000	
*	47 Chlorobenzene-d5	117	8.253	8.253	(1.000)	666433	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	318419	50.0000	
$	30 Dibromofluoromethane	113	4.834	4.834	(0.986)	218616	50.0000	53.24
$	35 1,2-Dichloroethane-d4	65	5.179	5.179	(1.057)	288948	50.0000	54.97
$	48 Toluene-d8	98	6.990	6.990	(0.847)	875536	50.0000	50.90
$	69 4-Bromofluorobenzene	95	9.258	9.258	(1.122)	336472	50.0000	51.40
	60 1,1,1,2-Tetrachloroethane	131	8.350	8.350	(1.012)	202858	50.0000	47.99
	31 1,1,1-Trichloroethane	97	4.834	4.834	(0.986)	295777	50.0000	50.25
	68 1,1,2,2-Tetrachloroethane	83	9.392	9.392	(0.918)	379460	50.0000	52.91
	138 Freon TF	101	2.412	2.412	(0.492)	148708	50.0000	46.92
	53 1,1,2-Trichloroethane	83	7.421	7.421	(0.899)	206414	50.0000	51.98
	22 1,1-Dichloroethane	63	3.612	3.612	(0.737)	409374	50.0000	50.99
	11 1,1-Dichloroethene	96	2.409	2.409	(0.491)	171295	50.0000	48.33
	32 1,1-Dichloropropene	75	5.010	5.010	(0.890)	303180	50.0000	47.83
	93 1,2,3-Trichlorobenzene	180	12.335	12.335	(1.205)	286736	50.0000	47.81
	71 1,2,3-Trichloropropane	75	9.430	9.430	(0.921)	413440	50.0000	55.44
	90 1,2,4-Trichlorobenzene	180	11.923	11.923	(1.165)	290679	50.0000	49.30
	79 1,2,4-Trimethylbenzene	105	9.944	9.944	(0.971)	850301	50.0000	51.02
	89 1,2-Dibromo-3-Chloropropane	155	11.233	11.233	(1.097)	55844	50.0000	50.49
	57 1,2-Dibromoethane	107	7.852	7.852	(0.951)	239717	50.0000	52.41

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122428.D Page 2
Report Date: 28-Jan-2019 14:34

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	10.570	10.570	(1.033)	468743	50.0000	49.57
33	1,2-Dichloroethane	62	5.258	5.258	(0.934)	339214	50.0000	52.89
42	1,2-Dichloropropane	63	6.086	6.086	(1.081)	256086	50.0000	50.87
75	1,3,5-Trimethylbenzene	105	9.625	9.625	(0.940)	818604	50.0000	51.15
83	1,3-Dichlorobenzene	146	10.180	10.180	(0.995)	461460	50.0000	48.80
54	1,3-Dichloropropane	76	7.567	7.567	(0.917)	441740	50.0000	51.65
84	1,4-Dichlorobenzene	146	10.255	10.255	(1.002)	472169	50.0000	47.36
26	2,2-Dichloropropane	77	4.283	4.283	(0.874)	211110	50.0000	43.64
24	2-Butanone	43	4.347	4.347	(0.887)	289643	100.000	119.28
76	2-Chlorotoluene	91	9.546	9.546	(0.933)	729682	50.0000	49.73
52	2-Hexanone	43	7.653	7.653	(0.927)	447227	100.000	120.68
77	4-Chlorotoluene	91	9.640	9.640	(0.942)	854108	50.0000	50.37
82	p-Isopropyltoluene	119	10.210	10.210	(0.997)	843466	50.0000	50.05
45	4-Methyl-2-Pentanone	43	6.915	6.915	(0.838)	622617	100.000	116.76
10	Acetone	43	2.491	2.491	(0.508)	191412	100.000	132.50
37	Benzene	78	5.224	5.224	(0.928)	949351	50.0000	50.08
74	Bromobenzene	156	9.385	9.385	(0.917)	244860	50.0000	49.77
29	Bromochloromethane	128	4.560	4.560	(0.930)	111636	50.0000	57.58
39	Bromodichloromethane	83	6.352	6.352	(1.129)	279220	50.0000	52.16
66	Bromoform	173	8.984	8.984	(1.089)	133700	50.0000	46.85(T)
6	Bromomethane	94	1.674	1.674	(0.342)	119849	50.0000	52.01
19	Carbon Disulfide	76	2.600	2.600	(0.530)	1247818	100.000	96.63
34	Carbon Tetrachloride	117	5.003	5.003	(0.889)	228405	50.0000	44.25
59	Chlorobenzene	112	8.275	8.275	(1.003)	634246	50.0000	49.53
7	Chloroethane	64	1.760	1.760	(0.359)	163120	50.0000	49.36(M)
28	Chloroform	83	4.665	4.665	(0.952)	400691	50.0000	51.83
3	Chloromethane	50	1.352	1.352	(0.276)	186619	50.0000	47.31
27	cis-1,2-Dichloroethene	96	4.294	4.294	(0.876)	251177	50.0000	51.26
46	cis-1,3-Dichloropropene	75	6.761	6.761	(1.201)	383373	50.0000	47.20
55	Dibromochloromethane	129	7.758	7.758	(0.940)	208683	50.0000	47.69
44	Dibromomethane	93	6.195	6.195	(1.101)	152769	50.0000	52.58
2	Dichlorodifluoromethane	85	1.217	1.217	(0.248)	203871	50.0000	44.50
61	Ethylbenzene	106	8.373	8.373	(1.015)	327066	50.0000	49.80
91	Hexachlorobutadiene	225	12.065	12.065	(1.179)	97921	50.0000	43.35
67	Isopropylbenzene	105	9.126	9.126	(1.106)	956047	50.0000	50.44
62	m,p-Xylenes	106	8.474	8.474	(1.027)	808427	100.000	100.12
17	Methylene Chloride	84	2.881	2.881	(0.588)	245953	50.0000	53.47
87	n-Butylbenzene	91	10.558	10.558	(1.031)	792193	50.0000	48.71
73	n-Propylbenzene	91	9.475	9.475	(0.926)	1199674	50.0000	50.42
92	Naphthalene	128	12.133	12.133	(1.185)	992990	50.0000	51.20
63	o-Xylene	106	8.811	8.811	(1.068)	416328	50.0000	51.11
81	sec-Butylbenzene	105	10.086	10.086	(0.985)	991870	50.0000	49.60
64	Styrene	104	8.826	8.826	(1.069)	727808	50.0000	53.78
78	tert-Butylbenzene	119	9.902	9.902	(0.967)	690339	50.0000	49.91
56	Tetrachloroethene	164	7.526	7.526	(0.912)	156173	50.0000	44.76
50	Toluene	91	7.050	7.050	(0.854)	992367	50.0000	50.05
20	trans-1,2-Dichloroethene	96	3.151	3.151	(0.643)	218068	50.0000	49.98
51	trans-1,3-Dichloropropene	75	7.263	7.263	(1.290)	328161	50.0000	47.00
38	Trichloroethene	130	5.865	5.865	(1.042)	221618	50.0000	48.43
8	Trichlorofluoromethane	101	1.963	1.963	(0.400)	293963	50.0000	47.87
5	Vinyl Chloride	62	1.430	1.430	(0.292)	258632	50.0000	49.07

QC Flag Legend

T - Target compound detected outside RT window.
M - Compound response manually integrated.



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Date : 24-DEC-2018 20:37
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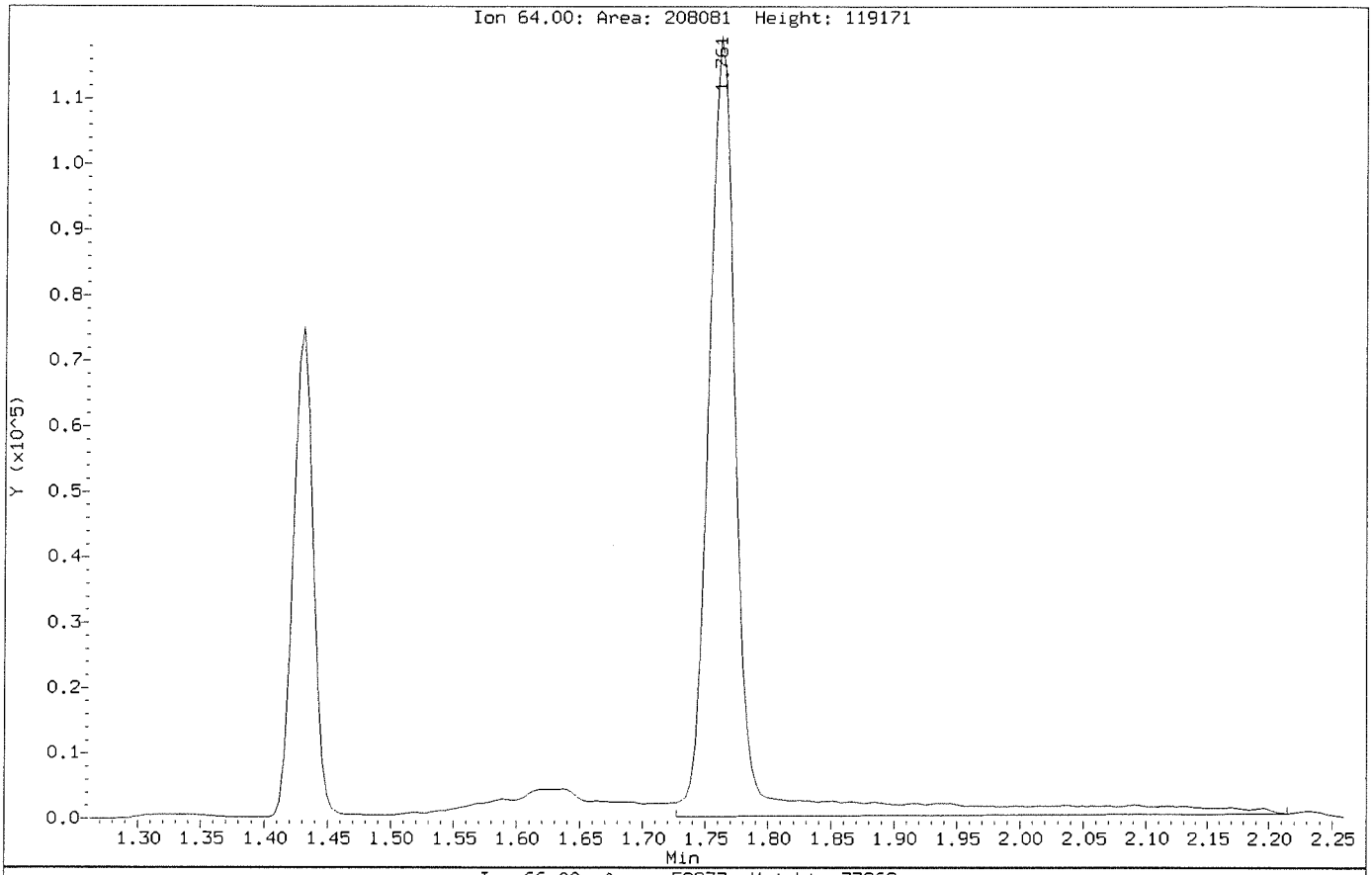
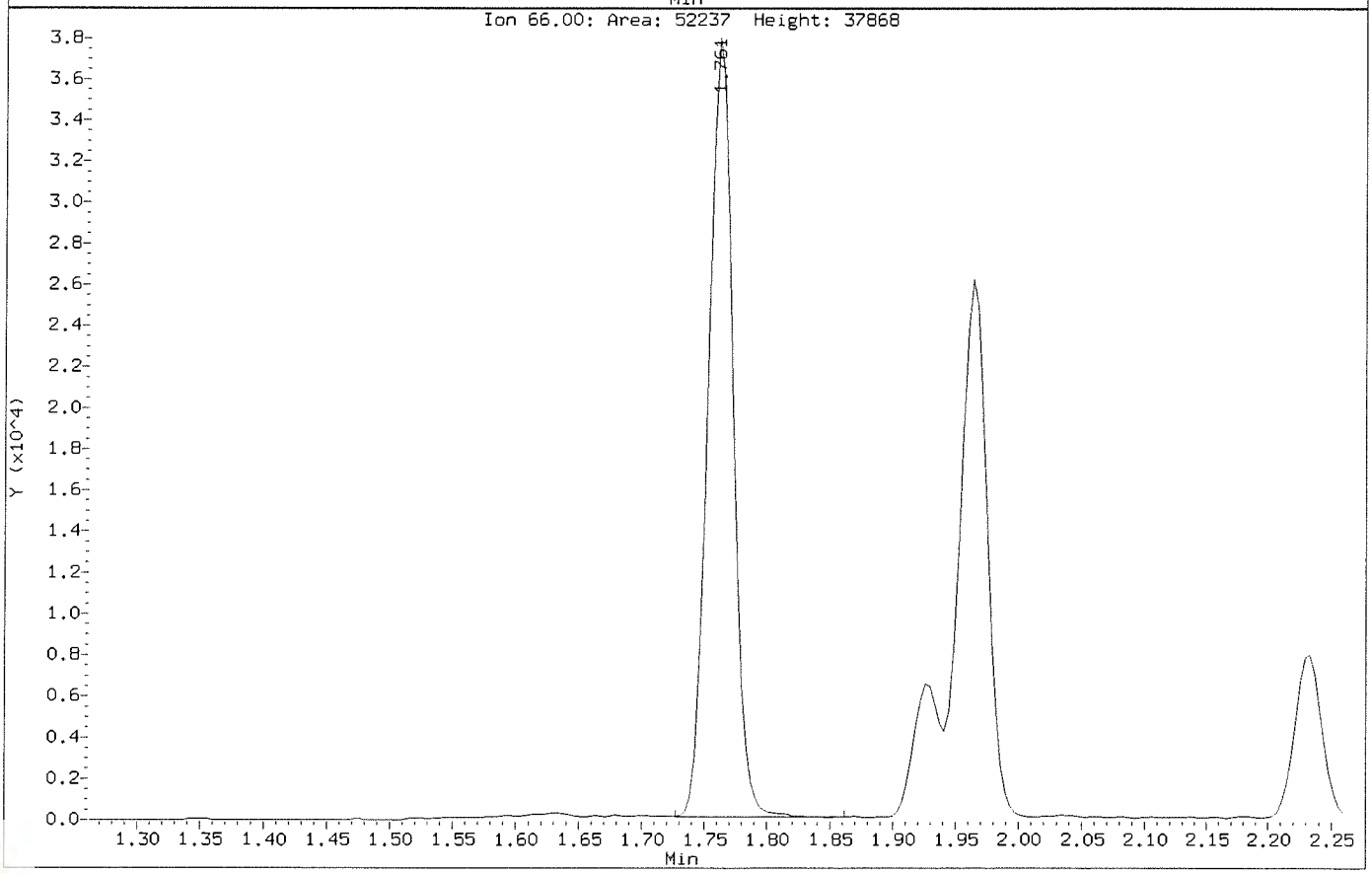
Sample Info: VSTD050-END;VSTD050-END;2;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9,i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\Before\U122428.D
Injection Date: 24-DEC-2018 20:37
Instrument: VOA9.i
Client Sample ID: VSTD050-END

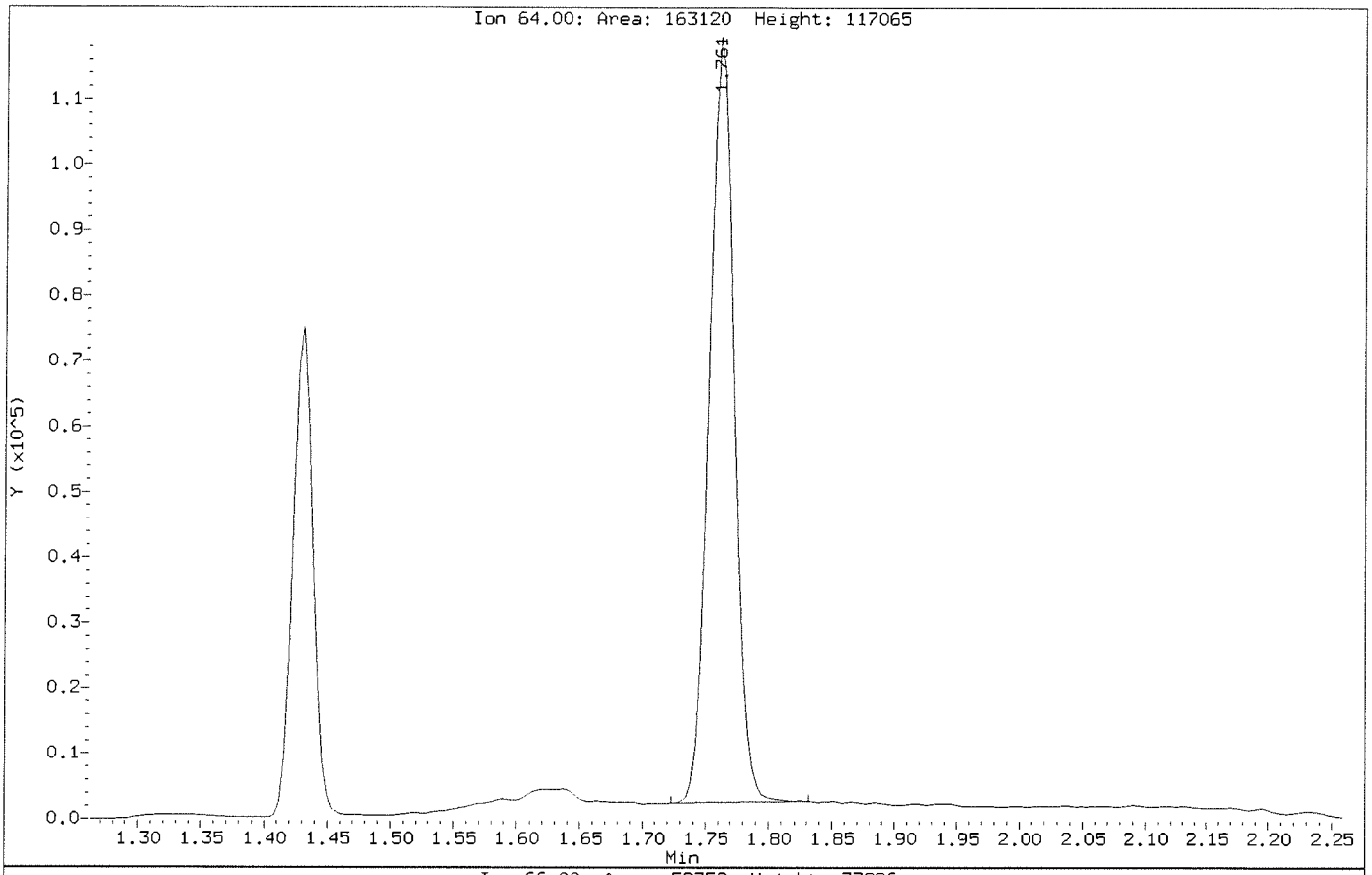
Compound: Chloroethane
CAS Number: 75-00-3

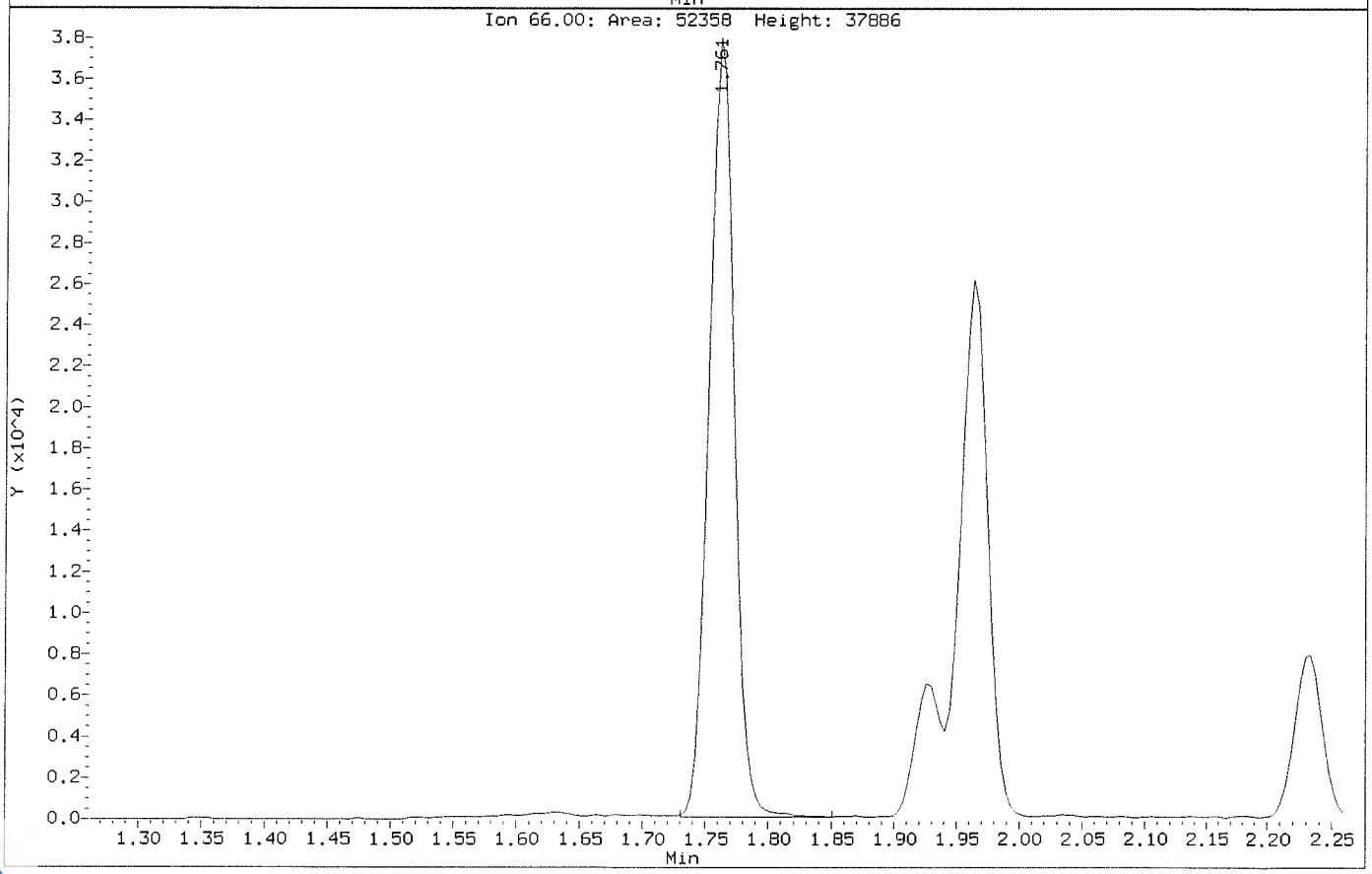




Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122428.D
Injection Date: 24-DEC-2018 20:37
Instrument: VOA9.i
Client Sample ID: VSTD050-END

Compound: Chloroethane
CAS Number: 75-00-3





HS18120913 LHAAP58

ALS WO# HS18120913

Form 11 - INTERNAL STANDARD ASSOCIATION

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120913

Instrument:ICPMS04

Mass	Analyte	Assoc Int Standard 1	Assoc Int Standard 2	Mode
9	Beryllium	Lithium		Ar
11	Boron	Lithium		Ar
23	Sodium	Germanium		Ar
24	Magnesium	Germanium		Ar
27	Aluminum	Germanium		Ar
39	Potassium	Germanium		Ar
44	Calcium	Germanium		ArHe
47	Titanium	Germanium		Ar
51	Vanadium	Germanium		ArHe
52	Chromium	Germanium		ArHe
55	Manganese	Germanium		ArHe
56	Iron	Germanium		ArHe
59	Cobalt	Germanium		ArHe
60	Nickel	Germanium		ArHe
63	Copper	Germanium		ArHe
66	Zinc	Germanium		ArHe
75	Arsenic	Germanium		ArHe
78	Selenium	Germanium		ArHe
88	Strontium	Germanium		Ar
95	Molybdenum	Germanium		Ar
105	Palladium	Germanium		Ar
107	Silver	Germanium		Ar
111	Cadmium	Indium		Ar
118	Tin	Germanium		Ar
121	Antimony	Germanium		ArHe
135	Barium	Indium		Ar
203	Thallium	Bismuth		Ar
208	Lead	Bismuth		Ar

FORM 12 - PREPARATION LOG

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120913
Start Date: 19-Dec-2018 13:00 End Date: 19-Dec-2018 17:00

Batch ID: 135804
Prep Code: 3010A
Method: SW3010A
Technician:

SampID	ClientID	Matrix	Init Wt	Init Vol	FinalVol (mL)	PrepFac
HS18120913-01	LHSMW06_121318	Groundwater		10	10	1
HS18120913-02	LHSMW06_121318_a	Groundwater		10	10	1
HS18120913-04	35AWW01_121318	Groundwater		10	10	1
HS18120913-04MS				10	10	1
HS18120913-04MSD				10	10	1
HS18120913-04PDS				10	10	1
HS18120913-04SD				10	10	1
LCS-135804				10	10	1
MBLK-135804				10	10	1

FORM 13 - ANALYSIS RUN LOG

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120913
Start Date: 21-Dec-2018 End Date: 22-Dec-2018

Run ID:ICPMS04_329719
Instrument:ICPMS04
Method:

Sample No.	D/F	Time	FileID	Analytes
ICPMS04_329719_Tune	1	21-Dec-2018 00:00	ICPMS04_329719_Tune_1	
CAL BLK	1	21-Dec-2018 12:57	014CALB.d_4877193	AS
2/10/200	1	21-Dec-2018 12:59	015CALS.d_4877194	AS
5/25/500	1	21-Dec-2018 13:01	016CALS.d_4877195	AS
10/50/1000	1	21-Dec-2018 13:03	017CALS.d_4877196	AS
100/500/10K	1	21-Dec-2018 13:06	018CALS.d_4877197	AS
200/1000/20K	1	21-Dec-2018 13:08	019CALS.d_4877198	AS
ICV	1	21-Dec-2018 13:12	021_ICV.d_4877200	AS
LLICV2	1	21-Dec-2018 13:14	022SMPL.d_4877201	AS
LLICV5	1	21-Dec-2018 13:17	023LICV.d_4877202	AS
ICB	1	21-Dec-2018 13:19	024_ICB.d_4877203	AS
ICSA	1	21-Dec-2018 13:36	025ICSA.d_4877204	AS
ICSAB	1	21-Dec-2018 13:38	026ICSB.d_4877205	AS
CCV 1	1	21-Dec-2018 14:07	038_CCV.d_4877419	AS
CCB 1	1	21-Dec-2018 14:09	039_CCB.d_4877420	AS
CCB 2	1	21-Dec-2018 14:47	051_CCB.d_4877517	AS
CCV 2	1	21-Dec-2018 15:12	053_CCV.d_4877562	AS
CCB 3	1	21-Dec-2018 15:45	064_CCB.d_4877606	AS
CCV 3	1	21-Dec-2018 15:57	066_CCV.d_4877806	AS
CCV 4	1	21-Dec-2018 16:59	076_CCV.d_4877824	AS
CCB 4	1	21-Dec-2018 17:01	077_CCB.d_4877825	AS
CCV 5	1	21-Dec-2018 17:32	088_CCV.d_4877944	AS
CCB 5	1	21-Dec-2018 17:34	089_CCB.d_4877945	AS
CCV 6	1	21-Dec-2018 18:09	093_CCV.d_4878002	AS
CCB 6	1	21-Dec-2018 18:11	094_CCB.d_4878003	AS
CCV 7	1	21-Dec-2018 18:44	105_CCV.d_4878027	AS
CCB 7	1	21-Dec-2018 18:46	106_CCB.d_4878028	AS
CCV 8	1	21-Dec-2018 19:16	117_CCV.d_4878173	AS
CCB 8	1	21-Dec-2018 19:18	118_CCB.d_4878174	AS
CCV 9	1	21-Dec-2018 19:51	129_CCV.d_4878188	AS
CCB 9	1	21-Dec-2018 19:53	130_CCB.d_4878189	AS
CCV 10	1	21-Dec-2018 20:23	141_CCV.d_4878292	AS
CCB 10	1	21-Dec-2018 20:25	142_CCB.d_4878293	AS
CCV 11	1	21-Dec-2018 20:40	148_CCV.d_4878299	AS
CCB 11	1	21-Dec-2018 20:42	149_CCB.d_4878300	AS
MBLK-135804	1	21-Dec-2018 21:07	151SMPL.d_4879116	AS
LCS-135804	1	21-Dec-2018 21:10	152SMPL.d_4879117	AS
CCV 12	1	21-Dec-2018 21:28	160_CCV.d_4879125	AS
CCB 12	1	21-Dec-2018 21:30	161_CCB.d_4879126	AS
LHSMW06_121318	1	21-Dec-2018 21:48	169SMPL.d_4879134	AS
LHSMW06_121318_a	1	21-Dec-2018 21:50	170SMPL.d_4879135	AS
CCV 13	1	21-Dec-2018 21:55	172_CCV.d_4879137	AS
CCB 13	1	21-Dec-2018 21:57	173_CCB.d_4879138	AS
35AWW01_121318	1	21-Dec-2018 22:08	175SMPL.d_4879140	AS
35AWW01_121318SD	5	21-Dec-2018 22:10	176SMPL.d_4879141	AS
35AWW01_121318MS	1	21-Dec-2018 22:12	177SMPL.d_4879142	AS
35AWW01_121318MSD	1	21-Dec-2018 22:14	178SMPL.d_4879143	AS
35AWW01_121318PDS	1	21-Dec-2018 22:17	179SMPL.d_4879144	AS
CCV 14	1	21-Dec-2018 22:21	181_CCV.d_4879146	AS
CCB 14	1	21-Dec-2018 22:23	182_CCB.d_4879147	AS
CAL BLK	1	21-Dec-2018 22:57	193CALB.d_4879261	AS

FORM 13 - ANALYSIS RUN LOG

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120913
Start Date: 21-Dec-2018 End Date: 22-Dec-2018

Run ID:ICPMS04_329719
Instrument:ICPMS04
Method:

Sample No.	D/F	Time	FileID	Analytes
2/10/200	1	21-Dec-2018 22:59	194CALS.d_4879262	AS
5/25/500	1	21-Dec-2018 23:01	195CALS.d_4879263	AS
10/50/1000	1	21-Dec-2018 23:03	196CALS.d_4879264	AS
100/500/10K	1	21-Dec-2018 23:06	197CALS.d_4879265	AS
200/1000/20K	1	21-Dec-2018 23:08	198CALS.d_4879269	AS
ICCV 15	1	21-Dec-2018 23:12	200_ICV.d_4879271	AS
LLCCV2	1	21-Dec-2018 23:15	201SMPL.d_4879272	AS
LLCCV5	1	21-Dec-2018 23:17	202LICV.d_4879273	AS
ICCB 15	1	21-Dec-2018 23:19	203_ICB.d_4879274	AS
CCV 16	1	21-Dec-2018 23:42	213_CCV.d_4879295	AS
CCB 16	1	21-Dec-2018 23:44	214_CCB.d_4879296	AS
CCV 17	1	22-Dec-2018 00:02	222_CCV.d_4879304	AS
CCB 17	1	22-Dec-2018 00:04	223_CCB.d_4879305	AS
CCV 18	1	22-Dec-2018 00:36	231_CCV.d_4879319	AS
CCB 18	1	22-Dec-2018 00:38	232_CCB.d_4879320	AS
CCV 19	1	22-Dec-2018 00:56	240_CCV.d_4879328	AS
CCB 19	1	22-Dec-2018 00:59	241_CCB.d_4879329	AS
LLICV2	1	22-Dec-2018 01:01	242SMPL.d_4879330	AS
LLICV5	1	22-Dec-2018 01:03	243LICV.d_4879331	AS
ICSA	1	22-Dec-2018 01:05	244ICSA.d_4879332	AS
ICSAB	1	22-Dec-2018 01:08	245ICSB.d_4879333	AS

Form 2 - Initial and Continuing Calibration Verification

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120913

Run ID: ICPMS04_329719
Instrument: ICPMS04
Method: SW6020

ICV	Date: 21-Dec-2018 13:12		Seq: 4877200	ICV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Arsenic	100	102.764	103	90-110	

CCV1	Date: 21-Dec-2018 14:07		Seq: 4877419	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Arsenic	100	104.385	104	90-110	

CCV2	Date: 21-Dec-2018 15:12		Seq: 4877562	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Arsenic	100	103.155	103	90-110	

CCV3	Date: 21-Dec-2018 15:57		Seq: 4877806	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Arsenic	100	102.165	102	90-110	

CCV4	Date: 21-Dec-2018 16:59		Seq: 4877824	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Arsenic	100	98.559	99	90-110	

CCV5	Date: 21-Dec-2018 17:32		Seq: 4877944	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Arsenic	100	96.562	97	90-110	

CCV6	Date: 21-Dec-2018 18:09		Seq: 4878002	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Arsenic	100	99.666	100	90-110	

CCV7	Date: 21-Dec-2018 18:44		Seq: 4878027	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Arsenic	100	104.615	105	90-110	

CCV8	Date: 21-Dec-2018 19:16		Seq: 4878173	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Arsenic	100	101.432	101	90-110	

CCV9	Date: 21-Dec-2018 19:51		Seq: 4878188	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Arsenic	100	103.291	103	90-110	

CCV10	Date: 21-Dec-2018 20:23		Seq: 4878292	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Arsenic	100	101.201	101	90-110	

CCV11	Date: 21-Dec-2018 20:40		Seq: 4878299	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Arsenic	100	101.088	101	90-110	

CCV12	Date: 21-Dec-2018 21:28		Seq: 4879125	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Arsenic	100	102.789	103	90-110	

CCV13	Date: 21-Dec-2018 21:55		Seq: 4879137	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Arsenic	100	99.083	99	90-110	

Form 2 - Initial and Continuing Calibration Verification

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120913

Run ID: ICPMS04_329719
Instrument: ICPMS04
Method: SW6020

CCV14	Date: 21-Dec-2018 22:21		Seq: 4879146	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Arsenic	100	102.89	103	90-110	

ICCV15	Date: 21-Dec-2018 23:12		Seq: 4879271	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Arsenic	100	101.778	102	90-110	

CCV16	Date: 21-Dec-2018 23:42		Seq: 4879295	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Arsenic	100	98.381	98	90-110	

CCV17	Date: 22-Dec-2018 00:02		Seq: 4879304	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Arsenic	100	103.546	104	90-110	

CCV18	Date: 22-Dec-2018 00:36		Seq: 4879319	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Arsenic	100	97.362	97	90-110	

CCV19	Date: 22-Dec-2018 00:56		Seq: 4879328	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Arsenic	100	98.182	98	90-110	

Form 3 - BLANKS

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120913

Run ID: ICPMS04_329719
Instrument: ICPMS04
Method: SW6020

ICB	Date: 21-Dec-2018 13:19		Seq: 4877203	ICB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Arsenic	2	0.4	2	U	

CCB1	Date: 21-Dec-2018 14:09		Seq: 4877420	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Arsenic	2	0.4	2	U	

CCB2	Date: 21-Dec-2018 14:47		Seq: 4877517	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Arsenic	2	0.4	2	U	

CCB3	Date: 21-Dec-2018 15:45		Seq: 4877606	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Arsenic	2	0.4	2	U	

CCB4	Date: 21-Dec-2018 17:01		Seq: 4877825	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Arsenic	2	0.4	2	U	

CCB5	Date: 21-Dec-2018 17:34		Seq: 4877945	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Arsenic	2	0.4	2	U	

CCB6	Date: 21-Dec-2018 18:11		Seq: 4878003	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Arsenic	2	0.4	2	U	

CCB7	Date: 21-Dec-2018 18:46		Seq: 4878028	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Arsenic	2	0.4	2	U	

CCB8	Date: 21-Dec-2018 19:18		Seq: 4878174	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Arsenic	2	0.4	2	U	

CCB9	Date: 21-Dec-2018 19:53		Seq: 4878189	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Arsenic	2	0.4	2	U	

CCB10	Date: 21-Dec-2018 20:25		Seq: 4878293	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Arsenic	2	0.4	2	U	

CCB11	Date: 21-Dec-2018 20:42		Seq: 4878300	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Arsenic	2	0.4	2	U	

MBLK-135804	Date: 21-Dec-2018 21:07		Seq: 4879116	MBLK	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Arsenic	2	0.4	2	U	

CCB12	Date: 21-Dec-2018 21:30		Seq: 4879126	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Arsenic	2	0.4	2	U	

CCB13	Date: 21-Dec-2018 21:57		Seq: 4879138	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Arsenic	2	0.4	2	U	

Form 3 - BLANKS

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120913

Run ID: ICPMS04_329719
Instrument: ICPMS04
Method: SW6020

CCB14	Date: 21-Dec-2018 22:23	Seq: 4879147	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**
Arsenic	2	0.4	2	U

ICCB15	Date: 21-Dec-2018 23:19	Seq: 4879274	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**
Arsenic	2	0.4	2	U

CCB16	Date: 21-Dec-2018 23:44	Seq: 4879296	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**
Arsenic	2	0.4	2	U

CCB17	Date: 22-Dec-2018 00:04	Seq: 4879305	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**
Arsenic	2	0.4	2	U

CCB18	Date: 22-Dec-2018 00:38	Seq: 4879320	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**
Arsenic	2	0.4	2	U

CCB19	Date: 22-Dec-2018 00:59	Seq: 4879329	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**
Arsenic	2	0.4	2	U

Form 4 - ICP Interference Check Sample

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120913

Run ID: ICPMS04_329719
Instrument: ICPMS04
Method: SW6020

ICSA	Date: 21-Dec-2018 13:36	Seq: 4877204	ICSA	Units: ug/L
Analyte	**True**	**Found**	**%R**	
Arsenic		0.156	0	

ICSAB	Date: 21-Dec-2018 13:38	Seq: 4877205	ICSAB	Units: ug/L
Analyte	**True**	**Found**	**%R**	
Arsenic	100	114.4	114	

ICSA	Date: 22-Dec-2018 01:05	Seq: 4879332	ICSA	Units: ug/L
Analyte	**True**	**Found**	**%R**	
Arsenic		0.16	0	

ICSAB	Date: 22-Dec-2018 01:08	Seq: 4879333	ICSAB	Units: ug/L
Analyte	**True**	**Found**	**%R**	
Arsenic	100	109.6	110	

Form 5A - Matrix Spike/Matrix Spike Duplicate Recovery

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120913

Date Analyzed: 21-Dec-2018 22:14
Date Extracted: 19-Dec-2018 13:00
Units: ug/L

Matrix Spike: HS18120913-04MS
Client Sample ID: 35AWW01_121318

Analysis Method: SW6020

Analyte	Sample Result	MS Result	Spike Amount	% Rec	MSD Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Arsenic	2.000	50.79	50.00	101	48.89	50.00	97.7	80-120	3.81	20

Form 5B - Post Digest Sample Recovery

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120913

Date Analyzed: 21-Dec-2018 22:17
Date Extracted: 19-Dec-2018 13:00
Units: ug/L

Lab Sample ID: HS18120913-04PDS
Client Sample ID: 35AWW01_121318

Analysis Method: SW6020

Analyte	Sample Result	PDS Result	Spike Amount	% Rec	% Rec Limits
Arsenic	0	107.4	100	107	75-125

Form 7 - Laboratory Control Sample

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120913

Date Analyzed: 21-Dec-2018 21:10
Date Extracted: 19-Dec-2018 13:00
Units: ug/L

Lab Sample ID: LCS-135804 Analysis Method: SW6020

Analyte	Spike Amount	LCS Result	% Rec	% Rec Limits
Arsenic	50	49.62	99	80-120

Form 8 - ICP Serial Dilutions

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18120913

Date Analyzed: 21-Dec-2018 22:10
Date Extracted: 19-Dec-2018 13:00
Units: ug/L

Lab Sample ID: HS18120913-04SD
Client Sample ID:35AWW01_121318

Analysis Method: SW6020

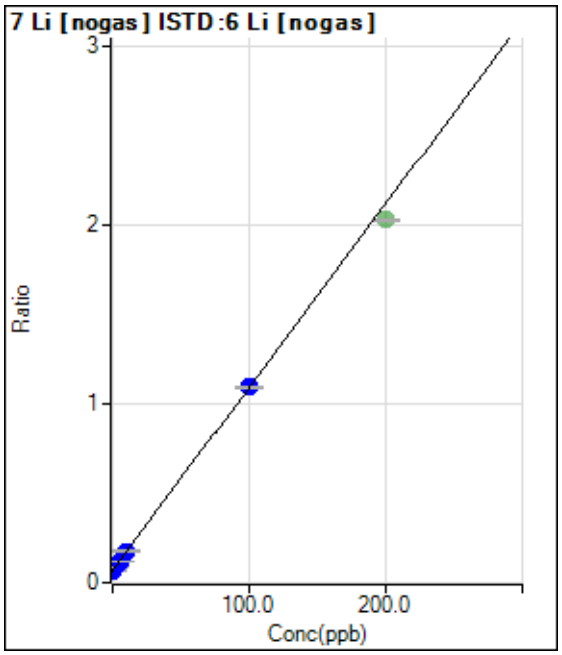
Analyte	Sample Result	C	SD Result	C	RPD	Q
Arsenic	0	U	0	U	0	

Calibration for 021_ICV.d

Batch Folder: C:\Agilent\ICPMH\1\DATA\122118A.b\
Analysis File: 122118A.batch.bin
DA Date-Time: 12/21/2018 11:16:05 PM
Calibration Title:
Calibration Method: External Calibration
VIS Interpolation Fit:

Level	Standard Data File	Sample Name	Acq. Date-Time
1	014CALB.d	CAL BLK	12/21/2018 12:57:03 PM
2	015CALS.d	2/10/200	12/21/2018 12:59:17 PM
3	016CALS.d	5/25/500	12/21/2018 1:01:31 PM
4	017CALS.d	10/50/1000	12/21/2018 1:03:46 PM
5	018CALS.d	100/500/10K	12/21/2018 1:06:00 PM
6	019CALS.d	200/1000/20K	12/21/2018 1:08:13 PM
7			

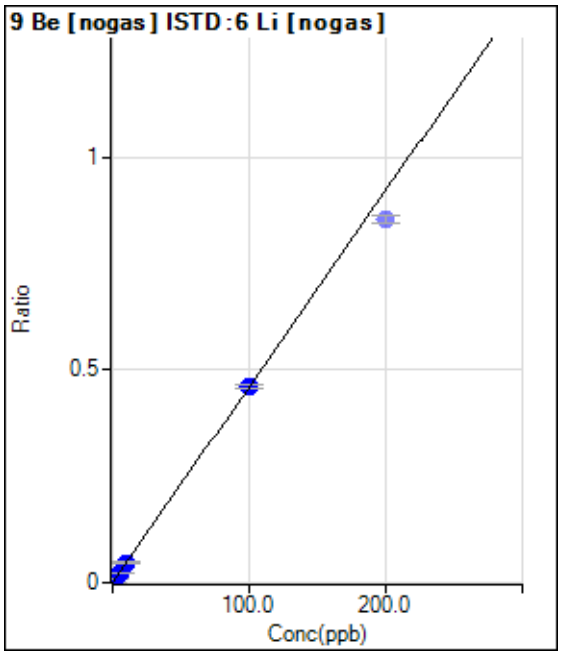
Calibration for 021_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	40067.63	0.0690	P	3.2
2	☐	2.000	2.063	53468.75	0.0901	P	4.2
3	☐	5.000	5.183	73546.88	0.1221	P	1.5
4	☐	10.000	10.415	105643.77	0.1756	P	3.7
5	☐	100.000	99.948	681143.61	1.0928	P	1.1
6	☑	200.000		1335447.82	2.0293	A	0.6
7	☐	1.000					

y = 0.0102 * x + 0.0690
R = 1.0000
DL = 0.6418
BEC = 6.732

Weight: <None>
Min Conc: <None>

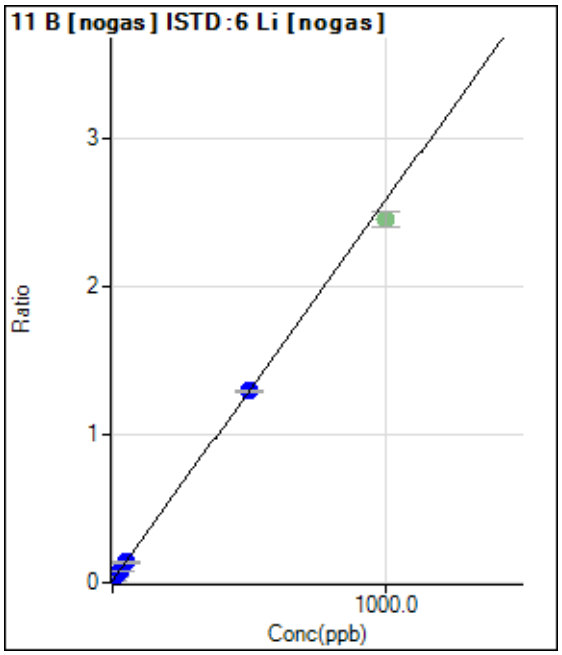


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	13.33	0.0000	P	44.3
2	☐	2.000	2.115	5784.35	0.0097	P	7.0
3	☐	5.000	5.032	13962.20	0.0232	P	0.1
4	☐	10.000	9.930	27447.45	0.0457	P	7.5
5	☐	100.000	100.003	286605.72	0.4599	P	1.6
6	☑	200.000		560373.51	0.8518	P	2.2
7	☐	1.000					

y = 0.0046 * x + 2.3010E-005
R = 1.0000
DL = 0.006657
BEC = 0.005004

Weight: <None>
Min Conc: <None>

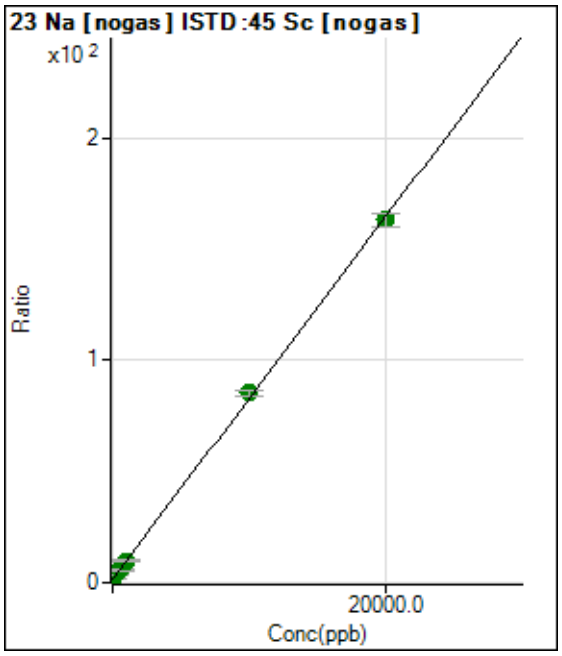
Calibration for 021_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	7281.57	0.0125	P	2.9
2	☐	10.000	9.759	22307.35	0.0376	P	1.9
3	☐	25.000	24.734	45770.33	0.0760	P	5.2
4	☐	50.000	49.347	83658.91	0.1392	P	8.4
5	☐	500.000	500.083	807759.15	1.2962	P	0.9
6	☑	1000.000		1611895.81	2.4503	A	4.4
7	☐	5.000					

y = 0.0026 * x + 0.0125
R = 1.0000
DL = 0.4229
BEC = 4.883

Weight: <None>
Min Conc: <None>

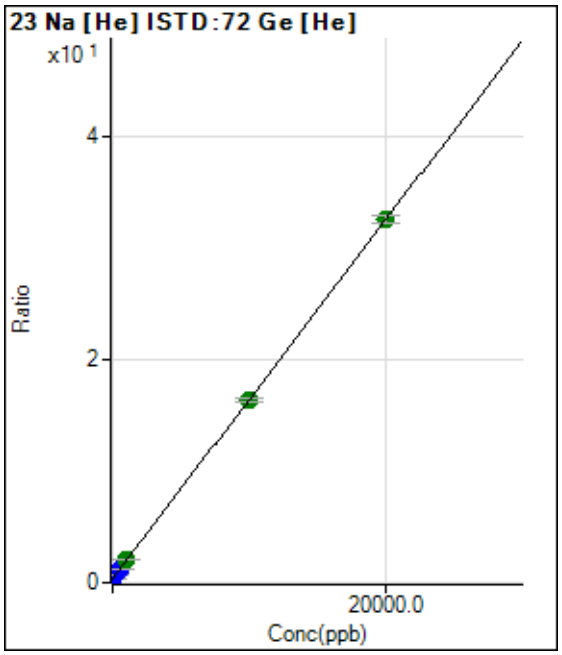


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1838469.50	1.4981	A	1.5
2	☐	200.000	218.099	4080039.02	3.2763	A	1.8
3	☐	500.000	521.411	7100749.90	5.7491	A	4.4
4	☐	1000.000	1030.939	12178539.59	9.9032	A	3.1
5	☐	10000.00	10301.481	103892000.2	85.4847	A	3.2
6	☐	20000.00	19846.996	201861504.5	163.308	A	3.7
7	☐	100.000					

y = 0.0082 * x + 1.4981
R = 0.9998
DL = 8.329
BEC = 183.8

Weight: <None>
Min Conc: <None>

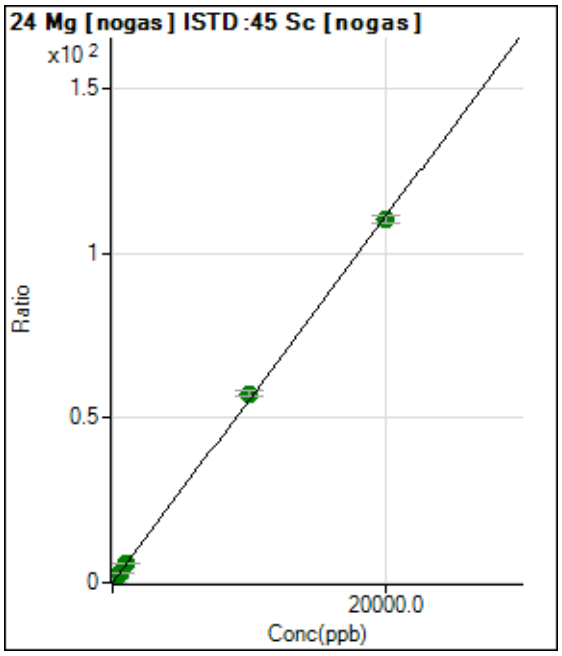
Calibration for 021_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	254108.17	0.3315	P	2.0
2	☐	200.000	215.119	534621.54	0.6772	P	1.2
3	☐	500.000	533.517	908287.95	1.1889	P	0.7
4	☐	1000.000	1046.039	1547651.28	2.0125	A	3.0
5	☐	10000.00	9973.897	12643160.64	16.3591	A	2.4
6	☐	20000.00	20009.760	24601919.64	32.4864	A	2.1
7	☐	100.000					

y = 0.0016 * x + 0.3315
R = 1.0000
DL = 12.36
BEC = 206.3

Weight: <None>
Min Conc: <None>

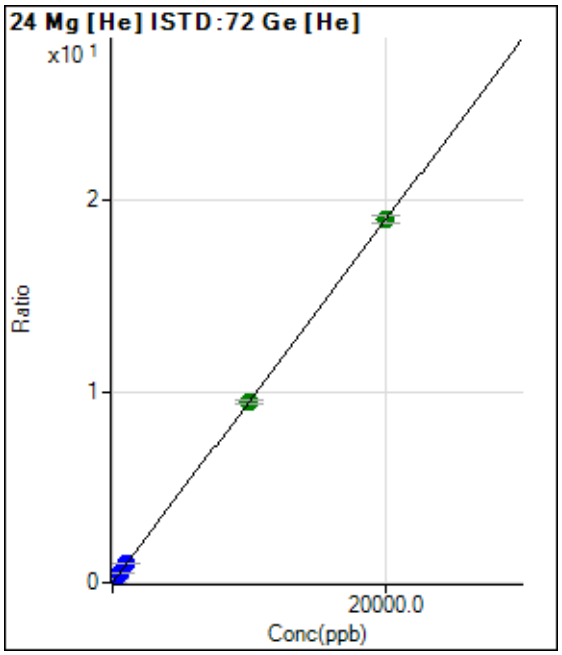


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	5468.47	0.0045	P	13.1
2	☐	200.000	216.513	1504274.58	1.2079	A	1.4
3	☐	500.000	521.211	3583938.62	2.9014	A	3.8
4	☐	1000.000	1052.010	7193877.50	5.8517	A	4.5
5	☐	10000.00	10341.381	69859734.89	57.4832	A	3.6
6	☐	20000.00	19826.013	136227057.2	110.200	A	2.1
7	☐	100.000					

y = 0.0056 * x + 0.0045
R = 0.9998
DL = 0.315
BEC = 0.8011

Weight: <None>
Min Conc: <None>

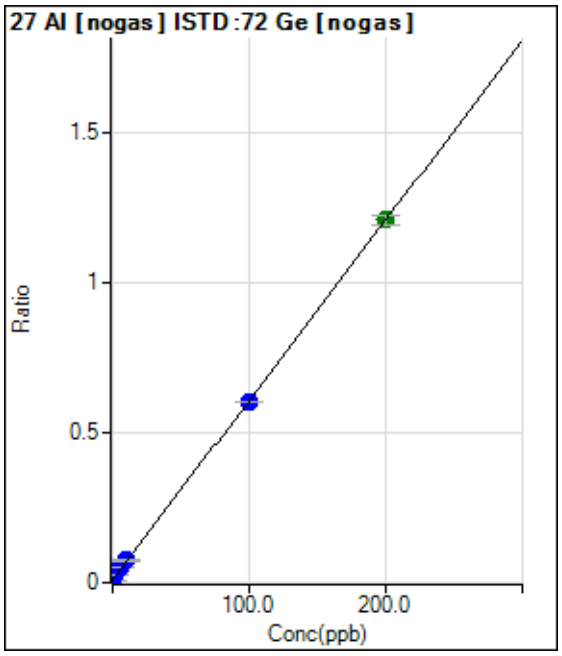
Calibration for 021_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	490.02	0.0006	P	22.5
2	☐	200.000	206.533	155111.22	0.1965	P	0.1
3	☐	500.000	518.190	375870.07	0.4919	P	0.3
4	☐	1000.000	1029.632	751187.83	0.9768	P	2.7
5	☐	10000.00	9974.937	7308855.10	9.4579	A	2.7
6	☐	20000.00	20010.530	14367271.03	18.9727	A	2.2
7	☐	100.000					

y = 9.4811E-004 * x + 6.3949E-004
R = 1.0000
DL = 0.4553
BEC = 0.6745

Weight: <None>
Min Conc: <None>

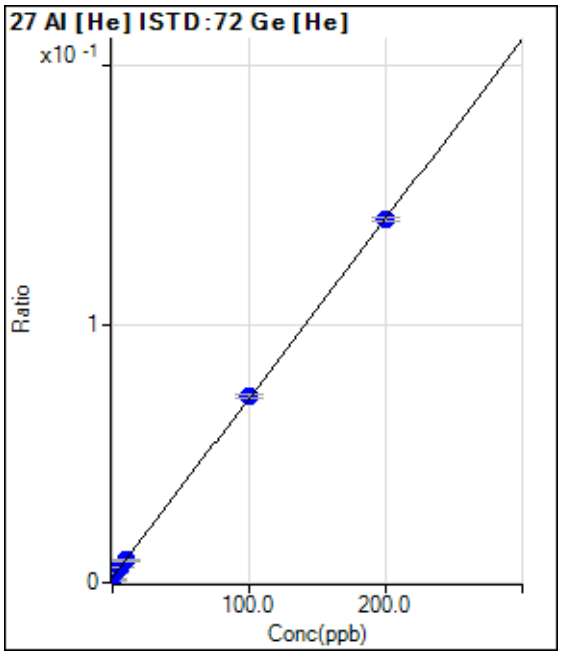


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	14449.27	0.0087	P	1.9
2	☐	2.000	3.160	45838.22	0.0277	P	3.3
3	☐	5.000	7.368	86471.85	0.0529	P	5.2
4	☐	10.000	10.877	121714.90	0.0740	P	2.4
5	☐	100.000	99.221	983211.37	0.6044	P	0.4
6	☐	200.000	200.275	1929886.17	1.2112	A	2.8
7	☐	1.000					

y = 0.0060 * x + 0.0087
R = 0.9999
DL = 0.08379
BEC = 1.451

Weight: <None>
Min Conc: <None>

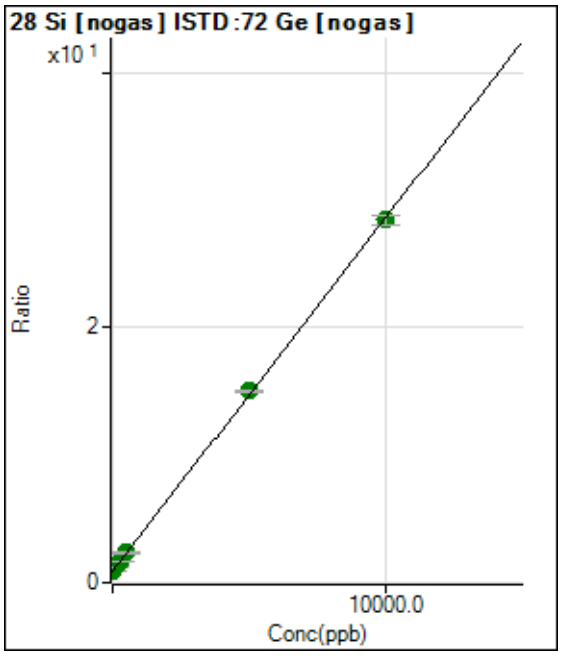
Calibration for 021_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-1.410	756.70	0.0010	P	25.9
2	☐	2.000	2.130	2720.26	0.0034	P	1.8
3	☐	5.000	5.972	4667.38	0.0061	P	4.8
4	☐	10.000	9.735	6708.06	0.0087	P	4.3
5	☐	100.000	101.170	55788.98	0.0722	P	1.2
6	☐	200.000	199.403	106315.75	0.1403	P	1.2
7	☐	1.000					

y = 6.9396E-004 * x + 0.0020
R = 0.9999
DL = 1.108
BEC = 2.834

Weight: <None>
Min Conc: <None>

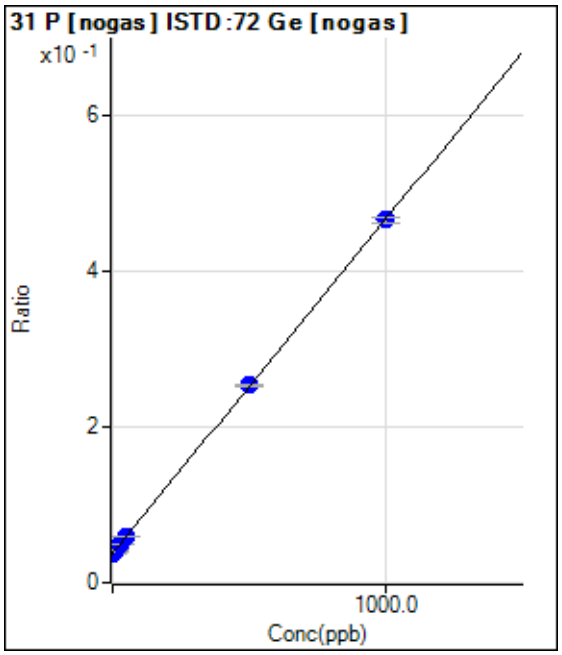


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1473917.43	0.8886	A	0.6
2	☐	100.000	104.893	1952303.88	1.1792	A	1.0
3	☐	250.000	265.418	2653036.21	1.6239	A	1.4
4	☐	500.000	524.858	3852620.88	2.3427	A	0.9
5	☐	5000.000	5098.811	24421569.63	15.0149	A	1.2
6	☐	10000.00	9948.917	45334709.32	28.4522	A	2.7
7	☐	50.000					

y = 0.0028 * x + 0.8886
R = 0.9999
DL = 5.36
BEC = 320.7

Weight: <None>
Min Conc: <None>

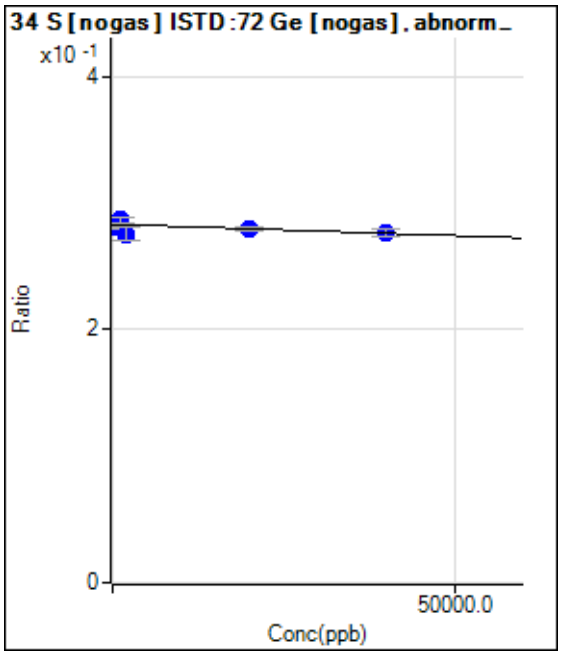
Calibration for 021_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	62559.45	0.0377	P	2.1
2	☐	10.000	6.712	67215.98	0.0406	P	1.1
3	☐	25.000	25.040	79169.67	0.0485	P	0.6
4	☐	50.000	48.376	96160.35	0.0585	P	1.4
5	☐	500.000	503.622	412696.16	0.2537	P	1.3
6	☐	1000.000	998.302	742643.14	0.4659	P	1.5
7	☐	5.000					

y = 4.2894E-004 * x + 0.0377
R = 1.0000
DL = 5.48
BEC = 87.93

Weight: <None>
Min Conc: <None>

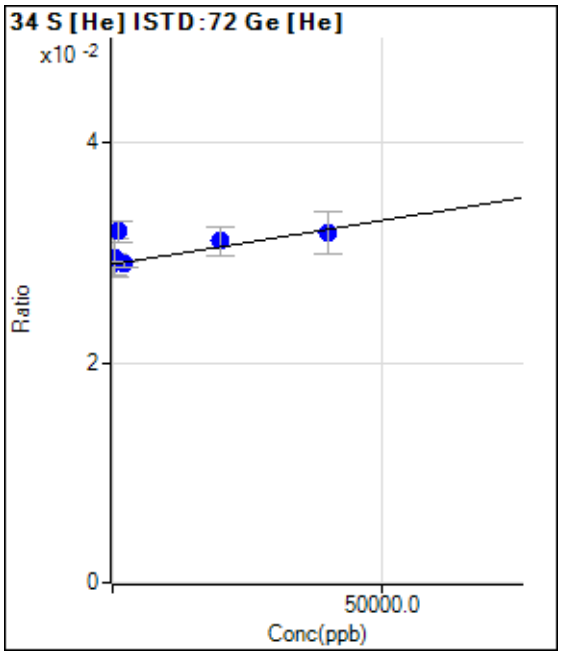


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	470373.50	0.2835	P	2.0
2	☐	400.000	11279.878	466052.74	0.2815	P	1.6
3	☐	1000.000	-18660.20	468857.42	0.2869	P	1.8
4	☐	2000.000	44461.681	453032.55	0.2755	P	3.8
5	☐	20000.00	19658.961	455495.68	0.2800	P	1.3
6	☐	40000.00	38430.142	440789.89	0.2766	P	2.0
7	☐	200.000					

y = -1.8057E-007 * x + 0.2835
R = -0.5164
DL = -9.218E+04
BEC = -1.57E+06

Weight: <None>
Min Conc: <None>

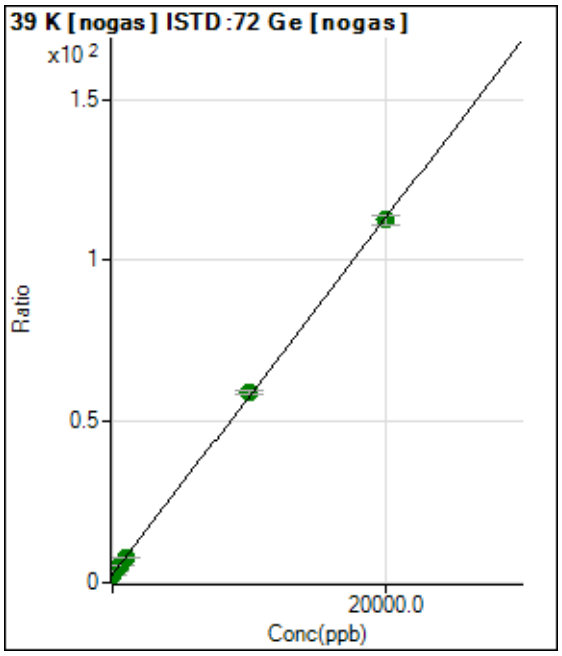
Calibration for 021_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	22184.56	0.0290	P	6.5
2	☐	400.000	7556.244	23352.15	0.0296	P	11.3
3	☐	1000.000	37433.885	24388.85	0.0319	P	5.7
4	☐	2000.000	144.870	22285.62	0.0290	P	1.7
5	☐	20000.00	26462.401	23988.24	0.0311	P	8.3
6	☐	40000.00	35879.146	24054.95	0.0318	P	12.3
7	☐	200.000					

y = 7.9386E-008 * x + 0.0290
R = 0.6102
DL = 7.138E+04
BEC = 3.648E+05

Weight: <None>
Min Conc: <None>

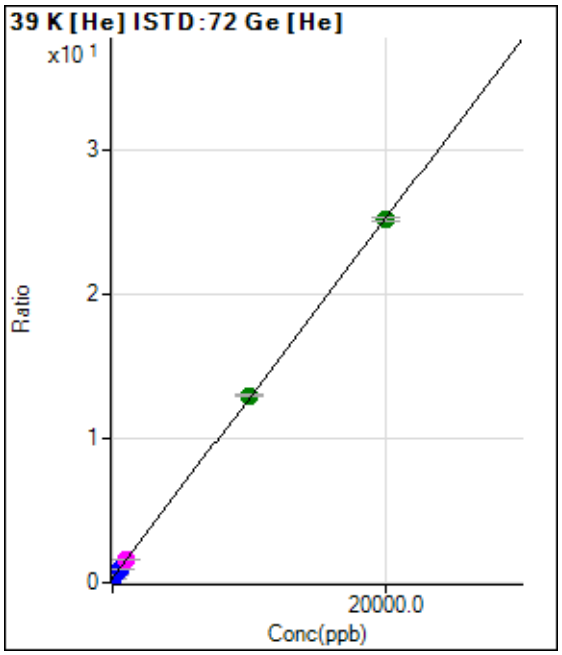


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	4204803.87	2.5349	A	0.4
2	☐	200.000	200.520	6031612.63	3.6433	A	2.2
3	☐	500.000	521.638	8852408.27	5.4184	A	0.7
4	☐	1000.000	986.688	13138380.50	7.9891	A	0.6
5	☐	10000.00	10193.743	95754737.55	58.8840	A	2.4
6	☐	20000.00	19903.248	179391241.5	112.556	A	2.4
7	☐	100.000					

y = 0.0055 * x + 2.5349
R = 0.9999
DL = 5.273
BEC = 458.6

Weight: <None>
Min Conc: <None>

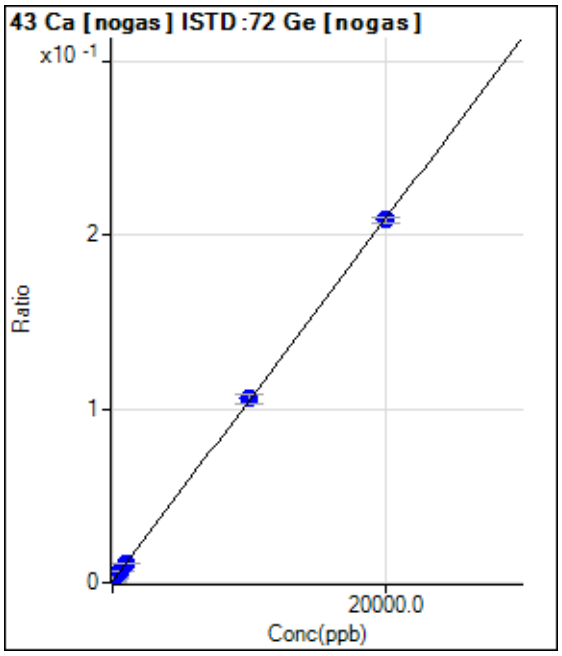
Calibration for 021_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	252552.37	0.3295	P	1.7
2	☐	200.000	192.284	449133.51	0.5690	P	2.1
3	☐	500.000	515.041	741749.73	0.9709	P	1.4
4	☐	1000.000	1012.957	1223709.36	1.5911	M	2.2
5	☐	10000.00	10140.643	10016729.44	12.9590	A	1.3
6	☐	20000.00	19928.732	19049740.55	25.1494	A	0.9
7	☐	100.000					

y = 0.0012 * x + 0.3295
R = 1.0000
DL = 13.86
BEC = 264.5

Weight: <None>
Min Conc: <None>

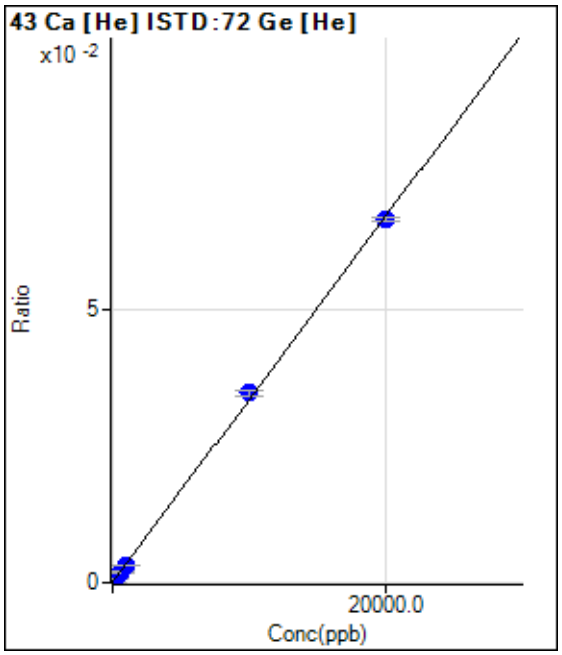


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	923.38	0.0006	P	17.2
2	☐	200.000	219.907	4720.71	0.0029	P	7.0
3	☐	500.000	537.268	10072.95	0.0062	P	1.9
4	☐	1000.000	1004.122	18156.15	0.0110	P	4.9
5	☐	10000.00	10101.568	172358.48	0.1060	P	4.8
6	☐	20000.00	19947.879	332827.16	0.2088	P	1.5
7	☐	100.000					

y = 1.0441E-005 * x + 5.5648E-004
R = 1.0000
DL = 27.45
BEC = 53.3

Weight: <None>
Min Conc: <None>

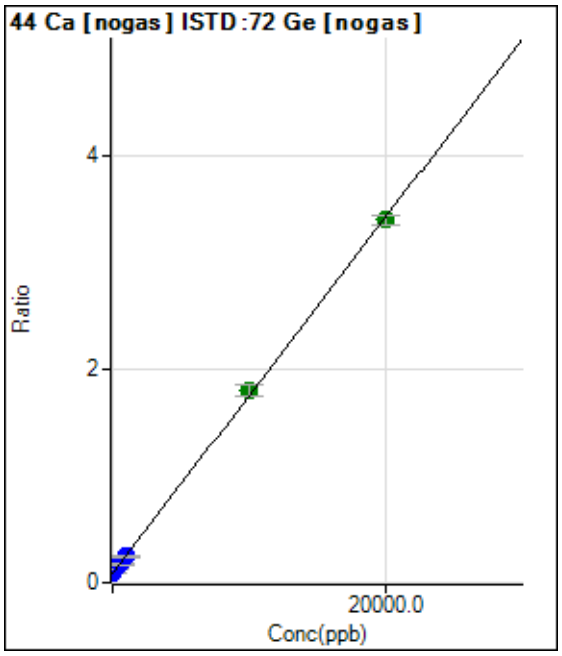
Calibration for 021_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	56.67	0.0001	P	57.3
2	☐	200.000	189.028	556.68	0.0007	P	11.7
3	☐	500.000	543.641	1443.42	0.0019	P	9.9
4	☐	1000.000	922.353	2426.87	0.0032	P	3.5
5	☐	10000.00	10365.282	26820.20	0.0347	P	2.9
6	☐	20000.00	19820.260	50209.94	0.0663	P	1.1
7	☐	100.000					

y = 3.3409E-006 * x + 7.4295E-005
R = 0.9997
DL = 38.2
BEC = 22.24

Weight: <None>
Min Conc: <None>

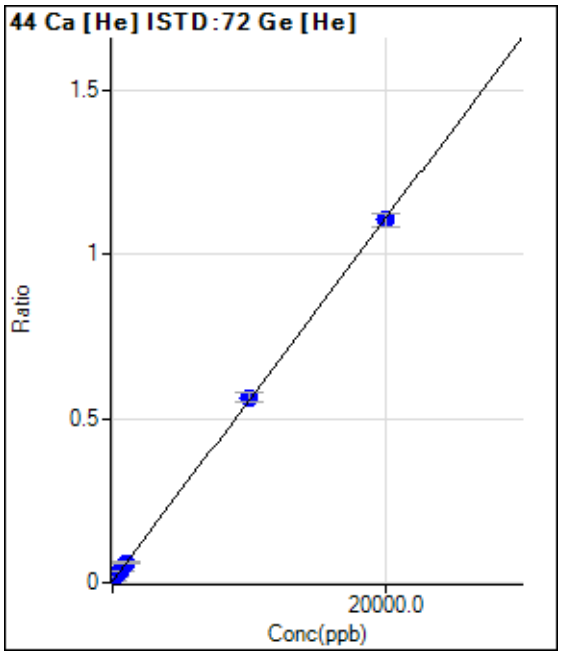


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	142971.10	0.0862	P	1.2
2	☐	200.000	206.837	199933.34	0.1208	P	2.2
3	☐	500.000	518.597	282419.64	0.1729	P	2.2
4	☐	1000.000	946.877	402048.51	0.2445	P	1.1
5	☐	10000.00	10288.594	2935739.02	1.8061	A	5.4
6	☐	20000.00	19857.826	5426705.54	3.4058	A	2.8
7	☐	100.000					

y = 1.6717E-004 * x + 0.0862
R = 0.9998
DL = 18.72
BEC = 515.6

Weight: <None>
Min Conc: <None>

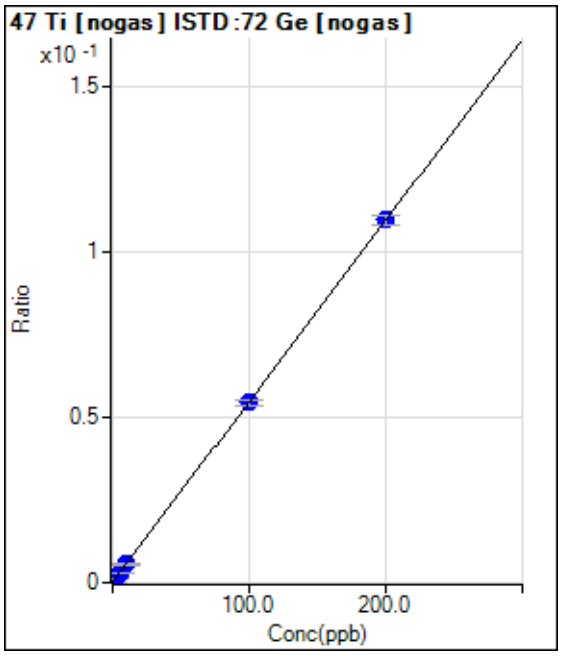
Calibration for 021_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	3010.31	0.0039	P	7.0
2	☐	200.000	212.195	12354.45	0.0156	P	3.4
3	☐	500.000	547.675	26109.25	0.0342	P	1.5
4	☐	1000.000	1031.606	46804.38	0.0609	P	4.8
5	☐	10000.00	10143.177	435721.33	0.5640	P	4.6
6	☐	20000.00	19925.518	835961.81	1.1042	P	3.6
7	☐	100.000					

y = 5.5222E-005 * x + 0.0039
R = 1.0000
DL = 14.88
BEC = 71.07

Weight: <None>
Min Conc: <None>

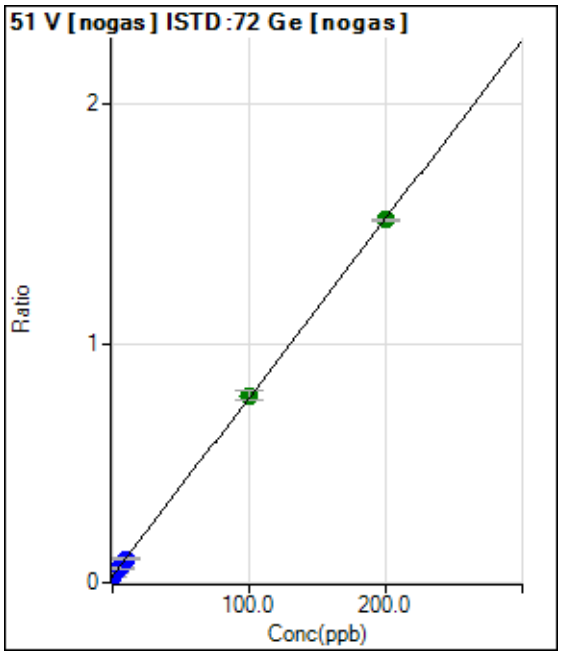


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	180.00	0.0001	P	15.4
2	☐	2.000	1.937	1936.81	0.0012	P	6.3
3	☐	5.000	5.048	4690.69	0.0029	P	4.3
4	☐	10.000	9.928	9115.81	0.0055	P	6.0
5	☐	100.000	99.244	88523.87	0.0544	P	2.7
6	☐	200.000	200.381	174977.03	0.1098	P	2.5
7	☐	1.000					

y = 5.4745E-004 * x + 1.0860E-004
R = 1.0000
DL = 0.09183
BEC = 0.1984

Weight: <None>
Min Conc: <None>

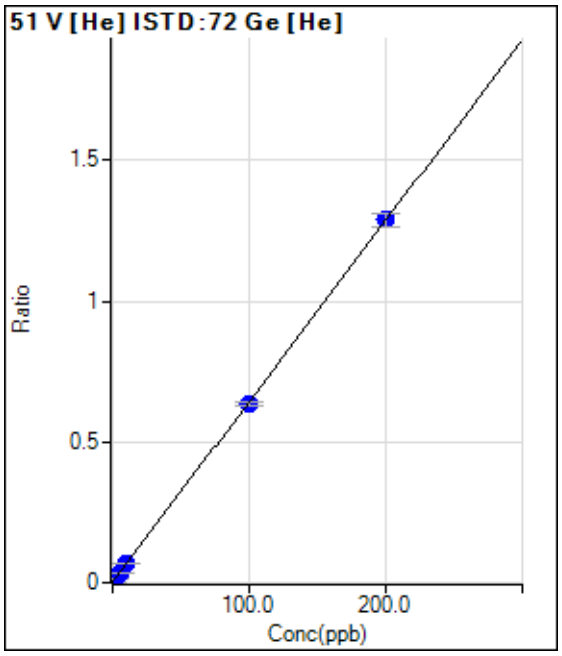
Calibration for 021_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	44999.20	0.0271	P	6.1
2	☐	2.000	1.803	67236.43	0.0406	P	2.7
3	☐	5.000	4.778	102512.72	0.0628	P	8.9
4	☐	10.000	9.779	164678.04	0.1001	P	0.9
5	☐	100.000	101.217	1272229.55	0.7826	A	4.6
6	☐	200.000	199.410	2415757.74	1.5155	A	0.8
7	☐	1.000					

y = 0.0075 * x + 0.0271
R = 1.0000
DL = 0.6637
BEC = 3.635

Weight: <None>
Min Conc: <None>

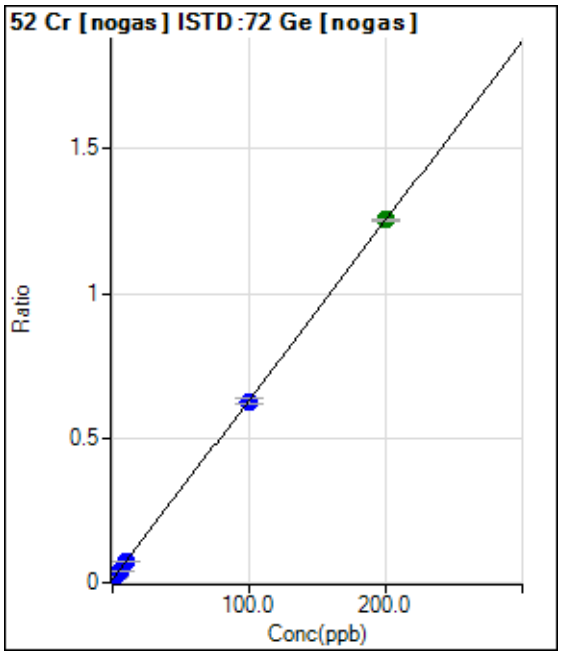


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.113	1644.75	0.0021	P	5.8
2	☐	2.000	2.103	11789.87	0.0149	P	1.7
3	☐	5.000	5.060	25921.89	0.0339	P	0.9
4	☐	10.000	10.207	51509.56	0.0670	P	3.2
5	☐	100.000	99.059	492852.93	0.6377	P	2.3
6	☐	200.000	200.457	975993.75	1.2891	P	3.4
7	☐	1.000					

y = 0.0064 * x + 0.0014
R = 1.0000
DL = 0.05816
BEC = 0.2209

Weight: <None>
Min Conc: <None>

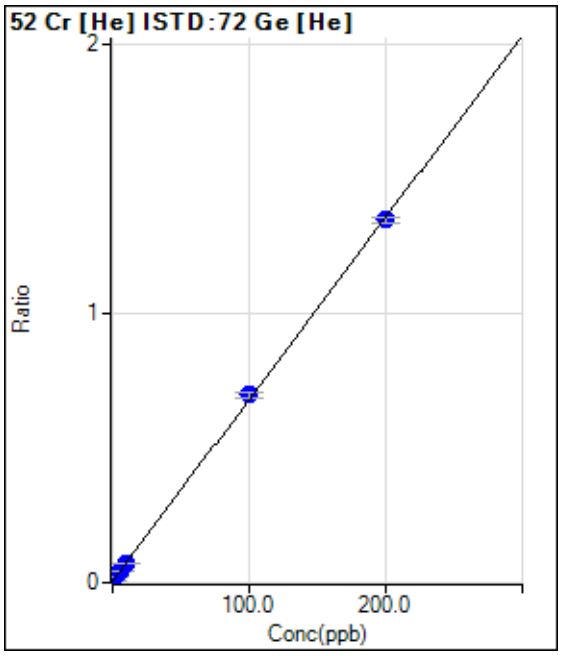
Calibration for 021_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	18783.49	0.0113	P	1.1
2	☐	2.000	1.924	38515.07	0.0233	P	3.3
3	☐	5.000	4.885	68012.47	0.0416	P	2.5
4	☐	10.000	10.001	120657.83	0.0734	P	2.0
5	☐	100.000	99.406	1021219.15	0.6280	P	3.7
6	☐	200.000	200.301	1998643.72	1.2539	A	0.2
7	☐	1.000					

y = 0.0062 * x + 0.0113
R = 1.0000
DL = 0.06294
BEC = 1.825

Weight: <None>
Min Conc: <None>

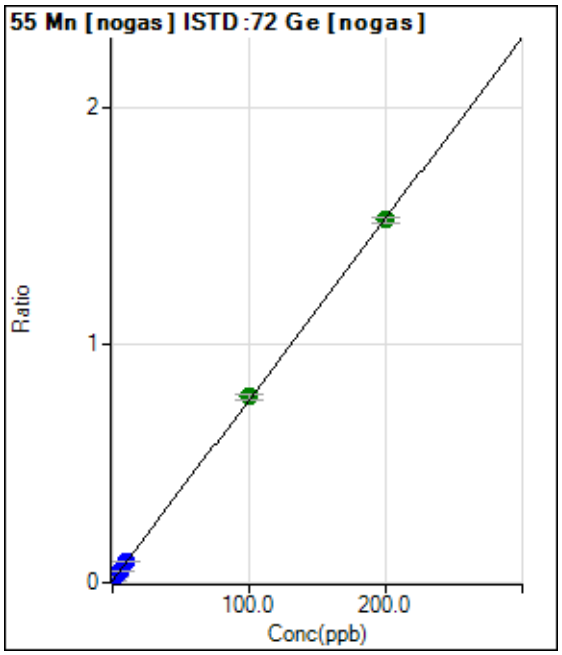


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	4200.58	0.0055	P	2.2
2	☐	2.000	1.974	14849.77	0.0188	P	1.0
3	☐	5.000	5.320	31638.20	0.0414	P	0.6
4	☐	10.000	10.032	56362.15	0.0732	P	2.6
5	☐	100.000	102.445	538960.79	0.6974	P	2.6
6	☐	200.000	198.768	1021077.01	1.3479	P	1.9
7	☐	1.000					

y = 0.0068 * x + 0.0055
R = 0.9999
DL = 0.05268
BEC = 0.8111

Weight: <None>
Min Conc: <None>

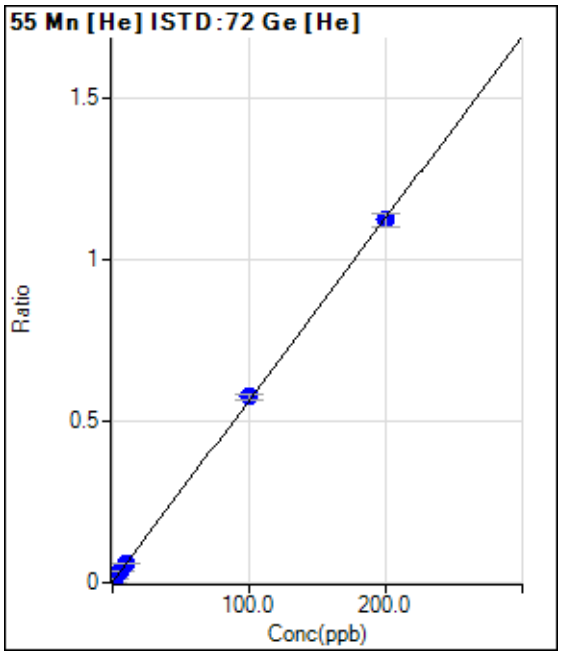
Calibration for 021_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	13912.29	0.0084	P	1.8
2	☐	2.000	2.296	42831.36	0.0259	P	3.6
3	☐	5.000	5.525	82450.03	0.0505	P	3.9
4	☐	10.000	10.281	142545.90	0.0867	P	3.8
5	☐	100.000	101.407	1269184.88	0.7807	A	3.9
6	☐	200.000	199.266	2431913.61	1.5260	A	1.7
7	☐	1.000					

y = 0.0076 * x + 0.0084
R = 1.0000
DL = 0.0598
BEC = 1.101

Weight: <None>
Min Conc: <None>

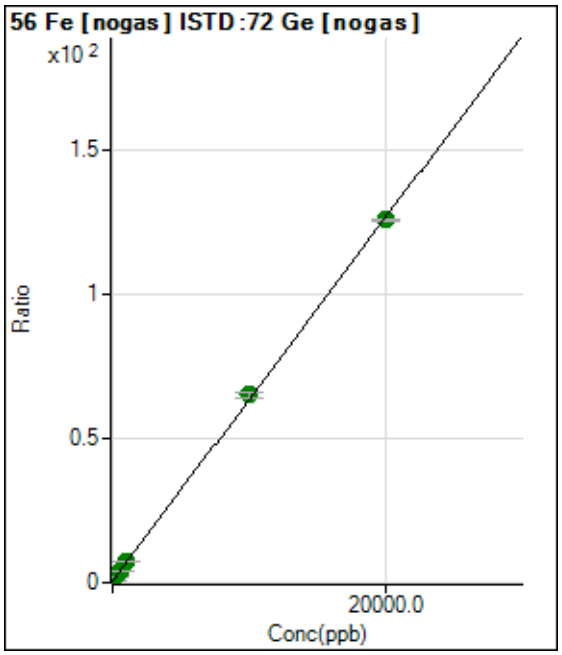


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1350.07	0.0018	P	6.3
2	☐	2.000	2.276	11533.87	0.0146	P	1.0
3	☐	5.000	5.706	25949.29	0.0340	P	0.5
4	☐	10.000	10.107	45241.25	0.0588	P	0.7
5	☐	100.000	101.816	445356.23	0.5763	P	3.5
6	☐	200.000	199.066	851860.32	1.1252	P	3.6
7	☐	1.000					

y = 0.0056 * x + 0.0018
R = 0.9999
DL = 0.05853
BEC = 0.3121

Weight: <None>
Min Conc: <None>

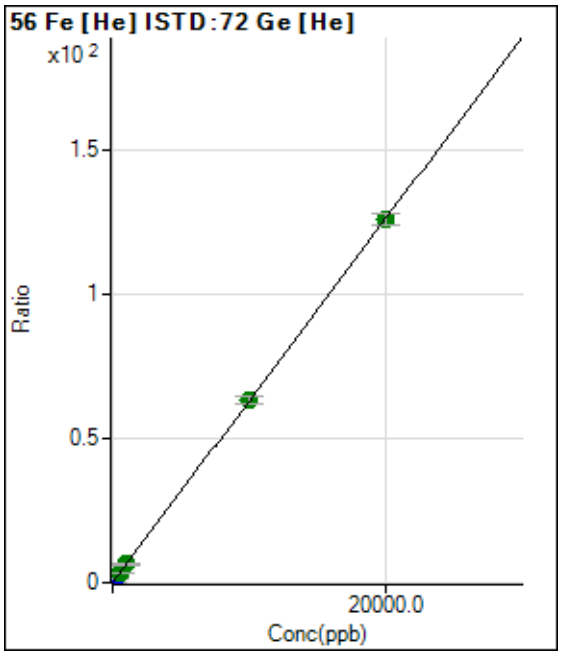
Calibration for 021_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	872576.71	0.5261	P	1.9
2	☐	200.000	211.629	3075836.27	1.8579	A	2.3
3	☐	500.000	534.416	6353908.74	3.8891	A	2.5
4	☐	1000.000	1044.480	11675251.31	7.0990	A	2.5
5	☐	10000.00	10238.456	105618848.1	64.9563	A	2.9
6	☐	20000.00	19877.571	200233879.4	125.614	A	0.5
7	☐	100.000					

y = 0.0063 * x + 0.5261
R = 0.9999
DL = 4.838
BEC = 83.6

Weight: <None>
Min Conc: <None>

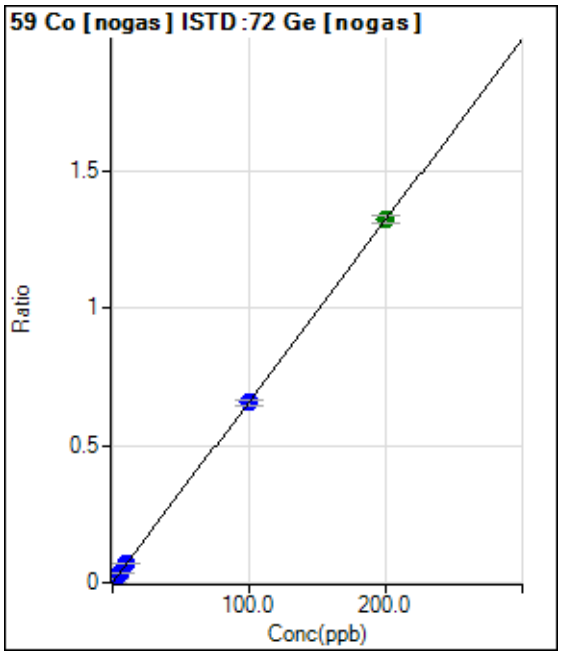


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	17228.54	0.0225	P	3.8
2	☐	200.000	197.044	1000311.00	1.2671	P	1.7
3	☐	500.000	534.004	2594361.99	3.3956	A	0.4
4	☐	1000.000	1030.444	5020232.84	6.5314	A	5.8
5	☐	10000.00	10090.649	49264524.26	63.7617	A	4.1
6	☐	20000.00	19952.333	95442521.91	126.054	A	3.1
7	☐	100.000					

y = 0.0063 * x + 0.0225
R = 1.0000
DL = 0.4006
BEC = 3.557

Weight: <None>
Min Conc: <None>

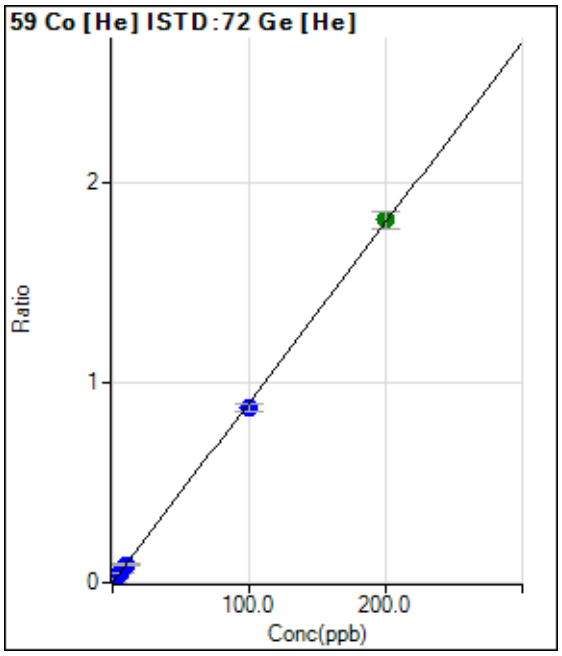
Calibration for 021_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	296.67	0.0002	P	29.3
2	☐	2.000	2.017	22344.28	0.0135	P	0.9
3	☐	5.000	5.151	55844.22	0.0342	P	2.4
4	☐	10.000	10.238	111452.23	0.0678	P	1.3
5	☐	100.000	99.589	1069293.00	0.6576	P	3.1
6	☐	200.000	200.190	2106225.96	1.3218	A	2.3
7	☐	1.000					

y = 0.0066 * x + 1.7912E-004
R = 1.0000
DL = 0.02387
BEC = 0.02713

Weight: <None>
Min Conc: <None>

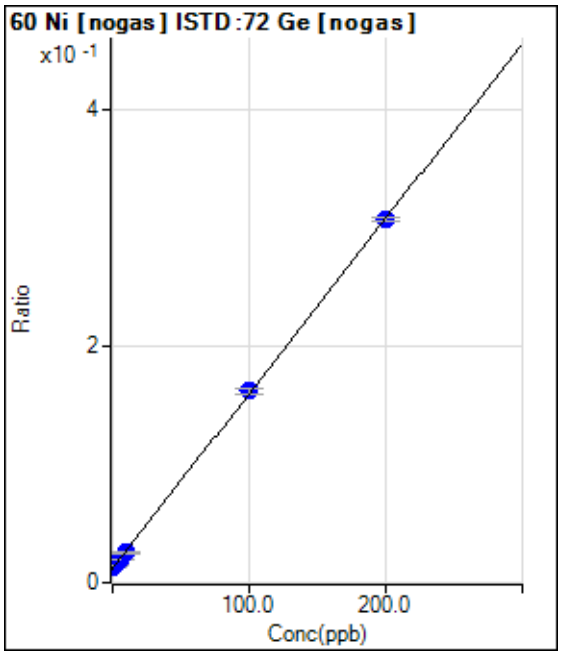


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	66.67	0.0001	P	59.3
2	☐	2.000	1.945	13892.31	0.0176	P	5.7
3	☐	5.000	5.015	34577.32	0.0453	P	1.3
4	☐	10.000	9.810	67946.76	0.0884	P	7.5
5	☐	100.000	97.191	676292.57	0.8755	P	4.5
6	☐	200.000	201.414	1373323.05	1.8142	A	4.8
7	☐	1.000					

y = 0.0090 * x + 8.6583E-005
R = 0.9999
DL = 0.0171
BEC = 0.009613

Weight: <None>
Min Conc: <None>

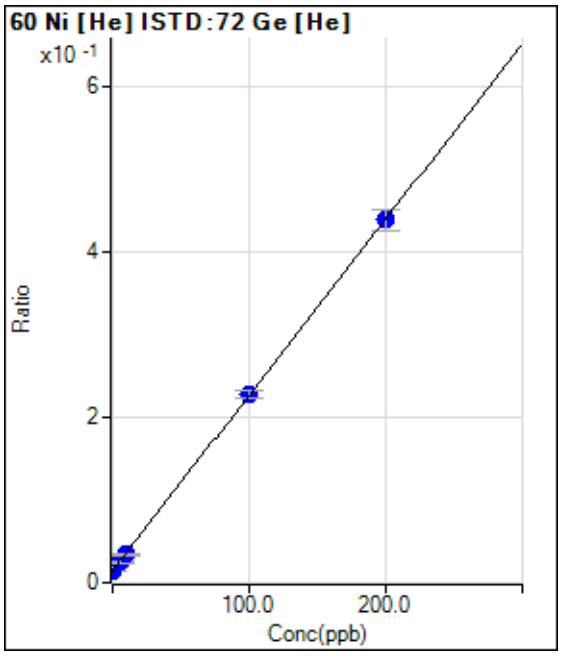
Calibration for 021_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.393	20935.77	0.0126	P	2.3
2	☐	2.000	2.004	24840.72	0.0150	P	0.4
3	☐	5.000	4.787	31217.37	0.0191	P	2.5
4	☐	10.000	9.022	41708.84	0.0254	P	2.9
5	☐	100.000	101.478	263243.92	0.1619	P	3.2
6	☐	200.000	199.315	488286.41	0.3064	P	1.1
7	☐	1.000					

y = 0.0015 * x + 0.0120
R = 0.9999
DL = 0.5962
BEC = 8.154

Weight: <None>
Min Conc: <None>

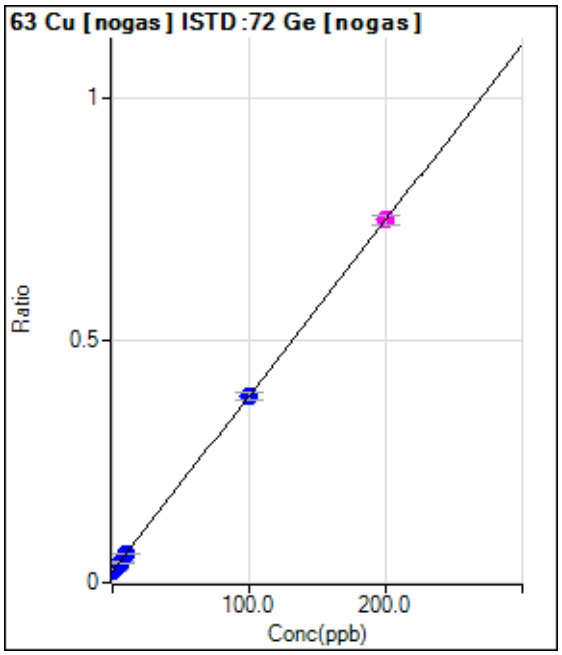


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-0.129	11050.28	0.0144	P	5.7
2	☐	2.000	2.875	16418.11	0.0208	P	24.6
3	☐	5.000	4.749	18926.85	0.0248	P	6.0
4	☐	10.000	9.157	26242.96	0.0341	P	6.1
5	☐	100.000	100.616	176470.15	0.2284	P	4.3
6	☐	200.000	199.732	332209.40	0.4390	P	5.9
7	☐	1.000					

y = 0.0021 * x + 0.0147
R = 1.0000
DL = 1.151
BEC = 6.918

Weight: <None>
Min Conc: <None>

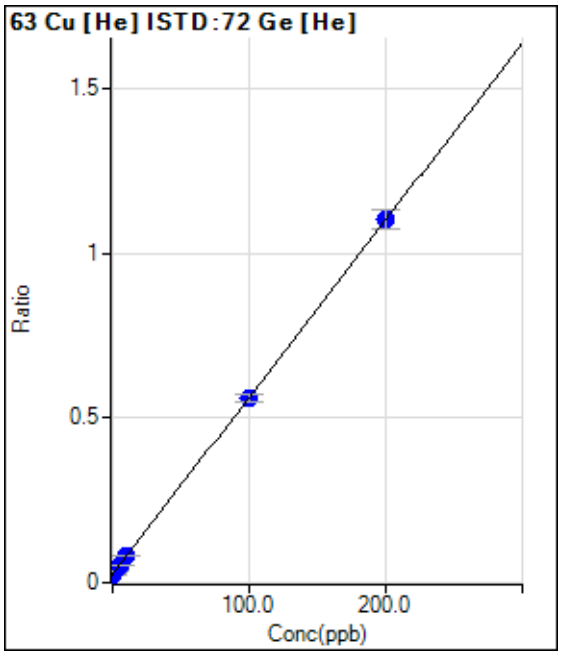
Calibration for 021_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	39189.89	0.0236	P	7.3
2	☐	2.000	1.373	47379.60	0.0286	P	7.3
3	☐	5.000	4.725	66583.27	0.0408	P	6.1
4	☐	10.000	9.770	97122.24	0.0591	P	4.6
5	☐	100.000	99.728	626435.86	0.3852	P	3.7
6	☐	200.000	200.160	1194383.68	0.7494	M	2.9
7	☐	1.000					

y = 0.0036 * x + 0.0236
R = 1.0000
DL = 1.431
BEC = 6.516

Weight: <None>
Min Conc: <None>

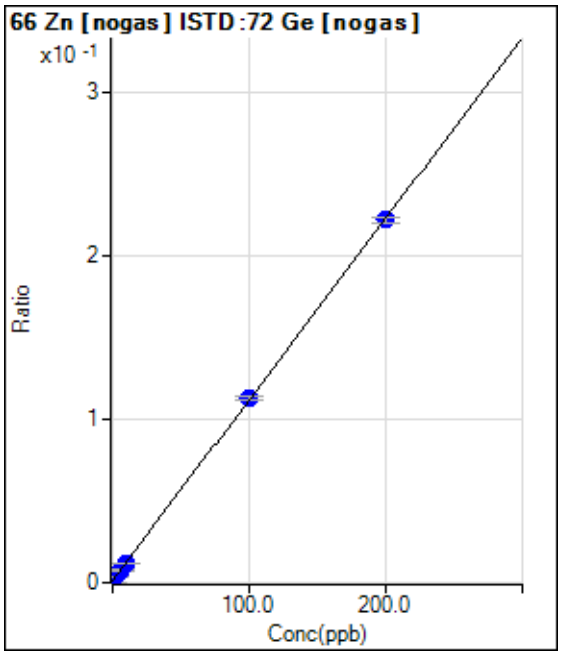


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.047	19871.27	0.0259	P	5.4
2	☐	2.000	1.369	26075.86	0.0330	P	3.5
3	☐	5.000	5.184	40897.20	0.0535	P	3.5
4	☐	10.000	10.682	63890.82	0.0831	P	2.3
5	☐	100.000	99.502	432849.08	0.5603	P	4.5
6	☐	200.000	200.216	833629.89	1.1015	P	5.4
7	☐	1.000					

y = 0.0054 * x + 0.0257
R = 1.0000
DL = 0.7777
BEC = 4.78

Weight: <None>
Min Conc: <None>

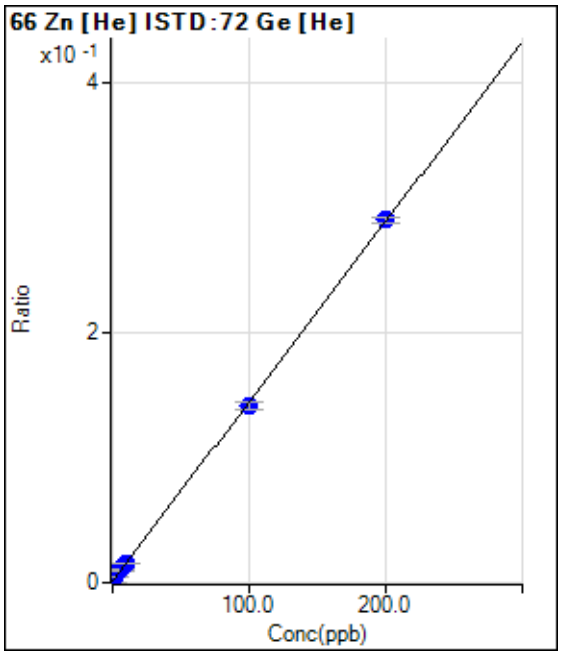
Calibration for 021_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-0.802	603.36	0.0004	P	19.7
2	☐	2.000	1.972	5680.99	0.0034	P	8.1
3	☐	5.000	5.737	12411.14	0.0076	P	3.6
4	☐	10.000	9.417	19184.06	0.0117	P	2.6
5	☐	100.000	101.333	184263.57	0.1133	P	2.2
6	☐	200.000	199.345	353311.89	0.2217	P	1.8
7	☐	1.000					

y = 0.0011 * x + 0.0013
R = 0.9999
DL = 0.1943
BEC = 1.132

Weight: <None>
Min Conc: <None>

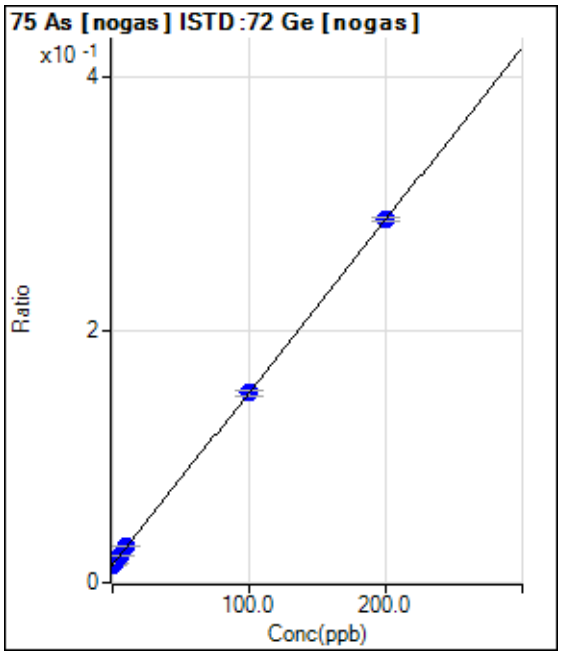


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-0.277	510.02	0.0007	P	6.5
2	☐	2.000	2.234	3380.39	0.0043	P	7.0
3	☐	5.000	6.351	7805.20	0.0102	P	7.4
4	☐	10.000	9.745	11607.33	0.0151	P	3.9
5	☐	100.000	97.940	109769.85	0.1421	P	4.1
6	☐	200.000	201.006	219982.13	0.2905	P	1.9
7	☐	1.000					

y = 0.0014 * x + 0.0011
R = 0.9999
DL = 0.09
BEC = 0.7394

Weight: <None>
Min Conc: <None>

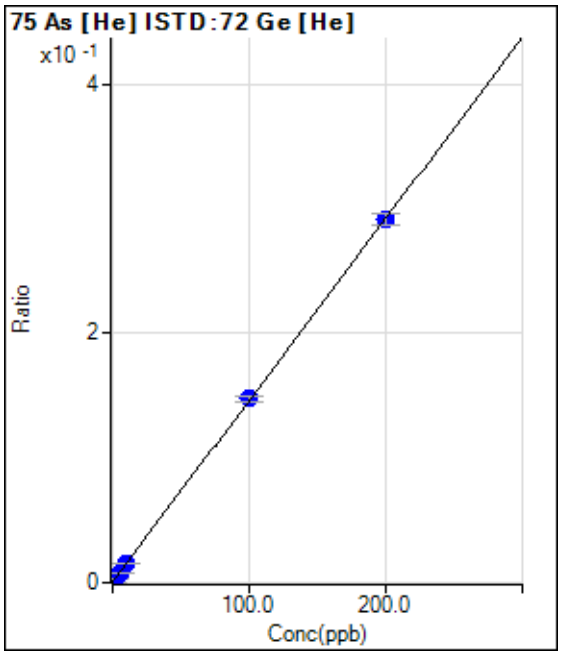
Calibration for 021_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-0.161	23025.15	0.0139	P	1.5
2	☐	2.000	1.171	25989.40	0.0157	P	0.8
3	☐	5.000	5.395	35061.55	0.0215	P	2.9
4	☐	10.000	10.649	47082.60	0.0286	P	3.1
5	☐	100.000	99.961	244693.82	0.1505	P	3.0
6	☐	200.000	199.985	457377.47	0.2870	P	1.2
7	☐	1.000					

y = 0.0014 * x + 0.0141
R = 1.0000
DL = 0.4602
BEC = 10.33

Weight: <None>
Min Conc: <None>

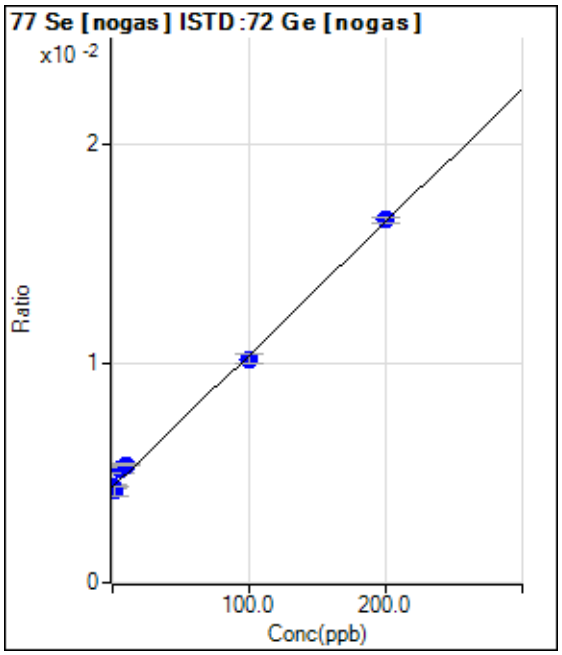


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	400.01	0.0005	P	4.2
2	☐	2.000	1.978	2685.77	0.0034	P	2.6
3	☐	5.000	5.165	6143.32	0.0080	P	3.2
4	☐	10.000	10.085	11691.68	0.0152	P	3.8
5	☐	100.000	101.061	114107.46	0.1477	P	3.2
6	☐	200.000	199.461	220293.71	0.2910	P	3.0
7	☐	1.000					

y = 0.0015 * x + 5.2191E-004
R = 1.0000
DL = 0.04541
BEC = 0.3584

Weight: <None>
Min Conc: <None>

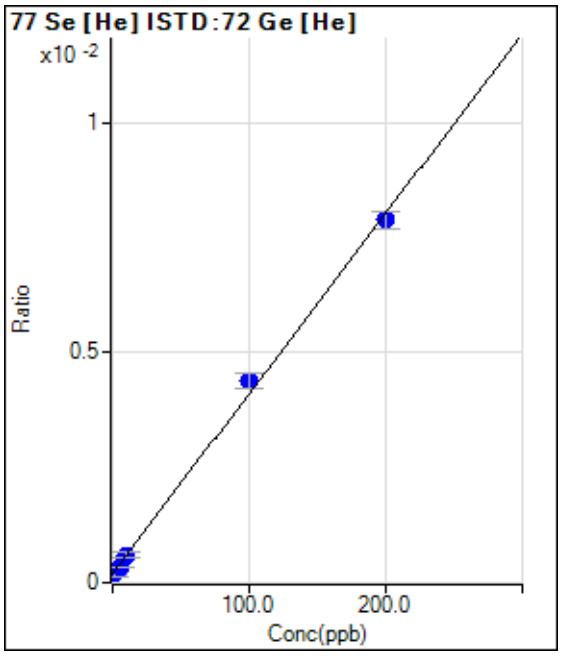
Calibration for 021_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	7218.26	0.0044	P	4.0
2	☐	2.000	-2.942	6908.15	0.0042	P	8.8
3	☐	5.000	13.064	8402.15	0.0051	P	4.3
4	☐	10.000	17.183	8869.06	0.0054	P	2.4
5	☐	100.000	96.344	16561.29	0.0102	P	4.5
6	☐	200.000	201.317	26373.25	0.0165	P	1.7
7	☐	1.000					

y = 6.0573E-005 * x + 0.0044
R = 0.9979
DL = 8.627
BEC = 71.84

Weight: <None>
Min Conc: <None>

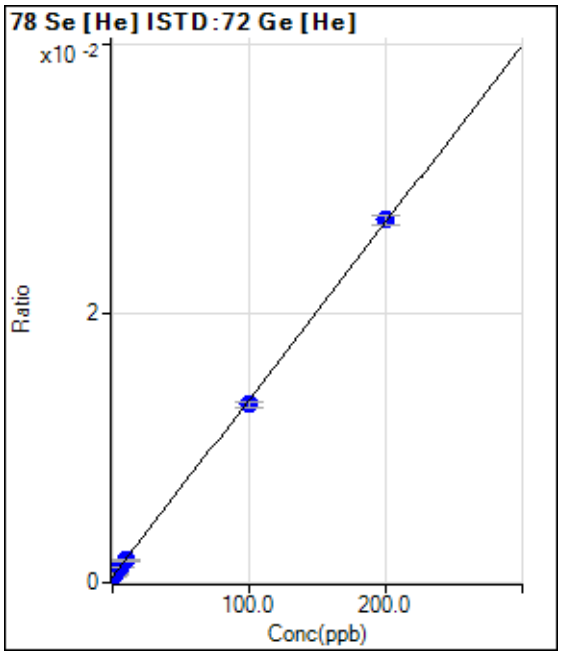


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-0.057	150.00	0.0002	P	10.0
2	☐	2.000	-0.075	153.34	0.0002	P	53.8
3	☐	5.000	3.419	253.34	0.0003	P	7.0
4	☐	10.000	10.180	456.68	0.0006	P	20.7
5	☐	100.000	106.964	3387.05	0.0044	P	8.0
6	☐	200.000	196.569	5967.78	0.0079	P	4.5
7	☐	1.000					

y = 3.9103E-005 * x + 1.9771E-004
R = 0.9990
DL = 1.506
BEC = 5.056

Weight: <None>
Min Conc: <None>

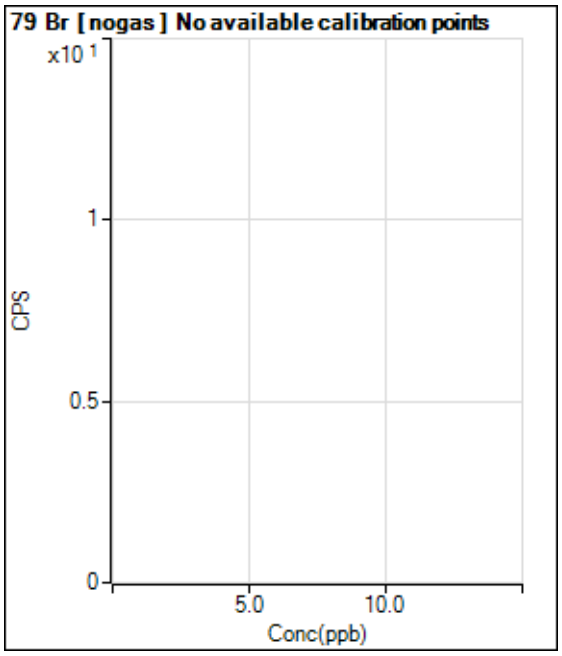
Calibration for 021_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	342.67	0.0004	P	12.4
2	☐	2.000	1.438	502.01	0.0006	P	7.8
3	☐	5.000	5.095	853.36	0.0011	P	5.8
4	☐	10.000	9.246	1280.05	0.0017	P	2.9
5	☐	100.000	97.259	10227.63	0.0132	P	3.3
6	☐	200.000	201.411	20394.36	0.0269	P	2.4
7	☐	1.000					

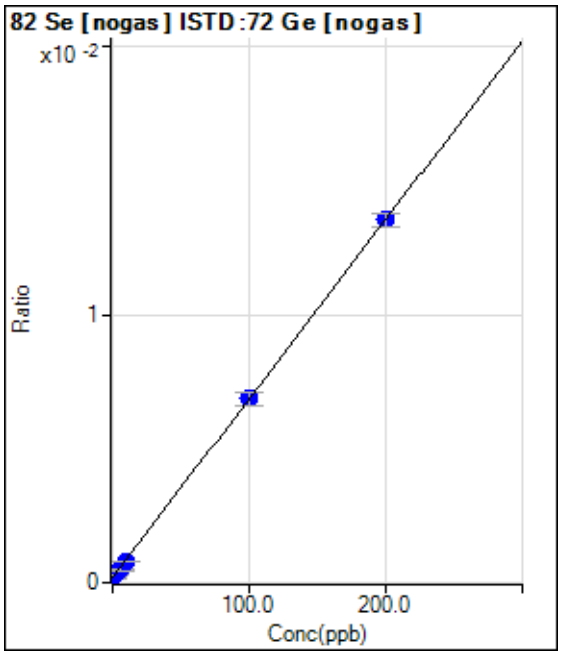
y = 1.3148E-004 * x + 4.4715E-004
R = 0.9999
DL = 1.265
BEC = 3.401

Weight: <None>
Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000					
2	☐	2.000					
3	☐	5.000					
4	☐	10.000					
5	☐	100.000					
6	☐	200.000					
7	☐	1.000					

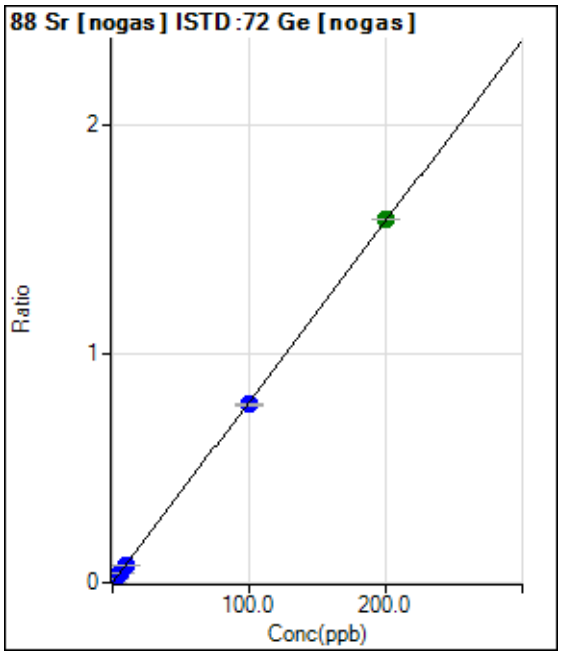
Calibration for 021_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	313.34	0.0002	P	17.3
2	☐	2.000	1.628	493.35	0.0003	P	14.2
3	☐	5.000	4.246	770.04	0.0005	P	22.9
4	☐	10.000	8.890	1286.74	0.0008	P	3.1
5	☐	100.000	100.205	11177.06	0.0069	P	7.3
6	☐	200.000	199.975	21576.92	0.0135	P	3.5
7	☐	1.000					

y = 6.6762E-005 * x + 1.8882E-004
R = 1.0000
DL = 1.467
BEC = 2.828

Weight: <None>
Min Conc: <None>

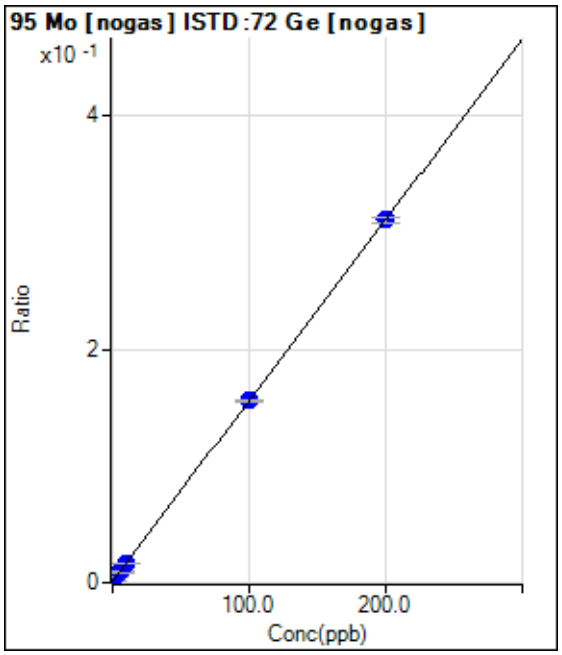


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	713.36	0.0004	P	10.1
2	☐	2.000	2.009	26944.65	0.0163	P	1.5
3	☐	5.000	5.108	66510.57	0.0407	P	2.2
4	☐	10.000	9.722	126791.84	0.0771	P	3.1
5	☐	100.000	98.480	1263903.34	0.7771	P	1.5
6	☐	200.000	200.771	2524789.91	1.5839	A	0.2
7	☐	1.000					

y = 0.0079 * x + 4.3027E-004
R = 1.0000
DL = 0.01655
BEC = 0.05455

Weight: <None>
Min Conc: <None>

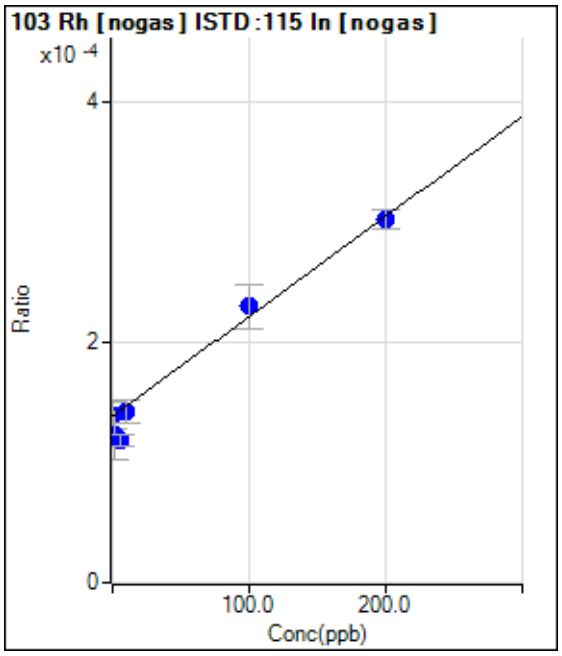
Calibration for 021_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1983.49	0.0012	P	3.9
2	☐	2.000	1.997	7101.61	0.0043	P	4.7
3	☐	5.000	5.191	15076.87	0.0092	P	6.6
4	☐	10.000	9.974	27358.56	0.0166	P	3.7
5	☐	100.000	99.963	253707.15	0.1560	P	1.8
6	☐	200.000	200.015	495542.44	0.3109	P	1.9
7	☐	1.000					

y = 0.0015 * x + 0.0012
R = 1.0000
DL = 0.09026
BEC = 0.7722

Weight: <None>
Min Conc: <None>

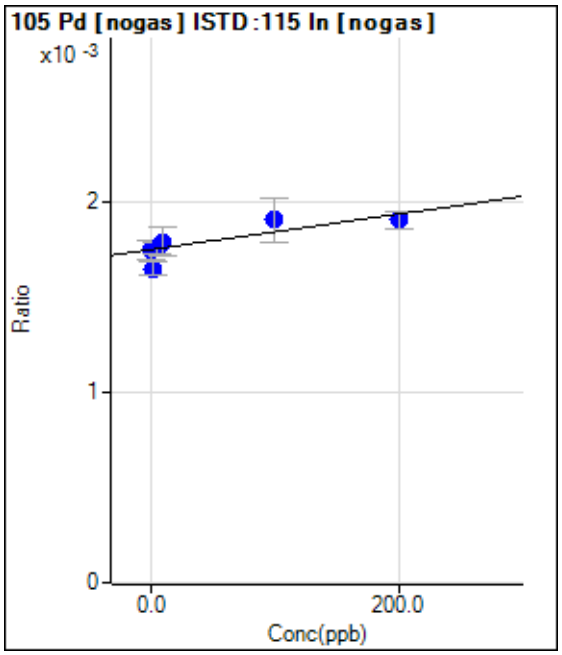


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	193.34	0.0001	P	16.4
2	☐	2.000	-19.145	166.67	0.0001	P	32.2
3	☐	5.000	-24.076	163.34	0.0001	P	9.1
4	☐	10.000	4.668	190.00	0.0001	P	14.1
5	☐	100.000	109.555	303.34	0.0002	P	15.7
6	☐	200.000	196.427	396.68	0.0003	P	5.4
7	☐	1.000					

y = 8.3020E-007 * x + 1.3838E-004
R = 0.9897
DL = 81.93
BEC = 166.7

Weight: <None>
Min Conc: <None>

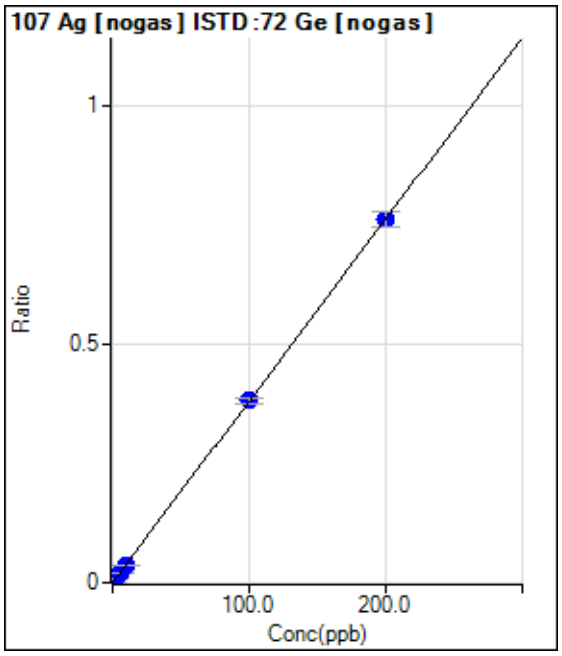
Calibration for 021_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	2446.90	0.0018	P	5.9
2	☐	2.000	-106.859	2263.53	0.0017	P	4.7
3	☐	5.000	3.878	2413.54	0.0018	P	3.5
4	☐	10.000	43.807	2393.55	0.0018	P	8.7
5	☐	100.000	166.710	2530.24	0.0019	P	12.5
6	☐	200.000	166.071	2506.92	0.0019	P	4.7
7	☐	1.000					

y = 9.3232E-007 * x + 0.0018
R = 0.8233
DL = 332.6
BEC = 1878

Weight: <None>
Min Conc: <None>

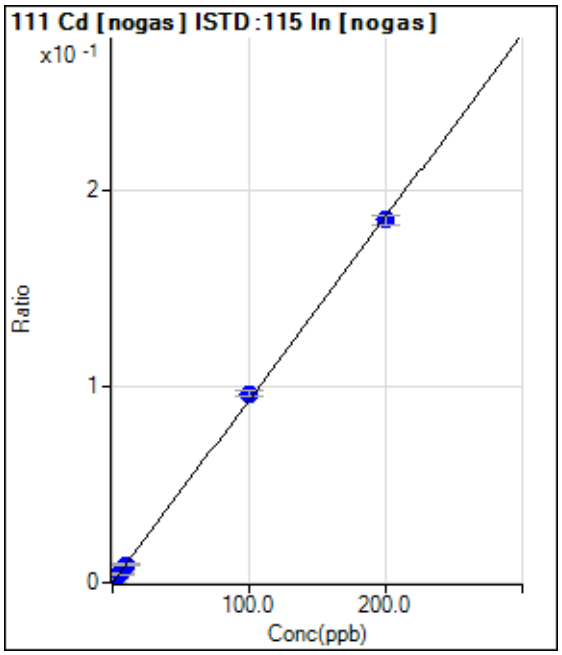


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	56.67	0.0000	P	26.2
2	☐	2.000	1.890	11994.35	0.0072	P	5.2
3	☐	5.000	4.968	31001.85	0.0190	P	7.7
4	☐	10.000	9.947	62426.68	0.0380	P	1.4
5	☐	100.000	100.529	623218.92	0.3833	P	3.2
6	☐	200.000	199.740	1213845.32	0.7615	P	4.2
7	☐	1.000					

y = 0.0038 * x + 3.4113E-005
R = 1.0000
DL = 0.007041
BEC = 0.008948

Weight: <None>
Min Conc: <None>

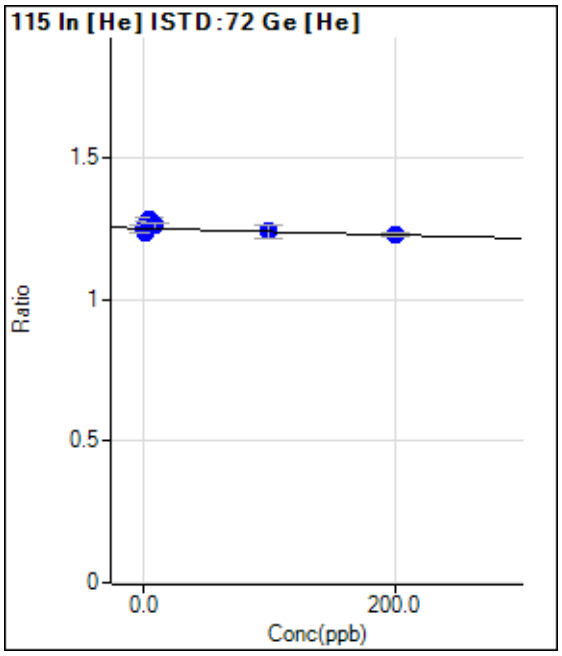
Calibration for 021_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	23.33	0.0000	P	89.2
2	☐	2.000	1.811	2336.87	0.0017	P	5.6
3	☐	5.000	4.826	6214.56	0.0045	P	7.5
4	☐	10.000	9.844	12304.67	0.0092	P	3.5
5	☐	100.000	103.211	127782.02	0.0964	P	3.1
6	☐	200.000	198.409	243818.45	0.1853	P	2.8
7	☐	1.000					

y = 9.3405E-004 * x + 1.6441E-005
R = 0.9998
DL = 0.04709
BEC = 0.0176

Weight: <None>
Min Conc: <None>

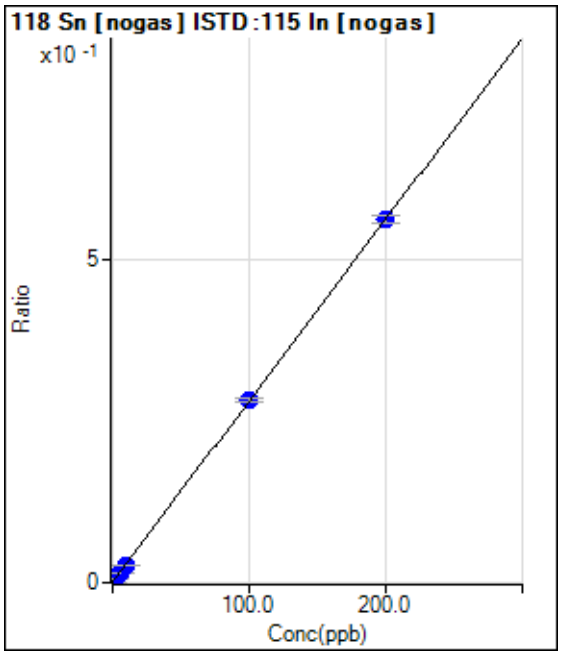


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	958057.38	1.2499	P	2.2
2	☐	2.000	131.640	974726.29	1.2345	P	0.5
3	☐	5.000	-254.942	977657.36	1.2796	P	1.2
4	☐	10.000	-85.627	969669.80	1.2599	P	1.4
5	☐	100.000	101.908	956514.52	1.2380	P	3.8
6	☐	200.000	209.029	928248.97	1.2255	P	1.3
7	☐	1.000					

y = -1.1665E-004 * x + 1.2499
R = -0.6498
DL = -712.7
BEC = -1.071E+04

Weight: <None>
Min Conc: <None>

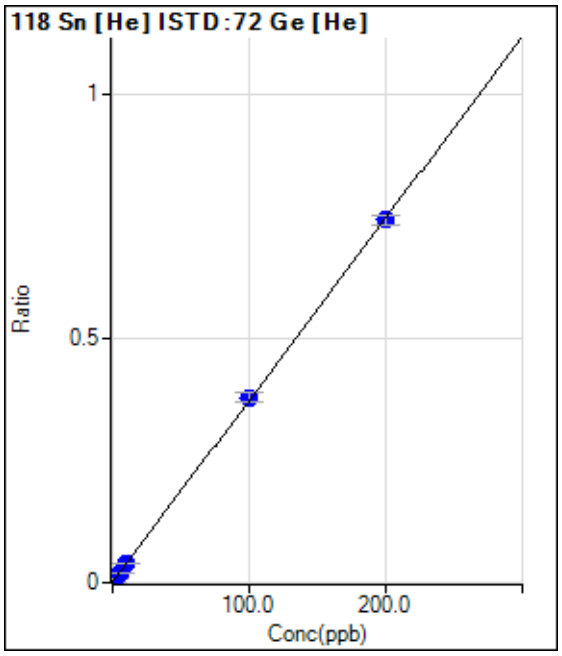
Calibration for 021_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1093.62	0.0008	P	26.4
2	☐	2.000	1.869	8252.16	0.0060	P	1.7
3	☐	5.000	5.199	21110.12	0.0154	P	5.3
4	☐	10.000	9.505	36629.90	0.0274	P	1.5
5	☐	100.000	100.469	374239.93	0.2823	P	1.9
6	☐	200.000	199.787	737577.10	0.5607	P	2.3
7	☐	1.000					

y = 0.0028 * x + 7.8538E-004
R = 1.0000
DL = 0.2221
BEC = 0.2803

Weight: <None>
Min Conc: <None>

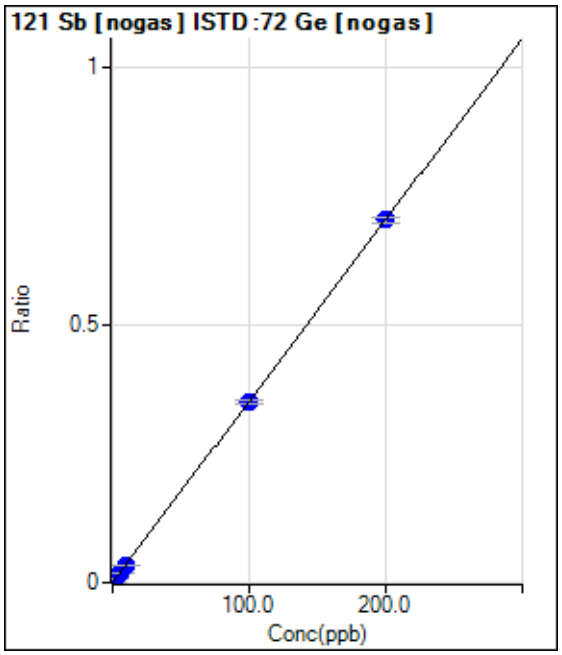


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	583.35	0.0008	P	30.6
2	☐	2.000	2.057	6661.43	0.0084	P	6.4
3	☐	5.000	5.462	16154.61	0.0211	P	1.2
4	☐	10.000	9.989	29255.44	0.0380	P	1.5
5	☐	100.000	101.528	293220.37	0.3796	P	5.3
6	☐	200.000	199.224	563508.88	0.7441	P	2.5
7	☐	1.000					

y = 0.0037 * x + 7.6000E-004
R = 1.0000
DL = 0.1867
BEC = 0.2037

Weight: <None>
Min Conc: <None>

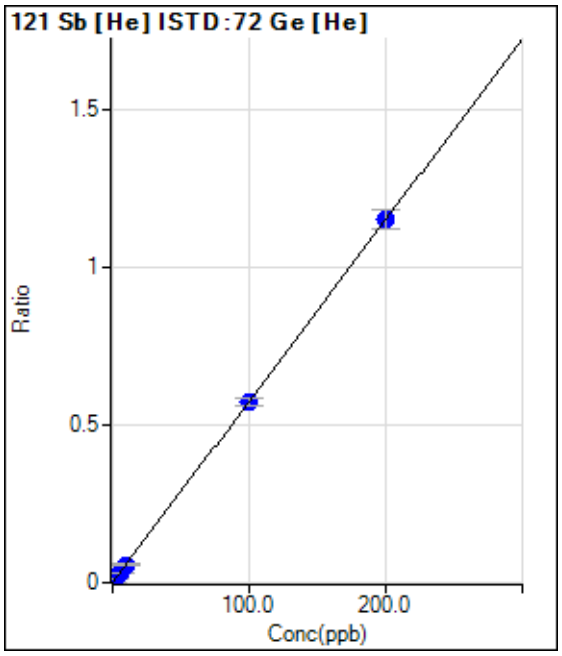
Calibration for 021_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	733.36	0.0004	P	28.1
2	☐	2.000	1.925	11934.48	0.0072	P	5.3
3	☐	5.000	4.917	28972.00	0.0177	P	2.3
4	☐	10.000	9.705	56861.77	0.0346	P	0.4
5	☐	100.000	99.955	572475.58	0.3520	P	2.3
6	☐	200.000	200.040	1122025.79	0.7040	P	1.3
7	☐	1.000					

y = 0.0035 * x + 4.4143E-004
R = 1.0000
DL = 0.1058
BEC = 0.1255

Weight: <None>
Min Conc: <None>

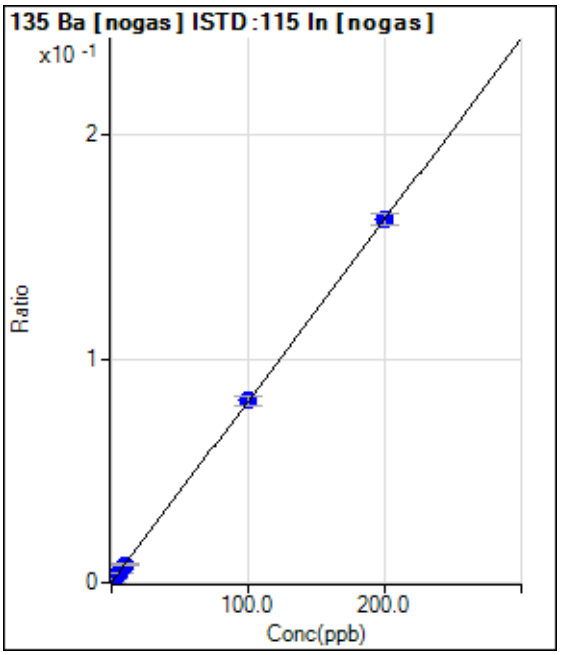


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	503.35	0.0007	P	6.3
2	☐	2.000	1.870	8989.22	0.0114	P	3.4
3	☐	5.000	4.985	22348.38	0.0293	P	3.0
4	☐	10.000	9.925	44264.46	0.0576	P	5.1
5	☐	100.000	99.823	442882.36	0.5733	P	4.6
6	☐	200.000	200.094	869164.13	1.1485	P	5.3
7	☐	1.000					

y = 0.0057 * x + 6.5621E-004
R = 1.0000
DL = 0.0215
BEC = 0.1144

Weight: <None>
Min Conc: <None>

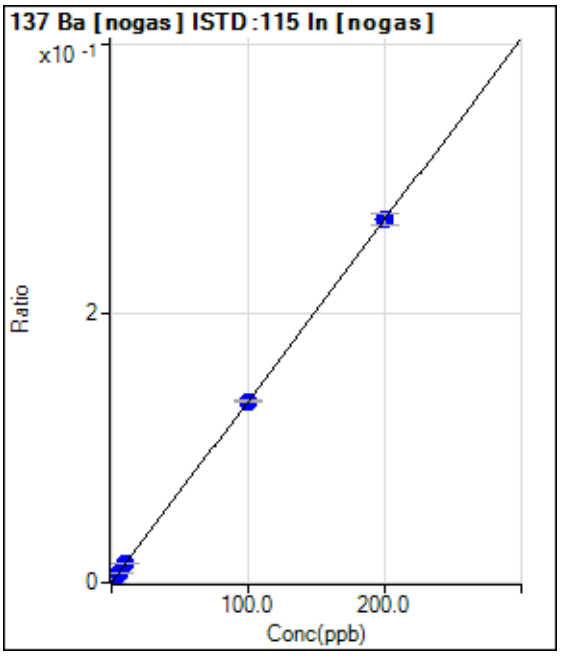
Calibration for 021_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	160.00	0.0001	P	19.2
2	☐	2.000	2.231	2626.93	0.0019	P	9.5
3	☐	5.000	5.092	5824.46	0.0042	P	7.0
4	☐	10.000	9.748	10700.27	0.0080	P	5.3
5	☐	100.000	100.176	107656.12	0.0813	P	4.7
6	☐	200.000	199.920	213130.85	0.1621	P	3.0
7	☐	1.000					

y = 8.1003E-004 * x + 1.1476E-004
R = 1.0000
DL = 0.08163
BEC = 0.1417

Weight: <None>
Min Conc: <None>

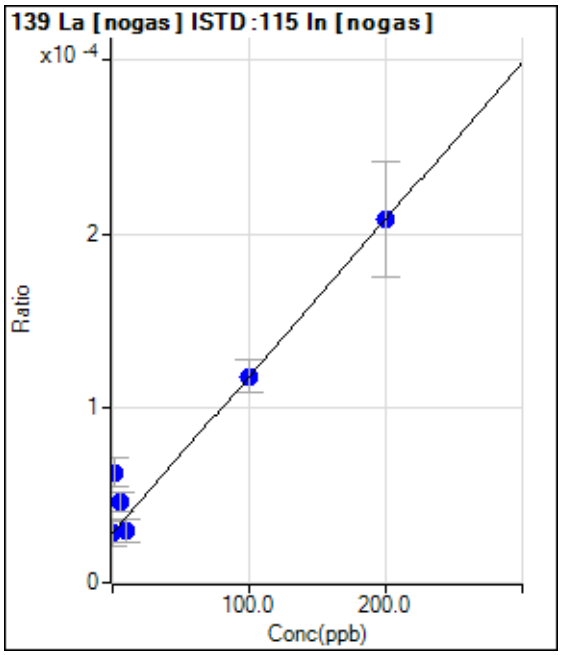


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	206.67	0.0001	P	21.2
2	☐	2.000	2.384	4594.04	0.0034	P	8.5
3	☐	5.000	5.005	9472.87	0.0069	P	5.5
4	☐	10.000	10.118	18410.48	0.0138	P	1.4
5	☐	100.000	100.078	179009.52	0.1350	P	0.7
6	☐	200.000	199.951	354604.39	0.2696	P	3.2
7	☐	1.000					

y = 0.0013 * x + 1.4758E-004
R = 1.0000
DL = 0.06954
BEC = 0.1095

Weight: <None>
Min Conc: <None>

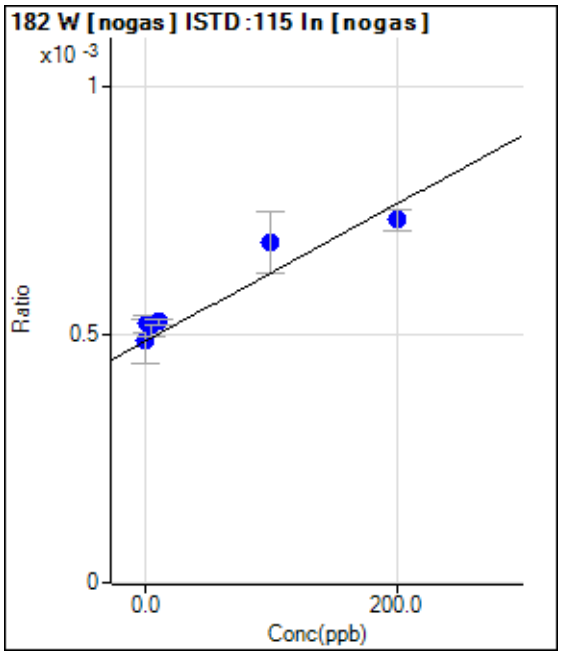
Calibration for 021_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	40.00	0.0000	P	48.6
2	☐	2.000	38.485	86.67	0.0001	P	26.8
3	☐	5.000	19.564	63.33	0.0000	P	23.3
4	☐	10.000	1.677	40.00	0.0000	P	42.9
5	☐	100.000	99.995	156.67	0.0001	P	15.3
6	☐	200.000	199.690	273.34	0.0002	P	31.7
7	☐	1.000					

y = 8.9995E-007 * x + 2.8408E-005
R = 0.9806
DL = 46.03
BEC = 31.57

Weight: <None>
Min Conc: <None>

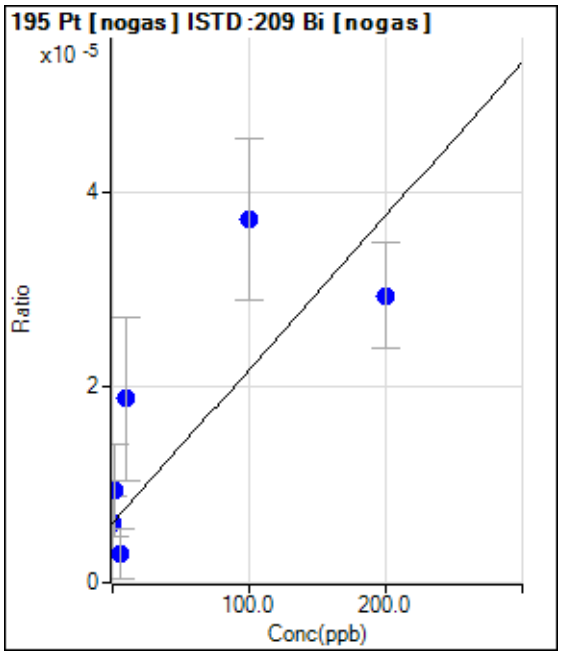


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	680.03	0.0005	P	18.3
2	☐	2.000	25.637	716.69	0.0005	P	6.9
3	☐	5.000	22.230	713.37	0.0005	P	7.7
4	☐	10.000	28.072	703.36	0.0005	P	1.7
5	☐	100.000	143.117	906.71	0.0007	P	18.1
6	☐	200.000	176.871	963.39	0.0007	P	5.9
7	☐	1.000					

y = 1.3846E-006 * x + 4.8770E-004
R = 0.9627
DL = 192.9
BEC = 352.2

Weight: <None>
Min Conc: <None>

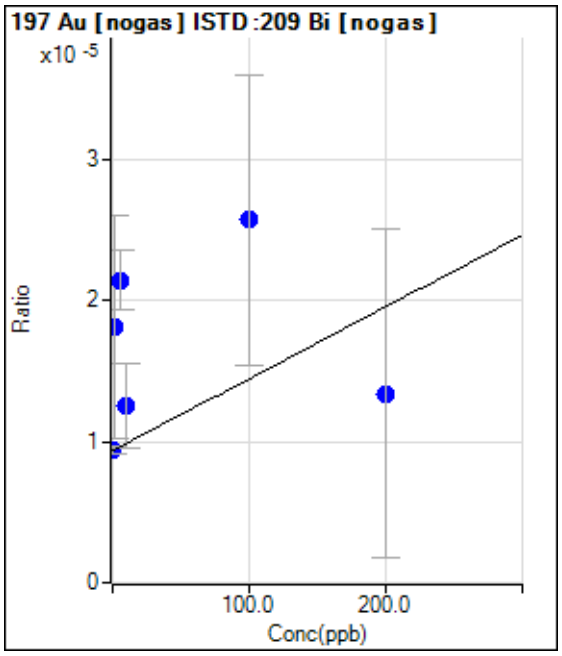
Calibration for 021_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	6.67	0.0000	P	86.9
2	☐	2.000	21.067	10.00	0.0000	P	99.8
3	☐	5.000	-20.253	3.33	0.0000	P	173.
4	☐	10.000	81.189	20.00	0.0000	P	88.7
5	☐	100.000	197.342	40.00	0.0000	P	44.4
6	☐	200.000	148.210	30.00	0.0000	P	36.9
7	☐	1.000					

y = 1.5708E-007 * x + 6.1124E-006
R = 0.7744
DL = 101.4
BEC = 38.91

Weight: <None>
Min Conc: <None>

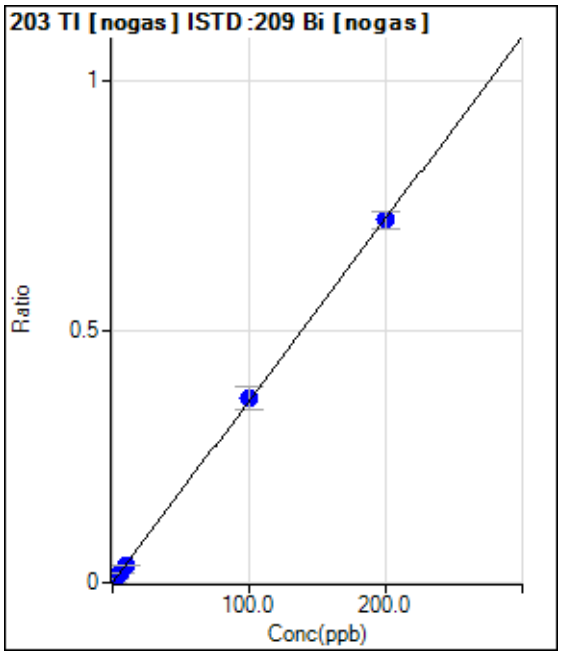


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	10.00	0.0000	P	6.0
2	☐	2.000	172.637	20.00	0.0000	P	86.8
3	☐	5.000	236.856	23.33	0.0000	P	19.9
4	☐	10.000	62.644	13.33	0.0000	P	47.8
5	☐	100.000	320.754	26.67	0.0000	P	80.0
6	☐	200.000	79.488	13.33	0.0000	P	173.
7	☐	1.000					

y = 5.1033E-008 * x + 9.3727E-006
R = 0.0823
DL = 32.85
BEC = 183.7

Weight: <None>
Min Conc: <None>

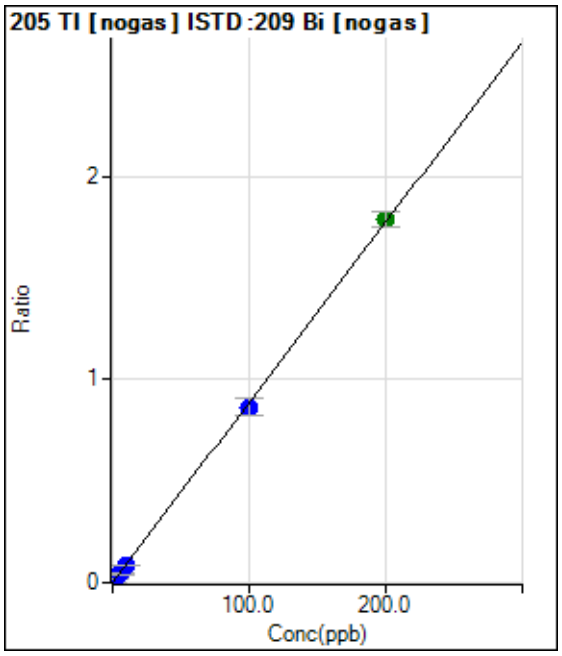
Calibration for 021_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	36.67	0.0000	P	34.1
2	☐	2.000	1.950	7698.67	0.0071	P	9.6
3	☐	5.000	5.064	19842.65	0.0184	P	5.8
4	☐	10.000	9.671	37648.41	0.0351	P	5.2
5	☐	100.000	101.416	387957.37	0.3675	P	11.6
6	☐	200.000	199.308	743638.35	0.7222	P	4.6
7	☐	1.000					

y = 0.0036 * x + 3.4519E-005
R = 1.0000
DL = 0.009759
BEC = 0.009527

Weight: <None>
Min Conc: <None>

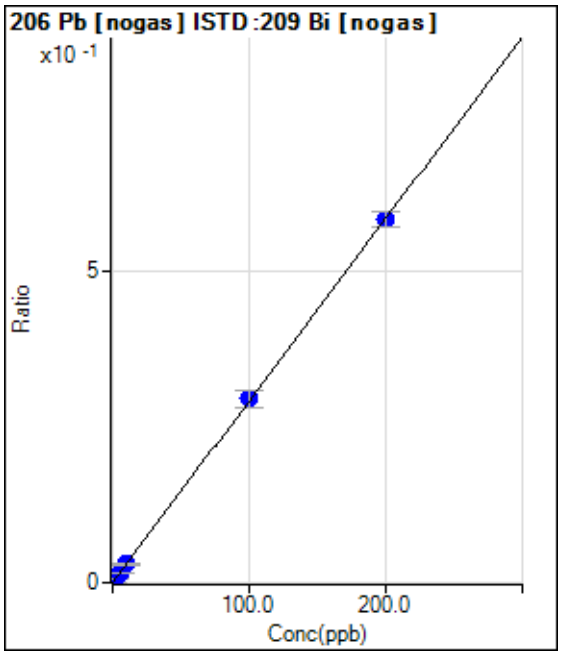


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	46.67	0.0000	P	56.5
2	☐	2.000	1.884	18184.03	0.0168	P	3.0
3	☐	5.000	4.862	46585.48	0.0432	P	6.5
4	☐	10.000	9.446	89929.77	0.0838	P	6.0
5	☐	100.000	97.317	911781.84	0.8631	P	10.0
6	☐	200.000	201.374	1839073.77	1.7860	A	4.2
7	☐	1.000					

y = 0.0089 * x + 4.4529E-005
R = 0.9999
DL = 0.00851
BEC = 0.005021

Weight: <None>
Min Conc: <None>

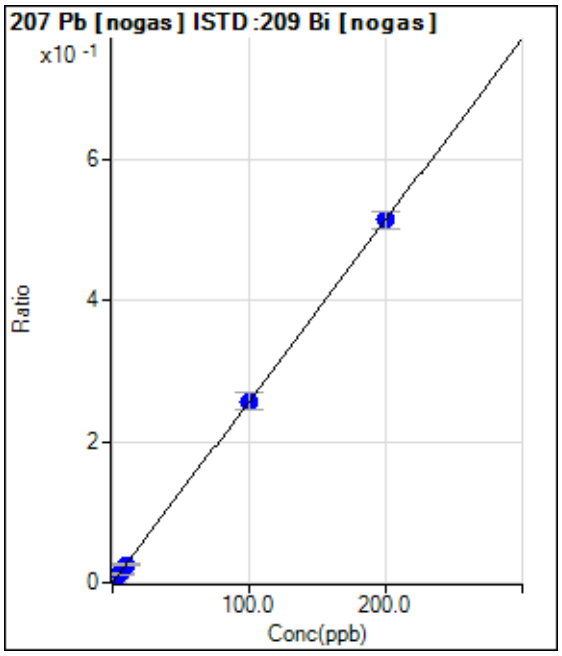
Calibration for 021_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	100.00	0.0001	P	45.3
2	☐	2.000	1.992	6408.06	0.0059	P	7.1
3	☐	5.000	4.929	15634.62	0.0145	P	5.4
4	☐	10.000	10.100	31718.69	0.0296	P	8.0
5	☐	100.000	101.037	312009.87	0.2952	P	8.8
6	☐	200.000	199.478	599947.12	0.5827	P	4.3
7	☐	1.000					

y = 0.0029 * x + 9.2284E-005
R = 1.0000
DL = 0.04293
BEC = 0.0316

Weight: <None>
Min Conc: <None>

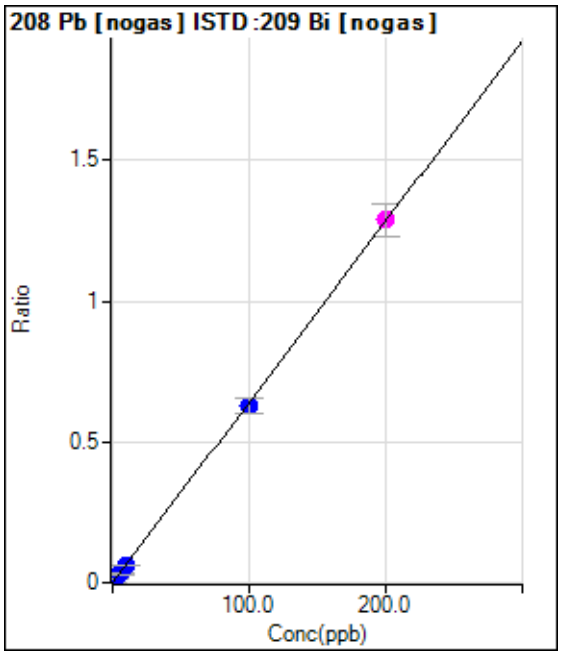


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	103.33	0.0001	P	25.1
2	☐	2.000	1.996	5661.11	0.0052	P	6.5
3	☐	5.000	4.842	13519.43	0.0125	P	6.1
4	☐	10.000	9.696	26789.63	0.0250	P	8.0
5	☐	100.000	100.010	271440.70	0.2569	P	9.5
6	☐	200.000	200.014	528807.92	0.5136	P	4.7
7	☐	1.000					

y = 0.0026 * x + 9.7156E-005
R = 1.0000
DL = 0.02853
BEC = 0.03784

Weight: <None>
Min Conc: <None>

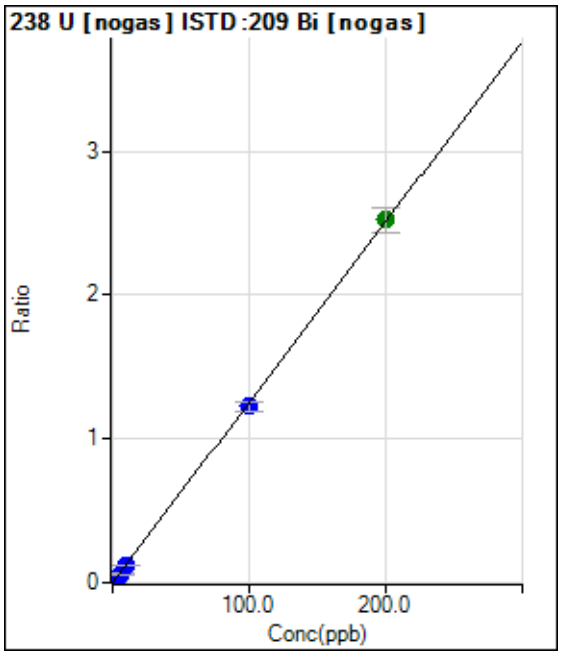
Calibration for 021_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	206.67	0.0002	P	28.8
2	☐	2.000	1.953	13779.53	0.0127	P	8.8
3	☐	5.000	4.800	33388.85	0.0310	P	8.1
4	☐	10.000	9.567	65997.25	0.0615	P	6.3
5	☐	100.000	98.104	665038.49	0.6291	P	8.7
6	☐	200.000	200.975	1325318.55	1.2885	M	8.9
7	☐	1.000					

y = 0.0064 * x + 1.9155E-004
R = 0.9999
DL = 0.02584
BEC = 0.02988

Weight: <None>
Min Conc: <None>

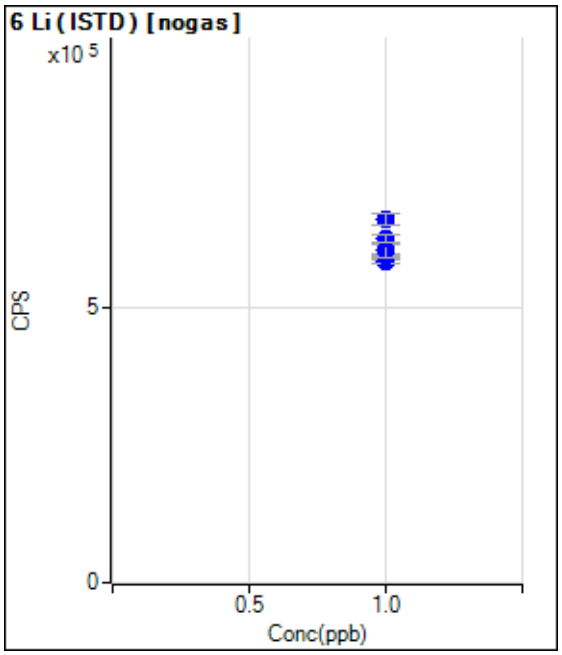


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	56.67	0.0001	P	47.6
2	☐	2.000	1.862	25371.13	0.0234	P	7.9
3	☐	5.000	4.627	62650.65	0.0581	P	7.6
4	☐	10.000	9.586	128973.09	0.1203	P	7.5
5	☐	100.000	97.646	1296815.81	1.2246	P	5.8
6	☐	200.000	201.208	2596683.08	2.5233	A	6.8
7	☐	1.000					

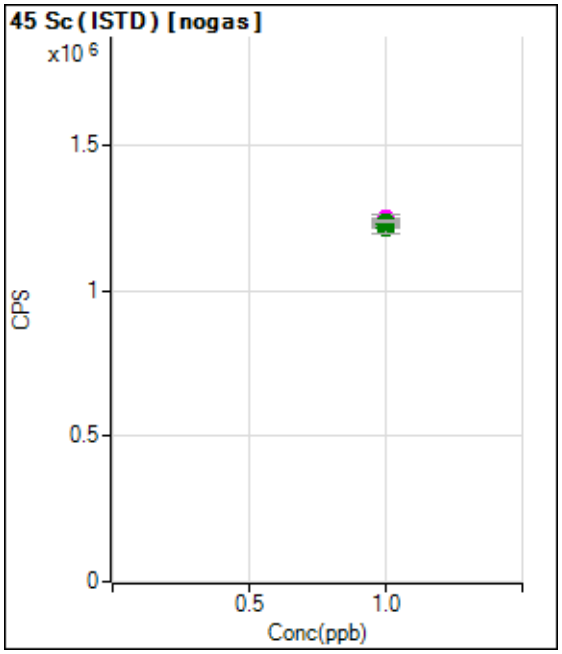
y = 0.0125 * x + 5.3901E-005
R = 0.9999
DL = 0.006134
BEC = 0.004298

Weight: <None>
Min Conc: <None>

Calibration for 021_ICV.d

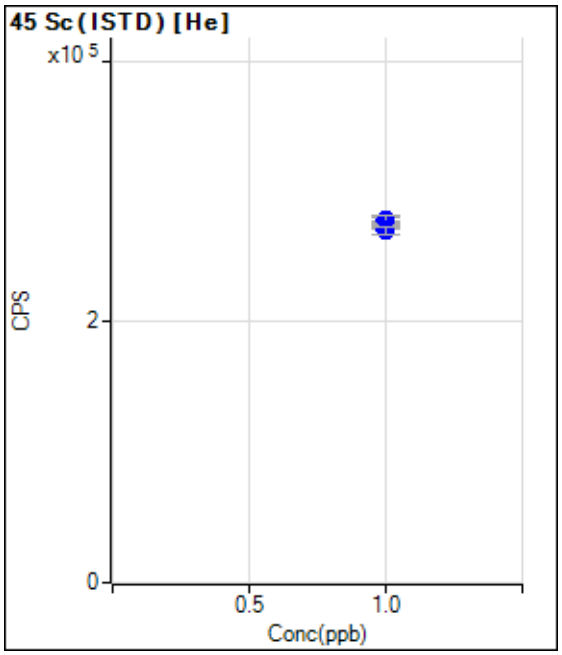


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		581094.41		P	1.1
2	☐	1.000		593525.93		P	0.7
3	☐	1.000		602731.33		P	3.3
4	☐	1.000		602129.48		P	4.5
5	☐	1.000		623184.07		P	2.3
6	☐	1.000		658160.44		P	3.2
7	☐	1.000					

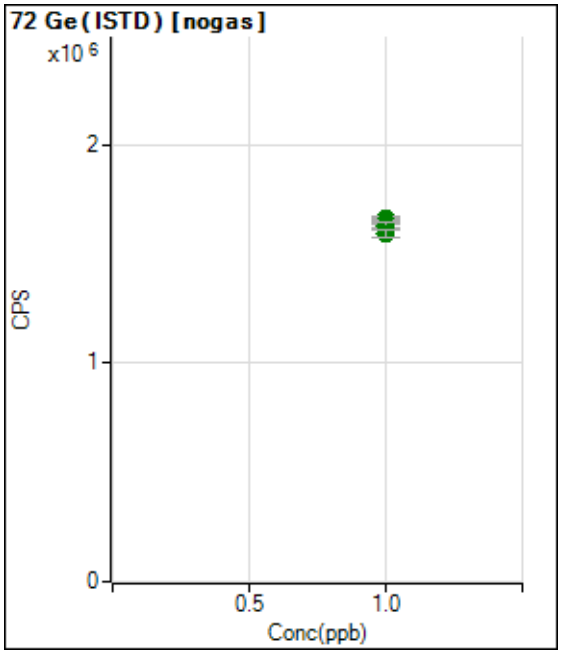


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		1227341.05		A	1.4
2	☐	1.000		1245708.73		M	2.5
3	☐	1.000		1235884.72		M	2.2
4	☐	1.000		1230342.79		A	2.6
5	☐	1.000		1216077.46		A	3.0
6	☐	1.000		1236205.82		A	0.7
7	☐	1.000					

Calibration for 021_ICV.d

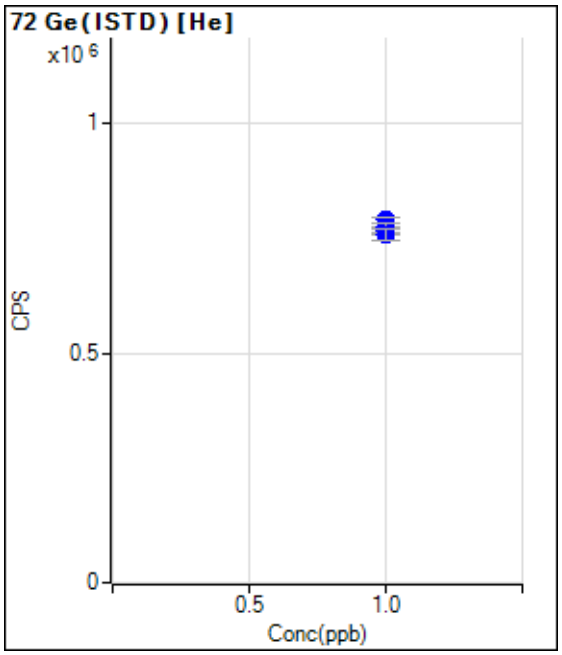


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		278180.73		P	1.1
2	☐	1.000		274619.75		P	2.1
3	☐	1.000		275580.89		P	0.2
4	☐	1.000		277394.26		P	3.0
5	☐	1.000		271004.86		P	2.7
6	☐	1.000		269147.66		P	2.2
7	☐	1.000					

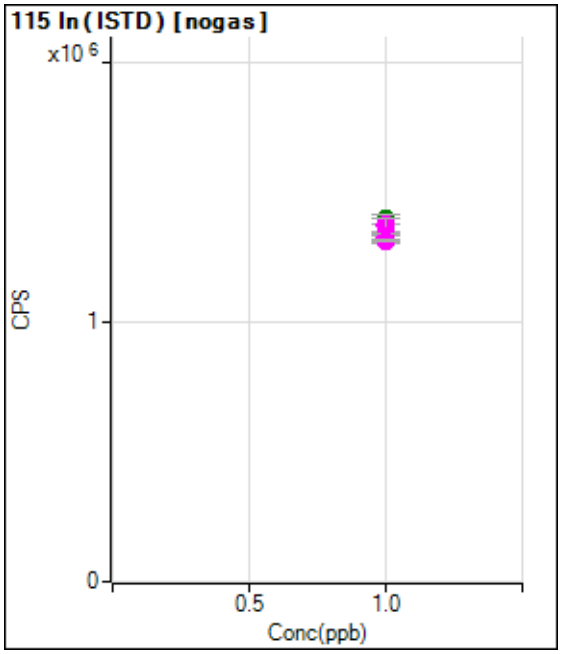


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		1658792.27		A	0.8
2	☐	1.000		1655826.49		A	1.5
3	☐	1.000		1633871.22		A	1.5
4	☐	1.000		1644580.76		A	0.8
5	☐	1.000		1626751.69		A	2.4
6	☐	1.000		1594015.81		A	2.3
7	☐	1.000					

Calibration for 021_ICV.d

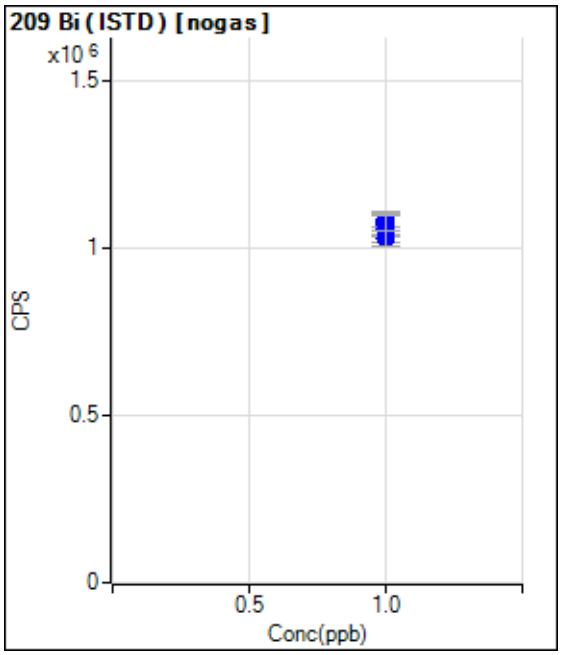


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		766661.29		P	1.6
2	☐	1.000		789547.90		P	1.5
3	☐	1.000		764049.00		P	1.3
4	☐	1.000		769432.02		P	3.2
5	☐	1.000		773125.12		P	2.7
6	☐	1.000		757586.13		P	3.0
7	☐	1.000					



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		1398609.77		A	2.5
2	☐	1.000		1370611.54		M	4.7
3	☐	1.000		1376426.07		M	4.1
4	☐	1.000		1335757.12		M	0.4
5	☐	1.000		1325889.59		M	2.7
6	☐	1.000		1315440.21		M	1.0
7	☐	1.000					

Calibration for 021_ICV.d



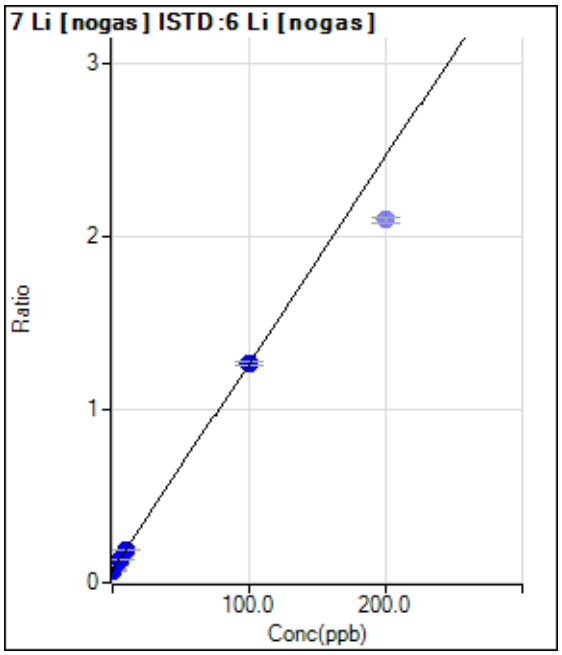
	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		1069547.22		P	6.2
2	☐	1.000		1086170.76		P	4.2
3	☐	1.000		1080851.86		P	4.5
4	☐	1.000		1075464.62		P	6.3
5	☐	1.000		1061726.96		P	7.6
6	☐	1.000		1030857.46		P	4.1
7	☐	1.000					

Calibration for 200_ICV.d

Batch Folder: C:\Agilent\ICPMH\1\DATA\122118A.b\
Analysis File: 122118A.batch.bin
DA Date-Time: 12/21/2018 11:16:05 PM
Calibration Title:
Calibration Method: External Calibration
VIS Interpolation Fit:

Level	Standard Data File	Sample Name	Acq. Date-Time
1	193CALB.d	CAL BLK	12/21/2018 10:57:14 PM
2	194CALS.d	2/10/200	12/21/2018 10:59:28 PM
3	195CALS.d	5/25/500	12/21/2018 11:01:44 PM
4	196CALS.d	10/50/1000	12/21/2018 11:03:58 PM
5	197CALS.d	100/500/10K	12/21/2018 11:06:14 PM
6	198CALS.d	200/1000/20K	12/21/2018 11:08:28 PM
7			

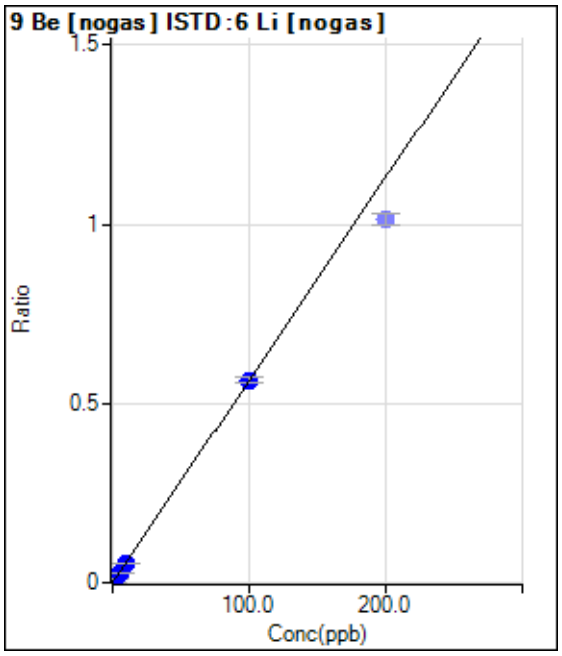
Calibration for 200_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	22664.33	0.0718	P	2.8
2	☐	2.000	2.075	30605.70	0.0966	P	0.6
3	☐	5.000	5.016	41884.82	0.1318	P	3.2
4	☐	10.000	9.578	59382.66	0.1864	P	2.6
5	☐	100.000	100.040	416196.47	1.2685	P	1.0
6	☑	200.000		698608.27	2.0993	P	1.7
7	☐	1.000					

y = 0.0120 * x + 0.0718
R = 1.0000
DL = 0.5106
BEC = 6

Weight: <None>
Min Conc: <None>

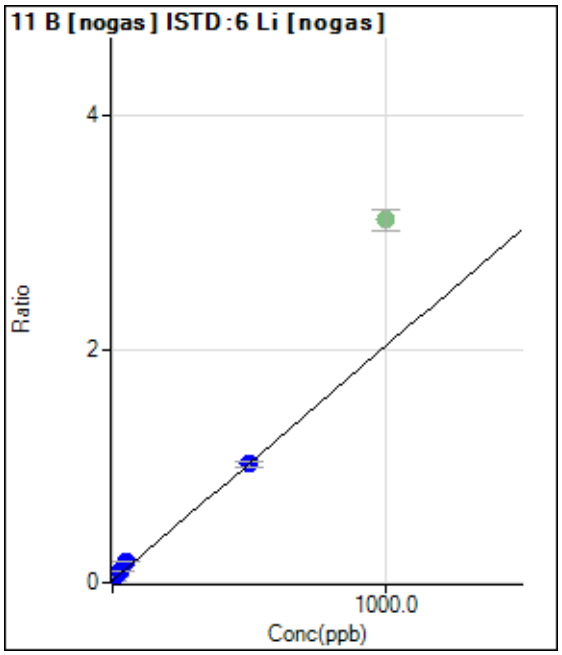


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	10.00	0.0000	P	100.
2	☐	2.000	2.158	3870.47	0.0122	P	1.5
3	☐	5.000	5.009	8995.66	0.0283	P	0.7
4	☐	10.000	9.708	17478.43	0.0548	P	2.4
5	☐	100.000	100.026	185254.88	0.5647	P	2.8
6	☑	200.000		336688.40	1.0120	P	3.1
7	☐	1.000					

y = 0.0056 * x + 3.1988E-005
R = 1.0000
DL = 0.0171
BEC = 0.005666

Weight: <None>
Min Conc: <None>

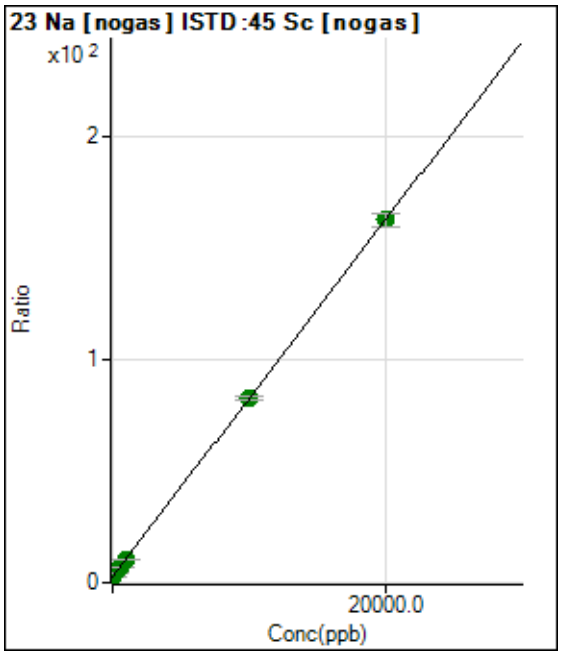
Calibration for 200_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	6151.12	0.0195	P	5.5
2	☐	10.000	16.082	16397.57	0.0518	P	3.1
3	☐	25.000	39.981	31697.61	0.0998	P	1.4
4	☐	50.000	79.756	57228.92	0.1796	P	3.0
5	☐	500.000	496.154	333155.51	1.0157	P	4.5
6	☑	1000.000		1033862.49	3.1089	A	5.9
7	☐	5.000					

y = 0.0020 * x + 0.0195
R = 0.9984
DL = 1.601
BEC = 9.705

Weight: <None>
Min Conc: <None>

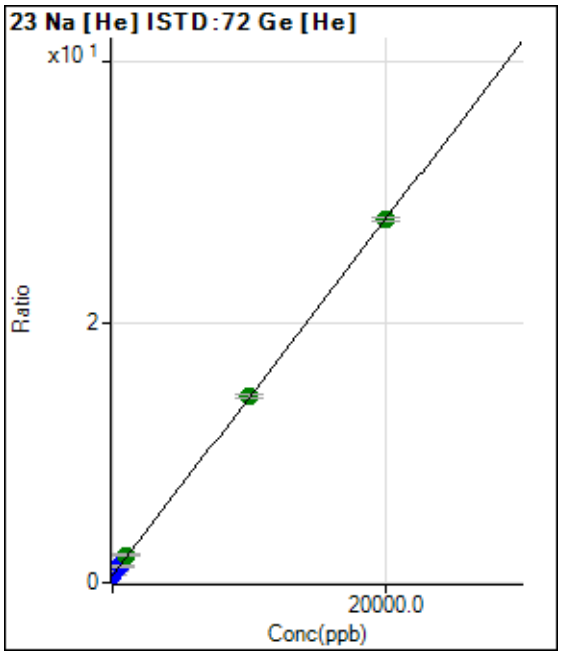


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	2479605.26	2.6960	A	3.2
2	☐	200.000	213.531	4041273.01	4.4076	A	2.4
3	☐	500.000	484.210	5983490.89	6.5772	A	2.2
4	☐	1000.000	983.817	9311185.11	10.5818	A	2.5
5	☐	10000.00	10006.963	74661435.00	82.9070	A	1.6
6	☐	20000.00	19997.587	137860944.7	162.987	A	4.0
7	☐	100.000					

y = 0.0080 * x + 2.6960
R = 1.0000
DL = 31.94
BEC = 336.3

Weight: <None>
Min Conc: <None>

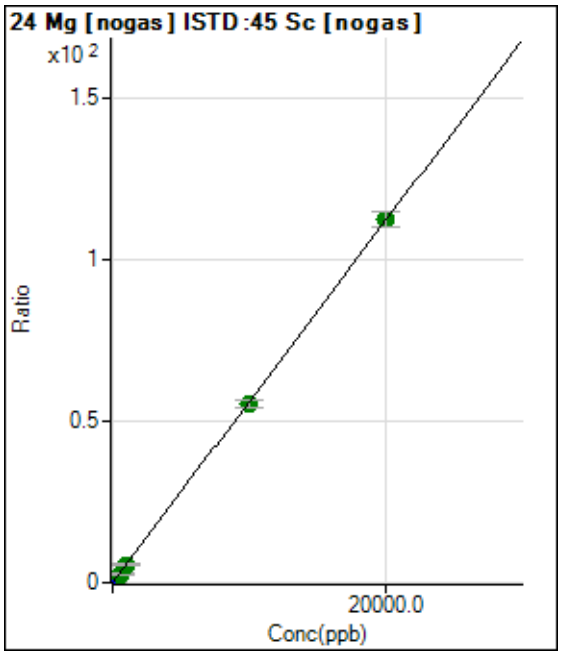
Calibration for 200_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	369616.87	0.5522	P	0.8
2	☐	200.000	223.442	579848.65	0.8578	P	4.3
3	☐	500.000	516.768	854676.89	1.2589	P	2.3
4	☐	1000.000	1129.218	1351376.28	2.0966	A	5.0
5	☐	10000.00	10049.825	9748895.27	14.2973	A	1.8
6	☐	20000.00	19967.973	18154403.06	27.8624	A	1.2
7	☐	100.000					

y = 0.0014 * x + 0.5522
R = 1.0000
DL = 9.437
BEC = 403.7

Weight: <None>
Min Conc: <None>

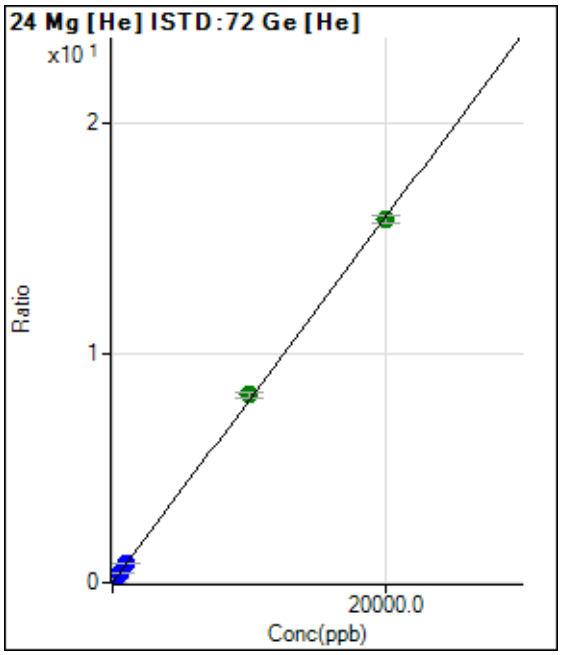


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	5468.64	0.0059	P	12.0
2	☐	200.000	192.356	993329.52	1.0831	P	1.1
3	☐	500.000	476.779	2434610.99	2.6758	A	1.2
4	☐	1000.000	981.938	4842982.40	5.5046	A	5.6
5	☐	10000.00	9889.140	49877781.32	55.3833	A	4.4
6	☐	20000.00	20056.990	94975383.37	112.321	A	4.3
7	☐	100.000					

y = 0.0056 * x + 0.0059
R = 1.0000
DL = 0.3798
BEC = 1.059

Weight: <None>
Min Conc: <None>

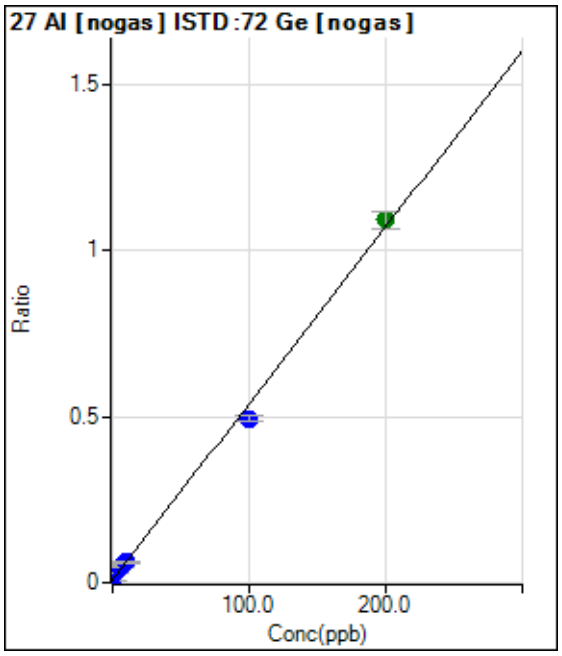
Calibration for 200_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	743.36	0.0011	P	28.1
2	☐	200.000	205.575	111470.65	0.1648	P	4.9
3	☐	500.000	503.313	272731.29	0.4018	P	6.5
4	☐	1000.000	1055.650	542587.41	0.8416	P	3.9
5	☐	10000.00	10271.313	5579214.60	8.1792	A	3.9
6	☐	20000.00	19861.423	10304449.22	15.8149	A	1.9
7	☐	100.000					

y = 7.9621E-004 * x + 0.0011
R = 0.9999
DL = 1.175
BEC = 1.392

Weight: <None>
Min Conc: <None>

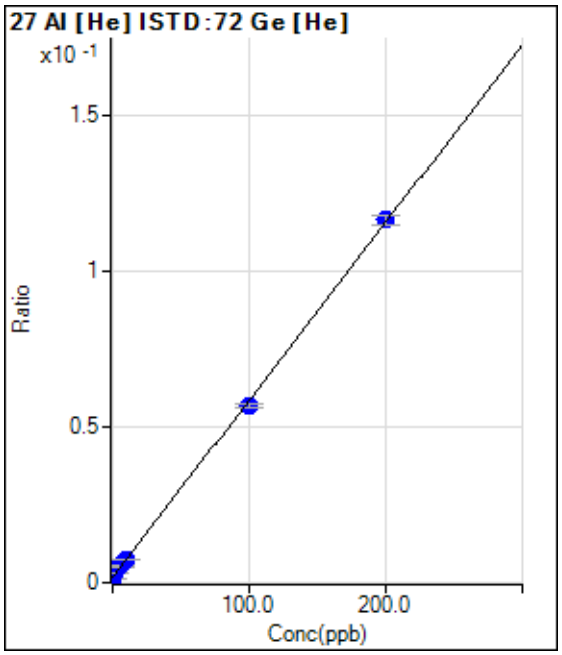


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	11443.76	0.0084	P	2.4
2	☐	2.000	3.663	38293.40	0.0278	P	10.5
3	☐	5.000	7.540	65145.44	0.0484	P	4.0
4	☐	10.000	9.897	82173.39	0.0609	P	4.8
5	☐	100.000	91.591	645199.55	0.4950	P	3.8
6	☐	200.000	204.129	1385720.81	1.0929	A	5.0
7	☐	1.000					

y = 0.0053 * x + 0.0084
R = 0.9986
DL = 0.1141
BEC = 1.574

Weight: <None>
Min Conc: <None>

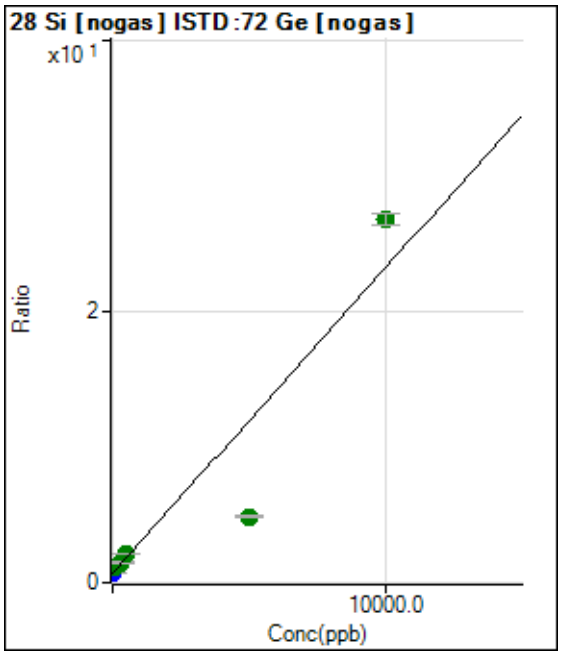
Calibration for 200_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-0.860	766.70	0.0011	P	12.3
2	☐	2.000	2.831	2200.17	0.0032	P	8.8
3	☐	5.000	6.408	3583.77	0.0053	P	3.2
4	☐	10.000	10.278	4824.07	0.0075	P	5.9
5	☐	100.000	96.801	38668.83	0.0567	P	2.6
6	☐	200.000	201.542	75813.48	0.1163	P	2.5
7	☐	1.000					

y = 5.6883E-004 * x + 0.0016
R = 0.9998
DL = 0.7412
BEC = 2.872

Weight: <None>
Min Conc: <None>

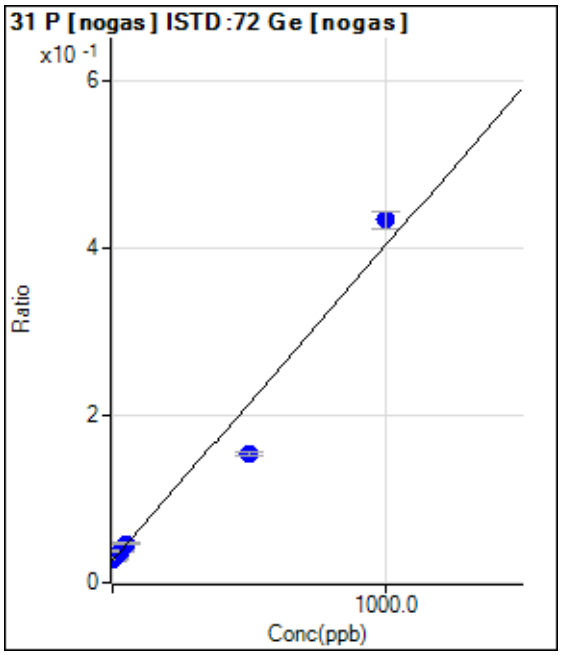


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	958813.82	0.7004	P	1.0
2	☐	100.000	179.495	1522581.12	1.1049	A	5.7
3	☐	250.000	340.843	1976116.27	1.4686	A	3.0
4	☐	500.000	622.554	2833358.40	2.1034	A	1.7
5	☐	5000.000	1858.033	6369974.90	4.8877	A	3.7
6	☐	10000.00	11561.790	33940925.33	26.7559	A	3.1
7	☐	50.000					

y = 0.0023 * x + 0.7004
R = 0.9399
DL = 9.519
BEC = 310.8

Weight: <None>
Min Conc: <None>

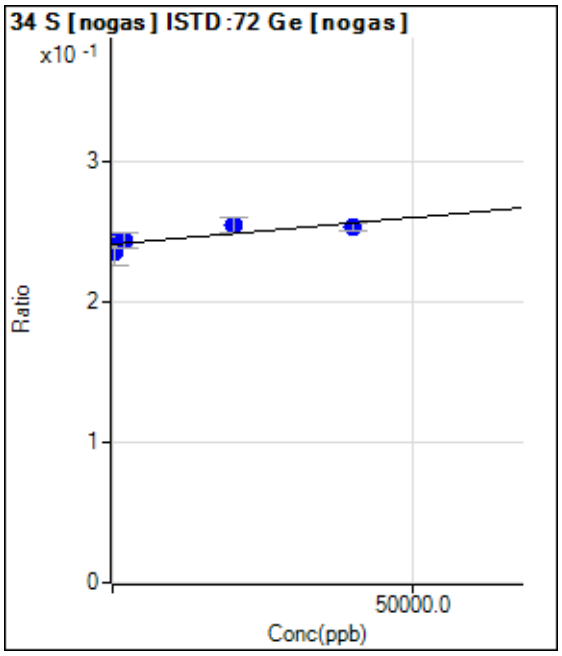
Calibration for 200_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	36276.43	0.0265	P	2.9
2	☐	10.000	8.810	41073.15	0.0298	P	7.4
3	☐	25.000	29.202	50480.16	0.0375	P	2.8
4	☐	50.000	54.805	63513.23	0.0472	P	3.1
5	☐	500.000	335.984	199640.93	0.1532	P	3.1
6	☐	1000.000	1081.675	550716.53	0.4343	P	5.0
7	☐	5.000					

y = 3.7703E-004 * x + 0.0265
R = 0.9821
DL = 6.143
BEC = 70.29

Weight: <None>
Min Conc: <None>

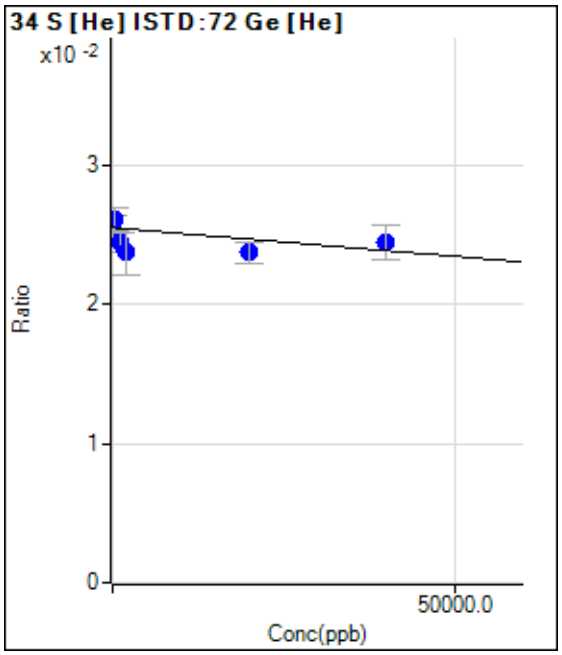


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	330262.61	0.2413	P	0.4
2	☐	400.000	-12936.14	325281.09	0.2363	P	9.0
3	☐	1000.000	5668.369	327574.81	0.2434	P	2.6
4	☐	2000.000	7778.994	328803.54	0.2442	P	4.2
5	☐	20000.00	35771.000	332254.82	0.2549	P	3.8
6	☐	40000.00	31842.203	321564.36	0.2534	P	2.4
7	☐	200.000					

y = 3.8243E-007 * x + 0.2413
R = 0.8337
DL = 7355
BEC = 6.309E+05

Weight: <None>
Min Conc: <None>

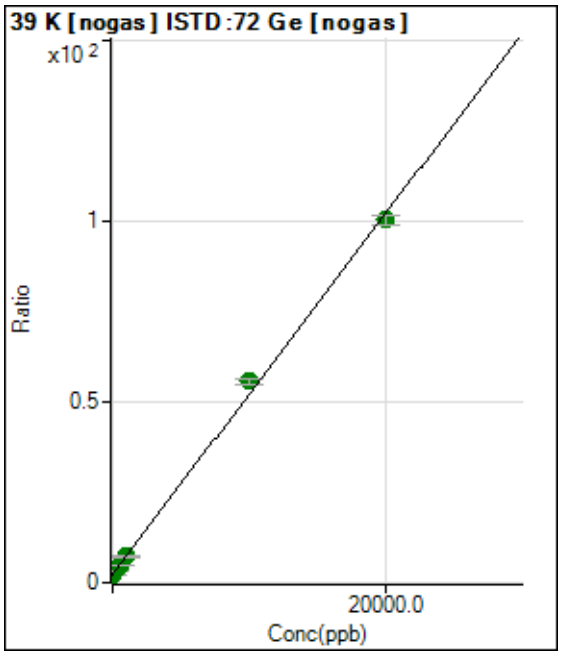
Calibration for 200_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	17044.65	0.0255	P	7.1
2	☐	400.000	-13647.84	17645.51	0.0260	P	6.4
3	☐	1000.000	26087.229	16577.35	0.0244	P	5.6
4	☐	2000.000	42124.093	15309.71	0.0237	P	13.5
5	☐	20000.00	44048.159	16143.71	0.0237	P	6.5
6	☐	40000.00	25483.013	15943.86	0.0244	P	10.1
7	☐	200.000					

y = -4.0967E-008 * x + 0.0255
R = -0.3679
DL = -1.332E+05
BEC = -6.218E+05

Weight: <None>
Min Conc: <None>

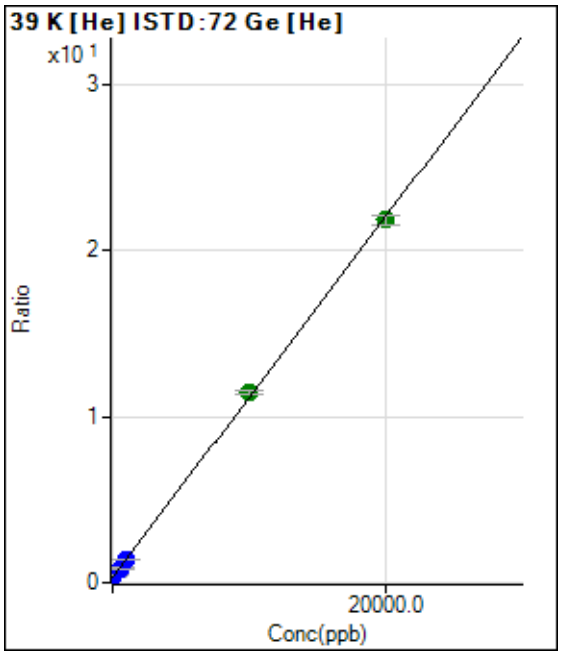


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	3137766.93	2.2923	A	1.5
2	☐	200.000	186.624	4441725.75	3.2243	A	6.4
3	☐	500.000	509.987	6512013.43	4.8390	A	2.5
4	☐	1000.000	998.453	9792809.33	7.2783	A	7.1
5	☐	10000.00	10690.336	72605622.46	55.6767	A	2.5
6	☐	20000.00	19654.793	127422152.8	100.442	A	2.9
7	☐	100.000					

y = 0.0050 * x + 2.2923
R = 0.9991
DL = 20.26
BEC = 459

Weight: <None>
Min Conc: <None>

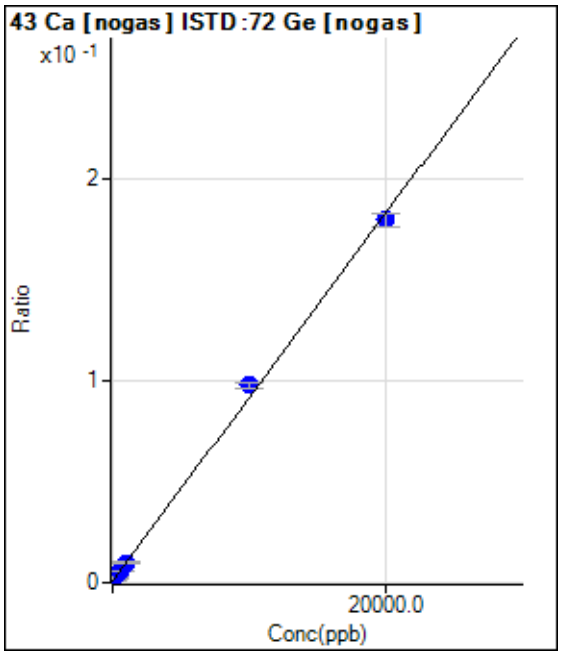
Calibration for 200_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	206200.58	0.3080	P	1.5
2	☐	200.000	198.531	353790.27	0.5234	P	4.9
3	☐	500.000	512.108	586422.44	0.8636	P	1.9
4	☐	1000.000	1005.976	902601.45	1.3993	P	1.6
5	☐	10000.00	10308.328	7833674.88	11.4908	A	1.6
6	☐	20000.00	19845.249	14228046.87	21.8368	A	2.5
7	☐	100.000					

y = 0.0011 * x + 0.3080
R = 0.9998
DL = 12.35
BEC = 283.9

Weight: <None>
Min Conc: <None>

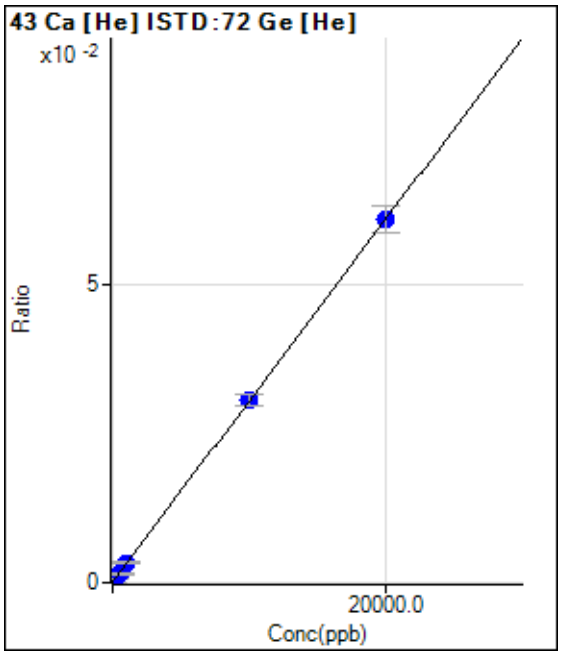


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	990.05	0.0007	P	11.1
2	☐	200.000	186.307	3337.03	0.0024	P	7.4
3	☐	500.000	541.119	7608.47	0.0057	P	6.0
4	☐	1000.000	1003.595	13295.25	0.0099	P	3.8
5	☐	10000.00	10684.192	127929.04	0.0981	P	3.1
6	☐	20000.00	19656.833	228182.77	0.1799	P	3.8
7	☐	100.000					

y = 9.1156E-006 * x + 7.2354E-004
R = 0.9992
DL = 26.47
BEC = 79.37

Weight: <None>
Min Conc: <None>

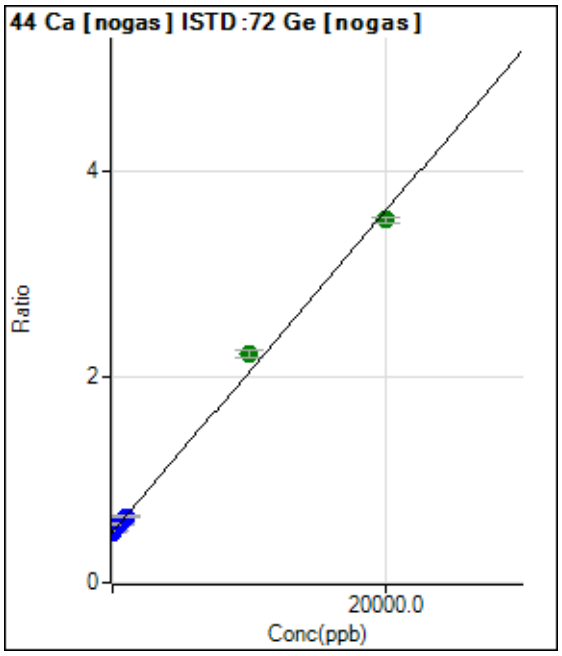
Calibration for 200_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	56.67	0.0001	P	53.4
2	☐	200.000	210.462	490.02	0.0007	P	15.1
3	☐	500.000	481.783	1050.05	0.0015	P	14.3
4	☐	1000.000	1066.467	2140.17	0.0033	P	7.2
5	☐	10000.00	10031.570	20785.95	0.0305	P	6.4
6	☐	20000.00	19981.243	39491.44	0.0607	P	7.3
7	☐	100.000					

y = 3.0325E-006 * x + 8.4428E-005
R = 1.0000
DL = 44.61
BEC = 27.84

Weight: <None>
Min Conc: <None>

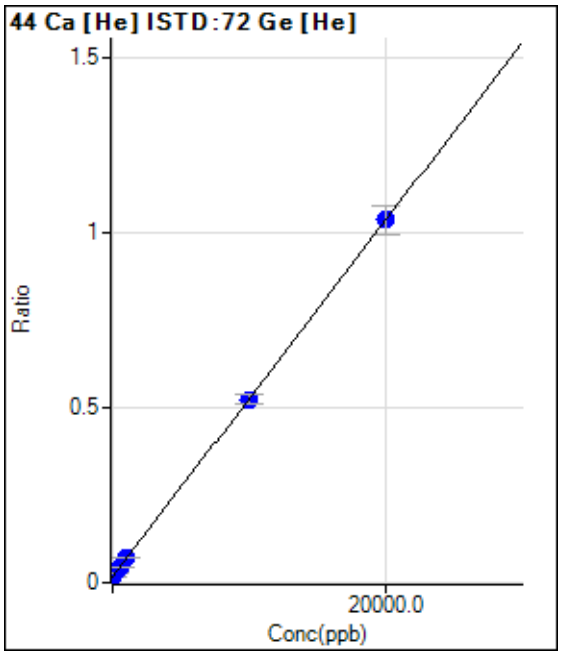


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	672488.09	0.4913	P	1.4
2	☐	200.000	180.720	715638.27	0.5195	P	6.3
3	☐	500.000	538.045	774034.18	0.5752	P	2.5
4	☐	1000.000	955.045	862088.45	0.6402	P	2.6
5	☐	10000.00	11110.441	2897414.02	2.2232	A	3.4
6	☐	20000.00	19446.269	4470161.81	3.5226	A	1.7
7	☐	100.000					

y = 1.5588E-004 * x + 0.4913
R = 0.9978
DL = 133.9
BEC = 3152

Weight: <None>
Min Conc: <None>

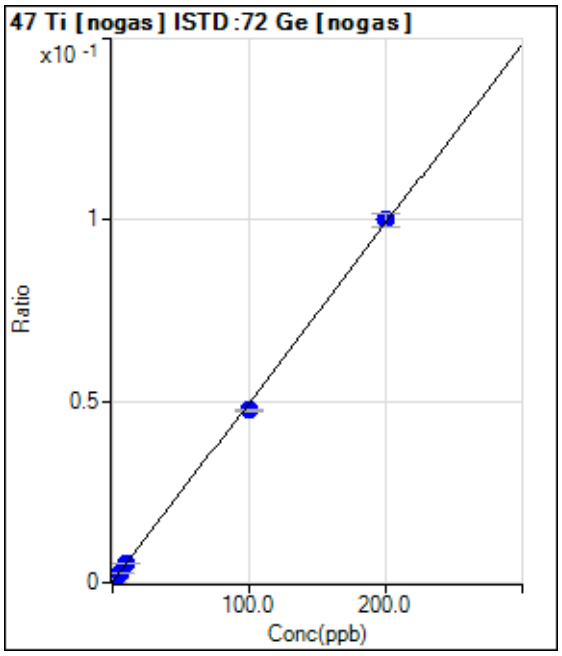
Calibration for 200_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	11417.10	0.0171	P	6.6
2	☐	200.000	216.088	18983.60	0.0281	P	2.3
3	☐	500.000	521.720	29624.96	0.0436	P	3.5
4	☐	1000.000	1074.044	46246.87	0.0718	P	5.3
5	☐	10000.00	9926.240	356094.32	0.5225	P	5.4
6	☐	20000.00	20032.474	674940.34	1.0372	P	7.8
7	☐	100.000					

y = 5.0923E-005 * x + 0.0171
R = 1.0000
DL = 66.54
BEC = 335.1

Weight: <None>
Min Conc: <None>

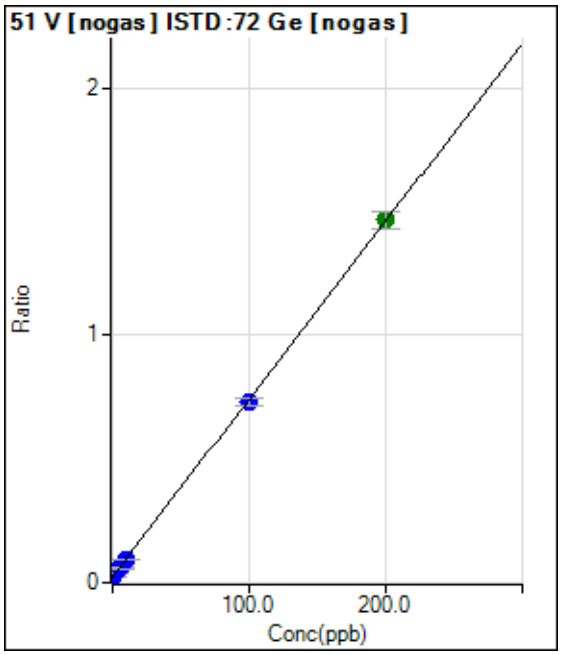


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	280.01	0.0002	P	14.1
2	☐	2.000	1.986	1633.44	0.0012	P	14.2
3	☐	5.000	5.134	3693.79	0.0027	P	5.0
4	☐	10.000	10.448	7228.29	0.0054	P	4.1
5	☐	100.000	95.886	62063.27	0.0476	P	1.1
6	☐	200.000	202.031	126951.19	0.1001	P	3.6
7	☐	1.000					

y = 4.9431E-004 * x + 2.0452E-004
R = 0.9997
DL = 0.1755
BEC = 0.4137

Weight: <None>
Min Conc: <None>

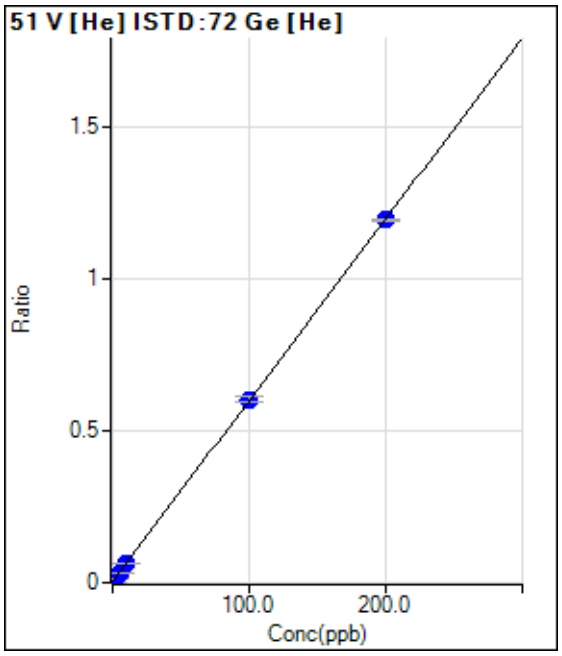
Calibration for 200_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	34205.64	0.0250	P	4.6
2	☐	2.000	2.090	55130.18	0.0400	P	5.9
3	☐	5.000	4.946	81366.02	0.0605	P	7.4
4	☐	10.000	9.653	127054.92	0.0943	P	1.0
5	☐	100.000	98.332	953415.06	0.7310	P	3.4
6	☐	200.000	200.852	1860146.98	1.4670	A	5.1
7	☐	1.000					

y = 0.0072 * x + 0.0250
R = 1.0000
DL = 0.48
BEC = 3.48

Weight: <None>
Min Conc: <None>

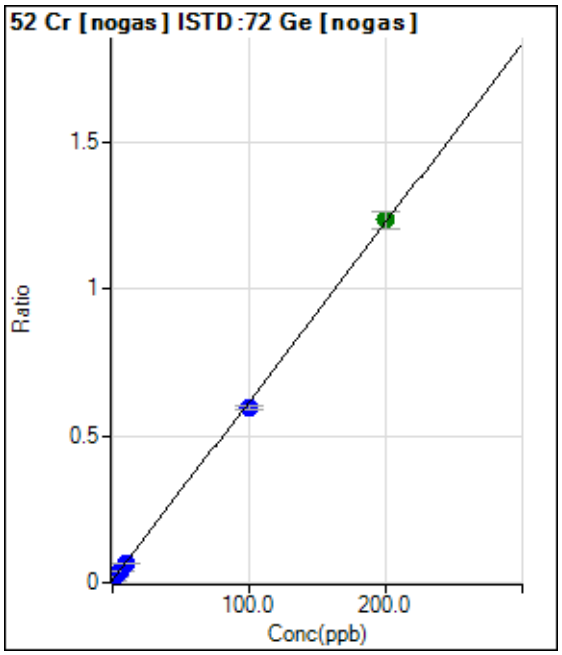


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-0.167	1570.74	0.0023	P	7.2
2	☐	2.000	1.809	9552.56	0.0141	P	2.0
3	☐	5.000	4.688	21241.32	0.0313	P	2.9
4	☐	10.000	10.370	42022.28	0.0652	P	3.3
5	☐	100.000	100.616	411230.29	0.6032	P	3.1
6	☐	200.000	199.683	778082.96	1.1939	P	0.6
7	☐	1.000					

y = 0.0060 * x + 0.0033
R = 1.0000
DL = 0.08541
BEC = 0.5599

Weight: <None>
Min Conc: <None>

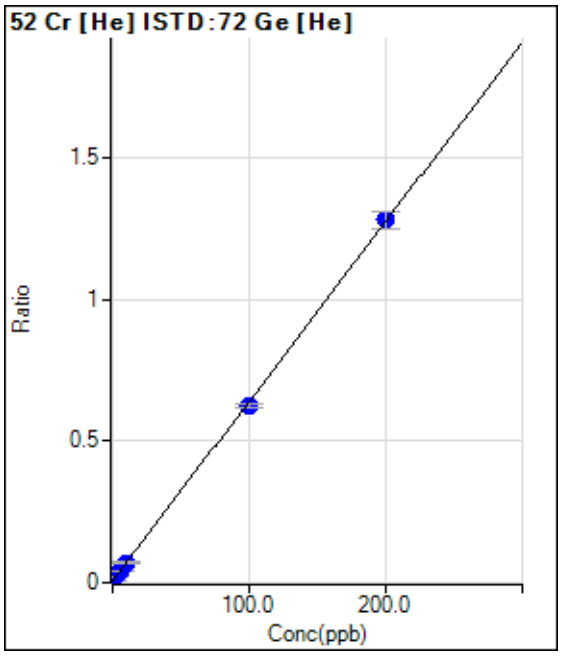
Calibration for 200_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	11403.84	0.0083	P	4.8
2	☐	2.000	1.777	26396.82	0.0191	P	4.0
3	☐	5.000	4.730	49944.70	0.0371	P	3.0
4	☐	10.000	9.630	90183.63	0.0669	P	3.1
5	☐	100.000	96.971	780242.57	0.5985	P	2.2
6	☐	200.000	201.542	1566205.70	1.2348	A	4.8
7	☐	1.000					

y = 0.0061 * x + 0.0083
R = 0.9998
DL = 0.1952
BEC = 1.369

Weight: <None>
Min Conc: <None>

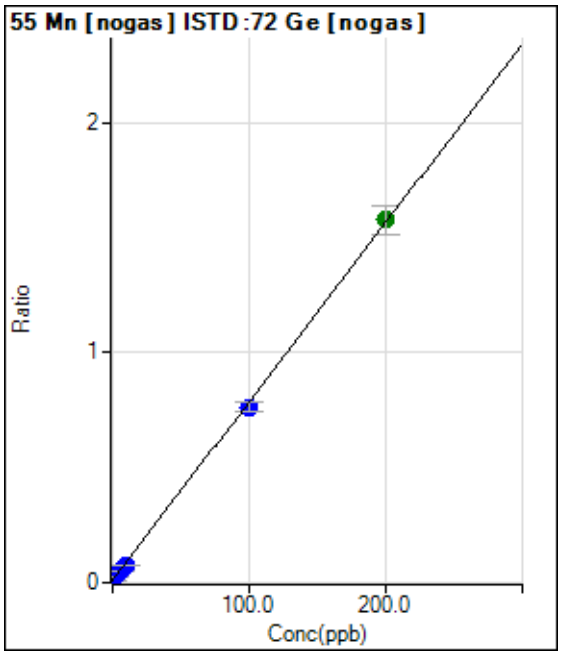


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	4167.22	0.0062	P	4.9
2	☐	2.000	1.903	12401.14	0.0183	P	2.6
3	☐	5.000	5.093	26183.13	0.0386	P	1.2
4	☐	10.000	10.251	46034.04	0.0713	P	4.4
5	☐	100.000	97.747	427395.52	0.6268	P	1.8
6	☐	200.000	201.112	836433.16	1.2830	P	4.4
7	☐	1.000					

y = 0.0063 * x + 0.0062
R = 0.9999
DL = 0.1429
BEC = 0.9809

Weight: <None>
Min Conc: <None>

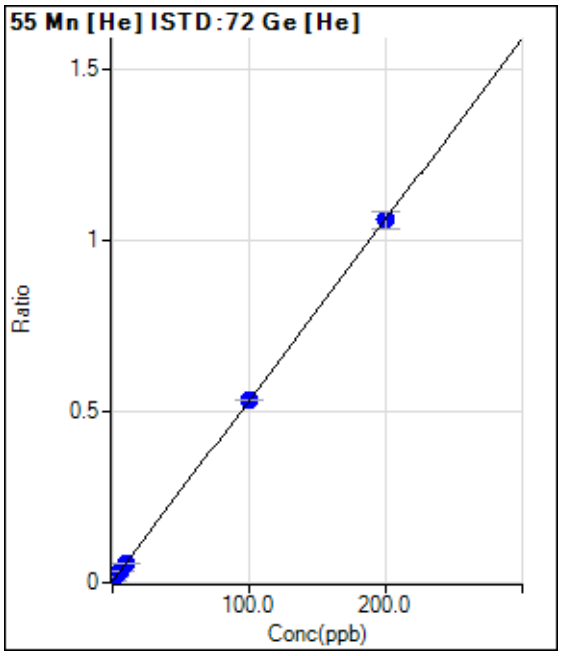
Calibration for 200_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	13939.01	0.0102	P	0.6
2	☐	2.000	1.895	34301.25	0.0249	P	7.0
3	☐	5.000	4.765	63505.62	0.0472	P	2.3
4	☐	10.000	8.794	105725.07	0.0785	P	1.0
5	☐	100.000	96.770	992437.62	0.7617	P	5.4
6	☐	200.000	201.682	1997311.95	1.5764	A	8.3
7	☐	1.000					

y = 0.0078 * x + 0.0102
R = 0.9998
DL = 0.02321
BEC = 1.311

Weight: <None>
Min Conc: <None>

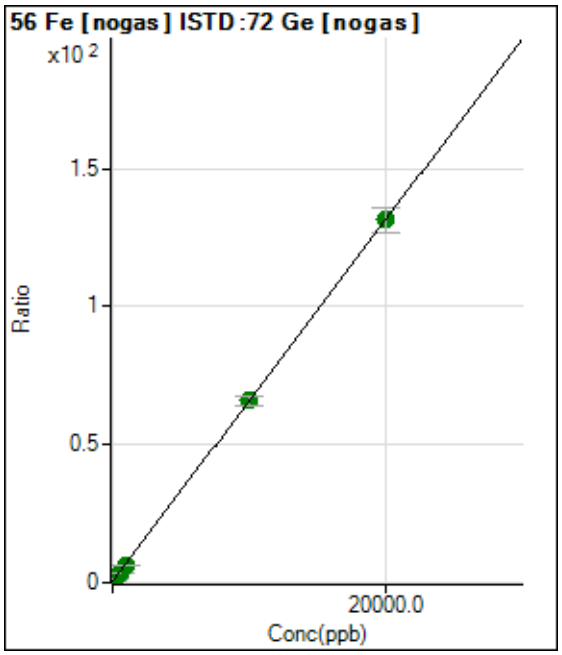


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	2776.94	0.0042	P	6.0
2	☐	2.000	2.224	10766.87	0.0159	P	3.7
3	☐	5.000	5.392	22201.25	0.0327	P	3.2
4	☐	10.000	10.009	36848.78	0.0571	P	2.4
5	☐	100.000	100.512	365630.73	0.5363	P	0.4
6	☐	200.000	199.732	691249.05	1.0615	P	4.9
7	☐	1.000					

y = 0.0053 * x + 0.0042
R = 1.0000
DL = 0.1403
BEC = 0.7839

Weight: <None>
Min Conc: <None>

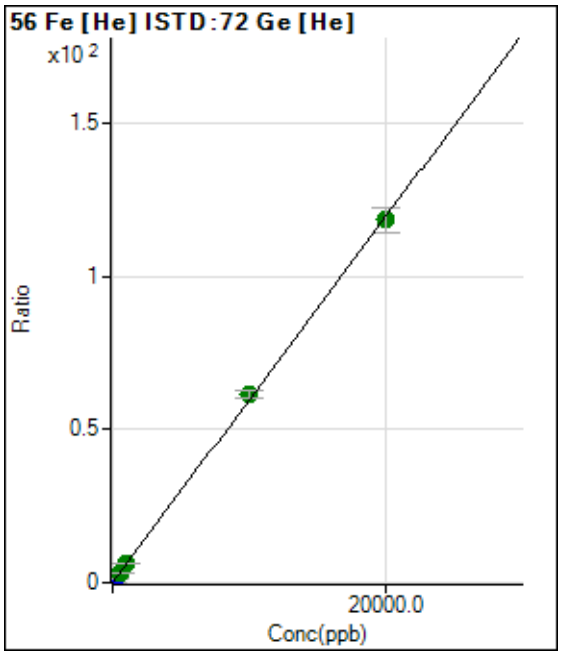
Calibration for 200_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	611073.50	0.4464	P	2.4
2	☐	200.000	193.068	2358186.84	1.7113	A	7.5
3	☐	500.000	469.240	4738182.14	3.5206	A	2.0
4	☐	1000.000	930.042	8811478.06	6.5395	A	0.4
5	☐	10000.00	10008.580	86013668.59	66.0167	A	5.5
6	☐	20000.00	20000.046	166644928.7	131.474	A	6.7
7	☐	100.000					

y = 0.0066 * x + 0.4464
R = 1.0000
DL = 4.98
BEC = 68.14

Weight: <None>
Min Conc: <None>

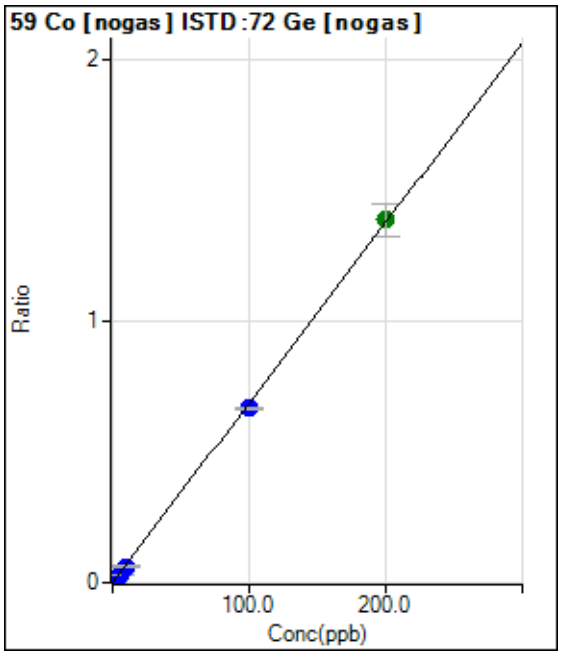


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	15640.42	0.0234	P	5.3
2	☐	200.000	203.755	837020.51	1.2384	P	5.3
3	☐	500.000	520.767	2124346.58	3.1287	A	2.1
4	☐	1000.000	1039.516	4010719.31	6.2221	A	5.2
5	☐	10000.00	10308.620	41919099.38	61.4944	A	3.3
6	☐	20000.00	19843.157	77034148.85	118.349	A	6.6
7	☐	100.000					

y = 0.0060 * x + 0.0234
R = 0.9998
DL = 0.6269
BEC = 3.918

Weight: <None>
Min Conc: <None>

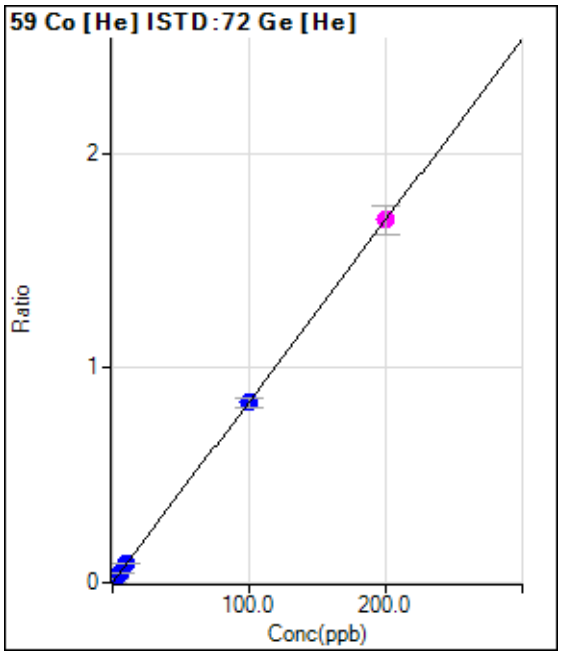
Calibration for 200_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	246.67	0.0002	P	10.0
2	☐	2.000	1.790	17182.17	0.0125	P	7.2
3	☐	5.000	4.555	42341.74	0.0315	P	2.5
4	☐	10.000	8.923	82737.72	0.0615	P	4.6
5	☐	100.000	96.742	866428.09	0.6646	P	0.6
6	☐	200.000	201.696	1754938.47	1.3853	A	9.3
7	☐	1.000					

y = 0.0069 * x + 1.8028E-004
R = 0.9998
DL = 0.007849
BEC = 0.02625

Weight: <None>
Min Conc: <None>

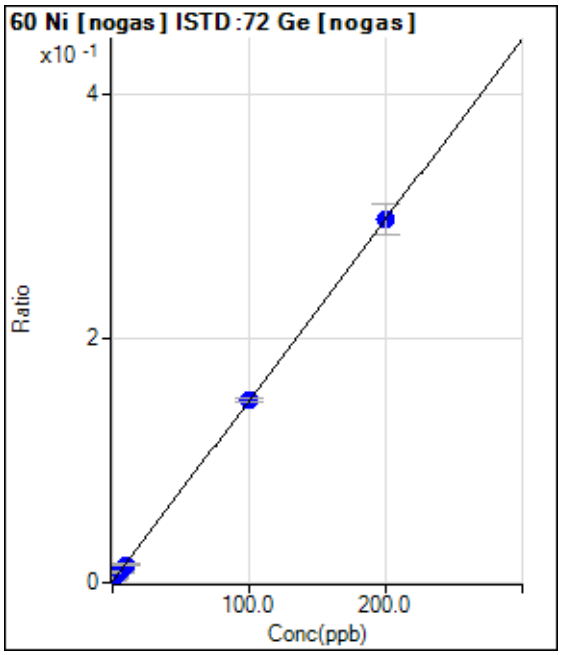


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	100.00	0.0002	P	79.3
2	☐	2.000	2.032	11694.08	0.0173	P	10.6
3	☐	5.000	5.036	28994.55	0.0427	P	2.8
4	☐	10.000	10.660	58133.74	0.0902	P	6.6
5	☐	100.000	99.528	573218.05	0.8412	P	5.5
6	☐	200.000	200.202	1100994.44	1.6919	M	7.8
7	☐	1.000					

y = 0.0084 * x + 1.5027E-004
R = 1.0000
DL = 0.0423
BEC = 0.01778

Weight: <None>
Min Conc: <None>

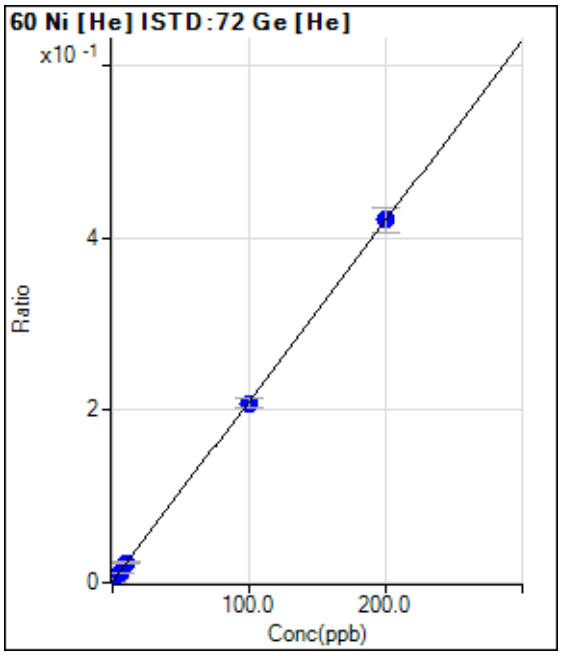
Calibration for 200_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.132	1630.11	0.0012	P	11.3
2	☐	2.000	2.100	5661.01	0.0041	P	9.1
3	☐	5.000	5.365	12037.72	0.0090	P	9.0
4	☐	10.000	9.299	19898.20	0.0148	P	6.4
5	☐	100.000	100.158	194969.27	0.1495	P	2.1
6	☐	200.000	199.946	376948.67	0.2975	P	8.4
7	☐	1.000					

y = 0.0015 * x + 9.9572E-004
R = 1.0000
DL = 0.2734
BEC = 0.6714

Weight: <None>
Min Conc: <None>

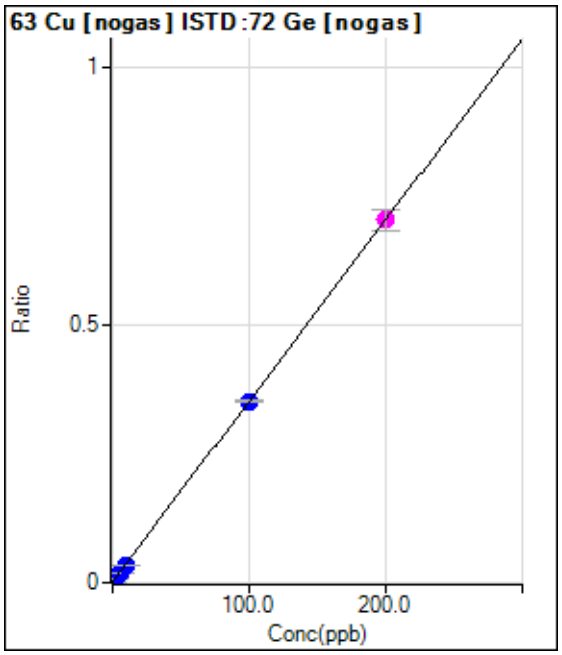


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-0.104	713.36	0.0011	P	2.3
2	☐	2.000	2.156	3913.85	0.0058	P	7.6
3	☐	5.000	5.013	7992.00	0.0118	P	5.1
4	☐	10.000	10.510	14999.90	0.0233	P	6.7
5	☐	100.000	98.906	141861.31	0.2082	P	4.6
6	☐	200.000	200.520	273822.69	0.4207	P	6.9
7	☐	1.000					

y = 0.0021 * x + 0.0013
R = 1.0000
DL = 0.03527
BEC = 0.614

Weight: <None>
Min Conc: <None>

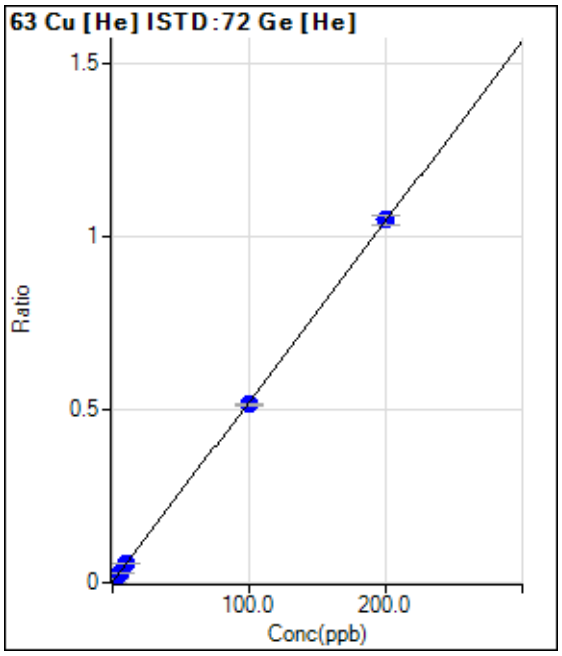
Calibration for 200_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1996.81	0.0015	P	4.5
2	☐	2.000	1.925	11337.22	0.0082	P	5.5
3	☐	5.000	4.882	25038.57	0.0186	P	9.5
4	☐	10.000	9.524	47074.51	0.0349	P	1.9
5	☐	100.000	99.915	460032.53	0.3528	P	1.6
6	☐	200.000	200.070	893910.33	0.7049	M	5.5
7	☐	1.000					

y = 0.0035 * x + 0.0015
R = 1.0000
DL = 0.05546
BEC = 0.4148

Weight: <None>
Min Conc: <None>

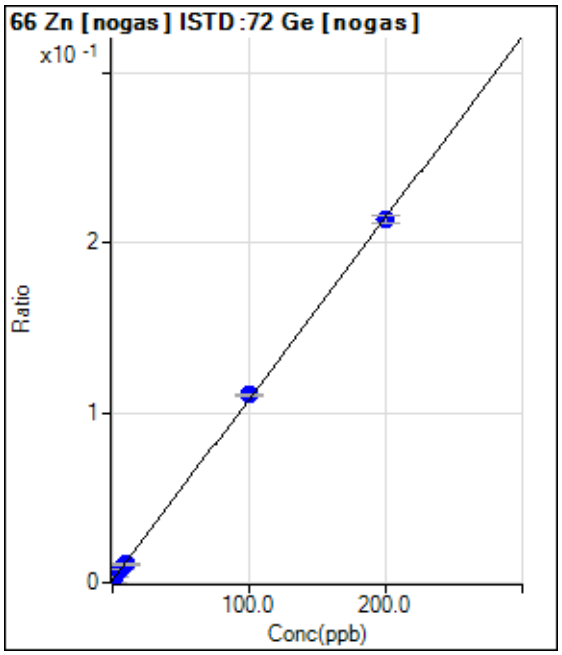


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.011	1006.72	0.0015	P	17.3
2	☐	2.000	2.165	8608.91	0.0128	P	9.0
3	☐	5.000	4.993	18680.37	0.0275	P	4.0
4	☐	10.000	10.689	36922.55	0.0573	P	2.5
5	☐	100.000	98.355	351130.74	0.5150	P	1.4
6	☐	200.000	200.787	684098.58	1.0498	P	2.6
7	☐	1.000					

y = 0.0052 * x + 0.0014
R = 0.9999
DL = 0.1498
BEC = 0.277

Weight: <None>
Min Conc: <None>

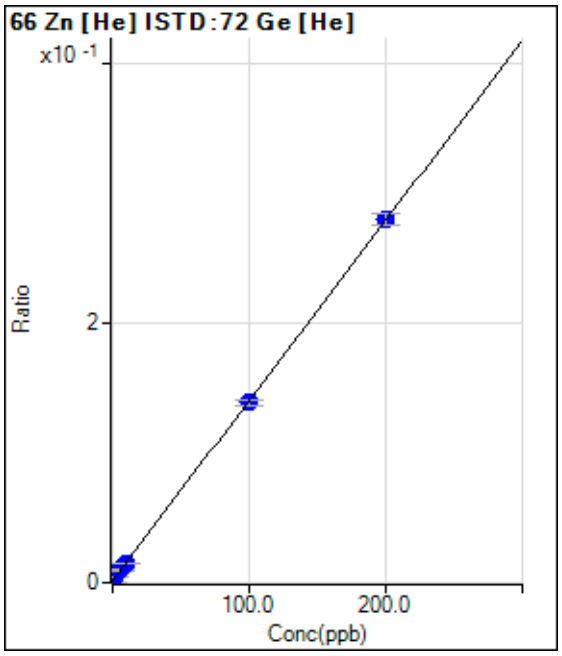
Calibration for 200_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-0.908	580.02	0.0004	P	8.1
2	☐	2.000	1.931	4774.08	0.0035	P	2.9
3	☐	5.000	5.891	10346.54	0.0077	P	2.6
4	☐	10.000	8.859	14619.78	0.0109	P	3.2
5	☐	100.000	102.382	144358.06	0.1107	P	1.2
6	☐	200.000	198.845	271125.97	0.2137	P	2.3
7	☐	1.000					

y = 0.0011 * x + 0.0014
R = 0.9999
DL = 0.09645
BEC = 1.305

Weight: <None>
Min Conc: <None>

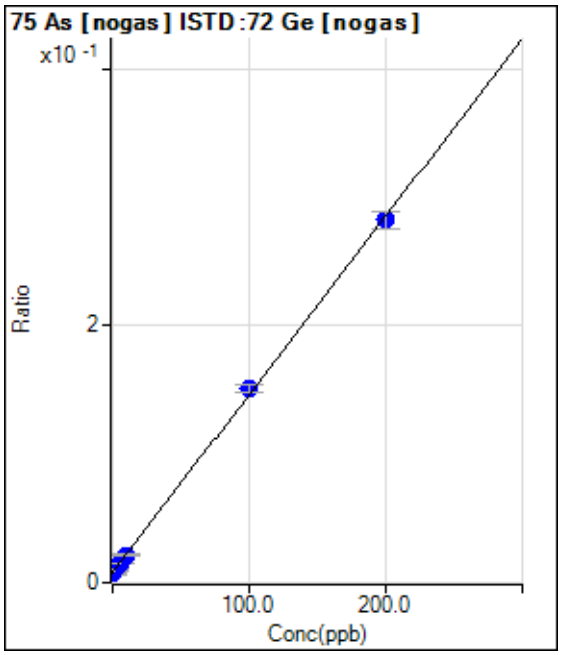


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-0.522	426.68	0.0006	P	18.3
2	☐	2.000	2.004	2803.61	0.0041	P	6.4
3	☐	5.000	6.120	6698.11	0.0099	P	7.2
4	☐	10.000	9.770	9642.82	0.0149	P	3.9
5	☐	100.000	99.290	95052.89	0.1394	P	3.2
6	☐	200.000	200.339	182378.22	0.2798	P	3.1
7	☐	1.000					

y = 0.0014 * x + 0.0014
R = 1.0000
DL = 0.2517
BEC = 0.9805

Weight: <None>
Min Conc: <None>

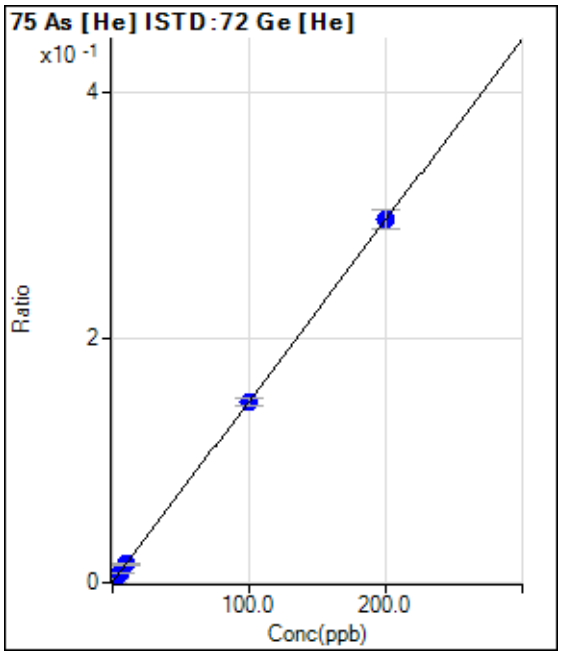
Calibration for 200_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-0.839	9282.59	0.0068	P	5.5
2	☐	2.000	1.366	13572.06	0.0098	P	3.4
3	☐	5.000	4.774	19591.31	0.0146	P	4.0
4	☐	10.000	9.803	28997.67	0.0215	P	2.7
5	☐	100.000	103.747	197792.62	0.1518	P	3.6
6	☐	200.000	198.148	358443.33	0.2826	P	4.8
7	☐	1.000					

y = 0.0014 * x + 0.0079
R = 0.9997
DL = 0.8075
BEC = 5.731

Weight: <None>
Min Conc: <None>

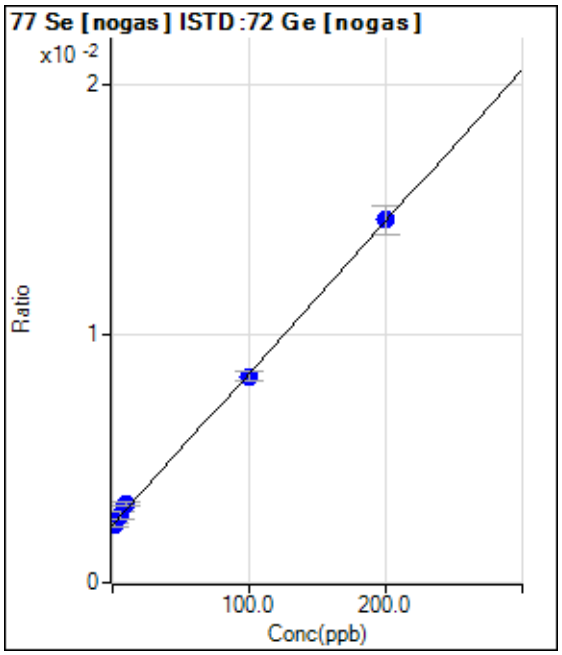


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	211.11	0.0003	P	11.0
2	☐	2.000	1.913	2123.47	0.0031	P	7.2
3	☐	5.000	5.008	5240.83	0.0077	P	3.6
4	☐	10.000	10.012	9742.73	0.0151	P	4.8
5	☐	100.000	99.824	100783.23	0.1479	P	4.6
6	☐	200.000	200.088	192755.94	0.2961	P	5.4
7	☐	1.000					

y = 0.0015 * x + 3.1557E-004
R = 1.0000
DL = 0.07038
BEC = 0.2135

Weight: <None>
Min Conc: <None>

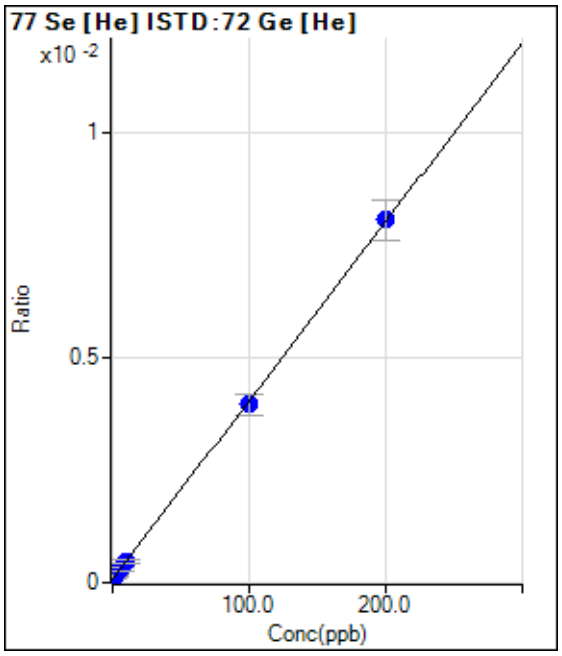
Calibration for 200_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	3177.01	0.0023	P	9.1
2	☐	2.000	0.262	3220.35	0.0023	P	8.1
3	☐	5.000	6.330	3637.11	0.0027	P	10.8
4	☐	10.000	14.070	4283.93	0.0032	P	3.7
5	☐	100.000	97.720	10786.85	0.0083	P	4.7
6	☐	200.000	200.920	18463.34	0.0146	P	8.0
7	☐	1.000					

y = 6.0963E-005 * x + 0.0023
R = 0.9996
DL = 10.44
BEC = 38.06

Weight: <None>
Min Conc: <None>

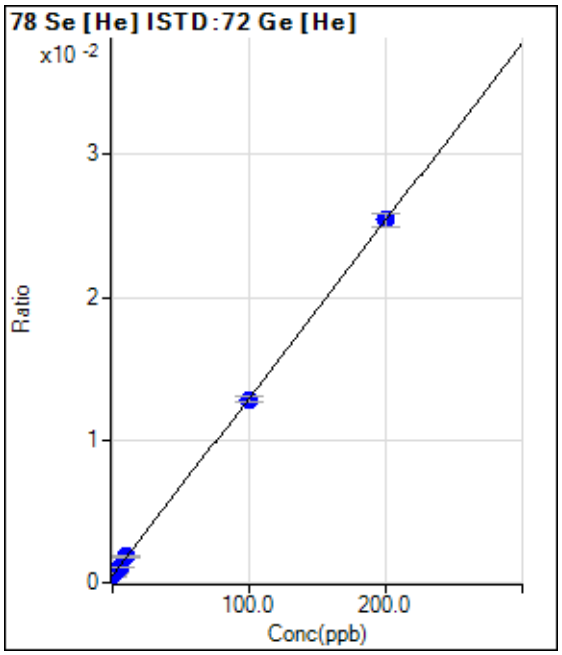


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.506	63.33	0.0001	P	37.7
2	☐	2.000	1.595	93.33	0.0001	P	23.0
3	☐	5.000	5.927	210.01	0.0003	P	29.5
4	☐	10.000	10.155	306.68	0.0005	P	21.5
5	☐	100.000	97.688	2690.26	0.0039	P	11.4
6	☐	200.000	201.129	5237.56	0.0081	P	11.0
7	☐	1.000					

y = 3.9659E-005 * x + 7.4792E-005
R = 0.9999
DL = 2.708
BEC = 1.886

Weight: <None>
Min Conc: <None>

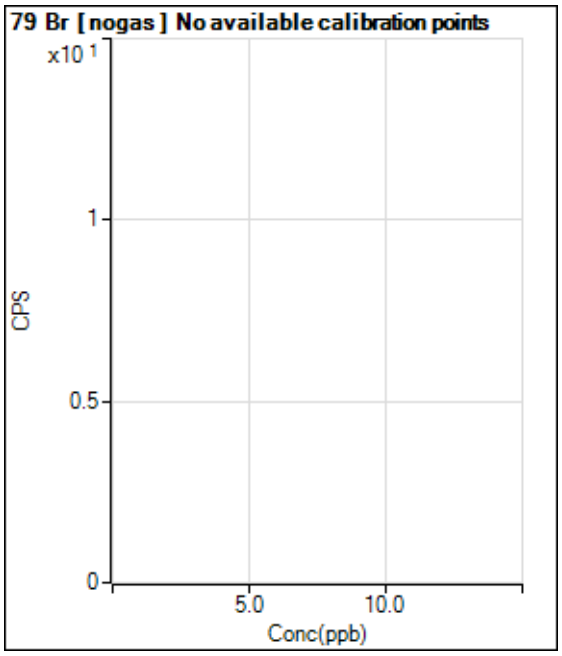
Calibration for 200_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	336.67	0.0005	P	16.4
2	☐	2.000	1.853	495.34	0.0007	P	5.8
3	☐	5.000	4.615	731.35	0.0011	P	8.7
4	☐	10.000	10.635	1177.37	0.0018	P	2.8
5	☐	100.000	99.308	8768.20	0.0129	P	3.6
6	☐	200.000	200.325	16562.46	0.0254	P	3.6
7	☐	1.000					

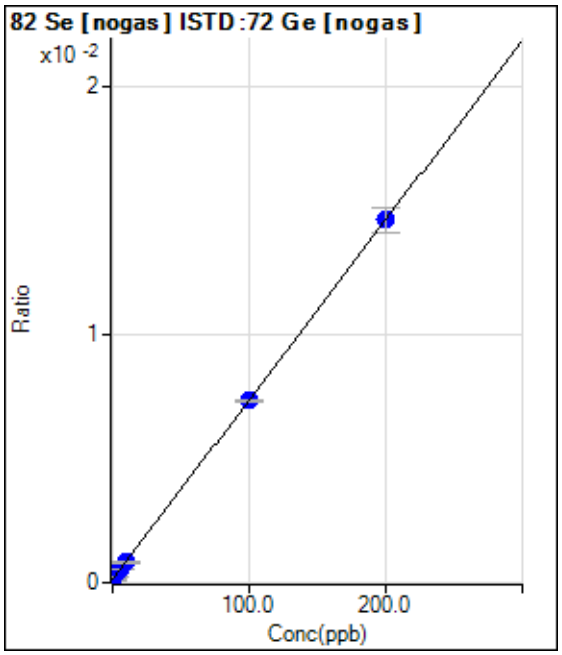
y = 1.2443E-004 * x + 5.0251E-004
R = 1.0000
DL = 1.981
BEC = 4.038

Weight: <None>
Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000					
2	☐	2.000					
3	☐	5.000					
4	☐	10.000					
5	☐	100.000					
6	☐	200.000					
7	☐	1.000					

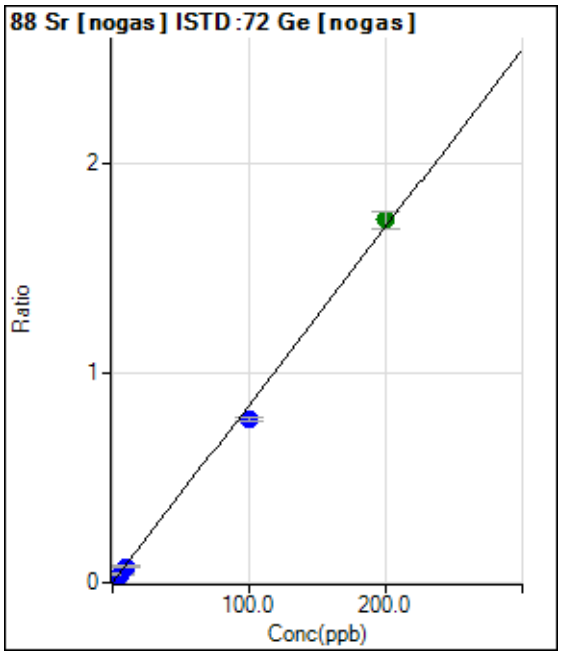
Calibration for 200_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	170.00	0.0001	P	26.1
2	☐	2.000	2.460	413.35	0.0003	P	32.0
3	☐	5.000	5.703	723.37	0.0005	P	10.1
4	☐	10.000	9.738	1116.73	0.0008	P	12.6
5	☐	100.000	99.587	9559.51	0.0073	P	0.9
6	☐	200.000	200.197	18520.17	0.0146	P	6.9
7	☐	1.000					

y = 7.2368E-005 * x + 1.2432E-004
R = 1.0000
DL = 1.347
BEC = 1.718

Weight: <None>
Min Conc: <None>

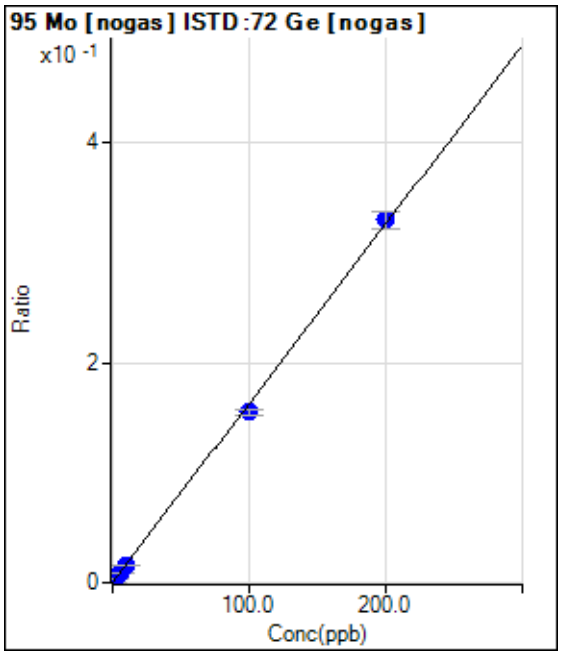


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	766.69	0.0006	P	14.9
2	☐	2.000	1.846	22304.96	0.0162	P	7.3
3	☐	5.000	4.774	55127.19	0.0410	P	3.5
4	☐	10.000	8.995	103288.41	0.0767	P	4.4
5	☐	100.000	92.024	1016586.08	0.7796	P	2.2
6	☐	200.000	204.045	2191654.39	1.7278	A	4.7
7	☐	1.000					

y = 0.0085 * x + 5.6012E-004
R = 0.9989
DL = 0.02964
BEC = 0.06617

Weight: <None>
Min Conc: <None>

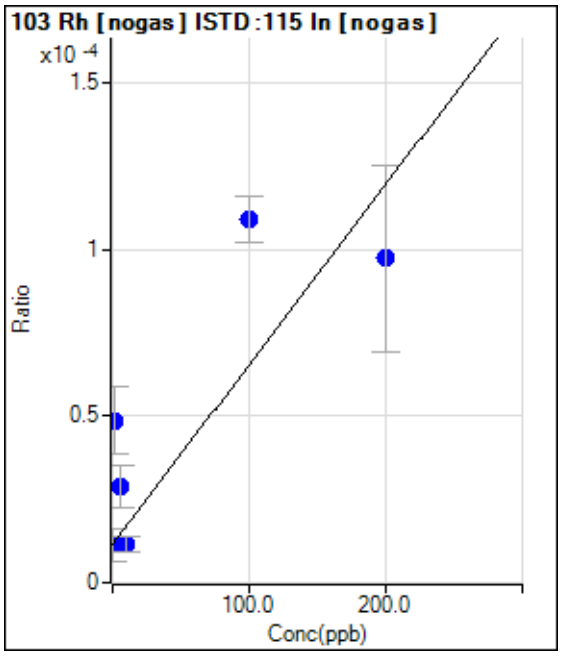
Calibration for 200_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	336.68	0.0002	P	11.9
2	☐	2.000	1.981	4787.44	0.0035	P	7.5
3	☐	5.000	5.109	11524.07	0.0086	P	6.2
4	☐	10.000	9.582	21357.12	0.0159	P	1.3
5	☐	100.000	95.086	202339.68	0.1551	P	3.0
6	☐	200.000	202.475	418529.06	0.3301	P	4.9
7	☐	1.000					

y = 0.0016 * x + 2.4593E-004
R = 0.9996
DL = 0.05409
BEC = 0.151

Weight: <None>
Min Conc: <None>

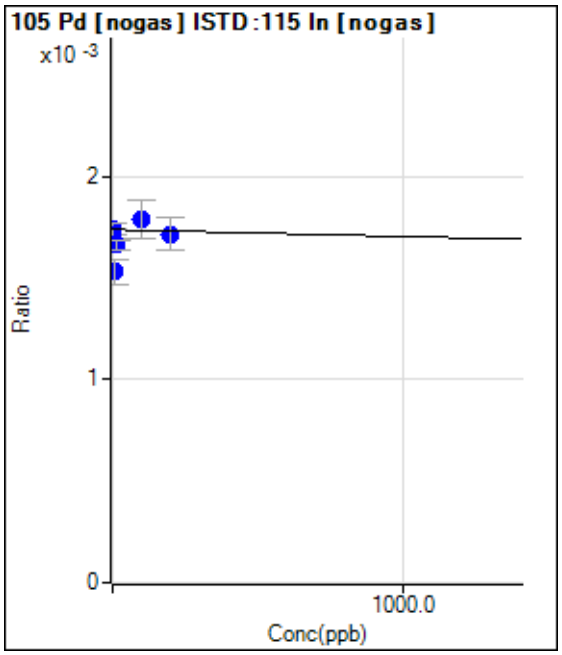


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	13.33	0.0000	P	86.6
2	☐	2.000	69.064	56.67	0.0000	P	40.8
3	☐	5.000	32.189	33.33	0.0000	P	45.7
4	☐	10.000	-0.166	13.33	0.0000	P	41.8
5	☐	100.000	180.460	126.67	0.0001	P	12.8
6	☐	200.000	158.928	116.67	0.0001	P	57.4
7	☐	1.000					

y = 5.4051E-007 * x + 1.1482E-005
R = 0.8310
DL = 55.19
BEC = 21.24

Weight: <None>
Min Conc: <None>

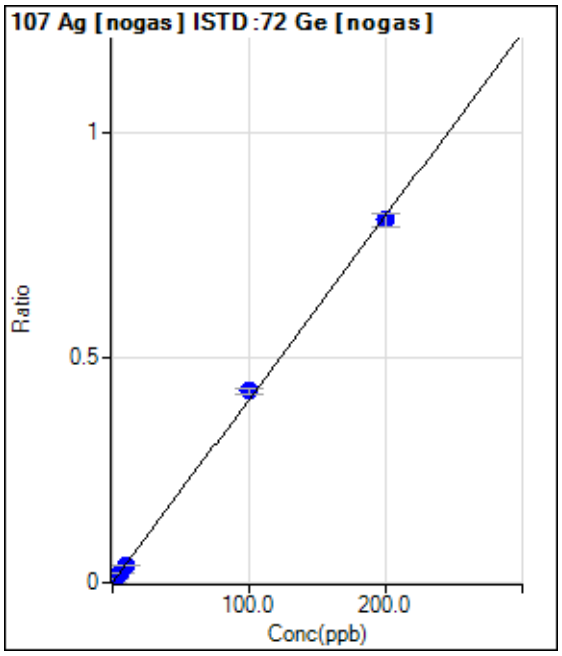
Calibration for 200_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	2023.50	0.0017	P	3.1
2	☐	2.000	708.140	2013.50	0.0017	P	2.8
3	☐	5.000	6090.111	1766.80	0.0015	P	8.2
4	☐	10.000	2156.014	1943.48	0.0017	P	3.0
5	☐	100.000	-1387.123	2076.83	0.0018	P	10.6
6	☐	200.000	677.072	2073.50	0.0017	P	9.2
7	☐	1.000					

y = -3.4169E-008 * x + 0.0017
R = 0.3656
DL = -4736
BEC = -5.092E+04

Weight: <None>
Min Conc: <None>

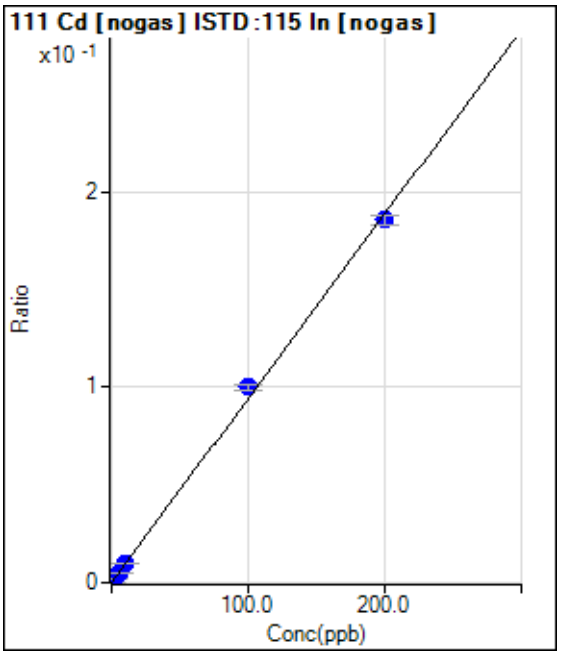


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	50.00	0.0000	P	19.3
2	☐	2.000	1.846	10443.43	0.0076	P	5.9
3	☐	5.000	4.928	27116.01	0.0201	P	2.8
4	☐	10.000	9.610	52883.56	0.0393	P	3.7
5	☐	100.000	104.409	555427.23	0.4261	P	2.8
6	☐	200.000	197.818	1024395.43	0.8073	P	4.0
7	☐	1.000					

y = 0.0041 * x + 3.6495E-005
R = 0.9996
DL = 0.005189
BEC = 0.008943

Weight: <None>
Min Conc: <None>

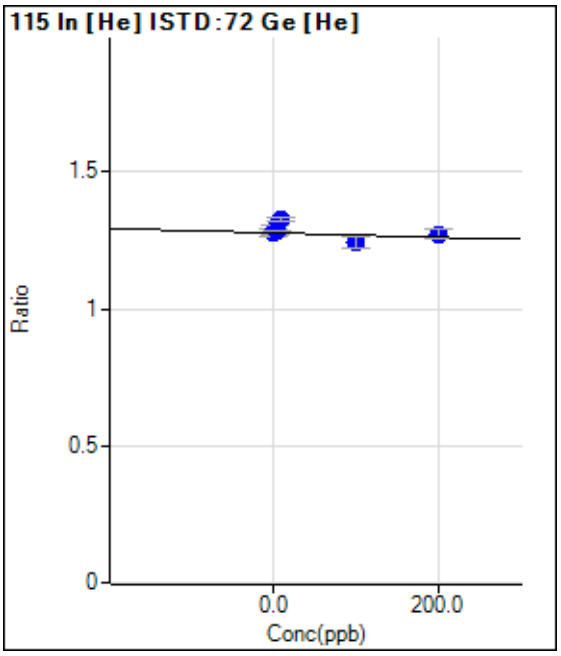
Calibration for 200_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	13.33	0.0000	P	114.
2	☐	2.000	2.054	2286.88	0.0019	P	2.1
3	☐	5.000	5.141	5594.35	0.0049	P	3.8
4	☐	10.000	10.626	11684.39	0.0100	P	2.5
5	☐	100.000	105.982	116050.52	0.0999	P	3.9
6	☐	200.000	196.974	224523.79	0.1856	P	2.8
7	☐	1.000					

y = 9.4205E-004 * x + 1.1439E-005
R = 0.9994
DL = 0.04153
BEC = 0.01214

Weight: <None>
Min Conc: <None>

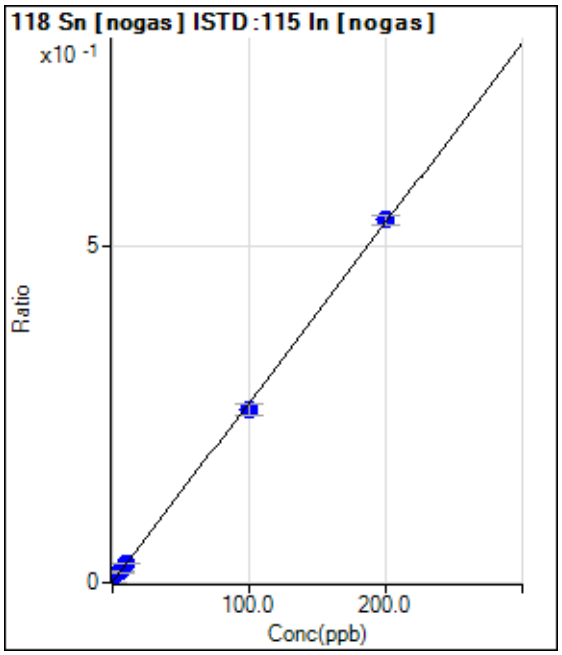


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	855732.70	1.2783	P	2.1
2	☐	2.000	-146.505	873247.22	1.2901	P	2.5
3	☐	5.000	-96.053	873202.57	1.2860	P	0.2
4	☐	10.000	-584.626	855092.64	1.3255	P	0.9
5	☐	100.000	438.183	847708.01	1.2429	P	3.1
6	☐	200.000	64.651	829581.58	1.2731	P	2.6
7	☐	1.000					

y = -8.0756E-005 * x + 1.2783
R = -0.4959
DL = -1003
BEC = -1.583E+04

Weight: <None>
Min Conc: <None>

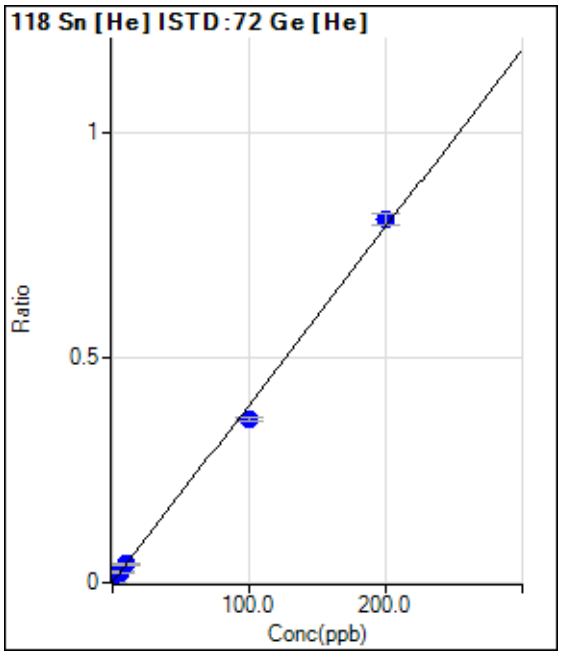
Calibration for 200_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	690.03	0.0006	P	13.5
2	☐	2.000	3.870	12841.84	0.0109	P	3.6
3	☐	5.000	5.704	18283.62	0.0159	P	3.4
4	☐	10.000	10.250	32672.15	0.0280	P	1.7
5	☐	100.000	96.495	300962.95	0.2588	P	6.4
6	☐	200.000	201.703	654141.90	0.5403	P	2.8
7	☐	1.000					

y = 0.0027 * x + 5.9344E-004
R = 0.9997
DL = 0.09
BEC = 0.2218

Weight: <None>
Min Conc: <None>

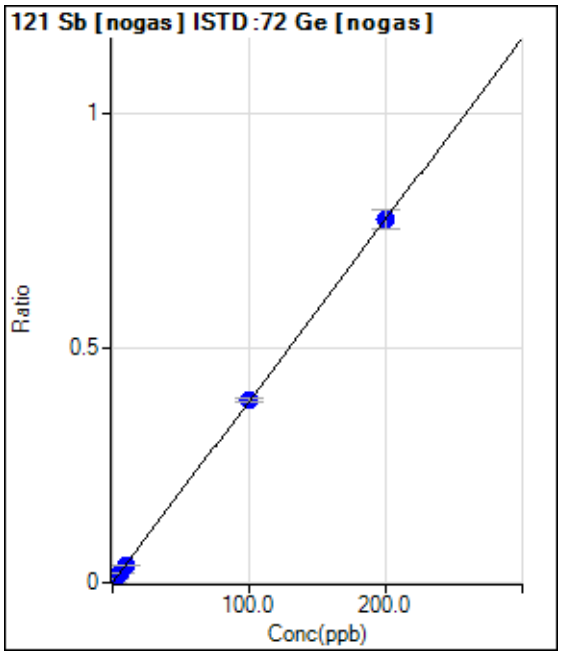


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	603.36	0.0009	P	22.9
2	☐	2.000	3.588	10179.95	0.0151	P	2.4
3	☐	5.000	5.589	15580.84	0.0229	P	5.8
4	☐	10.000	10.320	26805.10	0.0416	P	6.7
5	☐	100.000	91.779	247391.66	0.3629	P	1.9
6	☐	200.000	204.064	524811.10	0.8058	P	3.3
7	☐	1.000					

y = 0.0039 * x + 8.9984E-004
R = 0.9987
DL = 0.1568
BEC = 0.2281

Weight: <None>
Min Conc: <None>

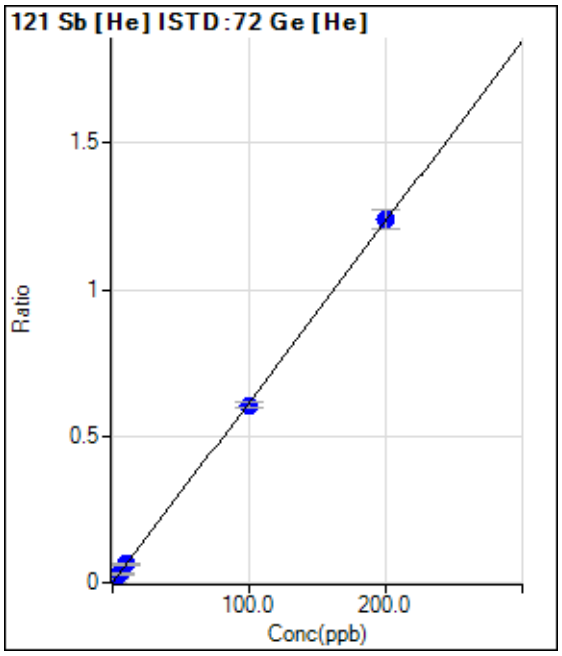
Calibration for 200_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	306.68	0.0002	P	13.7
2	☐	2.000	1.880	10353.39	0.0075	P	3.8
3	☐	5.000	4.817	25393.18	0.0189	P	4.2
4	☐	10.000	9.522	49932.15	0.0371	P	3.9
5	☐	100.000	100.388	507110.60	0.3889	P	2.6
6	☐	200.000	199.836	981242.38	0.7739	P	5.2
7	☐	1.000					

y = 0.0039 * x + 2.2404E-004
R = 1.0000
DL = 0.0237
BEC = 0.05787

Weight: <None>
Min Conc: <None>

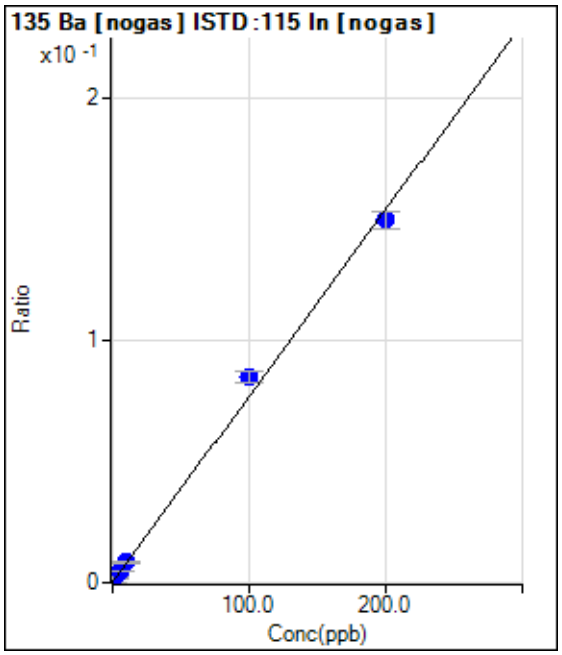


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	206.67	0.0003	P	24.1
2	☐	2.000	1.951	8318.89	0.0123	P	10.8
3	☐	5.000	4.846	20479.45	0.0302	P	4.4
4	☐	10.000	10.116	40398.56	0.0626	P	4.1
5	☐	100.000	98.153	412212.52	0.6048	P	3.7
6	☐	200.000	200.922	805796.92	1.2377	P	5.4
7	☐	1.000					

y = 0.0062 * x + 3.0929E-004
R = 0.9999
DL = 0.03631
BEC = 0.05022

Weight: <None>
Min Conc: <None>

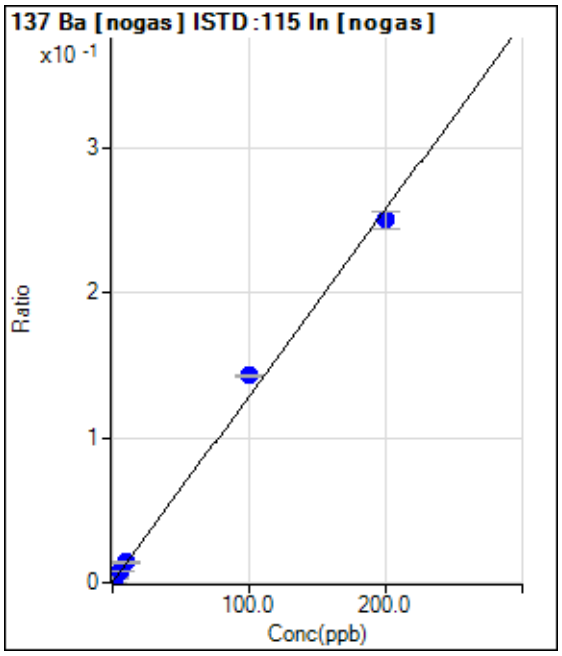
Calibration for 200_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	150.00	0.0001	P	20.1
2	☐	2.000	2.489	2390.22	0.0020	P	15.5
3	☐	5.000	5.861	5347.63	0.0046	P	6.1
4	☐	10.000	10.715	9769.71	0.0084	P	1.6
5	☐	100.000	110.630	99132.41	0.0853	P	5.6
6	☐	200.000	194.623	181362.98	0.1500	P	5.0
7	☐	1.000					

y = 7.6992E-004 * x + 1.2900E-004
R = 0.9980
DL = 0.1008
BEC = 0.1675

Weight: <None>
Min Conc: <None>

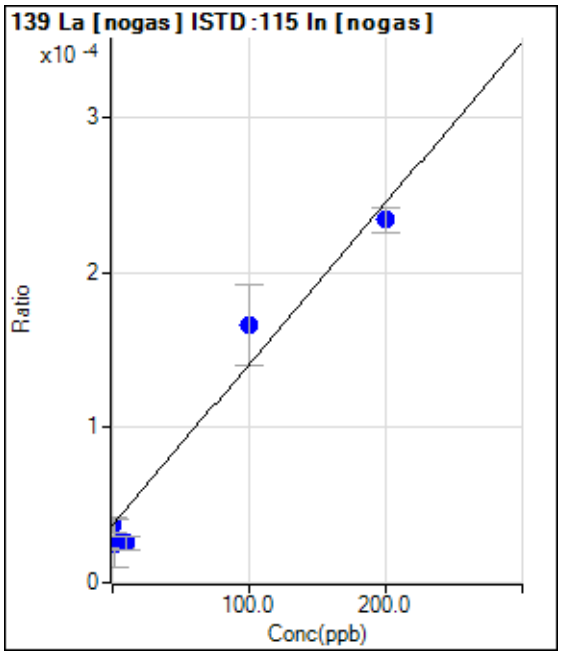


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	283.34	0.0002	P	23.6
2	☐	2.000	2.369	3850.51	0.0033	P	8.9
3	☐	5.000	5.670	8679.13	0.0075	P	4.4
4	☐	10.000	10.667	16258.22	0.0139	P	3.8
5	☐	100.000	110.935	165948.90	0.1428	P	1.2
6	☐	200.000	194.479	302410.15	0.2501	P	4.5
7	☐	1.000					

y = 0.0013 * x + 2.4346E-004
R = 0.9979
DL = 0.1344
BEC = 0.1895

Weight: <None>
Min Conc: <None>

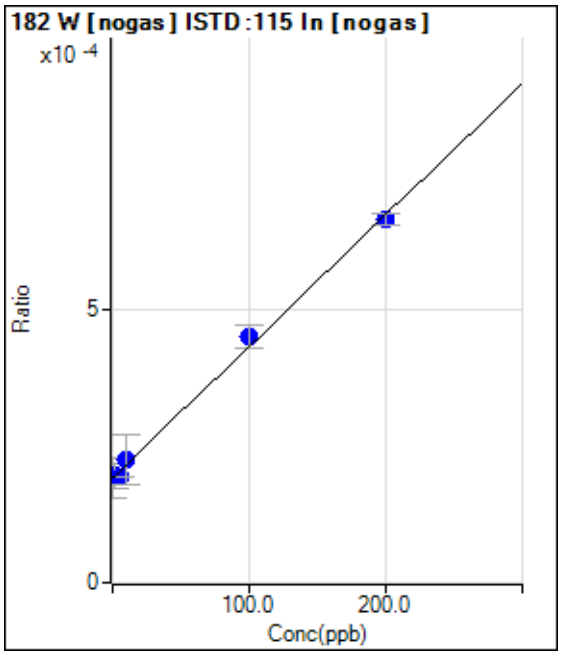
Calibration for 200_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	43.33	0.0000	P	26.0
2	☐	2.000	-11.320	30.00	0.0000	P	122.
3	☐	5.000	-10.804	30.00	0.0000	P	31.9
4	☐	10.000	-10.995	30.00	0.0000	P	33.8
5	☐	100.000	124.171	193.34	0.0002	P	31.5
6	☐	200.000	189.492	283.34	0.0002	P	6.9
7	☐	1.000					

y = 1.0401E-006 * x + 3.7207E-005
R = 0.9839
DL = 27.93
BEC = 35.77

Weight: <None>
Min Conc: <None>

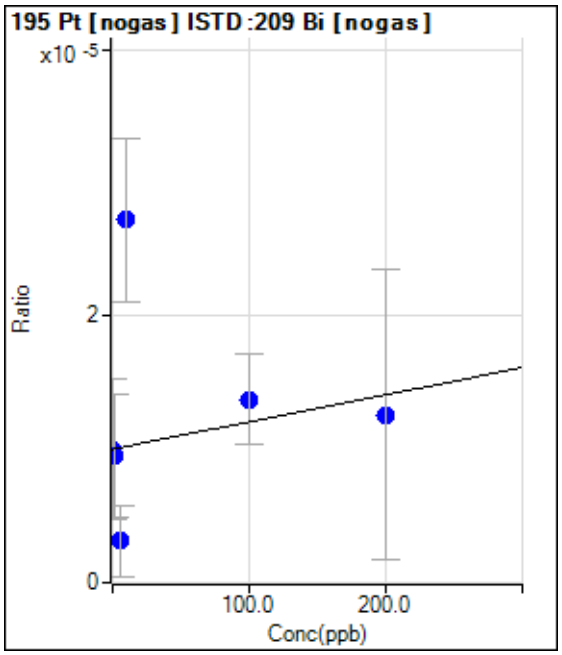


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	223.34	0.0002	P	37.5
2	☐	2.000	1.595	230.01	0.0002	P	22.3
3	☐	5.000	0.883	223.34	0.0002	P	1.1
4	☐	10.000	13.891	263.34	0.0002	P	40.2
5	☐	100.000	107.618	523.35	0.0005	P	9.1
6	☐	200.000	196.104	803.37	0.0007	P	3.2
7	☐	1.000					

y = 2.4047E-006 * x + 1.9167E-004
R = 0.9984
DL = 89.58
BEC = 79.71

Weight: <None>
Min Conc: <None>

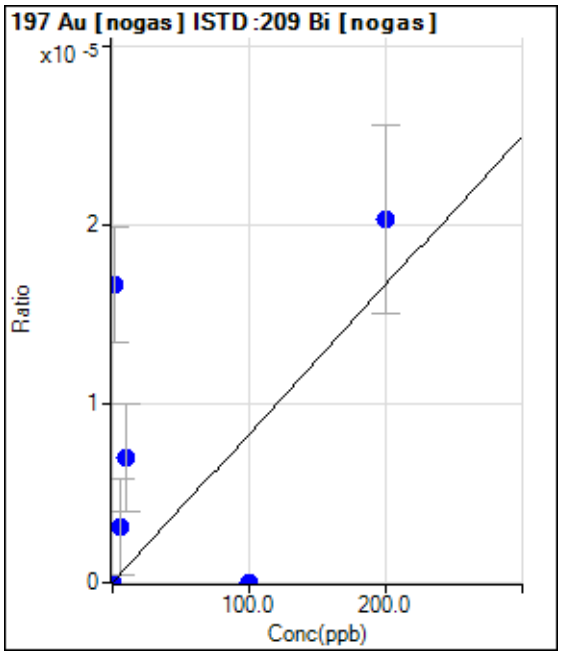
Calibration for 200_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	10.00	0.0000	P	104.
2	☐	2.000	-24.439	10.00	0.0000	P	96.5
3	☐	5.000	-337.909	3.33	0.0000	P	173.
4	☐	10.000	842.420	26.67	0.0000	P	44.9
5	☐	100.000	183.855	13.33	0.0000	P	49.8
6	☐	200.000	125.289	13.33	0.0000	P	173.
7	☐	1.000					

y = 2.0419E-008 * x + 1.0029E-005
R = 0.0526
DL = 1541
BEC = 491.2

Weight: <None>
Min Conc: <None>

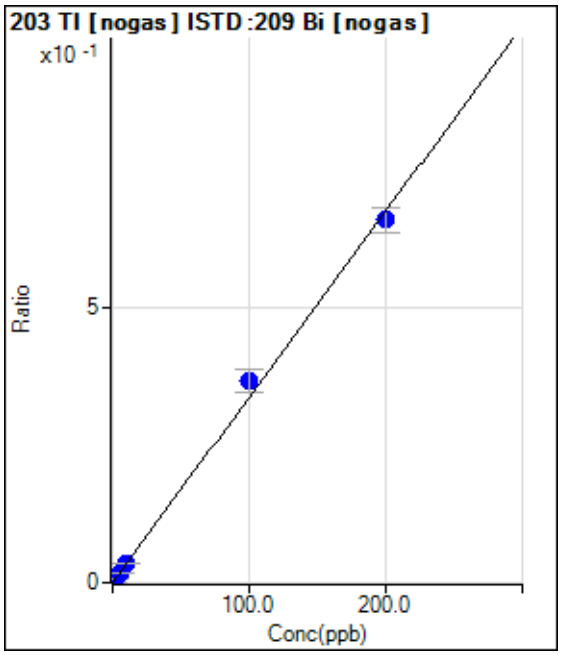


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	0.00	0.0000	P	
2	☐	2.000	200.083	16.67	0.0000	P	39.0
3	☐	5.000	37.529	3.33	0.0000	P	173.
4	☐	10.000	83.645	6.67	0.0000	P	86.6
5	☐	100.000	0.000	0.00	0.0000	P	
6	☐	200.000	243.524	20.00	0.0000	P	52.1
7	☐	1.000					

y = 8.3391E-008 * x + 0.0000E+000
R = 0.4754
DL = 0
BEC = 0

Weight: <None>
Min Conc: <None>

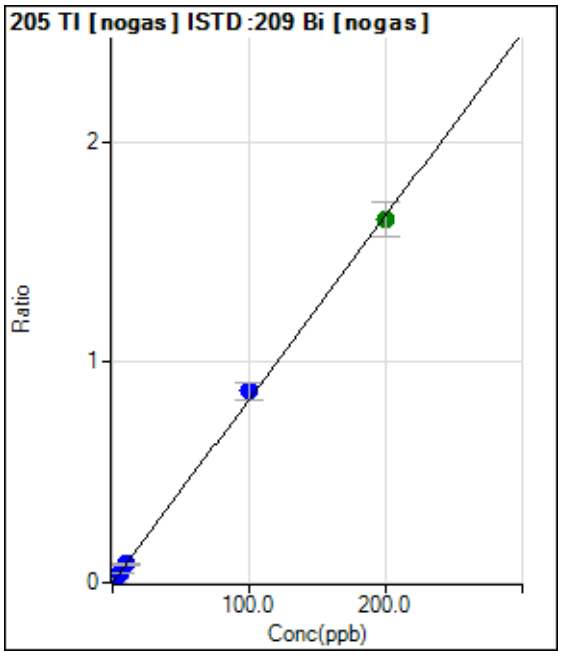
Calibration for 200_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	20.00	0.0000	P	104.
2	☐	2.000	2.140	7345.25	0.0073	P	14.0
3	☐	5.000	5.120	17379.81	0.0173	P	8.2
4	☐	10.000	10.579	35209.80	0.0358	P	4.0
5	☐	100.000	108.849	361547.97	0.3682	P	10.9
6	☐	200.000	195.542	651251.03	0.6615	P	6.6
7	☐	1.000					

y = 0.0034 * x + 2.0059E-005
R = 0.9986
DL = 0.01861
BEC = 0.005929

Weight: <None>
Min Conc: <None>

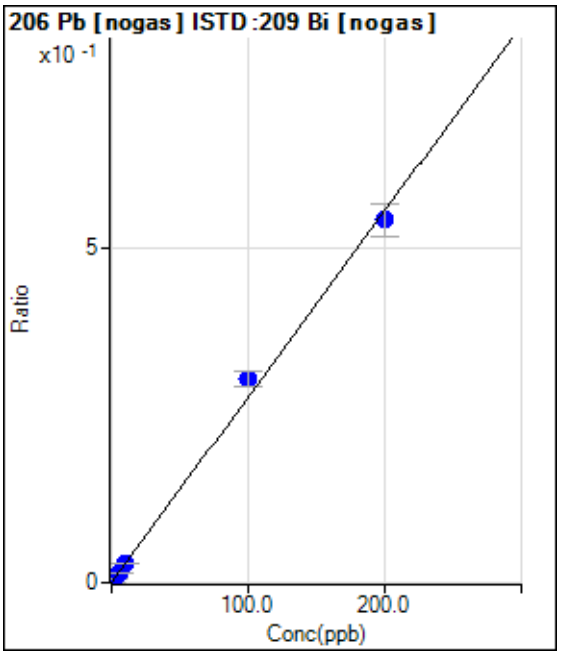


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	63.33	0.0001	P	2.0
2	☐	2.000	1.975	16689.15	0.0165	P	7.9
3	☐	5.000	5.005	41806.42	0.0417	P	6.4
4	☐	10.000	10.123	82771.67	0.0842	P	6.0
5	☐	100.000	104.337	852994.62	0.8676	P	8.1
6	☐	200.000	197.825	1617508.20	1.6450	A	9.4
7	☐	1.000					

y = 0.0083 * x + 6.2852E-005
R = 0.9997
DL = 0.0004437
BEC = 0.007559

Weight: <None>
Min Conc: <None>

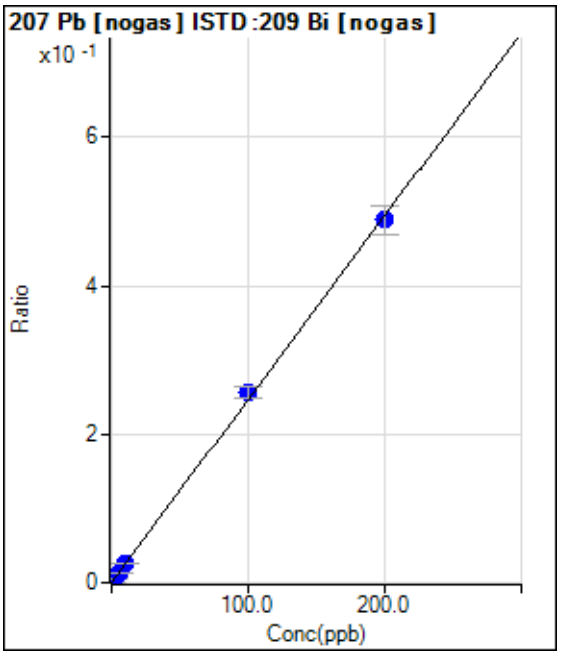
Calibration for 200_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	80.00	0.0001	P	7.1
2	☐	2.000	2.199	6254.72	0.0062	P	12.5
3	☐	5.000	5.028	14126.60	0.0140	P	4.9
4	☐	10.000	10.479	28673.71	0.0292	P	6.1
5	☐	100.000	109.258	298497.33	0.3035	P	7.6
6	☐	200.000	195.344	533752.87	0.5426	P	9.3
7	☐	1.000					

y = 0.0028 * x + 7.9732E-005
R = 0.9985
DL = 0.006098
BEC = 0.02871

Weight: <None>
Min Conc: <None>

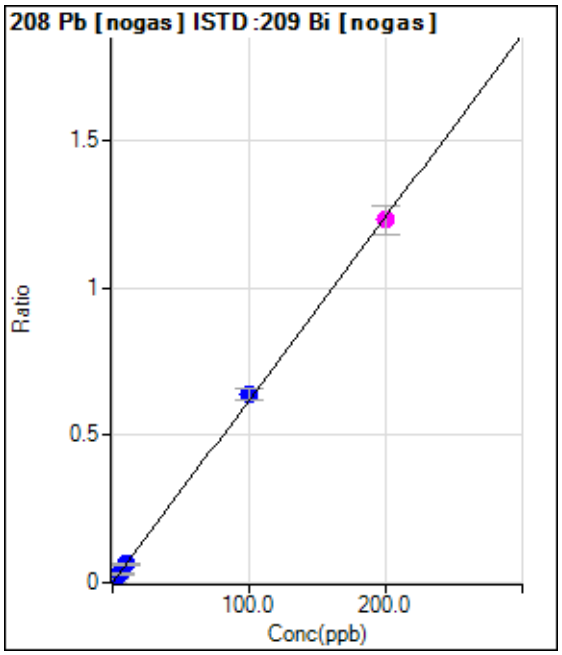


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	76.67	0.0001	P	61.6
2	☐	2.000	2.085	5281.01	0.0052	P	13.7
3	☐	5.000	5.000	12441.81	0.0124	P	11.2
4	☐	10.000	10.455	25417.67	0.0259	P	8.9
5	☐	100.000	104.042	252850.91	0.2570	P	6.5
6	☐	200.000	197.956	481252.78	0.4889	P	7.8
7	☐	1.000					

y = 0.0025 * x + 7.8169E-005
R = 0.9997
DL = 0.05851
BEC = 0.03166

Weight: <None>
Min Conc: <None>

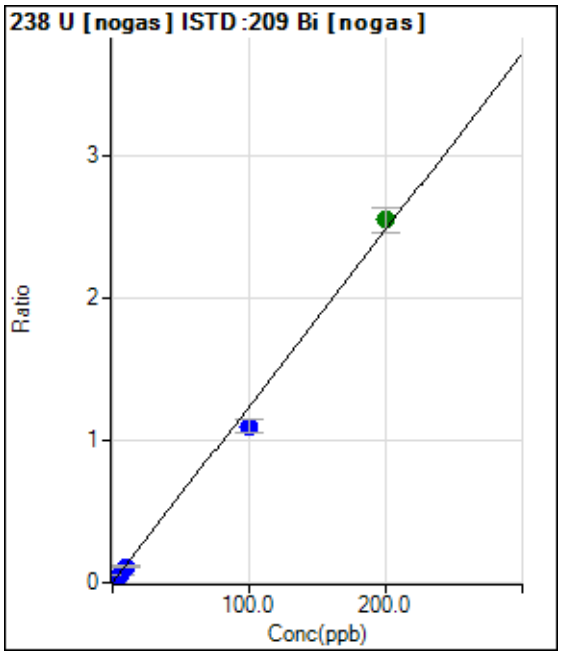
Calibration for 200_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	173.34	0.0002	P	35.0
2	☐	2.000	1.983	12611.96	0.0125	P	10.0
3	☐	5.000	4.855	30306.40	0.0303	P	10.7
4	☐	10.000	9.997	61051.91	0.0621	P	5.7
5	☐	100.000	102.839	627326.72	0.6376	P	6.6
6	☐	200.000	198.585	1211671.18	1.2310	M	7.6
7	☐	1.000					

y = 0.0062 * x + 1.7324E-004
R = 0.9999
DL = 0.02934
BEC = 0.02795

Weight: <None>
Min Conc: <None>

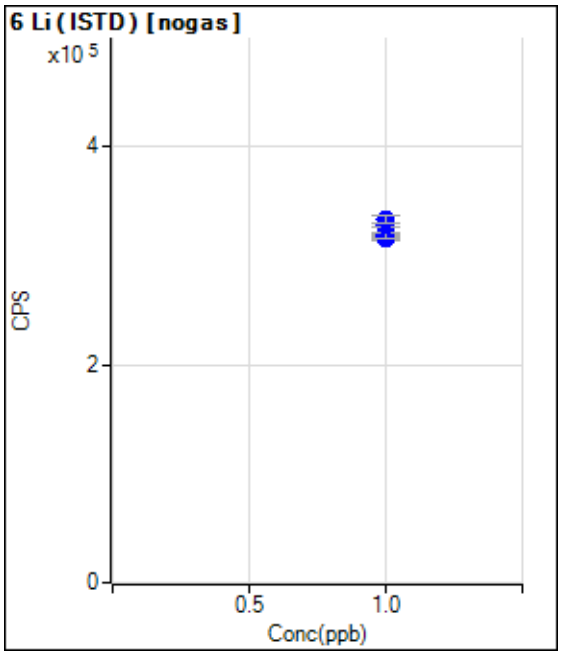


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	20.00	0.0000	P	51.7
2	☐	2.000	1.853	23174.45	0.0229	P	13.4
3	☐	5.000	4.674	57969.84	0.0578	P	8.6
4	☐	10.000	9.245	112400.75	0.1144	P	6.2
5	☐	100.000	88.625	1077705.35	1.0965	P	8.9
6	☐	200.000	205.735	2505790.69	2.5453	A	6.7
7	☐	1.000					

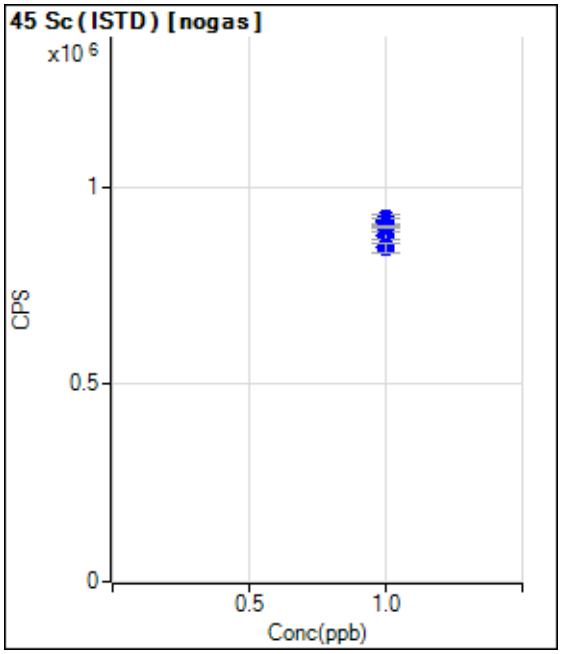
y = 0.0124 * x + 1.9870E-005
R = 0.9978
DL = 0.00249
BEC = 0.001606

Weight: <None>
Min Conc: <None>

Calibration for 200_ICV.d

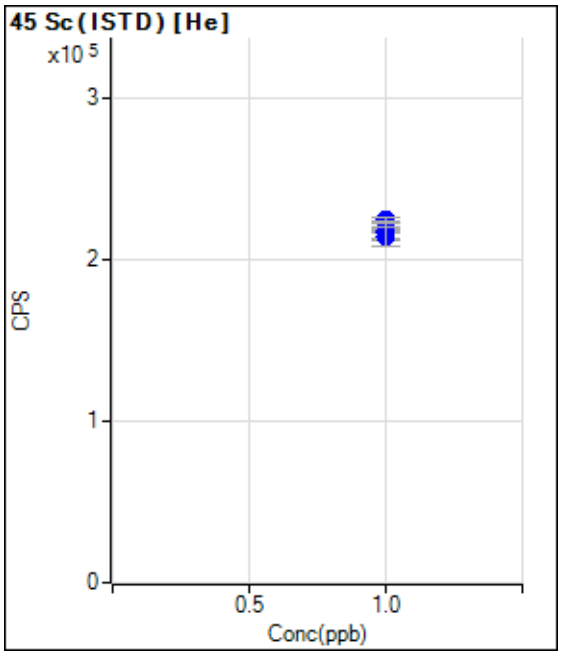


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		315825.36		P	1.5
2	☐	1.000		316812.24		P	2.0
3	☐	1.000		317759.46		P	1.3
4	☐	1.000		318694.19		P	1.7
5	☐	1.000		328118.84		P	1.2
6	☐	1.000		332840.93		P	2.2
7	☐	1.000					

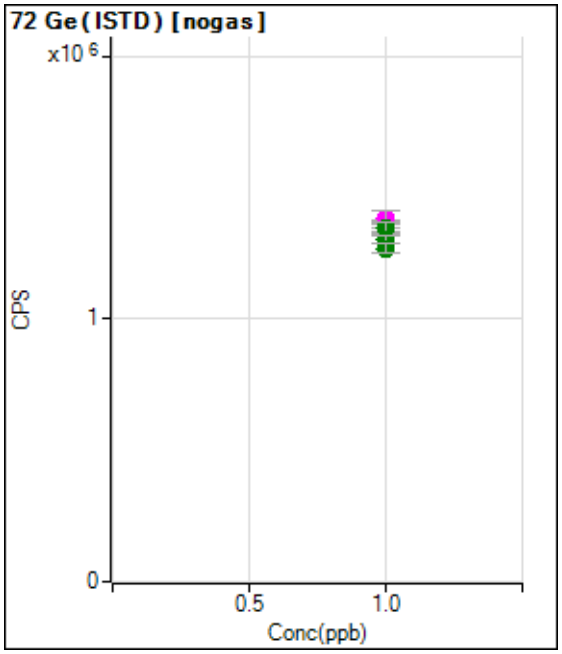


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		920231.73		P	2.6
2	☐	1.000		917299.26		P	3.0
3	☐	1.000		910036.60		P	2.3
4	☐	1.000		880220.17		P	2.2
5	☐	1.000		900578.55		P	0.8
6	☐	1.000		846305.80		P	3.4
7	☐	1.000					

Calibration for 200_ICV.d

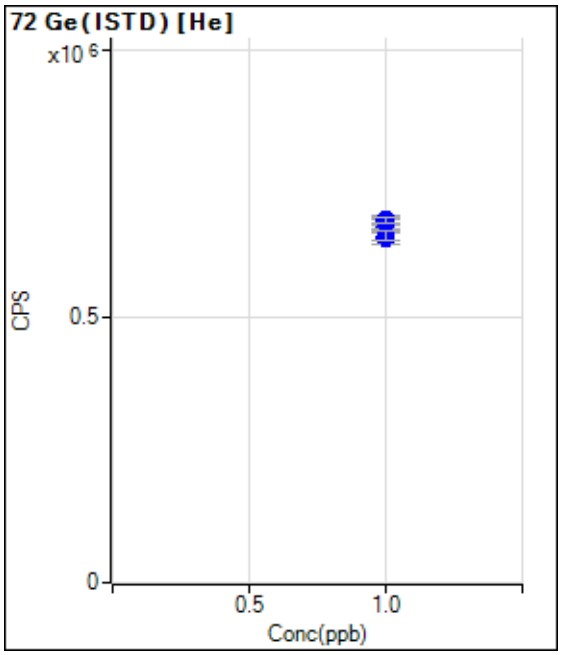


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		214108.75		P	2.2
2	☐	1.000		220270.19		P	2.2
3	☐	1.000		215850.31		P	3.0
4	☐	1.000		224260.97		P	1.1
5	☐	1.000		217481.67		P	4.5
6	☐	1.000		213643.80		P	5.3
7	☐	1.000					

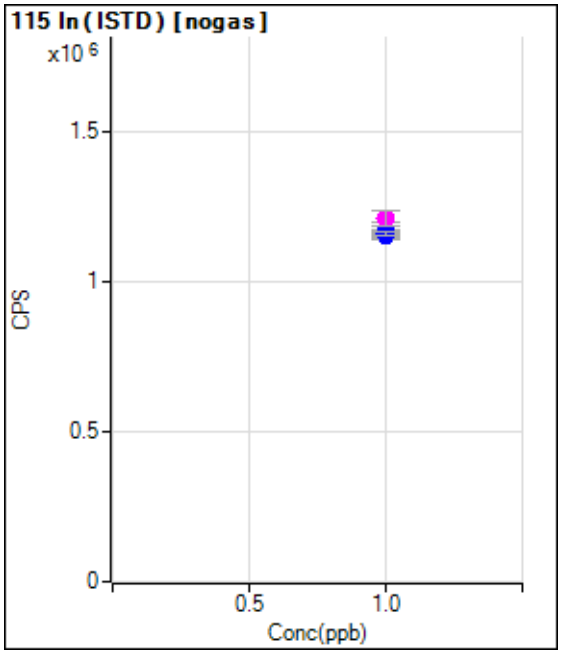


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		1368895.92		A	0.7
2	☐	1.000		1380589.25		M	5.1
3	☐	1.000		1346235.29		A	2.3
4	☐	1.000		1347398.00		A	3.1
5	☐	1.000		1303831.65		A	1.9
6	☐	1.000		1269423.52		A	3.4
7	☐	1.000					

Calibration for 200_ICV.d

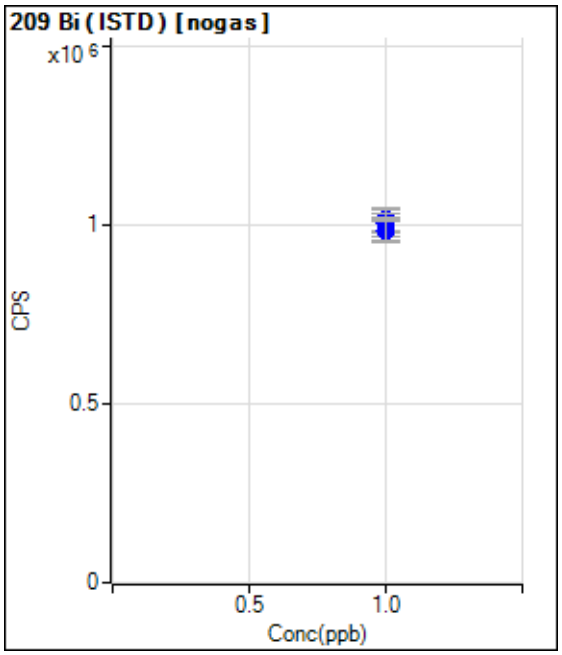


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		669421.40		P	1.1
2	☐	1.000		676787.83		P	4.0
3	☐	1.000		678993.14		P	1.0
4	☐	1.000		645242.85		P	3.3
5	☐	1.000		681844.42		P	1.6
6	☐	1.000		651729.95		P	2.9
7	☐	1.000					



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		1163100.35		P	0.8
2	☐	1.000		1174135.82		P	4.5
3	☐	1.000		1152449.12		P	2.2
4	☐	1.000		1166151.60		P	1.6
5	☐	1.000		1162581.23		P	1.2
6	☐	1.000		1210779.80		M	4.2
7	☐	1.000					

Calibration for 200_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		1006852.54		P	7.4
2	☐	1.000		1015646.34		P	6.3
3	☐	1.000		1005116.75		P	5.2
4	☐	1.000		984538.58		P	5.2
5	☐	1.000		986959.52		P	7.2
6	☐	1.000		987209.57		P	6.3
7	☐	1.000					

Calibration Blank Report

Sample Table

Sample Name	CAL BLK
Data File Name	014CALB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T12:57:03-06:00
Sample Type	CalBlk
Level	1
Dilution	1
Comment	

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	13	324.76
B	11	1	nogas	7282	0.02
Na	23	1	nogas	1838470	0.00
Mg	24	1	nogas	5468	0.25
Al	27	1	nogas	14449	0.02
P	31	1	nogas	62559	0.00
K	39	1	nogas	4204804	0.00
Ca	43	1	nogas	923	1.90
Ca	44	1	nogas	142971	0.00
Ti	47	1	nogas	180	8.17
V	51	1	nogas	44999	0.01
Cr	52	1	nogas	18783	0.00
Mn	55	1	nogas	13912	0.01
Fe	56	1	nogas	872577	0.00
Co	59	1	nogas	297	9.66
Ni	60	1	nogas	20936	0.01
Cu	63	1	nogas	39190	0.02
Zn	66	1	nogas	603	3.12
As	75	1	nogas	23025	0.01
Se	77	1	nogas	7218	0.05
Se	82	1	nogas	313	5.61
Sr	88	1	nogas	713	1.31
Mo	95	1	nogas	1983	0.22
Ag	107	1	nogas	57	47.57
Cd	111	1	nogas	23	382.35
Sn	118	1	nogas	1094	2.16
Sb	121	1	nogas	733	3.94
Ba	137	1	nogas	207	10.82
Tl	205	1	nogas	47	115.56
Pb	208	1	nogas	207	16.44
Li	7	1	nogas	40068	0.01
Si	28	1	nogas	1473917	0.00
La	139	1	nogas	40	125.00
Na	23	2	He	254108	0.00
Mg	24	2	He	490	4.50
Al	27	2	He	757	3.34
K	39	2	He	252552	0.00
Ca	43	2	He	57	100.11
Ca	44	2	He	3010	0.27
V	51	2	He	1645	0.45
Cr	52	2	He	4201	0.08
Mn	55	2	He	1350	0.43

Calibration Blank Report

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	2	He	17229	0.03
Co	59	2	He	67	90.93
Ni	60	2	He	11050	0.04
Cu	63	2	He	19871	0.02
Zn	66	2	He	510	1.02
As	75	2	He	400	0.83
Sb	121	2	He	503	1.49
Se	78	2	He	343	3.48

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Ge	72	1	nogas	1658792	0.83
In	115	1	nogas	1398610	2.52
Li	6	1	nogas	581094	1.11
Bi	209	1	nogas	1069547	6.15
Ge	72	2	He	766661	1.56

Calibration Standard Report

Sample Table

Sample Name	2/10/200
Data File Name	015CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T12:59:17-06:00
Sample Type	CalStd
Level	2
Dilution	1
Comment	
ISTD Ref File Name	014CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	5784	0.11
B	11	1	nogas	22307	0.01
Na	23	1	nogas	4080039	0.00
Mg	24	1	nogas	1504275	0.00
Al	27	1	nogas	45838	0.01
P	31	1	nogas	67216	0.00
K	39	1	nogas	6031613	0.00
Ca	43	1	nogas	4721	0.13
Ca	44	1	nogas	199933	0.00
Ti	47	1	nogas	1937	0.40
V	51	1	nogas	67236	0.01
Cr	52	1	nogas	38515	0.01
Mn	55	1	nogas	42831	0.01
Fe	56	1	nogas	3075836	0.00
Co	59	1	nogas	22344	0.00
Ni	60	1	nogas	24841	0.01
Cu	63	1	nogas	47380	0.02
Zn	66	1	nogas	5681	0.14
As	75	1	nogas	25989	0.00
Se	77	1	nogas	6908	0.12
Se	82	1	nogas	493	3.19
Sr	88	1	nogas	26945	0.01
Mo	95	1	nogas	7102	0.08
Ag	107	1	nogas	11994	0.05
Cd	111	1	nogas	2337	0.07
Sn	118	1	nogas	8252	0.05
Sb	121	1	nogas	11934	0.04
Ba	137	1	nogas	4594	0.09
Tl	205	1	nogas	18184	0.01
Pb	208	1	nogas	13780	0.05
Si	28	1	nogas	1952304	0.00
La	139	1	nogas	87	33.51
Na	23	2	He	534622	0.00
Mg	24	2	He	155111	0.00
Al	27	2	He	2720	0.11
K	39	2	He	449134	0.00
Ca	43	2	He	557	1.89
Ca	44	2	He	12354	0.04
V	51	2	He	11790	0.03
Cr	52	2	He	14850	0.01

Calibration Standard Report

Mn	55	2	He	11534	0.02
Fe	56	2	He	1000311	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Co	59	2	He	13892	0.03
Ni	60	2	He	16418	0.15
Cu	63	2	He	26076	0.01
Zn	66	2	He	3380	0.21
As	75	2	He	2686	0.04
Sb	121	2	He	8989	0.04
Se	78	2	He	502	1.34

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1655826	1.53	1658792	99.82	70	125	
In	115	1	nogas	1370612	4.69	1398610	98.00	70	125	
Li	6	1	nogas	593526	0.71	581094	102.14	70	125	
Bi	209	1	nogas	1086171	4.17	1069547	101.55	70	125	
Ge	72	2	He	789548	1.53	766661	102.99	70	125	

Calibration Standard Report

Sample Table

Sample Name	5/25/500
Data File Name	016CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T13:01:31-06:00
Sample Type	CalStd
Level	3
Dilution	1
Comment	
ISTD Ref File Name	014CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	13962	0.02
B	11	1	nogas	45770	0.00
Na	23	1	nogas	7100750	0.00
Mg	24	1	nogas	3583939	0.00
Al	27	1	nogas	86472	0.00
P	31	1	nogas	79170	0.00
K	39	1	nogas	8852408	0.00
Ca	43	1	nogas	10073	0.01
Ca	44	1	nogas	282420	0.00
Ti	47	1	nogas	4691	0.06
V	51	1	nogas	102513	0.01
Cr	52	1	nogas	68012	0.00
Mn	55	1	nogas	82450	0.00
Fe	56	1	nogas	6353909	0.00
Co	59	1	nogas	55844	0.00
Ni	60	1	nogas	31217	0.00
Cu	63	1	nogas	66583	0.01
Zn	66	1	nogas	12411	0.04
As	75	1	nogas	35062	0.01
Se	77	1	nogas	8402	0.05
Se	82	1	nogas	770	2.79
Sr	88	1	nogas	66511	0.00
Mo	95	1	nogas	15077	0.03
Ag	107	1	nogas	31002	0.03
Cd	111	1	nogas	6215	0.05
Sn	118	1	nogas	21110	0.02
Sb	121	1	nogas	28972	0.00
Ba	137	1	nogas	9473	0.02
Tl	205	1	nogas	46585	0.01
Pb	208	1	nogas	33389	0.01
Si	28	1	nogas	2653036	0.00
La	139	1	nogas	63	38.08
Na	23	2	He	908288	0.00
Mg	24	2	He	375870	0.00
Al	27	2	He	4667	0.08
K	39	2	He	741750	0.00
Ca	43	2	He	1443	0.61
Ca	44	2	He	26109	0.01
V	51	2	He	25922	0.01
Cr	52	2	He	31638	0.00

Calibration Standard Report

Mn	55	2	He	25949	0.01
Fe	56	2	He	2594362	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Co	59	2	He	34577	0.01
Ni	60	2	He	18927	0.03
Cu	63	2	He	40897	0.01
Zn	66	2	He	7805	0.11
As	75	2	He	6143	0.04
Sb	121	2	He	22348	0.01
Se	78	2	He	853	0.68

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1633871	1.49	1658792	98.50	70	125	
In	115	1	nogas	1376426	4.08	1398610	98.41	70	125	
Li	6	1	nogas	602731	3.28	581094	103.72	70	125	
Bi	209	1	nogas	1080852	4.55	1069547	101.06	70	125	
Ge	72	2	He	764049	1.27	766661	99.66	70	125	

Calibration Standard Report

Sample Table

Sample Name	10/50/1000
Data File Name	017CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T13:03:46-06:00
Sample Type	CalStd
Level	4
Dilution	1
Comment	
ISTD Ref File Name	014CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	27447	0.01
B	11	1	nogas	83659	0.01
Na	23	1	nogas	12178540	0.00
Mg	24	1	nogas	7193878	0.00
Al	27	1	nogas	121715	0.00
P	31	1	nogas	96160	0.00
K	39	1	nogas	13138381	0.00
Ca	43	1	nogas	18156	0.03
Ca	44	1	nogas	402049	0.00
Ti	47	1	nogas	9116	0.06
V	51	1	nogas	164678	0.00
Cr	52	1	nogas	120658	0.00
Mn	55	1	nogas	142546	0.00
Fe	56	1	nogas	11675251	0.00
Co	59	1	nogas	111452	0.00
Ni	60	1	nogas	41709	0.01
Cu	63	1	nogas	97122	0.00
Zn	66	1	nogas	19184	0.01
As	75	1	nogas	47083	0.01
Se	77	1	nogas	8869	0.03
Se	82	1	nogas	1287	0.29
Sr	88	1	nogas	126792	0.00
Mo	95	1	nogas	27359	0.01
Ag	107	1	nogas	62427	0.00
Cd	111	1	nogas	12305	0.03
Sn	118	1	nogas	36630	0.00
Sb	121	1	nogas	56862	0.00
Ba	137	1	nogas	18410	0.01
Tl	205	1	nogas	89930	0.00
Pb	208	1	nogas	65997	0.00
Si	28	1	nogas	3852621	0.00
La	139	1	nogas	40	108.25
Na	23	2	He	1547651	0.00
Mg	24	2	He	751188	0.00
Al	27	2	He	6708	0.06
K	39	2	He	1223709	0.00
Ca	43	2	He	2427	0.10
Ca	44	2	He	46804	0.00
V	51	2	He	51510	0.00
Cr	52	2	He	56362	0.01

Calibration Standard Report

Mn	55	2	He	45241	0.01
Fe	56	2	He	5020233	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Co	59	2	He	67947	0.01
Ni	60	2	He	26243	0.01
Cu	63	2	He	63891	0.00
Zn	66	2	He	11607	0.02
As	75	2	He	11692	0.01
Sb	121	2	He	44264	0.00
Se	78	2	He	1280	0.46

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1644581	0.76	1658792	99.14	70	125	
In	115	1	nogas	1335757	0.41	1398610	95.51	70	125	
Li	6	1	nogas	602129	4.53	581094	103.62	70	125	
Bi	209	1	nogas	1075465	6.26	1069547	100.55	70	125	
Ge	72	2	He	769432	3.17	766661	100.36	70	125	

Calibration Standard Report

Sample Table

Sample Name	100/500/10K
Data File Name	018CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T13:06:00-06:00
Sample Type	CalStd
Level	5
Dilution	1
Comment	
ISTD Ref File Name	014CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	286606	0.00
B	11	1	nogas	807759	0.00
Na	23	1	nogas	103892000	0.00
Mg	24	1	nogas	69859735	0.00
Al	27	1	nogas	983211	0.00
P	31	1	nogas	412696	0.00
K	39	1	nogas	95754738	0.00
Ca	43	1	nogas	172358	0.00
Ca	44	1	nogas	2935739	0.00
Ti	47	1	nogas	88524	0.00
V	51	1	nogas	1272230	0.00
Cr	52	1	nogas	1021219	0.00
Mn	55	1	nogas	1269185	0.00
Fe	56	1	nogas	105618848	0.00
Co	59	1	nogas	1069293	0.00
Ni	60	1	nogas	263244	0.00
Cu	63	1	nogas	626436	0.00
Zn	66	1	nogas	184264	0.00
As	75	1	nogas	244694	0.00
Se	77	1	nogas	16561	0.01
Se	82	1	nogas	11177	0.04
Sr	88	1	nogas	1263903	0.00
Mo	95	1	nogas	253707	0.00
Ag	107	1	nogas	623219	0.00
Cd	111	1	nogas	127782	0.00
Sn	118	1	nogas	374240	0.00
Sb	121	1	nogas	572476	0.00
Ba	137	1	nogas	179010	0.00
Tl	205	1	nogas	911782	0.00
Pb	208	1	nogas	665038	0.00
Si	28	1	nogas	24421570	0.00
La	139	1	nogas	157	8.48
Na	23	2	He	12643161	0.00
Mg	24	2	He	7308855	0.00
Al	27	2	He	55789	0.00
K	39	2	He	10016729	0.00
Ca	43	2	He	26820	0.01
Ca	44	2	He	435721	0.00
V	51	2	He	492853	0.00
Cr	52	2	He	538961	0.00

Calibration Standard Report

Mn	55	2	He	445356	0.00
Fe	56	2	He	49264524	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Co	59	2	He	676293	0.00
Ni	60	2	He	176470	0.00
Cu	63	2	He	432849	0.00
Zn	66	2	He	109770	0.00
As	75	2	He	114107	0.00
Sb	121	2	He	442882	0.00
Se	78	2	He	10228	0.02

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1626752	2.38	1658792	98.07	70	125	
In	115	1	nogas	1325890	2.67	1398610	94.80	70	125	
Li	6	1	nogas	623184	2.26	581094	107.24	70	125	
Bi	209	1	nogas	1061727	7.56	1069547	99.27	70	125	
Ge	72	2	He	773125	2.67	766661	100.84	70	125	

Calibration Standard Report

Sample Table

Sample Name	200/1000/20K
Data File Name	019CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T13:08:13-06:00
Sample Type	CalStd
Level	6
Dilution	1
Comment	
ISTD Ref File Name	014CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	560374	0.00
B	11	1	nogas	1611896	0.00
Na	23	1	nogas	201861505	0.00
Mg	24	1	nogas	136227057	0.00
Al	27	1	nogas	1929886	0.00
P	31	1	nogas	742643	0.00
K	39	1	nogas	179391242	0.00
Ca	43	1	nogas	332827	0.00
Ca	44	1	nogas	5426706	0.00
Ti	47	1	nogas	174977	0.00
V	51	1	nogas	2415758	0.00
Cr	52	1	nogas	1998644	0.00
Mn	55	1	nogas	2431914	0.00
Fe	56	1	nogas	200233879	0.00
Co	59	1	nogas	2106226	0.00
Ni	60	1	nogas	488286	0.00
Cu	63	1	nogas	1194384	0.00
Zn	66	1	nogas	353312	0.00
As	75	1	nogas	457377	0.00
Se	77	1	nogas	26373	0.01
Se	82	1	nogas	21577	0.01
Sr	88	1	nogas	2524790	0.00
Mo	95	1	nogas	495542	0.00
Ag	107	1	nogas	1213845	0.00
Cd	111	1	nogas	243818	0.00
Sn	118	1	nogas	737577	0.00
Sb	121	1	nogas	1122026	0.00
Ba	137	1	nogas	354604	0.00
Tl	205	1	nogas	1839074	0.00
Pb	208	1	nogas	1325319	0.00
Si	28	1	nogas	45334709	0.00
La	139	1	nogas	273	11.38
Na	23	2	He	24601920	0.00
Mg	24	2	He	14367271	0.00
Al	27	2	He	106316	0.00
K	39	2	He	19049741	0.00
Ca	43	2	He	50210	0.00
Ca	44	2	He	835962	0.00
V	51	2	He	975994	0.00
Cr	52	2	He	1021077	0.00

Calibration Standard Report

Mn	55	2	He	851860	0.00
Fe	56	2	He	95442522	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Co	59	2	He	1373323	0.00
Ni	60	2	He	332209	0.00
Cu	63	2	He	833630	0.00
Zn	66	2	He	219982	0.00
As	75	2	He	220294	0.00
Sb	121	2	He	869164	0.00
Se	78	2	He	20394	0.01

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1594016	2.28	1658792	96.09	70	125	
In	115	1	nogas	1315440	1.01	1398610	94.05	70	125	
Li	6	1	nogas	658160	3.16	581094	113.26	70	125	
Bi	209	1	nogas	1030857	4.07	1069547	96.38	70	125	
Ge	72	2	He	757586	3.01	766661	98.82	70	125	

Initial Calibration Verification (ICV) Report

Sample Table

Sample Name	ICV
Data File Name	021_ICV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T13:12:39-06:00
Sample Type	ICV
Dilution	1
Comment	
ISTD Ref File Name	014CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High	QC Flag
Be	9	1	nogas	103.201	1.684	290781	1.30	100	103.2	90	110	
B	11	1	nogas	536.927	1.367	852248	2.35	500	107.4	90	110	
Na	23	1	nogas	10798.510	3.553	109430877	2.66	10000	108.0	90	110	
Mg	24	1	nogas	10840.805	2.794	73648147	1.64	10000	108.4	90	110	
Al	27	1	nogas	93.872	2.597	939258	2.29	100	93.9	90	110	
P	31	1	nogas	533.993	3.803	437695	1.50	500	106.8	90	110	
K	39	1	nogas	10418.734	3.186	98657152	1.43	10000	104.2	90	110	
Ca	43	1	nogas	10331.900	3.318	177912	1.80	10000	103.3	90	110	
Ca	44	1	nogas	10728.649	2.792	3084165	0.19	10000	107.3	90	110	
Ti	47	1	nogas	100.263	1.709	90270	2.42	100	100.3	90	110	
V	51	1	nogas	104.869	4.341	1329354	4.69	100	104.9	90	110	
Cr	52	1	nogas	101.145	1.199	1048524	2.60	100	101.1	90	110	
Mn	55	1	nogas	104.375	6.327	1317379	4.10	100	104.4	90	110	
Fe	56	1	nogas	10574.020	3.854	110023207	1.27	10000	105.7	90	110	
Co	59	1	nogas	99.487	4.283	1077672	1.82	100	99.5	90	110	
Ni	60	1	nogas	101.291	4.948	265111	2.25	100	101.3	90	110	
Cu	63	1	nogas	98.444	3.351	624485	2.14	100	98.4	90	110	
Zn	66	1	nogas	102.939	0.518	188898	2.17	100	102.9	90	110	
As	75	1	nogas	102.587	2.786	252824	1.41	100	102.6	90	110	
Se	77	1	nogas	95.614	4.173	16648	2.62	100	95.6	90	110	
Se	82	1	nogas	100.360	5.218	11301	3.17	100	100.4	90	110	
Sr	88	1	nogas	99.862	6.918	1292225	4.70	100	99.9	90	110	
Mo	95	1	nogas	98.201	2.009	251480	0.61	100	98.2	90	110	
Ag	107	1	nogas	101.188	2.081	633097	0.54	100	101.2	90	110	
Cd	111	1	nogas	102.935	2.647	130808	0.60	100	102.9	90	110	
Sn	118	1	nogas	93.668	2.235	358159	0.73	100	93.7	90	110	
Sb	121	1	nogas	99.283	1.725	573767	1.13	100	99.3	90	110	
Ba	137	1	nogas	100.965	3.650	185270	1.37	100	101.0	90	110	
Tl	205	1	nogas	98.405	6.457	931707	0.63	100	98.4	90	110	
Pb	208	1	nogas	98.606	6.595	674953	0.73	100	98.6	90	110	
U	238	1	nogas	96.699	7.540	1294014	1.93	100	96.7	90	110	
Li	7	1	nogas	109.714	2.212	731186	4.09	100	109.7	90	110	
Si	28	1	nogas	1582.539	5.012	8650824	2.47	5000	31.7	90	110	ICV Main CR1 Failed
Ba	135	1	nogas	98.831	3.523	109042	1.46	100	98.8	90	110	
La	139	1	nogas	190.808	24.780	273	23.81	100	190.8	90	110	ICV Main CR1 Failed
Au	197	1	nogas	5.684	5769.864	10	173.21	100	5.7	90	110	ICV Main CR1 Failed
Tl	203	1	nogas	104.132	6.303	402841	0.55	100	104.1	90	110	
Na	23	2	He	10674.338	3.146	13484456	1.11	10000	106.7	90	110	
Mg	24	2	He	10603.466	1.608	7755990	1.79	10000	106.0	90	110	
Al	27	2	He	94.213	1.173	51961	2.36	100	94.2	90	110	
K	39	2	He	10697.897	0.529	10535494	3.05	10000	107.0	90	110	
Ca	43	2	He	10495.901	3.694	27097	1.34	10000	105.0	90	110	
Ca	44	2	He	10628.182	4.634	455509	1.76	10000	106.3	90	110	
V	51	2	He	103.010	3.340	511373	0.61	100	103.0	90	110	
Cr	52	2	He	103.316	1.198	542789	4.01	100	103.3	90	110	
Mn	55	2	He	103.623	0.869	452593	2.89	100	103.6	90	110	
Fe	56	2	He	10546.047	3.265	51389558	0.72	10000	105.5	90	110	
Co	59	2	He	100.016	6.464	694311	3.56	100	100.0	90	110	
Ni	60	2	He	104.962	7.717	183138	4.41	100	105.0	90	110	
Cu	63	2	He	103.227	5.314	447385	2.47	100	103.2	90	110	
Zn	66	2	He	101.640	0.346	113752	3.11	100	101.6	90	110	
As	75	2	He	102.764	2.683	115807	0.29	100	102.8	90	110	
Sn	118	2	He	97.228	1.213	280468	1.67	100	97.2	90	110	
Sb	121	2	He	100.901	4.806	446755	2.14	100	100.9	90	110	
Se	78	2	He	102.590	5.994	10743	3.68	100	102.6	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1641555	2.60	1658792	98.96	70	125	
In	115	1	nogas	1360880	2.58	1398610	97.30	70	125	
Li	6	1	nogas	612824	2.34	581094	105.46	70	125	

Initial Calibration Verification (ICV) Report

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Bi	209	1	nogas	1070323	6.10	1069547	100.07	70	125	
Ge	72	2	He	771642	2.87	766661	100.65	70	125	

Sample Report

Sample Table

Sample Name	LLICV2
Data File Name	022SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T13:14:53-06:00
Sample Type	Sample
Dilution	1
Comment	
ISTD Ref FileName	014CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	2.104	2.104	4.12	5591	0.04	2000	
B	11	1	nogas	32.480	32.480	7.95	55271	0.06	2000	
Na	23	1	nogas	241.541	241.541	6.38	4108428	0.01	200000	
Mg	24	1	nogas	231.421	231.421	3.47	1529372	0.02	200000	
Al	27	1	nogas	3.254	3.254	1.60	46546	0.01	2000	
K	39	1	nogas	194.113	194.113	3.83	5944928	0.00	200000	
Ca	43	1	nogas	194.344	194.344	8.68	4262	4.56	200000	
Ca	44	1	nogas	172.808	172.808	5.69	189616	0.09	200000	
Ti	47	1	nogas	2.114	2.114	7.94	2087	0.10	2000	
V	51	1	nogas	1.363	1.363	23.44	61452	0.00	2000	
Cr	52	1	nogas	1.904	1.904	8.29	38121	0.00	2000	
Mn	55	1	nogas	2.380	2.380	3.57	43684	0.01	2000	
Fe	56	1	nogas	215.832	215.832	0.54	3104938	0.01	200000	
Co	59	1	nogas	1.974	1.974	5.32	21770	0.01	2000	
Ni	60	1	nogas	0.848	0.848	13.50	21907	0.00	2000	
Cu	63	1	nogas	0.517	0.517	123.60	42003	0.00	2000	
Zn	66	1	nogas	1.887	1.887	8.38	5501	0.03	2000	
As	75	1	nogas	1.177	1.177	14.37	25876	0.00	2000	
Se	77	1	nogas	-0.887	-0.887	-834.25	7078	-0.01	2000	
Se	82	1	nogas	1.292	1.292	7.96	453	0.29	2000	
Sr	88	1	nogas	2.057	2.057	1.11	27445	0.01	2000	
Mo	95	1	nogas	1.971	1.971	6.19	7002	0.03	2000	
Ag	107	1	nogas	1.961	1.961	0.62	12375	0.02	2000	
Cd	111	1	nogas	2.196	2.196	10.85	2840	0.08	2000	
Sn	118	1	nogas	2.168	2.168	7.03	9436	0.02	2000	
Sb	121	1	nogas	2.077	2.077	3.32	12762	0.02	2000	
Ba	137	1	nogas	2.180	2.180	7.35	4247	0.05	2000	
Tl	205	1	nogas	2.194	2.194	1.26	21138	0.01	2000	
Pb	208	1	nogas	2.067	2.067	4.79	14540	0.01	2000	
U	238	1	nogas	1.907	1.907	2.62	25939	0.01	2000	
Si	28	1	nogas	118.752	118.752	4.27	2006301	0.01	2000	
La	139	1	nogas	14.783	14.783	206.04	57	26.09	2000	
Au	197	1	nogas	185.408	185.408	106.29	20	927.04	2000	
Na	23	2	He	220.945	220.945	1.12	534698	0.04	200000	
Mg	24	2	He	207.852	207.852	1.47	153976	0.13	200000	
Al	27	2	He	2.187	2.187	10.42	2714	0.08	2000	
K	39	2	He	200.137	200.137	0.92	450721	0.04	200000	
Ca	43	2	He	195.580	195.580	14.87	567	34.51	200000	
Ca	44	2	He	210.682	210.682	4.96	12118	1.74	200000	
V	51	2	He	2.089	2.089	1.39	11558	0.02	2000	

Sample Report

Cr	52	2	He	1.997	1.997	1.28	14770	0.01	2000	
Mn	55	2	He	2.325	2.325	0.56	11591	0.02	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Fe	56	2	He	200.325	200.325	3.09	1002962	0.02	200000	
Co	59	2	He	1.920	1.920	4.86	13532	0.01	2000	
Ni	60	2	He	0.792	0.792	50.53	12755	0.01	2000	
Cu	63	2	He	0.996	0.996	9.55	24167	0.00	2000	
Zn	66	2	He	2.358	2.358	3.45	3474	0.07	2000	
As	75	2	He	1.913	1.913	8.71	2576	0.07	2000	
Sb	121	2	He	2.007	2.007	2.27	9479	0.02	2000	
Se	78	2	He	1.560	1.560	61.24	508	0.31	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1647782	0.87	1658792	99.34	70	125	
In	115	1	nogas	1378582	5.25	1398610	98.57	70	125	
Li	6	1	nogas	576384	0.71	581094	99.19	70	125	
Bi	209	1	nogas	1083589	6.53	1069547	101.31	70	125	
Ge	72	2	He	778805	0.11	766661	101.58	70	125	

Low Level Initial Calibration Verification (LLICV) Report

Sample Table

Sample Name	LLICV5
Data File Name	023LICV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T13:17:08-06:00
Sample Type	LLICV
Dilution	1
Comment	
ISTD Ref File Name	014CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High	QC Flag
Be	9	1	nogas	5.520	3.141	14352	4.08	5	110.4	70	130	
B	11	1	nogas	37.154	1.685	60958	3.59	25	148.6	70	130	LLICV Main CR1 Failed
Na	23	1	nogas	547.121	4.359	7166944	2.14	500	109.4	70	130	
Mg	24	1	nogas	547.021	4.394	3662031	3.35	500	109.4	70	130	
Al	27	1	nogas	7.308	3.646	85760	3.58	5	146.2	70	130	LLICV Main CR1 Failed
P	31	1	nogas	18.919	15.512	74719	0.96	25	75.7	70	130	
K	39	1	nogas	501.000	6.676	8645957	0.75	500	100.2	70	130	
Ca	43	1	nogas	494.594	3.169	9326	1.26	500	98.9	70	130	
Ca	44	1	nogas	479.213	7.465	271100	2.07	500	95.8	70	130	
Ti	47	1	nogas	4.888	1.297	4541	1.96	5	97.8	70	130	
V	51	1	nogas	4.987	2.161	104988	3.90	5	99.7	70	130	
Cr	52	1	nogas	5.062	3.758	69703	4.54	5	101.2	70	130	
Mn	55	1	nogas	5.533	6.710	82349	4.15	5	110.7	70	130	
Fe	56	1	nogas	525.171	7.272	6242910	4.55	500	105.0	70	130	
Co	59	1	nogas	5.132	4.450	55504	2.05	5	102.6	70	130	
Ni	60	1	nogas	3.805	8.709	28793	1.85	5	76.1	70	130	
Cu	63	1	nogas	3.873	8.632	61469	5.55	5	77.5	70	130	
Zn	66	1	nogas	5.758	6.749	12415	3.43	5	115.2	70	130	
As	75	1	nogas	5.085	8.986	34294	0.38	5	101.7	70	130	
Se	77	1	nogas	16.310	23.133	8709	4.88	5	326.2	70	130	LLICV Main CR1 Failed
Se	82	1	nogas	4.743	11.642	823	4.60	5	94.9	70	130	
Sr	88	1	nogas	5.009	4.151	65092	1.30	5	100.2	70	130	
Mo	95	1	nogas	5.042	6.139	14670	2.74	5	100.8	70	130	
Ag	107	1	nogas	4.831	0.551	30097	3.07	5	96.6	70	130	
Cd	111	1	nogas	4.563	7.334	6085	8.78	5	91.3	70	130	
Sn	118	1	nogas	5.136	5.663	21567	5.27	5	102.7	70	130	
Sb	121	1	nogas	4.872	3.376	28651	1.01	5	97.4	70	130	
Ba	137	1	nogas	4.757	2.716	9319	1.49	5	95.1	70	130	
Tl	205	1	nogas	4.601	9.015	44573	4.83	5	92.0	70	130	
Pb	208	1	nogas	4.714	7.822	33182	2.65	5	94.3	70	130	
U	238	1	nogas	4.748	8.937	64990	2.85	5	95.0	70	130	
Li	7	1	nogas	5.174	5.370	68890	3.19	5	103.5	70	130	
Si	28	1	nogas	268.130	8.162	2659202	1.56	25	1072.5	70	130	LLICV Main CR1 Failed
La	139	1	nogas	21.271	150.423	67	56.79	5	425.4	70	130	LLICV Main CR1 Failed
Au	197	1	nogas	239.594	55.793	23	24.74	5	4791.9	70	130	LLICV Main CR1 Failed
Na	23	2	He	517.595	3.134	898916	0.92	500	103.5	70	130	
Mg	24	2	He	508.521	1.298	373100	0.67	500	101.7	70	130	
Al	27	2	He	6.233	6.404	4861	2.57	5	124.7	70	130	
K	39	2	He	502.221	3.523	737928	0.53	500	100.4	70	130	
Ca	43	2	He	504.959	12.606	1363	14.00	500	101.0	70	130	
Ca	44	2	He	532.450	5.354	25745	2.89	500	106.5	70	130	
V	51	2	He	5.080	0.459	26318	1.47	5	101.6	70	130	
Cr	52	2	He	5.042	3.702	30543	1.54	5	100.8	70	130	
Mn	55	2	He	5.724	3.150	26320	1.32	5	114.5	70	130	
Fe	56	2	He	529.054	3.449	2599357	1.62	500	105.8	70	130	
Co	59	2	He	4.841	4.455	33749	2.61	5	96.8	70	130	
Ni	60	2	He	3.714	10.309	17459	4.43	5	74.3	70	130	
Cu	63	2	He	4.237	2.733	37443	1.01	5	84.7	70	130	
Zn	66	2	He	6.124	4.048	7642	5.43	5	122.5	70	130	
As	75	2	He	5.050	1.034	6088	2.24	5	101.0	70	130	
Sb	121	2	He	4.987	2.251	22622	3.27	5	99.7	70	130	
Se	78	2	He	4.763	7.041	830	5.76	5	95.3	70	130	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1631063	2.88	1658792	98.33	70	125	
In	115	1	nogas	1421634	3.42	1398610	101.65	70	125	
Li	6	1	nogas	564840	2.43	581094	97.20	70	125	
Bi	209	1	nogas	1095476	7.91	1069547	102.42	70	125	

Low Level Initial Calibration Verification (LLICV) Report

Ge	72	2	He	772950	1.87	766661	100.82	70	125	

Initial Calibration Blank (ICB) Report

Sample Table

Sample Name	ICB
Data File Name	024_ICB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T13:19:23-06:00
Sample Type	ICB
Dilution	1
Comment	
ISTD Ref File Name	014CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.007	30.2	33	17.3	1	
B	11	1	nogas	7.019	1.9	17729	1.8	10	
Na	23	1	nogas	4.551	153.4	1821657	1.7	100	
Mg	24	1	nogas	1.032	25.6	12106	15.8	100	
Al	27	1	nogas	0.296	15.5	16991	1.5	5	
P	31	1	nogas	-8.443	-5.6	55256	1.4	10	
K	39	1	nogas	5.543	284.6	4156491	2.0	100	
Ca	43	1	nogas	19.481	40.2	1230	9.2	100	
Ca	44	1	nogas	-27.956	-46.9	132083	1.2	100	
Ti	47	1	nogas	0.051	310.0	220	63.1	2.5	
V	51	1	nogas	-0.351	-35.7	39720	2.3	2.5	
Cr	52	1	nogas	0.016	264.6	18513	2.6	2.5	
Mn	55	1	nogas	0.197	23.2	16024	2.1	2.5	
Fe	56	1	nogas	-0.236	-1023.7	849977	1.6	100	
Co	59	1	nogas	0.015	37.1	450	11.8	2.5	
Ni	60	1	nogas	-1.526	-7.9	15861	1.4	2.5	
Cu	63	1	nogas	-1.543	-26.7	29244	9.5	1	
Zn	66	1	nogas	-0.672	-12.8	823	18.4	2.5	
As	75	1	nogas	-0.134	-233.8	22551	2.6	2.5	
Se	77	1	nogas	7.979	42.2	7835	4.0	2.5	ICB Main CR1 Failed
Se	82	1	nogas	-0.111	-474.8	293	17.5	1	
Sr	88	1	nogas	0.013	114.9	860	20.3	2.5	
Mo	95	1	nogas	-0.091	-94.3	1707	11.0	2.5	
Ag	107	1	nogas	0.009	103.4	110	50.6	2.5	
Cd	111	1	nogas	0.003	613.7	27	86.6	1	
Sn	118	1	nogas	0.109	36.9	1470	8.5	5	
Sb	121	1	nogas	0.053	37.9	1020	12.7	2.5	
Ba	137	1	nogas	0.031	37.6	257	11.9	2.5	
Tl	205	1	nogas	0.044	48.6	490	53.1	1	
Pb	208	1	nogas	0.020	96.1	357	40.5	2.5	
U	238	1	nogas	0.007	42.0	157	35.2	2.5	
Si	28	1	nogas	10.874	44.3	1488684	0.5	5	ICB Main CR1 Failed
La	139	1	nogas	18.193	86.4	60	28.9	2.5	ICB Main CR1 Failed
Au	197	1	nogas	120.592	186.8	17	69.3	2.5	ICB Main CR1 Failed
Na	23	2	He	4.714	144.0	254885	1.7	100	
Mg	24	2	He	0.893	11.0	1117	4.6	100	
Al	27	2	He	-1.225	-8.9	840	8.2	5	
K	39	2	He	2.125	224.3	249690	0.5	100	
Ca	43	2	He	16.457	113.1	97	46.6	100	
Ca	44	2	He	18.750	65.5	3727	12.9	100	
V	51	2	He	0.131	8.1	1699	3.8	2.5	
Cr	52	2	He	-0.043	-97.4	3904	6.5	2.5	
Mn	55	2	He	0.121	61.9	1840	17.8	2.5	
Fe	56	2	He	0.634	31.9	19891	3.1	100	

Initial Calibration Blank (ICB) Report

Co	59	2	He	0.012	91.6	147	51.2	2.5	
Ni	60	2	He	-1.537	-4.9	8596	2.6	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Cu	63	2	He	-1.061	-5.7	15023	1.3	1	
Zn	66	2	He	-0.280	-43.8	497	25.3	2.5	
As	75	2	He	0.036	82.2	432	7.9	2.5	
Sb	121	2	He	0.068	35.4	787	11.5	2.5	
Se	78	2	He	-0.036	-1285.8	333	14.0	1	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1620739	1.92	1658792	97.71	70	125	
In	115	1	nogas	1350081	5.52	1398610	96.53	70	125	
Li	6	1	nogas	580278	0.77	581094	99.86	70	125	
Bi	209	1	nogas	1100356	8.62	1069547	102.88	70	125	
Ge	72	2	He	751943	1.74	766661	98.08	70	125	

Interference Check Solution A (ICS-A) Report

Sample Table

Sample Name	ICSA
Data File Name	025ICSA.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T13:36:13-06:00
Sample Type	ICSA
Dilution	1
Comment	
ISTD Ref File Name	014CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.014	130.8	43	93.3	0	ICSA Main CR1 Failed
B	11	1	nogas	2.046	45.2	8899	9.5	0	ICSA Main CR1 Failed
Na	23	1	nogas	109998.471	2.5	950380888	3.0	0	
Mg	24	1	nogas	109284.153	2.8	642498131	2.1	0	
Al	27	1	nogas	87308.436	4.1	769887642	1.8	0	
P	31	1	nogas	100868.169	3.6	63606179	1.8	0	
K	39	1	nogas	104330.498	5.0	850805452	3.8	0	
Ca	43	1	nogas	103475.855	2.6	1588064	1.9	0	
Ca	44	1	nogas	102650.181	4.8	25328532	3.2	0	
Ti	47	1	nogas	2071.678	3.4	1666114	2.0	0	
V	51	1	nogas	1.127	47.6	52155	9.1	0	ICSA Main CR1 Failed
Cr	52	1	nogas	1.079	14.6	26470	4.5	0	ICSA Main CR1 Failed
Mn	55	1	nogas	1.023	12.4	23759	3.9	0	ICSA Main CR1 Failed
Fe	56	1	nogas	106045.015	2.8	981047255	0.6	0	
Co	59	1	nogas	0.450	2.8	4627	3.3	0	ICSA Main CR1 Failed
Ni	60	1	nogas	-2.295	-17.0	12711	6.1	0	ICSA Main CR1 Failed
Cu	63	1	nogas	-1.539	-30.0	26497	8.3	0	ICSA Main CR1 Failed
Zn	66	1	nogas	4.364	1.6	8932	3.5	0	ICSA Main CR1 Failed
As	75	1	nogas	4.903	7.1	30540	0.0	0	ICSA Main CR1 Failed
Se	77	1	nogas	45.694	5.2	10460	1.1	0	
Se	82	1	nogas	0.130	130.9	290	3.4	0	ICSA Main CR1 Failed
Sr	88	1	nogas	0.891	6.8	10950	4.2	0	ICSA Main CR1 Failed
Mo	95	1	nogas	2155.674	3.1	4904789	1.5	0	
Ag	107	1	nogas	0.054	48.1	353	39.0	0	ICSA Main CR1 Failed
Cd	111	1	nogas	1.405	11.7	1533	10.9	0	ICSA Main CR1 Failed
Sn	118	1	nogas	0.224	10.3	1633	4.6	0	ICSA Main CR1 Failed
Sb	121	1	nogas	0.508	21.7	3280	19.2	0	ICSA Main CR1 Failed
Ba	137	1	nogas	0.308	11.2	650	9.6	0	ICSA Main CR1 Failed
Tl	205	1	nogas	0.024	25.2	260	16.8	0	ICSA Main CR1 Failed
Pb	208	1	nogas	0.092	2.8	810	17.1	0	ICSA Main CR1 Failed
Si	28	1	nogas	104.223	10.2	1729536	1.1	0	
La	139	1	nogas	96.355	64.9	133	49.9	0	
Na	23	2	He	103722.196	7.6	118559788	2.8	0	
Mg	24	2	He	101674.303	6.5	68466674	3.0	0	
Al	27	2	He	90515.665	8.2	44594558	4.3	0	
K	39	2	He	105563.911	6.9	93575112	1.4	0	
Ca	43	2	He	103043.719	8.2	244347	2.8	0	
Ca	44	2	He	109271.005	8.4	4284913	3.6	0	
V	51	2	He	0.283	7.8	2302	2.5	0	ICSA Main CR1 Failed
Cr	52	2	He	0.487	10.5	6231	2.9	0	ICSA Main CR1 Failed
Mn	55	2	He	0.990	7.7	5221	3.2	0	ICSA Main CR1 Failed
Fe	56	2	He	104604.174	3.9	469680046	2.4	0	
Co	59	2	He	0.291	9.6	1920	7.0	0	ICSA Main CR1 Failed
Ni	60	2	He	-3.626	-6.9	4964	2.5	0	ICSA Main CR1 Failed
Cu	63	2	He	-1.046	-17.2	14259	3.7	0	ICSA Main CR1 Failed
Zn	66	2	He	3.569	4.2	4411	3.6	0	ICSA Main CR1 Failed
As	75	2	He	0.156	49.1	530	8.9	0	ICSA Main CR1 Failed
Sb	121	2	He	0.393	11.0	2067	6.3	0	ICSA Main CR1 Failed
Se	78	2	He	0.253	74.6	342	8.0	0	ICSA Main CR1 Failed

Interference Check Solution A (ICS-A) Report

Interference Check Solution A (ICS-A) Report

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1469563	2.32	1658792	88.59	70	125	
In	115	1	nogas	1154956	1.42	1398610	82.58	70	125	
Li	6	1	nogas	502011	3.76	581094	86.39	70	125	
Bi	209	1	nogas	1043348	19.43	1069547	97.55	70	125	
Ge	72	2	He	711849	5.84	766661	92.85	70	125	

Interference Check Solution AB (ICS-AB) Report

Sample Table

Sample Name	ICSAB
Data File Name	026ICSB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T13:38:33-06:00
Sample Type	ICSB
Dilution	1
Comment	
ISTD Ref File Name	014CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High	QC Flag
Be	9	1	nogas	118.432	3.643	288126	2.43	100	118.4	80	120	
B	11	1	nogas	594.135	6.132	813018	3.67	100	594.1	80	120	
Na	23	1	nogas	113459.223	2.569	1037448257	2.90	100	113459.2	80	120	ICSB Main CR1 Failed
Mg	24	1	nogas	109355.563	2.257	680626849	2.93	100	109355.6	80	120	ICSB Main CR1 Failed
Al	27	1	nogas	86172.631	2.773	781829135	3.40	100	86172.6	80	120	ICSB Main CR1 Failed
K	39	1	nogas	109867.687	0.695	921485954	1.50	100	109867.7	80	120	ICSB Main CR1 Failed
Ca	43	1	nogas	113723.194	1.392	1794780	0.97	100	113723.2	80	120	
Ca	44	1	nogas	114502.800	2.041	29047664	1.21	100	114502.8	80	120	
Ti	47	1	nogas	2172.678	4.784	1797121	4.55	100	2172.7	80	120	
V	51	1	nogas	116.860	2.415	1359049	3.11	100	116.9	80	120	
Cr	52	1	nogas	109.034	2.306	1039191	3.06	100	109.0	80	120	
Mn	55	1	nogas	111.487	1.422	1295463	1.00	100	111.5	80	120	
Fe	56	1	nogas	111727.071	1.192	1063131124	1.63	100	111727.1	80	120	ICSB Main CR1 Failed
Co	59	1	nogas	114.768	1.277	1144986	0.76	100	114.8	80	120	
Ni	60	1	nogas	111.335	0.492	266615	1.28	100	111.3	80	120	
Cu	63	1	nogas	108.088	3.059	627862	3.12	100	108.1	80	120	
Zn	66	1	nogas	112.252	2.349	189447	2.77	100	112.3	80	120	
As	75	1	nogas	120.919	2.869	270551	2.03	100	120.9	80	120	
Se	77	1	nogas	142.995	3.266	19661	1.91	100	143.0	80	120	
Se	82	1	nogas	117.004	5.226	12084	4.26	100	117.0	80	120	
Sr	88	1	nogas	116.482	1.165	1388771	1.94	100	116.5	80	120	
Mo	95	1	nogas	2084.170	3.232	4877859	3.51	100	2084.2	80	120	ICSB Main CR1 Failed
Ag	107	1	nogas	109.266	4.003	629405	3.76	100	109.3	80	120	
Cd	111	1	nogas	119.337	2.766	135153	2.53	100	119.3	80	120	
Sn	118	1	nogas	114.532	2.710	389989	0.58	100	114.5	80	120	
Sb	121	1	nogas	109.786	2.073	584118	2.75	100	109.8	80	120	
Ba	137	1	nogas	115.324	4.300	188530	2.23	100	115.3	80	120	
Tl	205	1	nogas	105.411	7.662	901727	2.44	100	105.4	80	120	
Pb	208	1	nogas	110.087	7.144	680946	1.73	100	110.1	80	120	
U	238	1	nogas	114.450	9.038	1384332	5.40	100	114.5	80	120	
Si	28	1	nogas	5847.180	2.391	25820719	2.82	100	5847.2	80	120	ICSB Main CR1 Failed
La	139	1	nogas	189.570	49.004	240	39.75	100	189.6	80	120	
Na	23	2	He	112703.670	0.854	132076895	2.20	100	112703.7	80	120	
Mg	24	2	He	111026.923	1.903	76635167	3.34	100	111026.9	80	120	
Al	27	2	He	87962.711	2.654	44440609	3.72	100	87962.7	80	120	ICSB Main CR1 Failed
K	39	2	He	112840.732	0.561	102536385	1.84	100	112840.7	80	120	ICSB Main CR1 Failed
Ca	43	2	He	108303.801	3.038	263387	2.67	100	108303.8	80	120	ICSB Main CR1 Failed
Ca	44	2	He	113436.283	3.989	4561887	3.81	100	113436.3	80	120	ICSB Main CR1 Failed
V	51	2	He	115.475	1.756	540873	0.67	100	115.5	80	120	
Cr	52	2	He	114.220	1.255	565533	2.28	100	114.2	80	120	
Mn	55	2	He	111.428	2.130	459022	2.86	100	111.4	80	120	
Fe	56	2	He	108948.328	0.928	500930099	1.60	100	108948.3	80	120	ICSB Main CR1 Failed
Co	59	2	He	108.323	2.622	710070	1.78	100	108.3	80	120	
Ni	60	2	He	109.842	3.395	180478	1.64	100	109.8	80	120	
Cu	63	2	He	113.075	2.411	460819	0.89	100	113.1	80	120	
Zn	66	2	He	115.117	0.147	121425	1.74	100	115.1	80	120	
As	75	2	He	114.387	0.525	121610	1.23	100	114.4	80	120	
Sb	121	2	He	112.234	3.997	468920	2.41	100	112.2	80	120	
Se	78	2	He	114.995	2.447	11328	0.87	100	115.0	80	120	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1510918	0.84	1658792	91.09	70	125	
In	115	1	nogas	1212803	3.24	1398610	86.71	70	125	
Li	6	1	nogas	529505	4.52	581094	91.12	70	125	
Bi	209	1	nogas	967297	5.80	1069547	90.44	70	125	
Ge	72	2	He	727896	1.65	766661	94.94	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	038_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T14:07:16-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	014CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	114.230	2.242	236847	2.06	100	114.2	90	110	CCV Main CR1-2 Failed
B	11	1	nogas	594.946	0.655	694487	3.47	500	119.0	90	110	CCV Main CR1-2 Failed
Na	23	1	nogas	10669.557	4.089	96920396	1.62	10000	106.7	90	110	
Mg	24	1	nogas	10638.777	6.682	64719856	2.62	10000	106.4	90	110	
Al	27	1	nogas	88.047	2.069	829020	2.58	100	88.0	90	110	CCV Main CR1-2 Failed
P	31	1	nogas	494.724	4.579	385402	1.99	500	98.9	90	110	
K	39	1	nogas	10428.873	3.050	92821531	1.25	10000	104.3	90	110	
Ca	43	1	nogas	10314.620	1.545	166989	1.12	10000	103.1	90	110	
Ca	44	1	nogas	10597.354	1.770	2865675	1.10	10000	106.0	90	110	
Ti	47	1	nogas	96.756	4.117	81855	2.77	100	96.8	90	110	
V	51	1	nogas	103.557	3.626	1234677	4.75	100	103.6	90	110	
Cr	52	1	nogas	98.005	2.980	955184	1.79	100	98.0	90	110	
Mn	55	1	nogas	105.151	2.225	1248199	1.49	100	105.2	90	110	
Fe	56	1	nogas	10839.127	4.270	105990786	2.31	10000	108.4	90	110	
Co	59	1	nogas	102.134	4.745	1040156	3.82	100	102.1	90	110	
Ni	60	1	nogas	102.136	4.344	251180	2.80	100	102.1	90	110	
Cu	63	1	nogas	97.822	3.292	583475	1.61	100	97.8	90	110	
Zn	66	1	nogas	101.881	0.235	175758	2.31	100	101.9	90	110	
As	75	1	nogas	102.652	1.750	237815	1.45	100	102.7	90	110	
Se	77	1	nogas	92.217	5.744	15327	1.88	100	92.2	90	110	
Se	82	1	nogas	102.209	3.179	10817	2.52	100	102.2	90	110	
Sr	88	1	nogas	103.008	1.695	1254025	2.22	100	103.0	90	110	
Mo	95	1	nogas	104.293	2.501	250930	1.58	100	104.3	90	110	
Ag	107	1	nogas	104.797	1.156	616475	2.26	100	104.8	90	110	
Cd	111	1	nogas	105.206	3.589	129213	2.41	100	105.2	90	110	
Sn	118	1	nogas	94.376	3.175	348741	1.81	100	94.4	90	110	
Sb	121	1	nogas	102.881	2.001	558803	0.56	100	102.9	90	110	
Ba	137	1	nogas	100.554	3.461	178365	2.43	100	100.6	90	110	
Tl	205	1	nogas	99.221	6.753	885680	1.77	100	99.2	90	110	
Pb	208	1	nogas	101.013	6.935	651905	2.33	100	101.0	90	110	
U	238	1	nogas	94.513	4.698	1193750	0.37	100	94.5	90	110	
Li	7	1	nogas	115.561	3.049	564687	0.31	100	115.6	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	1445.192	4.109	7544746	0.86	5000	28.9	90	110	CCV Main CR1-2 Failed
Ba	135	1	nogas	99.768	3.777	106388	2.07	100	99.8	90	110	
La	139	1	nogas	232.516	22.204	313	21.25	100	232.5	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	-50.156	-230.517	7	86.60	100	-50.2	90	110	CCV Main CR1-2 Failed
Tl	203	1	nogas	103.925	7.257	378962	2.50	100	103.9	90	110	
Na	23	2	He	10756.696	1.835	13028717	4.46	10000	107.6	90	110	
Mg	24	2	He	10419.140	2.015	7307667	5.23	10000	104.2	90	110	
Al	27	2	He	93.763	2.582	49588	5.53	100	93.8	90	110	
K	39	2	He	10234.677	3.411	9661733	0.81	10000	102.3	90	110	
Ca	43	2	He	10140.061	5.211	25074	1.81	10000	101.4	90	110	
Ca	44	2	He	10469.998	7.746	429615	4.05	10000	104.7	90	110	
V	51	2	He	102.955	0.386	490165	4.21	100	103.0	90	110	
Cr	52	2	He	101.788	2.089	512181	2.00	100	101.8	90	110	
Mn	55	2	He	103.031	8.248	430383	4.63	100	103.0	90	110	
Fe	56	2	He	10470.451	7.604	48831293	3.97	10000	104.7	90	110	
Co	59	2	He	100.039	9.147	664809	5.54	100	100.0	90	110	
Ni	60	2	He	103.486	7.032	173146	3.01	100	103.5	90	110	
Cu	63	2	He	102.762	2.053	427096	1.93	100	102.8	90	110	
Zn	66	2	He	103.400	2.002	110940	5.85	100	103.4	90	110	
As	75	2	He	104.385	6.389	112602	2.72	100	104.4	90	110	
Sb	121	2	He	103.327	9.264	437784	5.67	100	103.3	90	110	
Se	78	2	He	101.764	2.334	10222	3.50	100	101.8	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1542986	2.54	1658792	93.02	70	125	
In	115	1	nogas	1315164	1.94	1398610	94.03	70	125	
Li	6	1	nogas	451022	3.09	581094	77.62	70	125	
Bi	209	1	nogas	1008799	5.20	1069547	94.32	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	739499	3.82	766661	96.46	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	039_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T14:09:29-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	014CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.014	82.3	37	56.8	1	
B	11	1	nogas	15.731	25.9	22731	16.2	10	CCB Main CR1 Failed
Na	23	1	nogas	47.726	8.2	2084610	1.2	100	
Mg	24	1	nogas	1.537	18.7	14341	11.1	100	
Al	27	1	nogas	0.566	2.8	18386	1.0	5	
P	31	1	nogas	-25.929	-3.7	40371	0.6	10	
K	39	1	nogas	-12.775	-28.0	3740970	0.5	100	
Ca	43	1	nogas	9.640	100.5	997	14.6	100	
Ca	44	1	nogas	-18.106	-45.1	126252	1.2	100	
Ti	47	1	nogas	0.094	108.4	243	35.4	2.5	
V	51	1	nogas	1.497	17.0	58173	5.9	2.5	
Cr	52	1	nogas	-0.132	-20.0	15944	1.8	2.5	
Mn	55	1	nogas	0.039	66.8	13185	2.6	2.5	
Fe	56	1	nogas	3.262	87.1	830004	4.2	100	
Co	59	1	nogas	0.015	77.1	427	28.4	2.5	
Ni	60	1	nogas	-3.338	-7.2	10793	4.2	2.5	
Cu	63	1	nogas	-3.693	-9.2	15534	11.3	2	
Zn	66	1	nogas	-1.005	-1.4	213	11.8	2.5	
As	75	1	nogas	-0.622	-59.3	20112	2.9	2.5	
Se	77	1	nogas	-2.188	-85.9	6405	2.0	2.5	
Se	82	1	nogas	0.233	158.2	310	11.2	2	
Sr	88	1	nogas	-0.004	-106.1	607	9.1	2.5	
Mo	95	1	nogas	-0.100	-78.7	1580	12.7	2.5	
Ag	107	1	nogas	0.034	55.6	250	45.1	2.5	
Cd	111	1	nogas	0.044	66.3	73	47.9	1	
Sn	118	1	nogas	0.267	16.2	1947	4.3	5	
Sb	121	1	nogas	0.383	13.0	2717	10.5	2.5	
Ba	137	1	nogas	-0.055	-36.5	93	32.7	2.5	
Tl	205	1	nogas	0.262	66.3	2370	71.0	1	
Pb	208	1	nogas	0.080	7.4	690	8.8	2.5	
U	238	1	nogas	0.038	75.1	533	73.1	2.5	
Si	28	1	nogas	5.830	103.5	1373329	0.9	5	CCB Main CR1 Failed
La	139	1	nogas	-10.798	-132.5	23	65.5	2.5	
Au	197	1	nogas	-50.340	-230.6	7	86.6	2.5	
Na	23	2	He	43.547	8.7	295970	0.4	100	
Mg	24	2	He	1.545	15.3	1550	9.3	100	
Al	27	2	He	-0.767	-27.3	1057	8.8	5	
K	39	2	He	-9.654	-35.0	234024	0.4	100	
Ca	43	2	He	-3.228	-294.7	47	49.5	100	
Ca	44	2	He	-4.271	-73.6	2720	5.4	100	
V	51	2	He	0.313	5.9	2529	4.0	2.5	
Cr	52	2	He	0.024	262.0	4154	6.3	2.5	
Mn	55	2	He	-0.084	-29.4	950	9.4	2.5	
Fe	56	2	He	2.561	15.8	28480	5.7	100	
Co	59	2	He	0.017	75.6	180	49.4	2.5	
Ni	60	2	He	-3.266	-2.6	5721	3.7	2.5	

Continuing Calibration Blank (CCB) Report

Cu	63	2	He	-2.738	-3.7	8089	5.2	2	
Zn	66	2	He	-0.639	-5.4	107	32.9	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
As	75	2	He	0.037	110.0	424	10.7	2.5	
Sb	121	2	He	0.291	4.5	1713	3.6	2.5	
Se	78	2	He	-0.143	-375.8	315	15.3	2	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1518138	0.94	1658792	91.52	70	125	
In	115	1	nogas	1272003	4.12	1398610	90.95	70	125	
Li	6	1	nogas	431446	3.37	581094	74.25	70	125	
Bi	209	1	nogas	977395	6.05	1069547	91.38	70	125	
Ge	72	2	He	737280	1.43	766661	96.17	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	051_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T14:47:53-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	014CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.025	68.2	67	56.8	1	
B	11	1	nogas	15.184	18.2	24954	12.4	10	CCB Main CR1 Failed
Na	23	1	nogas	129.843	7.8	2951760	1.8	100	CCB Main CR1 Failed
Mg	24	1	nogas	1.768	23.7	16478	15.5	100	
Al	27	1	nogas	-0.457	-9.1	9476	3.6	5	
P	31	1	nogas	-22.957	-5.1	44280	2.2	10	
K	39	1	nogas	9.902	145.6	4113019	0.7	100	
Ca	43	1	nogas	-9.562	-59.1	727	14.7	100	
Ca	44	1	nogas	-7.423	-127.5	134957	0.8	100	
Ti	47	1	nogas	0.112	90.7	270	32.9	2.5	
V	51	1	nogas	0.172	64.5	45165	4.4	2.5	
Cr	52	1	nogas	-0.225	-60.7	15751	6.2	2.5	
Mn	55	1	nogas	0.037	177.6	13765	3.9	2.5	
Fe	56	1	nogas	8.243	79.1	917581	5.4	100	
Co	59	1	nogas	0.026	34.8	553	15.2	2.5	
Ni	60	1	nogas	-4.337	-6.1	8946	4.5	2.5	
Cu	63	1	nogas	-3.324	-7.1	18413	9.6	2	
Zn	66	1	nogas	-0.973	-2.1	280	15.6	2.5	
As	75	1	nogas	-0.863	-36.2	20522	1.1	2.5	
Se	77	1	nogas	-5.298	-83.2	6401	5.5	2.5	
Se	82	1	nogas	-0.276	-282.3	270	28.9	2	
Sr	88	1	nogas	0.054	7.6	1357	5.9	2.5	
Mo	95	1	nogas	-0.191	-58.0	1430	19.0	2.5	
Ag	107	1	nogas	0.036	31.6	270	23.1	2.5	
Cd	111	1	nogas	0.026	87.0	53	47.2	1	
Sn	118	1	nogas	0.255	10.9	2010	2.2	5	
Sb	121	1	nogas	0.275	14.3	2234	7.3	2.5	
Ba	137	1	nogas	-0.043	-11.4	120	8.3	2.5	
Tl	205	1	nogas	0.243	82.7	2364	85.2	1	
Pb	208	1	nogas	0.036	28.6	447	20.3	2.5	
U	238	1	nogas	0.034	35.2	510	36.0	2.5	
Si	28	1	nogas	3.218	609.1	1424685	3.5	5	
La	139	1	nogas	-6.308	-238.6	30	57.7	2.5	
Au	197	1	nogas	252.992	115.4	23	65.5	2.5	CCB Main CR1 Failed
Na	23	2	He	131.647	4.4	402278	0.2	100	CCB Main CR1 Failed
Mg	24	2	He	1.275	11.7	1370	8.9	100	
Al	27	2	He	-1.699	-5.0	583	6.9	5	
K	39	2	He	0.524	1263.1	244526	0.9	100	
Ca	43	2	He	-3.429	-375.6	47	68.9	100	
Ca	44	2	He	2.291	211.4	3000	5.7	100	
V	51	2	He	0.144	6.1	1735	3.8	2.5	
Cr	52	2	He	-0.004	-364.3	4037	2.5	2.5	
Mn	55	2	He	-0.067	-22.7	1027	7.6	2.5	
Fe	56	2	He	1.508	11.1	23693	2.0	100	
Co	59	2	He	0.009	53.6	123	24.8	2.5	
Ni	60	2	He	-3.988	-7.6	4607	9.1	2.5	

Continuing Calibration Blank (CCB) Report

Cu	63	2	He	-2.463	-4.2	9219	3.0	2	
Zn	66	2	He	-0.611	-6.5	137	30.5	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
As	75	2	He	0.014	74.5	402	4.3	2.5	
Sb	121	2	He	0.199	18.6	1333	11.5	2.5	
Se	78	2	He	-0.216	-89.6	310	4.5	2	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1589125	2.72	1658792	95.80	70	125	
In	115	1	nogas	1342211	4.78	1398610	95.97	70	125	
Li	6	1	nogas	485397	3.96	581094	83.53	70	125	
Bi	209	1	nogas	1048283	4.39	1069547	98.01	70	125	
Ge	72	2	He	740894	1.64	766661	96.64	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	053_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T15:12:55-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	014CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	112.107	1.247	259454	1.32	100	112.1	90	110	CCV Main CR1-2 Failed
B	11	1	nogas	568.547	3.228	740856	3.82	500	113.7	90	110	CCV Main CR1-2 Failed
Na	23	1	nogas	10497.978	4.440	99157538	4.00	10000	105.0	90	110	
Mg	24	1	nogas	10625.062	4.851	67245760	4.51	10000	106.3	90	110	
Al	27	1	nogas	88.563	2.014	858148	1.76	100	88.6	90	110	CCV Main CR1-2 Failed
P	31	1	nogas	498.256	2.643	399208	1.20	500	99.7	90	110	
K	39	1	nogas	10252.737	1.570	94016304	1.24	10000	102.5	90	110	
Ca	43	1	nogas	9998.138	1.390	166662	2.26	10000	100.0	90	110	
Ca	44	1	nogas	10477.273	0.224	2918096	1.14	10000	104.8	90	110	
Ti	47	1	nogas	96.549	3.437	84081	2.12	100	96.5	90	110	
V	51	1	nogas	97.306	5.338	1195950	3.99	100	97.3	90	110	
Cr	52	1	nogas	96.909	5.390	972323	4.52	100	96.9	90	110	
Mn	55	1	nogas	101.493	5.239	1240677	5.22	100	101.5	90	110	
Fe	56	1	nogas	10556.643	2.419	106328815	2.77	10000	105.6	90	110	
Co	59	1	nogas	99.087	0.975	1039035	1.49	100	99.1	90	110	
Ni	60	1	nogas	95.671	1.535	243444	0.61	100	95.7	90	110	
Cu	63	1	nogas	92.618	1.344	570740	0.76	100	92.6	90	110	
Zn	66	1	nogas	99.888	0.790	177385	1.23	100	99.9	90	110	
As	75	1	nogas	101.310	4.559	241820	3.03	100	101.3	90	110	
Se	77	1	nogas	88.863	6.216	15457	3.33	100	88.9	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	99.530	2.019	10854	3.26	100	99.5	90	110	
Sr	88	1	nogas	104.289	2.084	1306616	1.29	100	104.3	90	110	
Mo	95	1	nogas	100.129	1.448	248066	0.59	100	100.1	90	110	
Ag	107	1	nogas	101.285	2.726	613200	2.67	100	101.3	90	110	
Cd	111	1	nogas	101.207	5.383	125211	1.40	100	101.2	90	110	
Sn	118	1	nogas	93.640	4.836	348618	1.28	100	93.6	90	110	
Sb	121	1	nogas	101.006	1.091	564793	1.31	100	101.0	90	110	
Ba	137	1	nogas	101.587	4.457	181561	1.30	100	101.6	90	110	
Tl	205	1	nogas	98.199	7.425	897775	1.23	100	98.2	90	110	
Pb	208	1	nogas	97.339	9.230	642899	3.08	100	97.3	90	110	
U	238	1	nogas	93.714	6.868	1211727	0.64	100	93.7	90	110	
Li	7	1	nogas	116.521	0.752	635430	1.42	100	116.5	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	1467.922	2.040	7868126	0.80	5000	29.4	90	110	CCV Main CR1-2 Failed
Ba	135	1	nogas	98.314	5.699	105604	1.37	100	98.3	90	110	
La	139	1	nogas	175.475	10.097	247	6.19	100	175.5	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	261.987	48.575	23	24.74	100	262.0	90	110	CCV Main CR1-2 Failed
Tl	203	1	nogas	102.733	6.678	383883	1.35	100	102.7	90	110	
Na	23	2	He	10615.355	2.023	12975379	1.52	10000	106.2	90	110	
Mg	24	2	He	10503.839	2.223	7431526	2.22	10000	105.0	90	110	
Al	27	2	He	92.259	1.896	49240	1.64	100	92.3	90	110	
K	39	2	He	10612.350	1.808	10108957	2.34	10000	106.1	90	110	
Ca	43	2	He	10408.628	1.348	26002	0.98	10000	104.1	90	110	
Ca	44	2	He	10597.311	2.083	439593	2.04	10000	106.0	90	110	
V	51	2	He	101.291	4.070	486541	3.83	100	101.3	90	110	
Cr	52	2	He	104.144	0.787	528947	1.01	100	104.1	90	110	
Mn	55	2	He	103.792	3.082	438413	3.37	100	103.8	90	110	
Fe	56	2	He	10369.046	4.526	48892174	4.68	10000	103.7	90	110	
Co	59	2	He	95.690	3.563	643190	3.77	100	95.7	90	110	
Ni	60	2	He	99.238	1.431	168278	1.90	100	99.2	90	110	
Cu	63	2	He	99.898	3.947	419681	3.78	100	99.9	90	110	
Zn	66	2	He	104.812	1.539	113400	1.26	100	104.8	90	110	
As	75	2	He	103.155	1.866	112470	2.03	100	103.2	90	110	
Sb	121	2	He	98.932	3.469	423993	3.72	100	98.9	90	110	
Se	78	2	He	100.436	1.565	10188	2.05	100	100.4	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1587972	1.31	1658792	95.73	70	125	
In	115	1	nogas	1326507	4.79	1398610	94.84	70	125	
Li	6	1	nogas	503263	0.96	581094	86.61	70	125	
Bi	209	1	nogas	1034121	6.51	1069547	96.69	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	746193	0.61	766661	97.33	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	064_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T15:45:24-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	014CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.025	33.2	57	27.0	1	
B	11	1	nogas	25.402	14.2	32330	12.3	10	CCB Main CR1 Failed
Na	23	1	nogas	120.484	9.7	2751326	0.8	100	CCB Main CR1 Failed
Mg	24	1	nogas	3.265	12.3	25058	8.4	100	
Al	27	1	nogas	-0.538	-13.3	8732	7.9	5	
P	31	1	nogas	-28.618	-8.1	40538	4.2	10	
K	39	1	nogas	-23.627	-13.7	3830699	0.9	100	
Ca	43	1	nogas	-6.801	-68.6	773	9.8	100	
Ca	44	1	nogas	-30.737	-44.4	129151	3.1	100	
Ti	47	1	nogas	0.203	19.6	350	9.9	2.5	
V	51	1	nogas	0.623	34.0	50646	5.3	2.5	
Cr	52	1	nogas	-0.337	-24.6	14710	5.6	2.5	
Mn	55	1	nogas	-0.004	-1076.3	13315	4.0	2.5	
Fe	56	1	nogas	5.084	59.2	889120	3.2	100	
Co	59	1	nogas	0.015	145.5	447	52.5	2.5	
Ni	60	1	nogas	-6.114	-0.1	4801	0.0	2.5	
Cu	63	1	nogas	-4.086	-7.1	14042	12.0	2	
Zn	66	1	nogas	-0.943	-3.0	333	14.8	2.5	
As	75	1	nogas	-1.845	-6.3	18453	1.4	2.5	
Se	77	1	nogas	-13.212	-35.9	5658	7.8	2.5	
Se	82	1	nogas	-0.728	-33.3	223	11.3	2	
Sr	88	1	nogas	0.033	33.9	1103	12.6	2.5	
Mo	95	1	nogas	-0.213	-30.4	1380	11.7	2.5	
Ag	107	1	nogas	0.030	33.3	237	25.5	2.5	
Cd	111	1	nogas	0.026	134.7	53	75.8	1	
Sn	118	1	nogas	0.317	25.8	2220	7.4	5	
Sb	121	1	nogas	0.442	5.3	3180	3.9	2.5	
Ba	137	1	nogas	-0.020	-108.0	160	21.7	2.5	
Tl	205	1	nogas	0.265	73.6	2630	79.1	1	
Pb	208	1	nogas	0.043	63.0	503	44.4	2.5	
U	238	1	nogas	0.046	40.0	683	44.0	2.5	
Si	28	1	nogas	-22.946	-18.1	1314440	1.5	5	
La	139	1	nogas	-28.627	-17.8	3	173.2	2.5	
Au	197	1	nogas	71.846	308.1	13	86.6	2.5	CCB Main CR1 Failed
Na	23	2	He	125.362	1.8	382487	0.4	100	CCB Main CR1 Failed
Mg	24	2	He	2.722	12.5	2310	9.4	100	
Al	27	2	He	-1.701	-13.8	563	19.6	5	
K	39	2	He	-7.477	-17.7	229773	0.6	100	
Ca	43	2	He	-8.263	-119.2	33	69.3	100	
Ca	44	2	He	-7.513	-52.4	2520	7.3	100	
V	51	2	He	0.230	8.3	2079	3.3	2.5	
Cr	52	2	He	0.096	39.4	4397	5.0	2.5	
Mn	55	2	He	-0.100	-41.1	860	20.1	2.5	
Fe	56	2	He	1.998	17.3	25178	6.1	100	
Co	59	2	He	0.014	60.3	150	35.3	2.5	
Ni	60	2	He	-5.376	-1.3	2350	3.4	2.5	

Continuing Calibration Blank (CCB) Report

Cu	63	2	He	-2.803	-2.4	7622	3.8	2	
Zn	66	2	He	-0.655	-2.4	87	17.6	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
As	75	2	He	0.050	99.1	427	12.6	2.5	
Sb	121	2	He	0.357	7.9	1940	6.3	2.5	
Se	78	2	He	-0.121	-172.8	309	5.2	2	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1593261	0.30	1658792	96.05	70	125	
In	115	1	nogas	1334724	6.98	1398610	95.43	70	125	
Li	6	1	nogas	415752	1.51	581094	71.55	70	125	
Bi	209	1	nogas	1064803	6.95	1069547	99.56	70	125	
Ge	72	2	He	717697	1.13	766661	93.61	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	066_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T15:57:24-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	014CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	112.715	3.848	222403	1.40	100	112.7	90	110	CCV Main CR1-2 Failed
B	11	1	nogas	573.830	2.923	637530	1.71	500	114.8	90	110	CCV Main CR1-2 Failed
Na	23	1	nogas	10434.679	5.422	87274452	1.58	10000	104.3	90	110	
Mg	24	1	nogas	10576.394	4.179	59295330	2.41	10000	105.8	90	110	
Al	27	1	nogas	90.698	0.806	831592	2.13	100	90.7	90	110	
P	31	1	nogas	440.936	3.470	340835	0.48	500	88.2	90	110	CCV Main CR1-2 Failed
K	39	1	nogas	9548.505	1.803	83130394	1.32	10000	95.5	90	110	
Ca	43	1	nogas	9575.488	4.687	151065	4.18	10000	95.8	90	110	
Ca	44	1	nogas	9983.565	2.455	2637218	0.19	10000	99.8	90	110	
Ti	47	1	nogas	98.240	0.972	80996	1.85	100	98.2	90	110	
V	51	1	nogas	100.043	7.329	1163841	8.40	100	100.0	90	110	
Cr	52	1	nogas	97.100	2.300	922525	3.63	100	97.1	90	110	
Mn	55	1	nogas	99.174	4.711	1147057	2.25	100	99.2	90	110	
Fe	56	1	nogas	10257.711	4.817	97745098	2.26	10000	102.6	90	110	
Co	59	1	nogas	98.224	3.612	974452	1.43	100	98.2	90	110	
Ni	60	1	nogas	93.503	3.422	225539	0.70	100	93.5	90	110	
Cu	63	1	nogas	92.569	4.063	539703	1.28	100	92.6	90	110	
Zn	66	1	nogas	101.069	3.907	169771	1.40	100	101.1	90	110	
As	75	1	nogas	99.122	1.983	224432	1.33	100	99.1	90	110	
Se	77	1	nogas	86.561	7.010	14423	4.51	100	86.6	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	102.405	6.371	10550	3.78	100	102.4	90	110	
Sr	88	1	nogas	103.683	4.480	1228921	1.96	100	103.7	90	110	
Mo	95	1	nogas	103.201	4.287	241827	1.89	100	103.2	90	110	
Ag	107	1	nogas	103.779	3.191	594469	0.75	100	103.8	90	110	
Cd	111	1	nogas	103.783	9.356	122084	0.83	100	103.8	90	110	
Sn	118	1	nogas	104.407	6.383	370102	3.49	100	104.4	90	110	
Sb	121	1	nogas	107.190	3.155	567111	1.94	100	107.2	90	110	
Ba	137	1	nogas	104.102	8.681	176919	1.01	100	104.1	90	110	
Tl	205	1	nogas	98.488	4.499	880272	2.57	100	98.5	90	110	
Pb	208	1	nogas	99.926	3.277	645808	1.10	100	99.9	90	110	
U	238	1	nogas	100.627	3.282	1272407	3.72	100	100.6	90	110	
Li	7	1	nogas	106.395	2.898	497319	0.64	100	106.4	90	110	
Si	28	1	nogas	4679.423	1.074	20820004	1.57	5000	93.6	90	110	
Ba	135	1	nogas	103.339	9.005	105568	0.26	100	103.3	90	110	
La	139	1	nogas	107.032	35.744	160	34.80	100	107.0	90	110	
Au	197	1	nogas	330.251	86.682	27	57.28	100	330.3	90	110	CCV Main CR1-2 Failed
Tl	203	1	nogas	103.978	6.664	379605	4.80	100	104.0	90	110	
Na	23	2	He	10115.378	2.538	11390534	1.94	10000	101.2	90	110	
Mg	24	2	He	9906.078	3.192	6449135	1.57	10000	99.1	90	110	
Al	27	2	He	94.606	0.140	46463	3.78	100	94.6	90	110	
K	39	2	He	9755.267	1.977	8572647	3.37	10000	97.6	90	110	
Ca	43	2	He	10006.442	7.488	22985	4.67	10000	100.1	90	110	
Ca	44	2	He	10121.924	5.736	386209	1.90	10000	101.2	90	110	
V	51	2	He	100.032	4.036	442055	0.08	100	100.0	90	110	
Cr	52	2	He	101.618	0.614	475441	4.50	100	101.6	90	110	
Mn	55	2	He	101.308	4.360	393621	0.49	100	101.3	90	110	
Fe	56	2	He	10189.285	6.792	44164639	2.88	10000	101.9	90	110	
Co	59	2	He	99.589	8.984	614960	4.90	100	99.6	90	110	
Ni	60	2	He	100.126	7.786	155957	3.28	100	100.1	90	110	
Cu	63	2	He	99.833	7.243	385577	3.30	100	99.8	90	110	
Zn	66	2	He	100.656	3.695	100239	2.27	100	100.7	90	110	
As	75	2	He	102.165	3.901	102478	1.11	100	102.2	90	110	
Sb	121	2	He	107.088	7.373	421771	3.44	100	107.1	90	110	
Se	78	2	He	98.264	5.076	9174	1.81	100	98.3	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1503166	2.48	1658792	90.62	70	125	
In	115	1	nogas	1265808	8.42	1398610	90.50	70	125	
Li	6	1	nogas	429333	2.48	581094	73.88	70	125	
Bi	209	1	nogas	1008384	2.42	1069547	94.28	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	687146	3.91	766661	89.63	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	076_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T16:59:30-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	014CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Fail

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	114.332	2.425	209672	1.61	100	114.3	90	110	CCV Main CR1-2 Failed
B	11	1	nogas	617.174	3.219	636619	0.77	500	123.4	90	110	CCV Main CR1-2 Failed
Na	23	1	nogas	10374.739	1.473	87313900	2.49	10000	103.7	90	110	
Mg	24	1	nogas	10192.403	1.156	57468070	2.57	10000	101.9	90	110	
Al	27	1	nogas	86.368	3.968	784585	2.96	100	86.4	90	110	CCV Main CR1-2 Failed
P	31	1	nogas	422.154	3.490	325564	1.07	500	84.4	90	110	CCV Main CR1-2 Failed
K	39	1	nogas	9081.423	4.963	78473179	4.17	10000	90.8	90	110	
Ca	43	1	nogas	8961.157	4.201	140055	3.49	10000	89.6	90	110	CCV Main CR1-2 Failed
Ca	44	1	nogas	9718.473	2.255	2545869	0.43	10000	97.2	90	110	
Ti	47	1	nogas	93.430	3.714	76305	4.64	100	93.4	90	110	
V	51	1	nogas	93.977	2.565	1084173	0.91	100	94.0	90	110	
Cr	52	1	nogas	93.539	4.359	880049	1.88	100	93.5	90	110	
Mn	55	1	nogas	98.801	6.656	1131416	4.16	100	98.8	90	110	
Fe	56	1	nogas	10046.499	5.236	94818817	2.79	10000	100.5	90	110	
Co	59	1	nogas	94.384	4.597	927481	4.03	100	94.4	90	110	
Ni	60	1	nogas	87.940	4.529	211174	3.67	100	87.9	90	110	CCV Main CR1-2 Failed
Cu	63	1	nogas	89.274	3.063	516851	1.89	100	89.3	90	110	CCV Main CR1-2 Failed
Zn	66	1	nogas	98.825	2.910	164465	0.50	100	98.8	90	110	
As	75	1	nogas	96.691	4.236	217246	1.44	100	96.7	90	110	
Se	77	1	nogas	85.777	13.134	14199	5.39	100	85.8	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	106.985	4.090	10907	1.70	100	107.0	90	110	
Sr	88	1	nogas	100.740	3.662	1182718	1.49	100	100.7	90	110	
Mo	95	1	nogas	100.515	3.286	233353	1.57	100	100.5	90	110	
Ag	107	1	nogas	106.222	4.615	602450	2.25	100	106.2	90	110	
Cd	111	1	nogas	103.646	4.794	125451	4.06	100	103.6	90	110	
Sn	118	1	nogas	99.187	1.813	361213	1.36	100	99.2	90	110	
Sb	121	1	nogas	108.197	3.109	566859	1.10	100	108.2	90	110	
Ba	137	1	nogas	104.273	4.245	182264	3.27	100	104.3	90	110	
Tl	205	1	nogas	94.483	10.583	922372	3.21	100	94.5	90	110	
Pb	208	1	nogas	96.571	6.278	683162	1.34	100	96.6	90	110	
U	238	1	nogas	96.256	12.489	1327806	5.82	100	96.3	90	110	
Li	7	1	nogas	106.729	2.099	463679	3.53	100	106.7	90	110	
Si	28	1	nogas	4431.364	3.580	19590905	2.24	5000	88.6	90	110	CCV Main CR1-2 Failed
Ba	135	1	nogas	99.664	3.083	104751	2.01	100	99.7	90	110	
La	139	1	nogas	85.654	23.445	137	16.90	100	85.7	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	1.360	13541.797	10	100.00	100	1.4	90	110	CCV Main CR1-2 Failed
Tl	203	1	nogas	96.958	11.157	386621	3.99	100	97.0	90	110	
Na	23	2	He	9385.334	6.128	10685227	3.50	10000	93.9	90	110	
Mg	24	2	He	9217.162	4.270	6060482	1.82	10000	92.2	90	110	
Al	27	2	He	89.277	0.790	44365	3.29	100	89.3	90	110	CCV Main CR1-2 Failed
K	39	2	He	9319.832	1.335	8284169	3.20	10000	93.2	90	110	
Ca	43	2	He	9262.524	5.010	21533	6.51	10000	92.6	90	110	
Ca	44	2	He	9445.376	6.284	364297	3.56	10000	94.5	90	110	
V	51	2	He	94.011	2.534	420004	2.87	100	94.0	90	110	
Cr	52	2	He	99.770	0.853	471509	3.59	100	99.8	90	110	
Mn	55	2	He	96.481	2.977	379024	3.39	100	96.5	90	110	
Fe	56	2	He	9598.353	4.099	42061641	1.63	10000	96.0	90	110	
Co	59	2	He	93.545	7.597	583931	4.67	100	93.5	90	110	
Ni	60	2	He	91.242	6.714	144539	3.30	100	91.2	90	110	
Cu	63	2	He	94.005	5.505	367981	2.31	100	94.0	90	110	
Zn	66	2	He	98.470	4.630	99053	2.24	100	98.5	90	110	
As	75	2	He	98.559	2.438	99925	1.96	100	98.6	90	110	
Sb	121	2	He	104.075	3.003	414644	2.45	100	104.1	90	110	
Se	78	2	He	94.775	4.665	8950	1.68	100	94.8	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1488603	2.35	1658792	89.74	70	125	
In	115	1	nogas	1295967	1.05	1398610	92.66	70	125	
Li	6	1	nogas	398910	2.57	581094	68.65	70	125	ISTD Failed
Bi	209	1	nogas	1106830	7.86	1069547	103.49	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	694040	3.14	766661	90.53	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	077_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T17:01:44-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	014CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Fail

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.014	116.7	33	86.6	1	
B	11	1	nogas	20.365	13.9	24176	11.2	10	CCB Main CR1 Failed
Na	23	1	nogas	127.015	6.9	2549653	0.6	100	CCB Main CR1 Failed
Mg	24	1	nogas	2.087	25.2	16144	17.6	100	
Al	27	1	nogas	-0.581	-3.4	7698	2.3	5	
P	31	1	nogas	-24.955	-8.3	39810	1.8	10	
K	39	1	nogas	-14.938	-130.5	3612868	1.3	100	
Ca	43	1	nogas	-8.300	-104.9	690	16.7	100	
Ca	44	1	nogas	104.474	23.8	152725	0.5	100	CCB Main CR1 Failed
Ti	47	1	nogas	0.076	114.9	220	29.8	2.5	
V	51	1	nogas	2.420	7.4	66636	3.6	2.5	
Cr	52	1	nogas	-0.347	-17.2	13519	4.0	2.5	
Mn	55	1	nogas	0.054	82.7	12965	3.0	2.5	
Fe	56	1	nogas	4.036	145.5	812100	3.8	100	
Co	59	1	nogas	0.028	30.5	537	12.4	2.5	
Ni	60	1	nogas	-6.829	-1.7	2890	12.3	2.5	
Cu	63	1	nogas	-3.552	-7.6	15864	11.2	2	
Zn	66	1	nogas	-0.931	-6.0	327	26.4	2.5	
As	75	1	nogas	-2.101	-18.1	16548	1.1	2.5	
Se	77	1	nogas	-11.964	-28.8	5354	8.8	2.5	
Se	82	1	nogas	-1.001	-29.4	180	16.7	2	
Sr	88	1	nogas	0.008	51.0	723	3.2	2.5	
Mo	95	1	nogas	-0.208	-24.7	1287	6.5	2.5	
Ag	107	1	nogas	0.042	25.2	287	21.0	2.5	
Cd	111	1	nogas	0.003	344.1	27	57.3	1	
Sn	118	1	nogas	0.210	27.2	1863	14.1	5	
Sb	121	1	nogas	0.596	15.8	3734	10.7	2.5	
Ba	137	1	nogas	-0.057	-56.2	97	60.6	2.5	
Tl	205	1	nogas	0.250	61.4	2560	67.2	1	
Pb	208	1	nogas	0.033	39.2	453	28.4	2.5	
U	238	1	nogas	0.038	61.0	607	62.0	2.5	
Si	28	1	nogas	-95.862	-9.4	917880	1.1	5	
La	139	1	nogas	-9.741	-44.0	27	21.7	2.5	
Au	197	1	nogas	561.874	88.8	43	74.2	2.5	CCB Main CR1 Failed
Na	23	2	He	122.835	0.9	372203	0.4	100	CCB Main CR1 Failed
Mg	24	2	He	1.549	21.7	1483	15.2	100	
Al	27	2	He	-1.871	-14.3	470	27.7	5	
K	39	2	He	-18.313	-9.9	215809	0.4	100	
Ca	43	2	He	-6.660	-132.1	37	56.8	100	
Ca	44	2	He	6.055	136.2	2997	10.6	100	
V	51	2	He	0.312	10.8	2408	6.2	2.5	
Cr	52	2	He	0.043	110.5	4057	5.3	2.5	
Mn	55	2	He	-0.103	-16.8	830	7.9	2.5	
Fe	56	2	He	1.501	13.9	22481	3.8	100	
Co	59	2	He	0.013	48.9	143	28.2	2.5	
Ni	60	2	He	-6.269	-0.5	970	4.7	2.5	

Continuing Calibration Blank (CCB) Report

Cu	63	2	He	-2.686	-1.3	7919	1.9	2	
Zn	66	2	He	-0.588	-2.0	153	7.5	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
As	75	2	He	-0.117	-23.5	248	11.4	2.5	
Sb	121	2	He	0.471	24.1	2364	19.0	2.5	
Se	78	2	He	-0.303	-44.8	287	4.6	2	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1474721	3.53	1658792	88.90	70	125	
In	115	1	nogas	1353681	2.75	1398610	96.79	70	125	
Li	6	1	nogas	373057	0.19	581094	64.20	70	125	ISTD Failed
Bi	209	1	nogas	1106079	7.21	1069547	103.42	70	125	
Ge	72	2	He	703727	0.37	766661	91.79	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	088_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T17:32:13-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	014CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Fail

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	110.826	3.655	199758	2.65	100	110.8	90	110	CCV Main CR1-2 Failed
B	11	1	nogas	584.123	5.704	592299	3.39	500	116.8	90	110	CCV Main CR1-2 Failed
Na	23	1	nogas	10145.439	5.436	83379066	2.37	10000	101.5	90	110	
Mg	24	1	nogas	9995.472	3.667	55029147	0.85	10000	100.0	90	110	
Al	27	1	nogas	85.014	1.605	764268	2.01	100	85.0	90	110	CCV Main CR1-2 Failed
P	31	1	nogas	410.532	1.866	314725	0.36	500	82.1	90	110	CCV Main CR1-2 Failed
K	39	1	nogas	9175.735	1.940	78401777	2.18	10000	91.8	90	110	
Ca	43	1	nogas	9094.611	0.987	140607	1.30	10000	90.9	90	110	
Ca	44	1	nogas	9382.878	4.503	2435139	3.08	10000	93.8	90	110	
Ti	47	1	nogas	90.697	3.194	73233	1.61	100	90.7	90	110	
V	51	1	nogas	91.625	4.868	1047258	6.22	100	91.6	90	110	
Cr	52	1	nogas	89.959	0.975	838369	2.81	100	90.0	90	110	CCV Main CR1-2 Failed
Mn	55	1	nogas	95.061	2.491	1078175	2.93	100	95.1	90	110	
Fe	56	1	nogas	9882.790	2.697	92335221	3.15	10000	98.8	90	110	
Co	59	1	nogas	96.022	2.886	933479	3.06	100	96.0	90	110	
Ni	60	1	nogas	89.824	1.589	212978	0.44	100	89.8	90	110	CCV Main CR1-2 Failed
Cu	63	1	nogas	91.144	2.913	521161	0.99	100	91.1	90	110	
Zn	66	1	nogas	97.654	0.523	160829	2.14	100	97.7	90	110	
As	75	1	nogas	93.952	1.678	209449	0.40	100	94.0	90	110	
Se	77	1	nogas	76.957	3.617	13272	3.32	100	77.0	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	92.288	8.648	9343	7.39	100	92.3	90	110	
Sr	88	1	nogas	100.584	1.840	1168515	2.38	100	100.6	90	110	
Mo	95	1	nogas	103.979	2.748	238719	1.32	100	104.0	90	110	
Ag	107	1	nogas	103.625	1.968	581820	3.75	100	103.6	90	110	
Cd	111	1	nogas	102.317	4.478	122995	3.45	100	102.3	90	110	
Sn	118	1	nogas	98.737	1.042	357145	0.71	100	98.7	90	110	
Sb	121	1	nogas	107.231	0.409	555891	1.84	100	107.2	90	110	
Ba	137	1	nogas	100.496	4.113	174480	3.20	100	100.5	90	110	
Tl	205	1	nogas	96.643	6.928	917778	3.15	100	96.6	90	110	
Pb	208	1	nogas	98.336	6.771	675056	1.37	100	98.3	90	110	
U	238	1	nogas	97.835	11.235	1311121	5.60	100	97.8	90	110	
Li	7	1	nogas	104.492	2.261	446718	2.85	100	104.5	90	110	
Si	28	1	nogas	4334.993	1.463	18988682	1.70	5000	86.7	90	110	CCV Main CR1-2 Failed
Ba	135	1	nogas	101.059	2.199	105500	1.28	100	101.1	90	110	
La	139	1	nogas	135.143	28.696	193	23.89	100	135.1	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	6.108	3134.976	10	100.00	100	6.1	90	110	CCV Main CR1-2 Failed
Tl	203	1	nogas	101.183	6.765	392502	1.00	100	101.2	90	110	
Na	23	2	He	9387.630	4.651	10478985	2.62	10000	93.9	90	110	
Mg	24	2	He	9017.735	5.134	5811759	3.59	10000	90.2	90	110	
Al	27	2	He	86.020	3.342	41936	3.80	100	86.0	90	110	CCV Main CR1-2 Failed
K	39	2	He	9193.459	2.624	8011200	3.30	10000	91.9	90	110	
Ca	43	2	He	9357.470	5.497	21296	3.45	10000	93.6	90	110	
Ca	44	2	He	9373.407	5.936	354439	4.02	10000	93.7	90	110	
V	51	2	He	95.025	3.435	415973	2.48	100	95.0	90	110	
Cr	52	2	He	97.475	6.670	451210	5.57	100	97.5	90	110	
Mn	55	2	He	95.811	3.452	368922	3.92	100	95.8	90	110	
Fe	56	2	He	9639.653	1.352	41427139	2.44	10000	96.4	90	110	
Co	59	2	He	94.845	1.242	581117	3.19	100	94.8	90	110	
Ni	60	2	He	92.755	1.742	143991	2.17	100	92.8	90	110	
Cu	63	2	He	97.549	5.212	373717	3.38	100	97.5	90	110	
Zn	66	2	He	97.789	5.937	96460	5.67	100	97.8	90	110	
As	75	2	He	96.562	4.388	95932	2.89	100	96.6	90	110	
Sb	121	2	He	104.644	1.198	408756	2.95	100	104.6	90	110	
Se	78	2	He	92.832	2.265	8603	1.30	100	92.8	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1472255	1.86	1658792	88.75	70	125	
In	115	1	nogas	1287160	1.09	1398610	92.03	70	125	
Li	6	1	nogas	392100	2.37	581094	67.48	70	125	ISTD Failed
Bi	209	1	nogas	1073376	5.95	1069547	100.36	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	680101	1.98	766661	88.71	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	089_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T17:34:26-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	014CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Fail

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.029	103.3	60	88.2	1	
B	11	1	nogas	15.723	17.5	20061	14.0	10	CCB Main CR1 Failed
Na	23	1	nogas	129.670	5.7	2614139	0.7	100	CCB Main CR1 Failed
Mg	24	1	nogas	2.898	26.7	21016	20.3	100	
Al	27	1	nogas	-0.565	-10.8	8089	5.0	5	
P	31	1	nogas	-27.152	-5.5	39663	1.5	10	
K	39	1	nogas	-25.194	-45.8	3644380	1.0	100	
Ca	43	1	nogas	0.248	2524.7	850	10.6	100	
Ca	44	1	nogas	135.415	6.9	165585	0.7	100	CCB Main CR1 Failed
Ti	47	1	nogas	0.054	68.0	210	12.6	2.5	
V	51	1	nogas	0.828	11.3	50684	1.6	2.5	
Cr	52	1	nogas	-0.501	-13.7	12495	4.5	2.5	
Mn	55	1	nogas	0.048	175.5	13312	5.3	2.5	
Fe	56	1	nogas	-2.573	-193.9	775295	4.1	100	
Co	59	1	nogas	0.024	69.4	513	31.1	2.5	
Ni	60	1	nogas	-6.870	-0.4	2887	4.0	2.5	
Cu	63	1	nogas	-3.490	-5.1	16708	7.9	2	
Zn	66	1	nogas	-0.959	-4.1	290	21.0	2.5	
As	75	1	nogas	-3.255	-9.0	14690	2.0	2.5	
Se	77	1	nogas	-22.573	-7.0	4541	2.7	2.5	
Se	82	1	nogas	-0.825	-60.1	203	24.3	2	
Sr	88	1	nogas	0.027	68.6	973	20.6	2.5	
Mo	95	1	nogas	-0.383	-38.3	913	35.8	2.5	
Ag	107	1	nogas	0.053	14.9	360	12.1	2.5	
Cd	111	1	nogas	0.013	98.0	40	43.3	1	
Sn	118	1	nogas	0.156	27.6	1683	10.4	5	
Sb	121	1	nogas	0.239	36.8	1943	22.2	2.5	
Ba	137	1	nogas	-0.054	-5.7	103	5.6	2.5	
Tl	205	1	nogas	0.270	60.6	2794	67.2	1	
Pb	208	1	nogas	0.040	48.8	500	34.2	2.5	
U	238	1	nogas	0.043	55.1	680	58.3	2.5	
Si	28	1	nogas	-108.180	-5.7	895743	0.8	5	
La	139	1	nogas	-26.176	-17.8	7	86.6	2.5	
Au	197	1	nogas	-13.669	-1185.2	10	100.0	2.5	
Na	23	2	He	135.833	3.8	372499	0.4	100	CCB Main CR1 Failed
Mg	24	2	He	1.669	11.7	1507	9.7	100	
Al	27	2	He	-1.707	-15.1	530	23.2	5	
K	39	2	He	-6.882	-39.9	217439	1.1	100	
Ca	43	2	He	-14.905	-16.4	17	34.6	100	
Ca	44	2	He	11.121	42.6	3074	3.9	100	
V	51	2	He	0.233	2.4	1977	3.1	2.5	
Cr	52	2	He	-0.008	-721.0	3677	7.2	2.5	
Mn	55	2	He	-0.087	-19.9	860	9.5	2.5	
Fe	56	2	He	1.423	14.5	21306	2.4	100	
Co	59	2	He	0.021	38.4	190	27.9	2.5	
Ni	60	2	He	-6.104	-1.8	1173	14.8	2.5	
Cu	63	2	He	-2.343	-5.7	8866	4.0	2	
Zn	66	2	He	-0.589	-2.8	147	10.4	2.5	

Continuing Calibration Blank (CCB) Report

As	75	2	He	-0.067	-72.6	288	18.0	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.147	10.3	1017	7.4	2.5	
Se	78	2	He	0.039	1211.5	306	12.0	2	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1521788	2.13	1658792	91.74	70	125	
In	115	1	nogas	1375749	0.94	1398610	98.37	70	125	
Li	6	1	nogas	379073	0.80	581094	65.23	70	125	ISTD Failed
Bi	209	1	nogas	1110807	8.20	1069547	103.86	70	125	
Ge	72	2	He	677652	1.84	766661	88.39	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	093_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T18:09:37-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	014CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Fail

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	123.141	2.873	200096	2.62	100	123.1	90	110	CCV Main CR1-2 Failed
B	11	1	nogas	663.544	3.044	606282	2.95	500	132.7	90	110	CCV Main CR1-2 Failed
Na	23	1	nogas	10731.351	4.080	83607031	1.03	10000	107.3	90	110	
Mg	24	1	nogas	10456.828	4.295	54604597	0.91	10000	104.6	90	110	
Al	27	1	nogas	83.105	2.063	711935	2.28	100	83.1	90	110	CCV Main CR1-2 Failed
P	31	1	nogas	445.857	5.555	320850	1.04	500	89.2	90	110	CCV Main CR1-2 Failed
K	39	1	nogas	9527.776	4.725	77360077	1.11	10000	95.3	90	110	
Ca	43	1	nogas	9562.795	5.612	140694	3.14	10000	95.6	90	110	
Ca	44	1	nogas	10390.644	9.533	2552865	6.07	10000	103.9	90	110	
Ti	47	1	nogas	93.925	6.485	72182	3.23	100	93.9	90	110	
V	51	1	nogas	96.548	3.875	1048522	3.51	100	96.5	90	110	
Cr	52	1	nogas	94.543	2.157	838280	1.94	100	94.5	90	110	
Mn	55	1	nogas	100.137	2.469	1081106	2.11	100	100.1	90	110	
Fe	56	1	nogas	10409.029	3.238	92561375	0.72	10000	104.1	90	110	
Co	59	1	nogas	99.300	6.794	918426	3.21	100	99.3	90	110	
Ni	60	1	nogas	92.200	9.519	207495	5.42	100	92.2	90	110	
Cu	63	1	nogas	93.321	7.106	507115	3.68	100	93.3	90	110	
Zn	66	1	nogas	100.425	3.288	157444	2.04	100	100.4	90	110	
As	75	1	nogas	97.498	5.142	206171	1.07	100	97.5	90	110	
Se	77	1	nogas	64.525	13.168	11571	2.57	100	64.5	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	101.386	9.957	9740	6.35	100	101.4	90	110	
Sr	88	1	nogas	105.721	5.915	1169135	4.07	100	105.7	90	110	
Mo	95	1	nogas	104.798	5.546	229113	3.95	100	104.8	90	110	
Ag	107	1	nogas	107.444	6.174	573891	3.08	100	107.4	90	110	
Cd	111	1	nogas	106.288	1.489	122063	1.04	100	106.3	90	110	
Sn	118	1	nogas	98.870	2.200	341737	4.25	100	98.9	90	110	
Sb	121	1	nogas	111.914	2.902	552432	1.10	100	111.9	90	110	CCV Main CR1-2 Failed
Ba	137	1	nogas	105.715	2.340	175309	1.20	100	105.7	90	110	
Tl	205	1	nogas	98.723	6.863	922966	1.55	100	98.7	90	110	
Pb	208	1	nogas	99.820	7.357	674567	1.92	100	99.8	90	110	
U	238	1	nogas	98.019	10.776	1293704	5.10	100	98.0	90	110	
Li	7	1	nogas	116.952	1.655	447738	2.08	100	117.0	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	1512.389	4.199	7119008	0.89	5000	30.2	90	110	CCV Main CR1-2 Failed
Ba	135	1	nogas	104.789	4.510	104434	2.00	100	104.8	90	110	
La	139	1	nogas	194.416	8.091	250	6.93	100	194.4	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	-119.633	-92.698	3	173.21	100	-119.6	90	110	CCV Main CR1-2 Failed
Tl	203	1	nogas	100.844	8.474	384904	2.39	100	100.8	90	110	
Na	23	2	He	9814.230	2.896	10840768	0.87	10000	98.1	90	110	
Mg	24	2	He	9696.709	2.097	6190409	0.22	10000	97.0	90	110	
Al	27	2	He	86.401	2.061	41712	3.46	100	86.4	90	110	CCV Main CR1-2 Failed
K	39	2	He	9338.310	2.257	8053388	1.97	10000	93.4	90	110	
Ca	43	2	He	9272.662	9.028	20889	6.96	10000	92.7	90	110	
Ca	44	2	He	9520.958	6.287	356415	3.96	10000	95.2	90	110	
V	51	2	He	98.950	1.345	428994	1.57	100	99.0	90	110	
Cr	52	2	He	98.138	1.888	450060	2.41	100	98.1	90	110	
Mn	55	2	He	96.201	2.519	366722	1.47	100	96.2	90	110	
Fe	56	2	He	9768.633	2.645	41557835	0.44	10000	97.7	90	110	
Co	59	2	He	92.447	3.810	560537	1.74	100	92.4	90	110	
Ni	60	2	He	91.790	4.920	141127	2.26	100	91.8	90	110	
Cu	63	2	He	98.680	2.978	374297	2.24	100	98.7	90	110	
Zn	66	2	He	103.325	1.176	100905	1.79	100	103.3	90	110	
As	75	2	He	99.666	3.169	98046	0.91	100	99.7	90	110	
Sb	121	2	He	103.973	4.064	401910	1.80	100	104.0	90	110	
Se	78	2	He	97.042	2.103	8892	0.42	100	97.0	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1402907	3.70	1658792	84.57	70	125	
In	115	1	nogas	1229602	2.48	1398610	87.92	70	125	
Li	6	1	nogas	353383	1.37	581094	60.81	70	125	ISTD Failed
Bi	209	1	nogas	1057349	6.94	1069547	98.86	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	673514	2.28	766661	87.85	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	094_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T18:11:51-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	014CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Fail

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.032	73.8	57	62.0	1	
B	11	1	nogas	16.583	14.9	18613	9.4	10	CCB Main CR1 Failed
Na	23	1	nogas	131.476	6.5	2492779	1.4	100	CCB Main CR1 Failed
Mg	24	1	nogas	3.074	39.8	20983	33.8	100	
Al	27	1	nogas	-0.198	-17.9	10270	4.8	5	
P	31	1	nogas	-24.152	-8.4	37335	1.8	10	
K	39	1	nogas	-4.623	-318.2	3424276	1.2	100	
Ca	43	1	nogas	8.639	84.0	883	12.6	100	
Ca	44	1	nogas	432.893	3.2	216431	1.1	100	CCB Main CR1 Failed
Ti	47	1	nogas	0.098	128.0	220	39.6	2.5	
V	51	1	nogas	0.484	60.2	42024	9.3	2.5	
Cr	52	1	nogas	-0.393	-6.0	12131	2.7	2.5	
Mn	55	1	nogas	0.105	25.9	12551	4.6	2.5	
Fe	56	1	nogas	-1.002	-568.2	708978	4.9	100	
Co	59	1	nogas	0.031	49.2	520	24.6	2.5	
Ni	60	1	nogas	-6.663	-0.5	3007	3.0	2.5	
Cu	63	1	nogas	-1.955	-37.5	22618	17.7	2	
Zn	66	1	nogas	-0.755	-9.4	570	21.1	2.5	
As	75	1	nogas	-3.525	-2.3	12681	2.2	2.5	
Se	77	1	nogas	-22.818	-9.0	4057	6.6	2.5	
Se	82	1	nogas	-0.528	-46.1	210	12.6	2	
Sr	88	1	nogas	0.037	45.3	987	17.3	2.5	
Mo	95	1	nogas	-0.292	-26.8	1013	14.0	2.5	
Ag	107	1	nogas	0.033	26.3	217	19.2	2.5	
Cd	111	1	nogas	0.022	116.4	47	65.5	1	
Sn	118	1	nogas	0.330	20.7	2140	10.5	5	
Sb	121	1	nogas	0.379	15.4	2417	9.3	2.5	
Ba	137	1	nogas	0.015	281.3	210	33.3	2.5	
Tl	205	1	nogas	0.313	69.4	3104	74.1	1	
Pb	208	1	nogas	0.034	13.9	443	13.2	2.5	
U	238	1	nogas	0.051	55.4	753	57.6	2.5	
Si	28	1	nogas	-98.950	-6.3	838485	0.4	5	
La	139	1	nogas	0.888	2047.5	37	56.8	2.5	
Au	197	1	nogas	123.738	318.3	17	124.9	2.5	CCB Main CR1 Failed
Na	23	2	He	129.712	2.2	363144	1.0	100	CCB Main CR1 Failed
Mg	24	2	He	1.766	4.0	1557	4.1	100	
Al	27	2	He	-1.443	-15.3	650	17.1	5	
K	39	2	He	-10.751	-43.6	212563	0.8	100	
Ca	43	2	He	2.971	81.1	57	10.2	100	
Ca	44	2	He	40.988	14.5	4164	6.6	100	
V	51	2	He	0.202	17.3	1825	7.1	2.5	
Cr	52	2	He	0.013	295.0	3740	3.5	2.5	
Mn	55	2	He	-0.021	-123.3	1107	10.0	2.5	
Fe	56	2	He	1.591	21.9	21860	5.9	100	
Co	59	2	He	0.019	32.0	173	20.3	2.5	
Ni	60	2	He	-6.057	-2.2	1230	16.4	2.5	

Continuing Calibration Blank (CCB) Report

Cu	63	2	He	-1.410	-3.6	12174	0.8	2	
Zn	66	2	He	-0.481	-15.5	250	28.0	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
As	75	2	He	-0.063	-55.4	289	10.7	2.5	
Sb	121	2	He	0.311	19.9	1640	14.4	2.5	
Se	78	2	He	0.155	380.1	314	15.5	2	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1365298	2.47	1658792	82.31	70	125	
In	115	1	nogas	1251488	1.07	1398610	89.48	70	125	
Li	6	1	nogas	338350	2.87	581094	58.23	70	125	ISTD Failed
Bi	209	1	nogas	1073115	6.01	1069547	100.33	70	125	
Ge	72	2	He	672576	1.25	766661	87.73	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	105_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T18:44:21-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	014CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Fail

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	126.058	4.042	200847	1.93	100	126.1	90	110	CCV Main CR1-2 Failed
B	11	1	nogas	669.164	3.561	599574	2.37	500	133.8	90	110	CCV Main CR1-2 Failed
Na	23	1	nogas	10142.989	3.313	81057681	2.77	10000	101.4	90	110	
Mg	24	1	nogas	10006.772	3.985	53550408	3.46	10000	100.1	90	110	
Al	27	1	nogas	83.991	2.076	739117	2.70	100	84.0	90	110	CCV Main CR1-2 Failed
P	31	1	nogas	433.146	8.174	321575	2.47	500	86.6	90	110	CCV Main CR1-2 Failed
K	39	1	nogas	9281.795	7.432	77455375	2.44	10000	92.8	90	110	
Ca	43	1	nogas	9113.336	5.052	137771	1.00	10000	91.1	90	110	
Ca	44	1	nogas	9945.382	3.957	2518357	1.86	10000	99.5	90	110	
Ti	47	1	nogas	94.473	4.647	74627	2.47	100	94.5	90	110	
V	51	1	nogas	92.528	1.406	1034345	3.34	100	92.5	90	110	
Cr	52	1	nogas	91.840	2.527	837126	2.85	100	91.8	90	110	
Mn	55	1	nogas	97.020	5.569	1075518	1.47	100	97.0	90	110	
Fe	56	1	nogas	10070.795	7.833	91902754	3.03	10000	100.7	90	110	
Co	59	1	nogas	96.755	7.922	918869	3.18	100	96.8	90	110	
Ni	60	1	nogas	91.403	7.657	211503	2.54	100	91.4	90	110	
Cu	63	1	nogas	89.678	6.172	502020	2.33	100	89.7	90	110	CCV Main CR1-2 Failed
Zn	66	1	nogas	99.802	4.013	160734	2.19	100	99.8	90	110	
As	75	1	nogas	98.679	5.322	214115	0.29	100	98.7	90	110	
Se	77	1	nogas	62.365	2.095	11721	4.92	100	62.4	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	100.758	7.235	9960	6.47	100	100.8	90	110	
Sr	88	1	nogas	102.588	5.976	1164944	1.50	100	102.6	90	110	
Mo	95	1	nogas	101.562	5.915	228049	2.18	100	101.6	90	110	
Ag	107	1	nogas	109.210	5.739	599233	1.15	100	109.2	90	110	
Cd	111	1	nogas	105.743	4.449	123254	1.97	100	105.7	90	110	
Sn	118	1	nogas	99.382	4.714	348456	2.25	100	99.4	90	110	
Sb	121	1	nogas	109.685	5.698	555824	1.36	100	109.7	90	110	
Ba	137	1	nogas	106.685	5.331	179556	2.92	100	106.7	90	110	
Tl	205	1	nogas	101.892	7.927	945064	1.67	100	101.9	90	110	
Pb	208	1	nogas	99.396	7.356	666712	1.16	100	99.4	90	110	
U	238	1	nogas	99.750	12.435	1305786	6.30	100	99.8	90	110	
Li	7	1	nogas	120.754	0.403	452718	2.09	100	120.8	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	1535.142	5.340	7402610	0.76	5000	30.7	90	110	CCV Main CR1-2 Failed
Ba	135	1	nogas	102.728	2.890	104011	2.27	100	102.7	90	110	
La	139	1	nogas	320.731	14.921	397	16.01	100	320.7	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	5.488	3598.505	10	100.00	100	5.5	90	110	CCV Main CR1-2 Failed
Tl	203	1	nogas	105.074	9.044	397970	2.62	100	105.1	90	110	
Na	23	2	He	9648.517	2.927	10545847	2.04	10000	96.5	90	110	
Mg	24	2	He	9459.735	1.836	5974037	2.10	10000	94.6	90	110	
Al	27	2	He	88.051	3.653	41993	1.78	100	88.1	90	110	CCV Main CR1-2 Failed
K	39	2	He	9373.902	1.656	7998354	3.94	10000	93.7	90	110	
Ca	43	2	He	9716.570	2.880	21674	3.69	10000	97.2	90	110	
Ca	44	2	He	9692.706	5.751	358807	2.99	10000	96.9	90	110	
V	51	2	He	97.223	2.268	416855	1.46	100	97.2	90	110	
Cr	52	2	He	97.749	3.431	443393	3.79	100	97.7	90	110	
Mn	55	2	He	100.473	1.566	378813	1.55	100	100.5	90	110	
Fe	56	2	He	10161.004	5.416	42729017	2.54	10000	101.6	90	110	
Co	59	2	He	98.142	6.114	588264	3.49	100	98.1	90	110	
Ni	60	2	He	98.315	6.730	148756	3.81	100	98.3	90	110	
Cu	63	2	He	96.877	2.012	363778	1.78	100	96.9	90	110	
Zn	66	2	He	101.256	1.142	97829	2.65	100	101.3	90	110	
As	75	2	He	104.615	1.986	101791	1.02	100	104.6	90	110	
Sb	121	2	He	108.937	4.786	416390	2.17	100	108.9	90	110	
Se	78	2	He	98.802	2.755	8948	0.97	100	98.8	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1441662	4.64	1658792	86.91	70	125	
In	115	1	nogas	1248623	2.50	1398610	89.28	70	125	
Li	6	1	nogas	346671	2.31	581094	59.66	70	125	ISTD Failed
Bi	209	1	nogas	1049510	6.79	1069547	98.13	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	666220	3.03	766661	86.90	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	106_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T18:46:34-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	014CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Fail

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.035	51.3	63	45.6	1	
B	11	1	nogas	19.893	16.1	21646	12.0	10	CCB Main CR1 Failed
Na	23	1	nogas	107.436	1.9	2257250	0.5	100	CCB Main CR1 Failed
Mg	24	1	nogas	2.388	61.5	16879	46.4	100	
Al	27	1	nogas	1.766	55.4	27021	29.3	5	
P	31	1	nogas	-31.189	-7.4	34119	2.0	10	
K	39	1	nogas	-20.371	-71.1	3396096	1.6	100	
Ca	43	1	nogas	4.363	166.0	843	11.2	100	
Ca	44	1	nogas	269.318	10.9	183949	1.7	100	CCB Main CR1 Failed
Ti	47	1	nogas	0.154	62.6	270	25.9	2.5	
V	51	1	nogas	-0.835	-17.0	29330	6.4	2.5	
Cr	52	1	nogas	-0.473	-8.3	11767	1.5	2.5	
Mn	55	1	nogas	1.101	22.1	23499	9.5	2.5	
Fe	56	1	nogas	-0.102	-8856.3	736217	9.5	100	
Co	59	1	nogas	0.029	35.6	517	17.3	2.5	
Ni	60	1	nogas	-7.028	-0.4	2334	4.2	2.5	
Cu	63	1	nogas	-5.136	-1.2	7025	6.3	2	
Zn	66	1	nogas	-0.876	-2.3	397	8.1	2.5	
As	75	1	nogas	-3.845	-4.3	12415	2.1	2.5	
Se	77	1	nogas	-22.811	-5.3	4167	4.5	2.5	
Se	82	1	nogas	-0.513	-21.4	217	2.7	2	
Sr	88	1	nogas	-0.001	-1872.8	590	34.4	2.5	
Mo	95	1	nogas	-0.331	-39.9	957	28.7	2.5	
Ag	107	1	nogas	0.034	34.8	230	26.4	2.5	
Cd	111	1	nogas	0.002	1588.1	23	137.8	1	
Sn	118	1	nogas	0.219	32.9	1807	11.4	5	
Sb	121	1	nogas	0.274	30.5	1967	19.1	2.5	
Ba	137	1	nogas	0.025	173.0	233	29.2	2.5	
Tl	205	1	nogas	0.314	75.0	3087	80.3	1	
Pb	208	1	nogas	0.067	36.3	660	26.4	2.5	
U	238	1	nogas	0.036	41.1	547	40.6	2.5	
Si	28	1	nogas	-81.301	-6.1	930108	0.3	5	
La	139	1	nogas	87.238	89.2	137	63.1	2.5	CCB Main CR1 Failed
Au	197	1	nogas	45.436	873.3	13	173.2	2.5	CCB Main CR1 Failed
Na	23	2	He	89.876	8.9	328983	0.3	100	
Mg	24	2	He	1.225	17.3	1243	8.9	100	
Al	27	2	He	-0.718	-39.9	1013	11.4	5	
K	39	2	He	-20.926	-33.2	209725	0.6	100	
Ca	43	2	He	-9.445	-116.0	30	88.2	100	
Ca	44	2	He	15.688	25.8	3314	5.6	100	
V	51	2	He	0.084	19.1	1355	5.7	2.5	
Cr	52	2	He	0.082	51.1	4171	4.2	2.5	
Mn	55	2	He	0.884	4.8	4667	1.8	2.5	
Fe	56	2	He	6.296	5.5	43012	1.1	100	
Co	59	2	He	0.009	53.9	117	27.6	2.5	
Ni	60	2	He	-6.191	-1.6	1070	15.6	2.5	

Continuing Calibration Blank (CCB) Report

Cu	63	2	He	-3.775	-2.2	3734	8.9	2	
Zn	66	2	He	-0.521	-12.5	217	27.8	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
As	75	2	He	-0.099	-47.9	261	16.4	2.5	
Sb	121	2	He	0.199	11.2	1243	6.9	2.5	
Se	78	2	He	-0.065	-69.2	303	3.7	2	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1402614	2.15	1658792	84.56	70	125	
In	115	1	nogas	1295552	3.23	1398610	92.63	70	125	
Li	6	1	nogas	340665	2.73	581094	58.62	70	125	ISTD Failed
Bi	209	1	nogas	1060969	6.66	1069547	99.20	70	125	
Ge	72	2	He	691558	2.68	766661	90.20	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	117_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T19:16:26-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	014CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Fail

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	129.739	2.340	190809	0.86	100	129.7	90	110	CCV Main CR1-2 Failed
B	11	1	nogas	681.781	2.655	563658	0.48	500	136.4	90	110	CCV Main CR1-2 Failed
Na	23	1	nogas	10100.798	7.154	78413652	2.38	10000	101.0	90	110	
Mg	24	1	nogas	9891.474	6.642	51425568	2.22	10000	98.9	90	110	
Al	27	1	nogas	89.002	4.881	741808	5.36	100	89.0	90	110	CCV Main CR1-2 Failed
P	31	1	nogas	437.897	1.370	308010	0.36	500	87.6	90	110	CCV Main CR1-2 Failed
K	39	1	nogas	9075.160	2.413	71963587	1.48	10000	90.8	90	110	
Ca	43	1	nogas	9181.155	6.270	131637	5.56	10000	91.8	90	110	
Ca	44	1	nogas	10404.272	5.225	2492341	4.21	10000	104.0	90	110	
Ti	47	1	nogas	96.737	1.155	72473	1.34	100	96.7	90	110	
V	51	1	nogas	93.878	6.218	994319	6.79	100	93.9	90	110	
Cr	52	1	nogas	92.068	1.179	795504	1.89	100	92.1	90	110	
Mn	55	1	nogas	95.046	2.966	999839	2.09	100	95.0	90	110	
Fe	56	1	nogas	10124.033	2.943	87712456	2.07	10000	101.2	90	110	
Co	59	1	nogas	98.830	2.547	891161	1.71	100	98.8	90	110	
Ni	60	1	nogas	94.591	1.632	207195	0.76	100	94.6	90	110	
Cu	63	1	nogas	92.118	2.606	488382	2.11	100	92.1	90	110	
Zn	66	1	nogas	101.735	3.778	155345	3.78	100	101.7	90	110	
As	75	1	nogas	98.085	1.488	202036	1.96	100	98.1	90	110	
Se	77	1	nogas	62.416	5.597	11107	2.97	100	62.4	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	107.363	2.786	10046	2.60	100	107.4	90	110	
Sr	88	1	nogas	105.056	4.753	1131839	3.88	100	105.1	90	110	
Mo	95	1	nogas	106.805	4.935	227432	4.24	100	106.8	90	110	
Ag	107	1	nogas	109.325	1.096	569245	1.04	100	109.3	90	110	
Cd	111	1	nogas	105.197	1.844	117925	2.55	100	105.2	90	110	
Sn	118	1	nogas	98.744	2.301	332896	0.41	100	98.7	90	110	
Sb	121	1	nogas	110.291	3.666	530253	2.90	100	110.3	90	110	CCV Main CR1-2 Failed
Ba	137	1	nogas	108.401	5.247	175353	2.95	100	108.4	90	110	
Tl	205	1	nogas	100.091	12.121	899936	2.95	100	100.1	90	110	
Pb	208	1	nogas	99.760	9.731	649548	1.13	100	99.8	90	110	
U	238	1	nogas	94.823	9.482	1207617	0.59	100	94.8	90	110	
Li	7	1	nogas	122.038	1.919	422147	4.35	100	122.0	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	1645.244	1.925	7438248	1.46	5000	32.9	90	110	CCV Main CR1-2 Failed
Ba	135	1	nogas	105.237	6.081	102333	3.64	100	105.2	90	110	
La	139	1	nogas	339.541	43.264	400	38.49	100	339.5	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	-115.667	-101.816	3	173.21	100	-115.7	90	110	CCV Main CR1-2 Failed
Tl	203	1	nogas	101.723	11.439	373829	1.95	100	101.7	90	110	
Na	23	2	He	9967.730	6.813	10722444	5.47	10000	99.7	90	110	
Mg	24	2	He	9651.539	4.332	6002799	2.91	10000	96.5	90	110	
Al	27	2	He	91.349	2.509	42895	3.30	100	91.3	90	110	
K	39	2	He	8838.928	2.737	7443810	4.92	10000	88.4	90	110	CCV Main CR1-2 Failed
Ca	43	2	He	9033.478	5.833	19848	5.25	10000	90.3	90	110	
Ca	44	2	He	9443.847	5.753	344500	2.83	10000	94.4	90	110	
V	51	2	He	100.393	5.045	423855	2.92	100	100.4	90	110	
Cr	52	2	He	95.607	1.988	427275	1.25	100	95.6	90	110	
Mn	55	2	He	94.326	1.374	350468	1.76	100	94.3	90	110	
Fe	56	2	He	9637.139	2.365	39962430	2.79	10000	96.4	90	110	
Co	59	2	He	96.601	4.799	570636	2.30	100	96.6	90	110	
Ni	60	2	He	99.954	3.928	148906	0.76	100	100.0	90	110	
Cu	63	2	He	103.876	4.671	382911	2.57	100	103.9	90	110	
Zn	66	2	He	104.566	3.763	99478	3.15	100	104.6	90	110	
As	75	2	He	101.432	3.697	97217	1.15	100	101.4	90	110	
Sb	121	2	He	108.440	4.559	408395	1.93	100	108.4	90	110	
Se	78	2	He	99.695	3.487	8891	0.35	100	99.7	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1365689	0.86	1658792	82.33	70	125	
In	115	1	nogas	1200083	2.60	1398610	85.81	70	125	
Li	6	1	nogas	319945	2.83	581094	55.06	70	125	ISTD Failed
Bi	209	1	nogas	1022083	10.18	1069547	95.56	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	656384	3.03	766661	85.62	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	118_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T19:18:40-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	014CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Fail

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.041	61.6	67	60.6	1	
B	11	1	nogas	15.618	9.2	16408	12.6	10	CCB Main CR1 Failed
Na	23	1	nogas	128.617	11.5	2343451	1.0	100	CCB Main CR1 Failed
Mg	24	1	nogas	3.890	34.6	23853	25.2	100	
Al	27	1	nogas	4.222	54.2	46870	42.4	5	
P	31	1	nogas	-42.039	-5.1	26923	3.0	10	
K	39	1	nogas	-53.899	-21.2	3060571	2.3	100	
Ca	43	1	nogas	4.277	88.1	823	8.5	100	
Ca	44	1	nogas	523.717	4.9	237723	2.2	100	CCB Main CR1 Failed
Ti	47	1	nogas	0.244	81.0	333	46.5	2.5	
V	51	1	nogas	-0.746	-22.1	29529	7.0	2.5	
Cr	52	1	nogas	-0.464	-18.7	11547	5.1	2.5	
Mn	55	1	nogas	-0.066	-67.3	10790	5.9	2.5	
Fe	56	1	nogas	-3.328	-338.9	691471	14.3	100	
Co	59	1	nogas	0.020	55.3	427	23.5	2.5	
Ni	60	1	nogas	-6.938	-0.5	2457	3.8	2.5	
Cu	63	1	nogas	-5.609	-0.2	4501	1.0	2	
Zn	66	1	nogas	-0.676	-11.9	690	18.5	2.5	
As	75	1	nogas	-4.307	-5.5	11247	2.1	2.5	
Se	77	1	nogas	-30.866	-9.2	3394	5.0	2.5	
Se	82	1	nogas	-0.016	-2026.0	257	9.8	2	
Sr	88	1	nogas	0.009	268.6	680	35.9	2.5	
Mo	95	1	nogas	-0.436	-19.1	713	25.2	2.5	
Ag	107	1	nogas	0.028	61.1	193	46.9	2.5	
Cd	111	1	nogas	0.016	114.3	37	56.8	1	
Sn	118	1	nogas	0.323	21.7	1980	8.9	5	
Sb	121	1	nogas	0.210	27.5	1613	17.4	2.5	
Ba	137	1	nogas	0.017	259.8	200	35.0	2.5	
Tl	205	1	nogas	0.291	71.5	2707	74.6	1	
Pb	208	1	nogas	0.065	28.2	620	24.1	2.5	
U	238	1	nogas	0.036	49.3	520	48.8	2.5	
Si	28	1	nogas	-65.749	-20.3	966188	4.0	5	
La	139	1	nogas	38.747	127.9	73	67.3	2.5	CCB Main CR1 Failed
Au	197	1	nogas	146.683	204.0	17	91.7	2.5	CCB Main CR1 Failed
Na	23	2	He	126.229	2.0	345818	0.3	100	CCB Main CR1 Failed
Mg	24	2	He	1.933	9.8	1600	7.1	100	
Al	27	2	He	1.134	66.5	1780	18.1	5	
K	39	2	He	-21.179	-11.6	196155	0.5	100	
Ca	43	2	He	-3.688	-223.0	40	43.3	100	
Ca	44	2	He	44.130	18.9	4117	7.3	100	
V	51	2	He	0.050	10.3	1125	1.7	2.5	
Cr	52	2	He	0.052	53.4	3770	3.2	2.5	
Mn	55	2	He	0.037	2.4	1273	0.9	2.5	
Fe	56	2	He	7.492	10.5	45161	6.8	100	
Co	59	2	He	0.011	95.7	120	50.7	2.5	
Ni	60	2	He	-5.898	-2.1	1403	12.9	2.5	

Continuing Calibration Blank (CCB) Report

Cu	63	2	He	-4.119	-1.3	2297	7.8	2	
Zn	66	2	He	-0.389	-2.3	327	1.8	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
As	75	2	He	-0.126	-11.8	219	6.3	2.5	
Sb	121	2	He	0.147	0.5	970	1.0	2.5	
Se	78	2	He	0.079	532.4	296	11.7	2	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1368497	2.07	1658792	82.50	70	125	
In	115	1	nogas	1174560	3.57	1398610	83.98	70	125	
Li	6	1	nogas	311078	6.21	581094	53.53	70	125	ISTD Failed
Bi	209	1	nogas	1009049	4.78	1069547	94.34	70	125	
Ge	72	2	He	647194	0.95	766661	84.42	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	129_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T19:51:09-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	014CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Fail

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	127.507	3.736	184174	0.79	100	127.5	90	110	CCV Main CR1-2 Failed
B	11	1	nogas	677.284	6.735	549646	3.43	500	135.5	90	110	CCV Main CR1-2 Failed
Na	23	1	nogas	10174.148	0.511	79356777	2.12	10000	101.7	90	110	
Mg	24	1	nogas	10062.568	0.297	52558889	1.55	10000	100.6	90	110	
Al	27	1	nogas	89.361	8.152	763321	4.64	100	89.4	90	110	CCV Main CR1-2 Failed
P	31	1	nogas	431.726	7.452	312141	2.04	500	86.3	90	110	CCV Main CR1-2 Failed
K	39	1	nogas	9158.779	4.431	74502372	2.27	10000	91.6	90	110	
Ca	43	1	nogas	9156.539	3.972	134812	3.81	10000	91.6	90	110	
Ca	44	1	nogas	10834.076	3.116	2660206	3.33	10000	108.3	90	110	
Ti	47	1	nogas	93.914	2.257	72246	3.21	100	93.9	90	110	
V	51	1	nogas	95.079	3.250	1033244	4.09	100	95.1	90	110	
Cr	52	1	nogas	95.566	3.639	846805	2.21	100	95.6	90	110	
Mn	55	1	nogas	98.145	4.104	1059086	0.41	100	98.1	90	110	
Fe	56	1	nogas	10071.437	4.901	89526560	1.15	10000	100.7	90	110	
Co	59	1	nogas	96.216	6.616	889797	3.34	100	96.2	90	110	
Ni	60	1	nogas	92.787	6.938	208738	2.49	100	92.8	90	110	
Cu	63	1	nogas	92.448	4.441	502901	2.56	100	92.4	90	110	
Zn	66	1	nogas	100.298	4.411	157285	5.04	100	100.3	90	110	
As	75	1	nogas	100.464	4.125	211923	3.20	100	100.5	90	110	
Se	77	1	nogas	68.738	1.369	11948	4.84	100	68.7	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	103.391	9.186	9923	4.99	100	103.4	90	110	
Sr	88	1	nogas	103.406	7.369	1142754	4.70	100	103.4	90	110	
Mo	95	1	nogas	105.676	5.892	230885	3.02	100	105.7	90	110	
Ag	107	1	nogas	103.576	0.564	553946	3.99	100	103.6	90	110	
Cd	111	1	nogas	102.810	3.213	116047	3.23	100	102.8	90	110	
Sn	118	1	nogas	98.128	5.143	332959	2.16	100	98.1	90	110	
Sb	121	1	nogas	107.801	5.266	531891	3.41	100	107.8	90	110	
Ba	137	1	nogas	107.413	3.972	175026	2.35	100	107.4	90	110	
Tl	205	1	nogas	96.841	10.495	849120	1.24	100	96.8	90	110	
Pb	208	1	nogas	97.616	9.644	619329	2.73	100	97.6	90	110	
U	238	1	nogas	93.165	9.846	1155541	0.68	100	93.2	90	110	
Li	7	1	nogas	119.034	2.068	404822	1.77	100	119.0	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	1641.526	7.077	7613759	1.99	5000	32.8	90	110	CCV Main CR1-2 Failed
Ba	135	1	nogas	104.427	4.739	102294	2.83	100	104.4	90	110	
La	139	1	nogas	290.213	33.184	350	29.83	100	290.2	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	-42.901	-568.296	7	173.21	100	-42.9	90	110	CCV Main CR1-2 Failed
Tl	203	1	nogas	100.477	9.738	360180	1.85	100	100.5	90	110	
Na	23	2	He	8984.941	0.860	10524585	2.56	10000	89.8	90	110	CCV Main CR1-2 Failed
Mg	24	2	He	8925.597	3.443	6031323	4.65	10000	89.3	90	110	CCV Main CR1-2 Failed
Al	27	2	He	88.824	1.422	45337	4.01	100	88.8	90	110	CCV Main CR1-2 Failed
K	39	2	He	9419.277	3.360	8589899	1.49	10000	94.2	90	110	
Ca	43	2	He	9389.971	4.983	22398	4.34	10000	93.9	90	110	
Ca	44	2	He	9438.999	4.175	373948	1.29	10000	94.4	90	110	
V	51	2	He	95.479	3.038	437849	1.21	100	95.5	90	110	
Cr	52	2	He	98.878	3.848	479584	3.05	100	98.9	90	110	
Mn	55	2	He	99.427	3.068	400897	1.14	100	99.4	90	110	
Fe	56	2	He	9780.511	5.536	44009571	4.04	10000	97.8	90	110	
Co	59	2	He	91.648	7.089	587672	5.08	100	91.6	90	110	
Ni	60	2	He	89.743	3.836	146246	2.10	100	89.7	90	110	CCV Main CR1-2 Failed
Cu	63	2	He	91.345	3.470	367931	2.98	100	91.3	90	110	
Zn	66	2	He	98.760	1.450	102080	2.55	100	98.8	90	110	
As	75	2	He	103.291	3.469	107485	1.33	100	103.3	90	110	
Sb	121	2	He	103.965	4.767	425131	2.51	100	104.0	90	110	
Se	78	2	He	96.794	3.274	9382	0.22	100	96.8	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1402842	4.31	1658792	84.57	70	125	
In	115	1	nogas	1208614	3.10	1398610	86.42	70	125	
Li	6	1	nogas	314373	3.71	581094	54.10	70	125	ISTD Failed
Bi	209	1	nogas	995440	9.82	1069547	93.07	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	712637	2.97	766661	92.95	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	130_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T19:53:23-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	014CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Fail

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.038	65.1	60	57.7	1	
B	11	1	nogas	17.221	13.1	17242	8.8	10	CCB Main CR1 Failed
Na	23	1	nogas	104.730	3.1	2227788	1.0	100	CCB Main CR1 Failed
Mg	24	1	nogas	5.052	24.7	30899	23.2	100	
Al	27	1	nogas	5.077	45.3	55167	36.1	5	CCB Main CR1 Failed
P	31	1	nogas	-43.395	-2.2	26793	2.6	10	
K	39	1	nogas	-57.895	-32.8	3104191	1.7	100	
Ca	43	1	nogas	12.888	73.0	967	11.5	100	
Ca	44	1	nogas	869.020	1.8	324658	2.2	100	CCB Main CR1 Failed
Ti	47	1	nogas	0.371	18.3	437	11.5	2.5	
V	51	1	nogas	-0.100	-81.4	37013	3.4	2.5	
Cr	52	1	nogas	-0.380	-11.9	12571	0.4	2.5	
Mn	55	1	nogas	0.722	11.7	19501	7.8	2.5	
Fe	56	1	nogas	6.307	40.1	794169	5.9	100	
Co	59	1	nogas	0.026	16.1	490	10.8	2.5	
Ni	60	1	nogas	-6.724	-0.7	2960	1.5	2.5	
Cu	63	1	nogas	-5.842	-0.4	3427	2.5	2	
Zn	66	1	nogas	-0.808	-4.0	503	13.2	2.5	
As	75	1	nogas	-3.944	-9.1	12218	2.8	2.5	
Se	77	1	nogas	-27.308	-7.4	3784	4.8	2.5	
Se	82	1	nogas	0.012	2488.7	267	14.2	2	
Sr	88	1	nogas	0.019	117.8	817	33.6	2.5	
Mo	95	1	nogas	-0.391	-16.1	830	19.7	2.5	
Ag	107	1	nogas	0.035	32.4	237	25.5	2.5	
Cd	111	1	nogas	0.017	6.8	40	0.0	1	
Sn	118	1	nogas	0.174	53.3	1593	23.9	5	
Sb	121	1	nogas	0.145	24.8	1337	16.6	2.5	
Ba	137	1	nogas	0.001	5243.6	187	38.8	2.5	
Tl	205	1	nogas	0.292	62.8	2694	69.9	1	
Pb	208	1	nogas	0.103	9.5	850	14.1	2.5	
U	238	1	nogas	0.050	55.7	687	57.5	2.5	
Si	28	1	nogas	-60.453	-10.1	1011121	1.0	5	
La	139	1	nogas	69.811	53.8	113	35.7	2.5	CCB Main CR1 Failed
Au	197	1	nogas	82.615	149.2	13	43.3	2.5	CCB Main CR1 Failed
Na	23	2	He	95.468	1.8	331370	0.2	100	
Mg	24	2	He	3.102	13.7	2447	11.5	100	
Al	27	2	He	1.504	110.5	2057	38.3	5	
K	39	2	He	-20.429	-15.1	207756	0.9	100	
Ca	43	2	He	5.486	119.4	63	24.1	100	
Ca	44	2	He	79.830	2.6	5694	1.1	100	
V	51	2	He	0.165	10.0	1695	3.6	2.5	
Cr	52	2	He	0.068	74.0	4057	6.4	2.5	
Mn	55	2	He	0.680	3.2	3827	2.9	2.5	
Fe	56	2	He	5.743	8.1	40139	4.8	100	
Co	59	2	He	0.018	65.5	170	42.4	2.5	
Ni	60	2	He	-5.770	-1.8	1667	9.9	2.5	

Continuing Calibration Blank (CCB) Report

Cu	63	2	He	-4.311	-0.5	1720	4.1	2	
Zn	66	2	He	-0.441	-9.0	293	12.9	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
As	75	2	He	-0.087	-53.1	270	17.1	2.5	
Sb	121	2	He	0.095	13.3	820	5.3	2.5	
Se	78	2	He	0.627	58.2	362	9.4	2	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1402898	3.11	1658792	84.57	70	125	
In	115	1	nogas	1246719	3.35	1398610	89.14	70	125	
Li	6	1	nogas	304201	1.87	581094	52.35	70	125	ISTD Failed
Bi	209	1	nogas	991971	7.89	1069547	92.75	70	125	
Ge	72	2	He	683358	0.71	766661	89.13	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	141_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T20:23:35-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	014CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Fail

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	123.450	3.952	186675	2.04	100	123.4	90	110	CCV Main CR1-2 Failed
B	11	1	nogas	634.506	1.909	539819	0.63	500	126.9	90	110	CCV Main CR1-2 Failed
Na	23	1	nogas	10010.156	1.902	76068452	0.87	10000	100.1	90	110	
Mg	24	1	nogas	10060.321	2.533	51183112	1.89	10000	100.6	90	110	
Al	27	1	nogas	82.684	1.667	698160	1.89	100	82.7	90	110	CCV Main CR1-2 Failed
P	31	1	nogas	429.322	2.106	306611	0.92	500	85.9	90	110	CCV Main CR1-2 Failed
K	39	1	nogas	8843.158	3.933	71058945	3.55	10000	88.4	90	110	CCV Main CR1-2 Failed
Ca	43	1	nogas	8915.219	2.902	129405	2.46	10000	89.2	90	110	CCV Main CR1-2 Failed
Ca	44	1	nogas	10368.003	0.300	2514612	1.40	10000	103.7	90	110	
Ti	47	1	nogas	91.210	0.724	69160	0.78	100	91.2	90	110	
V	51	1	nogas	92.359	0.662	990275	1.24	100	92.4	90	110	
Cr	52	1	nogas	94.172	2.583	823091	2.96	100	94.2	90	110	
Mn	55	1	nogas	95.025	1.840	1011727	1.55	100	95.0	90	110	
Fe	56	1	nogas	9853.148	1.515	86414912	0.47	10000	98.5	90	110	
Co	59	1	nogas	94.975	0.371	866843	1.49	100	95.0	90	110	
Ni	60	1	nogas	92.556	2.972	205551	2.99	100	92.6	90	110	
Cu	63	1	nogas	88.316	2.510	475237	2.68	100	88.3	90	110	CCV Main CR1-2 Failed
Zn	66	1	nogas	97.946	2.525	151421	2.67	100	97.9	90	110	
As	75	1	nogas	98.823	1.504	205855	2.14	100	98.8	90	110	
Se	77	1	nogas	63.973	4.710	11371	2.57	100	64.0	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	103.332	3.642	9793	2.46	100	103.3	90	110	
Sr	88	1	nogas	99.083	0.439	1080679	1.63	100	99.1	90	110	
Mo	95	1	nogas	99.365	3.019	214329	3.87	100	99.4	90	110	
Ag	107	1	nogas	104.402	0.695	550173	1.58	100	104.4	90	110	
Cd	111	1	nogas	104.704	0.399	115767	1.59	100	104.7	90	110	
Sn	118	1	nogas	98.620	0.922	328014	1.49	100	98.6	90	110	
Sb	121	1	nogas	106.779	1.303	519654	1.72	100	106.8	90	110	
Ba	137	1	nogas	104.823	0.748	167378	1.80	100	104.8	90	110	
Tl	205	1	nogas	99.809	9.073	853248	3.60	100	99.8	90	110	
Pb	208	1	nogas	96.148	8.469	594326	2.71	100	96.1	90	110	
U	238	1	nogas	93.424	7.779	1129623	1.31	100	93.4	90	110	
Li	7	1	nogas	116.082	3.028	413793	2.16	100	116.1	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	2624.626	2.281	11276522	1.16	5000	52.5	90	110	CCV Main CR1-2 Failed
Ba	135	1	nogas	102.256	2.854	98177	3.61	100	102.3	90	110	
La	139	1	nogas	190.850	27.910	237	23.27	100	190.9	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	99.104	329.456	13	114.56	100	99.1	90	110	
Tl	203	1	nogas	102.289	8.501	357278	2.21	100	102.3	90	110	
Na	23	2	He	9199.288	0.946	10344165	2.81	10000	92.0	90	110	
Mg	24	2	He	8892.579	1.471	5769686	2.10	10000	88.9	90	110	CCV Main CR1-2 Failed
Al	27	2	He	83.508	3.915	41044	6.87	100	83.5	90	110	CCV Main CR1-2 Failed
K	39	2	He	8893.852	2.178	7804150	1.81	10000	88.9	90	110	CCV Main CR1-2 Failed
Ca	43	2	He	9340.792	6.542	21383	3.68	10000	93.4	90	110	
Ca	44	2	He	9553.811	8.817	363070	5.17	10000	95.5	90	110	
V	51	2	He	96.348	0.106	424640	3.66	100	96.3	90	110	
Cr	52	2	He	96.598	1.988	450138	1.69	100	96.6	90	110	
Mn	55	2	He	94.900	4.530	367414	1.01	100	94.9	90	110	
Fe	56	2	He	9386.321	5.527	40547735	2.05	10000	93.9	90	110	
Co	59	2	He	93.047	6.741	572799	3.21	100	93.0	90	110	
Ni	60	2	He	95.126	6.852	148161	2.84	100	95.1	90	110	
Cu	63	2	He	96.458	4.126	372054	2.21	100	96.5	90	110	
Zn	66	2	He	100.724	3.604	100022	5.53	100	100.7	90	110	
As	75	2	He	101.201	6.595	101071	3.08	100	101.2	90	110	
Sb	121	2	He	104.539	7.551	410233	4.05	100	104.5	90	110	
Se	78	2	He	98.529	1.588	9172	3.39	100	98.5	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1382099	1.19	1658792	83.32	70	125	
In	115	1	nogas	1183497	1.22	1398610	84.62	70	125	
Li	6	1	nogas	328995	2.20	581094	56.62	70	125	ISTD Failed
Bi	209	1	nogas	967598	6.86	1069547	90.47	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	684520	3.56	766661	89.29	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	142_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T20:25:48-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	014CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Fail

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.059	67.9	93	62.8	1	
B	11	1	nogas	12.135	20.5	13765	15.6	10	CCB Main CR1 Failed
Na	23	1	nogas	125.096	0.6	2277026	1.0	100	CCB Main CR1 Failed
Mg	24	1	nogas	3.569	45.6	21953	37.2	100	
Al	27	1	nogas	-0.320	-37.6	9350	11.6	5	
P	31	1	nogas	-41.850	-1.1	27204	2.3	10	
K	39	1	nogas	-45.197	-13.1	3144307	0.8	100	
Ca	43	1	nogas	4.586	281.8	830	21.2	100	
Ca	44	1	nogas	933.875	3.0	333408	1.0	100	CCB Main CR1 Failed
Ti	47	1	nogas	0.121	36.2	240	12.5	2.5	
V	51	1	nogas	-0.216	-82.4	35141	6.6	2.5	
Cr	52	1	nogas	-0.364	-5.3	12478	2.3	2.5	
Mn	55	1	nogas	0.026	116.6	11814	1.9	2.5	
Fe	56	1	nogas	5.961	83.9	775372	4.9	100	
Co	59	1	nogas	0.041	19.0	617	10.8	2.5	
Ni	60	1	nogas	-6.571	-1.9	3217	8.1	2.5	
Cu	63	1	nogas	-5.947	-0.8	2837	7.2	2	
Zn	66	1	nogas	-0.854	-12.7	423	40.2	2.5	
As	75	1	nogas	-4.396	-3.1	11147	1.0	2.5	
Se	77	1	nogas	-29.801	-14.2	3507	11.1	2.5	
Se	82	1	nogas	-0.795	-53.9	187	20.3	2	
Sr	88	1	nogas	0.002	378.7	610	10.2	2.5	
Mo	95	1	nogas	-0.460	-15.5	663	22.0	2.5	
Ag	107	1	nogas	0.031	57.6	207	43.6	2.5	
Cd	111	1	nogas	0.008	202.2	30	66.7	1	
Sn	118	1	nogas	0.199	46.9	1653	19.8	5	
Sb	121	1	nogas	0.161	50.9	1387	28.6	2.5	
Ba	137	1	nogas	-0.039	-110.5	117	62.0	2.5	
Tl	205	1	nogas	0.272	66.7	2519	73.1	1	
Pb	208	1	nogas	0.073	24.0	663	24.8	2.5	
U	238	1	nogas	0.043	45.1	603	48.3	2.5	
Si	28	1	nogas	-59.837	-3.1	994641	1.1	5	
La	139	1	nogas	13.983	237.8	50	72.1	2.5	CCB Main CR1 Failed
Au	197	1	nogas	-183.660	0.0	0	#DIV/0!	2.5	
Na	23	2	He	95.428	8.2	338853	0.3	100	
Mg	24	2	He	1.795	2.6	1637	2.5	100	
Al	27	2	He	-1.226	-65.2	777	47.8	5	
K	39	2	He	-26.447	-23.2	207249	0.9	100	
Ca	43	2	He	4.974	112.1	63	18.2	100	
Ca	44	2	He	90.123	16.4	6221	8.8	100	
V	51	2	He	0.142	14.7	1629	3.3	2.5	
Cr	52	2	He	0.074	33.3	4177	0.3	2.5	
Mn	55	2	He	0.180	29.8	1943	11.3	2.5	
Fe	56	2	He	2.379	11.1	26199	2.8	100	
Co	59	2	He	0.013	37.4	140	18.9	2.5	
Ni	60	2	He	-5.821	-1.9	1627	8.6	2.5	
Cu	63	2	He	-4.405	-0.5	1407	5.1	2	
Zn	66	2	He	-0.511	-10.5	230	23.0	2.5	

Continuing Calibration Blank (CCB) Report

As	75	2	He	-0.072	-46.5	292	14.3	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.110	17.9	900	10.6	2.5	
Se	78	2	He	0.170	154.3	329	10.1	2	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1376173	1.35	1658792	82.96	70	125	
In	115	1	nogas	1229901	1.86	1398610	87.94	70	125	
Li	6	1	nogas	314811	2.39	581094	54.18	70	125	ISTD Failed
Bi	209	1	nogas	994573	7.33	1069547	92.99	70	125	
Ge	72	2	He	699197	2.74	766661	91.20	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	148_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T20:40:21-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	014CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Fail

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	122.825	0.915	186358	0.96	100	122.8	90	110	CCV Main CR1-2 Failed
B	11	1	nogas	638.607	2.357	544941	1.95	500	127.7	90	110	CCV Main CR1-2 Failed
Na	23	1	nogas	10206.105	7.574	77276854	4.03	10000	102.1	90	110	
Mg	24	1	nogas	10063.975	4.783	51063978	1.43	10000	100.6	90	110	
Al	27	1	nogas	86.680	1.725	705175	0.38	100	86.7	90	110	CCV Main CR1-2 Failed
P	31	1	nogas	440.897	3.050	302281	1.45	500	88.2	90	110	CCV Main CR1-2 Failed
K	39	1	nogas	9212.584	2.799	71237633	1.13	10000	92.1	90	110	
Ca	43	1	nogas	9359.639	3.098	130961	1.85	10000	93.6	90	110	
Ca	44	1	nogas	10723.849	3.346	2504338	3.52	10000	107.2	90	110	
Ti	47	1	nogas	93.699	5.400	68474	3.62	100	93.7	90	110	
V	51	1	nogas	94.206	2.762	973207	1.84	100	94.2	90	110	
Cr	52	1	nogas	94.998	2.093	800422	0.54	100	95.0	90	110	
Mn	55	1	nogas	98.431	2.965	1010356	3.31	100	98.4	90	110	
Fe	56	1	nogas	10376.441	3.683	87720156	3.10	10000	103.8	90	110	
Co	59	1	nogas	100.026	1.614	880419	2.29	100	100.0	90	110	
Ni	60	1	nogas	94.385	1.311	201815	1.22	100	94.4	90	110	
Cu	63	1	nogas	92.157	1.326	476824	0.60	100	92.2	90	110	
Zn	66	1	nogas	101.921	4.666	151857	4.08	100	101.9	90	110	
As	75	1	nogas	101.298	2.033	203022	2.51	100	101.3	90	110	
Se	77	1	nogas	67.340	10.004	11234	3.97	100	67.3	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	108.399	1.512	9896	0.56	100	108.4	90	110	
Sr	88	1	nogas	103.730	2.278	1090750	0.51	100	103.7	90	110	
Mo	95	1	nogas	103.480	3.336	215164	3.73	100	103.5	90	110	
Ag	107	1	nogas	108.695	3.085	552348	3.08	100	108.7	90	110	
Cd	111	1	nogas	104.033	3.265	114773	1.49	100	104.0	90	110	
Sn	118	1	nogas	97.826	3.064	324683	1.03	100	97.8	90	110	
Sb	121	1	nogas	109.324	2.864	513026	2.65	100	109.3	90	110	
Ba	137	1	nogas	104.240	6.133	166003	3.91	100	104.2	90	110	
Tl	205	1	nogas	94.925	11.537	831880	4.03	100	94.9	90	110	
Pb	208	1	nogas	96.760	10.201	613461	2.38	100	96.8	90	110	
U	238	1	nogas	91.035	8.888	1129664	1.63	100	91.0	90	110	
Li	7	1	nogas	116.170	0.622	415378	0.48	100	116.2	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	2684.919	1.239	11099113	1.80	5000	53.7	90	110	CCV Main CR1-2 Failed
Ba	135	1	nogas	101.725	4.576	97423	2.37	100	101.7	90	110	
La	139	1	nogas	207.171	35.565	253	29.63	100	207.2	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	409.100	50.672	30	33.33	100	409.1	90	110	CCV Main CR1-2 Failed
Tl	203	1	nogas	97.952	11.883	350652	4.39	100	98.0	90	110	
Na	23	2	He	9260.723	7.944	10539292	4.43	10000	92.6	90	110	
Mg	24	2	He	8927.604	7.636	5864304	4.14	10000	89.3	90	110	CCV Main CR1-2 Failed
Al	27	2	He	82.521	2.061	41091	1.80	100	82.5	90	110	CCV Main CR1-2 Failed
K	39	2	He	8998.104	4.772	8012388	7.61	10000	90.0	90	110	CCV Main CR1-2 Failed
Ca	43	2	He	8720.069	3.548	20255	1.72	10000	87.2	90	110	CCV Main CR1-2 Failed
Ca	44	2	He	8975.250	5.739	346240	2.12	10000	89.8	90	110	CCV Main CR1-2 Failed
V	51	2	He	97.583	5.277	435491	1.74	100	97.6	90	110	
Cr	52	2	He	95.977	3.284	453367	1.45	100	96.0	90	110	
Mn	55	2	He	92.065	2.523	361710	3.28	100	92.1	90	110	
Fe	56	2	He	9350.528	1.583	41011063	4.22	10000	93.5	90	110	
Co	59	2	He	91.512	3.946	571556	0.60	100	91.5	90	110	
Ni	60	2	He	91.557	8.287	144911	3.95	100	91.6	90	110	
Cu	63	2	He	93.554	8.257	365997	4.17	100	93.6	90	110	
Zn	66	2	He	101.237	3.790	101814	0.27	100	101.2	90	110	
As	75	2	He	101.088	3.471	102455	2.52	100	101.1	90	110	
Sb	121	2	He	102.475	3.642	408090	0.38	100	102.5	90	110	
Se	78	2	He	96.418	4.333	9100	1.37	100	96.4	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1332942	1.85	1658792	80.36	70	125	
In	115	1	nogas	1181485	2.28	1398610	84.48	70	125	
Li	6	1	nogas	329942	1.07	581094	56.78	70	125	ISTD Failed
Bi	209	1	nogas	994353	8.38	1069547	92.97	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	694056	3.72	766661	90.53	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	149_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T20:42:34-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	014CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Fail

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.067	38.5	107	35.5	1	
B	11	1	nogas	11.896	13.6	13925	9.6	10	CCB Main CR1 Failed
Na	23	1	nogas	130.094	11.7	2295412	1.0	100	CCB Main CR1 Failed
Mg	24	1	nogas	3.928	35.3	23453	25.5	100	
Al	27	1	nogas	-0.264	-82.3	9629	18.7	5	
P	31	1	nogas	-40.042	-1.1	27755	1.3	10	
K	39	1	nogas	-42.532	-8.7	3107296	1.0	100	
Ca	43	1	nogas	2.924	286.5	793	15.2	100	
Ca	44	1	nogas	832.503	1.1	304496	1.0	100	CCB Main CR1 Failed
Ti	47	1	nogas	0.126	104.8	240	41.0	2.5	
V	51	1	nogas	0.499	25.2	41690	2.9	2.5	
Cr	52	1	nogas	-0.404	-19.5	11911	5.5	2.5	
Mn	55	1	nogas	0.030	33.7	11644	0.9	2.5	
Fe	56	1	nogas	4.575	122.8	749818	6.7	100	
Co	59	1	nogas	0.037	47.5	570	27.6	2.5	
Ni	60	1	nogas	-6.769	-1.5	2764	7.3	2.5	
Cu	63	1	nogas	-6.059	-0.9	2240	12.0	2	
Zn	66	1	nogas	-0.804	-2.3	490	5.4	2.5	
As	75	1	nogas	-4.177	-4.4	11351	3.3	2.5	
Se	77	1	nogas	-26.184	-4.6	3737	2.9	2.5	
Se	82	1	nogas	0.202	78.5	273	5.6	2	
Sr	88	1	nogas	0.009	233.1	677	33.1	2.5	
Mo	95	1	nogas	-0.458	-4.5	657	6.9	2.5	
Ag	107	1	nogas	0.034	26.5	223	21.2	2.5	
Cd	111	1	nogas	0.032	57.3	57	36.7	1	
Sn	118	1	nogas	0.135	24.9	1433	11.6	5	
Sb	121	1	nogas	0.132	36.7	1223	19.2	2.5	
Ba	137	1	nogas	-0.027	-156.9	137	54.9	2.5	
Tl	205	1	nogas	0.314	66.6	2827	73.0	1	
Pb	208	1	nogas	0.069	45.1	623	37.7	2.5	
U	238	1	nogas	0.056	53.6	747	55.6	2.5	
Si	28	1	nogas	-58.779	-4.1	980546	1.2	5	
La	139	1	nogas	-10.290	-136.3	23	65.5	2.5	
Au	197	1	nogas	-51.396	-224.0	7	86.6	2.5	
Na	23	2	He	100.414	11.3	338706	0.3	100	CCB Main CR1 Failed
Mg	24	2	He	2.462	5.0	2047	7.1	100	
Al	27	2	He	-1.857	-13.7	467	25.9	5	
K	39	2	He	-23.379	-31.2	206463	1.8	100	
Ca	43	2	He	-6.115	-115.8	37	41.7	100	
Ca	44	2	He	67.314	6.0	5254	3.0	100	
V	51	2	He	0.185	11.2	1792	5.6	2.5	
Cr	52	2	He	0.065	132.1	4061	6.2	2.5	
Mn	55	2	He	0.234	17.1	2123	10.2	2.5	
Fe	56	2	He	2.790	13.0	27545	3.8	100	
Co	59	2	He	0.015	18.1	153	10.0	2.5	
Ni	60	2	He	-5.919	-1.3	1457	5.5	2.5	

Continuing Calibration Blank (CCB) Report

Cu	63	2	He	-4.441	-0.6	1250	5.6	2	
Zn	66	2	He	-0.484	-6.8	253	14.9	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
As	75	2	He	-0.073	-82.7	284	17.7	2.5	
Sb	121	2	He	0.086	24.2	790	7.0	2.5	
Se	78	2	He	0.417	69.2	345	4.4	2	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1351116	0.36	1658792	81.45	70	125	
In	115	1	nogas	1228083	3.64	1398610	87.81	70	125	
Li	6	1	nogas	323332	0.48	581094	55.64	70	125	ISTD Failed
Bi	209	1	nogas	968643	7.29	1069547	90.57	70	125	
Ge	72	2	He	687861	3.89	766661	89.72	70	125	

Sample Report

Sample Table

Sample Name	MBLK-135804
Data File Name	151SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T21:07:50-06:00
Sample Type	Sample
Dilution	1
Comment	TW B 135804
ISTD Ref FileName	014CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Fail

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	-0.001	-0.001	-927.64	7	-0.01	2000	
B	11	1	nogas	-0.267	-0.267	-95.80	4041	-0.01	2000	
Na	23	1	nogas	120.288	120.288	10.16	2289374	0.01	200000	
Mg	24	1	nogas	11.274	11.274	3.39	62021	0.02	200000	
Al	27	1	nogas	3.270	3.270	2.55	38682	0.01	2000	
K	39	1	nogas	-56.476	-56.476	-44.14	3029242	0.00	200000	
Ca	43	1	nogas	-8.352	-8.352	-98.37	640	-1.30	200000	
Ca	44	1	nogas	864.177	864.177	9.35	314356	0.27	200000	
Ti	47	1	nogas	0.137	0.137	48.87	250	0.05	2000	
V	51	1	nogas	-0.314	-0.314	-33.99	33840	0.00	2000	
Cr	52	1	nogas	-0.681	-0.681	-7.73	9686	-0.01	2000	
Mn	55	1	nogas	-0.097	-0.097	-77.68	10417	0.00	2000	
Fe	56	1	nogas	-9.860	-9.860	-35.58	632838	0.00	200000	
Co	59	1	nogas	0.003	0.003	194.45	273	0.00	2000	
Ni	60	1	nogas	-7.017	-7.017	-2.20	2284	-0.31	2000	
Cu	63	1	nogas	-6.232	-6.232	-0.17	1403	-0.44	2000	
Zn	66	1	nogas	-0.760	-0.760	-5.01	560	-0.14	2000	
As	75	1	nogas	-5.078	-5.078	-5.87	9773	-0.05	2000	
Se	77	1	nogas	-34.826	-34.826	-11.98	3050	-1.14	2000	
Se	82	1	nogas	-0.460	-0.460	-149.34	217	-0.21	2000	
Sr	88	1	nogas	0.006	0.006	72.38	653	0.00	2000	
Mo	95	1	nogas	-0.604	-0.604	-4.19	353	-0.17	2000	
Ag	107	1	nogas	0.005	0.005	81.80	73	0.01	2000	
Cd	111	1	nogas	-0.003	-0.003	-190.04	17	-0.02	2000	
Sn	118	1	nogas	-0.177	-0.177	-10.60	353	-0.05	2000	
Sb	121	1	nogas	-0.059	-0.059	-21.38	320	-0.02	2000	
Ba	137	1	nogas	-0.040	-0.040	-20.55	113	-0.04	2000	
Tl	205	1	nogas	-0.002	-0.002	-95.25	30	-0.01	2000	
Pb	208	1	nogas	-0.004	-0.004	-68.40	170	0.00	2000	
U	238	1	nogas	-0.004	-0.004	-23.30	10	-0.04	2000	
Si	28	1	nogas	78.214	78.214	15.12	1507902	0.01	2000	
La	139	1	nogas	-6.410	-6.410	-326.87	27	-24.04	2000	
Au	197	1	nogas	300.961	300.961	139.93	27	1128.60	2000	
Na	23	2	He	108.452	108.452	6.92	343484	0.03	200000	
Mg	24	2	He	10.835	10.835	3.75	7408	0.15	200000	
Al	27	2	He	1.876	1.876	28.38	2217	0.08	2000	
K	39	2	He	-25.275	-25.275	-21.17	202385	-0.01	200000	
Ca	43	2	He	-7.640	-7.640	-84.00	33	-22.92	200000	
Ca	44	2	He	82.221	82.221	6.22	5748	1.43	200000	
V	51	2	He	0.134	0.134	3.66	1547	0.01	2000	
Cr	52	2	He	-0.170	-0.170	-40.09	2942	-0.01	2000	
Mn	55	2	He	0.215	0.215	22.93	2017	0.01	2000	

Sample Report

Fe	56	2	He	-0.158	-0.158	-50.40	14579	0.00	200000	
Co	59	2	He	-0.001	-0.001	-134.16	53	0.00	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Ni	60	2	He	-6.049	-6.049	-0.63	1253	-0.48	2000	
Cu	63	2	He	-4.515	-4.515	-0.73	963	-0.47	2000	
Zn	66	2	He	-0.364	-0.364	-11.07	367	-0.10	2000	
As	75	2	He	-0.116	-0.116	-38.66	240	-0.05	2000	
Sb	121	2	He	-0.045	-0.045	-9.11	270	-0.02	2000	
Se	78	2	He	-0.009	-0.009	-3729.70	303	0.00	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1365743	5.42	1658792	82.33	70	125	
In	115	1	nogas	1215664	5.59	1398610	86.92	70	125	
Li	6	1	nogas	341270	2.02	581094	58.73	70	125	ISTD Failed
Bi	209	1	nogas	1045788	7.61	1069547	97.78	70	125	
Ge	72	2	He	679311	2.50	766661	88.61	70	125	

Sample Report

Sample Table

Sample Name	LCS-135804
Data File Name	152SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T21:10:04-06:00
Sample Type	Sample
Dilution	1
Comment	TW B 135804
ISTD Ref FileName	014CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Fail

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	60.458	60.458	3.26	95898	0.06	2000	
B	11	1	nogas	602.024	602.024	4.07	537224	0.11	2000	
Na	23	1	nogas	5093.123	5093.123	5.75	39491883	0.01	200000	
Mg	24	1	nogas	4976.632	4976.632	4.62	25394553	0.02	200000	
Al	27	1	nogas	77.965	77.965	2.14	644066	0.01	2000	
K	39	1	nogas	4377.781	4377.781	6.59	36087308	0.01	200000	
Ca	43	1	nogas	4459.518	4459.518	4.88	63615	7.01	200000	
Ca	44	1	nogas	5858.667	5858.667	2.94	1439817	0.41	200000	
Ti	47	1	nogas	134.818	134.818	3.62	99820	0.14	2000	
V	51	1	nogas	44.915	44.915	3.46	489602	0.01	2000	
Cr	52	1	nogas	45.089	45.089	2.88	393259	0.01	2000	
Mn	55	1	nogas	45.704	45.704	2.77	481732	0.01	2000	
Fe	56	1	nogas	4811.082	4811.082	1.60	41615022	0.01	200000	
Co	59	1	nogas	48.079	48.079	4.97	428766	0.01	2000	
Ni	60	1	nogas	42.321	42.321	5.81	100638	0.04	2000	
Cu	63	1	nogas	41.833	41.833	4.29	236750	0.02	2000	
Zn	66	1	nogas	46.858	46.858	2.82	71672	0.07	2000	
As	75	1	nogas	45.462	45.462	4.27	102804	0.04	2000	
Se	77	1	nogas	13.019	13.019	15.99	6948	0.19	2000	
Se	82	1	nogas	54.016	54.016	12.49	5124	1.05	2000	
Sr	88	1	nogas	99.161	99.161	6.16	1056443	0.01	2000	
Mo	95	1	nogas	49.469	49.469	3.53	105052	0.05	2000	
Ag	107	1	nogas	52.217	52.217	1.70	268957	0.02	2000	
Cd	111	1	nogas	49.452	49.452	2.22	56686	0.09	2000	
Sn	118	1	nogas	91.618	91.618	4.91	316022	0.03	2000	
Sb	121	1	nogas	51.219	51.219	4.47	243860	0.02	2000	
Ba	137	1	nogas	47.906	47.906	1.91	79366	0.06	2000	
Tl	205	1	nogas	43.346	43.346	10.58	391483	0.01	2000	
Pb	208	1	nogas	45.880	45.880	8.61	300002	0.02	2000	
U	238	1	nogas	85.599	85.599	13.06	1091271	0.01	2000	
Si	28	1	nogas	519.250	519.250	3.71	3143189	0.02	2000	
La	139	1	nogas	25.985	25.985	146.37	63	41.03	2000	
Au	197	1	nogas	-50.468	-50.468	-457.11	7	-757.03	2000	
Na	23	2	He	4361.796	4361.796	6.54	5153629	0.08	200000	
Mg	24	2	He	4268.105	4268.105	4.35	2843407	0.15	200000	
Al	27	2	He	77.548	77.548	5.82	39220	0.20	2000	
K	39	2	He	4643.216	4643.216	4.81	4293371	0.11	200000	
Ca	43	2	He	4838.499	4838.499	5.07	11404	42.43	200000	
Ca	44	2	He	4590.352	4590.352	10.97	180363	2.55	200000	
V	51	2	He	44.438	44.438	3.56	201502	0.02	2000	
Cr	52	2	He	47.922	47.922	2.10	231308	0.02	2000	
Mn	55	2	He	47.290	47.290	5.76	188590	0.03	2000	
Fe	56	2	He	4795.027	4795.027	5.73	21274938	0.02	200000	
Co	59	2	He	45.506	45.506	9.04	287434	0.02	2000	

Sample Report

Ni	60	2	He	40.031	40.031	12.42	69885	0.06	2000	
Cu	63	2	He	41.343	41.343	9.15	173805	0.02	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Zn	66	2	He	47.509	47.509	4.47	48785	0.10	2000	
As	75	2	He	49.623	49.623	5.37	51092	0.10	2000	
Sb	121	2	He	49.323	49.323	6.60	199004	0.02	2000	
Se	78	2	He	47.751	47.751	5.78	4722	1.01	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1351167	2.47	1658792	81.45	70	125	
In	115	1	nogas	1226639	1.46	1398610	87.70	70	125	
Li	6	1	nogas	344957	1.23	581094	59.36	70	125	ISTD Failed
Bi	209	1	nogas	1024714	9.13	1069547	95.81	70	125	
Ge	72	2	He	703249	5.08	766661	91.73	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	160_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T21:28:10-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	014CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Fail

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	122.072	3.778	182573	2.46	100	122.1	90	110	CCV Main CR1-2 Failed
B	11	1	nogas	640.393	5.229	538540	3.30	500	128.1	90	110	CCV Main CR1-2 Failed
Na	23	1	nogas	10430.009	2.347	78176262	5.16	10000	104.3	90	110	
Mg	24	1	nogas	9862.288	2.223	49526409	5.09	10000	98.6	90	110	
Al	27	1	nogas	87.208	2.429	696060	4.77	100	87.2	90	110	CCV Main CR1-2 Failed
P	31	1	nogas	466.213	6.638	310320	0.81	500	93.2	90	110	
K	39	1	nogas	9604.935	8.213	72575391	3.15	10000	96.0	90	110	
Ca	43	1	nogas	9191.582	5.425	126029	0.97	10000	91.9	90	110	
Ca	44	1	nogas	11708.777	2.888	2670258	2.02	10000	117.1	90	110	CCV Main CR1-2 Failed
Ti	47	1	nogas	95.240	0.840	68320	4.26	100	95.2	90	110	
V	51	1	nogas	93.401	3.281	946366	2.26	100	93.4	90	110	
Cr	52	1	nogas	93.906	2.186	776155	2.67	100	93.9	90	110	
Mn	55	1	nogas	98.742	4.334	993696	4.29	100	98.7	90	110	
Fe	56	1	nogas	10422.832	4.639	86389471	4.07	10000	104.2	90	110	
Co	59	1	nogas	100.996	5.591	870707	0.96	100	101.0	90	110	
Ni	60	1	nogas	97.298	8.444	203208	3.82	100	97.3	90	110	
Cu	63	1	nogas	93.003	3.616	471429	1.58	100	93.0	90	110	
Zn	66	1	nogas	100.405	2.650	146721	2.15	100	100.4	90	110	
As	75	1	nogas	99.287	2.920	195527	4.06	100	99.3	90	110	
Se	77	1	nogas	69.819	24.836	11200	10.98	100	69.8	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	106.436	10.654	9509	5.54	100	106.4	90	110	
Sr	88	1	nogas	106.040	5.631	1092397	0.85	100	106.0	90	110	
Mo	95	1	nogas	105.058	5.863	213932	1.75	100	105.1	90	110	
Ag	107	1	nogas	106.909	2.558	533133	5.50	100	106.9	90	110	
Cd	111	1	nogas	100.197	3.585	112107	3.57	100	100.2	90	110	
Sn	118	1	nogas	96.603	2.692	325111	1.37	100	96.6	90	110	
Sb	121	1	nogas	111.127	7.346	510570	2.66	100	111.1	90	110	CCV Main CR1-2 Failed
Ba	137	1	nogas	99.984	2.516	161537	1.19	100	100.0	90	110	
Tl	205	1	nogas	95.372	4.180	818211	1.71	100	95.4	90	110	
Pb	208	1	nogas	96.319	9.925	596329	5.53	100	96.3	90	110	
U	238	1	nogas	92.513	7.039	1121178	2.78	100	92.5	90	110	
Li	7	1	nogas	113.495	0.241	400711	2.13	100	113.5	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	2845.627	1.349	11468802	3.66	5000	56.9	90	110	CCV Main CR1-2 Failed
Ba	135	1	nogas	98.497	2.676	95675	1.22	100	98.5	90	110	
La	139	1	nogas	188.549	17.518	237	12.20	100	188.5	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	-113.536	-106.978	3	173.21	100	-113.5	90	110	CCV Main CR1-2 Failed
Tl	203	1	nogas	101.114	4.345	354368	0.22	100	101.1	90	110	
Na	23	2	He	9233.062	5.631	10276438	4.67	10000	92.3	90	110	
Mg	24	2	He	8647.531	5.209	5555408	4.60	10000	86.5	90	110	CCV Main CR1-2 Failed
Al	27	2	He	82.120	5.254	39942	4.26	100	82.1	90	110	CCV Main CR1-2 Failed
K	39	2	He	9258.143	3.471	8039267	4.38	10000	92.6	90	110	
Ca	43	2	He	9515.958	3.286	21597	3.75	10000	95.2	90	110	
Ca	44	2	He	10039.711	5.027	378469	5.75	10000	100.4	90	110	
V	51	2	He	93.942	3.832	409819	2.80	100	93.9	90	110	
Cr	52	2	He	94.762	0.963	437482	1.98	100	94.8	90	110	
Mn	55	2	He	98.617	2.745	378351	2.82	100	98.6	90	110	
Fe	56	2	He	9940.719	3.621	42570620	3.86	10000	99.4	90	110	
Co	59	2	He	97.047	2.453	592421	2.72	100	97.0	90	110	
Ni	60	2	He	93.977	1.036	145259	1.88	100	94.0	90	110	
Cu	63	2	He	93.356	4.403	357245	3.22	100	93.4	90	110	
Zn	66	2	He	95.899	4.257	94271	3.22	100	95.9	90	110	
As	75	2	He	102.789	1.544	101791	2.32	100	102.8	90	110	
Sb	121	2	He	107.118	1.431	416870	1.49	100	107.1	90	110	
Se	78	2	He	95.348	3.006	8797	1.88	100	95.3	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1307816	4.68	1658792	78.84	70	125	
In	115	1	nogas	1198109	3.37	1398610	85.66	70	125	
Li	6	1	nogas	325354	1.96	581094	55.99	70	125	ISTD Failed
Bi	209	1	nogas	968446	4.63	1069547	90.55	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	677702	1.02	766661	88.40	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	161_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T21:30:24-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	014CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Fail

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.041	38.2	67	34.6	1	
B	11	1	nogas	14.535	11.1	15774	8.7	10	CCB Main CR1 Failed
Na	23	1	nogas	345.533	5.4	3934962	0.8	100	CCB Main CR1 Failed
Mg	24	1	nogas	11.719	19.4	63358	16.4	100	
Al	27	1	nogas	-0.465	-70.8	8117	29.8	5	
P	31	1	nogas	-30.342	-7.8	34079	2.2	10	
K	39	1	nogas	-30.522	-55.9	3263986	0.9	100	
Ca	43	1	nogas	12.361	77.0	943	11.3	100	
Ca	44	1	nogas	1615.511	6.0	491361	1.0	100	CCB Main CR1 Failed
Ti	47	1	nogas	0.266	16.5	350	5.7	2.5	
V	51	1	nogas	-0.809	-38.0	29064	8.3	2.5	
Cr	52	1	nogas	-0.380	-36.2	12354	5.9	2.5	
Mn	55	1	nogas	0.355	35.7	15284	5.4	2.5	
Fe	56	1	nogas	6.522	125.1	781755	6.6	100	
Co	59	1	nogas	0.034	23.6	553	13.8	2.5	
Ni	60	1	nogas	-6.889	-1.3	2577	6.2	2.5	
Cu	63	1	nogas	-5.800	-0.6	3584	3.8	2	
Zn	66	1	nogas	-0.825	-4.3	470	14.7	2.5	
As	75	1	nogas	-4.782	-8.7	10447	5.8	2.5	
Se	77	1	nogas	-32.713	-9.6	3267	5.2	2.5	
Se	82	1	nogas	-0.668	-78.9	200	26.5	2	
Sr	88	1	nogas	0.342	21.5	4297	15.1	2.5	
Mo	95	1	nogas	-0.465	-17.9	653	23.5	2.5	
Ag	107	1	nogas	0.053	29.1	323	21.9	2.5	
Cd	111	1	nogas	0.038	85.9	60	60.1	1	
Sn	118	1	nogas	0.258	9.1	1733	2.3	5	
Sb	121	1	nogas	0.133	27.1	1250	10.2	2.5	
Ba	137	1	nogas	0.003	1472.1	173	37.5	2.5	
Tl	205	1	nogas	0.328	64.1	2957	69.3	1	
Pb	208	1	nogas	0.063	47.2	590	38.5	2.5	
U	238	1	nogas	0.061	30.5	810	34.4	2.5	
Si	28	1	nogas	-37.589	-110.6	1079562	11.2	5	
La	139	1	nogas	-2.610	-1094.7	30	100.0	2.5	
Au	197	1	nogas	27.017	1350.7	10	173.2	2.5	CCB Main CR1 Failed
Na	23	2	He	295.709	3.3	553952	0.3	100	CCB Main CR1 Failed
Mg	24	2	He	9.860	4.1	6858	3.2	100	
Al	27	2	He	-1.945	-6.4	423	13.0	5	
K	39	2	He	-11.458	-29.0	216468	0.8	100	
Ca	43	2	He	3.768	337.0	60	50.0	100	
Ca	44	2	He	165.870	3.6	8986	2.3	100	CCB Main CR1 Failed
V	51	2	He	0.108	4.1	1451	3.1	2.5	
Cr	52	2	He	0.075	79.5	4111	5.7	2.5	
Mn	55	2	He	0.500	18.6	3144	9.5	2.5	
Fe	56	2	He	4.549	6.5	35175	4.9	100	
Co	59	2	He	0.020	83.3	187	57.8	2.5	
Ni	60	2	He	-6.201	-0.5	1047	5.4	2.5	
Cu	63	2	He	-4.343	-1.9	1613	19.7	2	
Zn	66	2	He	-0.564	-5.9	173	20.3	2.5	

Continuing Calibration Blank (CCB) Report

As	75	2	He	-0.120	-16.0	238	6.3	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.066	23.5	713	10.3	2.5	
Se	78	2	He	-0.222	-101.5	287	8.9	2	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1380753	3.72	1658792	83.24	70	125	
In	115	1	nogas	1149177	2.14	1398610	82.17	70	125	
Li	6	1	nogas	316387	1.11	581094	54.45	70	125	ISTD Failed
Bi	209	1	nogas	977378	6.23	1069547	91.38	70	125	
Ge	72	2	He	686853	1.89	766661	89.59	70	125	

Sample Report

Sample Table

Sample Name	HS18120913-01
Data File Name	169SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T21:48:33-06:00
Sample Type	Sample
Dilution	1
Comment	TW B 135804
ISTD Ref FileName	014CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Fail

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	0.060	0.060	48.47	93	0.06	2000	
B	11	1	nogas	53.195	53.195	3.34	46265	0.11	2000	
Na	23	1	nogas	354521.904	354521.904	1.19	2716855527	0.01	200000	>LDR
Mg	24	1	nogas	57848.925	57848.925	4.50	301998307	0.02	200000	
Al	27	1	nogas	59.442	59.442	3.27	480634	0.01	2000	
K	39	1	nogas	787.792	787.792	3.18	9057758	0.01	200000	
Ca	43	1	nogas	118486.581	118486.581	0.88	1627195	7.28	200000	
Ca	44	1	nogas	121753.676	121753.676	0.85	26870616	0.45	200000	
Ti	47	1	nogas	2.814	2.814	19.86	2167	0.13	2000	
V	51	1	nogas	0.219	0.219	93.12	37815	0.00	2000	
Cr	52	1	nogas	5.567	5.567	1.57	60290	0.01	2000	
Mn	55	1	nogas	257.693	257.693	4.47	2591094	0.01	2000	
Fe	56	1	nogas	275.444	275.444	4.87	2970445	0.01	200000	
Co	59	1	nogas	0.700	0.700	3.76	6315	0.01	2000	
Ni	60	1	nogas	25.860	25.860	9.34	66025	0.04	2000	
Cu	63	1	nogas	-3.272	-3.272	-5.71	15464	-0.02	2000	
Zn	66	1	nogas	4.073	4.073	7.46	7568	0.05	2000	
As	75	1	nogas	4.608	4.608	5.10	26801	0.02	2000	
Se	77	1	nogas	28.633	28.633	20.75	8002	0.36	2000	
Se	82	1	nogas	1.234	1.234	49.57	357	0.35	2000	
Sr	88	1	nogas	3098.024	3098.024	2.16	32121100	0.01	2000	>LDR
Mo	95	1	nogas	0.306	0.306	37.78	2194	0.01	2000	
Ag	107	1	nogas	0.020	0.020	44.92	147	0.01	2000	
Cd	111	1	nogas	0.491	0.491	3.66	557	0.09	2000	
Sn	118	1	nogas	-0.158	-0.158	-7.19	400	-0.04	2000	
Sb	121	1	nogas	0.121	0.121	9.21	1140	0.01	2000	
Ba	137	1	nogas	33.170	33.170	8.38	52336	0.06	2000	
Tl	205	1	nogas	0.012	0.012	37.58	150	0.01	2000	
Pb	208	1	nogas	0.210	0.210	17.99	1503	0.01	2000	
U	238	1	nogas	2.237	2.237	14.07	27555	0.01	2000	
Si	28	1	nogas	17440.581	17440.581	3.25	64690081	0.03	2000	>LDR
La	139	1	nogas	6294.439	6294.439	11.20	6638	94.82	2000	>LDR
Au	197	1	nogas	703.042	703.042	46.99	43	1622.41	2000	
Na	23	2	He	335472.539	335472.539	6.81	366121008	0.09	200000	>LDR
Mg	24	2	He	55959.028	55959.028	5.69	36033840	0.16	200000	
Al	27	2	He	61.004	61.004	5.94	30152	0.20	2000	
K	39	2	He	723.602	723.602	5.25	836326	0.09	200000	
Ca	43	2	He	112344.909	112344.909	10.39	254514	44.14	200000	
Ca	44	2	He	113215.782	113215.782	11.96	4236788	2.67	200000	
V	51	2	He	1.015	1.015	6.49	5391	0.02	2000	
Cr	52	2	He	6.223	6.223	2.60	32323	0.02	2000	
Mn	55	2	He	238.916	238.916	6.14	916485	0.03	2000	
Fe	56	2	He	248.851	248.851	10.69	1080294	0.02	200000	
Co	59	2	He	0.514	0.514	8.25	3200	0.02	2000	

Sample Report

Ni	60	2	He	23.279	23.279	16.13	43428	0.05	2000	
Cu	63	2	He	-3.045	-3.045	-2.00	6335	-0.05	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Zn	66	2	He	3.929	3.929	6.95	4564	0.09	2000	
As	75	2	He	0.153	0.153	66.38	511	0.03	2000	
Sb	121	2	He	0.080	0.080	24.69	757	0.01	2000	
Se	78	2	He	0.384	0.384	141.66	337	0.11	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1314682	0.50	1658792	79.26	70	125	
In	115	1	nogas	1171308	6.95	1398610	83.75	70	125	
Li	6	1	nogas	310326	0.22	581094	53.40	70	125	ISTD Failed
Bi	209	1	nogas	994100	14.76	1069547	92.95	70	125	
Ge	72	2	He	680626	6.40	766661	88.78	70	125	

Sample Report

Sample Table

Sample Name	HS18120913-02
Data File Name	170SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T21:50:50-06:00
Sample Type	Sample
Dilution	1
Comment	TW B 135804
ISTD Ref FileName	014CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Fail

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	0.051	0.051	35.12	80	0.06	2000	
B	11	1	nogas	46.970	46.970	8.22	41367	0.11	2000	
Na	23	1	nogas	358282.761	358282.761	3.23	2707756794	0.01	200000	>LDR
Mg	24	1	nogas	57400.501	57400.501	2.41	295460015	0.02	200000	
Al	27	1	nogas	41.799	41.799	1.89	346766	0.01	2000	
K	39	1	nogas	724.852	724.852	9.55	8729615	0.01	200000	
Ca	43	1	nogas	111715.732	111715.732	4.94	1557613	7.17	200000	
Ca	44	1	nogas	114679.678	114679.678	3.69	25711433	0.45	200000	
Ti	47	1	nogas	2.124	2.124	6.10	1697	0.13	2000	
V	51	1	nogas	0.024	0.024	1116.95	36445	0.00	2000	
Cr	52	1	nogas	3.370	3.370	6.07	43013	0.01	2000	
Mn	55	1	nogas	250.613	250.613	1.48	2559393	0.01	2000	
Fe	56	1	nogas	219.340	219.340	6.39	2544114	0.01	200000	
Co	59	1	nogas	0.655	0.655	6.67	6005	0.01	2000	
Ni	60	1	nogas	24.100	24.100	2.29	63593	0.04	2000	
Cu	63	1	nogas	-3.372	-3.372	-5.94	15220	-0.02	2000	
Zn	66	1	nogas	3.982	3.982	4.93	7555	0.05	2000	
As	75	1	nogas	4.288	4.288	7.78	26634	0.02	2000	
Se	77	1	nogas	25.982	25.982	8.52	7915	0.33	2000	
Se	82	1	nogas	1.139	1.139	34.14	353	0.32	2000	
Sr	88	1	nogas	2919.525	2919.525	4.50	30730315	0.01	2000	>LDR
Mo	95	1	nogas	0.123	0.123	11.79	1850	0.01	2000	
Ag	107	1	nogas	0.019	0.019	53.98	143	0.01	2000	
Cd	111	1	nogas	0.490	0.490	18.16	557	0.09	2000	
Sn	118	1	nogas	-0.163	-0.163	-13.64	383	-0.04	2000	
Sb	121	1	nogas	0.092	0.092	9.78	1020	0.01	2000	
Ba	137	1	nogas	32.530	32.530	4.05	51518	0.06	2000	
Tl	205	1	nogas	0.013	0.013	5.43	157	0.01	2000	
Pb	208	1	nogas	0.091	0.091	21.12	763	0.01	2000	
U	238	1	nogas	2.240	2.240	9.56	27775	0.01	2000	
Si	28	1	nogas	17304.271	17304.271	1.79	65193106	0.03	2000	>LDR
La	139	1	nogas	5695.029	5695.029	2.28	6038	94.32	2000	>LDR
Au	197	1	nogas	-125.229	-125.229	-80.82	3	-3756.86	2000	
Na	23	2	He	323010.988	323010.988	5.10	361884368	0.09	200000	>LDR
Mg	24	2	He	53365.558	53365.558	2.34	35294154	0.15	200000	
Al	27	2	He	41.739	41.739	3.63	21580	0.19	2000	
K	39	2	He	683.850	683.850	5.76	823244	0.08	200000	
Ca	43	2	He	106062.716	106062.716	8.19	246771	42.98	200000	
Ca	44	2	He	108995.866	108995.866	8.23	4192769	2.60	200000	
V	51	2	He	0.853	0.853	5.29	4809	0.02	2000	
Cr	52	2	He	3.858	3.858	4.01	22004	0.02	2000	
Mn	55	2	He	224.072	224.072	6.48	882584	0.03	2000	
Fe	56	2	He	174.607	174.607	7.07	783713	0.02	200000	
Co	59	2	He	0.448	0.448	8.09	2870	0.02	2000	
Ni	60	2	He	20.206	20.206	10.42	40113	0.05	2000	
Cu	63	2	He	-3.086	-3.086	-5.49	6331	-0.05	2000	

Sample Report

Zn	66	2	He	3.649	3.649	4.56	4404	0.08	2000	
As	75	2	He	0.161	0.161	23.11	528	0.03	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Sb	121	2	He	0.061	0.061	41.58	700	0.01	2000	
Se	78	2	He	0.160	0.160	143.75	327	0.05	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1335354	2.05	1658792	80.50	70	125	
In	115	1	nogas	1172044	2.95	1398610	83.80	70	125	
Li	6	1	nogas	311092	2.03	581094	53.54	70	125	ISTD Failed
Bi	209	1	nogas	993702	10.99	1069547	92.91	70	125	
Ge	72	2	He	697832	4.62	766661	91.02	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	172_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T21:55:24-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	014CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Fail

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	122.849	5.400	184727	2.23	100	122.8	90	110	CCV Main CR1-2 Failed
B	11	1	nogas	676.548	3.247	572198	0.02	500	135.3	90	110	CCV Main CR1-2 Failed
Na	23	1	nogas	10644.303	2.644	81045181	1.15	10000	106.4	90	110	
Mg	24	1	nogas	10273.764	3.387	52445503	4.09	10000	102.7	90	110	
Al	27	1	nogas	83.116	6.952	710455	3.20	100	83.1	90	110	CCV Main CR1-2 Failed
P	31	1	nogas	426.842	6.053	309106	1.53	500	85.4	90	110	CCV Main CR1-2 Failed
K	39	1	nogas	8741.546	3.313	71236662	2.22	10000	87.4	90	110	CCV Main CR1-2 Failed
Ca	43	1	nogas	8857.642	7.231	130167	3.38	10000	88.6	90	110	CCV Main CR1-2 Failed
Ca	44	1	nogas	11348.819	5.470	2776212	1.27	10000	113.5	90	110	CCV Main CR1-2 Failed
Ti	47	1	nogas	89.710	5.662	68892	2.11	100	89.7	90	110	CCV Main CR1-2 Failed
V	51	1	nogas	90.989	6.487	988452	2.96	100	91.0	90	110	
Cr	52	1	nogas	93.075	4.008	824380	1.07	100	93.1	90	110	
Mn	55	1	nogas	94.812	6.830	1022034	2.68	100	94.8	90	110	
Fe	56	1	nogas	9696.836	7.784	86094519	3.65	10000	97.0	90	110	
Co	59	1	nogas	93.712	6.192	866112	3.01	100	93.7	90	110	
Ni	60	1	nogas	89.249	6.401	201376	3.84	100	89.2	90	110	CCV Main CR1-2 Failed
Cu	63	1	nogas	86.152	5.474	470339	1.08	100	86.2	90	110	CCV Main CR1-2 Failed
Zn	66	1	nogas	97.113	5.191	152075	1.30	100	97.1	90	110	
As	75	1	nogas	97.439	4.968	205899	2.10	100	97.4	90	110	
Se	77	1	nogas	59.729	7.994	11164	2.87	100	59.7	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	103.144	8.034	9896	3.88	100	103.1	90	110	
Sr	88	1	nogas	100.933	6.066	1114725	2.76	100	100.9	90	110	
Mo	95	1	nogas	99.936	6.263	218242	3.10	100	99.9	90	110	
Ag	107	1	nogas	105.060	5.900	560626	2.09	100	105.1	90	110	
Cd	111	1	nogas	104.074	4.324	117641	1.48	100	104.1	90	110	
Sn	118	1	nogas	100.345	2.503	341400	2.72	100	100.3	90	110	
Sb	121	1	nogas	108.870	5.207	536658	2.35	100	108.9	90	110	
Ba	137	1	nogas	103.612	3.936	169179	2.45	100	103.6	90	110	
Tl	205	1	nogas	94.195	7.547	869462	1.86	100	94.2	90	110	
Pb	208	1	nogas	98.372	8.305	656270	2.49	100	98.4	90	110	
U	238	1	nogas	93.223	7.977	1216447	2.20	100	93.2	90	110	
Li	7	1	nogas	112.759	3.395	400430	0.79	100	112.8	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	2585.046	5.829	11269230	1.62	5000	51.7	90	110	CCV Main CR1-2 Failed
Ba	135	1	nogas	100.183	3.799	98371	3.30	100	100.2	90	110	
La	139	1	nogas	163.553	22.185	213	21.14	100	163.6	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	185.831	89.216	20	50.00	100	185.8	90	110	CCV Main CR1-2 Failed
Tl	203	1	nogas	98.476	7.500	371425	2.48	100	98.5	90	110	
Na	23	2	He	8959.565	1.688	10301960	2.48	10000	89.6	90	110	CCV Main CR1-2 Failed
Mg	24	2	He	8644.054	2.964	5732620	3.52	10000	86.4	90	110	CCV Main CR1-2 Failed
Al	27	2	He	81.471	0.387	40917	1.30	100	81.5	90	110	CCV Main CR1-2 Failed
K	39	2	He	8774.999	1.671	7873045	1.18	10000	87.7	90	110	CCV Main CR1-2 Failed
Ca	43	2	He	8968.580	4.113	20999	2.65	10000	89.7	90	110	CCV Main CR1-2 Failed
Ca	44	2	He	9018.993	5.416	350891	3.96	10000	90.2	90	110	
V	51	2	He	93.109	0.318	419306	1.49	100	93.1	90	110	
Cr	52	2	He	94.208	0.225	448839	1.48	100	94.2	90	110	
Mn	55	2	He	93.952	2.657	371965	1.26	100	94.0	90	110	
Fe	56	2	He	9259.048	3.754	40906024	2.35	10000	92.6	90	110	
Co	59	2	He	89.140	4.522	561325	3.10	100	89.1	90	110	CCV Main CR1-2 Failed
Ni	60	2	He	88.644	4.035	141927	2.35	100	88.6	90	110	CCV Main CR1-2 Failed
Cu	63	2	He	90.276	2.297	357161	1.65	100	90.3	90	110	
Zn	66	2	He	98.254	1.531	99697	2.68	100	98.3	90	110	
As	75	2	He	99.083	3.536	101236	2.20	100	99.1	90	110	
Sb	121	2	He	102.338	3.921	410893	2.46	100	102.3	90	110	
Se	78	2	He	93.811	2.540	8937	1.18	100	93.8	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1401754	4.09	1658792	84.50	70	125	
In	115	1	nogas	1210986	2.94	1398610	86.58	70	125	
Li	6	1	nogas	327352	3.22	581094	56.33	70	125	ISTD Failed
Bi	209	1	nogas	1043892	6.11	1069547	97.60	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	699398	1.49	766661	91.23	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	173_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T21:57:38-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	014CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Fail

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.066	72.4	107	66.5	1	
B	11	1	nogas	18.703	15.9	19891	11.3	10	CCB Main CR1 Failed
Na	23	1	nogas	267.396	2.8	3475155	0.6	100	CCB Main CR1 Failed
Mg	24	1	nogas	7.178	18.1	41860	15.1	100	
Al	27	1	nogas	-0.674	-1.4	6398	0.9	5	
P	31	1	nogas	-23.246	-4.7	38080	1.0	10	
K	39	1	nogas	-17.377	-64.3	3347072	1.9	100	
Ca	43	1	nogas	12.231	96.4	940	18.8	100	
Ca	44	1	nogas	1697.463	1.8	507753	0.7	100	CCB Main CR1 Failed
Ti	47	1	nogas	0.250	22.8	337	12.0	2.5	
V	51	1	nogas	-0.481	-44.7	32336	7.8	2.5	
Cr	52	1	nogas	-0.428	-10.4	11897	3.3	2.5	
Mn	55	1	nogas	0.168	30.9	13269	3.2	2.5	
Fe	56	1	nogas	5.494	72.7	769325	3.5	100	
Co	59	1	nogas	0.040	30.5	607	17.5	2.5	
Ni	60	1	nogas	-7.141	-0.8	2053	5.0	2.5	
Cu	63	1	nogas	-6.014	-0.5	2500	6.0	2	
Zn	66	1	nogas	-0.846	-6.7	433	19.4	2.5	
As	75	1	nogas	-4.864	-2.5	10243	2.3	2.5	
Se	77	1	nogas	-35.318	-6.0	3037	6.0	2.5	
Se	82	1	nogas	-0.500	-35.2	213	7.2	2	
Sr	88	1	nogas	0.149	7.5	2207	4.6	2.5	
Mo	95	1	nogas	-0.439	-25.9	707	33.6	2.5	
Ag	107	1	nogas	0.038	23.4	243	19.4	2.5	
Cd	111	1	nogas	0.057	23.1	90	19.2	1	
Sn	118	1	nogas	0.200	25.1	1733	8.7	5	
Sb	121	1	nogas	0.132	21.5	1243	10.1	2.5	
Ba	137	1	nogas	-0.015	-300.2	163	46.0	2.5	
Tl	205	1	nogas	0.296	62.3	2867	69.6	1	
Pb	208	1	nogas	0.062	42.0	617	29.7	2.5	
U	238	1	nogas	0.053	27.6	757	33.2	2.5	
Si	28	1	nogas	-70.357	-6.6	951962	0.9	5	
La	139	1	nogas	0.353	7690.7	37	83.3	2.5	
Au	197	1	nogas	-118.868	-94.4	3	173.2	2.5	
Na	23	2	He	244.401	4.6	498143	0.7	100	CCB Main CR1 Failed
Mg	24	2	He	5.599	10.5	4087	7.2	100	
Al	27	2	He	-2.040	-8.1	380	22.5	5	
K	39	2	He	-10.659	-29.4	217539	1.8	100	
Ca	43	2	He	12.342	98.5	80	37.5	100	
Ca	44	2	He	157.106	3.2	8669	2.7	100	CCB Main CR1 Failed
V	51	2	He	0.136	11.5	1577	3.8	2.5	
Cr	52	2	He	0.024	136.1	3880	2.2	2.5	
Mn	55	2	He	0.287	11.1	2327	5.8	2.5	
Fe	56	2	He	3.016	3.5	28570	3.2	100	
Co	59	2	He	0.024	49.1	210	34.3	2.5	
Ni	60	2	He	-6.277	-0.7	937	6.2	2.5	
Cu	63	2	He	-4.450	-0.5	1217	4.5	2	
Zn	66	2	He	-0.558	-18.8	180	58.8	2.5	

Continuing Calibration Blank (CCB) Report

As	75	2	He	-0.138	-6.3	221	3.5	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.060	44.3	690	17.6	2.5	
Se	78	2	He	0.698	82.9	370	11.7	2	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1372582	1.02	1658792	82.75	70	125	
In	115	1	nogas	1288548	1.82	1398610	92.13	70	125	
Li	6	1	nogas	328928	1.39	581094	56.60	70	125	ISTD Failed
Bi	209	1	nogas	1040196	7.92	1069547	97.26	70	125	
Ge	72	2	He	688111	2.78	766661	89.75	70	125	

Sample Report

Sample Table

Sample Name	HS18120913-04
Data File Name	175SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T22:08:05-06:00
Sample Type	Sample
Dilution	1
Comment	TW B 135804
ISTD Ref FileName	014CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Fail

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	0.119	0.119	30.96	183	0.07	2000	
B	11	1	nogas	177.674	177.674	6.71	150666	0.12	2000	
Na	23	1	nogas	75778.628	75778.628	10.01	583663996	0.01	200000	
Mg	24	1	nogas	24037.580	24037.580	7.05	126083840	0.02	200000	
Al	27	1	nogas	12.613	12.613	0.74	116661	0.01	2000	
K	39	1	nogas	2706.971	2706.971	10.74	24124880	0.01	200000	
Ca	43	1	nogas	42364.365	42364.365	6.55	610960	6.93	200000	
Ca	44	1	nogas	44537.842	44537.842	5.96	10397564	0.43	200000	
Ti	47	1	nogas	1.717	1.717	15.60	1453	0.12	2000	
V	51	1	nogas	-0.996	-0.996	-9.67	27226	0.00	2000	
Cr	52	1	nogas	0.274	0.274	38.61	17976	0.00	2000	
Mn	55	1	nogas	67.597	67.597	6.22	721821	0.01	2000	
Fe	56	1	nogas	10761.511	10761.511	5.72	94173738	0.01	200000	
Co	59	1	nogas	0.084	0.084	33.13	1010	0.01	2000	
Ni	60	1	nogas	-5.330	-5.330	-4.38	5751	-0.09	2000	
Cu	63	1	nogas	-5.381	-5.381	-1.99	5678	-0.09	2000	
Zn	66	1	nogas	0.656	0.656	6.49	2734	0.02	2000	
As	75	1	nogas	-3.634	-3.634	-14.34	12608	-0.03	2000	
Se	77	1	nogas	-24.909	-24.909	-8.56	3924	-0.63	2000	
Se	82	1	nogas	-0.571	-0.571	-137.61	207	-0.28	2000	
Sr	88	1	nogas	1653.872	1653.872	5.03	18001008	0.01	2000	
Mo	95	1	nogas	-0.451	-0.451	-11.22	687	-0.07	2000	
Ag	107	1	nogas	0.007	0.007	30.86	87	0.01	2000	
Cd	111	1	nogas	0.052	0.052	57.07	83	0.06	2000	
Sn	118	1	nogas	-0.133	-0.133	-3.57	533	-0.02	2000	
Sb	121	1	nogas	0.021	0.021	123.69	710	0.00	2000	
Ba	137	1	nogas	358.887	358.887	0.89	623555	0.06	2000	
Tl	205	1	nogas	0.001	0.001	107.21	60	0.00	2000	
Pb	208	1	nogas	0.056	0.056	30.25	590	0.01	2000	
U	238	1	nogas	0.009	0.009	68.01	180	0.01	2000	
Si	28	1	nogas	12964.675	12964.675	3.68	50816401	0.03	2000	>LDR
La	139	1	nogas	706.033	706.033	20.32	857	82.41	2000	
Au	197	1	nogas	125.592	125.592	323.53	17	753.55	2000	
Na	23	2	He	66701.797	66701.797	4.10	76167436	0.09	200000	
Mg	24	2	He	21687.305	21687.305	2.57	14568422	0.15	200000	
Al	27	2	He	11.916	11.916	1.70	7255	0.16	2000	
K	39	2	He	2594.706	2594.706	2.00	2524078	0.10	200000	
Ca	43	2	He	41189.448	41189.448	1.54	97562	42.22	200000	
Ca	44	2	He	42849.736	42849.736	0.59	1679612	2.55	200000	
V	51	2	He	0.104	0.104	14.88	1480	0.01	2000	
Cr	52	2	He	0.831	0.831	6.17	7855	0.01	2000	
Mn	55	2	He	65.872	65.872	1.55	264681	0.02	2000	
Fe	56	2	He	10146.730	10146.730	1.35	45432076	0.02	200000	
Co	59	2	He	0.053	0.053	12.42	397	0.01	2000	

Sample Report

Ni	60	2	He	-5.004	-5.004	-3.47	2880	-0.17	2000	
Cu	63	2	He	-4.044	-4.044	-0.68	2800	-0.14	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Zn	66	2	He	0.953	0.953	5.61	1727	0.06	2000	
As	75	2	He	0.056	0.056	58.55	428	0.01	2000	
Sb	121	2	He	0.046	0.046	70.73	650	0.01	2000	
Se	78	2	He	0.313	0.313	88.62	346	0.09	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1381795	3.89	1658792	83.30	70	125	
In	115	1	nogas	1288786	1.10	1398610	92.15	70	125	
Li	6	1	nogas	321914	3.00	581094	55.40	70	125	ISTD Failed
Bi	209	1	nogas	1088039	11.93	1069547	101.73	70	125	
Ge	72	2	He	708687	1.59	766661	92.44	70	125	

Sample Report

Sample Table

Sample Name	HS18120913-04SD
Data File Name	176SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T22:10:19-06:00
Sample Type	Sample
Dilution	5
Comment	TW B 135804
ISTD Ref FileName	014CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Fail

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	0.050	0.248	71.24	80	0.06	2000	
B	11	1	nogas	43.009	215.044	3.90	38982	0.11	2000	
Na	23	1	nogas	15637.323	78186.615	0.34	118174457	0.01	200000	
Mg	24	1	nogas	5138.361	25691.804	1.66	26164067	0.02	200000	
Al	27	1	nogas	3.101	15.506	6.75	36942	0.01	2000	
K	39	1	nogas	502.738	2513.688	6.29	7177250	0.01	200000	
Ca	43	1	nogas	8422.652	42113.262	0.40	119567	7.04	200000	
Ca	44	1	nogas	11018.834	55094.170	0.73	2605295	0.42	200000	
Ti	47	1	nogas	0.405	2.024	19.62	447	0.09	2000	
V	51	1	nogas	-0.511	-2.556	-38.10	31502	0.00	2000	
Cr	52	1	nogas	-0.377	-1.885	-8.57	12141	0.00	2000	
Mn	55	1	nogas	14.475	72.377	1.76	160290	0.01	2000	
Fe	56	1	nogas	2299.767	11498.837	1.33	20266282	0.01	200000	
Co	59	1	nogas	0.017	0.083	38.34	390	0.00	2000	
Ni	60	1	nogas	-6.962	-34.808	-1.19	2380	-0.29	2000	
Cu	63	1	nogas	-5.938	-29.690	-0.39	2834	-0.21	2000	
Zn	66	1	nogas	-0.004	-0.020	-3835.99	1687	0.00	2000	
As	75	1	nogas	-4.859	-24.295	-6.77	10096	-0.05	2000	
Se	77	1	nogas	-31.009	-155.045	-6.30	3340	-0.93	2000	
Se	82	1	nogas	-0.502	-2.509	-37.52	210	-0.24	2000	
Sr	88	1	nogas	341.787	1708.934	1.28	3642671	0.01	2000	
Mo	95	1	nogas	-0.540	-2.698	-1.33	487	-0.11	2000	
Ag	107	1	nogas	0.003	0.014	307.70	60	0.00	2000	
Cd	111	1	nogas	0.000	-0.001	-5730.02	20	0.00	2000	
Sn	118	1	nogas	-0.139	-0.696	-5.91	487	-0.03	2000	
Sb	121	1	nogas	-0.071	-0.357	-7.75	257	-0.03	2000	
Ba	137	1	nogas	75.439	377.194	0.57	125420	0.06	2000	
Tl	205	1	nogas	-0.002	-0.010	-118.34	27	-0.01	2000	
Pb	208	1	nogas	-0.001	-0.005	-599.72	193	0.00	2000	
U	238	1	nogas	0.000	-0.001	-407.63	53	0.00	2000	
Si	28	1	nogas	2673.422	13367.108	1.43	11208914	0.02	2000	>LDR
La	139	1	nogas	164.138	820.691	15.35	217	75.75	2000	
Au	197	1	nogas	-53.826	-269.131	-417.79	7	-807.39	2000	
Na	23	2	He	14430.646	72153.230	5.35	16436145	0.09	200000	
Mg	24	2	He	4680.467	23402.334	3.35	3104321	0.15	200000	
Al	27	2	He	1.973	9.864	25.19	2327	0.08	2000	
K	39	2	He	487.944	2439.718	6.75	655290	0.07	200000	
Ca	43	2	He	8319.505	41597.524	8.10	19454	42.76	200000	
Ca	44	2	He	8520.300	42601.502	9.03	331103	2.57	200000	
V	51	2	He	0.105	0.526	15.68	1464	0.01	2000	
Cr	52	2	He	0.162	0.811	65.15	4584	0.00	2000	
Mn	55	2	He	13.224	66.120	5.46	53412	0.02	2000	
Fe	56	2	He	2020.124	10100.619	7.38	8938489	0.02	200000	
Co	59	2	He	0.004	0.021	67.14	87	0.00	2000	

Sample Report

Ni	60	2	He	-6.118	-30.591	-0.77	1187	-0.52	2000	
Cu	63	2	He	-4.395	-21.976	-0.99	1440	-0.31	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Zn	66	2	He	0.387	1.935	17.89	1137	0.03	2000	
As	75	2	He	-0.131	-0.654	-21.82	231	-0.06	2000	
Sb	121	2	He	-0.050	-0.249	-39.48	257	-0.02	2000	
Se	78	2	He	0.320	1.598	174.22	342	0.09	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1351073	1.47	1658792	81.45	70	125	
In	115	1	nogas	1231882	2.31	1398610	88.08	70	125	
Li	6	1	nogas	317309	2.84	581094	54.61	70	125	ISTD Failed
Bi	209	1	nogas	1038437	6.52	1069547	97.09	70	125	
Ge	72	2	He	700100	5.42	766661	91.32	70	125	

Sample Report

Sample Table

Sample Name	HS18120913-04MS
Data File Name	177SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T22:12:33-06:00
Sample Type	Sample
Dilution	1
Comment	TW B 135804
ISTD Ref FileName	014CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Fail

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	62.400	62.400	4.37	94685	0.07	2000	
B	11	1	nogas	827.938	827.938	5.65	705173	0.12	2000	
Na	23	1	nogas	82897.367	82897.367	9.30	644765781	0.01	200000	
Mg	24	1	nogas	30252.373	30252.373	6.71	160165058	0.02	200000	
Al	27	1	nogas	84.291	84.291	5.18	723555	0.01	2000	
K	39	1	nogas	7049.223	7049.223	4.07	58328080	0.01	200000	
Ca	43	1	nogas	46419.110	46419.110	0.74	682303	6.80	200000	
Ca	44	1	nogas	49558.935	49558.935	1.26	11773316	0.42	200000	
Ti	47	1	nogas	136.301	136.301	2.64	105049	0.13	2000	
V	51	1	nogas	43.984	43.984	5.65	499477	0.01	2000	
Cr	52	1	nogas	45.264	45.264	7.59	410427	0.01	2000	
Mn	55	1	nogas	112.790	112.790	3.84	1219709	0.01	2000	
Fe	56	1	nogas	15560.212	15560.212	5.33	138404228	0.01	200000	
Co	59	1	nogas	46.298	46.298	1.49	430014	0.01	2000	
Ni	60	1	nogas	42.927	42.927	2.10	106050	0.04	2000	
Cu	63	1	nogas	41.495	41.495	6.95	244584	0.02	2000	
Zn	66	1	nogas	49.060	49.060	4.93	78002	0.06	2000	
As	75	1	nogas	46.355	46.355	3.18	108731	0.04	2000	
Se	77	1	nogas	21.492	21.492	4.23	7952	0.27	2000	
Se	82	1	nogas	49.675	49.675	3.48	4927	1.01	2000	
Sr	88	1	nogas	1761.468	1761.468	1.23	19533465	0.01	2000	
Mo	95	1	nogas	50.530	50.530	1.39	111725	0.05	2000	
Ag	107	1	nogas	51.544	51.544	2.95	276286	0.02	2000	
Cd	111	1	nogas	51.205	51.205	5.85	58592	0.09	2000	
Sn	118	1	nogas	98.259	98.259	1.15	338193	0.03	2000	
Sb	121	1	nogas	54.122	54.122	4.03	268146	0.02	2000	
Ba	137	1	nogas	449.218	449.218	2.10	741574	0.06	2000	
Tl	205	1	nogas	47.325	47.325	8.93	425012	0.01	2000	
Pb	208	1	nogas	49.050	49.050	12.01	318058	0.02	2000	
U	238	1	nogas	92.583	92.583	7.02	1176661	0.01	2000	
Si	28	1	nogas	13741.680	13741.680	2.67	54775648	0.03	2000	>LDR
La	139	1	nogas	712.996	712.996	19.40	820	86.95	2000	
Au	197	1	nogas	-183.660	-183.660	0.00	0	#DIV/0!	2000	
Na	23	2	He	73307.634	73307.634	4.71	82532132	0.09	200000	
Mg	24	2	He	26539.122	26539.122	3.87	17585728	0.15	200000	
Al	27	2	He	87.140	87.140	3.00	43647	0.20	2000	
K	39	2	He	7065.878	7065.878	1.86	6384580	0.11	200000	
Ca	43	2	He	49817.215	49817.215	3.06	116442	42.78	200000	
Ca	44	2	He	51047.903	51047.903	2.59	1973718	2.59	200000	
V	51	2	He	47.175	47.175	5.98	212607	0.02	2000	
Cr	52	2	He	49.111	49.111	3.35	235692	0.02	2000	
Mn	55	2	He	113.511	113.511	4.98	448710	0.03	2000	
Fe	56	2	He	15074.048	15074.048	5.26	66523472	0.02	200000	
Co	59	2	He	45.601	45.601	5.46	286925	0.02	2000	

Sample Report

Ni	60	2	He	43.102	43.102	7.72	74183	0.06	2000	
Cu	63	2	He	43.682	43.682	9.85	181659	0.02	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Zn	66	2	He	48.532	48.532	4.67	49564	0.10	2000	
As	75	2	He	50.792	50.792	2.10	52078	0.10	2000	
Sb	121	2	He	53.230	53.230	3.71	213857	0.02	2000	
Se	78	2	He	48.528	48.528	9.36	4765	1.02	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1406287	2.43	1658792	84.78	70	125	
In	115	1	nogas	1224703	0.69	1398610	87.57	70	125	
Li	6	1	nogas	330182	2.58	581094	56.82	70	125	ISTD Failed
Bi	209	1	nogas	1016987	7.48	1069547	95.09	70	125	
Ge	72	2	He	699708	5.01	766661	91.27	70	125	

Sample Report

Sample Table

Sample Name	HS18120913-04MSD
Data File Name	178SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T22:14:49-06:00
Sample Type	Sample
Dilution	1
Comment	TW B 135804
ISTD Ref FileName	014CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Fail

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	60.626	60.626	3.79	90363	0.07	2000	
B	11	1	nogas	811.535	811.535	1.45	679253	0.12	2000	
Na	23	1	nogas	78343.385	78343.385	1.99	619112147	0.01	200000	
Mg	24	1	nogas	27587.837	27587.837	0.80	148300866	0.02	200000	
Al	27	1	nogas	81.198	81.198	3.62	676188	0.01	2000	
K	39	1	nogas	7369.425	7369.425	4.92	58945285	0.01	200000	
Ca	43	1	nogas	47314.579	47314.579	4.93	673527	7.02	200000	
Ca	44	1	nogas	50089.593	50089.593	6.99	11513645	0.44	200000	
Ti	47	1	nogas	134.119	134.119	5.38	100122	0.13	2000	
V	51	1	nogas	42.837	42.837	8.00	472161	0.01	2000	
Cr	52	1	nogas	44.237	44.237	7.80	388890	0.01	2000	
Mn	55	1	nogas	113.351	113.351	6.65	1187155	0.01	2000	
Fe	56	1	nogas	15339.172	15339.172	6.01	132135861	0.01	200000	
Co	59	1	nogas	47.021	47.021	6.32	422790	0.01	2000	
Ni	60	1	nogas	42.654	42.654	6.22	102178	0.04	2000	
Cu	63	1	nogas	42.141	42.141	7.44	240173	0.02	2000	
Zn	66	1	nogas	48.703	48.703	3.14	75084	0.06	2000	
As	75	1	nogas	45.514	45.514	5.45	103802	0.04	2000	
Se	77	1	nogas	19.928	19.928	26.37	7568	0.26	2000	
Se	82	1	nogas	52.352	52.352	2.34	5021	1.04	2000	
Sr	88	1	nogas	1802.866	1802.866	5.25	19361786	0.01	2000	>LDR
Mo	95	1	nogas	51.964	51.964	5.59	111193	0.05	2000	
Ag	107	1	nogas	50.836	50.836	6.05	263979	0.02	2000	
Cd	111	1	nogas	48.976	48.976	3.19	56389	0.09	2000	
Sn	118	1	nogas	97.500	97.500	4.38	337539	0.03	2000	
Sb	121	1	nogas	54.179	54.179	5.26	260066	0.02	2000	
Ba	137	1	nogas	428.783	428.783	3.00	712176	0.06	2000	
Tl	205	1	nogas	44.048	44.048	10.04	404193	0.01	2000	
Pb	208	1	nogas	46.326	46.326	12.53	306748	0.02	2000	
U	238	1	nogas	90.178	90.178	8.73	1170239	0.01	2000	
Si	28	1	nogas	13307.085	13307.085	4.71	51430468	0.03	2000	>LDR
La	139	1	nogas	552.126	552.126	18.74	647	85.38	2000	
Au	197	1	nogas	10.535	10.535	3192.84	10	105.35	2000	
Na	23	2	He	72162.881	72162.881	8.10	79415125	0.09	200000	
Mg	24	2	He	26177.343	26177.343	6.27	16954684	0.15	200000	
Al	27	2	He	82.934	82.934	3.49	40684	0.20	2000	
K	39	2	He	6804.061	6804.061	3.89	6017752	0.11	200000	
Ca	43	2	He	47768.907	47768.907	6.41	109069	43.80	200000	
Ca	44	2	He	50109.463	50109.463	8.42	1891680	2.65	200000	
V	51	2	He	47.204	47.204	5.06	208262	0.02	2000	
Cr	52	2	He	46.756	46.756	2.39	219655	0.02	2000	
Mn	55	2	He	108.353	108.353	5.00	419032	0.03	2000	
Fe	56	2	He	14444.343	14444.343	5.01	62359306	0.02	200000	
Co	59	2	He	44.433	44.433	5.28	273464	0.02	2000	

Sample Report

Ni	60	2	He	41.572	41.572	8.84	70349	0.06	2000	
Cu	63	2	He	43.539	43.539	7.61	177347	0.02	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Zn	66	2	He	50.217	50.217	5.82	50136	0.10	2000	
As	75	2	He	48.892	48.892	3.78	49026	0.10	2000	
Sb	121	2	He	52.731	52.731	3.50	207203	0.03	2000	
Se	78	2	He	50.137	50.137	7.88	4807	1.04	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1363726	4.41	1658792	82.21	70	125	
In	115	1	nogas	1232619	2.23	1398610	88.13	70	125	
Li	6	1	nogas	324140	0.57	581094	55.78	70	125	ISTD Failed
Bi	209	1	nogas	1040279	9.24	1069547	97.26	70	125	
Ge	72	2	He	684117	3.93	766661	89.23	70	125	

Sample Report

Sample Table

Sample Name	HS18120913-04PDS
Data File Name	179SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T22:17:03-06:00
Sample Type	Sample
Dilution	1
Comment	TW B 135804
ISTD Ref FileName	014CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Fail

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	133.450	133.450	1.00	189925	0.07	2000	
B	11	1	nogas	188.642	188.642	4.77	153653	0.12	2000	
Na	23	1	nogas	82271.573	82271.573	4.69	637646864	0.01	200000	
Mg	24	1	nogas	33102.086	33102.086	1.67	174611216	0.02	200000	
Al	27	1	nogas	93.023	93.023	6.06	756482	0.01	2000	
K	39	1	nogas	12285.535	12285.535	9.01	93777856	0.01	200000	
Ca	43	1	nogas	52350.050	52350.050	7.09	728601	7.19	200000	
Ca	44	1	nogas	55287.415	55287.415	6.08	12425810	0.44	200000	
Ti	47	1	nogas	95.542	95.542	1.73	69908	0.14	2000	
V	51	1	nogas	93.013	93.013	1.61	962684	0.01	2000	
Cr	52	1	nogas	96.891	96.891	1.68	816740	0.01	2000	
Mn	55	1	nogas	174.411	174.411	5.70	1780711	0.01	2000	
Fe	56	1	nogas	22167.105	22167.105	4.89	186583492	0.01	200000	
Co	59	1	nogas	102.722	102.722	9.97	902584	0.01	2000	
Ni	60	1	nogas	97.233	97.233	11.12	207070	0.05	2000	
Cu	63	1	nogas	94.760	94.760	6.26	489285	0.02	2000	
Zn	66	1	nogas	104.853	104.853	4.91	156184	0.07	2000	
As	75	1	nogas	104.871	104.871	4.86	209490	0.05	2000	
Se	77	1	nogas	76.760	76.760	24.30	11971	0.64	2000	
Se	82	1	nogas	115.926	115.926	9.83	10550	1.10	2000	
Sr	88	1	nogas	1707.274	1707.274	8.47	17924506	0.01	2000	
Mo	95	1	nogas	109.903	109.903	5.17	228368	0.05	2000	
Ag	107	1	nogas	99.056	99.056	3.07	503503	0.02	2000	
Cd	111	1	nogas	107.478	107.478	4.36	120537	0.09	2000	
Sn	118	1	nogas	0.911	0.911	12.56	4011	0.02	2000	
Sb	121	1	nogas	114.943	114.943	5.48	539285	0.02	2000	
Ba	137	1	nogas	492.381	492.381	0.71	796970	0.06	2000	
Tl	205	1	nogas	97.413	97.413	3.15	871812	0.01	2000	
Pb	208	1	nogas	99.187	99.187	6.74	641081	0.02	2000	
U	238	1	nogas	0.090	0.090	35.86	1203	0.01	2000	
Si	28	1	nogas	13540.510	13540.510	5.40	51166384	0.03	2000	>LDR
La	139	1	nogas	721.775	721.775	14.96	813	88.74	2000	
Au	197	1	nogas	-50.847	-50.847	-226.21	7	-762.70	2000	
Na	23	2	He	79243.679	79243.679	4.67	86797535	0.09	200000	
Mg	24	2	He	31846.831	31846.831	4.66	20527623	0.16	200000	
Al	27	2	He	87.501	87.501	4.44	42621	0.21	2000	
K	39	2	He	11279.442	11279.442	1.07	9779946	0.12	200000	
Ca	43	2	He	51792.100	51792.100	2.24	117741	43.99	200000	
Ca	44	2	He	55395.470	55395.470	1.18	2083436	2.66	200000	
V	51	2	He	98.713	98.713	3.26	432123	0.02	2000	
Cr	52	2	He	99.425	99.425	2.48	460356	0.02	2000	
Mn	55	2	He	163.184	163.184	4.63	627631	0.03	2000	
Fe	56	2	He	20161.733	20161.733	6.65	86633874	0.02	200000	
Co	59	2	He	95.511	95.511	1.61	585165	0.02	2000	

Sample Report

Ni	60	2	He	95.798	95.798	3.85	148376	0.06	2000	
Cu	63	2	He	97.786	97.786	7.52	374608	0.03	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Zn	66	2	He	101.937	101.937	3.77	100517	0.10	2000	
As	75	2	He	107.374	107.374	2.16	106677	0.10	2000	
Sb	121	2	He	110.448	110.448	1.30	431386	0.03	2000	
Se	78	2	He	103.791	103.791	3.31	9583	1.08	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1334309	4.25	1658792	80.44	70	125	
In	115	1	nogas	1200672	0.83	1398610	85.85	70	125	
Li	6	1	nogas	309535	2.98	581094	53.27	70	125	ISTD Failed
Bi	209	1	nogas	1009995	4.52	1069547	94.43	70	125	
Ge	72	2	He	680192	1.67	766661	88.72	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	181_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T22:21:34-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	014CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Fail

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	124.407	2.682	182931	0.99	100	124.4	90	110	CCV Main CR1-2 Failed
B	11	1	nogas	120.289	5.544	102669	1.65	500	24.1	90	110	CCV Main CR1-2 Failed
Na	23	1	nogas	10027.986	1.713	75411762	2.05	10000	100.3	90	110	
Mg	24	1	nogas	9931.959	1.953	50006027	2.20	10000	99.3	90	110	
Al	27	1	nogas	75.126	3.385	619331	3.03	100	75.1	90	110	CCV Main CR1-2 Failed
P	31	1	nogas	57.149	3.703	83826	0.55	500	11.4	90	110	CCV Main CR1-2 Failed
K	39	1	nogas	9415.583	2.105	73534391	2.53	10000	94.2	90	110	
Ca	43	1	nogas	9007.447	1.458	127445	1.75	10000	90.1	90	110	
Ca	44	1	nogas	12504.770	1.266	2932027	0.91	10000	125.0	90	110	CCV Main CR1-2 Failed
Ti	47	1	nogas	81.687	3.848	60371	2.44	100	81.7	90	110	CCV Main CR1-2 Failed
V	51	1	nogas	91.144	4.374	952690	2.87	100	91.1	90	110	
Cr	52	1	nogas	95.247	4.754	811081	4.13	100	95.2	90	110	
Mn	55	1	nogas	95.915	5.488	995329	5.46	100	95.9	90	110	
Fe	56	1	nogas	9974.439	4.017	85267904	4.11	10000	99.7	90	110	
Co	59	1	nogas	94.605	1.484	841710	2.57	100	94.6	90	110	
Ni	60	1	nogas	89.125	1.686	193504	0.33	100	89.1	90	110	CCV Main CR1-2 Failed
Cu	63	1	nogas	90.286	3.704	472789	3.09	100	90.3	90	110	
Zn	66	1	nogas	98.365	3.487	148180	2.30	100	98.4	90	110	
As	75	1	nogas	99.953	2.736	202713	2.56	100	100.0	90	110	
Se	77	1	nogas	55.918	6.163	10423	1.34	100	55.9	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	106.740	2.094	9853	0.71	100	106.7	90	110	
Sr	88	1	nogas	90.215	4.139	958800	2.98	100	90.2	90	110	
Mo	95	1	nogas	91.329	4.214	192049	2.86	100	91.3	90	110	
Ag	107	1	nogas	108.901	3.817	559304	3.55	100	108.9	90	110	
Cd	111	1	nogas	109.286	2.413	115781	4.28	100	109.3	90	110	
Sn	118	1	nogas	89.042	0.837	283779	1.96	100	89.0	90	110	CCV Main CR1-2 Failed
Sb	121	1	nogas	113.284	4.424	537176	3.37	100	113.3	90	110	CCV Main CR1-2 Failed
Ba	137	1	nogas	110.607	4.129	169068	1.79	100	110.6	90	110	CCV Main CR1-2 Failed
Tl	205	1	nogas	99.562	9.611	881933	1.90	100	99.6	90	110	
Pb	208	1	nogas	97.373	8.302	624127	1.52	100	97.4	90	110	
U	238	1	nogas	85.762	13.194	1072158	5.93	100	85.8	90	110	CCV Main CR1-2 Failed
Li	7	1	nogas	117.649	2.883	407483	2.72	100	117.6	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	182.616	3.817	1878568	1.50	5000	3.7	90	110	CCV Main CR1-2 Failed
Ba	135	1	nogas	108.485	2.353	99780	4.03	100	108.5	90	110	
La	139	1	nogas	154.572	11.741	190	10.53	100	154.6	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	137.711	221.523	17	91.65	100	137.7	90	110	CCV Main CR1-2 Failed
Tl	203	1	nogas	102.047	9.095	369446	1.69	100	102.0	90	110	
Na	23	2	He	9487.277	6.035	10385943	5.08	10000	94.9	90	110	
Mg	24	2	He	9215.239	4.471	5827765	4.66	10000	92.2	90	110	
Al	27	2	He	76.592	4.982	36775	5.89	100	76.6	90	110	CCV Main CR1-2 Failed
K	39	2	He	9083.506	2.239	7766072	3.11	10000	90.8	90	110	
Ca	43	2	He	9103.286	0.948	20335	1.96	10000	91.0	90	110	
Ca	44	2	He	9658.461	4.269	358212	2.77	10000	96.6	90	110	
V	51	2	He	97.664	2.199	419334	1.65	100	97.7	90	110	
Cr	52	2	He	93.463	0.668	424667	1.06	100	93.5	90	110	
Mn	55	2	He	94.062	4.213	355217	4.33	100	94.1	90	110	
Fe	56	2	He	9757.446	2.374	41129120	3.33	10000	97.6	90	110	
Co	59	2	He	98.208	1.514	589965	1.15	100	98.2	90	110	
Ni	60	2	He	98.298	5.018	149024	3.64	100	98.3	90	110	
Cu	63	2	He	98.374	4.435	369542	2.97	100	98.4	90	110	
Zn	66	2	He	99.098	3.051	95856	1.99	100	99.1	90	110	
As	75	2	He	102.890	1.503	100277	2.35	100	102.9	90	110	
Sb	121	2	He	109.166	2.558	418116	2.79	100	109.2	90	110	
Se	78	2	He	100.063	2.319	9072	1.68	100	100.1	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1347204	1.47	1658792	81.22	70	125	
In	115	1	nogas	1133795	2.45	1398610	81.07	70	125	
Li	6	1	nogas	319951	3.63	581094	55.06	70	125	ISTD Failed
Bi	209	1	nogas	1003976	8.13	1069547	93.87	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	666987	1.45	766661	87.00	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	182_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T22:23:48-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	014CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Fail

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.068	69.4	107	66.5	1	
B	11	1	nogas	12.983	5.8	14312	4.8	10	CCB Main CR1 Failed
Na	23	1	nogas	203.571	8.0	2829144	0.8	100	CCB Main CR1 Failed
Mg	24	1	nogas	5.724	23.9	32336	16.9	100	
Al	27	1	nogas	-0.251	-11.7	9576	4.2	5	
P	31	1	nogas	-23.025	-13.4	36977	1.7	10	
K	39	1	nogas	-10.636	-178.7	3289340	2.0	100	
Ca	43	1	nogas	22.106	5.0	1047	3.6	100	
Ca	44	1	nogas	2526.683	5.6	675476	1.6	100	CCB Main CR1 Failed
Ti	47	1	nogas	0.388	5.0	427	3.6	2.5	
V	51	1	nogas	-0.518	-33.9	30934	6.1	2.5	
Cr	52	1	nogas	-0.432	-0.6	11494	3.4	2.5	
Mn	55	1	nogas	0.129	67.9	12438	4.1	2.5	
Fe	56	1	nogas	0.829	747.9	705581	5.4	100	
Co	59	1	nogas	0.041	13.1	593	5.4	2.5	
Ni	60	1	nogas	-7.136	-0.7	1997	4.3	2.5	
Cu	63	1	nogas	-5.959	-0.6	2684	7.1	2	
Zn	66	1	nogas	-0.703	-2.4	630	1.6	2.5	
As	75	1	nogas	-4.842	-3.2	9956	2.0	2.5	
Se	77	1	nogas	-34.352	-2.5	3020	5.0	2.5	
Se	82	1	nogas	-0.947	-29.1	167	12.5	2	
Sr	88	1	nogas	0.118	19.7	1803	10.9	2.5	
Mo	95	1	nogas	-0.360	-32.2	843	25.4	2.5	
Ag	107	1	nogas	0.054	38.1	320	32.6	2.5	
Cd	111	1	nogas	0.021	55.5	43	26.6	1	
Sn	118	1	nogas	0.415	31.3	2354	18.1	5	
Sb	121	1	nogas	0.325	33.3	2100	21.6	2.5	
Ba	137	1	nogas	0.102	46.2	343	19.8	2.5	
Tl	205	1	nogas	0.321	71.4	2960	74.6	1	
Pb	208	1	nogas	0.064	35.5	607	27.3	2.5	
U	238	1	nogas	0.048	51.0	663	50.7	2.5	
Si	28	1	nogas	-58.552	-15.6	964952	0.5	5	
La	139	1	nogas	11.609	236.0	47	61.9	2.5	CCB Main CR1 Failed
Au	197	1	nogas	17.265	1179.1	10	100.0	2.5	CCB Main CR1 Failed
Na	23	2	He	164.435	5.7	416527	1.0	100	CCB Main CR1 Failed
Mg	24	2	He	3.403	15.4	2700	11.3	100	
Al	27	2	He	-1.427	-7.7	683	8.8	5	
K	39	2	He	-19.329	-40.7	213513	1.7	100	
Ca	43	2	He	4.802	334.0	63	59.8	100	
Ca	44	2	He	228.278	7.2	11554	3.9	100	CCB Main CR1 Failed
V	51	2	He	0.124	14.9	1551	5.4	2.5	
Cr	52	2	He	0.096	33.3	4284	2.9	2.5	
Mn	55	2	He	0.234	30.9	2154	12.3	2.5	
Fe	56	2	He	3.275	2.9	30180	2.0	100	
Co	59	2	He	0.029	30.6	240	21.6	2.5	
Ni	60	2	He	-6.344	-0.7	853	9.5	2.5	
Cu	63	2	He	-4.398	-0.3	1433	4.6	2	
Zn	66	2	He	-0.339	-25.7	403	21.4	2.5	

Continuing Calibration Blank (CCB) Report

As	75	2	He	-0.126	-39.9	237	20.5	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.209	12.2	1297	7.9	2.5	
Se	78	2	He	0.248	92.5	335	5.4	2	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1329492	3.23	1658792	80.15	70	125	
In	115	1	nogas	1209730	4.75	1398610	86.50	70	125	
Li	6	1	nogas	312168	3.52	581094	53.72	70	125	ISTD Failed
Bi	209	1	nogas	1006318	4.60	1069547	94.09	70	125	
Ge	72	2	He	699348	1.62	766661	91.22	70	125	

Calibration Blank Report

Sample Table

Sample Name	CAL BLK
Data File Name	193CALB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T22:57:14-06:00
Sample Type	CalBlk
Level	1
Dilution	1
Comment	

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	10	1000.00
B	11	1	nogas	6151	0.07
Na	23	1	nogas	2479605	0.00
Mg	24	1	nogas	5469	0.26
Al	27	1	nogas	11444	0.02
P	31	1	nogas	36276	0.01
K	39	1	nogas	3137767	0.00
Ca	43	1	nogas	990	1.07
Ca	44	1	nogas	672488	0.00
Ti	47	1	nogas	280	5.10
V	51	1	nogas	34206	0.01
Cr	52	1	nogas	11404	0.04
Mn	55	1	nogas	13939	0.01
Fe	56	1	nogas	611074	0.00
Co	59	1	nogas	247	3.80
Ni	60	1	nogas	1630	0.67
Cu	63	1	nogas	1997	0.26
Zn	66	1	nogas	580	1.30
As	75	1	nogas	9283	0.06
Se	77	1	nogas	3177	0.30
Se	82	1	nogas	170	15.08
Sr	88	1	nogas	767	1.93
Mo	95	1	nogas	337	3.57
Ag	107	1	nogas	50	40.00
Cd	111	1	nogas	13	859.23
Sn	118	1	nogas	690	1.93
Sb	121	1	nogas	307	4.43
Ba	137	1	nogas	283	8.48
Tl	205	1	nogas	63	14.39
Pb	208	1	nogas	173	18.33
Li	7	1	nogas	22664	0.01
Si	28	1	nogas	958814	0.00
La	139	1	nogas	43	61.49
Na	23	2	He	369617	0.00
Mg	24	2	He	743	3.91
Al	27	2	He	767	1.70
K	39	2	He	206201	0.00
Ca	43	2	He	57	95.14
Ca	44	2	He	11417	0.05
V	51	2	He	1571	0.52
Cr	52	2	He	4167	0.09
Mn	55	2	He	2777	0.17

Calibration Blank Report

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	2	He	15640	0.04
Co	59	2	He	100	78.10
Ni	60	2	He	713	0.23
Cu	63	2	He	1007	1.60
Zn	66	2	He	427	4.27
As	75	2	He	211	4.81
Sb	121	2	He	207	11.07
Se	78	2	He	337	5.07

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Ge	72	1	nogas	1368896	0.67
In	115	1	nogas	1163100	0.79
Li	6	1	nogas	315825	1.52
Bi	209	1	nogas	1006853	7.36
Ge	72	2	He	669421	1.14

Calibration Standard Report

Sample Table

Sample Name	2/10/200
Data File Name	194CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T22:59:28-06:00
Sample Type	CalStd
Level	2
Dilution	1
Comment	
ISTD Ref File Name	193CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	3870	0.06
B	11	1	nogas	16398	0.01
Na	23	1	nogas	4041273	0.00
Mg	24	1	nogas	993330	0.00
Al	27	1	nogas	38293	0.02
P	31	1	nogas	41073	0.01
K	39	1	nogas	4441726	0.00
Ca	43	1	nogas	3337	0.14
Ca	44	1	nogas	715638	0.00
Ti	47	1	nogas	1633	0.71
V	51	1	nogas	55130	0.01
Cr	52	1	nogas	26397	0.00
Mn	55	1	nogas	34301	0.01
Fe	56	1	nogas	2358187	0.00
Co	59	1	nogas	17182	0.02
Ni	60	1	nogas	5661	0.11
Cu	63	1	nogas	11337	0.01
Zn	66	1	nogas	4774	0.16
As	75	1	nogas	13572	0.03
Se	77	1	nogas	3220	0.21
Se	82	1	nogas	413	6.66
Sr	88	1	nogas	22305	0.02
Mo	95	1	nogas	4787	0.12
Ag	107	1	nogas	10443	0.06
Cd	111	1	nogas	2287	0.27
Sn	118	1	nogas	12842	0.01
Sb	121	1	nogas	10353	0.05
Ba	137	1	nogas	3851	0.16
Tl	205	1	nogas	16689	0.01
Pb	208	1	nogas	12612	0.04
Si	28	1	nogas	1522581	0.00
La	139	1	nogas	30	400.62
Na	23	2	He	579849	0.00
Mg	24	2	He	111471	0.00
Al	27	2	He	2200	0.57
K	39	2	He	353790	0.00
Ca	43	2	He	490	3.56
Ca	44	2	He	18984	0.01
V	51	2	He	9553	0.03
Cr	52	2	He	12401	0.05

Calibration Standard Report

Mn	55	2	He	10767	0.00
Fe	56	2	He	837021	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Co	59	2	He	11694	0.06
Ni	60	2	He	3914	0.12
Cu	63	2	He	8609	0.06
Zn	66	2	He	2804	0.16
As	75	2	He	2123	0.16
Sb	121	2	He	8319	0.09
Se	78	2	He	495	0.42

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1380589	5.07	1368896	100.85	70	125	
In	115	1	nogas	1174136	4.48	1163100	100.95	70	125	
Li	6	1	nogas	316812	2.04	315825	100.31	70	125	
Bi	209	1	nogas	1015646	6.35	1006853	100.87	70	125	
Ge	72	2	He	676788	4.05	669421	101.10	70	125	

Calibration Standard Report

Sample Table

Sample Name	5/25/500
Data File Name	195CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T23:01:44-06:00
Sample Type	CalStd
Level	3
Dilution	1
Comment	
ISTD Ref File Name	193CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	8996	0.01
B	11	1	nogas	31698	0.00
Na	23	1	nogas	5983491	0.00
Mg	24	1	nogas	2434611	0.00
Al	27	1	nogas	65145	0.00
P	31	1	nogas	50480	0.00
K	39	1	nogas	6512013	0.00
Ca	43	1	nogas	7608	0.05
Ca	44	1	nogas	774034	0.00
Ti	47	1	nogas	3694	0.19
V	51	1	nogas	81366	0.01
Cr	52	1	nogas	49945	0.00
Mn	55	1	nogas	63506	0.00
Fe	56	1	nogas	4738182	0.00
Co	59	1	nogas	42342	0.00
Ni	60	1	nogas	12038	0.06
Cu	63	1	nogas	25039	0.03
Zn	66	1	nogas	10347	0.05
As	75	1	nogas	19591	0.01
Se	77	1	nogas	3637	0.23
Se	82	1	nogas	723	1.53
Sr	88	1	nogas	55127	0.00
Mo	95	1	nogas	11524	0.04
Ag	107	1	nogas	27116	0.01
Cd	111	1	nogas	5594	0.08
Sn	118	1	nogas	18284	0.03
Sb	121	1	nogas	25393	0.01
Ba	137	1	nogas	8679	0.07
Tl	205	1	nogas	41806	0.01
Pb	208	1	nogas	30306	0.02
Si	28	1	nogas	1976116	0.00
La	139	1	nogas	30	111.11
Na	23	2	He	854677	0.00
Mg	24	2	He	272731	0.00
Al	27	2	He	3584	0.08
K	39	2	He	586422	0.00
Ca	43	2	He	1050	1.43
Ca	44	2	He	29625	0.01
V	51	2	He	21241	0.01
Cr	52	2	He	26183	0.01

Calibration Standard Report

Mn	55	2	He	22201	0.02
Fe	56	2	He	2124347	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Co	59	2	He	28995	0.01
Ni	60	2	He	7992	0.07
Cu	63	2	He	18680	0.02
Zn	66	2	He	6698	0.09
As	75	2	He	5241	0.07
Sb	121	2	He	20479	0.03
Se	78	2	He	731	1.27

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1346235	2.31	1368896	98.34	70	125	
In	115	1	nogas	1152449	2.20	1163100	99.08	70	125	
Li	6	1	nogas	317759	1.31	315825	100.61	70	125	
Bi	209	1	nogas	1005117	5.19	1006853	99.83	70	125	
Ge	72	2	He	678993	1.03	669421	101.43	70	125	

Calibration Standard Report

Sample Table

Sample Name	10/50/1000
Data File Name	196CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T23:03:58-06:00
Sample Type	CalStd
Level	4
Dilution	1
Comment	
ISTD Ref File Name	193CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	17478	0.02
B	11	1	nogas	57229	0.00
Na	23	1	nogas	9311185	0.00
Mg	24	1	nogas	4842982	0.00
Al	27	1	nogas	82173	0.01
P	31	1	nogas	63513	0.00
K	39	1	nogas	9792809	0.00
Ca	43	1	nogas	13295	0.02
Ca	44	1	nogas	862088	0.00
Ti	47	1	nogas	7228	0.02
V	51	1	nogas	127055	0.00
Cr	52	1	nogas	90184	0.00
Mn	55	1	nogas	105725	0.00
Fe	56	1	nogas	8811478	0.00
Co	59	1	nogas	82738	0.00
Ni	60	1	nogas	19898	0.02
Cu	63	1	nogas	47075	0.01
Zn	66	1	nogas	14620	0.03
As	75	1	nogas	28998	0.00
Se	77	1	nogas	4284	0.14
Se	82	1	nogas	1117	1.15
Sr	88	1	nogas	103288	0.00
Mo	95	1	nogas	21357	0.01
Ag	107	1	nogas	52884	0.01
Cd	111	1	nogas	11684	0.01
Sn	118	1	nogas	32672	0.00
Sb	121	1	nogas	49932	0.00
Ba	137	1	nogas	16258	0.02
Tl	205	1	nogas	82772	0.00
Pb	208	1	nogas	61052	0.00
Si	28	1	nogas	2833358	0.00
La	139	1	nogas	30	111.11
Na	23	2	He	1351376	0.00
Mg	24	2	He	542587	0.00
Al	27	2	He	4824	0.11
K	39	2	He	902601	0.00
Ca	43	2	He	2140	0.33
Ca	44	2	He	46247	0.00
V	51	2	He	42022	0.00
Cr	52	2	He	46034	0.01

Calibration Standard Report

Mn	55	2	He	36849	0.00
Fe	56	2	He	4010719	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Co	59	2	He	58134	0.01
Ni	60	2	He	15000	0.04
Cu	63	2	He	36923	0.00
Zn	66	2	He	9643	0.06
As	75	2	He	9743	0.02
Sb	121	2	He	40399	0.01
Se	78	2	He	1177	0.05

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1347398	3.13	1368896	98.43	70	125	
In	115	1	nogas	1166152	1.56	1163100	100.26	70	125	
Li	6	1	nogas	318694	1.65	315825	100.91	70	125	
Bi	209	1	nogas	984539	5.20	1006853	97.78	70	125	
Ge	72	2	He	645243	3.33	669421	96.39	70	125	

Calibration Standard Report

Sample Table

Sample Name	100/500/10K
Data File Name	197CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T23:06:14-06:00
Sample Type	CalStd
Level	5
Dilution	1
Comment	
ISTD Ref File Name	193CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	185255	0.00
B	11	1	nogas	333156	0.00
Na	23	1	nogas	74661435	0.00
Mg	24	1	nogas	49877781	0.00
Al	27	1	nogas	645200	0.00
P	31	1	nogas	199641	0.00
K	39	1	nogas	72605622	0.00
Ca	43	1	nogas	127929	0.00
Ca	44	1	nogas	2897414	0.00
Ti	47	1	nogas	62063	0.00
V	51	1	nogas	953415	0.00
Cr	52	1	nogas	780243	0.00
Mn	55	1	nogas	992438	0.00
Fe	56	1	nogas	86013669	0.00
Co	59	1	nogas	866428	0.00
Ni	60	1	nogas	194969	0.00
Cu	63	1	nogas	460033	0.00
Zn	66	1	nogas	144358	0.00
As	75	1	nogas	197793	0.00
Se	77	1	nogas	10787	0.03
Se	82	1	nogas	9560	0.03
Sr	88	1	nogas	1016586	0.00
Mo	95	1	nogas	202340	0.00
Ag	107	1	nogas	555427	0.00
Cd	111	1	nogas	116051	0.00
Sn	118	1	nogas	300963	0.00
Sb	121	1	nogas	507111	0.00
Ba	137	1	nogas	165949	0.00
Tl	205	1	nogas	852995	0.00
Pb	208	1	nogas	627327	0.00
Si	28	1	nogas	6369975	0.00
La	139	1	nogas	193	16.35
Na	23	2	He	9748895	0.00
Mg	24	2	He	5579215	0.00
Al	27	2	He	38669	0.01
K	39	2	He	7833675	0.00
Ca	43	2	He	20786	0.02
Ca	44	2	He	356094	0.00
V	51	2	He	411230	0.00
Cr	52	2	He	427396	0.00

Calibration Standard Report

Mn	55	2	He	365631	0.00
Fe	56	2	He	41919099	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Co	59	2	He	573218	0.00
Ni	60	2	He	141861	0.00
Cu	63	2	He	351131	0.00
Zn	66	2	He	95053	0.00
As	75	2	He	100783	0.00
Sb	121	2	He	412213	0.00
Se	78	2	He	8768	0.05

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1303832	1.95	1368896	95.25	70	125	
In	115	1	nogas	1162581	1.20	1163100	99.96	70	125	
Li	6	1	nogas	328119	1.24	315825	103.89	70	125	
Bi	209	1	nogas	986960	7.21	1006853	98.02	70	125	
Ge	72	2	He	681844	1.60	669421	101.86	70	125	

Calibration Standard Report

Sample Table

Sample Name	200/1000/20K
Data File Name	198CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T23:08:28-06:00
Sample Type	CalStd
Level	6
Dilution	1
Comment	
ISTD Ref File Name	193CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	336688	0.00
B	11	1	nogas	1033862	0.00
Na	23	1	nogas	137860945	0.00
Mg	24	1	nogas	94975383	0.00
Al	27	1	nogas	1385721	0.00
P	31	1	nogas	550717	0.00
K	39	1	nogas	127422153	0.00
Ca	43	1	nogas	228183	0.00
Ca	44	1	nogas	4470162	0.00
Ti	47	1	nogas	126951	0.00
V	51	1	nogas	1860147	0.00
Cr	52	1	nogas	1566206	0.00
Mn	55	1	nogas	1997312	0.00
Fe	56	1	nogas	166644929	0.00
Co	59	1	nogas	1754938	0.00
Ni	60	1	nogas	376949	0.00
Cu	63	1	nogas	893910	0.00
Zn	66	1	nogas	271126	0.00
As	75	1	nogas	358443	0.00
Se	77	1	nogas	18463	0.03
Se	82	1	nogas	18520	0.02
Sr	88	1	nogas	2191654	0.00
Mo	95	1	nogas	418529	0.00
Ag	107	1	nogas	1024395	0.00
Cd	111	1	nogas	224524	0.00
Sn	118	1	nogas	654142	0.00
Sb	121	1	nogas	981242	0.00
Ba	137	1	nogas	302410	0.00
Tl	205	1	nogas	1617508	0.00
Pb	208	1	nogas	1211671	0.00
Si	28	1	nogas	33940925	0.00
La	139	1	nogas	283	1.90
Na	23	2	He	18154403	0.00
Mg	24	2	He	10304449	0.00
Al	27	2	He	75813	0.01
K	39	2	He	14228047	0.00
Ca	43	2	He	39491	0.01
Ca	44	2	He	674940	0.00
V	51	2	He	778083	0.00
Cr	52	2	He	836433	0.00

Calibration Standard Report

Mn	55	2	He	691249	0.00
Fe	56	2	He	77034149	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Co	59	2	He	1100994	0.00
Ni	60	2	He	273823	0.00
Cu	63	2	He	684099	0.00
Zn	66	2	He	182378	0.00
As	75	2	He	192756	0.00
Sb	121	2	He	805797	0.00
Se	78	2	He	16562	0.01

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1269424	3.42	1368896	92.73	70	125	
In	115	1	nogas	1210780	4.17	1163100	104.10	70	125	
Li	6	1	nogas	332841	2.20	315825	105.39	70	125	
Bi	209	1	nogas	987210	6.32	1006853	98.05	70	125	
Ge	72	2	He	651730	2.90	669421	97.36	70	125	

Initial Calibration Verification (ICV) Report

Sample Table

Sample Name	ICCV
Data File Name	200_ICV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T23:12:55-06:00
Sample Type	ICV
Dilution	1
Comment	
ISTD Ref File Name	193CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High	QC Flag
Be	9	1	nogas	111.843	3.203	184366	2.70	100	111.8	90	110	ICV Main CR1 Failed
B	11	1	nogas	204.726	4.643	193255	3.28	500	40.9	90	110	ICV Main CR1 Failed
Na	23	1	nogas	10103.287	2.305	75223556	4.80	10000	101.0	90	110	
Mg	24	1	nogas	9941.418	0.774	50035778	3.17	10000	99.4	90	110	
Al	27	1	nogas	90.327	3.776	625274	2.22	100	90.3	90	110	
P	31	1	nogas	187.880	4.849	124679	2.98	500	37.6	90	110	ICV Main CR1 Failed
K	39	1	nogas	10639.805	1.973	70991535	0.44	10000	106.4	90	110	
Ca	43	1	nogas	10848.792	2.196	127600	1.45	10000	108.5	90	110	
Ca	44	1	nogas	10910.682	3.041	2807977	2.20	10000	109.1	90	110	
Ti	47	1	nogas	95.814	5.741	60941	6.02	100	95.8	90	110	
V	51	1	nogas	100.422	3.636	955389	2.23	100	100.4	90	110	
Cr	52	1	nogas	97.209	3.497	768459	3.33	100	97.2	90	110	
Mn	55	1	nogas	94.295	2.232	951009	1.54	100	94.3	90	110	
Fe	56	1	nogas	9759.100	2.113	82462877	0.19	10000	97.6	90	110	
Co	59	1	nogas	95.682	2.075	841892	0.82	100	95.7	90	110	
Ni	60	1	nogas	101.028	2.462	193162	0.37	100	101.0	90	110	
Cu	63	1	nogas	104.432	1.758	472206	0.76	100	104.4	90	110	
Zn	66	1	nogas	106.857	0.251	147953	2.15	100	106.9	90	110	
As	75	1	nogas	105.316	3.478	197132	1.24	100	105.3	90	110	
Se	77	1	nogas	97.194	6.995	10560	4.30	100	97.2	90	110	
Se	82	1	nogas	99.753	5.890	9409	6.47	100	99.8	90	110	
Sr	88	1	nogas	88.575	5.830	961180	5.66	100	88.6	90	110	ICV Main CR1 Failed
Mo	95	1	nogas	94.645	4.435	197760	3.58	100	94.6	90	110	
Ag	107	1	nogas	103.617	2.941	541778	3.21	100	103.6	90	110	
Cd	111	1	nogas	103.426	2.448	112470	3.00	100	103.4	90	110	
Sn	118	1	nogas	93.963	3.008	290900	3.43	100	94.0	90	110	
Sb	121	1	nogas	102.822	3.435	510313	4.11	100	102.8	90	110	
Ba	137	1	nogas	112.988	2.214	167792	2.11	100	113.0	90	110	ICV Main CR1 Failed
Tl	205	1	nogas	103.251	7.326	859146	1.14	100	103.3	90	110	
Pb	208	1	nogas	100.305	8.514	621873	1.66	100	100.3	90	110	
U	238	1	nogas	86.420	10.199	1068405	3.58	100	86.4	90	110	ICV Main CR1 Failed
Li	7	1	nogas	115.619	1.623	409593	1.98	100	115.6	90	110	ICV Main CR1 Failed
Si	28	1	nogas	934.591	4.189	3594401	1.51	5000	18.7	90	110	ICV Main CR1 Failed
Ba	135	1	nogas	109.492	1.724	97441	1.97	100	109.5	90	110	
La	139	1	nogas	147.447	14.333	220	12.03	100	147.4	90	110	ICV Main CR1 Failed
Au	197	1	nogas	41.322	173.205	3	173.21	100	41.3	90	110	ICV Main CR1 Failed
Tl	203	1	nogas	105.977	6.448	358911	1.09	100	106.0	90	110	
Na	23	2	He	10822.343	7.470	10071682	3.04	10000	108.2	90	110	
Mg	24	2	He	10827.176	4.924	5660960	2.94	10000	108.3	90	110	
Al	27	2	He	95.129	2.832	36721	9.50	100	95.1	90	110	
K	39	2	He	10288.068	0.297	7545674	6.72	10000	102.9	90	110	
Ca	43	2	He	10175.957	6.705	20305	3.21	10000	101.8	90	110	
Ca	44	2	He	10310.270	11.874	354824	4.78	10000	103.1	90	110	
V	51	2	He	105.284	7.925	413719	1.32	100	105.3	90	110	
Cr	52	2	He	103.680	1.318	437123	6.79	100	103.7	90	110	
Mn	55	2	He	103.783	2.055	363956	5.36	100	103.8	90	110	
Fe	56	2	He	10330.340	4.975	40464479	3.25	10000	103.3	90	110	
Co	59	2	He	101.899	12.369	563469	5.65	100	101.9	90	110	
Ni	60	2	He	103.454	15.604	142211	8.87	100	103.5	90	110	
Cu	63	2	He	106.249	12.409	363928	6.19	100	106.2	90	110	
Zn	66	2	He	104.702	3.126	96512	3.87	100	104.7	90	110	
As	75	2	He	101.778	4.332	98994	2.64	100	101.8	90	110	
Sn	118	2	He	89.830	5.635	233161	2.58	100	89.8	90	110	ICV Main CR1 Failed
Sb	121	2	He	101.240	10.011	408626	3.68	100	101.2	90	110	
Se	78	2	He	104.777	7.531	8880	0.67	100	104.8	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1281204	2.09	1368896	93.59	70	125	
In	115	1	nogas	1154100	0.56	1163100	99.23	70	125	
Li	6	1	nogas	318373	1.20	315825	100.81	70	125	

Initial Calibration Verification (ICV) Report

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Bi	209	1	nogas	1004130	7.21	1006853	99.73	70	125	
Ge	72	2	He	657942	6.77	669421	98.29	70	125	

Sample Report

Sample Table

Sample Name	LLCCV2
Data File Name	201SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T23:15:09-06:00
Sample Type	Sample
Dilution	1
Comment	
ISTD Ref FileName	193CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	2.040	2.040	7.25	3604	0.06	2000	
B	11	1	nogas	29.785	29.785	6.24	24737	0.12	2000	
Na	23	1	nogas	231.180	231.180	2.30	3999622	0.01	200000	
Mg	24	1	nogas	202.063	202.063	4.00	999839	0.02	200000	
Al	27	1	nogas	3.457	3.457	6.38	34931	0.01	2000	
K	39	1	nogas	236.191	236.191	16.30	4535315	0.01	200000	
Ca	43	1	nogas	254.907	254.907	7.38	3981	6.40	200000	
Ca	44	1	nogas	314.653	314.653	62.28	705830	0.04	200000	
Ti	47	1	nogas	2.331	2.331	19.38	1770	0.13	2000	
V	51	1	nogas	1.492	1.492	8.72	46705	0.00	2000	
Cr	52	1	nogas	2.015	2.015	7.51	26924	0.01	2000	
Mn	55	1	nogas	2.082	2.082	12.75	34417	0.01	2000	
Fe	56	1	nogas	213.970	213.970	6.45	2414958	0.01	200000	
Co	59	1	nogas	1.870	1.870	5.52	17025	0.01	2000	
Ni	60	1	nogas	2.365	2.365	7.19	5884	0.04	2000	
Cu	63	1	nogas	2.113	2.113	5.02	11624	0.02	2000	
Zn	66	1	nogas	2.254	2.254	15.50	4957	0.05	2000	
As	75	1	nogas	1.605	1.605	36.89	13275	0.01	2000	
Se	77	1	nogas	-0.359	-0.359	-887.36	3000	-0.01	2000	
Se	82	1	nogas	2.697	2.697	23.34	417	0.65	2000	
Sr	88	1	nogas	1.941	1.941	4.80	22205	0.01	2000	
Mo	95	1	nogas	2.327	2.327	9.00	5268	0.04	2000	
Ag	107	1	nogas	2.118	2.118	7.82	11331	0.02	2000	
Cd	111	1	nogas	2.273	2.273	5.05	2457	0.09	2000	
Sn	118	1	nogas	4.431	4.431	7.23	14213	0.03	2000	
Sb	121	1	nogas	2.173	2.173	9.94	11271	0.02	2000	
Ba	137	1	nogas	2.633	2.633	4.74	4137	0.06	2000	
Tl	205	1	nogas	2.453	2.453	1.00	20053	0.01	2000	
Pb	208	1	nogas	2.085	2.085	10.05	12775	0.02	2000	
U	238	1	nogas	1.941	1.941	5.93	23488	0.01	2000	
Si	28	1	nogas	220.375	220.375	6.63	1565379	0.01	2000	
La	139	1	nogas	28.937	28.937	69.03	77	37.74	2000	
Au	197	1	nogas	80.983	80.983	87.45	7	1214.74	2000	
Na	23	2	He	204.461	204.461	11.61	575780	0.04	200000	
Mg	24	2	He	203.097	203.097	3.03	112756	0.18	200000	
Al	27	2	He	2.730	2.730	30.97	2204	0.12	2000	
K	39	2	He	192.964	192.964	9.44	358187	0.05	200000	
Ca	43	2	He	230.272	230.272	19.76	540	42.64	200000	
Ca	44	2	He	179.608	179.608	26.53	18119	0.99	200000	
V	51	2	He	1.753	1.753	9.13	9538	0.02	2000	

Sample Report

Cr	52	2	He	2.065	2.065	5.61	13412	0.02	2000	
Mn	55	2	He	1.960	1.960	1.51	10063	0.02	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Fe	56	2	He	197.378	197.378	1.89	831425	0.02	200000	
Co	59	2	He	1.952	1.952	3.72	11541	0.02	2000	
Ni	60	2	He	1.941	1.941	7.69	3697	0.05	2000	
Cu	63	2	He	2.099	2.099	10.41	8579	0.02	2000	
Zn	66	2	He	2.030	2.030	18.35	2890	0.07	2000	
As	75	2	He	1.908	1.908	10.75	2168	0.09	2000	
Sb	121	2	He	2.122	2.122	6.29	9259	0.02	2000	
Se	78	2	He	1.819	1.819	24.91	504	0.36	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1308789	5.10	1368896	95.61	70	125	
In	115	1	nogas	1141466	0.99	1163100	98.14	70	125	
Li	6	1	nogas	311997	0.40	315825	98.79	70	125	
Bi	209	1	nogas	980773	8.52	1006853	97.41	70	125	
Ge	72	2	He	692904	3.86	669421	103.51	70	125	

Low Level Initial Calibration Verification (LLICV) Report

Sample Table

Sample Name	LLCCV5
Data File Name	202LICV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T23:17:25-06:00
Sample Type	LLICV
Dilution	1
Comment	
ISTD Ref File Name	193CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High	QC Flag
Be	9	1	nogas	5.107	5.931	9353	4.45	5	102.1	70	130	
B	11	1	nogas	48.930	5.590	38150	2.47	25	195.7	70	130	LLICV Main CR1 Failed
Na	23	1	nogas	504.017	7.561	6038545	1.78	500	100.8	70	130	
Mg	24	1	nogas	473.498	4.621	2382107	1.18	500	94.7	70	130	
Al	27	1	nogas	7.394	3.794	62068	1.94	5	147.9	70	130	LLICV Main CR1 Failed
P	31	1	nogas	31.188	8.346	49845	0.52	25	124.8	70	130	
K	39	1	nogas	551.864	5.406	6576815	2.08	500	110.4	70	130	
Ca	43	1	nogas	577.479	4.786	7799	2.15	500	115.5	70	130	
Ca	44	1	nogas	588.680	15.473	759574	0.37	500	117.7	70	130	
Ti	47	1	nogas	4.921	12.374	3440	12.95	5	98.4	70	130	
V	51	1	nogas	4.596	4.698	75544	1.91	5	91.9	70	130	
Cr	52	1	nogas	5.008	2.597	50567	1.66	5	100.2	70	130	
Mn	55	1	nogas	5.084	4.870	64697	3.23	5	101.7	70	130	
Fe	56	1	nogas	491.368	5.933	4773694	3.27	500	98.3	70	130	
Co	59	1	nogas	4.615	2.682	41520	0.59	5	92.3	70	130	
Ni	60	1	nogas	5.257	9.251	11444	6.10	5	105.1	70	130	
Cu	63	1	nogas	5.114	4.563	25332	4.27	5	102.3	70	130	
Zn	66	1	nogas	5.859	3.789	9966	3.02	5	117.2	70	130	
As	75	1	nogas	5.161	6.048	19668	0.81	5	103.2	70	130	
Se	77	1	nogas	12.835	18.869	4044	5.56	5	256.7	70	130	LLICV Main CR1 Failed
Se	82	1	nogas	4.997	9.795	633	7.79	5	99.9	70	130	
Sr	88	1	nogas	4.908	5.518	54832	3.51	5	98.2	70	130	
Mo	95	1	nogas	4.981	5.336	10890	4.61	5	99.6	70	130	
Ag	107	1	nogas	5.017	4.186	26715	2.26	5	100.3	70	130	
Cd	111	1	nogas	4.690	4.009	5221	3.36	5	93.8	70	130	
Sn	118	1	nogas	5.847	4.910	19138	3.36	5	116.9	70	130	
Sb	121	1	nogas	5.039	6.089	25694	4.20	5	100.8	70	130	
Ba	137	1	nogas	5.487	4.058	8592	1.72	5	109.7	70	130	
Tl	205	1	nogas	4.882	9.820	40439	3.11	5	97.6	70	130	
Pb	208	1	nogas	4.872	7.320	30250	2.36	5	97.4	70	130	
U	238	1	nogas	4.592	8.043	56574	1.48	5	91.8	70	130	
Li	7	1	nogas	4.836	9.487	42012	2.74	5	96.7	70	130	
Si	28	1	nogas	372.051	2.231	2005123	0.88	25	1488.2	70	130	LLICV Main CR1 Failed
La	139	1	nogas	-3.370	-460.333	40	50.00	5	-67.4	70	130	LLICV Main CR1 Failed
Au	197	1	nogas	123.725	173.205	10	173.21	5	2474.5	70	130	LLICV Main CR1 Failed
Na	23	2	He	535.294	1.785	859657	1.11	500	107.1	70	130	
Mg	24	2	He	531.843	0.280	284210	1.55	500	106.4	70	130	
Al	27	2	He	7.003	13.155	3757	8.08	5	140.1	70	130	LLICV Main CR1 Failed
K	39	2	He	494.262	1.508	565152	2.17	500	98.9	70	130	
Ca	43	2	He	468.799	23.476	1007	21.08	500	93.8	70	130	
Ca	44	2	He	493.570	3.128	28243	0.62	500	98.7	70	130	
V	51	2	He	4.926	4.652	21887	2.90	5	98.5	70	130	
Cr	52	2	He	4.998	3.573	25409	3.55	5	100.0	70	130	
Mn	55	2	He	5.061	3.909	20709	2.37	5	101.2	70	130	
Fe	56	2	He	505.238	2.522	2031955	1.23	500	101.0	70	130	
Co	59	2	He	4.933	1.295	28000	0.96	5	98.7	70	130	
Ni	60	2	He	4.968	9.201	7815	8.16	5	99.4	70	130	
Cu	63	2	He	5.325	5.229	19571	3.96	5	106.5	70	130	
Zn	66	2	He	5.813	1.616	6321	2.19	5	116.3	70	130	
As	75	2	He	4.905	1.357	5064	1.12	5	98.1	70	130	
Sb	121	2	He	4.709	4.202	19625	5.44	5	94.2	70	130	
Se	78	2	He	5.031	2.116	755	0.40	5	100.6	70	130	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1303189	2.06	1368896	95.20	70	125	
In	115	1	nogas	1179133	2.56	1163100	101.38	70	125	
Li	6	1	nogas	324263	2.29	315825	102.67	70	125	
Bi	209	1	nogas	999298	7.08	1006853	99.25	70	125	

Low Level Initial Calibration Verification (LLICV) Report

Ge	72	2	He	669400	1.28	669421	100.00	70	125	

Initial Calibration Blank (ICB) Report

Sample Table

Sample Name	ICCB
Data File Name	203_ICB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T23:19:41-06:00
Sample Type	ICB
Dilution	1
Comment	
ISTD Ref File Name	193CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.006	200.1	20	100.0	1	
B	11	1	nogas	8.283	15.3	11274	6.5	10	
Na	23	1	nogas	-3.442	-143.7	2397361	1.0	100	
Mg	24	1	nogas	0.095	206.9	5802	16.5	100	
Al	27	1	nogas	-0.179	-54.5	9363	2.0	5	
P	31	1	nogas	7.290	67.0	36964	1.0	10	
K	39	1	nogas	49.311	63.1	3208067	0.5	100	
Ca	43	1	nogas	1.939	262.1	937	1.6	100	
Ca	44	1	nogas	213.294	99.9	662831	1.0	100	ICB Main CR1 Failed
Ti	47	1	nogas	0.001	8482.9	260	29.0	2.5	
V	51	1	nogas	-0.128	-75.0	30465	5.1	2.5	
Cr	52	1	nogas	-0.005	-687.3	10500	2.9	2.5	
Mn	55	1	nogas	0.185	49.0	14690	2.1	2.5	
Fe	56	1	nogas	6.391	77.8	616943	1.2	100	
Co	59	1	nogas	0.006	196.6	280	32.7	2.5	
Ni	60	1	nogas	0.117	114.3	1473	12.3	2.5	
Cu	63	1	nogas	-0.085	-47.4	1463	7.7	1	
Zn	66	1	nogas	-1.033	-6.3	367	23.2	2.5	
As	75	1	nogas	-0.525	-14.0	9139	5.8	2.5	
Se	77	1	nogas	-1.814	-63.5	2797	4.8	2.5	
Se	82	1	nogas	0.519	136.8	203	28.0	1	
Sr	88	1	nogas	-0.011	-112.9	583	17.3	2.5	
Mo	95	1	nogas	-0.009	-343.6	293	20.5	2.5	
Ag	107	1	nogas	0.021	36.1	157	25.8	2.5	
Cd	111	1	nogas	0.006	153.2	20	50.0	1	
Sn	118	1	nogas	0.082	82.7	953	21.8	5	
Sb	121	1	nogas	0.048	32.7	520	18.5	2.5	
Ba	137	1	nogas	-0.136	-13.0	80	33.1	2.5	
Tl	205	1	nogas	0.036	57.3	370	56.2	1	
Pb	208	1	nogas	0.003	122.3	190	19.0	2.5	
U	238	1	nogas	0.008	12.0	113	10.2	2.5	
Si	28	1	nogas	33.372	59.8	980320	0.2	5	ICB Main CR1 Failed
La	139	1	nogas	-30.336	-31.0	7	173.2	2.5	
Au	197	1	nogas	84.580	86.6	7	86.6	2.5	ICB Main CR1 Failed
Na	23	2	He	-4.620	-284.3	366799	0.7	100	
Mg	24	2	He	-0.346	-9.3	560	1.8	100	
Al	27	2	He	-1.323	-5.9	593	8.5	5	
K	39	2	He	0.465	1056.4	207403	2.1	100	
Ca	43	2	He	-8.093	-69.3	40	25.0	100	
Ca	44	2	He	-2.368	-382.3	11400	6.0	100	
V	51	2	He	-0.179	-1.5	1526	3.0	2.5	
Cr	52	2	He	-0.009	-182.8	4147	2.4	2.5	
Mn	55	2	He	-0.006	-830.0	2770	6.5	2.5	
Fe	56	2	He	0.067	300.7	15961	2.3	100	

Initial Calibration Blank (ICB) Report

Co	59	2	He	0.006	93.1	137	25.7	2.5	
Ni	60	2	He	-0.175	-23.2	617	5.7	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Cu	63	2	He	-0.038	-45.0	837	3.7	1	
Zn	66	2	He	-0.751	-6.8	213	18.9	2.5	
As	75	2	He	-0.034	-87.8	179	19.1	2.5	
Sb	121	2	He	0.013	110.7	263	25.8	2.5	
Se	78	2	He	-0.262	-134.1	315	5.7	1	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1266527	5.41	1368896	92.52	70	125	
In	115	1	nogas	1175160	0.41	1163100	101.04	70	125	
Li	6	1	nogas	312228	1.33	315825	98.86	70	125	
Bi	209	1	nogas	990878	7.99	1006853	98.41	70	125	
Ge	72	2	He	672505	3.58	669421	100.46	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	213_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T23:42:14-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	193CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	107.582	0.577	160531	2.23	100	107.6	90	110	
B	11	1	nogas	168.101	5.544	94280	2.62	500	33.6	90	110	CCV Main CR1-2 Failed
Na	23	1	nogas	11030.277	4.000	73069789	1.88	10000	110.3	90	110	CCV Main CR1-2 Failed
Mg	24	1	nogas	10366.330	2.634	46570191	1.34	10000	103.7	90	110	
Al	27	1	nogas	92.137	3.394	559954	1.91	100	92.1	90	110	
P	31	1	nogas	103.563	9.724	73670	2.09	500	20.7	90	110	CCV Main CR1-2 Failed
K	39	1	nogas	11081.310	5.010	64797541	2.69	10000	110.8	90	110	CCV Main CR1-2 Failed
Ca	43	1	nogas	11348.034	4.280	117131	1.91	10000	113.5	90	110	CCV Main CR1-2 Failed
Ca	44	1	nogas	11206.126	5.458	2516391	0.98	10000	112.1	90	110	CCV Main CR1-2 Failed
Ti	47	1	nogas	93.450	1.410	52205	2.51	100	93.5	90	110	
V	51	1	nogas	97.617	3.923	816313	2.22	100	97.6	90	110	
Cr	52	1	nogas	99.264	2.560	688900	2.01	100	99.3	90	110	
Mn	55	1	nogas	101.545	5.110	898119	3.18	100	101.5	90	110	
Fe	56	1	nogas	10276.043	7.058	76152008	3.98	10000	102.8	90	110	
Co	59	1	nogas	98.801	3.621	763265	1.50	100	98.8	90	110	
Ni	60	1	nogas	104.670	5.026	175609	1.47	100	104.7	90	110	
Cu	63	1	nogas	106.675	3.396	423445	0.52	100	106.7	90	110	
Zn	66	1	nogas	105.954	2.560	128856	3.53	100	106.0	90	110	
As	75	1	nogas	104.436	0.970	171879	3.72	100	104.4	90	110	
Se	77	1	nogas	99.085	5.687	9406	4.16	100	99.1	90	110	
Se	82	1	nogas	106.406	4.595	8799	2.81	100	106.4	90	110	
Sr	88	1	nogas	93.422	5.253	889598	2.02	100	93.4	90	110	
Mo	95	1	nogas	94.087	3.901	172680	3.67	100	94.1	90	110	
Ag	107	1	nogas	101.358	1.572	465448	2.44	100	101.4	90	110	
Cd	111	1	nogas	103.018	2.951	102169	2.57	100	103.0	90	110	
Sn	118	1	nogas	90.797	2.057	256450	3.04	100	90.8	90	110	
Sb	121	1	nogas	104.309	2.061	454555	1.91	100	104.3	90	110	
Ba	137	1	nogas	107.402	6.850	145338	3.39	100	107.4	90	110	
Tl	205	1	nogas	103.126	10.303	774346	4.08	100	103.1	90	110	
Pb	208	1	nogas	100.930	7.942	565582	1.33	100	100.9	90	110	
U	238	1	nogas	85.333	8.661	953974	2.31	100	85.3	90	110	CCV Main CR1-2 Failed
Li	7	1	nogas	103.943	0.821	347665	3.16	100	103.9	90	110	
Si	28	1	nogas	428.230	7.634	1872551	1.21	5000	8.6	90	110	CCV Main CR1-2 Failed
Ba	135	1	nogas	106.766	7.367	86561	3.83	100	106.8	90	110	
La	139	1	nogas	81.979	72.610	130	53.30	100	82.0	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	168.301	110.192	13	114.56	100	168.3	90	110	CCV Main CR1-2 Failed
Tl	203	1	nogas	107.691	11.068	328933	5.34	100	107.7	90	110	
Na	23	2	He	10903.644	2.530	9667128	4.20	10000	109.0	90	110	
Mg	24	2	He	10544.950	0.343	5248549	3.13	10000	105.4	90	110	
Al	27	2	He	89.420	3.478	32817	4.85	100	89.4	90	110	CCV Main CR1-2 Failed
K	39	2	He	9698.638	2.961	6764998	0.86	10000	97.0	90	110	
Ca	43	2	He	9680.621	4.902	18387	2.79	10000	96.8	90	110	
Ca	44	2	He	9481.402	7.385	311972	3.92	10000	94.8	90	110	
V	51	2	He	104.454	2.721	391128	0.72	100	104.5	90	110	
Cr	52	2	He	97.799	5.381	391908	5.73	100	97.8	90	110	
Mn	55	2	He	97.859	1.531	326316	1.95	100	97.9	90	110	
Fe	56	2	He	9872.425	5.501	36770646	2.65	10000	98.7	90	110	
Co	59	2	He	99.192	7.836	523251	5.32	100	99.2	90	110	
Ni	60	2	He	99.997	9.603	131284	6.66	100	100.0	90	110	
Cu	63	2	He	104.152	4.350	340496	1.28	100	104.2	90	110	
Zn	66	2	He	101.883	1.557	89392	4.77	100	101.9	90	110	
As	75	2	He	98.381	4.352	91004	1.14	100	98.4	90	110	
Sb	121	2	He	100.443	8.937	386103	5.88	100	100.4	90	110	
Se	78	2	He	103.612	3.858	8366	0.31	100	103.6	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1125576	3.93	1368896	82.23	70	125	
In	115	1	nogas	1053259	3.87	1163100	90.56	70	125	
Li	6	1	nogas	264317	2.60	315825	83.69	70	125	
Bi	209	1	nogas	907210	6.94	1006853	90.10	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	625096	3.48	669421	93.38	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	214_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-21T23:44:27-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	193CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.057	20.4	97	15.8	1	
B	11	1	nogas	8.266	10.2	9956	3.1	10	
Na	23	1	nogas	263.761	9.0	4061200	1.4	100	CCB Main CR1 Failed
Mg	24	1	nogas	21.336	11.0	105765	7.9	100	
Al	27	1	nogas	-0.222	-28.6	8756	7.0	5	
P	31	1	nogas	-0.693	-415.7	31948	1.8	10	
K	39	1	nogas	48.634	28.8	3087130	0.1	100	
Ca	43	1	nogas	19.958	69.9	1103	14.7	100	
Ca	44	1	nogas	-229.276	-44.5	554657	0.7	100	
Ti	47	1	nogas	0.046	450.3	277	45.2	2.5	
V	51	1	nogas	-0.505	-45.7	26024	8.7	2.5	
Cr	52	1	nogas	0.168	5.7	11394	2.2	2.5	
Mn	55	1	nogas	0.490	0.4	17045	2.9	2.5	
Fe	56	1	nogas	23.089	12.3	728081	3.6	100	
Co	59	1	nogas	0.037	38.1	530	23.6	2.5	
Ni	60	1	nogas	0.087	30.7	1370	1.9	2.5	
Cu	63	1	nogas	0.070	46.0	2077	5.7	2	
Zn	66	1	nogas	-0.706	-8.3	780	12.4	2.5	
As	75	1	nogas	-0.742	-66.6	8412	7.6	2.5	
Se	77	1	nogas	-2.031	-291.2	2670	14.4	2.5	
Se	82	1	nogas	0.689	128.6	213	39.3	2	
Sr	88	1	nogas	0.708	8.6	7972	5.4	2.5	
Mo	95	1	nogas	0.164	54.5	627	29.5	2.5	
Ag	107	1	nogas	0.043	7.2	257	6.0	2.5	
Cd	111	1	nogas	0.064	27.4	77	19.9	1	
Sn	118	1	nogas	0.417	11.4	1840	2.5	5	
Sb	121	1	nogas	0.227	18.6	1347	15.7	2.5	
Ba	137	1	nogas	0.050	80.6	330	10.9	2.5	
Tl	205	1	nogas	0.371	54.6	3047	65.9	1	
Pb	208	1	nogas	0.078	35.8	620	38.0	2.5	
U	238	1	nogas	0.069	40.7	840	52.7	2.5	
Si	28	1	nogas	35.881	37.2	951214	1.1	5	CCB Main CR1 Failed
La	139	1	nogas	0.600	3328.0	40	50.0	2.5	
Au	197	1	nogas	188.853	173.2	17	173.2	2.5	CCB Main CR1 Failed
Na	23	2	He	265.179	8.5	586735	0.4	100	CCB Main CR1 Failed
Mg	24	2	He	23.608	2.9	12775	4.1	100	
Al	27	2	He	-1.177	-14.0	620	12.8	5	
K	39	2	He	6.432	207.5	201966	1.4	100	
Ca	43	2	He	15.024	24.0	83	6.9	100	
Ca	44	2	He	-6.415	-187.5	10733	0.6	100	
V	51	2	He	-0.223	-10.7	1287	4.1	2.5	
Cr	52	2	He	-0.012	-569.1	3941	4.3	2.5	
Mn	55	2	He	0.428	24.5	4111	5.5	2.5	
Fe	56	2	He	8.172	13.7	46191	6.7	100	
Co	59	2	He	0.033	32.3	277	18.2	2.5	
Ni	60	2	He	-0.332	-24.1	377	25.5	2.5	
Cu	63	2	He	0.064	45.4	1143	11.4	2	
Zn	66	2	He	-0.600	-12.5	340	21.2	2.5	

Continuing Calibration Blank (CCB) Report

As	75	2	He	0.046	77.3	247	14.2	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.154	18.8	803	11.2	2.5	
Se	78	2	He	0.451	66.6	358	3.5	2	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1218353	2.84	1368896	89.00	70	125	
In	115	1	nogas	1080028	5.74	1163100	92.86	70	125	
Li	6	1	nogas	276110	2.93	315825	87.42	70	125	
Bi	209	1	nogas	929370	12.02	1006853	92.30	70	125	
Ge	72	2	He	641818	3.30	669421	95.88	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	222_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-22T00:02:39-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	193CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	108.170	4.083	181811	2.03	100	108.2	90	110	
B	11	1	nogas	166.645	4.684	105404	1.89	500	33.3	90	110	CCV Main CR1-2 Failed
Na	23	1	nogas	10010.584	1.752	76514689	0.84	10000	100.1	90	110	
Mg	24	1	nogas	9737.906	2.233	50312779	1.45	10000	97.4	90	110	
Al	27	1	nogas	81.576	4.346	612186	2.82	100	81.6	90	110	CCV Main CR1-2 Failed
P	31	1	nogas	91.044	5.366	84308	1.44	500	18.2	90	110	CCV Main CR1-2 Failed
K	39	1	nogas	9954.920	3.330	72113414	4.28	10000	99.5	90	110	
Ca	43	1	nogas	10213.597	2.381	130101	3.50	10000	102.1	90	110	
Ca	44	1	nogas	9729.064	3.236	2783077	1.33	10000	97.3	90	110	
Ti	47	1	nogas	90.276	1.567	62141	0.30	100	90.3	90	110	
V	51	1	nogas	93.232	1.283	962688	2.17	100	93.2	90	110	
Cr	52	1	nogas	91.427	0.375	782918	1.64	100	91.4	90	110	
Mn	55	1	nogas	90.477	0.839	988212	1.65	100	90.5	90	110	
Fe	56	1	nogas	9312.665	1.603	85194616	1.12	10000	93.1	90	110	
Co	59	1	nogas	89.303	3.128	850448	3.04	100	89.3	90	110	CCV Main CR1-2 Failed
Ni	60	1	nogas	94.677	3.677	195992	3.01	100	94.7	90	110	
Cu	63	1	nogas	95.891	0.810	469468	1.83	100	95.9	90	110	
Zn	66	1	nogas	99.184	0.377	148741	1.46	100	99.2	90	110	
As	75	1	nogas	100.404	2.544	204018	3.76	100	100.4	90	110	
Se	77	1	nogas	86.695	5.389	10540	2.20	100	86.7	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	95.912	5.281	9796	5.62	100	95.9	90	110	
Sr	88	1	nogas	84.647	1.927	994046	1.19	100	84.6	90	110	CCV Main CR1-2 Failed
Mo	95	1	nogas	86.185	1.664	194951	1.43	100	86.2	90	110	CCV Main CR1-2 Failed
Ag	107	1	nogas	99.102	2.533	560924	4.14	100	99.1	90	110	
Cd	111	1	nogas	105.411	2.433	116984	1.26	100	105.4	90	110	
Sn	118	1	nogas	89.741	2.286	283577	1.32	100	89.7	90	110	CCV Main CR1-2 Failed
Sb	121	1	nogas	97.793	1.819	525132	1.03	100	97.8	90	110	
Ba	137	1	nogas	114.510	6.762	173392	3.28	100	114.5	90	110	CCV Main CR1-2 Failed
Tl	205	1	nogas	107.259	13.686	899769	4.20	100	107.3	90	110	
Pb	208	1	nogas	103.015	11.824	645015	2.03	100	103.0	90	110	
U	238	1	nogas	86.876	9.466	1087338	0.62	100	86.9	90	110	CCV Main CR1-2 Failed
Li	7	1	nogas	103.823	3.758	391321	3.87	100	103.8	90	110	
Si	28	1	nogas	271.279	8.195	1817936	2.23	5000	5.4	90	110	CCV Main CR1-2 Failed
Ba	135	1	nogas	110.829	4.699	100612	1.58	100	110.8	90	110	CCV Main CR1-2 Failed
La	139	1	nogas	144.368	19.633	220	12.03	100	144.4	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	0.000	#DIV/0!	0	#DIV/0!	100	0.0	90	110	CCV Main CR1-2 Failed
Tl	203	1	nogas	109.342	11.310	373734	1.57	100	109.3	90	110	
Na	23	2	He	10963.233	7.349	10420904	1.97	10000	109.6	90	110	
Mg	24	2	He	10747.854	5.296	5741072	1.76	10000	107.5	90	110	
Al	27	2	He	92.255	6.741	36290	3.31	100	92.3	90	110	
K	39	2	He	10162.220	3.532	7609529	4.15	10000	101.6	90	110	
Ca	43	2	He	9895.705	2.984	20202	2.46	10000	99.0	90	110	
Ca	44	2	He	10222.504	7.882	360299	2.57	10000	102.2	90	110	
V	51	2	He	104.479	5.281	420120	2.21	100	104.5	90	110	
Cr	52	2	He	102.802	3.657	442214	2.29	100	102.8	90	110	
Mn	55	2	He	102.304	6.864	365976	3.44	100	102.3	90	110	
Fe	56	2	He	10308.860	6.831	41228220	2.24	10000	103.1	90	110	
Co	59	2	He	101.113	7.260	572791	2.26	100	101.1	90	110	
Ni	60	2	He	103.807	9.397	146280	4.31	100	103.8	90	110	
Cu	63	2	He	104.413	8.227	366262	3.37	100	104.4	90	110	
Zn	66	2	He	103.297	3.237	97283	2.11	100	103.3	90	110	
As	75	2	He	103.546	4.745	102892	1.46	100	103.5	90	110	
Sb	121	2	He	101.778	6.355	420480	1.81	100	101.8	90	110	
Se	78	2	He	103.384	7.991	8959	3.28	100	103.4	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1386415	1.61	1368896	101.28	70	125	
In	115	1	nogas	1178568	3.49	1163100	101.33	70	125	
Li	6	1	nogas	297910	2.82	315825	94.33	70	125	
Bi	209	1	nogas	1018333	10.43	1006853	101.14	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	671991	5.34	669421	100.38	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	223_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-22T00:04:51-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	193CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.060	38.4	113	35.7	1	
B	11	1	nogas	11.480	16.4	12908	9.7	10	CCB Main CR1 Failed
Na	23	1	nogas	105.337	3.0	3252617	0.3	100	CCB Main CR1 Failed
Mg	24	1	nogas	10.620	18.1	60117	16.9	100	
Al	27	1	nogas	-0.297	-11.4	9469	1.5	5	
P	31	1	nogas	2.491	117.8	38320	5.1	10	
K	39	1	nogas	14.023	143.3	3295680	0.4	100	
Ca	43	1	nogas	2.519	93.1	1043	6.8	100	
Ca	44	1	nogas	-457.151	-31.9	585803	1.6	100	
Ti	47	1	nogas	0.094	84.6	350	14.8	2.5	
V	51	1	nogas	-0.179	-76.1	33071	3.0	2.5	
Cr	52	1	nogas	-0.011	-194.4	11534	2.7	2.5	
Mn	55	1	nogas	0.037	130.4	14610	2.7	2.5	
Fe	56	1	nogas	12.660	50.6	737794	4.2	100	
Co	59	1	nogas	0.052	21.7	750	10.7	2.5	
Ni	60	1	nogas	-0.100	-128.4	1183	22.6	2.5	
Cu	63	1	nogas	0.095	65.7	2497	10.3	2	
Zn	66	1	nogas	-0.843	-8.8	690	17.6	2.5	
As	75	1	nogas	-0.843	-13.2	9459	2.7	2.5	
Se	77	1	nogas	-1.190	-101.8	3137	2.4	2.5	
Se	82	1	nogas	0.300	255.5	203	37.2	2	
Sr	88	1	nogas	0.193	21.4	3050	12.1	2.5	
Mo	95	1	nogas	0.158	54.9	697	24.5	2.5	
Ag	107	1	nogas	0.062	38.9	400	30.3	2.5	
Cd	111	1	nogas	0.034	95.2	53	71.0	1	
Sn	118	1	nogas	0.363	4.8	1913	5.8	5	
Sb	121	1	nogas	0.227	18.3	1533	10.8	2.5	
Ba	137	1	nogas	0.103	85.8	457	27.6	2.5	
Tl	205	1	nogas	0.355	56.8	3167	63.8	1	
Pb	208	1	nogas	0.089	20.2	747	23.8	2.5	
U	238	1	nogas	0.072	50.1	953	56.9	2.5	
Si	28	1	nogas	-16.831	-85.3	924103	1.0	5	
La	139	1	nogas	6.637	266.1	53	39.0	2.5	CCB Main CR1 Failed
Au	197	1	nogas	118.031	7.7	10	0.0	2.5	CCB Main CR1 Failed
Na	23	2	He	100.656	2.7	477414	0.6	100	CCB Main CR1 Failed
Mg	24	2	He	9.827	6.9	6181	5.8	100	
Al	27	2	He	-1.264	-9.4	633	7.9	5	
K	39	2	He	-4.076	-96.4	210107	1.3	100	
Ca	43	2	He	8.711	127.3	77	30.1	100	
Ca	44	2	He	-37.554	-10.7	10487	2.0	100	
V	51	2	He	-0.168	-7.9	1618	2.7	2.5	
Cr	52	2	He	-0.071	-165.3	4001	13.1	2.5	
Mn	55	2	He	-0.058	-124.2	2660	9.1	2.5	
Fe	56	2	He	4.743	10.8	35733	5.2	100	
Co	59	2	He	0.028	14.9	270	9.8	2.5	
Ni	60	2	He	-0.407	-6.5	300	13.3	2.5	
Cu	63	2	He	0.092	56.9	1333	13.9	2	
Zn	66	2	He	-0.529	-24.1	433	27.7	2.5	

Continuing Calibration Blank (CCB) Report

As	75	2	He	0.012	238.4	231	12.9	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.145	25.7	833	19.0	2.5	
Se	78	2	He	0.096	147.2	356	3.0	2	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1396639	3.92	1368896	102.03	70	125	
In	115	1	nogas	1222729	4.20	1163100	105.13	70	125	
Li	6	1	nogas	303318	0.87	315825	96.04	70	125	
Bi	209	1	nogas	1020195	8.03	1006853	101.33	70	125	
Ge	72	2	He	692086	0.68	669421	103.39	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	231_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-22T00:36:33-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	193CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	103.084	4.699	193533	0.51	100	103.1	90	110	
B	11	1	nogas	163.389	5.465	115565	1.63	500	32.7	90	110	CCV Main CR1-2 Failed
Na	23	1	nogas	9719.862	4.796	82317696	2.21	10000	97.2	90	110	
Mg	24	1	nogas	9333.716	5.083	53378689	2.59	10000	93.3	90	110	
Al	27	1	nogas	84.235	0.921	654958	1.80	100	84.2	90	110	CCV Main CR1-2 Failed
P	31	1	nogas	94.108	4.149	89033	1.21	500	18.8	90	110	CCV Main CR1-2 Failed
K	39	1	nogas	10691.208	6.325	79935918	4.08	10000	106.9	90	110	
Ca	43	1	nogas	11149.335	6.461	146932	4.37	10000	111.5	90	110	CCV Main CR1-2 Failed
Ca	44	1	nogas	10624.494	5.699	3083519	2.36	10000	106.2	90	110	
Ti	47	1	nogas	91.843	1.482	65512	1.32	100	91.8	90	110	
V	51	1	nogas	99.881	0.832	1066326	2.74	100	99.9	90	110	
Cr	52	1	nogas	97.399	0.254	863611	2.32	100	97.4	90	110	
Mn	55	1	nogas	96.945	4.624	1095603	2.50	100	96.9	90	110	
Fe	56	1	nogas	9837.847	4.177	93191046	2.12	10000	98.4	90	110	
Co	59	1	nogas	91.832	5.943	905652	4.00	100	91.8	90	110	
Ni	60	1	nogas	99.839	4.923	214014	2.91	100	99.8	90	110	
Cu	63	1	nogas	103.398	3.608	524186	1.60	100	103.4	90	110	
Zn	66	1	nogas	104.598	1.292	162424	0.83	100	104.6	90	110	
As	75	1	nogas	102.746	3.011	215987	1.83	100	102.7	90	110	
Se	77	1	nogas	104.020	10.079	12435	5.90	100	104.0	90	110	
Se	82	1	nogas	96.623	6.694	10217	4.79	100	96.6	90	110	
Sr	88	1	nogas	89.009	5.260	1082584	3.22	100	89.0	90	110	CCV Main CR1-2 Failed
Mo	95	1	nogas	88.507	5.508	207331	3.44	100	88.5	90	110	CCV Main CR1-2 Failed
Ag	107	1	nogas	100.725	3.835	590571	3.75	100	100.7	90	110	
Cd	111	1	nogas	104.522	3.998	123056	4.10	100	104.5	90	110	
Sn	118	1	nogas	91.157	1.843	305566	2.17	100	91.2	90	110	
Sb	121	1	nogas	100.116	3.306	556970	1.33	100	100.1	90	110	
Ba	137	1	nogas	110.595	2.077	177810	0.64	100	110.6	90	110	CCV Main CR1-2 Failed
Tl	205	1	nogas	107.801	10.925	904759	2.87	100	107.8	90	110	
Pb	208	1	nogas	100.901	8.114	632453	1.38	100	100.9	90	110	
U	238	1	nogas	87.413	9.824	1092274	2.11	100	87.4	90	110	CCV Main CR1-2 Failed
Li	7	1	nogas	102.251	2.152	430985	2.69	100	102.3	90	110	
Si	28	1	nogas	266.380	1.672	1868710	1.44	5000	5.3	90	110	CCV Main CR1-2 Failed
Ba	135	1	nogas	107.430	1.387	103521	2.00	100	107.4	90	110	
La	139	1	nogas	136.173	6.132	223	2.59	100	136.2	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	81.547	173.205	7	173.21	100	81.5	90	110	CCV Main CR1-2 Failed
Tl	203	1	nogas	110.901	11.293	378580	3.06	100	110.9	90	110	CCV Main CR1-2 Failed
Na	23	2	He	10480.941	4.870	11100610	3.15	10000	104.8	90	110	
Mg	24	2	He	10529.625	4.632	6252025	2.89	10000	105.3	90	110	
Al	27	2	He	95.623	1.993	41792	1.60	100	95.6	90	110	
K	39	2	He	10742.816	5.467	8920731	4.50	10000	107.4	90	110	
Ca	43	2	He	10066.074	2.356	22842	3.99	10000	100.7	90	110	
Ca	44	2	He	9862.370	7.169	386991	4.55	10000	98.6	90	110	
V	51	2	He	103.149	3.366	461190	2.80	100	103.1	90	110	
Cr	52	2	He	99.718	2.789	476883	2.94	100	99.7	90	110	
Mn	55	2	He	100.804	4.659	401003	3.02	100	100.8	90	110	
Fe	56	2	He	10140.713	4.916	45104501	3.31	10000	101.4	90	110	
Co	59	2	He	98.159	4.128	618574	2.15	100	98.2	90	110	
Ni	60	2	He	95.375	4.006	149688	0.75	100	95.4	90	110	
Cu	63	2	He	96.876	5.473	378187	3.67	100	96.9	90	110	
Zn	66	2	He	100.460	3.995	105178	4.18	100	100.5	90	110	
As	75	2	He	97.362	4.962	107526	3.04	100	97.4	90	110	
Sb	121	2	He	94.225	4.524	432859	2.32	100	94.2	90	110	
Se	78	2	He	102.717	4.593	9907	3.81	100	102.7	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1436789	2.11	1368896	104.96	70	125	
In	115	1	nogas	1249818	2.52	1163100	107.46	70	125	
Li	6	1	nogas	332998	4.46	315825	105.44	70	125	
Bi	209	1	nogas	1016114	9.35	1006853	100.92	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	746214	3.28	669421	111.47	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	232_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-22T00:38:47-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	193CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.075	81.6	150	76.9	1	
B	11	1	nogas	19.953	2.8	19300	4.0	10	CCB Main CR1 Failed
Na	23	1	nogas	126.561	6.0	3651267	2.4	100	CCB Main CR1 Failed
Mg	24	1	nogas	9.615	28.9	58474	22.4	100	
Al	27	1	nogas	-0.211	-38.5	10340	5.0	5	
P	31	1	nogas	0.611	371.6	38183	2.4	10	
K	39	1	nogas	33.200	27.3	3511273	1.3	100	
Ca	43	1	nogas	21.808	50.0	1317	9.8	100	
Ca	44	1	nogas	-557.664	-10.5	577584	1.4	100	
Ti	47	1	nogas	0.097	108.3	360	19.4	2.5	
V	51	1	nogas	0.522	12.2	41056	2.6	2.5	
Cr	52	1	nogas	0.090	152.9	12678	8.6	2.5	
Mn	55	1	nogas	-0.092	-85.7	13532	6.8	2.5	
Fe	56	1	nogas	25.872	16.4	879631	3.6	100	
Co	59	1	nogas	0.055	45.1	800	29.6	2.5	
Ni	60	1	nogas	0.056	48.9	1540	3.0	2.5	
Cu	63	1	nogas	0.090	14.0	2537	1.6	2	
Zn	66	1	nogas	-0.833	-9.4	720	17.4	2.5	
As	75	1	nogas	0.523	12.6	12385	1.6	2.5	
Se	77	1	nogas	9.502	53.7	4144	11.4	2.5	CCB Main CR1 Failed
Se	82	1	nogas	-0.042	-327.2	173	8.8	2	
Sr	88	1	nogas	0.159	18.6	2720	12.2	2.5	
Mo	95	1	nogas	0.162	64.3	727	32.5	2.5	
Ag	107	1	nogas	0.057	23.3	383	19.9	2.5	
Cd	111	1	nogas	0.051	7.7	73	7.9	1	
Sn	118	1	nogas	0.379	12.7	1983	6.1	5	
Sb	121	1	nogas	0.233	19.8	1607	15.5	2.5	
Ba	137	1	nogas	0.038	29.5	360	5.6	2.5	
Tl	205	1	nogas	0.356	61.5	3154	69.3	1	
Pb	208	1	nogas	0.085	32.1	713	33.7	2.5	
U	238	1	nogas	0.089	30.9	1143	37.8	2.5	
Si	28	1	nogas	-6.029	-76.3	981116	0.5	5	
La	139	1	nogas	-4.450	-312.4	40	43.3	2.5	
Au	197	1	nogas	251.409	173.2	23	173.2	2.5	CCB Main CR1 Failed
Na	23	2	He	125.967	7.1	530099	0.6	100	CCB Main CR1 Failed
Mg	24	2	He	7.185	1.2	4997	1.3	100	
Al	27	2	He	-1.322	-37.4	647	32.5	5	
K	39	2	He	8.850	59.1	232406	0.3	100	
Ca	43	2	He	-2.176	-678.1	57	56.7	100	
Ca	44	2	He	-43.274	-14.5	10877	3.4	100	
V	51	2	He	-0.097	-18.8	2020	2.6	2.5	
Cr	52	2	He	-0.137	-34.0	3921	5.1	2.5	
Mn	55	2	He	-0.328	-21.0	1763	13.9	2.5	
Fe	56	2	He	4.377	7.3	36184	2.4	100	
Co	59	2	He	0.029	41.4	290	24.1	2.5	
Ni	60	2	He	-0.389	-8.5	343	13.1	2.5	
Cu	63	2	He	0.035	30.0	1193	3.4	2	
Zn	66	2	He	-0.561	-12.1	427	17.3	2.5	

Continuing Calibration Blank (CCB) Report

As	75	2	He	0.052	69.5	288	14.5	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.118	15.0	760	10.4	2.5	
Se	78	2	He	0.626	20.0	425	2.3	2	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1428580	1.01	1368896	104.36	70	125	
In	115	1	nogas	1234153	1.98	1163100	106.11	70	125	
Li	6	1	nogas	324018	2.15	315825	102.59	70	125	
Bi	209	1	nogas	1009271	9.00	1006853	100.24	70	125	
Ge	72	2	He	731850	1.52	669421	109.33	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	240_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-22T00:56:49-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	193CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	102.419	4.784	188742	1.13	100	102.4	90	110	
B	11	1	nogas	152.751	6.184	106447	2.30	500	30.6	90	110	CCV Main CR1-2 Failed
Na	23	1	nogas	9930.889	3.291	79751541	2.60	10000	99.3	90	110	
Mg	24	1	nogas	9817.307	3.721	53273763	2.63	10000	98.2	90	110	
Al	27	1	nogas	82.807	3.269	665945	2.16	100	82.8	90	110	CCV Main CR1-2 Failed
P	31	1	nogas	87.210	2.341	88228	0.77	500	17.4	90	110	CCV Main CR1-2 Failed
K	39	1	nogas	10036.707	2.424	77863802	1.25	10000	100.4	90	110	
Ca	43	1	nogas	10336.710	1.227	141072	1.03	10000	103.4	90	110	
Ca	44	1	nogas	9687.233	4.152	2973103	2.33	10000	96.9	90	110	
Ti	47	1	nogas	86.532	5.725	63832	4.64	100	86.5	90	110	CCV Main CR1-2 Failed
V	51	1	nogas	93.820	2.216	1037844	1.27	100	93.8	90	110	
Cr	52	1	nogas	92.311	0.201	847055	0.91	100	92.3	90	110	
Mn	55	1	nogas	91.601	1.048	1072031	1.07	100	91.6	90	110	
Fe	56	1	nogas	9418.586	1.885	92337187	1.20	10000	94.2	90	110	
Co	59	1	nogas	90.014	1.753	918675	0.79	100	90.0	90	110	
Ni	60	1	nogas	93.454	2.759	207362	1.76	100	93.5	90	110	
Cu	63	1	nogas	94.795	1.659	497356	0.93	100	94.8	90	110	
Zn	66	1	nogas	99.082	0.333	159245	0.77	100	99.1	90	110	
As	75	1	nogas	97.520	3.593	212615	2.35	100	97.5	90	110	
Se	77	1	nogas	91.804	1.715	11764	2.25	100	91.8	90	110	
Se	82	1	nogas	96.435	1.631	10553	1.23	100	96.4	90	110	
Sr	88	1	nogas	83.147	0.794	1046586	0.31	100	83.1	90	110	CCV Main CR1-2 Failed
Mo	95	1	nogas	84.821	1.161	205637	0.11	100	84.8	90	110	CCV Main CR1-2 Failed
Ag	107	1	nogas	94.942	1.572	575708	0.96	100	94.9	90	110	
Cd	111	1	nogas	104.655	0.424	122555	2.18	100	104.7	90	110	
Sn	118	1	nogas	89.827	1.516	299565	3.55	100	89.8	90	110	CCV Main CR1-2 Failed
Sb	121	1	nogas	95.404	1.625	549123	1.69	100	95.4	90	110	
Ba	137	1	nogas	109.537	1.372	175204	2.57	100	109.5	90	110	
Tl	205	1	nogas	104.985	8.720	886676	2.50	100	105.0	90	110	
Pb	208	1	nogas	100.853	9.092	634932	2.85	100	100.9	90	110	
U	238	1	nogas	85.505	7.856	1074824	1.58	100	85.5	90	110	CCV Main CR1-2 Failed
Li	7	1	nogas	100.987	2.768	418019	2.02	100	101.0	90	110	
Si	28	1	nogas	241.240	3.896	1848295	0.67	5000	4.8	90	110	CCV Main CR1-2 Failed
Ba	135	1	nogas	107.288	2.783	102799	1.76	100	107.3	90	110	
La	139	1	nogas	111.008	37.214	190	29.31	100	111.0	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	227.073	96.485	20	100.00	100	227.1	90	110	CCV Main CR1-2 Failed
Tl	203	1	nogas	108.873	8.298	374224	2.92	100	108.9	90	110	
Na	23	2	He	10277.721	9.450	10795002	4.25	10000	102.8	90	110	
Mg	24	2	He	10443.395	7.033	6149071	1.80	10000	104.4	90	110	
Al	27	2	He	93.466	1.132	40606	4.36	100	93.5	90	110	
K	39	2	He	10452.254	0.438	8633884	5.54	10000	104.5	90	110	
Ca	43	2	He	10052.703	1.058	22661	5.61	10000	100.5	90	110	
Ca	44	2	He	9730.218	5.068	379276	0.81	10000	97.3	90	110	
V	51	2	He	102.468	7.872	454077	2.81	100	102.5	90	110	
Cr	52	2	He	100.544	3.561	477154	1.93	100	100.5	90	110	
Mn	55	2	He	98.991	2.938	391270	4.18	100	99.0	90	110	
Fe	56	2	He	9848.954	0.581	43544336	4.92	10000	98.5	90	110	
Co	59	2	He	93.480	3.767	584833	1.47	100	93.5	90	110	
Ni	60	2	He	93.023	8.916	144723	3.62	100	93.0	90	110	
Cu	63	2	He	97.498	13.069	376685	7.75	100	97.5	90	110	
Zn	66	2	He	99.824	6.385	103620	1.20	100	99.8	90	110	
As	75	2	He	98.182	3.303	107675	1.93	100	98.2	90	110	
Sb	121	2	He	93.509	3.873	426505	1.66	100	93.5	90	110	
Se	78	2	He	100.410	8.971	9605	3.43	100	100.4	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1485842	1.10	1368896	108.54	70	125	
In	115	1	nogas	1243005	2.50	1163100	106.87	70	125	
Li	6	1	nogas	326792	3.69	315825	103.47	70	125	
Bi	209	1	nogas	1019557	6.60	1006853	101.26	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	741210	5.18	669421	110.72	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	241_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-22T00:59:02-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	193CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.093	27.7	177	27.9	1	
B	11	1	nogas	10.873	5.4	13032	4.6	10	CCB Main CR1 Failed
Na	23	1	nogas	37.493	26.2	2898008	0.7	100	
Mg	24	1	nogas	7.927	27.9	48644	24.5	100	
Al	27	1	nogas	-0.239	-35.4	10076	6.6	5	
P	31	1	nogas	5.084	69.3	40358	3.8	10	
K	39	1	nogas	35.607	23.7	3508324	0.6	100	
Ca	43	1	nogas	22.833	21.6	1323	4.9	100	
Ca	44	1	nogas	-449.287	-9.3	598372	1.7	100	
Ti	47	1	nogas	0.085	138.6	350	23.4	2.5	
V	51	1	nogas	-0.029	-1146.9	35175	8.3	2.5	
Cr	52	1	nogas	-0.005	-664.3	11794	3.5	2.5	
Mn	55	1	nogas	-0.027	-124.4	14166	3.6	2.5	
Fe	56	1	nogas	17.809	27.2	800051	6.3	100	
Co	59	1	nogas	0.071	13.0	953	10.5	2.5	
Ni	60	1	nogas	-0.057	-36.4	1293	2.9	2.5	
Cu	63	1	nogas	0.020	42.0	2174	1.0	2	
Zn	66	1	nogas	-0.845	-5.7	697	9.8	2.5	
As	75	1	nogas	0.010	312.3	11304	1.5	2.5	
Se	77	1	nogas	2.572	118.2	3517	6.7	2.5	CCB Main CR1 Failed
Se	82	1	nogas	0.876	21.9	267	7.8	2	
Sr	88	1	nogas	0.121	16.7	2257	11.3	2.5	
Mo	95	1	nogas	0.183	80.3	773	44.5	2.5	
Ag	107	1	nogas	0.053	37.6	357	31.9	2.5	
Cd	111	1	nogas	0.068	16.6	97	15.8	1	
Sn	118	1	nogas	0.363	17.9	2000	8.3	5	
Sb	121	1	nogas	0.386	17.9	2444	16.5	2.5	
Ba	137	1	nogas	0.046	48.7	387	5.4	2.5	
Tl	205	1	nogas	0.384	53.8	3451	61.2	1	
Pb	208	1	nogas	0.076	44.6	673	40.4	2.5	
U	238	1	nogas	0.074	34.1	980	40.8	2.5	
Si	28	1	nogas	-2.330	-102.0	987514	1.5	5	
La	139	1	nogas	-8.669	-163.4	37	56.8	2.5	
Au	197	1	nogas	153.858	87.4	13	86.6	2.5	CCB Main CR1 Failed
Na	23	2	He	31.820	26.4	425324	0.9	100	
Mg	24	2	He	6.213	9.2	4321	5.8	100	
Al	27	2	He	-1.512	-9.3	553	12.0	5	
K	39	2	He	13.546	14.4	230455	1.4	100	
Ca	43	2	He	7.687	145.2	77	30.1	100	
Ca	44	2	He	-22.381	-22.0	11370	1.1	100	
V	51	2	He	-0.125	-22.2	1853	6.5	2.5	
Cr	52	2	He	-0.105	-38.6	3971	2.7	2.5	
Mn	55	2	He	-0.283	-16.1	1893	7.7	2.5	
Fe	56	2	He	4.938	7.2	37704	3.5	100	
Co	59	2	He	0.030	14.1	287	7.3	2.5	
Ni	60	2	He	-0.411	-10.3	303	21.2	2.5	
Cu	63	2	He	0.030	261.2	1140	23.4	2	
Zn	66	2	He	-0.502	-18.4	473	17.6	2.5	

Continuing Calibration Blank (CCB) Report

As	75	2	He	0.055	32.3	283	8.5	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.313	1.1	1597	2.8	2.5	
Se	78	2	He	0.961	56.9	445	12.4	2	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1420485	1.13	1368896	103.77	70	125	
In	115	1	nogas	1280709	4.48	1163100	110.11	70	125	
Li	6	1	nogas	315378	3.43	315825	99.86	70	125	
Bi	209	1	nogas	1032219	8.17	1006853	102.52	70	125	
Ge	72	2	He	714172	1.92	669421	106.69	70	125	

Sample Report

Sample Table

Sample Name	LLICV2
Data File Name	242SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-22T01:01:17-06:00
Sample Type	Sample
Dilution	1
Comment	
ISTD Ref FileName	193CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Fail

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	0.017	0.017	126.50	183	0.01	2000	
B	11	1	nogas	-7.082	-7.082	-7.97	8312	-0.09	2000	
Na	23	1	nogas	-249.331	-249.331	-9.23	2834643	-0.01	200000	
Mg	24	1	nogas	5.828	5.828	114.42	139346	0.00	200000	
Al	27	1	nogas	154.397	154.397	94.94	4796271	0.00	2000	
K	39	1	nogas	-382.016	-382.016	-6.66	2113201	-0.02	200000	
Ca	43	1	nogas	-58.604	-58.604	-12.48	1037	-5.65	200000	
Ca	44	1	nogas	-2444.220	-2444.220	-7.75	611099	-0.40	200000	
Ti	47	1	nogas	7.762	7.762	102.08	19894	0.04	2000	
V	51	1	nogas	-3.276	-3.276	-4.10	7638	-0.04	2000	
Cr	52	1	nogas	-1.151	-1.151	-5.76	7297	-0.02	2000	
Mn	55	1	nogas	-0.912	-0.912	-17.16	16819	-0.01	2000	
Fe	56	1	nogas	-45.013	-45.013	-33.67	787731	-0.01	200000	
Co	59	1	nogas	0.005	0.005	498.46	1093	0.00	2000	
Ni	60	1	nogas	-0.564	-0.564	-7.84	860	-0.07	2000	
Cu	63	1	nogas	-0.314	-0.314	-11.04	1953	-0.02	2000	
Zn	66	1	nogas	-1.179	-1.179	-7.18	697	-0.17	2000	
As	75	1	nogas	-5.461	-5.461	-1.79	2040	-0.27	2000	
Se	77	1	nogas	-36.702	-36.702	-1.78	443	-8.28	2000	
Se	82	1	nogas	0.749	0.749	101.14	983	0.08	2000	
Sr	88	1	nogas	0.012	0.012	307.60	3538	0.00	2000	
Mo	95	1	nogas	-0.039	-0.039	-217.21	930	0.00	2000	
Ag	107	1	nogas	0.014	0.014	90.89	497	0.00	2000	
Cd	111	1	nogas	0.026	0.026	188.44	143	0.02	2000	
Sn	118	1	nogas	0.071	0.071	216.70	3507	0.00	2000	
Sb	121	1	nogas	0.017	0.017	258.77	1527	0.00	2000	
Ba	137	1	nogas	0.349	0.349	188.09	2779	0.01	2000	
Tl	205	1	nogas	0.092	0.092	19.11	1077	0.01	2000	
Pb	208	1	nogas	0.095	0.095	29.20	1000	0.01	2000	
U	238	1	nogas	0.056	0.056	39.82	957	0.01	2000	
Si	28	1	nogas	363.727	363.727	118.41	7932973	0.00	2000	
La	139	1	nogas	365.247	365.247	111.18	1738	21.01	2000	
Au	197	1	nogas	44.348	44.348	173.21	3	1330.44	2000	
Na	23	2	He	-290.887	-290.887	-13.21	407324	-0.07	200000	
Mg	24	2	He	18.860	18.860	81.70	41501	0.05	200000	
Al	27	2	He	59.615	59.615	43.51	92079	0.06	2000	
K	39	2	He	-221.735	-221.735	-11.73	179048	-0.12	200000	
Ca	43	2	He	-1.279	-1.279	-1660.64	203	-0.63	200000	
Ca	44	2	He	-239.634	-239.634	-13.34	12818	-1.87	200000	
V	51	2	He	-0.352	-0.352	-41.24	3221	-0.01	2000	
Cr	52	2	He	-0.691	-0.691	-24.98	4774	-0.01	2000	
Mn	55	2	He	-0.533	-0.533	-30.55	3434	-0.02	2000	

Sample Report

Fe	56	2	He	19.916	19.916	68.05	369570	0.01	200000	
Co	59	2	He	0.113	0.113	92.43	2787	0.00	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Ni	60	2	He	-0.428	-0.428	-32.38	987	-0.04	2000	
Cu	63	2	He	-0.085	-0.085	-142.53	2590	0.00	2000	
Zn	66	2	He	-0.761	-0.761	-20.83	780	-0.10	2000	
As	75	2	He	-0.038	-0.038	-332.35	672	-0.01	2000	
Sb	121	2	He	0.135	0.135	100.10	2897	0.00	2000	
Se	78	2	He	-2.549	-2.549	-13.60	498	-0.51	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	5776862	22.90	1368896	422.01	70	125	ISTD Failed
In	115	1	nogas	4821266	20.62	1163100	414.52	70	125	ISTD Failed
Li	6	1	nogas	1628531	21.59	315825	515.64	70	125	ISTD Failed
Bi	209	1	nogas	1275218	25.48	1006853	126.65	70	125	ISTD Failed
Ge	72	2	He	2800938	27.42	669421	418.41	70	125	ISTD Failed

Low Level Initial Calibration Verification (LLICV) Report

Sample Table

Sample Name	LLICV5
Data File Name	243LICV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-22T01:03:29-06:00
Sample Type	LLICV
Dilution	1
Comment	
ISTD Ref File Name	193CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High	QC Flag
Be	9	1	nogas	4.982	5.961	8662	6.01	5	99.6	70	130	
B	11	1	nogas	53.913	2.902	39296	2.38	25	215.7	70	130	LLICV Main CR1 Failed
Na	23	1	nogas	555.500	8.420	6639290	2.01	500	111.1	70	130	
Mg	24	1	nogas	498.711	1.654	2604504	6.41	500	99.7	70	130	
Al	27	1	nogas	8.612	11.307	73157	8.66	5	172.2	70	130	LLICV Main CR1 Failed
P	31	1	nogas	35.678	17.967	53986	2.75	25	142.7	70	130	LLICV Main CR1 Failed
K	39	1	nogas	558.828	12.978	6865327	3.41	500	111.8	70	130	
Ca	43	1	nogas	573.428	7.657	8039	3.26	500	114.7	70	130	
Ca	44	1	nogas	179.848	82.464	701913	0.42	500	36.0	70	130	LLICV Main CR1 Failed
Ti	47	1	nogas	5.378	7.925	3874	8.24	5	107.6	70	130	
V	51	1	nogas	4.744	4.719	79962	6.80	5	94.9	70	130	
Cr	52	1	nogas	5.034	5.517	52670	0.30	5	100.7	70	130	
Mn	55	1	nogas	5.544	6.800	71956	3.11	5	110.9	70	130	
Fe	56	1	nogas	521.712	4.394	5224137	1.23	500	104.3	70	130	
Co	59	1	nogas	4.876	5.886	45489	2.02	5	97.5	70	130	
Ni	60	1	nogas	4.912	7.974	11184	3.35	5	98.2	70	130	
Cu	63	1	nogas	5.366	5.848	27466	1.41	5	107.3	70	130	
Zn	66	1	nogas	6.174	2.996	10807	5.25	5	123.5	70	130	
As	75	1	nogas	5.326	13.053	20716	4.26	5	106.5	70	130	
Se	77	1	nogas	9.586	67.200	3917	9.80	5	191.7	70	130	LLICV Main CR1 Failed
Se	82	1	nogas	5.206	15.594	680	15.49	5	104.1	70	130	
Sr	88	1	nogas	5.210	1.240	60432	3.46	5	104.2	70	130	
Mo	95	1	nogas	4.938	3.355	11211	3.21	5	98.8	70	130	
Ag	107	1	nogas	4.965	5.272	27436	2.99	5	99.3	70	130	
Cd	111	1	nogas	4.986	6.894	5858	8.12	5	99.7	70	130	
Sn	118	1	nogas	5.925	4.270	20460	5.16	5	118.5	70	130	
Sb	121	1	nogas	5.125	4.129	27142	4.52	5	102.5	70	130	
Ba	137	1	nogas	5.399	4.971	8923	3.13	5	108.0	70	130	
Tl	205	1	nogas	5.089	5.740	42070	2.80	5	101.8	70	130	
Pb	208	1	nogas	5.126	3.981	31722	1.07	5	102.5	70	130	
U	238	1	nogas	4.640	6.983	56976	2.92	5	92.8	70	130	
Li	7	1	nogas	4.992	5.977	40451	2.28	5	99.8	70	130	
Si	28	1	nogas	354.812	7.518	2027795	1.23	25	1419.2	70	130	LLICV Main CR1 Failed
La	139	1	nogas	23.428	82.410	77	32.83	5	468.6	70	130	LLICV Main CR1 Failed
Au	197	1	nogas	162.022	117.303	13	114.56	5	3240.4	70	130	LLICV Main CR1 Failed
Na	23	2	He	535.514	3.774	906293	0.70	500	107.1	70	130	
Mg	24	2	He	500.219	1.884	281863	2.98	500	100.0	70	130	
Al	27	2	He	6.825	8.127	3890	4.39	5	136.5	70	130	LLICV Main CR1 Failed
K	39	2	He	534.977	2.750	626829	1.48	500	107.0	70	130	
Ca	43	2	He	544.338	13.244	1223	11.69	500	108.9	70	130	
Ca	44	2	He	453.534	3.741	28333	0.71	500	90.7	70	130	
V	51	2	He	4.810	1.445	22595	2.57	5	96.2	70	130	
Cr	52	2	He	5.040	3.897	26964	1.81	5	100.8	70	130	
Mn	55	2	He	5.481	1.722	23403	0.95	5	109.6	70	130	
Fe	56	2	He	539.173	2.201	2284796	0.70	500	107.8	70	130	
Co	59	2	He	4.925	1.281	29468	0.59	5	98.5	70	130	
Ni	60	2	He	4.231	7.034	7148	5.30	5	84.6	70	130	
Cu	63	2	He	4.787	1.953	18657	2.45	5	95.7	70	130	
Zn	66	2	He	5.938	5.537	6788	6.02	5	118.8	70	130	
As	75	2	He	4.923	2.441	5356	0.87	5	98.5	70	130	
Sb	121	2	He	5.301	3.202	23256	4.02	5	106.0	70	130	
Se	78	2	He	5.661	7.805	851	3.42	5	113.2	70	130	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1353237	4.10	1368896	98.86	70	125	
In	115	1	nogas	1243613	1.97	1163100	106.92	70	125	
Li	6	1	nogas	307635	0.63	315825	97.41	70	125	
Bi	209	1	nogas	994123	4.36	1006853	98.74	70	125	

Low Level Initial Calibration Verification (LLICV) Report

Ge	72	2	He	705666	1.50	669421	105.41	70	125	

Interference Check Solution A (ICS-A) Report

Sample Table

Sample Name	ICSA
Data File Name	244ICSA.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-22T01:05:44-06:00
Sample Type	ICSA
Dilution	1
Comment	
ISTD Ref File Name	193CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.022	137.7	40	109.0	0	ICSA Main CR1 Failed
B	11	1	nogas	11.738	12.8	11180	6.9	0	ICSA Main CR1 Failed
Na	23	1	nogas	86656.517	0.5	695762932	0.5	0	
Mg	24	1	nogas	78226.342	0.8	437095010	0.6	0	
Al	27	1	nogas	83996.949	3.7	565972565	1.4	0	
P	31	1	nogas	98649.607	3.0	47213244	1.7	0	
K	39	1	nogas	98495.544	4.3	626652931	2.1	0	
Ca	43	1	nogas	111913.138	4.5	1294660	2.5	0	
Ca	44	1	nogas	109074.451	2.8	22190331	1.0	0	
Ti	47	1	nogas	2331.566	1.4	1462539	1.7	0	
V	51	1	nogas	0.707	40.1	38118	5.1	0	ICSA Main CR1 Failed
Cr	52	1	nogas	1.111	13.1	19131	3.7	0	ICSA Main CR1 Failed
Mn	55	1	nogas	0.378	18.1	16641	2.9	0	ICSA Main CR1 Failed
Fe	56	1	nogas	95306.401	0.4	792874118	2.2	0	
Co	59	1	nogas	0.356	1.9	3334	3.6	0	ICSA Main CR1 Failed
Ni	60	1	nogas	1.685	3.2	4434	3.1	0	ICSA Main CR1 Failed
Cu	63	1	nogas	1.418	3.8	8179	4.5	0	ICSA Main CR1 Failed
Zn	66	1	nogas	3.937	4.9	7098	2.5	0	ICSA Main CR1 Failed
As	75	1	nogas	3.899	15.6	16952	8.3	0	ICSA Main CR1 Failed
Se	77	1	nogas	31.604	9.2	5391	5.7	0	
Se	82	1	nogas	0.361	309.4	190	53.4	0	ICSA Main CR1 Failed
Sr	88	1	nogas	0.871	8.6	10057	5.7	0	ICSA Main CR1 Failed
Mo	95	1	nogas	1955.895	2.5	4041940	1.7	0	
Ag	107	1	nogas	0.032	4.3	213	2.7	0	ICSA Main CR1 Failed
Cd	111	1	nogas	1.026	7.9	1140	7.2	0	ICSA Main CR1 Failed
Sn	118	1	nogas	0.231	34.9	1413	18.5	0	ICSA Main CR1 Failed
Sb	121	1	nogas	0.274	4.8	1630	1.6	0	ICSA Main CR1 Failed
Ba	137	1	nogas	0.292	16.2	720	9.1	0	ICSA Main CR1 Failed
Tl	205	1	nogas	0.040	60.3	393	56.6	0	ICSA Main CR1 Failed
Pb	208	1	nogas	0.110	2.7	840	6.6	0	ICSA Main CR1 Failed
Si	28	1	nogas	158.730	6.9	1342432	2.0	0	
La	139	1	nogas	104.541	55.5	170	41.2	0	
Na	23	2	He	106479.897	3.0	87728699	4.5	0	
Mg	24	2	He	104168.750	2.1	49764808	3.1	0	
Al	27	2	He	89222.384	3.7	30442056	2.8	0	
K	39	2	He	102448.647	5.8	66804032	3.1	0	
Ca	43	2	He	100763.559	7.5	183160	4.8	0	
Ca	44	2	He	106548.461	7.3	3261554	4.5	0	
V	51	2	He	-0.126	-20.0	1551	3.0	0	ICSA Main CR1 Failed
Cr	52	2	He	0.327	30.9	4981	7.9	0	ICSA Main CR1 Failed
Mn	55	2	He	0.473	15.4	3987	3.0	0	ICSA Main CR1 Failed
Fe	56	2	He	104425.420	2.9	373485194	1.1	0	
Co	59	2	He	0.333	13.3	1780	13.2	0	ICSA Main CR1 Failed
Ni	60	2	He	0.777	6.6	1747	6.0	0	ICSA Main CR1 Failed
Cu	63	2	He	1.139	12.9	4427	7.7	0	ICSA Main CR1 Failed
Zn	66	2	He	3.705	5.3	3911	6.9	0	ICSA Main CR1 Failed
As	75	2	He	0.160	16.9	331	5.1	0	ICSA Main CR1 Failed
Sb	121	2	He	0.301	8.1	1300	8.5	0	ICSA Main CR1 Failed
Se	78	2	He	0.744	37.7	357	3.1	0	ICSA Main CR1 Failed

Interference Check Solution A (ICS-A) Report

Interference Check Solution A (ICS-A) Report

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1268972	2.35	1368896	92.70	70	125	
In	115	1	nogas	1165594	0.72	1163100	100.21	70	125	
Li	6	1	nogas	259687	0.63	315825	82.22	70	125	
Bi	209	1	nogas	983994	5.49	1006853	97.73	70	125	
Ge	72	2	He	600065	2.84	669421	89.64	70	125	

Interference Check Solution AB (ICS-AB) Report

Sample Table

Sample Name	ICSAB
Data File Name	245ICSB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\122
Acq Date Time	2018-12-22T01:08:04-06:00
Sample Type	ICSB
Dilution	1
Comment	
ISTD Ref File Name	193CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High	QC Flag
Be	9	1	nogas	126.424	3.480	170935	3.60	100	126.4	80	120	ICSB Main CR1 Failed
B	11	1	nogas	1078.250	5.760	522754	3.30	100	1078.2	80	120	ICSB Main CR1 Failed
Na	23	1	nogas	98530.713	1.495	694242949	3.60	100	98530.7	80	120	
Mg	24	1	nogas	93400.342	5.039	457757560	2.69	100	93400.3	80	120	ICSB Main CR1 Failed
Al	27	1	nogas	85174.438	9.111	507776006	2.85	100	85174.4	80	120	ICSB Main CR1 Failed
K	39	1	nogas	117290.657	9.956	659430881	2.90	100	117290.7	80	120	ICSB Main CR1 Failed
Ca	43	1	nogas	126129.054	7.202	1292838	4.80	100	126129.1	80	120	ICSB Main CR1 Failed
Ca	44	1	nogas	122298.373	7.650	21956450	0.84	100	122298.4	80	120	ICSB Main CR1 Failed
Ti	47	1	nogas	2527.455	9.798	1401376	2.35	100	2527.5	80	120	ICSB Main CR1 Failed
V	51	1	nogas	128.747	13.664	1062893	5.86	100	128.7	80	120	ICSB Main CR1 Failed
Cr	52	1	nogas	119.980	7.550	829274	2.66	100	120.0	80	120	
Mn	55	1	nogas	109.487	4.821	967302	2.59	100	109.5	80	120	
Fe	56	1	nogas	110962.018	4.252	817977052	3.15	100	110962.0	80	120	ICSB Main CR1 Failed
Co	59	1	nogas	113.452	10.377	873802	3.38	100	113.5	80	120	
Ni	60	1	nogas	117.949	11.434	197133	3.93	100	117.9	80	120	
Cu	63	1	nogas	113.383	8.562	449036	1.53	100	113.4	80	120	
Zn	66	1	nogas	117.307	1.353	142600	5.90	100	117.3	80	120	
As	75	1	nogas	124.503	7.340	202742	0.70	100	124.5	80	120	ICSB Main CR1 Failed
Se	77	1	nogas	138.299	9.809	12071	1.58	100	138.3	80	120	
Se	82	1	nogas	115.196	7.637	9499	1.18	100	115.2	80	120	
Sr	88	1	nogas	118.967	12.322	1128727	5.16	100	119.0	80	120	
Mo	95	1	nogas	2182.025	7.168	3991691	1.36	100	2182.0	80	120	ICSB Main CR1 Failed
Ag	107	1	nogas	114.252	2.110	524922	5.31	100	114.3	80	120	
Cd	111	1	nogas	117.418	4.459	116817	0.53	100	117.4	80	120	
Sn	118	1	nogas	123.042	1.342	348676	3.69	100	123.0	80	120	ICSB Main CR1 Failed
Sb	121	1	nogas	120.626	6.458	524861	1.38	100	120.6	80	120	ICSB Main CR1 Failed
Ba	137	1	nogas	122.449	11.158	166028	6.61	100	122.4	80	120	ICSB Main CR1 Failed
Tl	205	1	nogas	115.481	11.428	844748	5.78	100	115.5	80	120	
Pb	208	1	nogas	114.364	6.167	625127	2.27	100	114.4	80	120	
U	238	1	nogas	114.188	6.111	1245441	0.53	100	114.2	80	120	
Si	28	1	nogas	6489.698	10.512	17186799	2.79	100	6489.7	80	120	ICSB Main CR1 Failed
La	139	1	nogas	164.378	30.114	220	25.31	100	164.4	80	120	ICSB Main CR1 Failed
Na	23	2	He	106675.766	1.748	87771249	2.03	100	106675.8	80	120	ICSB Main CR1 Failed
Mg	24	2	He	105749.366	1.692	50457656	1.20	100	105749.4	80	120	ICSB Main CR1 Failed
Al	27	2	He	82644.107	1.949	28170357	0.24	100	82644.1	80	120	ICSB Main CR1 Failed
K	39	2	He	100908.704	3.067	65774816	1.76	100	100908.7	80	120	ICSB Main CR1 Failed
Ca	43	2	He	98769.173	1.943	179567	2.50	100	98769.2	80	120	ICSB Main CR1 Failed
Ca	44	2	He	102753.517	3.634	3147094	4.84	100	102753.5	80	120	ICSB Main CR1 Failed
V	51	2	He	111.882	3.139	401663	1.62	100	111.9	80	120	
Cr	52	2	He	109.368	1.532	419842	1.84	100	109.4	80	120	
Mn	55	2	He	105.271	0.533	336516	2.04	100	105.3	80	120	
Fe	56	2	He	103103.865	0.244	368505261	1.75	100	103103.9	80	120	ICSB Main CR1 Failed
Co	59	2	He	108.625	3.936	550117	3.50	100	108.6	80	120	
Ni	60	2	He	108.489	6.268	136755	6.11	100	108.5	80	120	
Cu	63	2	He	111.534	2.475	349821	1.68	100	111.5	80	120	
Zn	66	2	He	114.510	3.815	96170	2.45	100	114.5	80	120	
As	75	2	He	109.554	2.756	97211	1.16	100	109.6	80	120	
Sb	121	2	He	113.067	2.476	417412	1.28	100	113.1	80	120	
Se	78	2	He	113.976	3.322	8798	1.63	100	114.0	80	120	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	1	nogas	1126790	7.19	1368896	82.31	70	125	
In	115	1	nogas	1057414	4.63	1163100	90.91	70	125	
Li	6	1	nogas	239531	2.64	315825	75.84	70	125	
Bi	209	1	nogas	883841	6.26	1006853	87.78	70	125	
Ge	72	2	He	599352	1.73	669421	89.53	70	125	

Tune Report

Batch Folder C:\Agilent\ICPMH\1\DATA\122118A.b
Report Comment
Instrument Name G3281A JP09420132

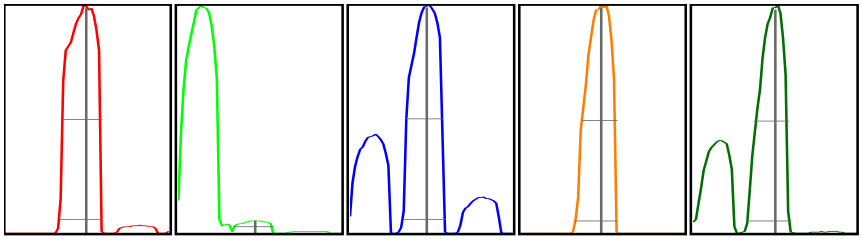
[nogas]

Mass	Range	Count (Actual)	Response (Actual) [cps/ug/l]	Response (Required) [cps/ug/l]	Response (Flag)	Resp Ratio (Actual)	Resp Ratio (Required)	Resp Ratio (Flag)
9		22681				NaN	-	
24		53340				NaN	-	
59		68237				NaN	-	
115		70830				NaN	-	
208		37989				NaN	-	

Mass	RSD% (Actual)	RSD% (Required)	RSD% (Flag)	Background (Actual)	Background (Required)	Background (Flag)
9	0.89	5.00				
24	1.08	5.00				
59	0.57	5.00				
115	1.28	5.00				
208	0.22	5.00				

Mass	Replicate 1 Count	Replicate 2 Count	Replicate 3 Count	Replicate 4 Count	Replicate 5 Count
9	23028	22582	22683	22564	22547
24	54293	53199	52900	52897	53411
59	68605	68505	68125	68334	67616
115	69571	71034	70266	71486	71794
208	38114	37893	38020	37971	37945

Integration Time [sec] 0.1



Mass	Peak Height	Axis (Actual)	Axis (Required)	Axis (Flag)	W-50%	W-X% (Actual)	W-X% (Required)	W-X% (Flag)
9	3495.12	9.00	8.9 - 9.1		0.69	0.782		
24	8454.41	23.95	23.9 - 24.1		0.67	NaN		
59	11261.21	58.95	58.9 - 59.1		0.64	0.769		
115	12389.09	115.00	114.9 - 115.1		0.60	0.754		
208	6859.93	208.05	207.9 - 208.1		0.58	0.770		

X = 5 **Integration Time [sec]** 0.1 **Acquisition Time [sec]** 168.5 **Y Axis** Linear

Tune Parameters
Plasma Paramters

RF Power	1600 W	Carrier Gas	0.41 L/min	S/C Temp	2 ℃
RF Matching	1.80 V	Option Gas	0.0 %	Makeup/Dilution Gas	0.40 L/min
Smpl Depth	8.0 mm	Nebulizer Pump	0.10 rps	Gas Switch	Dilution Gas

Lenses Parameters

Extract 1	0.0 V	Omega Lens	10.2 V	Deflect	10.0 V
Extract 2	-200.0 V	Cell Entrance	-30 V	Plate Bias	-40 V
Omega Bias	-100 V	Cell Exit	-50 V		

Cell Parameters

OctP Bias	-8.0 V	He Flow	0.0 mL/min	Energy Discrimination	5.0 V
OctP RF	180 V	H2 Flow	0.0 mL/min		
Use Gas	true	3rd Gas Flow	0 %		

[He]

Mass	Range	Count (Actual)	Response (Actual) [cps/ug/l]	Response (Required) [cps/ug/l]	Response (Flag)	Resp Ratio (Actual)	Resp Ratio (Required)	Resp Ratio (Flag)
9		659				NaN	-	
24		5277				NaN	-	
59		40403				NaN	-	

Tune Report

Mass	RSD% (Actual)	RSD% (Required)	RSD% (Flag)	Background (Actual)	Background (Required)	Background (Flag)
9	2.40	5.00				
24	1.10	5.00				
59	0.88	5.00				

Mass	Replicate 1 Count	Replicate 2 Count	Replicate 3 Count	Replicate 4 Count	Replicate 5 Count
9	647	646	655	663	685
24	5199	5268	5336	5250	5332
59	40100	40705	40201	40141	40868

Integration Time [sec] 0.1

Mass	Peak Height	Axis (Actual)	Axis (Required)	Axis (Flag)	W-50%	W-X% (Actual)	W-X% (Required)	W-X% (Flag)
9	106.41	8.95	8.9 - 9.1		0.67	0.779		
24	870.70	23.95	23.9 - 24.1		0.66	0.755		
59	6891.46	59.00	58.9 - 59.1		0.61	0.750		

X = 5 **Integration Time [sec]** 0.1 **Acquisition Time [sec]** 100.6 **Y Axis** Linear

Tune Parameters

Plasma Paramters

RF Power	1600 W	Carrier Gas	0.41 L/min	S/C Temp	2 ℃
RF Matching	1.80 V	Option Gas	0.0 %	Makeup/Dilution Gas	0.40 L/min
Smpl Depth	8.0 mm	Nebulizer Pump	0.10 rps	Gas Switch	Dilution Gas

Lenses Parameters

Extract 1	0.0 V	Omega Lens	10.2 V	Deflect	0.0 V
Extract 2	-200.0 V	Cell Entrance	-40 V	Plate Bias	-60 V
Omega Bias	-100 V	Cell Exit	-60 V		

Cell Parameters

OctP Bias	-18.0 V	He Flow	3.5 mL/min	Energy Discrimination	5.0 V
OctP RF	180 V	H2 Flow	0.0 mL/min		
Use Gas	true	3rd Gas Flow	0 %		

HS18121030 Cover Page

ALS WO# HS18121030

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  - SampleReceiptCheckList
  - COC
- HS18121030 8260 Raw Data

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WorkOrder: HS18121030

LHAAP-58

Bhate Environmental Associates, Inc.

Marcia Olive
445 Union Blvd Ste 129
Lakewood CO 80228

28-Jan-2019

HS18121030 LHAAP58 Final

ALS WO# HS18121030

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Houston, TX 77099
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F: +1 281 530 5887

December 27, 2018

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

Work Order: **HS18121030**

Laboratory Results for: **LHAAP-58**

Dear Marcia,

ALS Environmental received 5 sample(s) on Dec 18, 2018 for the analysis presented in the following report.

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

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

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

Sincerely,

Generated By: DAYNA.FISHER
RJ Modashia
Project Manager

ALS Houston, US Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Work Order: HS18121030

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS18121030-01	35AWW17_121718	Groundwater		17-Dec-2018 09:05	18-Dec-2018 11:00	☐
HS18121030-02	35AWW18_121718	Groundwater		17-Dec-2018 09:55	18-Dec-2018 11:00	☐
HS18121030-03	35AWW18_121718_a	Groundwater		17-Dec-2018 09:55	18-Dec-2018 11:00	☐
HS18121030-04	35ASW03_121718	Groundwater		17-Dec-2018 10:10	18-Dec-2018 11:00	☐
HS18121030-05	Trip Blank	Water		17-Dec-2018 00:00	18-Dec-2018 11:00	☐

ALS Houston, US Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Work Order: HS18121030

CASE NARRATIVE

GCMS Volatiles by Method SW8260

Batch ID: R329894

Sample ID: HS18120913-03MS

- MS and MSD performed on an unrelated sample.

ALS Houston, US Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW17_121718
Collection Date: 17-Dec-2018 09:05

ANALYTICAL REPORT
WorkOrder:HS18121030
Lab ID:HS18121030-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:57
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:57
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 18:57
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:57
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:57
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:57
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:57
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 18:57
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 18:57
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 18:57
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:57
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:57
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:57
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 18:57
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:57
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 18:57
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:57
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 18:57
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:57
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 18:57
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:57
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Dec-2018 18:57
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:57
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	24-Dec-2018 18:57
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 18:57
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:57
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	24-Dec-2018 18:57
Acetone	2.0	U	0.40	2.0	2.0	UG/L	1	24-Dec-2018 18:57
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:57
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 18:57
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:57
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:57
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 18:57
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 18:57
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	24-Dec-2018 18:57
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 18:57
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:57
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:57
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:57

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

ALS Houston, US Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW17_121718
Collection Date: 17-Dec-2018 09:05

ANALYTICAL REPORT
WorkOrder:HS18121030
Lab ID:HS18121030-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:57
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:57
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Dec-2018 18:57
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:57
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:57
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:57
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:57
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	24-Dec-2018 18:57
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:57
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Dec-2018 18:57
Methylene chloride	0.50	U	0.40	0.50	2.0	UG/L	1	24-Dec-2018 18:57
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 18:57
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:57
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:57
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:57
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:57
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:57
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:57
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:57
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:57
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:57
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:57
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:57
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 18:57
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 18:57
Surr: 1,2-Dichloroethane-d4	*99.3*			**0**	*81-118*	*%REC*	*1*	*24-Dec-2018 18:57*
Surr: 4-Bromofluorobenzene	*96.3*			**0**	*85-114*	*%REC*	*1*	*24-Dec-2018 18:57*
Surr: Dibromofluoromethane	*92.1*			**0**	*80-119*	*%REC*	*1*	*24-Dec-2018 18:57*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*24-Dec-2018 18:57*

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

ALS Houston, US Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW18_121718
Collection Date: 17-Dec-2018 09:55

ANALYTICAL REPORT
WorkOrder:HS18121030
Lab ID:HS18121030-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 19:22
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 19:22
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 19:22
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 19:22
1,1-Dichloroethane	**0.70**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	24-Dec-2018 19:22
1,1-Dichloroethene	**2.0**		**0.20**	**0.50**	**1.0**	**UG/L**	1	24-Dec-2018 19:22
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 19:22
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 19:22
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 19:22
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 19:22
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 19:22
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 19:22
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 19:22
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 19:22
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 19:22
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 19:22
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 19:22
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 19:22
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 19:22
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 19:22
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 19:22
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Dec-2018 19:22
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 19:22
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	24-Dec-2018 19:22
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 19:22
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 19:22
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	24-Dec-2018 19:22
Acetone	2.0	U	0.40	2.0	2.0	UG/L	1	24-Dec-2018 19:22
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 19:22
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 19:22
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 19:22
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 19:22
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 19:22
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 19:22
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	24-Dec-2018 19:22
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 19:22
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 19:22
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 19:22
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 19:22

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

ALS Houston, US Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW18_121718
Collection Date: 17-Dec-2018 09:55

ANALYTICAL REPORT
WorkOrder:HS18121030
Lab ID:HS18121030-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 19:22
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 19:22
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Dec-2018 19:22
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 19:22
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 19:22
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 19:22
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 19:22
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	24-Dec-2018 19:22
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 19:22
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Dec-2018 19:22
Methylene chloride	0.50	U	0.40	0.50	2.0	UG/L	1	24-Dec-2018 19:22
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 19:22
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 19:22
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 19:22
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 19:22
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 19:22
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 19:22
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 19:22
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 19:22
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 19:22
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 19:22
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 19:22
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 19:22
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 19:22
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 19:22
Surr: 1,2-Dichloroethane-d4	*99.4*			**0**	*81-118*	*%REC*	*1*	*24-Dec-2018 19:22*
Surr: 4-Bromofluorobenzene	*97.2*			**0**	*85-114*	*%REC*	*1*	*24-Dec-2018 19:22*
Surr: Dibromofluoromethane	*92.0*			**0**	*80-119*	*%REC*	*1*	*24-Dec-2018 19:22*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*1*	*24-Dec-2018 19:22*

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

ALS Houston, US Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW18_121718_a
Collection Date: 17-Dec-2018 09:55

ANALYTICAL REPORT
WorkOrder:HS18121030
Lab ID:HS18121030-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 19:47
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 19:47
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 19:47
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 19:47
1,1-Dichloroethane	**0.73**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	24-Dec-2018 19:47
1,1-Dichloroethene	**2.3**		**0.20**	**0.50**	**1.0**	**UG/L**	1	24-Dec-2018 19:47
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 19:47
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 19:47
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 19:47
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 19:47
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 19:47
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 19:47
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 19:47
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 19:47
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 19:47
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 19:47
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 19:47
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 19:47
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 19:47
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 19:47
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 19:47
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Dec-2018 19:47
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 19:47
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	24-Dec-2018 19:47
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 19:47
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 19:47
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	24-Dec-2018 19:47
Acetone	2.0	U	0.40	2.0	2.0	UG/L	1	24-Dec-2018 19:47
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 19:47
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 19:47
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 19:47
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 19:47
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 19:47
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 19:47
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	24-Dec-2018 19:47
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 19:47
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 19:47
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 19:47
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 19:47

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

ALS Houston, US Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW18_121718_a
Collection Date: 17-Dec-2018 09:55

ANALYTICAL REPORT
WorkOrder:HS18121030
Lab ID:HS18121030-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 19:47
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 19:47
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Dec-2018 19:47
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 19:47
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 19:47
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 19:47
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 19:47
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	24-Dec-2018 19:47
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 19:47
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Dec-2018 19:47
Methylene chloride	0.50	U	0.40	0.50	2.0	UG/L	1	24-Dec-2018 19:47
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 19:47
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 19:47
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 19:47
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 19:47
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 19:47
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 19:47
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 19:47
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 19:47
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 19:47
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 19:47
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 19:47
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 19:47
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 19:47
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 19:47
Surr: 1,2-Dichloroethane-d4	*101*			**0**	*81-118*	*%REC*	*1*	*24-Dec-2018 19:47*
Surr: 4-Bromofluorobenzene	*96.5*			**0**	*85-114*	*%REC*	*1*	*24-Dec-2018 19:47*
Surr: Dibromofluoromethane	*91.9*			**0**	*80-119*	*%REC*	*1*	*24-Dec-2018 19:47*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*1*	*24-Dec-2018 19:47*

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

ALS Houston, US Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35ASW03_121718
Collection Date: 17-Dec-2018 10:10

ANALYTICAL REPORT
WorkOrder:HS18121030
Lab ID:HS18121030-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 20:12
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 20:12
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 20:12
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 20:12
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 20:12
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 20:12
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 20:12
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 20:12
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 20:12
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 20:12
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 20:12
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 20:12
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 20:12
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 20:12
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 20:12
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 20:12
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 20:12
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 20:12
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 20:12
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 20:12
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 20:12
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Dec-2018 20:12
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 20:12
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	24-Dec-2018 20:12
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 20:12
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 20:12
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	24-Dec-2018 20:12
Acetone	**4.5**		**0.40**	**2.0**	**2.0**	**UG/L**	1	24-Dec-2018 20:12
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 20:12
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 20:12
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 20:12
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 20:12
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 20:12
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 20:12
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	24-Dec-2018 20:12
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 20:12
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 20:12
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 20:12
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 20:12

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

ALS Houston, US Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35ASW03_121718
Collection Date: 17-Dec-2018 10:10

ANALYTICAL REPORT
WorkOrder:HS18121030
Lab ID:HS18121030-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 20:12
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 20:12
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Dec-2018 20:12
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 20:12
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 20:12
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 20:12
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 20:12
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	24-Dec-2018 20:12
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 20:12
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Dec-2018 20:12
Methylene chloride	0.50	U	0.40	0.50	2.0	UG/L	1	24-Dec-2018 20:12
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 20:12
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 20:12
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 20:12
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 20:12
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 20:12
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 20:12
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 20:12
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 20:12
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 20:12
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 20:12
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 20:12
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 20:12
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 20:12
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 20:12
Surr: 1,2-Dichloroethane-d4	*100*			**0**	*81-118*	*%REC*	*1*	*24-Dec-2018 20:12*
Surr: 4-Bromofluorobenzene	*98.0*			**0**	*85-114*	*%REC*	*1*	*24-Dec-2018 20:12*
Surr: Dibromofluoromethane	*92.7*			**0**	*80-119*	*%REC*	*1*	*24-Dec-2018 20:12*
Surr: Toluene-d8	*107*			**0**	*89-112*	*%REC*	*1*	*24-Dec-2018 20:12*

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

ALS Houston, US Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: Trip Blank
Collection Date: 17-Dec-2018 00:00

ANALYTICAL REPORT
WorkOrder:HS18121030
Lab ID:HS18121030-05
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 16:53
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 16:53
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 16:53
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 16:53
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 16:53
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 16:53
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 16:53
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 16:53
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 16:53
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 16:53
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 16:53
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 16:53
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 16:53
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 16:53
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 16:53
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 16:53
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 16:53
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 16:53
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 16:53
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 16:53
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 16:53
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Dec-2018 16:53
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 16:53
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	24-Dec-2018 16:53
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 16:53
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 16:53
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	24-Dec-2018 16:53
Acetone	2.0	U	0.40	2.0	2.0	UG/L	1	24-Dec-2018 16:53
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 16:53
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 16:53
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 16:53
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 16:53
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 16:53
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 16:53
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	24-Dec-2018 16:53
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	24-Dec-2018 16:53
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 16:53
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 16:53
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 16:53

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

ALS Houston, US Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: Trip Blank
Collection Date: 17-Dec-2018 00:00

ANALYTICAL REPORT
WorkOrder:HS18121030
Lab ID:HS18121030-05
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 16:53
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 16:53
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Dec-2018 16:53
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 16:53
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 16:53
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 16:53
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 16:53
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	24-Dec-2018 16:53
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 16:53
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Dec-2018 16:53
Methylene chloride	0.50	U	0.40	0.50	2.0	UG/L	1	24-Dec-2018 16:53
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Dec-2018 16:53
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 16:53
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 16:53
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 16:53
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 16:53
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 16:53
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 16:53
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 16:53
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 16:53
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 16:53
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 16:53
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 16:53
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Dec-2018 16:53
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Dec-2018 16:53
Surr: 1,2-Dichloroethane-d4	*99.6*			**0**	*81-118*	*%REC*	*1*	*24-Dec-2018 16:53*
Surr: 4-Bromofluorobenzene	*96.7*			**0**	*85-114*	*%REC*	*1*	*24-Dec-2018 16:53*
Surr: Dibromofluoromethane	*92.2*			**0**	*80-119*	*%REC*	*1*	*24-Dec-2018 16:53*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*1*	*24-Dec-2018 16:53*

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

ALS Houston, US Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18121030

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID R329894	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C			**Matrix:** Water		
HS18121030-05	Trip Blank	17 Dec 2018 00:00			24 Dec 2018 16:53	1
Batch ID R329894	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C			**Matrix:** Groundwater		
HS18121030-01	35AWW17_121718	17 Dec 2018 09:05			24 Dec 2018 18:57	1
HS18121030-02	35AWW18_121718	17 Dec 2018 09:55			24 Dec 2018 19:22	1
HS18121030-03	35AWW18_121718_a	17 Dec 2018 09:55			24 Dec 2018 19:47	1
HS18121030-04	35ASW03_121718	17 Dec 2018 10:10			24 Dec 2018 20:12	1

ALS Houston, US Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18121030

QC BATCH REPORT

Batch ID: R329894 **Instrument: VOA9** **Method: SW8260**

MBLK Sample ID: **VBLKW-181224** Units: **UG/L** Analysis Date: **24-Dec-2018 11:06**
Client ID: Run ID: **VOA9_329894** SeqNo: **4881347** PrepDate: DF: **1**

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

ALS Houston, US Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18121030

QC BATCH REPORT

Batch ID: R329894 **Instrument: VOA9** **Method: SW8260**

MBLK Sample ID: **VBLKW-181224** Units: **UG/L** Analysis Date: **24-Dec-2018 11:06**
Client ID: Run ID: **VOA9_329894** SeqNo: **4881347** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	1.0	2.0								U
Carbon tetrachloride	0.50	1.0								U
Chlorobenzene	0.50	1.0								U
Chloroethane	0.50	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	0.50	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	0.50	1.0								U
Ethylbenzene	0.50	1.0								U
Hexachlorobutadiene	1.0	1.0								U
Isopropylbenzene	0.50	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	0.50	2.0								U
Naphthalene	0.50	1.0								U
n-Butylbenzene	0.50	1.0								U
n-Propylbenzene	0.50	1.0								U
o-Xylene	0.50	1.0								U
sec-Butylbenzene	0.50	1.0								U
Styrene	0.50	1.0								U
tert-Butylbenzene	0.50	1.0								U
Tetrachloroethene	0.50	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	0.50	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*47.4*	*1.0*	*50*	*0*	*94.8*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*48.2*	*1.0*	*50*	*0*	*96.4*	*85 - 114*				
Surr: Dibromofluoromethane	*44.37*	*1.0*	*50*	*0*	*88.7*	*80 - 119*				
Surr: Toluene-d8	*52.27*	*1.0*	*50*	*0*	*105*	*89 - 112*				

ALS Houston, US Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18121030

QC BATCH REPORT

Batch ID: R329894 **Instrument: VOA9** **Method: SW8260**

LCS Sample ID: **VLCSW-1812024** Units: **UG/L** Analysis Date: **24-Dec-2018 10:17**
Client ID: Run ID: **VOA9_329894** SeqNo: **4881346** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	20.16	1.0	20	0	101	78 - 124				
1,1,1-Trichloroethane	21.11	1.0	20	0	106	74 - 131				
1,1,2,2-Tetrachloroethane	20.07	1.0	20	0	100	71 - 121				
1,1,2-Trichloroethane	21.18	1.0	20	0	106	80 - 119				
1,1-Dichloroethane	21.09	1.0	20	0	105	77 - 125				
1,1-Dichloroethene	20.42	1.0	20	0	102	71 - 131				
1,1-Dichloropropene	20.99	1.0	20	0	105	78 - 125				
1,2,3-Trichlorobenzene	20.31	1.0	20	0	102	69 - 129				
1,2,3-Trichloropropane	20.24	1.0	20	0	101	73 - 122				
1,2,4-Trichlorobenzene	21.21	1.0	20	0	106	69 - 130				
1,2,4-Trimethylbenzene	22.29	1.0	20	0	111	76 - 124				
1,2-Dibromo-3-chloropropane	18.25	1.0	20	0	91.2	62 - 128				
1,2-Dibromoethane	21.18	1.0	20	0	106	77 - 121				
1,2-Dichlorobenzene	20.6	1.0	20	0	103	80 - 119				
1,2-Dichloroethane	21.54	1.0	20	0	108	73 - 128				
1,2-Dichloropropane	20.78	1.0	20	0	104	78 - 122				
1,3,5-Trimethylbenzene	22.13	1.0	20	0	111	75 - 124				
1,3-Dichlorobenzene	20.97	1.0	20	0	105	80 - 119				
1,3-Dichloropropane	21.09	1.0	20	0	105	80 - 119				
1,4-Dichlorobenzene	20.29	1.0	20	0	101	79 - 118				
2,2-Dichloropropane	22	1.0	20	0	110	60 - 139				
2-Butanone	38.79	2.0	40	0	97.0	56 - 143				
2-Chlorotoluene	21.45	1.0	20	0	107	79 - 122				
2-Hexanone	40.62	2.0	40	0	102	57 - 139				
4-Chlorotoluene	21.76	1.0	20	0	109	78 - 122				
4-Isopropyltoluene	22.33	1.0	20	0	112	77 - 127				
4-Methyl-2-pentanone	40.91	2.0	40	0	102	67 - 130				
Acetone	40.17	2.0	40	0	100	39 - 160				
Benzene	21.12	1.0	20	0	106	79 - 120				
Bromobenzene	20.81	1.0	20	0	104	80 - 120				
Bromochloromethane	21.94	1.0	20	0	110	78 - 123				
Bromodichloromethane	21.19	1.0	20	0	106	79 - 125				
Bromoform	18.69	1.0	20	0	93.4	66 - 130				
Bromomethane	23.72	1.0	20	0	119	53 - 141				

ALS Houston, US Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18121030

QC BATCH REPORT

Batch ID: R329894 **Instrument: VOA9** **Method: SW8260**

LCS Sample ID: **VLCSW-1812024** Units: **UG/L** Analysis Date: **24-Dec-2018 10:17**
Client ID: Run ID: **VOA9_329894** SeqNo: **4881346** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	41.71	2.0	40	0	104	64 - 133				
Carbon tetrachloride	20.11	1.0	20	0	101	72 - 136				
Chlorobenzene	21	1.0	20	0	105	82 - 118				
Chloroethane	21.28	1.0	20	0	106	60 - 138				
Chloroform	21	1.0	20	0	105	79 - 124				
Chloromethane	24	1.0	20	0	120	50 - 139				
cis-1,2-Dichloroethene	21.07	1.0	20	0	105	78 - 123				
cis-1,3-Dichloropropene	19.85	1.0	20	0	99.2	75 - 124				
Dibromochloromethane	19.36	1.0	20	0	96.8	74 - 126				
Dibromomethane	21.38	1.0	20	0	107	79 - 123				
Dichlorodifluoromethane	20.2	1.0	20	0	101	32 - 152				
Ethylbenzene	21.65	1.0	20	0	108	79 - 121				
Hexachlorobutadiene	19.46	1.0	20	0	97.3	66 - 134				
Isopropylbenzene	22.24	1.0	20	0	111	72 - 131				
m,p-Xylene	43.9	2.0	40	0	110	80 - 121				
Methylene chloride	21.23	2.0	20	0	106	74 - 124				
Naphthalene	19.59	1.0	20	0	98.0	61 - 128				
n-Butylbenzene	22.04	1.0	20	0	110	75 - 128				
n-Propylbenzene	22.34	1.0	20	0	112	76 - 126				
o-Xylene	21.97	1.0	20	0	110	78 - 122				
sec-Butylbenzene	22.08	1.0	20	0	110	77 - 126				
Styrene	22.39	1.0	20	0	112	78 - 123				
tert-Butylbenzene	22.16	1.0	20	0	111	78 - 124				
Tetrachloroethene	20.33	1.0	20	0	102	74 - 129				
Toluene	21.58	1.0	20	0	108	80 - 121				
trans-1,2-Dichloroethene	21.03	1.0	20	0	105	75 - 124				
trans-1,3-Dichloropropene	19.56	1.0	20	0	97.8	73 - 127				
Trichloroethene	20.92	1.0	20	0	105	79 - 123				
Trichlorofluoromethane	21.1	1.0	20	0	105	65 - 141				
Vinyl chloride	21.62	1.0	20	0	108	58 - 137				
Surr: 1,2-Dichloroethane-d4	*52.09*	*1.0*	*50*	*0*	*104*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.83*	*1.0*	*50*	*0*	*104*	*85 - 114*				
Surr: Dibromofluoromethane	*50.79*	*1.0*	*50*	*0*	*102*	*80 - 119*				
Surr: Toluene-d8	*50.79*	*1.0*	*50*	*0*	*102*	*89 - 112*				

ALS Houston, US Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18121030

QC BATCH REPORT

Batch ID: R329894 **Instrument: VOA9** **Method: SW8260**

MS Sample ID: **HS18120913-03MS** Units: **UG/L** Analysis Date: **24-Dec-2018 15:14**
Client ID: Run ID: **VOA9_329894** SeqNo: **4881357** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	23.21	1.0	20	0	116	78 - 124				
1,1,1-Trichloroethane	22.95	1.0	20	0	115	74 - 131				
1,1,2,2-Tetrachloroethane	24.2	1.0	20	0	121	71 - 121				S
1,1,2-Trichloroethane	25.3	1.0	20	0	127	80 - 119				S
1,1-Dichloroethane	22.71	1.0	20	0	114	77 - 125				
1,1-Dichloroethene	23.04	1.0	20	0	115	71 - 131				
1,1-Dichloropropene	25.45	1.0	20	0	127	78 - 125				S
1,2,3-Trichlorobenzene	22.1	1.0	20	0	111	69 - 129				
1,2,3-Trichloropropane	23.35	1.0	20	0	117	73 - 122				
1,2,4-Trichlorobenzene	22.37	1.0	20	0	112	69 - 130				
1,2,4-Trimethylbenzene	25.22	1.0	20	0	126	76 - 124				S
1,2-Dibromo-3-chloropropane	20.81	1.0	20	0	104	62 - 128				
1,2-Dibromoethane	25.44	1.0	20	0	127	77 - 121				S
1,2-Dichlorobenzene	23.76	1.0	20	0	119	80 - 119				
1,2-Dichloroethane	25.48	1.0	20	0	127	73 - 128				
1,2-Dichloropropane	24.78	1.0	20	0	124	78 - 122				S
1,3,5-Trimethylbenzene	25.58	1.0	20	0	128	75 - 124				S
1,3-Dichlorobenzene	23.33	1.0	20	0	117	80 - 119				
1,3-Dichloropropane	24.94	1.0	20	0	125	80 - 119				S
1,4-Dichlorobenzene	23.26	1.0	20	0	116	79 - 118				
2,2-Dichloropropane	22.8	1.0	20	0	114	60 - 139				
2-Butanone	45.46	2.0	40	0	114	56 - 143				
2-Chlorotoluene	24.95	1.0	20	0	125	79 - 122				S
2-Hexanone	52.86	2.0	40	0	132	57 - 139				
4-Chlorotoluene	25.12	1.0	20	0	126	78 - 122				S
4-Isopropyltoluene	25.22	1.0	20	0	126	77 - 127				
4-Methyl-2-pentanone	51.36	2.0	40	0	128	67 - 130				
Acetone	51.25	2.0	40	0	128	39 - 160				
Benzene	25.09	1.0	20	0	125	79 - 120				S
Bromobenzene	23.78	1.0	20	0	119	80 - 120				
Bromochloromethane	24.02	1.0	20	0	120	78 - 123				
Bromodichloromethane	24.47	1.0	20	0	122	79 - 125				
Bromoform	21.34	1.0	20	0	107	66 - 130				
Bromomethane	24.97	1.0	20	0	125	53 - 141				

ALS Houston, US Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18121030

QC BATCH REPORT

Batch ID: R329894 **Instrument: VOA9** **Method: SW8260**

MS Sample ID: **HS18120913-03MS** Units: **UG/L** Analysis Date: **24-Dec-2018 15:14**
Client ID: Run ID: **VOA9_329894** SeqNo: **4881357** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	43.18	2.0	40	0	108	64 - 133				
Carbon tetrachloride	23.76	1.0	20	0	119	72 - 136				
Chlorobenzene	24.99	1.0	20	0	125	82 - 118				S
Chloroethane	21.76	1.0	20	0	109	60 - 138				
Chloroform	22.96	1.0	20	0	115	79 - 124				
Chloromethane	22.1	1.0	20	0	111	50 - 139				
cis-1,2-Dichloroethene	24.28	1.0	20	0	121	78 - 123				
cis-1,3-Dichloropropene	21.7	1.0	20	0	109	75 - 124				
Dibromochloromethane	22.33	1.0	20	0	112	74 - 126				
Dibromomethane	25.07	1.0	20	0	125	79 - 123				S
Dichlorodifluoromethane	14.71	1.0	20	0	73.6	32 - 152				
Ethylbenzene	25.65	1.0	20	0	128	79 - 121				S
Hexachlorobutadiene	19.31	1.0	20	0	96.5	66 - 134				
Isopropylbenzene	26.47	1.0	20	0	132	72 - 131				S
m,p-Xylene	51.94	2.0	40	0	130	80 - 121				S
Methylene chloride	22.91	2.0	20	0	115	74 - 124				
Naphthalene	22.43	1.0	20	0	112	61 - 128				
n-Butylbenzene	24.46	1.0	20	0	122	75 - 128				
n-Propylbenzene	25.91	1.0	20	0	130	76 - 126				S
o-Xylene	25.64	1.0	20	0	128	78 - 122				S
sec-Butylbenzene	25.41	1.0	20	0	127	77 - 126				S
Styrene	26.3	1.0	20	0	131	78 - 123				S
tert-Butylbenzene	25.39	1.0	20	0	127	78 - 124				S
Tetrachloroethene	24.22	1.0	20	0	121	74 - 129				
Toluene	26.12	1.0	20	0	131	80 - 121				S
trans-1,2-Dichloroethene	23.07	1.0	20	0	115	75 - 124				
trans-1,3-Dichloropropene	21.38	1.0	20	0	107	73 - 127				
Trichloroethene	26.19	1.0	20	0	131	79 - 123				S
Trichlorofluoromethane	22.5	1.0	20	0	113	65 - 141				
Vinyl chloride	21.27	1.0	20	0	106	58 - 137				
Surr: 1,2-Dichloroethane-d4	*47.14*	*1.0*	*50*	*0*	*94.3*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.68*	*1.0*	*50*	*0*	*103*	*85 - 114*				
Surr: Dibromofluoromethane	*45.74*	*1.0*	*50*	*0*	*91.5*	*80 - 119*				
Surr: Toluene-d8	*53.29*	*1.0*	*50*	*0*	*107*	*89 - 112*				

ALS Houston, US Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18121030

QC BATCH REPORT

Batch ID: R329894 **Instrument: VOA9** **Method: SW8260**

MSD Sample ID: **HS18120913-03MSD** Units: **UG/L** Analysis Date: **24-Dec-2018 15:39**
Client ID: Run ID: **VOA9_329894** SeqNo: **4881358** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	23.48	1.0	20	0	117	78 - 124	23.21	1.12	20	
1,1,1-Trichloroethane	23.85	1.0	20	0	119	74 - 131	22.95	3.86	20	
1,1,2,2-Tetrachloroethane	25.53	1.0	20	0	128	71 - 121	24.2	5.32	20	S
1,1,2-Trichloroethane	25.33	1.0	20	0	127	80 - 119	25.3	0.11	20	S
1,1-Dichloroethane	23.23	1.0	20	0	116	77 - 125	22.71	2.24	20	
1,1-Dichloroethene	23.12	1.0	20	0	116	71 - 131	23.04	0.317	20	
1,1-Dichloropropene	25.23	1.0	20	0	126	78 - 125	25.45	0.901	20	S
1,2,3-Trichlorobenzene	23.31	1.0	20	0	117	69 - 129	22.1	5.31	20	
1,2,3-Trichloropropane	24.69	1.0	20	0	123	73 - 122	23.35	5.58	20	S
1,2,4-Trichlorobenzene	23.66	1.0	20	0	118	69 - 130	22.37	5.62	20	
1,2,4-Trimethylbenzene	26.26	1.0	20	0	131	76 - 124	25.22	4.02	20	S
1,2-Dibromo-3-chloropropane	22.44	1.0	20	0	112	62 - 128	20.81	7.53	20	
1,2-Dibromoethane	25.59	1.0	20	0	128	77 - 121	25.44	0.588	20	S
1,2-Dichlorobenzene	24.61	1.0	20	0	123	80 - 119	23.76	3.52	20	S
1,2-Dichloroethane	25.75	1.0	20	0	129	73 - 128	25.48	1.02	20	S
1,2-Dichloropropane	24.75	1.0	20	0	124	78 - 122	24.78	0.143	20	S
1,3,5-Trimethylbenzene	26.32	1.0	20	0	132	75 - 124	25.58	2.86	20	S
1,3-Dichlorobenzene	24.37	1.0	20	0	122	80 - 119	23.33	4.36	20	S
1,3-Dichloropropane	25.46	1.0	20	0	127	80 - 119	24.94	2.04	20	S
1,4-Dichlorobenzene	23.85	1.0	20	0	119	79 - 118	23.26	2.5	20	S
2,2-Dichloropropane	22.69	1.0	20	0	113	60 - 139	22.8	0.477	20	
2-Butanone	48.23	2.0	40	0	121	56 - 143	45.46	5.92	20	
2-Chlorotoluene	25.59	1.0	20	0	128	79 - 122	24.95	2.53	20	S
2-Hexanone	54.29	2.0	40	0	136	57 - 139	52.86	2.68	20	
4-Chlorotoluene	25.92	1.0	20	0	130	78 - 122	25.12	3.12	20	S
4-Isopropyltoluene	26.15	1.0	20	0	131	77 - 127	25.22	3.63	20	S
4-Methyl-2-pentanone	53.35	2.0	40	0	133	67 - 130	51.36	3.81	20	S
Acetone	56.13	2.0	40	0	140	39 - 160	51.25	9.1	20	
Benzene	25.56	1.0	20	0	128	79 - 120	25.09	1.85	20	S
Bromobenzene	24.7	1.0	20	0	123	80 - 120	23.78	3.78	20	S
Bromochloromethane	24.56	1.0	20	0	123	78 - 123	24.02	2.24	20	
Bromodichloromethane	24.72	1.0	20	0	124	79 - 125	24.47	1.04	20	
Bromoform	21.74	1.0	20	0	109	66 - 130	21.34	1.83	20	
Bromomethane	24.74	1.0	20	0	124	53 - 141	24.97	0.929	20	

ALS Houston, US Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18121030

QC BATCH REPORT

Batch ID: R329894 **Instrument: VOA9** **Method: SW8260**

MSD Sample ID: **HS18120913-03MSD** Units: **UG/L** Analysis Date: **24-Dec-2018 15:39**
Client ID: Run ID: **VOA9_329894** SeqNo: **4881358** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Carbon disulfide	43.81	2.0	40	0	110	64 - 133	43.18	1.44	20	
Carbon tetrachloride	23.83	1.0	20	0	119	72 - 136	23.76	0.262	20	
Chlorobenzene	25.13	1.0	20	0	126	82 - 118	24.99	0.573	20	S
Chloroethane	22.25	1.0	20	0	111	60 - 138	21.76	2.2	20	
Chloroform	23.5	1.0	20	0	118	79 - 124	22.96	2.35	20	
Chloromethane	22.78	1.0	20	0	114	50 - 139	22.1	3.04	20	
cis-1,2-Dichloroethene	23.76	1.0	20	0	119	78 - 123	24.28	2.17	20	
cis-1,3-Dichloropropene	22.27	1.0	20	0	111	75 - 124	21.7	2.58	20	
Dibromochloromethane	22.83	1.0	20	0	114	74 - 126	22.33	2.25	20	
Dibromomethane	25.35	1.0	20	0	127	79 - 123	25.07	1.12	20	S
Dichlorodifluoromethane	15.5	1.0	20	0	77.5	32 - 152	14.71	5.21	20	
Ethylbenzene	25.77	1.0	20	0	129	79 - 121	25.65	0.469	20	S
Hexachlorobutadiene	19.88	1.0	20	0	99.4	66 - 134	19.31	2.89	20	
Isopropylbenzene	26.75	1.0	20	0	134	72 - 131	26.47	1.03	20	S
m,p-Xylene	52.36	2.0	40	0	131	80 - 121	51.94	0.81	20	S
Methylene chloride	23.35	2.0	20	0	117	74 - 124	22.91	1.88	20	
Naphthalene	23.92	1.0	20	0	120	61 - 128	22.43	6.43	20	
n-Butylbenzene	25.47	1.0	20	0	127	75 - 128	24.46	4.06	20	
n-Propylbenzene	26.51	1.0	20	0	133	76 - 126	25.91	2.27	20	S
o-Xylene	26.1	1.0	20	0	130	78 - 122	25.64	1.78	20	S
sec-Butylbenzene	26.21	1.0	20	0	131	77 - 126	25.41	3.1	20	S
Styrene	26.53	1.0	20	0	133	78 - 123	26.3	0.883	20	S
tert-Butylbenzene	26.17	1.0	20	0	131	78 - 124	25.39	3	20	S
Tetrachloroethene	24.34	1.0	20	0	122	74 - 129	24.22	0.488	20	
Toluene	25.86	1.0	20	0	129	80 - 121	26.12	0.978	20	S
trans-1,2-Dichloroethene	23.18	1.0	20	0	116	75 - 124	23.07	0.473	20	
trans-1,3-Dichloropropene	21.86	1.0	20	0	109	73 - 127	21.38	2.21	20	
Trichloroethene	25.67	1.0	20	0	128	79 - 123	26.19	2	20	S
Trichlorofluoromethane	22.74	1.0	20	0	114	65 - 141	22.5	1.05	20	
Vinyl chloride	21.67	1.0	20	0	108	58 - 137	21.27	1.89	20	
Surr: 1,2-Dichloroethane-d4	*47.33*	*1.0*	*50*	*0*	*94.7*	*81 - 118*	*47.14*	*0.404*	*20*	
Surr: 4-Bromofluorobenzene	*51.76*	*1.0*	*50*	*0*	*104*	*85 - 114*	*51.68*	*0.153*	*20*	
Surr: Dibromofluoromethane	*45.85*	*1.0*	*50*	*0*	*91.7*	*80 - 119*	*45.74*	*0.237*	*20*	
Surr: Toluene-d8	*53.06*	*1.0*	*50*	*0*	*106*	*89 - 112*	*53.29*	*0.432*	*20*	

ALS Houston, US Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS18121030

QC BATCH REPORT

Batch ID: R329894 **Instrument: VOA9** **Method: SW8260**

The following samples were analyzed in this batch:				
	HS18121030-01	HS18121030-02	HS18121030-03	HS18121030-04
	HS18121030-05			

ALS Houston, US Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: **HS18121030**

QUALIFIERS, ACRONYMS, UNITS

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

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

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
North Carolina	624-2018	31-Dec-2018
Arkansas	88-0356	27-Mar-2019
Texas	T10470231-18-21	30-Apr-2019
North Dakota	R193 2018-2019	30-Apr-2019
Illinois	004438	29-Jun-2019
Louisiana	03087	30-Jun-2019
Kentucky	123043 - 2018	30-Apr-2019
Kansas	E-10352 2018-2019	31-Jul-2019
Oklahoma	2018-156	31-Aug-2019

ALS Houston, US Date: 27-Dec-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Work Order: HS18121030

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS18121030-01	35AWW17_121718	Login	12/18/2018 5:49:38 PM	RPG	MET089
HS18121030-01	35AWW17_121718	Login	12/18/2018 5:49:38 PM	RPG	VOA081
HS18121030-02	35AWW18_121718	Login	12/18/2018 5:49:38 PM	RPG	MET089
HS18121030-02	35AWW18_121718	Login	12/18/2018 5:49:38 PM	RPG	VOA081
HS18121030-03	35AWW18_121718_a	Login	12/18/2018 5:49:38 PM	RPG	VOA081
HS18121030-04	35ASW03_121718	Login	12/18/2018 5:49:38 PM	RPG	MET089
HS18121030-04	35ASW03_121718	Login	12/18/2018 5:49:38 PM	RPG	VOA081
HS18121030-05	Trip Blank	Login	12/18/2018 5:49:38 PM	RPG	VOA081

ALS Houston, US Date: 27-Dec-18

Sample Receipt Checklist

Client Name: Bhate Environmental
Work Order: HS18121030
Date/Time Received: **18-Dec-2018 11:00**
Received by: **JRM**

Checklist completed by: *Raegen Giga* eSignature 18-Dec-2018 Date
Reviewed by: *RJ Modashia* eSignature 19-Dec-2018 Date

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

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
TX1005 solids received in hermetically sealed vials?	Yes ☐	No ☐	N/A ☑
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	1.8c/2.2c uc/c	IR 11	
Cooler(s)/Kit(s):	44410		
Date/Time sample(s) sent to storage:	12/18/2018 18:02		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

bhate ENVIRONMENTAL CONSTRUCTION LIBRARY

1608 13th Avenue South, Suite 300
Birmingham Alabama 35205
Tel: 205-918-4000
Fax: 205-918-4050

Chain of Custody and Analytical Request

Page: ____ of ____

Project/Phase No: NWO1312.0150

COC Number(1): ____

LIMS Number: ____

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / Site 58

Client Name:

Collected by: Scott Beesinger

Sample Analysis Requested (5) / Quality Assurance Samples (6)

Field Sample ID (30 Characters Max)	ERPIMS LOCID (15 Characters Max)	Date Collected (dd-mmm-yyyy)	Time Collected (Military) (hhmm)	Sample Depth (beginning - ending)	SA Code (2)	Sample Number (3)	Sample Matrix (4)	Number of containers	VOC	MEE	TOC	Carbon Dioxide	Total Phosphorous	Total Manganese & Iron	Dissolved Manganese & Iron	Sulfide	Arsenic		Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
35AWW17_121718		17 DEC 2018	0405	-	N		WG	3	X													
35AWW18_121718		17 DEC 2018	0455	-	N		WG	3	X													
35AWW18_121718_a		17 DEC 2018	0955	-	FD		WG	3	X													
35ASW03_121718		17 DEC 2018	1010		N		WG	3	X													
TRIP BLANK		17 DEC 2018			TB		W	2	X													
				-																		
				-																		
				-																		
				-																		
				-																		
				-																		

HS18121030
Bhate Environmental Associates, Inc.
LHAAP-58

COMMENTS:

Cooler 44410 Temp - 1.8 IR11 CF0.4

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1. Scott Beesinger	12/17/18	1430	1. J. Mahan	12/18/18	11:00
2.			2.		
3.			3.		

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: ____ Shipped ____ No.:

Method of Shipment: ____

Fed ____ Ex ____ Airbill ____ Number:

Analytical Lab: ALS 10450 Stancliff Rd, Suite 210 Houston, TX 77099 (281) 530-5656

ATTN: SONIA WEST Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01)

2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-c) Sample, FD = Field Duplicate (-a) Samples, FR = Field Replicate (-b) Samples, EB = Equipment Blank (-d) Samples, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-e)

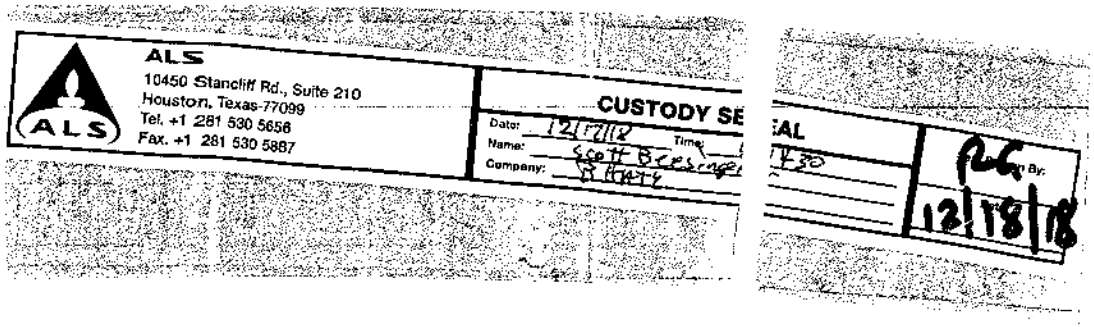
3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)

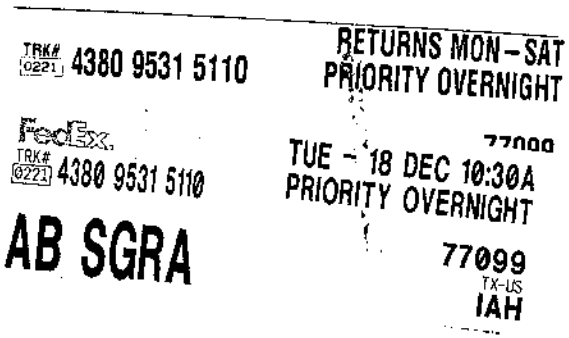
4.) Matrix Codes: GS = Soil Gas, WG = Groundwater, WS = Surface Water, SO = Soil, SE = Sediment, SL = Sludge, SS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blanks

5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each.

6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 10109901 in the Equipment Blank Lot Control

00948091


ALS
10450 Stancliff Rd., Suite 210
Houston, Texas-77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887
CUSTODY SE
Date: 12/17/18
Time:
Name:
Company:
AL
By:
12/18/18


TRK# 0221 4380 9531 5110
RETURNS MON-SAT
PRIORITY OVERNIGHT
FedEx
TRK# 0221 4380 9531 5110
TUE - 18 DEC 10:30A
PRIORITY OVERNIGHT
AB SGRA
77099
TX-US
IAH

HS18121030 8260 Raw Data

ALS WO# HS18121030

MSVOA09 -Logbook

Batch: 34002
Date: 12-21-2018
Method: 8260
Comments:

Analyst: Presenta Cabascango
Reviewer:
Laboratory: Houston

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	12-21-2018 01:25 pm	1.00	50 mL	50 mL	U122101.D	Liquid	Y	NA
	Auto find/purged									
2	VSTD00.25	ICAL1	12-21-2018 01:49 pm	1.00	50 mL	50 mL	U122102.D	Liquid	Y	NA
	0.25 uL cal std/250 mL DI									
3	VSTD00.5	ICAL2	12-21-2018 02:14 pm	1.00	50 mL	50 mL	U122103.D	Liquid	Y	NA
	0.5 uL cal std/250 mL DI									
4	VSTD001	ICAL3	12-21-2018 03:03 pm	1.00	50 mL	50 mL	U122104.D	Liquid	Y	NA
	1 uL cal std/250 mL DI									
5	VSTD002	ICAL4	12-21-2018 03:28 pm	1.00	50 mL	50 mL	U122105.D	Liquid	Y	NA
	2 uL cal std/250 mL DI									
6	VSTD005	ICAL5	12-21-2018 03:52 pm	1.00	50 mL	50 mL	U122106.D	Liquid	Y	NA
	5 uL cal std/250 mL DI									
7	VSTD020	ICAL6	12-21-2018 04:17 pm	1.00	50 mL	50 mL	U122107.D	Liquid	Y	NA
	4 uL cal std/50 mL DI									
8	VSTD050	ICAL7	12-21-2018 04:41 pm	1.00	50 mL	50 mL	U122108.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
9	VSTD100	ICAL8	12-21-2018 05:06 pm	1.00	50 mL	50 mL	U122109.D	Liquid	Y	NA
	20 uL cal std/50 mL DI									
10	VSTD150	ICAL9	12-21-2018 05:31 pm	1.00	50 mL	50 mL	U122110.D	Liquid	Y	NA
	30 uL cal std/50 mL DI									
11	VSTD200	ICAL	12-21-2018 05:55 pm	1.00	50 mL	50 mL	U122111.D	Liquid	Y	NA
	40 uL cal std/50 mL DI									
12	BLANK	SAMP	12-21-2018 06:20 pm	1.00	50 mL	50 mL	U122112.D	Liquid	Y	NA
	Cleanup blk									
13	VSTD050	ICV	12-21-2018 06:45 pm	1.00	50 mL	50 mL	U122113.D	Liquid	Y	NA
	10 uL ICV std/50 mL DI									
14	BLANK	SAMP	12-21-2018 07:09 pm	1.00	50 mL	50 mL	U122114.D	Liquid	Y	NA
15	VLCSW-1812021	LCS	12-21-2018 07:34 pm	1.00	50 mL	50 mL	U122115.D	Liquid	Y	NA
	4 uL ICV std/50 mL DI									
16	BLANK	SAMP	12-21-2018 07:59 pm	1.00	50 mL	50 mL	U122116.D	Liquid	Y	NA
17	VBLKW-181221	MBLK	12-21-2018 08:24 pm	1.00	50 mL	50 mL	U122117.D	Liquid	Y	NA
18	HS18120782-01	SAMP	12-21-2018 08:48 pm	1.00	50 mL	50 mL	U122118.D	Liquid	Y	<2
19	HS18121172-01	SAMP	12-21-2018 09:13 pm	1.00	50 mL	50 mL	U122119.D	Liquid	Y	<2
20	HS18120947-01	SAMP	12-21-2018 09:38 pm	10.00	5 mL	50 mL	U122120.D	Liquid	Y	<2
21	HS18121172-01MS	MS	12-21-2018 10:03 pm	1.00	50 mL	50 mL	U122121.D	Liquid	Y	<2
	3.5 uL cal std/40 mL Sample									
22	HS18121172-01MSD	MSD	12-21-2018 10:27 pm	1.00	50 mL	50 mL	U122122.D	Liquid	Y	<2
	3.5 uL cal std/40 mL Sample									
23	HS18121172-02	SAMP	12-21-2018 10:52 pm	1.00	50 mL	50 mL	U122123.D	Liquid	Y	<2
24	HS18121172-03	SAMP	12-21-2018 11:17 pm	1.00	50 mL	50 mL	U122124.D	Liquid	Y	<2
25	HS18121172-04	SAMP	12-21-2018 11:42 pm	1.00	50 mL	50 mL	U122125.D	Liquid	Y	<2
26	HS18121172-05	SAMP	12-22-2018 12:06 am	1.00	50 mL	50 mL	U122126.D	Liquid	Y	<2
27	HS18121172-06	SAMP	12-22-2018 12:31 am	1.00	50 mL	50 mL	U122127.D	Liquid	Y	<2

MSVOA09 -Logbook

Chemical	Value
SURR SPK ID	30502-52-03
IS ID	30502-52-04
ICV STD ID	30603-46-01
LCS/MS ID	30603-46-01
CAL STD ID	30502-56-01/02
BFB ID	30502-52-03

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS18121030

Matrix Spike - Sample No.: VSTD050

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
cis-1,3-Dichloropropene	50.00	48.91	98	80-120
trans-1,3-Dichloroprope	50.00	48.93	98	80-120
1,3-Dichlorobenzene	50.00	48.27	96	80-120
2,2-Dichloropropane	50.00	53.09	106	80-120
1,1-Dichloropropene	50.00	47.46	95	80-120
Dibromomethane	50.00	50.89	102	80-120
1,2-Dibromoethane	50.00	51.16	102	80-120
trans-1,2-Dichloroethen	50.00	48.02	96	80-120
1,1,1,2-Tetrachloroetha	50.00	48.43	97	80-120
1,1,1-Trichloroethane	50.00	49.36	99	80-120
1,1,2,2-Tetrachloroetha	50.00	49.55	99	80-120
Freon TF	50.00	45.07	90	80-120
1,1,2-Trichloroethane	50.00	49.30	99	80-120
1,1-Dichloroethane	50.00	47.96	96	80-120
1,1-Dichloroethene	50.00	45.82	92	80-120
Trichlorofluoromethane	50.00	45.85	92	80-120
1,2,3-Trichlorobenzene	50.00	47.80	96	80-120
Toluene	50.00	49.27	98	80-120
1,2,4-Trichlorobenzene	50.00	50.37	101	80-120
1,2,4-Trimethylbenzene	50.00	50.13	100	80-120
Tetrachloroethene	50.00	45.93	92	80-120
Trichloroethene	50.00	48.84	98	80-120
1,2-Dichlorobenzene	50.00	48.36	97	80-120
1,2-Dichloroethane	50.00	50.35	101	80-120
1,2-Dichloropropane	50.00	49.19	98	80-120
1,3,5-Trimethylbenzene	50.00	50.06	100	80-120
1,3-Dichloropropane	50.00	49.40	99	80-120
1,4-Dichlorobenzene	50.00	47.08	94	80-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

_____

FORM III VOA

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS18121030

Matrix Spike - Sample No.: VSTD050

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
2-Butanone	100.00	104.35	104	80-120
2-Chlorotoluene	50.00	49.32	99	80-120
2-Hexanone	100.00	109.16	109	80-120
4-Chlorotoluene	50.00	49.71	99	80-120
tert-Butylbenzene	50.00	47.93	96	80-120
4-Methyl-2-Pentanone	100.00	106.57	106	80-120
Acetone	100.00	114.45	114	80-120
Benzene	50.00	48.82	98	80-120
Bromobenzene	50.00	49.77	100	80-120
Bromochloromethane	50.00	56.76	114	80-120
Bromodichloromethane	50.00	52.06	104	80-120
Bromoform	50.00	47.92	96	80-120
Bromomethane	50.00	54.05	108	80-120
Carbon Disulfide	100.00	96.00	96	80-120
Carbon Tetrachloride	50.00	44.88	90	80-120
Chlorobenzene	50.00	48.25	96	80-120
Chloroethane	50.00	46.15	92	80-120
Chloroform	50.00	48.45	97	80-120
Chloromethane	50.00	48.96	98	80-120
cis-1,2-Dichloroethene	50.00	48.93	98	80-120
Dibromochloromethane	50.00	48.57	97	80-120
Dichlorodifluoromethane	50.00	46.21	92	80-120
Ethylbenzene	50.00	49.30	99	80-120
Hexachlorobutadiene	50.00	46.17	92	80-120
Isopropylbenzene	50.00	49.07	98	80-120
m,p-Xylenes	100.00	99.88	100	80-120
Methylene Chloride	50.00	49.75	100	80-120
n-Butylbenzene	50.00	46.94	94	80-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

_____

FORM III VOA

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS18121030

Matrix Spike - Sample No.: VSTD050

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
n-Propylbenzene	50.00	49.11	98	80-120
Naphthalene	50.00	49.46	99	80-120
o-Xylene	50.00	49.89	100	80-120
sec-Butylbenzene	50.00	47.69	95	80-120
Styrene	50.00	52.73	105	80-120
Vinyl Chloride	50.00	46.02	92	80-120
1,2,3-Trichloropropane	50.00	53.26	106	80-120
p-Isopropyltoluene	50.00	49.19	98	80-120
1,2-Dibromo-3-Chloropro	50.00	49.92	100	80-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

_____

FORM III VOA

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS18121030

Lab File ID: U122101 BFB Injection Date: 12/21/18

Instrument ID: VOA9 BFB Injection Time: 1325

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	19.6
75	30.0 - 60.0% of mass 95	50.4
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.0
173	Less than 2.0% of mass 174	0.5 (0.8)1
174	Greater than 50.0% of mass 95	66.8
175	5.0 - 9.0% of mass 174	5.1 (7.7)1
176	95.0 - 101.0% of mass 174	63.8 (95.6)1
177	5.0 - 9.0% of mass 176	4.5 (7.0)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD00.25	VSTD00.25	U122102	12/21/18	1349
02	VSTD00.5	VSTD00.5	U122103	12/21/18	1414
03	VSTD001	VSTD001	U122104	12/21/18	1503
04	VSTD002	VSTD002	U122105	12/21/18	1528
05	VSTD005	VSTD005	U122106	12/21/18	1552
06	VSTD020	VSTD020	U122107	12/21/18	1617
07	VSTD050	VSTD050	U122108	12/21/18	1641
08	VSTD100	VSTD100	U122109	12/21/18	1706
09	VSTD150	VSTD150	U122110	12/21/18	1731
10	VSTD200	VSTD200	U122111	12/21/18	1755
11	VSTD050	VSTD050	U122113	12/21/18	1845
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS18121030

Instrument ID: VOA9 Calibration Date(s): 12/21/18 12/21/18

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1349 1755

LAB FILE ID: RF0.25: U122102 RF0.5: U122103 RF1: U122104
RF2: U122105 RF5: U122106 RF20: U122107

COMPOUND	RF0.25	RF0.5	RF1	RF2	RF5	RF20
cis-1,3-Dichloropropene		2152	7273	13732	38403	162454
trans-1,3-Dichloropropene		1633	5668	10646	30725	135347
1,3-Dichlorobenzene		1.191	1.700	1.605	1.568	1.456
2,2-Dichloropropane		0.485	0.763	0.625	0.645	0.634
1,1-Dichloropropene		0.322	0.521	0.477	0.458	0.439
Dibromomethane		0.143	0.229	0.212	0.217	0.208
1,2-Dibromoethane		0.251	0.393	0.345	0.364	0.358
trans-1,2-Dichloroethene		0.432	0.724	0.620	0.614	0.598
1,1,1,2-Tetrachloroethane		1272	4208	8522	21878	89389
1,1,1-Trichloroethane		0.521	0.866	0.775	0.824	0.806
1,1,2,2-Tetrachloroethane		0.818	1.359	1.245	1.216	1.139
Freon TF		0.306	0.503	0.450	0.439	0.408
1,1,2-Trichloroethane		0.224	0.351	0.317	0.320	0.302
1,1-Dichloroethane		0.726	1.305	1.174	1.154	1.100
1,1-Dichloroethene		0.403	0.563	0.526	0.486	0.447
Trichlorofluoromethane		1919	7922	14026	37144	130957
1,2,3-Trichlorobenzene		1324	6631	12385	31113	126752
Toluene		1.131	1.662	1.581	1.624	1.525
1,2,4-Trichlorobenzene		0.721	1.015	0.905	0.905	0.901
1,2,4-Trimethylbenzene		1.826	2.823	2.656	2.819	2.701
Tetrachloroethene		0.219	0.326	0.277	0.272	0.254
Trichloroethene		0.245	0.382	0.322	0.344	0.317
1,2-Dichlorobenzene		1.166	1.777	1.606	1.586	1.444
1,2-Dichloroethane		2385	8970	15708	41415	149131
1,2-Dichloropropane		0.265	0.415	0.367	0.371	0.353
1,3,5-Trimethylbenzene		1.672	2.689	2.445	2.682	2.616
1,3-Dichloropropane		0.478	0.748	0.679	0.708	0.655
1,4-Dichlorobenzene		1.357	1.906	1.683	1.662	1.508
2-Butanone		2109	6369	11299	29605	119433
2-Chlorotoluene		1.700	2.636	2.392	2.490	2.333
2-Hexanone		0.182	0.278	0.270	0.285	0.300
4-Chlorotoluene		1.938	2.990	2.793	2.876	2.698
tert-Butylbenzene		1.429	2.338	2.197	2.340	2.218
4-Methyl-2-Pentanone		0.264	0.428	0.396	0.407	0.423
Acetone		3366	5582	8219	19230	73380
Benzene		0.975	1.562	1.399	1.435	1.337
Bromobenzene		0.564	0.890	0.814	0.813	0.765
Bromochloromethane		773	2865	5148	13786	51515
Bromodichloromethane		0.250	0.393	0.362	0.383	0.380
Bromoform		762	2343	4574	12962	53922
Bromomethane		822	2293	4588	12245	47148
Carbon Disulfide		1.468	2.043	1.806	1.808	1.714
Carbon Tetrachloride		1510	5463	10077	26439	104210
Chlorobenzene		0.762	1.142	1.012	1.020	0.962

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS1812103

Instrument ID: VOA9 Calibration Date(s): 12/21/18 12/21/18

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1349 1755

LAB FILE ID: RF0.25: U122102 RF0.5: U122103 RF1: U122104
RF2: U122105 RF5: U122106 RF20: U122107

COMPOUND	RF0.25	RF0.5	RF1	RF2	RF5	RF20
Chloroethane		2753	3213	8179	22172	73150
Chloroform		0.705	1.253	1.110	1.148	1.060
Chloromethane		1695	4689	8693	20682	79075
cis-1,2-Dichloroethene		0.459	0.806	0.684	0.699	0.678
Dibromochloromethane		1194	4051	7740	20846	89836
Dichlorodifluoromethane		2033	6583	11371	26580	98486
Ethylbenzene		0.353	0.556	0.512	0.523	0.497
Hexachlorobutadiene		0.453	0.398	0.322	0.324	0.310
Isopropylbenzene		0.918	1.542	1.455	1.530	1.485
m,p-Xylenes		0.432	0.668	0.621	0.648	0.629
Methylene Chloride		3346	8113	13726	31487	109403
n-Butylbenzene		1.993	2.818	2.596	2.666	2.520
n-Propylbenzene		2.596	4.144	3.755	4.032	3.835
Naphthalene		5535	16505	32897	91300	413229
o-Xylene		0.413	0.703	0.613	0.642	0.637
sec-Butylbenzene		2.047	3.385	3.201	3.334	3.199
Styrene		0.640	1.035	0.996	1.084	1.092
Vinyl Chloride		1815	6308	12656	29272	111713
1,2,3-Trichloropropane		0.777	1.295	1.203	1.184	1.156
p-Isopropyltoluene		1.912	2.733	2.516	2.786	2.704
1,2-Dibromo-3-Chloropropane		272	861	1910	4931	22196
1,2-Dichloroethane-d4		8601	10907	17881	38943	131494
Dibromofluoromethane		6036	8005	12720	28568	98984
Toluene-d8		27052	32175	54444	117010	408521
4-Bromofluorobenzene		9627	12547	20092	42900	153183

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS1812103

Instrument ID: VOA9 Calibration Date(s): 12/21/18 12/21/18

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1349 1755

LAB FILE ID: RF50: U122108 RF100: U122109 RF150: U122110
RF200: U122111

COMPOUND	RF50	RF100	RF150	RF200
cis-1,3-Dichloropropene	449225	944095	1468956	1986544
trans-1,3-Dichloropropene	381258	811224	1271771	1721394
1,3-Dichlorobenzene	1.440	1.476	1.485	1.441
2,2-Dichloropropane	0.635	0.683	0.695	0.673
1,1-Dichloropropene	0.427	0.455	0.457	0.448
Dibromomethane	0.207	0.207	0.205	0.205
1,2-Dibromoethane	0.349	0.345	0.342	0.340
trans-1,2-Dichloroethene	0.564	0.579	0.576	0.559
1,1,1,2-Tetrachloroethane	235446	493177	766622	1032567
1,1,1-Trichloroethane	0.788	0.846	0.852	0.826
1,1,2,2-Tetrachloroethane	1.127	1.090	1.080	1.060
Freon TF	0.397	0.445	0.445	0.434
1,1,2-Trichloroethane	0.296	0.295	0.290	0.286
1,1-Dichloroethane	1.058	1.079	1.066	1.028
1,1-Dichloroethene	0.441	0.480	0.472	0.461
Trichlorofluoromethane	330010	753769	1146930	1561606
1,2,3-Trichlorobenzene	334600	694931	1085027	1453309
Toluene	1.488	1.490	1.464	1.421
1,2,4-Trichlorobenzene	0.926	0.982	1.001	0.974
1,2,4-Trimethylbenzene	2.661	2.738	2.712	2.610
Tetrachloroethene	0.243	0.257	0.257	0.251
Trichloroethene	0.311	0.321	0.328	0.321
1,2-Dichlorobenzene	1.442	1.463	1.459	1.417
1,2-Dichloroethane	376591	747337	1129116	1504782
1,2-Dichloropropane	0.350	0.357	0.353	0.348
1,3,5-Trimethylbenzene	2.579	2.685	2.665	2.582
1,3-Dichloropropane	0.642	0.630	0.620	0.613
1,4-Dichlorobenzene	1.482	1.511	1.509	1.472
2-Butanone	304044	587152	880878	1199902
2-Chlorotoluene	2.295	2.323	2.315	2.248
2-Hexanone	0.302	0.295	0.297	0.293
4-Chlorotoluene	2.665	2.704	2.694	2.601
tert-Butylbenzene	2.197	2.301	2.300	2.225
4-Methyl-2-Pentanone	0.427	0.421	0.419	0.415
Acetone	187964	331678	520533	723113
Benzene	1.319	1.335	1.317	1.294
Bromobenzene	0.765	0.778	0.792	0.773
Bromochloromethane	129496	244429	348533	453685
Bromodichloromethane	0.388	0.406	0.411	0.408
Bromoform	154855	331336	522892	718878
Bromomethane	117780	281859	444174	585856
Carbon Disulfide	1.656	1.742	1.730	1.622
Carbon Tetrachloride	274507	601960	939611	1268610
Chlorobenzene	0.940	0.949	0.943	0.916

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS1812103

Instrument ID: VOA9 Calibration Date(s): 12/21/18 12/21/18

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1349 1755

LAB FILE ID: RF50: U122108 RF100: U122109 RF150: U122110
RF200: U122111

COMPOUND	RF50	RF100	RF150	RF200
Chloroethane	179707	384958	684109	859472
Chloroform	1.027	1.035	1.016	0.978
Chloromethane	197328	441603	746873	1095269
cis-1,2-Dichloroethene	0.650	0.655	0.653	0.630
Dibromochloromethane	242061	512845	791728	1081017
Dichlorodifluoromethane	248322	553841	873891	1151588
Ethylbenzene	0.490	0.504	0.504	0.495
Hexachlorobutadiene	0.324	0.352	0.356	
Isopropylbenzene	1.450	1.506	1.482	1.428
m,p-Xylenes	0.612	0.626	0.616	0.600
Methylene Chloride	274258	554902	841220	1131189
n-Butylbenzene	2.535	2.661	2.637	
n-Propylbenzene	3.794	3.919	3.867	3.682
Naphthalene	1107938	2231968	3430934	4589381
o-Xylene	0.622	0.631	0.627	0.612
sec-Butylbenzene	3.182	3.378	3.341	3.190
Styrene	1.084	1.087	1.074	1.044
Vinyl Chloride	283791	629175	1000865	1348117
1,2,3-Trichloropropane	1.210	1.222	1.246	1.245
p-Isopropyltoluene	2.733	2.856	2.837	2.735
1,2-Dibromo-3-Chloropropane	61793	125814	200384	274280
1,2-Dichloroethane-d4	320796	635081	949266	1274051
Dibromofluoromethane	245007	495628	745399	1006329
Toluene-d8	1010127	2029223	3016887	4010125
4-Bromofluorobenzene	382581	764798	1153874	1540801

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS1812103

Instrument ID: VOA9 Calibration Date(s): 12/21/18 12/21/18

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1349 1755

COMPOUND	CURVE	COEFFICENTS A0	A1	A2	%RSD OR R^2	MAX %RSD OR R^2
cis-1,3-Dichloropropene	LINR	2.529e-002	1.70725996		0.9997580	0.9900000
trans-1,3-Dichloropropene	LINR	3.3e-002	1.96902158		0.9995927	0.9900000
1,3-Dichlorobenzene	AVRG		1.48472992		9.494	20.000
2,2-Dichloropropane	AVRG		0.64891526		11.509	20.000
1,1-Dichloropropene	AVRG		0.44488137		11.968	20.000
Dibromomethane	AVRG		0.20390294		11.744	20.000
1,2-Dibromoethane	AVRG		0.34310644		11.102	20.000
trans-1,2-Dichloroethene	AVRG		0.58526565		12.993	20.000
1,1,1,2-Tetrachloroethane	LINR	1.17e-002	3.11489679		0.9998991	0.9900000
1,1,1-Trichloroethane	AVRG		0.78949465		13.294	20.000
1,1,2,2-Tetrachloroethane	AVRG		1.12601556		13.302	20.000
Freon TF	AVRG		0.42507305		12.611	20.000
1,1,2-Trichloroethane	AVRG		0.29788801		11.475	20.000
1,1-Dichloroethane	AVRG		1.07678494		14.456	20.000
1,1-Dichloroethene	AVRG		0.47540572		9.911	20.000
Trichlorofluoromethane	LINR	1.25e-002	1.19826122		0.9992799	0.9900000
1,2,3-Trichlorobenzene	LINR	1.266e-002	1.04791842		0.9997493	0.9900000
Toluene	AVRG		1.48733738		10.393	20.000
1,2,4-Trichlorobenzene	AVRG		0.92571167		9.562	20.000
1,2,4-Trimethylbenzene	AVRG		2.61651384		11.645	20.000
Tetrachloroethene	AVRG		0.26176272		11.269	20.000
Trichloroethene	AVRG		0.32119921		11.118	20.000
1,2-Dichlorobenzene	AVRG		1.48461871		11.211	20.000
1,2-Dichloroethane	LINR	-1.47e-002	2.25247271		0.9997943	0.9900000
1,2-Dichloropropane	AVRG		0.35329723		11.023	20.000
1,3,5-Trimethylbenzene	AVRG		2.51283681		12.919	20.000
1,3-Dichloropropane	AVRG		0.64163858		11.739	20.000
1,4-Dichlorobenzene	AVRG		1.56545234		10.298	20.000
2-Butanone	LINR	-4.87e-002	3.13274512		0.9994657	0.9900000
2-Chlorotoluene	AVRG		2.30373097		11.091	20.000
2-Hexanone	AVRG		0.27803053		13.505	20.000
4-Chlorotoluene	AVRG		2.66220268		11.134	20.000
tert-Butylbenzene	AVRG		2.17187412		13.092	20.000
4-Methyl-2-Pentanone	AVRG		0.40004668		13.000	20.000
Acetone	LINR	-6.05e-002	5.27806885		0.9991782	0.9900000
Benzene	AVRG		1.33049482		11.804	20.000
Bromobenzene	AVRG		0.77253354		11.330	20.000
Bromochloromethane	LINR	-6.22e-002	4.05290698		0.9951390	0.9900000
Bromodichloromethane	AVRG		0.37570006		13.249	20.000
Bromoform	LINR	3.523e-002	4.49538839		0.9994690	0.9900000
Bromomethane	LINR	2.677e-002	3.15194291		0.9981331	0.9900000
Carbon Disulfide	AVRG		1.73224763		9.031	20.000
Carbon Tetrachloride	LINR	2.798e-002	2.67309140		0.9994430	0.9900000
Chlorobenzene	AVRG		0.96069061		10.497	20.000

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS1812103

Instrument ID: VOA9 Calibration Date(s): 12/21/18 12/21/18

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1349 1755

COMPOUND	CURVE	COEFFICENTS A0	A1	A2	%RSD OR R^2	MAX %RSD OR R^2
Chloroethane	2ORDR	9.363e-003	2.27118996	-8.34e-002	0.9953360	0.9900000
Chloroform	AVRG		1.03699562		14.439	20.000
Chloromethane	LINR	6.638e-002	1.75757606		0.9946541	0.9900000
cis-1,2-Dichloroethene	AVRG		0.65721728		13.730	20.000
Dibromochloromethane	LINR	1.95e-002	2.98429229		0.9998675	0.9900000
Dichlorodifluoromethane	LINR	9.706e-003	1.60963706		0.9988360	0.9900000
Ethylbenzene	AVRG		0.49273054		11.389	20.000
Hexachlorobutadiene	AVRG		0.35465839		13.679	20.000
Isopropylbenzene	AVRG		1.42182513		13.532	20.000
m,p-Xylenes	AVRG		0.60575037		11.285	20.000
Methylene Chloride	LINR	-2.41e-002	1.65721813		0.9996145	0.9900000
n-Butylbenzene	AVRG		2.55335964		9.575	20.000
n-Propylbenzene	AVRG		3.73602785		12.044	20.000
Naphthalene	2ORDR	1.313e-002	0.32140252	9.017e-004	0.9999007	0.9900000
o-Xylene	AVRG		0.61109521		12.917	20.000
sec-Butylbenzene	AVRG		3.13985879		13.327	20.000
Styrene	AVRG		1.01526757		14.203	20.000
Vinyl Chloride	LINR	1.938e-002	1.38661185		0.9992348	0.9900000
1,2,3-Trichloropropane	AVRG		1.17088717		13.058	20.000
p-Isopropyltoluene	AVRG		2.64580193		11.042	20.000
1,2-Dibromo-3-Chloropropane	LINR	2.904e-002	5.59224209		0.9995363	0.9900000
1,2-Dichloroethane-d4	LINR	-4.34e-002	1.47435424		0.9993295	0.9900000
Dibromofluoromethane	LINR	-3.06e-002	1.86777807		0.9996249	0.9900000
Toluene-d8	LINR	-3.57e-002	0.80216996		0.9994439	0.9900000
4-Bromofluorobenzene	LINR	-2.86e-002	2.09274699		0.9997553	0.9900000

FORM VI VOA

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122101.D

Date : 21-DEC-2018 13:25

Client ID: BFB

Instrument: VOA9.i

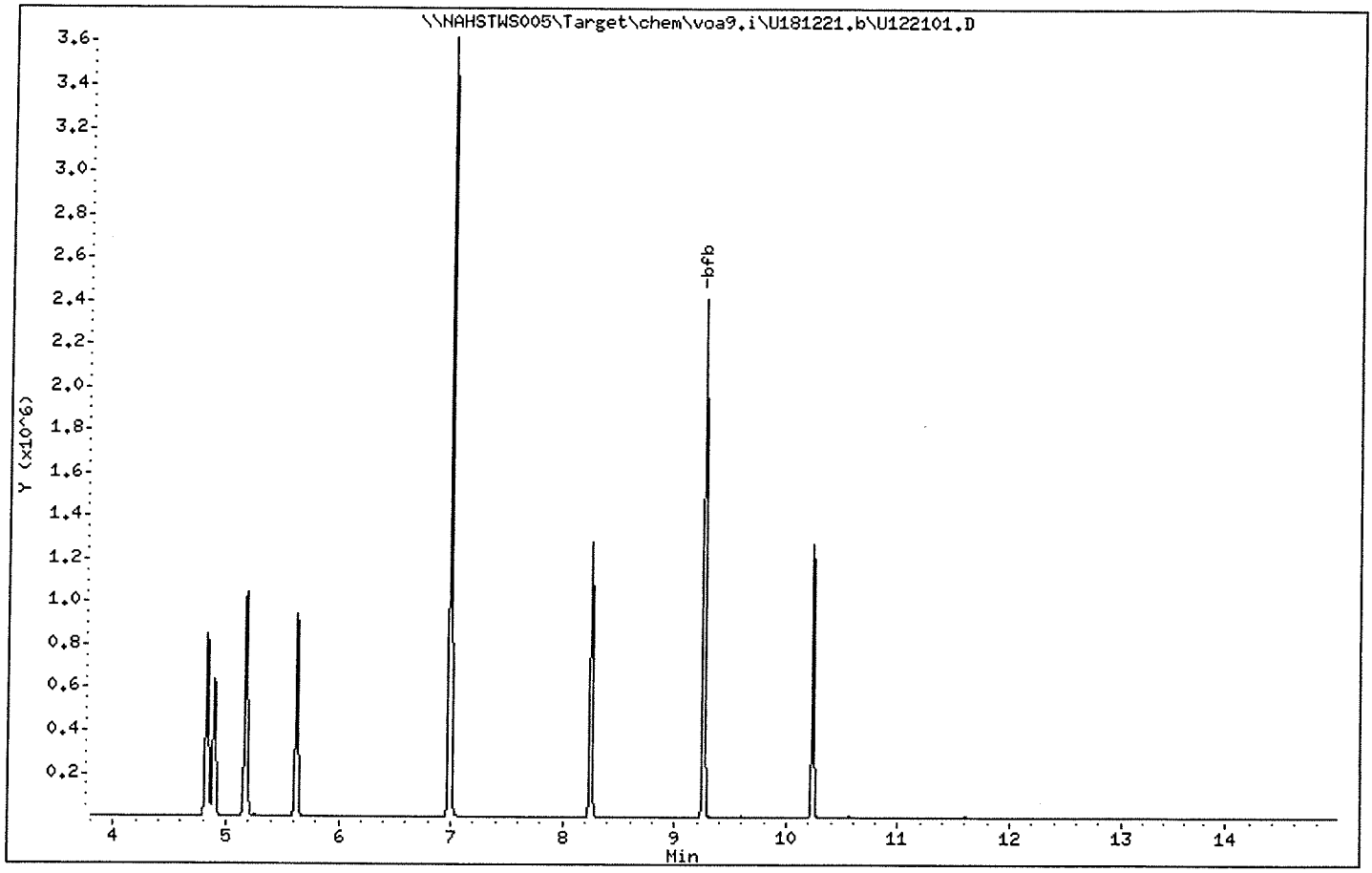
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122101.D

Date : 21-DEC-2018 13:25

Client ID: BFB

Instrument: VOA9.i

Sample Info: BFB;BFB;3;;BFB

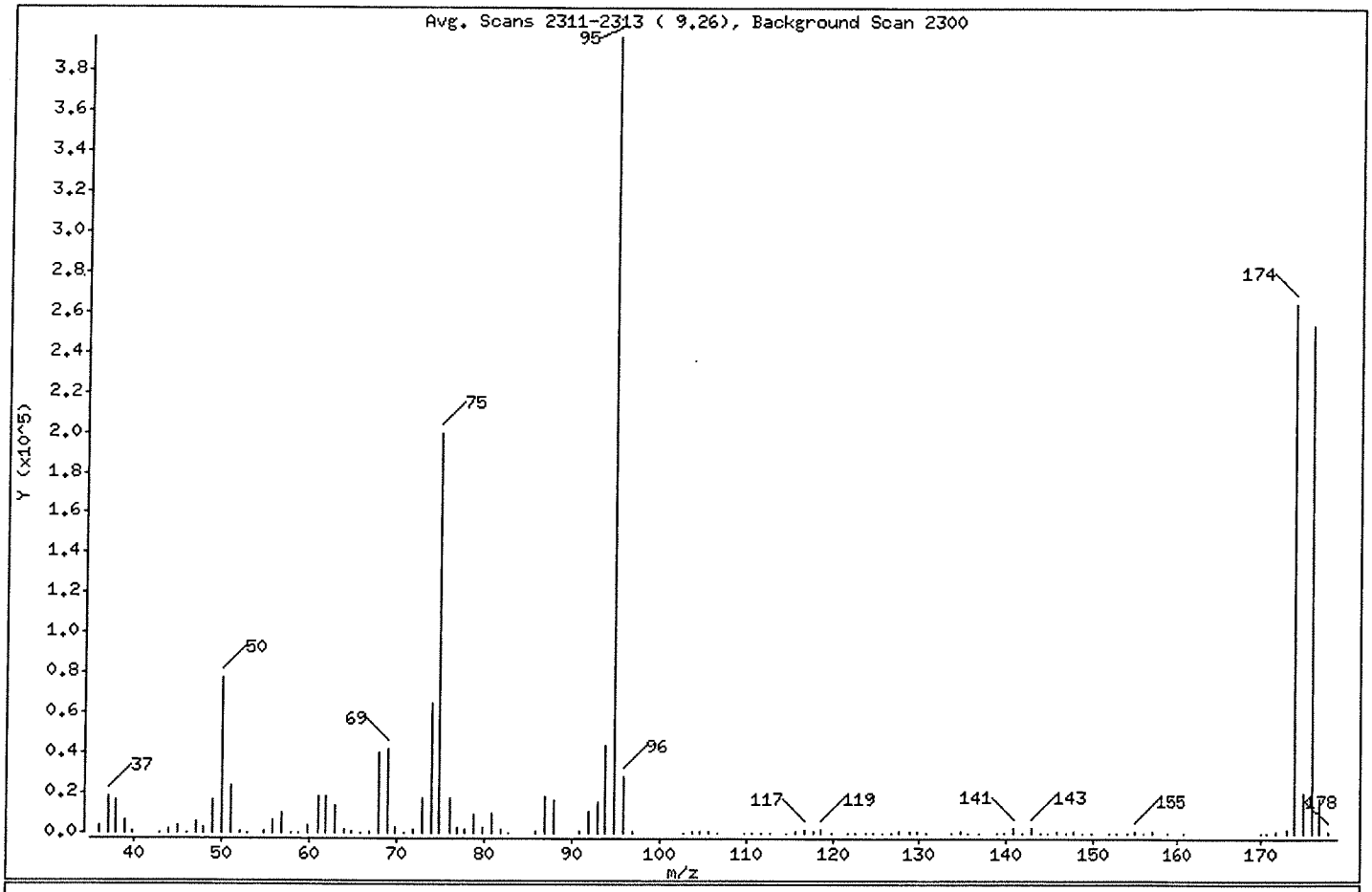
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	19.64
75	30.00 - 60.00% of mass 95	50.36
96	5.00 - 9.00% of mass 95	7.02
173	Less than 2.00% of mass 174	0.53 (0.79)
174	Greater than 50.00% of mass 95	66.76
175	5.00 - 9.00% of mass 174	5.12 (7.67)
176	95.00 - 101.00% of mass 174	63.79 (95.55)
177	5.00 - 9.00% of mass 176	4.47 (7.01)

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122101.D

Date : 21-DEC-2018 13:25

Client ID: BFB

Instrument: VOA9.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

Data File: U122101.D

Spectrum: Avg. Scans 2311-2313 (9.26), Background Scan 2300

Location of Maximum: 94.95

Number of points: 113

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	3522	67.90	40024	105.80	1268	141.70	302
37.00	18528	68.90	41568	106.80	285	142.80	2909
38.00	16159	69.90	3074	109.80	127	143.80	180
39.00	6598	70.90	134	110.70	307	144.70	380
39.90	601	71.90	2102	111.70	156	145.70	457
42.90	115	73.00	17344	112.80	260	146.70	229
43.90	2066	73.90	64968	114.70	321	147.70	676
45.00	3408	74.90	199680	115.70	1039	148.60	185
46.10	284	76.00	17352	116.80	1890	149.70	381
47.00	5059	76.90	2402	117.70	1164	151.70	195
47.90	2352	77.80	1696	118.70	1600	152.70	221
49.00	16317	78.90	8933	119.80	55	153.80	245
50.00	77856	79.90	2552	121.70	99	154.70	869
51.00	23912	80.90	9833	122.70	71	155.70	141
52.00	1198	81.90	1903	123.80	148	156.70	599
52.90	102	82.80	214	124.70	101	158.60	297
54.90	806	85.90	533	125.70	152	160.70	273
55.90	6021	86.90	18088	126.70	123	169.90	51
56.90	10148	87.90	16848	127.70	1127	170.60	105
57.90	434	90.80	1233	128.80	534	171.70	1051
58.70	68	91.90	10521	129.70	1152	172.80	2098
59.90	3925	92.90	15269	130.70	419	173.70	264704
61.00	18160	93.90	43328	133.70	53	174.70	20304
61.90	18216	94.90	396480	134.70	496	175.70	252928
63.00	13327	95.90	27824	135.60	96	176.70	17720
64.00	1507	96.90	709	136.70	369	177.70	520
64.90	816	102.80	137	138.90	62		
65.80	130	103.80	1364	139.70	200		
67.00	910	104.70	463	140.80	2707		

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122102.D Page 1
Report Date: 28-Jan-2019 11:36

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122102.D
Lab Smp Id: VSTD00.25 Client Smp ID: VSTD00.25
Inj Date : 21-DEC-2018 13:49
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD00.25;VSTD00.25;1;1;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 13:49 Cal File: U122102.D
Als bottle: 2 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

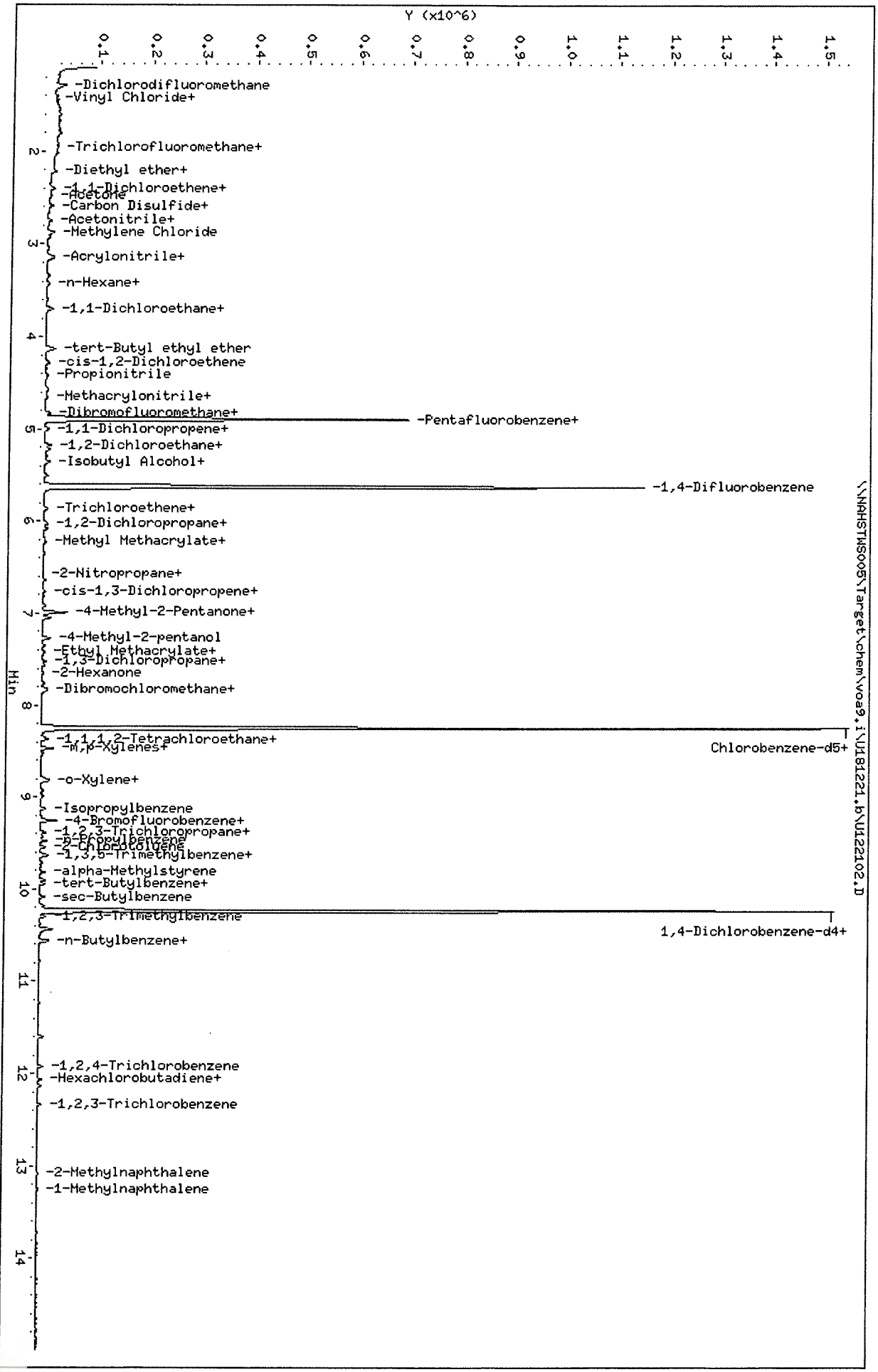
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.894	4.890	(1.000)	428138	50.0000	
* 36 1,4-Difluorobenzene	114	5.625	5.625	(1.000)	818709	50.0000	
* 47 Chlorobenzene-d5	117	8.249	8.249	(1.000)	747851	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	340535	50.0000	
$ 30 Dibromofluoromethane	113	4.830	4.826	(0.987)	4885	0.25000	(a)
$ 35 1,2-Dichloroethane-d4	65	5.175	5.171	(1.057)	7874	0.25000	(a)
$ 48 Toluene-d8	98	6.986	6.989	(0.847)	25629	0.25000	(a)
$ 69 4-Bromofluorobenzene	95	9.257	9.257	(1.122)	9480	0.25000	(a)
60 1,1,1,2-Tetrachloroethane	131	8.350	8.350	(1.012)	1214	0.25000	0.83(a)
31 1,1,1-Trichloroethane	97	4.826	4.826	(0.986)	2037	0.25000	0.30(a)
138 Freon TF	101	2.401	2.394	(0.491)	1292	0.25000	0.35(a)
53 1,1,2-Trichloroethane	83	7.421	7.421	(0.900)	1492	0.25000	0.33(a)
22 1,1-Dichloroethane	63	3.601	3.597	(0.736)	2808	0.25000	0.30(Ta)
11 1,1-Dichloroethene	96	2.397	2.394	(0.490)	1606	0.25000	0.39(a)
32 1,1-Dichloropropene	75	5.003	5.003	(0.889)	2559	0.25000	0.35(a)
93 1,2,3-Trichlorobenzene	180	12.335	12.335	(1.205)	2119	0.25000	0.95(a)
71 1,2,3-Trichloropropane	75	9.426	9.430	(0.921)	2311	0.25000	0.28(a)
90 1,2,4-Trichlorobenzene	180	11.923	11.926	(1.165)	1867	0.25000	0.29(a)
79 1,2,4-Trimethylbenzene	105	9.940	9.943	(0.971)	5702	0.25000	0.31(a)
57 1,2-Dibromoethane	107	7.852	7.852	(0.952)	1463	0.25000	0.28(a)
88 1,2-Dichlorobenzene	146	10.573	10.573	(1.033)	3604	0.25000	0.35(a)
33 1,2-Dichloroethane	62	5.254	5.250	(0.934)	2468	0.25000	(a)
42 1,2-Dichloropropane	63	6.079	6.078	(1.081)	1752	0.25000	0.30(a)

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122102.D Page 2
Report Date: 28-Jan-2019 11:36

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
75 1,3,5-Trimethylbenzene	105	9.625	9.628	(0.940)	5173	0.25000	0.30(a)
83 1,3-Dichlorobenzene	146	10.180	10.180	(0.995)	3530	0.25000	0.34(a)
54 1,3-Dichloropropane	76	7.563	7.563	(0.917)	3033	0.25000	0.31(a)
84 1,4-Dichlorobenzene	146	10.255	10.258	(1.002)	4184	0.25000	0.39(a)
76 2-Chlorotoluene	91	9.546	9.550	(0.933)	5370	0.25000	0.34(a)
52 2-Hexanone	43	7.649	7.653	(0.927)	2221	0.50000	0.53(a)
77 4-Chlorotoluene	91	9.640	9.640	(0.942)	6065	0.25000	0.33(a)
82 p-Isopropyltoluene	119	10.210	10.213	(0.997)	5637	0.25000	0.31(a)
45 4-Methyl-2-Pentanone	43	6.914	6.914	(0.838)	3388	0.50000	0.56(a)
10 Acetone	43	2.480	2.476	(0.507)	3620	0.50000	(a)
37 Benzene	78	5.216	5.216	(0.927)	7659	0.25000	0.35(a)
74 Bromobenzene	156	9.381	9.385	(0.917)	1549	0.25000	0.29(a)
19 Carbon Disulfide	76	2.588	2.585	(0.529)	12805	0.50000	0.86(a)
34 Carbon Tetrachloride	117	4.988	4.991	(0.887)	1501	0.25000	1.64(a)
59 Chlorobenzene	112	8.272	8.275	(1.003)	5314	0.25000	0.36(a)
28 Chloroform	83	4.654	4.654	(0.951)	3005	0.25000	0.33(a)
27 cis-1,2-Dichloroethene	96	4.283	4.283	(0.875)	1960	0.25000	0.34(a)
46 cis-1,3-Dichloropropene	75	6.757	6.757	(1.201)	2017	0.25000	1.47(a)
55 Dibromochloromethane	129	7.758	7.758	(0.940)	1084	0.25000	1.19(a)
2 Dichlorodifluoromethane	85	1.201	1.198	(0.246)	2264	0.25000	0.91(a)
61 Ethylbenzene	106	8.369	8.373	(1.015)	2474	0.25000	0.33(a)
91 Hexachlorobutadiene	225	12.061	12.065	(1.178)	1019	0.25000	0.42(a)
67 Isopropylbenzene	105	9.126	9.126	(1.106)	6811	0.25000	0.32(a)
62 m,p-Xylenes	106	8.474	8.474	(1.027)	5829	0.50000	0.64(a)
17 Methylene Chloride	84	2.870	2.866	(0.586)	3269	0.25000	(a)
87 n-Butylbenzene	91	10.554	10.558	(1.031)	6526	0.25000	0.37(a)
73 n-Propylbenzene	91	9.475	9.479	(0.926)	8427	0.25000	0.33(a)
92 Naphthalene	128	12.133	12.133	(1.185)	4657	0.25000	0.87(a)
63 o-Xylene	106	8.811	8.811	(1.068)	2975	0.25000	0.32(a)
81 sec-Butylbenzene	105	10.086	10.090	(0.985)	6928	0.25000	0.32(a)
64 Styrene	104	8.823	8.826	(1.070)	4467	0.25000	0.29(a)
78 tert-Butylbenzene	119	9.902	9.902	(0.967)	4611	0.25000	0.31(a)
56 Tetrachloroethene	164	7.522	7.525	(0.912)	1622	0.25000	0.41(a)
50 Toluene	91	7.046	7.046	(0.854)	7336	0.25000	0.32(a)
20 trans-1,2-Dichloroethene	96	3.136	3.136	(0.641)	1833	0.25000	0.36(a)
38 Trichloroethene	130	5.861	5.861	(1.042)	2028	0.25000	0.38(a)
8 Trichlorofluoromethane	101	1.955	1.944	(0.400)	2465	0.25000	0.97(a)
5 Vinyl Chloride	62	1.419	1.415	(0.290)	2098	0.25000	1.30(a)

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).



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Sample Info: VSTD00,25;VSTD00,25;1;1;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9,i
Operator: PC
Column diameter: 0.18

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122103.D
Lab Smp Id: VSTD00.5 Client Smp ID: VSTD00.5
Inj Date : 21-DEC-2018 14:14
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD00.5;VSTD00.5;1;2;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 13:49 Cal File: U122102.D
Als bottle: 3 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

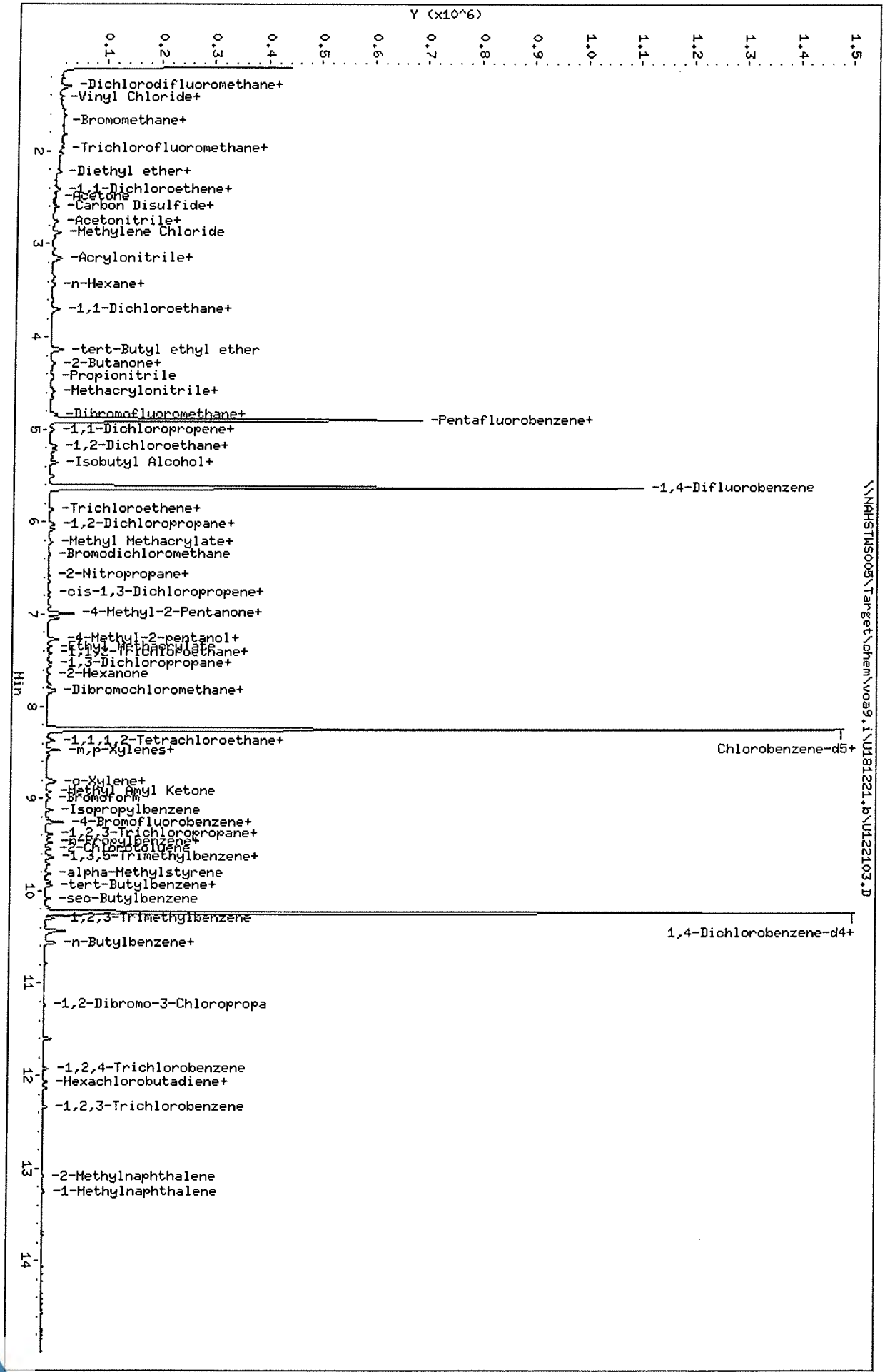
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.898	4.898	(1.000)	422356	50.0000	
* 36 1,4-Difluorobenzene	114	5.629	5.629	(1.000)	796827	50.0000	
* 47 Chlorobenzene-d5	117	8.249	8.249	(1.000)	725774	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	333300	50.0000	
$ 30 Dibromofluoromethane	113	4.834	4.834	(0.987)	6036	0.50000	(a)
$ 35 1,2-Dichloroethane-d4	65	5.179	5.179	(1.057)	8601	0.50000	(a)
$ 48 Toluene-d8	98	6.989	6.989	(0.847)	27052	0.50000	(a)
$ 69 4-Bromofluorobenzene	95	9.257	9.257	(1.122)	9627	0.50000	(a)
60 1,1,1,2-Tetrachloroethane	131	8.350	8.350	(1.012)	1272	0.50000	0.85(a)
31 1,1,1-Trichloroethane	97	4.830	4.830	(0.986)	2201	0.50000	0.33(a)
68 1,1,2,2-Tetrachloroethane	83	9.392	9.392	(0.918)	2725	0.50000	0.36(aM)
138 Freon TF	101	2.412	2.412	(0.493)	1292	0.50000	0.35(a)
53 1,1,2-Trichloroethane	83	7.421	7.421	(0.900)	1629	0.50000	0.37(a)
22 1,1-Dichloroethane	63	3.612	3.612	(0.737)	3066	0.50000	0.33(Ta)
11 1,1-Dichloroethene	96	2.409	2.409	(0.492)	1703	0.50000	0.42(a)
32 1,1-Dichloropropene	75	5.010	5.010	(0.890)	2565	0.50000	0.36(a)
93 1,2,3-Trichlorobenzene	180	12.335	12.335	(1.205)	1324	0.50000	0.84(a)
71 1,2,3-Trichloropropane	75	9.426	9.426	(0.921)	2591	0.50000	0.33(a)
90 1,2,4-Trichlorobenzene	180	11.923	11.923	(1.165)	2402	0.50000	0.38(a)
79 1,2,4-Trimethylbenzene	105	9.943	9.943	(0.971)	6088	0.50000	0.34(a)
89 1,2-Dibromo-3-Chloropropane	155	11.233	11.233	(1.097)	272	0.50000	1.68(aM)
57 1,2-Dibromoethane	107	7.852	7.852	(0.952)	1825	0.50000	0.36(a)

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122103.D Page 2
Report Date: 28-Jan-2019 11:25

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	10.573	10.573	(1.033)	3885	0.50000	0.39(a)
33	1,2-Dichloroethane	62	5.258	5.258	(0.934)	2385	0.50000	(a)
42	1,2-Dichloropropane	63	6.082	6.082	(1.081)	2114	0.50000	0.37(a)
75	1,3,5-Trimethylbenzene	105	9.625	9.625	(0.940)	5574	0.50000	0.33(a)
83	1,3-Dichlorobenzene	146	10.180	10.180	(0.995)	3970	0.50000	0.40(a)
54	1,3-Dichloropropane	76	7.563	7.563	(0.917)	3471	0.50000	0.37(a)
84	1,4-Dichlorobenzene	146	10.255	10.255	(1.002)	4522	0.50000	0.43(a)
26	2,2-Dichloropropane	77	4.279	4.279	(0.874)	2050	0.50000	0.37(aM)
24	2-Butanone	43	4.354	4.354	(0.889)	2109	1.00000	(a)
76	2-Chlorotoluene	91	9.550	9.550	(0.933)	5666	0.50000	0.36(a)
52	2-Hexanone	43	7.649	7.649	(0.927)	2639	1.00000	0.65(a)
77	4-Chlorotoluene	91	9.640	9.640	(0.942)	6459	0.50000	0.36(a)
82	p-Isopropyltoluene	119	10.210	10.210	(0.997)	6372	0.50000	0.36(a)
45	4-Methyl-2-Pentanone	43	6.914	6.914	(0.838)	3831	1.00000	0.65(a)
10	Acetone	43	2.491	2.491	(0.509)	3366	1.00000	(a)
37	Benzene	78	5.220	5.220	(0.927)	7772	0.50000	0.36(a)
74	Bromobenzene	156	9.381	9.381	(0.917)	1879	0.50000	0.36(a)
29	Bromochloromethane	128	4.553	4.553	(0.930)	773	0.50000	(a)
39	Bromodichloromethane	83	6.348	6.348	(1.128)	1990	0.50000	0.33(aM)
66	Bromoform	173	8.984	8.984	(1.089)	762	0.50000	1.99(aM)
6	Bromomethane	94	1.681	1.681	(0.343)	822	0.50000	1.64(a)
19	Carbon Disulfide	76	2.596	2.596	(0.530)	12403	1.00000	0.84(a)
34	Carbon Tetrachloride	117	4.999	4.999	(0.888)	1510	0.50000	1.65(a)
59	Chlorobenzene	112	8.275	8.275	(1.003)	5533	0.50000	0.39(a)
7	Chloroethane	64	1.764	1.764	(0.360)	2753	0.50000	1.20(aM)
28	Chloroform	83	4.662	4.662	(0.952)	2977	0.50000	0.33(a)
3	Chloromethane	50	1.348	1.348	(0.275)	1695	0.50000	3.67(aM)
27	cis-1,2-Dichloroethene	96	4.294	4.294	(0.877)	1939	0.50000	0.34(a)
46	cis-1,3-Dichloropropene	75	6.761	6.761	(1.201)	2152	0.50000	1.49(a)
55	Dibromochloromethane	129	7.758	7.758	(0.940)	1194	0.50000	1.22(a)
44	Dibromomethane	93	6.195	6.195	(1.101)	1143	0.50000	0.35(aM)
2	Dichlorodifluoromethane	85	1.213	1.213	(0.248)	2033	0.50000	0.87(aM)
61	Ethylbenzene	106	8.369	8.369	(1.015)	2560	0.50000	0.35(a)
91	Hexachlorobutadiene	225	12.065	12.065	(1.179)	1509	0.50000	0.63(a)
67	Isopropylbenzene	105	9.126	9.126	(1.106)	6665	0.50000	0.32(a)
62	m,p-Xylenes	106	8.474	8.474	(1.027)	6264	1.00000	0.71(a)
17	Methylene Chloride	84	2.877	2.877	(0.587)	3346	0.50000	(a)
87	n-Butylbenzene	91	10.558	10.558	(1.031)	6644	0.50000	0.39(a)
73	n-Propylbenzene	91	9.475	9.475	(0.926)	8654	0.50000	0.34(a)
92	Naphthalene	128	12.136	12.136	(1.186)	5535	0.50000	0.92(a)
63	o-Xylene	106	8.811	8.811	(1.068)	3001	0.50000	0.33(a)
81	sec-Butylbenzene	105	10.086	10.086	(0.985)	6823	0.50000	0.32(a)
64	Styrene	104	8.826	8.826	(1.070)	4646	0.50000	0.31(a)
78	tert-Butylbenzene	119	9.902	9.902	(0.967)	4764	0.50000	0.32(a)
56	Tetrachloroethene	164	7.526	7.526	(0.912)	1587	0.50000	0.41(a)
50	Toluene	91	7.049	7.049	(0.855)	8207	0.50000	0.38(a)
20	trans-1,2-Dichloroethene	96	3.151	3.151	(0.643)	1825	0.50000	0.36(a)
51	trans-1,3-Dichloropropene	75	7.263	7.263	(1.290)	1633	0.50000	1.85(aM)
38	Trichloroethene	130	5.865	5.865	(1.042)	1953	0.50000	0.38(a)
8	Trichlorofluoromethane	101	1.966	1.966	(0.402)	1919	0.50000	0.89(a)
5	Vinyl Chloride	62	1.430	1.430	(0.292)	1815	0.50000	1.26(a)

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



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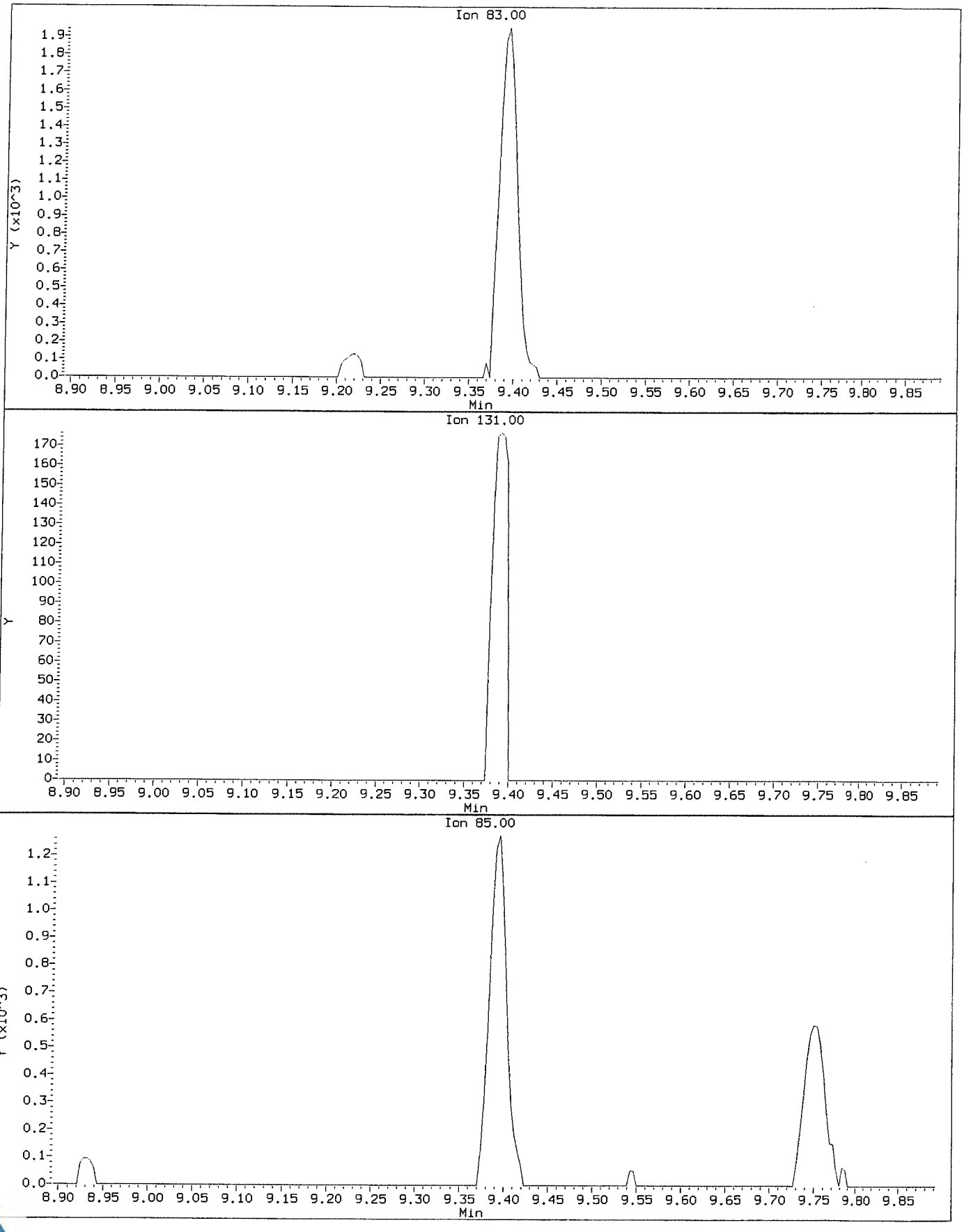
Sample Info: VSTD00.5;VSTD00.5;1;2;
Purge Volume: 5.0
Column phase: DB624

\\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122103.D

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122103.D
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5



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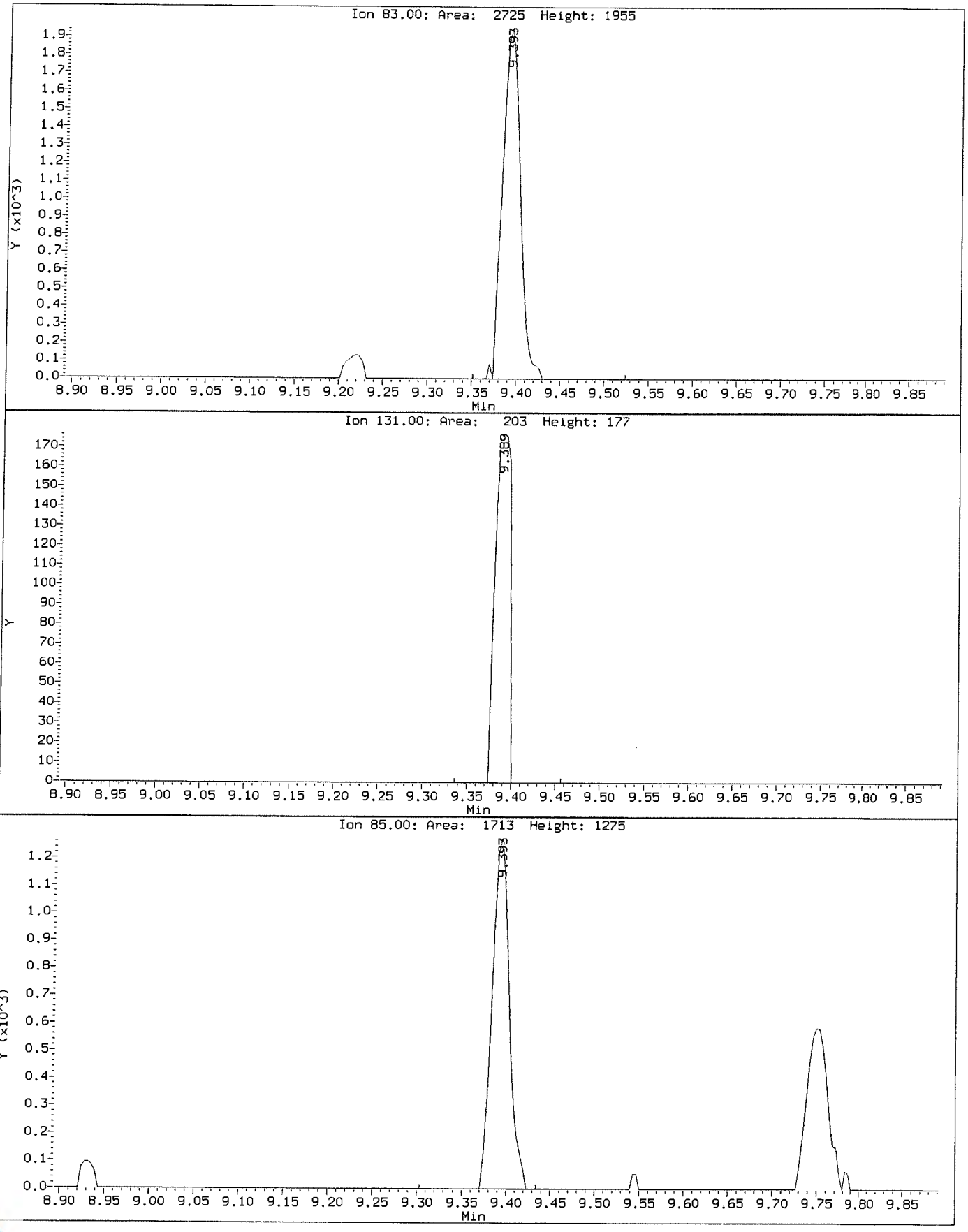
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5



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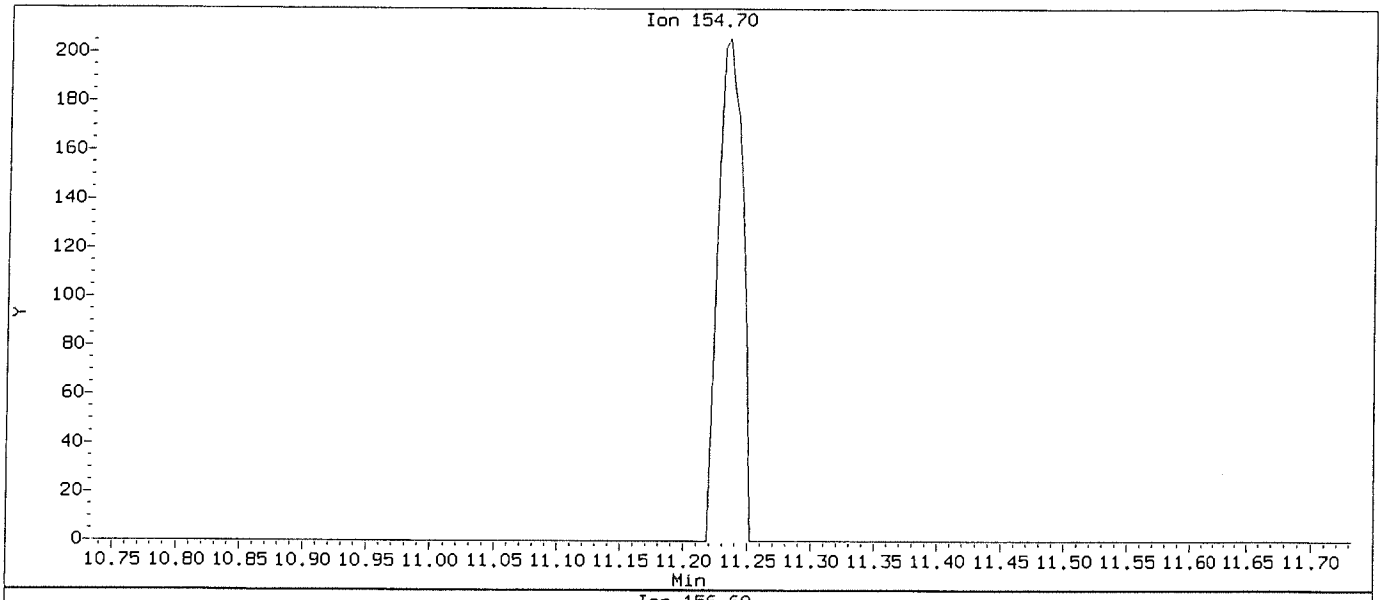
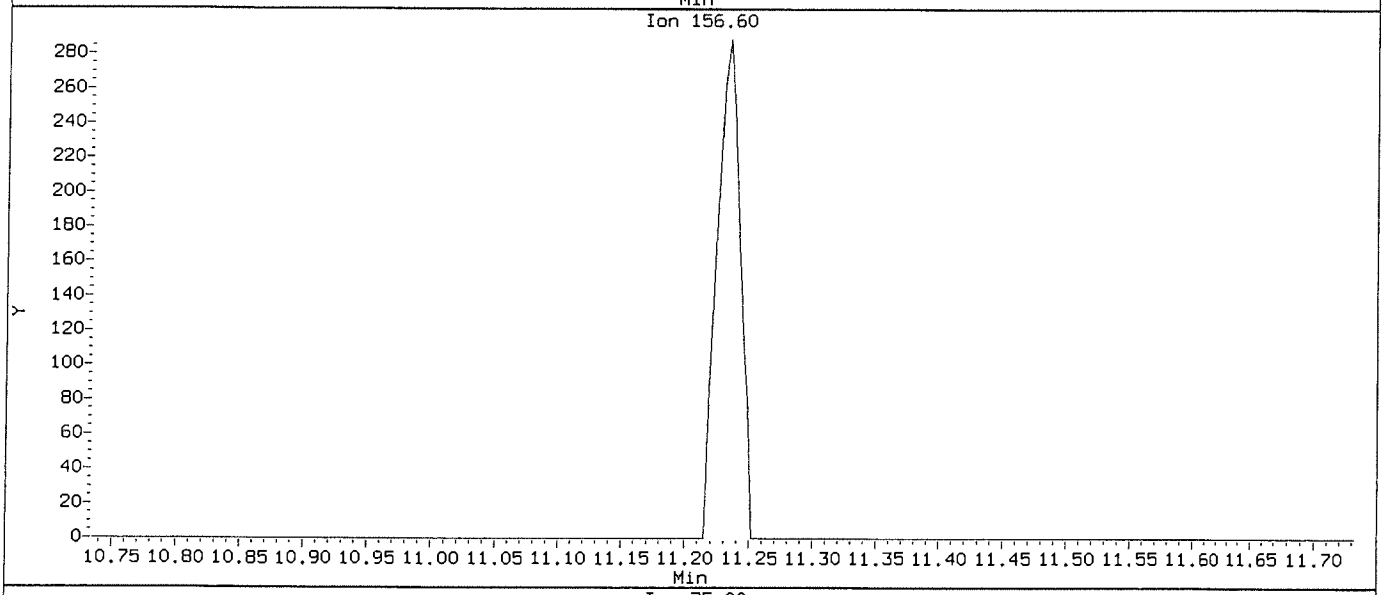
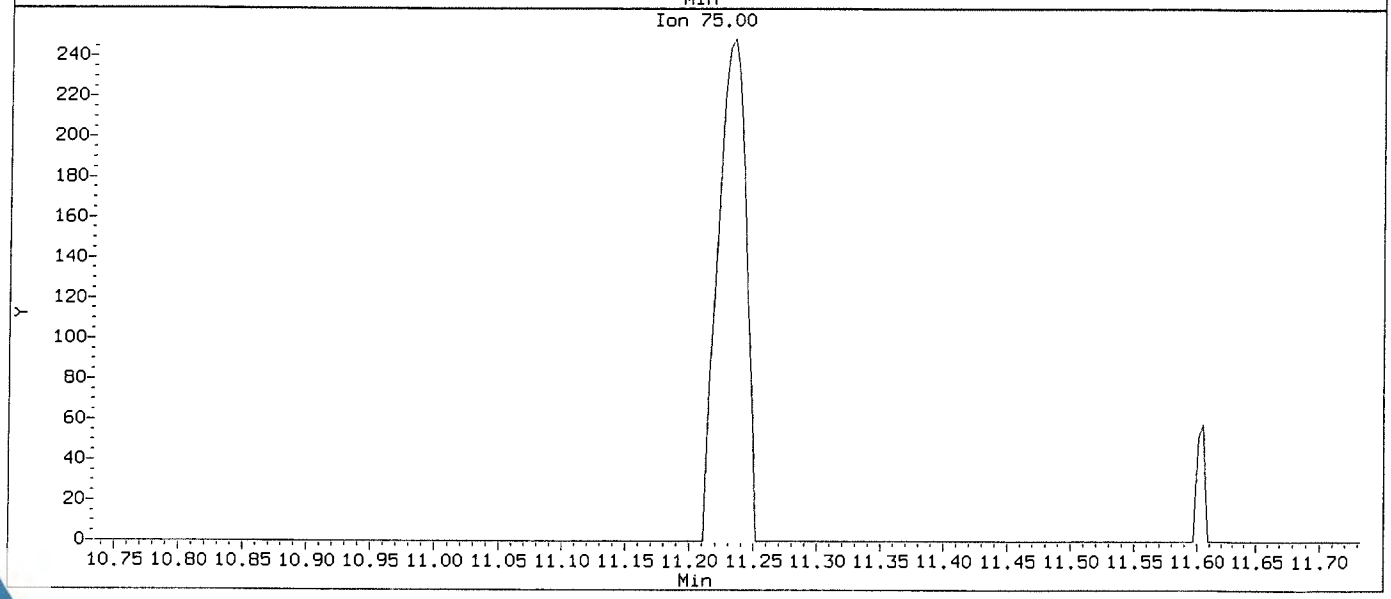
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8







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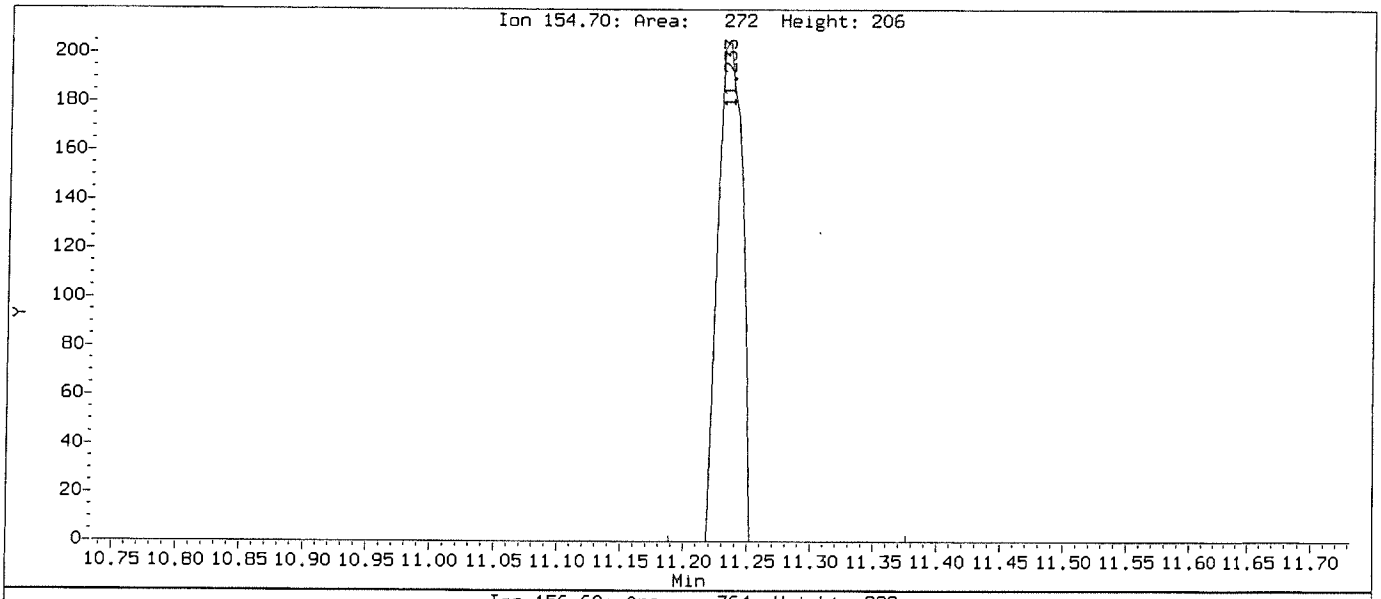
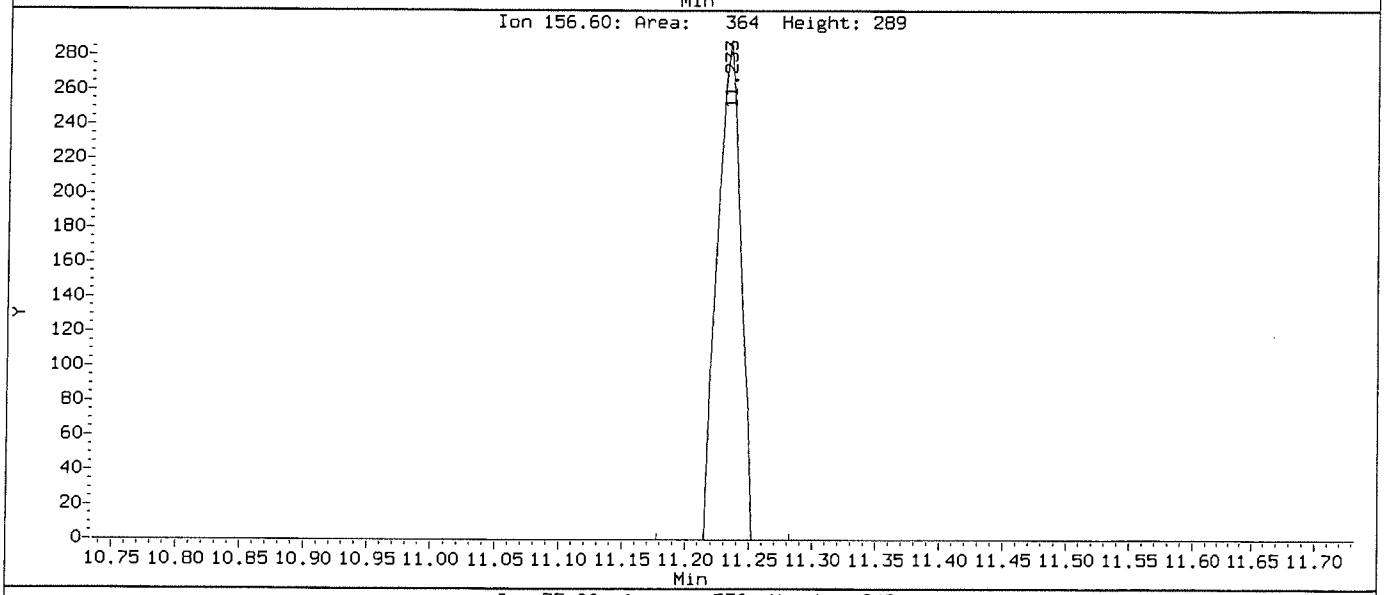
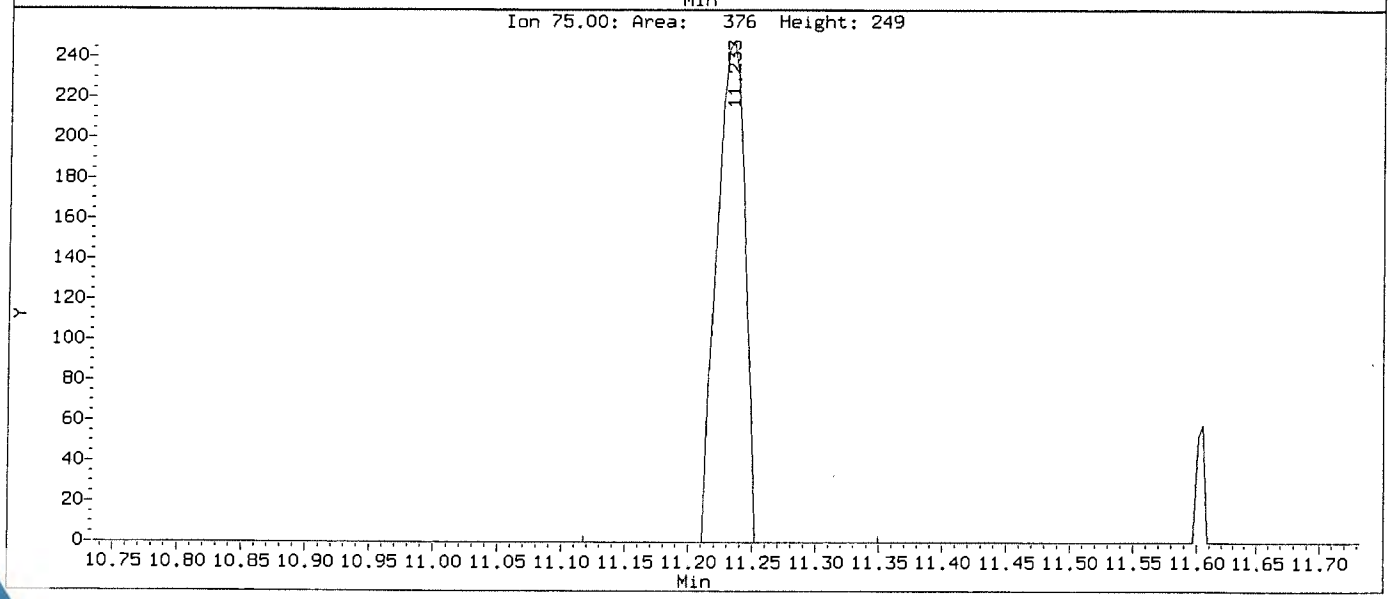
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8







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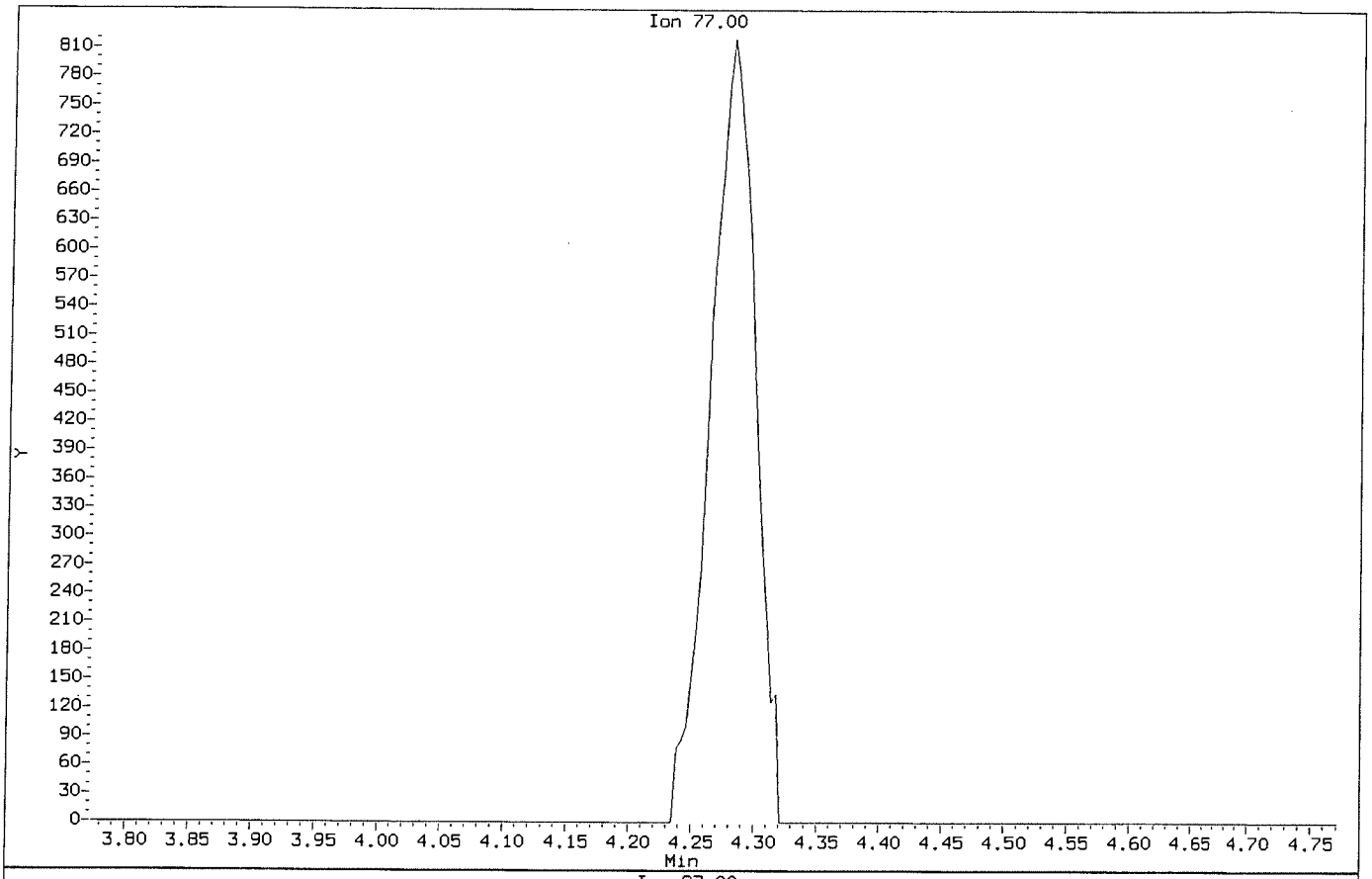
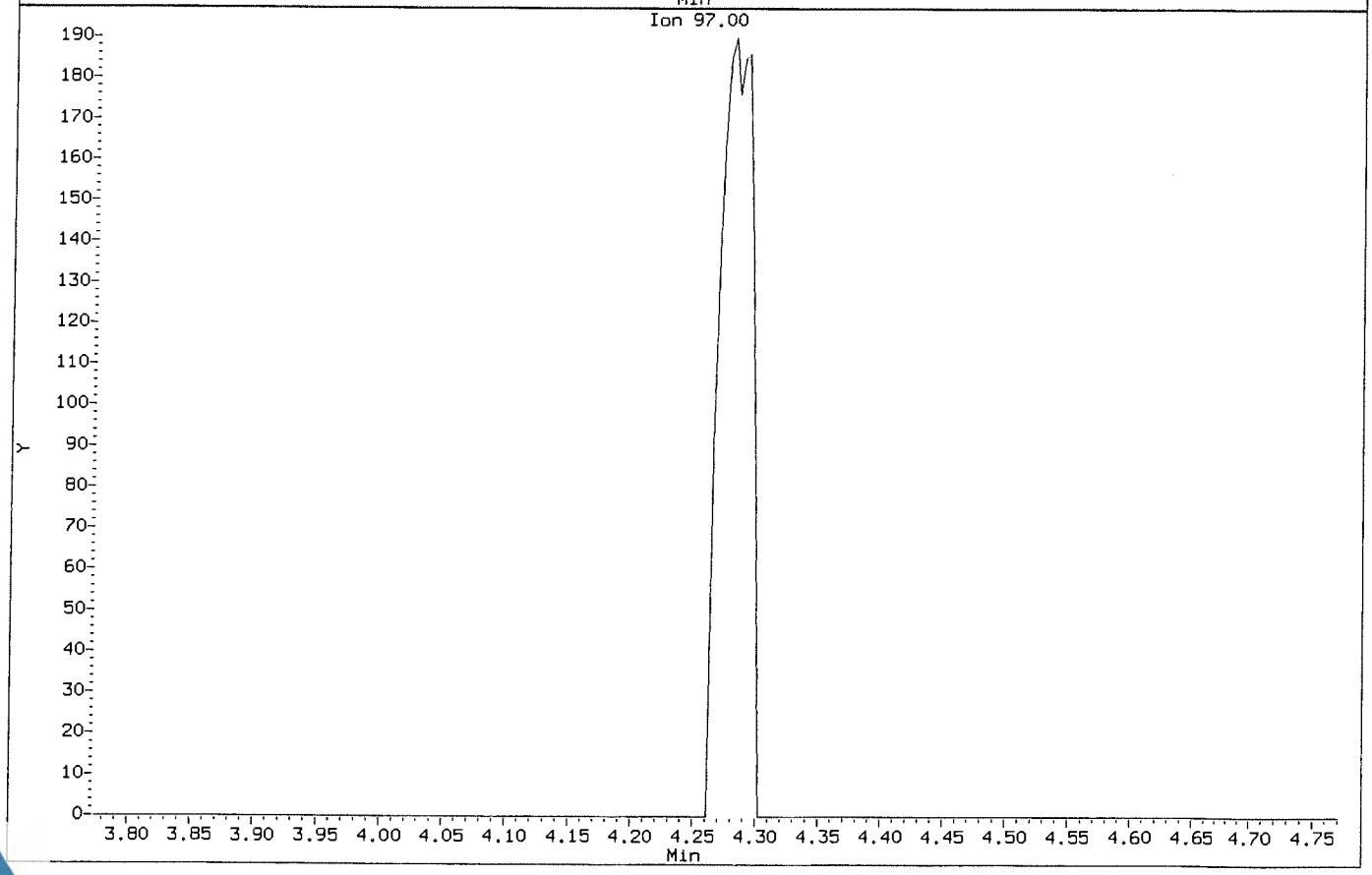
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: 2,2-Dichloropropane
CAS Number: 594-20-7





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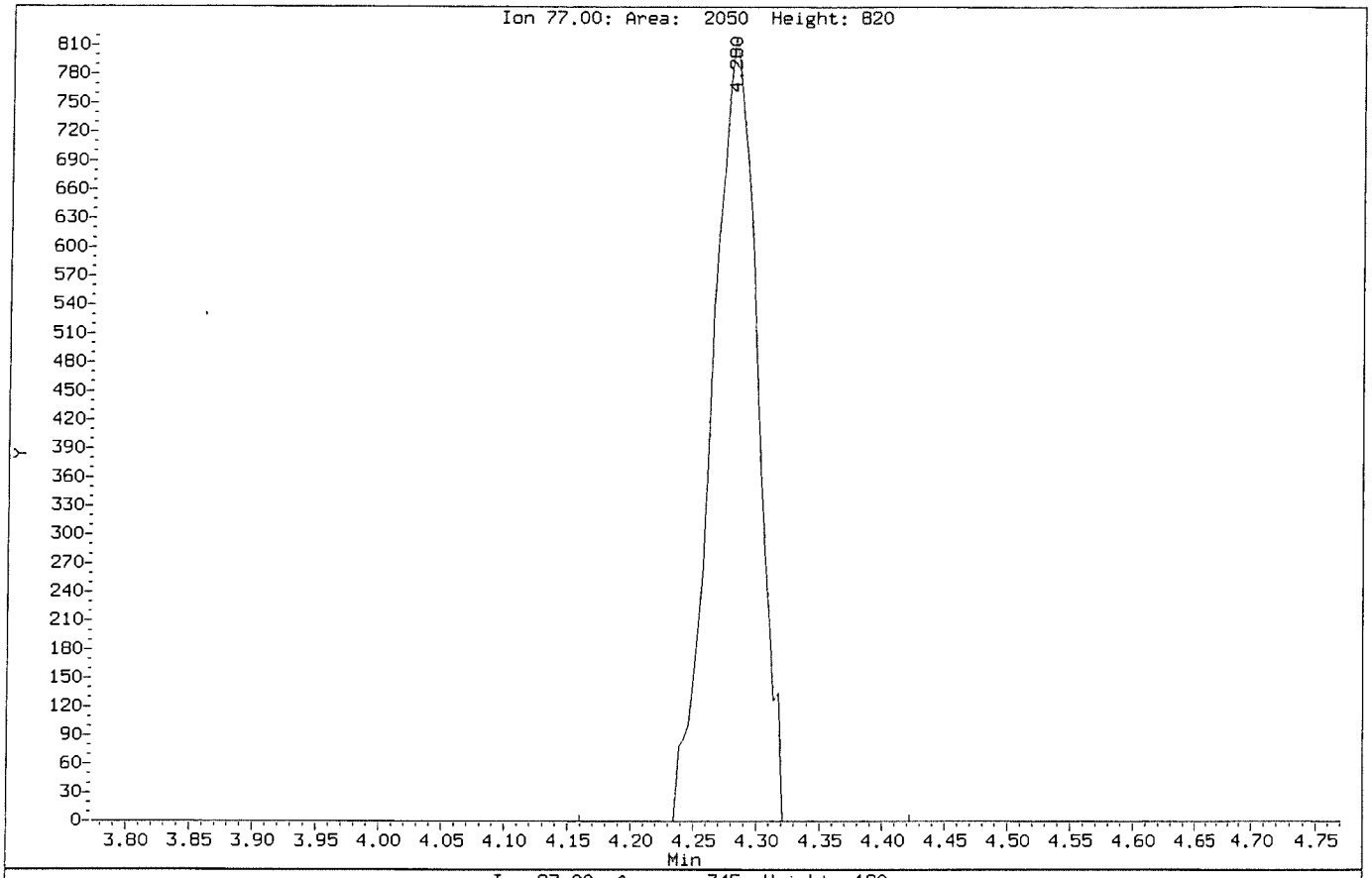
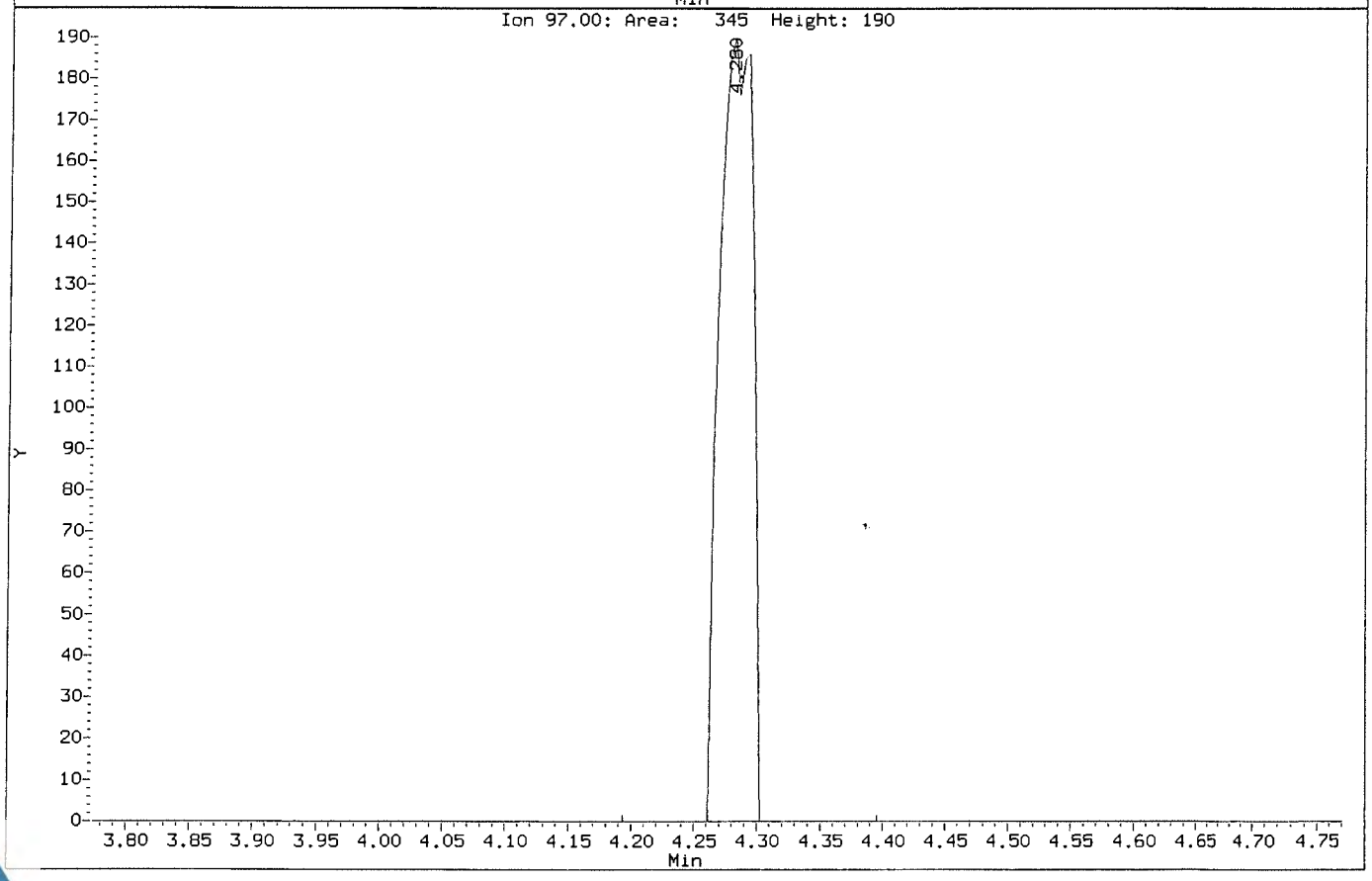
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: 2,2-Dichloropropane
CAS Number: 594-20-7





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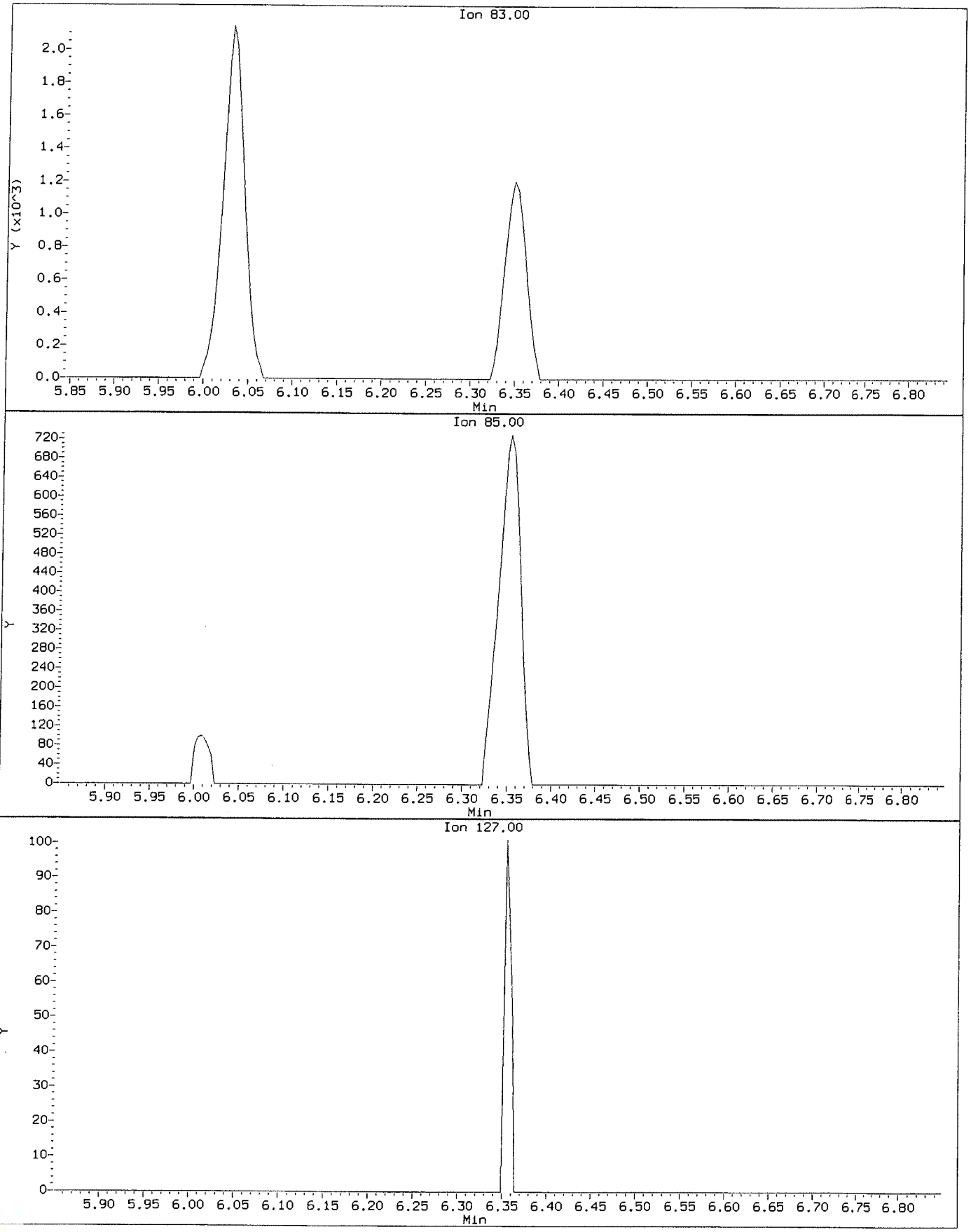
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Bromodichloromethane
CAS Number: 75-27-4



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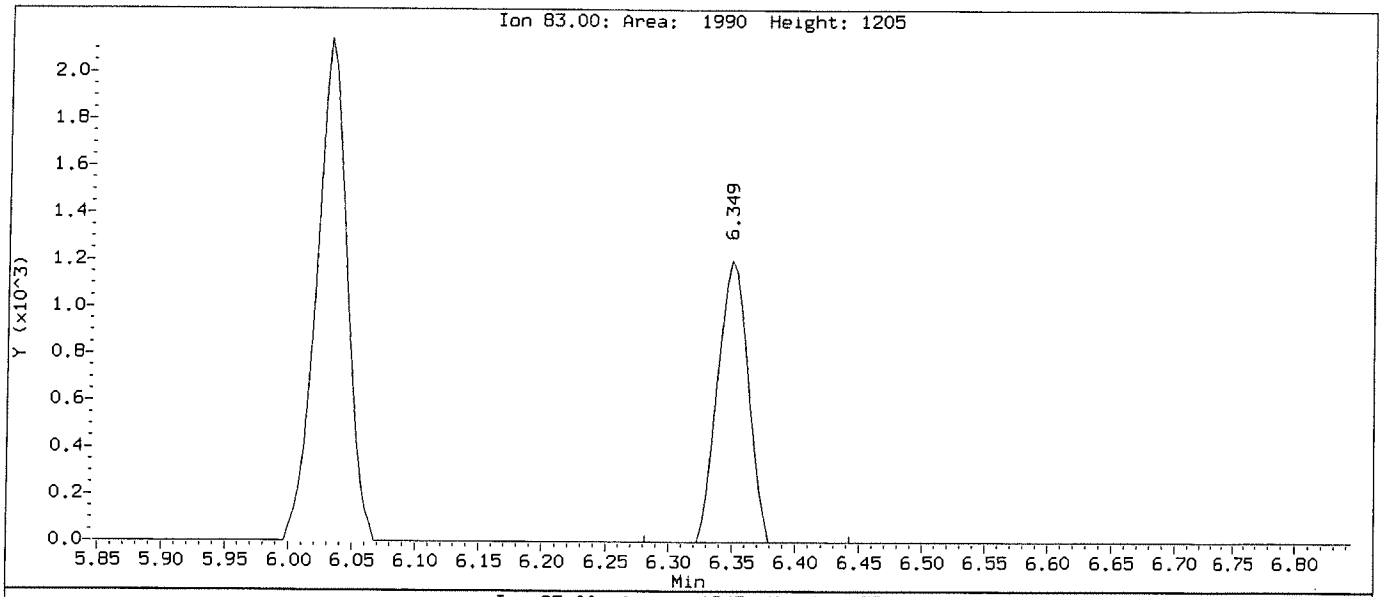
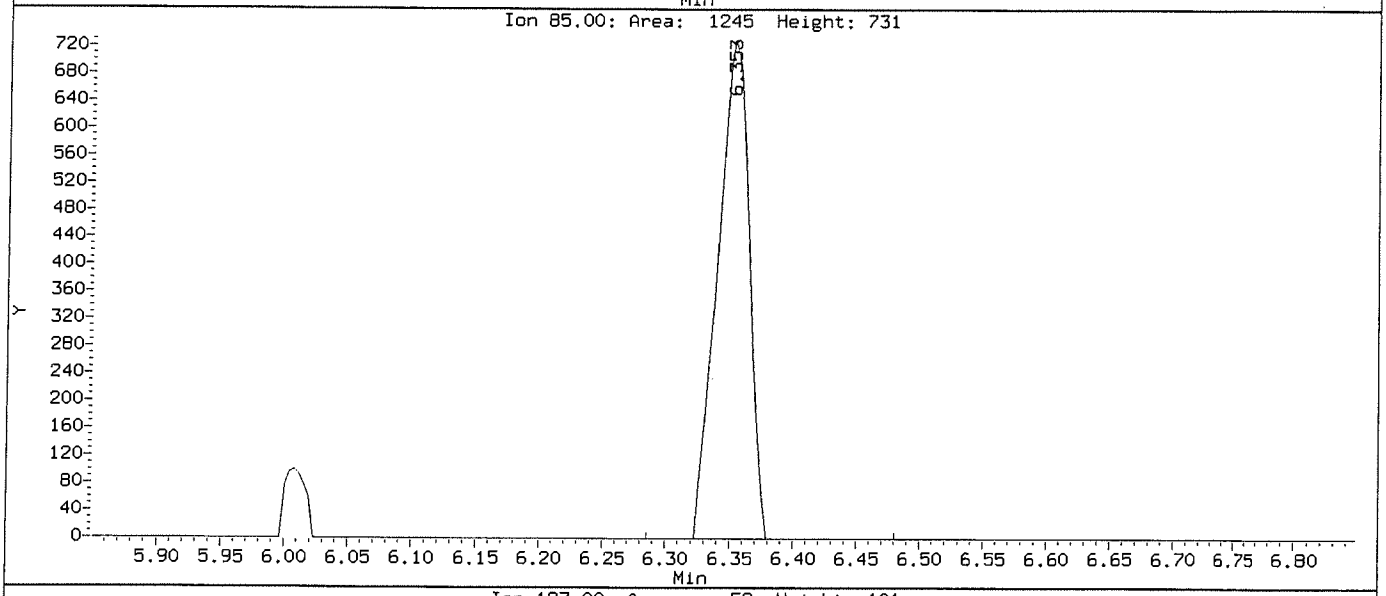
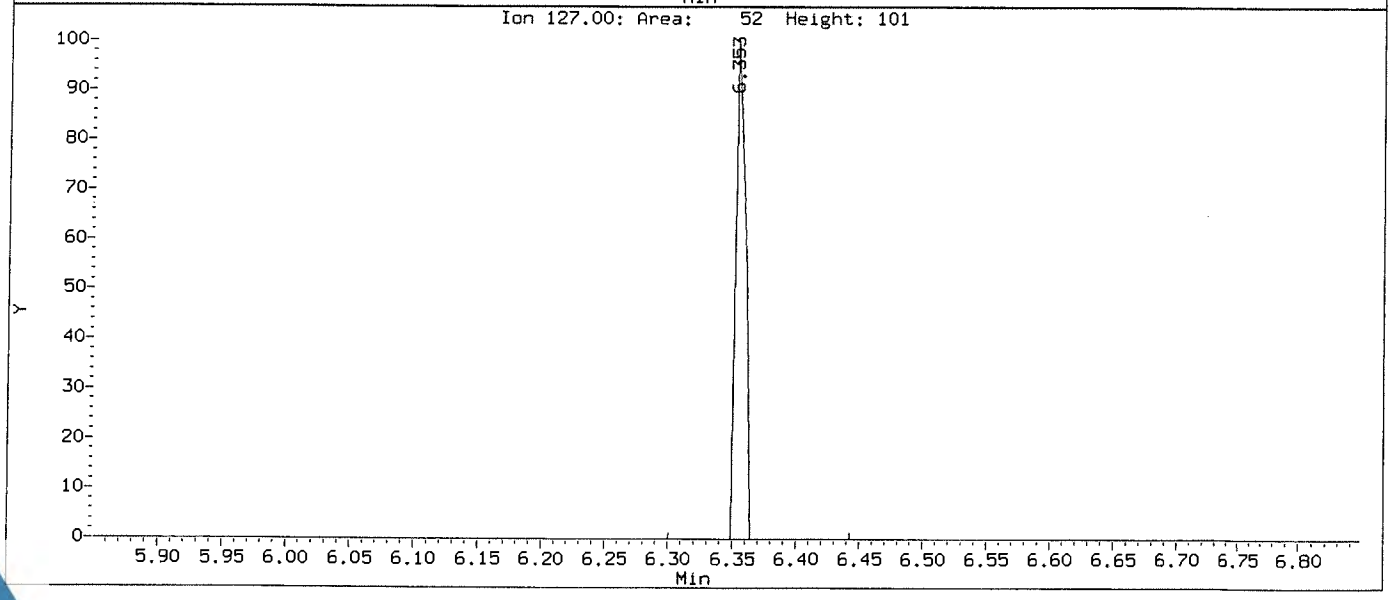
Client Sample ID: VSTD00.5

Compound: Bromodichloromethane
CAS Number: 75-27-4







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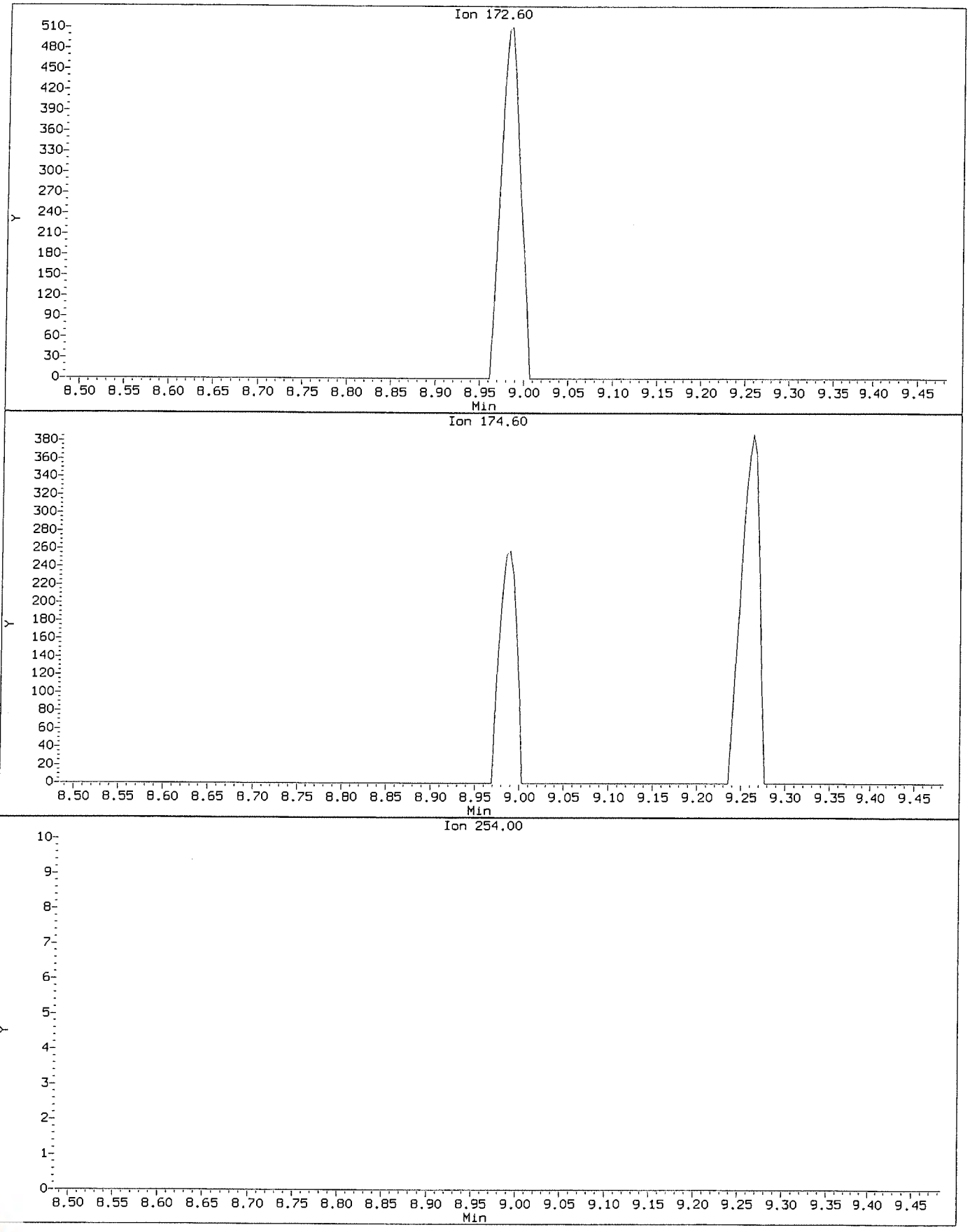
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Bromoform
CAS Number: 75-25-2



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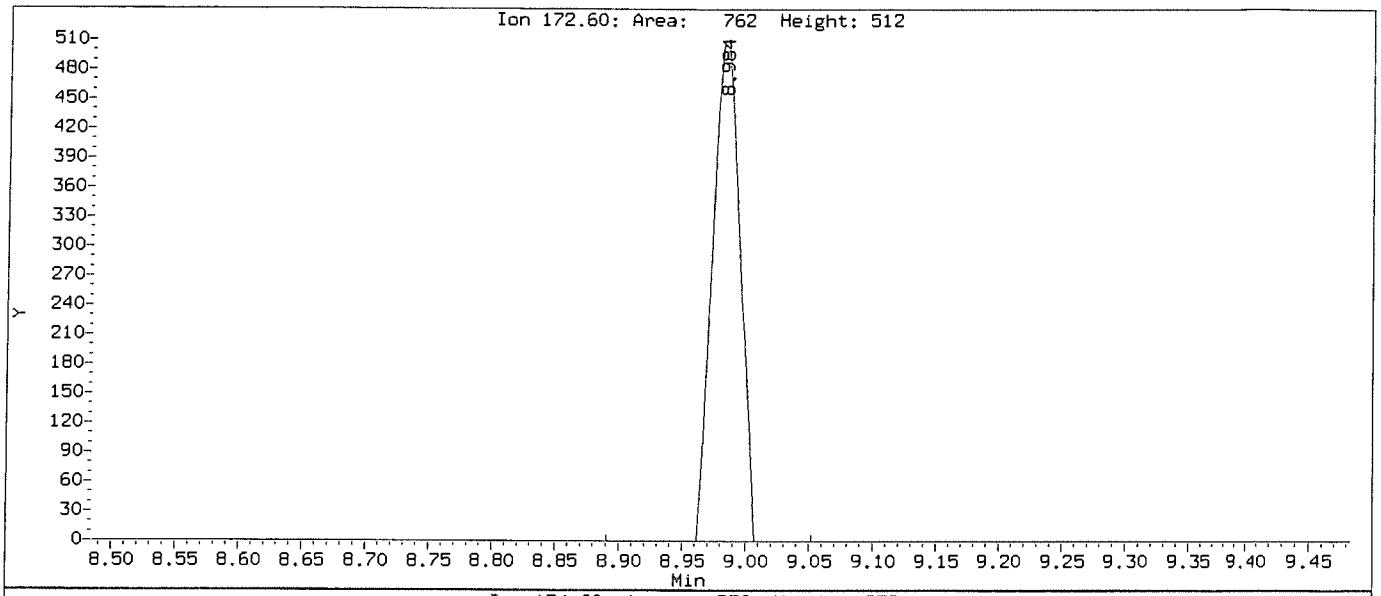
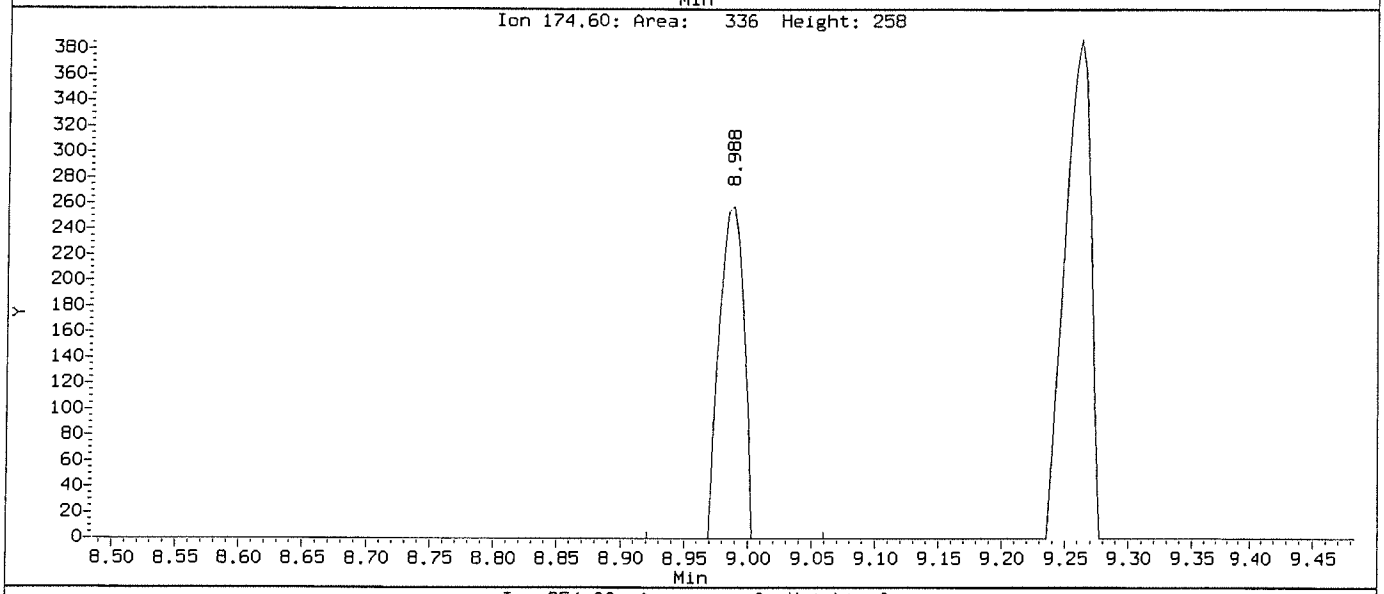
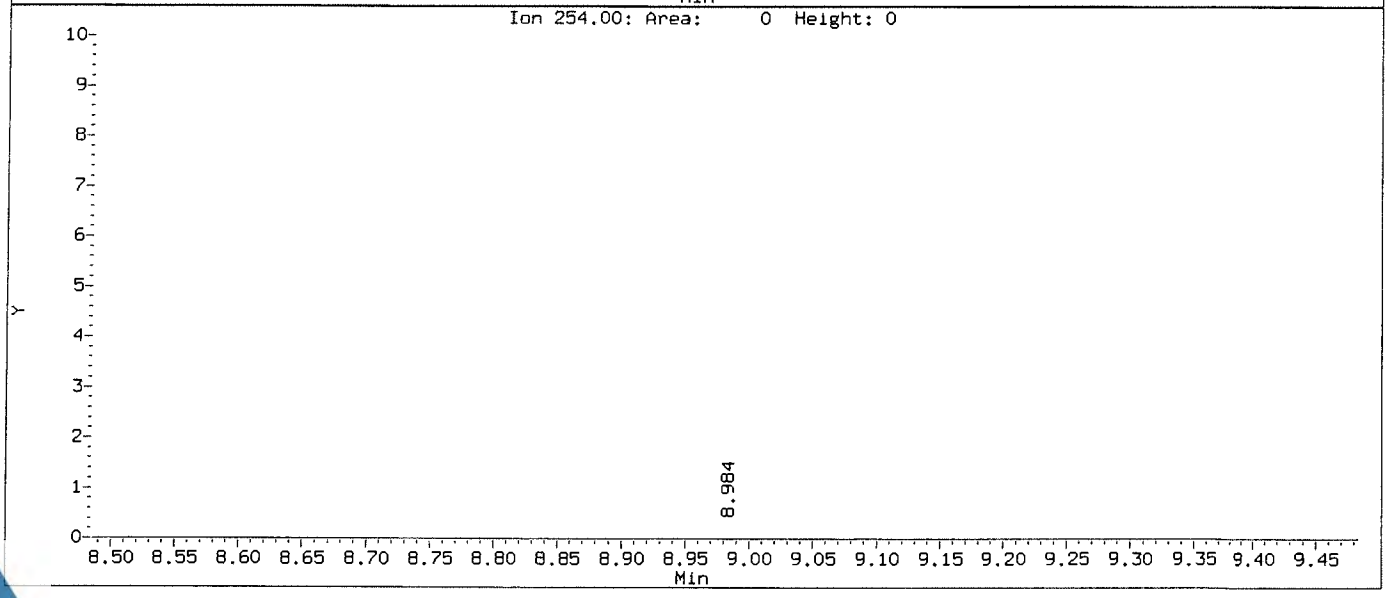
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Bromoform
CAS Number: 75-25-2







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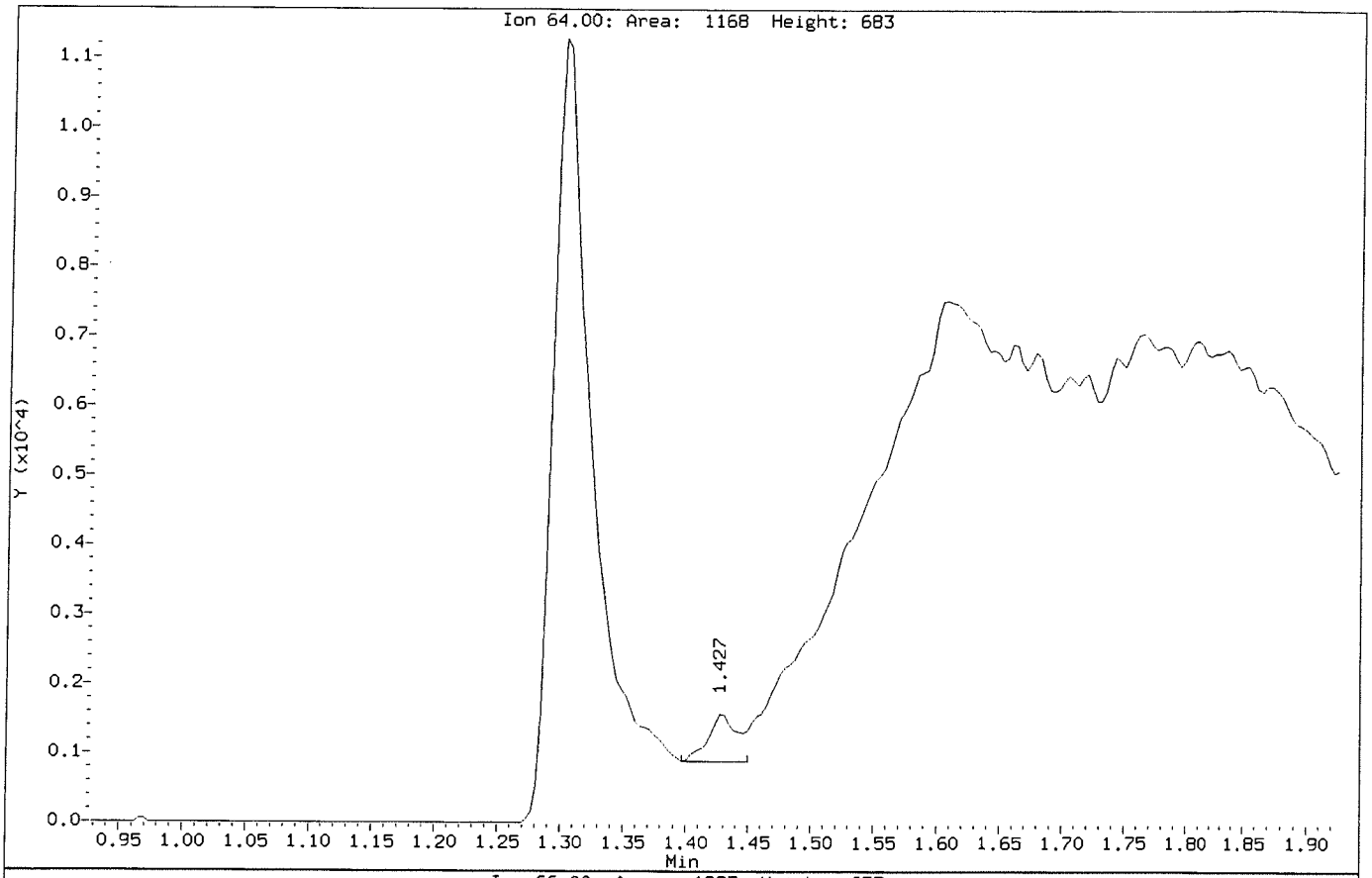
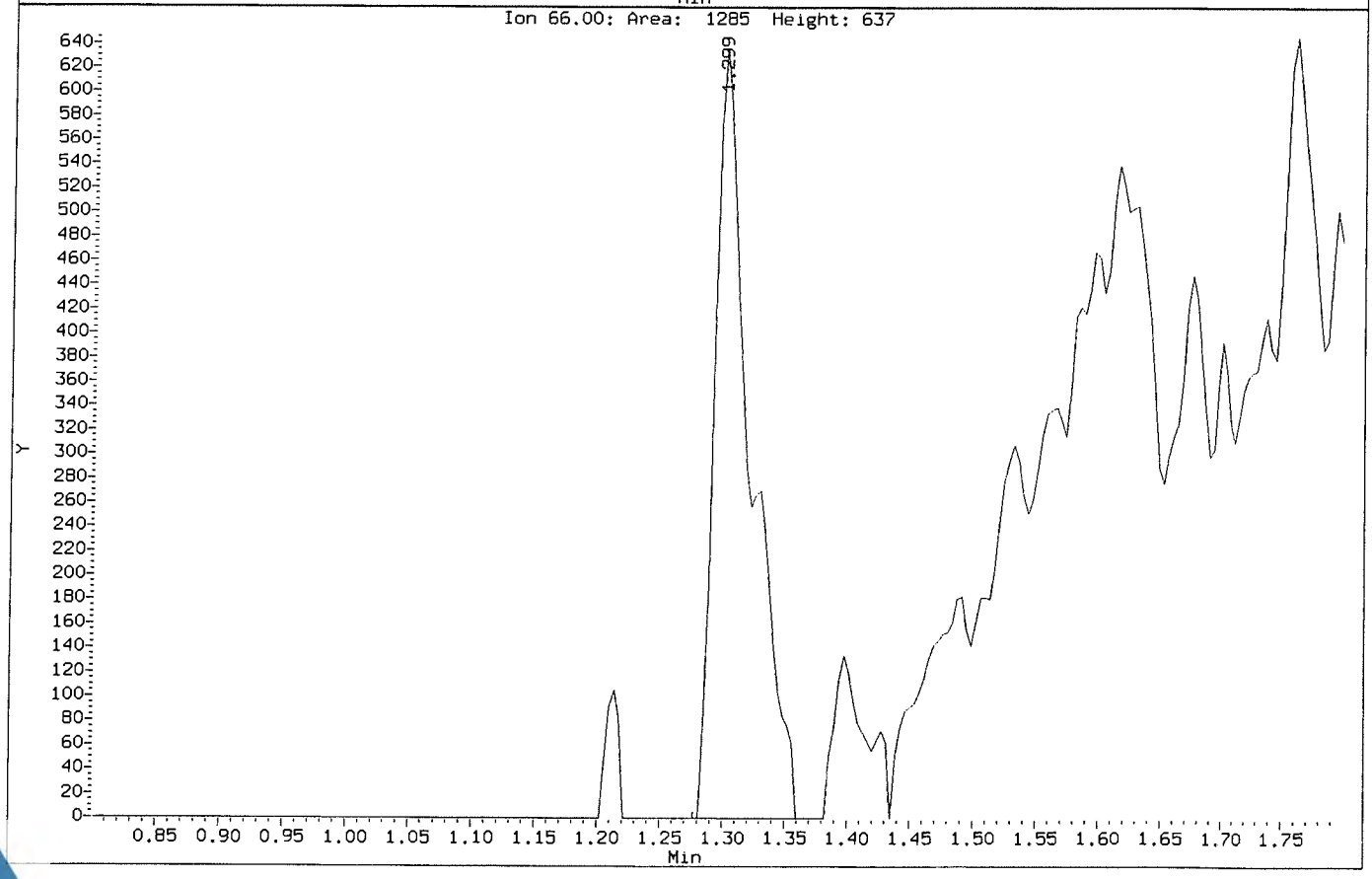
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Chloroethane
CAS Number: 75-00-3





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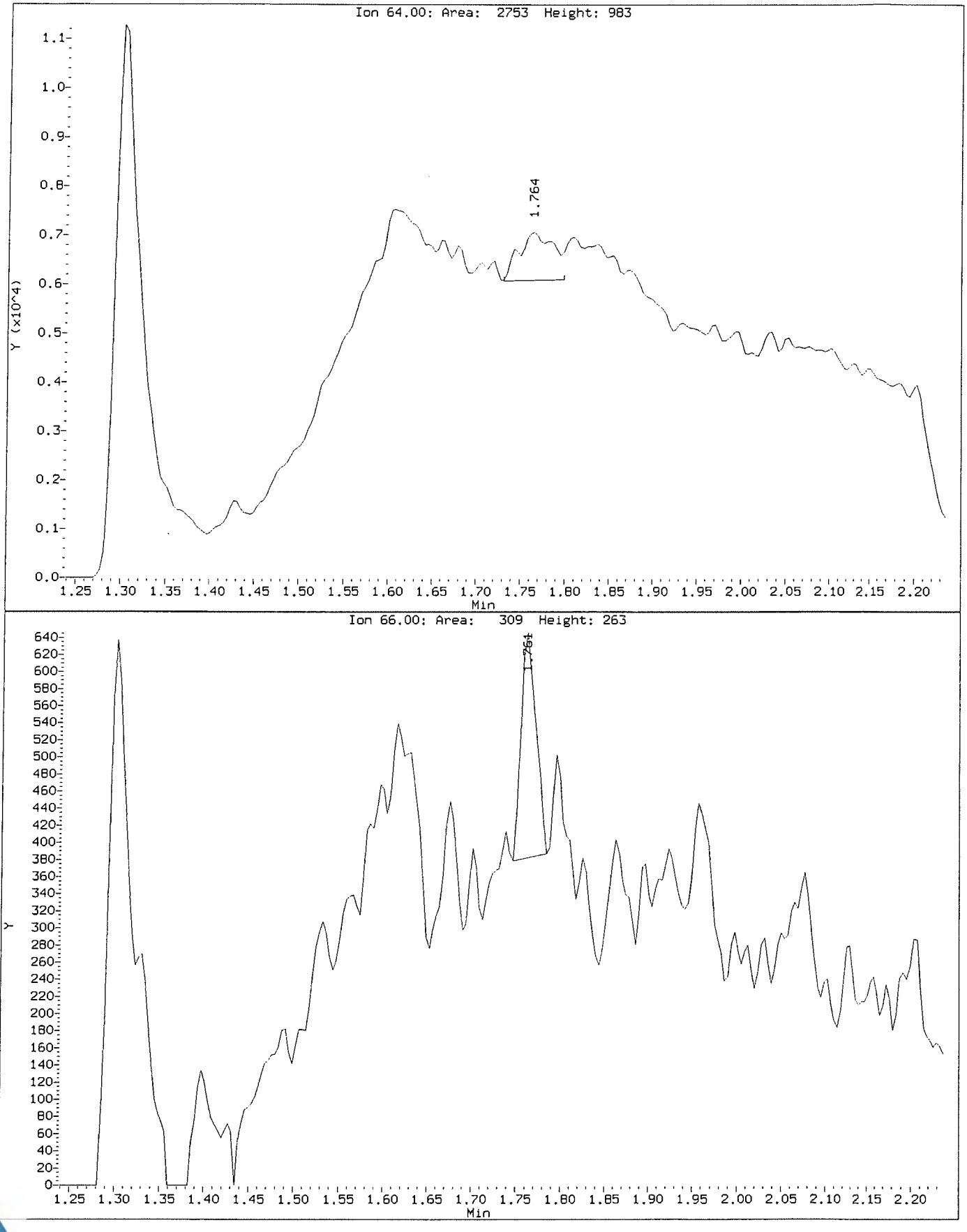
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Chloroethane
CAS Number: 75-00-3



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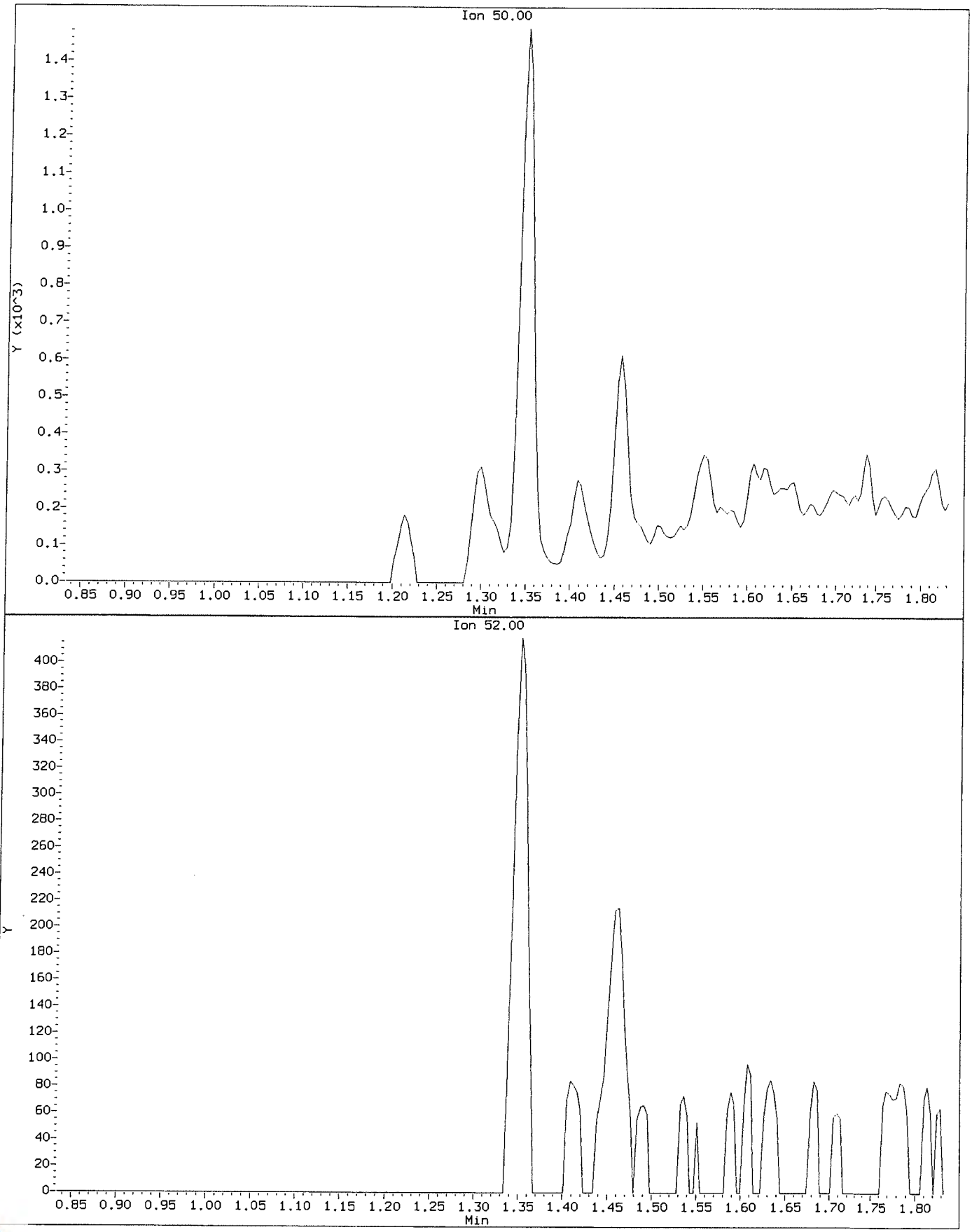
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Chloromethane
CAS Number: 74-87-3



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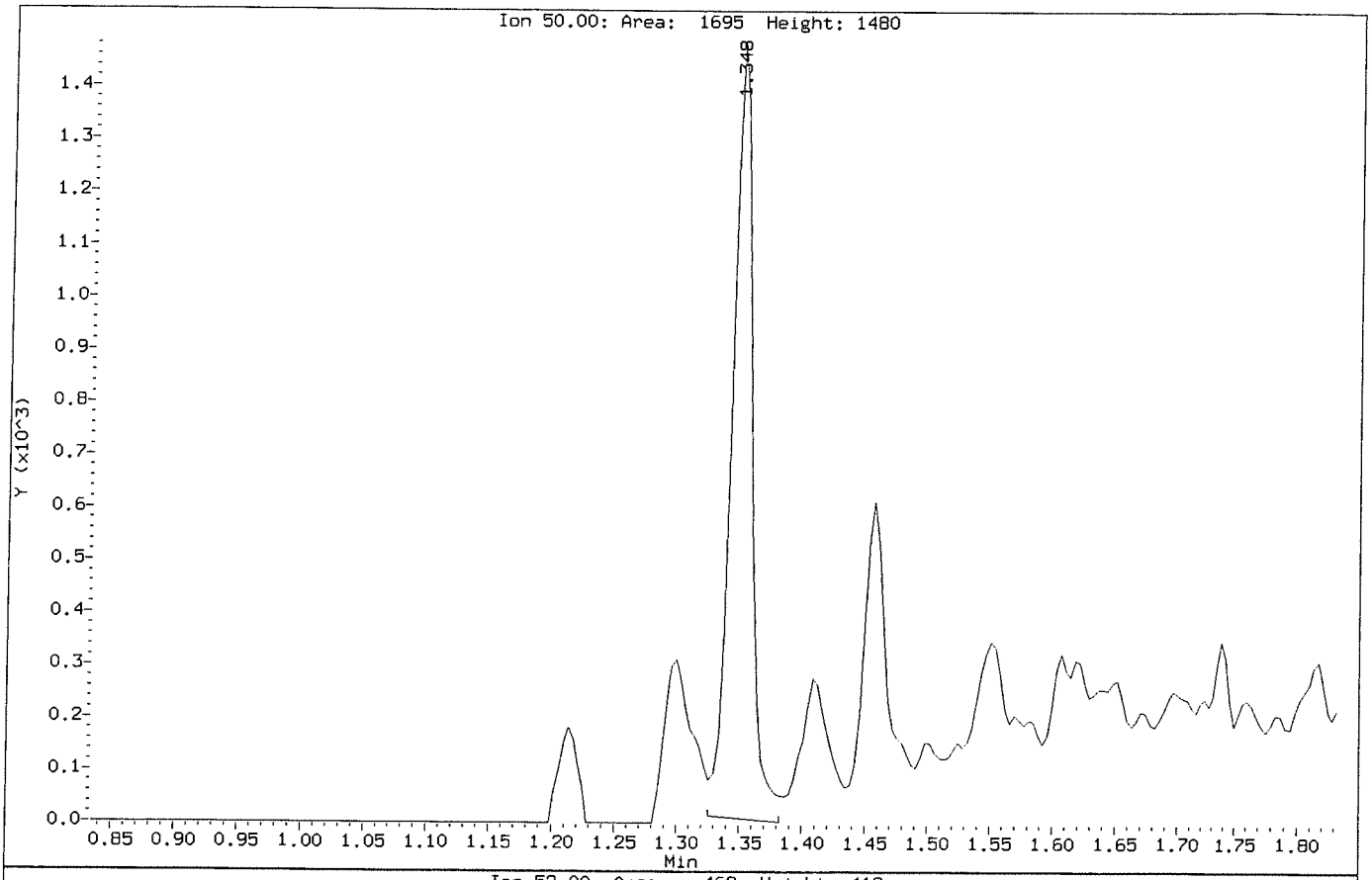
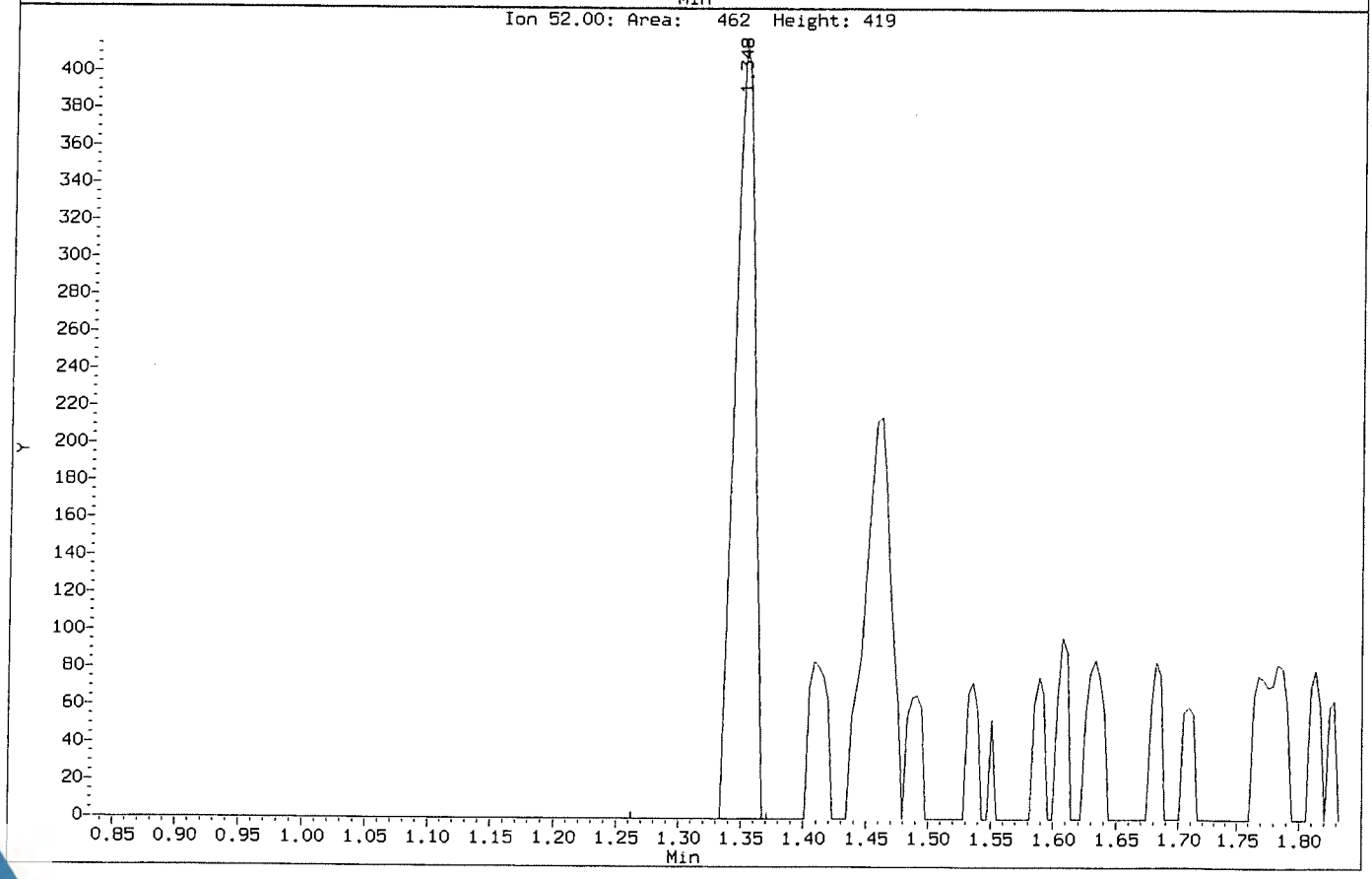
Client Sample ID: VSTD00.5

Compound: Chloromethane
CAS Number: 74-87-3





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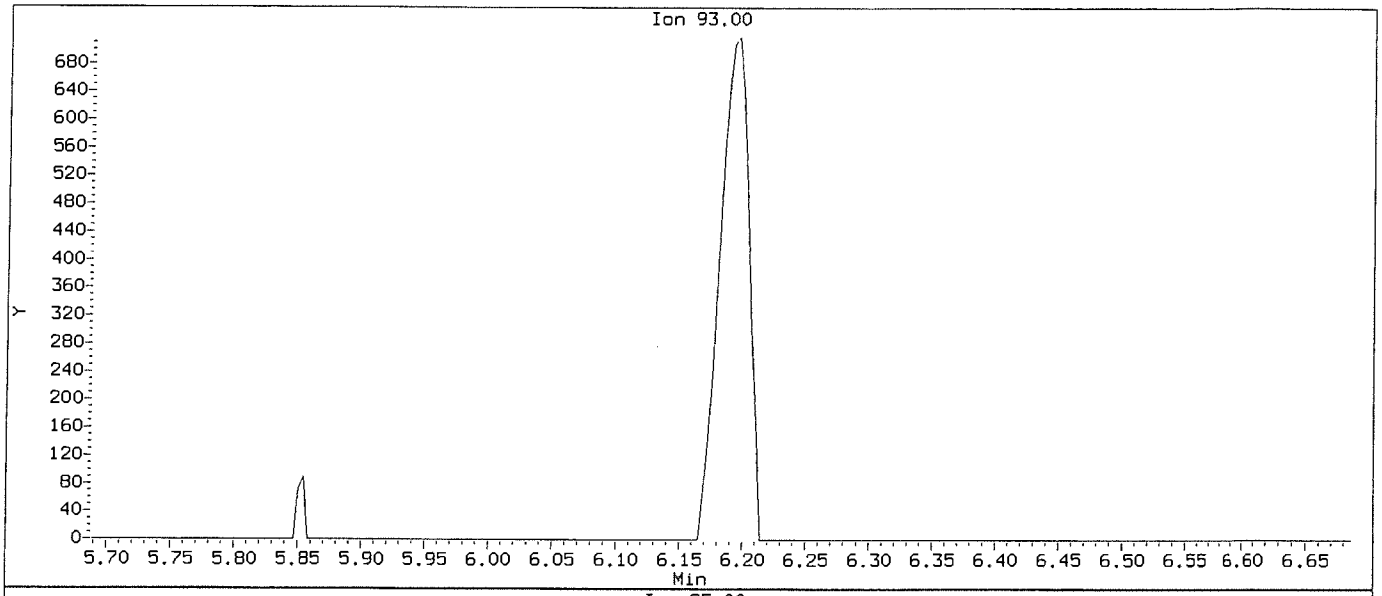
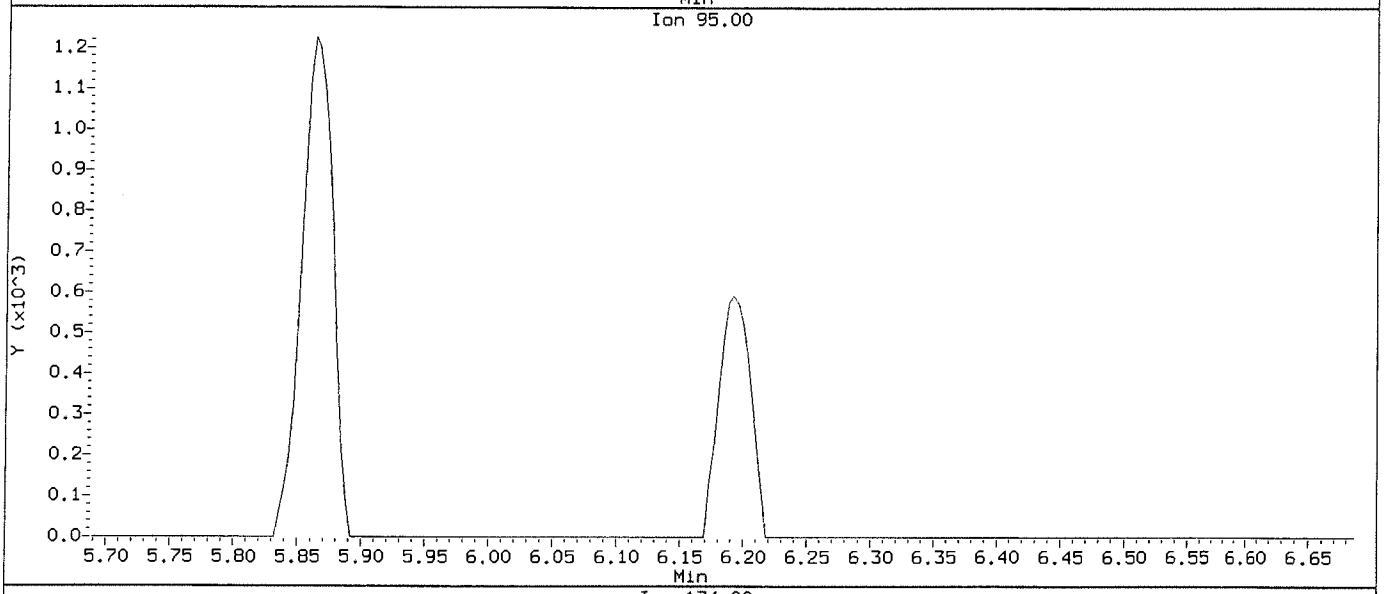
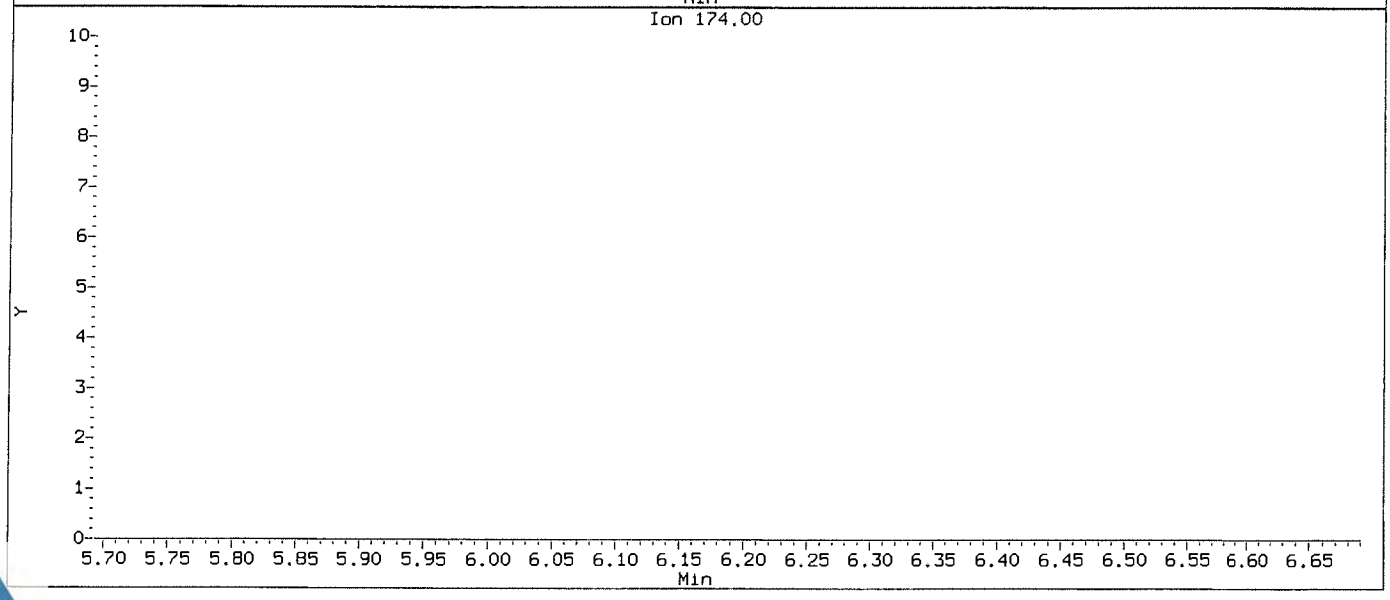
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Dibromomethane
CAS Number: 74-95-3







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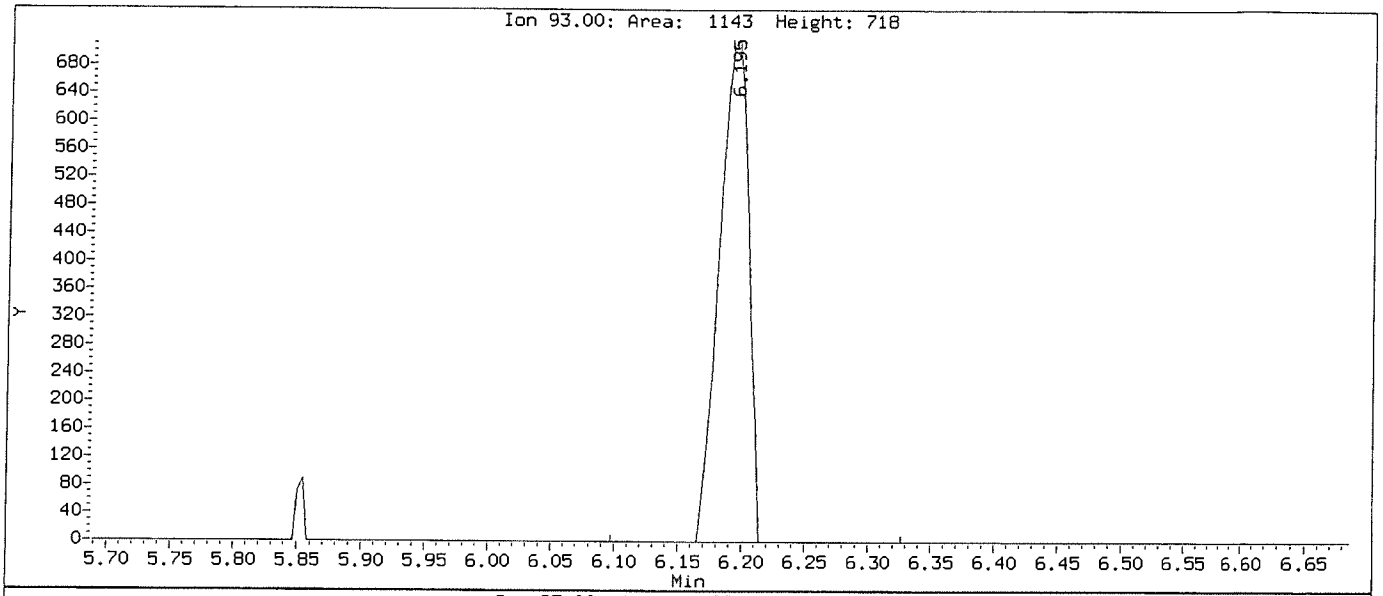
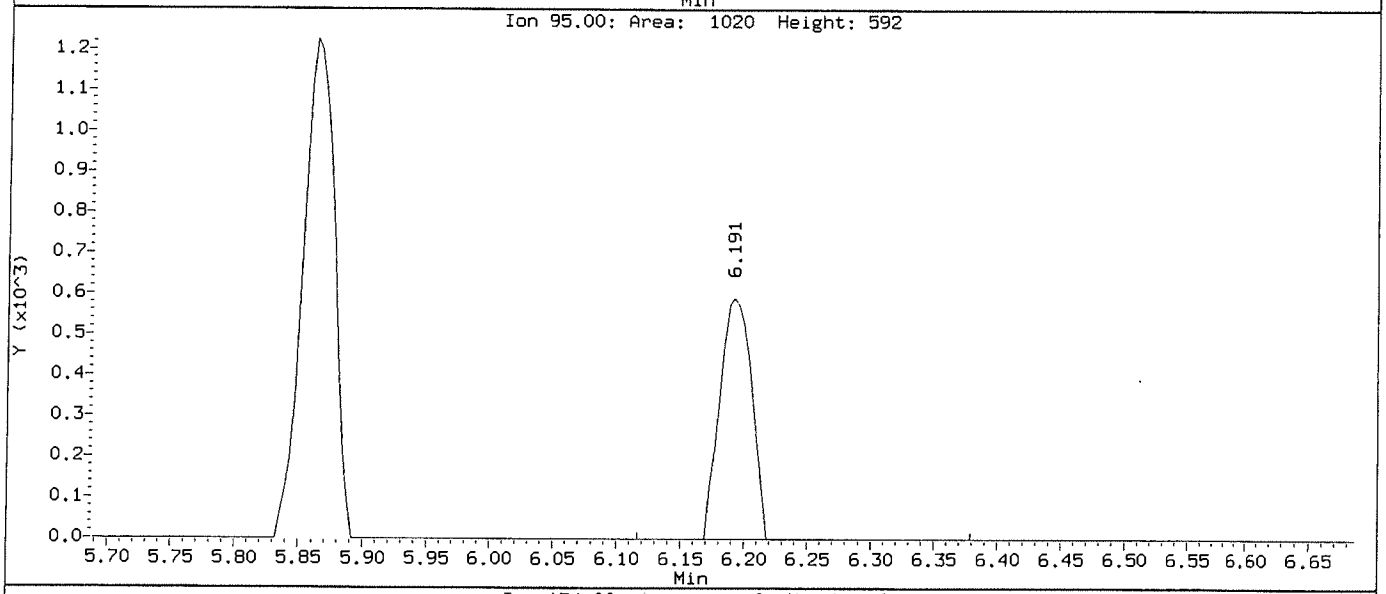
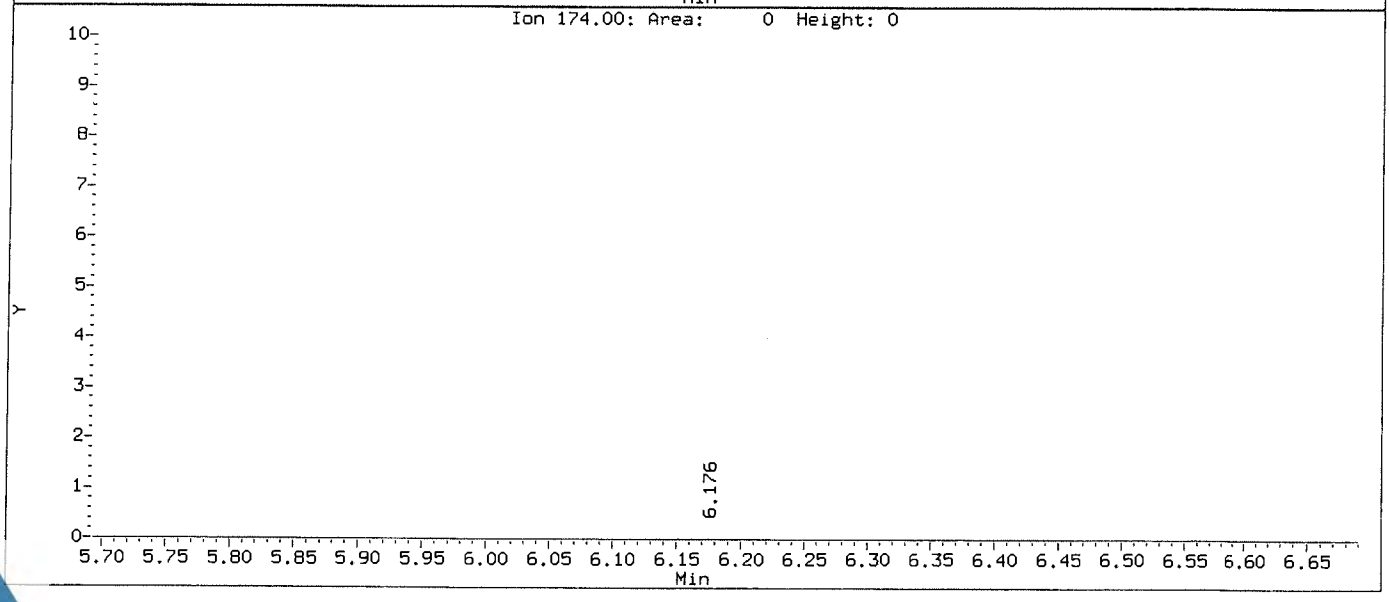
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Dibromomethane
CAS Number: 74-95-3







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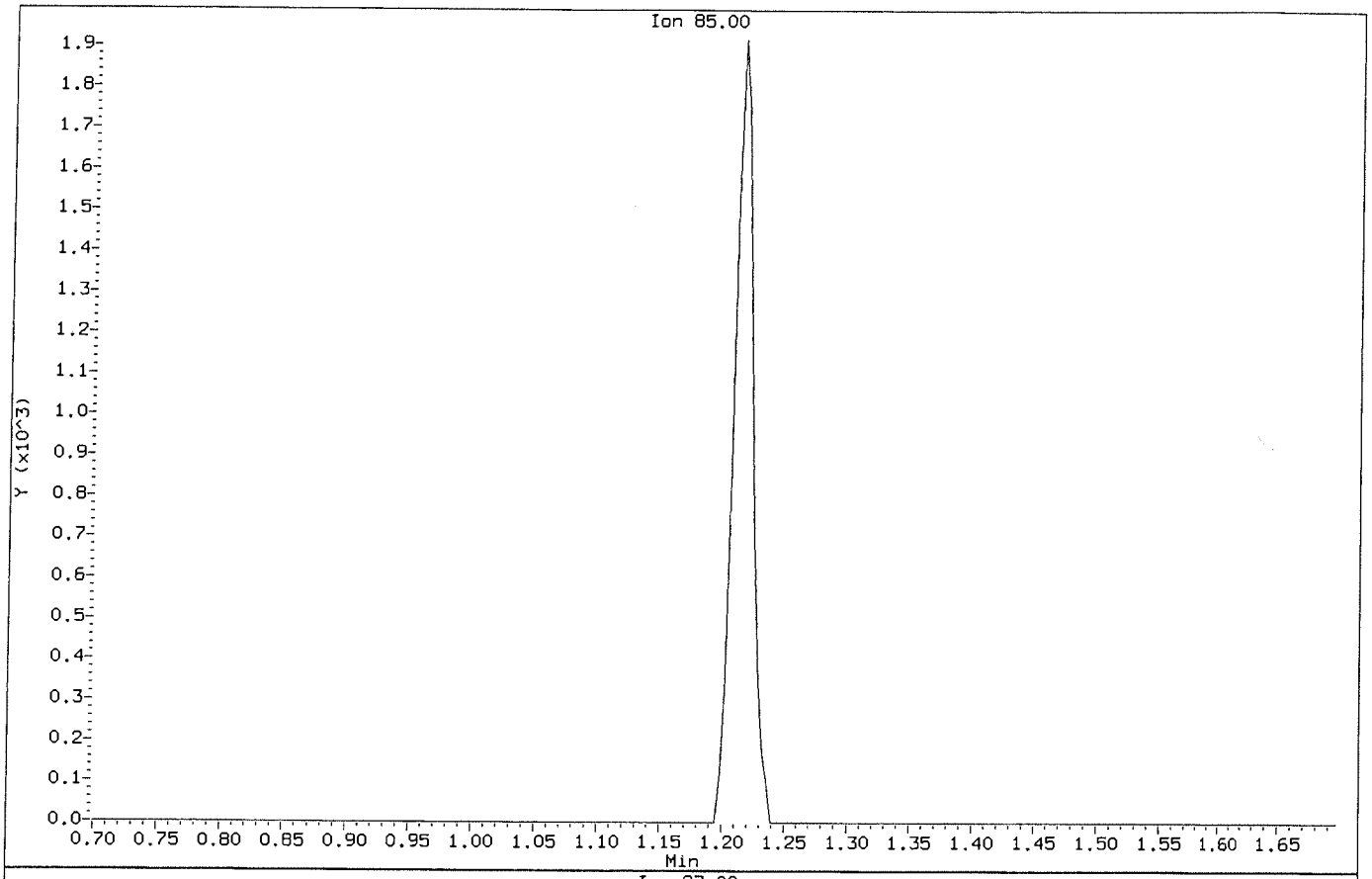
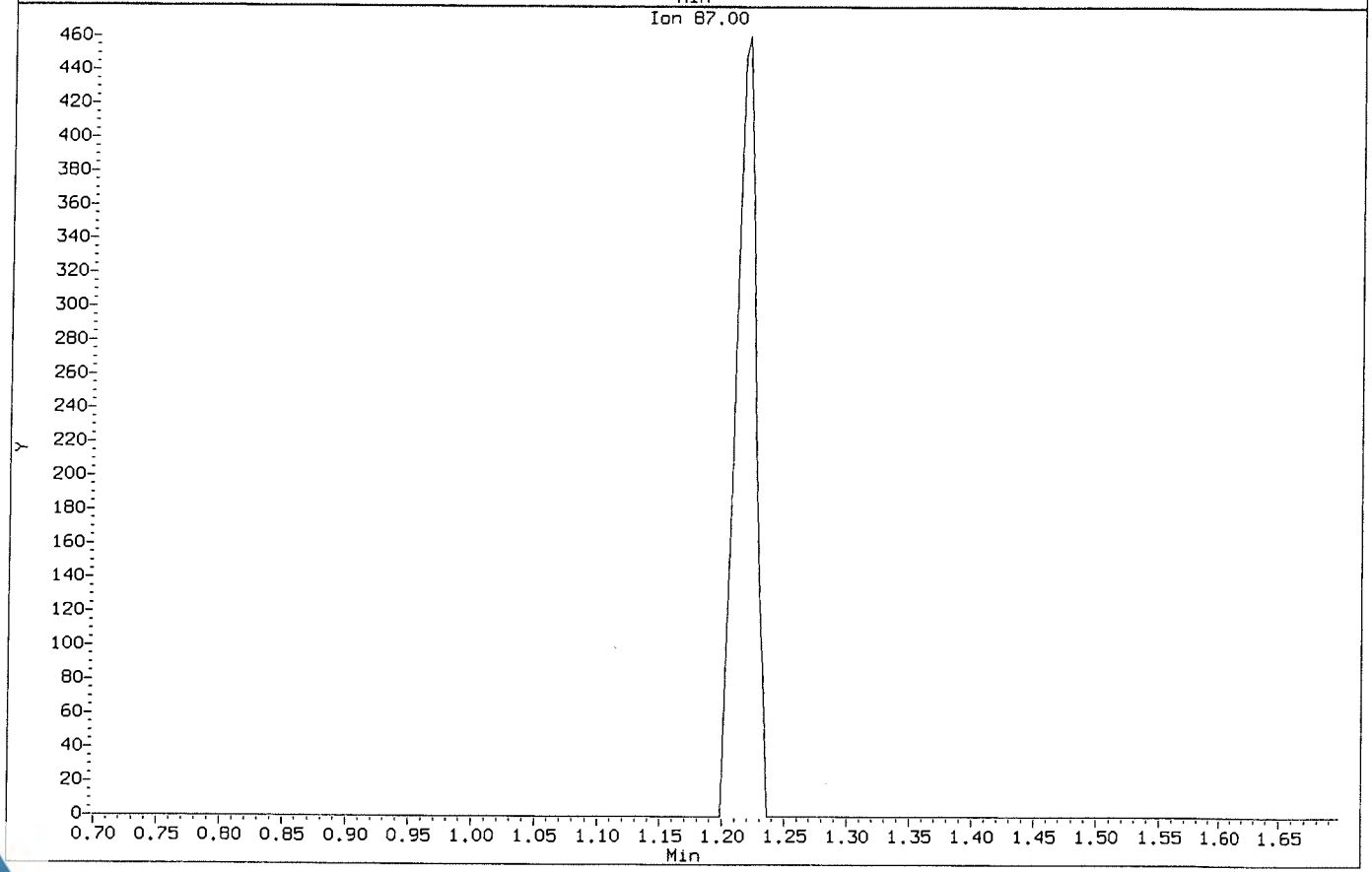
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: Dichlorodifluoromethane
CAS Number: 75-71-8





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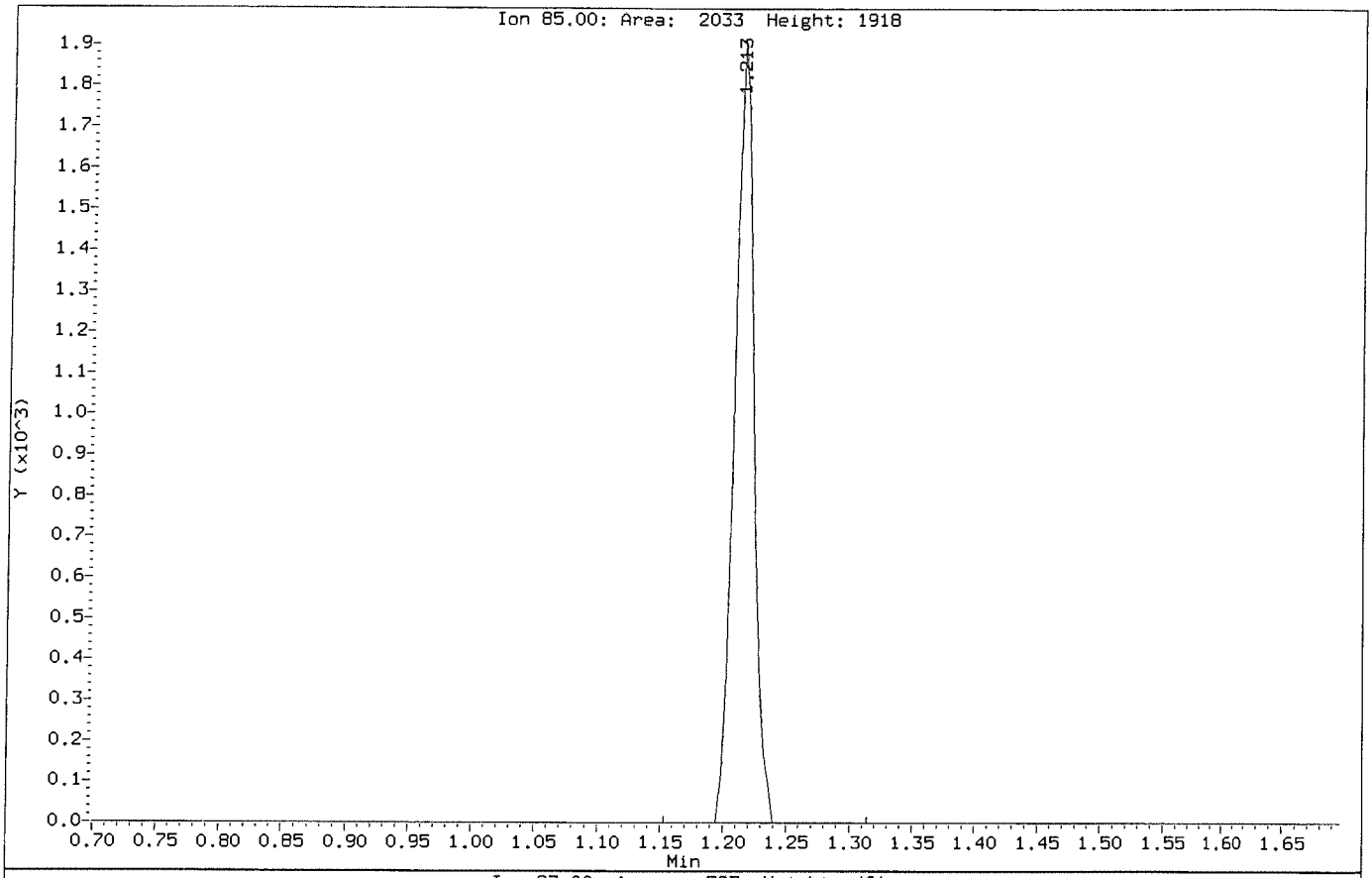
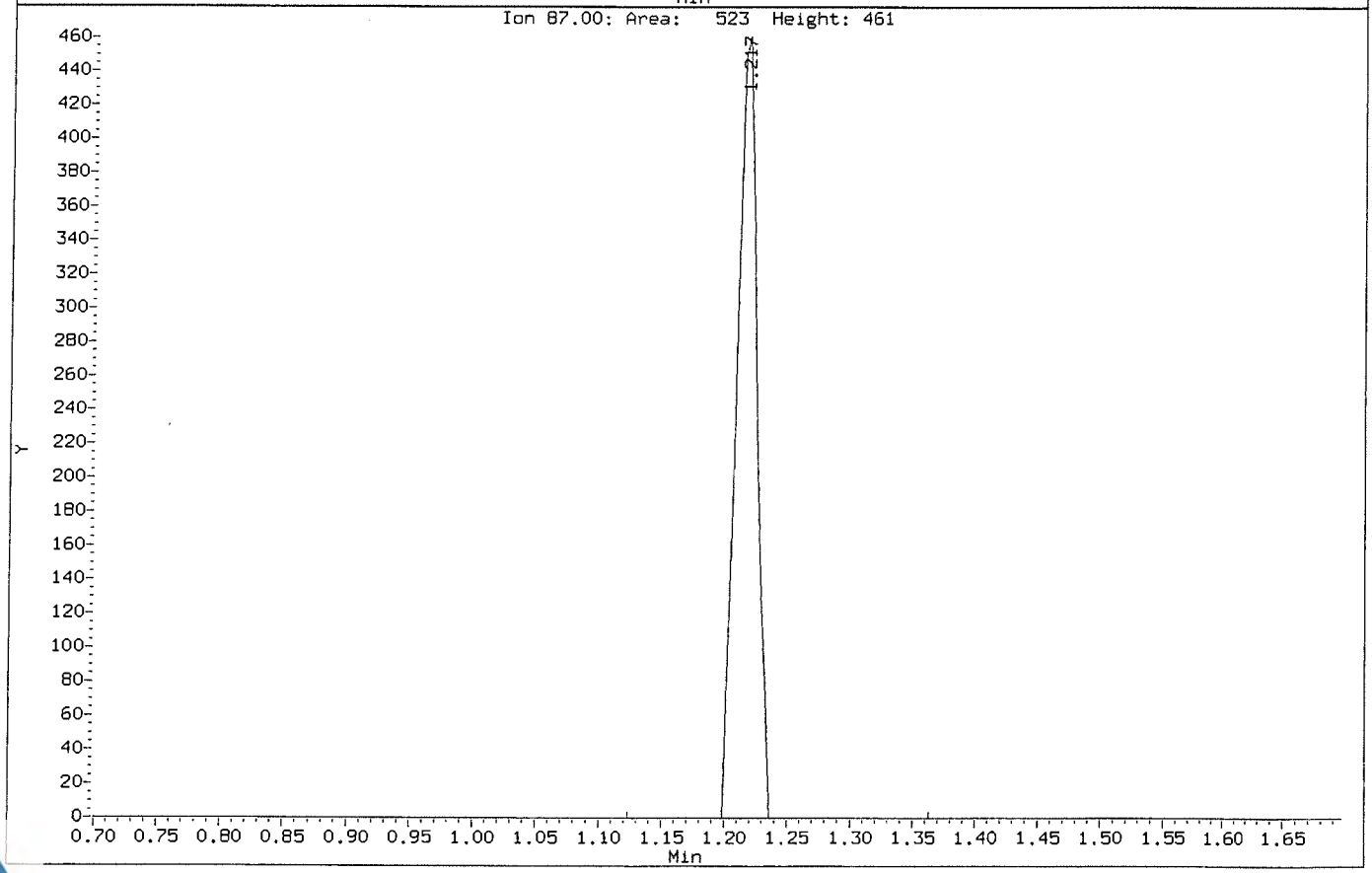
Client Sample ID: VSTD00.5

Compound: Dichlorodifluoromethane
CAS Number: 75-71-8





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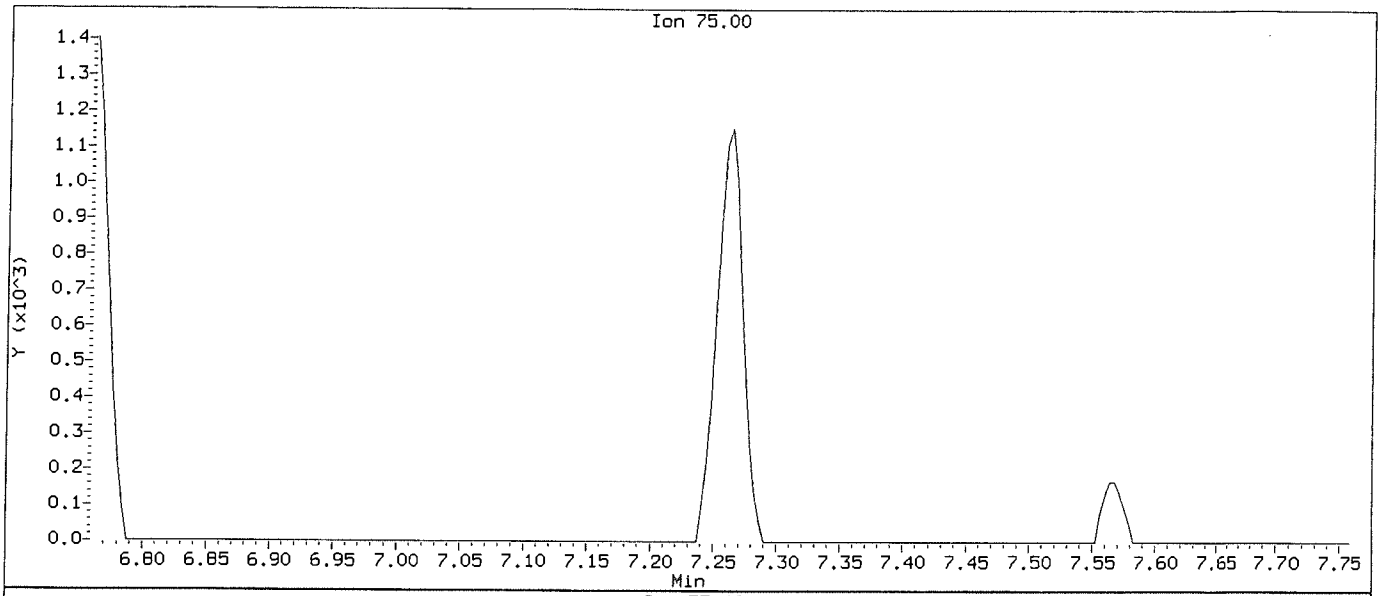
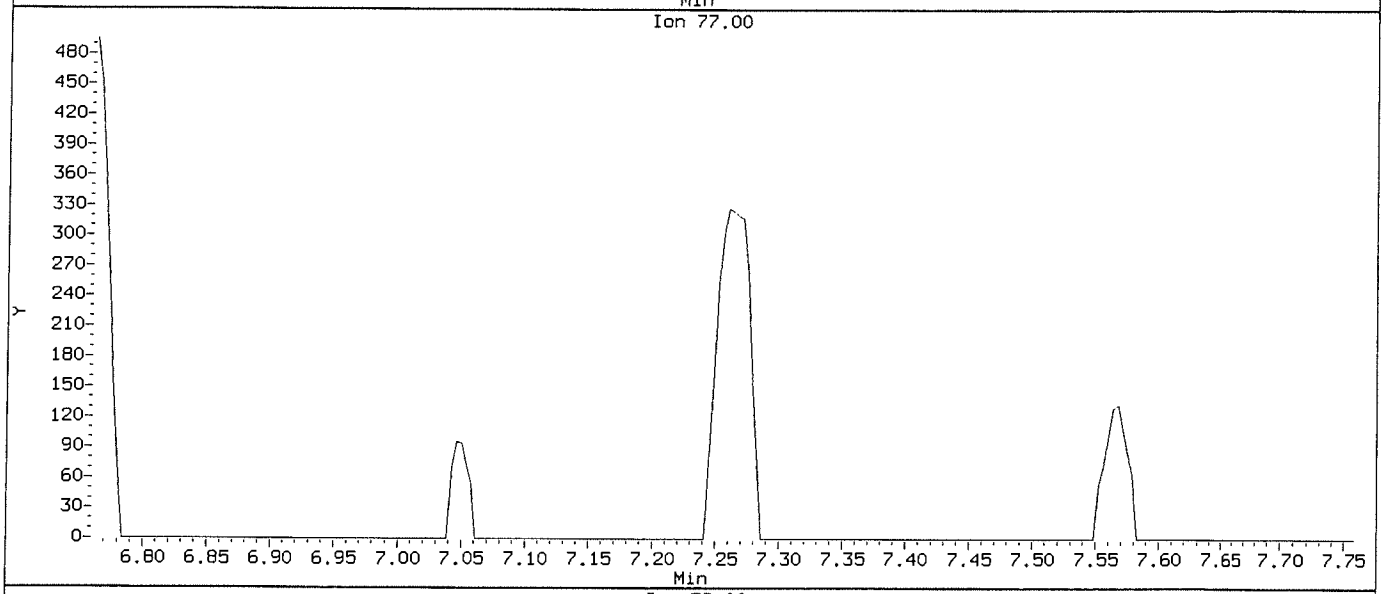
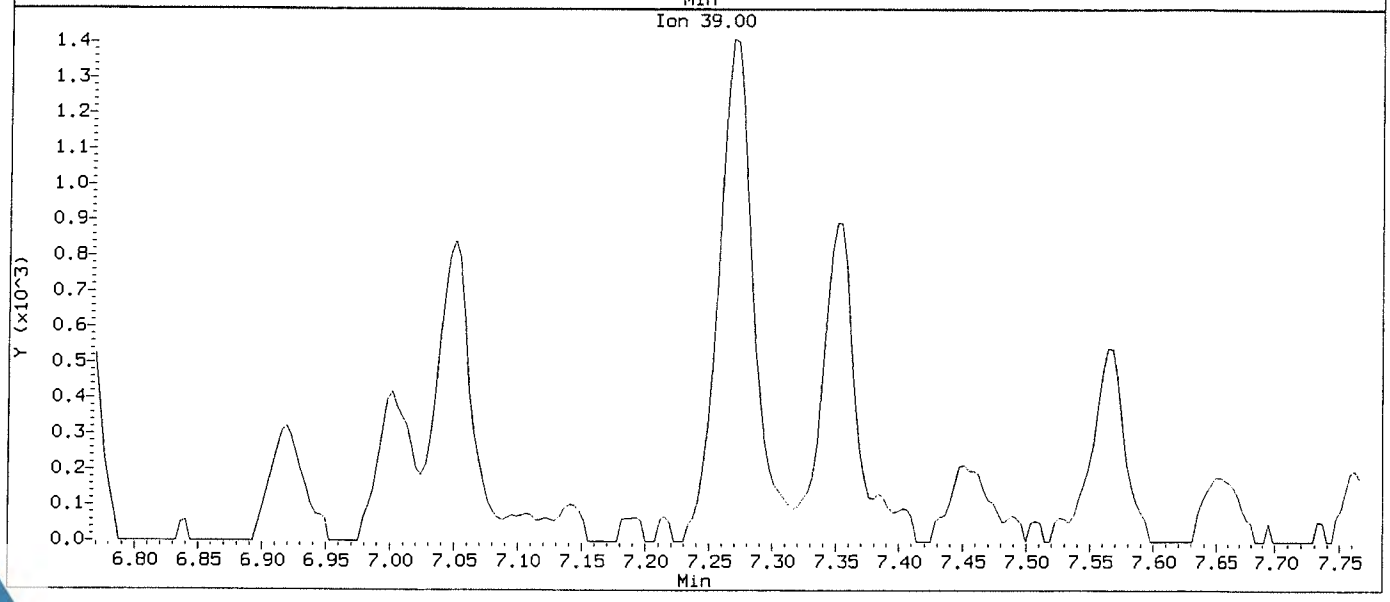
Injection Date: 21-DEC-2018 14:14
Instrument: VOA9.i
Client Sample ID: VSTD00.5

Compound: trans-1,3-Dichloropropene
CAS Number: 10061-02-6







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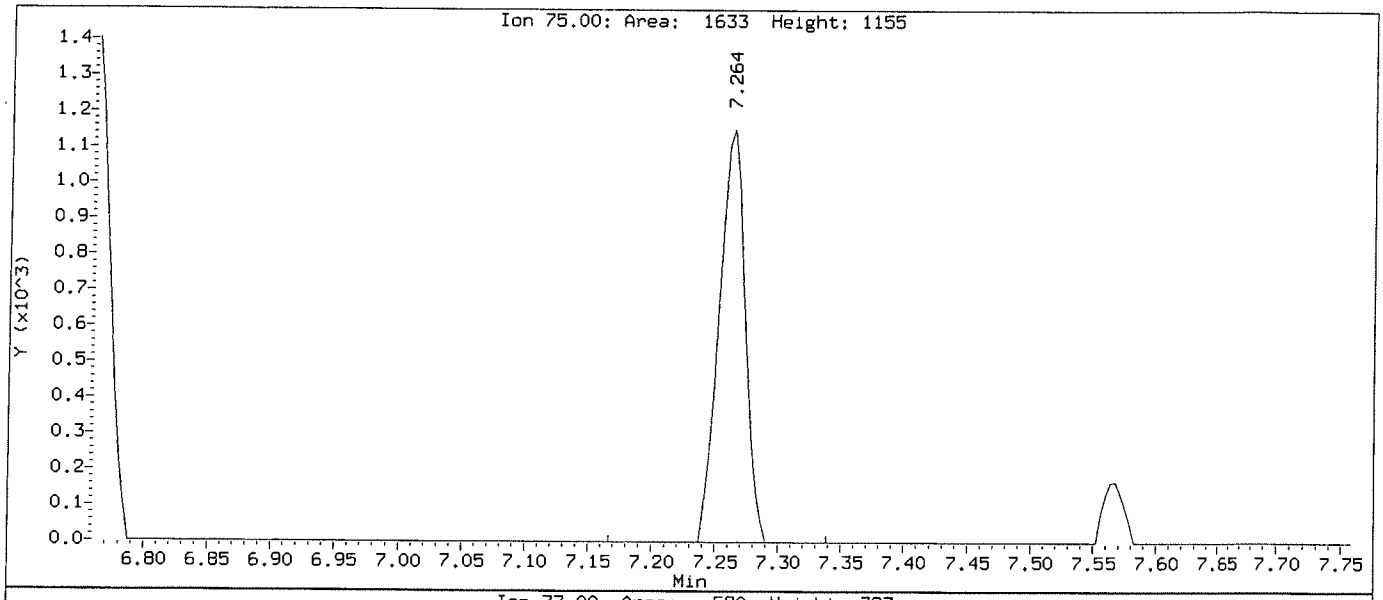
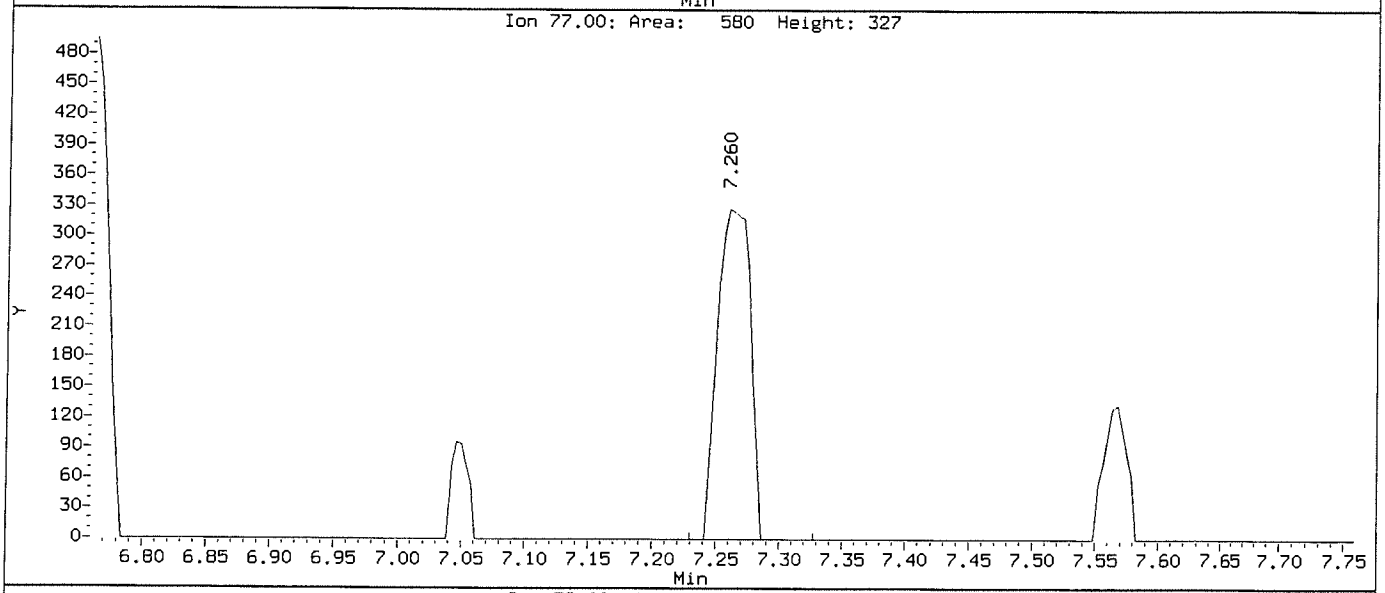
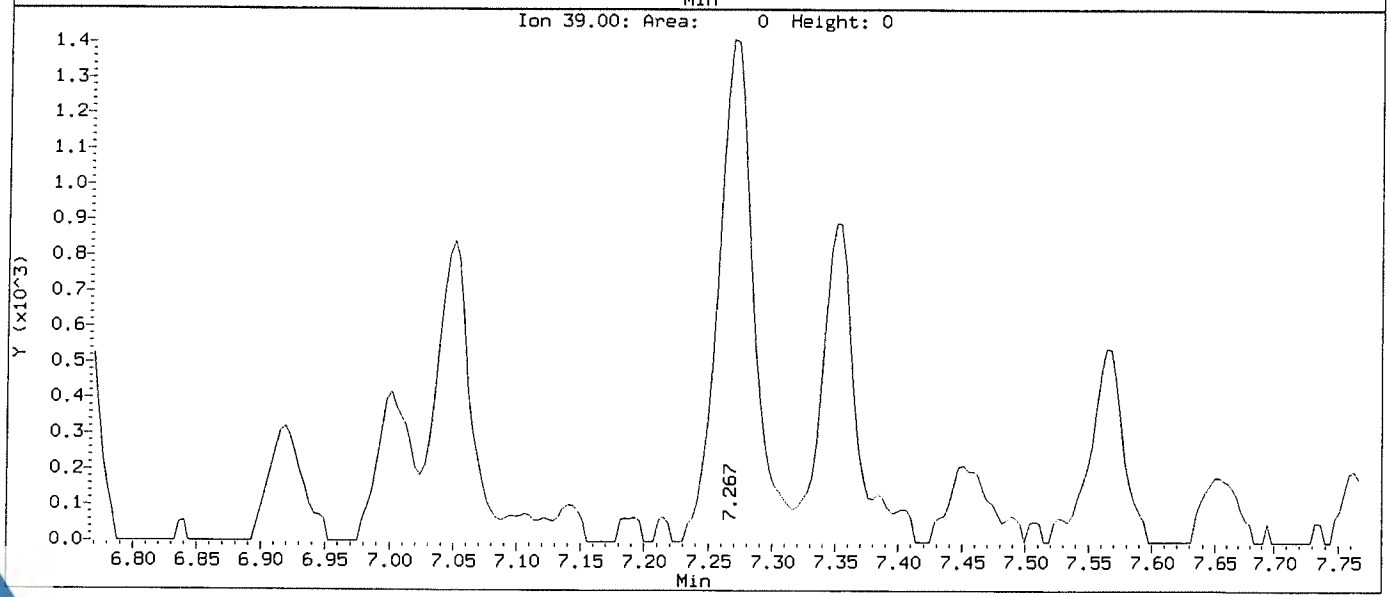
Client Sample ID: VSTD00.5

Compound: trans-1,3-Dichloropropene
CAS Number: 10061-02-6







ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122104.D
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Inj Date : 21-DEC-2018 15:03
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD001;VSTD001;1;3;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 14:14 Cal File: U122103.D
Als bottle: 5 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

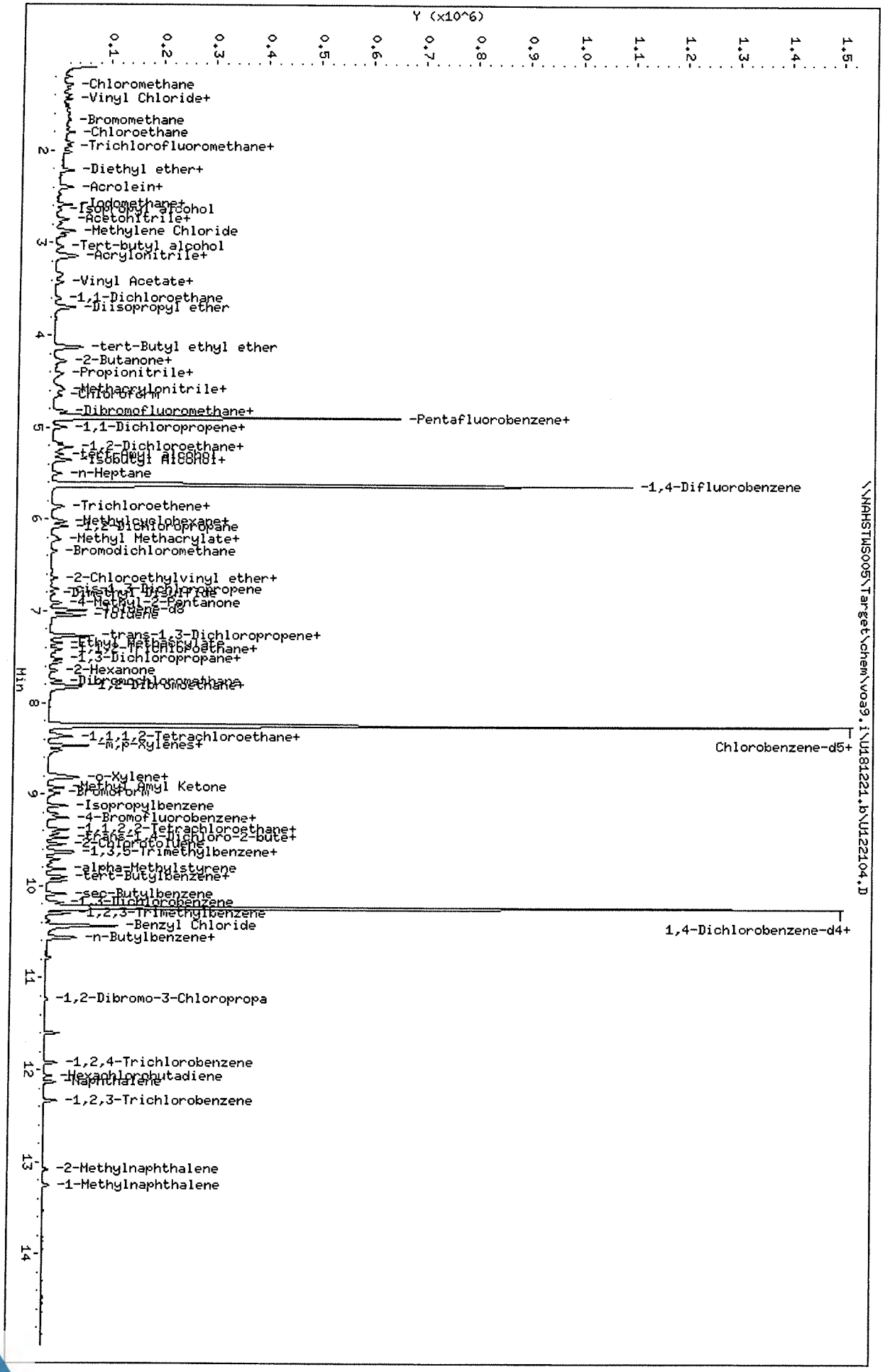
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.894	4.894	(1.000)	408613	50.0000	
* 36 1,4-Difluorobenzene	114	5.625	5.625	(1.000)	790484	50.0000	
* 47 Chlorobenzene-d5	117	8.249	8.249	(1.000)	731112	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	336061	50.0000	
$ 30 Dibromofluoromethane	113	4.826	4.826	(0.986)	8005	1.00000	0.30(a)
$ 35 1,2-Dichloroethane-d4	65	5.175	5.175	(1.057)	10907	1.00000	(a)
$ 48 Toluene-d8	98	6.989	6.989	(0.847)	32175	1.00000	(a)
$ 69 4-Bromofluorobenzene	95	9.257	9.257	(1.122)	12547	1.00000	0.36(a)
60 1,1,1,2-Tetrachloroethane	131	8.350	8.350	(1.012)	4208	1.00000	1.48(a)
31 1,1,1-Trichloroethane	97	4.826	4.826	(0.986)	7082	1.00000	1.09(a)
68 1,1,2,2-Tetrachloroethane	83	9.392	9.392	(0.918)	9134	1.00000	1.20(a)
138 Freon TF	101	2.401	2.401	(0.491)	4108	1.00000	1.18(a)
53 1,1,2-Trichloroethane	83	7.421	7.421	(0.900)	5137	1.00000	1.17(a)
22 1,1-Dichloroethane	63	3.604	3.604	(0.737)	10662	1.00000	1.21(a)
11 1,1-Dichloroethene	96	2.397	2.397	(0.490)	4598	1.00000	1.18(a)
32 1,1-Dichloropropene	75	5.003	5.003	(0.889)	8232	1.00000	1.17(a)
93 1,2,3-Trichlorobenzene	180	12.335	12.335	(1.205)	6631	1.00000	1.66(a)
71 1,2,3-Trichloropropane	75	9.426	9.426	(0.921)	8706	1.00000	1.10(a)
90 1,2,4-Trichlorobenzene	180	11.923	11.923	(1.165)	6820	1.00000	1.09(a)
79 1,2,4-Trimethylbenzene	105	9.943	9.943	(0.971)	18977	1.00000	1.07(a)
89 1,2-Dibromo-3-Chloropropane	155	11.233	11.233	(1.097)	861	1.00000	2.16(a)
57 1,2-Dibromoethane	107	7.852	7.852	(0.952)	5748	1.00000	1.14(a)

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122104.D Page 2
Report Date: 28-Jan-2019 11:25

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	10.569	10.569	(1.033)	11945	1.00000	1.19(a)
33	1,2-Dichloroethane	62	5.250	5.250	(0.933)	8970	1.00000	0.54(a)
42	1,2-Dichloropropane	63	6.078	6.078	(1.081)	6565	1.00000	1.17(a)
75	1,3,5-Trimethylbenzene	105	9.625	9.625	(0.940)	18075	1.00000	1.07(a)
83	1,3-Dichlorobenzene	146	10.180	10.180	(0.995)	11430	1.00000	1.14(a)
54	1,3-Dichloropropane	76	7.563	7.563	(0.917)	10939	1.00000	1.16(a)
84	1,4-Dichlorobenzene	146	10.255	10.255	(1.002)	12811	1.00000	1.21(a)
26	2,2-Dichloropropane	77	4.272	4.272	(0.873)	6236	1.00000	1.17(a)
24	2-Butanone	43	4.343	4.343	(0.887)	6369	2.00000	0.00(a)
76	2-Chlorotoluene	91	9.546	9.546	(0.933)	17719	1.00000	1.14(a)
52	2-Hexanone	43	7.649	7.649	(0.927)	8136	2.00000	2.00(a)
77	4-Chlorotoluene	91	9.640	9.640	(0.942)	20099	1.00000	1.12(a)
82	p-Isopropyltoluene	119	10.210	10.210	(0.997)	18371	1.00000	1.03(a)
45	4-Methyl-2-Pentanone	43	6.914	6.914	(0.838)	12526	2.00000	2.14(a)
10	Acetone	43	2.480	2.480	(0.507)	5582	2.00000	0.58(a)
37	Benzene	78	5.216	5.216	(0.927)	24701	1.00000	1.17(a)
74	Bromobenzene	156	9.381	9.381	(0.917)	5982	1.00000	1.15(a)
29	Bromochloromethane	128	4.553	4.553	(0.930)	2865	1.00000	(a)
39	Bromodichloromethane	83	6.348	6.348	(1.129)	6221	1.00000	1.04(aM)
66	Bromoform	173	8.984	8.984	(1.089)	2343	1.00000	2.48(Ta)
6	Bromomethane	94	1.670	1.670	(0.341)	2293	1.00000	2.22(a)
19	Carbon Disulfide	76	2.585	2.585	(0.528)	33391	2.00000	2.35(a)
34	Carbon Tetrachloride	117	4.991	4.991	(0.887)	5463	1.00000	2.32(a)
59	Chlorobenzene	112	8.275	8.275	(1.003)	16703	1.00000	1.18(a)
7	Chloroethane	64	1.749	1.749	(0.357)	3213	1.00000	1.36(aM)
28	Chloroform	83	4.654	4.654	(0.951)	10242	1.00000	1.20(a)
3	Chloromethane	50	1.336	1.336	(0.273)	4689	1.00000	4.32(a)
27	cis-1,2-Dichloroethene	96	4.283	4.283	(0.875)	6586	1.00000	1.22(a)
46	cis-1,3-Dichloropropene	75	6.757	6.757	(1.201)	7273	1.00000	2.04(a)
55	Dibromochloromethane	129	7.758	7.758	(0.940)	4051	1.00000	1.80(a)
44	Dibromomethane	93	6.187	6.187	(1.100)	3627	1.00000	1.12(aM)
2	Dichlorodifluoromethane	85	1.201	1.201	(0.246)	6583	1.00000	1.78(a)
61	Ethylbenzene	106	8.369	8.369	(1.015)	8132	1.00000	1.12(a)
91	Hexachlorobutadiene	225	12.065	12.065	(1.179)	2672	1.00000	1.12(a)
67	Isopropylbenzene	105	9.126	9.126	(1.106)	22547	1.00000	1.08(a)
62	m,p-Xylenes	106	8.470	8.470	(1.027)	19538	2.00000	2.20(a)
17	Methylene Chloride	84	2.866	2.866	(0.586)	8113	1.00000	0.44(a)
87	n-Butylbenzene	91	10.554	10.554	(1.031)	18944	1.00000	1.10(a)
73	n-Propylbenzene	91	9.475	9.475	(0.926)	27852	1.00000	1.10(a)
92	Naphthalene	128	12.133	12.133	(1.185)	16505	1.00000	1.44(a)
63	o-Xylene	106	8.811	8.811	(1.068)	10277	1.00000	1.15(a)
81	sec-Butylbenzene	105	10.086	10.086	(0.985)	22753	1.00000	1.07(a)
64	Styrene	104	8.826	8.826	(1.070)	15133	1.00000	1.01(a)
78	tert-Butylbenzene	119	9.902	9.902	(0.967)	15715	1.00000	1.07(a)
56	Tetrachloroethene	164	7.522	7.522	(0.912)	4775	1.00000	1.24(a)
50	Toluene	91	7.046	7.046	(0.854)	24298	1.00000	1.11(a)
20	trans-1,2-Dichloroethene	96	3.140	3.140	(0.642)	5920	1.00000	1.23(a)
51	trans-1,3-Dichloropropene	75	7.259	7.259	(1.291)	5668	1.00000	2.35(a)
38	Trichloroethene	130	5.861	5.861	(1.042)	6040	1.00000	1.18(a)
8	Trichlorofluoromethane	101	1.951	1.951	(0.399)	7922	1.00000	1.78(a)
5	Vinyl Chloride	62	1.415	1.415	(0.289)	6308	1.00000	2.03(a)

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



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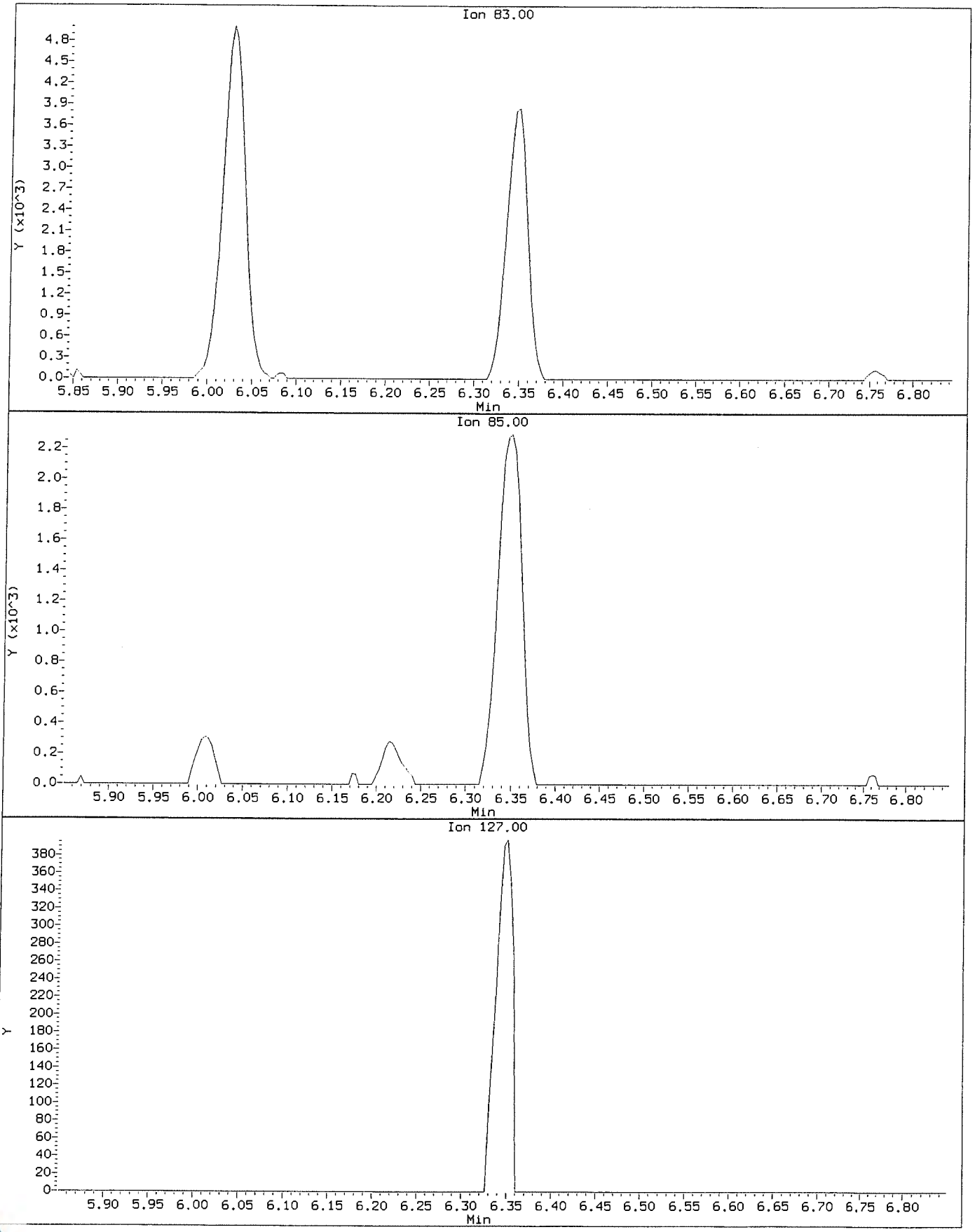
Client ID: VSTD001
Sample Info: VSTD001;VSTD001;1;3;
Purge Volume: 5.0
Column phase: DB624

\\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122104.D

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122104.D
Injection Date: 21-DEC-2018 15:03
Instrument: VOA9.i
Client Sample ID: VSTD001

Compound: Bromodichloromethane
CAS Number: 75-27-4



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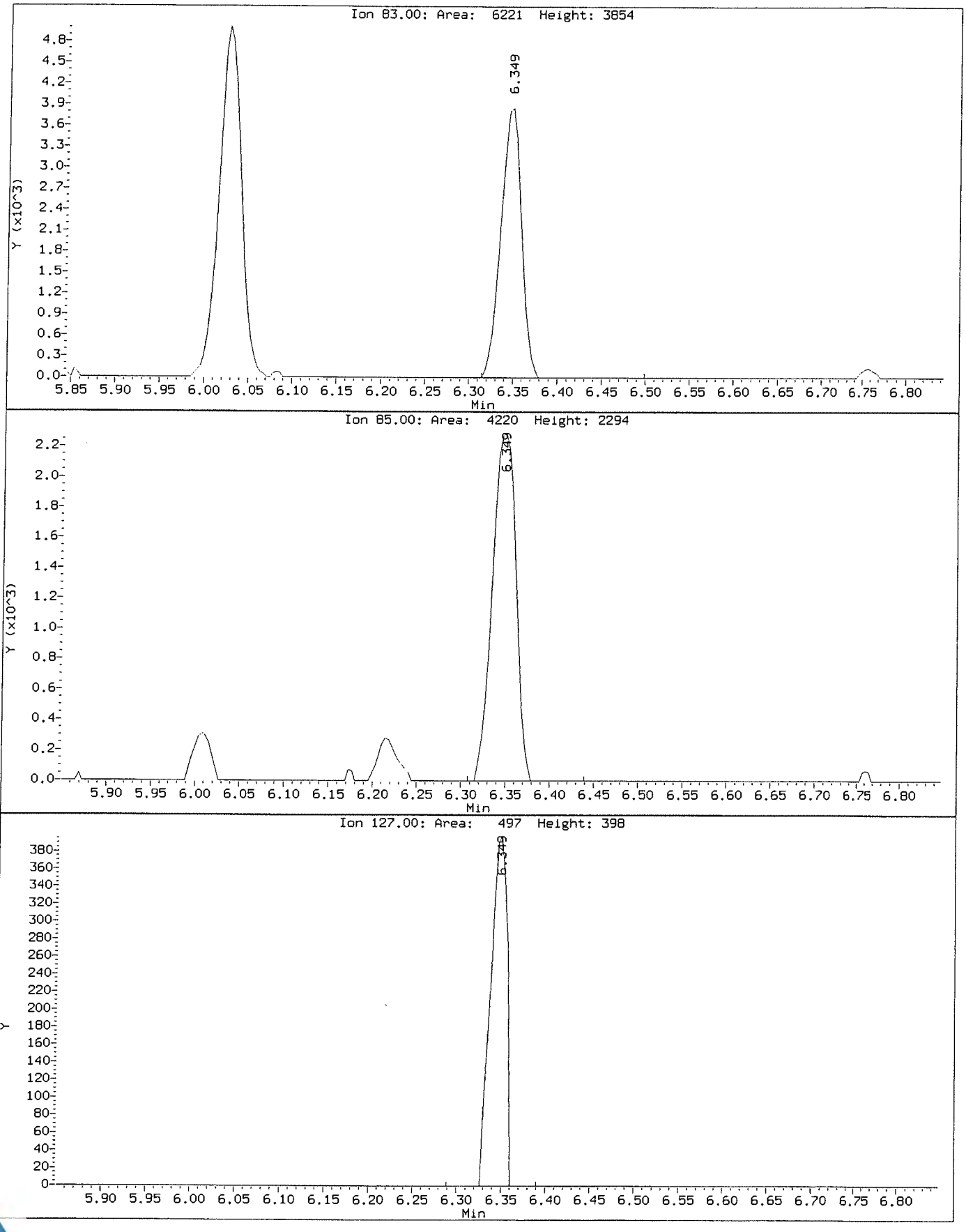
Client Sample ID: VSTD001

Compound: Bromodichloromethane
CAS Number: 75-27-4



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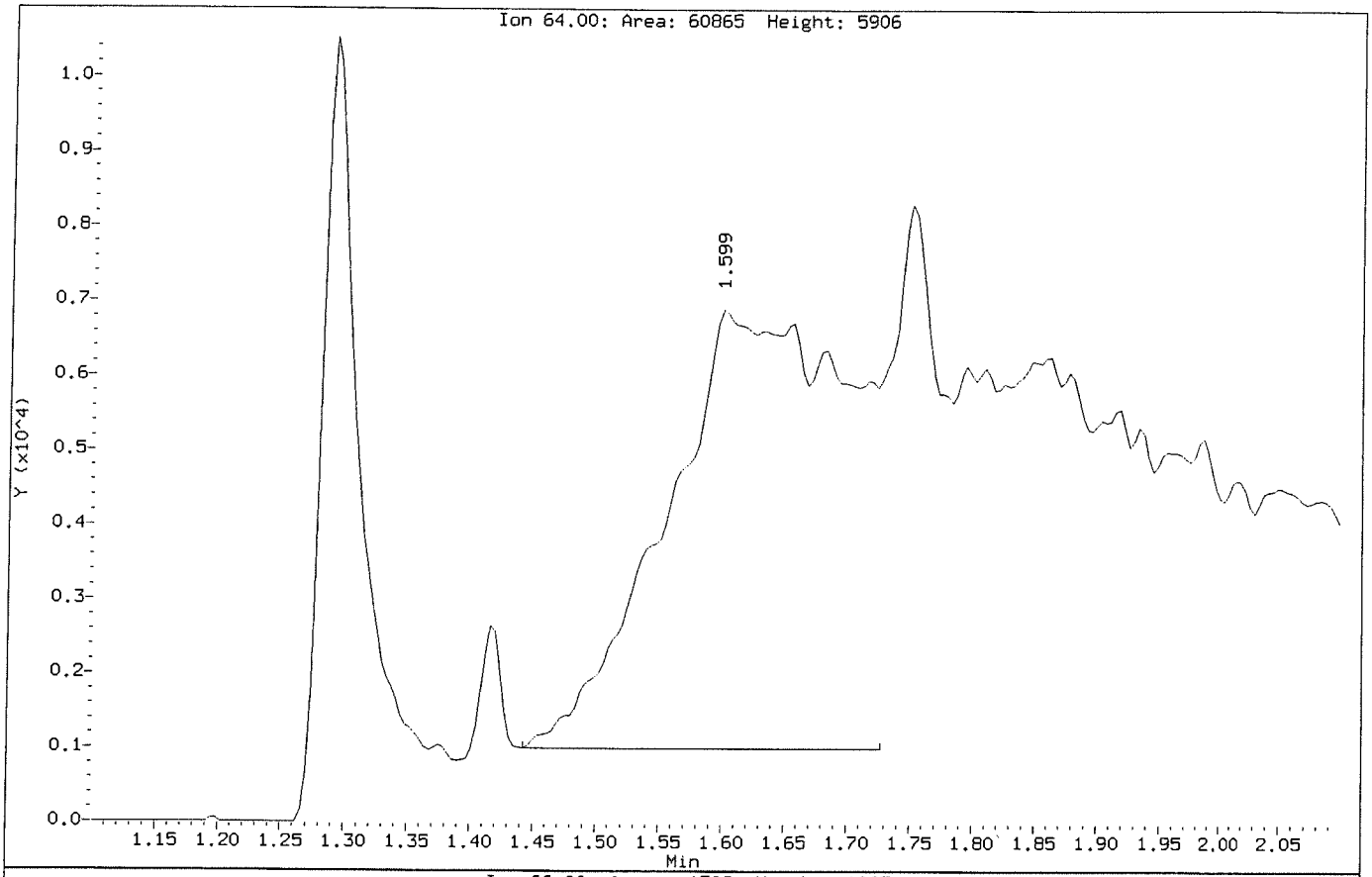
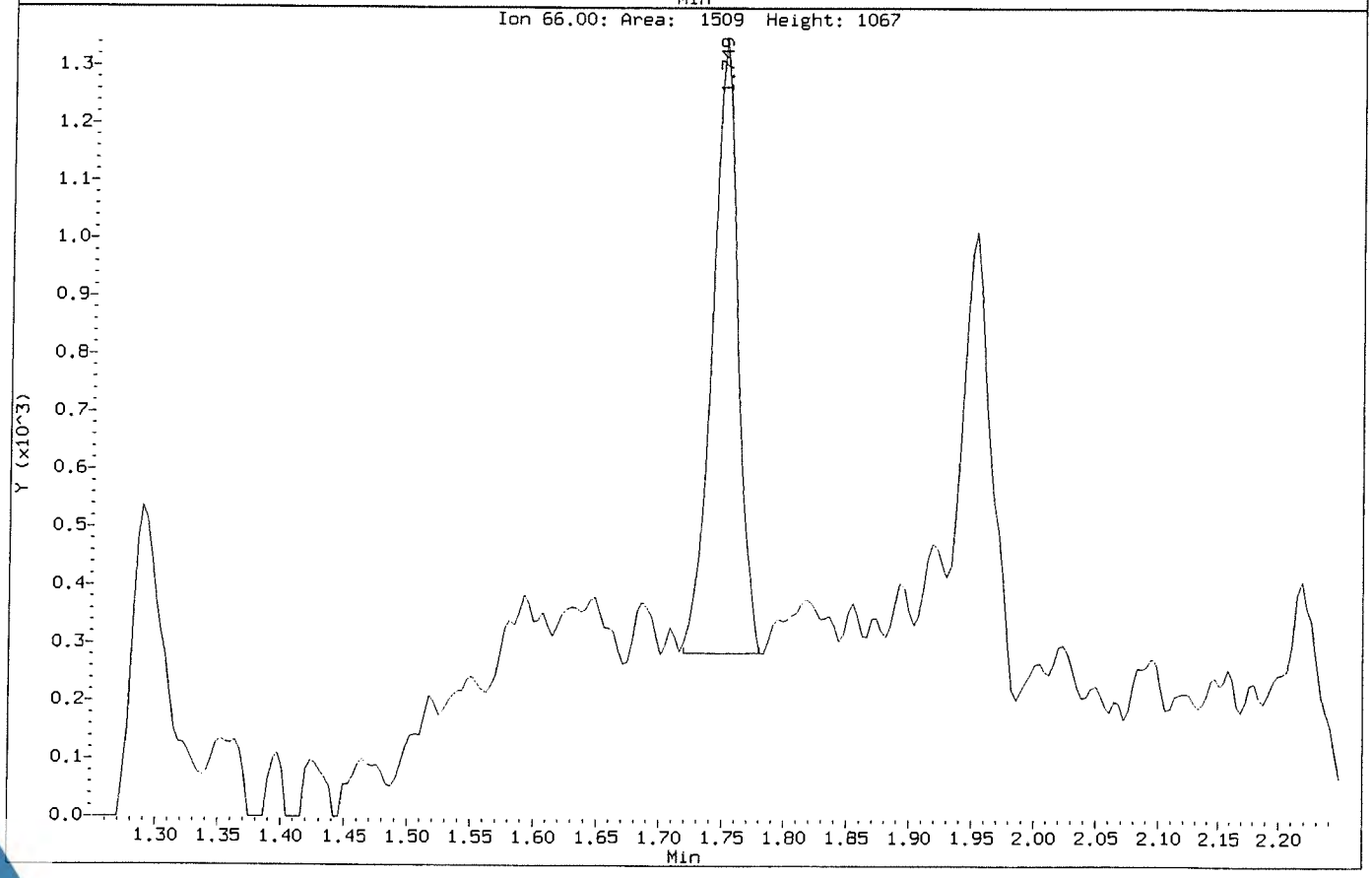
Instrument: VOA9.i
Client Sample ID: VSTD001

Compound: Chloroethane
CAS Number: 75-00-3





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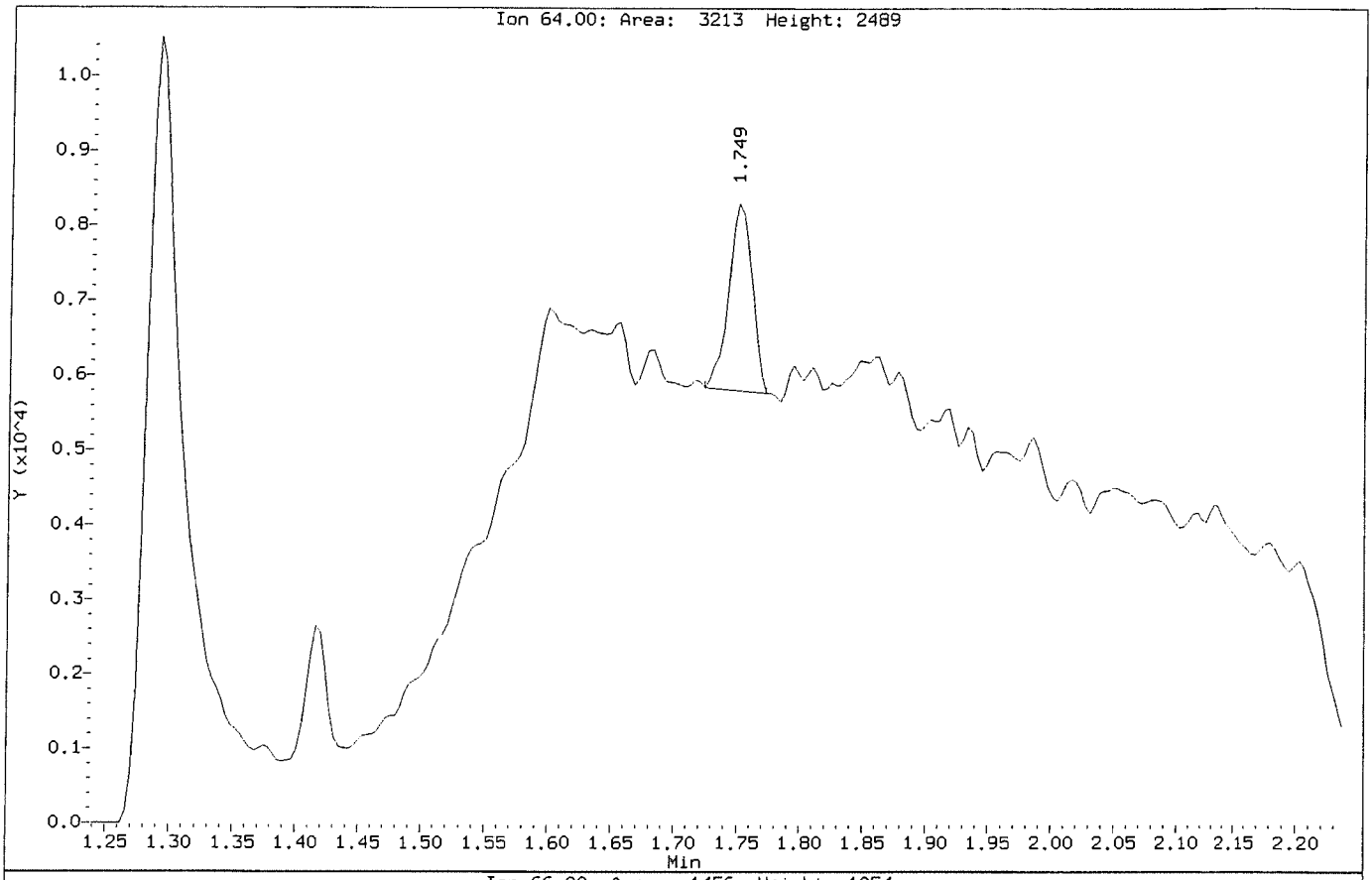
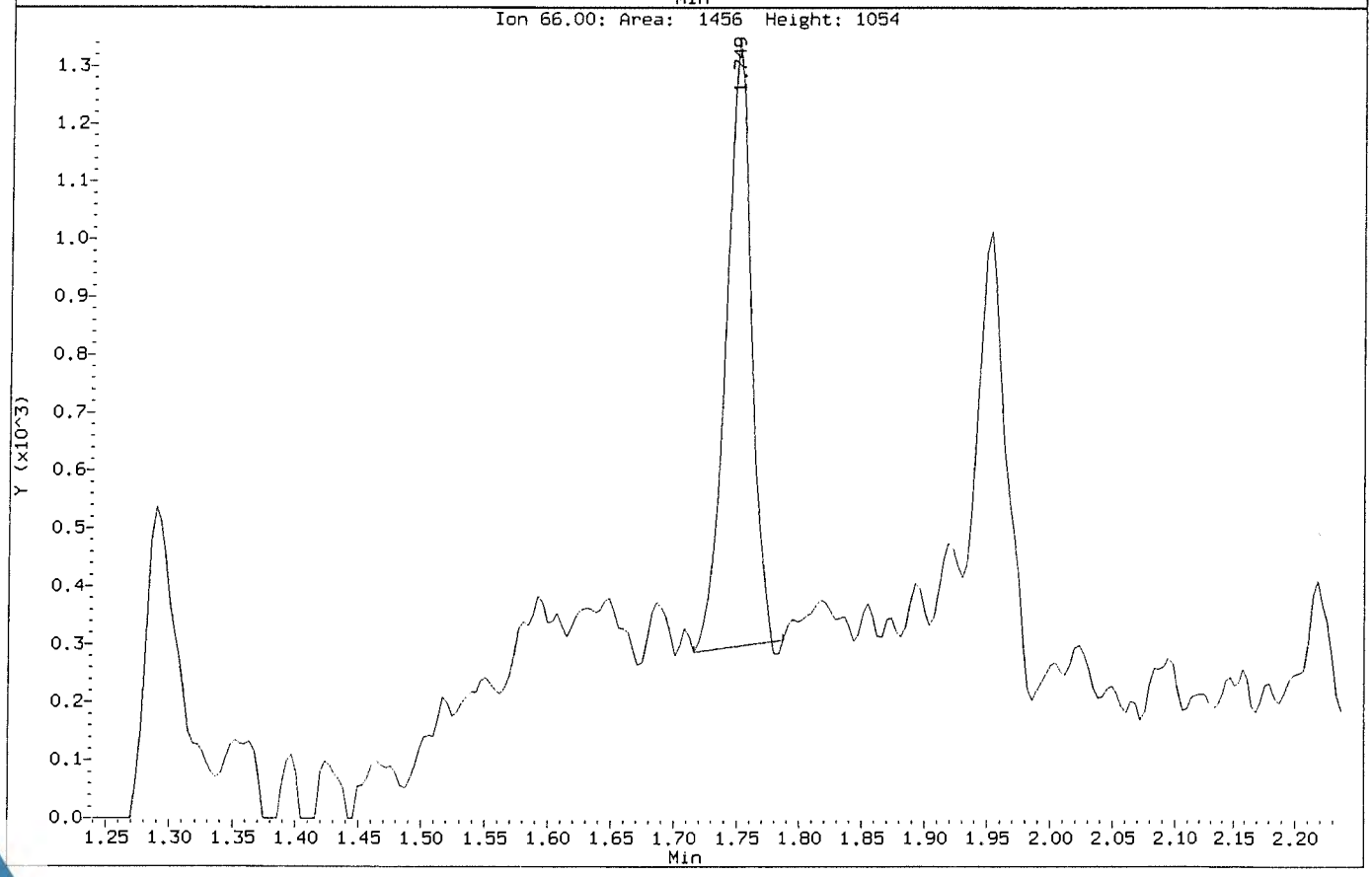
Instrument: VOA9.i
Client Sample ID: VSTD001

Compound: Chloroethane
CAS Number: 75-00-3





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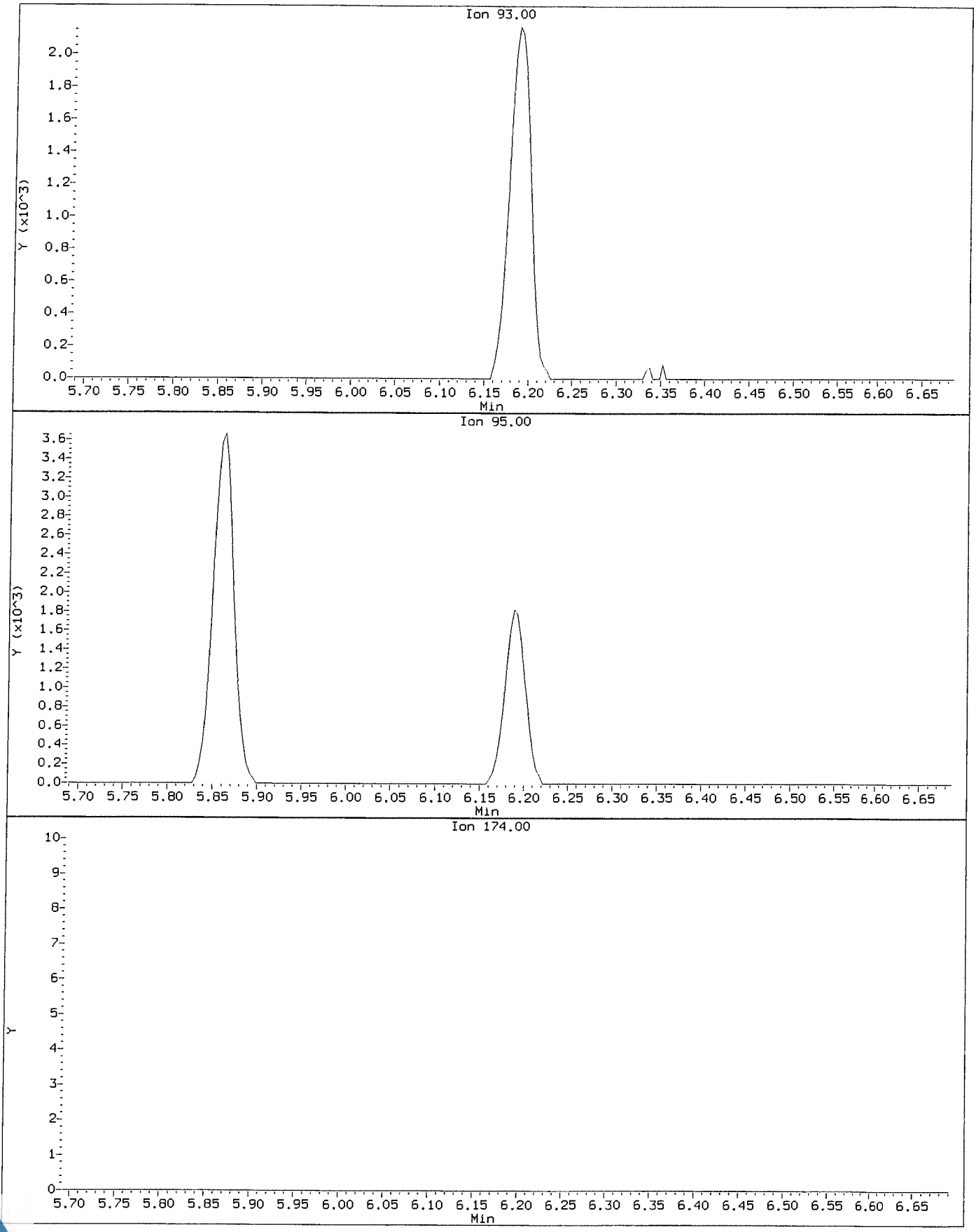
Instrument: VOA9.i
Client Sample ID: VSTD001

Compound: Dibromomethane
CAS Number: 74-95-3



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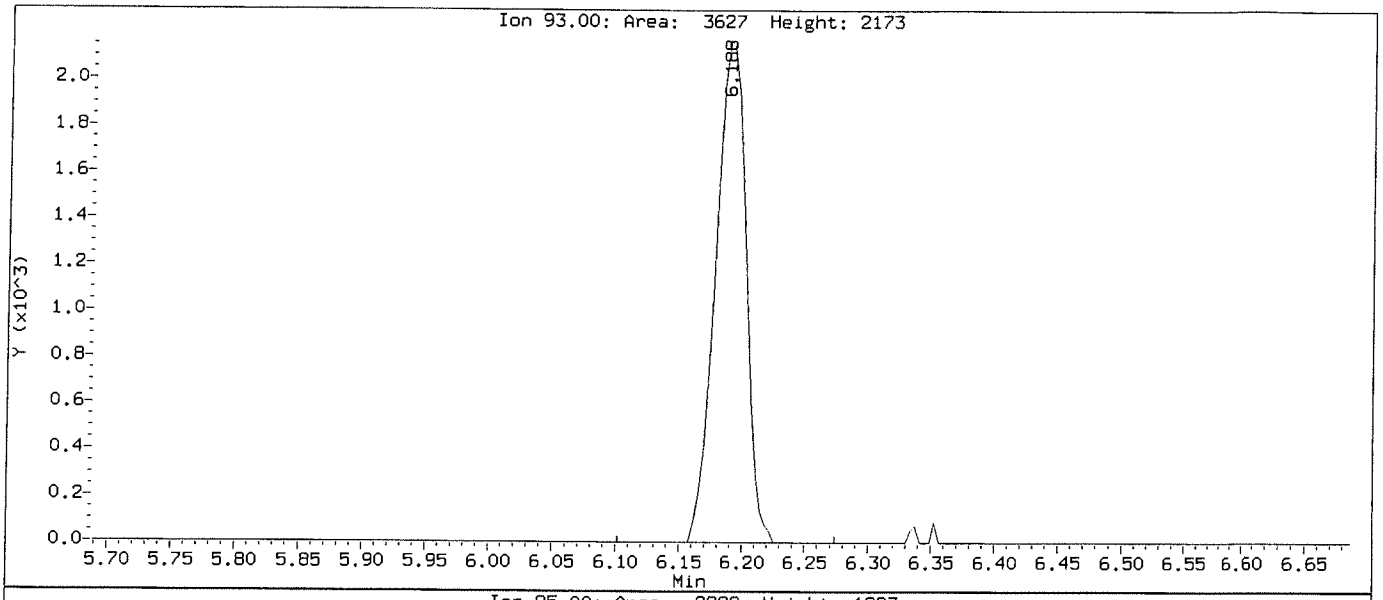
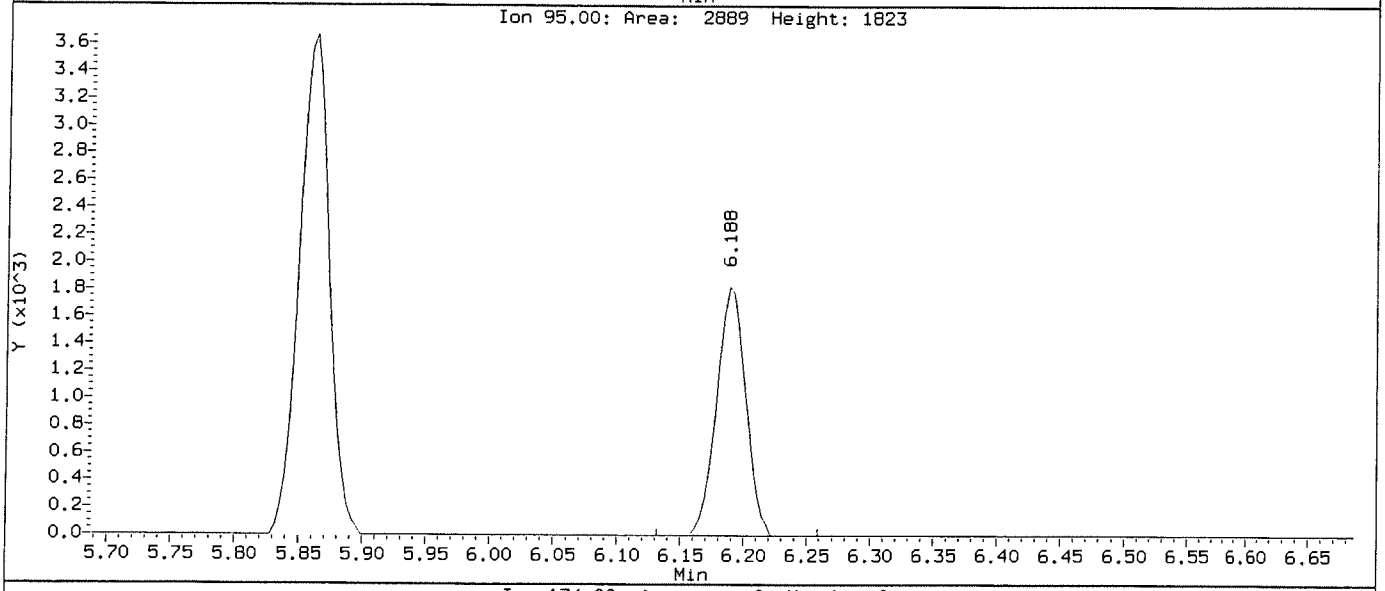
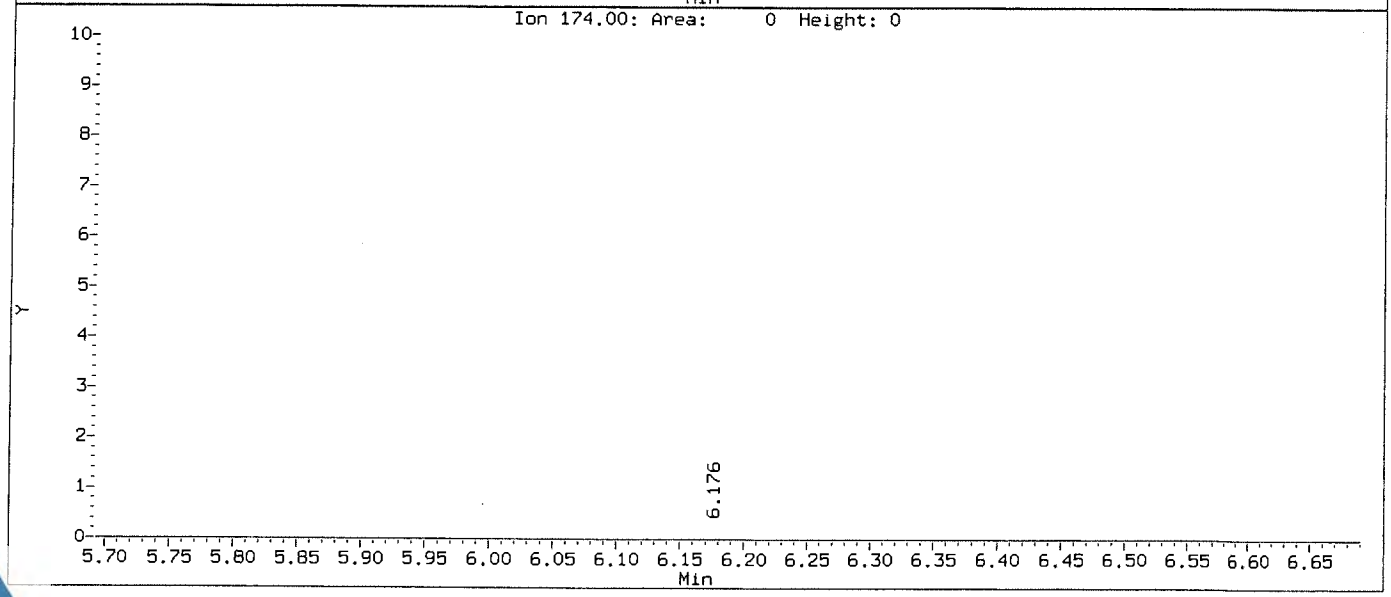
Instrument: VOA9.i
Client Sample ID: VSTD001

Compound: Dibromomethane
CAS Number: 74-95-3







ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122105.D
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Inj Date : 21-DEC-2018 15:28
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD002;VSTD002;1;4;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 15:03 Cal File: U122104.D
Als bottle: 6 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

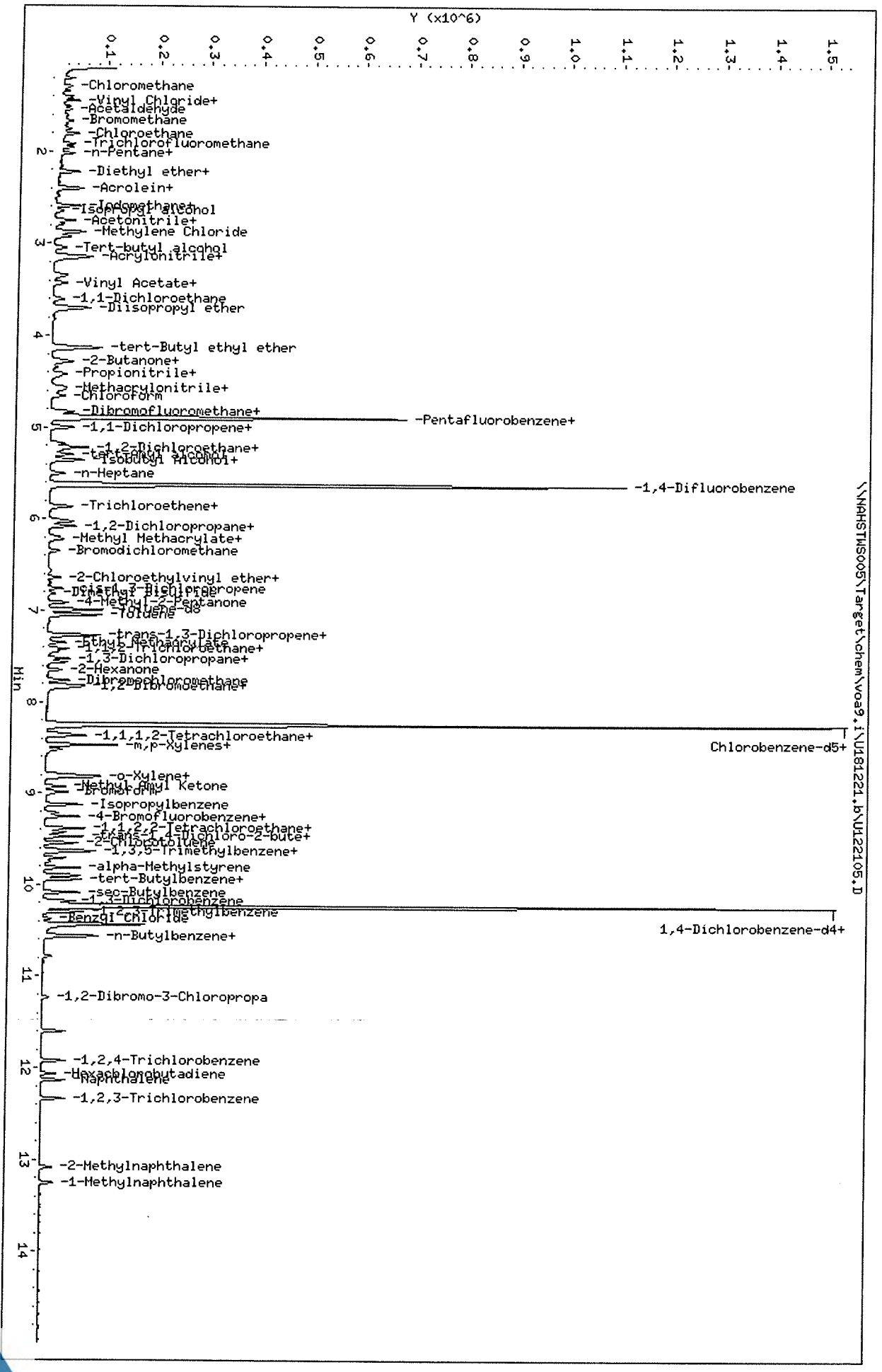
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.894	4.894	(1.000)	416245	50.0000	
* 36 1,4-Difluorobenzene	114	5.625	5.625	(1.000)	790380	50.0000	
* 47 Chlorobenzene-d5	117	8.249	8.249	(1.000)	728875	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	340088	50.0000	
$ 30 Dibromofluoromethane	113	4.830	4.830	(0.987)	12720	2.00000	1.32(a)
$ 35 1,2-Dichloroethane-d4	65	5.175	5.175	(1.057)	17881	2.00000	0.99(a)
$ 48 Toluene-d8	98	6.989	6.989	(0.847)	54444	2.00000	1.21(a)
$ 69 4-Bromofluorobenzene	95	9.257	9.257	(1.122)	20092	2.00000	1.45(a)
60 1,1,1,2-Tetrachloroethane	131	8.347	8.347	(1.012)	8522	2.00000	2.40(a)
31 1,1,1-Trichloroethane	97	4.827	4.827	(0.986)	12904	2.00000	1.96(a)
68 1,1,2,2-Tetrachloroethane	83	9.392	9.392	(0.918)	16933	2.00000	2.21(a)
138 Freon TF	101	2.401	2.401	(0.491)	7489	2.00000	2.11(a)
53 1,1,2-Trichloroethane	83	7.421	7.421	(0.900)	9254	2.00000	2.13(a)
22 1,1-Dichloroethane	63	3.604	3.604	(0.737)	19553	2.00000	2.18(a)
11 1,1-Dichloroethene	96	2.401	2.401	(0.491)	8761	2.00000	2.21(a)
32 1,1-Dichloropropene	75	5.006	5.006	(0.890)	15087	2.00000	2.14(a)
93 1,2,3-Trichlorobenzene	180	12.335	12.335	(1.205)	12385	2.00000	2.54(a)
71 1,2,3-Trichloropropane	75	9.426	9.426	(0.921)	16368	2.00000	2.05(a)
90 1,2,4-Trichlorobenzene	180	11.923	11.923	(1.165)	12313	2.00000	1.95(a)
79 1,2,4-Trimethylbenzene	105	9.943	9.943	(0.971)	36129	2.00000	2.03(a)
89 1,2-Dibromo-3-Chloropropane	155	11.233	11.233	(1.097)	1910	2.00000	3.02(a)
57 1,2-Dibromoethane	107	7.852	7.852	(0.952)	10069	2.00000	2.01(a)

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	10.569	10.569	(1.033)	21852	2.00000	2.16(a)
33	1,2-Dichloroethane	62	5.254	5.254	(0.934)	15708	2.00000	1.50(a)
42	1,2-Dichloropropane	63	6.079	6.079	(1.081)	11593	2.00000	2.07(a)
75	1,3,5-Trimethylbenzene	105	9.625	9.625	(0.940)	33264	2.00000	1.94(a)
83	1,3-Dichlorobenzene	146	10.180	10.180	(0.995)	21833	2.00000	2.16(a)
54	1,3-Dichloropropane	76	7.563	7.563	(0.917)	19804	2.00000	2.11(a)
84	1,4-Dichlorobenzene	146	10.255	10.255	(1.002)	22897	2.00000	2.15(a)
26	2,2-Dichloropropane	77	4.275	4.275	(0.874)	10414	2.00000	1.92(a)
24	2-Butanone	43	4.343	4.343	(0.887)	11299	4.00000	1.81(a)
76	2-Chlorotoluene	91	9.546	9.546	(0.933)	32538	2.00000	2.07(a)
52	2-Hexanone	43	7.653	7.653	(0.928)	15773	4.00000	3.89(a)
77	4-Chlorotoluene	91	9.640	9.640	(0.942)	38000	2.00000	2.09(a)
82	p-Isopropyltoluene	119	10.210	10.210	(0.997)	34224	2.00000	1.90(a)
45	4-Methyl-2-Pentanone	43	6.915	6.915	(0.838)	23124	4.00000	3.96(a)
10	Acetone	43	2.484	2.484	(0.508)	8219	4.00000	2.18(a)
37	Benzene	78	5.220	5.220	(0.928)	44238	2.00000	2.10(a)
74	Bromobenzene	156	9.381	9.381	(0.917)	11074	2.00000	2.10(a)
29	Bromochloromethane	128	4.557	4.557	(0.931)	5148	2.00000	(a)
39	Bromodichloromethane	83	6.348	6.348	(1.129)	11433	2.00000	1.92(a)
66	Bromoform	173	8.984	8.984	(1.089)	4574	2.00000	3.17(Ta)
6	Bromomethane	94	1.674	1.674	(0.342)	4588	2.00000	3.07(a)
19	Carbon Disulfide	76	2.589	2.589	(0.529)	60138	4.00000	4.17(a)
34	Carbon Tetrachloride	117	4.995	4.995	(0.888)	10077	2.00000	3.10(a)
59	Chlorobenzene	112	8.275	8.275	(1.003)	29501	2.00000	2.10(a)
7	Chloroethane	64	1.753	1.753	(0.358)	8179	2.00000	2.69(aM)
28	Chloroform	83	4.658	4.658	(0.952)	18482	2.00000	2.14(a)
3	Chloromethane	50	1.340	1.340	(0.274)	8693	2.00000	5.15
27	cis-1,2-Dichloroethene	96	4.287	4.287	(0.876)	11391	2.00000	2.08(a)
46	cis-1,3-Dichloropropene	75	6.757	6.757	(1.201)	13732	2.00000	2.74(a)
55	Dibromochloromethane	129	7.758	7.758	(0.940)	7740	2.00000	2.55(a)
44	Dibromomethane	93	6.191	6.191	(1.101)	6690	2.00000	2.07(aM)
2	Dichlorodifluoromethane	85	1.205	1.205	(0.246)	11371	2.00000	2.68(a)
61	Ethylbenzene	106	8.373	8.373	(1.015)	14915	2.00000	2.07(a)
91	Hexachlorobutadiene	225	12.065	12.065	(1.179)	4376	2.00000	1.81(a)
67	Isopropylbenzene	105	9.126	9.126	(1.106)	42416	2.00000	2.04(a)
62	m,p-Xylenes	106	8.474	8.474	(1.027)	36211	4.00000	4.10(a)
17	Methylene Chloride	84	2.873	2.873	(0.587)	13726	2.00000	1.52(a)
87	n-Butylbenzene	91	10.558	10.558	(1.031)	35309	2.00000	2.03(a)
73	n-Propylbenzene	91	9.475	9.475	(0.926)	51078	2.00000	2.01(a)
92	Naphthalene	128	12.133	12.133	(1.185)	32897	2.00000	2.21(a)
63	o-Xylene	106	8.811	8.811	(1.068)	17863	2.00000	2.00(a)
81	sec-Butylbenzene	105	10.086	10.086	(0.985)	43551	2.00000	2.03(a)
64	Styrene	104	8.826	8.826	(1.070)	29048	2.00000	1.96(a)
78	tert-Butylbenzene	119	9.902	9.902	(0.967)	29889	2.00000	2.02(a)
56	Tetrachloroethene	164	7.526	7.526	(0.912)	8071	2.00000	2.11(a)
50	Toluene	91	7.049	7.049	(0.855)	46092	2.00000	2.12(a)
20	trans-1,2-Dichloroethene	96	3.143	3.143	(0.642)	10325	2.00000	2.11(a)
51	trans-1,3-Dichloropropene	75	7.259	7.259	(1.291)	10646	2.00000	2.97(a)
38	Trichloroethene	130	5.861	5.861	(1.042)	10169	2.00000	2.00(a)
8	Trichlorofluoromethane	101	1.955	1.955	(0.400)	14026	2.00000	2.64(a)
5	Vinyl Chloride	62	1.419	1.419	(0.290)	12656	2.00000	3.07(a)

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



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Sample Info: VSTD002;VSTD002;1;4;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9,i
Operator: PC
Column diameter: 0.18

\\NAHSTWS005\Target\chem\voa9,i\U181221,b\U122105,D

Page 4

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122105.D
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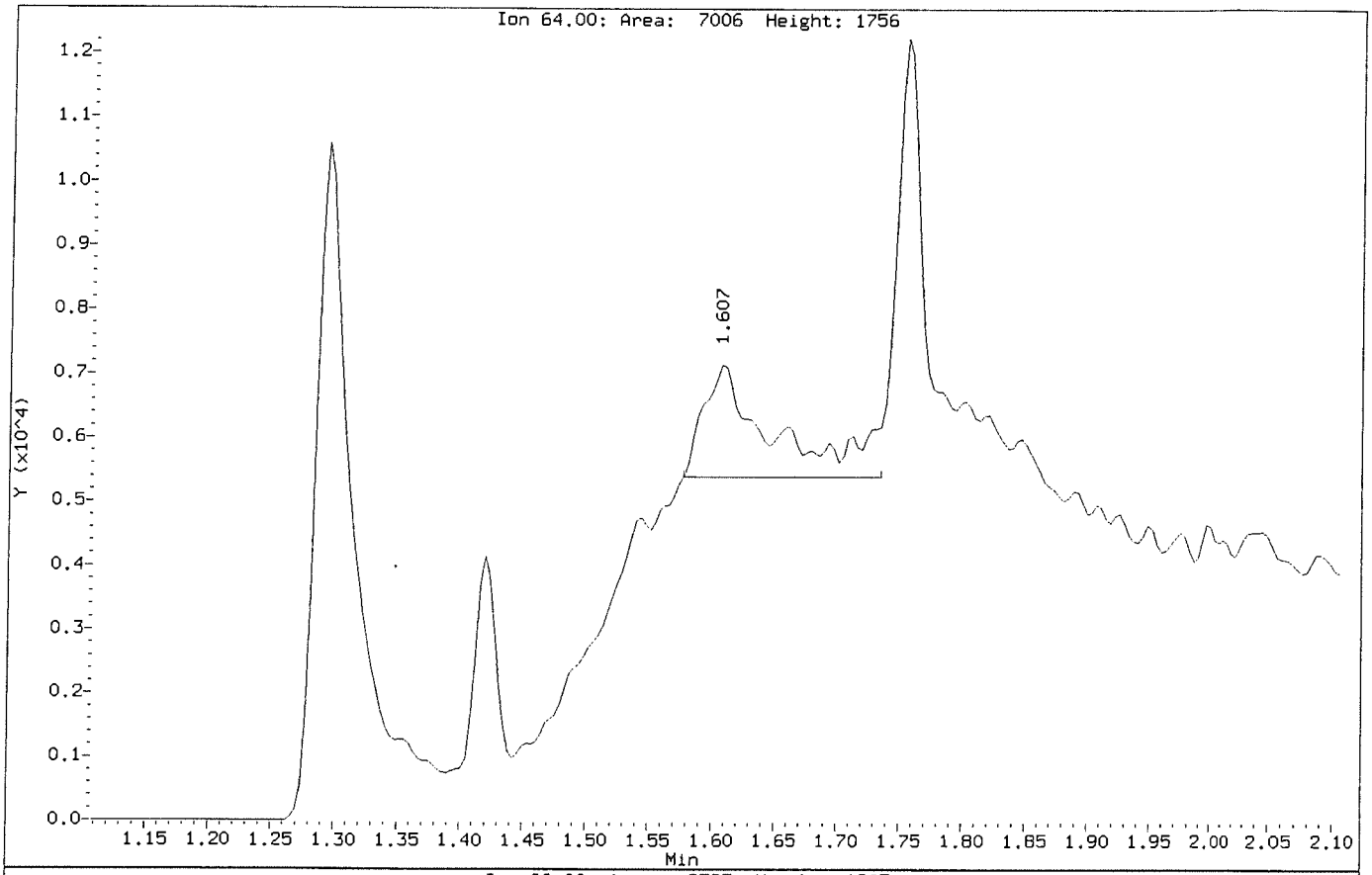
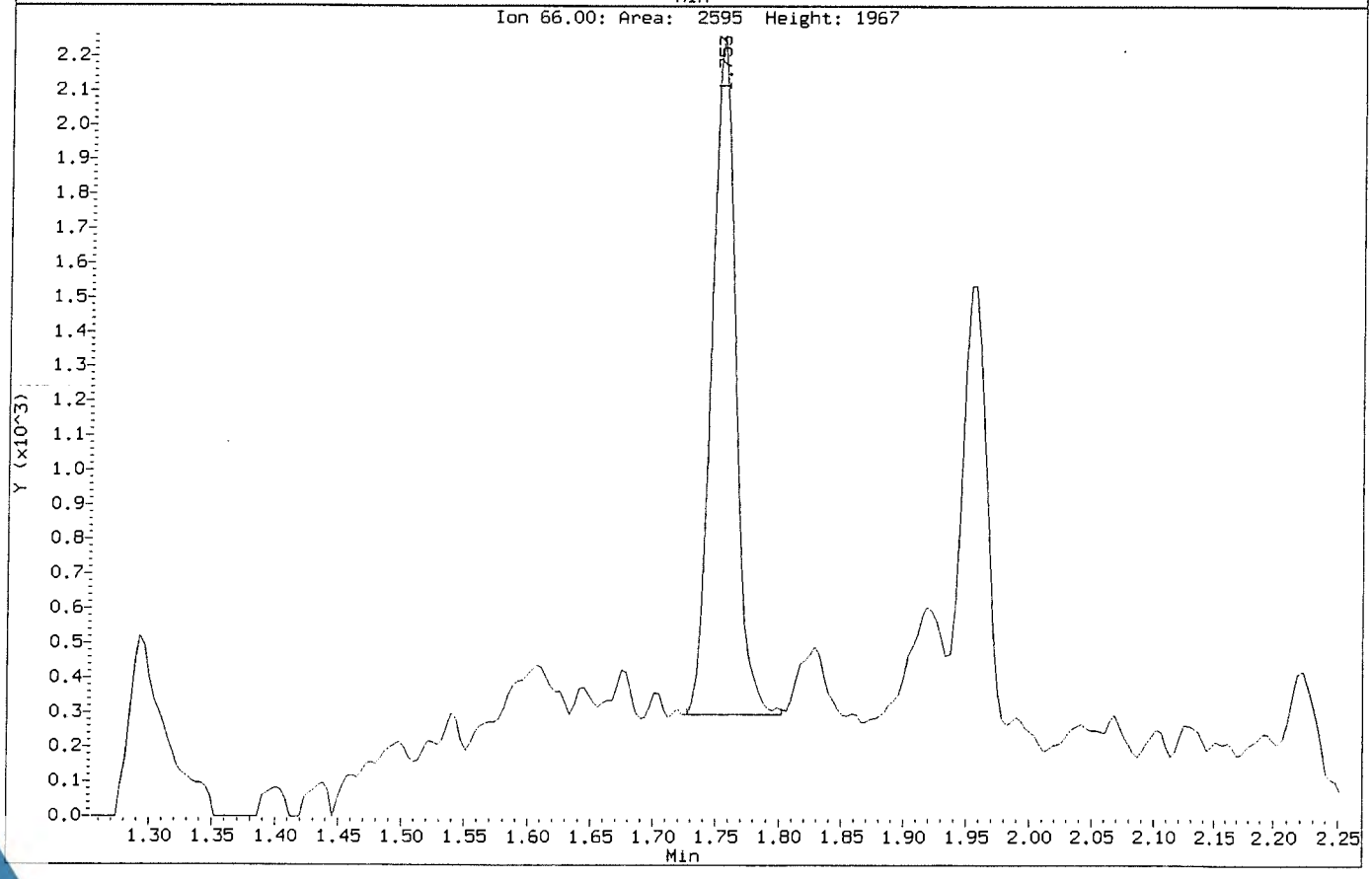
Instrument: VOA9.i
Client Sample ID: VSTD002

Compound: Chloroethane
CAS Number: 75-00-3





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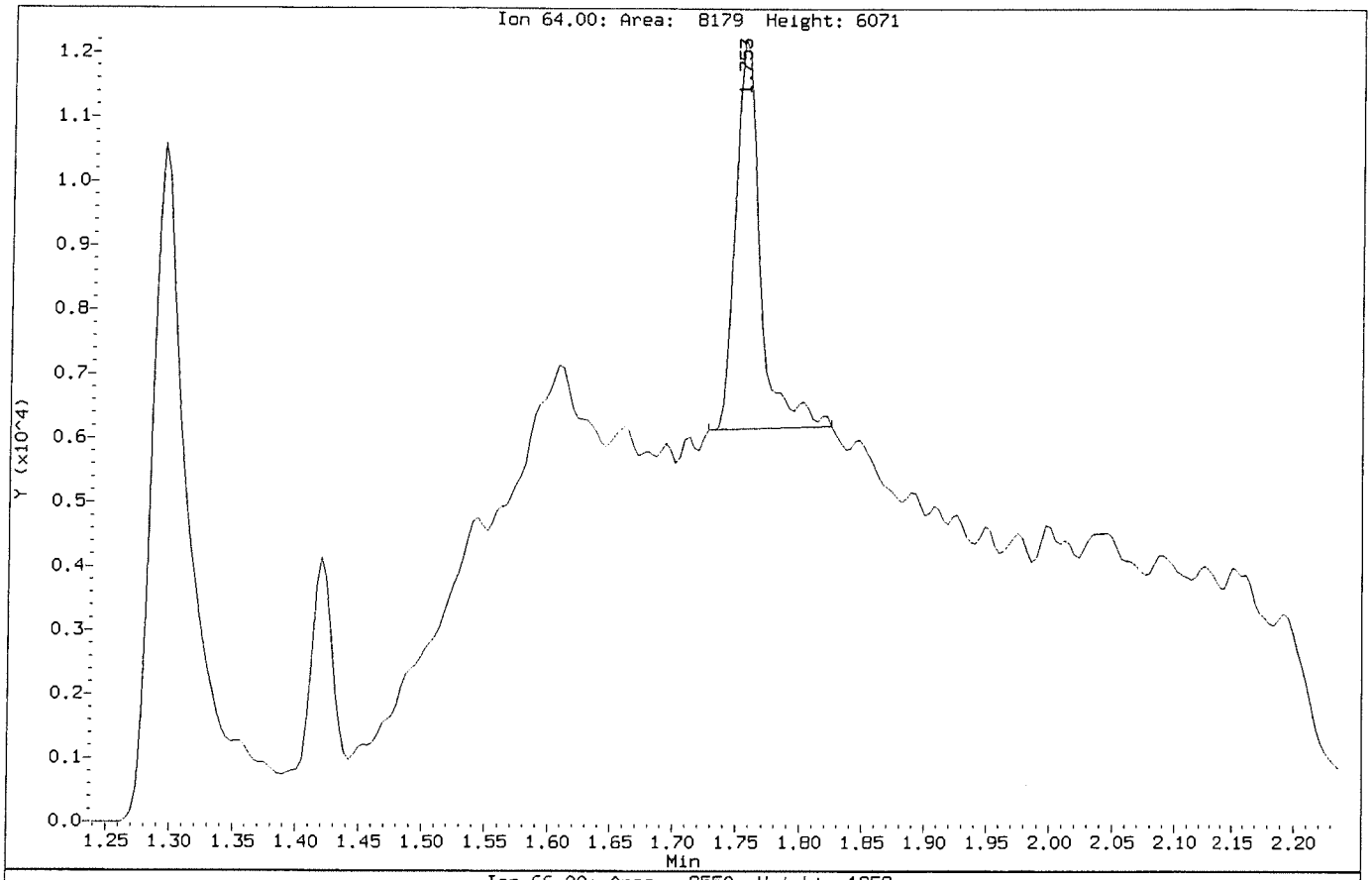
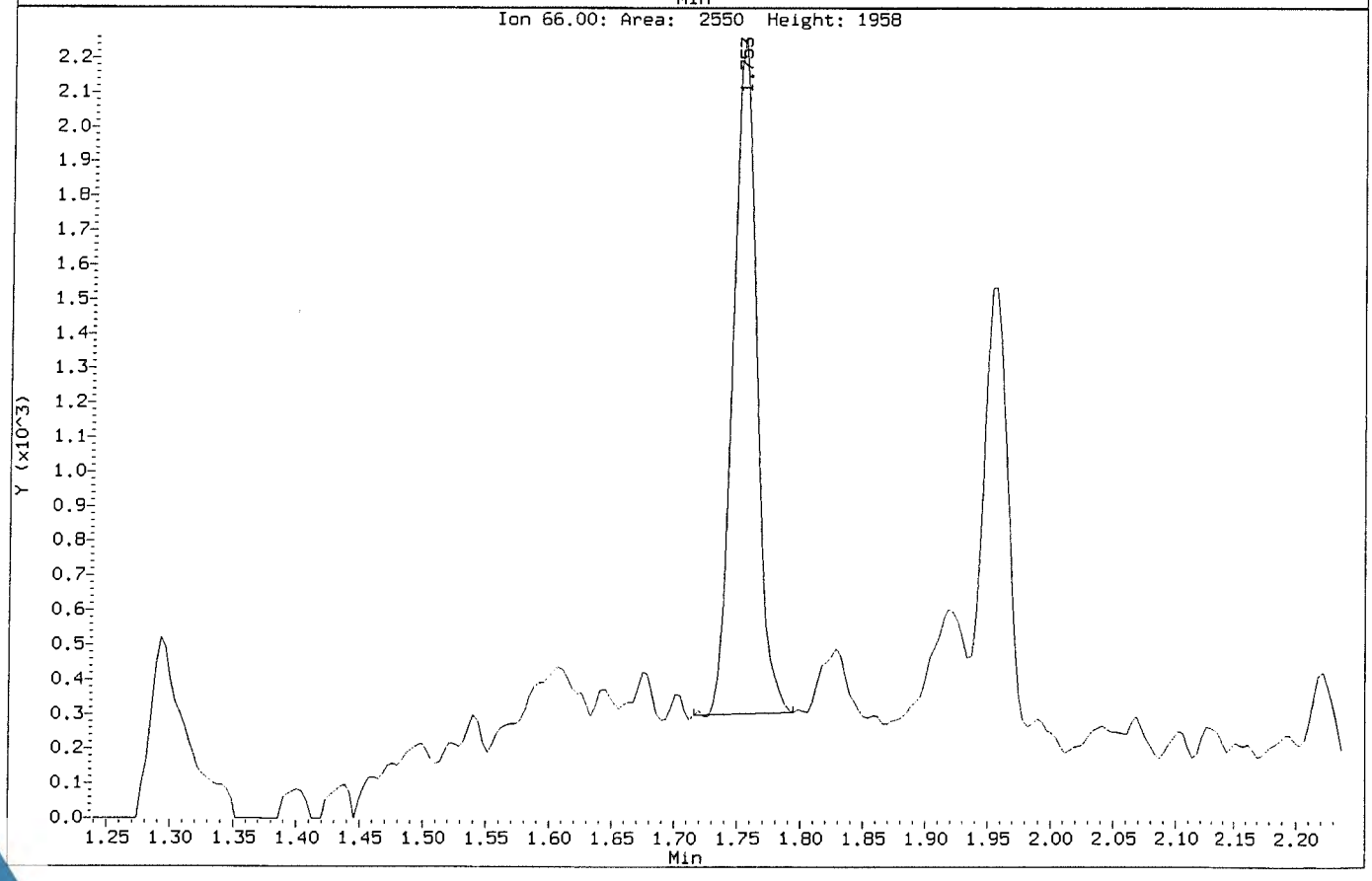
Compound: Chloroethane
CAS Number: 75-00-3





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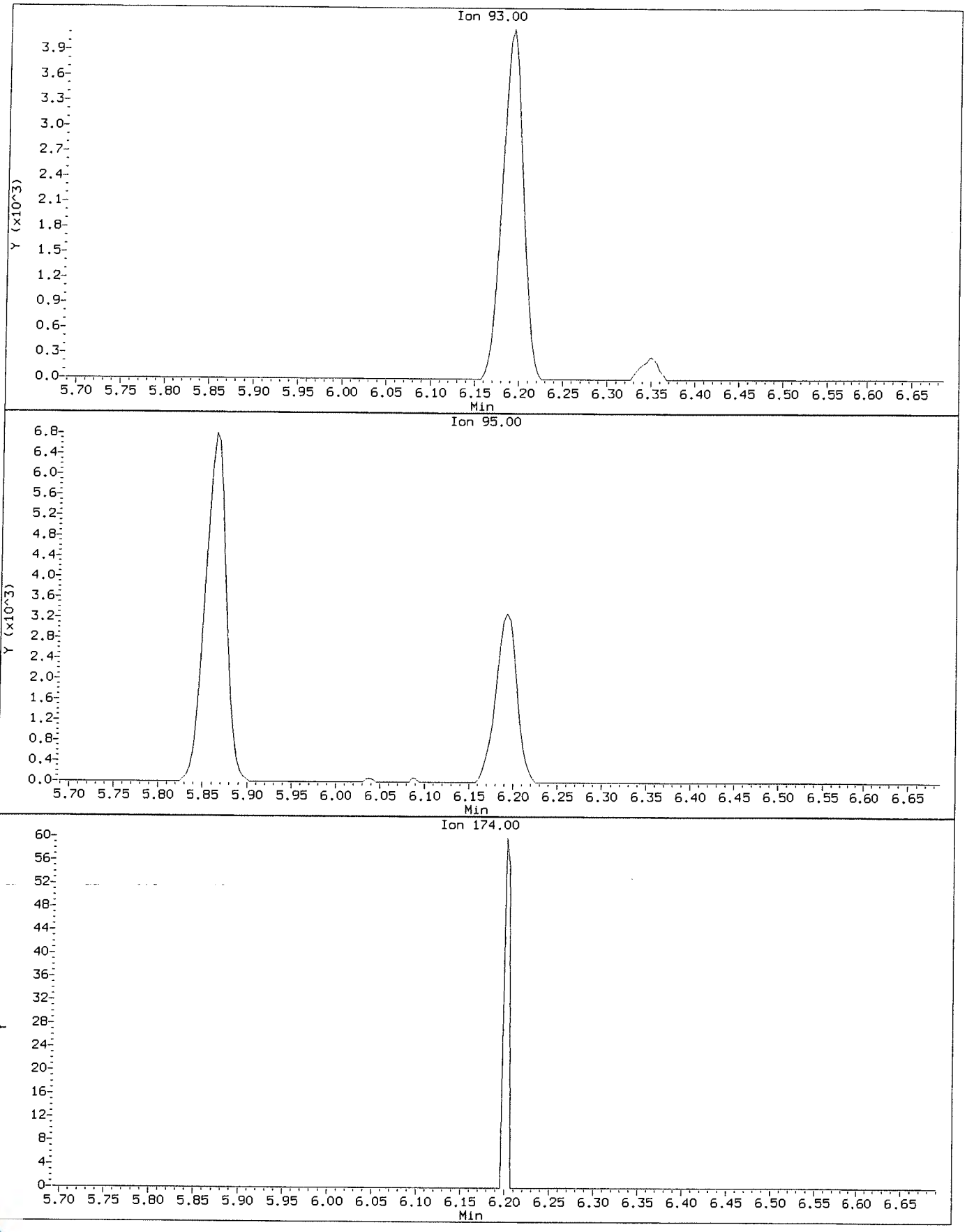
Instrument: VOA9.i
Client Sample ID: VSTD002

Compound: Dibromomethane
CAS Number: 74-95-3



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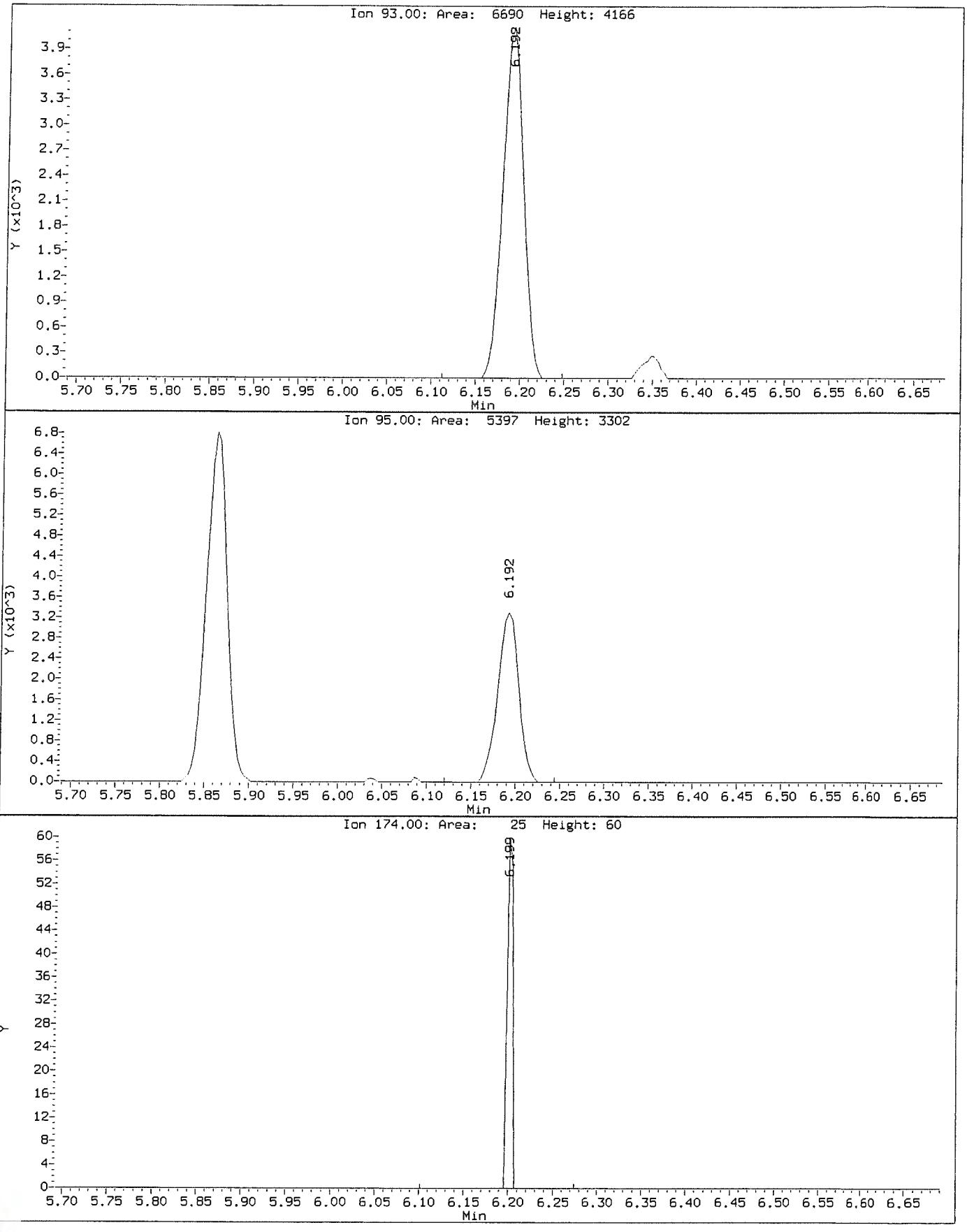
Instrument: VOA9.i
Client Sample ID: VSTD002

Compound: Dibromomethane
CAS Number: 74-95-3



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122106.D Page 1
Report Date: 28-Jan-2019 11:25

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122106.D
Lab Smp Id: VSTD005 Client Smp ID: VSTD005
Inj Date : 21-DEC-2018 15:52
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD005;VSTD005;1;5;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 15:28 Cal File: U122105.D
Als bottle: 7 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

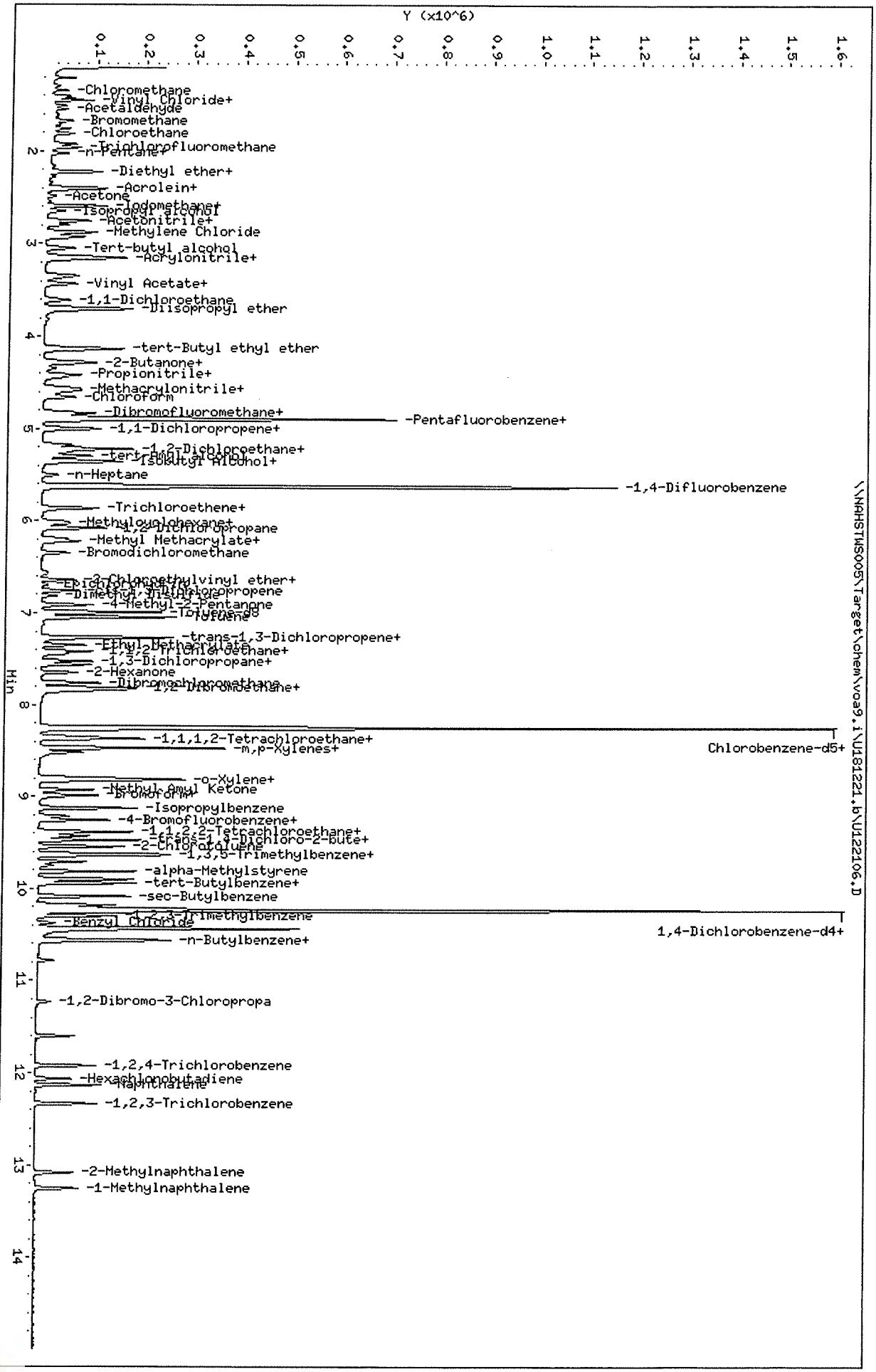
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.897	4.897	(1.000)	423551	50.0000	
* 36 1,4-Difluorobenzene	114	5.625	5.625	(1.000)	811321	50.0000	
* 47 Chlorobenzene-d5	117	8.249	8.249	(1.000)	744062	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	348718	50.0000	
$ 30 Dibromofluoromethane	113	4.830	4.830	(0.986)	28568	5.00000	4.77(a)
$ 35 1,2-Dichloroethane-d4	65	5.175	5.175	(1.057)	38943	5.00000	4.60(a)
$ 48 Toluene-d8	98	6.989	6.989	(0.847)	117010	5.00000	4.52(a)
$ 69 4-Bromofluorobenzene	95	9.257	9.257	(1.122)	42900	5.00000	4.60(a)
60 1,1,1,2-Tetrachloroethane	131	8.350	8.350	(1.012)	21878	5.00000	5.16
31 1,1,1-Trichloroethane	97	4.830	4.830	(0.986)	34906	5.00000	5.21
68 1,1,2,2-Tetrachloroethane	83	9.392	9.392	(0.918)	42397	5.00000	5.39
138 Freon TF	101	2.408	2.408	(0.492)	18593	5.00000	5.16
53 1,1,2-Trichloroethane	83	7.420	7.420	(0.900)	23788	5.00000	5.36
22 1,1-Dichloroethane	63	3.608	3.608	(0.737)	48869	5.00000	5.35
11 1,1-Dichloroethene	96	2.405	2.405	(0.491)	20607	5.00000	5.11
32 1,1-Dichloropropene	75	5.006	5.006	(0.890)	37139	5.00000	5.14
93 1,2,3-Trichlorobenzene	180	12.335	12.335	(1.205)	31113	5.00000	5.30
71 1,2,3-Trichloropropane	75	9.426	9.426	(0.921)	41282	5.00000	5.05
90 1,2,4-Trichlorobenzene	180	11.922	11.922	(1.165)	31564	5.00000	4.88(a)
79 1,2,4-Trimethylbenzene	105	9.943	9.943	(0.971)	98307	5.00000	5.38
89 1,2-Dibromo-3-Chloropropane	155	11.233	11.233	(1.097)	4931	5.00000	5.40
57 1,2-Dibromoethane	107	7.851	7.851	(0.952)	27067	5.00000	5.30

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122106.D Page 2
Report Date: 28-Jan-2019 11:25

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	10.569	10.569	(1.033)	55324	5.00000	5.34
33	1,2-Dichloroethane	62	5.254	5.254	(0.934)	41415	5.00000	5.01
42	1,2-Dichloropropane	63	6.082	6.082	(1.081)	30107	5.00000	5.25
75	1,3,5-Trimethylbenzene	105	9.624	9.624	(0.940)	93516	5.00000	5.33
83	1,3-Dichlorobenzene	146	10.179	10.179	(0.995)	54677	5.00000	5.28
54	1,3-Dichloropropane	76	7.563	7.563	(0.917)	52651	5.00000	5.51
84	1,4-Dichlorobenzene	146	10.254	10.254	(1.002)	57942	5.00000	5.30
26	2,2-Dichloropropane	77	4.275	4.275	(0.873)	27335	5.00000	4.97(a)
24	2-Butanone	43	4.343	4.343	(0.887)	29605	10.0000	8.51
76	2-Chlorotoluene	91	9.546	9.546	(0.933)	86842	5.00000	5.40
52	2-Hexanone	43	7.649	7.649	(0.927)	42401	10.0000	10.24
77	4-Chlorotoluene	91	9.639	9.639	(0.942)	100274	5.00000	5.40
82	p-Isopropyltoluene	119	10.209	10.209	(0.997)	97160	5.00000	5.26
45	4-Methyl-2-Pentanone	43	6.914	6.914	(0.838)	60636	10.0000	10.18
10	Acetone	43	2.487	2.487	(0.508)	19230	10.0000	8.95
37	Benzene	78	5.220	5.220	(0.928)	116462	5.00000	5.39
74	Bromobenzene	156	9.381	9.381	(0.917)	28350	5.00000	5.26
29	Bromochloromethane	128	4.556	4.556	(0.930)	13786	5.00000	3.48(a)
39	Bromodichloromethane	83	6.348	6.348	(1.129)	31104	5.00000	5.10
66	Bromoform	173	8.983	8.983	(1.089)	12962	5.00000	5.67(T)
6	Bromomethane	94	1.674	1.674	(0.342)	12245	5.00000	5.89
19	Carbon Disulfide	76	2.592	2.592	(0.529)	153199	10.0000	10.44
34	Carbon Tetrachloride	117	4.999	4.999	(0.889)	26439	5.00000	5.75
59	Chlorobenzene	112	8.275	8.275	(1.003)	75901	5.00000	5.30
7	Chloroethane	64	1.756	1.756	(0.359)	22172	5.00000	6.40(M)
28	Chloroform	83	4.657	4.657	(0.951)	48639	5.00000	5.53
3	Chloromethane	50	1.344	1.344	(0.274)	20682	5.00000	7.61
27	cis-1,2-Dichloroethene	96	4.290	4.290	(0.876)	29626	5.00000	5.32
46	cis-1,3-Dichloropropene	75	6.760	6.760	(1.202)	38403	5.00000	5.30
55	Dibromochloromethane	129	7.758	7.758	(0.940)	20846	5.00000	5.15
44	Dibromomethane	93	6.191	6.191	(1.101)	17610	5.00000	5.32(M)
2	Dichlorodifluoromethane	85	1.209	1.209	(0.247)	26580	5.00000	5.53
61	Ethylbenzene	106	8.372	8.372	(1.015)	38926	5.00000	5.30
91	Hexachlorobutadiene	225	12.065	12.065	(1.179)	11286	5.00000	4.56(a)
67	Isopropylbenzene	105	9.126	9.126	(1.106)	113805	5.00000	5.37
62	m,p-Xylenes	106	8.474	8.474	(1.027)	96419	10.0000	10.69
17	Methylene Chloride	84	2.877	2.877	(0.587)	31487	5.00000	4.95(a)
87	n-Butylbenzene	91	10.554	10.554	(1.031)	92969	5.00000	5.22
73	n-Propylbenzene	91	9.475	9.475	(0.926)	140607	5.00000	5.39
92	Naphthalene	128	12.132	12.132	(1.185)	91300	5.00000	4.86(a)
63	o-Xylene	106	8.811	8.811	(1.068)	47745	5.00000	5.25
81	sec-Butylbenzene	105	10.086	10.086	(0.985)	116270	5.00000	5.30
64	Styrene	104	8.826	8.826	(1.070)	80690	5.00000	5.34
78	tert-Butylbenzene	119	9.902	9.902	(0.967)	81608	5.00000	5.38
56	Tetrachloroethene	164	7.525	7.525	(0.912)	20249	5.00000	5.19
50	Toluene	91	7.049	7.049	(0.855)	120808	5.00000	5.45
20	trans-1,2-Dichloroethene	96	3.147	3.147	(0.643)	25998	5.00000	5.24
51	trans-1,3-Dichloropropene	75	7.259	7.259	(1.291)	30725	5.00000	5.37
38	Trichloroethene	130	5.865	5.865	(1.043)	27950	5.00000	5.36
8	Trichlorofluoromethane	101	1.958	1.958	(0.400)	37144	5.00000	5.87
5	Vinyl Chloride	62	1.422	1.422	(0.291)	29272	5.00000	5.76

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



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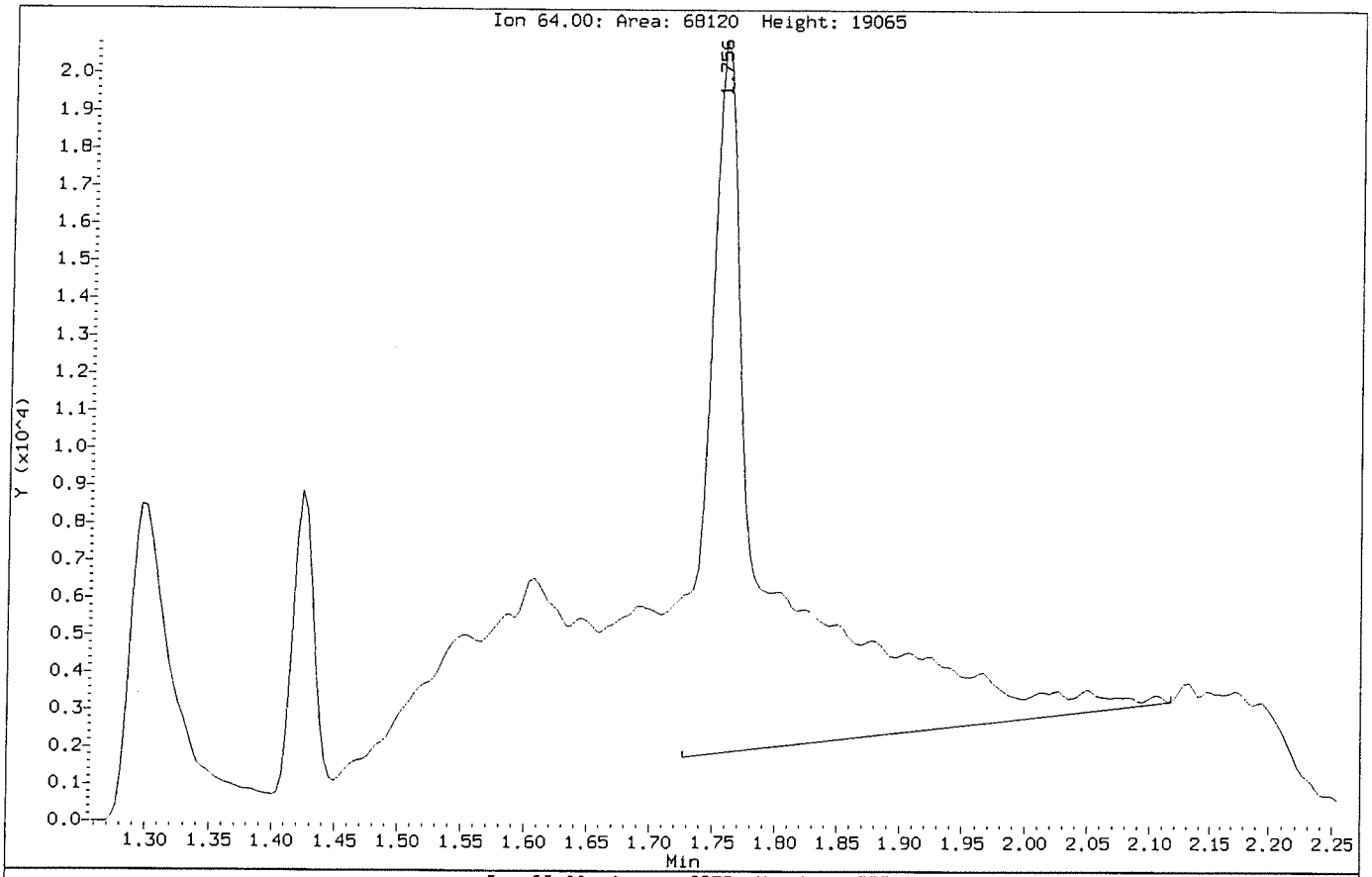
Client ID: VSTD005
Sample Info: VSTD005;VSTD005;1;5;
Purge Volume: 5.0
Column phase: DB624

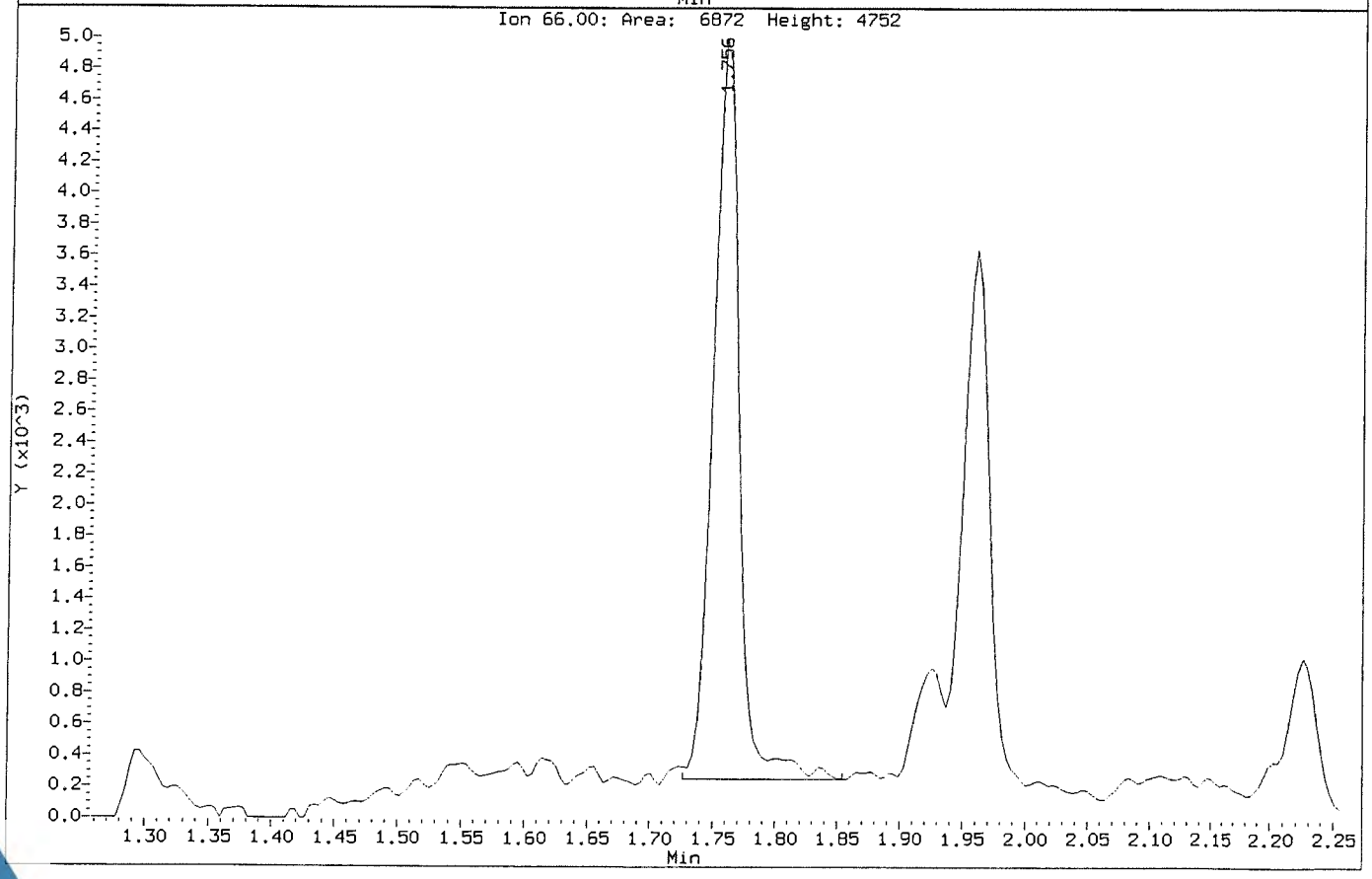
\\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122106.D

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122106.D
Injection Date: 21-DEC-2018 15:52
Instrument: VOA9.i
Client Sample ID: VSTD005

Compound: Chloroethane
CAS Number: 75-00-3





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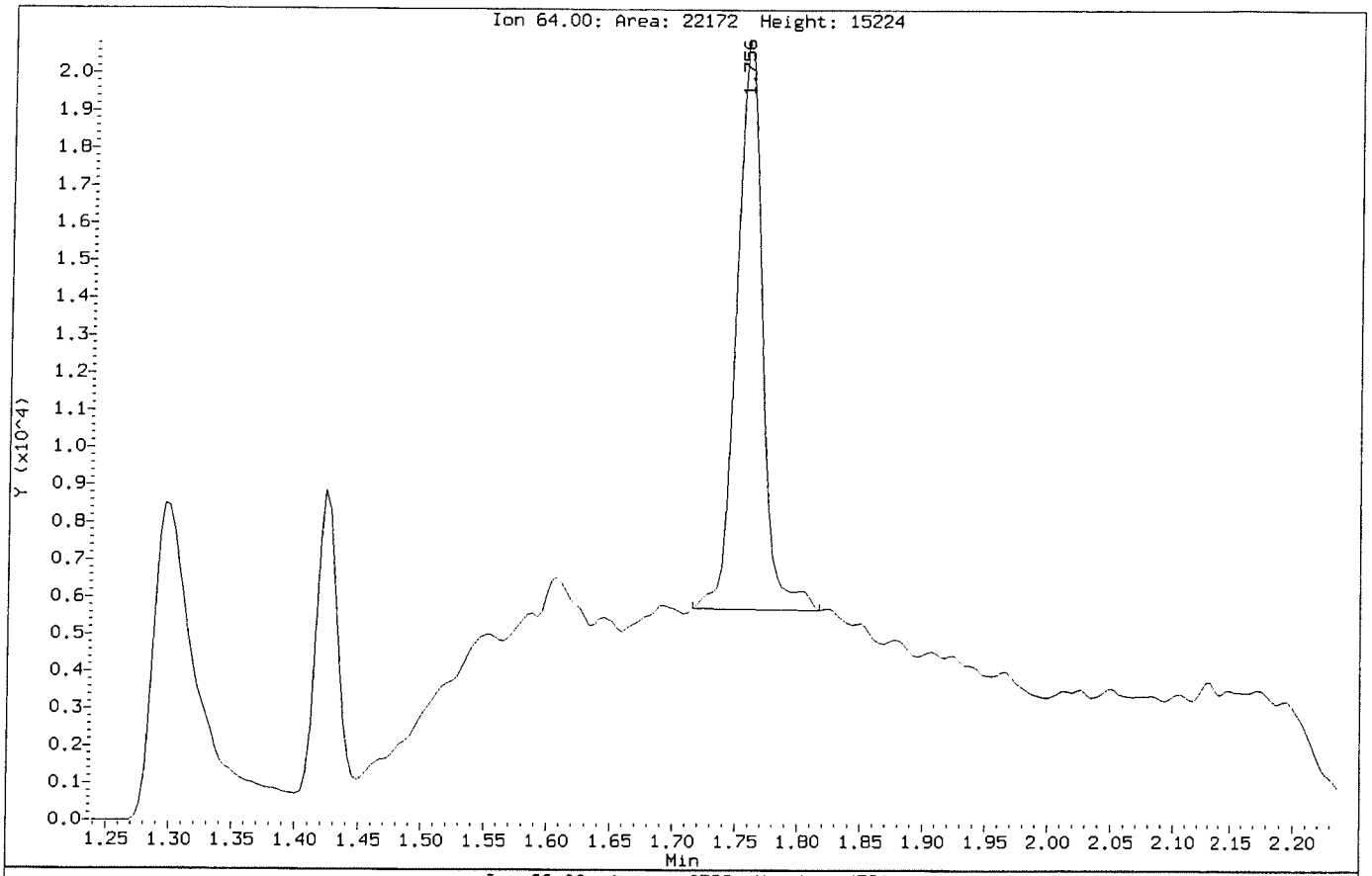
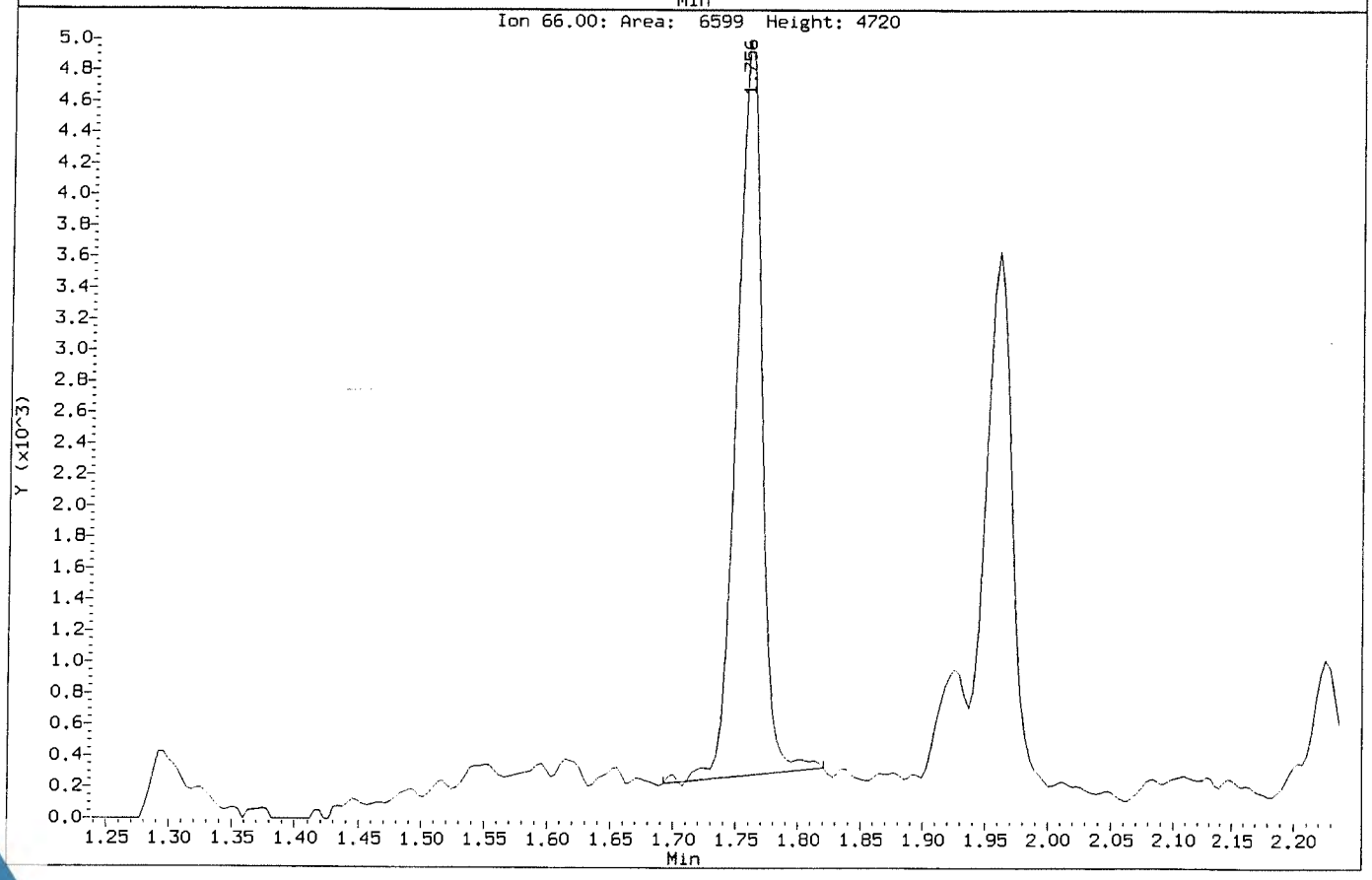
Instrument: VOA9.i
Client Sample ID: VSTD005

Compound: Chloroethane
CAS Number: 75-00-3





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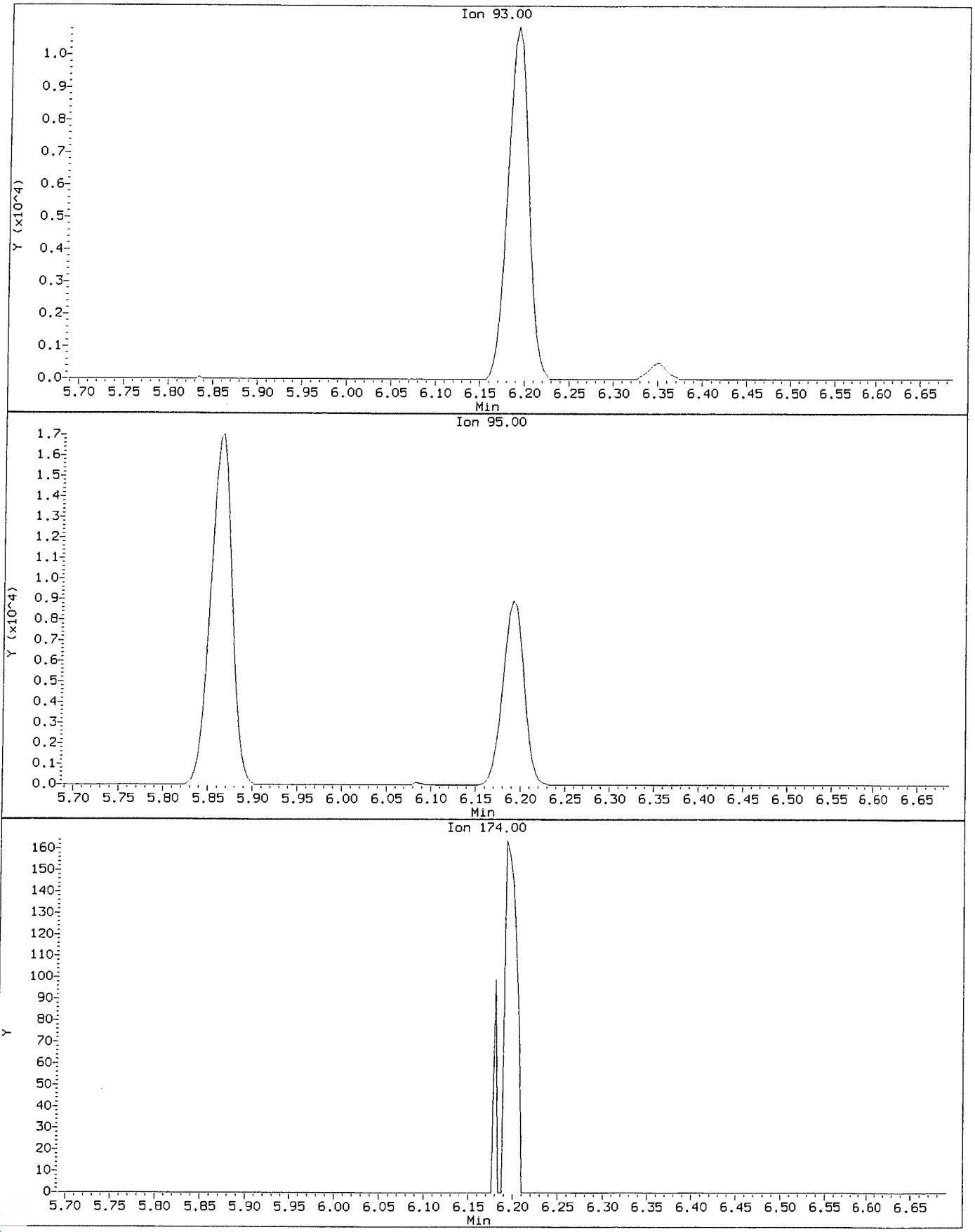
Injection Date: 21-DEC-2018 15:52
Instrument: VOA9.i
Client Sample ID: VSTD005

Compound: Dibromomethane
CAS Number: 74-95-3



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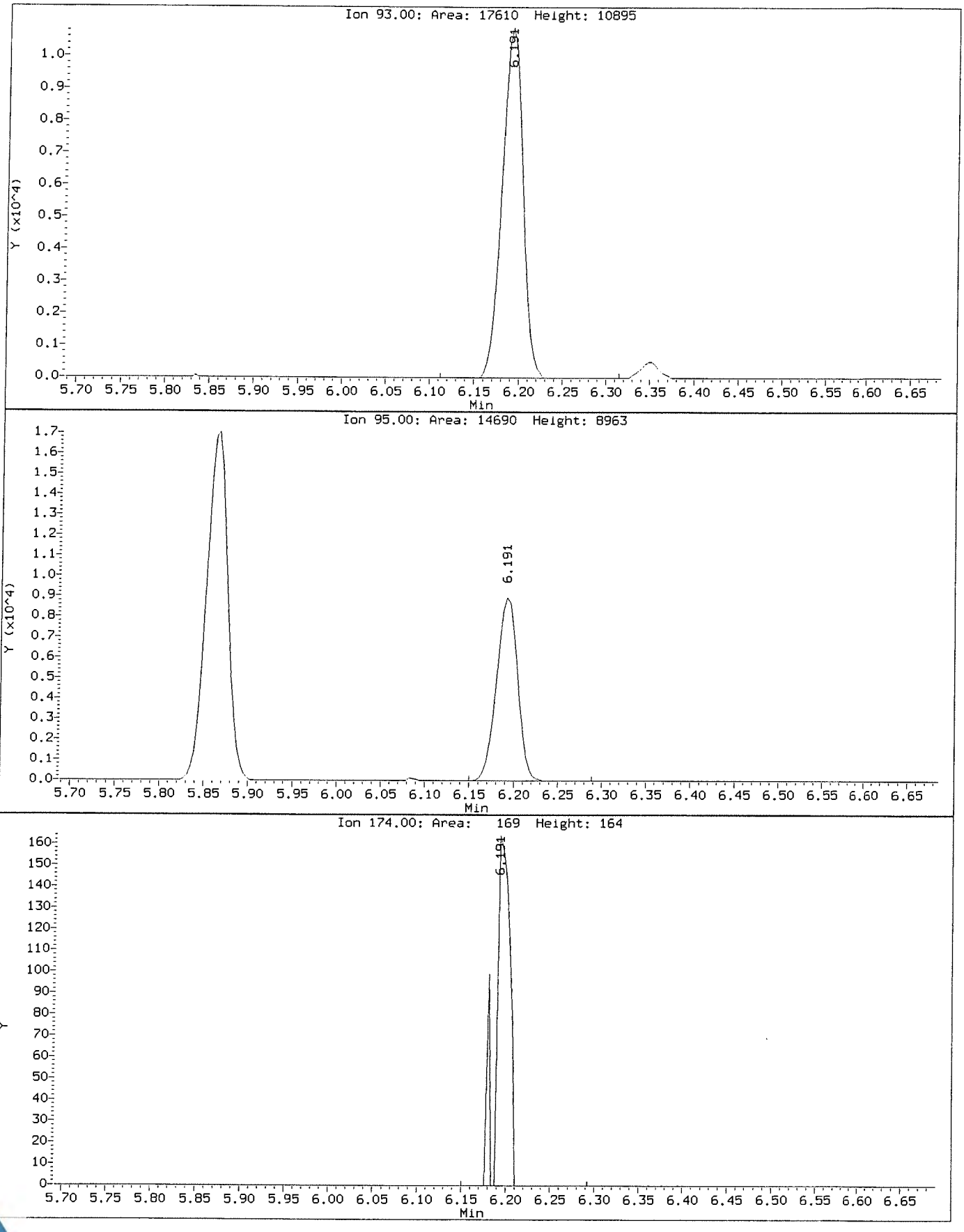
Injection Date: 21-DEC-2018 15:52
Instrument: VOA9.i
Client Sample ID: VSTD005

Compound: Dibromomethane
CAS Number: 74-95-3



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Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122107.D
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Inj Date : 21-DEC-2018 16:17
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD020;VSTD020;1;6;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 15:52 Cal File: U122106.D
Als bottle: 8 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

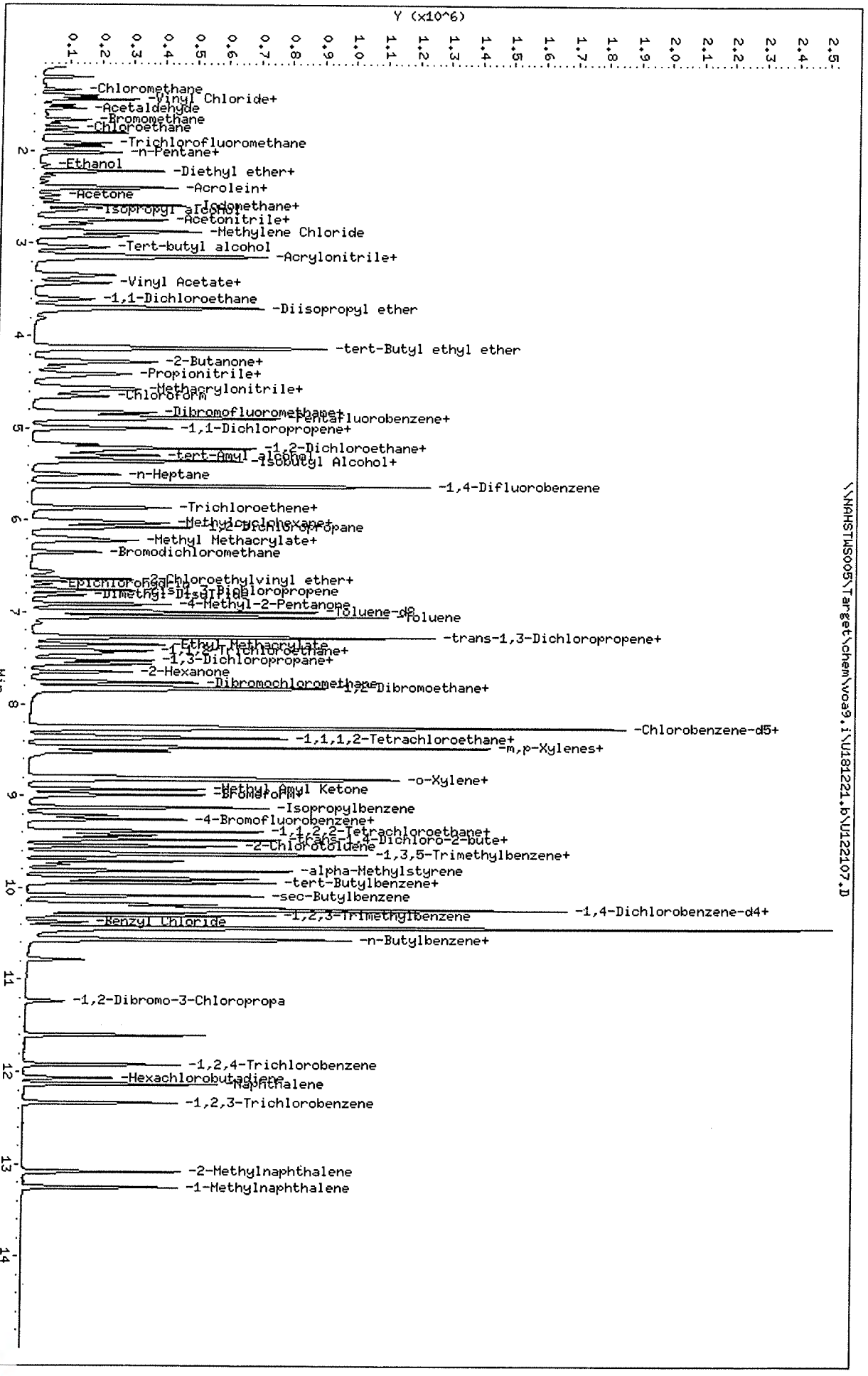
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.894	4.894	(1.000)	420221	50.0000	
* 36 1,4-Difluorobenzene	114	5.625	5.625	(1.000)	802033	50.0000	
* 47 Chlorobenzene-d5	117	8.249	8.249	(1.000)	739775	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	359235	50.0000	
$ 30 Dibromofluoromethane	113	4.830	4.830	(0.987)	98984	20.0000	20.47
$ 35 1,2-Dichloroethane-d4	65	5.175	5.175	(1.057)	131494	20.0000	20.89
$ 48 Toluene-d8	98	6.989	6.989	(0.847)	408521	20.0000	20.36
$ 69 4-Bromofluorobenzene	95	9.257	9.257	(1.122)	153183	20.0000	20.23
60 1,1,1,2-Tetrachloroethane	131	8.350	8.350	(1.012)	89389	20.0000	19.40
31 1,1,1-Trichloroethane	97	4.826	4.826	(0.986)	135496	20.0000	20.42
68 1,1,2,2-Tetrachloroethane	83	9.392	9.392	(0.918)	163701	20.0000	20.23
138 Freon TF	101	2.401	2.401	(0.491)	68573	20.0000	19.19
53 1,1,2-Trichloroethane	83	7.421	7.421	(0.900)	89267	20.0000	20.25
22 1,1-Dichloroethane	63	3.604	3.604	(0.737)	184998	20.0000	20.44
11 1,1-Dichloroethene	96	2.397	2.397	(0.490)	75169	20.0000	18.81
32 1,1-Dichloropropene	75	5.003	5.003	(0.889)	140960	20.0000	19.75
93 1,2,3-Trichlorobenzene	180	12.335	12.335	(1.205)	126752	20.0000	19.12
71 1,2,3-Trichloropropane	75	9.426	9.426	(0.921)	166045	20.0000	19.73
90 1,2,4-Trichlorobenzene	180	11.923	11.923	(1.165)	129526	20.0000	19.47
79 1,2,4-Trimethylbenzene	105	9.943	9.943	(0.971)	388189	20.0000	20.64
89 1,2-Dibromo-3-Chloropropane	155	11.233	11.233	(1.097)	22196	20.0000	18.72
57 1,2-Dibromoethane	107	7.852	7.852	(0.952)	105981	20.0000	20.87

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122107.D Page 2
Report Date: 28-Jan-2019 11:25

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88 1,2-Dichlorobenzene	146	10.569	10.569	(1.033)	207507	20.0000	19.45
33 1,2-Dichloroethane	62	5.250	5.250	(0.933)	149131	20.0000	20.20
42 1,2-Dichloropropane	63	6.079	6.079	(1.081)	113309	20.0000	19.99
75 1,3,5-Trimethylbenzene	105	9.625	9.625	(0.940)	375852	20.0000	20.81
83 1,3-Dichlorobenzene	146	10.180	10.180	(0.995)	209196	20.0000	19.61
54 1,3-Dichloropropane	76	7.563	7.563	(0.917)	193920	20.0000	20.42
84 1,4-Dichlorobenzene	146	10.255	10.255	(1.002)	216649	20.0000	19.26
26 2,2-Dichloropropane	77	4.275	4.275	(0.874)	106667	20.0000	19.55
24 2-Butanone	43	4.339	4.339	(0.887)	119433	40.0000	42.08
76 2-Chlorotoluene	91	9.546	9.546	(0.933)	335289	20.0000	20.25
52 2-Hexanone	43	7.649	7.649	(0.927)	177404	40.0000	43.12
77 4-Chlorotoluene	91	9.640	9.640	(0.942)	387760	20.0000	20.27
82 p-Isopropyltoluene	119	10.210	10.210	(0.997)	388512	20.0000	20.43
45 4-Methyl-2-Pentanone	43	6.914	6.914	(0.838)	250121	40.0000	42.25
10 Acetone	43	2.480	2.480	(0.507)	73380	40.0000	43.05
37 Benzene	78	5.216	5.216	(0.927)	428833	20.0000	20.09
74 Bromobenzene	156	9.381	9.381	(0.917)	109892	20.0000	19.79
29 Bromochloromethane	128	4.553	4.553	(0.930)	51515	20.0000	21.73
39 Bromodichloromethane	83	6.348	6.348	(1.129)	121760	20.0000	20.20
66 Bromoform	173	8.984	8.984	(1.089)	53922	20.0000	18.14(T)
6 Bromomethane	94	1.666	1.666	(0.341)	47148	20.0000	19.02
19 Carbon Disulfide	76	2.588	2.588	(0.529)	576362	40.0000	39.58
34 Carbon Tetrachloride	117	4.995	4.995	(0.888)	104210	20.0000	18.76
59 Chlorobenzene	112	8.275	8.275	(1.003)	284621	20.0000	20.02
7 Chloroethane	64	1.749	1.749	(0.357)	73150	20.0000	20.10(M)
28 Chloroform	83	4.654	4.654	(0.951)	178122	20.0000	20.43
3 Chloromethane	50	1.336	1.336	(0.273)	79075	20.0000	19.85
27 cis-1,2-Dichloroethene	96	4.287	4.287	(0.876)	114056	20.0000	20.64
46 cis-1,3-Dichloropropene	75	6.757	6.757	(1.201)	162454	20.0000	18.55
55 Dibromochloromethane	129	7.758	7.758	(0.940)	89836	20.0000	19.09
44 Dibromomethane	93	6.187	6.187	(1.100)	66878	20.0000	20.44
2 Dichlorodifluoromethane	85	1.201	1.201	(0.246)	98486	20.0000	19.34
61 Ethylbenzene	106	8.369	8.369	(1.015)	147187	20.0000	20.18
91 Hexachlorobutadiene	225	12.065	12.065	(1.179)	44482	20.0000	17.45
67 Isopropylbenzene	105	9.126	9.126	(1.106)	439477	20.0000	20.89
62 m,p-Xylenes	106	8.474	8.474	(1.027)	372108	40.0000	41.51
17 Methylene Chloride	84	2.870	2.870	(0.586)	109403	20.0000	20.36
87 n-Butylbenzene	91	10.554	10.554	(1.031)	362066	20.0000	19.73
73 n-Propylbenzene	91	9.475	9.475	(0.926)	551133	20.0000	20.53
92 Naphthalene	128	12.133	12.133	(1.185)	413229	20.0000	19.20
63 o-Xylene	106	8.811	8.811	(1.068)	188442	20.0000	20.84
81 sec-Butylbenzene	105	10.086	10.086	(0.985)	459645	20.0000	20.37
64 Styrene	104	8.823	8.823	(1.070)	323232	20.0000	21.51
78 tert-Butylbenzene	119	9.902	9.902	(0.967)	318726	20.0000	20.42
56 Tetrachloroethene	164	7.522	7.522	(0.912)	75128	20.0000	19.39
50 Toluene	91	7.046	7.046	(0.854)	451178	20.0000	20.50
20 trans-1,2-Dichloroethene	96	3.140	3.140	(0.642)	100515	20.0000	20.43
51 trans-1,3-Dichloropropene	75	7.259	7.259	(1.291)	135347	20.0000	18.26
38 Trichloroethene	130	5.861	5.861	(1.042)	101824	20.0000	19.76
8 Trichlorofluoromethane	101	1.951	1.951	(0.399)	130957	20.0000	19.29
5 Vinyl Chloride	62	1.419	1.419	(0.290)	111713	20.0000	19.39

QC Flag Legend

T - Target compound detected outside RT window.
M - Compound response manually integrated.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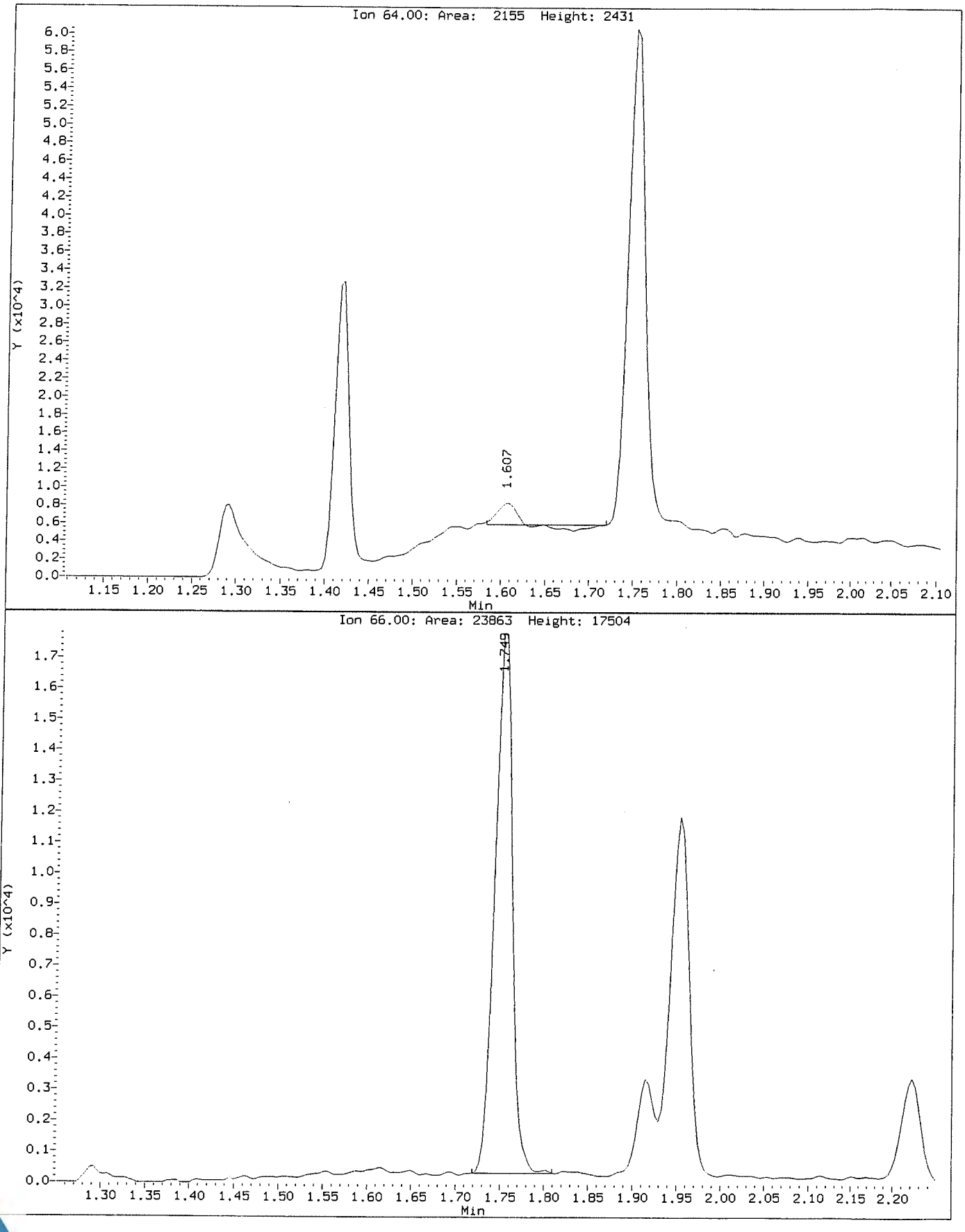
0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3 2.4 2.5
Min
1 2 3 4 5 6 7 8 9 10 11 12 13 14
-Chloromethane
-Vinyl Chloride+
-Acetaldehyde
-Bromomethane
-Chloroethane
-Trichlorofluoromethane
-n-Pentane+
-Ethanol
-Diethyl ether+
-Acrolein+
-Acetone
-Iodomethane+
-Isopropyl alcohol
-Acetonitrile+
-Methylene Chloride
-Tert-butyl alcohol
-Acrylonitrile+
-Vinyl Acetate+
-1,1-Dichloroethane
-Diisopropyl ether
-tert-Butyl ethyl ether
-2-Butanone+
-Propionitrile+
-Methacrylonitrile+
-Chloroform
-Dibromofluoromethane+
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-tert-Amyl alcohol
-Isobutyl Alcohol+
-n-Heptane
-1,4-Difluorobenzene
-Trichloroethene+
-Methylcyclohexane+
-1,2-Dichloropropane
-Methyl Methacrylate+
-Bromodichloromethane
-2-Chloroethylvinyl ether+
-Epichlorohydrin
-Dimethyl disulfide
-cis-1,3-Dichloropropene
-4-Methyl-2-Pentanone
-Toluene-d8
-Toluene
-trans-1,3-Dichloropropene+
-Ethyl Methacrylate
-1,1,2-Trichloroethane+
-1,3-Dichloropropane+
-2-Hexanone
-Dibromochloromethane
-1,2-Dibromoethane+
-Chlorobenzene-d5+
-1,1,1,2-Tetrachloroethane+
-m,p-Xylenes+
-o-Xylene+
-Methyl Amyl Ketone
-Bromoform+
-Isopropylbenzene
-4-Bromofluorobenzene+
-1,1,2,2-Tetrachloroethane+
-trans-1,4-Dichloro-2-bute+
-2-Chlorotoluene
-1,3,5-Trimethylbenzene+
-alpha-Methylstyrene
-tert-Butylbenzene+
-sec-Butylbenzene
-1,2,3-Trimethylbenzene
-1,4-Dichlorobenzene-d4+
-Benzyl Chloride
-n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Hexachlorobutadiene
-Naphthalene
-1,2,3-Trichlorobenzene
-2-Methylnaphthalene
-1-Methylnaphthalene
\\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122107.D
Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122107.D
Date : 21-DEC-2018 16:17
Client ID: VSTD020
Sample Info: VSTD020;VSTD020;1;6;
Purge Volume: 5.0
Column phase: DB624
Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122107.D
Injection Date: 21-DEC-2018 16:17
Instrument: VOA9.i
Client Sample ID: VSTD020

Compound: Chloroethane
CAS Number: 75-00-3



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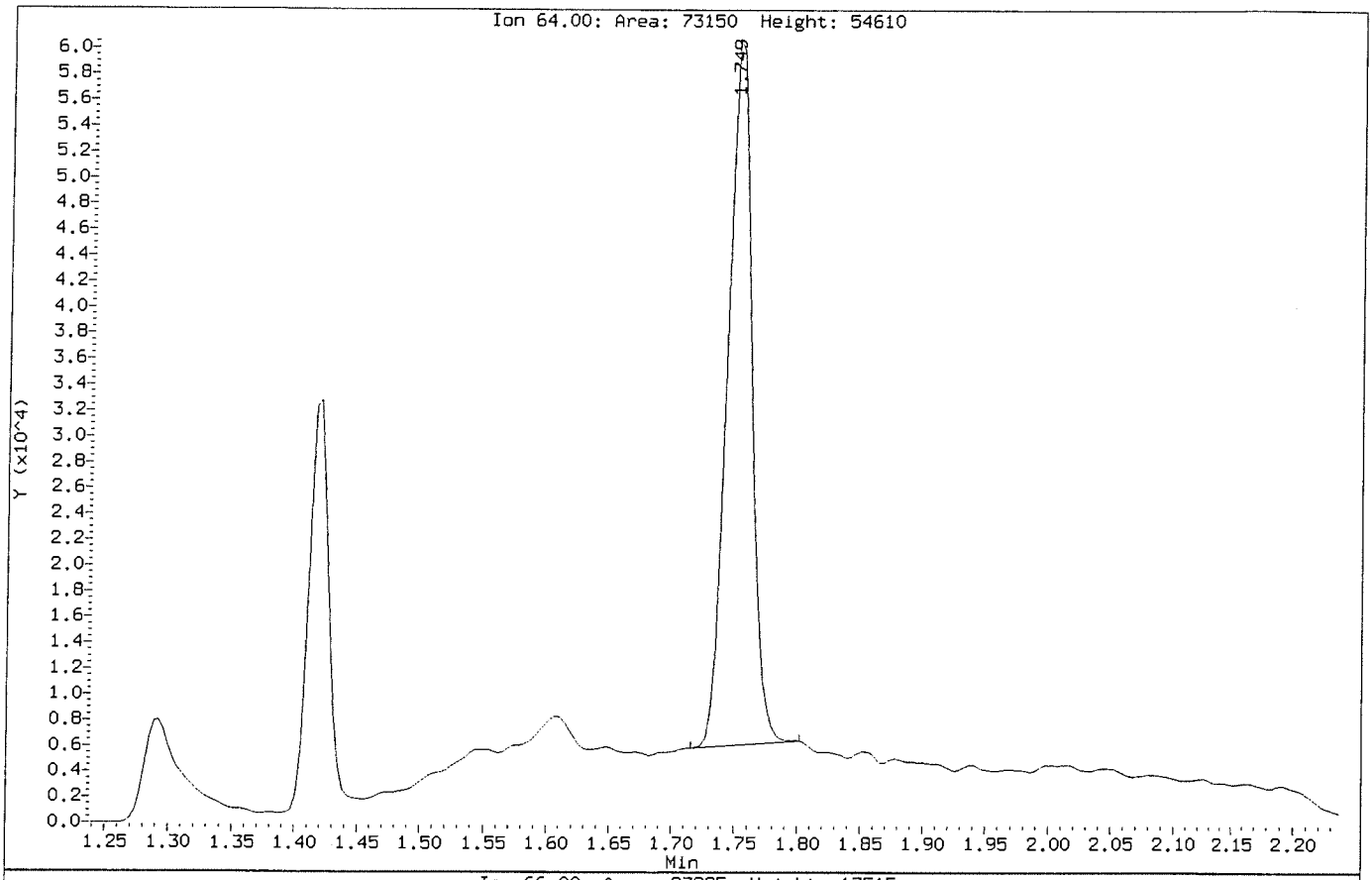
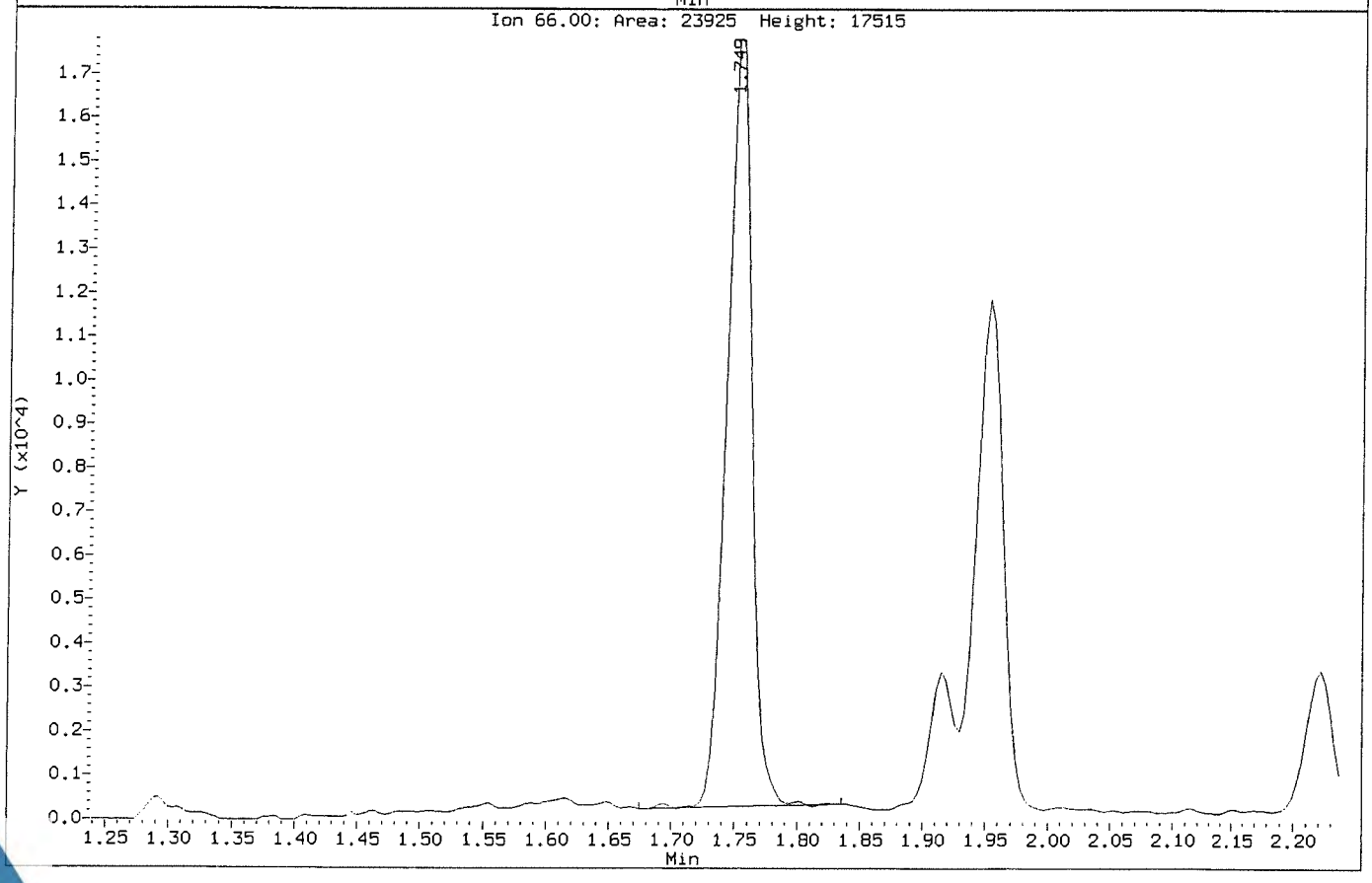
Instrument: VOA9.i
Client Sample ID: VSTD020

Compound: Chloroethane
CAS Number: 75-00-3





ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122108.D
Lab Smp Id: VSTD050 Client Smp ID: VSTD050
Inj Date : 21-DEC-2018 16:41
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD050;VSTD050;1;7;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:17 Cal File: U122107.D
Als bottle: 9 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

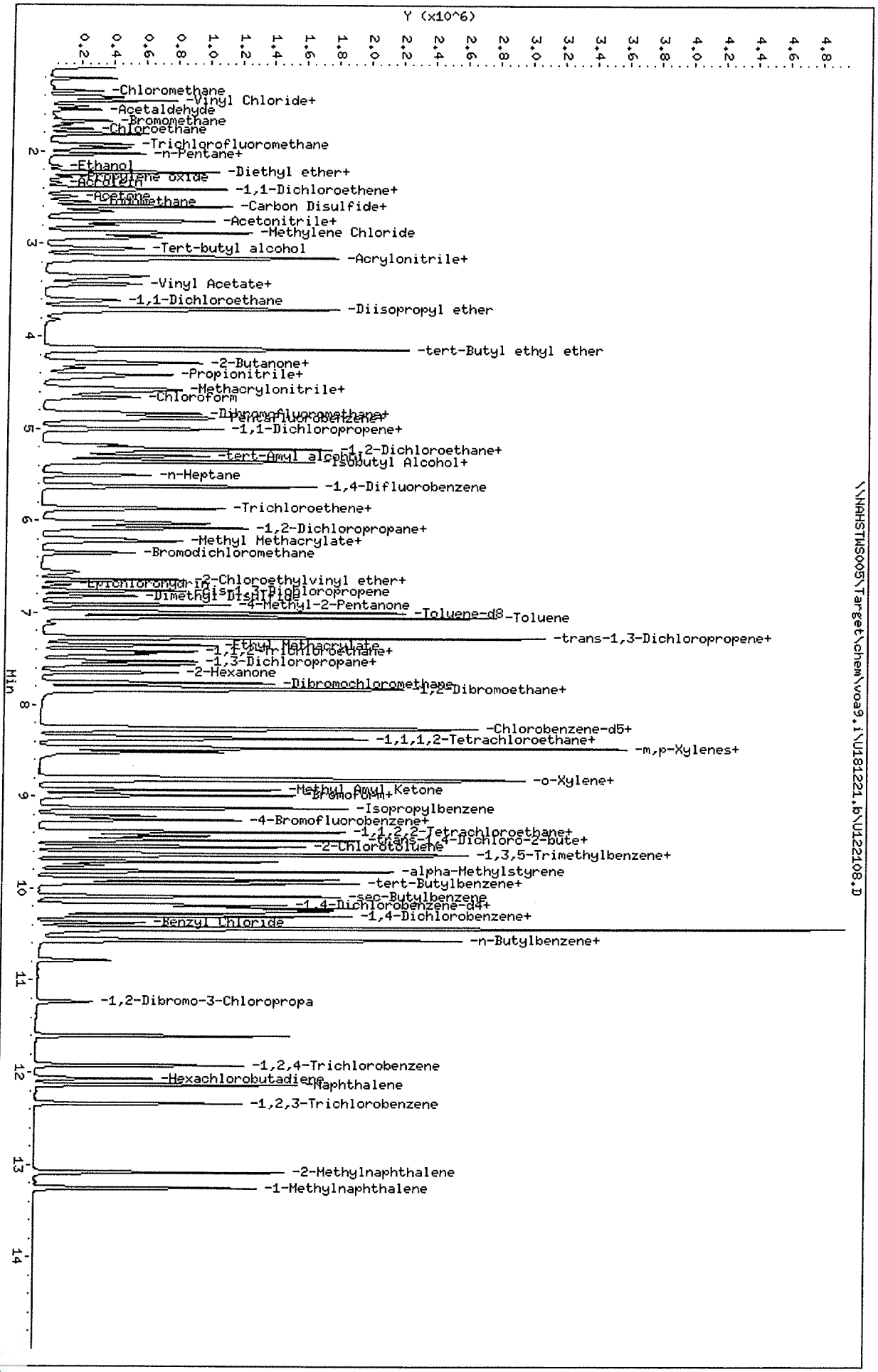
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.898	4.898	(1.000)	441118	50.0000	
* 36 1,4-Difluorobenzene	114	5.629	5.629	(1.000)	822734	50.0000	
* 47 Chlorobenzene-d5	117	8.249	8.249	(1.000)	764792	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	367345	50.0000	
$ 30 Dibromofluoromethane	113	4.834	4.834	(0.987)	245007	50.0000	50.34
$ 35 1,2-Dichloroethane-d4	65	5.179	5.179	(1.057)	320796	50.0000	51.44
$ 48 Toluene-d8	98	6.989	6.989	(0.847)	1010127	50.0000	51.19
$ 69 4-Bromofluorobenzene	95	9.257	9.257	(1.122)	382581	50.0000	50.91
60 1,1,1,2-Tetrachloroethane	131	8.350	8.350	(1.012)	235446	50.0000	48.53
31 1,1,1-Trichloroethane	97	4.830	4.830	(0.986)	347757	50.0000	49.92
68 1,1,2,2-Tetrachloroethane	83	9.392	9.392	(0.918)	414173	50.0000	50.06
138 Freon TF	101	2.412	2.412	(0.493)	175022	50.0000	46.67
53 1,1,2-Trichloroethane	83	7.421	7.421	(0.900)	226615	50.0000	49.73
22 1,1-Dichloroethane	63	3.612	3.612	(0.737)	466899	50.0000	49.14
11 1,1-Dichloroethene	96	2.409	2.409	(0.492)	194403	50.0000	46.35
32 1,1-Dichloropropene	75	5.010	5.010	(0.890)	351519	50.0000	48.01
93 1,2,3-Trichlorobenzene	180	12.335	12.335	(1.205)	334600	50.0000	48.35
71 1,2,3-Trichloropropane	75	9.426	9.426	(0.921)	444407	50.0000	51.66
90 1,2,4-Trichlorobenzene	180	11.923	11.923	(1.165)	340316	50.0000	50.03
79 1,2,4-Trimethylbenzene	105	9.943	9.943	(0.971)	977610	50.0000	50.85
89 1,2-Dibromo-3-Chloropropane	155	11.233	11.233	(1.097)	61793	50.0000	48.48
57 1,2-Dibromoethane	107	7.852	7.852	(0.952)	266705	50.0000	50.81

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122108.D Page 2
Report Date: 28-Jan-2019 11:25

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88 1,2-Dichlorobenzene	146	10.569	10.569	(1.033)	529898	50.0000	48.58
33 1,2-Dichloroethane	62	5.258	5.258	(0.934)	376591	50.0000	50.81
42 1,2-Dichloropropane	63	6.082	6.082	(1.081)	287570	50.0000	49.46
75 1,3,5-Trimethylbenzene	105	9.625	9.625	(0.940)	947470	50.0000	51.32
83 1,3-Dichlorobenzene	146	10.180	10.180	(0.995)	529098	50.0000	48.50
54 1,3-Dichloropropane	76	7.563	7.563	(0.917)	491255	50.0000	50.05
84 1,4-Dichlorobenzene	146	10.255	10.255	(1.002)	544274	50.0000	47.32
26 2,2-Dichloropropane	77	4.279	4.279	(0.874)	280126	50.0000	48.93
24 2-Butanone	43	4.343	4.343	(0.887)	304044	100.000	105.52
76 2-Chlorotoluene	91	9.546	9.546	(0.933)	843166	50.0000	49.81
52 2-Hexanone	43	7.653	7.653	(0.928)	461299	100.000	108.47
77 4-Chlorotoluene	91	9.640	9.640	(0.942)	978873	50.0000	50.04
82 p-Isopropyltoluene	119	10.210	10.210	(0.997)	1003937	50.0000	51.64
45 4-Methyl-2-Pentanone	43	6.914	6.914	(0.838)	653234	100.000	106.75
10 Acetone	43	2.487	2.487	(0.508)	187964	100.000	109.42
37 Benzene	78	5.220	5.220	(0.927)	1084861	50.0000	49.55
74 Bromobenzene	156	9.381	9.381	(0.917)	280874	50.0000	49.48
29 Bromochloromethane	128	4.560	4.560	(0.931)	129496	50.0000	56.37
39 Bromodichloromethane	83	6.348	6.348	(1.128)	319701	50.0000	51.71
66 Bromoform	173	8.984	8.984	(1.089)	154855	50.0000	47.27(T)
6 Bromomethane	94	1.674	1.674	(0.342)	117780	50.0000	43.41
19 Carbon Disulfide	76	2.600	2.600	(0.531)	1460668	100.000	95.57
34 Carbon Tetrachloride	117	4.999	4.999	(0.888)	274507	50.0000	45.99
59 Chlorobenzene	112	8.275	8.275	(1.003)	718560	50.0000	48.89
7 Chloroethane	64	1.760	1.760	(0.359)	179707	50.0000	46.03(M)
28 Chloroform	83	4.661	4.661	(0.952)	453061	50.0000	49.52
3 Chloromethane	50	1.348	1.348	(0.275)	197328	50.0000	42.63
27 cis-1,2-Dichloroethene	96	4.290	4.290	(0.876)	286659	50.0000	49.43
46 cis-1,3-Dichloropropene	75	6.761	6.761	(1.201)	449225	50.0000	47.87
55 Dibromochloromethane	129	7.758	7.758	(0.940)	242061	50.0000	48.20
44 Dibromomethane	93	6.191	6.191	(1.100)	170556	50.0000	50.83
2 Dichlorodifluoromethane	85	1.213	1.213	(0.248)	248322	50.0000	45.79
61 Ethylbenzene	106	8.373	8.373	(1.015)	374921	50.0000	49.74
91 Hexachlorobutadiene	225	12.065	12.065	(1.179)	119140	50.0000	45.72
67 Isopropylbenzene	105	9.126	9.126	(1.106)	1109213	50.0000	51.00
62 m,p-Xylenes	106	8.474	8.474	(1.027)	936911	100.000	101.11
17 Methylene Chloride	84	2.877	2.877	(0.587)	274258	50.0000	50.31
87 n-Butylbenzene	91	10.558	10.558	(1.031)	931396	50.0000	49.64
73 n-Propylbenzene	91	9.475	9.475	(0.926)	1393780	50.0000	50.77
92 Naphthalene	128	12.133	12.133	(1.185)	1107938	50.0000	49.53
63 o-Xylene	106	8.811	8.811	(1.068)	475748	50.0000	50.89
81 sec-Butylbenzene	105	10.086	10.086	(0.985)	1169025	50.0000	50.67
64 Styrene	104	8.826	8.826	(1.070)	828798	50.0000	53.36
78 tert-Butylbenzene	119	9.902	9.902	(0.967)	807157	50.0000	50.58
56 Tetrachloroethene	164	7.525	7.525	(0.912)	186057	50.0000	46.46
50 Toluene	91	7.049	7.049	(0.855)	1138194	50.0000	50.03
20 trans-1,2-Dichloroethene	96	3.147	3.147	(0.643)	248845	50.0000	48.19
51 trans-1,3-Dichloropropene	75	7.263	7.263	(1.290)	381258	50.0000	47.27
38 Trichloroethene	130	5.865	5.865	(1.042)	255628	50.0000	48.36
8 Trichlorofluoromethane	101	1.962	1.962	(0.401)	330010	50.0000	45.44
5 Vinyl Chloride	62	1.426	1.426	(0.291)	283791	50.0000	45.57

QC Flag Legend

T - Target compound detected outside RT window.
M - Compound response manually integrated.



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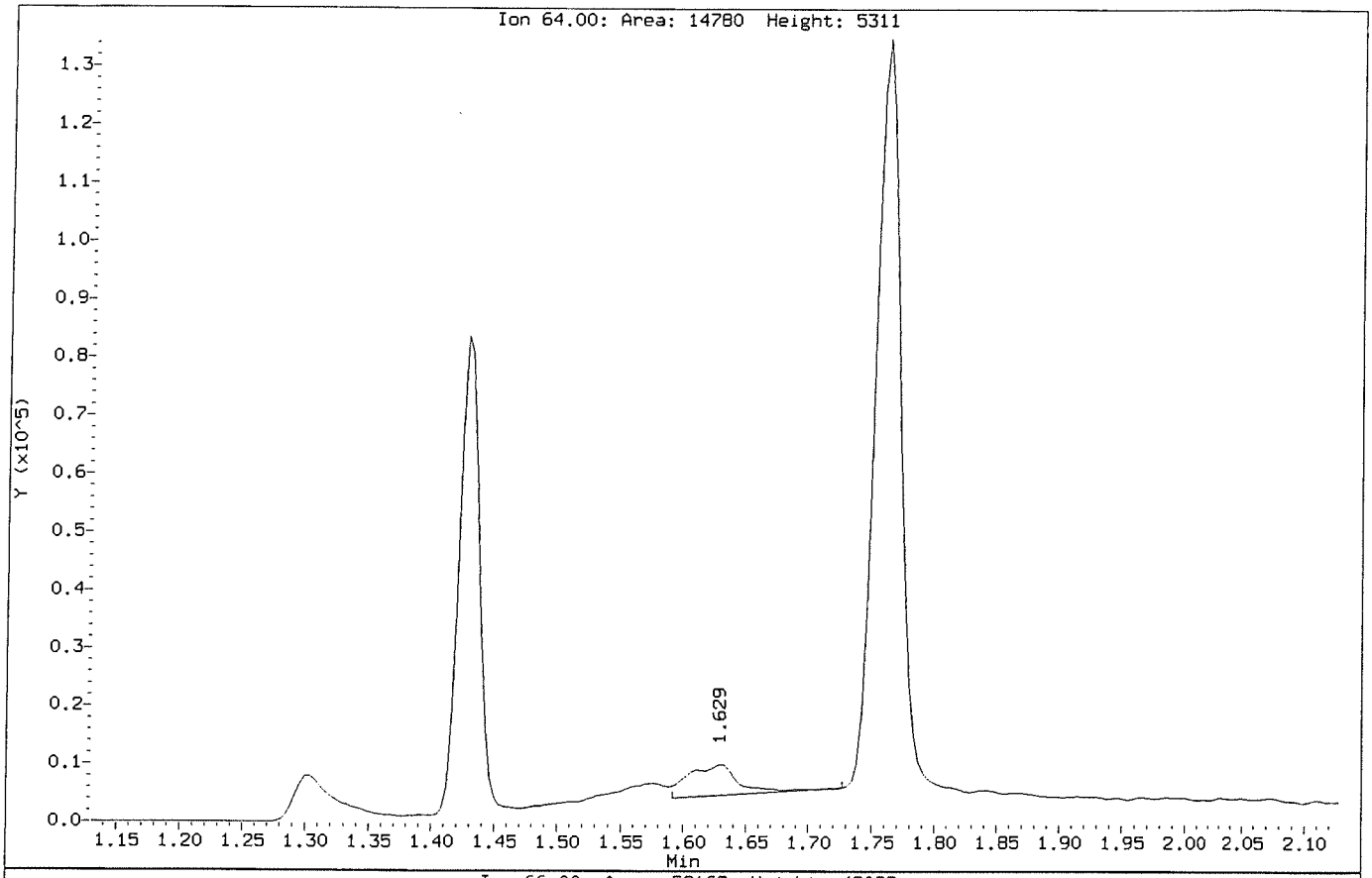
Date : 21-DEC-2018 16:41
Client ID: VSTD050
Sample Info: VSTD050;VSTD050;1;7;
Purge Volume: 5.0
Column phase: DB624

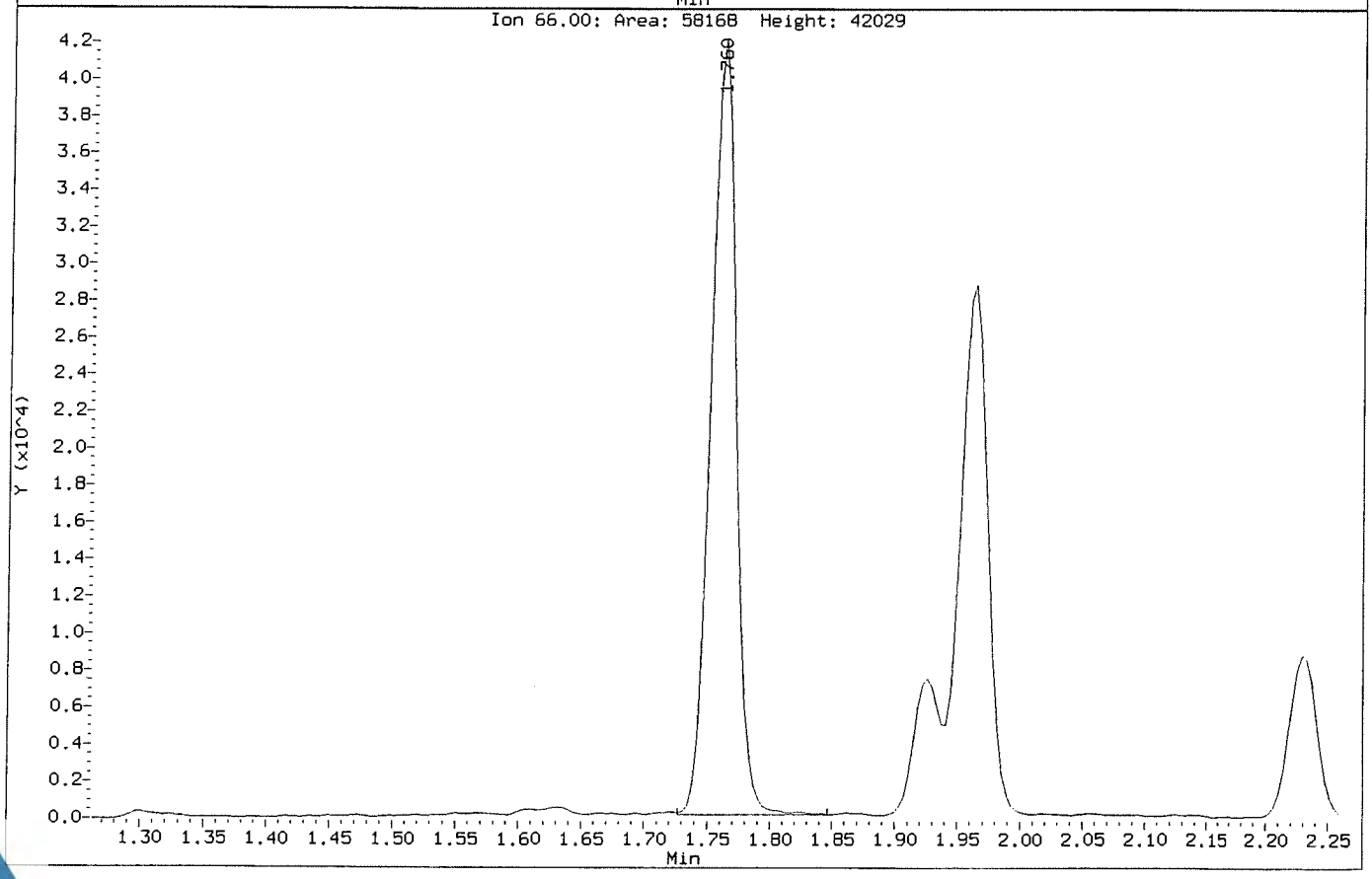
\\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122108.D

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122108.D
Injection Date: 21-DEC-2018 16:41
Instrument: VOA9.i
Client Sample ID: VSTD050

Compound: Chloroethane
CAS Number: 75-00-3





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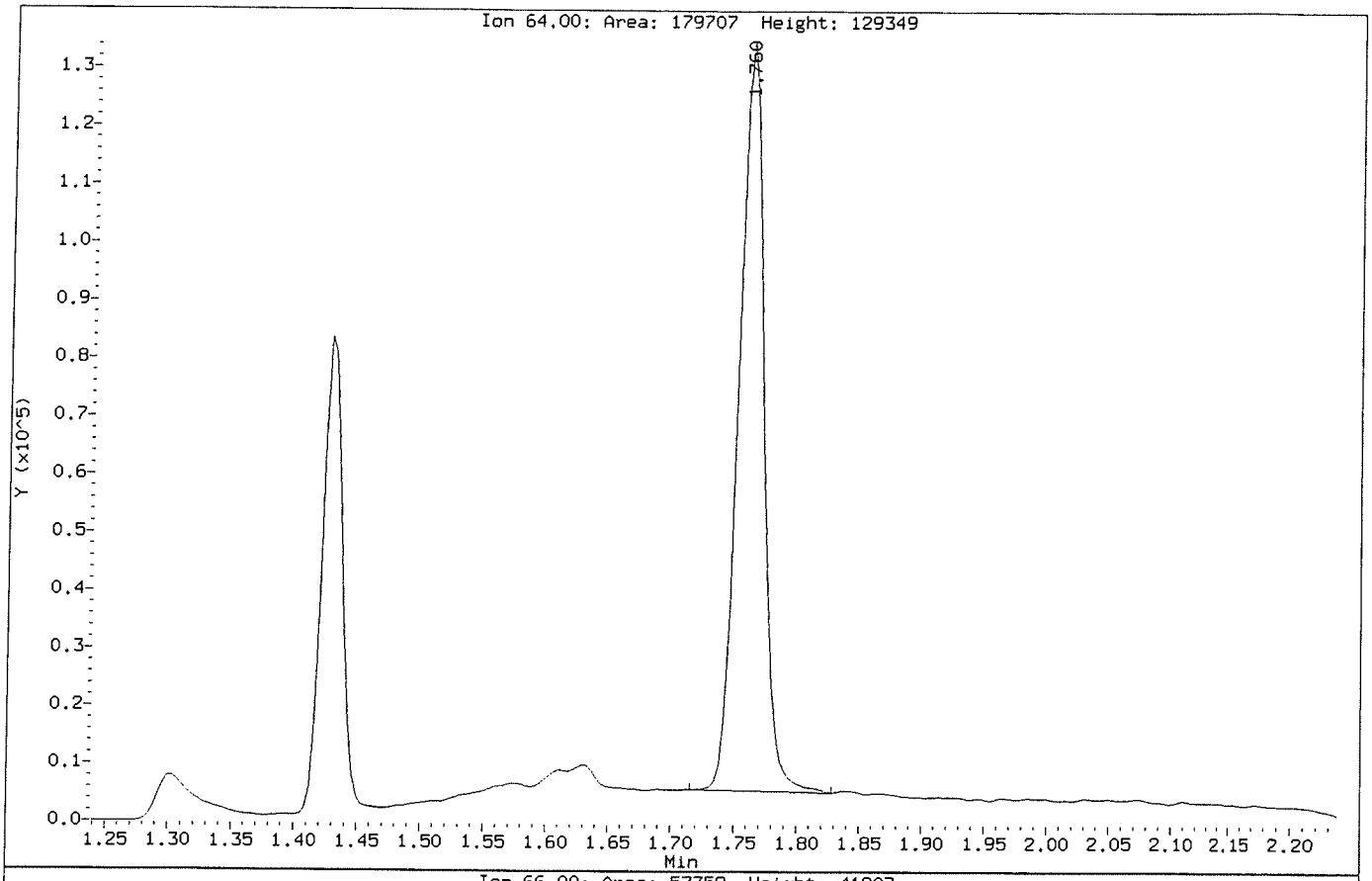
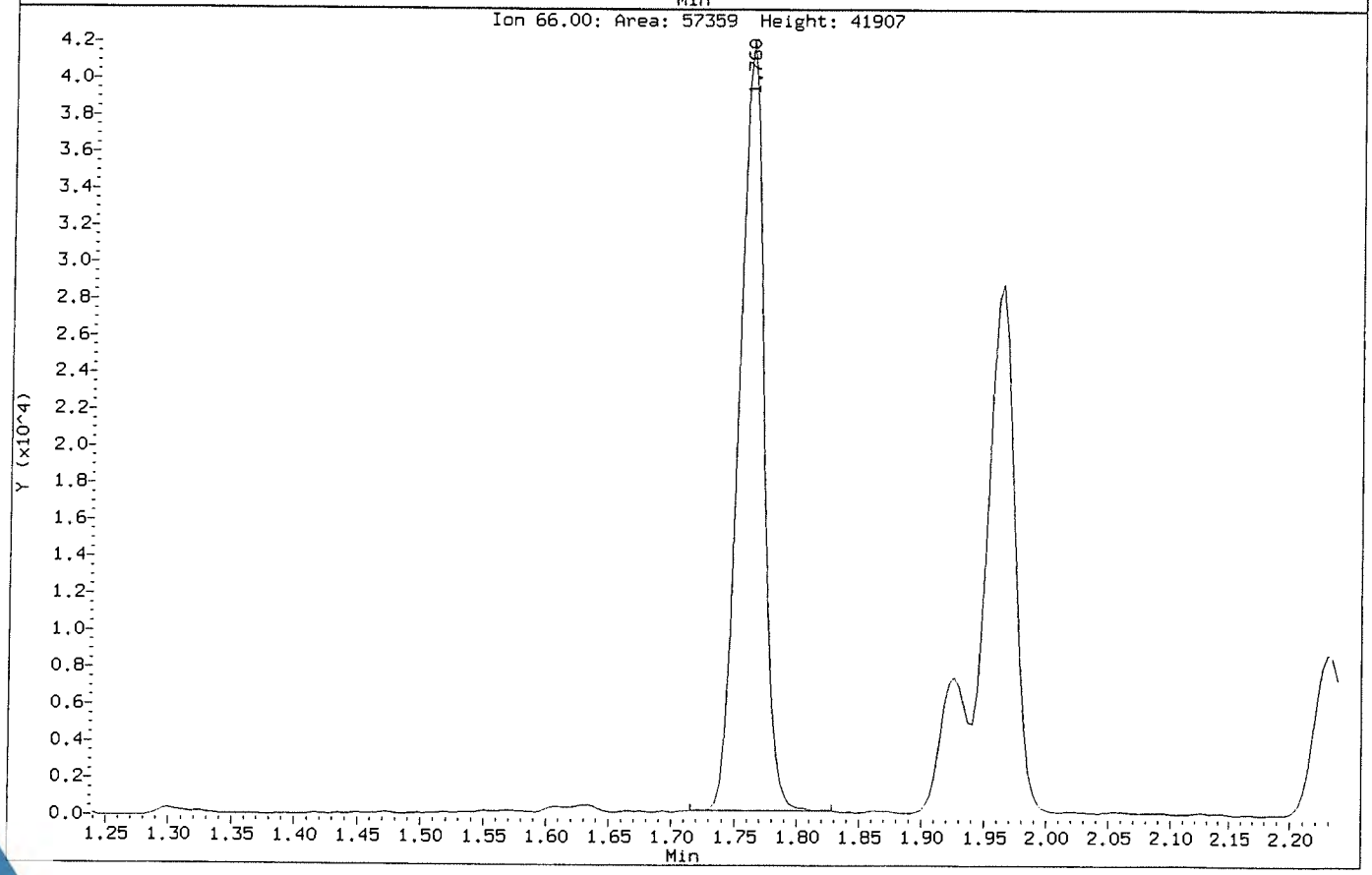
Instrument: VOA9.i
Client Sample ID: VSTD050

Compound: Chloroethane
CAS Number: 75-00-3





Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122109.D Page 1
Report Date: 28-Jan-2019 11:25

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122109.D
Lab Smp Id: VSTD100 Client Smp ID: VSTD100
Inj Date : 21-DEC-2018 17:06
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD100;VSTD100;1;8;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 10 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

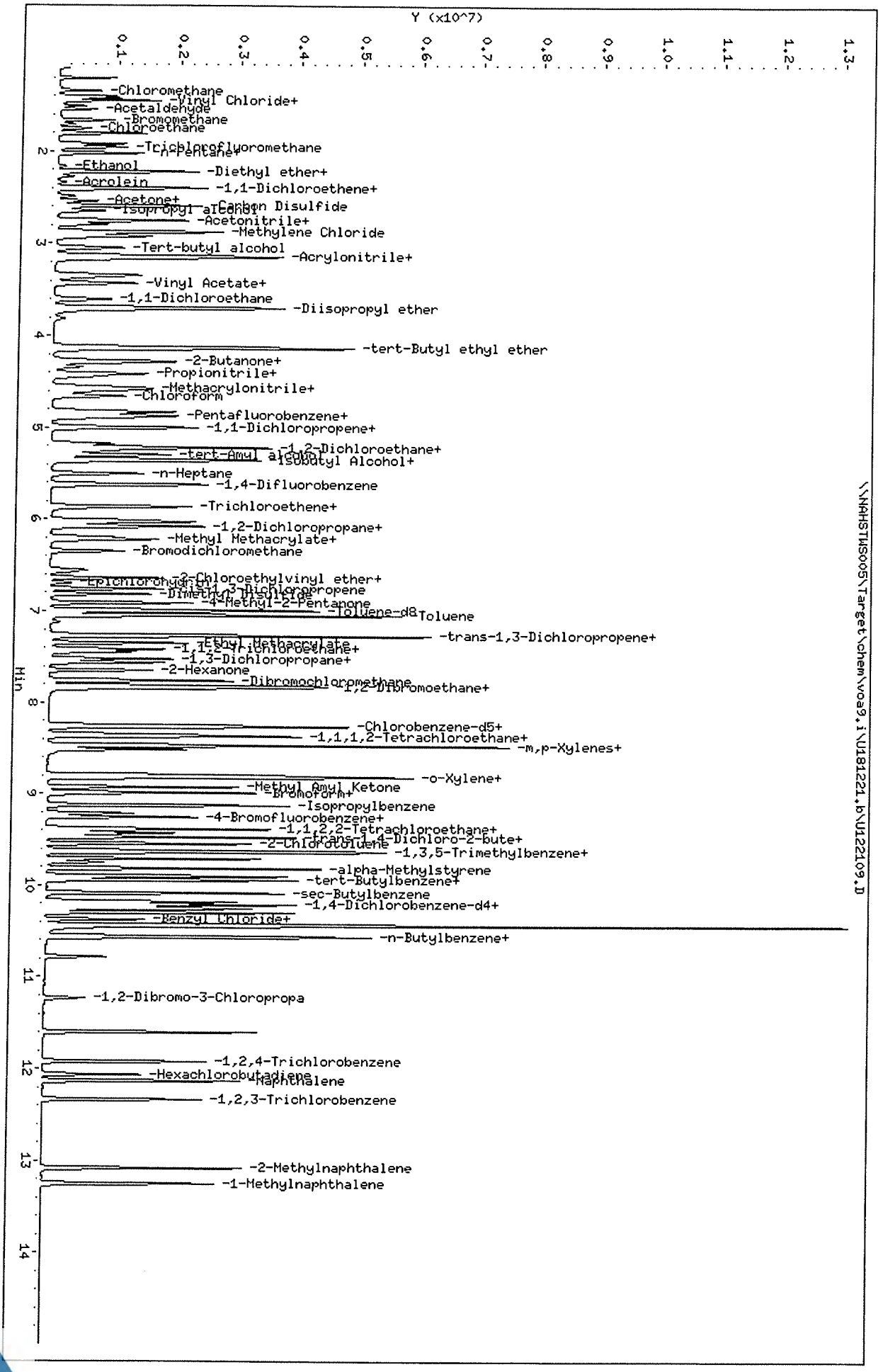
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.897	4.897	(1.000)	443466	50.0000	
* 36 1,4-Difluorobenzene	114	5.625	5.625	(1.000)	822102	50.0000	
* 47 Chlorobenzene-d5	117	8.252	8.252	(1.000)	772888	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.235	10.235	(1.000)	368944	50.0000	
$ 30 Dibromofluoromethane	113	4.830	4.830	(0.986)	495628	100.000	102.84
$ 35 1,2-Dichloroethane-d4	65	5.175	5.175	(1.057)	635081	100.000	103.40
$ 48 Toluene-d8	98	6.989	6.989	(0.847)	2029223	100.000	103.52
$ 69 4-Bromofluorobenzene	95	9.257	9.257	(1.122)	764798	100.000	102.11
60 1,1,1,2-Tetrachloroethane	131	8.350	8.350	(1.012)	493177	100.000	99.96
31 1,1,1-Trichloroethane	97	4.830	4.830	(0.986)	750490	100.000	107.17
68 1,1,2,2-Tetrachloroethane	83	9.392	9.392	(0.918)	804056	100.000	96.77
138 Freon TF	101	2.404	2.404	(0.491)	394668	100.000	104.68
53 1,1,2-Trichloroethane	83	7.420	7.420	(0.899)	455612	100.000	98.94
22 1,1-Dichloroethane	63	3.604	3.604	(0.736)	956686	100.000	100.17
11 1,1-Dichloroethene	96	2.401	2.401	(0.490)	425292	100.000	100.86
32 1,1-Dichloropropene	75	5.006	5.006	(0.890)	748488	100.000	102.32
93 1,2,3-Trichlorobenzene	180	12.335	12.335	(1.205)	694931	100.000	99.32
71 1,2,3-Trichloropropane	75	9.430	9.430	(0.921)	901833	100.000	104.38
90 1,2,4-Trichlorobenzene	180	11.926	11.926	(1.165)	724973	100.000	106.13
79 1,2,4-Trimethylbenzene	105	9.943	9.943	(0.971)	2020622	100.000	104.65
89 1,2-Dibromo-3-Chloropropane	155	11.233	11.233	(1.097)	125814	100.000	96.80
57 1,2-Dibromoethane	107	7.851	7.851	(0.951)	533692	100.000	100.62

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122109.D Page 2
Report Date: 28-Jan-2019 11:25

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	10.573	10.573	(1.033)	1079683	100.000	98.55
33	1,2-Dichloroethane	62	5.253	5.253	(0.934)	747337	100.000	101.64
42	1,2-Dichloropropane	63	6.082	6.082	(1.081)	587293	100.000	101.10
75	1,3,5-Trimethylbenzene	105	9.628	9.628	(0.941)	1981203	100.000	106.84
83	1,3-Dichlorobenzene	146	10.179	10.179	(0.995)	1088889	100.000	99.39
54	1,3-Dichloropropane	76	7.563	7.563	(0.916)	974518	100.000	98.25
84	1,4-Dichlorobenzene	146	10.258	10.258	(1.002)	1115296	100.000	96.55
26	2,2-Dichloropropane	77	4.275	4.275	(0.873)	606051	100.000	105.30
24	2-Butanone	43	4.339	4.339	(0.886)	587152	200.000	204.95(A)
76	2-Chlorotoluene	91	9.549	9.549	(0.933)	1714248	100.000	100.84
52	2-Hexanone	43	7.649	7.649	(0.927)	912444	200.000	212.30(A)
77	4-Chlorotoluene	91	9.639	9.639	(0.942)	1995109	100.000	101.56
82	p-Isopropyltoluene	119	10.209	10.209	(0.997)	2107729	100.000	107.96
45	4-Methyl-2-Pentanone	43	6.914	6.914	(0.838)	1301011	200.000	210.38(A)
10	Acetone	43	2.483	2.483	(0.507)	331678	200.000	194.35
37	Benzene	78	5.220	5.220	(0.928)	2195227	100.000	100.34
74	Bromobenzene	156	9.385	9.385	(0.917)	573954	100.000	100.68
29	Bromochloromethane	128	4.556	4.556	(0.930)	244429	100.000	108.58
39	Bromodichloromethane	83	6.348	6.348	(1.129)	667511	100.000	108.05
66	Bromoform	173	8.983	8.983	(1.089)	331336	100.000	98.11(T)
6	Bromomethane	94	1.666	1.666	(0.340)	281859	100.000	101.50
19	Carbon Disulfide	76	2.592	2.592	(0.529)	3090544	200.000	201.15(A)
34	Carbon Tetrachloride	117	4.999	4.999	(0.889)	601960	100.000	99.26
59	Chlorobenzene	112	8.275	8.275	(1.003)	1466929	100.000	98.78
7	Chloroethane	64	1.752	1.752	(0.358)	384958	100.000	95.90(M)
28	Chloroform	83	4.657	4.657	(0.951)	918394	100.000	99.85
3	Chloromethane	50	1.344	1.344	(0.274)	441603	100.000	90.82
27	cis-1,2-Dichloroethene	96	4.286	4.286	(0.875)	580958	100.000	99.66
46	cis-1,3-Dichloropropene	75	6.760	6.760	(1.202)	944095	100.000	99.29
55	Dibromochloromethane	129	7.758	7.758	(0.940)	512845	100.000	99.98
44	Dibromomethane	93	6.191	6.191	(1.101)	341140	100.000	101.75
2	Dichlorodifluoromethane	85	1.209	1.209	(0.247)	553841	100.000	100.99
61	Ethylbenzene	106	8.372	8.372	(1.015)	779796	100.000	102.38
91	Hexachlorobutadiene	225	12.065	12.065	(1.179)	259405	100.000	99.12
67	Isopropylbenzene	105	9.126	9.126	(1.106)	2327627	100.000	105.90
62	m,p-Xylenes	106	8.474	8.474	(1.027)	1935465	200.000	206.70(A)
17	Methylene Chloride	84	2.873	2.873	(0.587)	554902	100.000	102.47
87	n-Butylbenzene	91	10.558	10.558	(1.031)	1963594	100.000	104.21
73	n-Propylbenzene	91	9.478	9.478	(0.926)	2891517	100.000	104.88
92	Naphthalene	128	12.132	12.132	(1.185)	2231968	100.000	99.52
63	o-Xylene	106	8.811	8.811	(1.068)	975544	100.000	103.27
81	sec-Butylbenzene	105	10.086	10.086	(0.985)	2492415	100.000	107.57
64	Styrene	104	8.826	8.826	(1.069)	1680613	100.000	107.08
78	tert-Butylbenzene	119	9.902	9.902	(0.967)	1698031	100.000	105.95
56	Tetrachloroethene	164	7.525	7.525	(0.912)	397169	100.000	98.15
50	Toluene	91	7.049	7.049	(0.854)	2304015	100.000	100.21
20	trans-1,2-Dichloroethene	96	3.143	3.143	(0.642)	513822	100.000	98.98
51	trans-1,3-Dichloropropene	75	7.263	7.263	(1.291)	811224	100.000	98.79
38	Trichloroethene	130	5.861	5.861	(1.042)	528149	100.000	100.00
8	Trichlorofluoromethane	101	1.955	1.955	(0.399)	753769	100.000	102.46
5	Vinyl Chloride	62	1.422	1.422	(0.290)	629175	100.000	99.33

QC Flag Legend

T - Target compound detected outside RT window.
A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.



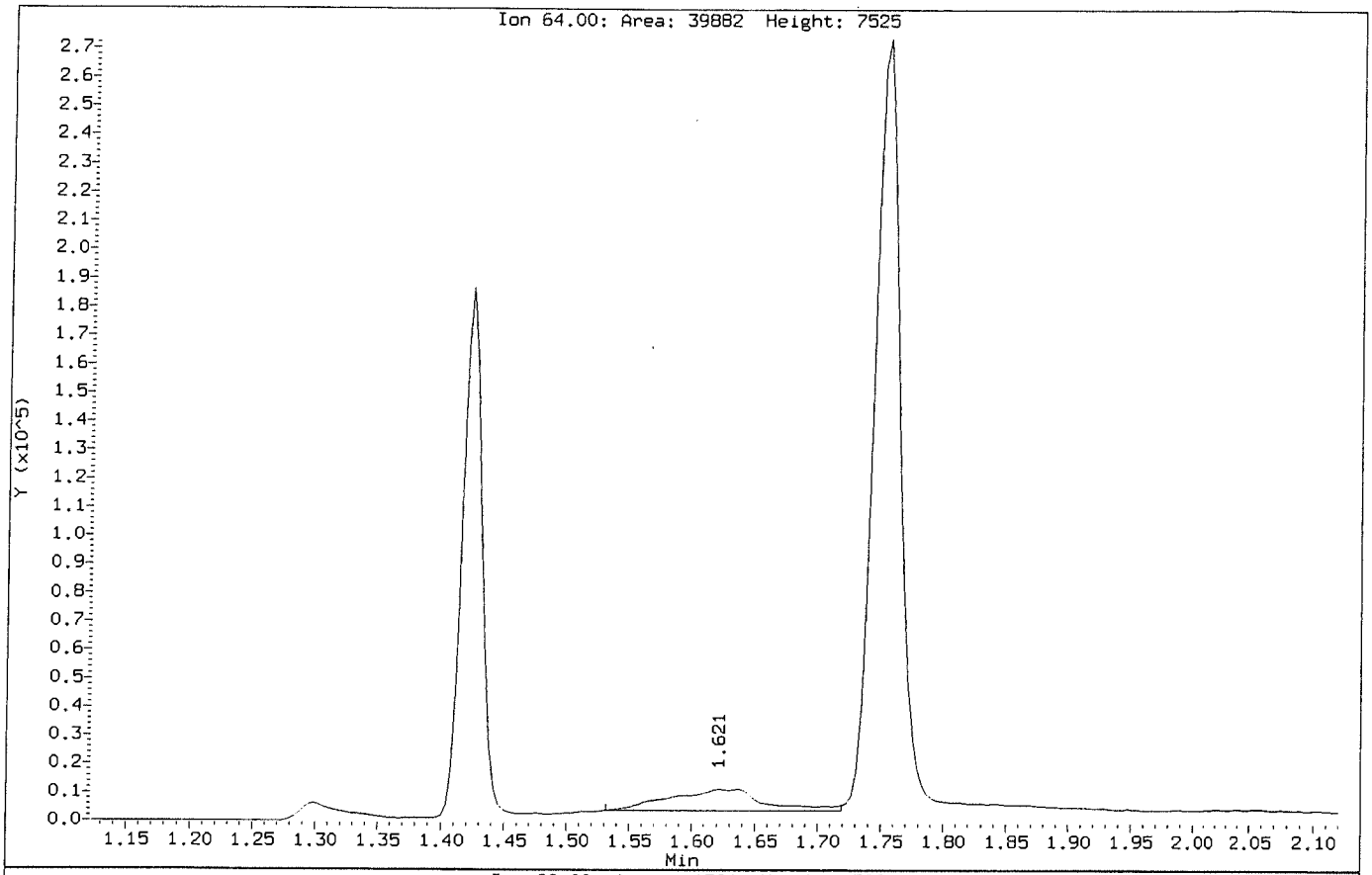
Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122109.D
Date : 21-DEC-2018 17:06
Client ID: VSTD100
Sample Info: VSTD100;VSTD100;1;8;
Purge Volume: 5.0
Column phase: DB624

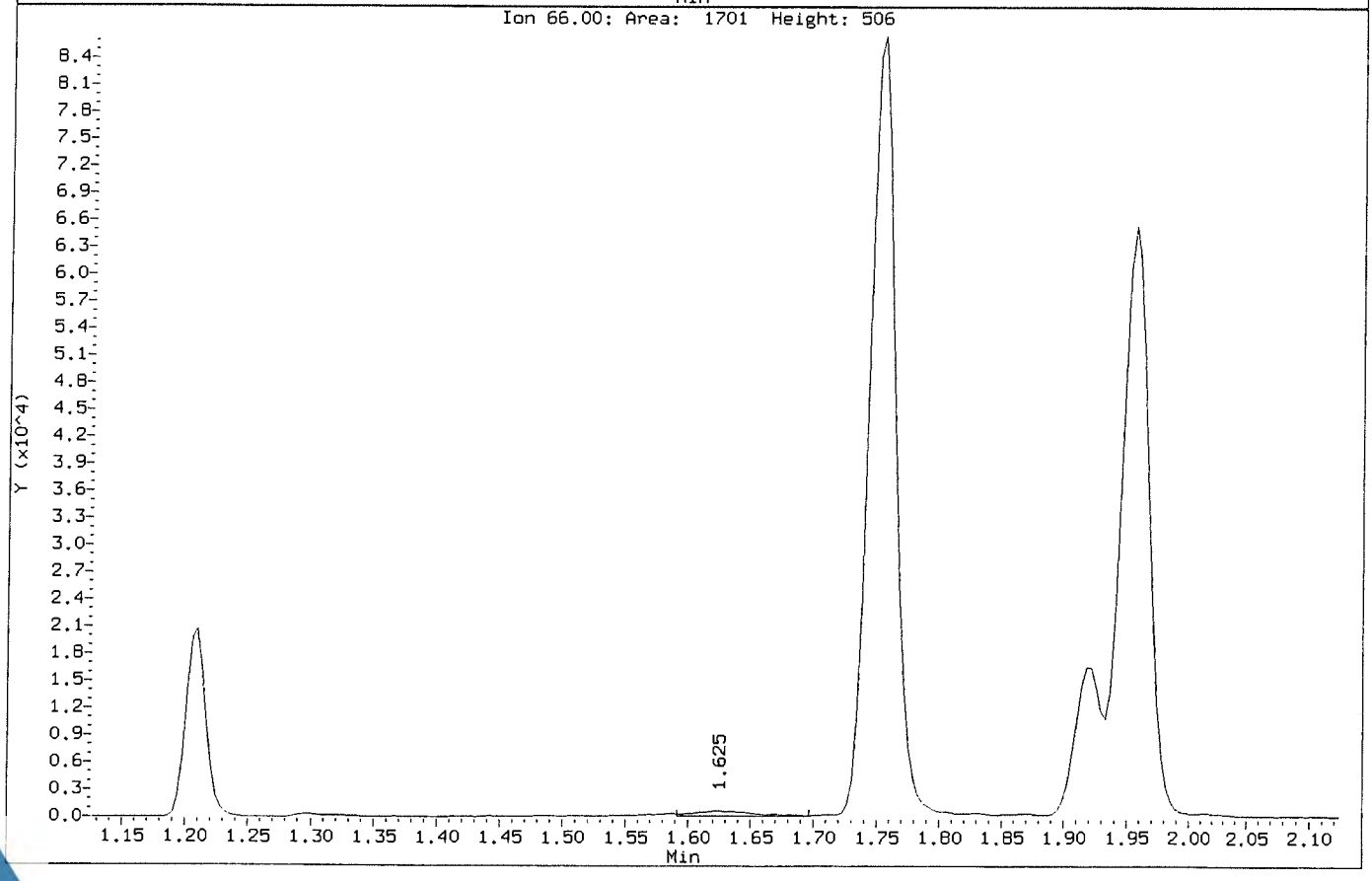
\\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122109.D

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122109.D
Injection Date: 21-DEC-2018 17:06
Instrument: VOA9.i
Client Sample ID: VSTD100

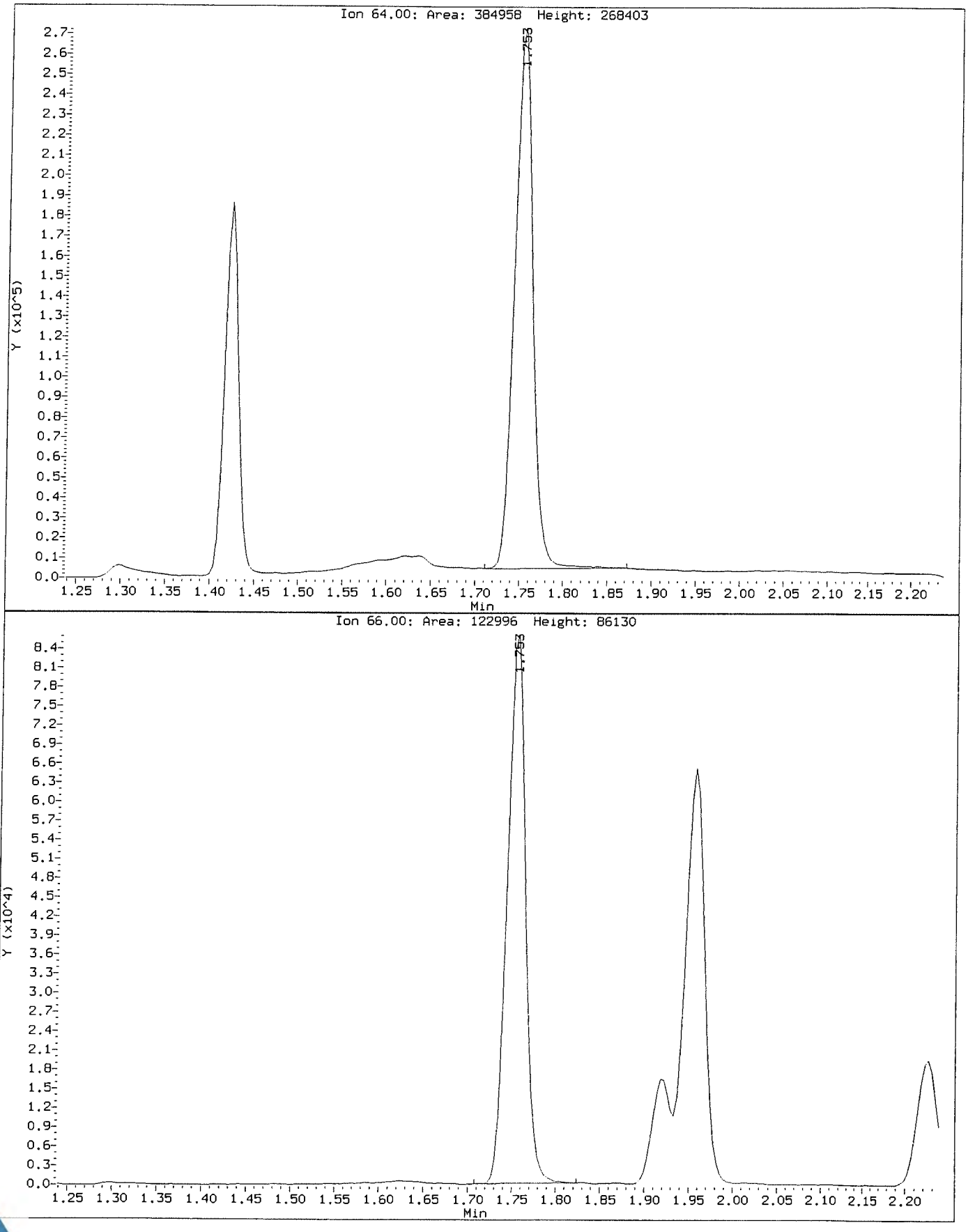
Compound: Chloroethane
CAS Number: 75-00-3





Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122109.D
Injection Date: 21-DEC-2018 17:06
Instrument: VOA9.i
Client Sample ID: VSTD100

Compound: Chloroethane
CAS Number: 75-00-3



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122110.D Page 1
Report Date: 28-Jan-2019 11:25

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122110.D
Lab Smp Id: VSTD150 Client Smp ID: VSTD150
Inj Date : 21-DEC-2018 17:31
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD150;VSTD150;1;9;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 17:06 Cal File: U122109.D
Als bottle: 11 Calibration Sample, Level: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

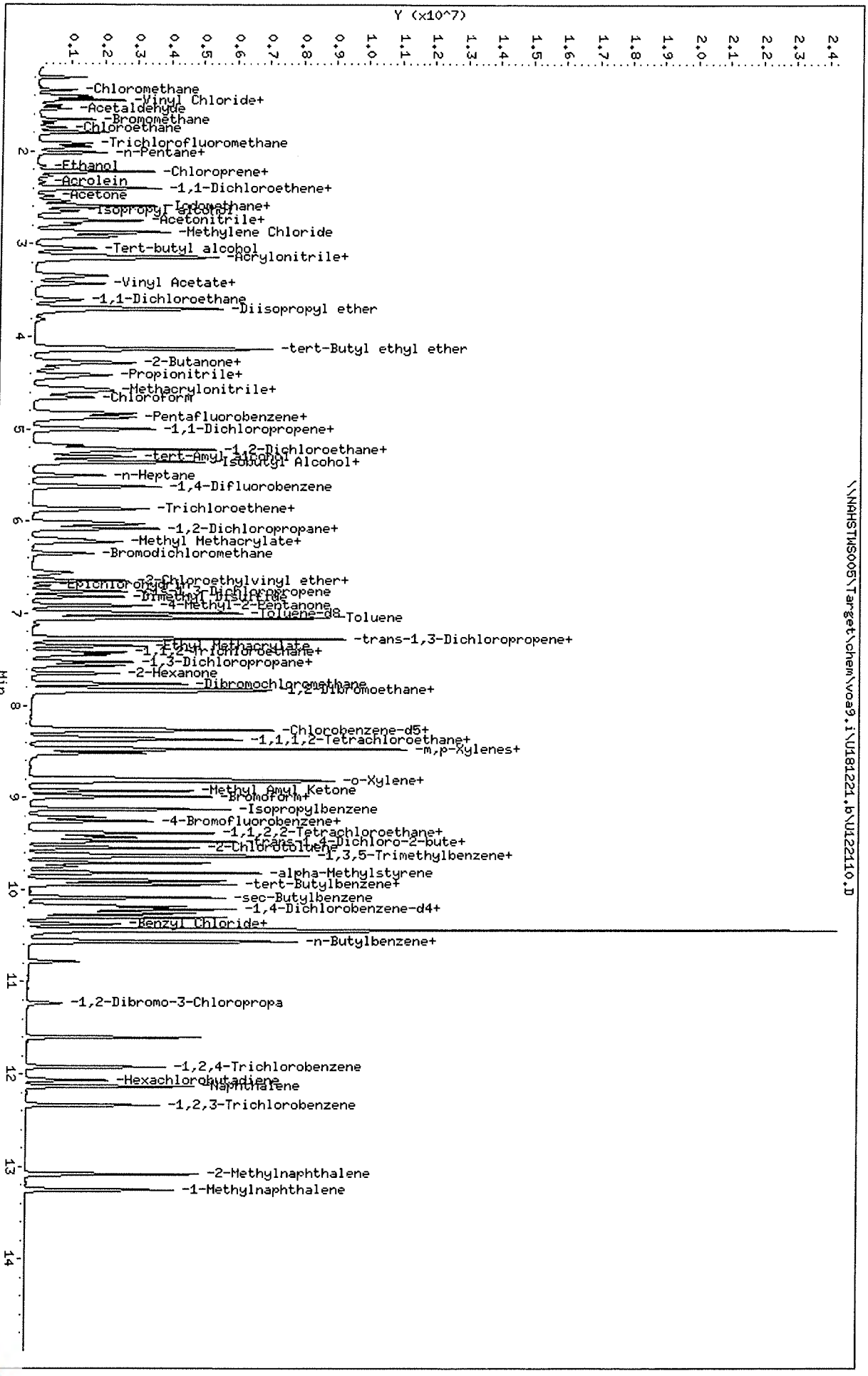
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.894	4.894	(1.000)	456327	50.0000	
* 36 1,4-Difluorobenzene	114	5.625	5.625	(1.000)	837974	50.0000	
* 47 Chlorobenzene-d5	117	8.249	8.249	(1.000)	793198	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	374825	50.0000	
$ 30 Dibromofluoromethane	113	4.830	4.830	(0.987)	745399	150.000	151.02
$ 35 1,2-Dichloroethane-d4	65	5.175	5.175	(1.057)	949266	150.000	151.18
$ 48 Toluene-d8	98	6.989	6.989	(0.847)	3016887	150.000	150.76
$ 69 4-Bromofluorobenzene	95	9.257	9.257	(1.122)	1153874	150.000	150.78
60 1,1,1,2-Tetrachloroethane	131	8.350	8.350	(1.012)	766622	150.000	151.11
31 1,1,1-Trichloroethane	97	4.826	4.826	(0.986)	1166981	150.000	161.96
68 1,1,2,2-Tetrachloroethane	83	9.392	9.392	(0.918)	1214939	150.000	143.93
138 Freon TF	101	2.401	2.401	(0.491)	609198	150.000	157.03
53 1,1,2-Trichloroethane	83	7.421	7.421	(0.900)	689788	150.000	145.96
22 1,1-Dichloroethane	63	3.604	3.604	(0.737)	1459691	150.000	148.53
11 1,1-Dichloroethene	96	2.397	2.397	(0.490)	645721	150.000	148.82
32 1,1-Dichloropropene	75	5.003	5.003	(0.889)	1147997	150.000	153.96
93 1,2,3-Trichlorobenzene	180	12.335	12.335	(1.205)	1085027	150.000	152.30
71 1,2,3-Trichloropropane	75	9.430	9.430	(0.921)	1401190	150.000	159.63
90 1,2,4-Trichlorobenzene	180	11.923	11.923	(1.165)	1126029	150.000	162.26
79 1,2,4-Trimethylbenzene	105	9.943	9.943	(0.971)	3050007	150.000	155.49
89 1,2-Dibromo-3-Chloropropane	155	11.233	11.233	(1.097)	200384	150.000	150.93
57 1,2-Dibromoethane	107	7.852	7.852	(0.952)	815175	150.000	149.76

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122110.D Page 2
Report Date: 28-Jan-2019 11:25

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	10.573	10.573	(1.033)	1640210	150.000	147.37
33	1,2-Dichloroethane	62	5.254	5.254	(0.934)	1129116	150.000	151.01
42	1,2-Dichloropropane	63	6.082	6.082	(1.081)	888346	150.000	150.03
75	1,3,5-Trimethylbenzene	105	9.625	9.625	(0.940)	2996671	150.000	159.08
83	1,3-Dichlorobenzene	146	10.180	10.180	(0.995)	1669910	150.000	150.03
54	1,3-Dichloropropane	76	7.563	7.563	(0.917)	1476732	150.000	145.07
84	1,4-Dichlorobenzene	146	10.255	10.255	(1.002)	1696761	150.000	144.58
26	2,2-Dichloropropane	77	4.275	4.275	(0.874)	951402	150.000	160.64
24	2-Butanone	43	4.335	4.335	(0.886)	880878	300.000	299.93(A)
76	2-Chlorotoluene	91	9.550	9.550	(0.933)	2603345	150.000	150.74
52	2-Hexanone	43	7.653	7.653	(0.928)	1413890	300.000	320.56(A)
77	4-Chlorotoluene	91	9.640	9.640	(0.942)	3029757	150.000	151.81
82	p-Isopropyltoluene	119	10.210	10.210	(0.997)	3190047	150.000	160.83
45	4-Methyl-2-Pentanone	43	6.914	6.914	(0.838)	1993190	300.000	314.06(A)
10	Acetone	43	2.480	2.480	(0.507)	520533	300.000	298.01(A)
37	Benzene	78	5.216	5.216	(0.927)	3311929	150.000	148.52
74	Bromobenzene	156	9.385	9.385	(0.917)	890701	150.000	153.79
29	Bromochloromethane	128	4.557	4.557	(0.931)	348533	150.000	151.66
39	Bromodichloromethane	83	6.348	6.348	(1.129)	1032680	150.000	164.00
66	Bromoform	173	8.984	8.984	(1.089)	522892	150.000	149.93
6	Bromomethane	94	1.659	1.659	(0.339)	444174	150.000	154.73
19	Carbon Disulfide	76	2.588	2.588	(0.529)	4735575	300.000	299.54(A)
34	Carbon Tetrachloride	117	4.995	4.995	(0.888)	939611	150.000	151.26
59	Chlorobenzene	112	8.275	8.275	(1.003)	2244427	150.000	147.26
7	Chloroethane	64	1.745	1.745	(0.357)	684109	150.000	161.33
28	Chloroform	83	4.658	4.658	(0.952)	1391091	150.000	146.98
3	Chloromethane	50	1.340	1.340	(0.274)	746873	150.000	147.15
27	cis-1,2-Dichloroethene	96	4.287	4.287	(0.876)	893807	150.000	149.01
46	cis-1,3-Dichloropropene	75	6.757	6.757	(1.201)	1468956	150.000	150.90
55	Dibromochloromethane	129	7.758	7.758	(0.940)	791728	150.000	149.91
44	Dibromomethane	93	6.191	6.191	(1.101)	516406	150.000	151.11
2	Dichlorodifluoromethane	85	1.205	1.205	(0.246)	873891	150.000	154.61
61	Ethylbenzene	106	8.373	8.373	(1.015)	1198529	150.000	153.33
91	Hexachlorobutadiene	225	12.065	12.065	(1.179)	400552	150.000	150.65
67	Isopropylbenzene	105	9.126	9.126	(1.106)	3526393	150.000	156.34
62	m,p-Xylenes	106	8.474	8.474	(1.027)	2933161	300.000	305.23(A)
17	Methylene Chloride	84	2.870	2.870	(0.586)	841220	150.000	151.54
87	n-Butylbenzene	91	10.558	10.558	(1.031)	2965307	150.000	154.91
73	n-Propylbenzene	91	9.479	9.479	(0.926)	4348220	150.000	155.25
92	Naphthalene	128	12.133	12.133	(1.185)	3430934	150.000	151.53
63	o-Xylene	106	8.811	8.811	(1.068)	1492877	150.000	153.99
81	sec-Butylbenzene	105	10.090	10.090	(0.986)	3757107	150.000	159.61
64	Styrene	104	8.826	8.826	(1.070)	2556162	150.000	158.70
78	tert-Butylbenzene	119	9.902	9.902	(0.967)	2586354	150.000	158.85
56	Tetrachloroethene	164	7.526	7.526	(0.912)	610669	150.000	147.05
50	Toluene	91	7.049	7.049	(0.855)	3483930	150.000	147.65
20	trans-1,2-Dichloroethene	96	3.140	3.140	(0.642)	789348	150.000	147.77
51	trans-1,3-Dichloropropene	75	7.263	7.263	(1.291)	1271771	150.000	151.06
38	Trichloroethene	130	5.861	5.861	(1.042)	823329	150.000	152.94
8	Trichlorofluoromethane	101	1.951	1.951	(0.399)	1146930	150.000	151.21
5	Vinyl Chloride	62	1.419	1.419	(0.290)	1000865	150.000	153.03

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122110.D
Date : 21-DEC-2018 17:31
Client ID: VSTD150
Sample Info: VSTD150;VSTD150;1;9;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122111.D
Lab Smp Id: VSTD200 Client Smp ID: VSTD200
Inj Date : 21-DEC-2018 17:55
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD200;VSTD200;1;10;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 17:31 Cal File: U122110.D
Als bottle: 12 Calibration Sample, Level: 10
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

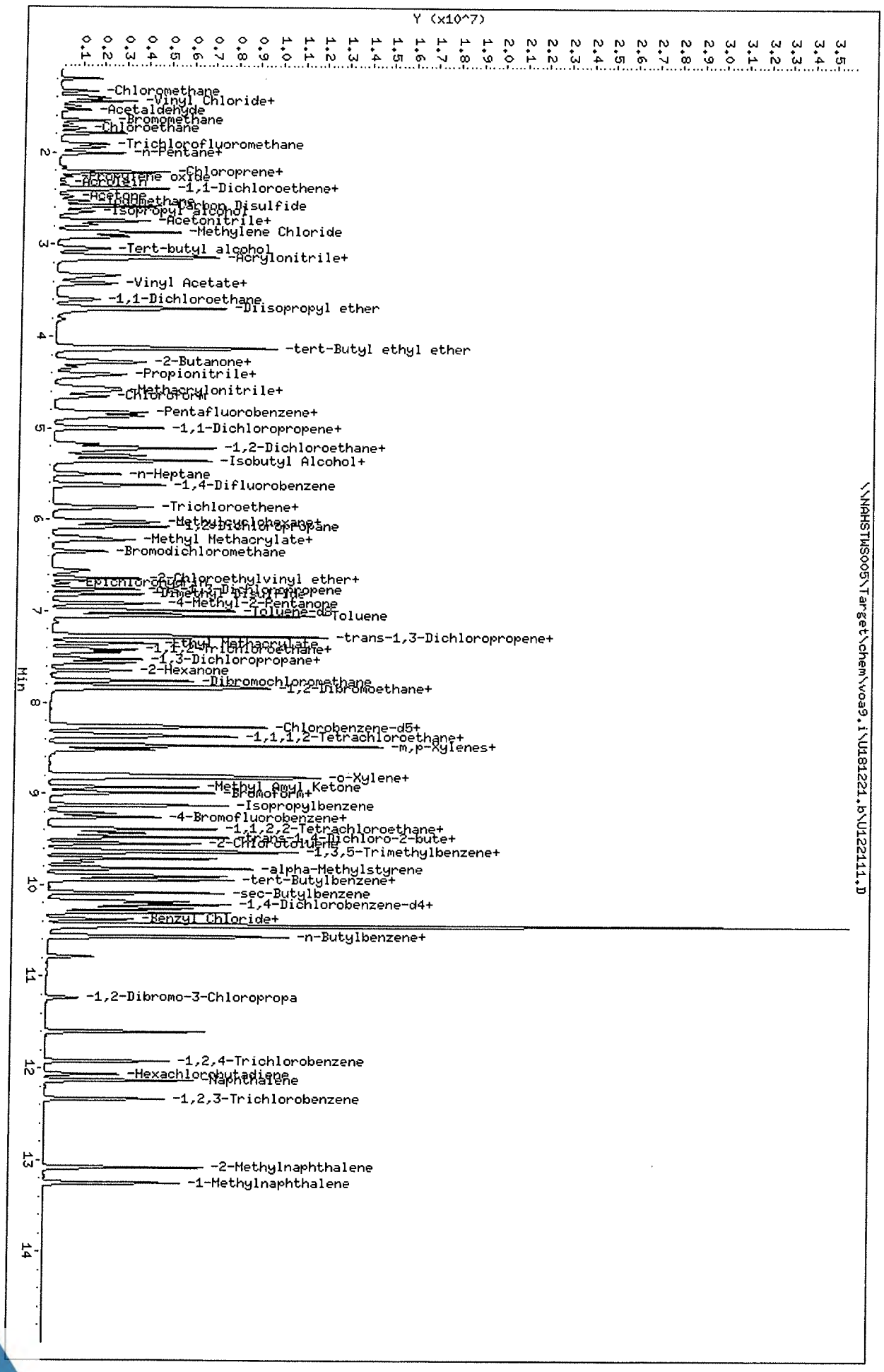
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.890	4.890	(1.000)	471928	50.0000	
* 36 1,4-Difluorobenzene	114	5.625	5.625	(1.000)	852109	50.0000	
* 47 Chlorobenzene-d5	117	8.249	8.249	(1.000)	808162	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	383807	50.0000	
$ 30 Dibromofluoromethane	113	4.826	4.826	(0.987)	1006329	200.000	197.61
$ 35 1,2-Dichloroethane-d4	65	5.171	5.171	(1.057)	1274051	200.000	196.84
$ 48 Toluene-d8	98	6.989	6.989	(0.847)	4010125	200.000	197.23
$ 69 4-Bromofluorobenzene	95	9.257	9.257	(1.122)	1540801	200.000	198.06
60 1,1,1,2-Tetrachloroethane	131	8.350	8.350	(1.012)	1032567	200.000	199.57
31 1,1,1-Trichloroethane	97	4.826	4.826	(0.987)	1558350	200.000	209.12(A)
68 1,1,2,2-Tetrachloroethane	83	9.392	9.392	(0.918)	1627647	200.000	188.30
138 Freon TF	101	2.394	2.394	(0.490)	818502	200.000	204.00(A)
53 1,1,2-Trichloroethane	83	7.421	7.421	(0.900)	922969	200.000	191.69
22 1,1-Dichloroethane	63	3.597	3.597	(0.736)	1941260	200.000	191.00
11 1,1-Dichloroethene	96	2.394	2.394	(0.490)	870210	200.000	193.93
32 1,1-Dichloropropene	75	5.003	5.003	(0.889)	1526453	200.000	201.33(A)
93 1,2,3-Trichlorobenzene	180	12.335	12.335	(1.205)	1453309	200.000	199.03
71 1,2,3-Trichloropropane	75	9.430	9.430	(0.921)	1910859	200.000	212.60(A)
90 1,2,4-Trichlorobenzene	180	11.926	11.926	(1.165)	1495400	200.000	210.44(A)
79 1,2,4-Trimethylbenzene	105	9.943	9.943	(0.971)	4007083	200.000	199.50
89 1,2-Dibromo-3-Chloropropane	155	11.233	11.233	(1.097)	274280	200.000	201.27(A)
57 1,2-Dibromoethane	107	7.852	7.852	(0.952)	1097675	200.000	197.93

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122111.D Page 2
Report Date: 28-Jan-2019 11:25

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	10.573	10.573	(1.033)	2176108	200.000	190.95
33	1,2-Dichloroethane	62	5.250	5.250	(0.933)	1504782	200.000	198.15
42	1,2-Dichloropropane	63	6.078	6.078	(1.081)	1186343	200.000	197.03
75	1,3,5-Trimethylbenzene	105	9.628	9.628	(0.941)	3964216	200.000	205.51(A)
83	1,3-Dichlorobenzene	146	10.180	10.180	(0.995)	2212350	200.000	194.11
54	1,3-Dichloropropane	76	7.563	7.563	(0.917)	1981022	200.000	191.01
84	1,4-Dichlorobenzene	146	10.258	10.258	(1.002)	2259523	200.000	188.03
26	2,2-Dichloropropane	77	4.272	4.272	(0.874)	1270502	200.000	207.43(A)
24	2-Butanone	43	4.335	4.335	(0.887)	1199902	400.000	395.82(A)
76	2-Chlorotoluene	91	9.550	9.550	(0.933)	3451393	200.000	195.17
52	2-Hexanone	43	7.653	7.653	(0.928)	1896004	400.000	421.90(A)
77	4-Chlorotoluene	91	9.640	9.640	(0.942)	3993483	200.000	195.41
82	p-Isopropyltoluene	119	10.213	10.213	(0.998)	4198944	200.000	206.74(A)
45	4-Methyl-2-Pentanone	43	6.914	6.914	(0.838)	2681840	400.000	414.75(A)
10	Acetone	43	2.476	2.476	(0.506)	723113	400.000	401.34(A)
37	Benzene	78	5.216	5.216	(0.927)	4410809	200.000	194.52
74	Bromobenzene	156	9.385	9.385	(0.917)	1186255	200.000	200.04(A)
29	Bromochloromethane	128	4.553	4.553	(0.931)	453685	200.000	191.69
39	Bromodichloromethane	83	6.345	6.345	(1.128)	1391257	200.000	217.29(A)
66	Bromoform	173	8.984	8.984	(1.089)	718878	200.000	201.69(A)
6	Bromomethane	94	1.651	1.651	(0.338)	585856	200.000	196.98
19	Carbon Disulfide	76	2.585	2.585	(0.529)	6125723	400.000	374.66(A)
34	Carbon Tetrachloride	117	4.991	4.991	(0.887)	1268610	200.000	200.38(A)
59	Chlorobenzene	112	8.275	8.275	(1.003)	2961137	200.000	190.69
7	Chloroethane	64	1.737	1.737	(0.355)	859472	200.000	193.44
28	Chloroform	83	4.654	4.654	(0.952)	1846267	200.000	188.63
3	Chloromethane	50	1.333	1.333	(0.273)	1095269	200.000	207.27(A)
27	cis-1,2-Dichloroethene	96	4.283	4.283	(0.876)	1189323	200.000	191.72
46	cis-1,3-Dichloropropene	75	6.757	6.757	(1.201)	1986544	200.000	200.27(A)
55	Dibromochloromethane	129	7.758	7.758	(0.940)	1081017	200.000	200.56(A)
44	Dibromomethane	93	6.187	6.187	(1.100)	698521	200.000	201.01(A)
2	Dichlorodifluoromethane	85	1.198	1.198	(0.245)	1151588	200.000	196.87
61	Ethylbenzene	106	8.373	8.373	(1.015)	1600834	200.000	201.00(A)
91	Hexachlorobutadiene	225	12.065	12.065	(1.179)	534175	200.000	196.21
67	Isopropylbenzene	105	9.126	9.126	(1.106)	4617933	200.000	200.94(A)
62	m,p-Xylenes	106	8.474	8.474	(1.027)	3876248	400.000	395.90(A)
17	Methylene Chloride	84	2.866	2.866	(0.586)	1131189	200.000	197.41
87	n-Butylbenzene	91	10.558	10.558	(1.031)	3856663	200.000	196.76
73	n-Propylbenzene	91	9.479	9.479	(0.926)	5652456	200.000	197.09
92	Naphthalene	128	12.133	12.133	(1.185)	4589381	200.000	199.26
63	o-Xylene	106	8.811	8.811	(1.068)	1977764	200.000	200.23(A)
81	sec-Butylbenzene	105	10.090	10.090	(0.986)	4898290	200.000	203.23(A)
64	Styrene	104	8.826	8.826	(1.070)	3375201	200.000	205.67(A)
78	tert-Butylbenzene	119	9.902	9.902	(0.967)	3416506	200.000	204.92(A)
56	Tetrachloroethene	164	7.525	7.525	(0.912)	811202	200.000	191.73
50	Toluene	91	7.046	7.046	(0.854)	4594912	200.000	191.13
20	trans-1,2-Dichloroethene	96	3.136	3.136	(0.641)	1055077	200.000	190.99
51	trans-1,3-Dichloropropene	75	7.259	7.259	(1.291)	1721394	200.000	200.53(A)
38	Trichloroethene	130	5.861	5.861	(1.042)	1093007	200.000	199.67
8	Trichlorofluoromethane	101	1.944	1.944	(0.398)	1561606	200.000	198.87
5	Vinyl Chloride	62	1.415	1.415	(0.289)	1348117	200.000	199.01

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122111.D
Date : 21-DEC-2018 17:55
Client ID: VSTD200
Sample Info: VSTD200;VSTD200;1;10;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122113.D Page 1
Report Date: 28-Jan-2019 11:25

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122113.D
Lab Smp Id: VSTD050 Client Smp ID: VSTD050
Inj Date : 21-DEC-2018 18:45
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD050;VSTD050;2;;ICV
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181221.b\8260C.m
Meth Date : 28-Jan-2019 11:25 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 17:55 Cal File: U122111.D
Als bottle: 14 QC Sample: METHSPIKE
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

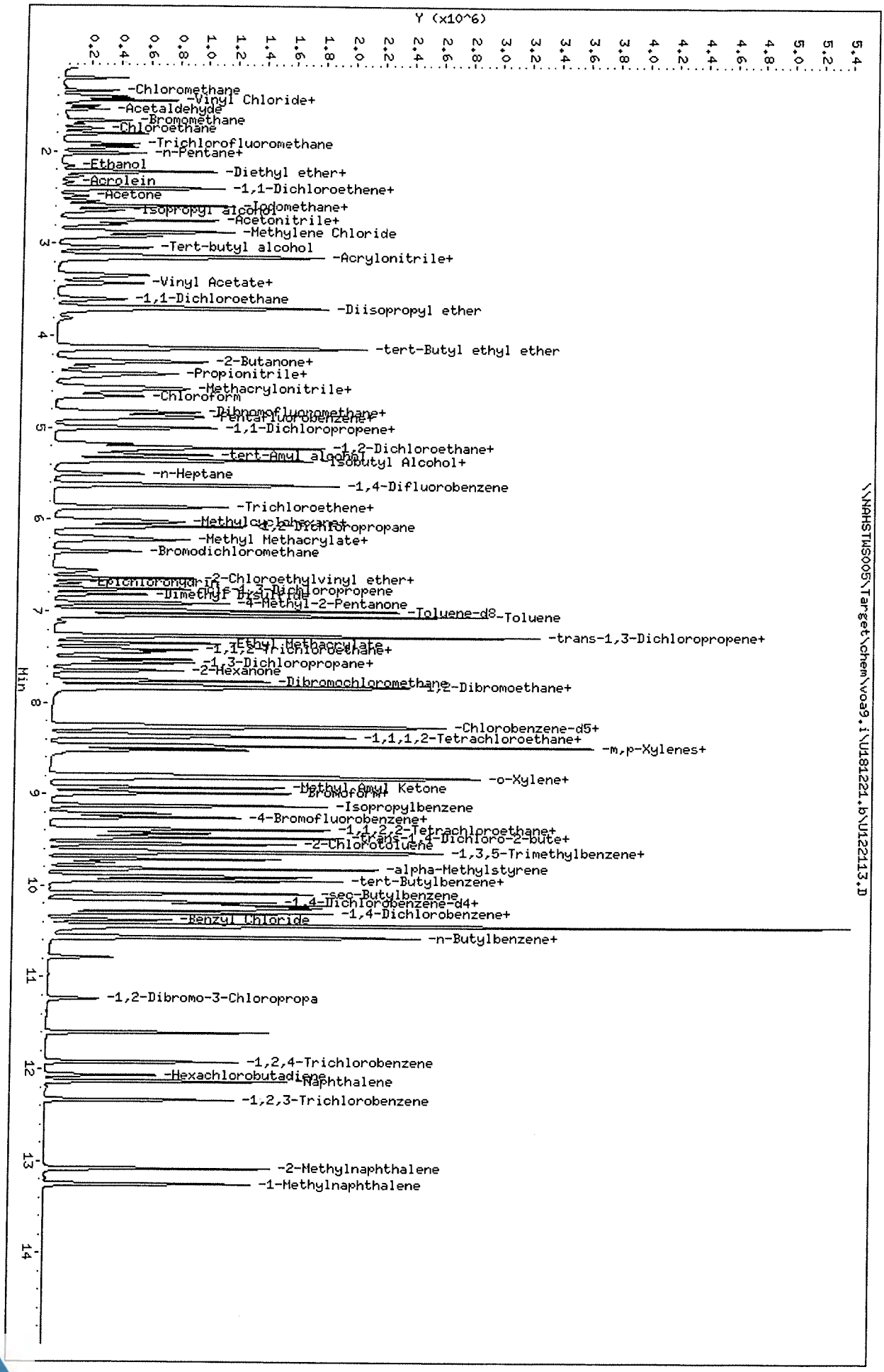
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.894	4.890	(1.000)	454236	50.0000	
* 36 1,4-Difluorobenzene	114	5.625	5.625	(1.000)	837452	50.0000	
* 47 Chlorobenzene-d5	117	8.249	8.249	(1.000)	785431	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	375418	50.0000	
$ 30 Dibromofluoromethane	113	4.830	4.826	(0.987)	255609	51.0245	51.02
$ 35 1,2-Dichloroethane-d4	65	5.175	5.171	(1.057)	329809	51.3551	51.35
$ 48 Toluene-d8	98	6.989	6.989	(0.847)	1045729	51.6161	51.61
$ 69 4-Bromofluorobenzene	95	9.257	9.257	(1.122)	396478	51.3902	51.39
60 1,1,1,2-Tetrachloroethane	131	8.350	8.350	(1.012)	241293	48.4317	48.43
31 1,1,1-Trichloroethane	97	4.826	4.826	(0.986)	354032	49.3608	49.36
68 1,1,2,2-Tetrachloroethane	83	9.392	9.392	(0.918)	418971	49.5558	49.55
138 Freon TF	101	2.401	2.394	(0.491)	174050	45.0712	45.07
53 1,1,2-Trichloroethane	83	7.420	7.421	(0.900)	230741	49.3099	49.30
22 1,1-Dichloroethane	63	3.604	3.597	(0.737)	469167	47.9609	47.96
11 1,1-Dichloroethene	96	2.397	2.394	(0.490)	197920	45.8262	45.82
32 1,1-Dichloropropene	75	5.003	5.003	(0.889)	353683	47.4657	47.46
93 1,2,3-Trichlorobenzene	180	12.335	12.335	(1.205)	338004	47.8072	47.80
71 1,2,3-Trichloropropane	75	9.426	9.430	(0.921)	468241	53.2610	53.26
90 1,2,4-Trichlorobenzene	180	11.923	11.926	(1.165)	350114	50.3719	50.37
79 1,2,4-Trimethylbenzene	105	9.943	9.943	(0.971)	985013	50.1388	50.13
89 1,2-Dibromo-3-Chloropropane	155	11.233	11.233	(1.097)	65081	49.9244	49.92
57 1,2-Dibromoethane	107	7.852	7.852	(0.952)	275792	51.1699	51.16

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\U122113.D Page 2
Report Date: 28-Jan-2019 11:25

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
88 1,2-Dichlorobenzene	146	10.573	10.573	(1.033)	539129	48.3652	48.36
33 1,2-Dichloroethane	62	5.254	5.250	(0.934)	379863	50.3501	50.35
42 1,2-Dichloropropane	63	6.082	6.078	(1.081)	291083	49.1911	49.19
75 1,3,5-Trimethylbenzene	105	9.625	9.628	(0.940)	944583	50.0646	50.06
83 1,3-Dichlorobenzene	146	10.180	10.180	(0.995)	538150	48.2737	48.27
54 1,3-Dichloropropane	76	7.563	7.563	(0.917)	498006	49.4090	49.40
84 1,4-Dichlorobenzene	146	10.254	10.258	(1.002)	553425	47.0841	47.08
26 2,2-Dichloropropane	77	4.275	4.272	(0.874)	312995	53.0931	53.09
24 2-Butanone	43	4.335	4.335	(0.886)	309683	104.354	104.35
76 2-Chlorotoluene	91	9.546	9.550	(0.933)	853147	49.3227	49.32
52 2-Hexanone	43	7.649	7.653	(0.927)	476780	109.166	109.16
77 4-Chlorotoluene	91	9.640	9.640	(0.942)	993815	49.7187	49.71
82 p-Isopropyltoluene	119	10.209	10.213	(0.997)	977284	49.1947	49.19
45 4-Methyl-2-Pentanone	43	6.914	6.914	(0.838)	669743	106.576	106.57
10 Acetone	43	2.480	2.476	(0.507)	202203	114.452	114.45
37 Benzene	78	5.216	5.216	(0.927)	1087936	48.8203	48.82
74 Bromobenzene	156	9.381	9.385	(0.917)	288693	49.7707	49.77
29 Bromochloromethane	128	4.553	4.553	(0.930)	134219	56.7663	56.76
39 Bromodichloromethane	83	6.348	6.345	(1.129)	327631	52.0660	52.06
66 Bromoform	173	8.984	8.984	(1.089)	161326	47.9288	47.92(T)
6 Bromomethane	94	1.666	1.651	(0.341)	151955	54.0592	54.05
19 Carbon Disulfide	76	2.588	2.585	(0.529)	1510901	96.0096	96.00
34 Carbon Tetrachloride	117	4.995	4.991	(0.888)	272477	44.8853	44.88
59 Chlorobenzene	112	8.275	8.275	(1.003)	728193	48.2531	48.25
7 Chloroethane	64	1.752	1.737	(0.358)	185529	46.1546	46.15(M)
28 Chloroform	83	4.658	4.654	(0.952)	456472	48.4536	48.45
3 Chloromethane	50	1.340	1.333	(0.274)	235959	48.9688	48.96
27 cis-1,2-Dichloroethene	96	4.287	4.283	(0.876)	292150	48.9311	48.93
46 cis-1,3-Dichloropropene	75	6.757	6.757	(1.201)	467498	48.9175	48.91
55 Dibromochloromethane	129	7.758	7.758	(0.940)	250542	48.5723	48.57
44 Dibromomethane	93	6.191	6.187	(1.101)	173822	50.8969	50.89
2 Dichlorodifluoromethane	85	1.205	1.198	(0.246)	258081	46.2123	46.21
61 Ethylbenzene	106	8.373	8.373	(1.015)	381593	49.3007	49.30
91 Hexachlorobutadiene	225	12.065	12.065	(1.179)	122959	46.1748	46.17
67 Isopropylbenzene	105	9.126	9.126	(1.106)	1096015	49.0718	49.07
62 m,p-Xylenes	106	8.474	8.474	(1.027)	950452	99.8846	99.88
17 Methylene Chloride	84	2.870	2.866	(0.586)	279368	49.7584	49.75
87 n-Butylbenzene	91	10.558	10.558	(1.031)	900081	46.9488	46.94
73 n-Propylbenzene	91	9.475	9.479	(0.926)	1377655	49.1117	49.11
92 Naphthalene	128	12.133	12.133	(1.185)	1130612	49.4621	49.46
63 o-Xylene	106	8.811	8.811	(1.068)	478939	49.8923	49.89
81 sec-Butylbenzene	105	10.086	10.090	(0.985)	1124348	47.6920	47.69
64 Styrene	104	8.826	8.826	(1.070)	841070	52.7368	52.73
78 tert-Butylbenzene	119	9.902	9.902	(0.967)	781669	47.9339	47.93
56 Tetrachloroethene	164	7.525	7.525	(0.912)	188872	45.9327	45.93
50 Toluene	91	7.046	7.046	(0.854)	1151259	49.2749	49.27
20 trans-1,2-Dichloroethene	96	3.139	3.136	(0.642)	255368	48.0288	48.02
51 trans-1,3-Dichloropropene	75	7.259	7.259	(1.291)	402226	48.9357	48.93
38 Trichloroethene	130	5.861	5.861	(1.042)	262761	48.8423	48.84
8 Trichlorofluoromethane	101	1.951	1.944	(0.399)	342884	45.8511	45.85
5 Vinyl Chloride	62	1.419	1.415	(0.290)	295169	46.0208	46.02

QC Flag Legend

T - Target compound detected outside RT window.
M - Compound response manually integrated.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Min
1 2 3 4 5 6 7 8 9 10 11 12 13 14
-Chloromethane
-Vinyl Chloride+
-Acetaldehyde
-Bromomethane
-Chloroethane
-Trichlorofluoromethane
-n-Pentane+
-Ethanol
-Diethyl ether+
-Acrolein
-1,1-Dichloroethene+
-Acetone
-Isopropyl alcohol
-Iodomethane+
-Acetonitrile+
-Methylene Chloride
-Tert-butyl alcohol
-Acrylonitrile+
-Vinyl Acetate+
-1,1-Dichloroethane
-Diisopropyl ether
-tert-Butyl ethyl ether
-2-Butanone+
-Propionitrile+
-Methacrylonitrile+
-Chloroform
-Dibromofluoromethane+
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-tert-Amyl alcohol
Isobutyl Alcohol+
-n-Heptane
-1,4-Difluorobenzene
-Trichloroethene+
-Methylcyclohexane+
-1,2-Dichloropropane
-Methyl Methacrylate+
-Bromodichloromethane
-2-Chloroethylvinyl ether+
-Epichlorohydrin
-cis-1,3-Dichloropropene
-Dimethyl Disulfide
-4-Methyl-2-Pentanone
-Toluene-d8
-Toluene
-trans-1,3-Dichloropropene+
-Ethyl Methacrylate
-1,1,2-Trichloroethane+
-1,3-Dichloropropane+
-2-Hexanone
-Dibromochloromethane
-1,2-Dibromoethane+
-Chlorobenzene-d5+
-1,1,1,2-Tetrachloroethane+
-m,p-Xylenes+
-o-Xylene+
-Methyl Amyl Ketone
-Bromoform+
-Isopropylbenzene
-4-Bromofluorobenzene+
-1,1,2,2-Tetrachloroethane+
-trans-1,4-Dichloro-2-bute+
-2-Chlorotoluene
-1,3,5-Trimethylbenzene+
-alpha-Methylstyrene
-tert-Butylbenzene+
-sec-Butylbenzene
-1,4-Dichlorobenzene-d4+
-1,4-Dichlorobenzene+
-Benzyl Chloride
-n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Hexachlorobutadiene
-Naphthalene
-1,2,3-Trichlorobenzene
-2-Methylnaphthalene
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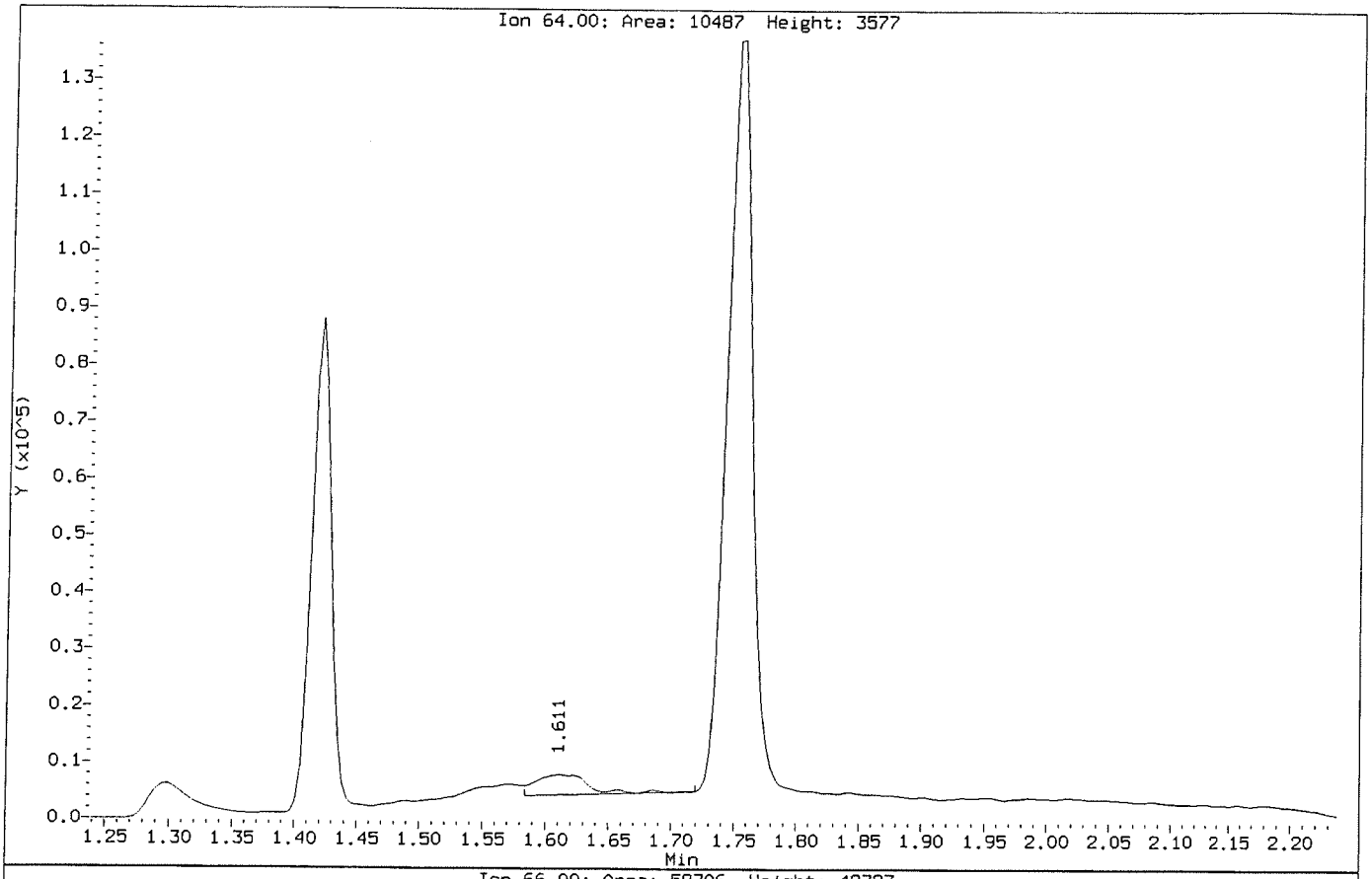
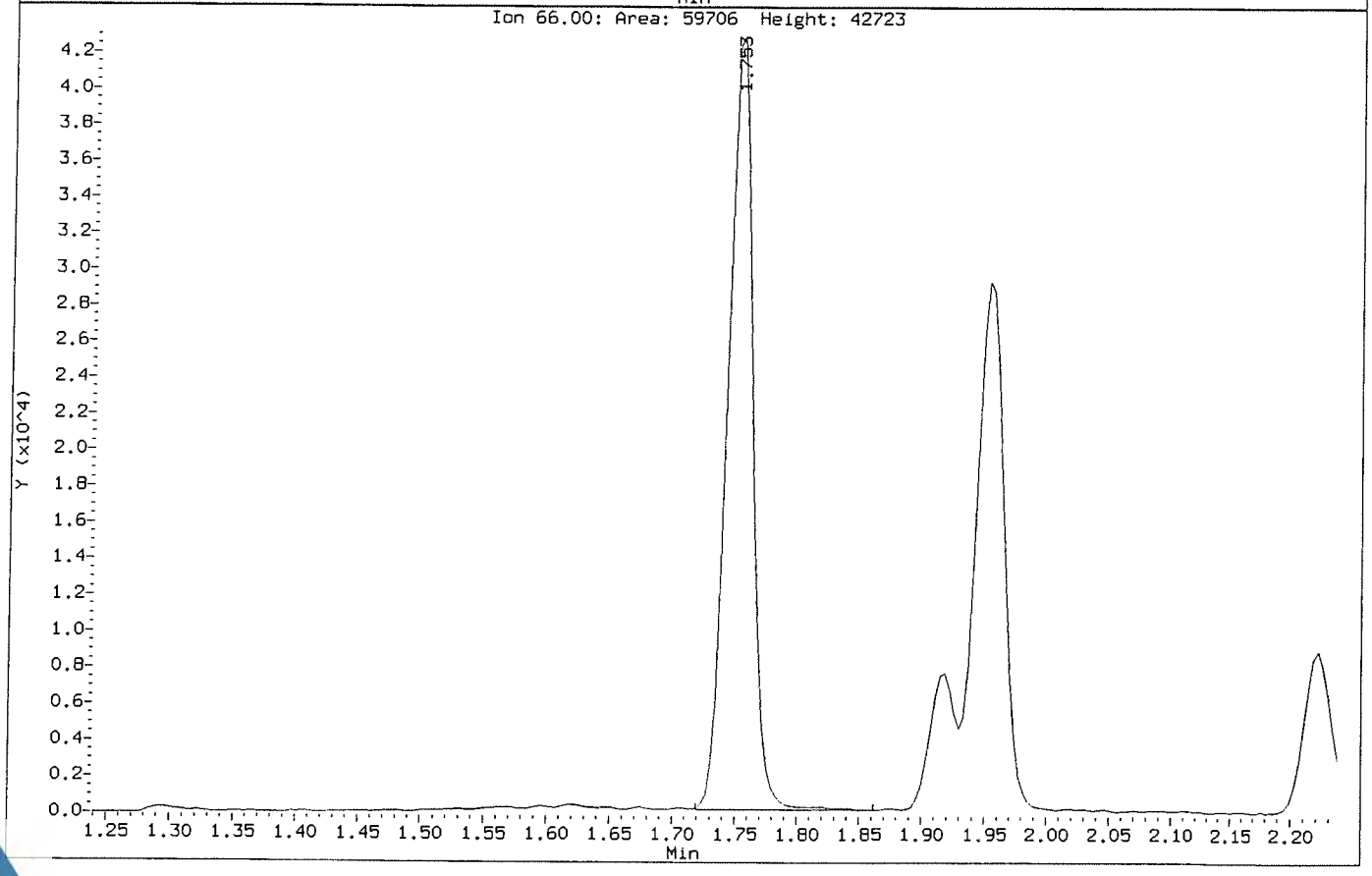
Date : 21-DEC-2018 18:45
Client ID: VSTD050
Sample Info: VSTD050;VSTD050;2;;ICV
Purge Volume: 5.0
Column phase: DB624
Instrument: VOA9.i
Operator: PC
Column diameter: 0.18
Page 4

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181221.b\Before\U122113.D
Injection Date: 21-DEC-2018 18:45
Instrument: VOA9.i
Client Sample ID: VSTD050

Compound: Chloroethane
CAS Number: 75-00-3





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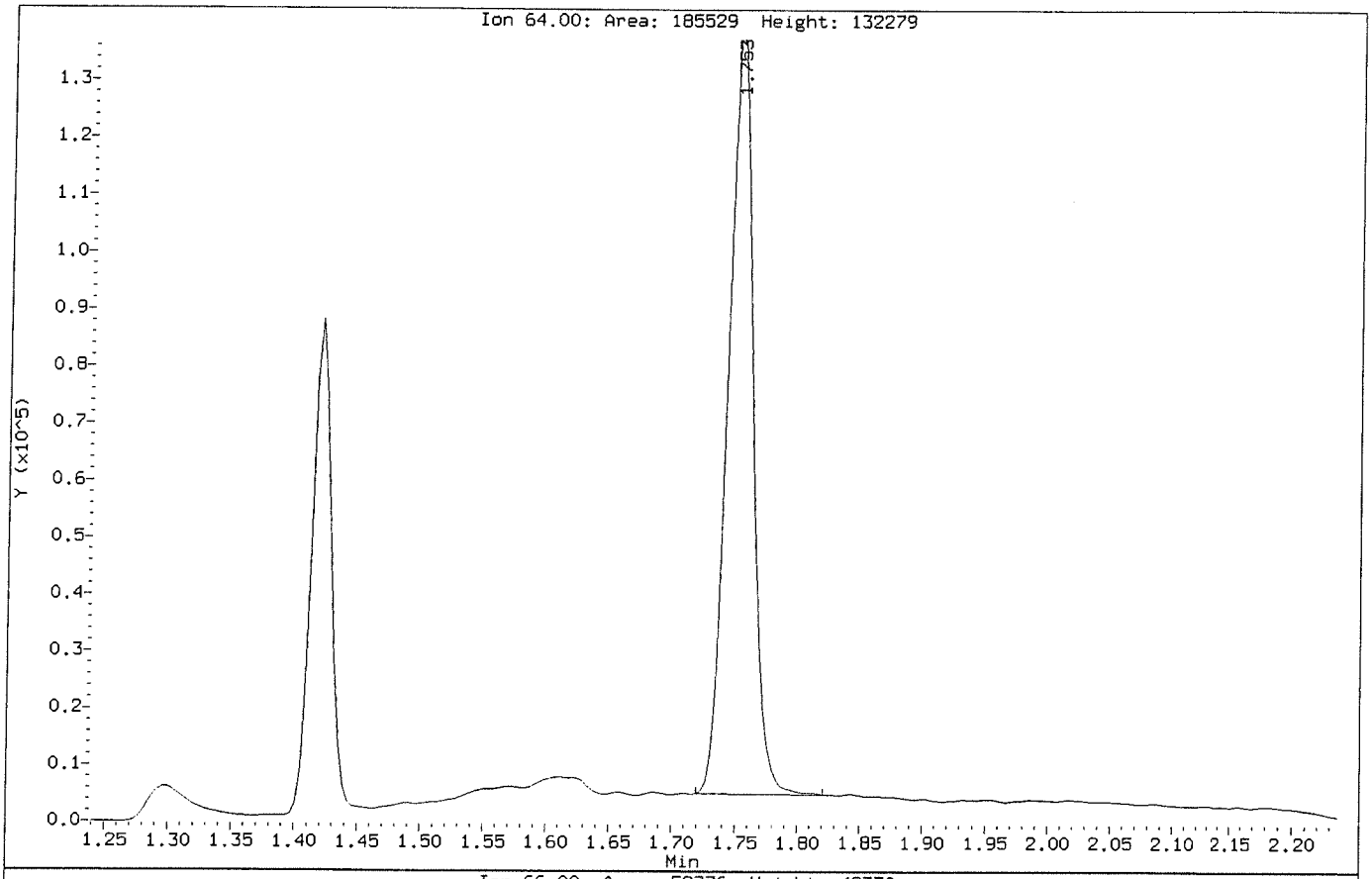
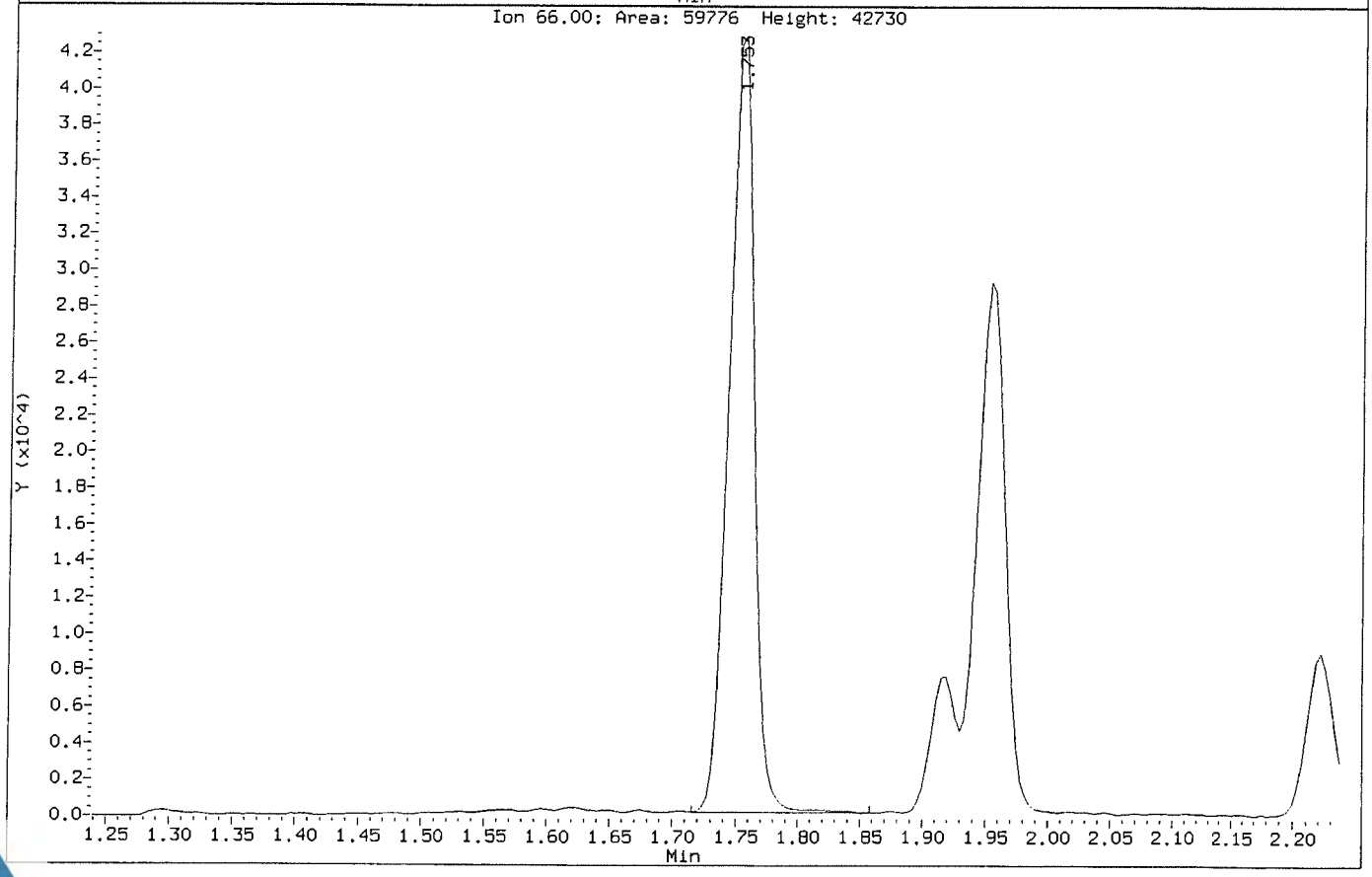
Instrument: VOA9.i
Client Sample ID: VSTD050

Compound: Chloroethane
CAS Number: 75-00-3





MSVOA09 -Logbook

Batch: 34004
Date: 12-24-2018
Method: 8260
Comments:

Analyst: Presenta Cabascango
Reviewer:
Laboratory: Houston

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	12-24-2018 09:28 am	1.00	50 mL	50 mL	U122401.D	Liquid	Y	NA
	Auto find/purged									
2	VSTD050	CCV	12-24-2018 09:52 am	1.00	50 mL	50 mL	U122402.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
3	VLCSW-1812024	LCS	12-24-2018 10:17 am	1.00	50 mL	50 mL	U122403.D	Liquid	Y	NA
	4 uL ICV std/50 mL DI									
4	BLANK	SAMP	12-24-2018 10:41 am	1.00	50 mL	50 mL	U122404.D	Liquid	Y	NA
5	VBLKW-181224	MBLK	12-24-2018 11:06 am	1.00	50 mL	50 mL	U122405.D	Liquid	Y	NA
6	HS18120736-09	SAMP	12-24-2018 11:31 am	1.00	50 mL	50 mL	U122406.D	Liquid	Y	<2
7	HS18120913-03	SAMP	12-24-2018 11:55 am	1.00	50 mL	50 mL	U122407.D	Liquid	Y	<2
8	HS18120736-05	SAMP	12-24-2018 12:20 pm	1.00	50 mL	50 mL	U122408.D	Liquid	Y	<2
9	HS18120736-06	SAMP	12-24-2018 12:45 pm	1.00	50 mL	50 mL	U122409.D	Liquid	Y	<2
10	HS18120736-07	SAMP	12-24-2018 01:10 pm	1.00	50 mL	50 mL	U122410.D	Liquid	Y	<2
11	HS18121093-02	SAMP	12-24-2018 01:35 pm	1.00	50 mL	50 mL	U122411.D	Liquid	Y	<2
12	HS18120913-01	SAMP	12-24-2018 01:59 pm	1.00	50 mL	50 mL	U122412.D	Liquid	Y	<2
13	HS18120913-02	SAMP	12-24-2018 02:24 pm	1.00	50 mL	50 mL	U122413.D	Liquid	Y	<2
14	HS18121093-01	SAMP	12-24-2018 02:49 pm	5.00	10 mL	50 mL	U122414.D	Liquid	Y	<2
15	HS18120913-03MS	MS	12-24-2018 03:14 pm	1.00	50 mL	50 mL	U122415.D	Liquid	Y	<2
	3.5 uL cal std/43 mL Sample									
16	HS18120913-03MSD	MSD	12-24-2018 03:39 pm	1.00	50 mL	50 mL	U122416.D	Liquid	Y	<2
	3.5 uL cal std/43 mL Sample									
17	HS18121093-01	SAMP	12-24-2018 04:03 pm	50.00	1 mL	50 mL	U122417.D	Liquid	Y	<2
18	HS18120913-08	SAMP	12-24-2018 04:28 pm	1.00	50 mL	50 mL	U122418.D	Liquid	Y	<2
19	HS18121030-05	SAMP	12-24-2018 04:53 pm	1.00	50 mL	50 mL	U122419.D	Liquid	Y	<2
20	HS18120913-04	SAMP	12-24-2018 05:18 pm	1.00	50 mL	50 mL	U122420.D	Liquid	Y	<2
21	HS18120913-05	SAMP	12-24-2018 05:43 pm	1.00	50 mL	50 mL	U122421.D	Liquid	Y	<2
22	HS18120913-06	SAMP	12-24-2018 06:08 pm	1.00	50 mL	50 mL	U122422.D	Liquid	Y	<2
23	HS18120913-07	SAMP	12-24-2018 06:32 pm	1.00	50 mL	50 mL	U122423.D	Liquid	Y	<2
24	HS18121030-01	SAMP	12-24-2018 06:57 pm	1.00	50 mL	50 mL	U122424.D	Liquid	Y	<2
25	HS18121030-02	SAMP	12-24-2018 07:22 pm	1.00	50 mL	50 mL	U122425.D	Liquid	Y	<2
26	HS18121030-03	SAMP	12-24-2018 07:47 pm	1.00	50 mL	50 mL	U122426.D	Liquid	Y	<2
27	HS18121030-04	SAMP	12-24-2018 08:12 pm	1.00	50 mL	50 mL	U122427.D	Liquid	Y	<2
28	VSTD050-END	CCV	12-24-2018 08:37 pm	1.00	50 mL	50 mL	U122428.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
29	BFB	TUNE	12-24-2018 09:01 pm	1.00	50 mL	50 mL	V122401.D	Liquid	Y	NA
	Auto find/purged									
30	VSTD050	CCV	12-24-2018 09:26 pm	1.00	50 mL	50 mL	V122402.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
31	BLANK	SAMP	12-24-2018 09:51 pm	1.00	50 mL	50 mL	V122403.D	Liquid	Y	NA
32	CCB	SAMP	12-24-2018 10:16 pm	1.00	50 mL	50 mL	V122404.D	Liquid	Y	NA
	CCB									
33	VLCSW-1812024	LCS	12-24-2018 10:40 pm	1.00	50 mL	50 mL	V122405.D	Liquid	Y	NA
	4 uL ICV std/50 mL DI									
34	BLANK	SAMP	12-24-2018 11:05 pm	1.00	50 mL	50 mL	V122406.D	Liquid	Y	NA
35	VBLKW-181224	MBLK	12-24-2018 11:30 pm	1.00	50 mL	50 mL	V122407.D	Liquid	Y	NA
36	HS18120845-05	SAMP	12-24-2018 11:55 pm	1.00	50 mL	50 mL	V122408.D	Liquid	Y	<2

MSVOA09 -Logbook

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
37	HS18120845-06	SAMP	12-25-2018 12:20 am	1.00	50 mL	50 mL	V122409.D	Liquid	Y	<2
38	HS18121097-07	SAMP	12-25-2018 12:45 am	1.00	50 mL	50 mL	V122410.D	Liquid	Y	<2
39	HS18121097-08	SAMP	12-25-2018 01:09 am	1.00	50 mL	50 mL	V122411.D	Liquid	Y	<2
40	HS18121097-09	SAMP	12-25-2018 01:34 am	1.00	50 mL	50 mL	V122412.D	Liquid	Y	<2
41	HS18121098-01	SAMP	12-25-2018 01:59 am	1.00	50 mL	50 mL	V122413.D	Liquid	Y	<2
42	HS18121098-02	SAMP	12-25-2018 02:24 am	1.00	50 mL	50 mL	V122414.D	Liquid	Y	<2
43	HS18121098-08	SAMP	12-25-2018 02:49 am	1.00	50 mL	50 mL	V122415.D	Liquid	Y	<2
44	HS18121098-03	SAMP	12-25-2018 03:14 am	1.00	50 mL	50 mL	V122416.D	Liquid	Y	<2
45	HS18121098-03MS	MS	12-25-2018 03:38 am	1.00	50 mL	50 mL	V122417.D	Liquid	Y	<2
	3.5 uL cal std/43 mL Sample									
46	HS18121098-03MSD	MSD	12-25-2018 04:03 am	1.00	50 mL	50 mL	V122418.D	Liquid	Y	<2
	3.5 uL cal std/43 mL Sample									
47	HS18121068-09	SAMP	12-25-2018 04:28 am	1.00	50 mL	50 mL	V122419.D	Liquid	Y	<2
48	HS18121097-01	SAMP	12-25-2018 04:53 am	1.00	50 mL	50 mL	V122420.D	Liquid	Y	<2
49	HS18121097-02	SAMP	12-25-2018 05:18 am	1.00	50 mL	50 mL	V122421.D	Liquid	Y	<2
50	HS18121097-03	SAMP	12-25-2018 05:43 am	1.00	50 mL	50 mL	V122422.D	Liquid	Y	<2
51	HS18121097-04	SAMP	12-25-2018 06:07 am	1.00	50 mL	50 mL	V122423.D	Liquid	Y	<2
52	HS18121097-05	SAMP	12-25-2018 06:32 am	1.00	50 mL	50 mL	V122424.D	Liquid	Y	<2
53	HS18121097-06	SAMP	12-25-2018 06:57 am	1.00	50 mL	50 mL	V122425.D	Liquid	Y	<2
54	HS18121098-04	SAMP	12-25-2018 07:22 am	1.00	50 mL	50 mL	V122426.D	Liquid	Y	<2
55	HS18121098-05	SAMP	12-25-2018 07:47 am	1.00	50 mL	50 mL	V122427.D	Liquid	Y	<2
56	HS18121098-06	SAMP	12-25-2018 08:11 am	1.00	50 mL	50 mL	V122428.D	Liquid	Y	<2
57	HS18121098-07	SAMP	12-25-2018 08:36 am	1.00	50 mL	50 mL	V122429.D	Liquid	Y	<2

Chemical	Value
SURR SPK ID	30502-52-03
IS ID	30502-52-04
ICV STD ID	30603-46-01
LCS/MS ID	30603-46-01
CAL STD ID	30502-57-01/02
BFB ID	30502-52-03

FORM 2
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS18121030

	CLIENT SAMPLE NO.	SMC1 (DCE) #	SMC2 #	SMC3 (TOL) #	OTHER #	TOT OUT
01	VLCSW-181224	104	102	102	104	0
02	VBLKW-181224	95	89	104	96	0
03	HS18120913-0	94	91	106	103	0
04	HS18120913-0	95	92	106	104	0
05	HS18121030-0	100	92	105	97	0
06	HS18121030-0	99	92	104	96	0
07	HS18121030-0	99	92	106	97	0
08	HS18121030-0	101	92	106	96	0
09	HS18121030-0	100	93	107	98	0
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						

		QC LIMITS
SMC1 (DCE)	= 1,2-Dichloroethane-d4	(0-130)
SMC2	= Dibromofluoromethane	(0-130)
SMC3 (TOL)	= Toluene-d8	(0-130)
OTHER	= 4-Bromofluorobenzene	(0-130)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

FORM 4
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

VBLKW-181224

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS18121030

Lab File ID: U122405 Lab Sample ID: VBLKW-181224

Date Analyzed: 12/24/18 Time Analyzed: 1106

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: VOA9

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VLCSW-181224	VLCSW-1812024	U122403	1017
02	HS18120913-0	HS18120913-03M	U122415	1514
03	HS18120913-0	HS18120913-03M	U122416	1539
04	HS18121030-0	HS18121030-05	U122419	1653
05	HS18121030-0	HS18121030-01	U122424	1857
06	HS18121030-0	HS18121030-02	U122425	1922
07	HS18121030-0	HS18121030-03	U122426	1947
08	HS18121030-0	HS18121030-04	U122427	2012
09				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

COMMENTS:

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS18121030

Lab File ID: U122401 BFB Injection Date: 12/24/18

Instrument ID: VOA9 BFB Injection Time: 0928

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	19.5
75	30.0 - 60.0% of mass 95	50.9
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.1
173	Less than 2.0% of mass 174	0.7 (1.0)1
174	Greater than 50.0% of mass 95	66.6
175	5.0 - 9.0% of mass 174	4.9 (7.4)1
176	95.0 - 101.0% of mass 174	64.4 (96.7)1
177	5.0 - 9.0% of mass 176	4.4 (6.8)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD050	VSTD050	U122402	12/24/18	0952
02	VLCSW-181224	VLCSW-1812024	U122403	12/24/18	1017
03	VBLKW-181224	VBLKW-181224	U122405	12/24/18	1106
04	HS18120913-0	HS18120913-03M	U122415	12/24/18	1514
05	HS18120913-0	HS18120913-03M	U122416	12/24/18	1539
06	HS18121030-0	HS18121030-05	U122419	12/24/18	1653
07	HS18121030-0	HS18121030-01	U122424	12/24/18	1857
08	HS18121030-0	HS18121030-02	U122425	12/24/18	1922
09	HS18121030-0	HS18121030-03	U122426	12/24/18	1947
10	HS18121030-0	HS18121030-04	U122427	12/24/18	2012
11	VSTD050-END	VSTD050-END	U122428	12/24/18	2037
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS18121030

Instrument ID: VOA9 Calibration Date: 12/24/18 Time: 0952

Lab File ID: U122402 Init. Calib. Date(s): 12/21/18 12/21/18

Init. Calib. Times: 1349 1755

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE	
cis-1,3-Dichloropropene	46.969001	50.000000	0.5381928	0.2	6.06	20.00	LINR	
trans-1,3-Dichloropropene	46.115718	50.000000	0.4606842	0.1	7.77	20.00	LINR	
1,3-Dichlorobenzene	1.4850000	1.4492226	1.4492226	0.6	2.41	20.00	AVRG	
2,2-Dichloropropane	0.6490000	0.5663916	0.5663916	0.1	12.73	20.00	AVRG	
1,1-Dichloropropene	0.4450000	0.4256150	0.4256150	0.1	4.36	20.00	AVRG	
Dibromomethane	0.2040000	0.2144626	0.2144626	0.1	-5.13	20.00	AVRG	
1,2-Dibromoethane	0.3430000	0.3597016	0.3597016	0.1	-4.87	20.00	AVRG	
trans-1,2-Dichloroethene	0.5850000	0.5850593	0.5850593	0.1	-0.01	20.00	AVRG	
1,1,1,2-Tetrachloroethane	46.940910	50.000000	0.3043937	0.1	6.12	20.00	LINR	
1,1,1-Trichloroethane	0.7890000	0.7935465	0.7935465	0.1	-0.58	20.00	AVRG	
1,1,2,2-Tetrachloroethane	1.1260000	1.1917002	1.1917002	0.3	-5.83	20.00	AVRG	
Freon TF	0.4250000	0.3989719	0.3989719	0.1	6.12	20.00	AVRG	
1,1,2-Trichloroethane	0.2980000	0.3097296	0.3097296	0.1	-3.94	20.00	AVRG	
1,1-Dichloroethane	1.0770000	1.0983183	1.0983183	0.2	-1.98	20.00	AVRG	
1,1-Dichloroethene	0.4750000	0.4595711	0.4595711	0.1	3.25	20.00	AVRG	
Trichlorofluoromethane	44.085746	50.000000	0.7886797	0.1	11.83	20.00	LINR	
1,2,3-Trichlorobenzene	43.749299	50.000000	0.9004990	0.1	12.50	20.00	LINR	
Toluene	1.4870000	1.4890724	1.4890724	0.4	-0.14	20.00	AVRG	
1,2,4-Trichlorobenzene	0.9260000	0.9128821	0.9128821	0.2	1.42	20.00	AVRG	
1,2,4-Trimethylbenzene	2.6160000	2.6703840	2.6703840	0.1	-2.08	20.00	AVRG	
Tetrachloroethene	0.2620000	0.2343416	0.2343416	0.2	10.56	20.00	AVRG	
Trichloroethene	0.3210000	0.3111153	0.3111153	0.2	3.08	20.00	AVRG	
1,2-Dichlorobenzene	1.4840000	1.4720949	1.4720949	0.4	0.80	20.00	AVRG	
1,2-Dichloroethane	49.720294	50.000000	0.4762008	0.1	0.56	20.00	LINR	
1,2-Dichloropropane	0.3530000	0.3595027	0.3595027	0.1	-1.84	20.00	AVRG	
1,3,5-Trimethylbenzene	2.5130000	2.5708391	2.5708391	0.1	-2.30	20.00	AVRG	
1,3-Dichloropropane	0.6410000	0.6628423	0.6628423	0.1	-3.41	20.00	AVRG	
1,4-Dichlorobenzene	1.5660000	1.4828544	1.4828544	0.4	5.31	20.00	AVRG	
2-Butanone	87.524774	100.00000	0.3885447	0.1	12.48	20.00	LINR	
2-Chlorotoluene	2.3040000	2.2915781	2.2915781	0.1	0.54	20.00	AVRG	
2-Hexanone	0.2780000	0.3355379	0.3355379	0.1	-20.70	20.00	AVRG	<-
4-Chlorotoluene	2.6620000	2.6823399	2.6823399	0.1	-0.76	20.00	AVRG	
tert-Butylbenzene	2.1720000	2.1680208	2.1680208	0.1	0.18	20.00	AVRG	
4-Methyl-2-Pentanone	0.4000000	0.4671265	0.4671265	0.1	-16.78	20.00	AVRG	
Acetone	88.945078	100.00000	0.2567717	0.1	11.05	20.00	LINR	
Benzene	1.3300000	1.3327330	1.3327330	0.5	-0.20	20.00	AVRG	
Bromobenzene	0.7730000	0.7689868	0.7689868	0.1	0.52	20.00	AVRG	
Bromochloromethane	54.738270	50.000000	0.2995106	0.1	-9.48	20.00	LINR	
Bromodichloromethane	0.3760000	0.3919790	0.3919790	0.2	-4.25	20.00	AVRG	
Bromoform	43.625632	50.000000	0.2006203	0.1	12.75	20.00	LINR	
Bromomethane	48.433994	50.000000	0.3215455	0.1	3.13	20.00	LINR	
Carbon Disulfide	1.7320000	1.6738989	1.6738989	0.1	3.35	20.00	AVRG	

FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS1812103

Instrument ID: VOA9 Calibration Date: 12/24/18 Time: 0952

Lab File ID: U122402 Init. Calib. Date(s): 12/21/18 12/21/18

Init. Calib. Times: 1349 1755

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Carbon Tetrachloride	42.908085	50.000000	0.3206431	0.1	14.18	20.00	LINR
Chlorobenzene	0.9610000	0.9517026	0.9517026	0.5	0.97	20.00	AVRG
Chloroethane	48.651727	50.000000	0.4376382	0.1	2.70	20.00	2RDR
Chloroform	1.0370000	1.0750225	1.0750225	0.2	-3.67	20.00	AVRG
Chloromethane	48.105273	50.000000	0.5006841	0.1	3.79	20.00	LINR
cis-1,2-Dichloroethene	0.6570000	0.6738882	0.6738882	0.1	-2.57	20.00	AVRG
Dibromochloromethane	46.378243	50.000000	0.3131343	0.1	7.24	20.00	LINR
Dichlorodifluoromethane	41.832474	50.000000	0.5469699	0.1	16.34	20.00	LINR
Ethylbenzene	0.4930000	0.4907710	0.4907710	0.1	0.45	20.00	AVRG
Hexachlorobutadiene	0.3550000	0.3075225	0.3075225	0.1	13.37	20.00	AVRG
Isopropylbenzene	1.4220000	1.4345733	1.4345733	0.1	-0.88	20.00	AVRG
m,p-Xylenes	0.6060000	0.6065328	0.6065328	0.1	-0.09	20.00	AVRG
Methylene Chloride	49.161284	50.000000	0.6598726	0.1	1.68	20.00	LINR
n-Butylbenzene	2.5530000	2.4878949	2.4878949	0.5	2.55	20.00	AVRG
n-Propylbenzene	3.7360000	3.7675955	3.7675955	0.1	-0.84	20.00	AVRG
Naphthalene	42.625569	50.000000	3.1185011	0.2	14.75	20.00	2RDR
o-Xylene	0.6110000	0.6247110	0.6247110	0.3	-2.24	20.00	AVRG
sec-Butylbenzene	3.1400000	3.1149837	3.1149837	0.1	0.80	20.00	AVRG
Styrene	1.0150000	1.0920948	1.0920948	0.3	-7.60	20.00	AVRG
Vinyl Chloride	44.382144	50.000000	0.6938894	0.1	11.24	20.00	LINR
1,2,3-Trichloropropane	1.1710000	1.2984150	1.2984150	0.1	-10.88	20.00	AVRG
p-Isopropyltoluene	2.6460000	2.6489186	2.6489186	0.1	-0.11	20.00	AVRG
1,2-Dibromo-3-Chloropropane	40.205727	50.000000	0.1753790	0.05	19.59	20.00	LINR
1,2-Dichloroethane-d4	50.883328	50.000000	0.7752248	0.1	-1.77	20.00	LINR
Dibromofluoromethane	51.294758	50.000000	0.5865296	0.1	-2.59	20.00	LINR
Toluene-d8	51.601871	50.000000	1.3137645	0.1	-3.20	20.00	LINR
4-Bromofluorobenzene	51.802881	50.000000	0.5048850	0.1	-3.60	20.00	LINR

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS18121030

Instrument ID: VOA9 Calibration Date: 12/24/18 Time: 2037

Lab File ID: U122428 Init. Calib. Date(s): 12/21/18 12/21/18

Init. Calib. Times: 1349 1755

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
cis-1,3-Dichloropropene	47.206327	50.000000	0.5381928	0.2	5.59	50.00	LINR
trans-1,3-Dichloropropene	47.004802	50.000000	0.4606842	0.1	5.99	50.00	LINR
1,3-Dichlorobenzene	1.4850000	1.4492226	1.4492226	0.6	2.41	50.00	AVRG
2,2-Dichloropropane	0.6490000	0.5663916	0.5663916	0.1	12.73	50.00	AVRG
1,1-Dichloropropene	0.4450000	0.4256150	0.4256150	0.1	4.36	50.00	AVRG
Dibromomethane	0.2040000	0.2144626	0.2144626	0.1	-5.13	50.00	AVRG
1,2-Dibromoethane	0.3430000	0.3597016	0.3597016	0.1	-4.87	50.00	AVRG
trans-1,2-Dichloroethene	0.5850000	0.5850593	0.5850593	0.1	-0.01	50.00	AVRG
1,1,1,2-Tetrachloroethane	47.992888	50.000000	0.3043937	0.1	4.01	50.00	LINR
1,1,1-Trichloroethane	0.7890000	0.7935465	0.7935465	0.1	-0.58	50.00	AVRG
1,1,2,2-Tetrachloroethane	1.1260000	1.1917002	1.1917002	0.3	-5.83	50.00	AVRG
Freon TF	0.4250000	0.3989719	0.3989719	0.1	6.12	50.00	AVRG
1,1,2-Trichloroethane	0.2980000	0.3097296	0.3097296	0.1	-3.94	50.00	AVRG
1,1-Dichloroethane	1.0770000	1.0983183	1.0983183	0.2	-1.98	50.00	AVRG
1,1-Dichloroethene	0.4750000	0.4595711	0.4595711	0.1	3.25	50.00	AVRG
Trichlorofluoromethane	47.877448	50.000000	0.7886797	0.1	4.24	50.00	LINR
1,2,3-Trichlorobenzene	47.815512	50.000000	0.9004990	0.1	4.37	50.00	LINR
Toluene	1.4870000	1.4890724	1.4890724	0.4	-0.14	50.00	AVRG
1,2,4-Trichlorobenzene	0.9260000	0.9128821	0.9128821	0.2	1.42	50.00	AVRG
1,2,4-Trimethylbenzene	2.6160000	2.6703840	2.6703840	0.1	-2.08	50.00	AVRG
Tetrachloroethene	0.2620000	0.2343416	0.2343416	0.2	10.56	50.00	AVRG
Trichloroethene	0.3210000	0.3111153	0.3111153	0.2	3.08	50.00	AVRG
1,2-Dichlorobenzene	1.4840000	1.4720949	1.4720949	0.4	0.80	50.00	AVRG
1,2-Dichloroethane	52.896221	50.000000	0.4762008	0.1	-5.79	50.00	LINR
1,2-Dichloropropane	0.3530000	0.3595027	0.3595027	0.1	-1.84	50.00	AVRG
1,3,5-Trimethylbenzene	2.5130000	2.5708391	2.5708391	0.1	-2.30	50.00	AVRG
1,3-Dichloropropane	0.6410000	0.6628423	0.6628423	0.1	-3.41	50.00	AVRG
1,4-Dichlorobenzene	1.5660000	1.4828544	1.4828544	0.4	5.31	50.00	AVRG
2-Butanone	119.28553	100.00000	0.3885447	0.1	-19.28	50.00	LINR
2-Chlorotoluene	2.3040000	2.2915781	2.2915781	0.1	0.54	50.00	AVRG
2-Hexanone	0.2780000	0.3355379	0.3355379	0.1	-20.70	50.00	AVRG
4-Chlorotoluene	2.6620000	2.6823399	2.6823399	0.1	-0.76	50.00	AVRG
tert-Butylbenzene	2.1720000	2.1680208	2.1680208	0.1	0.18	50.00	AVRG
4-Methyl-2-Pentanone	0.4000000	0.4671265	0.4671265	0.1	-16.78	50.00	AVRG
Acetone	132.50176	100.00000	0.2567717	0.1	-32.50	50.00	LINR
Benzene	1.3300000	1.3327330	1.3327330	0.5	-0.20	50.00	AVRG
Bromobenzene	0.7730000	0.7689868	0.7689868	0.1	0.52	50.00	AVRG
Bromochloromethane	57.582518	50.000000	0.2995106	0.1	-15.16	50.00	LINR
Bromodichloromethane	0.3760000	0.3919790	0.3919790	0.2	-4.25	50.00	AVRG
Bromoform	46.854942	50.000000	0.2006203	0.1	6.29	50.00	LINR
Bromomethane	52.013096	50.000000	0.3215455	0.1	-4.03	50.00	LINR
Carbon Disulfide	1.7320000	1.6738989	1.6738989	0.1	3.35	50.00	AVRG

FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS1812103

Instrument ID: VOA9 Calibration Date: 12/24/18 Time: 2037

Lab File ID: U122428 Init. Calib. Date(s): 12/21/18 12/21/18

Init. Calib. Times: 1349 1755

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Carbon Tetrachloride	44.254301	50.000000	0.3206431	0.1	11.49	50.00	LINR
Chlorobenzene	0.9610000	0.9517026	0.9517026	0.5	0.97	50.00	AVRG
Chloroethane	49.367103	50.000000	0.4376382	0.1	1.26	50.00	2RDR
Chloroform	1.0370000	1.0750225	1.0750225	0.2	-3.67	50.00	AVRG
Chloromethane	47.318479	50.000000	0.5006841	0.1	5.36	50.00	LINR
cis-1,2-Dichloroethene	0.6570000	0.6738882	0.6738882	0.1	-2.57	50.00	AVRG
Dibromochloromethane	47.699067	50.000000	0.3131343	0.1	4.60	50.00	LINR
Dichlorodifluoromethane	44.506477	50.000000	0.5469699	0.1	10.99	50.00	LINR
Ethylbenzene	0.4930000	0.4907710	0.4907710	0.1	0.45	50.00	AVRG
Hexachlorobutadiene	0.3550000	0.3075225	0.3075225	0.1	13.37	50.00	AVRG
Isopropylbenzene	1.4220000	1.4345733	1.4345733	0.1	-0.88	50.00	AVRG
m,p-Xylenes	0.6060000	0.6065328	0.6065328	0.1	-0.09	50.00	AVRG
Methylene Chloride	53.474221	50.000000	0.6598726	0.1	-6.95	50.00	LINR
n-Butylbenzene	2.5530000	2.4878949	2.4878949	0.5	2.55	50.00	AVRG
n-Propylbenzene	3.7360000	3.7675955	3.7675955	0.1	-0.84	50.00	AVRG
Naphthalene	51.209442	50.000000	3.1185011	0.2	-2.42	50.00	2RDR
o-Xylene	0.6110000	0.6247110	0.6247110	0.3	-2.24	50.00	AVRG
sec-Butylbenzene	3.1400000	3.1149837	3.1149837	0.1	0.80	50.00	AVRG
Styrene	1.0150000	1.0920948	1.0920948	0.3	-7.60	50.00	AVRG
Vinyl Chloride	49.076608	50.000000	0.6938894	0.1	1.85	50.00	LINR
1,2,3-Trichloropropane	1.1710000	1.2984150	1.2984150	0.1	-10.88	50.00	AVRG
p-Isopropyltoluene	2.6460000	2.6489186	2.6489186	0.1	-0.11	50.00	AVRG
1,2-Dibromo-3-Chloropropane	50.490014	50.000000	0.1753790	0.05	-0.98	50.00	LINR
1,2-Dichloroethane-d4	54.978385	50.000000	0.7752248	0.1	-9.96	50.00	LINR
Dibromofluoromethane	53.247810	50.000000	0.5865296	0.1	-6.50	50.00	LINR
Toluene-d8	50.908412	50.000000	1.3137645	0.1	-1.82	50.00	LINR
4-Bromofluorobenzene	51.400094	50.000000	0.5048850	0.1	-2.80	50.00	LINR

FORM VII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS18121030

Lab File ID (Standard): U122402 Date Analyzed: 12/24/18

Instrument ID: VOA9 Time Analyzed: 0952

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS1(DCB) AREA #	IS1(DCB) RT #	IS2(CBZ) AREA #	IS2(CBZ) RT #	IS3(DFB) AREA #	IS3(DFB) RT #
	12 HOUR STD	352991	10.24	724498	8.25	785837	5.63
	UPPER LIMIT	705982	10.74	1448996	8.75	1571674	6.13
	LOWER LIMIT	176496	9.74	362249	7.75	392919	5.13
	CLIENT SAMPLE NO.						
01	VLCSW-181224	339524	10.24	703027	8.25	758509	5.63
02	VBLKW-181224	263882	10.24	571876	8.25	632508	5.63
03	HS18120913-0	266360	10.24	543870	8.25	594715	5.63
04	HS18120913-0	254873	10.24	529623	8.25	576248	5.63
05	HS18121030-0	230571	10.24	509471	8.25	561567	5.63
06	HS18121030-0	228828	10.24	509775	8.25	556323	5.63
07	HS18121030-0	230887	10.24	506429	8.25	562658	5.63
08	HS18121030-0	225729	10.24	503685	8.25	560183	5.63
09	HS18121030-0	223388	10.24	491539	8.25	547034	5.63
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (CBZ) = Chlorobenzene-d5
IS3 (DFB) = 1,4-Difluorobenzene

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM VIII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS18121030

Lab File ID (Standard): U122402 Date Analyzed: 12/24/18

Instrument ID: VOA9 Time Analyzed: 0952

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS4 AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	423354	4.89				
	UPPER LIMIT	846708	5.39				
	LOWER LIMIT	211677	4.39				
	CLIENT SAMPLE NO.						
01	VLCSW-181224	406772	4.90				
02	VBLKW-181224	360724	4.90				
03	HS18120913-0	345000	4.90				
04	HS18120913-0	331424	4.89				
05	HS18121030-0	314514	4.89				
06	HS18121030-0	313941	4.89				
07	HS18121030-0	317197	4.90				
08	HS18121030-0	312420	4.90				
09	HS18121030-0	308355	4.90				
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

IS4 = Pentafluorobenzene

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM VIII VOA

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122401.D

Date : 24-DEC-2018 09:28

Client ID: BFB

Instrument: VOA9.i

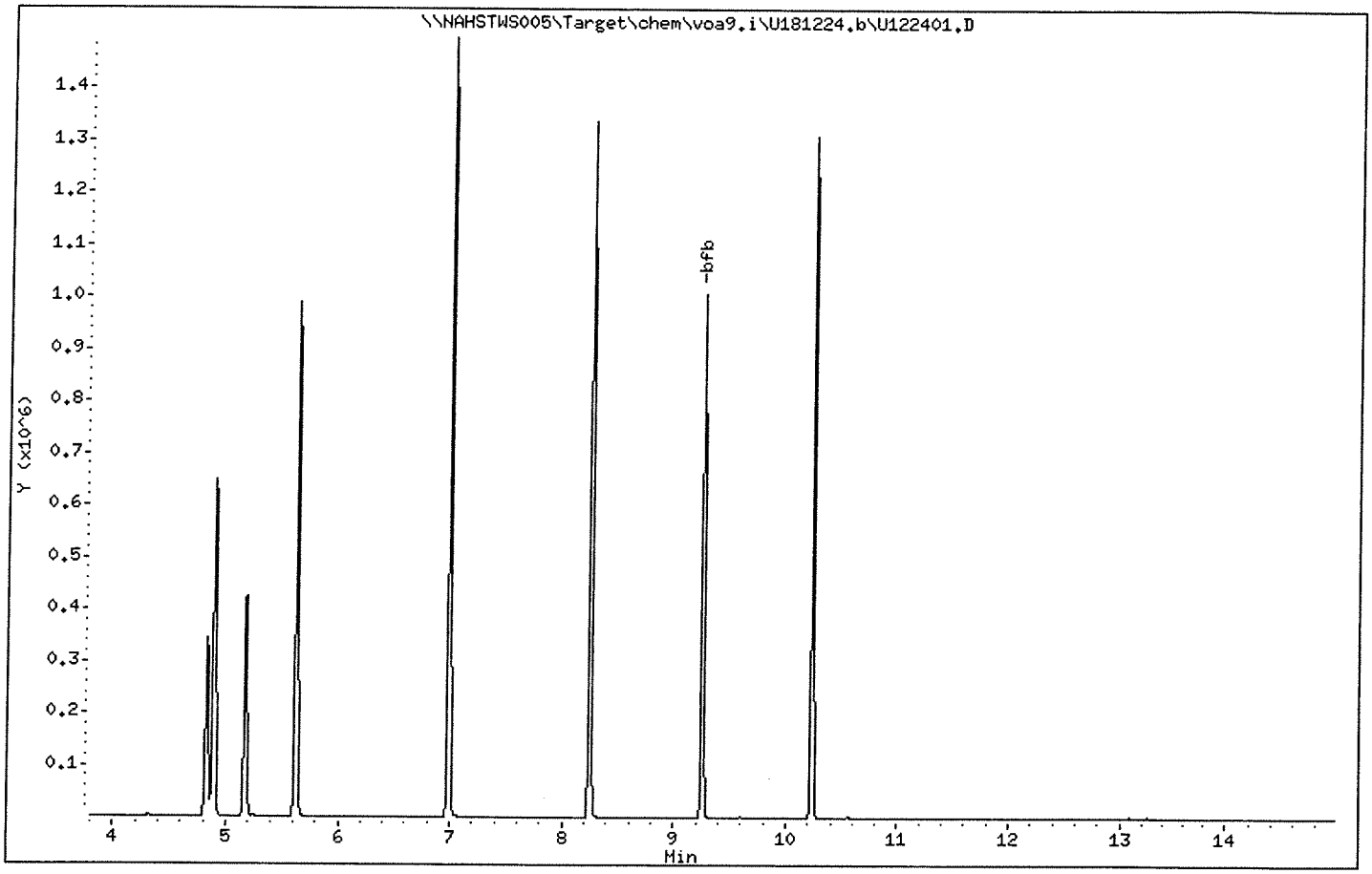
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122401.D

Date : 24-DEC-2018 09:28

Client ID: BFB

Instrument: VOA9.i

Sample Info: BFB;BFB;3;;BFB

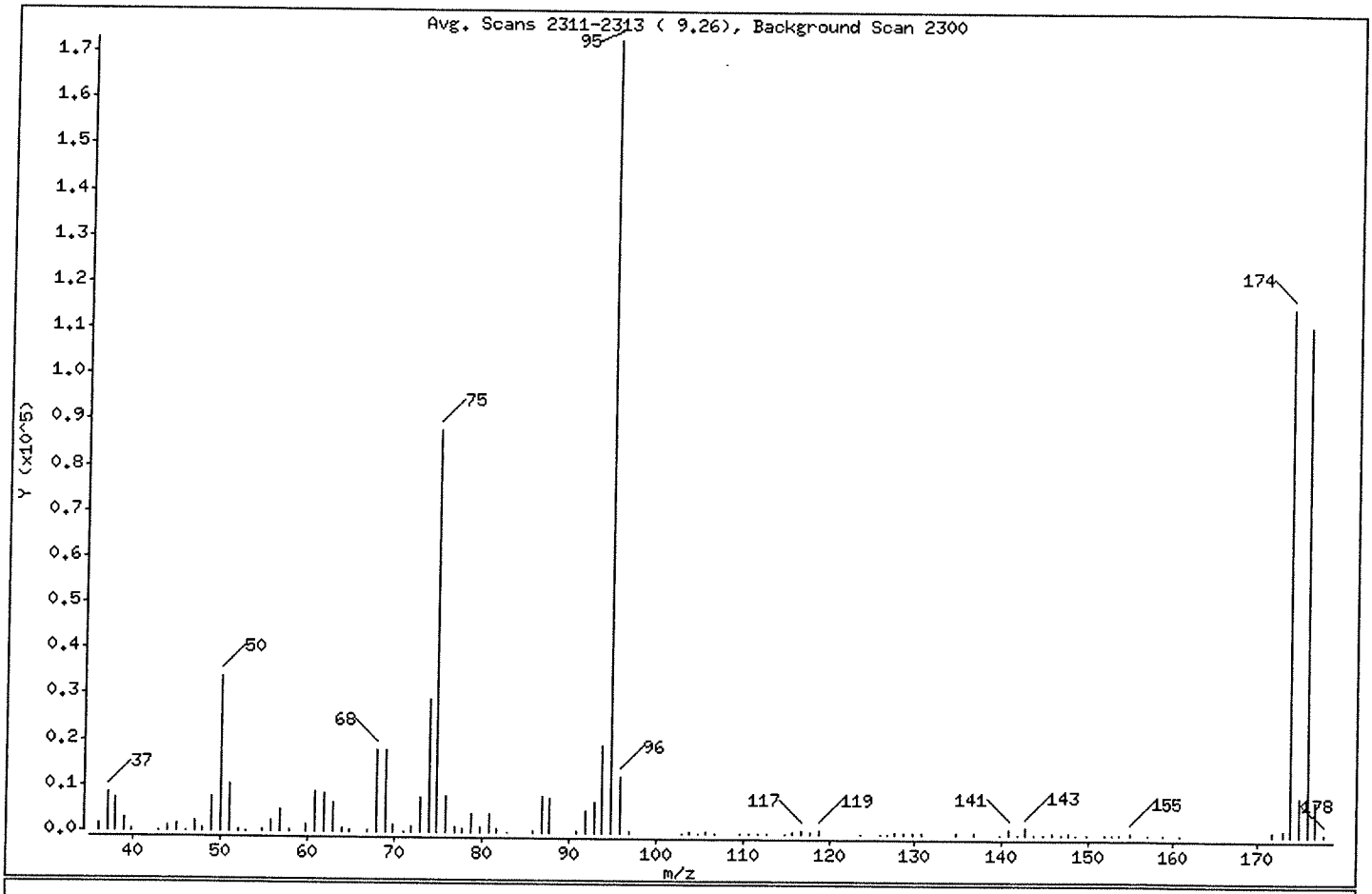
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	19.51
75	30.00 - 60.00% of mass 95	50.89
96	5.00 - 9.00% of mass 95	7.08
173	Less than 2.00% of mass 174	0.66 (0.98)
174	Greater than 50.00% of mass 95	66.63
175	5.00 - 9.00% of mass 174	4.91 (7.37)
176	95.00 - 101.00% of mass 174	64.42 (96.68)
177	5.00 - 9.00% of mass 176	4.35 (6.75)

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122401.D

Date : 24-DEC-2018 09:28

Client ID: BFB

Instrument: VOA9.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

Data File: U122401.D

Spectrum: Avg. Scans 2311-2313 (9.26), Background Scan 2300

Location of Maximum: 94.90

Number of points: 101

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	1458	66.90	489	96.90	358	141.70	125
37.00	8306	67.90	17736	102.90	83	142.70	1432
38.00	7224	68.90	17704	103.80	566	143.70	92
39.00	2852	69.90	1399	104.80	198	144.80	130
39.90	515	71.00	55	105.70	571	145.70	211
42.90	58	71.90	1002	106.70	150	146.80	93
43.90	1149	72.90	7684	109.70	67	147.60	307
45.00	1416	73.90	28936	110.70	106	148.50	71
46.00	144	74.90	87944	111.80	127	149.70	118
47.00	2331	75.90	7853	112.80	101	151.70	104
47.90	988	76.90	1152	114.80	164	152.70	119
48.90	7413	77.80	691	115.80	498	153.50	62
50.00	33712	78.90	3904	116.70	773	154.80	440
51.00	10257	79.90	1262	117.80	575	156.70	197
52.00	516	80.80	4127	118.80	642	158.60	130
52.90	79	81.80	955	123.70	117	160.70	97
54.90	360	83.00	125	125.90	58	171.70	672
55.90	2572	85.90	201	126.70	59	172.80	1133
57.00	4669	86.90	7827	127.70	540	173.70	115136
58.00	207	87.80	7508	128.70	266	174.70	8487
59.90	1649	90.80	470	129.70	553	175.70	111312
60.90	8598	91.90	4648	130.70	230	176.70	7518
61.90	8257	92.90	6773	134.70	224	177.70	226
62.90	6370	93.90	19208	136.80	276		
63.90	787	94.90	172800	139.70	105		
64.90	503	95.90	12233	140.70	1161		

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122402.D
Lab Smp Id: VSTD050 Client Smp ID: VSTD050
Inj Date : 24-DEC-2018 09:52
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD050;VSTD050;2;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 2 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

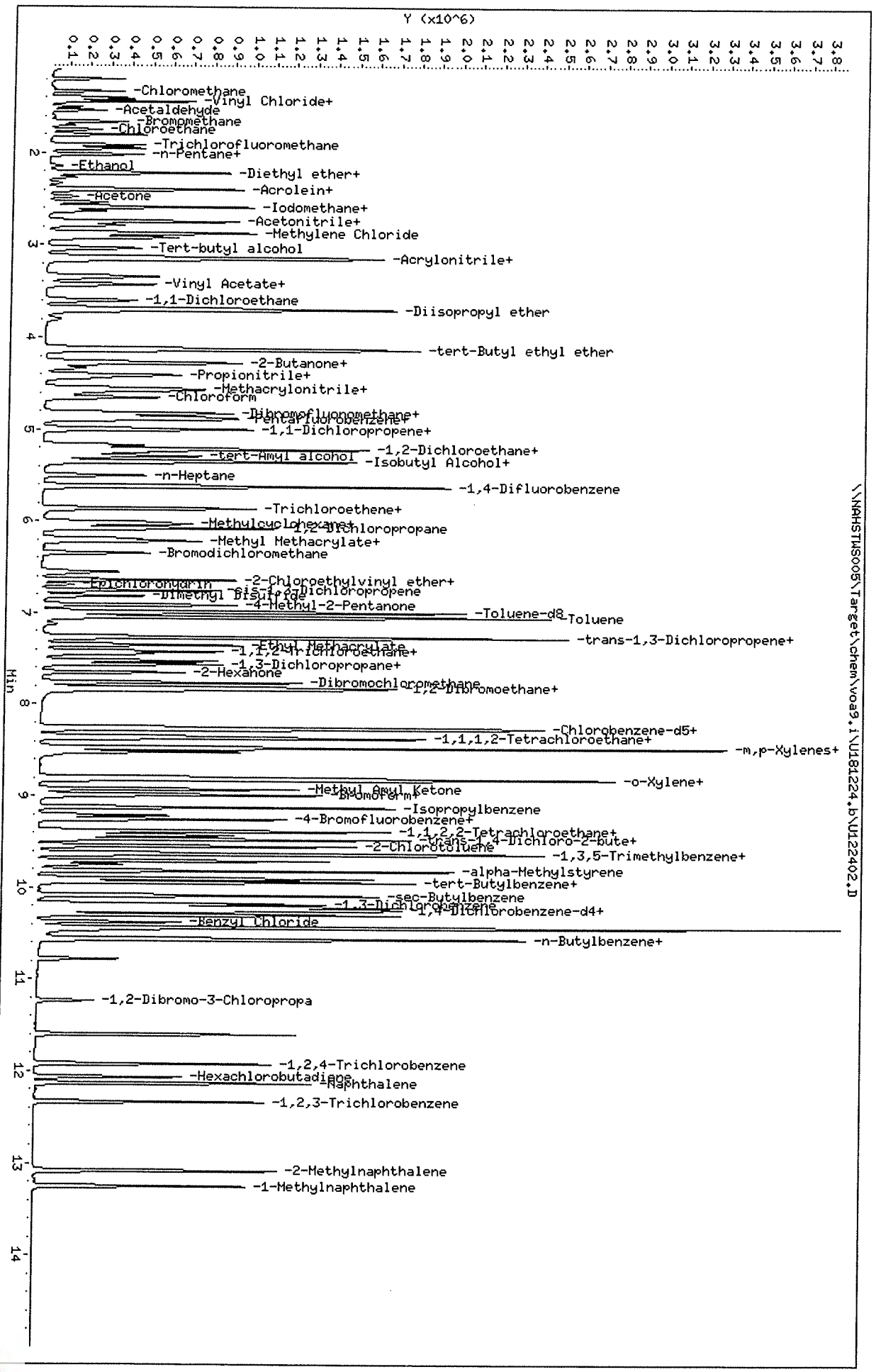
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.894	4.894	(1.000)	423354	50.0000	
* 36 1,4-Difluorobenzene	114	5.625	5.625	(1.000)	785837	50.0000	
* 47 Chlorobenzene-d5	117	8.249	8.249	(1.000)	724498	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.235	10.235	(1.000)	352991	50.0000	
$ 30 Dibromofluoromethane	113	4.826	4.826	(0.986)	239456	50.0000	51.29
$ 35 1,2-Dichloroethane-d4	65	5.171	5.171	(1.057)	304677	50.0000	50.88
$ 48 Toluene-d8	98	6.989	6.989	(0.847)	964346	50.0000	51.60
$ 69 4-Bromofluorobenzene	95	9.257	9.257	(1.122)	368577	50.0000	51.80
60 1,1,1,2-Tetrachloroethane	131	8.350	8.350	(1.012)	215639	50.0000	46.94
31 1,1,1-Trichloroethane	97	4.826	4.826	(0.986)	316440	50.0000	47.33
68 1,1,2,2-Tetrachloroethane	83	9.392	9.392	(0.918)	355332	50.0000	44.69
138 Freon TF	101	2.401	2.401	(0.491)	153951	50.0000	42.77
53 1,1,2-Trichloroethane	83	7.420	7.420	(0.900)	207577	50.0000	48.09
22 1,1-Dichloroethane	63	3.600	3.600	(0.736)	433057	50.0000	47.49
11 1,1-Dichloroethene	96	2.401	2.401	(0.491)	181293	50.0000	45.03
32 1,1-Dichloropropene	75	5.002	5.002	(0.889)	323333	50.0000	46.24
93 1,2,3-Trichlorobenzene	180	12.335	12.335	(1.205)	290474	50.0000	43.74
71 1,2,3-Trichloropropane	75	9.426	9.426	(0.921)	390574	50.0000	47.24
90 1,2,4-Trichlorobenzene	180	11.922	11.922	(1.165)	305143	50.0000	46.69
79 1,2,4-Trimethylbenzene	105	9.943	9.943	(0.971)	893982	50.0000	48.39
89 1,2-Dibromo-3-Chloropropane	155	11.233	11.233	(1.097)	48924	50.0000	40.20
57 1,2-Dibromoethane	107	7.851	7.851	(0.952)	242501	50.0000	48.77

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122402.D Page 2
Report Date: 28-Jan-2019 14:34

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	10.569	10.569	(1.033)	486970	50.0000	46.46
33	1,2-Dichloroethane	62	5.250	5.250	(0.933)	352056	50.0000	49.72
42	1,2-Dichloropropane	63	6.078	6.078	(1.081)	267418	50.0000	48.16
75	1,3,5-Trimethylbenzene	105	9.624	9.624	(0.940)	854241	50.0000	48.15
83	1,3-Dichlorobenzene	146	10.179	10.179	(0.995)	487011	50.0000	46.46
54	1,3-Dichloropropane	76	7.563	7.563	(0.917)	448896	50.0000	48.28
84	1,4-Dichlorobenzene	146	10.254	10.254	(1.002)	501619	50.0000	45.38
26	2,2-Dichloropropane	77	4.271	4.271	(0.873)	274613	50.0000	49.98
24	2-Butanone	43	4.335	4.335	(0.886)	243142	100.000	87.52
76	2-Chlorotoluene	91	9.546	9.546	(0.933)	777485	50.0000	47.80
52	2-Hexanone	43	7.649	7.649	(0.927)	368317	100.000	91.42
77	4-Chlorotoluene	91	9.639	9.639	(0.942)	907472	50.0000	48.28
82	p-Isopropyltoluene	119	10.209	10.209	(0.997)	884191	50.0000	47.33
45	4-Methyl-2-Pentanone	43	6.910	6.910	(0.838)	534634	100.000	92.23
10	Acetone	43	2.476	2.476	(0.506)	147537	100.000	88.94
37	Benzene	78	5.216	5.216	(0.927)	1004828	50.0000	48.05
74	Bromobenzene	156	9.381	9.381	(0.917)	258984	50.0000	47.48
29	Bromochloromethane	128	4.552	4.552	(0.930)	120857	50.0000	54.73
39	Bromodichloromethane	83	6.348	6.348	(1.129)	296500	50.0000	50.21
66	Bromoform	173	8.983	8.983	(1.089)	134940	50.0000	43.62(T)
6	Bromomethane	94	1.666	1.666	(0.341)	126513	50.0000	48.43
19	Carbon Disulfide	76	2.588	2.588	(0.529)	1200523	100.000	81.85
34	Carbon Tetrachloride	117	4.995	4.995	(0.888)	244058	50.0000	42.90
59	Chlorobenzene	112	8.275	8.275	(1.003)	671654	50.0000	48.24
7	Chloroethane	64	1.748	1.748	(0.357)	182521	50.0000	48.65
28	Chloroform	83	4.654	4.654	(0.951)	423382	50.0000	48.21
3	Chloromethane	50	1.336	1.336	(0.273)	215757	50.0000	48.10
27	cis-1,2-Dichloroethene	96	4.283	4.283	(0.875)	268280	50.0000	48.21
46	cis-1,3-Dichloropropene	75	6.757	6.757	(1.201)	420747	50.0000	46.96
55	Dibromochloromethane	129	7.758	7.758	(0.940)	220452	50.0000	46.37
44	Dibromomethane	93	6.187	6.187	(1.100)	155992	50.0000	48.67
2	Dichlorodifluoromethane	85	1.201	1.201	(0.246)	217496	50.0000	41.83
61	Ethylbenzene	106	8.369	8.369	(1.015)	346487	50.0000	48.53
91	Hexachlorobutadiene	225	12.065	12.065	(1.179)	111829	50.0000	44.66
67	Isopropylbenzene	105	9.126	9.126	(1.106)	987775	50.0000	47.94
62	m,p-Xylenes	106	8.474	8.474	(1.027)	860607	100.000	98.04
17	Methylene Chloride	84	2.869	2.869	(0.586)	257324	50.0000	49.16
87	n-Butylbenzene	91	10.558	10.558	(1.031)	832522	50.0000	46.18
73	n-Propylbenzene	91	9.474	9.474	(0.926)	1249543	50.0000	47.37
92	Naphthalene	128	12.132	12.132	(1.185)	915226	50.0000	42.62
63	o-Xylene	106	8.811	8.811	(1.068)	438615	50.0000	49.53
81	sec-Butylbenzene	105	10.086	10.086	(0.985)	1017399	50.0000	45.89
64	Styrene	104	8.822	8.822	(1.070)	765253	50.0000	52.01
78	tert-Butylbenzene	119	9.902	9.902	(0.967)	704838	50.0000	45.96
56	Tetrachloroethene	164	7.521	7.521	(0.912)	165998	50.0000	43.76
50	Toluene	91	7.045	7.045	(0.854)	1057144	50.0000	49.05
20	trans-1,2-Dichloroethene	96	3.139	3.139	(0.642)	235322	50.0000	47.48
51	trans-1,3-Dichloropropene	75	7.259	7.259	(1.291)	354926	50.0000	46.11
38	Trichloroethene	130	5.861	5.861	(1.042)	235763	50.0000	46.70
8	Trichlorofluoromethane	101	1.951	1.951	(0.399)	307098	50.0000	44.08
5	Vinyl Chloride	62	1.419	1.419	(0.290)	265095	50.0000	44.38

QC Flag Legend

T - Target compound detected outside RT window.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Date : 24-DEC-2018 09:52
Client ID: VSTD050
Sample Info: VSTD050;VSTD050;2;;
Purge Volume: 5.0
Column phase: DB624
Instrument: VOA9,i
Operator: PC
Column diameter: 0.18
\\NAHSTWS005\Target\chem\voa9,i\U181224,b\U122402.D
Y (x10^6)
Min
-Chloromethane
-Vinyl Chloride+
-Acetaldehyde
-Bromomethane
-Chloroethane
-Trichlorofluoromethane
-n-Pentane+
-Ethanol
-Diethyl ether+
-Acrolein+
-Acetone
-Iodomethane+
-Acetonitrile+
-Methylene Chloride
-Tert-butyl alcohol
-Acrylonitrile+
-Vinyl Acetate+
-1,1-Dichloroethane
-Diisopropyl ether
-tert-Butyl ethyl ether
-2-Butanone+
-Propionitrile+
-Methacrylonitrile+
-Chloroform
-Dibromofluoromethane+
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-tert-Amyl alcohol
-Isobutyl Alcohol+
-n-Heptane
-1,4-Difluorobenzene
-Trichloroethene+
-Methylcyclohexane+
-1,2-Dichloropropane
-Methyl Methacrylate+
-Bromodichloromethane
-2-Chloroethylvinyl ether+
-Epichlorohydrin
-cis-1,3-Dichloropropene
-Dimethyl Disulfide
-4-Methyl-2-Pentanone
-Toluene-d8
-Toluene
-trans-1,3-Dichloropropene+
-Ethyl Methacrylate
-1,1,2-Trichloroethane+
-1,3-Dichloropropane+
-2-Hexanone
-Dibromochloromethane
-1,2-Dibromoethane+
-Chlorobenzene-d5+
-1,1,1,2-Tetrachloroethane+
-m,p-Xylenes+
-o-Xylene+
-Methyl Amyl Ketone
-Bromoform+
-Isopropylbenzene
-4-Bromofluorobenzene+
-1,1,2,2-Tetrachloroethane+
-trans-1,4-Dichloro-2-bute+
-2-Chlorotoluene
-1,3,5-Trimethylbenzene+
-alpha-Methylstyrene
-tert-Butylbenzene+
-sec-Butylbenzene
-1,3-Dichlorobenzene
-1,4-Dichlorobenzene-d4+
-Benzyl Chloride
-n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Hexachlorobutadiene
-Naphthalene
-1,2,3-Trichlorobenzene
-2-Methylnaphthalene
-1-Methylnaphthalene

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122403.D Page 1
Report Date: 28-Jan-2019 14:34

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122403.D
Lab Smp Id: VLCSW-1812024 Client Smp ID: VLCSW-181224
Inj Date : 24-DEC-2018 10:17
Operator : PC Inst ID: VOA9.i
Smp Info : VLCSW-1812024;VLCSW-181224;3;;LCS
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 3 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

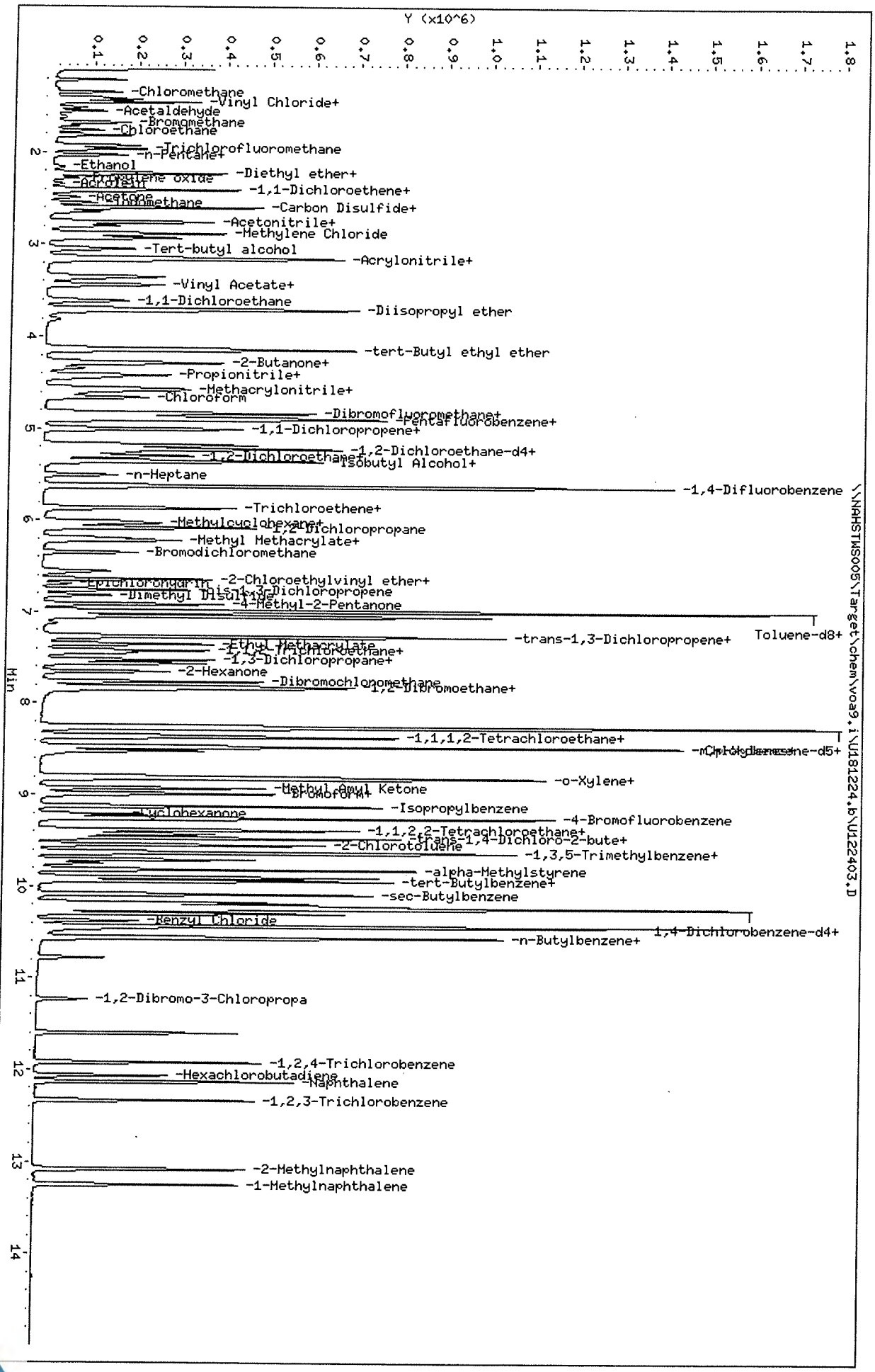
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.897	4.894	(1.000)	406772	50.0000	
* 36 1,4-Difluorobenzene	114	5.628	5.625	(1.000)	758509	50.0000	
* 47 Chlorobenzene-d5	117	8.249	8.249	(1.000)	703027	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.235	10.235	(1.000)	339524	50.0000	
$ 30 Dibromofluoromethane	113	4.834	4.826	(0.987)	227871	50.7883	50.78
$ 35 1,2-Dichloroethane-d4	65	5.178	5.171	(1.057)	299407	52.0910	52.09
$ 48 Toluene-d8	98	6.989	6.989	(0.847)	921570	50.7919	50.79
$ 69 4-Bromofluorobenzene	95	9.257	9.257	(1.122)	357826	51.8285	51.82
60 1,1,1,2-Tetrachloroethane	131	8.350	8.350	(1.012)	88375	20.1633	20.16
31 1,1,1-Trichloroethane	97	4.830	4.826	(0.986)	135603	21.1125	21.11
68 1,1,2,2-Tetrachloroethane	83	9.392	9.392	(0.918)	153489	20.0739	20.07
138 Freon TF	101	2.412	2.401	(0.493)	72333	20.9166	20.91
53 1,1,2-Trichloroethane	83	7.420	7.420	(0.900)	88710	21.1796	21.17
22 1,1-Dichloroethane	63	3.612	3.600	(0.737)	184709	21.0852	21.08
11 1,1-Dichloroethene	96	2.408	2.401	(0.492)	78960	20.4156	20.41
32 1,1-Dichloropropene	75	5.010	5.002	(0.890)	141680	20.9930	20.99
93 1,2,3-Trichlorobenzene	180	12.335	12.335	(1.205)	127493	20.3080	20.30
71 1,2,3-Trichloropropane	75	9.426	9.426	(0.921)	160947	20.2426	20.24
90 1,2,4-Trichlorobenzene	180	11.922	11.922	(1.165)	133328	21.2102	21.21
79 1,2,4-Trimethylbenzene	105	9.943	9.943	(0.971)	396053	22.2910	22.29
89 1,2-Dibromo-3-Chloropropane	155	11.233	11.233	(1.097)	20393	18.2464	18.24
57 1,2-Dibromoethane	107	7.851	7.851	(0.952)	102168	21.1780	21.17

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122403.D Page 2
Report Date: 28-Jan-2019 14:34

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
88	1,2-Dichlorobenzene	146	10.569	10.569	(1.033)	207631	20.5957	20.59
33	1,2-Dichloroethane	62	5.257	5.250	(0.934)	150051	21.5444	21.54
42	1,2-Dichloropropane	63	6.082	6.078	(1.081)	111360	20.7777	20.77
75	1,3,5-Trimethylbenzene	105	9.624	9.624	(0.940)	377636	22.1314	22.13
83	1,3-Dichlorobenzene	146	10.179	10.179	(0.995)	211456	20.9736	20.97
54	1,3-Dichloropropane	76	7.563	7.563	(0.917)	190232	21.0858	21.08
84	1,4-Dichlorobenzene	146	10.254	10.254	(1.002)	215686	20.2900	20.28
26	2,2-Dichloropropane	77	4.279	4.271	(0.874)	116146	22.0006	22.00
24	2-Butanone	43	4.343	4.335	(0.887)	107059	38.7900	38.78
76	2-Chlorotoluene	91	9.546	9.546	(0.933)	335605	21.4534	21.45
52	2-Hexanone	43	7.649	7.649	(0.927)	158802	40.6220	40.62
77	4-Chlorotoluene	91	9.639	9.639	(0.942)	393315	21.7570	21.75
82	p-Isopropyltoluene	119	10.209	10.209	(0.997)	401121	22.3263	22.32
45	4-Methyl-2-Pentanone	43	6.914	6.910	(0.838)	230112	40.9097	40.90
10	Acetone	43	2.487	2.476	(0.508)	66585	40.1746	40.17
37	Benzene	78	5.223	5.216	(0.928)	426379	21.1248	21.12
74	Bromobenzene	156	9.381	9.381	(0.917)	109171	20.8108	20.81
29	Bromochloromethane	128	4.560	4.552	(0.931)	50277	21.9350	21.93
39	Bromodichloromethane	83	6.348	6.348	(1.128)	120773	21.1903	21.19
66	Bromoform	173	8.983	8.983	(1.089)	52936	18.6861	18.68
6	Bromomethane	94	1.681	1.666	(0.343)	57771	23.7209	23.72
19	Carbon Disulfide	76	2.599	2.588	(0.531)	587803	41.7101	41.71
34	Carbon Tetrachloride	117	4.999	4.995	(0.888)	106164	20.1057	20.10
59	Chlorobenzene	112	8.275	8.275	(1.003)	283627	20.9972	20.99
7	Chloroethane	64	1.763	1.748	(0.360)	75051	21.2783	21.27(M)
28	Chloroform	83	4.661	4.654	(0.952)	177187	21.0026	21.00
3	Chloromethane	50	1.347	1.336	(0.275)	95716	23.9974	23.99
27	cis-1,2-Dichloroethene	96	4.290	4.283	(0.876)	112668	21.0722	21.07
46	cis-1,3-Dichloropropene	75	6.760	6.757	(1.201)	165133	19.8487	19.84
55	Dibromochloromethane	129	7.758	7.758	(0.940)	86605	19.3564	19.35
44	Dibromomethane	93	6.191	6.187	(1.100)	66144	21.3834	21.38
2	Dichlorodifluoromethane	85	1.212	1.201	(0.248)	99637	20.1990	20.19
61	Ethylbenzene	106	8.372	8.369	(1.015)	150022	21.6543	21.65
91	Hexachlorobutadiene	225	12.065	12.065	(1.179)	46864	19.4594	19.45
67	Isopropylbenzene	105	9.126	9.126	(1.106)	444629	22.2408	22.24
62	m,p-Xylenes	106	8.474	8.474	(1.027)	373925	43.9025	43.90
17	Methylene Chloride	84	2.881	2.869	(0.588)	110110	21.2264	21.22
87	n-Butylbenzene	91	10.558	10.558	(1.031)	382218	22.0444	22.04
73	n-Propylbenzene	91	9.474	9.474	(0.926)	566860	22.3442	22.34
92	Naphthalene	128	12.132	12.132	(1.185)	398777	19.5931	19.59
63	o-Xylene	106	8.811	8.811	(1.068)	188789	21.9718	21.97
81	sec-Butylbenzene	105	10.086	10.086	(0.985)	470724	22.0778	22.07
64	Styrene	104	8.826	8.822	(1.070)	319620	22.3899	22.38
78	tert-Butylbenzene	119	9.902	9.902	(0.967)	326809	22.1594	22.15
56	Tetrachloroethene	164	7.525	7.521	(0.912)	74823	20.3294	20.32
50	Toluene	91	7.049	7.045	(0.855)	451266	21.5785	21.57
20	trans-1,2-Dichloroethene	96	3.150	3.139	(0.643)	100128	21.0291	21.02
51	trans-1,3-Dichloropropene	75	7.263	7.259	(1.290)	137974	19.5584	19.55
38	Trichloroethene	130	5.864	5.861	(1.042)	101926	20.9180	20.91
8	Trichlorofluoromethane	101	1.966	1.951	(0.401)	138983	21.0959	21.09
5	Vinyl Chloride	62	1.430	1.419	(0.292)	121149	21.6176	21.61

QC Flag Legend

M - Compound response manually integrated.



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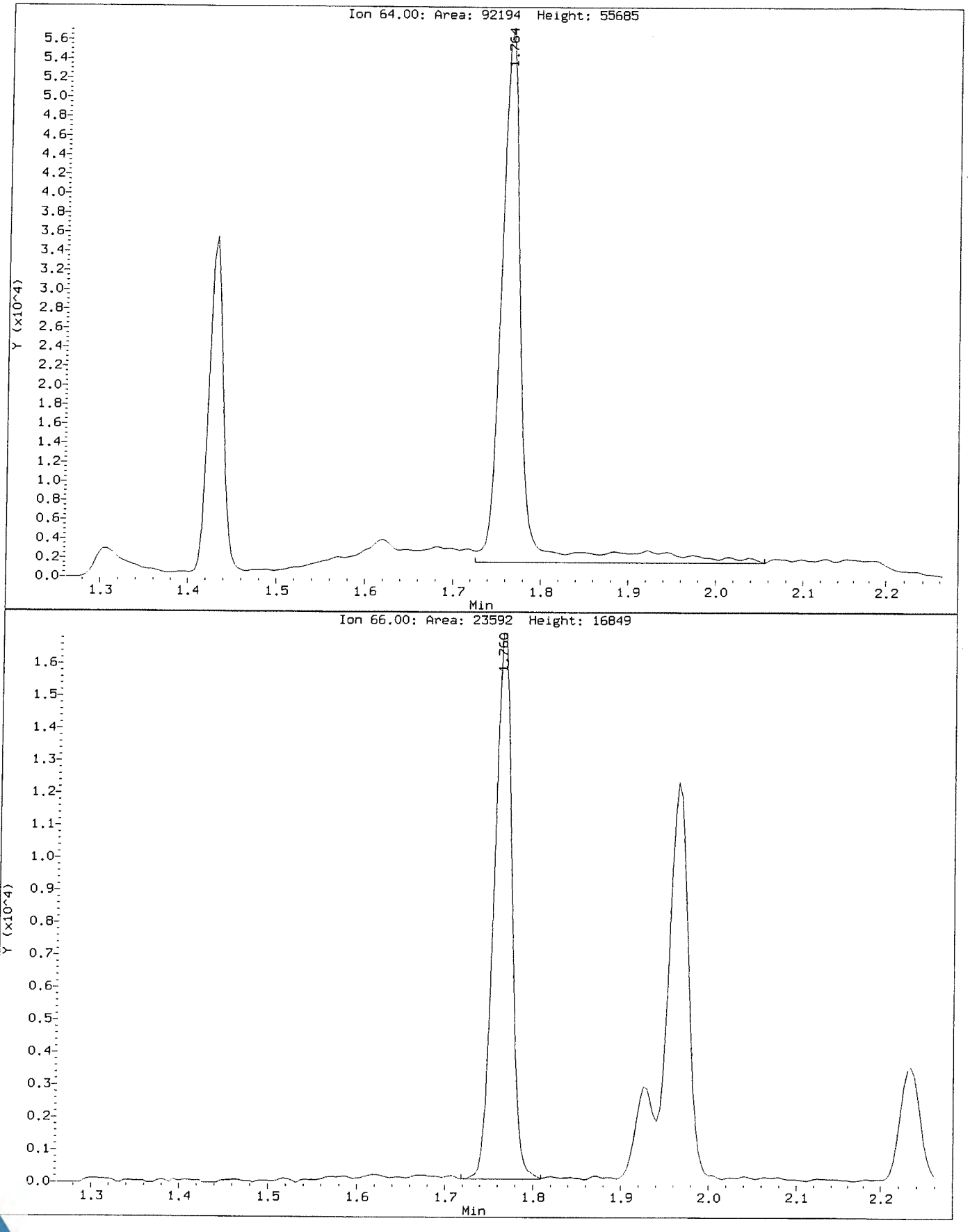
Sample Info: VLCSW-1812024;VLCSW-181224;3;;LCS
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

\\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122403.D

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\Before\U122403.D
Injection Date: 24-DEC-2018 10:17
Instrument: VOA9.i
Client Sample ID: VLCSW-181224

Compound: Chloroethane
CAS Number: 75-00-3



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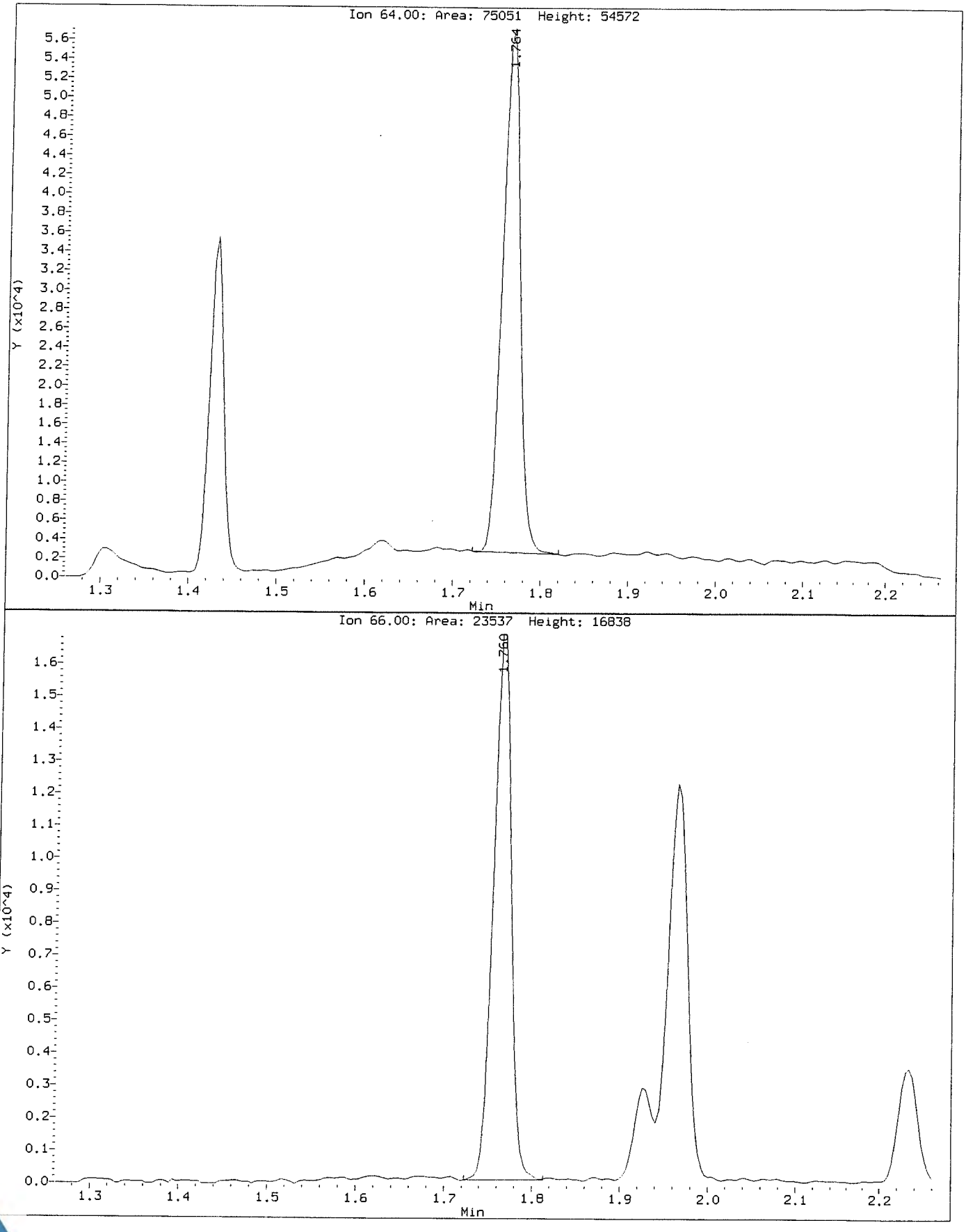
Instrument: VOA9.i
Client Sample ID: VLCSW-181224

Compound: Chloroethane
CAS Number: 75-00-3



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122405.D Page 1
Report Date: 28-Jan-2019 14:34

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122405.D
Lab Smp Id: VBLKW-181224 Client Smp ID: VBLKW-181224
Inj Date : 24-DEC-2018 11:06
Operator : PC Inst ID: VOA9.i
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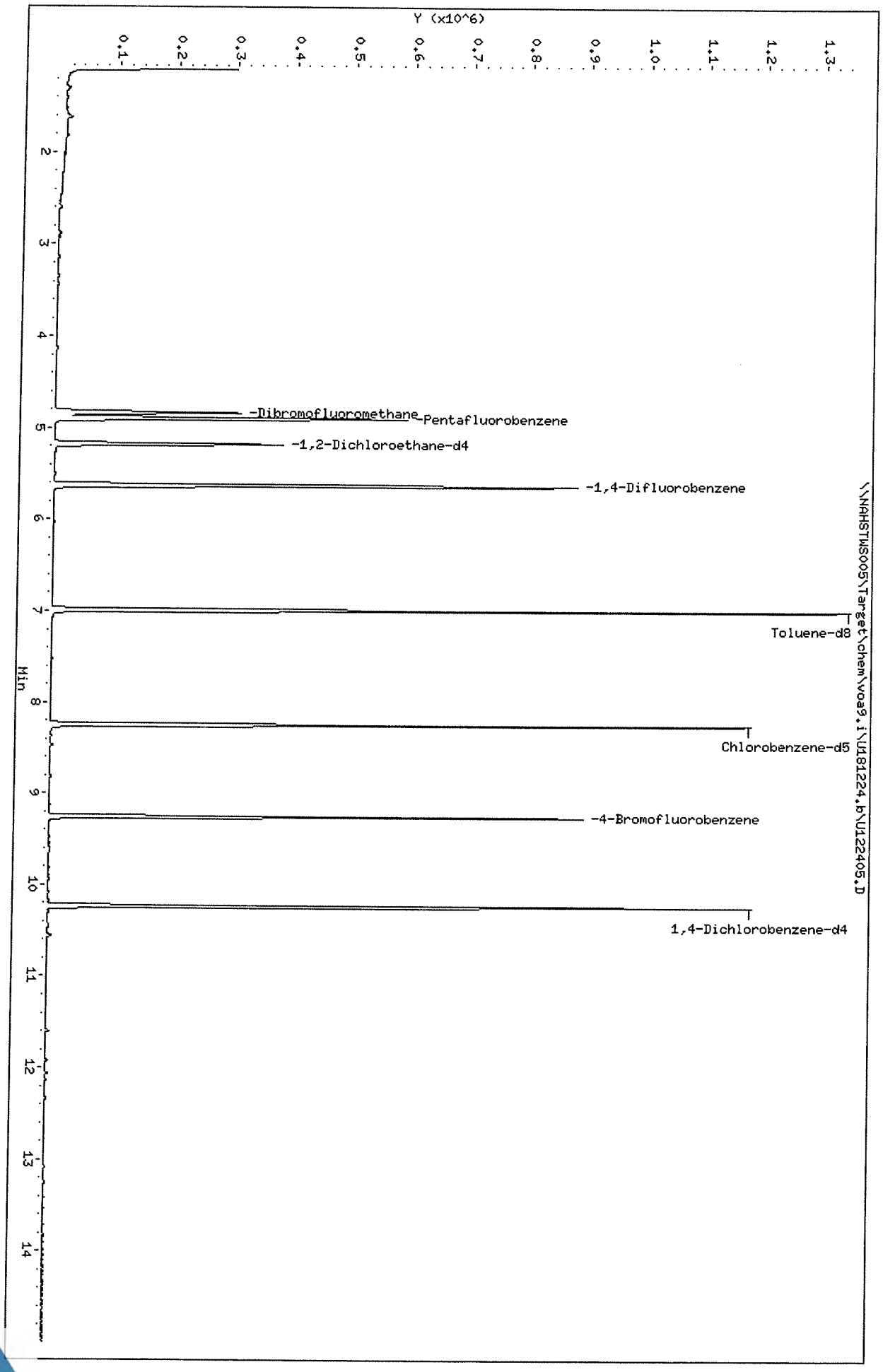
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 5 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.897	4.894	(1.000)	360724	50.0000	
*	36 1,4-Difluorobenzene	114	5.628	5.625	(1.000)	632508	50.0000	
*	47 Chlorobenzene-d5	117	8.249	8.249	(1.000)	571876	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	10.235	10.235	(1.000)	263882	50.0000	
$	30 Dibromofluoromethane	113	4.834	4.826	(0.987)	177273	44.3672	44.36
$	35 1,2-Dichloroethane-d4	65	5.179	5.171	(1.057)	242561	47.4005	47.40
$	48 Toluene-d8	98	6.989	6.989	(0.847)	770698	52.2682	52.26
$	69 4-Bromofluorobenzene	95	9.257	9.257	(1.122)	271263	48.2038	48.20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Purge Volume: 5.0
Column phase: DB624
Instrument: VOA9.i
Operator: PC
Column diameter: 0.18
Page 2
Y (x10^6)
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Min
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14
-Dibromofluoromethane
Pentafluorobenzene
-1,2-Dichloroethane-d4
-1,4-Difluorobenzene
Toluene-d8
Chlorobenzene-d5
-4-Bromofluorobenzene
1,4-Dichlorobenzene-d4
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ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122415.D
Lab Smp Id: HS18120913-03MS Client Smp ID: HS18120913-03MS
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Operator : PC Inst ID: VOA9.i
Smp Info : HS18120913-03MS;HS18120913-03MS;3;;MS
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 15 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

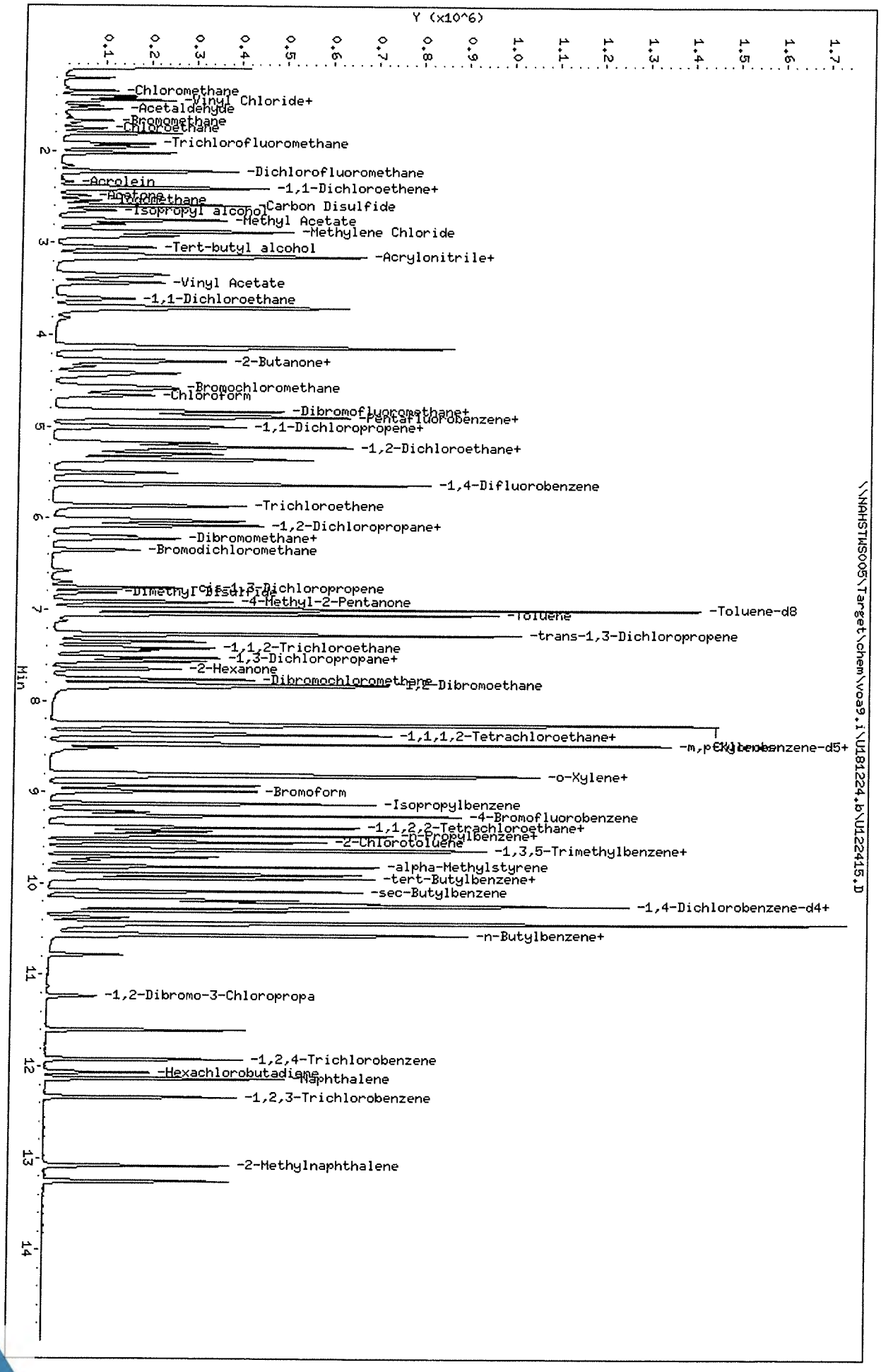
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.898	4.894	(1.000)	345000	50.0000	
* 36 1,4-Difluorobenzene	114	5.629	5.625	(1.000)	594715	50.0000	
* 47 Chlorobenzene-d5	117	8.249	8.249	(1.000)	543870	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.236	10.235	(1.000)	266360	50.0000	
$ 30 Dibromofluoromethane	113	4.830	4.826	(0.986)	174630	45.7435	45.74
$ 35 1,2-Dichloroethane-d4	65	5.179	5.171	(1.057)	230784	47.1432	47.14
$ 48 Toluene-d8	98	6.989	6.989	(0.847)	746782	53.2878	53.28
$ 69 4-Bromofluorobenzene	95	9.257	9.257	(1.122)	276028	51.6764	51.67
60 1,1,1,2-Tetrachloroethane	131	8.350	8.350	(1.012)	79024	23.2148	23.21
31 1,1,1-Trichloroethane	97	4.830	4.826	(0.986)	124996	22.9455	22.94
68 1,1,2,2-Tetrachloroethane	83	9.392	9.392	(0.918)	145185	24.2035	24.20
138 Freon TF	101	2.405	2.401	(0.491)	73723	25.1357	25.13
53 1,1,2-Trichloroethane	83	7.420	7.420	(0.900)	81989	25.3033	25.30
22 1,1-Dichloroethane	63	3.608	3.600	(0.737)	168755	22.7132	22.71
11 1,1-Dichloroethene	96	2.401	2.401	(0.490)	75592	23.0442	23.04
32 1,1-Dichloropropene	75	5.006	5.002	(0.889)	134692	25.4542	25.45
93 1,2,3-Trichlorobenzene	180	12.335	12.335	(1.205)	109130	22.1001	22.10
71 1,2,3-Trichloropropane	75	9.426	9.426	(0.921)	145667	23.3532	23.35
90 1,2,4-Trichlorobenzene	180	11.923	11.922	(1.165)	110324	22.3715	22.37
79 1,2,4-Trimethylbenzene	105	9.943	9.943	(0.971)	351572	25.2227	25.22
89 1,2-Dibromo-3-Chloropropane	155	11.233	11.233	(1.097)	18444	20.8136	20.81
57 1,2-Dibromoethane	107	7.852	7.851	(0.952)	94955	25.4427	25.44

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122415.D Page 2
Report Date: 28-Jan-2019 14:34

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
88 1,2-Dichlorobenzene	146	10.569	10.569	(1.033)	187882	23.7559	23.75
33 1,2-Dichloroethane	62	5.254	5.250	(0.933)	138450	25.4836	25.48
42 1,2-Dichloropropane	63	6.082	6.078	(1.081)	104134	24.7807	24.78
75 1,3,5-Trimethylbenzene	105	9.625	9.624	(0.940)	342429	25.5804	25.58
83 1,3-Dichlorobenzene	146	10.179	10.179	(0.995)	184561	23.3342	23.33
54 1,3-Dichloropropane	76	7.563	7.563	(0.917)	174086	24.9430	24.94
84 1,4-Dichlorobenzene	146	10.254	10.254	(1.002)	194001	23.2630	23.26
26 2,2-Dichloropropane	77	4.275	4.271	(0.873)	102083	22.7990	22.79
24 2-Butanone	43	4.343	4.335	(0.887)	105483	45.4559	45.45
76 2-Chlorotoluene	91	9.546	9.546	(0.933)	306257	24.9549	24.95
52 2-Hexanone	43	7.649	7.649	(0.927)	159855	52.8577	52.85
77 4-Chlorotoluene	91	9.640	9.639	(0.942)	356306	25.1237	25.12
82 p-Isopropyltoluene	119	10.209	10.209	(0.997)	355401	25.2152	25.21
45 4-Methyl-2-Pentanone	43	6.914	6.910	(0.838)	223482	51.3578	51.35
10 Acetone	43	2.487	2.476	(0.508)	70952	51.2497	51.24
37 Benzene	78	5.220	5.216	(0.927)	397101	25.0928	25.09
74 Bromobenzene	156	9.385	9.381	(0.917)	97879	23.7834	23.78
29 Bromochloromethane	128	4.556	4.552	(0.930)	46188	24.0179	24.01
39 Bromodichloromethane	83	6.348	6.348	(1.128)	109342	24.4685	24.46
66 Bromoform	173	8.984	8.983	(1.089)	47381	21.3431	21.34
6 Bromomethane	94	1.670	1.666	(0.341)	51729	24.9684	24.96
19 Carbon Disulfide	76	2.592	2.588	(0.529)	516135	43.1821	43.18
34 Carbon Tetrachloride	117	4.999	4.995	(0.888)	99519	23.7645	23.76
59 Chlorobenzene	112	8.275	8.275	(1.003)	261122	24.9882	24.98
7 Chloroethane	64	1.756	1.748	(0.359)	65153	21.7650	21.76(M)
28 Chloroform	83	4.658	4.654	(0.951)	164251	22.9552	22.95
3 Chloromethane	50	1.344	1.336	(0.274)	73734	22.1006	22.10
27 cis-1,2-Dichloroethene	96	4.290	4.283	(0.876)	110116	24.2824	24.28
46 cis-1,3-Dichloropropene	75	6.761	6.757	(1.201)	142392	21.7030	21.70
55 Dibromochloromethane	129	7.758	7.758	(0.940)	77822	22.3259	22.32
44 Dibromomethane	93	6.191	6.187	(1.100)	60796	25.0676	25.06
2 Dichlorodifluoromethane	85	1.209	1.201	(0.247)	60996	14.7145	14.71
61 Ethylbenzene	106	8.373	8.369	(1.015)	137460	25.6473	25.64
91 Hexachlorobutadiene	225	12.065	12.065	(1.179)	36483	19.3100	19.30
67 Isopropylbenzene	105	9.126	9.126	(1.106)	409452	26.4747	26.47
62 m,p-Xylenes	106	8.474	8.474	(1.027)	342200	51.9351	51.93
17 Methylene Chloride	84	2.873	2.869	(0.587)	100414	22.9137	22.91
87 n-Butylbenzene	91	10.554	10.558	(1.031)	332695	24.4588	24.45
73 n-Propylbenzene	91	9.475	9.474	(0.926)	515682	25.9103	25.91
92 Naphthalene	128	12.133	12.132	(1.185)	359474	22.4263	22.42
63 o-Xylene	106	8.811	8.811	(1.068)	170427	25.6392	25.63
81 sec-Butylbenzene	105	10.086	10.086	(0.985)	425090	25.4139	25.41
64 Styrene	104	8.826	8.822	(1.070)	290415	26.2974	26.29
78 tert-Butylbenzene	119	9.902	9.902	(0.967)	293816	25.3946	25.39
56 Tetrachloroethene	164	7.525	7.521	(0.912)	68956	24.2180	24.21
50 Toluene	91	7.049	7.045	(0.855)	422501	26.1152	26.11
20 trans-1,2-Dichloroethene	96	3.143	3.139	(0.642)	93150	23.0664	23.06
51 trans-1,3-Dichloropropene	75	7.263	7.259	(1.290)	119186	21.3804	21.38
38 Trichloroethene	130	5.865	5.861	(1.042)	100047	26.1873	26.18
8 Trichlorofluoromethane	101	1.959	1.951	(0.400)	125967	22.5008	22.50
5 Vinyl Chloride	62	1.423	1.419	(0.291)	101003	21.2662	21.26

QC Flag Legend

M - Compound response manually integrated.



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Sample Info: HS18120913-03MS;HS18120913-03MS;3;;MS
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

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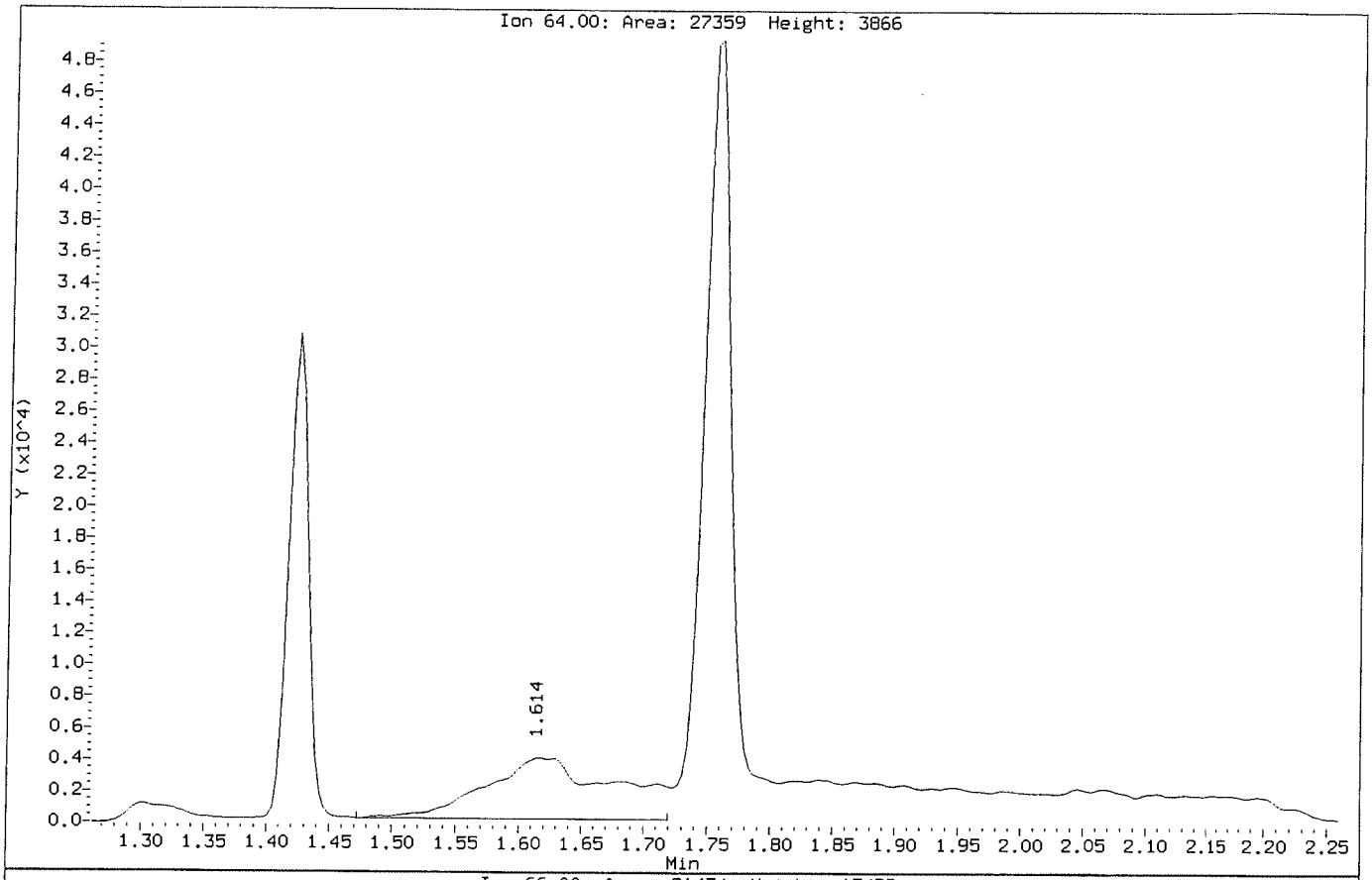
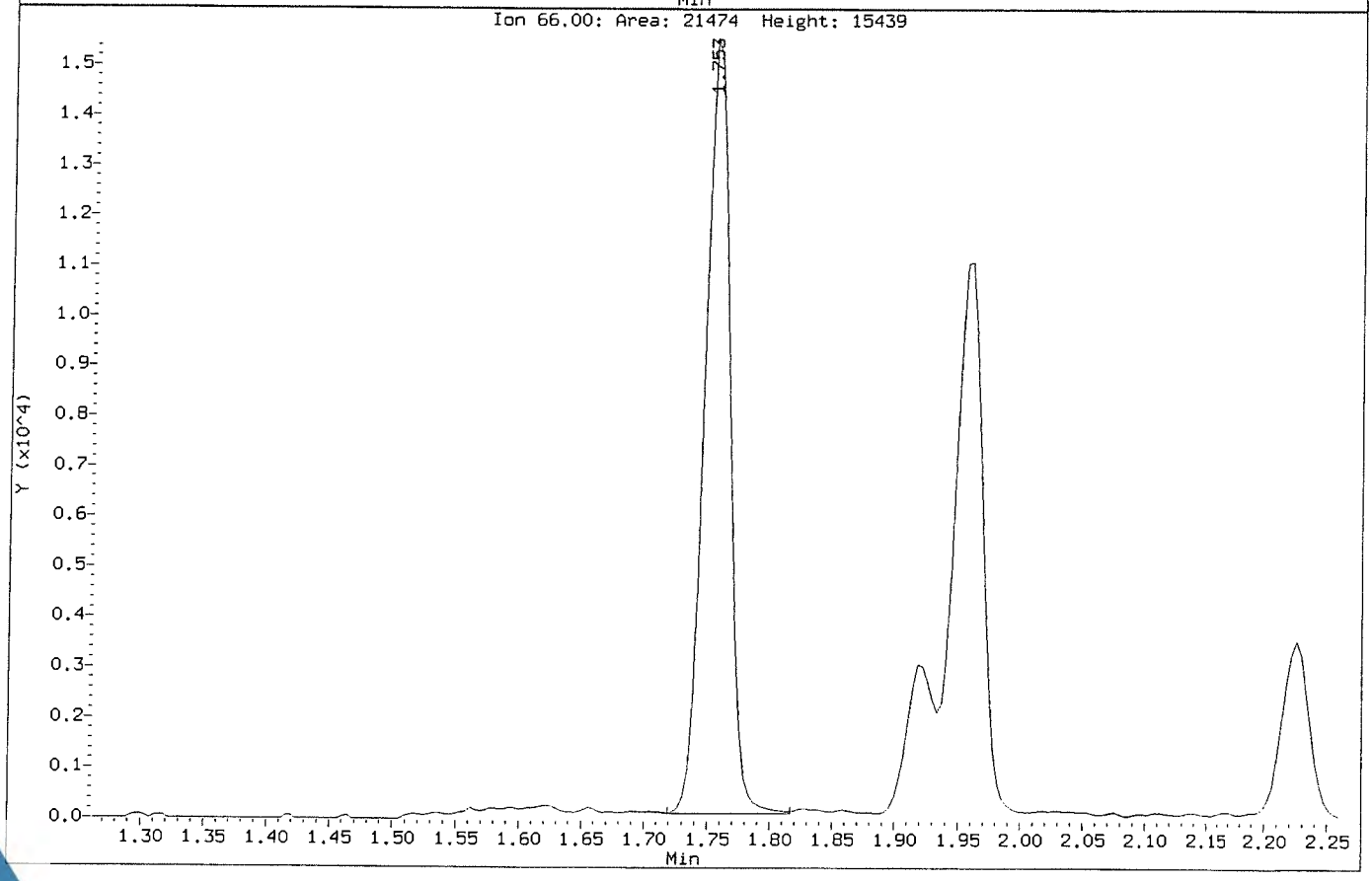
Injection Date: 24-DEC-2018 15:14
Instrument: VOA9.i
Client Sample ID: HS18120913-03MS

Compound: Chloroethane
CAS Number: 75-00-3





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Instrument: VOA9.i
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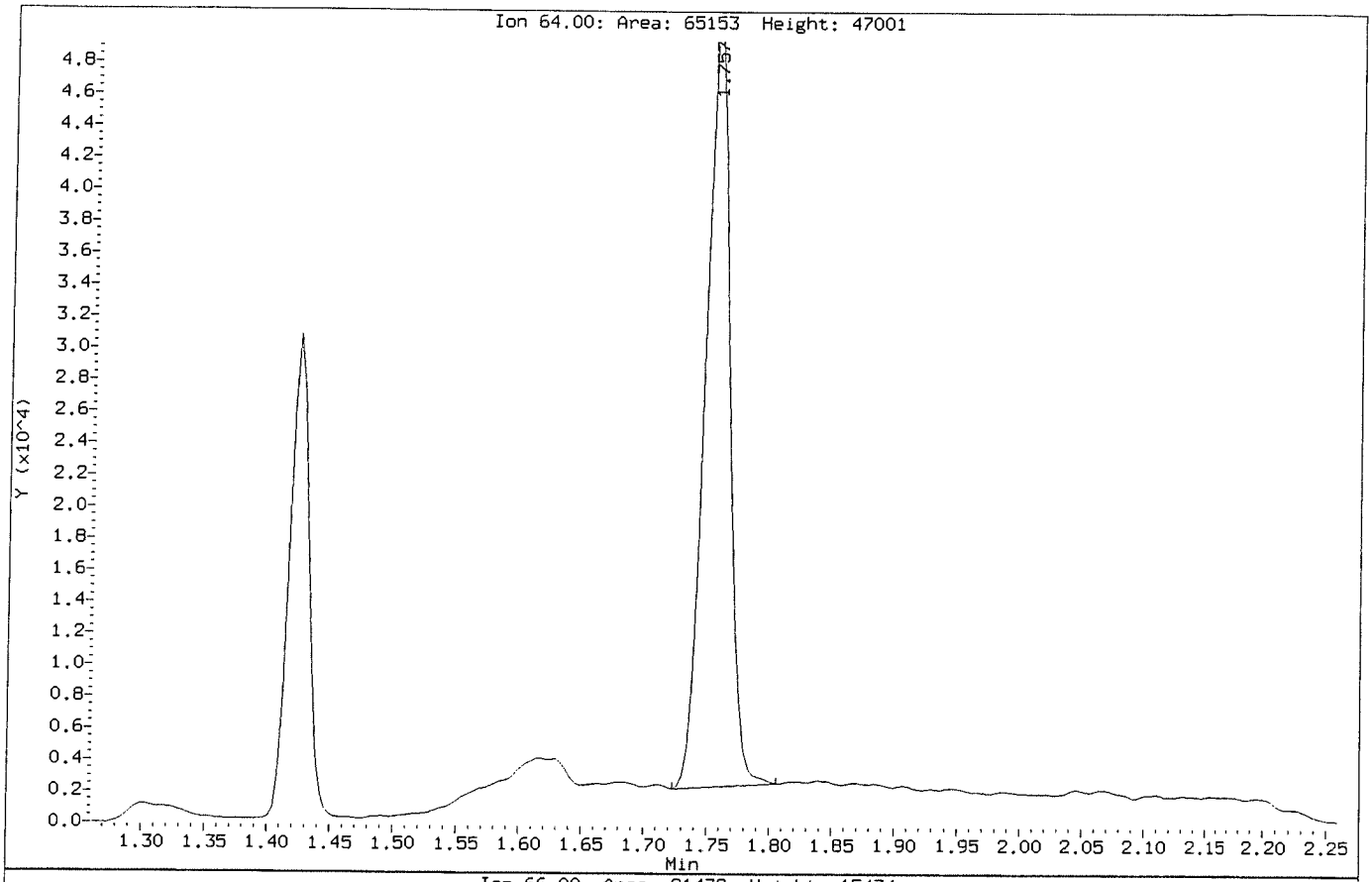
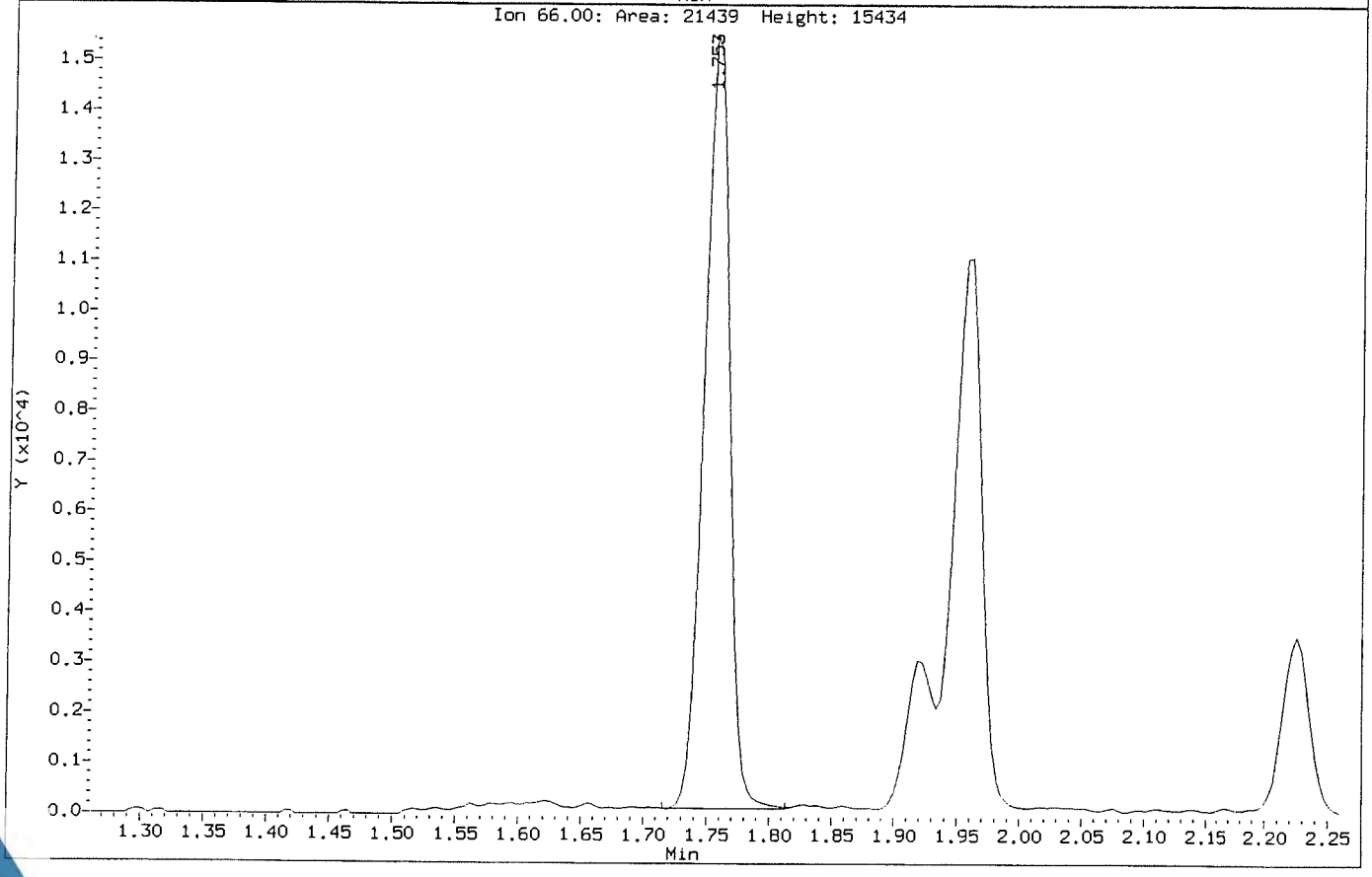
Compound: Chloroethane
CAS Number: 75-00-3





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Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122416.D
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Inj Date : 24-DEC-2018 15:39
Operator : PC Inst ID: VOA9.i
Smp Info : HS18120913-03MSD;HS18120913-03MSD;3;;MSD
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 15 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

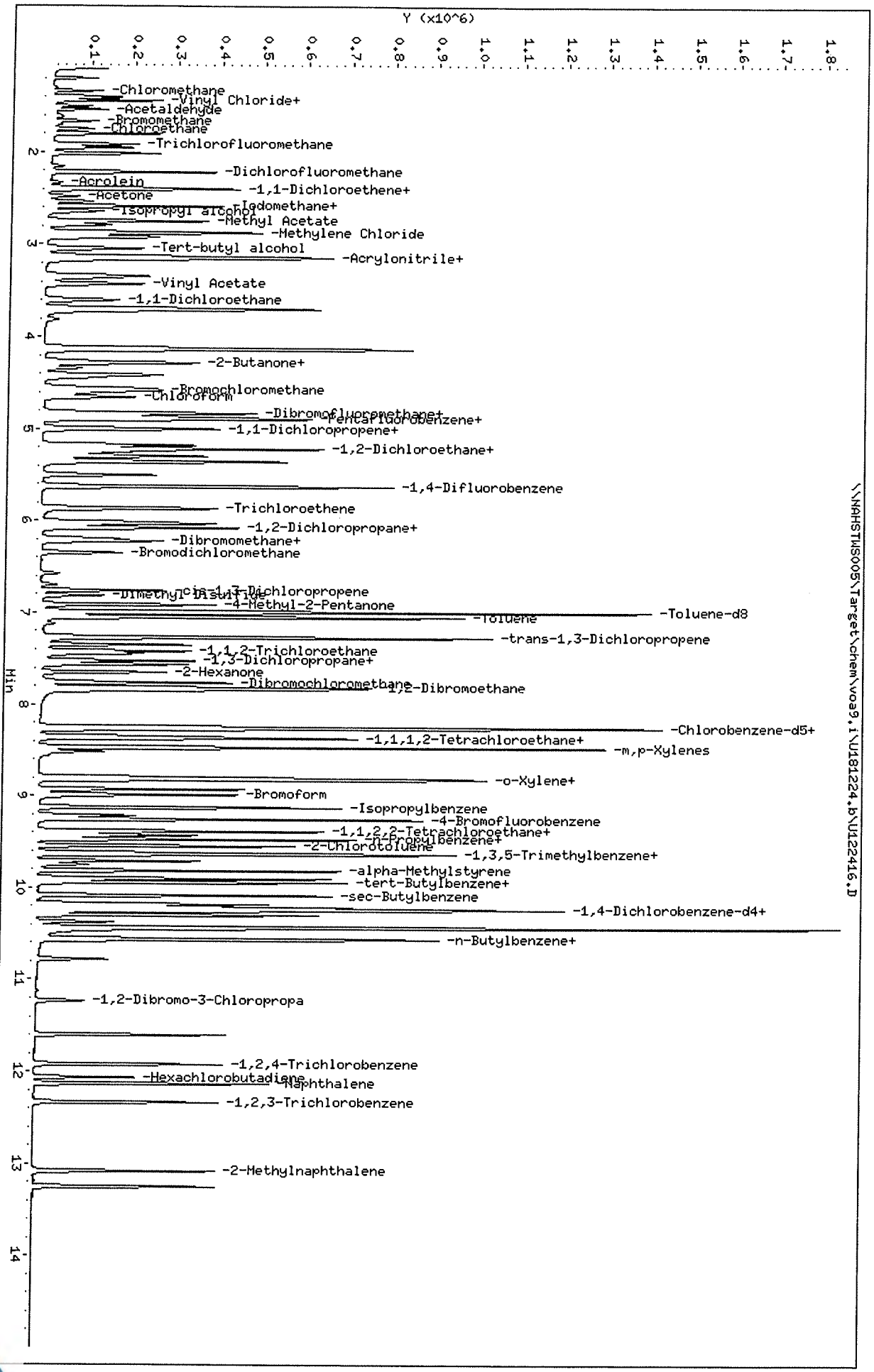
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.894	4.894	(1.000)	331424	50.0000	
* 36 1,4-Difluorobenzene	114	5.625	5.625	(1.000)	576248	50.0000	
* 47 Chlorobenzene-d5	117	8.249	8.249	(1.000)	529623	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.236	10.235	(1.000)	254873	50.0000	
$ 30 Dibromofluoromethane	113	4.827	4.826	(0.986)	168144	45.8522	45.85
$ 35 1,2-Dichloroethane-d4	65	5.175	5.171	(1.057)	222561	47.3342	47.33
$ 48 Toluene-d8	98	6.990	6.989	(0.847)	724188	53.0583	53.05
$ 69 4-Bromofluorobenzene	95	9.258	9.257	(1.122)	269198	51.7556	51.75
60 1,1,1,2-Tetrachloroethane	131	8.350	8.350	(1.012)	77847	23.4774	23.47
31 1,1,1-Trichloroethane	97	4.827	4.826	(0.986)	124807	23.8493	23.84
68 1,1,2,2-Tetrachloroethane	83	9.392	9.392	(0.918)	146512	25.5255	25.52
138 Freon TF	101	2.397	2.401	(0.490)	69274	24.5863	24.58
53 1,1,2-Trichloroethane	83	7.421	7.420	(0.900)	79929	25.3311	25.33
22 1,1-Dichloroethane	63	3.601	3.600	(0.736)	165784	23.2274	23.22
11 1,1-Dichloroethene	96	2.397	2.401	(0.490)	72848	23.1174	23.11
32 1,1-Dichloropropene	75	5.003	5.002	(0.889)	129339	25.2259	25.22
93 1,2,3-Trichlorobenzene	180	12.335	12.335	(1.205)	110289	23.3059	23.30
71 1,2,3-Trichloropropane	75	9.426	9.426	(0.921)	147392	24.6948	24.69
90 1,2,4-Trichlorobenzene	180	11.923	11.922	(1.165)	111669	23.6648	23.66
79 1,2,4-Trimethylbenzene	105	9.944	9.943	(0.971)	350216	26.2578	26.25
89 1,2-Dibromo-3-Chloropropane	155	11.233	11.233	(1.097)	19134	22.4432	22.44
57 1,2-Dibromoethane	107	7.852	7.851	(0.952)	93013	25.5928	25.59

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122416.D Page 2
Report Date: 28-Jan-2019 14:34

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
88	1,2-Dichlorobenzene	146	10.570	10.569	(1.033)	186214	24.6061	24.60
33	1,2-Dichloroethane	62	5.254	5.250	(0.934)	135491	25.7455	25.74
42	1,2-Dichloropropane	63	6.079	6.078	(1.081)	100756	24.7452	24.74
75	1,3,5-Trimethylbenzene	105	9.625	9.624	(0.940)	337155	26.3216	26.32
83	1,3-Dichlorobenzene	146	10.180	10.179	(0.995)	184469	24.3737	24.37
54	1,3-Dichloropropane	76	7.563	7.563	(0.917)	173022	25.4574	25.45
84	1,4-Dichlorobenzene	146	10.255	10.254	(1.002)	190330	23.8514	23.85
26	2,2-Dichloropropane	77	4.275	4.271	(0.874)	97599	22.6905	22.69
24	2-Butanone	43	4.339	4.335	(0.887)	107198	48.2282	48.22
76	2-Chlorotoluene	91	9.546	9.546	(0.933)	300561	25.5945	25.59
52	2-Hexanone	43	7.649	7.649	(0.927)	159891	54.2919	54.29
77	4-Chlorotoluene	91	9.640	9.639	(0.942)	351762	25.9211	25.92
82	p-Isopropyltoluene	119	10.210	10.209	(0.997)	352635	26.1465	26.14
45	4-Methyl-2-Pentanone	43	6.915	6.910	(0.838)	226082	53.3530	53.35
10	Acetone	43	2.480	2.476	(0.507)	74295	56.1349	56.13
37	Benzene	78	5.216	5.216	(0.927)	391973	25.5625	25.56
74	Bromobenzene	156	9.381	9.381	(0.917)	97267	24.6999	24.69
29	Bromochloromethane	128	4.553	4.552	(0.930)	45259	24.5612	24.56
39	Bromodichloromethane	83	6.349	6.348	(1.129)	107054	24.7242	24.72
66	Bromoform	173	8.984	8.983	(1.089)	47071	21.7383	21.73
6	Bromomethane	94	1.663	1.666	(0.340)	49208	24.7376	24.73
19	Carbon Disulfide	76	2.585	2.588	(0.528)	503010	43.8079	43.80
34	Carbon Tetrachloride	117	4.995	4.995	(0.888)	96698	23.8270	23.82
59	Chlorobenzene	112	8.275	8.275	(1.003)	255742	25.1317	25.13
7	Chloroethane	64	1.749	1.748	(0.357)	64023	22.2494	22.24 (M)
28	Chloroform	83	4.654	4.654	(0.951)	161546	23.5020	23.50
3	Chloromethane	50	1.337	1.336	(0.273)	73406	22.7829	22.78
27	cis-1,2-Dichloroethene	96	4.287	4.283	(0.876)	103515	23.7619	23.76
46	cis-1,3-Dichloropropene	75	6.757	6.757	(1.201)	141799	22.2701	22.27
55	Dibromochloromethane	129	7.758	7.758	(0.940)	77586	22.8337	22.83
44	Dibromomethane	93	6.191	6.187	(1.101)	59570	25.3492	25.34
2	Dichlorodifluoromethane	85	1.202	1.201	(0.246)	61834	15.5009	15.50
61	Ethylbenzene	106	8.369	8.369	(1.015)	134489	25.7680	25.76
91	Hexachlorobutadiene	225	12.065	12.065	(1.179)	35933	19.8760	19.87
67	Isopropylbenzene	105	9.126	9.126	(1.106)	402846	26.7483	26.74
62	m,p-Xylenes	106	8.474	8.474	(1.027)	335947	52.3577	52.35
17	Methylene Chloride	84	2.870	2.869	(0.586)	98201	23.3483	23.34
87	n-Butylbenzene	91	10.558	10.558	(1.031)	331532	25.4718	25.47
73	n-Propylbenzene	91	9.475	9.474	(0.926)	504768	26.5050	26.50
92	Naphthalene	128	12.133	12.132	(1.185)	367426	23.9167	23.91
63	o-Xylene	106	8.811	8.811	(1.068)	168940	26.0992	26.09
81	sec-Butylbenzene	105	10.086	10.086	(0.985)	419576	26.2148	26.21
64	Styrene	104	8.826	8.822	(1.070)	285317	26.5308	26.53
78	tert-Butylbenzene	119	9.902	9.902	(0.967)	289715	26.1687	26.16
56	Tetrachloroethene	164	7.522	7.521	(0.912)	67478	24.3365	24.33
50	Toluene	91	7.046	7.045	(0.854)	407430	25.8611	25.86
20	trans-1,2-Dichloroethene	96	3.140	3.139	(0.642)	89909	23.1759	23.17
51	trans-1,3-Dichloropropene	75	7.259	7.259	(1.291)	118283	21.8584	21.85
38	Trichloroethene	130	5.861	5.861	(1.042)	95016	25.6675	25.66
8	Trichlorofluoromethane	101	1.951	1.951	(0.399)	122329	22.7392	22.73
5	Vinyl Chloride	62	1.415	1.419	(0.289)	98964	21.6711	21.67

QC Flag Legend

M - Compound response manually integrated.



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Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

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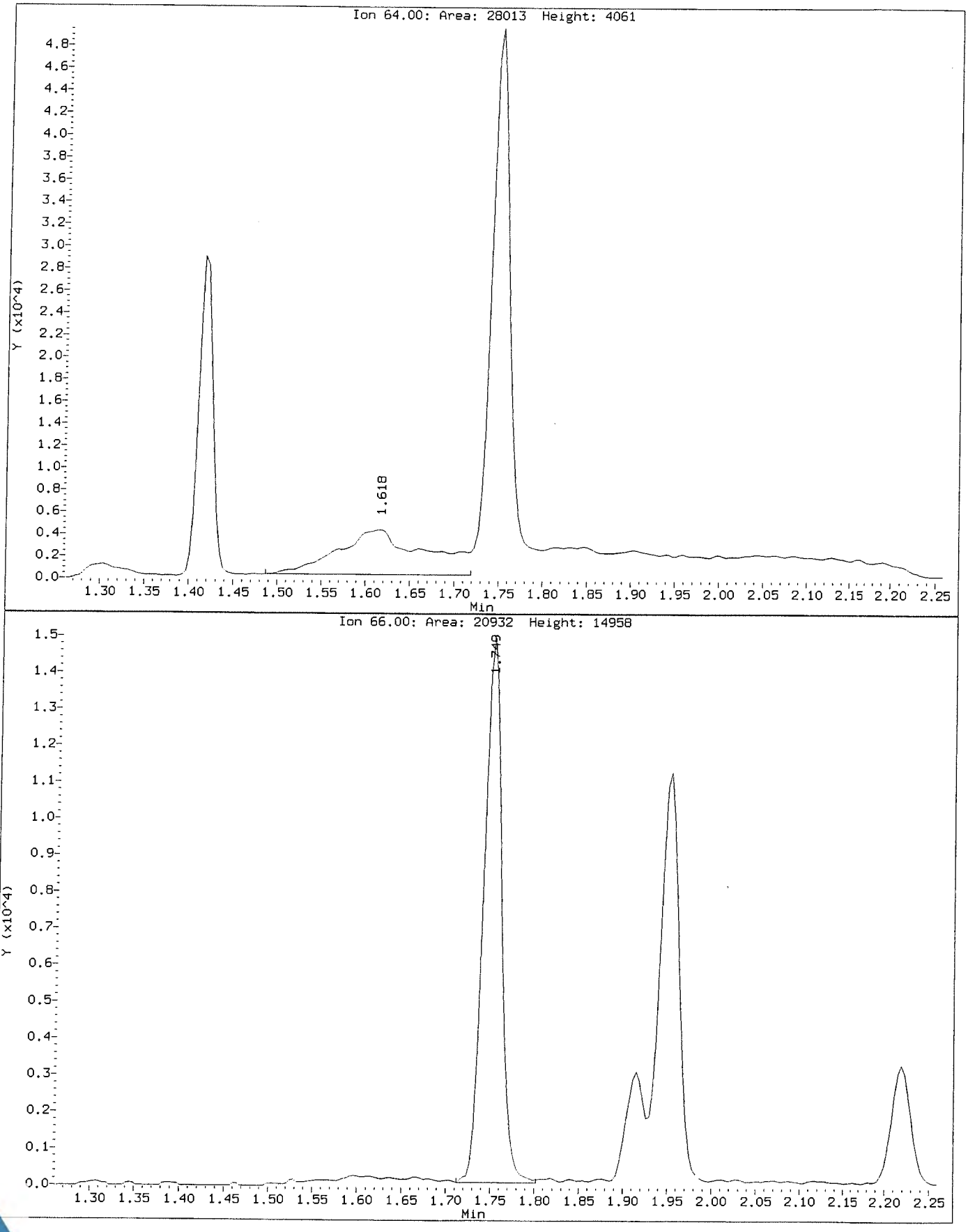
Injection Date: 24-DEC-2018 15:39
Instrument: VOA9.i
Client Sample ID: HS18120913-03MSD

Compound: Chloroethane
CAS Number: 75-00-3



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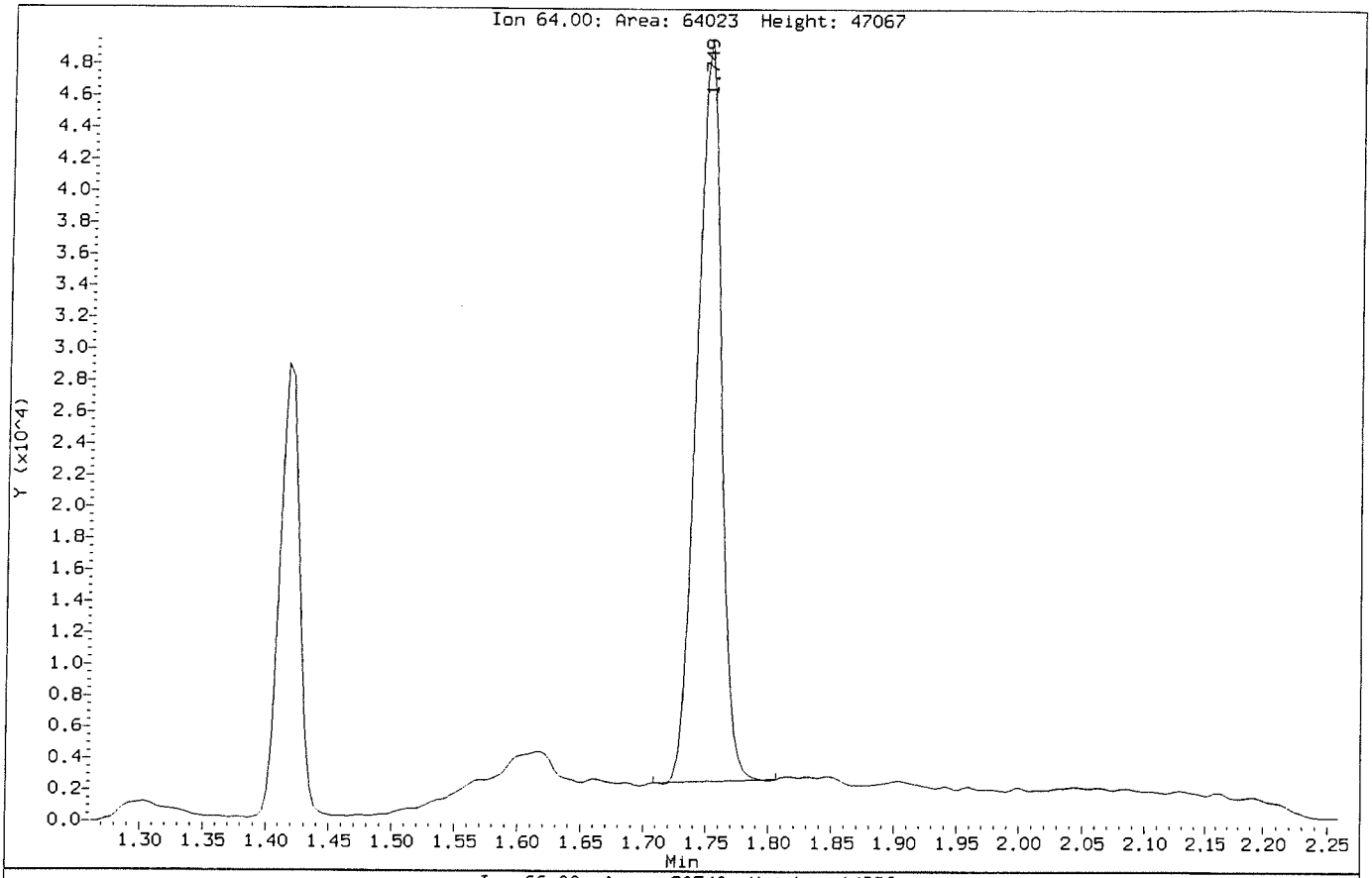
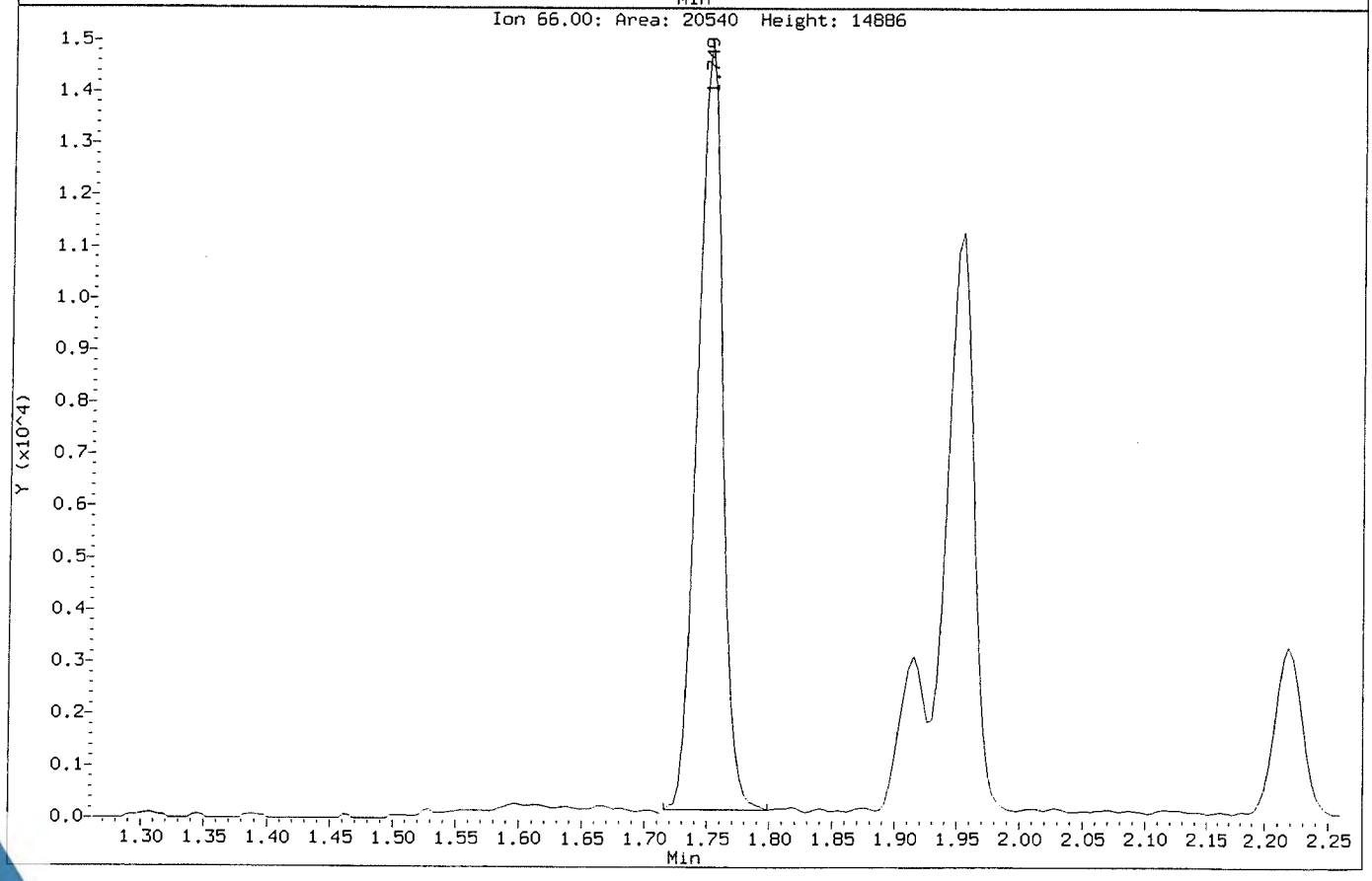
Compound: Chloroethane
CAS Number: 75-00-3





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Report Date: 28-Jan-2019 14:44

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Misc Info : 180315V9;WATER;0;1;
Comment :
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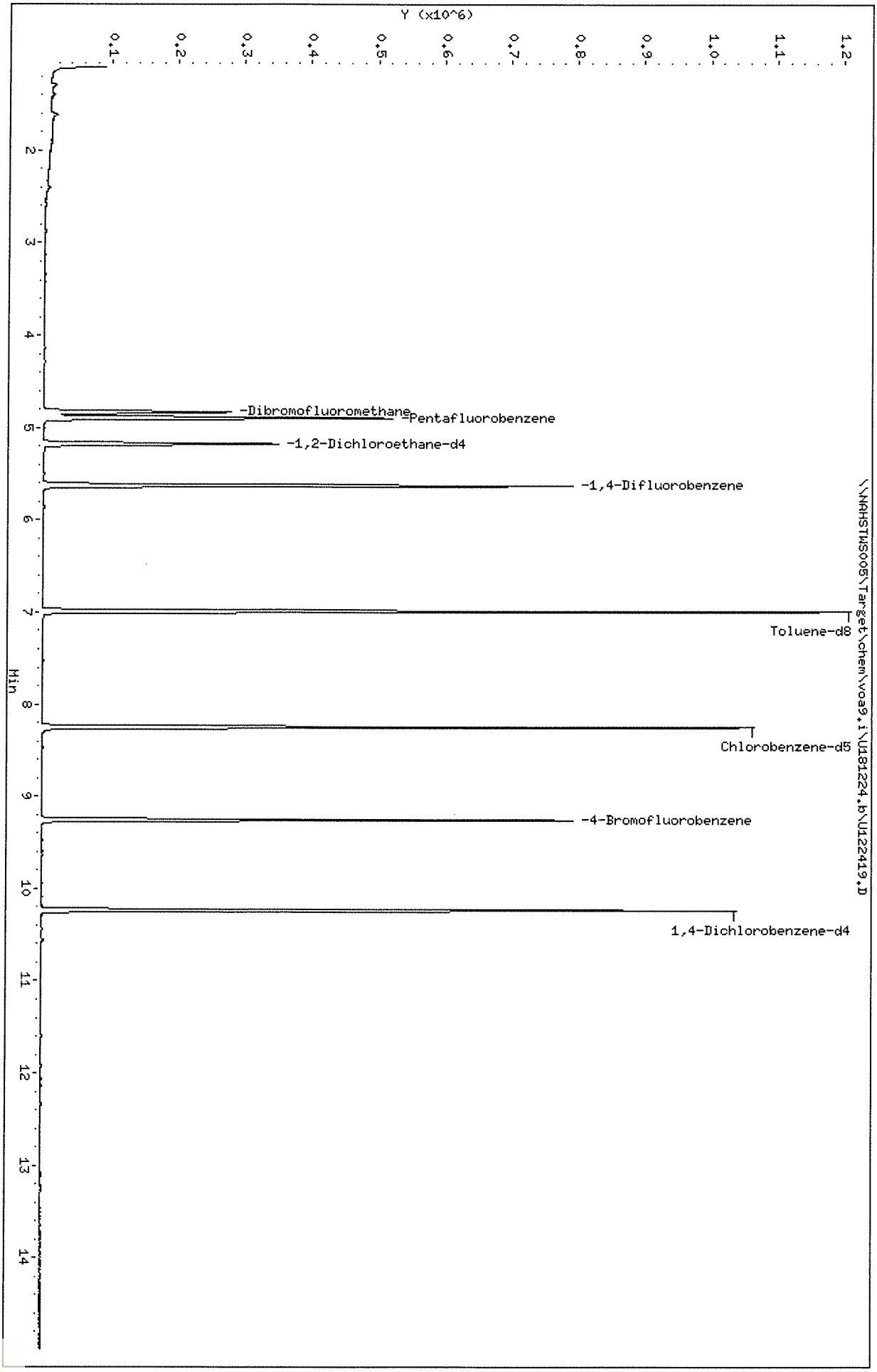
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 18
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.894	4.902	(1.000)	314514	50.0000	
* 36 1,4-Difluorobenzene	114	5.625	5.629	(1.000)	561567	50.0000	
* 47 Chlorobenzene-d5	117	8.249	8.253	(1.000)	509471	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	230571	50.0000	
$ 30 Dibromofluoromethane	113	4.830	4.834	(0.987)	160466	46.1198	46.11
$ 35 1,2-Dichloroethane-d4	65	5.175	5.179	(1.057)	221623	49.7759	49.77
$ 48 Toluene-d8	98	6.990	6.990	(0.847)	689478	52.4950	52.49
$ 69 4-Bromofluorobenzene	95	9.258	9.258	(1.122)	242324	48.3398	48.33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Sample Info: HS18121030-05;HS18121030-05;;;
Purge Volume: 5.0
Column phase: DB624
Instrument: VOA9,i
Operator: PC
Column diameter: 0.18
Page 2
Y (x10^6)
Min
-Dibromofluoromethane
Pentafluorobenzene
-1,2-Dichloroethane-d4
-1,4-Difluorobenzene
Toluene-d8
Chlorobenzene-d5
-4-Bromofluorobenzene
1,4-Dichlorobenzene-d4
\\NAHSTWS005\Target\chem\voa9,i\U181224,b\U122419,D

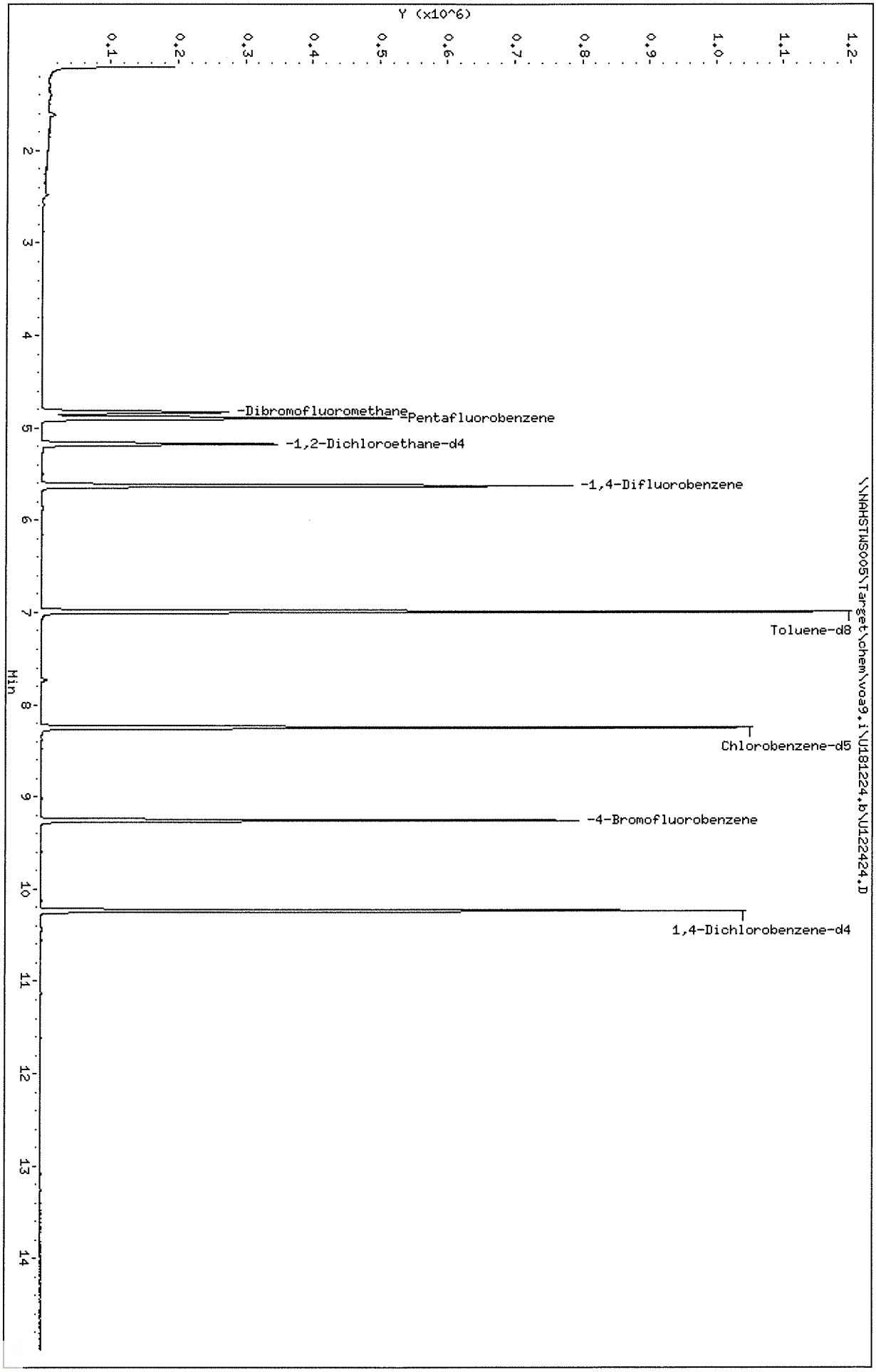
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122424.D
Lab Smp Id: HS18121030-01 Client Smp ID: HS18121030-01
Inj Date : 24-DEC-2018 18:57
Operator : PC Inst ID: VOA9.i
Smp Info : HS18121030-01;HS18121030-01;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 23
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.894	4.902	(1.000)	313941	50.0000	
* 36 1,4-Difluorobenzene	114	5.625	5.629	(1.000)	556323	50.0000	
* 47 Chlorobenzene-d5	117	8.249	8.253	(1.000)	509775	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	228828	50.0000	
$ 30 Dibromofluoromethane	113	4.830	4.834	(0.987)	159900	46.0384	46.03
$ 35 1,2-Dichloroethane-d4	65	5.175	5.179	(1.057)	220632	49.6380	49.63
$ 48 Toluene-d8	98	6.990	6.990	(0.847)	685418	52.1432	52.14
$ 69 4-Bromofluorobenzene	95	9.258	9.258	(1.122)	241576	48.1566	48.15



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Date : 24-DEC-2018 18:57
Client ID: HS18121030-01
Sample Info: HS18121030-01;HS18121030-01;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122425.D
Lab Smp Id: HS18121030-02 Client Smp ID: HS18121030-02
Inj Date : 24-DEC-2018 19:22
Operator : PC Inst ID: VOA9.i
Smp Info : HS18121030-02;HS18121030-02;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 24
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

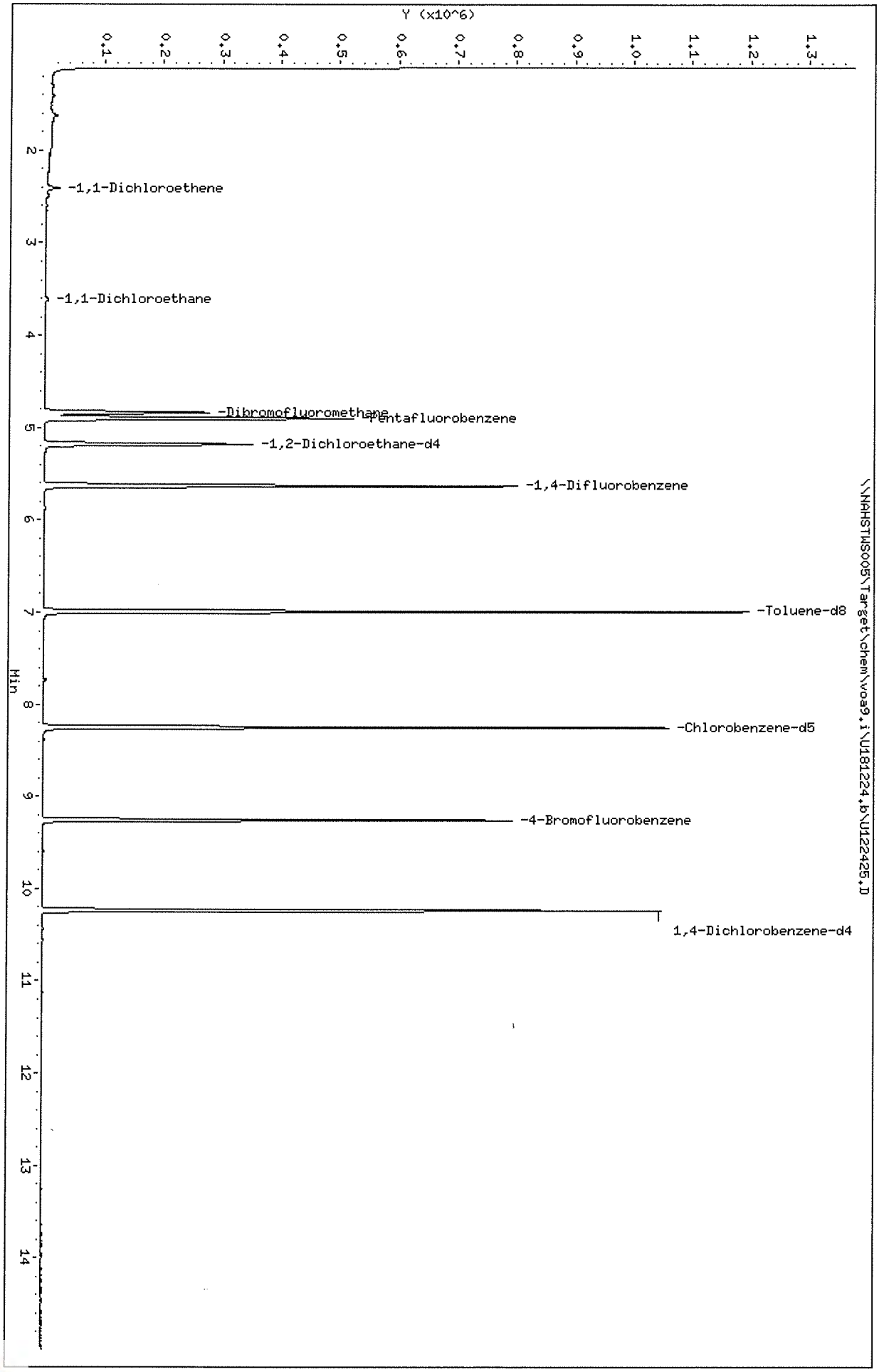
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.898	4.902	(1.000)	317197	50.0000	
* 36 1,4-Difluorobenzene	114	5.629	5.629	(1.000)	562658	50.0000	
* 47 Chlorobenzene-d5	117	8.253	8.253	(1.000)	506429	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	230887	50.0000	
$ 30 Dibromofluoromethane	113	4.834	4.834	(0.987)	161512	46.0247	46.02
$ 35 1,2-Dichloroethane-d4	65	5.179	5.179	(1.057)	223173	49.6968	49.69
$ 48 Toluene-d8	98	6.989	6.990	(0.847)	690520	52.9036	52.90
$ 69 4-Bromofluorobenzene	95	9.257	9.258	(1.122)	242036	48.5793	48.57
22 1,1-Dichloroethane	63	3.612	3.612	(0.737)	4797	0.70223	0.70(a)
11 1,1-Dichloroethene	96	2.408	2.409	(0.492)	6136	2.03452	2.03(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122425.D
Date : 24-DEC-2018 19:22
Client ID: HS18121030-02
Sample Info: HS18121030-02;HS18121030-02;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122425.D Page 3

Date : 24-DEC-2018 19:22

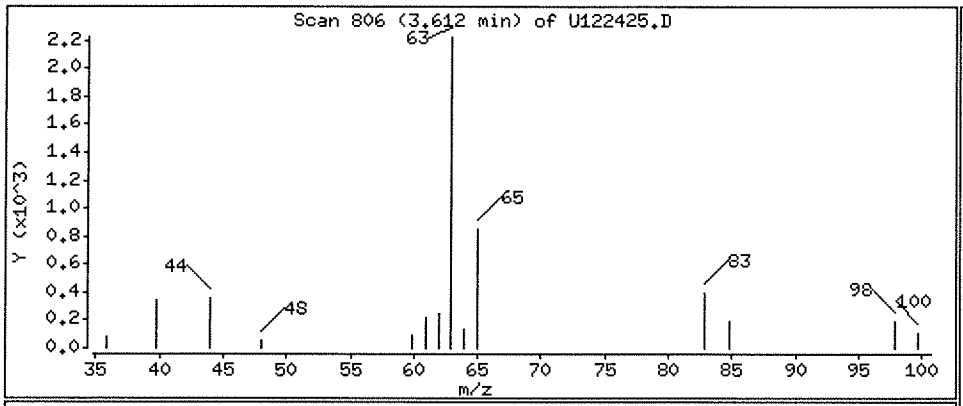
Client ID: HS18121030-02 Instrument: VOA9.i

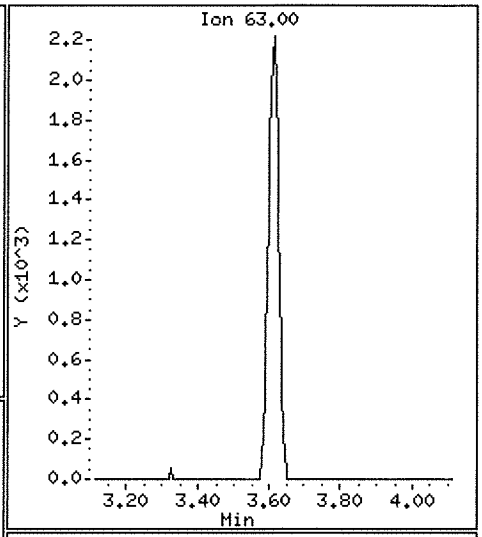
Sample Info: HS18121030-02;HS18121030-02;;;

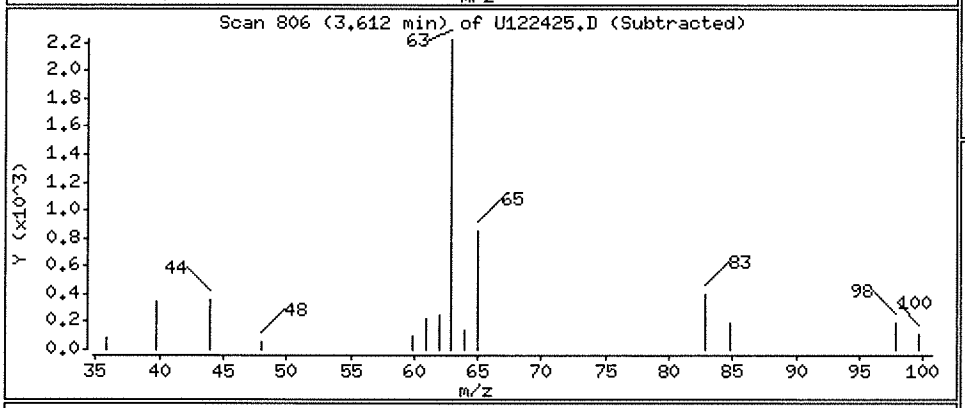
Purge Volume: 5.0 Operator: PC

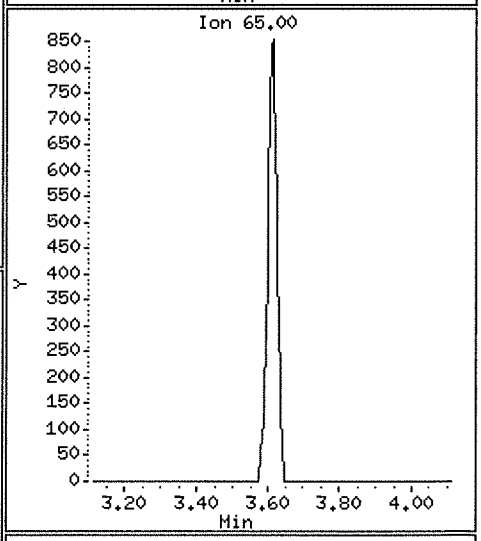
Column phase: DB624 Column diameter: 0.18

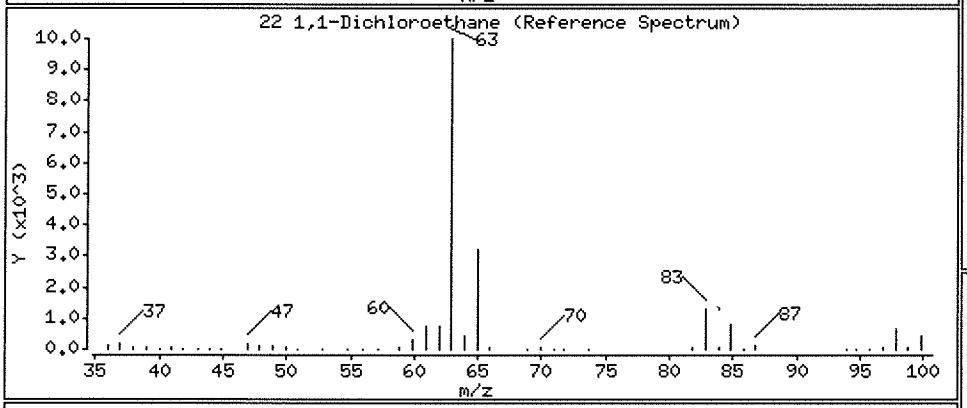
22 1,1-Dichloroethane Concentration: 0.70 ug/l

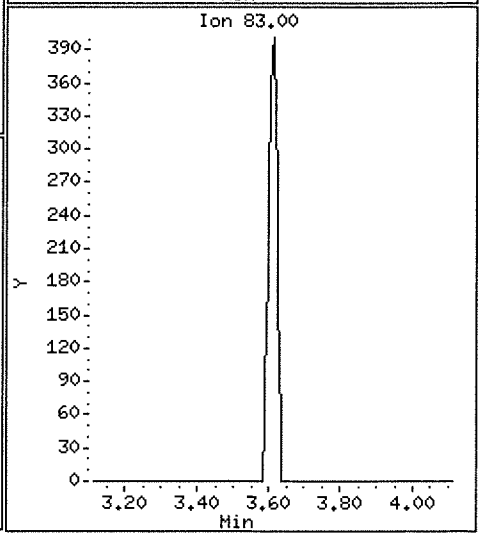


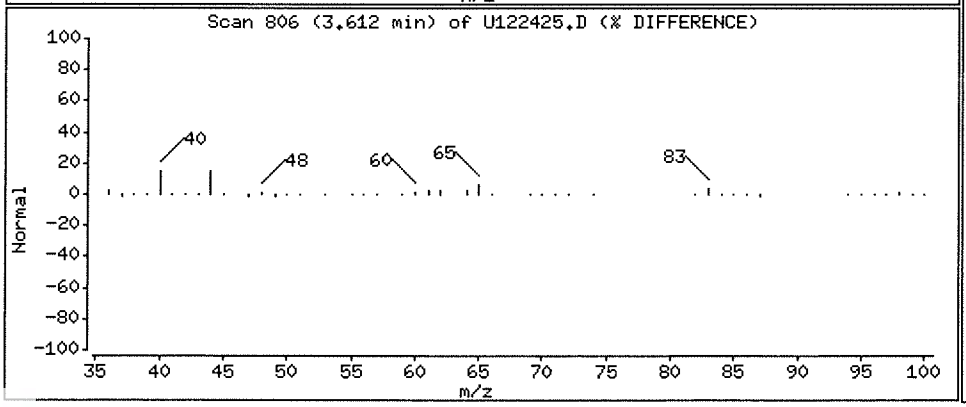












Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122425.D

Date : 24-DEC-2018 19:22

Client ID: HS18121030-02

Instrument: VOA9.i

Sample Info: HS18121030-02;HS18121030-02;;;

Purge Volume: 5.0

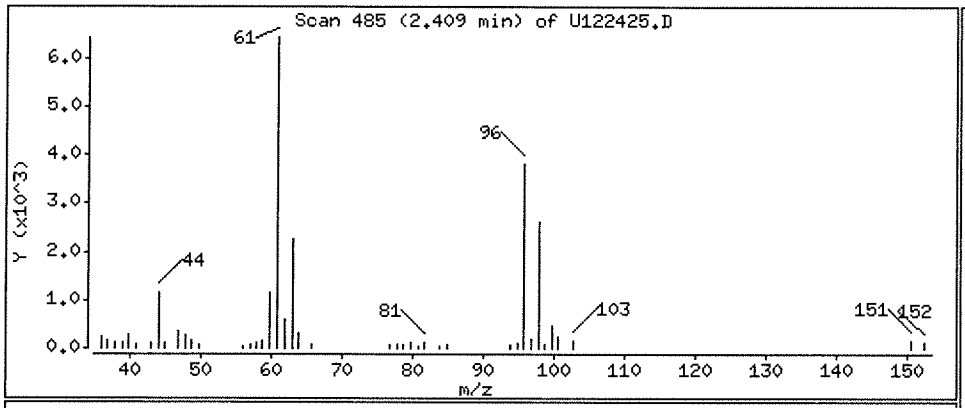
Operator: PC

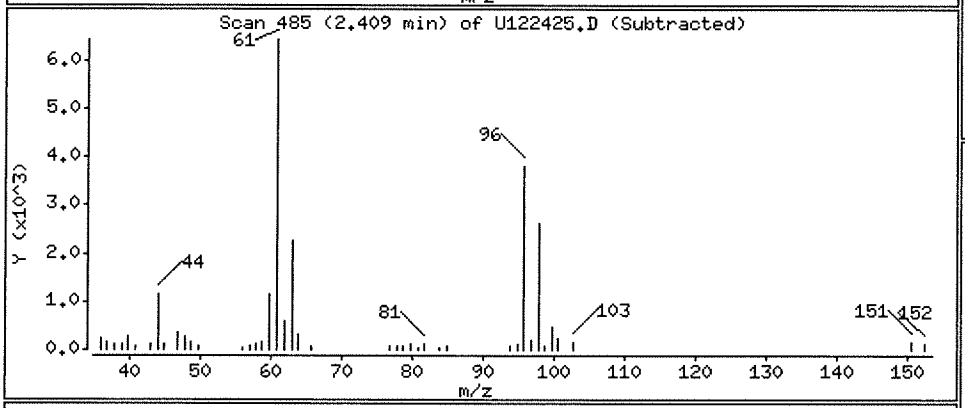
Column phase: DB624

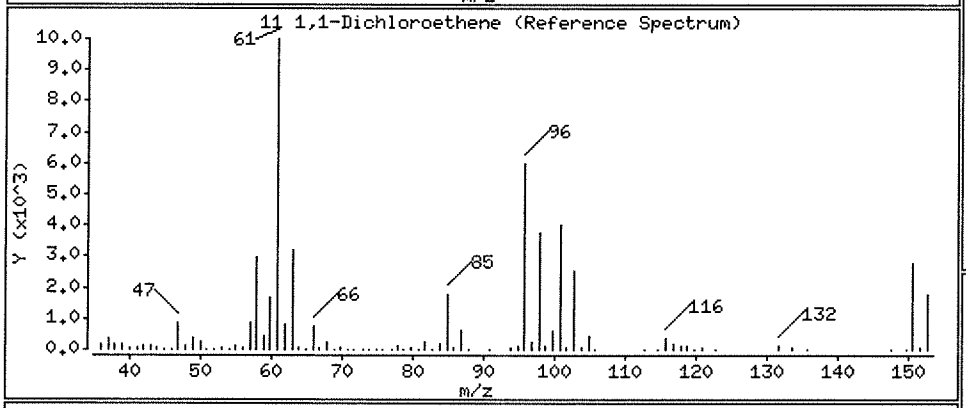
Column diameter: 0.18

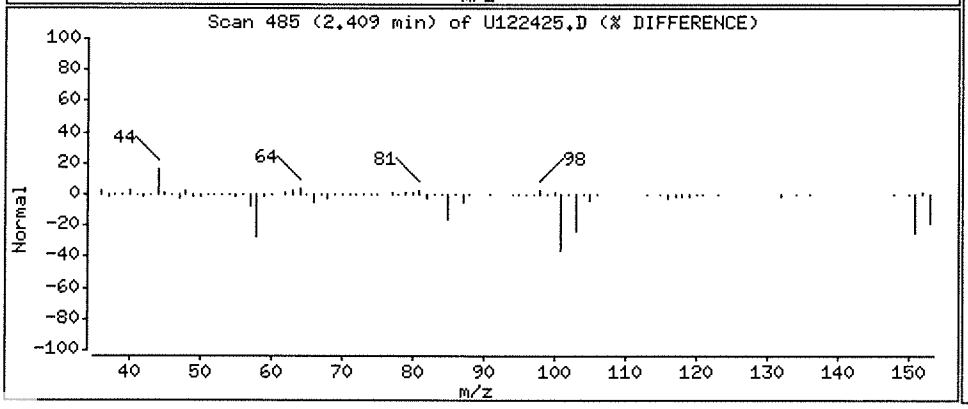
11 1,1-Dichloroethene

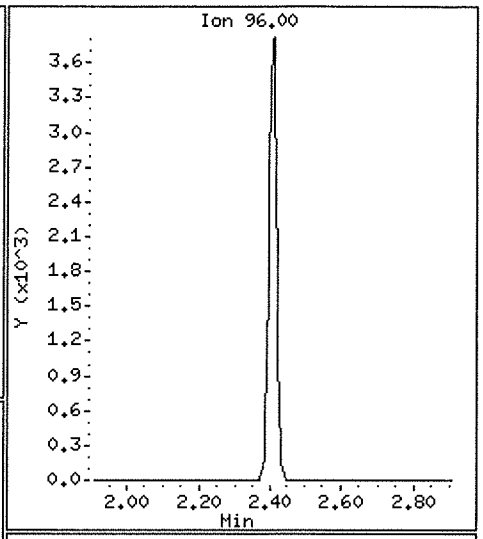
Concentration: 2.03 ug/l

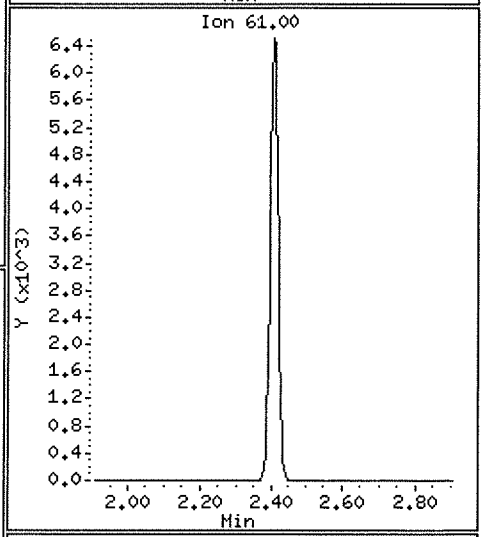


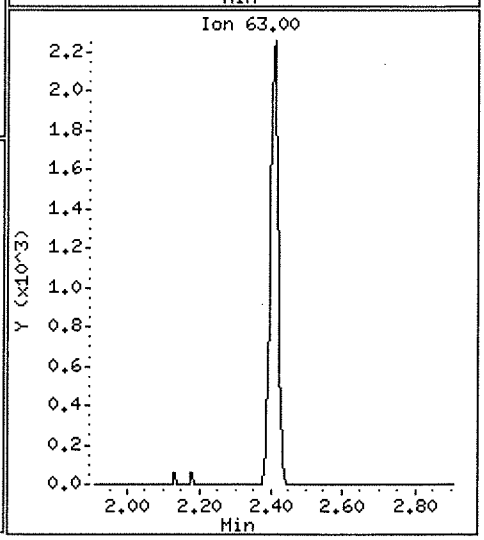












ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122426.D
Lab Smp Id: HS18121030-03 Client Smp ID: HS18121030-03
Inj Date : 24-DEC-2018 19:47
Operator : PC Inst ID: VOA9.i
Smp Info : HS18121030-03;HS18121030-03;;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 25
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

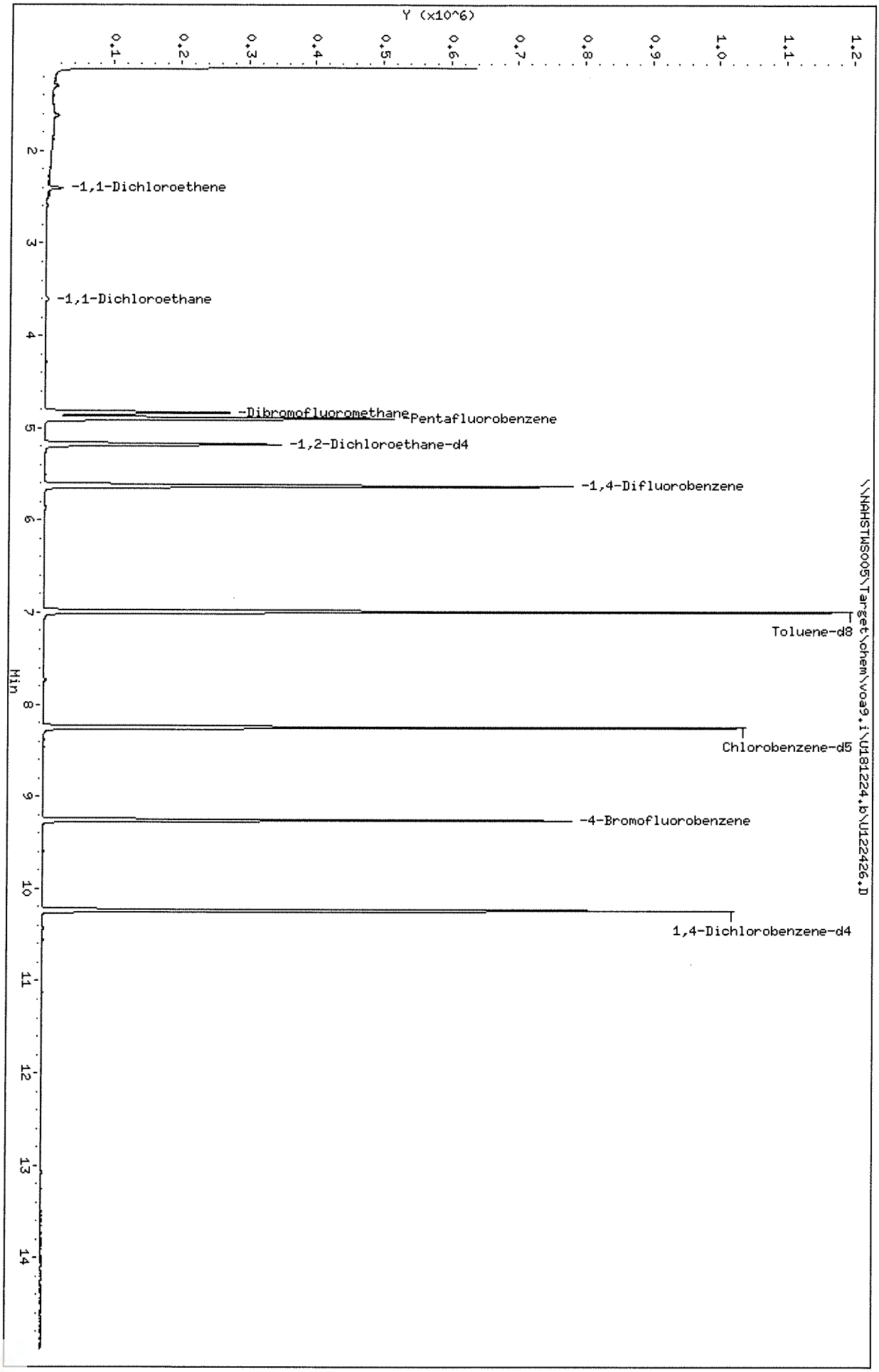
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.898	4.902	(1.000)	312420	50.0000	
* 36 1,4-Difluorobenzene	114	5.629	5.629	(1.000)	560183	50.0000	
* 47 Chlorobenzene-d5	117	8.249	8.253	(1.000)	503685	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	225729	50.0000	
$ 30 Dibromofluoromethane	113	4.834	4.834	(0.987)	158833	45.9510	45.95
$ 35 1,2-Dichloroethane-d4	65	5.179	5.179	(1.057)	223511	50.5696	50.56
$ 48 Toluene-d8	98	6.989	6.990	(0.847)	685861	52.8305	52.83
$ 69 4-Bromofluorobenzene	95	9.257	9.258	(1.122)	239184	48.2592	48.25
22 1,1-Dichloroethane	63	3.608	3.612	(0.737)	4894	0.72739	0.72(a)
11 1,1-Dichloroethene	96	2.405	2.409	(0.491)	6702	2.25617	2.25(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).



Data File: \\NAHSTWS005\Target\chem\voa9,i\U181224,b\U122426,D
Date : 24-DEC-2018 19:47
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Sample Info: HS18121030-03;HS18121030-03;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9,i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122426.D

Date : 24-DEC-2018 19:47

Client ID: HS18121030-03

Instrument: VOA9.i

Sample Info: HS18121030-03;HS18121030-03;;;

Purge Volume: 5.0

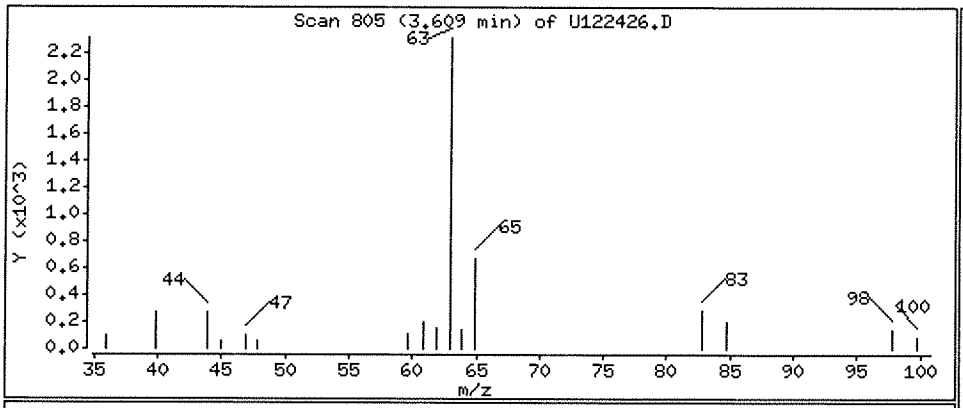
Operator: PC

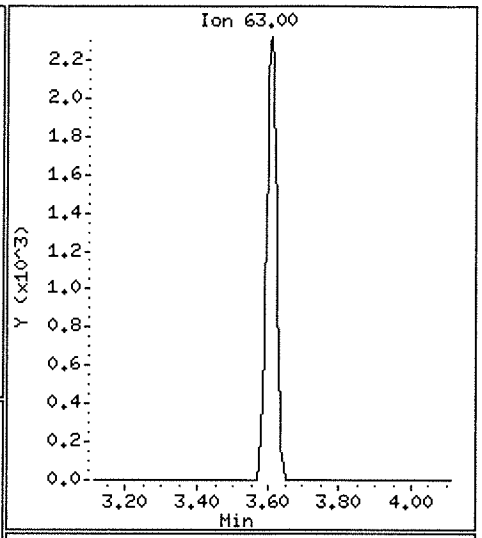
Column phase: DB624

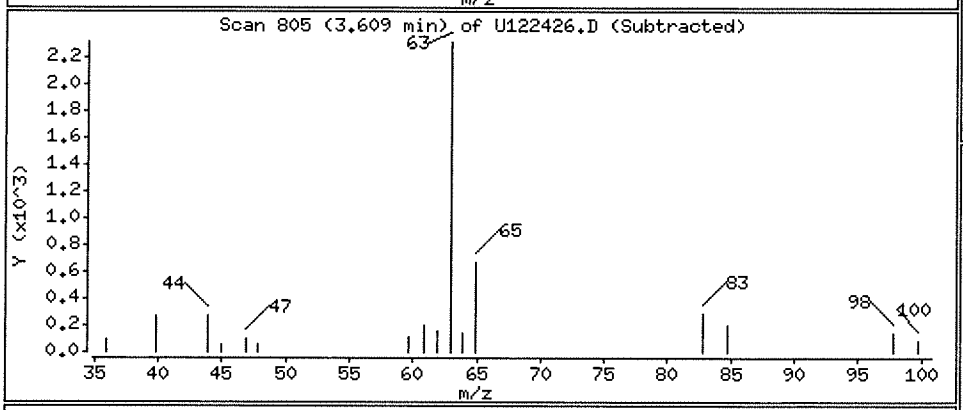
Column diameter: 0.18

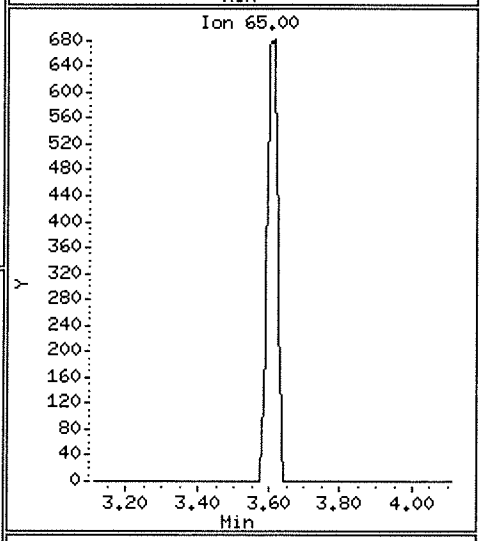
22 1,1-Dichloroethane

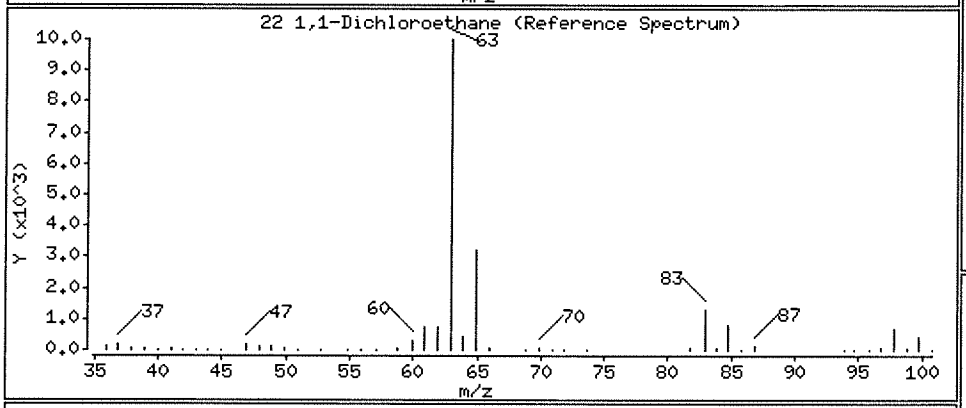
Concentration: 0.72 ug/l

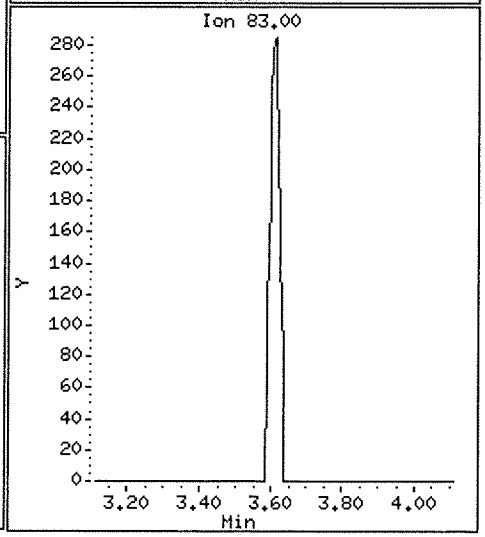


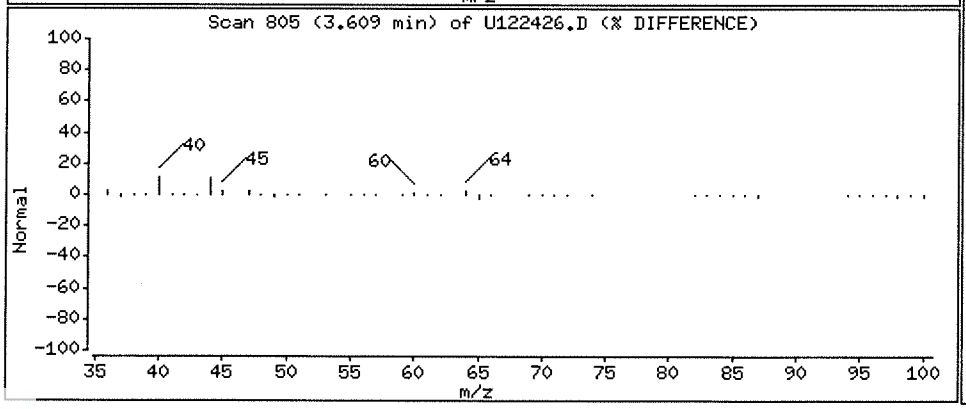












Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122426.D

Date : 24-DEC-2018 19:47

Client ID: HS18121030-03

Instrument: VOA9.i

Sample Info: HS18121030-03;HS18121030-03;;;

Purge Volume: 5.0

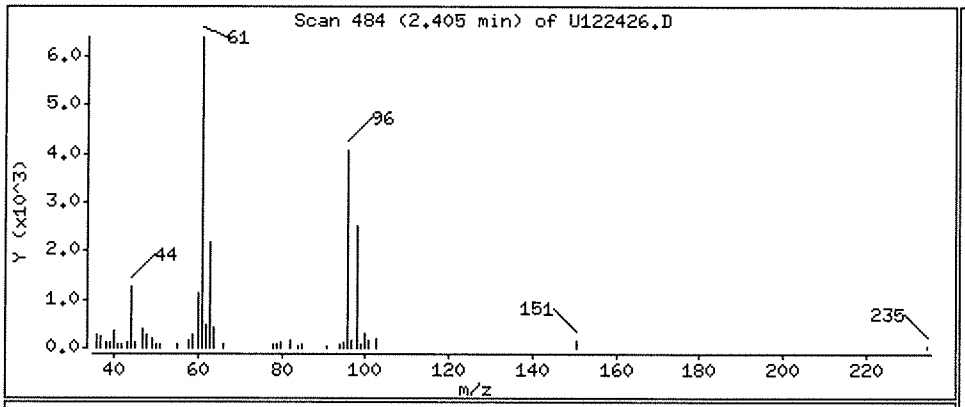
Operator: PC

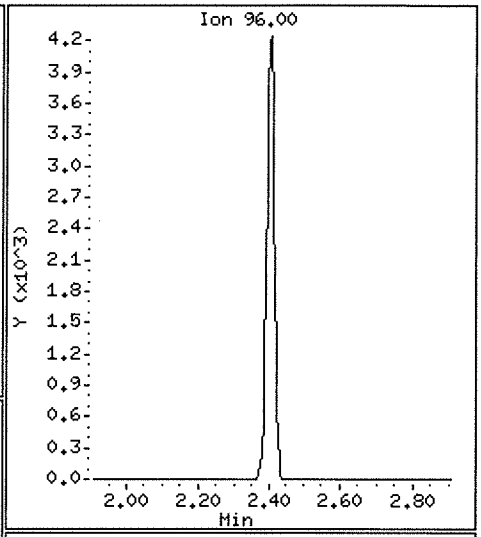
Column phase: DB624

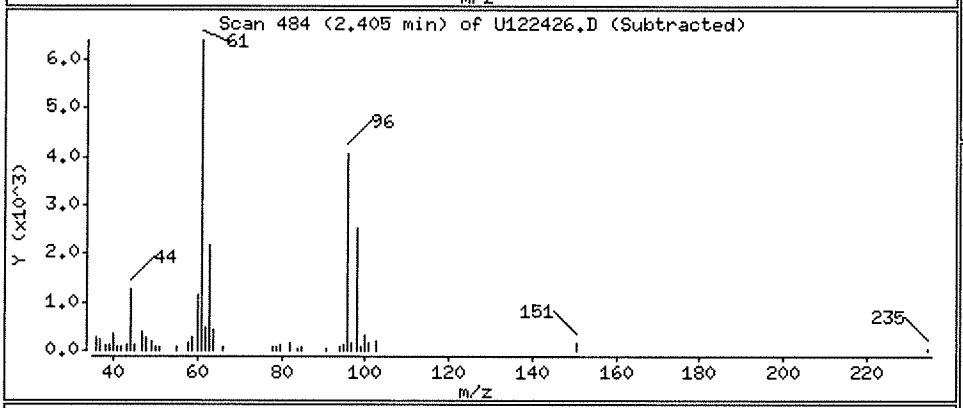
Column diameter: 0.18

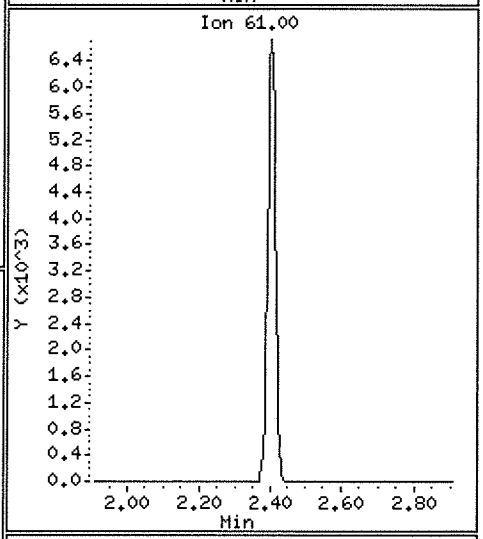
11 1,1-Dichloroethene

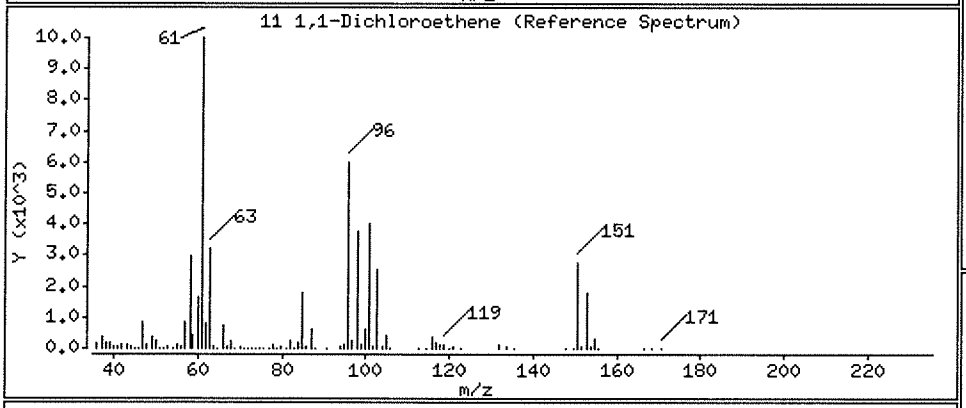
Concentration: 2.25 ug/l

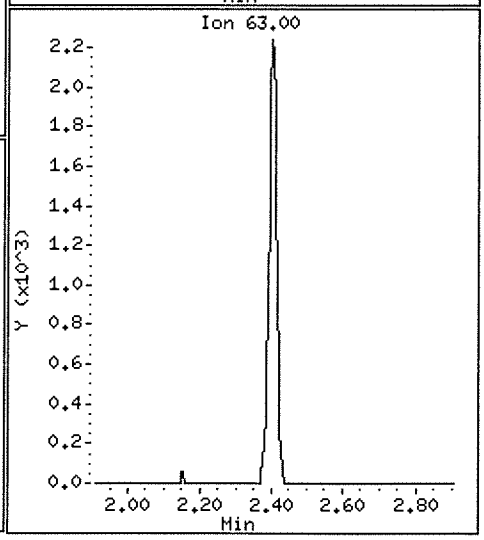


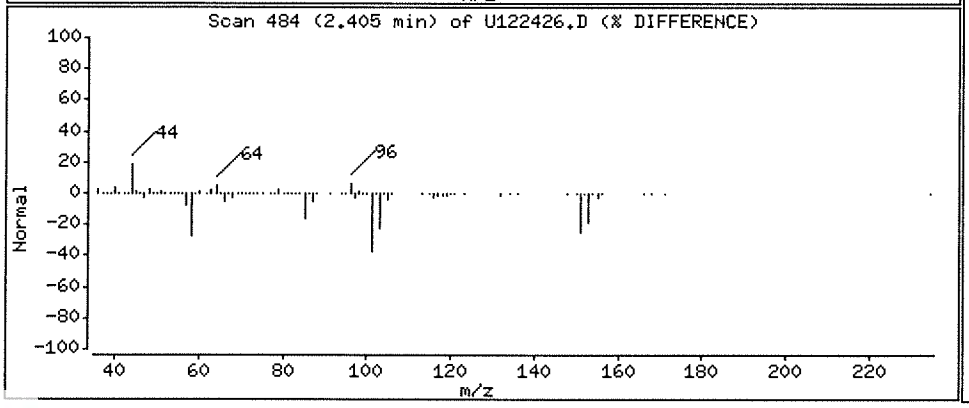












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Report Date: 28-Jan-2019 14:45

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122427.D
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Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 26
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

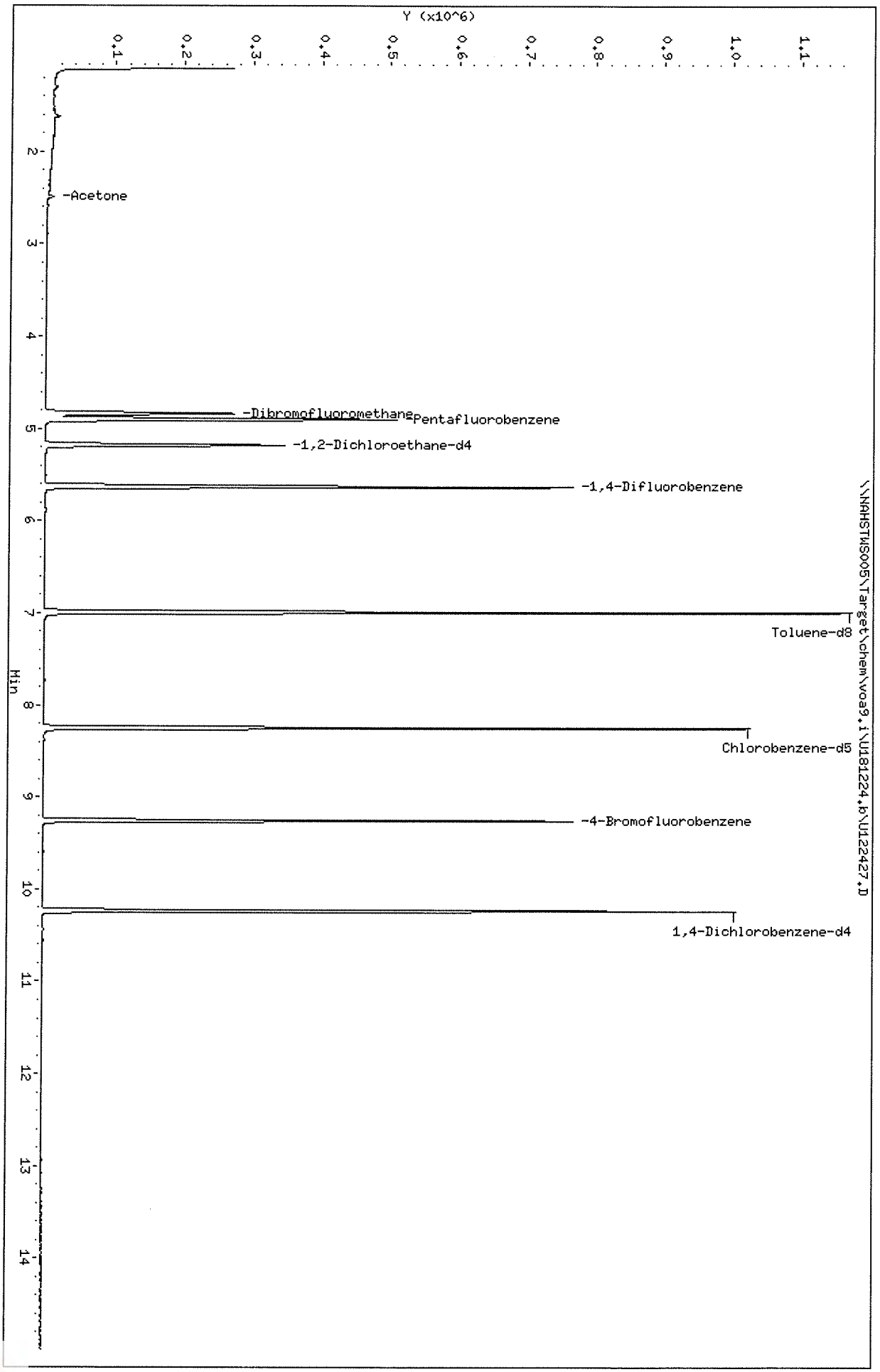
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.898	4.902	(1.000)	308355	50.0000	
* 36 1,4-Difluorobenzene	114	5.629	5.629	(1.000)	547034	50.0000	
* 47 Chlorobenzene-d5	117	8.249	8.253	(1.000)	491539	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	223388	50.0000	
$ 30 Dibromofluoromethane	113	4.834	4.834	(0.987)	158088	46.3512	46.35
$ 35 1,2-Dichloroethane-d4	65	5.179	5.179	(1.057)	219114	50.2137	50.21
$ 48 Toluene-d8	98	6.989	6.990	(0.847)	677433	53.4923	53.49
$ 69 4-Bromofluorobenzene	95	9.257	9.258	(1.122)	236873	48.9951	48.99
10 Acetone	43	2.487	2.491	(0.508)	8759	4.47222	4.47(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).



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Sample Info: HS18121030-04;HS18121030-04;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122427.D

Date : 24-DEC-2018 20:12

Client ID: HS18121030-04

Instrument: VOA9.i

Sample Info: HS18121030-04;HS18121030-04;;;

Purge Volume: 5.0

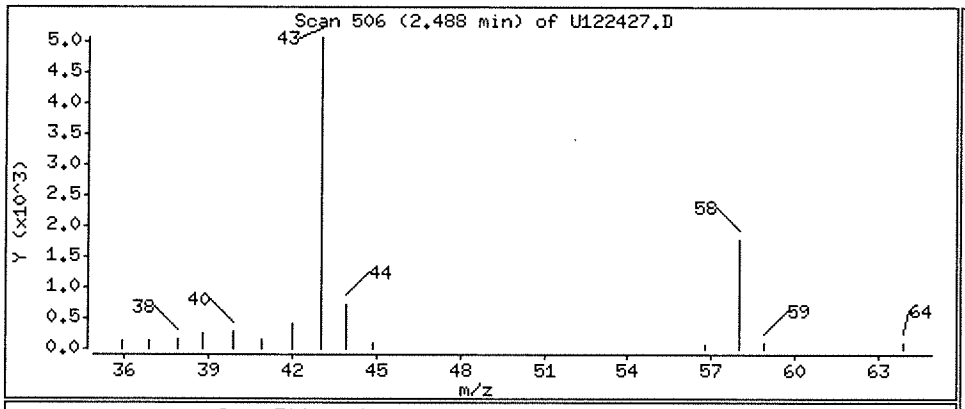
Operator: PC

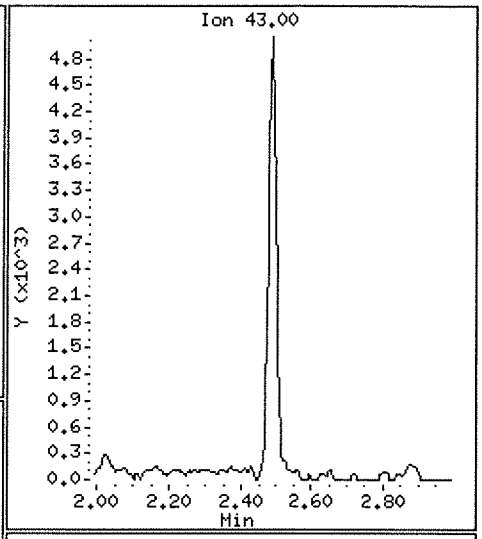
Column phase: DB624

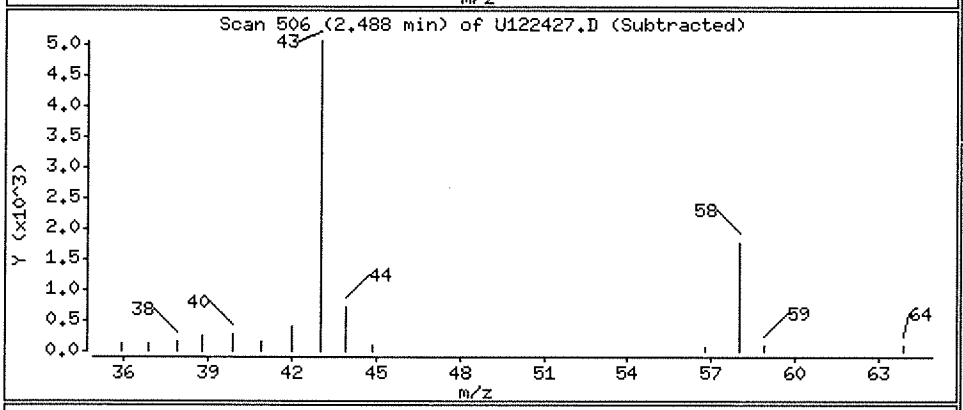
Column diameter: 0.18

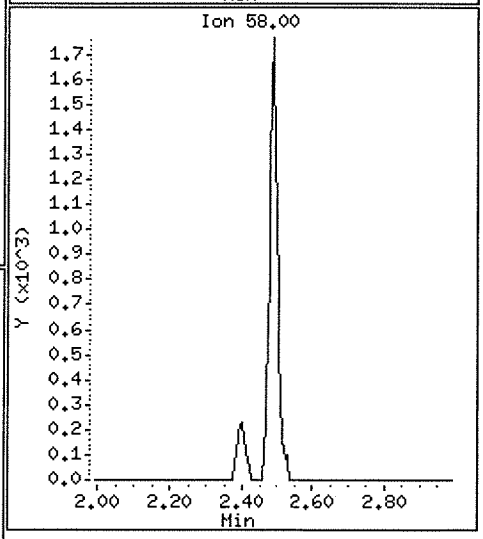
10 Acetone

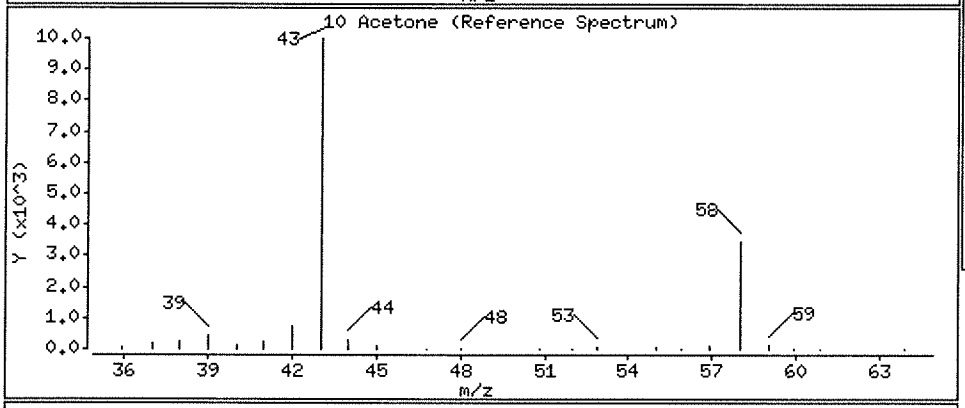
Concentration: 4.47 ug/l

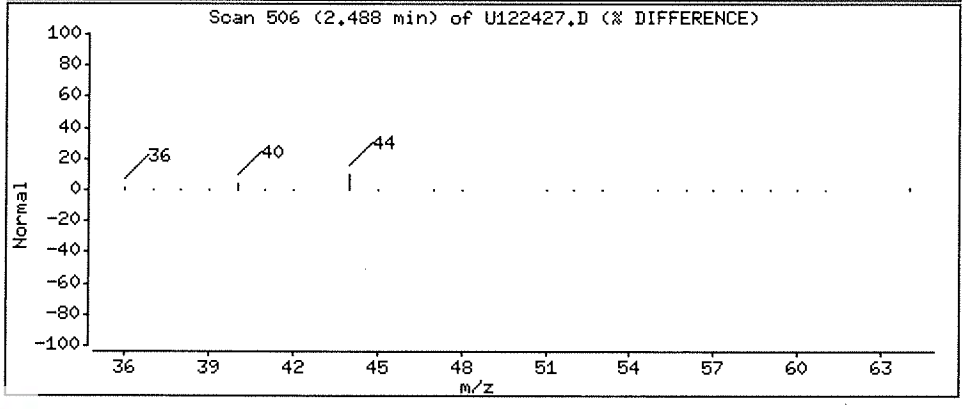












ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\U122428.D
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Inj Date : 24-DEC-2018 20:37
Operator : PC Inst ID: VOA9.i
Smp Info : VSTD050-END;VSTD050-END;2;;
Misc Info : 180315V9;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa9.i\U181224.b\8260C.m
Meth Date : 28-Jan-2019 14:34 VOA9.i Quant Type: ISTD
Cal Date : 21-DEC-2018 16:41 Cal File: U122108.D
Als bottle: 27 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LHAAP.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

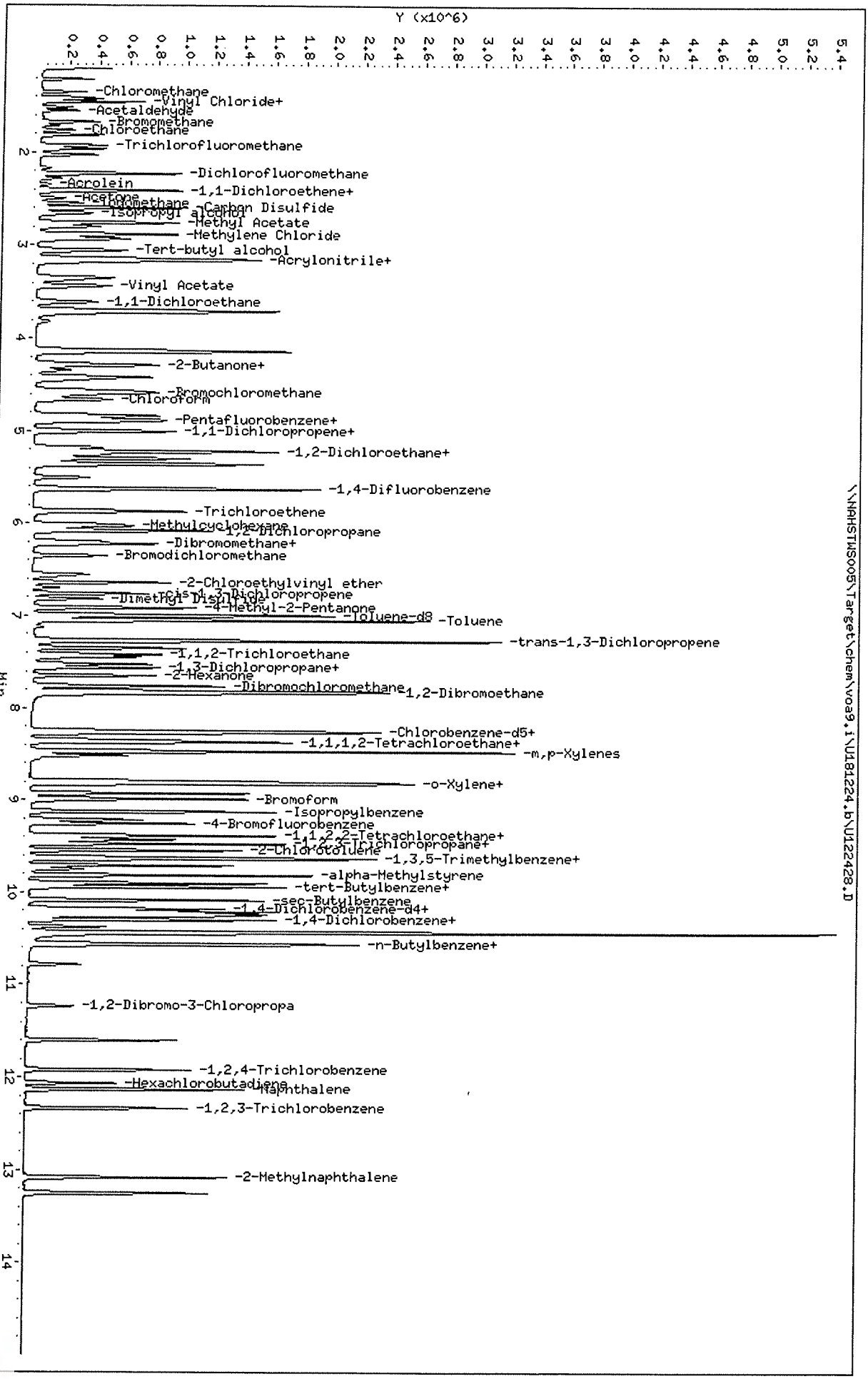
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.902	4.902	(1.000)	372728	50.0000	
* 36 1,4-Difluorobenzene	114	5.629	5.629	(1.000)	712334	50.0000	
* 47 Chlorobenzene-d5	117	8.253	8.253	(1.000)	666433	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	10.236	10.236	(1.000)	318419	50.0000	
$ 30 Dibromofluoromethane	113	4.834	4.834	(0.986)	218616	50.0000	53.24
$ 35 1,2-Dichloroethane-d4	65	5.179	5.179	(1.057)	288948	50.0000	54.97
$ 48 Toluene-d8	98	6.990	6.990	(0.847)	875536	50.0000	50.90
$ 69 4-Bromofluorobenzene	95	9.258	9.258	(1.122)	336472	50.0000	51.40
60 1,1,1,2-Tetrachloroethane	131	8.350	8.350	(1.012)	202858	50.0000	47.99
31 1,1,1-Trichloroethane	97	4.834	4.834	(0.986)	295777	50.0000	50.25
68 1,1,2,2-Tetrachloroethane	83	9.392	9.392	(0.918)	379460	50.0000	52.91
138 Freon TF	101	2.412	2.412	(0.492)	148708	50.0000	46.92
53 1,1,2-Trichloroethane	83	7.421	7.421	(0.899)	206414	50.0000	51.98
22 1,1-Dichloroethane	63	3.612	3.612	(0.737)	409374	50.0000	50.99
11 1,1-Dichloroethene	96	2.409	2.409	(0.491)	171295	50.0000	48.33
32 1,1-Dichloropropene	75	5.010	5.010	(0.890)	303180	50.0000	47.83
93 1,2,3-Trichlorobenzene	180	12.335	12.335	(1.205)	286736	50.0000	47.81
71 1,2,3-Trichloropropane	75	9.430	9.430	(0.921)	413440	50.0000	55.44
90 1,2,4-Trichlorobenzene	180	11.923	11.923	(1.165)	290679	50.0000	49.30
79 1,2,4-Trimethylbenzene	105	9.944	9.944	(0.971)	850301	50.0000	51.02
89 1,2-Dibromo-3-Chloropropane	155	11.233	11.233	(1.097)	55844	50.0000	50.49
57 1,2-Dibromoethane	107	7.852	7.852	(0.951)	239717	50.0000	52.41

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88 1,2-Dichlorobenzene	146	10.570	10.570	(1.033)	468743	50.0000	49.57
33 1,2-Dichloroethane	62	5.258	5.258	(0.934)	339214	50.0000	52.89
42 1,2-Dichloropropane	63	6.086	6.086	(1.081)	256086	50.0000	50.87
75 1,3,5-Trimethylbenzene	105	9.625	9.625	(0.940)	818604	50.0000	51.15
83 1,3-Dichlorobenzene	146	10.180	10.180	(0.995)	461460	50.0000	48.80
54 1,3-Dichloropropane	76	7.567	7.567	(0.917)	441740	50.0000	51.65
84 1,4-Dichlorobenzene	146	10.255	10.255	(1.002)	472169	50.0000	47.36
26 2,2-Dichloropropane	77	4.283	4.283	(0.874)	211110	50.0000	43.64
24 2-Butanone	43	4.347	4.347	(0.887)	289643	100.000	119.28
76 2-Chlorotoluene	91	9.546	9.546	(0.933)	729682	50.0000	49.73
52 2-Hexanone	43	7.653	7.653	(0.927)	447227	100.000	120.68
77 4-Chlorotoluene	91	9.640	9.640	(0.942)	854108	50.0000	50.37
82 p-Isopropyltoluene	119	10.210	10.210	(0.997)	843466	50.0000	50.05
45 4-Methyl-2-Pentanone	43	6.915	6.915	(0.838)	622617	100.000	116.76
10 Acetone	43	2.491	2.491	(0.508)	191412	100.000	132.50
37 Benzene	78	5.224	5.224	(0.928)	949351	50.0000	50.08
74 Bromobenzene	156	9.385	9.385	(0.917)	244860	50.0000	49.77
29 Bromochloromethane	128	4.560	4.560	(0.930)	111636	50.0000	57.58
39 Bromodichloromethane	83	6.352	6.352	(1.129)	279220	50.0000	52.16
66 Bromoform	173	8.984	8.984	(1.089)	133700	50.0000	46.85(T)
6 Bromomethane	94	1.674	1.674	(0.342)	119849	50.0000	52.01
19 Carbon Disulfide	76	2.600	2.600	(0.530)	1247818	100.000	96.63
34 Carbon Tetrachloride	117	5.003	5.003	(0.889)	228405	50.0000	44.25
59 Chlorobenzene	112	8.275	8.275	(1.003)	634246	50.0000	49.53
7 Chloroethane	64	1.760	1.760	(0.359)	163120	50.0000	49.36(M)
28 Chloroform	83	4.665	4.665	(0.952)	400691	50.0000	51.83
3 Chloromethane	50	1.352	1.352	(0.276)	186619	50.0000	47.31
27 cis-1,2-Dichloroethene	96	4.294	4.294	(0.876)	251177	50.0000	51.26
46 cis-1,3-Dichloropropene	75	6.761	6.761	(1.201)	383373	50.0000	47.20
55 Dibromochloromethane	129	7.758	7.758	(0.940)	208683	50.0000	47.69
44 Dibromomethane	93	6.195	6.195	(1.101)	152769	50.0000	52.58
2 Dichlorodifluoromethane	85	1.217	1.217	(0.248)	203871	50.0000	44.50
61 Ethylbenzene	106	8.373	8.373	(1.015)	327066	50.0000	49.80
91 Hexachlorobutadiene	225	12.065	12.065	(1.179)	97921	50.0000	43.35
67 Isopropylbenzene	105	9.126	9.126	(1.106)	956047	50.0000	50.44
62 m,p-Xylenes	106	8.474	8.474	(1.027)	808427	100.000	100.12
17 Methylene Chloride	84	2.881	2.881	(0.588)	245953	50.0000	53.47
87 n-Butylbenzene	91	10.558	10.558	(1.031)	792193	50.0000	48.71
73 n-Propylbenzene	91	9.475	9.475	(0.926)	1199674	50.0000	50.42
92 Naphthalene	128	12.133	12.133	(1.185)	992990	50.0000	51.20
63 o-Xylene	106	8.811	8.811	(1.068)	416328	50.0000	51.11
81 sec-Butylbenzene	105	10.086	10.086	(0.985)	991870	50.0000	49.60
64 Styrene	104	8.826	8.826	(1.069)	727808	50.0000	53.78
78 tert-Butylbenzene	119	9.902	9.902	(0.967)	690339	50.0000	49.91
56 Tetrachloroethene	164	7.526	7.526	(0.912)	156173	50.0000	44.76
50 Toluene	91	7.050	7.050	(0.854)	992367	50.0000	50.05
20 trans-1,2-Dichloroethene	96	3.151	3.151	(0.643)	218068	50.0000	49.98
51 trans-1,3-Dichloropropene	75	7.263	7.263	(1.290)	328161	50.0000	47.00
38 Trichloroethene	130	5.865	5.865	(1.042)	221618	50.0000	48.43
8 Trichlorofluoromethane	101	1.963	1.963	(0.400)	293963	50.0000	47.87
5 Vinyl Chloride	62	1.430	1.430	(0.292)	258632	50.0000	49.07

QC Flag Legend

T - Target compound detected outside RT window.
M - Compound response manually integrated.



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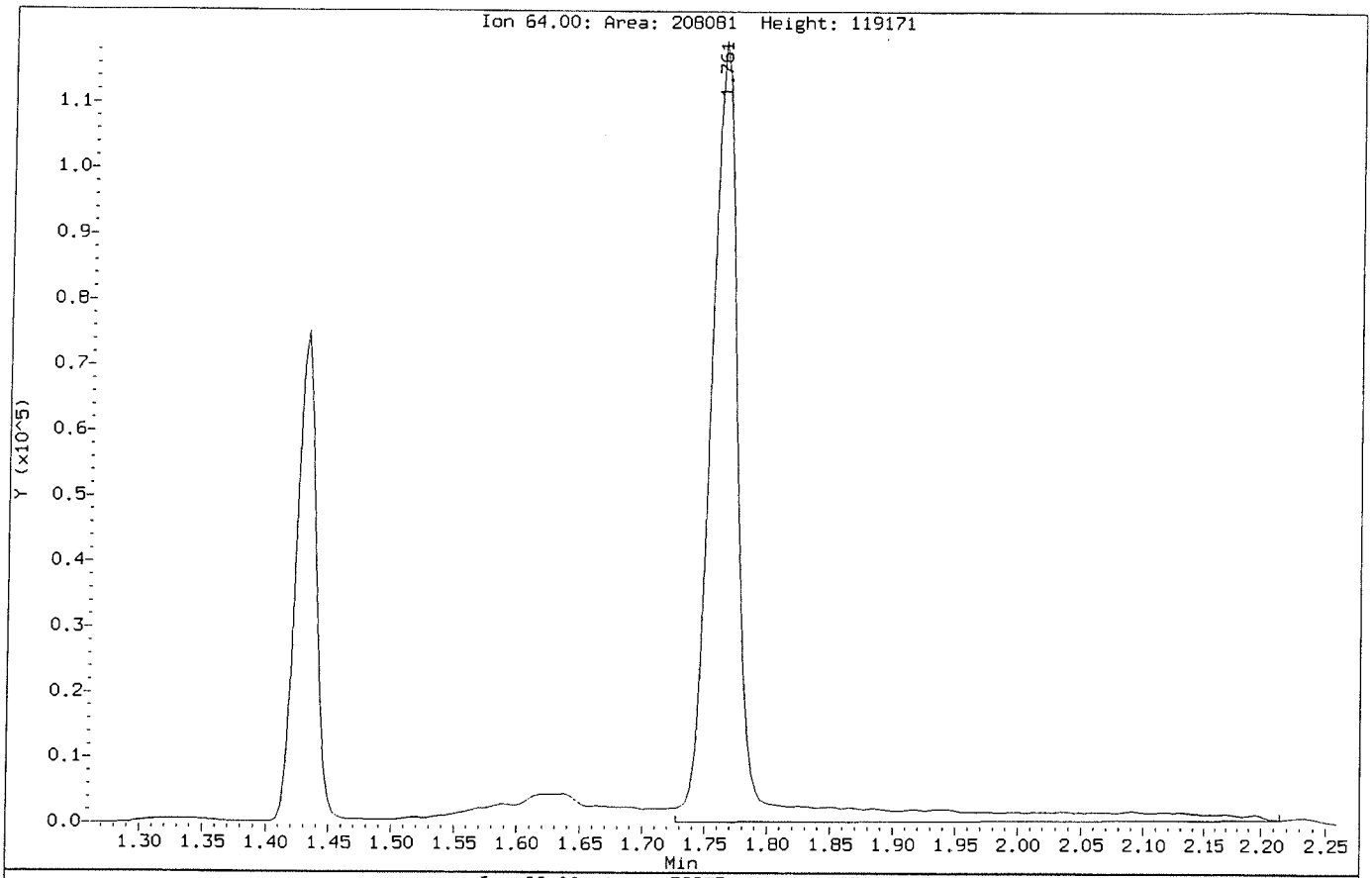
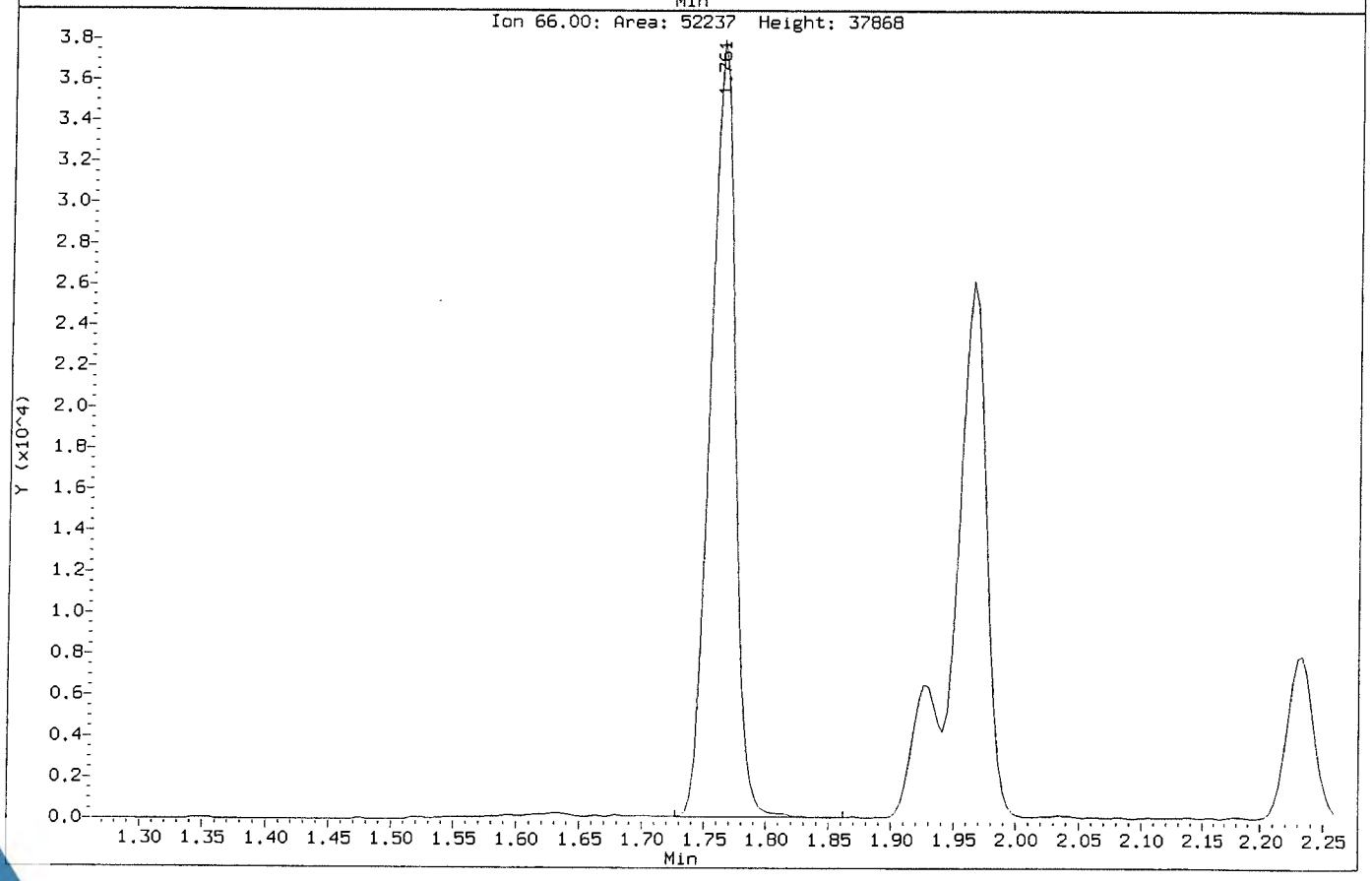
Sample Info: VSTD050-END;VSTD050-END;2;;
Purge Volume: 5.0
Column phase: DB624

Instrument: VOA9.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa9.i\U181224.b\Before\U122428.D
Injection Date: 24-DEC-2018 20:37
Instrument: VOA9.i
Client Sample ID: VSTD050-END

Compound: Chloroethane
CAS Number: 75-00-3





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Compound: Chloroethane
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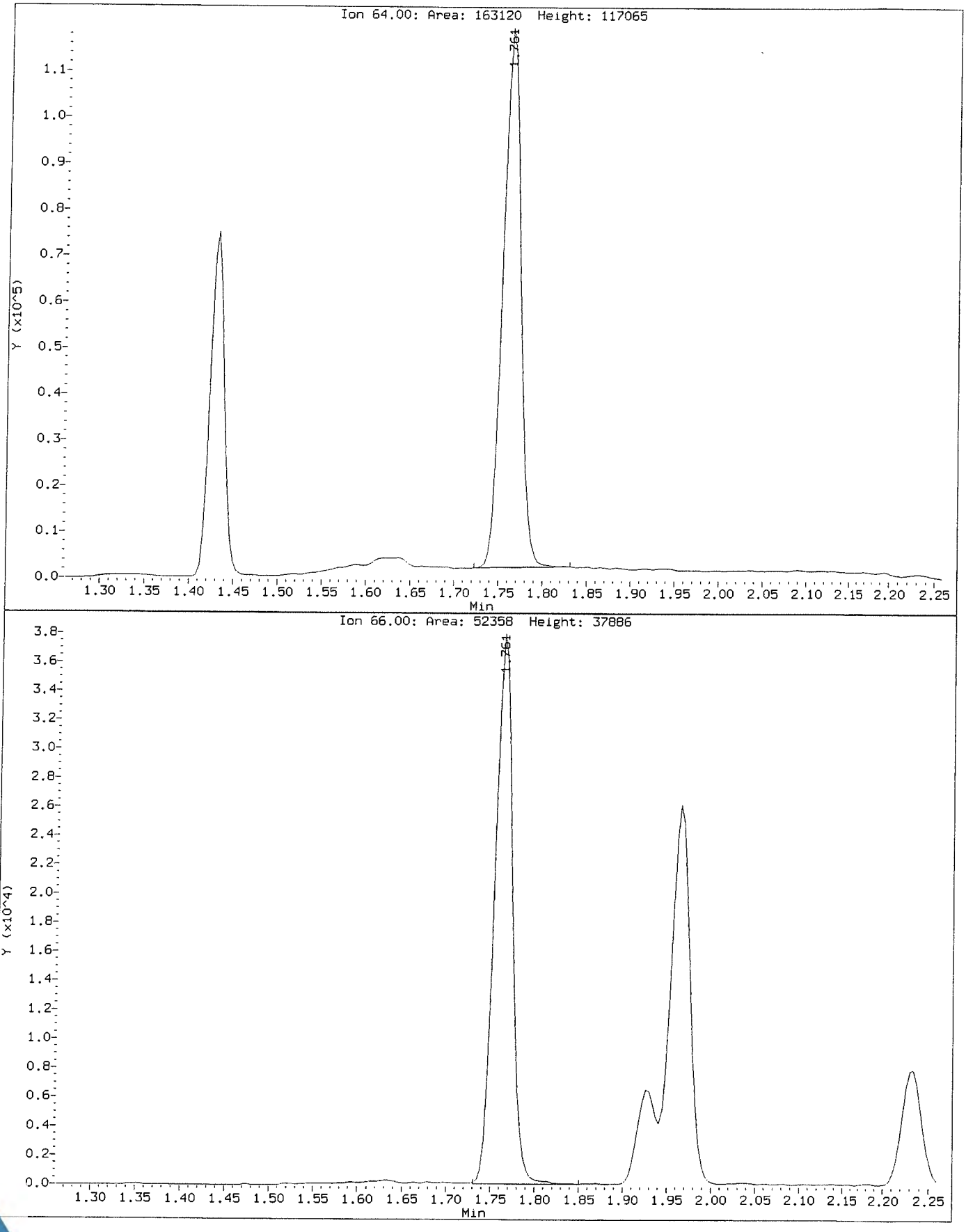

QUARTERLY CONTROL SUMMARY REPORT
LHAAP-58 MARCH 2019
WEST PLUME QUARTERLY PERFORMANCE SAMPLING EVENT
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

April 2019

Prepared For:

Longhorn Army Ammunition Plant
Karnack, Texas

Under Contract To:

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

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

Prepared By:

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Tables

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

1 INTRODUCTION

Bhate reviewed one data package from ALS Environmental, Houston, Texas with the analyses for volatile fatty acids subcontracted to ALS Rochester, NY; total organic carbon subcontracted to ALS Kelso, WA; and the analyses of dissolved gases to ALS Simi Valley, CA. The dechlorinating bacteria analysis was subcontracted to Microbial Insights in Knoxville, TN. Groundwater samples were collected on March 19, 2019, from Site LHAAP-58 at the Longhorn Army Ammunition Plant (LHAAP), Karnack, Texas. Data were reviewed for conformance to the requirements of the following guidance documents: [United States Environmental Protection Agency] *USEPA Contract Laboratory Program* [CLP] *National Functional Guidelines for Superfund Organic Methods Data Review* (USEPA, January 2017), *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review* (USEPA, January 2017) and the *Final Basewide Uniform Federal Policy (UFP) – Quality Assurance Project Plan (QAPP) Longhorn Army Ammunition Plant* (Bhate, May 2018).

1.1 Intended Use of Data

The objective of sampling at LHAAP-58 in March 2019 was to complete a western plume quarterly event.

Analyses performed include:

- RSK-175 – Dissolved Gases
- SM5310C – Total Organic Carbon
- SW8260C - Volatile Organic Compounds (VOCs)
- SW9056A – Anions (chloride, nitrate, and sulfate)
- High Performance Liquid Chromatography (HPLC)-METACIDS – Volatile Fatty Acids (VFAs)
- CENSUS – Dechlorinating Bacteria (dehalococcoides [DHC]/dehalobacter [DHB])

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

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

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

1.2 Preservation and Holding Times

Sample ID data were evaluated for agreement with the chain-of-custody (COC). All samples were received in appropriate containers, within the proper temperature range, in good condition, and within the required hold time.

1.3 Calibrations

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

1.3.1 Continuing Calibration Verifications

The calibrations must meet the following criteria otherwise the compound is qualified J or UJ: The continuing calibration verification (CCV) criteria are 20 percent difference (%D) for VOCs and 50% for closing CCVs. Metals and general chemistry - 10%D; VFAs, dissolved gases, and TOC - 15%D.

The CCV for benzene and toluene were outside control limits associated with all samples. These compound were considered estimated and flagged "J/UJ". The CCV for pyruvic acid was below control limits. All samples were flagged "UJ".

1.4 Blanks

If the analyte result for an associated sample was less than 5X (10X for common laboratory contaminants) the analyte concentration in the blank, that result was qualified "UB" and considered an artifact of blank contamination. Where the sample result for the affected analyte was non-detect or greater than 5X the amount in the blank, no qualifier was applied.

No compounds were detected in the blanks.

1.5 Surrogates

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

No surrogates were reported outside control limits.

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

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

All sample recoveries were within control limits.

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

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

1.7.1 SW8260

The MS/MSD and/or relative percent difference (RPD) between multiple compounds in spike sample 35AWW20_031919 were outside control limits. Due to matrix effect, these compounds were flagged "J/UJ" (see Table 2).

1.7.2 RSK175

The MS/MSD recovery of spike sample 35AWW20_031919 were outside control limits for methane, ethane, and ethene. Due to matrix effect, these compounds were flagged "J/UJ".

1.8 Internal Standards

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

Internal standards were within acceptance criteria for the associated compounds.

1.9 Field Precision

Precision is the measure of variability of individual sample measurements. Evaluation of field duplicates for precision was done using the RPD. The RPD is defined as the difference between two duplicate samples divided by the mean and expressed as a percent. Field duplicate RPD limits were set at <30% for groundwater matrices.

1.9.1 Lab Precision

The laboratory RPD of sample 35AWW24_031919 was exceeded for total organic carbon. This compound was qualified as estimated, "J".

2.0 DATA USABILITY SUMMARY

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

Table 1: Field Sample Identification and Laboratory Packages

Client Sample ID	Lab Package/ID	SM2320B	E365.3	SM5310C	SW6020A	SW8260C	HPLC-METACIDS	SW9056A	RSK-175	SM3500Fe	E376.1	CENSUS	Arsenic 6020A
35AWW06_031919	HS19031013			X		X	X	X	X			X	
35AWW06_031919_a	HS19031013			X		X	X	X	X				
35AWW11_031919	HS19031013			X		X	X	X	X			X	
35AWW19_031919	HS19031013			X		X	X	X	X			X	
35AWW20_031919	HS19031013			X		X	X	X	X			X	
35AWW24_031919	HS19031013			X		X	X	X	X			X	
LHSMW07_031919	HS19031013			X		X	X	X	X			X	

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

Table 2: Qualified Analytical Data

Client Sample ID Laboratory	Laboratory Package	Analyte Name	Result and Qualifier (µg/L)	Reason for Qualification
35AWW06_031919	HS19031013	Benzene	0.50 UJ	CCV
		Toluene	0.50 UJ	CCV
		Pyruvic acid (mg/L)	0.25 UJ	CCV
35AWW06_031919_a	HS19031013	Benzene	0.50 UJ	CCV
		Toluene	0.50 UJ	CCV
		Pyruvic acid (mg/L)	0.25 UJ	CCV
35AWW11_031919	HS19031013	Benzene	0.50 UJ	CCV
		Toluene	0.50 UJ	CCV
		Pyruvic acid (mg/L)	0.50 UJ	CCV
35AWW19_031919	HS19031013	Benzene	0.50 UJ	CCV
		Toluene	0.50 UJ	CCV
		Pyruvic acid (mg/L)	0.10 UJ	CCV
35AWW20_031919	HS19031013	1,1,1,2-Tetrachloroethane	0.50 UJ	MS/MSD/RPD
		1,1,1-Trichloroethane	0.50 UJ	MS/MSD/RPD
		1,1,2-Trichloroethane	38 J	MS/MSD/RPD
		1,1-Dichloropropene	0.50 UJ	MS/MSD/RPD
		1,2,3-Trichlorobenzene	0.50 UJ	MS/RPD
		1,2,4-Trichlorobenzene	0.50 UJ	MS/MSD/RPD
		1,2,4-Trimethylbenzene	0.50 UJ	MS/MSD/RPD
		1,2-Dibromoethane	0.50 UJ	MS/RPD
		1,2-Dichlorobenzene	7.6 J	MS/RPD
		1,2-Dichloroethane	14 J	MS/RPD
		1,2-Dichloropropane	0.50 UJ	MS/MSD/RPD
		1,3,5-Tirmethylbenzene	0.50 UJ	MS/MSD/RPD
		1,3-Dichlorobenzene	0.50 UJ	MS/MSD/RPD
		1,3-Dichloropropane	0.50 UJ	MS/MSD/RPD
		1,4-Dichlorobenzene	0.50 UJ	MS/MSD/RPD
		2,2-Dichloropropane	0.50 UJ	MS/RPD
		2-Chlorotoluene	0.50 UJ	MS/MSD/RPD
		4-Chlorotoluene	0.50 UJ	MS/MSD/RPD
		4-Isopropyltoluene	0.50 UJ	MS/MSD/RPD
		Benzene	3.0 J	MS/MSD/RPD/CCV
		Bromobenzene	0.50 UJ	MS/MSD
		Bromochloromethane	0.50 UJ	MS/MSD/RPD
		Bromodichloromethane	0.50 UJ	MS/MSD/RPD
		Bromomethane	0.50 UJ	MS/RPD
		Carbon disulfide	0.50 UJ	MS/RPD
		Carbon tetrachloride	0.50 UJ	MS
		Chlorobenzene	0.50 UJ	MS/MSD/RPD
		Chloroform	0.50 UJ	MS/MSD/RPD
		Chloromethane	0.50 UJ	MS/RPD
		cis-1,2-Dichloroethene	49 J	MS/MSD/RPD
		cis-1,3-Dichloropropene	0.50 UJ	MS/MSD/RPD
		Dibromochloromethane	0.50 UJ	MS/RPD
		Dibromomethane	0.50 UJ	MS/MSD/RPD
		Ethylbenzene	0.50 UJ	MS/MSD/RPD
		Hexachlorobutadiene	0.50 UJ	MS/MSD/RPD
		Isopropylbenzene	0.50 UJ	MS/MSD/RPD
		m,p-Xylene	0.50 UJ	MS/MSD/RPD
		Methylene chloride	0.50 UJ	MS/MSD/RPD
		n-Butylbenzene	0.50 UJ	MS/MSD/RPD
		n-Propylbenzene	0.50 UJ	MS/MSD/RPD
		o-Xylene	0.50 UJ	MS/MSD/RPD
		sec-Butylbenzene	0.50 UJ	MS/MSD/RPD
		Styrene	0.50 UJ	MS/MSD/RPD
		tert-Butylbenzene	0.50 UJ	MS/MSD
		Tetrachloroethene	0.50 UJ	MS/RPD
		Toluene	0.50 UJ	MS/MSD/RPD/CCV
		trans-1,2-Dichloroethene	4.9 J	MS/MSD/RPD

Client Sample ID Laboratory	Laboratory Package	Analyte Name	Result and Qualifier (µg/L)	Reason for Qualification
		trans-1,3-Dichloropropene	0.50 UJ	MS/MSD/RPD
		Vinyl chloride	54 J	MS
		Methane	840 J	MS/MSD
		Ethane	0.47 UJ	MS/MSD
		Ethene	0.94 J	MS/MSD
		Pyruvic acid (mg/L)	0.10 UJ	CCV
35AWW24_031919	HS19031013	Benzene	0.50 UJ	CCV
		Toluene	0.50 UJ	CCV
		Total Organic Carbon (mg/L)	1.68 J	Lab RPD >
		Pyruvic acid (mg/L)	0.10 UJ	CCV
LHSMW07_031919	HS19031013	Benzene	0.50 UJ	CCV
		Toluene	0.50 UJ	CCV
		Pyruvic acid (mg/L)	0.10 UJ	CCV

Notes:
mg/L – milligrams per liter
µg/L – micrograms per liter
J – Estimated: The analyte was positively identified, the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
UJ – The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.
Lab RPD – the relative percent difference between sample and laboratory duplicate was outside control limits
MS/MSD/RPD – Matrix spike/duplicate/relative percent difference were outside control limits
CCV – continuing calibration verification outside control limits

Table 3: Completeness by Method

Method	No. of Rejected Results	% Completeness
SM5310C	0	100
SW8260C	0	100
HPLC-METACIDS	0	100
SW9056A	0	100
RSK-175	0	100
CENSUS	0	100

HS19031013 LHAAP58 Final

ALS WO# HS19031013

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HS19031013 Wet Chem Raw Data

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WorkOrder: HS19031013

LHAAP-58

Bhate Environmental Associates, Inc.

Marcia Olive
445 Union Blvd Ste 129
Lakewood CO 80228

12-Apr-2019

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
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April 12, 2019

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

Work Order: **HS19031013**

Laboratory Results for: **LHAAP-58**

Dear Marcia,

ALS Environmental received 8 sample(s) on Mar 20, 2019 for the analysis presented in the following report.

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

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

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

Sincerely,

Generated By: JUMOKE.LAWAL
RJ Modashia
Project Manager

ALS Houston, US Date: 12-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Work Order: HS19031013

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS19031013-01	35AWW11_031919	Groundwater		19-Mar-2019 08:15	20-Mar-2019 09:30	☐
HS19031013-02	35AWW24_031919	Groundwater		19-Mar-2019 09:15	20-Mar-2019 09:30	☐
HS19031013-03	35AWW19_031919	Groundwater		19-Mar-2019 10:10	20-Mar-2019 09:30	☐
HS19031013-04	LHSMW07_031919	Groundwater		19-Mar-2019 11:05	20-Mar-2019 09:30	☐
HS19031013-05	35AWW06_031919	Groundwater		19-Mar-2019 12:05	20-Mar-2019 09:30	☐
HS19031013-06	35AWW06_031919_a	Groundwater		19-Mar-2019 12:05	20-Mar-2019 09:30	☐
HS19031013-07	35AWW20_031919	Groundwater		19-Mar-2019 13:15	20-Mar-2019 09:30	☐
HS19031013-08	Trip Blank	Water	ALS-022719-68	19-Mar-2019 00:00	20-Mar-2019 09:30	☐

ALS Houston, US Date: 12-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Work Order: HS19031013

CASE NARRATIVE

Work Order Comments

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

The analyses for RSK and CO2 were subcontracted to ALS in Simi Valley, CA. Final report attached.

GCMS Volatiles by Method SW8260

Batch ID: R335378

Sample ID: 35AWW20_031919 (HS19031013-07MS)

- MS/MSD failed QC and RPDs limits for several compounds due to matrix.

Sample ID: CCV_END

- Benzene and Toluene exceeded %D recoveries for closing CCV due to carryover from previous sample .

Sample ID: VLCSW-190326

- 1,2,4_Trimethyl benzene exceeded QC limits for LCS. CCV is OK.

WetChemistry by Method SW9056

Batch ID: R336085

Sample ID: 35AWW06_031919 (HS19031013-05)

- The reporting limit is elevated due to dilution for high concentrations of non-target analytes. (Sulfate)

Sample ID: 35AWW06_031919_a (HS19031013-06)

- The reporting limit is elevated due to dilution for high concentrations of non-target analytes. (Sulfate)

Batch ID: R335714

Sample ID: 35AWW06_031919 (HS19031013-05)

- The reporting limit is elevated due to dilution for high concentrations of non-target analytes. (Nitrogen, Nitrate (As N))

Sample ID: 35AWW06_031919_a (HS19031013-06)

- The reporting limit is elevated due to dilution for high concentrations of non-target analytes. (Nitrogen, Nitrate (As N))

- Opening and closing CCBs bracketing sample 35AWW06_031919_a(HS19031013-06) were greater than half the RL for Sulfate, due to samples that were very high/over-calibration range for Sulfate directly preceding the CCV/CCBs.

Sample ID: 35AWW11_031919 (HS19031013-01)

- The reporting limit is elevated due to dilution for high concentrations of non-target analytes. (Nitrogen, Nitrate (As N))

Sample ID: 35AWW19_031919 (HS19031013-03)

- The reporting limit is elevated due to dilution for high concentrations of non-target analytes. (Nitrogen, Nitrate (As N))

Sample ID: 35AWW20_031919 (HS19031013-07)

- The reporting limit is elevated due to dilution for high concentrations of non-target analytes. (Nitrogen, Nitrate (As N))

Sample ID: LHSMW07_031919 (HS19031013-04)

ALS Houston, US Date: 12-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Work Order: HS19031013

CASE NARRATIVE

WetChemistry by Method SW9056

Batch ID: R335714

- The reporting limit is elevated due to dilution for high concentrations of non-target analytes. (Nitrogen, Nitrate (As N))

Sample ID: 35AWW20_031919 (HS19031013-07MS)

- The MS and/or MSD recovery was outside of the control limits; however, the result in the parent sample is greater than 4x the spike amount. (Sulfate)

Sample ID: 35AWW20_031919 (HS19031013-07MSD)

- The MS and/or MSD recovery was outside of the control limits; however, the result in the parent sample is greater than 4x the spike amount. (Sulfate)

Batch ID: R335875

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

ALS Houston, US Date: 12-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW11_031919
Collection Date: 19-Mar-2019 08:15

ANALYTICAL REPORT
WorkOrder:HS19031013
Lab ID:HS19031013-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: AKP
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 16:15
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 16:15
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	26-Mar-2019 16:15
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 16:15
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 16:15
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 16:15
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 16:15
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 16:15
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	26-Mar-2019 16:15
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	26-Mar-2019 16:15
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 16:15
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 16:15
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 16:15
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	26-Mar-2019 16:15
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 16:15
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	26-Mar-2019 16:15
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 16:15
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 16:15
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 16:15
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 16:15
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 16:15
2-Butanone	**240**		**0.50**	**1.0**	**2.0**	**UG/L**	1	26-Mar-2019 16:15
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 16:15
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	26-Mar-2019 16:15
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 16:15
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 16:15
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	26-Mar-2019 16:15
Acetone	**260**		**0.40**	**2.0**	**2.0**	**UG/L**	1	26-Mar-2019 16:15
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 16:15
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 16:15
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 16:15
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 16:15
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 16:15
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 16:15
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	26-Mar-2019 16:15
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	26-Mar-2019 16:15
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 16:15
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 16:15
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 16:15

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

ALS Houston, US Date: 12-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW11_031919
Collection Date: 19-Mar-2019 08:15

ANALYTICAL REPORT
WorkOrder:HS19031013
Lab ID:HS19031013-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: AKP
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 16:15
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 16:15
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	26-Mar-2019 16:15
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 16:15
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 16:15
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 16:15
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 16:15
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	26-Mar-2019 16:15
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 16:15
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	26-Mar-2019 16:15
Methylene chloride	0.50	U	0.40	0.50	2.0	UG/L	1	26-Mar-2019 16:15
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 16:15
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 16:15
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 16:15
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 16:15
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 16:15
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 16:15
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 16:15
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 16:15
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 16:15
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 16:15
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 16:15
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 16:15
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 16:15
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 16:15
Surr: 1,2-Dichloroethane-d4	*93.6*			**0**	*81-118*	*%REC*	*1*	*26-Mar-2019 16:15*
Surr: 4-Bromofluorobenzene	*97.0*			**0**	*85-114*	*%REC*	*1*	*26-Mar-2019 16:15*
Surr: Dibromofluoromethane	*91.2*			**0**	*80-119*	*%REC*	*1*	*26-Mar-2019 16:15*
Surr: Toluene-d8	*109*			**0**	*89-112*	*%REC*	*1*	*26-Mar-2019 16:15*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KMU
Chloride	**2,150**		**10.0**	**25.0**	**25.0**	**mg/L**	50	03-Apr-2019 02:01
Nitrogen, Nitrate (As N)	0.500	U	0.150	0.500	0.500	mg/L	5	20-Mar-2019 19:55
Sulfate	**172**		**1.00**	**2.50**	**2.50**	**mg/L**	5	20-Mar-2019 19:55
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	04-Apr-2019 19:36
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	12-Apr-2019 11:32

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

ALS Houston, US Date: 12-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW24_031919
Collection Date: 19-Mar-2019 09:15

ANALYTICAL REPORT
WorkOrder:HS19031013
Lab ID:HS19031013-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: AKP
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 18:42
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 18:42
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	26-Mar-2019 18:42
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 18:42
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 18:42
1,1-Dichloroethene	**0.81**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	26-Mar-2019 18:42
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 18:42
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 18:42
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	26-Mar-2019 18:42
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	26-Mar-2019 18:42
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 18:42
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 18:42
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 18:42
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	26-Mar-2019 18:42
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 18:42
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	26-Mar-2019 18:42
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 18:42
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 18:42
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 18:42
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 18:42
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 18:42
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	26-Mar-2019 18:42
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 18:42
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	26-Mar-2019 18:42
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 18:42
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 18:42
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	26-Mar-2019 18:42
Acetone	2.0	U	0.40	2.0	2.0	UG/L	1	26-Mar-2019 18:42
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 18:42
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 18:42
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 18:42
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 18:42
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 18:42
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 18:42
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	26-Mar-2019 18:42
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	26-Mar-2019 18:42
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 18:42
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 18:42
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 18:42

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

ALS Houston, US Date: 12-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW24_031919
Collection Date: 19-Mar-2019 09:15

ANALYTICAL REPORT
WorkOrder:HS19031013
Lab ID:HS19031013-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: AKP
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 18:42
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 18:42
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	26-Mar-2019 18:42
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 18:42
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 18:42
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 18:42
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 18:42
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	26-Mar-2019 18:42
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 18:42
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	26-Mar-2019 18:42
Methylene chloride	0.50	U	0.40	0.50	2.0	UG/L	1	26-Mar-2019 18:42
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 18:42
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 18:42
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 18:42
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 18:42
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 18:42
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 18:42
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 18:42
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 18:42
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 18:42
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 18:42
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 18:42
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 18:42
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 18:42
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 18:42
Surr: 1,2-Dichloroethane-d4	*90.5*			**0**	*81-118*	*%REC*	*1*	*26-Mar-2019 18:42*
Surr: 4-Bromofluorobenzene	*97.4*			**0**	*85-114*	*%REC*	*1*	*26-Mar-2019 18:42*
Surr: Dibromofluoromethane	*91.2*			**0**	*80-119*	*%REC*	*1*	*26-Mar-2019 18:42*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*1*	*26-Mar-2019 18:42*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KMU
Chloride	**115**		**1.00**	**2.50**	**2.50**	**mg/L**	5	03-Apr-2019 02:15
Nitrogen, Nitrate (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	20-Mar-2019 19:41
Sulfate	**70.0**		**0.200**	**0.500**	**0.500**	**mg/L**	1	20-Mar-2019 19:41
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	04-Apr-2019 19:36
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	12-Apr-2019 11:32

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

ALS Houston, US Date: 12-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW19_031919
Collection Date: 19-Mar-2019 10:10

ANALYTICAL REPORT
WorkOrder:HS19031013
Lab ID:HS19031013-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: AKP
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:06
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 19:06
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	26-Mar-2019 19:06
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:06
1,1-Dichloroethane	**0.97**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	26-Mar-2019 19:06
1,1-Dichloroethene	**3.6**		**0.20**	**0.50**	**1.0**	**UG/L**	1	26-Mar-2019 19:06
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:06
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 19:06
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	26-Mar-2019 19:06
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	26-Mar-2019 19:06
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:06
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 19:06
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 19:06
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	26-Mar-2019 19:06
1,2-Dichloroethane	**1.5**		**0.20**	**0.50**	**1.0**	**UG/L**	1	26-Mar-2019 19:06
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	26-Mar-2019 19:06
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:06
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 19:06
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:06
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 19:06
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 19:06
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	26-Mar-2019 19:06
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:06
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	26-Mar-2019 19:06
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 19:06
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:06
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	26-Mar-2019 19:06
Acetone	2.0	U	0.40	2.0	2.0	UG/L	1	26-Mar-2019 19:06
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 19:06
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 19:06
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 19:06
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 19:06
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 19:06
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 19:06
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	26-Mar-2019 19:06
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	26-Mar-2019 19:06
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:06
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:06
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 19:06

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

ALS Houston, US Date: 12-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW19_031919
Collection Date: 19-Mar-2019 10:10

ANALYTICAL REPORT
WorkOrder:HS19031013
Lab ID:HS19031013-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: AKP
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 19:06
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 19:06
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	26-Mar-2019 19:06
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:06
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 19:06
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:06
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:06
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	26-Mar-2019 19:06
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:06
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	26-Mar-2019 19:06
Methylene chloride	0.50	U	0.40	0.50	2.0	UG/L	1	26-Mar-2019 19:06
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 19:06
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:06
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:06
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:06
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:06
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:06
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:06
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:06
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 19:06
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 19:06
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 19:06
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 19:06
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:06
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 19:06
Surr: 1,2-Dichloroethane-d4	*92.0*			**0**	*81-118*	*%REC*	*1*	*26-Mar-2019 19:06*
Surr: 4-Bromofluorobenzene	*98.5*			**0**	*85-114*	*%REC*	*1*	*26-Mar-2019 19:06*
Surr: Dibromofluoromethane	*92.0*			**0**	*80-119*	*%REC*	*1*	*26-Mar-2019 19:06*
Surr: Toluene-d8	*107*			**0**	*89-112*	*%REC*	*1*	*26-Mar-2019 19:06*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KMU
Chloride	**1,140**		**10.0**	**25.0**	**25.0**	**mg/L**	50	03-Apr-2019 02:30
Nitrogen, Nitrate (As N)	0.500	U	0.150	0.500	0.500	mg/L	5	20-Mar-2019 20:10
Sulfate	**994**		**10.0**	**25.0**	**25.0**	**mg/L**	50	03-Apr-2019 02:30
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	04-Apr-2019 19:36
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	12-Apr-2019 11:32

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

ALS Houston, US Date: 12-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: LHSMW07_031919
Collection Date: 19-Mar-2019 11:05

ANALYTICAL REPORT
WorkOrder:HS19031013
Lab ID:HS19031013-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: AKP
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:30
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 19:30
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	26-Mar-2019 19:30
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:30
1,1-Dichloroethane	**15**		**0.20**	**0.50**	**1.0**	**UG/L**	1	26-Mar-2019 19:30
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 19:30
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:30
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 19:30
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	26-Mar-2019 19:30
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	26-Mar-2019 19:30
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:30
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 19:30
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 19:30
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	26-Mar-2019 19:30
1,2-Dichloroethane	**0.95**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	26-Mar-2019 19:30
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	26-Mar-2019 19:30
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:30
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 19:30
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:30
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 19:30
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 19:30
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	26-Mar-2019 19:30
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:30
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	26-Mar-2019 19:30
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 19:30
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:30
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	26-Mar-2019 19:30
Acetone	2.0	U	0.40	2.0	2.0	UG/L	1	26-Mar-2019 19:30
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 19:30
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 19:30
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 19:30
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 19:30
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 19:30
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 19:30
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	26-Mar-2019 19:30
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	26-Mar-2019 19:30
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:30
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:30
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 19:30

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

ALS Houston, US Date: 12-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: LHSMW07_031919
Collection Date: 19-Mar-2019 11:05

ANALYTICAL REPORT
WorkOrder:HS19031013
Lab ID:HS19031013-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: AKP
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 19:30
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 19:30
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	26-Mar-2019 19:30
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:30
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 19:30
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:30
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:30
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	26-Mar-2019 19:30
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:30
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	26-Mar-2019 19:30
Methylene chloride	0.50	U	0.40	0.50	2.0	UG/L	1	26-Mar-2019 19:30
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 19:30
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:30
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:30
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:30
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:30
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:30
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:30
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:30
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 19:30
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 19:30
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 19:30
Trichloroethene	**1.1**		**0.20**	**0.50**	**1.0**	**UG/L**	1	26-Mar-2019 19:30
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:30
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 19:30
Surr: 1,2-Dichloroethane-d4	*92.7*			**0**	*81-118*	*%REC*	*1*	*26-Mar-2019 19:30*
Surr: 4-Bromofluorobenzene	*101*			**0**	*85-114*	*%REC*	*1*	*26-Mar-2019 19:30*
Surr: Dibromofluoromethane	*91.5*			**0**	*80-119*	*%REC*	*1*	*26-Mar-2019 19:30*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*26-Mar-2019 19:30*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KMU
Chloride	**1,980**		**10.0**	**25.0**	**25.0**	**mg/L**	50	03-Apr-2019 02:45
Nitrogen, Nitrate (As N)	0.500	U	0.150	0.500	0.500	mg/L	5	20-Mar-2019 20:25
Sulfate	**2,390**		**10.0**	**25.0**	**25.0**	**mg/L**	50	03-Apr-2019 02:45
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	04-Apr-2019 19:36
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	12-Apr-2019 11:32

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

ALS Houston, US Date: 12-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW06_031919
Collection Date: 19-Mar-2019 12:05

ANALYTICAL REPORT
WorkOrder:HS19031013
Lab ID:HS19031013-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: AKP
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:54
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 19:54
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	26-Mar-2019 19:54
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:54
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 19:54
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 19:54
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:54
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 19:54
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	26-Mar-2019 19:54
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	26-Mar-2019 19:54
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:54
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 19:54
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 19:54
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	26-Mar-2019 19:54
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 19:54
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	26-Mar-2019 19:54
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:54
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 19:54
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:54
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 19:54
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 19:54
2-Butanone	**62**		**0.50**	**1.0**	**2.0**	**UG/L**	1	26-Mar-2019 19:54
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:54
2-Hexanone	**6.6**		**1.0**	**1.0**	**2.0**	**UG/L**	1	26-Mar-2019 19:54
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 19:54
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:54
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	26-Mar-2019 19:54
Acetone	**250**		**0.40**	**2.0**	**2.0**	**UG/L**	1	26-Mar-2019 19:54
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 19:54
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 19:54
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 19:54
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 19:54
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 19:54
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 19:54
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	26-Mar-2019 19:54
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	26-Mar-2019 19:54
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:54
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:54
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 19:54

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

ALS Houston, US Date: 12-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW06_031919
Collection Date: 19-Mar-2019 12:05

ANALYTICAL REPORT
WorkOrder:HS19031013
Lab ID:HS19031013-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: AKP
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 19:54
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 19:54
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	26-Mar-2019 19:54
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:54
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 19:54
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:54
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:54
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	26-Mar-2019 19:54
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:54
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	26-Mar-2019 19:54
Methylene chloride	0.50	U	0.40	0.50	2.0	UG/L	1	26-Mar-2019 19:54
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 19:54
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:54
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:54
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:54
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:54
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:54
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:54
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:54
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 19:54
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 19:54
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 19:54
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 19:54
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 19:54
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 19:54
Surr: 1,2-Dichloroethane-d4	*94.1*			**0**	*81-118*	*%REC*	*1*	*26-Mar-2019 19:54*
Surr: 4-Bromofluorobenzene	*98.6*			**0**	*85-114*	*%REC*	*1*	*26-Mar-2019 19:54*
Surr: Dibromofluoromethane	*92.2*			**0**	*80-119*	*%REC*	*1*	*26-Mar-2019 19:54*
Surr: Toluene-d8	*107*			**0**	*89-112*	*%REC*	*1*	*26-Mar-2019 19:54*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KMU
Chloride	**919**		**10.0**	**25.0**	**25.0**	**mg/L**	50	03-Apr-2019 03:00
Nitrogen, Nitrate (As N)	0.500	U	0.150	0.500	0.500	mg/L	5	20-Mar-2019 20:39
Sulfate	**2.33**	J	**1.00**	**2.50**	**2.50**	**mg/L**	5	05-Apr-2019 14:54
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	04-Apr-2019 19:36
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	12-Apr-2019 11:32

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

ALS Houston, US Date: 12-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW06_031919_a
Collection Date: 19-Mar-2019 12:05

ANALYTICAL REPORT
WorkOrder:HS19031013
Lab ID:HS19031013-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: AKP
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 20:18
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 20:18
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	26-Mar-2019 20:18
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 20:18
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 20:18
1,1-Dichloroethene	**1.4**		**0.20**	**0.50**	**1.0**	**UG/L**	1	26-Mar-2019 20:18
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 20:18
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 20:18
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	26-Mar-2019 20:18
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	26-Mar-2019 20:18
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 20:18
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 20:18
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 20:18
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	26-Mar-2019 20:18
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 20:18
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	26-Mar-2019 20:18
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 20:18
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 20:18
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 20:18
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 20:18
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 20:18
2-Butanone	**59**		**0.50**	**1.0**	**2.0**	**UG/L**	1	26-Mar-2019 20:18
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 20:18
2-Hexanone	**5.9**		**1.0**	**1.0**	**2.0**	**UG/L**	1	26-Mar-2019 20:18
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 20:18
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 20:18
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	26-Mar-2019 20:18
Acetone	**240**		**0.40**	**2.0**	**2.0**	**UG/L**	1	26-Mar-2019 20:18
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 20:18
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 20:18
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 20:18
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 20:18
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 20:18
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 20:18
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	26-Mar-2019 20:18
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	26-Mar-2019 20:18
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 20:18
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 20:18
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 20:18

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

ALS Houston, US Date: 12-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW06_031919_a
Collection Date: 19-Mar-2019 12:05

ANALYTICAL REPORT
WorkOrder:HS19031013
Lab ID:HS19031013-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: AKP
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 20:18
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 20:18
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	26-Mar-2019 20:18
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 20:18
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 20:18
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 20:18
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 20:18
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	26-Mar-2019 20:18
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 20:18
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	26-Mar-2019 20:18
Methylene chloride	0.50	U	0.40	0.50	2.0	UG/L	1	26-Mar-2019 20:18
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 20:18
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 20:18
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 20:18
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 20:18
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 20:18
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 20:18
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 20:18
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 20:18
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 20:18
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 20:18
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 20:18
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 20:18
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 20:18
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 20:18
Surr: 1,2-Dichloroethane-d4	*92.6*			**0**	*81-118*	*%REC*	*1*	*26-Mar-2019 20:18*
Surr: 4-Bromofluorobenzene	*100*			**0**	*85-114*	*%REC*	*1*	*26-Mar-2019 20:18*
Surr: Dibromofluoromethane	*91.2*			**0**	*80-119*	*%REC*	*1*	*26-Mar-2019 20:18*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*1*	*26-Mar-2019 20:18*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KMU
Chloride	**900**		**10.0**	**25.0**	**25.0**	**mg/L**	50	03-Apr-2019 03:14
Nitrogen, Nitrate (As N)	0.500	U	0.150	0.500	0.500	mg/L	5	20-Mar-2019 20:54
Sulfate	**2.13**	J	**1.00**	**2.50**	**2.50**	**mg/L**	5	05-Apr-2019 15:08
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	04-Apr-2019 19:36
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	12-Apr-2019 11:32

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

ALS Houston, US Date: 12-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW20_031919
Collection Date: 19-Mar-2019 13:15

ANALYTICAL REPORT
WorkOrder:HS19031013
Lab ID:HS19031013-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: AKP
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 16:39
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 16:39
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	26-Mar-2019 16:39
1,1,2-Trichloroethane	**38**		**0.30**	**0.50**	**1.0**	**UG/L**	1	26-Mar-2019 16:39
1,1-Dichloroethane	**190**		**0.20**	**0.50**	**1.0**	**UG/L**	1	26-Mar-2019 16:39
1,1-Dichloroethene	**1,500**		**5.0**	**12**	**25**	**UG/L**	25	26-Mar-2019 17:54
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 16:39
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 16:39
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	26-Mar-2019 16:39
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	26-Mar-2019 16:39
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 16:39
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 16:39
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 16:39
1,2-Dichlorobenzene	**7.6**		**0.50**	**0.50**	**1.0**	**UG/L**	1	26-Mar-2019 16:39
1,2-Dichloroethane	**14**		**0.20**	**0.50**	**1.0**	**UG/L**	1	26-Mar-2019 16:39
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	26-Mar-2019 16:39
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 16:39
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 16:39
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 16:39
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 16:39
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 16:39
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	26-Mar-2019 16:39
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 16:39
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	26-Mar-2019 16:39
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 16:39
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 16:39
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	26-Mar-2019 16:39
Acetone	2.0	U	0.40	2.0	2.0	UG/L	1	26-Mar-2019 16:39
Benzene	**3.0**		**0.20**	**0.50**	**1.0**	**UG/L**	1	26-Mar-2019 16:39
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 16:39
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 16:39
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 16:39
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 16:39
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 16:39
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	26-Mar-2019 16:39
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	26-Mar-2019 16:39
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 16:39
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 16:39
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 16:39

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

ALS Houston, US Date: 12-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW20_031919
Collection Date: 19-Mar-2019 13:15

ANALYTICAL REPORT
WorkOrder:HS19031013
Lab ID:HS19031013-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: AKP
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 16:39
cis-1,2-Dichloroethene	**49**		**0.20**	**0.50**	**1.0**	**UG/L**	1	26-Mar-2019 16:39
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	26-Mar-2019 16:39
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 16:39
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 16:39
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 16:39
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 16:39
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	26-Mar-2019 16:39
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 16:39
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	26-Mar-2019 16:39
Methylene chloride	0.50	U	0.40	0.50	2.0	UG/L	1	26-Mar-2019 16:39
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 16:39
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 16:39
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 16:39
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 16:39
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 16:39
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 16:39
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 16:39
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 16:39
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 16:39
trans-1,2-Dichloroethene	**4.9**		**0.20**	**0.50**	**1.0**	**UG/L**	1	26-Mar-2019 16:39
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 16:39
Trichloroethene	**180**		**0.20**	**0.50**	**1.0**	**UG/L**	1	26-Mar-2019 16:39
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 16:39
Vinyl chloride	**54**		**0.20**	**0.50**	**1.0**	**UG/L**	1	26-Mar-2019 16:39
Surr: 1,2-Dichloroethane-d4	*95.6*			**0**	*81-118*	*%REC*	*1*	*26-Mar-2019 16:39*
Surr: 1,2-Dichloroethane-d4	*90.9*			**0**	*81-118*	*%REC*	*25*	*26-Mar-2019 17:54*
Surr: 4-Bromofluorobenzene	*102*			**0**	*85-114*	*%REC*	*1*	*26-Mar-2019 16:39*
Surr: 4-Bromofluorobenzene	*99.8*			**0**	*85-114*	*%REC*	*25*	*26-Mar-2019 17:54*
Surr: Dibromofluoromethane	*92.6*			**0**	*80-119*	*%REC*	*1*	*26-Mar-2019 16:39*
Surr: Dibromofluoromethane	*91.1*			**0**	*80-119*	*%REC*	*25*	*26-Mar-2019 17:54*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*1*	*26-Mar-2019 16:39*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*25*	*26-Mar-2019 17:54*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KMU
Chloride	**1,090**		**10.0**	**25.0**	**25.0**	**mg/L**	50	03-Apr-2019 04:13
Nitrogen, Nitrate (As N)	0.500	U	0.150	0.500	0.500	mg/L	5	20-Mar-2019 21:08
Sulfate	**1,120**		**10.0**	**25.0**	**25.0**	**mg/L**	50	03-Apr-2019 04:13
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	04-Apr-2019 19:36

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

ALS Houston, US Date: 12-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW20_031919
Collection Date: 19-Mar-2019 13:15

ANALYTICAL REPORT
WorkOrder:HS19031013
Lab ID:HS19031013-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	12-Apr-2019 11:32

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

ALS Houston, US Date: 12-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: Trip Blank
Collection Date: 19-Mar-2019 00:00

ANALYTICAL REPORT
WorkOrder:HS19031013
Lab ID:HS19031013-08
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: AKP
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 15:27
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 15:27
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	26-Mar-2019 15:27
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 15:27
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 15:27
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 15:27
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 15:27
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 15:27
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	26-Mar-2019 15:27
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	26-Mar-2019 15:27
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 15:27
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 15:27
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 15:27
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	26-Mar-2019 15:27
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 15:27
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	26-Mar-2019 15:27
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 15:27
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 15:27
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 15:27
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 15:27
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 15:27
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	26-Mar-2019 15:27
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 15:27
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	26-Mar-2019 15:27
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 15:27
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 15:27
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	26-Mar-2019 15:27
Acetone	2.0	U	0.40	2.0	2.0	UG/L	1	26-Mar-2019 15:27
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 15:27
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 15:27
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 15:27
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 15:27
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 15:27
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 15:27
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	26-Mar-2019 15:27
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	26-Mar-2019 15:27
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 15:27
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 15:27
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 15:27

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

ALS Houston, US Date: 12-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: Trip Blank
Collection Date: 19-Mar-2019 00:00

ANALYTICAL REPORT
WorkOrder:HS19031013
Lab ID:HS19031013-08
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: AKP
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 15:27
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 15:27
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	26-Mar-2019 15:27
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 15:27
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 15:27
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 15:27
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 15:27
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	26-Mar-2019 15:27
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 15:27
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	26-Mar-2019 15:27
Methylene chloride	0.50	U	0.40	0.50	2.0	UG/L	1	26-Mar-2019 15:27
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	26-Mar-2019 15:27
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 15:27
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 15:27
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 15:27
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 15:27
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 15:27
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 15:27
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 15:27
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 15:27
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 15:27
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 15:27
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 15:27
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	26-Mar-2019 15:27
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	26-Mar-2019 15:27
Surr: 1,2-Dichloroethane-d4	*90.5*			**0**	*81-118*	*%REC*	*1*	*26-Mar-2019 15:27*
Surr: 4-Bromofluorobenzene	*99.2*			**0**	*85-114*	*%REC*	*1*	*26-Mar-2019 15:27*
Surr: Dibromofluoromethane	*91.0*			**0**	*80-119*	*%REC*	*1*	*26-Mar-2019 15:27*
Surr: Toluene-d8	*107*			**0**	*89-112*	*%REC*	*1*	*26-Mar-2019 15:27*

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

ALS Houston, US Date: 12-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19031013

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID R335378	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C			**Matrix:** Water		
HS19031013-08	Trip Blank	19 Mar 2019 00:00			26 Mar 2019 15:27	1
Batch ID R335378	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C			**Matrix:** Groundwater		
HS19031013-01	35AWW11_031919	19 Mar 2019 08:15			26 Mar 2019 16:15	1
HS19031013-02	35AWW24_031919	19 Mar 2019 09:15			26 Mar 2019 18:42	1
HS19031013-03	35AWW19_031919	19 Mar 2019 10:10			26 Mar 2019 19:06	1
HS19031013-04	LHSMW07_031919	19 Mar 2019 11:05			26 Mar 2019 19:30	1
HS19031013-05	35AWW06_031919	19 Mar 2019 12:05			26 Mar 2019 19:54	1
HS19031013-06	35AWW06_031919_a	19 Mar 2019 12:05			26 Mar 2019 20:18	1
HS19031013-07	35AWW20_031919	19 Mar 2019 13:15			26 Mar 2019 17:54	25
HS19031013-07	35AWW20_031919	19 Mar 2019 13:15			26 Mar 2019 16:39	1
Batch ID R335714	**Test Name :** ANIONS BY SW9056A			**Matrix:** Groundwater		
HS19031013-01	35AWW11_031919	19 Mar 2019 08:15			20 Mar 2019 19:55	5
HS19031013-02	35AWW24_031919	19 Mar 2019 09:15			20 Mar 2019 19:41	1
HS19031013-03	35AWW19_031919	19 Mar 2019 10:10			20 Mar 2019 20:10	5
HS19031013-04	LHSMW07_031919	19 Mar 2019 11:05			20 Mar 2019 20:25	5
HS19031013-05	35AWW06_031919	19 Mar 2019 12:05			20 Mar 2019 20:39	5
HS19031013-06	35AWW06_031919_a	19 Mar 2019 12:05			20 Mar 2019 20:54	5
HS19031013-07	35AWW20_031919	19 Mar 2019 13:15			20 Mar 2019 21:08	5
Batch ID R335875	**Test Name :** ANIONS BY SW9056A			**Matrix:** Groundwater		
HS19031013-01	35AWW11_031919	19 Mar 2019 08:15			03 Apr 2019 02:01	50
HS19031013-02	35AWW24_031919	19 Mar 2019 09:15			03 Apr 2019 02:15	5
HS19031013-03	35AWW19_031919	19 Mar 2019 10:10			03 Apr 2019 02:30	50
HS19031013-04	LHSMW07_031919	19 Mar 2019 11:05			03 Apr 2019 02:45	50
HS19031013-05	35AWW06_031919	19 Mar 2019 12:05			03 Apr 2019 03:00	50
HS19031013-06	35AWW06_031919_a	19 Mar 2019 12:05			03 Apr 2019 03:14	50
HS19031013-07	35AWW20_031919	19 Mar 2019 13:15			03 Apr 2019 04:13	50
Batch ID R335986	**Test Name :** SUBCONTRACT ANALYSIS - RSK			**Matrix:** Groundwater		
HS19031013-01	35AWW11_031919	19 Mar 2019 08:15			04 Apr 2019 19:36	1
HS19031013-02	35AWW24_031919	19 Mar 2019 09:15			04 Apr 2019 19:36	1
HS19031013-03	35AWW19_031919	19 Mar 2019 10:10			04 Apr 2019 19:36	1
HS19031013-04	LHSMW07_031919	19 Mar 2019 11:05			04 Apr 2019 19:36	1
HS19031013-05	35AWW06_031919	19 Mar 2019 12:05			04 Apr 2019 19:36	1
HS19031013-06	35AWW06_031919_a	19 Mar 2019 12:05			04 Apr 2019 19:36	1
HS19031013-07	35AWW20_031919	19 Mar 2019 13:15			04 Apr 2019 19:36	1
Batch ID R336085	**Test Name :** ANIONS BY SW9056A			**Matrix:** Groundwater		
HS19031013-05	35AWW06_031919	19 Mar 2019 12:05			05 Apr 2019 14:54	5
HS19031013-06	35AWW06_031919_a	19 Mar 2019 12:05			05 Apr 2019 15:08	5

ALS Houston, US Date: 12-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19031013

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID R336479	**Test Name :** SUBCONTRACT ANALYSIS - TOC ANALYSIS				**Matrix:** Groundwater	
HS19031013-01	35AWW11_031919	19 Mar 2019 08:15			12 Apr 2019 11:32	1
HS19031013-02	35AWW24_031919	19 Mar 2019 09:15			12 Apr 2019 11:32	1
HS19031013-03	35AWW19_031919	19 Mar 2019 10:10			12 Apr 2019 11:32	1
HS19031013-04	LHSMW07_031919	19 Mar 2019 11:05			12 Apr 2019 11:32	1
HS19031013-05	35AWW06_031919	19 Mar 2019 12:05			12 Apr 2019 11:32	1
HS19031013-06	35AWW06_031919_a	19 Mar 2019 12:05			12 Apr 2019 11:32	1
HS19031013-07	35AWW20_031919	19 Mar 2019 13:15			12 Apr 2019 11:32	1

ALS Houston, US Date: 12-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19031013

QC BATCH REPORT NEW

Batch ID: R335378 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-190325** Units: **UG/L** Analysis Date: **26-Mar-2019 15:03**
Client ID: Run ID: **VOA6_335378** SeqNo: **5008738** PrepDate: DF: **1**

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

ALS Houston, US Date: 12-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19031013

QC BATCH REPORT NEW

Batch ID: R335378 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-190325** Units: **UG/L** Analysis Date: **26-Mar-2019 15:03**
Client ID: Run ID: **VOA6_335378** SeqNo: **5008738** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	1.0	2.0								U
Carbon tetrachloride	0.50	1.0								U
Chlorobenzene	0.50	1.0								U
Chloroethane	0.50	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	0.50	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	0.50	1.0								U
Ethylbenzene	0.50	1.0								U
Hexachlorobutadiene	1.0	1.0								U
Isopropylbenzene	0.50	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	0.50	2.0								U
Naphthalene	0.50	1.0								U
n-Butylbenzene	0.50	1.0								U
n-Propylbenzene	0.50	1.0								U
o-Xylene	0.50	1.0								U
sec-Butylbenzene	0.50	1.0								U
Styrene	0.50	1.0								U
tert-Butylbenzene	0.50	1.0								U
Tetrachloroethene	0.50	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	0.50	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*45.09*	*1.0*	*50*	*0*	*90.2*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*48.89*	*1.0*	*50*	*0*	*97.8*	*85 - 114*				
Surr: Dibromofluoromethane	*45.31*	*1.0*	*50*	*0*	*90.6*	*80 - 119*				
Surr: Toluene-d8	*52.99*	*1.0*	*50*	*0*	*106*	*89 - 112*				

ALS Houston, US Date: 12-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19031013

QC BATCH REPORT NEW

Batch ID: R335378 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-190326** Units: **UG/L** Analysis Date: **26-Mar-2019 13:26**
Client ID: Run ID: **VOA6_335378** SeqNo: **5008736** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	59.18	1.0	50	0	118	78 - 124				
1,1,1-Trichloroethane	49.91	1.0	50	0	99.8	74 - 131				
1,1,2,2-Tetrachloroethane	56.51	1.0	50	0	113	71 - 121				
1,1,2-Trichloroethane	56.76	1.0	50	0	114	80 - 119				
1,1-Dichloroethane	48.82	1.0	50	0	97.6	77 - 125				
1,1-Dichloroethene	48.97	1.0	50	0	97.9	71 - 131				
1,1-Dichloropropene	50.25	1.0	50	0	100	78 - 125				
1,2,3-Trichlorobenzene	62.38	1.0	50	0	125	69 - 129				
1,2,3-Trichloropropane	60.16	1.0	50	0	120	73 - 122				
1,2,4-Trichlorobenzene	62.08	1.0	50	0	124	69 - 130				
1,2,4-Trimethylbenzene	62.05	1.0	50	0	124	76 - 124				S
1,2-Dibromo-3-chloropropane	60.85	1.0	50	0	122	62 - 128				
1,2-Dibromoethane	59.41	1.0	50	0	119	77 - 121				
1,2-Dichlorobenzene	57.13	1.0	50	0	114	80 - 119				
1,2-Dichloroethane	53.57	1.0	50	0	107	73 - 128				
1,2-Dichloropropane	52.36	1.0	50	0	105	78 - 122				
1,3,5-Trimethylbenzene	60.55	1.0	50	0	121	75 - 124				
1,3-Dichlorobenzene	57.8	1.0	50	0	116	80 - 119				
1,3-Dichloropropane	57.1	1.0	50	0	114	80 - 119				
1,4-Dichlorobenzene	56.85	1.0	50	0	114	79 - 118				
2,2-Dichloropropane	51.22	1.0	50	0	102	60 - 139				
2-Butanone	109.7	2.0	100	0	110	56 - 143				
2-Chlorotoluene	56	1.0	50	0	112	79 - 122				
2-Hexanone	117.1	2.0	100	0	117	57 - 139				
4-Chlorotoluene	57.36	1.0	50	0	115	78 - 122				
4-Isopropyltoluene	60.43	1.0	50	0	121	77 - 127				
4-Methyl-2-pentanone	115.8	2.0	100	0	116	67 - 130				
Acetone	104.5	2.0	100	0	104	39 - 160				
Benzene	54.3	1.0	50	0	109	79 - 120				
Bromobenzene	59.62	1.0	50	0	119	80 - 120				
Bromochloromethane	51.72	1.0	50	0	103	78 - 123				
Bromodichloromethane	56.5	1.0	50	0	113	79 - 125				
Bromoform	60.49	1.0	50	0	121	66 - 130				
Bromomethane	52.77	1.0	50	0	106	53 - 141				

ALS Houston, US Date: 12-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19031013

QC BATCH REPORT NEW

Batch ID: R335378 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-190326** Units: **UG/L** Analysis Date: **26-Mar-2019 13:26**
Client ID: Run ID: **VOA6_335378** SeqNo: **5008736** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	94.6	2.0	100	0	94.6	64 - 133				
Carbon tetrachloride	55.46	1.0	50	0	111	72 - 136				
Chlorobenzene	54.64	1.0	50	0	109	82 - 118				
Chloroethane	47.94	1.0	50	0	95.9	60 - 138				
Chloroform	50.48	1.0	50	0	101	79 - 124				
Chloromethane	51.79	1.0	50	0	104	50 - 139				
cis-1,2-Dichloroethene	50.02	1.0	50	0	100	78 - 123				
cis-1,3-Dichloropropene	53.85	1.0	50	0	108	75 - 124				
Dibromochloromethane	59.63	1.0	50	0	119	74 - 126				
Dibromomethane	55.72	1.0	50	0	111	79 - 123				
Dichlorodifluoromethane	59.44	1.0	50	0	119	32 - 152				
Ethylbenzene	58.6	1.0	50	0	117	79 - 121				
Hexachlorobutadiene	62.03	1.0	50	0	124	66 - 134				
Isopropylbenzene	58.17	1.0	50	0	116	72 - 131				
m,p-Xylene	114.5	2.0	100	0	115	80 - 121				
Methylene chloride	50.68	2.0	50	0	101	74 - 124				
Naphthalene	63.48	1.0	50	0	127	61 - 128				
n-Butylbenzene	62.6	1.0	50	0	125	75 - 128				
n-Propylbenzene	58.67	1.0	50	0	117	76 - 126				
o-Xylene	56.01	1.0	50	0	112	78 - 122				
sec-Butylbenzene	58.01	1.0	50	0	116	77 - 126				
Styrene	59.49	1.0	50	0	119	78 - 123				
tert-Butylbenzene	57.39	1.0	50	0	115	78 - 124				
Tetrachloroethene	57.94	1.0	50	0	116	74 - 129				
Toluene	57.21	1.0	50	0	114	80 - 121				
trans-1,2-Dichloroethene	49.24	1.0	50	0	98.5	75 - 124				
trans-1,3-Dichloropropene	58.56	1.0	50	0	117	73 - 127				
Trichloroethene	51.9	1.0	50	0	104	79 - 123				
Trichlorofluoromethane	49.99	1.0	50	0	100.0	65 - 141				
Vinyl chloride	48.66	1.0	50	0	97.3	58 - 137				
Surr: 1,2-Dichloroethane-d4	*45.08*	*1.0*	*50*	*0*	*90.2*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*49.32*	*1.0*	*50*	*0*	*98.6*	*85 - 114*				
Surr: Dibromofluoromethane	*46.14*	*1.0*	*50*	*0*	*92.3*	*80 - 119*				
Surr: Toluene-d8	*52.93*	*1.0*	*50*	*0*	*106*	*89 - 112*				

ALS Houston, US Date: 12-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19031013

QC BATCH REPORT NEW

Batch ID: R335378 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS19031013-07MS** Units: **UG/L** Analysis Date: **26-Mar-2019 17:03**
Client ID: **35AWW20_031919** Run ID: **VOA6_335378** SeqNo: **5008743** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	11.16	1.0	20	0	55.8	78 - 124				S
1,1,1-Trichloroethane	11.15	1.0	20	0	55.7	74 - 131				S
1,1,2,2-Tetrachloroethane	15.76	1.0	20	0	78.8	71 - 121				
1,1,2-Trichloroethane	53.04	1.0	20	37.94	75.5	80 - 119				S
1,1-Dichloroethane	185.5	1.0	20	186	-2.54	77 - 125				SO
1,1-Dichloroethene	1050	1.0	20	1097	-235	71 - 131				SEO
1,1-Dichloropropene	11.14	1.0	20	0	55.7	78 - 125				S
1,2,3-Trichlorobenzene	10.79	1.0	20	0	53.9	69 - 129				S
1,2,3-Trichloropropane	16.08	1.0	20	0	80.4	73 - 122				
1,2,4-Trichlorobenzene	10.13	1.0	20	0	50.7	69 - 130				S
1,2,4-Trimethylbenzene	11.2	1.0	20	0	56.0	76 - 124				S
1,2-Dibromo-3-chloropropane	19.5	1.0	20	0	97.5	62 - 128				
1,2-Dibromoethane	12.4	1.0	20	0	62.0	77 - 121				S
1,2-Dichlorobenzene	20.35	1.0	20	7.577	63.9	80 - 119				S
1,2-Dichloroethane	23.92	1.0	20	13.75	50.8	73 - 128				S
1,2-Dichloropropane	9.635	1.0	20	0	48.2	78 - 122				S
1,3,5-Trimethylbenzene	10.98	1.0	20	0	54.9	75 - 124				S
1,3-Dichlorobenzene	10.86	1.0	20	0	54.3	80 - 119				S
1,3-Dichloropropane	11.74	1.0	20	0	58.7	80 - 119				S
1,4-Dichlorobenzene	11.93	1.0	20	0	59.7	79 - 118				S
2,2-Dichloropropane	10.85	1.0	20	0	54.2	60 - 139				S
2-Butanone	33.46	2.0	40	0	83.6	56 - 143				
2-Chlorotoluene	10.92	1.0	20	0	54.6	79 - 122				S
2-Hexanone	38.21	2.0	40	0	95.5	57 - 139				
4-Chlorotoluene	10.67	1.0	20	0	53.4	78 - 122				S
4-Isopropyltoluene	10.47	1.0	20	0	52.3	77 - 127				S
4-Methyl-2-pentanone	35.59	2.0	40	0	89.0	67 - 130				
Acetone	31.41	2.0	40	0	78.5	39 - 160				
Benzene	13.32	1.0	20	3.04	51.4	79 - 120				S
Bromobenzene	11.36	1.0	20	0	56.8	80 - 120				S
Bromochloromethane	9.213	1.0	20	0	46.1	78 - 123				S
Bromodichloromethane	9.838	1.0	20	0	49.2	79 - 125				S
Bromoform	13.52	1.0	20	0	67.6	66 - 130				
Bromomethane	10.32	1.0	20	0	51.6	53 - 141				S

ALS Houston, US Date: 12-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19031013

QC BATCH REPORT NEW

Batch ID: R335378 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS19031013-07MS** Units: **UG/L** Analysis Date: **26-Mar-2019 17:03**
Client ID: **35AWW20_031919** Run ID: **VOA6_335378** SeqNo: **5008743** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	23.57	2.0	40	0	58.9	64 - 133				S
Carbon tetrachloride	13.73	1.0	20	0	68.6	72 - 136				S
Chlorobenzene	10.51	1.0	20	0	52.6	82 - 118				S
Chloroethane	175	1.0	20	0	875	60 - 138				S
Chloroform	9.489	1.0	20	0	47.4	79 - 124				S
Chloromethane	7.613	1.0	20	0	38.1	50 - 139				S
cis-1,2-Dichloroethene	55.42	1.0	20	49.43	30.0	78 - 123				S
cis-1,3-Dichloropropene	9.595	1.0	20	0	48.0	75 - 124				S
Dibromochloromethane	11.47	1.0	20	0	57.4	74 - 126				S
Dibromomethane	10.62	1.0	20	0	53.1	79 - 123				S
Dichlorodifluoromethane	13.94	1.0	20	0	69.7	32 - 152				
Ethylbenzene	10.95	1.0	20	0	54.8	79 - 121				S
Hexachlorobutadiene	8.847	1.0	20	0	44.2	66 - 134				S
Isopropylbenzene	10.98	1.0	20	0	54.9	72 - 131				S
m,p-Xylene	21.6	2.0	40	0	54.0	80 - 121				S
Methylene chloride	9.478	2.0	20	0	47.4	74 - 124				S
Naphthalene	14.29	1.0	20	0	71.4	61 - 128				
n-Butylbenzene	9.619	1.0	20	0	48.1	75 - 128				S
n-Propylbenzene	11.04	1.0	20	0	55.2	76 - 126				S
o-Xylene	11.05	1.0	20	0	55.2	78 - 122				S
sec-Butylbenzene	10.57	1.0	20	0	52.8	77 - 126				S
Styrene	10.37	1.0	20	0	51.8	78 - 123				S
tert-Butylbenzene	11.34	1.0	20	0	56.7	78 - 124				S
Tetrachloroethene	12.65	1.0	20	0	63.3	74 - 129				S
Toluene	11.44	1.0	20	0	57.2	80 - 121				S
trans-1,2-Dichloroethene	14.44	1.0	20	4.915	47.6	75 - 124				S
trans-1,3-Dichloropropene	10.16	1.0	20	0	50.8	73 - 127				S
Trichloroethene	178.6	1.0	20	177.3	6.25	79 - 123				SO
Trichlorofluoromethane	13.2	1.0	20	0	66.0	65 - 141				
Vinyl chloride	61.81	1.0	20	53.81	40.0	58 - 137				S
Surr: 1,2-Dichloroethane-d4	*47.29*	*1.0*	*50*	*0*	*94.6*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*47.34*	*1.0*	*50*	*0*	*94.7*	*85 - 114*				
Surr: Dibromofluoromethane	*45.97*	*1.0*	*50*	*0*	*91.9*	*80 - 119*				
Surr: Toluene-d8	*54.67*	*1.0*	*50*	*0*	*109*	*89 - 112*				

ALS Houston, US Date: 12-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19031013

QC BATCH REPORT NEW

Batch ID: R335378 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19031013-07MSD** Units: **UG/L** Analysis Date: **26-Mar-2019 17:27**
Client ID: **35AWW20_031919** Run ID: **VOA6_335378** SeqNo: **5008744** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	14.29	1.0	20	0	71.5	78 - 124	11.16	24.6	20	SR
1,1,1-Trichloroethane	13.73	1.0	20	0	68.7	74 - 131	11.15	20.7	20	SR
1,1,2,2-Tetrachloroethane	16.44	1.0	20	0	82.2	71 - 121	15.76	4.24	20	
1,1,2-Trichloroethane	66.89	1.0	20	37.94	145	80 - 119	53.04	23.1	20	SR
1,1-Dichloroethane	248.9	1.0	20	186	315	77 - 125	185.5	29.2	20	SREO
1,1-Dichloroethene	1262	1.0	20	1097	824	71 - 131	1050	18.3	20	SEO
1,1-Dichloropropene	13.99	1.0	20	0	70.0	78 - 125	11.14	22.7	20	SR
1,2,3-Trichlorobenzene	13.99	1.0	20	0	69.9	69 - 129	10.79	25.8	20	R
1,2,3-Trichloropropane	16.44	1.0	20	0	82.2	73 - 122	16.08	2.23	20	
1,2,4-Trichlorobenzene	13.67	1.0	20	0	68.3	69 - 130	10.13	29.7	20	SR
1,2,4-Trimethylbenzene	13.83	1.0	20	0	69.1	76 - 124	11.2	21	20	SR
1,2-Dibromo-3-chloropropane	18.23	1.0	20	0	91.1	62 - 128	19.5	6.76	20	
1,2-Dibromoethane	15.92	1.0	20	0	79.6	77 - 121	12.4	24.9	20	R
1,2-Dichlorobenzene	25.18	1.0	20	7.577	88.0	80 - 119	20.35	21.2	20	R
1,2-Dichloroethane	33.16	1.0	20	13.75	97.1	73 - 128	23.92	32.4	20	R
1,2-Dichloropropane	13.43	1.0	20	0	67.1	78 - 122	9.635	32.9	20	SR
1,3,5-Trimethylbenzene	13.61	1.0	20	0	68.1	75 - 124	10.98	21.4	20	SR
1,3-Dichlorobenzene	13.83	1.0	20	0	69.1	80 - 119	10.86	24.1	20	SR
1,3-Dichloropropane	14.82	1.0	20	0	74.1	80 - 119	11.74	23.2	20	SR
1,4-Dichlorobenzene	14.9	1.0	20	0	74.5	79 - 118	11.93	22.1	20	SR
2,2-Dichloropropane	13.44	1.0	20	0	67.2	60 - 139	10.85	21.4	20	R
2-Butanone	35.67	2.0	40	0	89.2	56 - 143	33.46	6.39	20	
2-Chlorotoluene	13.5	1.0	20	0	67.5	79 - 122	10.92	21.1	20	SR
2-Hexanone	38.9	2.0	40	0	97.2	57 - 139	38.21	1.77	20	
4-Chlorotoluene	13.3	1.0	20	0	66.5	78 - 122	10.67	22	20	SR
4-Isopropyltoluene	13.64	1.0	20	0	68.2	77 - 127	10.47	26.3	20	SR
4-Methyl-2-pentanone	37.71	2.0	40	0	94.3	67 - 130	35.59	5.77	20	
Acetone	31.97	2.0	40	0	79.9	39 - 160	31.41	1.77	20	
Benzene	17.94	1.0	20	3.04	74.5	79 - 120	13.32	29.6	20	SR
Bromobenzene	13.7	1.0	20	0	68.5	80 - 120	11.36	18.7	20	S
Bromochloromethane	13.51	1.0	20	0	67.5	78 - 123	9.213	37.8	20	SR
Bromodichloromethane	14.1	1.0	20	0	70.5	79 - 125	9.838	35.6	20	SR
Bromoform	16.39	1.0	20	0	82.0	66 - 130	13.52	19.2	20	
Bromomethane	13.02	1.0	20	0	65.1	53 - 141	10.32	23.1	20	R

ALS Houston, US Date: 12-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19031013

QC BATCH REPORT NEW

Batch ID: R335378 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19031013-07MSD** Units: **UG/L** Analysis Date: **26-Mar-2019 17:27**
Client ID: **35AWW20_031919** Run ID: **VOA6_335378** SeqNo: **5008744** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Carbon disulfide	29.42	2.0	40	0	73.5	64 - 133	23.57	22.1	20	R
Carbon tetrachloride	15.62	1.0	20	0	78.1	72 - 136	13.73	12.9	20	
Chlorobenzene	13.94	1.0	20	0	69.7	82 - 118	10.51	28	20	SR
Chloroethane	213.7	1.0	20	0	1070	60 - 138	175	19.9	20	SE
Chloroform	13.25	1.0	20	0	66.3	79 - 124	9.489	33.1	20	SR
Chloromethane	11.04	1.0	20	0	55.2	50 - 139	7.613	36.7	20	R
cis-1,2-Dichloroethene	77.1	1.0	20	49.43	138	78 - 123	55.42	32.7	20	SR
cis-1,3-Dichloropropene	13.7	1.0	20	0	68.5	75 - 124	9.595	35.2	20	SR
Dibromochloromethane	14.83	1.0	20	0	74.2	74 - 126	11.47	25.6	20	R
Dibromomethane	14.69	1.0	20	0	73.4	79 - 123	10.62	32.1	20	SR
Dichlorodifluoromethane	14.89	1.0	20	0	74.5	32 - 152	13.94	6.58	20	
Ethylbenzene	14.37	1.0	20	0	71.9	79 - 121	10.95	27	20	SR
Hexachlorobutadiene	12.89	1.0	20	0	64.4	66 - 134	8.847	37.2	20	SR
Isopropylbenzene	14.32	1.0	20	0	71.6	72 - 131	10.98	26.4	20	SR
m,p-Xylene	28.13	2.0	40	0	70.3	80 - 121	21.6	26.2	20	SR
Methylene chloride	13.2	2.0	20	0	66.0	74 - 124	9.478	32.8	20	SR
Naphthalene	16.74	1.0	20	0	83.7	61 - 128	14.29	15.8	20	
n-Butylbenzene	13.53	1.0	20	0	67.7	75 - 128	9.619	33.8	20	SR
n-Propylbenzene	13.92	1.0	20	0	69.6	76 - 126	11.04	23.1	20	SR
o-Xylene	14.08	1.0	20	0	70.4	78 - 122	11.05	24.1	20	SR
sec-Butylbenzene	13.79	1.0	20	0	68.9	77 - 126	10.57	26.5	20	SR
Styrene	13.9	1.0	20	0	69.5	78 - 123	10.37	29.1	20	SR
tert-Butylbenzene	13.72	1.0	20	0	68.6	78 - 124	11.34	19	20	S
Tetrachloroethene	15.63	1.0	20	0	78.1	74 - 129	12.65	21.1	20	R
Toluene	14.2	1.0	20	0	71.0	80 - 121	11.44	21.5	20	SR
trans-1,2-Dichloroethene	19.45	1.0	20	4.915	72.7	75 - 124	14.44	29.6	20	SR
trans-1,3-Dichloropropene	14.54	1.0	20	0	72.7	73 - 127	10.16	35.5	20	SR
Trichloroethene	235.7	1.0	20	177.3	292	79 - 123	178.6	27.6	20	SREO
Trichlorofluoromethane	14.65	1.0	20	0	73.2	65 - 141	13.2	10.4	20	
Vinyl chloride	74.06	1.0	20	53.81	101	58 - 137	61.81	18	20	
Surr: 1,2-Dichloroethane-d4	*46.8*	*1.0*	*50*	*0*	*93.6*	*81 - 118*	*47.29*	*1.04*	*20*	
Surr: 4-Bromofluorobenzene	*50.69*	*1.0*	*50*	*0*	*101*	*85 - 114*	*47.34*	*6.83*	*20*	
Surr: Dibromofluoromethane	*46.32*	*1.0*	*50*	*0*	*92.6*	*80 - 119*	*45.97*	*0.744*	*20*	
Surr: Toluene-d8	*50.95*	*1.0*	*50*	*0*	*102*	*89 - 112*	*54.67*	*7.05*	*20*	

ALS Houston, US Date: 12-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19031013

QC BATCH REPORT NEW

Batch ID: R335378 (0)	Instrument: VOA6	Method: VOLATILES ORGANICS BY METHOD 8260C

The following samples were analyzed in this batch:

HS19031013-01	HS19031013-02	HS19031013-03	HS19031013-04
HS19031013-05	HS19031013-06	HS19031013-07	HS19031013-08

ALS Houston, US Date: 12-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19031013

QC BATCH REPORT NEW

Batch ID: R335714 (0) **Instrument: ICS2100** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **WBLKW1-032019** Units: **mg/L** Analysis Date: **20-Mar-2019 12:55**
Client ID: Run ID: **ICS2100_335714** SeqNo: **5016596** PrepDate: DF: **1**

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

LCS Sample ID: **WLCSW1-032019** Units: **mg/L** Analysis Date: **20-Mar-2019 13:10**
Client ID: Run ID: **ICS2100_335714** SeqNo: **5016597** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	3.758	0.100	4	0	94.0	80 - 120				
Sulfate	19.03	0.500	20	0	95.2	80 - 120				

LCSD Sample ID: **WLCSDW1-032019** Units: **mg/L** Analysis Date: **20-Mar-2019 13:25**
Client ID: Run ID: **ICS2100_335714** SeqNo: **5016598** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	3.948	0.100	4	0	98.7	80 - 120	3.758	4.93	20	
Sulfate	19.65	0.500	20	0	98.2	80 - 120	19.03	3.18	20	

MS Sample ID: **HS19031013-07MS** Units: **mg/L** Analysis Date: **20-Mar-2019 21:23**
Client ID: **35AWW20_031919** Run ID: **ICS2100_335714** SeqNo: **5016611** PrepDate: DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	10.69	0.500	10	0	107	80 - 120				
Sulfate	1195	2.50	50	1126	138	80 - 120				SEO

MSD Sample ID: **HS19031013-07MSD** Units: **mg/L** Analysis Date: **20-Mar-2019 21:38**
Client ID: **35AWW20_031919** Run ID: **ICS2100_335714** SeqNo: **5016612** PrepDate: DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	10.5	0.500	10	0	105	80 - 120	10.69	1.82	20	
Sulfate	1159	2.50	50	1126	67.7	80 - 120	1195	2.99	20	SEO

The following samples were analyzed in this batch: HS19031013-01 HS19031013-02 HS19031013-03 HS19031013-04 HS19031013-05 HS19031013-06 HS19031013-07

ALS Houston, US Date: 12-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19031013

QC BATCH REPORT NEW

Batch ID: R335875 (0) **Instrument:** ICS2100 **Method:** ANIONS BY SW9056A

MBLK Sample ID: **WBLKW2-040219** Units: **mg/L** Analysis Date: **03-Apr-2019 01:16**
Client ID: Run ID: **ICS2100_335875** SeqNo: **5020414** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	0.500	0.500								U
Sulfate	0.500	0.500								U

LCS Sample ID: **WLCSW2-040219** Units: **mg/L** Analysis Date: **03-Apr-2019 01:31**
Client ID: Run ID: **ICS2100_335875** SeqNo: **5020415** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	20.22	0.500	20	0	101	80 - 120				
Sulfate	19.98	0.500	20	0	99.9	80 - 120				

LCSD Sample ID: **WLCSDW2-040219** Units: **mg/L** Analysis Date: **03-Apr-2019 01:46**
Client ID: Run ID: **ICS2100_335875** SeqNo: **5020416** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	18.95	0.500	20	0	94.8	80 - 120	20.22	6.51	20	
Sulfate	18.67	0.500	20	0	93.3	80 - 120	19.98	6.79	20	

MS Sample ID: **HS19031013-07MS** Units: **mg/L** Analysis Date: **03-Apr-2019 04:28**
Client ID: **35AWW20_031919** Run ID: **ICS2100_335875** SeqNo: **5020427** PrepDate: DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	1535	25.0	500	1090	89.1	80 - 120				
Sulfate	1565	25.0	500	1119	89.2	80 - 120				

MSD Sample ID: **HS19031013-07MSD** Units: **mg/L** Analysis Date: **03-Apr-2019 04:43**
Client ID: **35AWW20_031919** Run ID: **ICS2100_335875** SeqNo: **5020428** PrepDate: DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	1605	25.0	500	1090	103	80 - 120	1535	4.46	20	
Sulfate	1638	25.0	500	1119	104	80 - 120	1565	4.57	20	

The following samples were analyzed in this batch: HS19031013-01 HS19031013-02 HS19031013-03 HS19031013-04 HS19031013-05 HS19031013-06 HS19031013-07

ALS Houston, US Date: 12-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19031013

QC BATCH REPORT NEW

Batch ID: R336085 (0) **Instrument: ICS2100** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **WBLKW1-040519** Units: **mg/L** Analysis Date: **05-Apr-2019 14:09**
Client ID: Run ID: **ICS2100_336085** SeqNo: **5024557** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	0.500	0.500								U

LCS Sample ID: **WLCSW1-040519** Units: **mg/L** Analysis Date: **05-Apr-2019 14:24**
Client ID: Run ID: **ICS2100_336085** SeqNo: **5024558** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	18.84	0.500	20	0	94.2	80 - 120				

LCSD Sample ID: **WLCSDW1-040519** Units: **mg/L** Analysis Date: **05-Apr-2019 14:39**
Client ID: Run ID: **ICS2100_336085** SeqNo: **5024559** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	18.86	0.500	20	0	94.3	80 - 120	18.84	0.0902	20	

MS Sample ID: **HS19040017-01MS** Units: **mg/L** Analysis Date: **05-Apr-2019 15:38**
Client ID: Run ID: **ICS2100_336085** SeqNo: **5024563** PrepDate: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	128.5	5.00	100	33.54	95.0	80 - 120				

MSD Sample ID: **HS19040017-01MSD** Units: **mg/L** Analysis Date: **05-Apr-2019 15:53**
Client ID: Run ID: **ICS2100_336085** SeqNo: **5024564** PrepDate: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	130.6	5.00	100	33.54	97.0	80 - 120	128.5	1.59	20	

The following samples were analyzed in this batch: HS19031013-05 HS19031013-06

ALS Houston, US Date: 12-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: **HS19031013**

QUALIFIERS, ACRONYMS, UNITS

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

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

Unit Reported	Description
mg/L	Milligrams per Liter

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Texas	T10470231-18-21	30-Apr-2019
North Dakota	R193 2018-2019	30-Apr-2019
Illinois	004438	29-Jun-2019
Louisiana	03087	30-Jun-2019
Dept of Defense	ANAB L2231	20-Dec-2021
Kentucky	123043 - 2018	30-Apr-2019
Kansas	E-10352 2018-2019	31-Jul-2019
Oklahoma	2018-156	31-Aug-2019
North Carolina	624-2019	31-Dec-2019
California	2919, 2018-2019	30-Apr-2019
Maryland	343, 2018-2019	30-Jun-2019
Arkansas	19-028-0	27-Mar-2020

ALS Houston, US Date: 12-Apr-19

Sample Receipt Checklist

Client Name: Bhate Environmental
Work Order: HS19031013
Date/Time Received: **20-Mar-2019 09:30**
Received by: **NDR**

Checklist completed by: *Raegen Giga* eSignature 20-Mar-2019 Date
Reviewed by: *Corey Grandits* eSignature 20-Mar-2019 Date

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

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Samplers name present on COC?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	

Temperature(s)/Thermometer(s):	0.8c uc/c	IR 11
Cooler(s)/Kit(s):	44697	
Date/Time sample(s) sent to storage:	03/20/2019 16:33	

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

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

bhate

Page: _____ of _____

Project/Phase No: NWO1312.0150

COC Number(1): _____

LIMS Number: _____

1608 13th Avenue South, Suite 300
Birmingham Alabama 35205
Tel: 205-918-4000
Fax: 205-918-4050

Chain of Custody and Analytical Request

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / Site 58

Client Name:

Collected by: Scott Beesinger

Field Sample ID (30 Characters Max)	ERPIMS LOCID (15 Characters Max)	Date Collected (dd-mmm-yyyy)	Time Collected (Military) (hhmm)	Sample Depth (beginning - ending)	SA Code (2)	Sample Number (3)	Sample Matrix (4)	Number of containers	VOC	MEE	TOC	Carbon Dioxide	Anions						Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
								Sample Analysis Requested (5)											Quality Assurance Samples (6)			
35AWW11-031919		19 MAR 2019	0815	-	N		WG	10	X	X	X	X	X									
35AWW24-031919		19 MAR 2019	0915	-	N		WG	10	X	X	X	X	X									
35AWW19-031919		19 MAR 2019	1010	-	N		WG	10	X	X	X	X	X									
HSMW07-031919		19 MAR 2019	1105		N		WG	10	X	X	X	X	X									
35AWW06-031919		19 MAR 2019	1205		N		WG	10	X	X	X	X	X									
35AWW06-031919_a		19 MAR 2019	1205	-	FD		WG	10	X	X	X	X	X									
35AWW20-031919		19 MAR 2019	1315	-	N		WG	10	X	X	X	X	X									
35AWW20-031919_MS		19 MAR 2019	1315	-	MS		WG	10	X	X	X	X	X									
35AWW20-031919_MSD		19 MAR 2019	1315	-	SD		WG	10	X	X	X	X	X									
TRIP BLANK		19 MAR 2019		-	TB		W	2	X													
				-																		

COMMENTS: _____

HS19031013

Bhate Environmental Associates, Inc.
LHAAP-58

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1. Scott Beesinger	3/19/19	1430	1. NR	3-20-19	0830
2.			2.		
3.			3.		

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: _____ Shipped _____ No.:

_____ Method of Shipment: _____

_____ Fed Ex _____ Airbill Number:

_____ Analytical Lab: ALS 10450 Stancliff Rd. Suite 210 Houston, TX 77099 (281) 530-5656

ATTN: SONIA WEST Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01)

2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-c) Sample, FD = Field Duplicate (-a) Samples, FR = Field Replicate (-b) Samples, EB = Equipment Blank (-d) Samples, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-e)

3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)

4.) Matrix Codes: GS = Soil Gas, WG = Groundwater, WS = Surface Water, SO = Soil, SE = Sediment, SL = Sludge, SS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blanks

5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each.

6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 10109901 in the Equipment Blank Lot Control

TCLP VOC 0-8
in XX 11 6/F-O

444697

00948302

ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5667

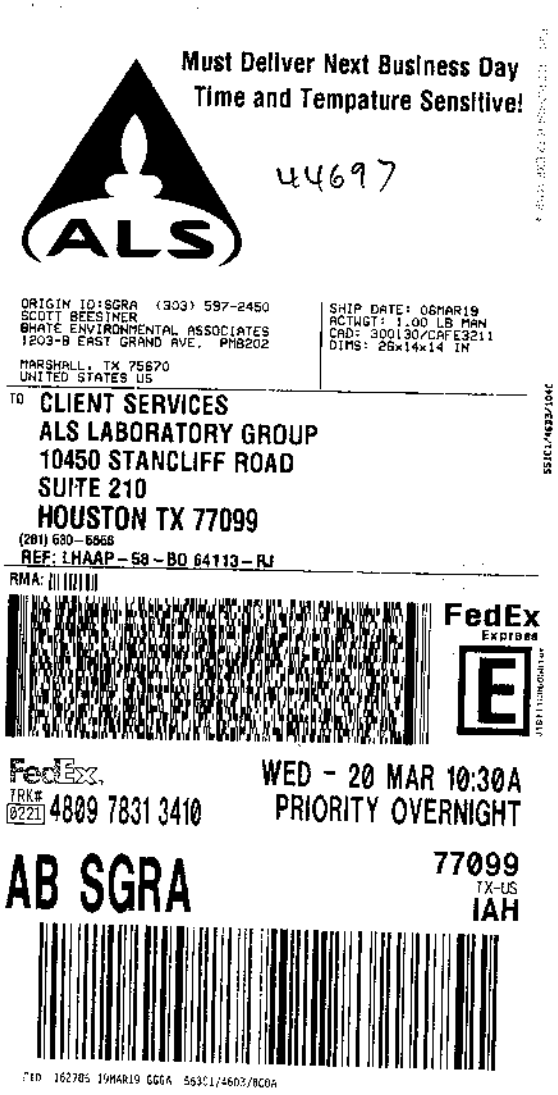
44697

CUSTODY SEAL

Date: 3/19/19 Time: 1430
Name: Scott Beesinger
Company: BHATE

Seal Broken By: SM
Date: 03/20/19

44697 MAR 2 0 2019



ALS Environmental
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March 28, 2019

Analytical Report for Service Request No: K1902435

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

RE: HS19031013

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory March 21, 2019
For your reference, these analyses have been assigned our service request number **K1902435.**

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

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

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Kelley Lovejoy

Kelley Lovejoy
Project Manager

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Acronyms

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

Inorganic Data Qualifiers

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

Metals Data Qualifiers

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

Organic Data Qualifiers

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

Additional Petroleum Hydrocarbon Specific Qualifiers

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

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

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

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

Case Narrative

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

ALS Environmental

Client: ALS Environmental - US
Project: HS19031013
Sample Matrix: Ground Water

Service Request: K1902435
Date Received: 03/21/2019

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Group. This report contains analytical results and quality control parameters for samples designated for Tier IV validation deliverables, which includes summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt:

Seven ground water samples were received for analysis at ALS Environmental on 03/21/2019. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4ºC upon receipt at the laboratory.

General Chemistry:

Method SM 5310 C, 03/27/2019: The Relative Percent Difference (RPD) criterion for the replicate analysis of Total Organic Carbon in sample 35AWW24_031919 was not applicable because the analyte concentration was not significantly greater than the Method Reporting Limit (MRL). Analytical values derived from measurements close to the detection limit are not subject to the same accuracy and precision criteria as results derived from measurements higher on the calibration range for the method.

Approved by Kelley Lovejoy Date 03/28/2019

Chain of Custody

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577- 7222 Fax (360)636-1 068
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Houston, TX 77099
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KI902435

Subcontract Chain of Custody

COC ID: 10947

SUBCONTRACT TO:

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

Phone: +1 360 501 3312

CUSTOMER INFORMATION:

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

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS19031013
TSR:	Danielle Winnings

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS19031013-01**	**35AWWLL_031919**	**Groundwater**	**19 Mar 2019 08:15**
	TOC Analysis for DOD Level IV/Excel EDD			28 Mar 2019
2.	**HS19031013-02**	**35AWW24_031919**	**Groundwater**	**19 Mar 2019 09:15**
	TOC Analysis for DOD Level IV/Excel EDD			28 Mar 2019
3.	**HS19031013-03**	**35AWW19_031919**	**Groundwater**	**19 Mar 2019 10:10**
	TOC Analysis for DOD Level IV/Excel EDD			28 Mar 2019
4.	**HS19031013-04**	**LHSMW07_031919**	**Groundwater**	**19 Mar 2019 11:05**
	TOC Analysis for DOD Level IV/Excel EDD			28 Mar 2019
5.	**HS19031013-05**	**35AWW06_031919**	**Groundwater**	**19 Mar 2019 12:05**
	TOC Analysis for DOD Level IV/Excel EDD			28 Mar 2019
6.	**HS19031013-06**	**35AWW06_031919_a**	**Groundwater**	**19 Mar 2019 12:05**
	TOC Analysis for DOD Level IV/Excel EDD			28 Mar 2019
7.	**HS19031013-07**	**35AWW20_031919**	**Groundwater**	**19 Mar 2019 13:15**
	TOC Analysis for DOD Level IV/Excel EDD			28 Mar 2019

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.
HS19031013-07 designated MS/MSD

RIGHT SOLUTIONS | RIGHT PARTNER

Subcontract Chain of Custody

COC ID: 10947

QC Level: DOD IV (DoD Data Package)

Relinquished By: R Cisa Date/Time: 3/20/19 1800

Received By: R Morrow ALS Date/Time: 3/21/19 0940

Cooler ID(s): Temperature(s):

PC KL

Cooler Receipt and Preservation Form

Client ALS-Houston Service Request *K19* 02435

Received: 3/21/19 Opened: 3/21/19 By: [illegible] Unloaded: 3/21/19 By: [illegible]

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

Raw Cooler Temp	Corrected Cooler Temp	Raw Temp Blank	Corrected Temp Blank	Corr. Factor	Thermometer ID	Cooler/COC ID NA	Tracking Number NA	Filed
2.4	2.1	1.4	1.1	-0.3	322	10147	449978318721	

4. Packing material: *Inserts* (*Baggies*) (*Bubble Wrap*) *Gel Packs* (*Wet Ice*) *Dry Ice* *Sleeves* _____
5. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
6. Were samples received in good condition (temperature, unbroken)? *Indicate in the table below.* NA (Y) N
   If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*
7. Were all sample labels complete (i.e analysis, preservation, etc.)? NA (Y) N
8. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA (Y) N
9. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
10. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA (Y) N
11. Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N
12. Was C12/Res negative? (NA) Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

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

Notes, Discrepancies, & Resolutions: _____

General Chemistry

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577- 7222 Fax (360)636-1 068
www.alsglobal.com

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	K1902435
Project:	HS19031013	**Date Collected:**	03/19/19
Sample Matrix:	Ground Water	**Date Received:**	03/21/19
Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Carbon, Total Organic

Sample Name	Lab Code	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
35AAWW11_031919	K1902435-001	**485**	10	4	2	20	03/27/19 00:00	
35AWW24_031919	K1902435-002	**1.68**	0.50	0.20	0.07	1	03/27/19 00:29	
35AWW19_031919	K1902435-003	**2.20**	0.50	0.20	0.07	1	03/27/19 00:57	
LHSMW07_031919	K1902435-004	**4.11**	0.50	0.20	0.07	1	03/27/19 01:25	
35AWW06_031919	K1902435-005	**407**	10	4	2	20	03/27/19 01:53	
35AWW06_031919_a	K1902435-006	**386**	10	4	2	20	03/27/19 02:21	
35AWW20_031919	K1902435-007	**12.0**	0.50	0.20	0.07	1	03/27/19 02:49	
Method Blank	K1902435-MB	ND U	0.50	0.20	0.07	1	03/26/19 23:31	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K1902435
Project	HS19031013	**Date Collected:**	03/19/19
Sample Matrix:	Ground Water	**Date Received:**	03/21/19
Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Replicate Sample Summary
Carbon, Total Organic

Sample Name:	Lab Code:	MRL	LOQ	MDL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
Batch QC	K1902121-001DUP	0.50	0.20	0.07	ND U	ND U	NC	NC	10	03/26/19
Batch QC	K1902147-001DUP	1.0	0.4	0.2	19.6	19.6	19.6	<1	10	03/27/19
Batch QC	K1902232-002DUP	0.50	0.20	0.07	9.74	9.65	9.70	<1	10	03/27/19
Batch QC	K1902232-003DUP	0.50	0.20	0.07	13.7	13.5	13.6	2	10	03/27/19
Batch QC	K1902254-001DUP	0.50	0.20	0.07	6.16	6.19	6.17	<1	10	03/26/19
Batch QC	K1902254-002DUP	0.50	0.20	0.07	18.2	18.3	18.3	<1	10	03/26/19
Batch QC	K1902254-003DUP	0.50	0.20	0.07	21.8	22.2	22.0	2	10	03/26/19
Batch QC	K1902257-001DUP	0.50	0.20	0.07	ND U	0.30 J	NC	NC	10	03/27/19
Batch QC	K1902257-002DUP	0.50	0.20	0.07	1.85	1.83	1.84	2	10	03/27/19
Batch QC	K1902257-003DUP	0.50	0.20	0.07	ND U	0.17 J	NC	NC	10	03/27/19
Batch QC	K1902257-004DUP	0.50	0.20	0.07	ND U	0.15 J	NC	NC	10	03/27/19
Batch QC	K1902257-005DUP	0.50	0.20	0.07	ND U	0.21 J	NC	NC	10	03/27/19
35AAWW11_031919	K1902435-001DUP	10	4	2	485	490	488	<1	10	03/27/19
35AWW24_031919	K1902435-002DUP	0.50	0.20	0.07	1.68	1.42	1.55	17 *	10	03/27/19
35AWW19_031919	K1902435-003DUP	0.50	0.20	0.07	2.20	2.14	2.17	3	10	03/27/19
LHSMW07_031919	K1902435-004DUP	0.50	0.20	0.07	4.11	4.03	4.07	2	10	03/27/19
35AWW06_031919	K1902435-005DUP	10	4	2	407	408	407	<1	10	03/27/19
35AWW06_031919_a	K1902435-006DUP	10	4	2	386	386	386	<1	10	03/27/19
35AWW20_031919	K1902435-007DUP	0.50	0.20	0.07	12.0	11.8	11.9	1	10	03/27/19

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

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

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

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K1902435
Project:	HS19031013	**Date Collected:**	03/19/19
Sample Matrix:	Ground Water	**Date Received:**	03/21/19
		Date Analyzed:	03/27/19
		Date Extracted:	NA

Matrix Spike Summary
Carbon, Total Organic

Sample Name:	35AWW20_031919	**Units:**	mg/L
Lab Code:	K1902435-007	**Basis:**	NA
Analysis Method:	SM 5310 C		
Prep Method:	None		

Matrix Spike
K1902435-007MS

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Carbon, Total Organic	12.0	34.6	25.0	90	83-117

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

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

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

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K1902435
Project:	HS19031013	**Date Analyzed:**	03/26/19
Sample Matrix:	Ground Water	**Date Extracted:**	NA

Lab Control Sample Summary
Carbon, Total Organic

Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	629615

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1902435-LCS	26.5	25.0	106	83-117

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US **Service Request:** K1902435
Project: HS19031013

Continuing Calibration Verification (CCV) Summary

Carbon, Total Organic

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

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	629615	KQ1904012-05	03/26/19 18:05	25.0	26.7	107	90-110
CCV2	629615	KQ1904012-06	03/26/19 23:02	25.0	26.0	104	90-110
CCV3	629615	KQ1904012-07	03/27/19 03:31	25.0	27.2	109	90-110
CCV4	629615	KQ1904012-08	03/27/19 09:10	25.0	26.2	105	90-110

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US **Service Request:**K1902435
Project: HS19031013

Continuing Calibration Blank (CCB) Summary
Carbon, Total Organic

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

	Analysis Lot	Lab Code	Date Analyzed	LOQ	LOD	MDL	Result	Q
CCB1	629615	KQ1904012-01	03/26/19 18:20	0.50	0.20	0.07	ND	U
CCB2	629615	KQ1904012-02	03/26/19 23:16	0.50	0.20	0.07	ND	U
CCB3	629615	KQ1904012-03	03/27/19 03:46	0.50	0.20	0.07	ND	U
CCB4	629615	KQ1904012-04	03/27/19 09:24	0.50	0.20	0.07	ND	U

Raw Data

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
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General Chemistry

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
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Work Request # Original ( ) KI902074, 2102, 2436, 2437, 2513, 2121, 2147, 2232, 2254, 2257, 2435, 2258, 2334, 2348, 2495, 2381, 2418 #V

Tier: II II I I III I II II II I IV II II II I II

Date Analyzed: 3/26/19

Analyst: BCD

Run # DOC: 629614, TOC: 629615, 629616, 629617

Analysis: TOC/DOC

DATA QUALITY REPORT
INORGANICS

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

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

COMMENTS: KI902418-5 requires minimum dilution due to dirty sample.
KI902435-2/2d report a high %RSD, but these samples are less than 5x the MRL.

Final Approved by: _____ Date: 03/28/19

DQREPORT

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 629614 **Method/Testcode:** SM 5310 C/TOC D

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	T
K1902074-001	Carbon, Dissolved Organic (DOC)	N/A		Effluent	1.55 mg/L	10 ml	1.55 mg/L	1	0.07	0.50			3/26/19 14:48	N	I
K1902074-002	Carbon, Dissolved Organic (DOC)	N/A		Water	1.53 mg/L	10 ml	1.53 mg/L	1	0.07	0.50			3/26/19 15:17	N	I
K1902102-001	Carbon, Dissolved Organic (DOC)	N/A		Water	8.25 mg/L	10 ml	82.5 mg/L	10	0.7	5.0			3/26/19 18:35	N	I
K1902436-001	Carbon, Dissolved Organic (DOC)	N/A		Water	11.78 mg/L	10 ml	11.8 mg/L	1	0.07	0.50			3/26/19 15:45	N	I
K1902437-001	Carbon, Dissolved Organic (DOC)	N/A		Water	15.73 mg/L	10 ml	15.7 mg/L	1	0.07	0.50			3/26/19 16:13	N	I
K1902437-002	Carbon, Dissolved Organic (DOC)	N/A		Water	2.71 mg/L	10 ml	2.71 mg/L	1	0.07	0.50			3/26/19 16:41	N	I
K1902513-001	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	9.61 mg/L	10 ml	9.61 mg/L	1	0.07	0.50			3/26/19 17:37	N	II
KQ1904011-01	Carbon, Dissolved Organic (DOC)	CCB		Effluent	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			3/26/19 13:49	N	II
KQ1904011-02	Carbon, Dissolved Organic (DOC)	CCB		Effluent	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			3/26/19 18:20	N	II
KQ1904011-03	Carbon, Dissolved Organic (DOC)	CCV		Effluent	26.87 mg/L	10 ml	26.9 mg/L	1			108		3/26/19 13:26	N	II
KQ1904011-04	Carbon, Dissolved Organic (DOC)	CCV		Effluent	26.71 mg/L	10 ml	26.7 mg/L	1			107		3/26/19 18:05	N	II
KQ1904011-05	Carbon, Dissolved Organic (DOC)	MB		Effluent	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			3/26/19 14:04	N	II
KQ1904011-06	Carbon, Dissolved Organic (DOC)	LCS		Effluent	26.93 mg/L	10 ml	26.9 mg/L	1	0.07	0.50	108		3/26/19 14:19	N	II
KQ1904011-07	Carbon, Dissolved Organic (DOC)	MS	K1902102-001	Water	35.38 mg/L	10 ml	354 mg/L	10	0.7	5.0	109		3/26/19 19:03	N	II
KQ1904011-08	Carbon, Dissolved Organic (DOC)	DUP	K1902074-001	Effluent	1.63 mg/L	10 ml	1.63 mg/L	1	0.07	0.50		5	3/26/19 14:48	N	II
KQ1904011-09	Carbon, Dissolved Organic (DOC)	DUP	K1902074-002	Water	1.53 mg/L	10 ml	1.53 mg/L	1	0.07	0.50		<1	3/26/19 15:17	N	II
KQ1904011-10	Carbon, Dissolved Organic (DOC)	DUP	K1902436-001	Water	12.20 mg/L	10 ml	12.2 mg/L	1	0.07	0.50		3	3/26/19 15:45	N	I
KQ1904011-11	Carbon, Dissolved Organic (DOC)	DUP	K1902437-001	Water	15.68 mg/L	10 ml	15.7 mg/L	1	0.07	0.50		<1	3/26/19 16:13	N	I
KQ1904011-12	Carbon, Dissolved Organic (DOC)	DUP	K1902437-002	Water	2.55 mg/L	10 ml	2.55 mg/L	1	0.07	0.50		6	3/26/19 16:41	N	I
KQ1904011-13	Carbon, Dissolved Organic (DOC)	DUP	K1902513-001	Surface Water	9.82 mg/L	10 ml	9.82 mg/L	1	0.07	0.50		2	3/26/19 17:37	N	III
KQ1904011-14	Carbon, Dissolved Organic (DOC)	DUP	K1902102-001	Water	8.24 mg/L	10 ml	82.4 mg/L	10	0.7	5.0		<1	3/26/19 18:35	N	II
KQ1904011-15	Carbon, Dissolved Organic (DOC)	CCB		Effluent	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			3/26/19 23:16	N	II
KQ1904011-16	Carbon, Dissolved Organic (DOC)	CCV		Effluent	25.97 mg/L	10 ml	26.0 mg/L	1			104		3/26/19 23:02	N	II

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

Printed 3/28/19 10:12

03/28/19

Results Summary

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 629615 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K1902121-001	Carbon, Total Organic	N/A		Reagent Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			3/26/19 20:14	N	I
K1902147-001	Carbon, Total Organic	N/A		Water	9.78 mg/L	10 ml	19.6 mg/L	2	0.2	1.0			3/27/19 04:29	N	II
K1902232-002	Carbon, Total Organic	N/A		Water	9.74 mg/L	10 ml	9.74 mg/L	1	0.07	0.50			3/27/19 04:57	N	II
K1902232-003	Carbon, Total Organic	N/A		Water	13.73 mg/L	10 ml	13.7 mg/L	1	0.07	0.50			3/27/19 05:25	N	II
K1902254-001	Carbon, Total Organic	N/A		Water	6.16 mg/L	10 ml	6.16 mg/L	1	0.07	0.50			3/26/19 21:10	N	II
K1902254-002	Carbon, Total Organic	N/A		Water	18.23 mg/L	10 ml	18.2 mg/L	1	0.07	0.50			3/26/19 21:38	N	II
K1902254-003	Carbon, Total Organic	N/A		Water	21.81 mg/L	10 ml	21.8 mg/L	1	0.07	0.50			3/26/19 22:06	N	II
K1902257-001	Carbon, Total Organic	N/A		Water	0.30 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			3/27/19 05:53	N	I
K1902257-002	Carbon, Total Organic	N/A		Water	1.85 mg/L	10 ml	1.85 mg/L	1	0.07	0.50			3/27/19 06:21	N	I
K1902257-003	Carbon, Total Organic	N/A		Water	0.17 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			3/27/19 06:50	N	I
K1902257-004	Carbon, Total Organic	N/A		Water	0.16 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			3/27/19 07:18	N	I
K1902257-005	Carbon, Total Organic	N/A		Water	0.24 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			3/27/19 07:46	N	I
K1902435-001	Carbon, Total Organic	N/A		Ground Water	24.27 mg/L	10 ml	485 mg/L	20	2	10			3/27/19 00:00	N	IV
K1902435-002	Carbon, Total Organic	N/A		Ground Water	1.68 mg/L	10 ml	1.68 mg/L	1	0.07	0.50			3/27/19 00:29	N	IV
K1902435-003	Carbon, Total Organic	N/A		Ground Water	2.20 mg/L	10 ml	2.20 mg/L	1	0.07	0.50			3/27/19 00:57	N	IV
K1902435-004	Carbon, Total Organic	N/A		Ground Water	4.11 mg/L	10 ml	4.11 mg/L	1	0.07	0.50			3/27/19 01:25	N	IV
K1902435-005	Carbon, Total Organic	N/A		Ground Water	20.33 mg/L	10 ml	407 mg/L	20	2	10			3/27/19 01:53	N	IV
K1902435-006	Carbon, Total Organic	N/A		Ground Water	19.29 mg/L	10 ml	386 mg/L	20	2	10			3/27/19 02:21	N	IV
K1902435-007	Carbon, Total Organic	N/A		Ground Water	11.98 mg/L	10 ml	12.0 mg/L	1	0.07	0.50			3/27/19 02:49	Y	IV
KQ1904012-01	Carbon, Total Organic	CCB		Reagent Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			3/26/19 18:20	N	I
KQ1904012-02	Carbon, Total Organic	CCB		Reagent Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			3/26/19 23:16	N	I
KQ1904012-03	Carbon, Total Organic	CCB		Reagent Water	0.03 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			3/27/19 03:46	N	I
KQ1904012-04	Carbon, Total Organic	CCB		Reagent Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			3/27/19 09:24	N	I
KQ1904012-05	Carbon, Total Organic	CCV		Reagent Water	26.71 mg/L	10 ml	26.7 mg/L	1			107		3/26/19 18:05	N	I
KQ1904012-06	Carbon, Total Organic	CCV		Reagent Water	25.97 mg/L	10 ml	26.0 mg/L	1			104		3/26/19 23:02	N	I
KQ1904012-07	Carbon, Total Organic	CCV		Reagent Water	27.18 mg/L	10 ml	27.2 mg/L	1			109		3/27/19 03:31	N	I
KQ1904012-08	Carbon, Total Organic	CCV		Reagent Water	26.22 mg/L	10 ml	26.2 mg/L	1			105		3/27/19 09:10	N	I

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

03/28/19

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 6296I5 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tie
KQ1904012-09	Carbon, Total Organic	MB		Reagent Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			3/26/19 23:31	N	I
KQ1904012-10	Carbon, Total Organic	LCS		Reagent Water	26.46 mg/L	10 ml	26.5 mg/L	1	0.07	0.50	106		3/26/19 23:46	N	I
KQ1904012-11	Carbon, Total Organic	MS	K1902435-007	Ground Water	34.60 mg/L	10 ml	34.6 mg/L	1	0.07	0.50	90		3/27/19 03:17	N	I
KQ1904012-12	Carbon, Total Organic	DUP	K1902121-001	Reagent Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50		NC	3/26/19 20:14	N	I
KQ1904012-13	Carbon, Total Organic	DUP	K1902254-001	Water	6.19 mg/L	10 ml	6.19 mg/L	1	0.07	0.50		<1	3/26/19 21:10	N	II
KQ1904012-14	Carbon, Total Organic	DUP	K1902254-002	Water	18.30 mg/L	10 ml	18.3 mg/L	1	0.07	0.50		<1	3/26/19 21:38	N	II
KQ1904012-15	Carbon, Total Organic	DUP	K1902254-003	Water	22.16 mg/L	10 ml	22.2 mg/L	1	0.07	0.50		2	3/26/19 22:06	N	II
KQ1904012-16	Carbon, Total Organic	DUP	K1902435-001	Ground Water	24.50 mg/L	10 ml	490 mg/L	20	2	10		<1	3/27/19 00:00	N	IV
KQ1904012-17	Carbon, Total Organic	DUP	K1902435-002	Ground Water	1.42 mg/L	10 ml	1.42 mg/L	1	0.07	0.50		17*	3/27/19 00:29	N	IV
KQ1904012-18	Carbon, Total Organic	DUP	K1902435-003	Ground Water	2.14 mg/L	10 ml	2.14 mg/L	1	0.07	0.50		3	3/27/19 00:57	N	IV
KQ1904012-19	Carbon, Total Organic	DUP	K1902435-004	Ground Water	4.03 mg/L	10 ml	4.03 mg/L	1	0.07	0.50		2	3/27/19 01:25	N	IV
KQ1904012-20	Carbon, Total Organic	DUP	K1902435-005	Ground Water	20.38 mg/L	10 ml	408 mg/L	20	2	10		<1	3/27/19 01:53	N	IV
KQ1904012-21	Carbon, Total Organic	DUP	K1902435-006	Ground Water	19.31 mg/L	10 ml	386 mg/L	20	2	10		<1	3/27/19 02:21	N	IV
KQ1904012-22	Carbon, Total Organic	DUP	K1902435-007	Ground Water	11.85 mg/L	10 ml	11.8 mg/L	1	0.07	0.50		1	3/27/19 02:49	N	IV
KQ1904012-23	Carbon, Total Organic	DUP	K1902147-001	Water	9.79 mg/L	10 ml	19.6 mg/L	2	0.2	1.0		<1	3/27/19 04:29	N	II
KQ1904012-24	Carbon, Total Organic	DUP	K1902232-002	Water	9.65 mg/L	10 ml	9.65 mg/L	1	0.07	0.50		<1	3/27/19 04:57	N	II
KQ1904012-25	Carbon, Total Organic	DUP	K1902232-003	Water	13.50 mg/L	10 ml	13.5 mg/L	1	0.07	0.50		2	3/27/19 05:25	N	II
KQ1904012-26	Carbon, Total Organic	DUP	K1902257-001	Water	0.30 mg/L	10 ml	0.30 mg/L J	1	0.07	0.50		NC	3/27/19 05:53	N	I
KQ1904012-27	Carbon, Total Organic	DUP	K1902257-002	Water	1.83 mg/L	10 ml	1.83 mg/L	1	0.07	0.50		2	3/27/19 06:21	N	I
KQ1904012-28	Carbon, Total Organic	DUP	K1902257-003	Water	0.17 mg/L	10 ml	0.17 mg/L J	1	0.07	0.50		NC	3/27/19 06:50	N	I
KQ1904012-29	Carbon, Total Organic	DUP	K1902257-004	Water	0.15 mg/L	10 ml	0.15 mg/L J	1	0.07	0.50		NC	3/27/19 07:18	N	I
KQ1904012-30	Carbon, Total Organic	DUP	K1902257-005	Water	0.21 mg/L	10 ml	0.21 mg/L J	1	0.07	0.50		NC	3/27/19 07:46	N	I

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

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 629616 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Ti
K1902257-006	Carbon, Total Organic	N/A		Water	0.34 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			3/27/19 10:08	N	I
K1902286-001	Carbon, Total Organic	N/A		Water	2.18 mg/L	10 ml	2.18 mg/L	1	0.07	0.50			3/27/19 11:19	N	II
K1902286-002	Carbon, Total Organic	N/A		Water	1.48 mg/L	10 ml	1.48 mg/L	1	0.07	0.50			3/27/19 11:47	N	II
K1902286-003	Carbon, Total Organic	N/A		Water	1.82 mg/L	10 ml	1.82 mg/L	1	0.07	0.50			3/27/19 12:15	N	II
K1902286-004	Carbon, Total Organic	N/A		Water	1.88 mg/L	10 ml	1.88 mg/L	1	0.07	0.50			3/27/19 12:43	N	II
K1902286-005	Carbon, Total Organic	N/A		Water	1.91 mg/L	10 ml	1.91 mg/L	1	0.07	0.50			3/27/19 13:11	N	II
K1902334-001	Carbon, Total Organic	N/A		Water	1.24 mg/L	10 ml	124 mg/L	100	7	50			3/27/19 14:09	N	II
K1902334-002	Carbon, Total Organic	N/A		Water	3.16 mg/L	10 ml	316 mg/L	100	7	50			3/27/19 14:37	N	II
K1902334-003	Carbon, Total Organic	N/A		Water	2.71 mg/L	10 ml	271 mg/L	100	7	50			3/27/19 15:05	N	II
K1902334-004	Carbon, Total Organic	N/A		Water	1.62 mg/L	10 ml	162 mg/L	100	7	50			3/27/19 15:33	N	II
K1902334-005	Carbon, Total Organic	N/A		Water	1.74 mg/L	10 ml	174 mg/L	100	7	50			3/27/19 16:01	N	II
K1902348-001	Carbon, Total Organic	N/A		Water	7.24 mg/L	10 ml	72.4 mg/L	10	0.7	5.0			3/27/19 17:53	N	II
K1902448-008	Carbon, Total Organic	N/A		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			3/27/19 16:57	N	II
K1902495-002	Carbon, Total Organic	N/A		Drinking Water	0.32 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			3/27/19 17:25	N	I
KQ1904013-01	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			3/27/19 09:24	N	I
KQ1904013-02	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			3/27/19 13:54	N	I
KQ1904013-03	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			3/27/19 19:04	N	I
KQ1904013-04	Carbon, Total Organic	CCV		Water	26.22 mg/L	10 ml	26.2 mg/L	1			105		3/27/19 09:10	N	I
KQ1904013-05	Carbon, Total Organic	CCV		Water	26.02 mg/L	10 ml	26.0 mg/L	1			104		3/27/19 13:39	N	I
KQ1904013-06	Carbon, Total Organic	CCV		Water	25.79 mg/L	10 ml	25.8 mg/L	1			103		3/27/19 18:50	N	I
KQ1904013-07	Carbon, Total Organic	MB		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			3/27/19 09:39	N	I
KQ1904013-08	Carbon, Total Organic	LCS		Water	26.32 mg/L	10 ml	26.3 mg/L	1	0.07	0.50	105		3/27/19 09:54	N	I
KQ1904013-09	Carbon, Total Organic	MS	K1902257-006	Water	28.23 mg/L	10 ml	28.2 mg/L	1	0.07	0.50	113		3/27/19 10:36	N	I
KQ1904013-10	Carbon, Total Organic	DUP	K1902257-006	Water	0.24 mg/L	10 ml	0.24 mg/L J	1	0.07	0.50		NC	3/27/19 10:08	N	I
KQ1904013-11	Carbon, Total Organic	DUP	K1902286-001	Water	2.12 mg/L	10 ml	2.12 mg/L	1	0.07	0.50		2	3/27/19 11:19	N	II
KQ1904013-12	Carbon, Total Organic	DUP	K1902286-002	Water	1.48 mg/L	10 ml	1.48 mg/L	1	0.07	0.50		<1	3/27/19 11:47	N	II
KQ1904013-13	Carbon, Total Organic	DUP	K1902286-003	Water	1.74 mg/L	10 ml	1.74 mg/L	1	0.07	0.50		5	3/27/19 12:15	N	II
KQ1904013-14	Carbon, Total Organic	DUP	K1902286-004	Water	1.79 mg/L	10 ml	1.79 mg/L	1	0.07	0.50		5	3/27/19 12:43	N	II
KQ1904013-15	Carbon, Total Organic	DUP	K1902286-005	Water	1.89 mg/L	10 ml	1.89 mg/L	1	0.07	0.50		<1	3/27/19 13:11	N	II
KQ1904013-16	Carbon, Total Organic	DUP	K1902334-001	Water	1.24 mg/L	10 ml	124 mg/L	100	7	50		<1	3/27/19 14:09	N	II
KQ1904013-17	Carbon, Total Organic	DUP	K1902334-002	Water	3.10 mg/L	10 ml	310 mg/L	100	7	50		2	3/27/19 14:37	N	II
KQ1904013-18	Carbon, Total Organic	DUP	K1902334-003	Water	2.70 mg/L	10 ml	270 mg/L	100	7	50		<1	3/27/19 15:05	N	II
KQ1904013-19	Carbon, Total Organic	DUP	K1902334-004	Water	1.57 mg/L	10 ml	157 mg/L	100	7	50		3	3/27/19 15:33	N	II
KQ1904013-20	Carbon, Total Organic	DUP	K1902334-005	Water	1.71 mg/L	10 ml	171 mg/L	100	7	50		1	3/27/19 16:01	N	II
KQ1904013-21	Carbon, Total Organic	DUP	K1902448-008	Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50		NC	3/27/19 16:57	N	II

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

03/28/19

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 629616 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ1904013-22	Carbon, Total Organic	DUP	K1902495-002	Drinking Water	0.33 mg/L	10 ml	0.33 mg/L J	1	0.07	0.50		NC	3/27/19 17:25	N	I
KQ1904013-23	Carbon, Total Organic	DUP	K1902348-001	Water	7.27 mg/L	10 ml	72.7 mg/L	10	0.7	5.0		<1	3/27/19 17:53	N	II

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

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 629617 **Method/Testcode:** 415.1/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	i
K1902381-001	Carbon, Total Organic	N/A		Water	0.50 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			3/27/19 19:49	N	II
K1902381-002	Carbon, Total Organic	N/A		Water	0.51 mg/L	10 ml	0.51 mg/L	1	0.07	0.50			3/27/19 20:46	N	II
K1902381-003	Carbon, Total Organic	N/A		Water	0.49 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			3/27/19 21:14	N	II
K1902381-004	Carbon, Total Organic	N/A		Water	3.06 mg/L	10 ml	3.06 mg/L	1	0.07	0.50			3/27/19 21:42	N	II
K1902381-005	Carbon, Total Organic	N/A		Water	22.31 mg/L	10 ml	223 mg/L	10	0.7	5.0			3/27/19 22:11	N	II
K1902418-001	Carbon, Total Organic	N/A		Water	2.84 mg/L	10 ml	57 mg/L	20	2	10			3/27/19 23:36	N	IV
K1902418-002	Carbon, Total Organic	N/A		Water	3.02 mg/L	10 ml	60 mg/L	20	2	10			3/28/19 00:04	N	IV
K1902418-003	Carbon, Total Organic	N/A		Water	0.61 mg/L	10 ml	12 mg/L	20	2	10			3/28/19 00:32	N	IV
K1902418-004	Carbon, Total Organic	N/A		Water	1.86 mg/L	10 ml	9.3 mg/L	5	0.4	2.5			3/28/19 01:01	N	IV
K1902418-005	Carbon, Total Organic	N/A		Water	0.33 mg/L	10 ml	3.3 mg/L J	10	0.7	5.0			3/28/19 01:29	N	IV
K1902418-006	Carbon, Total Organic	N/A		Water	1.82 mg/L	10 ml	36 mg/L	20	2	10			3/28/19 01:57	N	IV
K1902418-007	Carbon, Total Organic	N/A		Water	4.28 mg/L	10 ml	86 mg/L	20	2	10			3/28/19 02:25	N	IV
KQ1904014-01	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			3/27/19 19:04	N	II
KQ1904014-02	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			3/27/19 23:21	N	II
KQ1904014-03	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			3/28/19 03:36	N	II
KQ1904014-04	Carbon, Total Organic	CCV		Water	25.79 mg/L	10 ml	25.8 mg/L	1			103		3/27/19 18:50	N	II
KQ1904014-05	Carbon, Total Organic	CCV		Water	25.99 mg/L	10 ml	26.0 mg/L	1			104		3/27/19 23:07	N	II
KQ1904014-06	Carbon, Total Organic	CCV		Water	25.83 mg/L	10 ml	25.8 mg/L	1			103		3/28/19 03:21	N	II
KQ1904014-07	Carbon, Total Organic	MB		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			3/27/19 19:20	N	II
KQ1904014-08	Carbon, Total Organic	LCS		Water	26.35 mg/L	10 ml	26.4 mg/L	1	0.07	0.50	105		3/27/19 19:34	N	II
KQ1904014-10	Carbon, Total Organic	DUP	K1902381-001	Water	0.40 mg/L	10 ml	0.40 mg/L J	1	0.07	0.50		NC	3/27/19 19:49	N	II
KQ1904014-11	Carbon, Total Organic	MS	K1902381-001	Water	28.76 mg/L	10 ml	28.8 mg/L	1	0.07	0.50	115		3/27/19 20:17	N	II
KQ1904014-12	Carbon, Total Organic	DUP	K1902381-002	Water	0.51 mg/L	10 ml	0.51 mg/L	1	0.07	0.50		2	3/27/19 20:46	N	II
KQ1904014-13	Carbon, Total Organic	DUP	K1902381-003	Water	0.49 mg/L	10 ml	0.49 mg/L J	1	0.07	0.50		NC	3/27/19 21:14	N	II
KQ1904014-14	Carbon, Total Organic	DUP	K1902381-004	Water	3.01 mg/L	10 ml	3.01 mg/L	1	0.07	0.50		2	3/27/19 21:42	N	II
KQ1904014-15	Carbon, Total Organic	DUP	K1902381-005	Water	22.65 mg/L	10 ml	226 mg/L	10	0.7	5.0		2	3/27/19 22:11	N	II
KQ1904014-16	Carbon, Total Organic	DUP	K1902418-001	Water	2.93 mg/L	10 ml	59 mg/L	20	2	10		3	3/27/19 23:36	N	IV
KQ1904014-17	Carbon, Total Organic	DUP	K1902418-002	Water	3.00 mg/L	10 ml	60 mg/L	20	2	10		<1	3/28/19 00:04	N	IV
KQ1904014-18	Carbon, Total Organic	DUP	K1902418-003	Water	0.62 mg/L	10 ml	12 mg/L	20	2	10		2	3/28/19 00:32	N	IV
KQ1904014-19	Carbon, Total Organic	DUP	K1902418-004	Water	1.78 mg/L	10 ml	8.9 mg/L	5	0.4	2.5		4	3/28/19 01:01	N	IV
KQ1904014-20	Carbon, Total Organic	DUP	K1902418-005	Water	0.33 mg/L	10 ml	3.3 mg/L J	10	0.7	5.0		<1	3/28/19 01:29	N	IV
KQ1904014-21	Carbon, Total Organic	DUP	K1902418-006	Water	1.77 mg/L	10 ml	35 mg/L	20	2	10		3	3/28/19 01:57	N	IV
KQ1904014-22	Carbon, Total Organic	DUP	K1902418-007	Water	4.25 mg/L	10 ml	85 mg/L	20	2	10		<1	3/28/19 02:25	N	IV

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

03/28/19

Doc: 629614
Toc: 629615, 629616, 629617

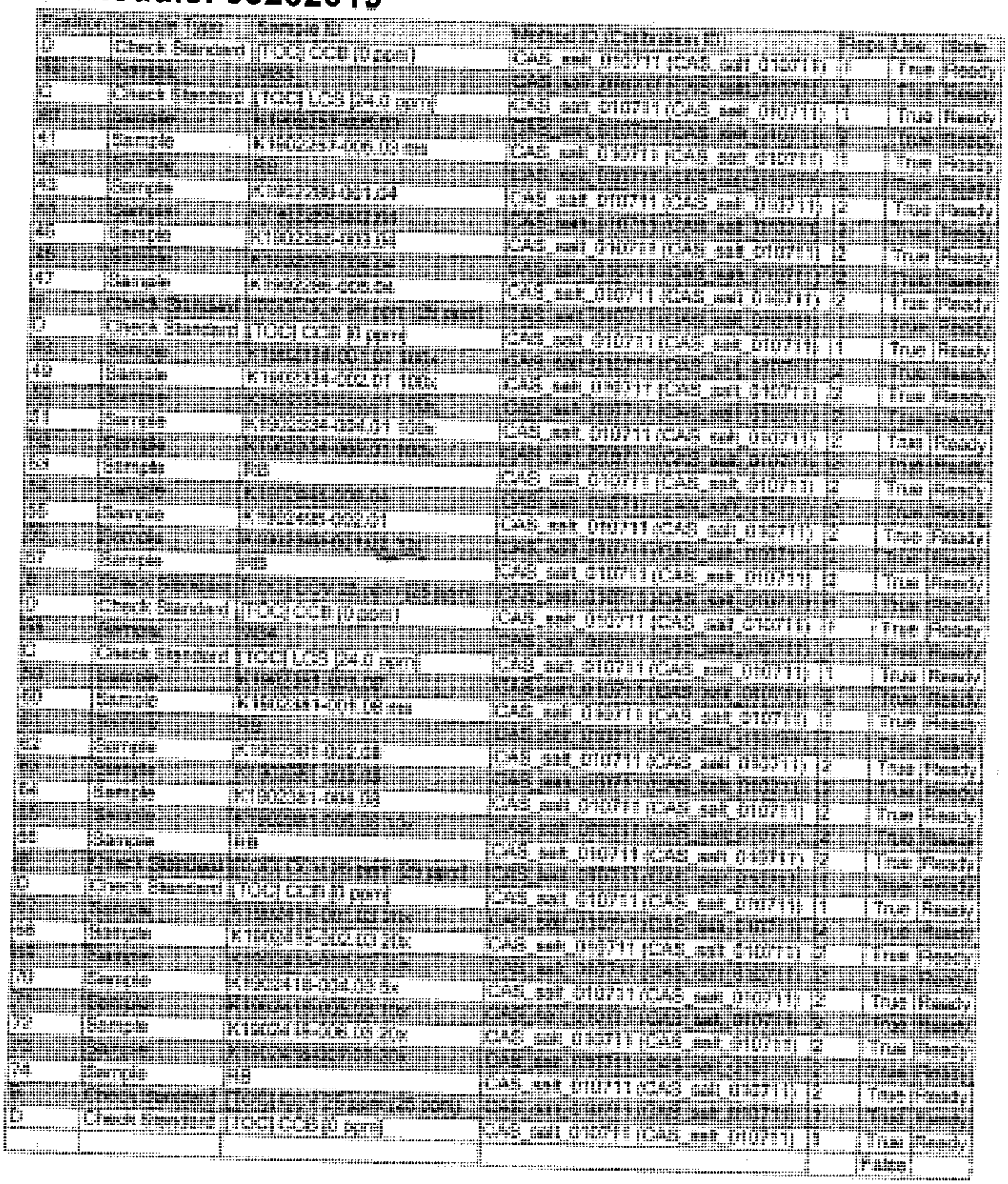
Schedule: 03262019

Version: 7
Instrument: Fusion1
Last Saved by: Fusion1 (Fusion1)
Last Saved on: 2019/03/26 13:49 - Tuesday

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
(Clean)	Clean	Clean		1	True	Ready
(Clean)	Clean	Clean		1	True	Ready
(Clean)	Clean	Clean		1	True	Ready
(Blank)	Blank	Reagent/Acid Blank		1	True	Ready
D	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
1	Sample	MB1	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
2	Sample	ICS	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
3	Sample	K1902074-001.03 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
4	Sample	K1902074-002.03 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
5	Sample	K1902436-001.01 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
6	Sample	K1902437-001.06 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
7	Sample	K1902437-002.06 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
8	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
9	Sample	K1902513-001.04 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
10	Sample	K1902102-001.01 doc 10x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
11	Sample	K1902102-001.01 ms doc 10x	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
12	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
13	Sample	FB	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
14	Sample	K1902121-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
15	Sample	K1902121-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
16	Sample	K1902254-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
17	Sample	K1902254-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
18	Sample	K1902254-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
19	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
20	Sample	MB2	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
21	Sample	K1902435-001.02 20x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
22	Sample	K1902435-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
23	Sample	K1902435-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
24	Sample	K1902435-004.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
25	Sample	K1902435-005.01 20x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
26	Sample	K1902435-006.01 20x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
27	Sample	K1902435-007.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
28	Sample	K1902435-007.01 ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
29	Sample	K1902102-001.02 10x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
30	Sample	K1902147-001.01 2x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
31	Sample	K1902232-002.12	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
32	Sample	K1902232-003.12	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
33	Sample	K1902257-001.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
34	Sample	K1902257-002.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
35	Sample	K1902257-003.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
36	Sample	K1902257-004.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
37	Sample	K1902257-005.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
38	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready

03/28/19

Schedule: 03262019



Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
C	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
41	Sample	K1902257-006.03 ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
43	Sample	K1902286-001.04	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
45	Sample	K1902286-003.04	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
47	Sample	K1902286-005.04	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
49	Sample	K1902334-002.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
51	Sample	K1902334-004.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
53	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
55	Sample	K1902495-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
57	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
C	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
60	Sample	K1902381-001.08 ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
62	Sample	K1902381-002.08	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
64	Sample	K1902381-004.08	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
66	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
68	Sample	K1902418-002.03 20x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
70	Sample	K1902418-004.03 5x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
72	Sample	K1902418-006.03 20x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
74	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
					False	

Fusion Report - 03262019
Tuesday, March 26, 2019 11:07 AM

(View - Reps, Unused Reps, Meta-Data, Signature, History)
Printed on 2019/03/28 09:24 - Thursday

Report Summary Information

Company Location:	Gen Chem Lab		
Schedule Name:	03262019	Engine Version:	1.1.5.1
Instrument Name:	Fusion1	Firmware Version:	1.2.0696
Report Version:	1 of 1	Connection:	RS232 COM1
Report Creation by Operators (schedule version):	Fusion1 (Fusion1) (v2) Fusion1 (Fusion1) (v3) Fusion1 (Fusion1) (v4) Fusion1 (Fusion1) (v5) Fusion1 (Fusion1) (v6) Fusion1 (Fusion1) (v7)		
Comment:			

03/28/19

Avr. MDL = 0.00222

Report Results

Sample Type: Clean — From Schedule Version 2

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2019/03/26 11:08

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	14.37	17.60	3.23	49.74	05:28
2	TC Clean	23.82	26.85	3.03	49.98	04:02
3	TC Clean	3.24	6.26	3.01	50.05	03:45
4	TC Clean	2.34	5.32	2.98	49.99	03:45

Sample Type: Clean — From Schedule Version 3

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2019/03/26 11:35

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	12.24	15.20	2.95	49.76	05:13
2	TC Clean	5.03	8.04	3.00	50.03	04:05

3	TC Clean	2.00	5.18	3.17	50.02	03:47
4	TC Clean	1.98	4.99	3.01	50.01	03:45

Sample Type: Clean — From Schedule Version 4

	Pos	Analysis Type	Sample ID	Start Time
◈	(clean)		Clean	2019/03/26 12:13

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	12.15	15.03	2.88	49.73	05:15
2	TC Clean	4.80	7.79	2.99	49.99	04:04
3	TC Clean	1.63	4.72	3.08	50.03	03:47
4	TC Clean	1.20	4.26	3.06	50.01	03:49

Sample Type: Blank (Creating v1239) — From Schedule Version 5

	Pos	Analysis Type	Sample ID	Start Time
◈	(blank)		Reagent/Acid Blank	2019/03/26 12:35

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	11.93	14.79	2.87	49.74	05:17
2	TC Clean	3.96	6.97	3.01	49.99	04:03
3	TC Clean	1.42	4.57	3.15	49.99	03:48
4	TC Clean	1.55	4.42	2.88	50.04	03:47
5	Reagent Blank	3.59	6.59	3.00	50.04	05:05
6	Acid Blank	1.07	3.95	2.88	49.69	05:30

Sample Type: Sample — From Schedule Version 6

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	D	TOC	RB	0.1243 ppm	0.0000 ppm	0.0000%	2019/03/26 13:11

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1243	1.2426	9.60	12.61	3.01	50.06	10:35

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7555 (IC) (v1239)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 6

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	26.8692 ppm (PASS)	0.0000 ppm	0%	2019/03/26 13:26

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	26.8692	268.6920	191.85	194.94	3.09	50.09	10:33

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

Sample Type: Check Standard --> CCB — From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/03/26 13:49

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	7.88	10.57	2.68	50.02	10:30

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

Sample Type: Sample — From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	1	TOC	MB1	0.0000 ppm	0.0000 ppm	0.0000%	2019/03/26 14:04

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.01	9.99	2.98	50.06	10:33

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7555 (IC) (v1239)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> LCS — From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	C	TOC	25.0000	1:1	[TOC] LCS [24.0 ppm]	0 / infinity (NA / NA)	26.9345 ppm (PASS)	0.0000 ppm	0%	2019/03/26 14:19

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	26.9345	269.3446	192.29	195.11	2.82	50.07	10:34

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

Sample Type: Sample From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	2	TOC	ICS	0.1604 ppm	0.0000 ppm	0.0000%	2019/03/26 14:33

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1604	1.6036	9.84	12.86	3.02	50.07	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7555 (IC) (v1239)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	3	TOC	K1902074-001.03 doc	1.5934 ppm	0.0541 ppm	3.3900%	2019/03/26 14:48

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.5552	15.5518	19.31	22.20	2.89	50.06	10:29
2	TOC	1.6316	16.3164	19.83	22.65	2.82	50.06	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7555 (IC) (v1239)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	4	TOC	K1902074-002.03 doc	1.5308 ppm	0.0032 ppm	0.2100%	2019/03/26 15:17

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.5331	15.3309	19.16	22.15	2.98	50.06	10:27
2	TOC	1.5285	15.2852	19.13	22.06	2.93	50.04	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7555 (IC) (v1239)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	5	TOC	K1902436-001.01 doc	11.9907 ppm	0.2954 ppm	2.4600%	2019/03/26 15:45

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	11.7818	117.8185	88.73	91.68	2.95	50.03	10:29
2	TOC	12.1996	121.9965	91.57	94.39	2.83	50.01	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7555 (IC) (v1239)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	6	TOC	K1902437-001.06 doc	15.7084 ppm	0.0353 ppm	0.2200%	2019/03/26 16:13

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	15.7334	157.3342	115.55	118.36	2.80	49.98	10:27
2	TOC	15.6835	156.8347	115.21	118.21	2.99	49.97	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7555 (IC) (v1239)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	7	TOC	K1902437-002.06 doc	2.6315 ppm	0.1090 ppm	4.1400%	2019/03/26 16:41

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.7086	27.0855	27.14	29.96	2.82	49.96	10:24
2	TOC	2.5545	25.5446	26.10	28.97	2.87	49.95	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7555 (IC) (v1239)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	8	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/03/26 17:09

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.92	10.75	2.83	49.93	10:28
2	TOC	0.0000	0.0000	7.60	10.59	2.99	49.93	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7555 (IC) (v1239)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	9	TOC	K1902513-001.04 doc	9.7192 ppm	0.1469 ppm	1.5100%	2019/03/26 17:37

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	9.6154	96.1536	74.02	76.90	2.88	49.92	10:28
2	TOC	9.8231	98.2308	75.43	78.39	2.96	49.93	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7555 (IC) (v1239)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	26.7138 ppm (PASS)	0.0000 ppm	0%	2019/03/26 18:05

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	26.7138	267.1377	190.79	193.63	2.83	49.92	10:31

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

Sample Type: Check Standard --> CCB — From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/03/26 18:20

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	8.05	11.10	3.06	49.92	10:31

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

Sample Type: Sample — From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	10	TOC	K1902102-001.01 doc 10x	8.2468 ppm	0.0038 ppm	0.0500%	2019/03/26 18:35

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	8.2494	82.4941	64.75	67.79	3.04	49.94	10:30
2	TOC	8.2441	82.4410	64.72	67.81	3.09	49.94	10:26

Dilution: 1:10
Blank Contribution: (TC) 8.7555 (IC) (v1239)
Method: CAS_salt_010711 (v4)
Calibration: CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	11	TOC	K1902102-001.01 ms doc 10x	35.3783 ppm	0.0000 ppm	0.0000%	2019/03/26 19:03

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	35.3783	353.7825	248.90	251.95	3.05	49.94	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7555 (IC) (v1239)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	12	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/03/26 19:17

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	8.17	11.21	3.04	49.96	10:28
2	TOC	0.0000	0.0000	7.38	10.19	2.81	49.97	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7555 (IC) (v1239)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	13	TOC	FB	0.0000 ppm	0.0000 ppm	0.0000%	2019/03/26 19:45

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.84	9.73	2.89	50.00	10:27
2	TOC	0.0000	0.0000	6.82	9.65	2.83	50.01	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7555 (IC) (v1239)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	14	TOC	K1902121-001.01	0.0000 ppm	0.0000 ppm	0.0000%	2019/03/26 20:14

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.96	9.77	2.81	50.03	10:27
2	TOC	0.0000	0.0000	6.70	9.61	2.91	50.07	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7555 (IC) (v1239)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	15	TOC	K1902121-002.01	0.0000 ppm	0.0000 ppm	0.0000%	2019/03/26 20:42

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.58	9.51	2.93	50.10	10:29
2	TOC	0.0000	0.0000	6.66	9.66	3.00	50.20	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7555 (IC) (v1239)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	16	TOC	K1902254-001.01	6.1737 ppm	0.0224 ppm	0.3600%	2019/03/26 21:10

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	6.1579	61.5790	50.56	53.63	3.07	50.05	10:27
2	TOC	6.1896	61.8958	50.77	53.84	3.07	50.15	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7555 (IC) (v1239)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	17	TOC	K1902254-002.01	18.2691 ppm	0.0456 ppm	0.2500%	2019/03/26 21:38

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	18.2368	182.3683	132.55	135.41	2.86	50.16	10:30
2	TOC	18.3014	183.0135	132.98	135.88	2.89	50.16	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7555 (IC) (v1239)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	18	TOC	K1902254-003.01	21.9911 ppm	0.2459 ppm	1.1200%	2019/03/26 22:06

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	21.8171	218.1715	156.85	159.85	3.00	50.16	10:27
2	TOC	22.1650	221.6497	159.21	162.01	2.80	50.13	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7555 (IC) (v1239)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	19	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/03/26 22:34

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	8.02	10.93	2.91	50.05	10:25
2	TOC	0.0000	0.0000	7.05	9.88	2.83	50.08	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7555 (IC) (v1239)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	25.9770 ppm (PASS)	0.0000 ppm	0%	2019/03/26 23:02

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

	Type		#							Time
B	TOC	25 ppm	1	25.9770	259.7703	185.79	188.57	2.78	50.11	10:30

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

Sample Type: Check Standard --> CCB — From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/03/26 23:16

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	7.26	9.93	2.67	50.12	10:33

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

Sample Type: Sample — From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	20	TOC	MB2	0.0000 ppm	0.0000 ppm	0.0000%	2019/03/26 23:31

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.65	9.43	2.78	50.10	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7555 (IC) (v1239)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> LCS — From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	C	TOC	25.0000	1:1	[TOC] LCS [24.0 ppm]	0 / infinity (NA / NA)	26.4596 ppm (PASS)	0.0000 ppm	0%	2019/03/26 23:46

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	26.4596	264.5965	189.07	191.89	2.82	50.10	10:30

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

Sample Type: Sample

From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	21	TOC	K1902435-001.02 20x	24.3833 ppm	0.1633 ppm	0.6700%	2019/03/27 00:00

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	24.2678	242.6782	173.48	176.33	2.85	50.11	10:28
2	TOC	24.4988	244.9881	175.05	177.89	2.84	50.13	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7555 (IC) (v1239)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	22	TOC	K1902435-002.01	1.5497 ppm	0.1862 ppm	12.0100%	2019/03/27 00:29

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.6813	16.8129	20.17	22.94	2.77	50.13	10:25
2	TOC	1.4180	14.1803	18.38	21.37	2.99	50.12	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7555 (IC) (v1239)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	23	TOC	K1902435-003.01	2.1747 ppm	0.0439 ppm	2.0200%	2019/03/27 00:57

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.2057	22.0575	23.73	26.51	2.78	50.10	10:28
2	TOC	2.1437	21.4373	23.31	26.05	2.74	50.10	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7555 (IC) (v1239)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	24	TOC	K1902435-004.01	4.0710 ppm	0.0538 ppm	1.3200%	2019/03/27 01:25

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.1090	41.0898	36.65	39.51	2.86	50.11	10:26
2	TOC	4.0330	40.3296	36.13	39.09	2.96	50.10	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7555 (IC) (v1239)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	25	TOC	K1902435-005.01 20x	20.3602 ppm	0.0335 ppm	0.1600%	2019/03/27 01:53

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

1	TOC	20.3364	203.3643	146.80	149.55	2.75	50.10	10:28
2	TOC	20.3839	203.8387	147.12	150.01	2.89	50.13	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7555 (IC) (v1239)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	26	TOC	K1902435-006.01 20x	19.3035 ppm	0.0118 ppm	0.0600%	2019/03/27 02:21

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	19.2952	192.9517	139.73	142.67	2.94	50.05	10:26
2	TOC	19.3118	193.1182	139.84	142.82	2.98	50.13	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7555 (IC) (v1239)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	27	TOC	K1902435-007.01	11.9147 ppm	0.0927 ppm	0.7800%	2019/03/27 02:49

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	11.9803	119.8029	90.08	93.00	2.92	50.11	10:28
2	TOC	11.8492	118.4917	89.19	92.20	3.02	50.10	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7555 (IC) (v1239)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	28	TOC	K1902435-007.01 ms	34.5989 ppm	0.0000 ppm	0.0000%	2019/03/27 03:17

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	34.5989	345.9893	243.61	246.68	3.07	50.10	10:34

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7555 (IC) (v1239)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	27.1839 ppm (PASS)	0.0000 ppm	0%	2019/03/27 03:31

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	27.1839	271.8387	193.98	197.05	3.06	50.12	10:31

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

Sample Type: Check Standard --> CCB

From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0289 ppm (PASS)	0.0000 ppm	0%	2019/03/27 03:46

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0289	0.2895	9.66	12.65	3.00	50.11	10:29

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

Sample Type: Sample

From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	29	TOC	K1902102-001.02 10x	8.7029 ppm	0.0840 ppm	0.9600%	2019/03/27 04:01

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	8.7622	87.6223	68.23	71.22	2.99	50.11	10:29
2	TOC	8.6435	86.4349	67.43	70.52	3.09	50.12	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7555 (IC) (v1239)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	30	TOC	K1902147-001.01 2x	9.7909 ppm	0.0061 ppm	0.0600%	2019/03/27 04:29

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	9.7865	97.8655	75.19	78.09	2.90	50.12	10:27
2	TOC	9.7952	97.9524	75.24	78.11	2.87	50.12	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7555 (IC) (v1239)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	31	TOC	K1902232-002.12	9.6974 ppm	0.0588 ppm	0.6100%	2019/03/27 04:57

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	9.7390	97.3896	74.86	77.79	2.93	50.13	10:29

2	TOC	9.6559	96.5587	74.30	77.16	2.86	50.13	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7555 (IC) (v1239)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	32	TOC	K1902232-003.12	13.6163 ppm	0.1631 ppm	1.2000%	2019/03/27 05:25

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	13.7316	137.3163	101.96	104.96	2.99	50.11	10:30
2	TOC	13.5009	135.0093	100.40	103.43	3.03	50.12	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7555 (IC) (v1239)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	33	TOC	K1902257-001.03	0.3006 ppm	0.0010 ppm	0.3500%	2019/03/27 05:53

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.2999	2.9987	10.79	13.71	2.92	50.11	10:28
2	TOC	0.3013	3.0134	10.80	13.95	3.15	50.11	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7555 (IC) (v1239)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	34	TOC	K1902257-002.03	1.8416 ppm	0.0201 ppm	1.0900%	2019/03/27 06:21

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.8559	18.5586	21.35	24.28	2.93	50.12	10:31
2	TOC	1.8274	18.2743	21.16	24.14	2.98	50.11	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7555 (IC) (v1239)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	35	TOC	K1902257-003.03	0.1685 ppm	0.0003 ppm	0.1900%	2019/03/27 06:50

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1683	1.6831	9.90	12.89	2.99	50.06	10:30
2	TOC	0.1688	1.6875	9.90	12.93	3.03	50.12	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7555 (IC) (v1239)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

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

◈ 36	TOC	K1902257-004.03	0.1572 ppm	0.0076 ppm	4.8400%	2019/03/27 07:18

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1626	1.6257	9.86	12.73	2.87	50.12	10:26
2	TOC	0.1518	1.5181	9.79	12.70	2.91	50.12	10:29

Dilution 1:10
Blank Contribution (TC) 8.7555 (IC) (v1239)
Method CAS_salt_010711 (v4)
Calibration CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	37	TOC	K1902257-005.03	0.2277 ppm	0.0260 ppm	11.4400%	2019/03/27 07:46

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.2461	2.4610	10.43	13.41	2.99	50.12	10:29
2	TOC	0.2093	2.0927	10.18	13.18	3.00	50.11	10:28

Dilution 1:10
Blank Contribution (TC) 8.7555 (IC) (v1239)
Method CAS_salt_010711 (v4)
Calibration CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	38	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/03/27 08:14

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.00	8.87	2.87	50.10	10:27
2	TOC	0.0000	0.0000	6.34	9.20	2.86	50.10	10:29
3	TOC	0.0000	0.0000	5.91	8.95	3.03	50.08	10:24
4	TOC	0.0000	0.0000	6.07	8.94	2.87	50.11	10:28

Dilution 1:10
Blank Contribution (TC) 8.7555 (IC) (v1239)
Method CAS_salt_010711 (v4)
Calibration CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm
From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	26.2176 ppm (PASS)	0.0000 ppm	0%	2019/03/27 09:10

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	26.2176	262.1760	187.43	190.23	2.80	50.10	10:30

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

Sample Type: Check Standard --> CCB

From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/03/27 09:24

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	6.96	9.79	2.82	50.09	10:29

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

Sample Type: Sample

From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	39	TOC	MB3	0.0000 ppm	0.0000 ppm	0.0000%	2019/03/27 09:39

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.30	9.03	2.73	50.08	10:33

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7555 (IC) (v1239)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> LCS

From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	C	TOC	25.0000	1:1	[TOC] LCS [24.0 ppm]	0 / infinity (NA / NA)	26.3215 ppm (PASS)	0.0000 ppm	0%	2019/03/27 09:54

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	26.3215	263.2146	188.13	191.01	2.88	50.08	10:32

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

Sample Type: Sample

From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	40	TOC	K1902257-006.03	0.2922 ppm	0.0719 ppm	24.6000%	2019/03/27 10:08

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

1	TOC	0.3430	3.4303	11.08	14.03	2.95	50.09	10:27
2	TOC	0.2414	2.4138	10.39	13.31	2.91	50.11	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7555 (IC) (v1239)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	41	TOC	K1902257-006.03 ms	28.2285 ppm	0.0000 ppm	0.0000%	2019/03/27 10:36

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	28.2285	282.2852	200.37	203.23	2.86	50.08	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7555 (IC) (v1239)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	42	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/03/27 10:51

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.17	10.08	2.91	50.04	10:28
2	TOC	0.0000	0.0000	6.42	9.42	2.99	50.05	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7555 (IC) (v1239)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	43	TOC	K1902286-001.04	2.1507 ppm	0.0378 ppm	1.7600%	2019/03/27 11:19

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.1775	21.7746	23.54	26.33	2.80	50.02	10:26
2	TOC	2.1240	21.2399	23.17	26.02	2.85	50.07	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7555 (IC) (v1239)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	44	TOC	K1902286-002.04	1.4814 ppm	0.0044 ppm	0.3000%	2019/03/27 11:47

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.4845	14.8447	18.83	21.80	2.97	50.06	10:29
2	TOC	1.4783	14.7828	18.79	21.61	2.82	50.07	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7555 (IC) (v1239)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

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

◈	45	TOC	K1902286-003.04	1.7819 ppm	0.0610 ppm	3.4300%	2019/03/27 12:15

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.8251	18.2507	21.14	24.08	2.93	50.09	10:28
2	TOC	1.7387	17.3874	20.56	23.66	3.10	50.10	10:27

Dilution 1:10
Blank Contribution (TC) 8.7555 (IC) (v1239)
Method CAS_salt_010711 (v4)
Calibration CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	46	TOC	K1902286-004.04	1.8414 ppm	0.0631 ppm	3.4300%	2019/03/27 12:43

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.8861	18.8606	21.56	24.48	2.92	50.08	10:26
2	TOC	1.7968	17.9679	20.95	24.02	3.07	50.09	10:26

Dilution 1:10
Blank Contribution (TC) 8.7555 (IC) (v1239)
Method CAS_salt_010711 (v4)
Calibration CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	47	TOC	K1902286-005.04	1.8995 ppm	0.0125 ppm	0.6600%	2019/03/27 13:11

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.9083	19.0831	21.71	24.69	2.98	50.12	10:30
2	TOC	1.8906	18.9063	21.59	24.54	2.95	50.13	10:31

Dilution 1:10
Blank Contribution (TC) 8.7555 (IC) (v1239)
Method CAS_salt_010711 (v4)
Calibration CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm

From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	26.0227 ppm (PASS)	0.0000 ppm	0%	2019/03/27 13:39

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	26.0227	260.2269	186.10	188.96	2.86	50.15	10:30

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

Sample Type: Check Standard --> CCB

From Schedule Version 7

			Concentration			Min / Max				

	Pos	BAT	(ppm)	Dil	Sample ID	(% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/03/27 13:54

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	6.99	9.90	2.91	50.16	10:31

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

Sample Type: Sample — From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	48	TOC	K1902334-001.01 100x	1.2436 ppm	0.0040 ppm	0.3200%	2019/03/27 14:09

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.2464	12.4640	17.22	20.08	2.86	50.16	10:27
2	TOC	1.2408	12.4080	17.18	19.93	2.75	50.16	10:27

Dilution: 1:10
Blank Contribution: (TC) 8.7555 (IC) (v1239)
Method: CAS_salt_010711 (v4)
Calibration: CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	49	TOC	K1902334-002.01 100x	3.1335 ppm	0.0386 ppm	1.2300%	2019/03/27 14:37

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.1608	31.6083	30.21	32.94	2.73	50.17	10:26
2	TOC	3.1062	31.0617	29.84	32.74	2.90	50.20	10:30

Dilution: 1:10
Blank Contribution: (TC) 8.7555 (IC) (v1239)
Method: CAS_salt_010711 (v4)
Calibration: CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	50	TOC	K1902334-003.01 100x	2.7063 ppm	0.0063 ppm	0.2300%	2019/03/27 15:05

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.7108	27.1076	27.16	30.15	3.00	50.19	10:25
2	TOC	2.7019	27.0192	27.10	29.98	2.89	50.21	10:26

Dilution: 1:10
Blank Contribution: (TC) 8.7555 (IC) (v1239)
Method: CAS_salt_010711 (v4)
Calibration: CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	51	TOC	K1902334-004.01 100x	1.5953 ppm	0.0330 ppm	2.0700%	2019/03/27 15:33

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.6187	16.1868	19.74	22.65	2.90	50.22	10:30
2	TOC	1.5720	15.7198	19.43	22.30	2.87	50.24	10:26

Dilution 1:10 | **Blank Contribution** (TC) 8.7555 (IC) (v1239) | **Method** CAS_salt_010711 (v4) | **Calibration** CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	52	TOC	K1902334-005.01 100x	1.7289 ppm	0.0171 ppm	0.9900%	2019/03/27 16:01

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.7410	17.4095	20.57	23.51	2.93	50.23	10:31
2	TOC	1.7168	17.1679	20.41	23.28	2.87	50.23	10:26

Dilution 1:10 | **Blank Contribution** (TC) 8.7555 (IC) (v1239) | **Method** CAS_salt_010711 (v4) | **Calibration** CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	53	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/03/27 16:29

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.55	9.35	2.80	50.24	10:29
2	TOC	0.0000	0.0000	6.24	9.12	2.88	50.23	10:26

Dilution 1:10 | **Blank Contribution** (TC) 8.7555 (IC) (v1239) | **Method** CAS_salt_010711 (v4) | **Calibration** CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	54	TOC	K1902448-008.04	0.0000 ppm	0.0000 ppm	0.0000%	2019/03/27 16:57

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.38	9.49	3.11	50.24	10:30
2	TOC	0.0000	0.0000	6.60	9.56	2.95	50.22	10:29

Dilution 1:10 | **Blank Contribution** (TC) 8.7555 (IC) (v1239) | **Method** CAS_salt_010711 (v4) | **Calibration** CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	55	TOC	K1902495-002.01	0.3265 ppm	0.0120 ppm	3.6700%	2019/03/27 17:25

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.3180	3.1799	10.91	13.83	2.92	50.25	10:28
2	TOC	0.3349	3.3493	11.03	13.96	2.93	50.22	10:29

Dilution 1:10 | **Blank Contribution** (TC) 8.7555 (IC) | **Method** CAS_salt_010711 | **Calibration** CAS_salt_010711

(v1239) (v4) (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	56	TOC	K1902348-001.02 10x	7.2570 ppm	0.0236 ppm	0.3300%	2019/03/27 17:53

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	7.2403	72.4027	57.90	60.92	3.02	50.18	10:29
2	TOC	7.2737	72.7371	58.13	61.14	3.01	50.25	10:28

Dilution: 1:10
Blank Contribution: (TC) 8.7555 (IC) (v1239)
Method: CAS_salt_010711 (v4)
Calibration: CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	57	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/03/27 18:22

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.35	10.14	2.79	50.18	10:26
2	TOC	0.0000	0.0000	7.06	10.07	3.01	50.15	10:27

Dilution: 1:10
Blank Contribution: (TC) 8.7555 (IC) (v1239)
Method: CAS_salt_010711 (v4)
Calibration: CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm
From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	25.7911 ppm (PASS)	0.0000 ppm	0%	2019/03/27 18:50

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.7911	257.9111	184.53	187.52	2.99	50.15	10:32

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

Sample Type: Check Standard --> CCB
From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/03/27 19:04

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	6.92	9.90	2.98	50.14	10:29

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

Sample Type: Sample — From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	58	TOC	MB4	0.0000 ppm	0.0000 ppm	0.0000%	2019/03/27 19:20

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.23	9.14	2.91	50.24	10:35

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7555 (IC) (v1239)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> LCS — From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	C	TOC	25.0000	1:1	[TOC] LCS [24.0 ppm]	0 / infinity (NA / NA)	26.3540 ppm (PASS)	0.0000 ppm	0%	2019/03/27 19:34

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	26.3540	263.5402	188.35	191.42	3.07	50.20	10:31

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

Sample Type: Sample — From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	59	TOC	K1902381-001.08	0.4518 ppm	0.0691 ppm	15.2900%	2019/03/27 19:49

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5007	5.0067	12.15	14.98	2.83	50.19	10:28
2	TOC	0.4030	4.0299	11.49	14.33	2.84	50.19	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7555 (IC) (v1239)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	60	TOC	K1902381-001.08 ms	28.7662 ppm	0.0000 ppm	0.0000%	2019/03/27 20:17

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

#	Analysis Type			(Abs)		(Abs)	(psig)	Time
1	TOC	28.7662	287.6623	204.02	206.95	2.93	50.20	10:34

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7555 (IC) (v1239)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	61	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/03/27 20:32

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.53	10.23	2.70	50.18	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7555 (IC) (v1239)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	62	TOC	K1902381-002.08	0.5130 ppm	0.0054 ppm	1.0600%	2019/03/27 20:46

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5092	5.0921	12.21	15.09	2.88	50.12	10:28
2	TOC	0.5169	5.1687	12.26	15.20	2.94	50.10	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7555 (IC) (v1239)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	63	TOC	K1902381-003.08	0.4906 ppm	0.0028 ppm	0.5700%	2019/03/27 21:14

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.4886	4.8859	12.07	14.98	2.90	50.04	10:28
2	TOC	0.4926	4.9256	12.10	14.77	2.68	50.08	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7555 (IC) (v1239)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	64	TOC	K1902381-004.08	3.0360 ppm	0.0405 ppm	1.3300%	2019/03/27 21:42

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.0646	30.6463	29.56	32.38	2.83	50.07	10:29
2	TOC	3.0073	30.0732	29.17	32.13	2.96	50.06	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7555 (IC) (v1239)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

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

◈	65	TOC	K1902381-005.08 10x	22.4782 ppm	0.2402 ppm	1.0700%	2019/03/27 22:11

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	22.3083	223.0831	160.18	162.95	2.76	50.03	10:28
2	TOC	22.6480	226.4803	162.49	165.42	2.93	50.04	10:27

Dilution 1:10
Blank Contribution (TC) 8.7555 (IC) (v1239)
Method CAS_salt_010711 (v4)
Calibration CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	66	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/03/27 22:39

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	8.38	11.37	3.00	49.98	10:27
2	TOC	0.0000	0.0000	7.03	9.93	2.90	50.06	10:26

Dilution 1:10
Blank Contribution (TC) 8.7555 (IC) (v1239)
Method CAS_salt_010711 (v4)
Calibration CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm
From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	25.9895 ppm (PASS)	0.0000 ppm	0%	2019/03/27 23:07

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.9895	259.8955	185.88	188.91	3.03	50.07	10:32

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

Sample Type: Check Standard --> CCB
From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/03/27 23:21

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	6.94	9.94	3.00	50.12	10:31

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

Sample Type: Sample From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	67	TOC	K1902418-001.03 20x	2.8902 ppm	0.0644 ppm	2.2300%	2019/03/27 23:36

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.8447	28.4468	28.06	31.06	3.00	50.13	10:29
2	TOC	2.9357	29.3572	28.68	31.48	2.80	50.14	10:23

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7555 (IC) (v1239)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	68	TOC	K1902418-002.03 20x	3.0139 ppm	0.0111 ppm	0.3700%	2019/03/28 00:04

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.0218	30.2175	29.27	32.13	2.86	50.14	10:29
2	TOC	3.0060	30.0599	29.16	32.09	2.93	50.14	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7555 (IC) (v1239)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	69	TOC	K1902418-003.03 20x	0.6151 ppm	0.0069 ppm	1.1200%	2019/03/28 00:32

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.6103	6.1027	12.90	15.92	3.03	50.13	10:28
2	TOC	0.6200	6.2000	12.96	15.74	2.78	50.11	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7555 (IC) (v1239)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	70	TOC	K1902418-004.03 5x	1.8228 ppm	0.0561 ppm	3.0800%	2019/03/28 01:01

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.8625	18.6249	21.40	24.27	2.87	50.13	10:29
2	TOC	1.7831	17.8309	20.86	23.77	2.91	50.12	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7555 (IC) (v1239)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	71	TOC	K1902418-005.03 10x	0.3352 ppm	0.0003 ppm	0.0900%	2019/03/28 01:29

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.3349	3.3493	11.03	13.97	2.94	50.11	10:32
2	TOC	0.3354	3.3537	11.03	14.09	3.06	50.10	10:25

Dilution 1:10 | **Blank Contribution** (TC) 8.7555 (IC) (v1239) | **Method** CAS_salt_010711 (v4) | **Calibration** CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	72	TOC	K1902418-006.03 20x	1.7954 ppm	0.0378 ppm	2.1100%	2019/03/28 01:57

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.8221	18.2213	21.12	23.85	2.73	50.12	10:31
2	TOC	1.7687	17.6865	20.76	23.80	3.03	50.15	10:26

Dilution 1:10 | **Blank Contribution** (TC) 8.7555 (IC) (v1239) | **Method** CAS_salt_010711 (v4) | **Calibration** CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	73	TOC	K1902418-007.03 20x	4.2674 ppm	0.0180 ppm	0.4200%	2019/03/28 02:25

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.2802	42.8016	37.81	40.59	2.78	50.11	10:26
2	TOC	4.2547	42.5468	37.64	40.64	3.00	50.11	10:29

Dilution 1:10 | **Blank Contribution** (TC) 8.7555 (IC) (v1239) | **Method** CAS_salt_010711 (v4) | **Calibration** CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	74	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/03/28 02:53

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.49	9.46	2.97	50.13	10:30
2	TOC	0.0000	0.0000	6.55	9.55	3.00	50.13	10:28

Dilution 1:10 | **Blank Contribution** (TC) 8.7555 (IC) (v1239) | **Method** CAS_salt_010711 (v4) | **Calibration** CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	25.8349 ppm (PASS)	0.0000 ppm	0%	2019/03/28 03:21

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

	Type		#							Time
B	TOC	25 ppm	1	25.8349	258.3486	184.83	187.84	3.01	50.12	10:29

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

Sample Type: Check Standard --> CCB From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/03/28 03:36

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	6.86	9.90	3.05	50.14	10:32

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

Meta Data Used in this Report

Blanks

Version	Reagent (Abs)	Acid (Abs)	DI IC (Abs)	DI TC (Abs)	DI TOC (Abs)	Save Time	Operator
v1238	2.8787	1.7600	0.0000	0.0000	0.0000	2019/03/21 19:27	Fusion1 (Fusion1)
v1239	1.1963	1.0700	0.0000	0.0000	0.0000	2019/03/26 13:09	Fusion1 (Fusion1)

Calibrations

Name: CAS_salt_010711 (TOC)

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

Basic Analysis Type: TOC

Sample ID	Y Raw Value	X Expected	Message	End Time
DI Water	7.8970	0.0000		2019/03/05 16:15

0.500 ppm	11.5280	0.5000		2019/03/05 16:29
1.0 ppm	14.9760	1.0000		2019/03/05 16:44
5.0 ppm	43.6500	5.0000		2019/03/05 16:58
10 ppm	79.6020	10.0000		2019/03/05 17:12
25 ppm	183.3580	25.0000		2019/03/05 17:26
50 ppm	346.3230	50.0000		2019/03/05 17:40

Methods

Name: CAS_salt_010711 (TOC)

Version: v4
Operator: Fusion1 (Fusion1)
Ver Creation: 2019/02/21 17:57
Comment:

Parameter	Value
SampleVolume	10.0 mL
Dilution	1:10
AcidVolume	0.5 ml
ReagentVolume	2.0 ml
UVReactorPrerinse	Off
UVReactorPrerinseVolume	5.0
NumberOfUVReactorPrerinses	1
ICSpargeTime	1.00 mins
DetectorSweepFlow	500 ml/min
PreSpargeTime	2.00 mins
SystemFlow	500 ml/min

Advanced Parameter	Value
NeedleRinseVolume	5.0 ml
VialPrimeVolume	2.0 ml
ICSamplePrimeVolume	2.0 ml
ICSpargeRinseVolume	12.0 ml
BaselineStabilizeTime	0.70 min
DetectorPressureFlow	150 ml/min
SyringeSpeedWaste	10
SyringeSpeedAcid	7
SyringeSpeedReagent	7
SyringeSpeedDIWater	7
NDIRPressurization	60 psig
SyringeSpeedSampleDispense	5
SyringeSpeedSampleAspirate	4
SyringeSpeedUVDispense	5
SyringeSpeedUVAspirate	5
SyringeSpeedICDispense	5
SyringeSpeedICAspirate	5
NDIRPressureStabilize	1.75 min
SampleMixing	Off
SampleMixingCycles	1
SampleMixingVolume	10.0
LowLevelFilterNDIR	Off

Acceptance / Approval

Electronic Signatures

Report Version	User Name	Acceptance	Reason	Date

Report History

Report History

Report Version	User Name	System Reason	User Reason	Date
1	Fusion1 (Fusion1)	Schedule completed	Schedule completed	2019/03/28 03:53

ALS Environmental

StarLIMS Run: 629614, 629615, 629616, 629617

Analysis: TOC/DOC

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

CCV: 11-GEN-05-77C 50 ppm LCS: 11-GEN-05-77D 25.0 ppm

ICAL Date: 3/6/19

ICAL ID: 11-GEN-05-76H

ICS ID: 11-GEN-05-74A

ICS TV: 25.0 ppm ICS % R = 2

Spike ID: 11-GEN-05-70O 0.05 ml of 5000 ppm stock ---> 10.0 ml = 25.0 ppm x dilution factor

Sodium Persulfate: 11-GEN-05-77B

21 % H3PO4: 11-GEN-05-77A

Equipment ID: K-TOC-03

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

FILTER ID: NA

Analyzed By:	BCP	Date Analyzed:	3/26/19
Reviewed By:	[signature]	Date Reviewed:	03/28/19

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
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LABORATORY REPORT

April 4, 2019

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

RE: HS19031013

Dear RJ:

Enclosed are the results of the samples submitted to our laboratory on March 21, 2019. For your reference, these analyses have been assigned our service request number P1901501.

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

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

Respectfully submitted,

ALS | Environmental

By Hayden Akers at 3:21, April 04, 2019

Hayden Akers
Project Manager

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

Client: ALS Laboratory Group
Project: HS19031013

Service Request No: P1901501

CASE NARRATIVE

The samples were received intact under chain of custody on March 21, 2019 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Carbon Dioxide Analysis

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

Manual integrations were performed on the following sample(s) and analyte(s). Refer to the raw data for additional information.

Sample Identification(s)	Analyte(s)
P1901501-005	Carbon dioxide
P1901501-007MSD	Carbon dioxide

Methane, Ethene and Ethane Analysis

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

The recovery for methane, ethene and ethane were outside the DOD control limits for the matrix spike and it's duplicate. However all control parameters for the laboratory control sample and its duplicate are within DOD criteria.

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www.alsglobal.com

Client: ALS Laboratory Group
Project: HS19031013

Service Request No: P1901501

Manual integrations were performed on the following sample(s) and analyte(s). Refer to the raw data for additional information.

Sample Identification(s)	Analyte(s)
P1901501-007MS	Ethene, Ethane

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

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

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ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Alaska DEC	http://dec.alaska.gov/eh/lab.aspx	17-019
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/page/la-lab-accreditation	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml	2018027
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1521096
New Jersey DEP (NELAP)	http://www.nj.gov/dep/enforcement/oqa.html	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-006
Pennsylvania DEP	http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html	T104704413-18-9
Utah DOH (NELAP)	http://health.utah.gov/lab/lab_cert_env	CA016272018-9
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

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

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

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: ALS Laboratory Group
Project ID: HS19031013

Service Request: P1901501

Date Received: 3/21/2019
Time Received: 09:30

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	RSK 175 - CO2	RSK 175 - Gases
35AWW11_031919	P1901501-001	Water	3/19/2019	08:15	X	X
35AWW24_031919	P1901501-002	Water	3/19/2019	09:15	X	X
35AWW19_031919	P1901501-003	Water	3/19/2019	10:10	X	X
LHSMW07_031919	P1901501-004	Water	3/19/2019	11:05	X	X
35AWW06_031919	P1901501-005	Water	3/19/2019	12:05	X	X
35AWW06_031919_a	P1901501-006	Water	3/19/2019	12:05	X	X
35AWW20_031919	P1901501-007	Water	3/19/2019	13:15	X	X

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

Subcontract Chain of Custody

COC ID: 10948

SUBCONTRACT TO:

ALS Environmental
2655 Park Center Drive, Suite A
Simi Valley, CA 93065

Phone: +1 805 526 7161

CUSTOMER INFORMATION:

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

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS19031013
TSR:	Danielle Winnings

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS19031013-01**	**35AWWLL_031919**	**Groundwater**	**19 Mar 2019 08:15**
	MEE plus CO2 Sub to ALS SimiValley			28 Mar 2019
2.	**HS19031013-02**	**35AWW24_031919**	**Groundwater**	**19 Mar 2019 09:15**
	MEE plus CO2 Sub to ALS SimiValley			28 Mar 2019
3.	**HS19031013-03**	**35AWW19_031919**	**Groundwater**	**19 Mar 2019 10:10**
	MEE plus CO2 Sub to ALS SimiValley			28 Mar 2019
4.	**HS19031013-04**	**LHSMW07_031919**	**Groundwater**	**19 Mar 2019 11:05**
	MEE plus CO2 Sub to ALS SimiValley			28 Mar 2019
5.	**HS19031013-05**	**35AWW06_031919**	**Groundwater**	**19 Mar 2019 12:05**
	MEE plus CO2 Sub to ALS SimiValley			28 Mar 2019
6.	**HS19031013-06**	**35AWW06_031919_a**	**Groundwater**	**19 Mar 2019 12:05**
	MEE plus CO2 Sub to ALS SimiValley			28 Mar 2019
7.	**HS19031013-07**	**35AWW20_031919**	**Groundwater**	**19 Mar 2019 13:15**
	MEE plus CO2 Sub to ALS SimiValley			28 Mar 2019

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.
HS19031013-07 designated MS/MSD

RIGHT SOLUTIONS | RIGHT PARTNER

P190150

Subcontract Chain of Custody

COC ID: 10948

QC Level: DOD IV (DoD Data Package)

Relinquished By: R Cross Date/Time: 3/20/19 1800

Received By: Date/Time: 3/21/19 0930

Cooler ID(s): Temperature(s): 1°C

not ICE

ALS Environmental
Sample Acceptance Check Form

Client: ALS Laboratory Group Work order: P1901501

Project: HS19031013

Sample(s) received on: 3/21/19 Date opened: 3/21/19 by: ADAVID

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

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Did **sample containers** arrive in good condition?	☒	☐	☐
3	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
4	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
5	Was **sample volume** received adequate for analysis?	☒	☐	☐
6	Are samples within specified holding times?	☒	☐	☐
7	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☒	☐	☐
	Cooler Temperature: 1° C Blank Temperature: ° C Thermometer ID CO907034581 Wet Ic			
8	Were **custody seals** on outside of cooler/Box/Container?	☒	☐	☐
	Location of seal(s)? Cooler lid. Sealing Lid?	☒	☐	☐
	Were signature and date included?	☒	☐	☐
	Were seals intact?	☒	☐	☐
9	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☒	☐	☐
	Is there a client indication that the submitted samples are **pH** preserved?	☒	☐	☐
	Were **VOA vials** checked for presence/absence of air bubbles?	☒	☐	☐
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☒	☐
10	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
11	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1901501-001.01	40mL VOA NP		7		A	wh 3/28/19
P1901501-001.04	40ml VOA HCL		1		A	wh 3/28/19
P1901501-001.07	40mL VOA NP				A	
P1901501-001.08	40ml VOA HCL				A	
P1901501-002.01	40mL VOA NP		6		A	wh 3/28/19
P1901501-002.04	40ml VOA HCL		1		A	wh 3/28/19
P1901501-002.07	40mL VOA NP				A	
P1901501-002.08	40ml VOA HCL				A	
P1901501-003.01	40mL VOA NP		6		A	wh 3/28/19
P1901501-003.04	40ml VOA HCL		1		A	wh 3/28/19
P1901501-003.07	40mL VOA NP				A	
P1901501-003.08	40ml VOA HCL				A	
P1901501-004.01	40mL VOA NP					Received Broken
P1901501-004.04	40ml VOA HCL		1		A	wh 3/28/19
P1901501-004.07	40mL VOA NP		7		A	wh 3/28/19

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

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

ALS Environmental
Sample Acceptance Check Form

Client: ALS Laboratory Group Work order: P1901501

Project: HS19031013

Sample(s) received on: 3/21/19 Date opened: 3/21/19 by: ADAVID

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1901501-004.08	40ml VOA HCL				A	
P1901501-005.01	40mL VOA NP		6		A	wh 3/28/19
P1901501-005.04	40ml VOA HCL		1		A	wh 3/28/19
P1901501-005.07	40mL VOA NP				A	
P1901501-005.08	40ml VOA HCL				A	
P1901501-006.01	40mL VOA NP		6		A	wh 3/28/19
P1901501-006.04	40ml VOA HCL		1		A	wh 3/28/19
P1901501-006.07	40mL VOA NP				A	
P1901501-006.08	40ml VOA HCL				A	
P1901501-007.01	40mL VOA NP		6		A	wh 3/28/19
P1901501-007.04	40ml VOA HCL		1		A	wh 3/28/19
P1901501-007.07	40mL VOA NP		6		A	wh 3/28/19
P1901501-007.08	40ml VOA HCL		1		A	wh 3/28/19
P1901501-007.09	40ml VOA HCL		1		A	wh 3/28/19
P1901501-007.10	40ml VOA HCL				A	
P1901501-007.11	40ml VOA HCL				A	
P1901501-007.12	40ml VOA HCL				A	
P1901501-007.13	40mL VOA NP		6		A	wh 3/28/19
P1901501-007.14	40mL VOA NP				A	
P1901501-007.15	40mL VOA NP				A	
P1901501-007.16	40mL VOA NP				A	

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

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Project ID: **HS19031013** ALS Project ID: P1901501

Carbon Dioxide

Test Code: RSK 175
Instrument ID: HP5890A/GC10/TCD
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date(s) Collected: 3/19/19
Date Received: 3/21/19
Date Analyzed: 3/28/19

Client Sample ID	ALS Sample ID	Injection Volume ml(s)	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
35AWW11_031919	P1901501-001	0.050	**940,000**	2,000	1,700	740	
35AWW24_031919	P1901501-002	0.050	**680,000**	2,000	1,700	740	
35AWW19_031919	P1901501-003	0.050	**790,000**	2,000	1,700	740	
LHSMW07_031919	P1901501-004	0.050	**440,000**	2,000	1,700	740	
35AWW06_031919	P1901501-005	0.050	**720,000**	2,000	1,700	740	
35AWW06_031919_a	P1901501-006	0.050	**670,000**	2,000	1,700	740	
35AWW20_031919	P1901501-007	0.050	**890,000**	2,000	1,700	740	
Method Control Sample	P190328-MB	0.10	860	1,000	860	370	**U**

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

ALS ENVIRONMENTAL

MATRIX SPIKE / DUPLICATE MATRIX SPIKE SUMMARY

Client: **ALS Laboratory Group**
Client Sample ID: **35AWW20_031919**
Client Project ID: **HS19031013**

ALS Project ID: P1901501
ALS Sample ID: P1901501-007MS
P1901501-007DMS

Test Code: RSK 175
Instrument ID: HP5890A/GC10/TCD
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 3/19/19
Date Received: 3/21/19
Date Analyzed: 3/28/19
Volume(s) Analyzed: 0.050 ml(s)

CAS #	Compound	Spike Amount MS / DMS ug/L	Sample Amount ug/L	Result MS ug/L	Result DMS ug/L	% Recovery MS	% Recovery DMS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
124-38-9	Carbon Dioxide	45,800	892,000	941,000	937,000	**107**	**98**	80-122	9	30	

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **ALS Laboratory Group**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P1901501
Client Project ID: **HS19031013** ALS Sample ID: P190328-DLCS

Test Code: RSK 175 Date Collected: NA
Instrument ID: HP5890A/GC10/TCD Date Received: NA
Analyst: Wade Henton Date Analyzed: 3/28/19
Matrix: Water Volume(s) Analyzed: NA ml(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS ug/L	Result[1] LCS ug/L	Result[1] DLCS ug/L	% Recovery LCS	% Recovery DLCS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
124-38-9	Carbon Dioxide	22,900	20,800	20,200	**91**	**88**	80-122	3	12	

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **35AWW11_031919** ALS Project ID: P1901501
Client Project ID: **HS19031013** ALS Sample ID: P1901501-001

Test Code: RSK 175 Date Collected: 3/19/19
Instrument ID: HP5890A/GC10/FID Date Received: 3/21/19
Analyst: Wade Henton Date Analyzed: 3/28/19
Matrix: Water Volume(s) Analyzed: 0.10 ml(s)
Test Notes:

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**450**	1.3	1.0	0.51	
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **35AWW24_031919** ALS Project ID: P1901501
Client Project ID: **HS19031013** ALS Sample ID: P1901501-002

Test Code: RSK 175 Date Collected: 3/19/19
Instrument ID: HP5890A/GC10/FID Date Received: 3/21/19
Analyst: Wade Henton Date Analyzed: 3/28/19
Matrix: Water Volume(s) Analyzed: 0.10 ml(s)
Test Notes:

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**7.8**	1.3	1.0	0.51	
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **35AWW19_031919** ALS Project ID: P1901501
Client Project ID: **HS19031013** ALS Sample ID: P1901501-003

Test Code: RSK 175 Date Collected: 3/19/19
Instrument ID: HP5890A/GC10/FID Date Received: 3/21/19
Analyst: Wade Henton Date Analyzed: 3/28/19
Matrix: Water Volume(s) Analyzed: 0.10 ml(s)
Test Notes:

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

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

J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **LHSMW07_031919**
Client Project ID: **HS19031013**

ALS Project ID: P1901501
ALS Sample ID: P1901501-004

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 3/19/19
Date Received: 3/21/19
Date Analyzed: 3/28/19
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**270**	1.3	1.0	0.51	
74-85-1	Ethene	**25**	1.0	0.55	0.24	
74-84-0	Ethane	**0.52**	0.60	0.47	0.16	**J**

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

J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **35AWW06_031919** ALS Project ID: P1901501
Client Project ID: **HS19031013** ALS Sample ID: P1901501-005

Test Code: RSK 175 Date Collected: 3/19/19
Instrument ID: HP5890A/GC10/FID Date Received: 3/21/19
Analyst: Wade Henton Date Analyzed: 3/28/19
Matrix: Water Volume(s) Analyzed: 0.10 ml(s)
Test Notes:

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**3,100**	1.3	1.0	0.51	
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **35AWW06_031919_a** ALS Project ID: P1901501
Client Project ID: **HS19031013** ALS Sample ID: P1901501-006

Test Code: RSK 175 Date Collected: 3/19/19
Instrument ID: HP5890A/GC10/FID Date Received: 3/21/19
Analyst: Wade Henton Date Analyzed: 3/28/19
Matrix: Water Volume(s) Analyzed: 0.10 ml(s)
Test Notes:

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**2,900**	1.3	1.0	0.51	
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **35AWW20_031919**
Client Project ID: **HS19031013**

ALS Project ID: P1901501
ALS Sample ID: P1901501-007

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 3/19/19
Date Received: 3/21/19
Date Analyzed: 3/28/19
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**840**	1.3	1.0	0.51	
74-85-1	Ethene	**0.94**	1.0	0.55	0.24	**J**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

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

J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **Method Control Sample** ALS Project ID: P1901501
Client Project ID: **HS19031013** ALS Sample ID: P190328-MB

Test Code: RSK 175 Date Collected: NA
Instrument ID: HP5890A/GC10/FID Date Received: NA
Analyst: Wade Henton Date Analyzed: 3/28/19
Matrix: Water Volume(s) Analyzed: 0.10 ml(s)
Test Notes:

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

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

ALS ENVIRONMENTAL

MATRIX SPIKE / DUPLICATE MATRIX SPIKE SUMMARY

Client: **ALS Laboratory Group**
Client Sample ID: **35AWW20_031919**
Client Project ID: **HS19031013**

ALS Project ID: P1901501
ALS Sample ID: P1901501-007MS
P1901501-007DMS

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 3/19/19
Date Received: 3/21/19
Date Analyzed: 3/28/19
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Spike Amount MS / DMS µg/L	Sample Amount µg/L	Result MS µg/L	Result DMS µg/L	% Recovery MS	% Recovery DMS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
74-82-8	Methane	2.52	835	532	623	**0**	**0**	73-125	0	30	**N**
74-85-1	Ethene	4.40	0.942	3.21	3.21	**52**	**52**	72-133	0	30	**N**
74-84-0	Ethane	4.72	ND	2.58	2.51	**55**	**53**	74-131	4	30	**N**

N = The matrix spike recovery is not within control limits. See case narrative.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **ALS Laboratory Group**
Client Sample ID: **Duplicate Lab Control Sample**
Client Project ID: **HS19031013**

ALS Project ID: P1901501
ALS Sample ID: P190328-LCS
P190328-DLCS

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 3/28/19
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Spike Amount LCS / DLCS µg/L	Result$_1$ LCS µg/L	Result$_1$ DLCS µg/L	% Recovery LCS	% Recovery DLCS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
74-82-8	Methane	2.50	2.38	2.38	**95**	**95**	73-125	0	26	
74-85-1	Ethene	4.37	4.38	4.29	**100**	**98**	72-133	2	11	
74-84-0	Ethane	4.69	4.62	4.57	**99**	**97**	74-131	2	10	

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

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281922.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 14:46:07
Operator : WH
Sample : P1901501-001 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 15:56:48 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.984f	93139	0.020	ppm
2)	Carbon monoxide	1.984f	93139	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.016	5048130	21506.185	ppm
6)	Methane (FID)	1.112	1182998	125.214	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

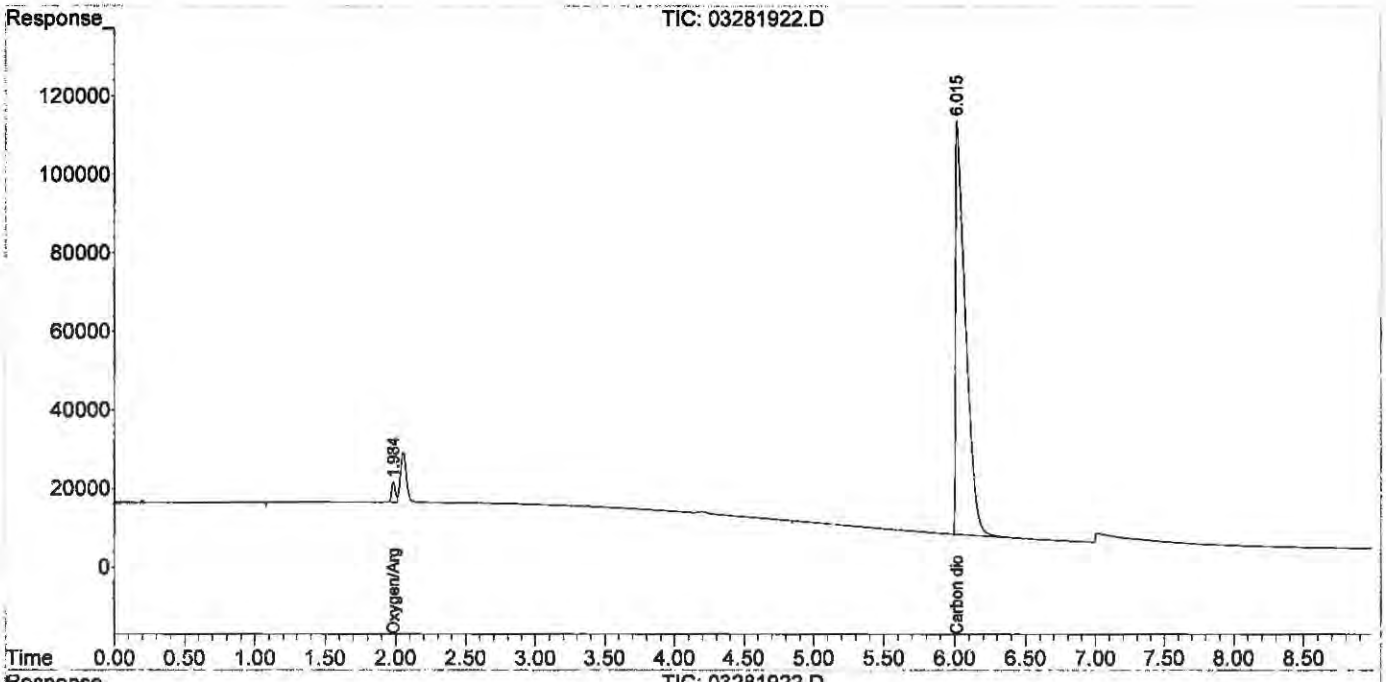
(f)=RT Delta > 1/2 Window (m)=manual int.

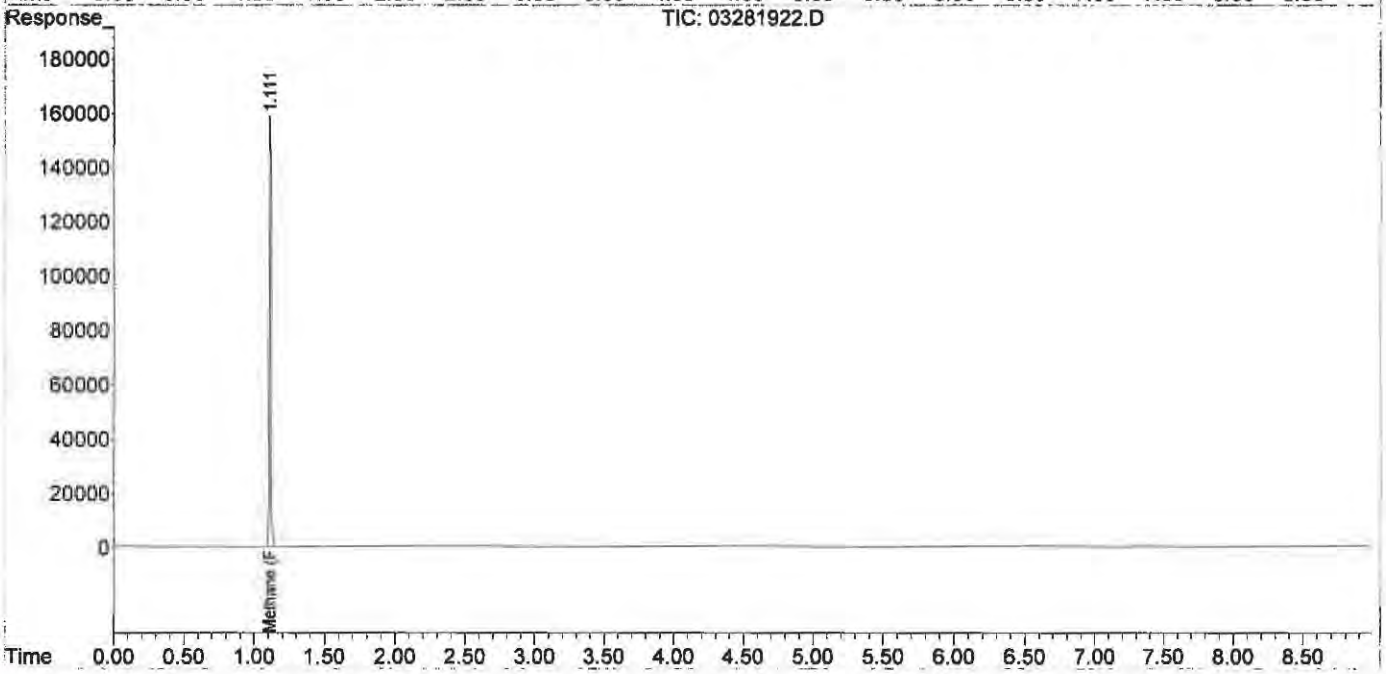
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281922.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 14:46:07
Operator : WH
Sample : P1901501-001 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 15:56:48 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281923.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 14:59:14
Operator : WH
Sample : P1901501-002 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 16:12:59 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.786	2917	0.001	ppm
2)	Carbon monoxide	1.786	2917	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.031	3633935	15481.393	ppm
6)	Methane (FID)	1.118	11567	1.224	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

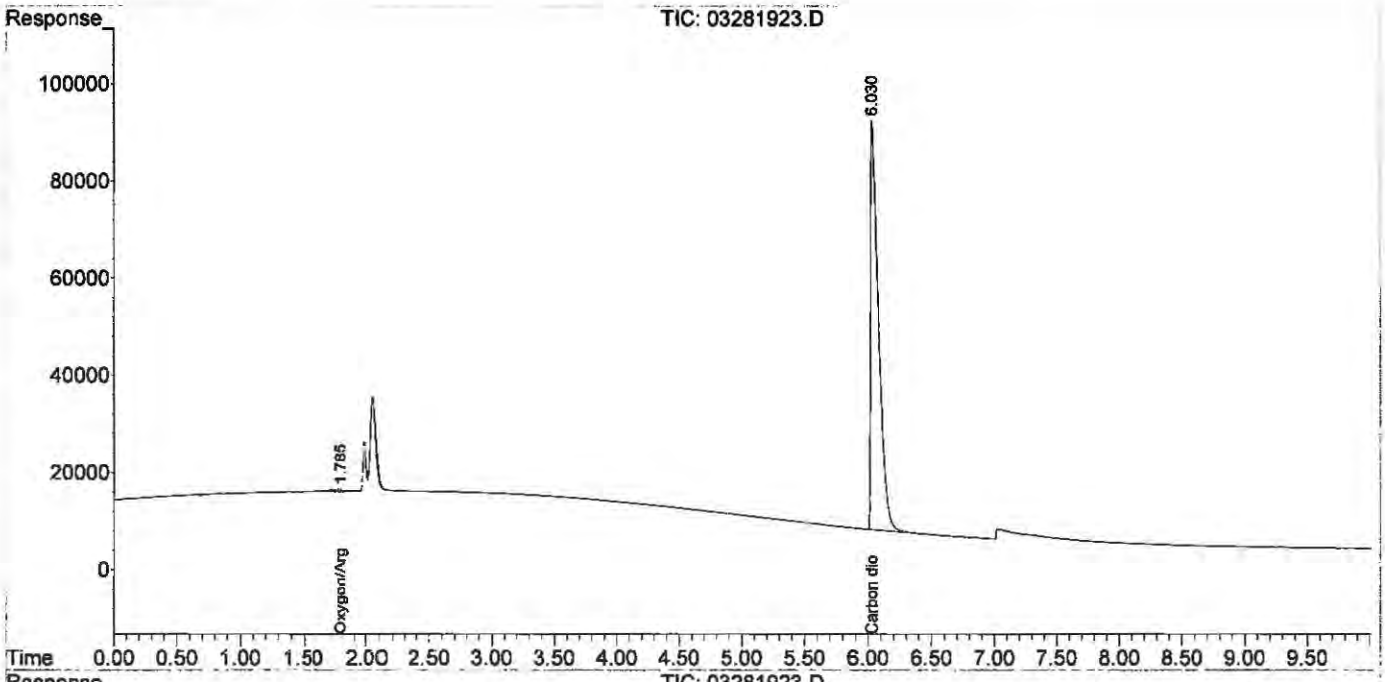
(f)=RT Delta > 1/2 Window (m)=manual int.

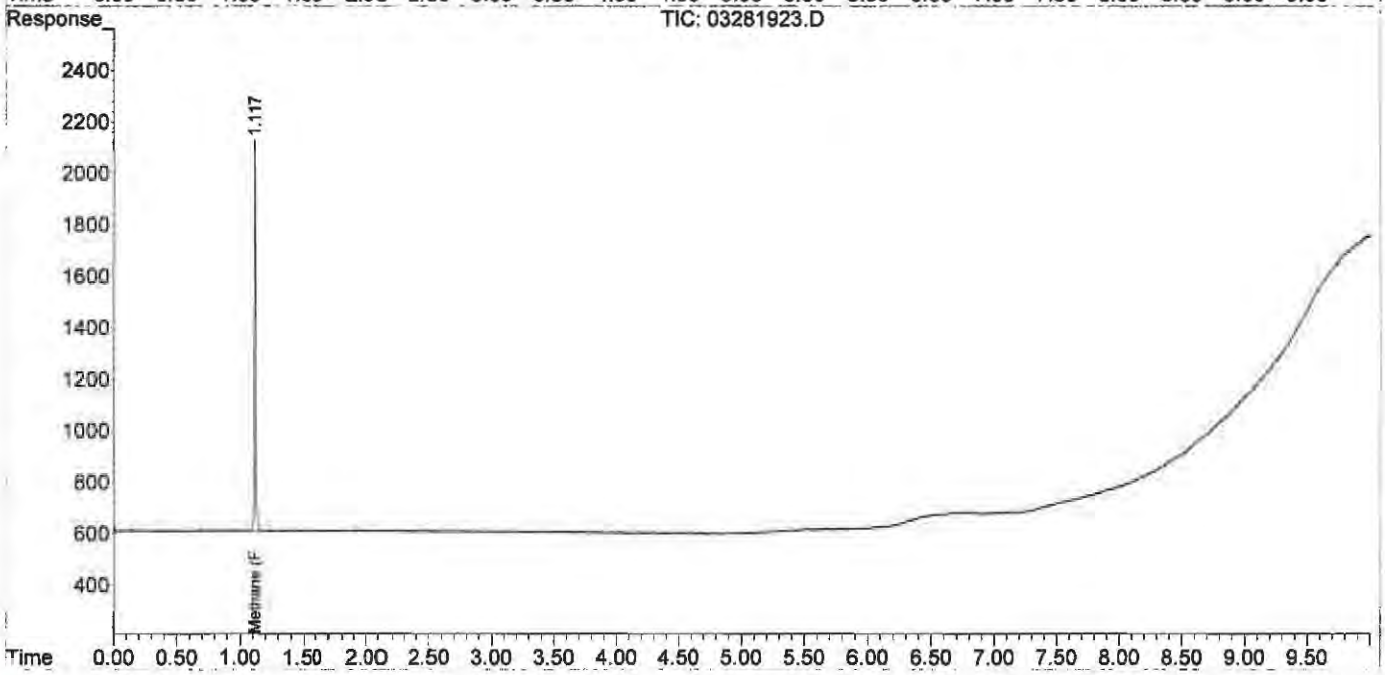
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281923.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 14:59:14
Operator : WH
Sample : P1901501-002 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 16:12:59 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281924.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 15:12:57
Operator : WH
Sample : P1901501-003 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 16:22:49 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.989f	891871	0.187	ppm
2)	Carbon monoxide	1.989f	891871	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.024	4252575	18116.941	ppm
6)	Methane (FID)	1.118	3552	0.376	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

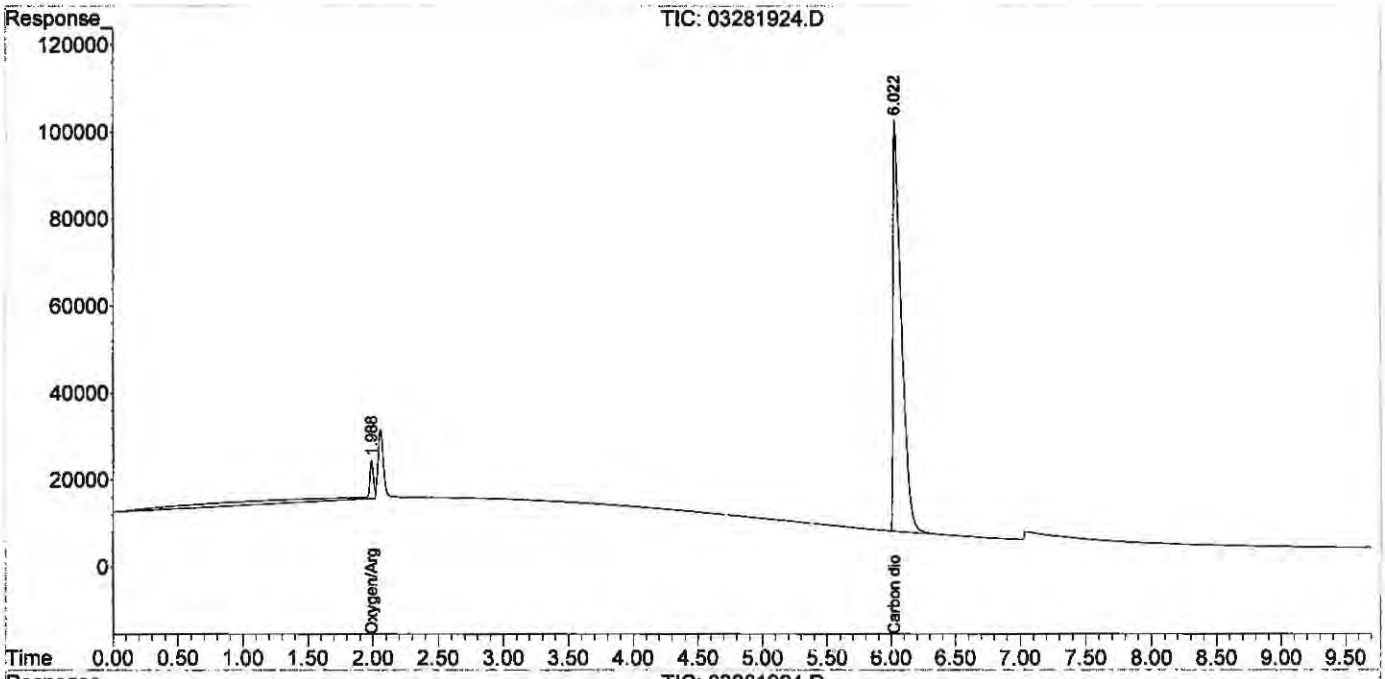
(f)=RT Delta > 1/2 Window (m)=manual int.

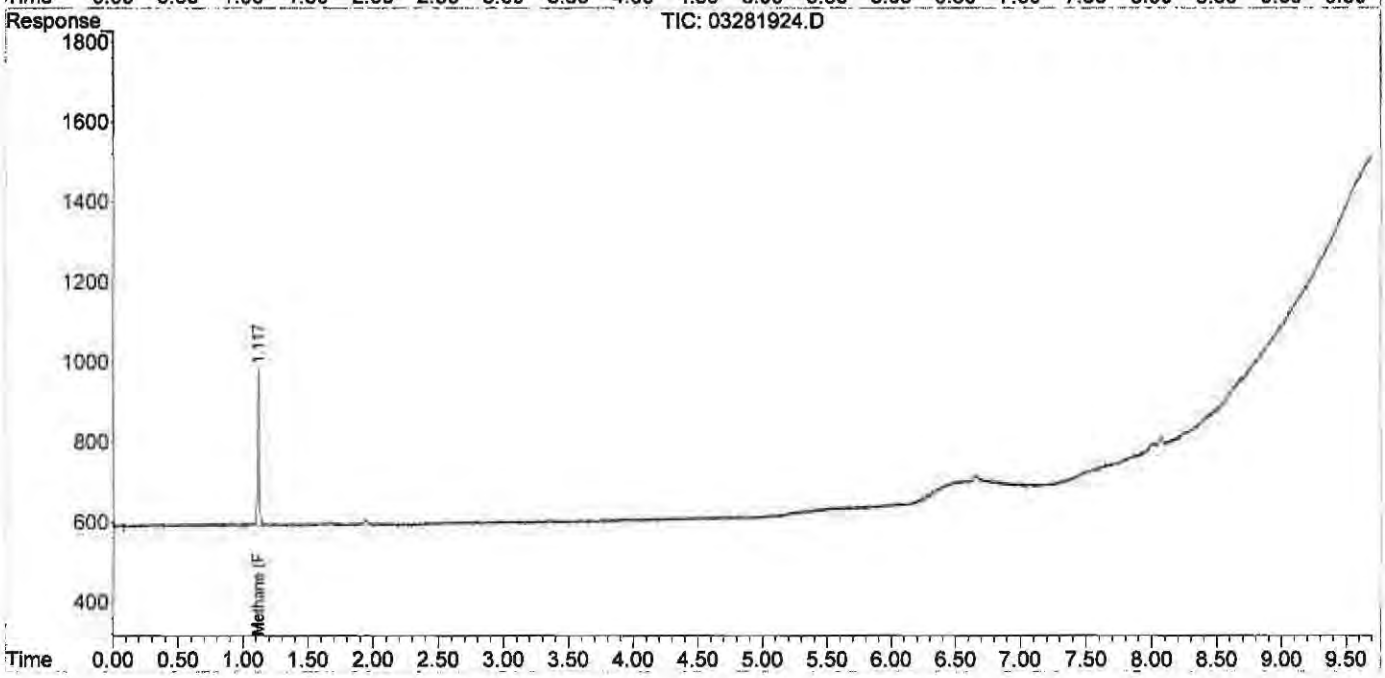
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281924.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 15:12:57
Operator : WH
Sample : P1901501-003 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 16:22:49 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281925.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 15:25:25
Operator : WH
Sample : P1901501-004 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 16:57:55 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units
Target	Compounds				
1)	Oxygen/Argon	1.989f	422487	0.089	ppm
2)	Carbon monoxide	1.989f	422487	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.053	2358654	10048.403	ppm
6)	Methane (FID)	1.116	819751	86.766	ppm
7)	Ethylene	1.669	63322	3.760	ppm
8)	Ethane	1.931	1626	0.094	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	6.218	5990	NoCal	ppm
12)	Isobutane	6.653	50588	NoCal	ppm
13)	n-Butane	6.653	50588	NoCal	ppm

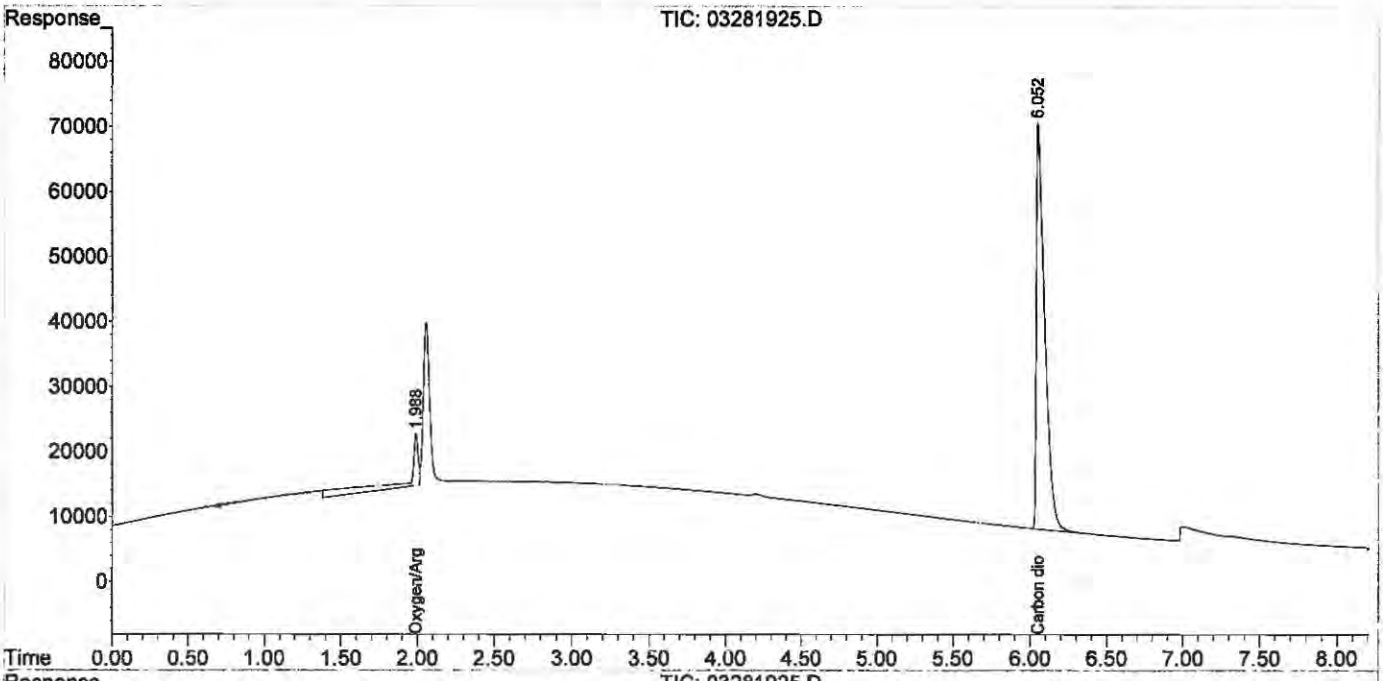
(f)=RT Delta > 1/2 Window (m)=manual int.

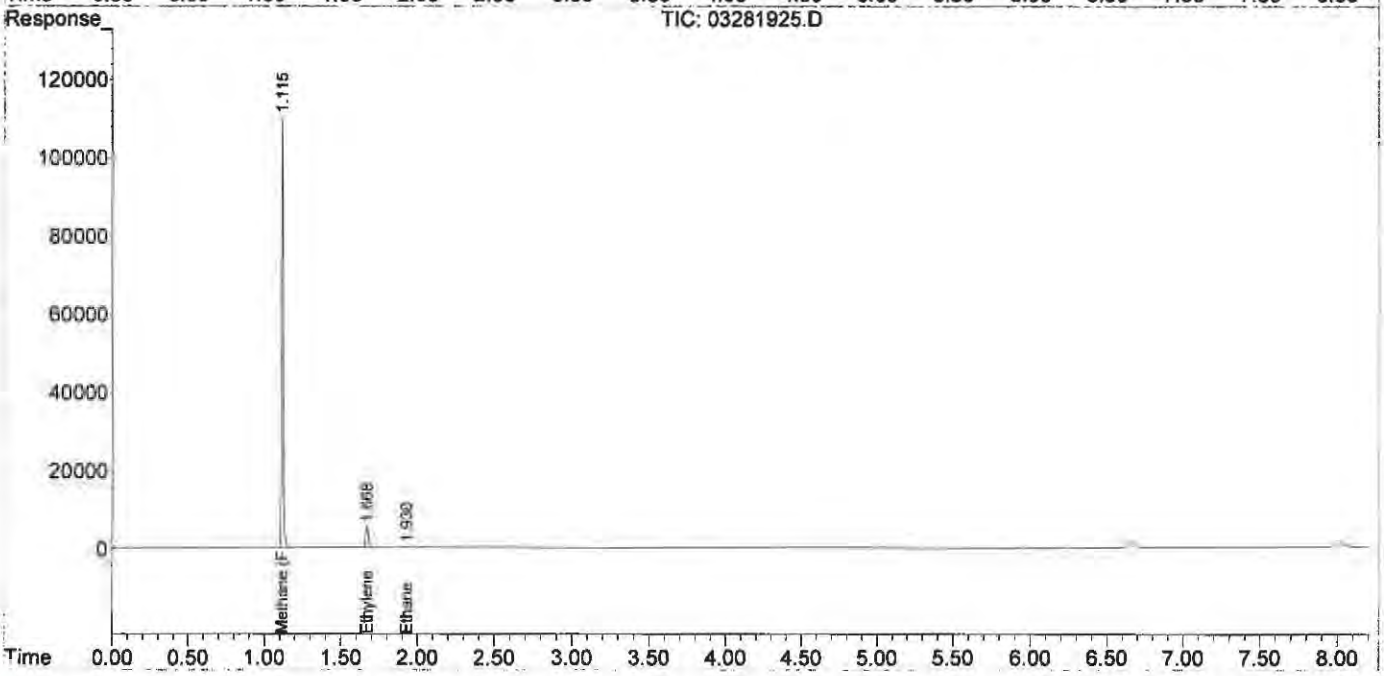
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281925.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 15:25:25
Operator : WH
Sample : P1901501-004 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 16:57:55 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281926.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 15:36:07
Operator : WH
Sample : P1901501-005 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 16:58:20 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.992f	268346	0.056	ppm	
2)	Carbon monoxide	1.992f	268346	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	6.027	3864438	16463.391	ppm	m
6)	Methane (FID)	1.115	12254299	1297.051	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

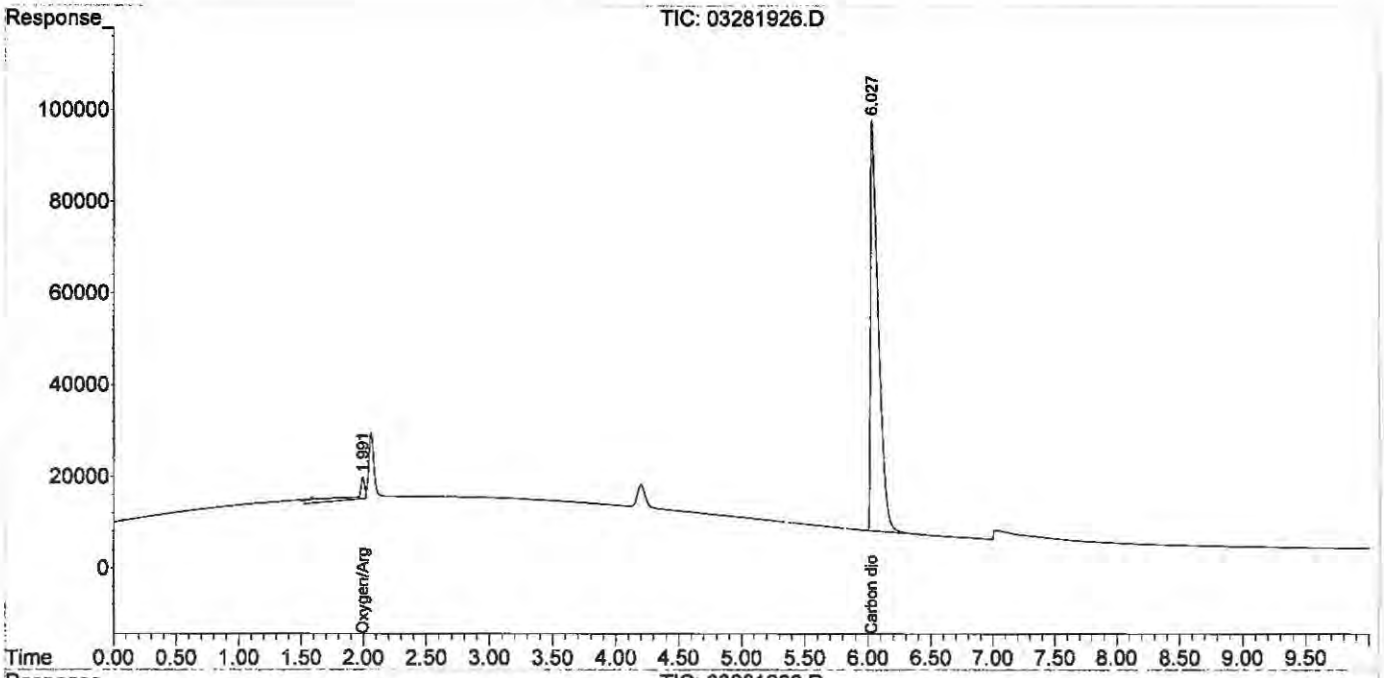
(f)=RT Delta > 1/2 Window (m)=manual int.

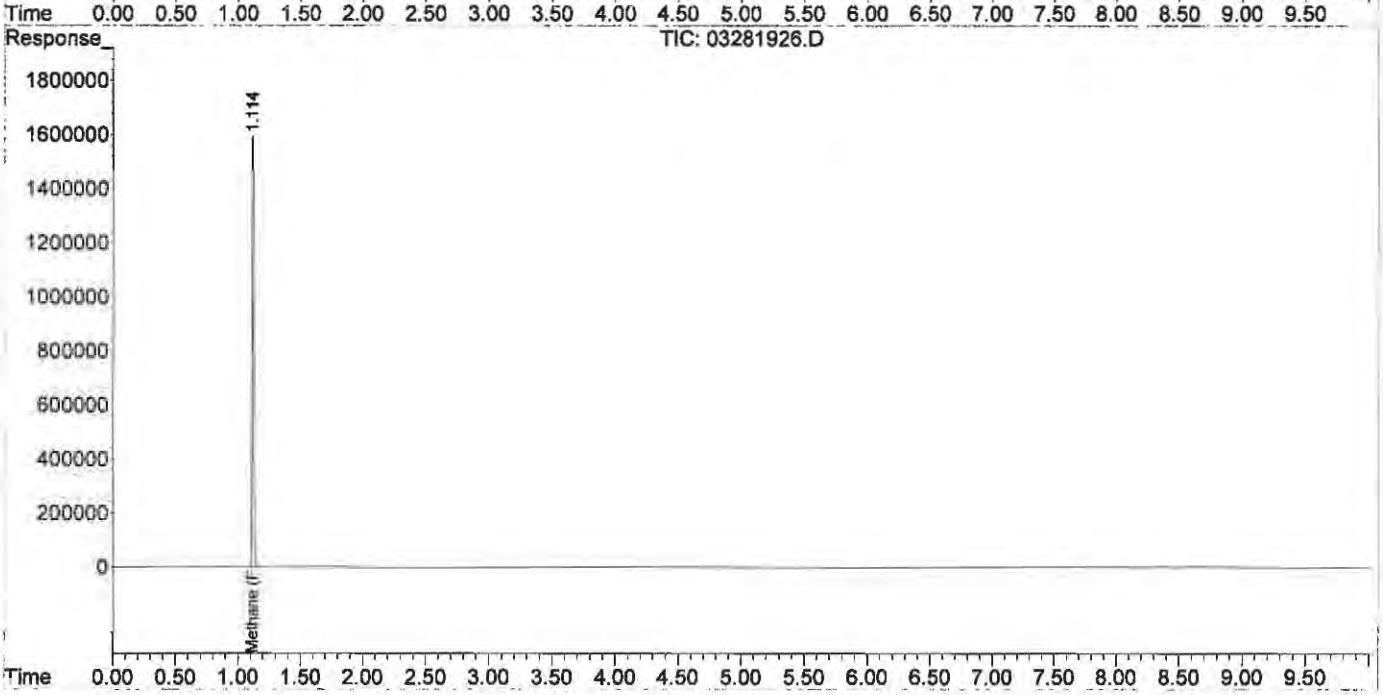
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281926.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 15:36:07
Operator : WH
Sample : P1901501-005 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 16:58:20 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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



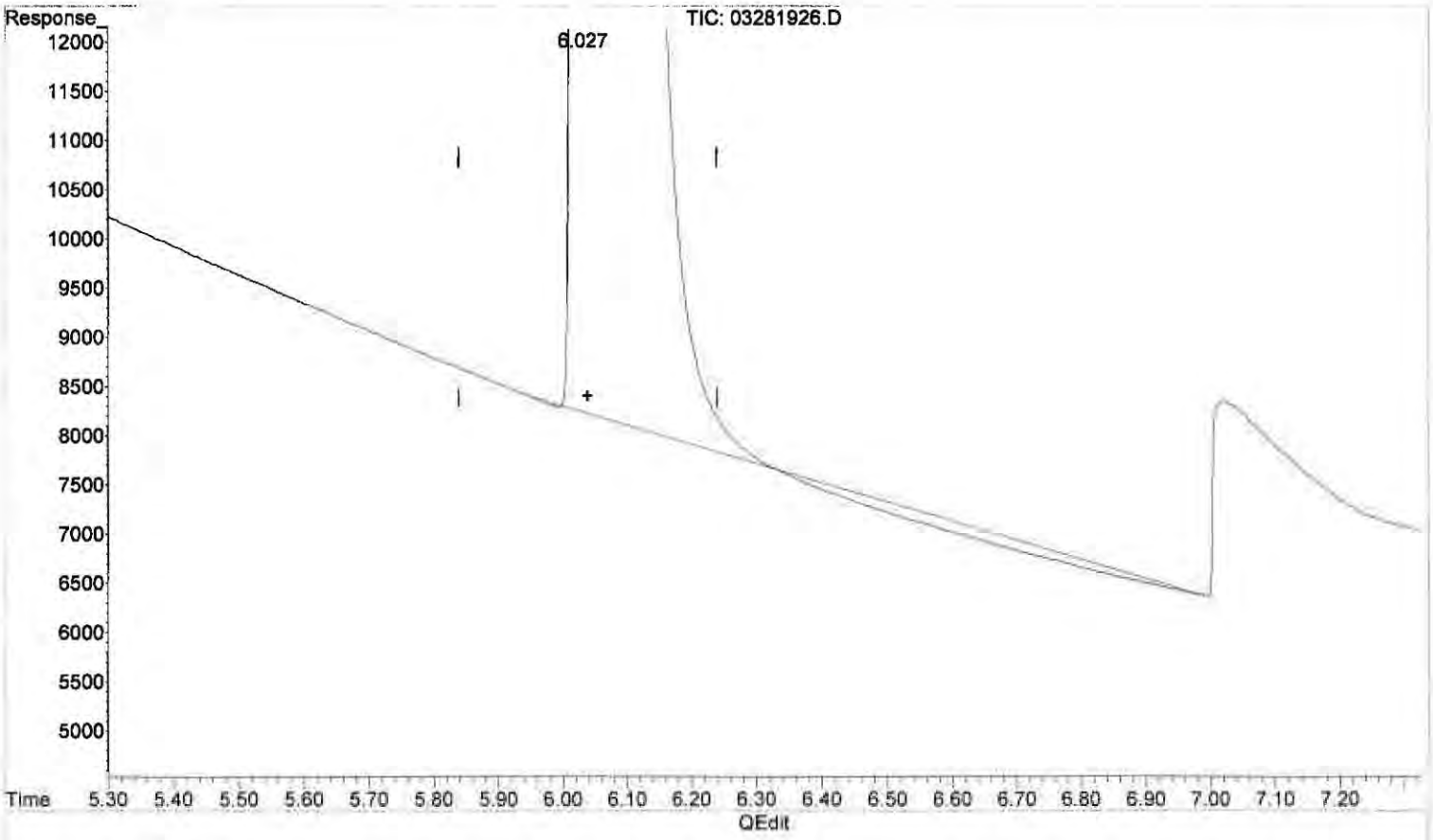


Quantitation Report (Qedit)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281926.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 15:36:07
Operator : WH
Sample : P1901501-005 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 16:58:20 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(4) Carbon dioxide

6.029min 16294.602 ppm

response 3824819

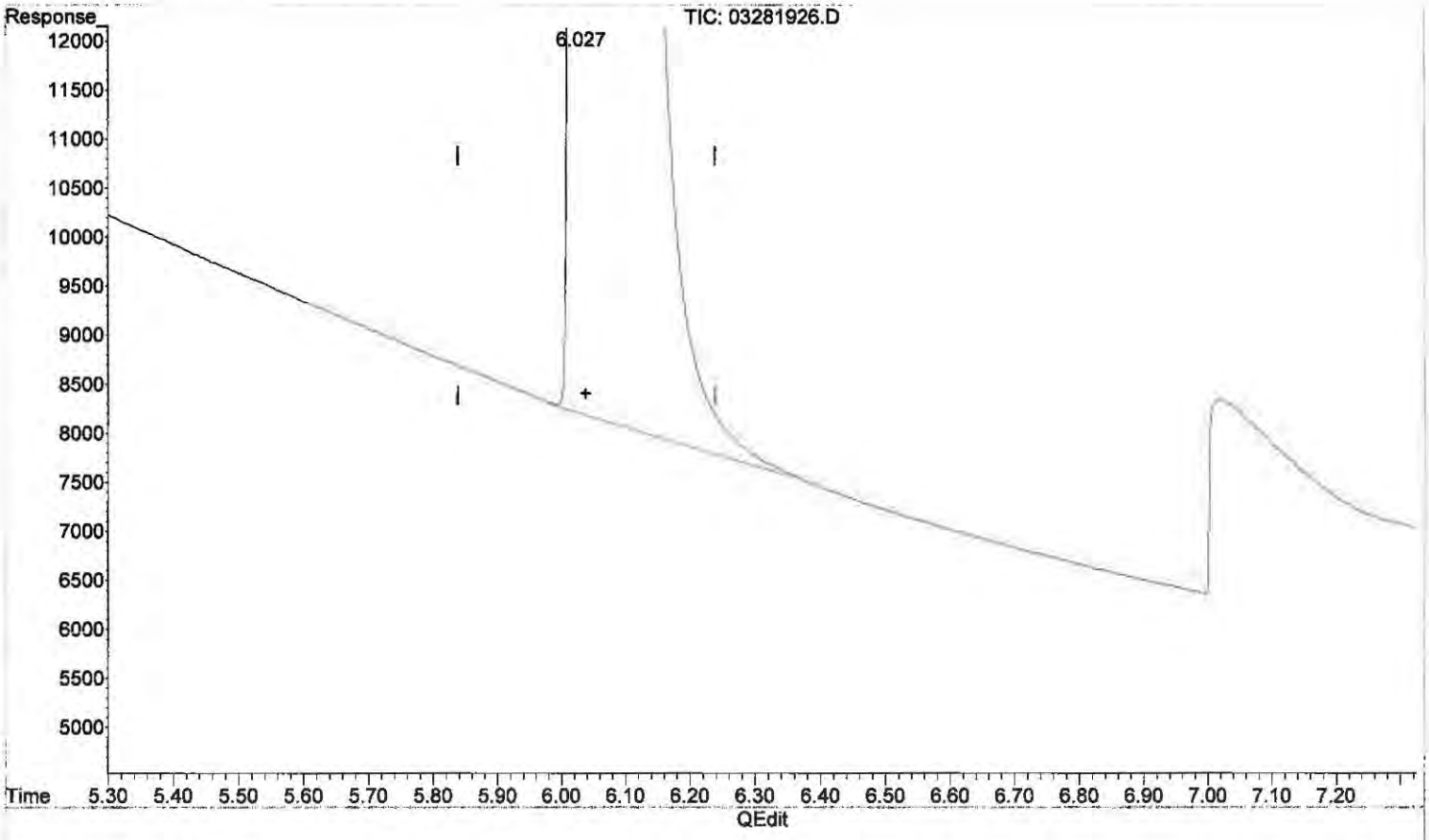
(+) = Expected Retention Time

Quantitation Report (Qedit)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281926.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 15:36:07
Operator : WH
Sample : P1901501-005 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 16:58:20 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(4) Carbon dioxide

6.027min 16463.391 ppm m

response 3864438

MR 3/29/19

LW 3/28/19 BLC

(+) = Expected Retention Time

RS082817_CO2.M Thu Mar 28 20:06:32 2019

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281927.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 15:56:58
Operator : WH
Sample : P1901501-006 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 20:06:54 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.991f	90961	0.019	ppm
2)	Carbon monoxide	1.991f	90961	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.036	3594802	15314.677	ppm
6)	Methane (FID)	1.117	7747082	819.987	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

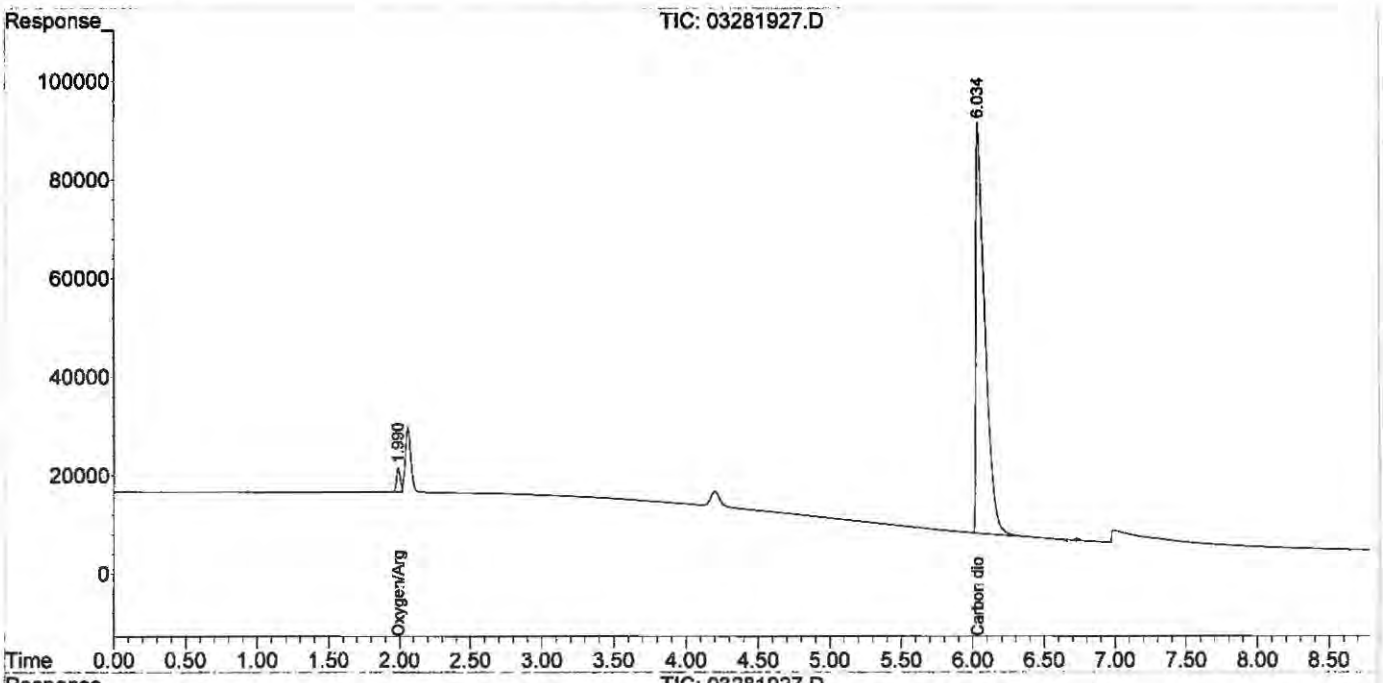
(f)=RT Delta > 1/2 Window (m)=manual int.

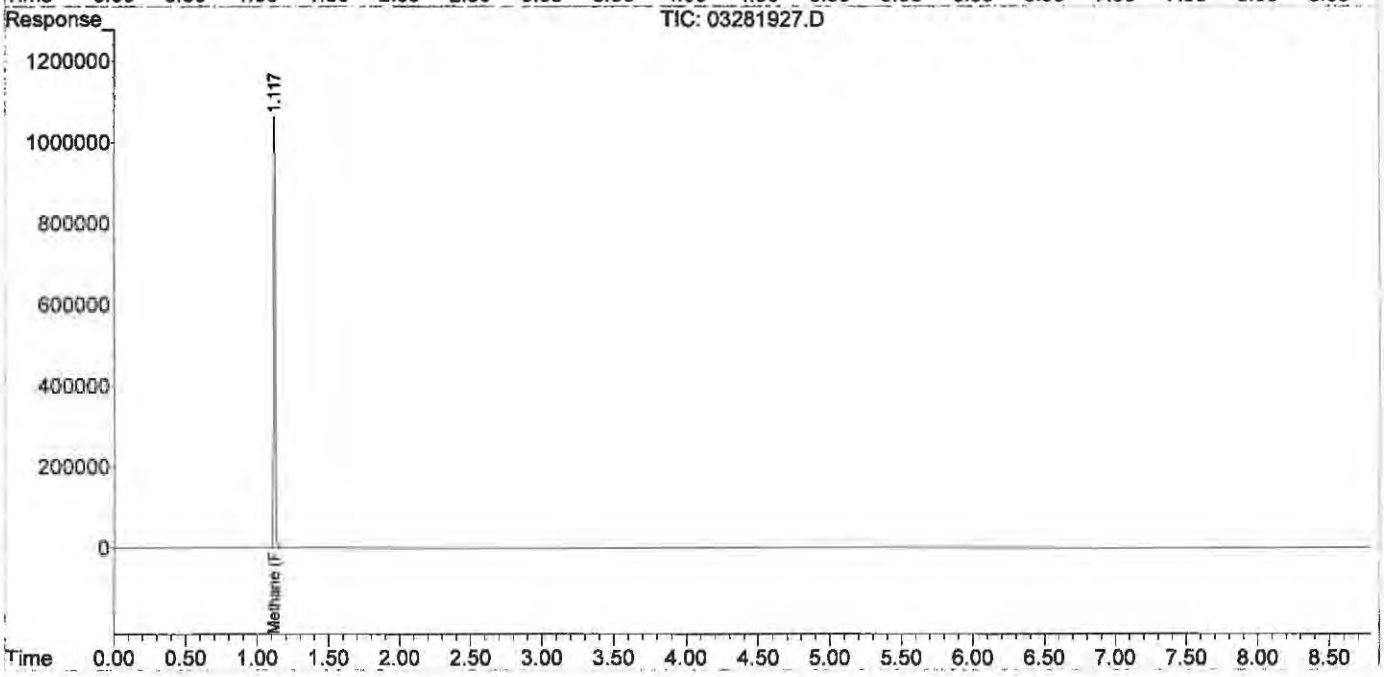
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281927.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 15:56:58
Operator : WH
Sample : P1901501-006 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 20:06:54 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281928.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 16:08:13
Operator : WH
Sample : P1901501-007 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 17:22:19 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.989f	356244	0.075	ppm
2)	Carbon monoxide	1.989f	356244	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.021	4794867	20427.228	ppm
6)	Methane (FID)	1.116	2017383	213.529	ppm
7)	Ethylene	1.667	1984	0.118	ppm
8)	Ethane	1.667f	1984	0.115	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.653	5911	NoCal	ppm
13)	n-Butane	6.653	5911	NoCal	ppm

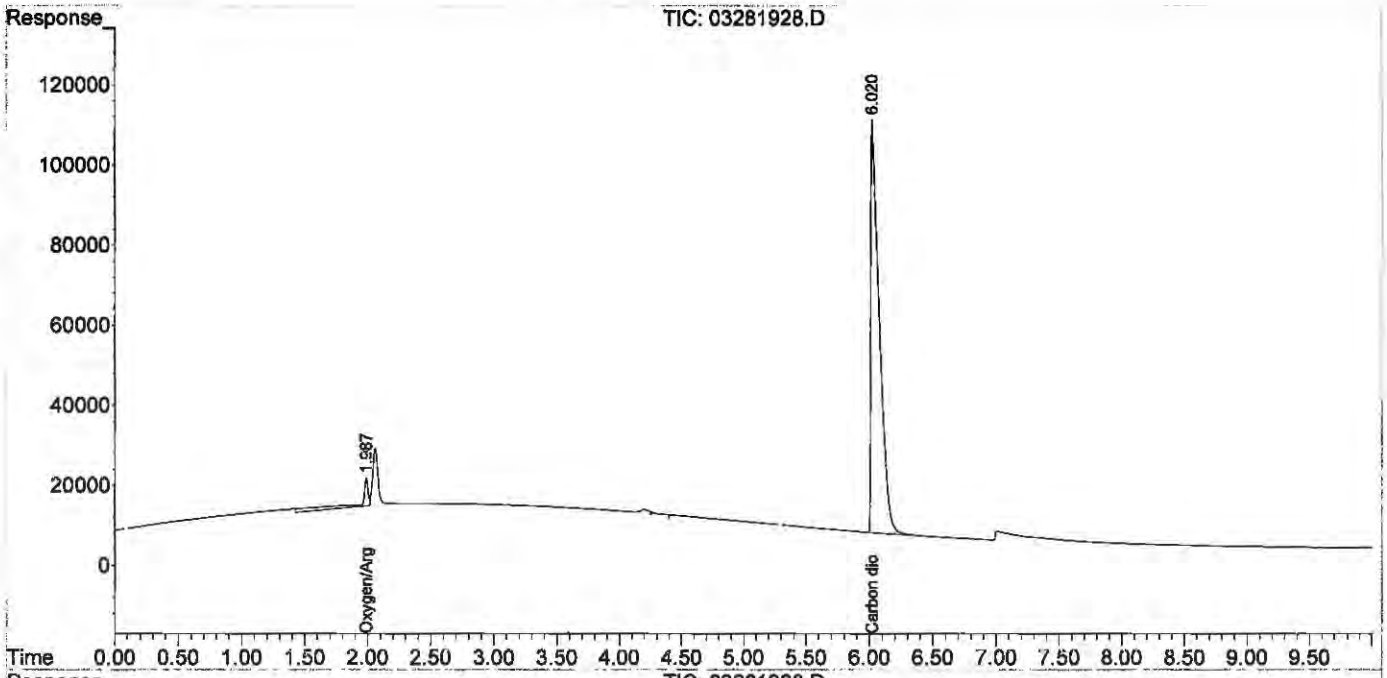
(f)=RT Delta > 1/2 Window (m)=manual int.

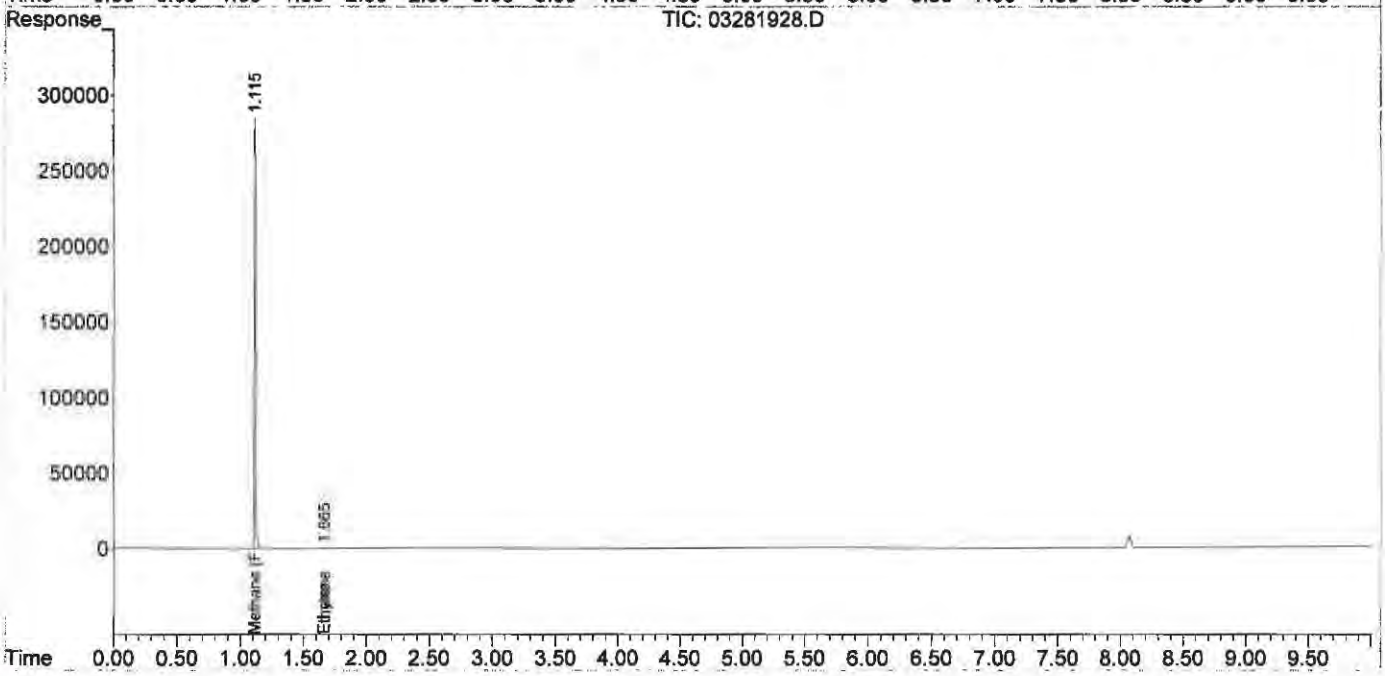
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281928.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 16:08:13
Operator : WH
Sample : P1901501-007 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 17:22:19 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Quantitation Report (Not Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281919.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 13:36:52
Operator : WH
Sample : mcs 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 19:57:03 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.984f	166256	0.035	ppm
2)	Carbon monoxide	1.984f	166256	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.111	1802	0.191	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

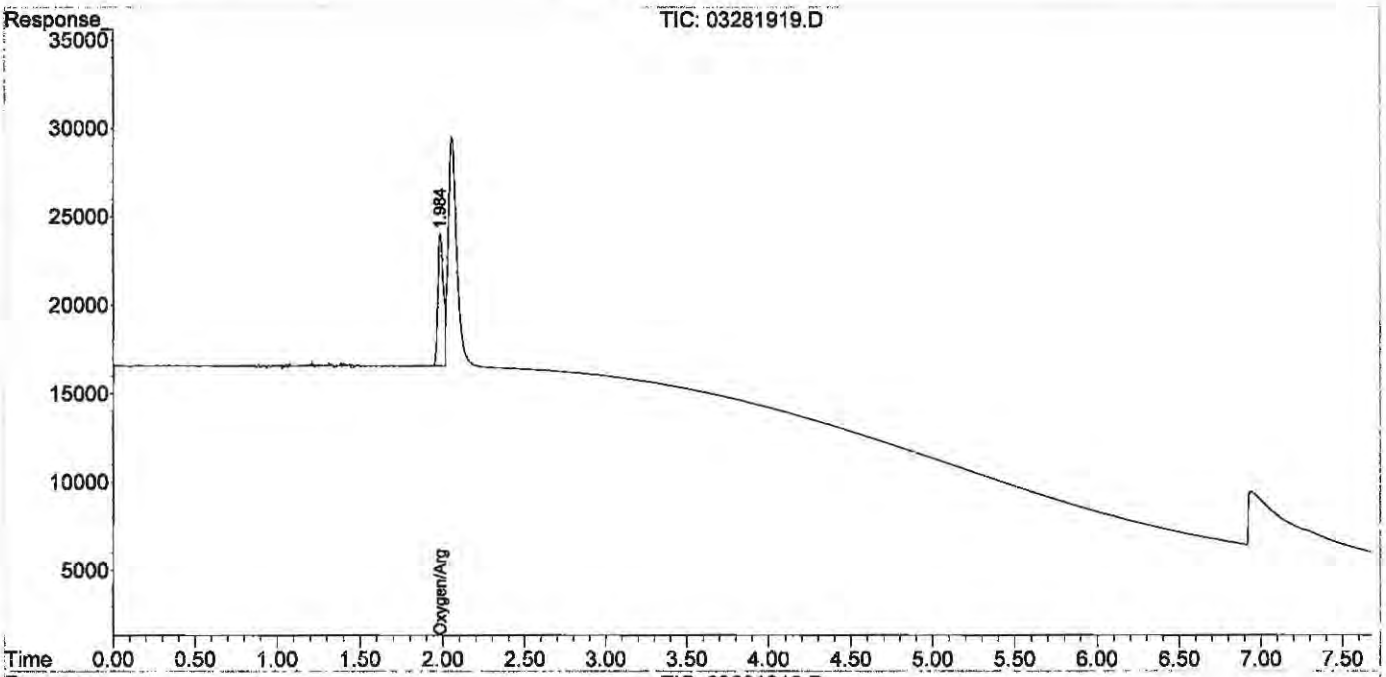
(f)=RT Delta > 1/2 Window (m)=manual int.

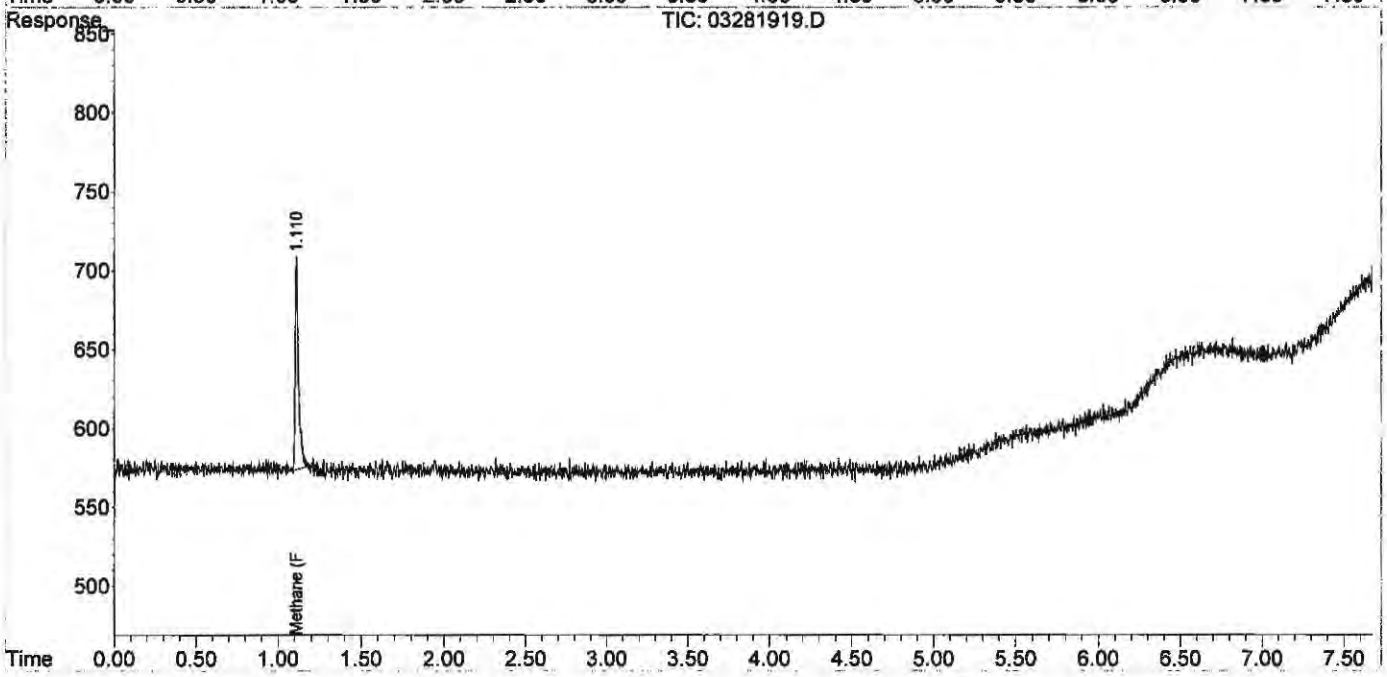
Quantitation Report (Not Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281919.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 13:36:52
Operator : WH
Sample : mcs 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 19:57:03 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281929.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 16:23:34
Operator : WH
Sample : P1901501-007ms 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 20:07:34 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.984f	303702	0.064	ppm
2)	Carbon monoxide	1.984f	303702	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.019	5060345	21558.228	ppm
6)	Methane (FID)	1.115	11461415	1213.129	ppm
7)	Ethylene	1.679	2199	0.131	ppm
8)	Ethane	1.679f	2199	0.128	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.653	9652	NoCal	ppm
13)	n-Butane	6.653	9652	NoCal	ppm

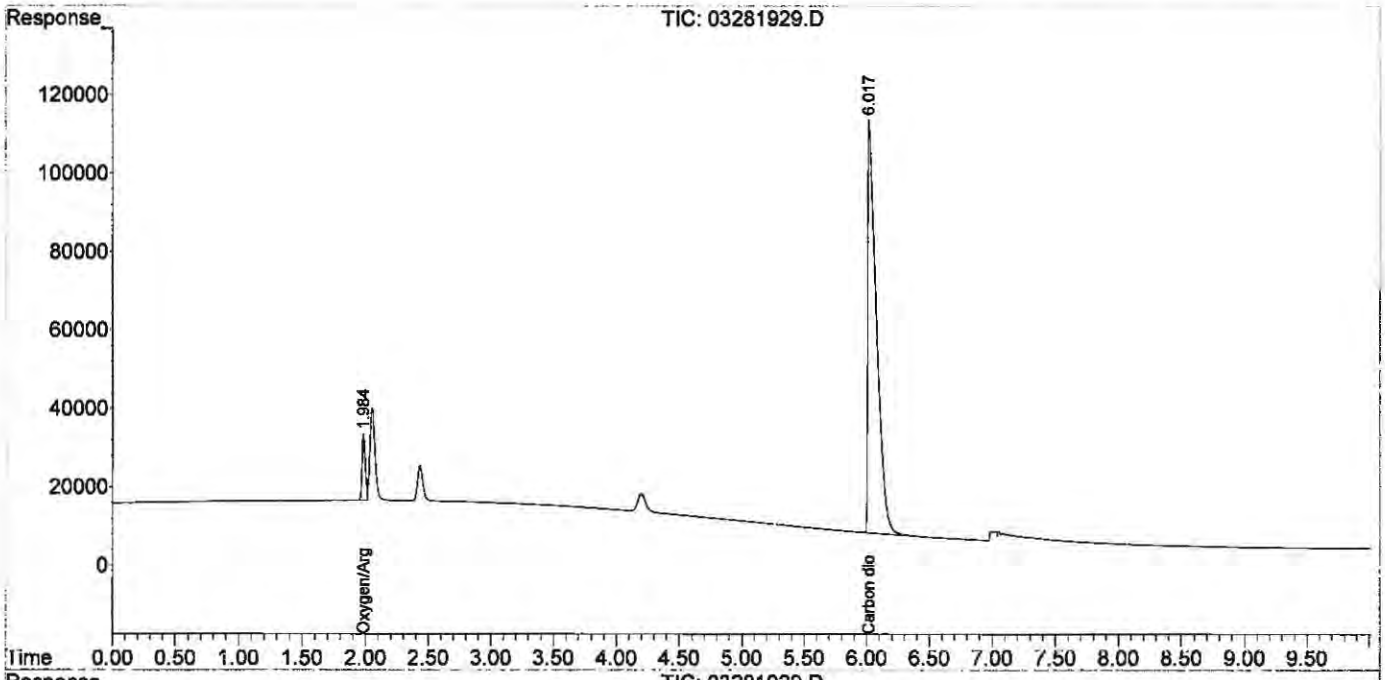
(f)=RT Delta > 1/2 Window (m)=manual int.

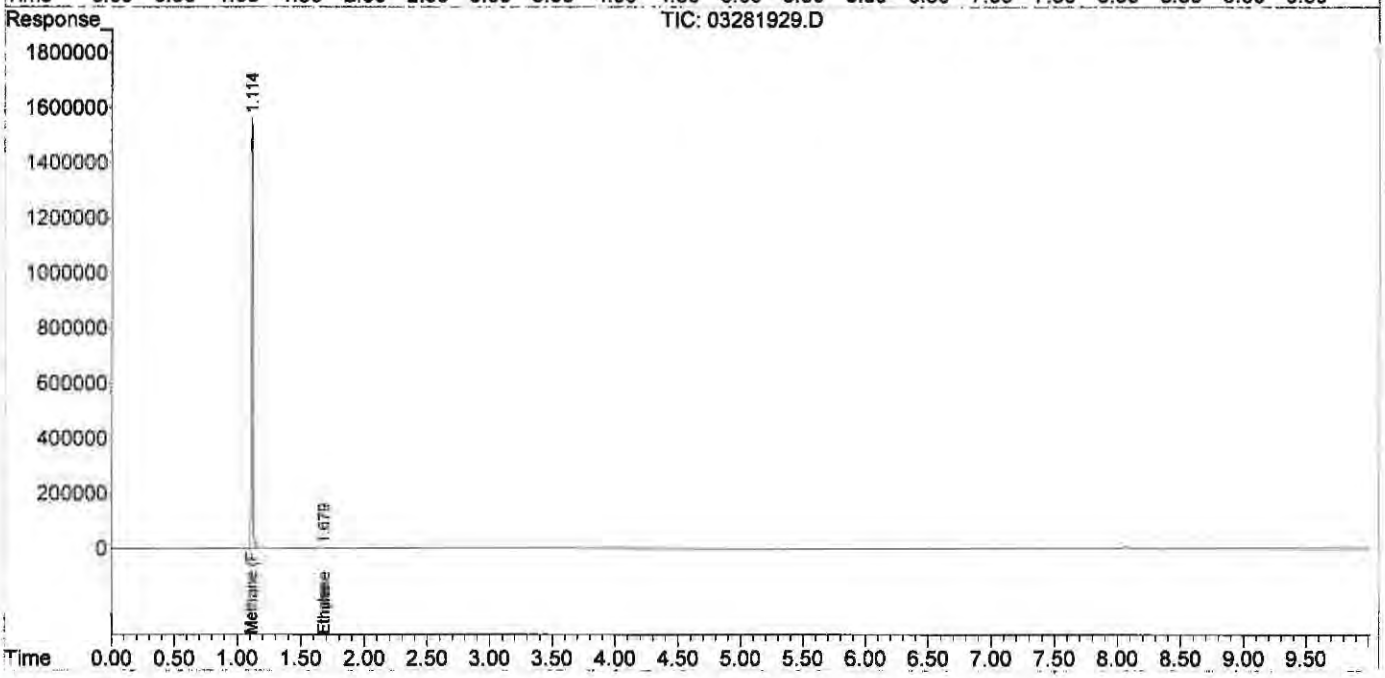
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281929.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 16:23:34
Operator : WH
Sample : P1901501-007ms 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 20:07:34 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281930.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 16:41:20
Operator : WH
Sample : P1901501-007msd 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 20:08:01 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.987f	319107	0.067	ppm	
2)	Carbon monoxide	1.987f	319107	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	6.017	5037213	21459.678	ppm	m
6)	Methane (FID)	1.118	11350075	1201.344	ppm	
7)	Ethylene	1.682	2071	0.123	ppm	
8)	Ethane	1.682f	2071	0.120	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	6.652	6520	NoCal	ppm	
13)	n-Butane	6.652	6520	NoCal	ppm	

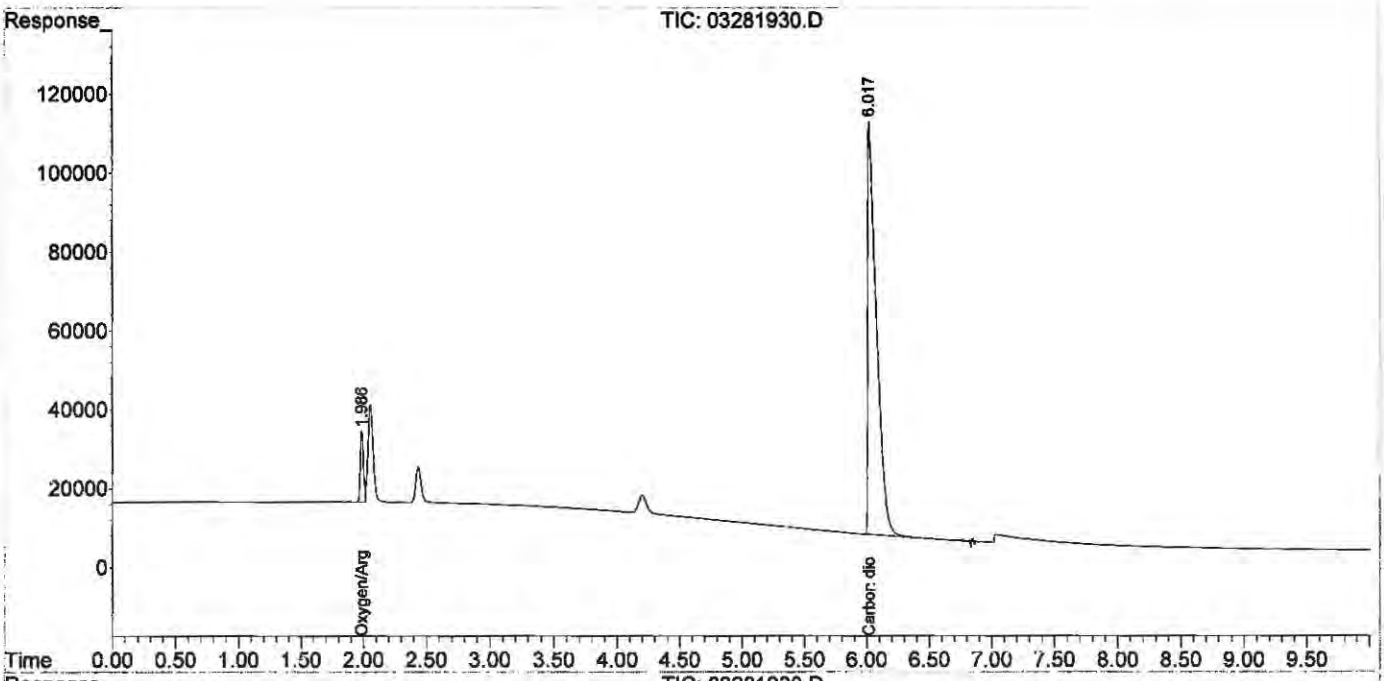
(f)=RT Delta > 1/2 Window (m)=manual int.

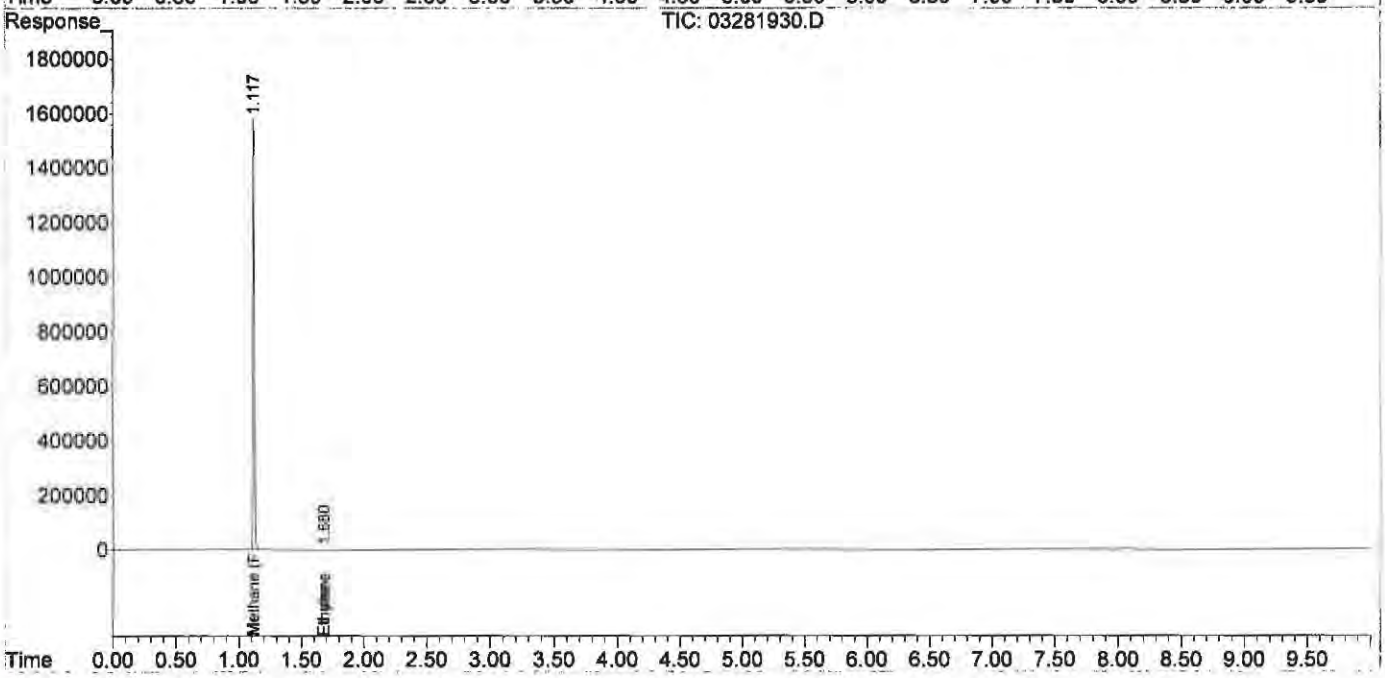
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281930.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 16:41:20
Operator : WH
Sample : P1901501-007msd 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 20:08:01 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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



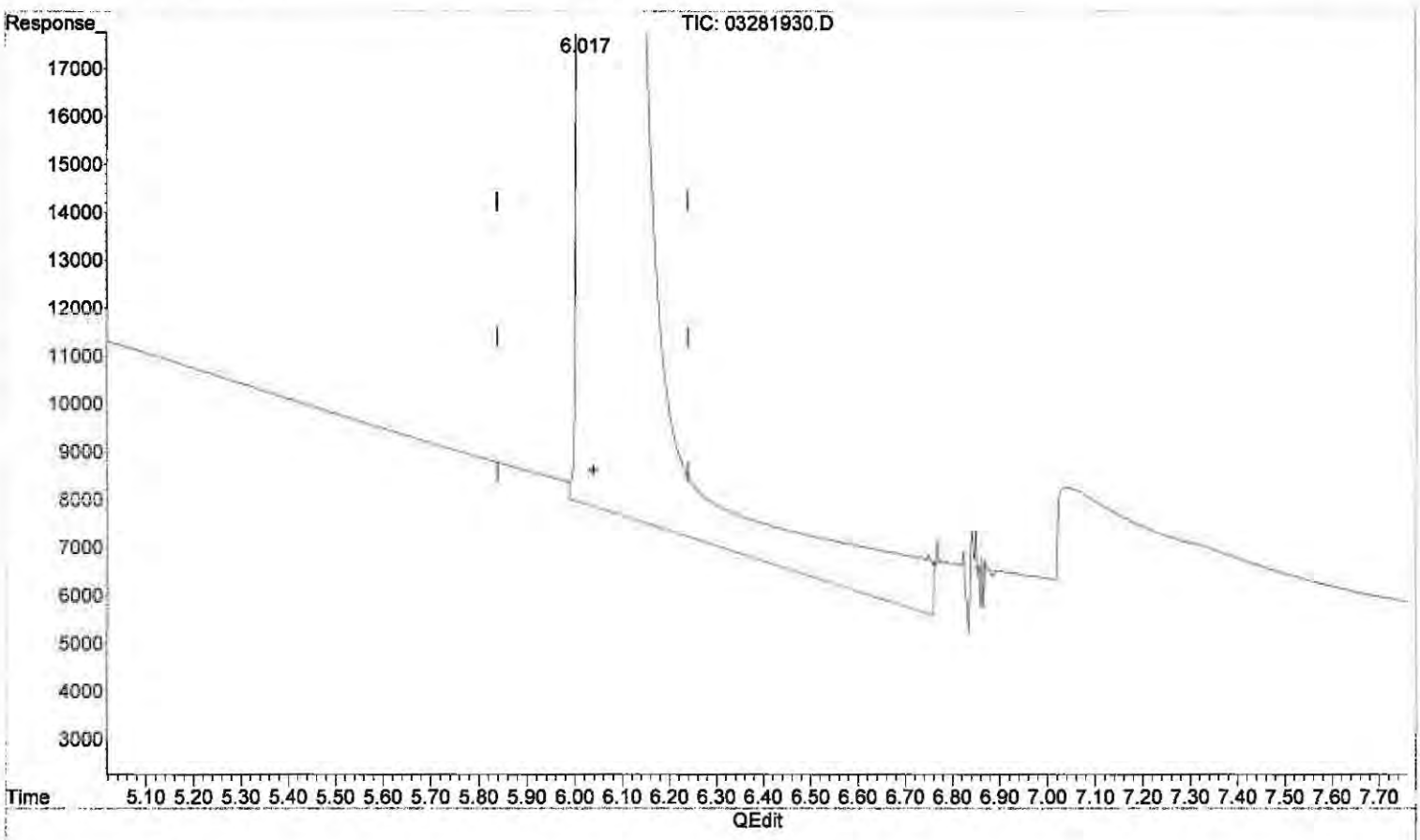


Quantitation Report (Qedit)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281930.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 16:41:20
Operator : WH
Sample : P1901501-007msd 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 20:08:01 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(4) Carbon dioxide

6.019min 22947.641 ppm

response 5386481

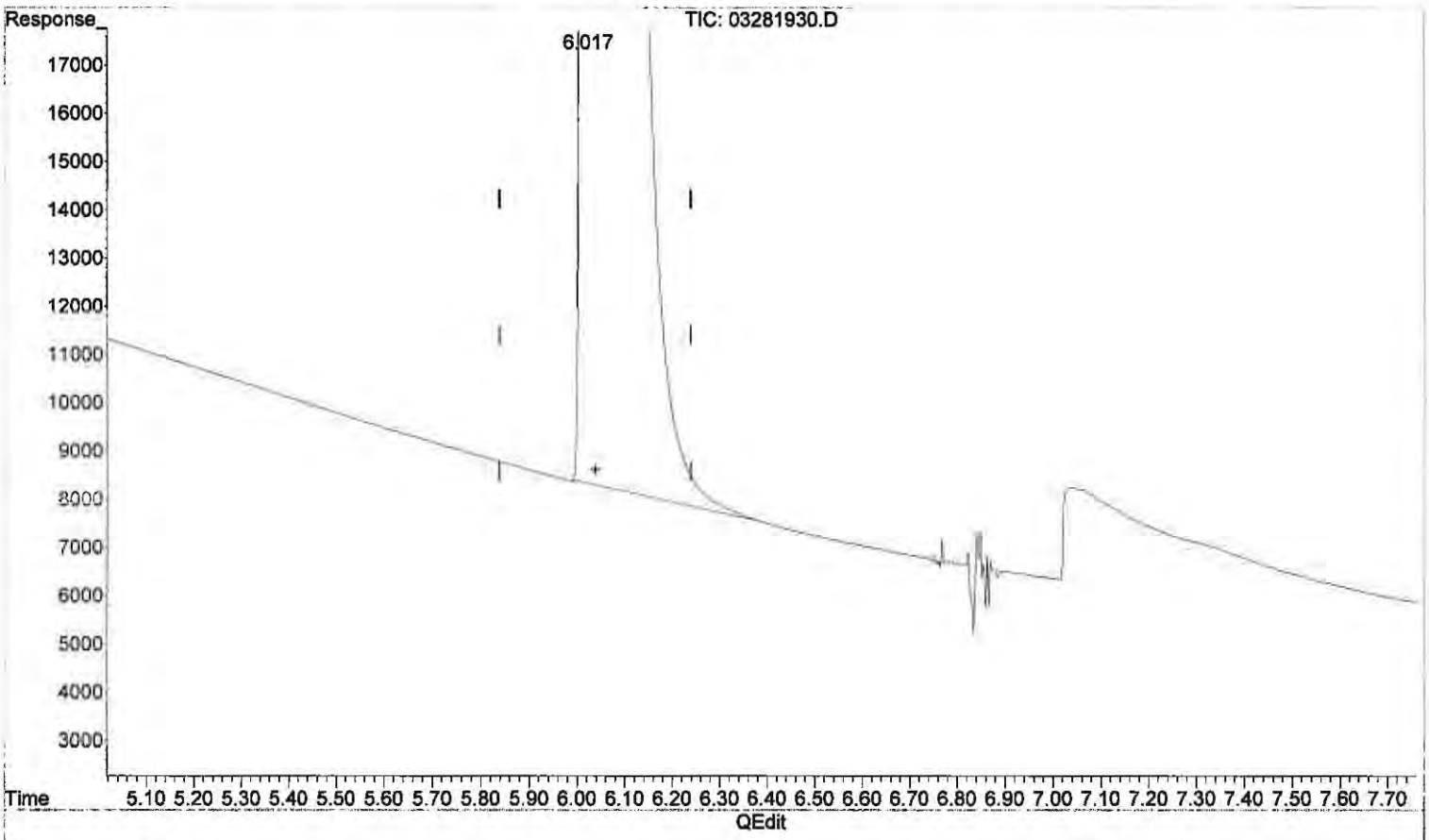
(+) = Expected Retention Time

Quantitation Report (Qedit)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281930.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 16:41:20
Operator : WH
Sample : P1901501-007msd 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 20:08:01 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(4) Carbon dioxide

6.017min 21459.678 ppm m

response 5037213

MK 3/29/19

W 3/28/19 BLC

(+) = Expected Retention Time

RS082817_CO2.M Thu Mar 28 20:08:21 2019

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281920.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 13:46:41
Operator : WH
Sample : lcs tcd S32-10081801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 15:16:36 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.964f	1691213	0.355	ppm	
2)	Carbon monoxide	1.964f	1691213	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	6.093	224186	955.086	ppm	m
6)	Methane (FID)	1.112	32815588	3473.352	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

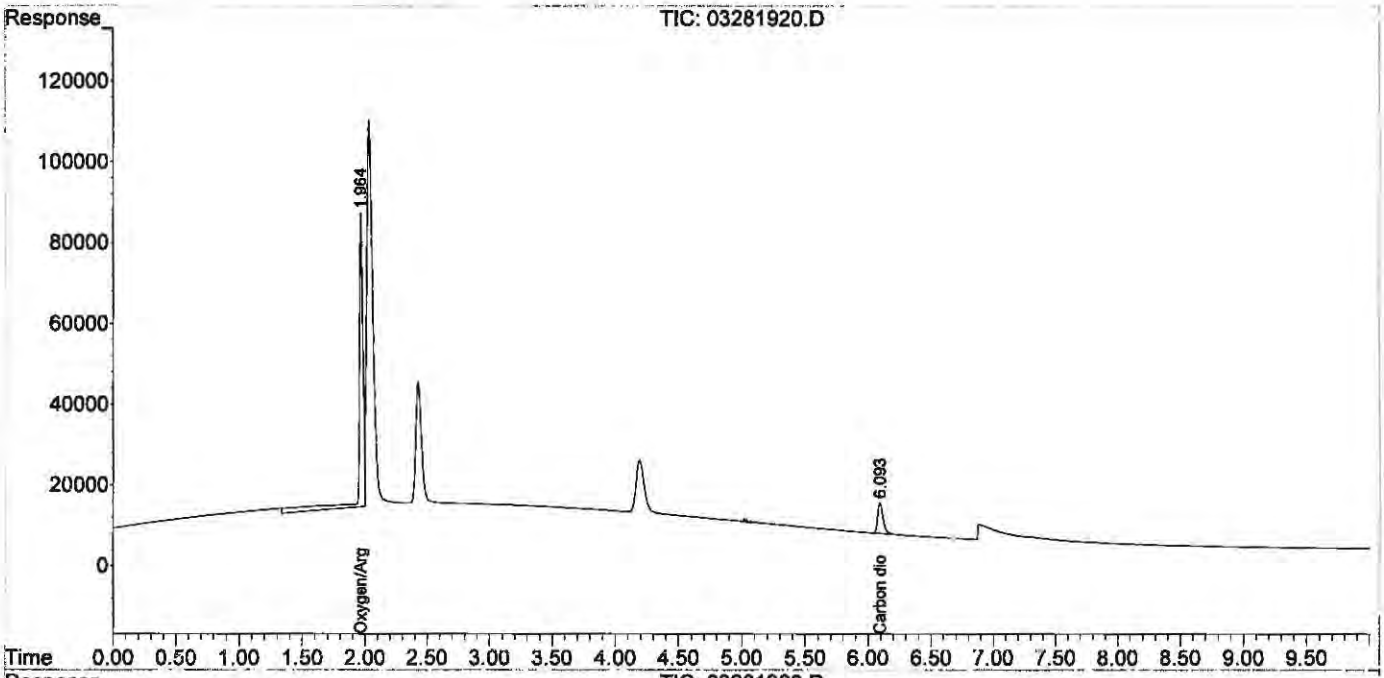
(f)=RT Delta > 1/2 Window (m)=manual int.

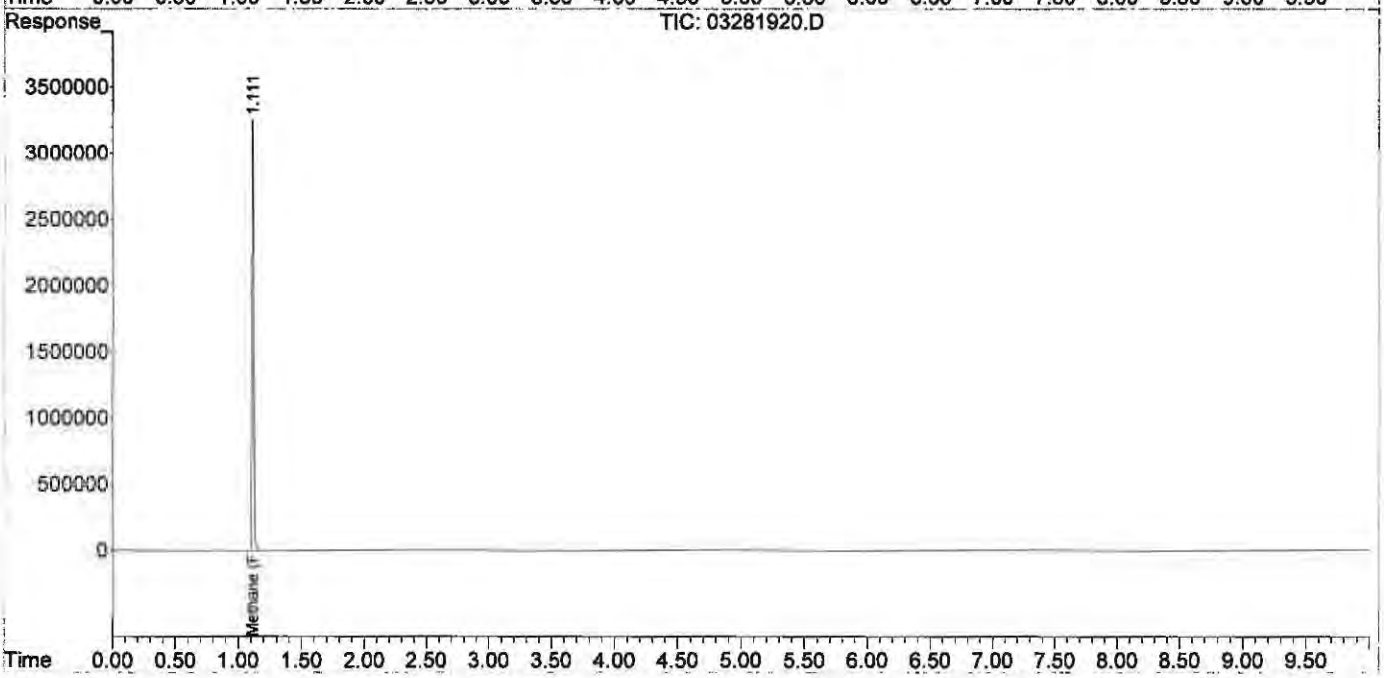
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281920.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 13:46:41
Operator : WH
Sample : lcs tcd S32-10081801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 15:16:36 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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



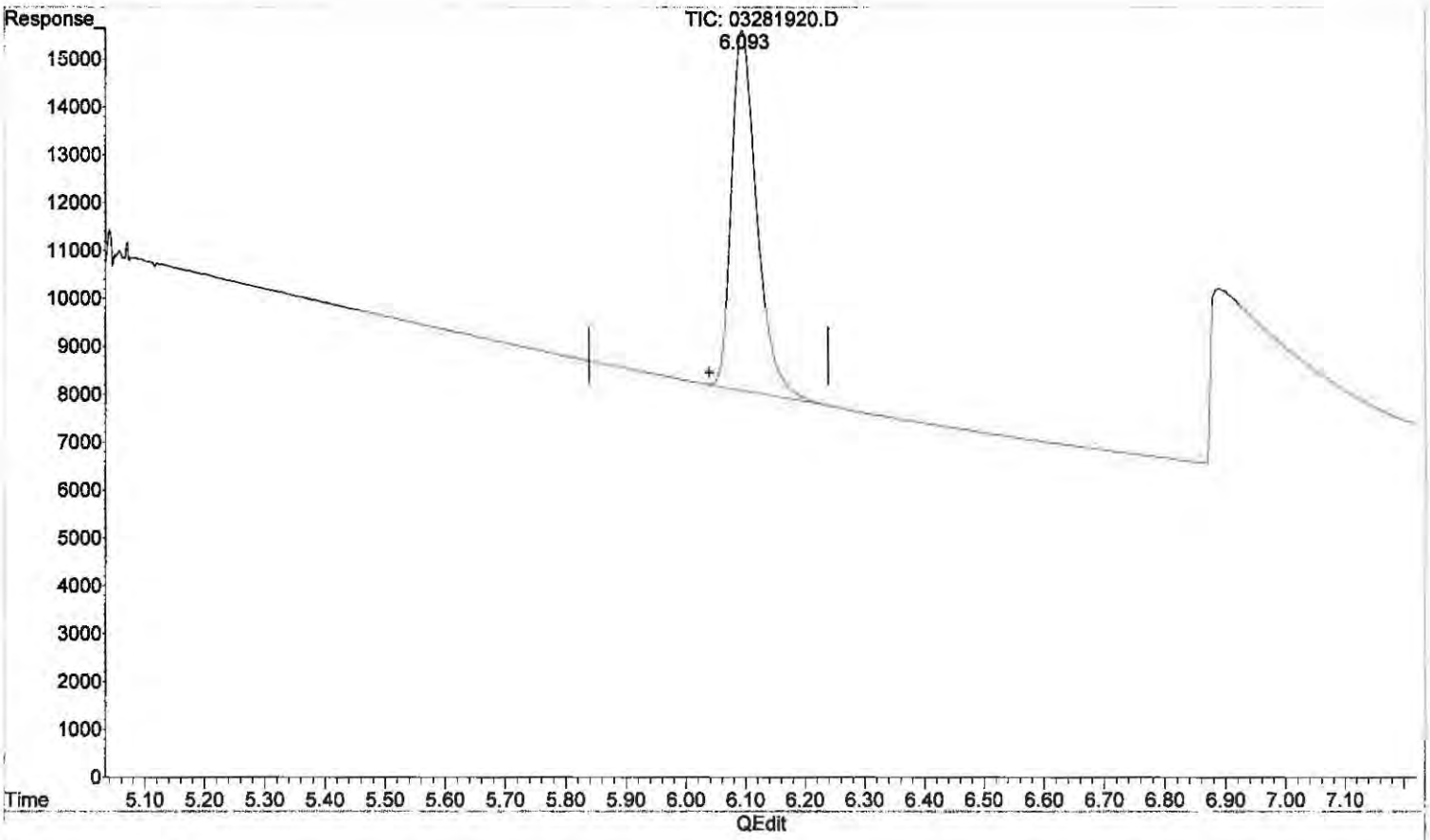


Quantitation Report (Qedit)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281920.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 13:46:41
Operator : WH
Sample : lcs tcd S32-10081801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 15:16:36 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(4) Carbon dioxide

6.093min 955.086 ppm m

response 224186

MK 3/29/19

(+) = Expected Retention Time

RS082817_CO2.M Thu Mar 28 19:58:03 2019

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281921.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 14:17:53
Operator : WH
Sample : lcsd tcd S32-10081801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 15:26:49 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.963f	1333396	0.280	ppm	
2)	Carbon monoxide	1.963f	1333396	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	6.089	217646	927.220	ppm	m
6)	Methane (FID)	1.114	32683261	3459.346	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

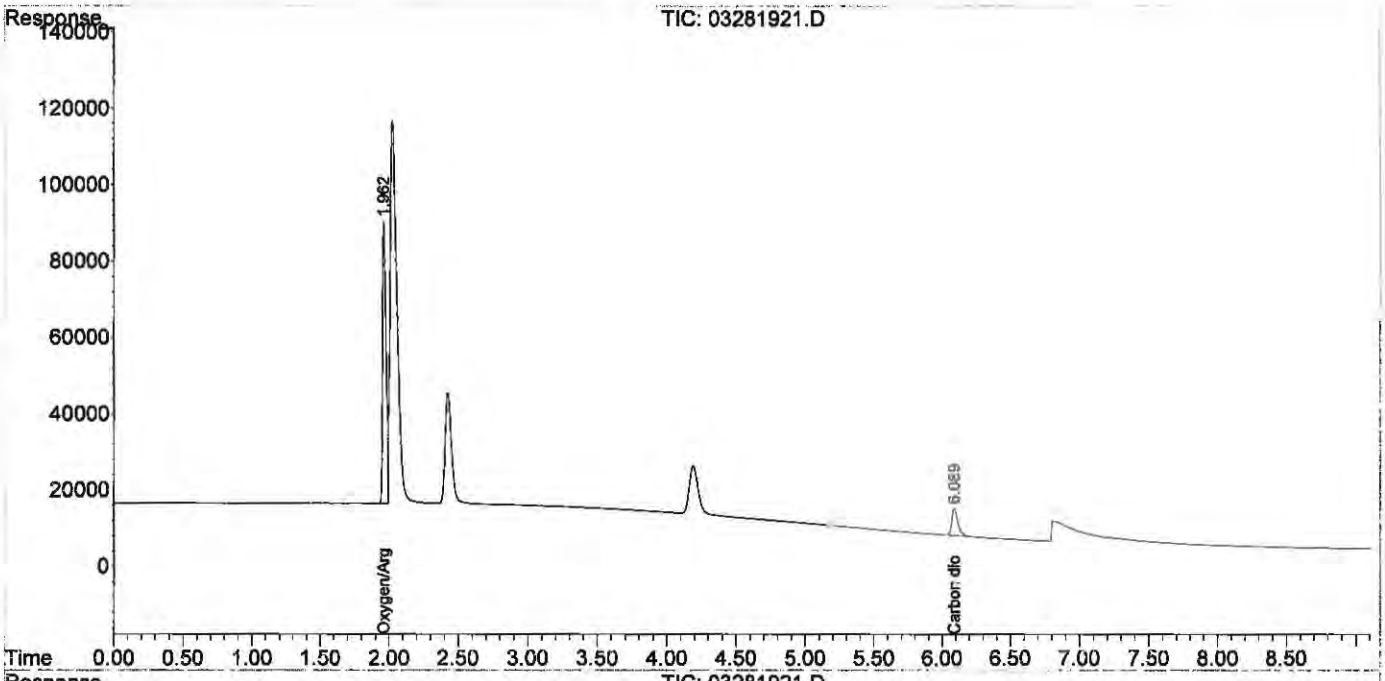
(f)=RT Delta > 1/2 Window (m)=manual int.

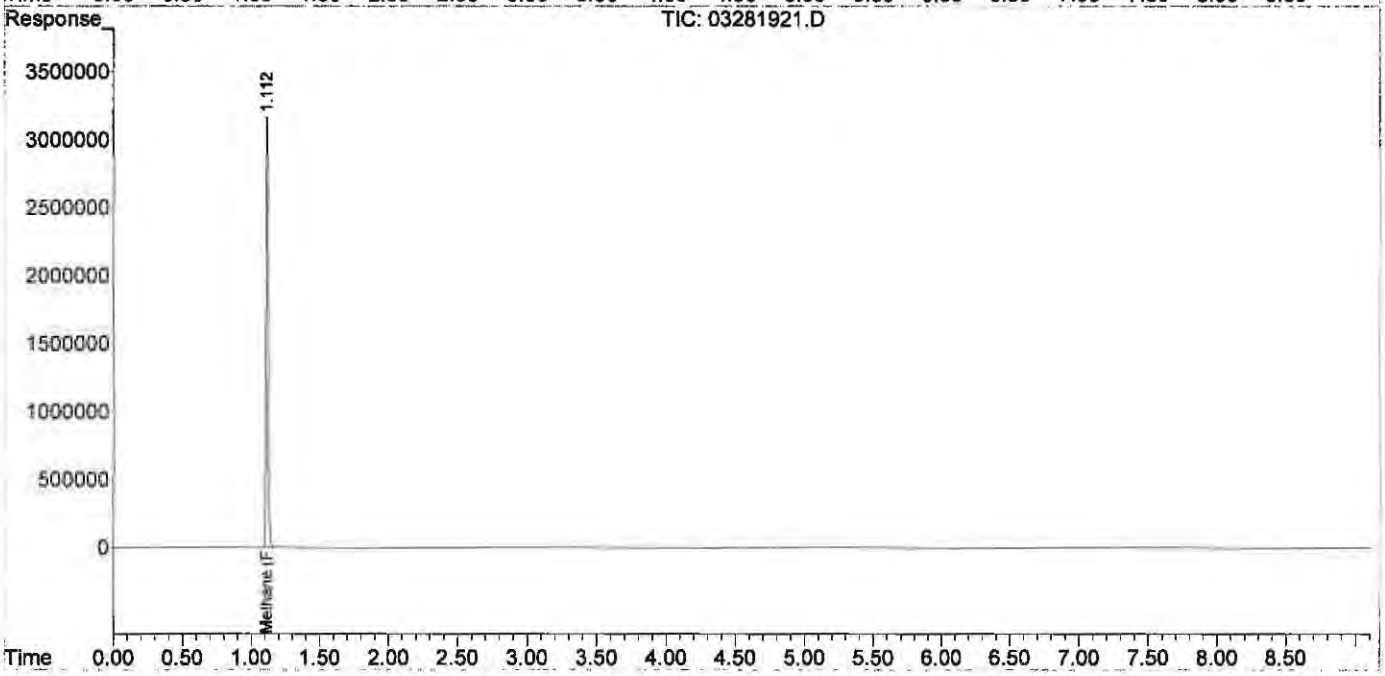
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281921.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 14:17:53
Operator : WH
Sample : lcsd tcd S32-10081801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 15:26:49 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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



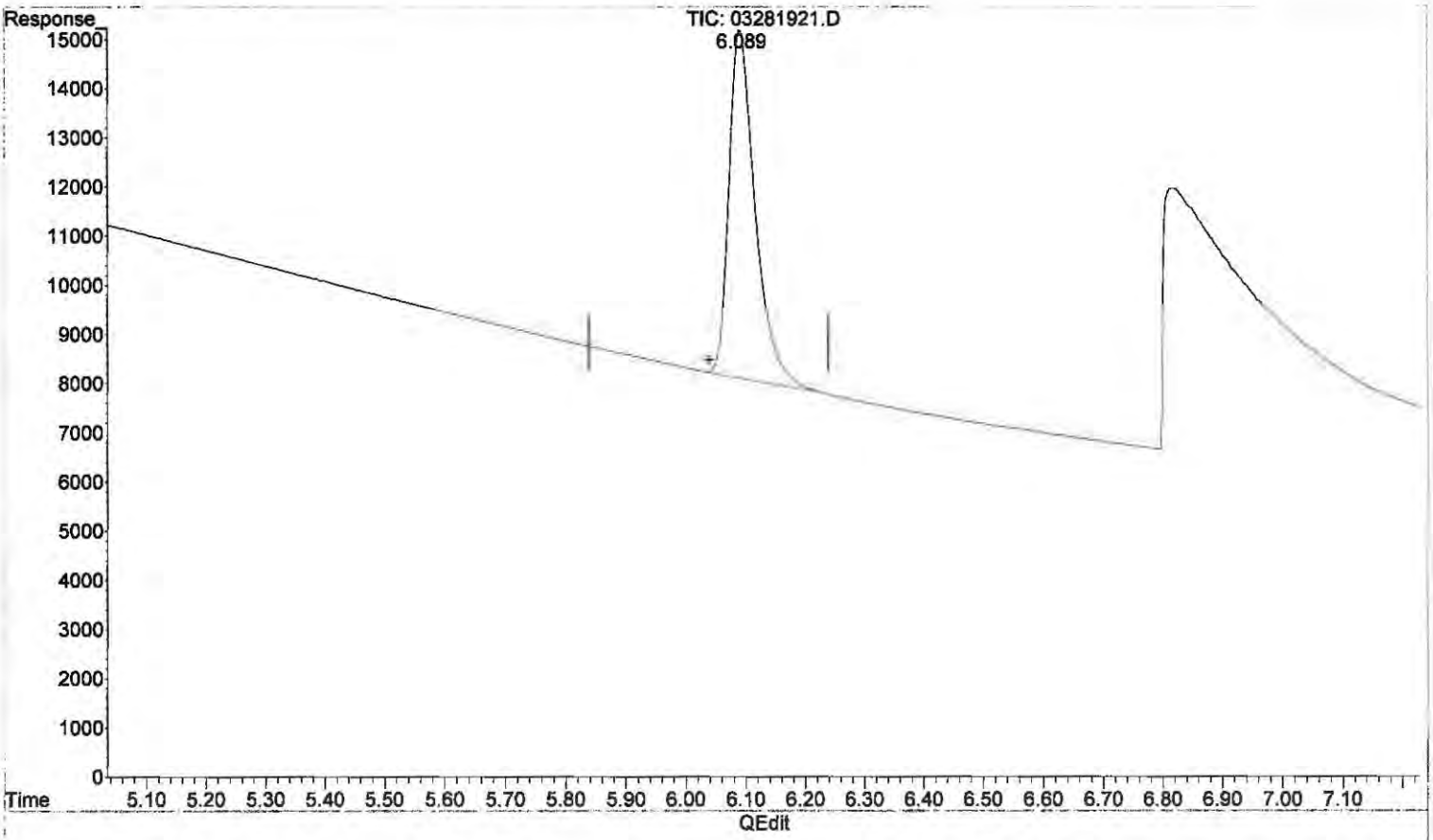


Quantitation Report (Qedit)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281921.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 14:17:53
Operator : WH
Sample : lcsd tcd S32-10081801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 15:26:49 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(4) Carbon dioxide

6.089min 927.220 ppm m

response 217646

MR 3/29/19

WH 3/28/19
BLC
no previous

(+) = Expected Retention Time

RS082817_CO2.M Thu Mar 28 19:58:25 2019

Response Factor Report HP5890

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

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

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

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

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

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

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

Compounds -- Compound #4 -- Carbon dioxide

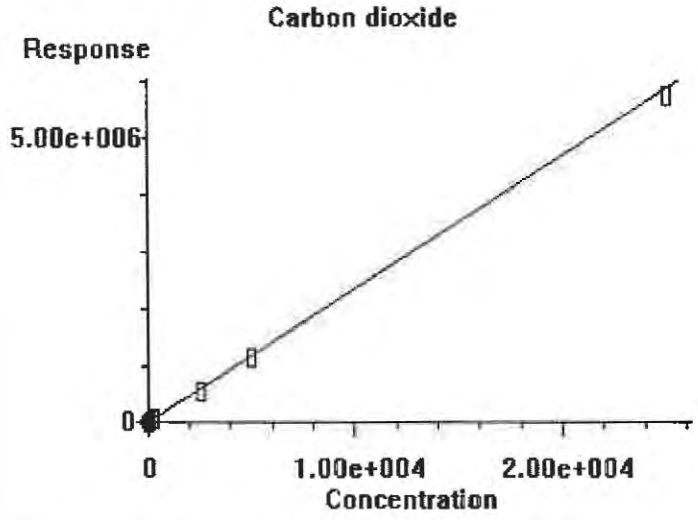
Search by: Ret Time | Name | Index — Find Compound

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

Identification | Calibration | User-Defined | Advanced | Reporting

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

Lvl ID	Concentration	Response



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

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

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

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

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

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

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

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

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

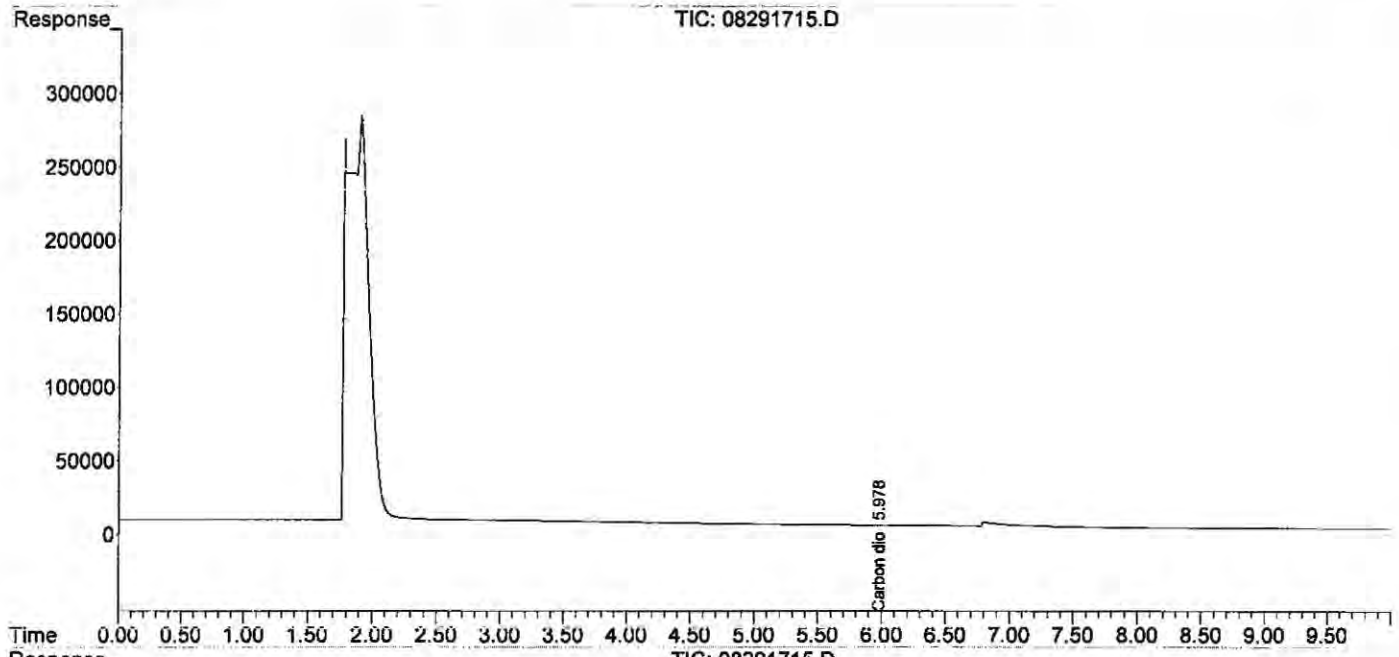
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.776	277465	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	5.978	6794	27.870	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.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

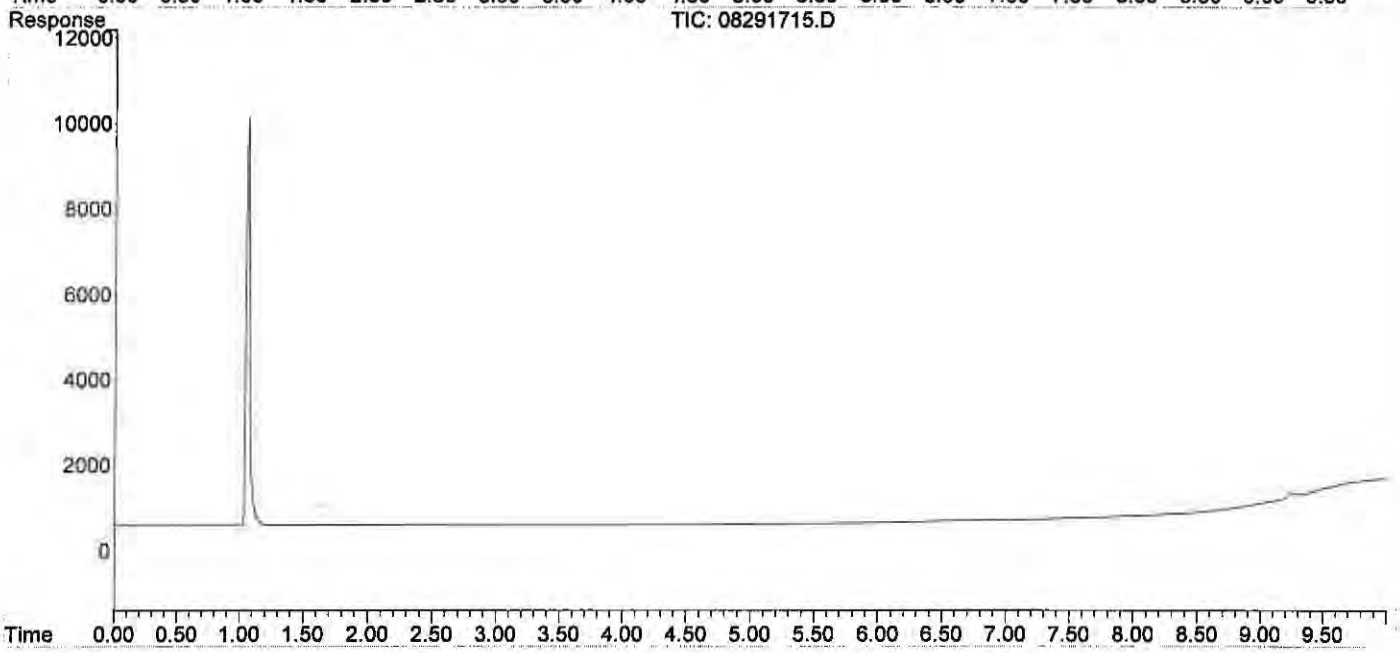
(f)=RT Delta > 1/2 Window (m)=manual int.

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

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

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



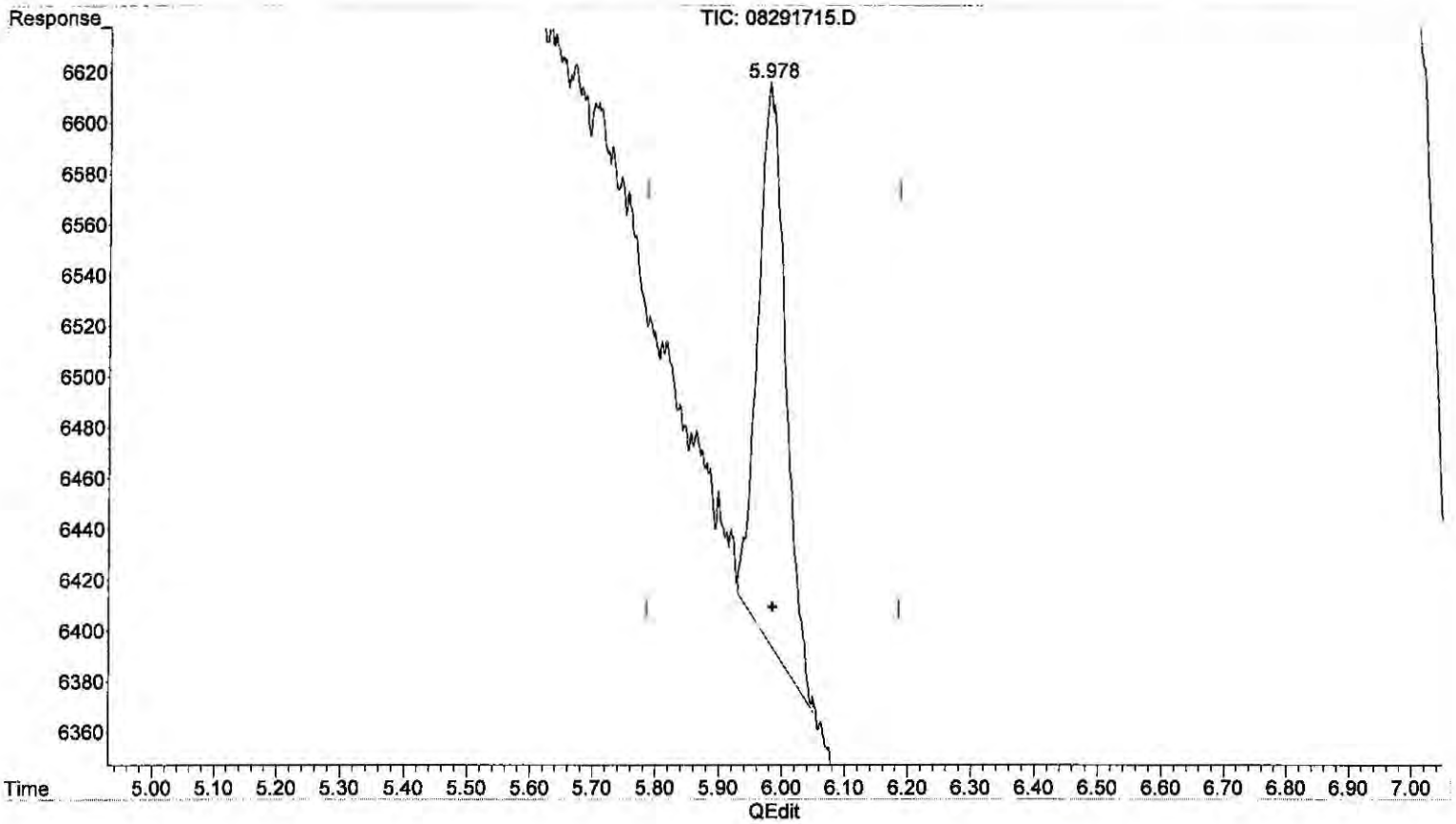


Quantitation Report (Qedit)

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

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

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



(4) Carbon dioxide
5.978min 27.870 ppm m
response 6794

(+) = Expected Retention Time
RS082817_CO2.M Wed Aug 30 13:17:47 2017

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

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

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

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

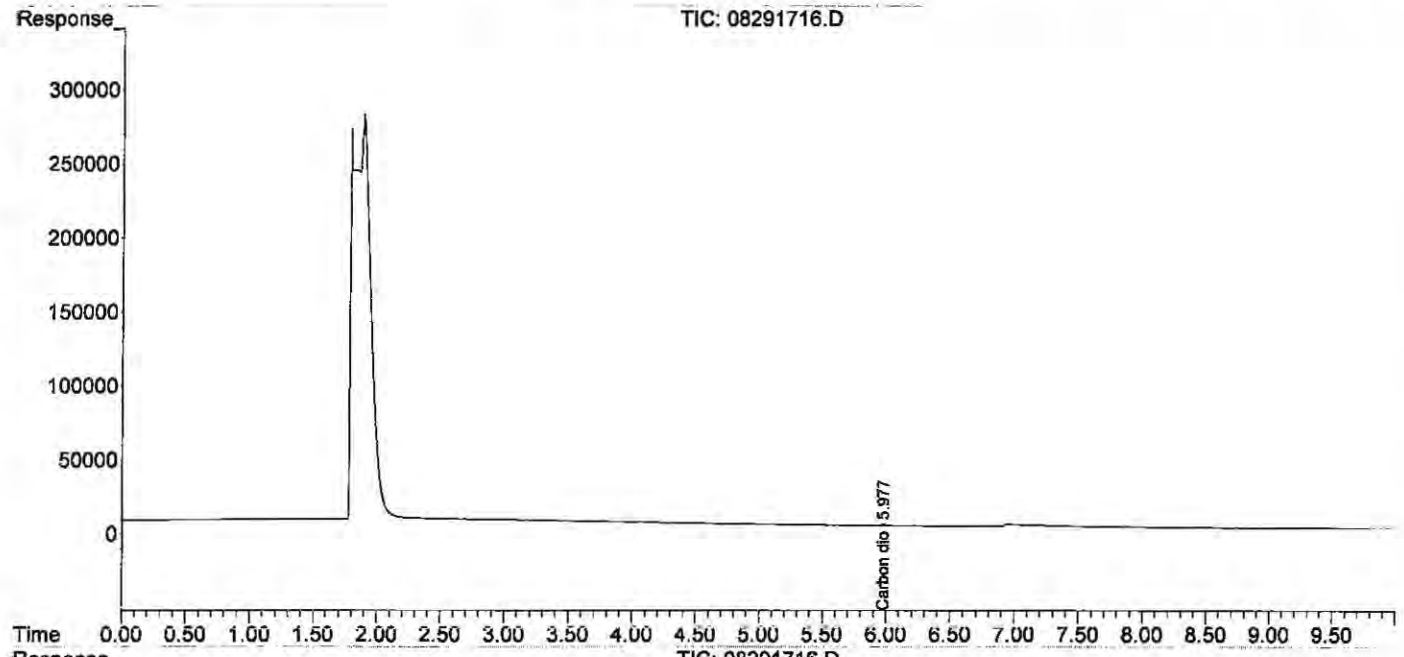
(f)=RT Delta > 1/2 Window (m)=manual int.

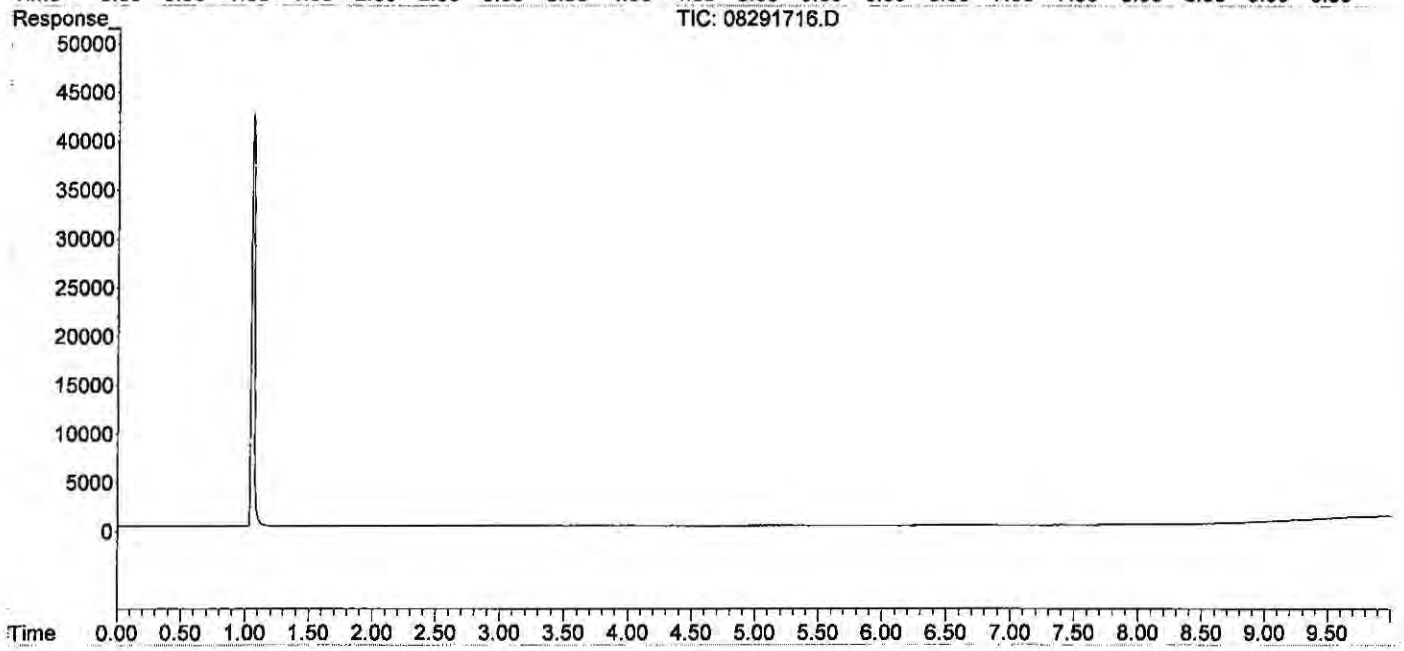
Quantitation Report (QT Reviewed)

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

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

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





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

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

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

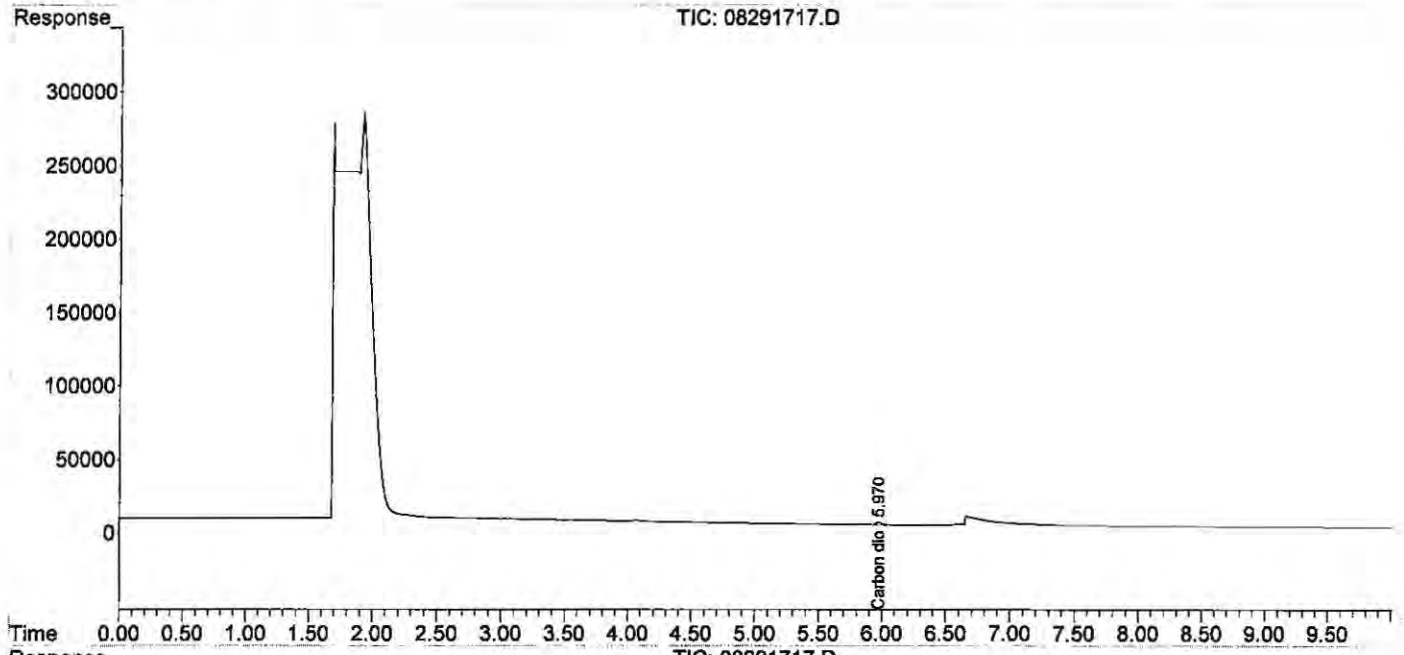
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.920f	-30716454	N.D.	ppm	
2)	Carbon monoxide	0.000	0	N.D.	ppm	d
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	5.970	58461	240.204	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000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

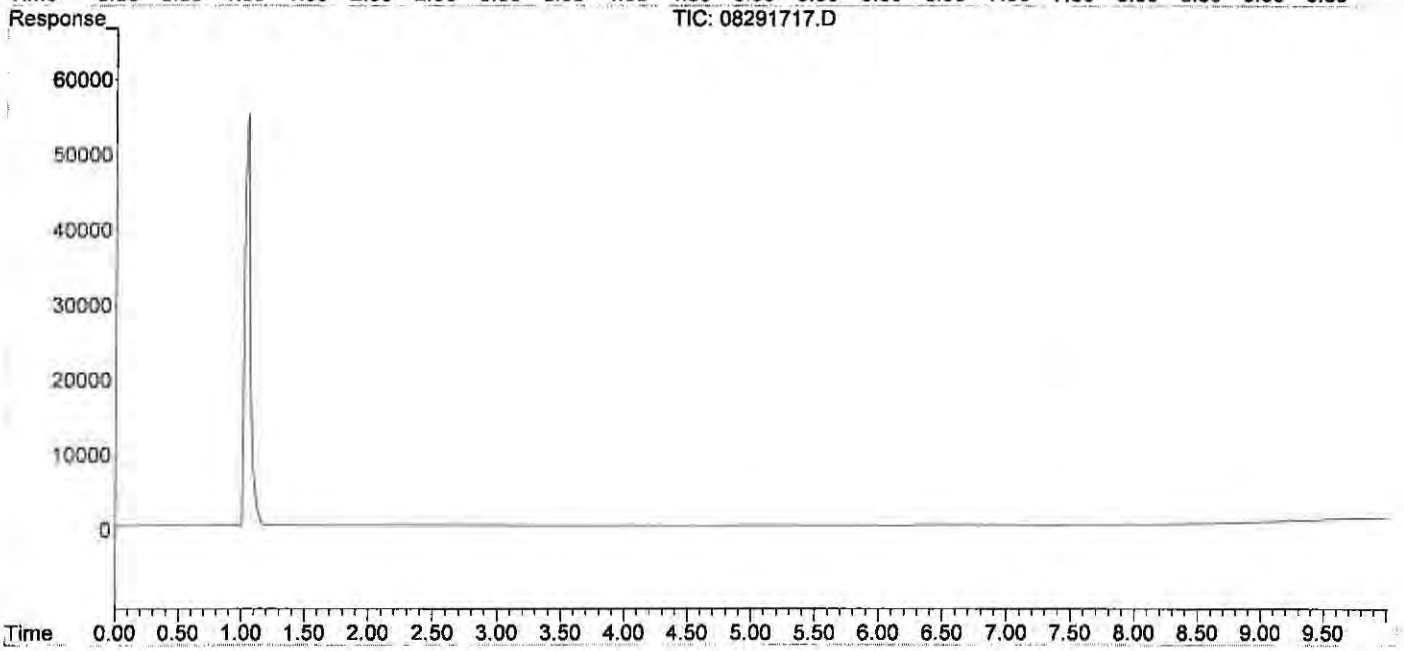
(f)=RT Delta > 1/2 Window (m)=manual int.

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

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

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



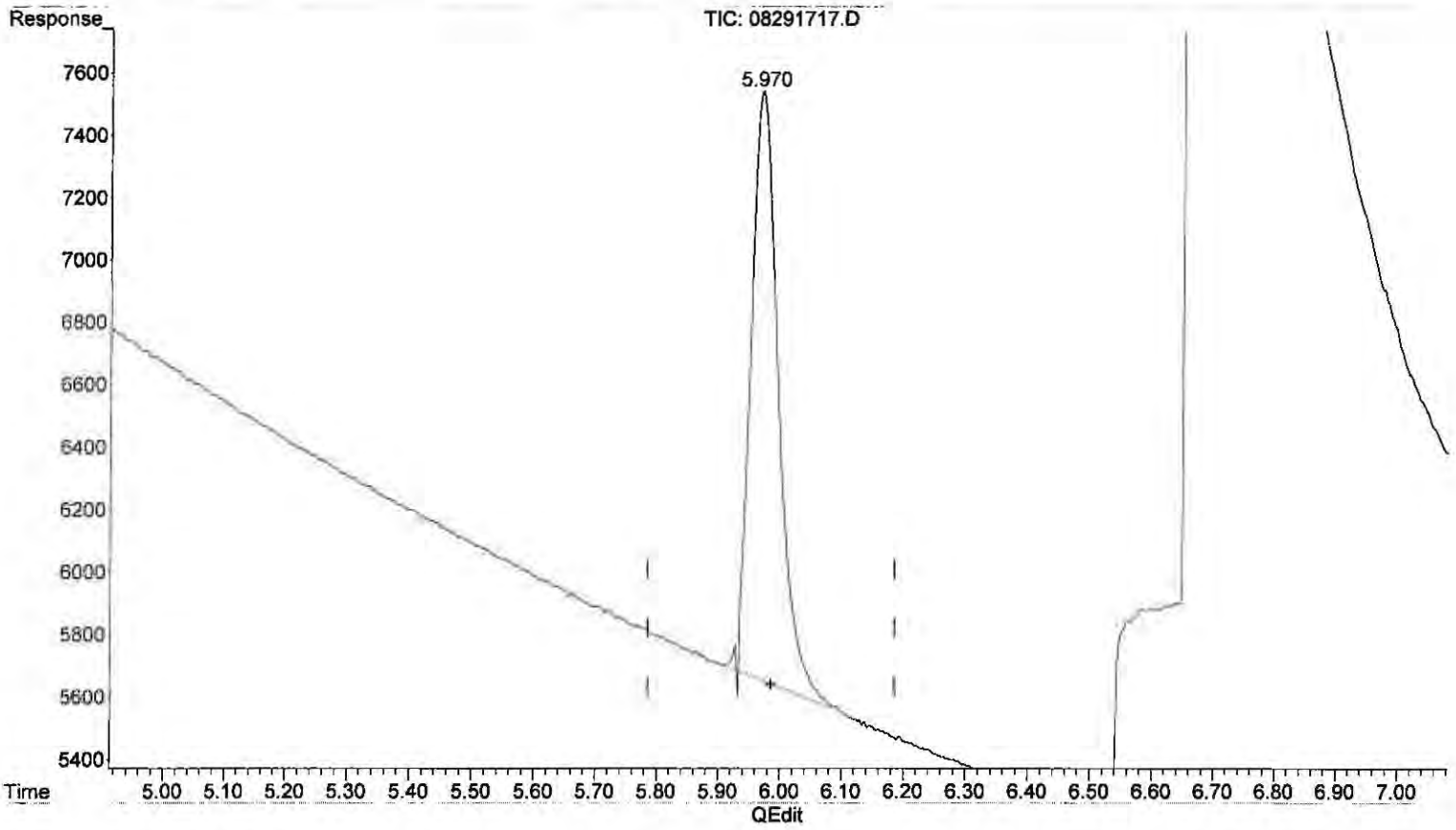


Quantitation Report (Qedit)

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

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

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



(4) Carbon dioxide

5.970min 240.204 ppm m

response 58461

(+) = Expected Retention Time

RS082817_CO2.M Wed Aug 30 13:19:20 2017

Quantitation Report (QT Reviewed)

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

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

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

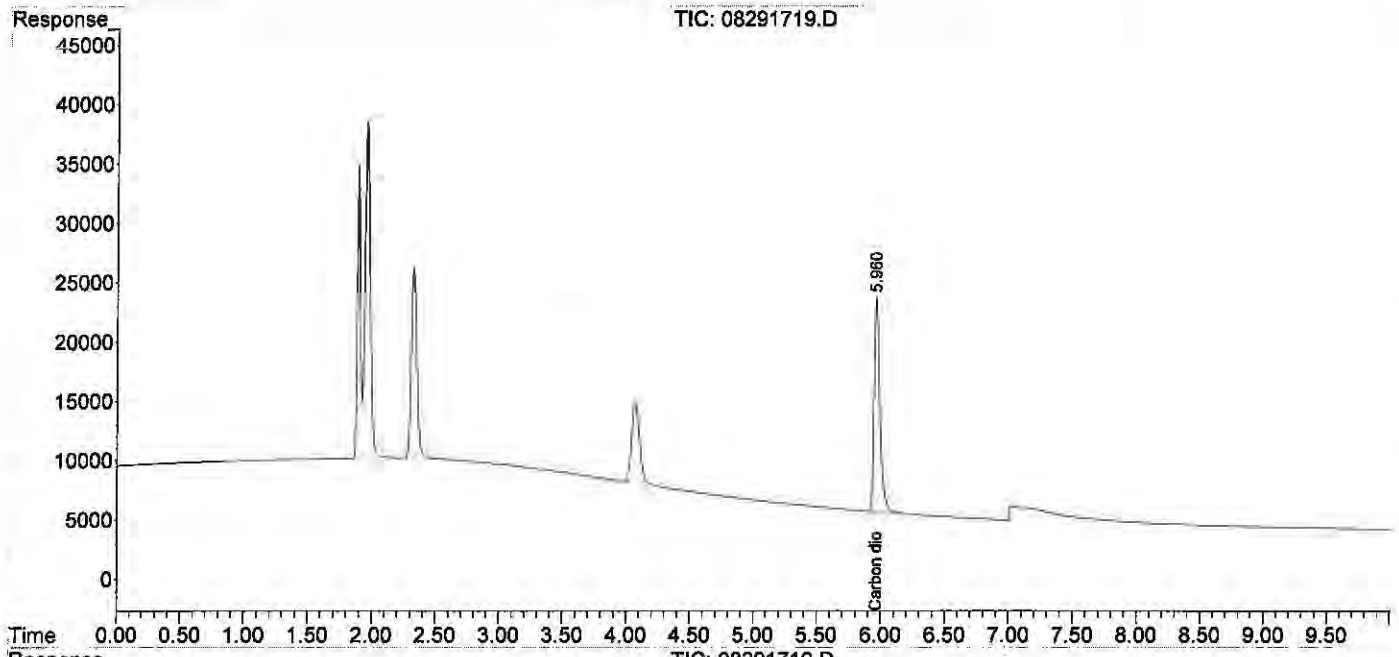
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.891	425113	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	5.962	568043	2369.673	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.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

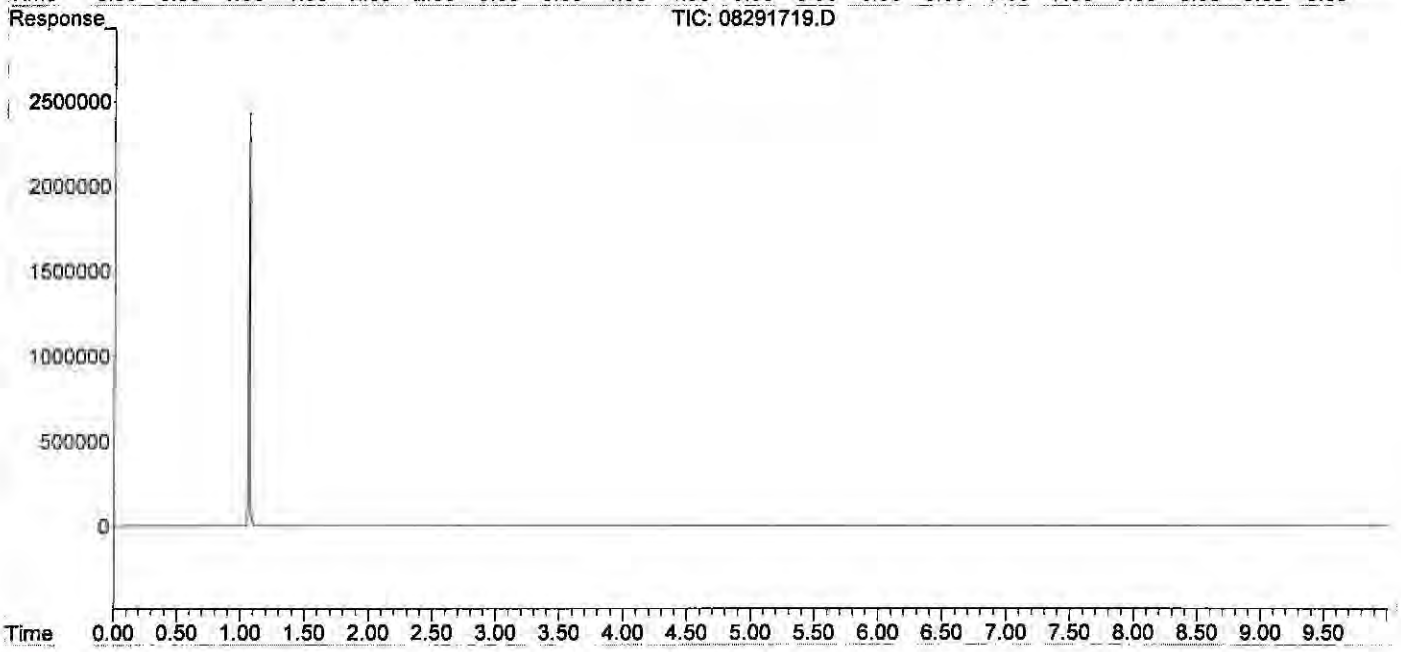
(f)=RT Delta > 1/2 Window (m)=manual int.

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

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

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





Quantitation Report (QT Reviewed)

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

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

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

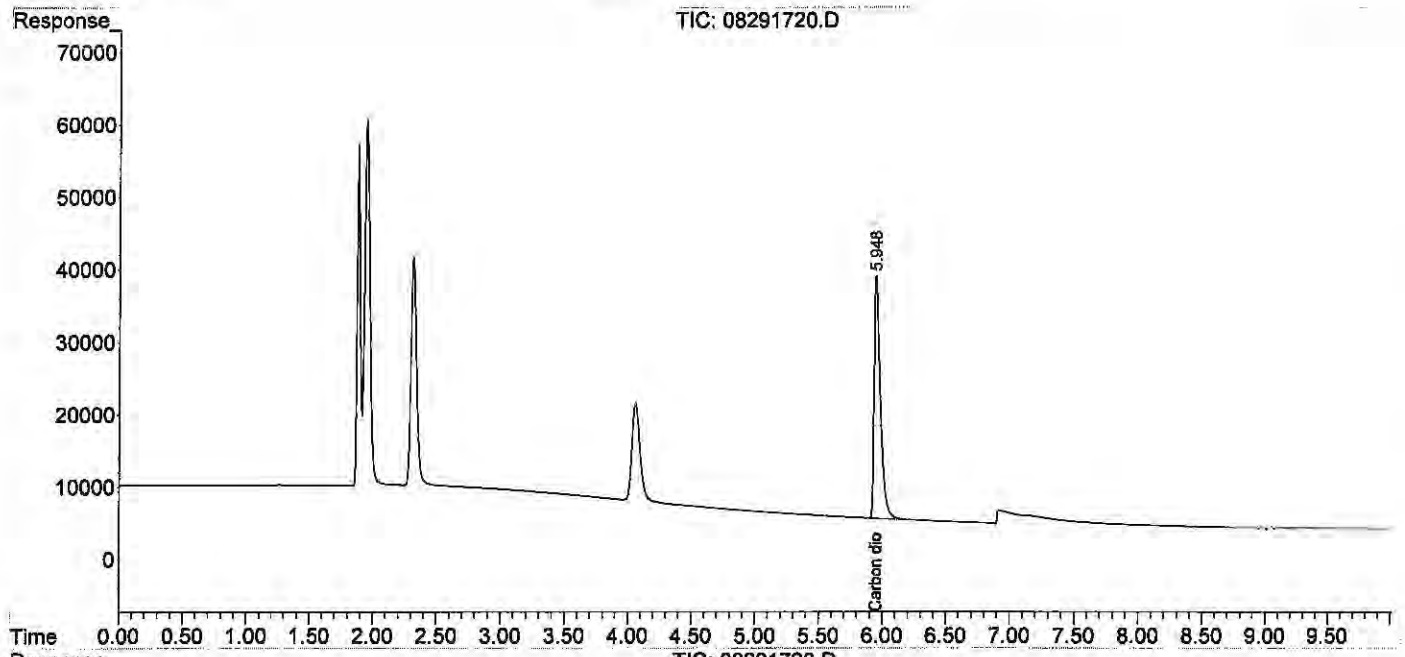
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.880	819221	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	5.948	1132363	4753.126	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0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

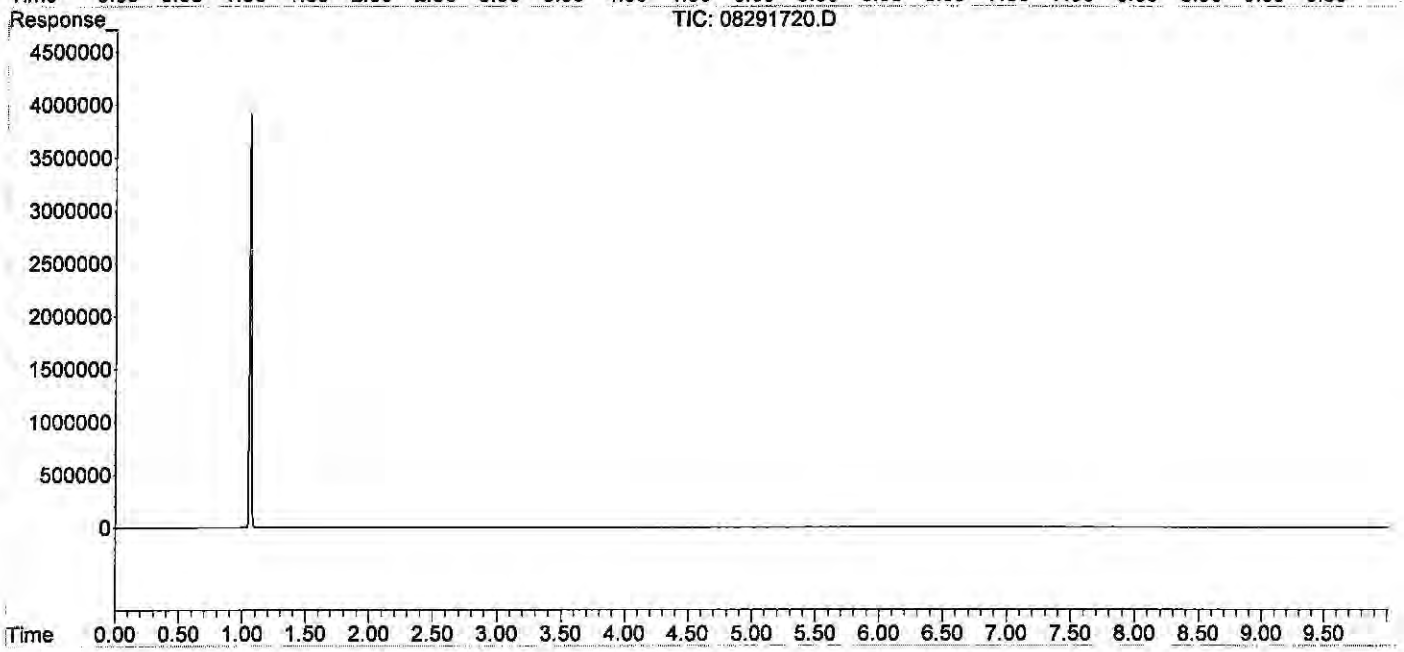
(f)=RT Delta > 1/2 Window (m)=manual int.

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

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

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





Quantitation Report (QT Reviewed)

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

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

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

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

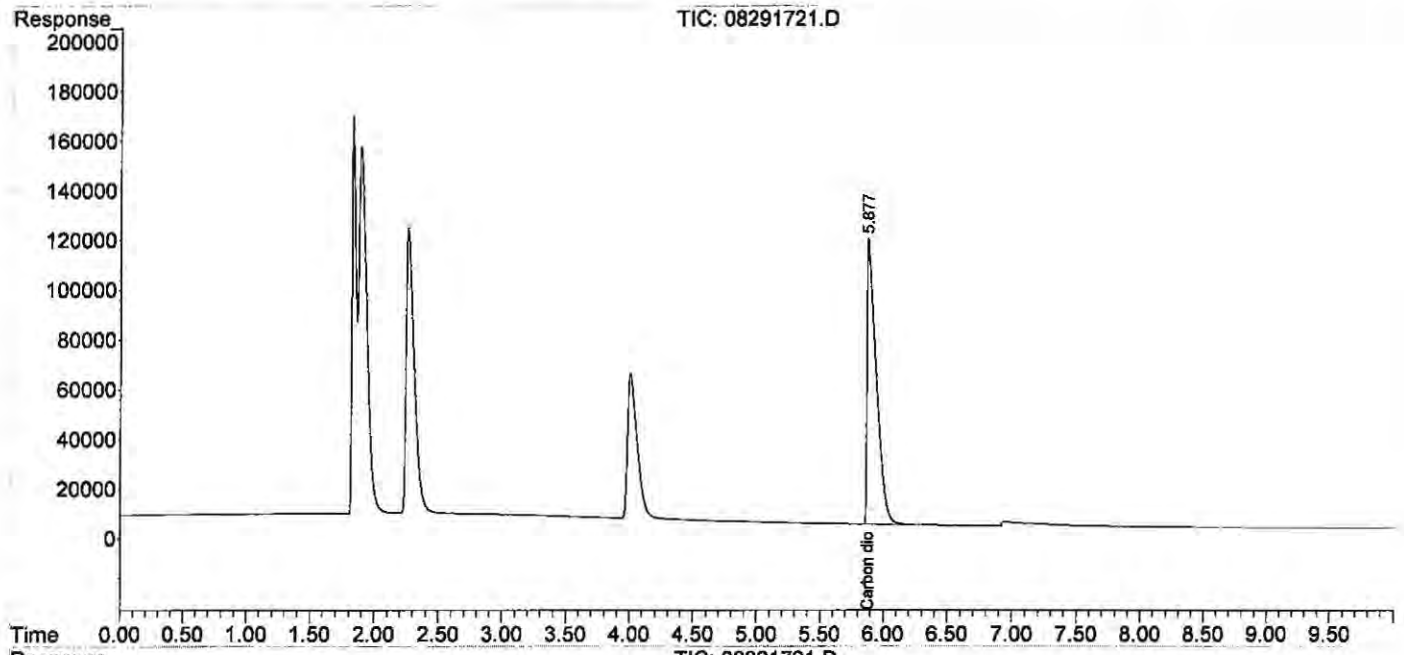
(f)=RT Delta > 1/2 Window (m)=manual int.

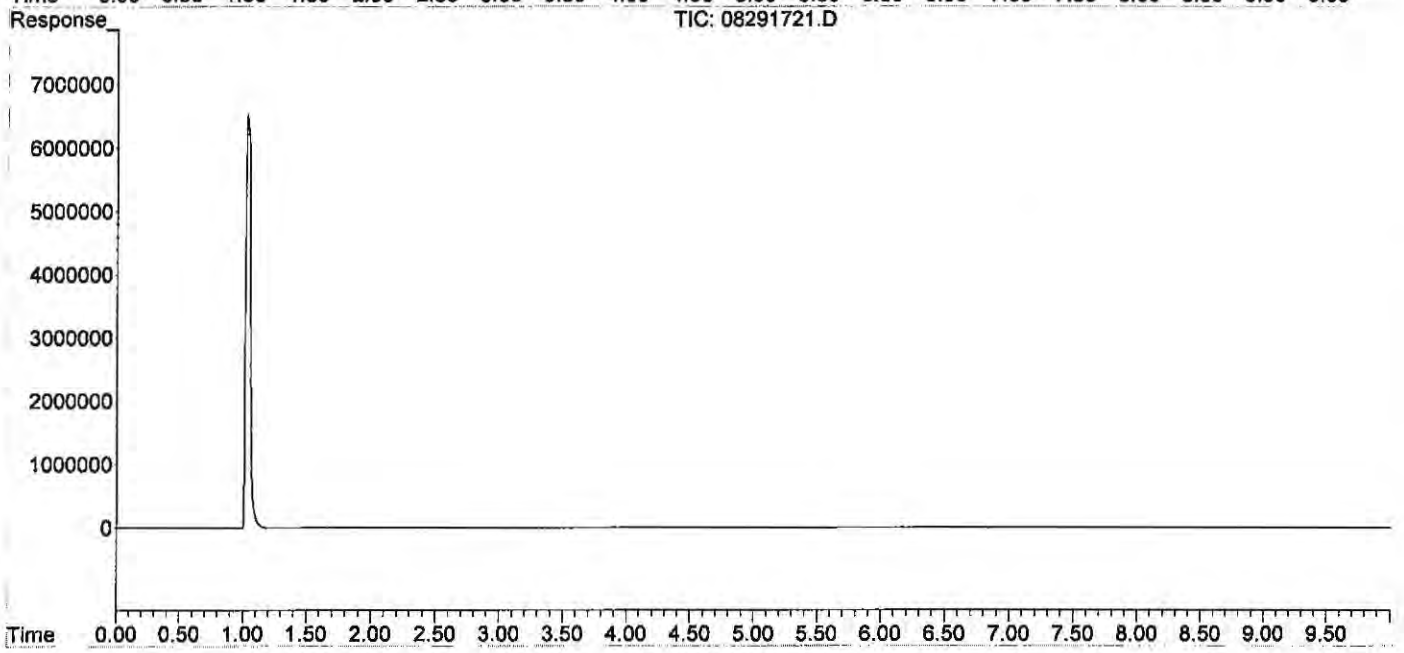
Quantitation Report (QT Reviewed)

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

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

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





Quantitation Report (QT Reviewed)

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

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

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

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.886	536422	0.113	ppm	Actual %D
2)	Carbon monoxide	1.886	536422	N.D.	ppm	
3)	Methane (TCD)	4.059f	626500	66244.710	ppm	
4)	Carbon dioxide	5.947	1163775	4957.948	ppm	5000 99.16
6)	Methane (FID)	1.062	37290742	3947.023	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

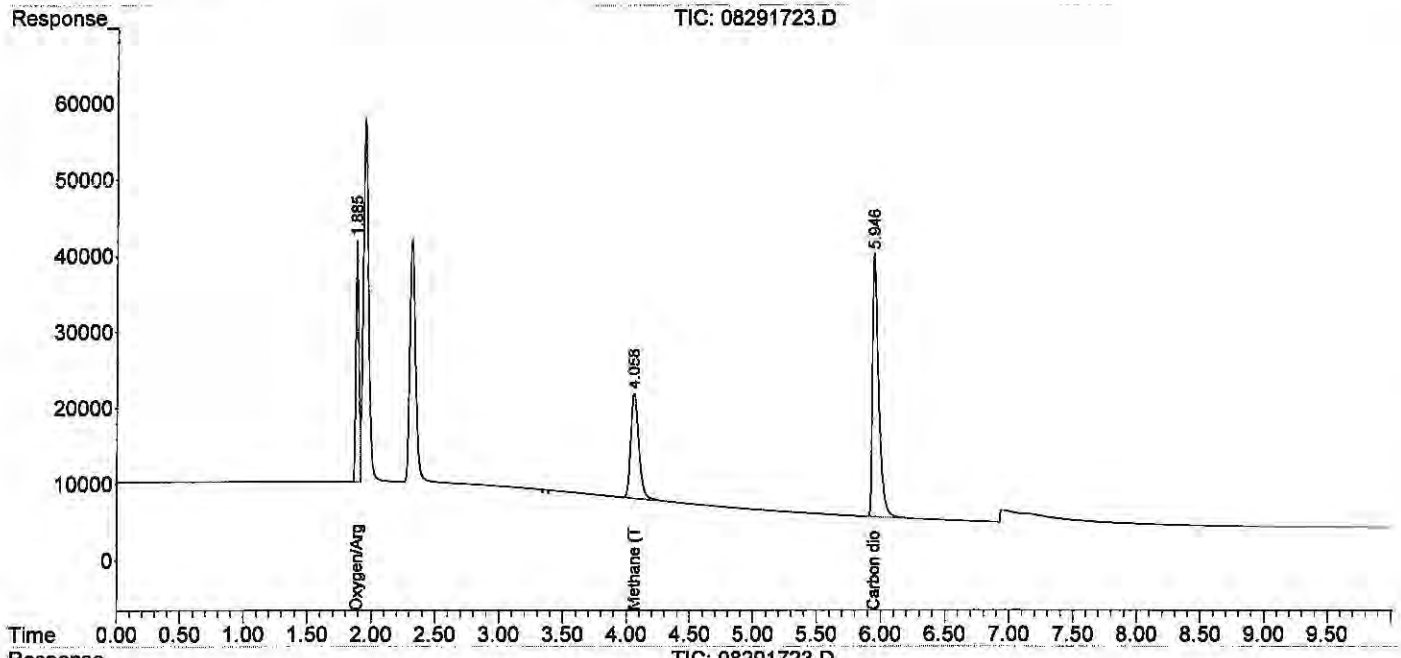
(f)=RT Delta > 1/2 Window (m)=manual int.

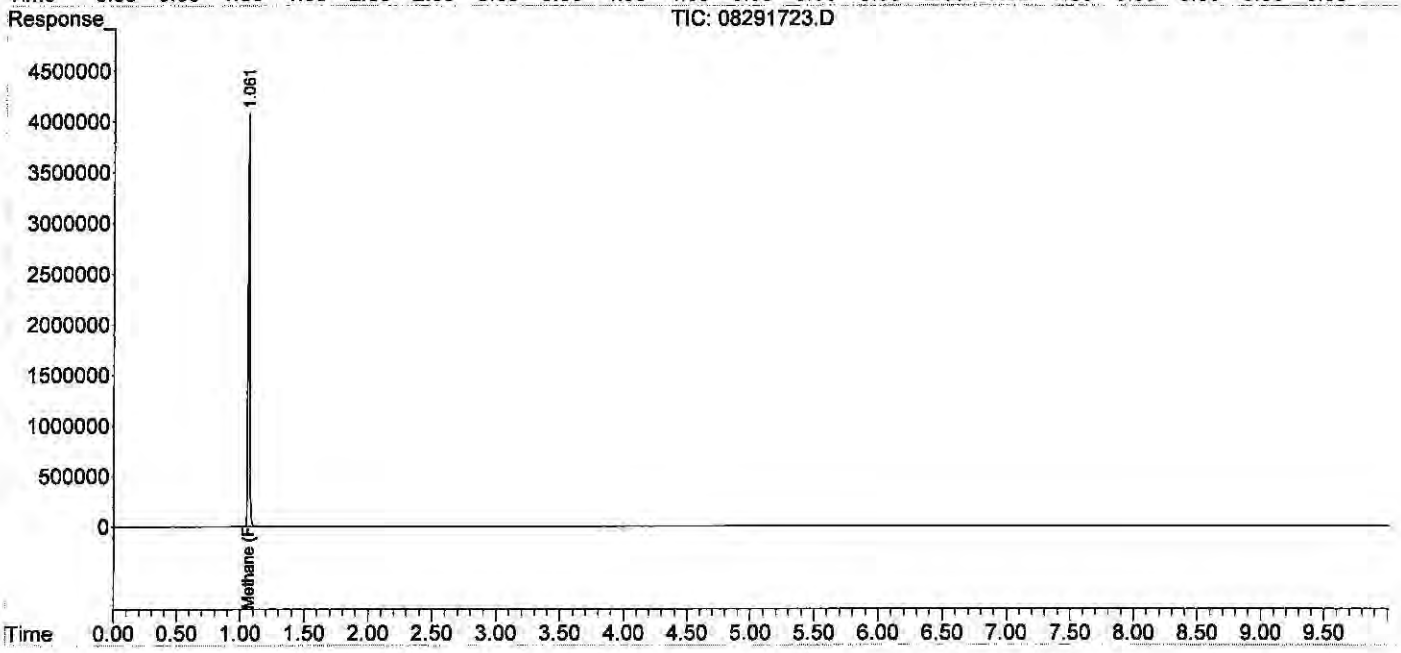
W 9/4/17

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

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

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





ALS Environmental

Method : RSK175 Headspace Method for Dissolved Hydrocarbon in Water by FID/TCD
Client : ALS Laboratory Group
Service Request: P1901501
Sample Vol. (ml) : 32.00 ml
Analyst : WH
Date Analysis : 03/28/19
Head Space Vol.(ml) : 8.00 ml
Instrument : GC#10
Detector : FID#10, TCD#10
Gas Constant : 24.05684 (20°C)

HEAD SPACE RESULT (ppm)

Sample ID	Inj. Vol.	Carbon Dioxide
std s32-01311901	0.100	4929.025
ACTUAL		5000.00
%Difference		1.4%
mcs 0.1ml	0.100	0.000
rb 0.1ml	0.100	0.000
lcs tcd S32-10081801	0.100	955.086
lcsd tcd S32-10081801	0.100	927.220
P1901501-001 50ul	0.050	21506.19
P1901501-002 50ul	0.050	15481.39
P1901501-003 50ul	0.050	18116.94
P1901501-004 50ul	0.050	10048.40
P1901501-005 50ul	0.050	16463.39
P1901501-006 50ul	0.050	15314.68
P1901501-007 50ul	0.050	20427.23
P1901501-007ms 50ul	0.050	21558.23
P1901501-007msd 50ul	0.050	21459.68
std s32-01311901		4873.635
ACTUAL		5000.00
%Difference		2.5%

FINAL HEAD SPACE RESULT (ppm)

	Carbon Dioxide
WWt.	44.10
HENRY'S CONSTANT	1.42E+03
RL	100.00
mcs 0.1ml	0.000
lcs tcd S32-10081801	9550.860
lcsd tcd S32-10081801	9272.200
P1901501-001 50ul	430123.70
P1901501-002 50ul	309627.86
P1901501-003 50ul	362338.82
P1901501-004 50ul	200968.06
P1901501-005 50ul	329267.82
P1901501-006 50ul	306293.54
P1901501-007 50ul	408544.56
P1901501-007ms 50ui	431164.56
P1901501-007msd 50ul	429193.56

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281902.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 09:30:11
Operator : WH
Sample : std s32-01311901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 10:42:38 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.982f	539347	0.113	ppm	
2)	Carbon monoxide	1.982f	539347	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	6.073	1156986	4929.025	ppm	m
6)	Methane (FID)	1.116	35403276	3747.245	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

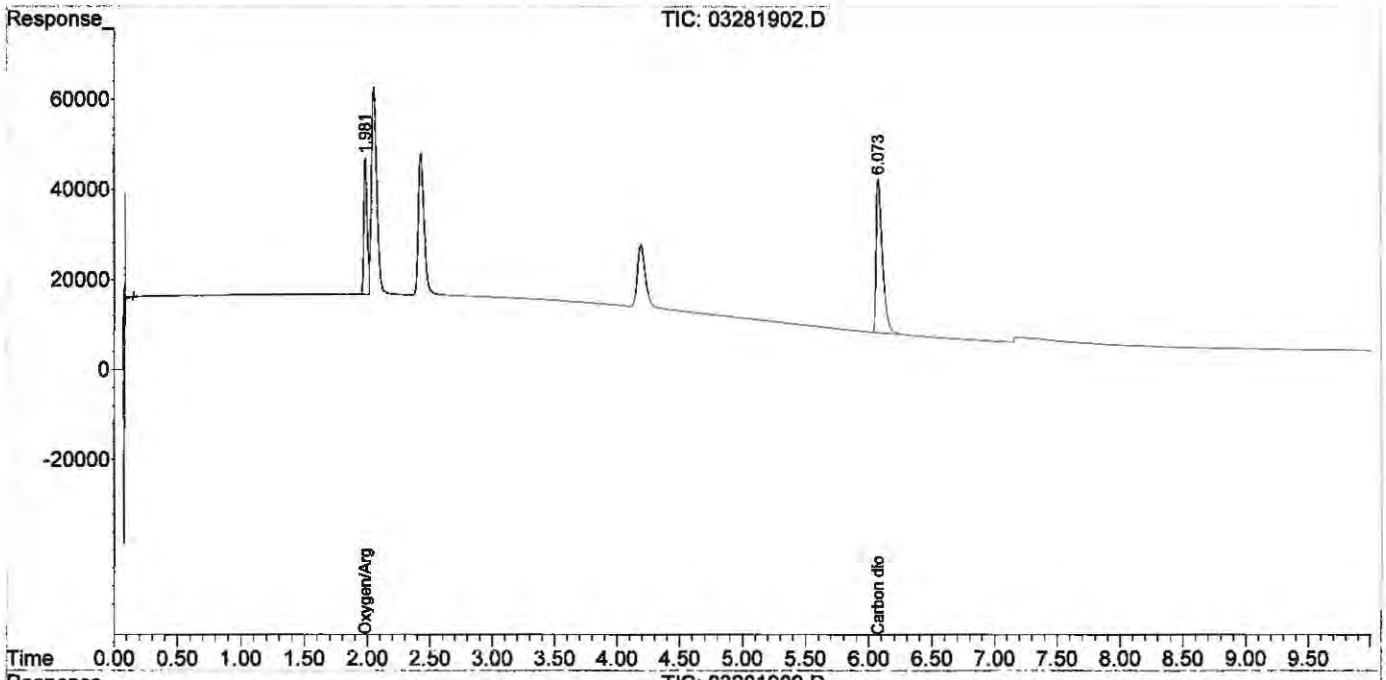
(f)=RT Delta > 1/2 Window (m)=manual int.

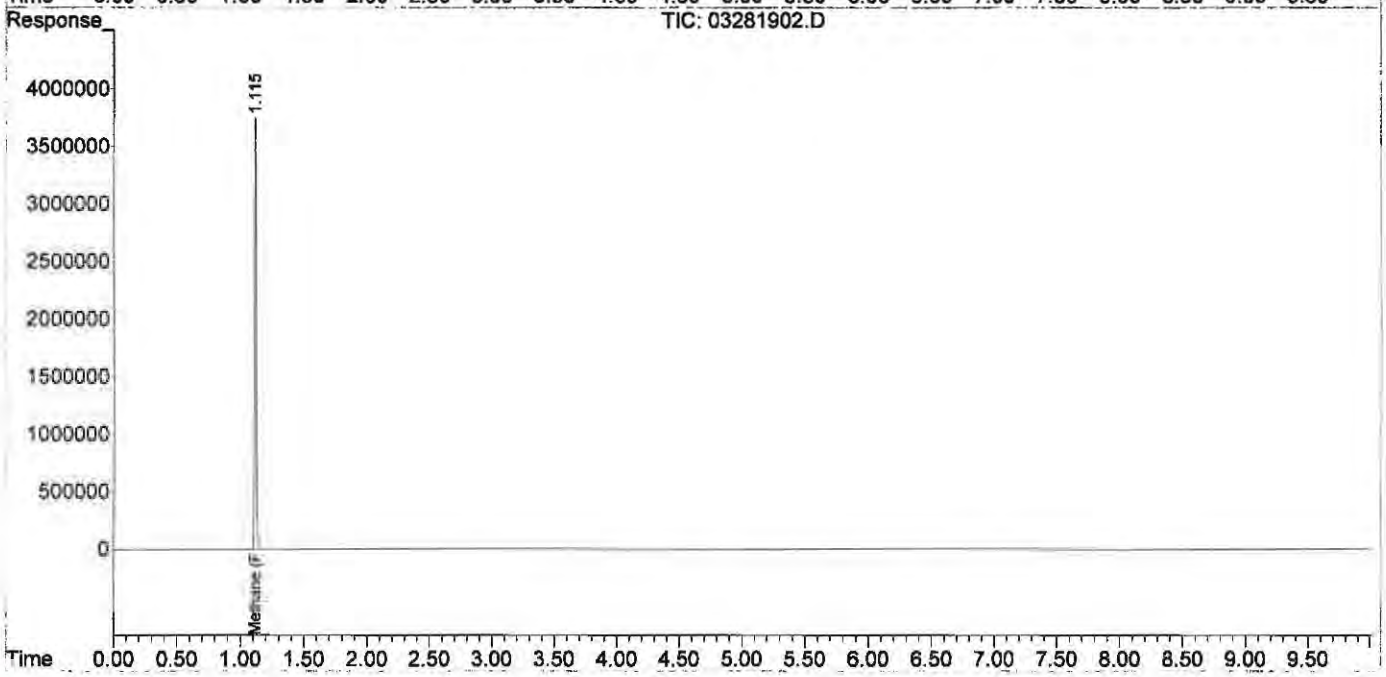
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281902.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 09:30:11
Operator : WH
Sample : std s32-01311901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 10:42:38 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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



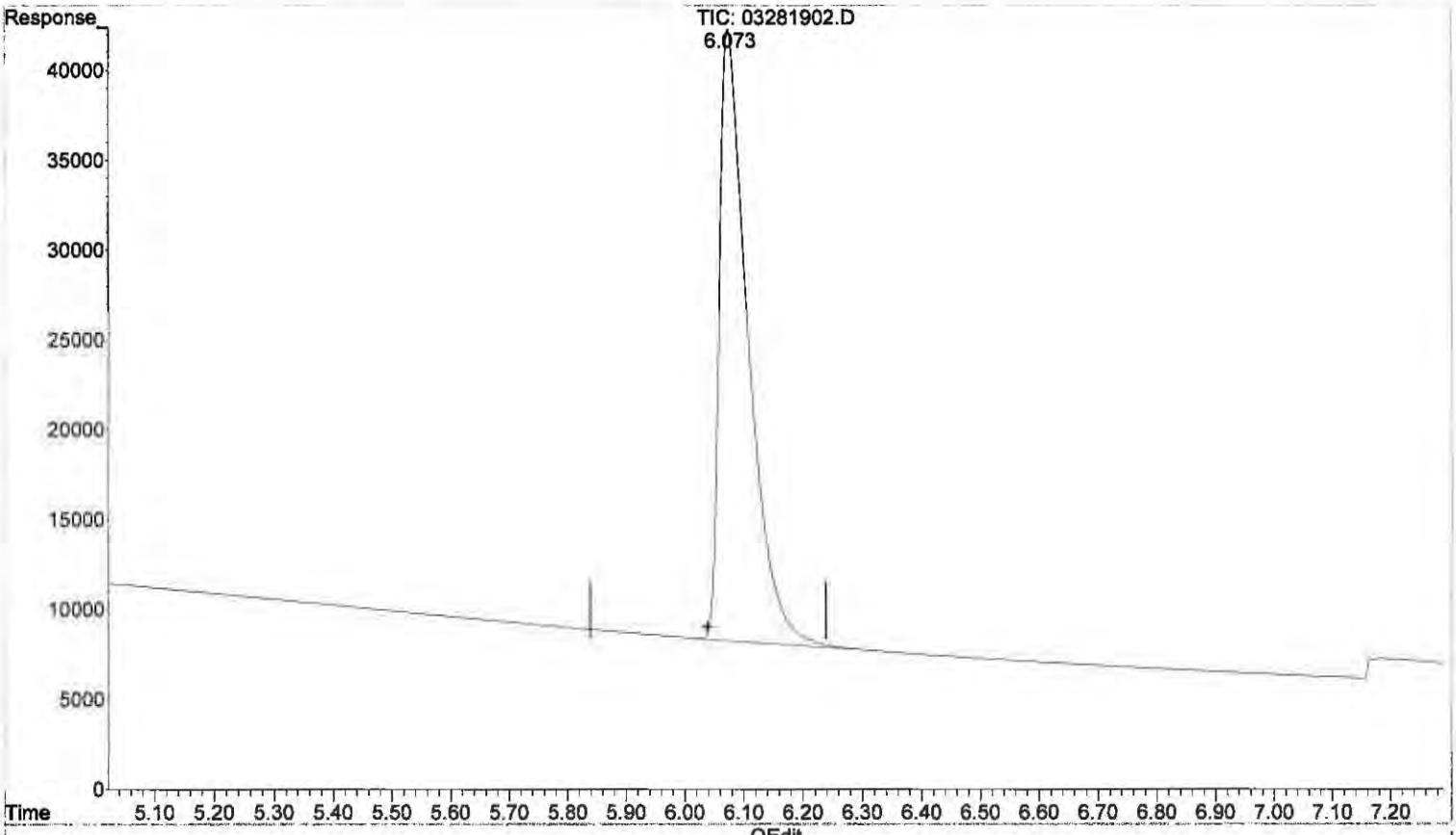


Quantitation Report (Qedit)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281902.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 09:30:11
Operator : WH
Sample : std s32-01311901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 10:42:38 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(4) Carbon dioxide

6.073min 4929.025 ppm m

response 1156986

MR 3/29/19

LB 3/28/19
BLL
no previous

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281918.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 13:09:50
Operator : WH
Sample : std s32-01311901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 14:35:06 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.980f	534823	0.112	ppm
2)	Carbon monoxide	1.980f	534823	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.071	1142619	4867.818	ppm
6)	Methane (FID)	1.114	35776371	3786.735	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

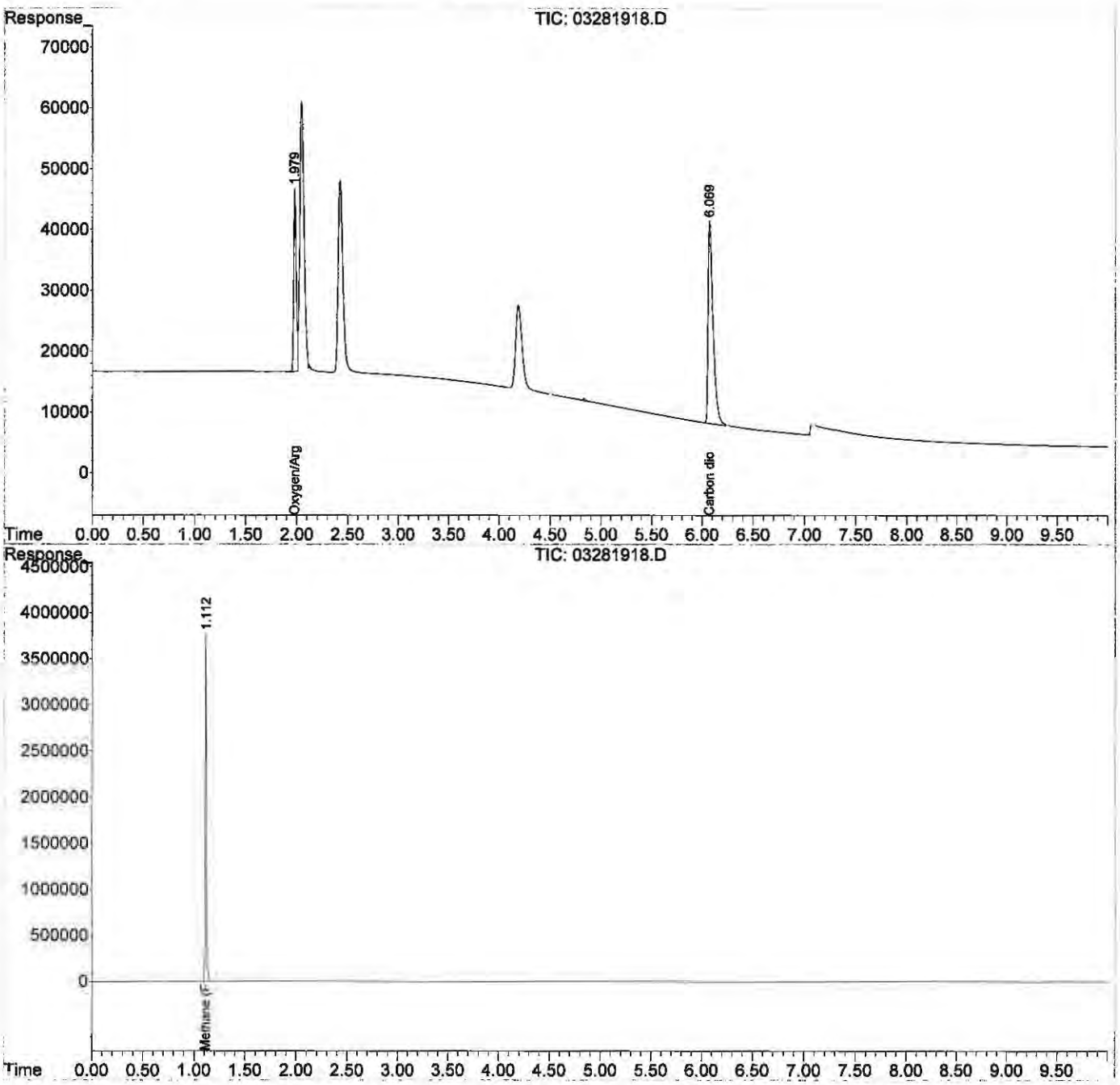
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281918.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 13:09:50
Operator : WH
Sample : std s32-01311901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 14:35:06 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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



Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281931.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 16:57:30
Operator : WH
Sample : std s32-01311901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 18:31:36 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.983f	546358	0.115	ppm	
2)	Carbon monoxide	1.983f	546358	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	6.073	1143984	4873.635	ppm	m
6)	Methane (FID)	1.116	36024638	3813.012	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

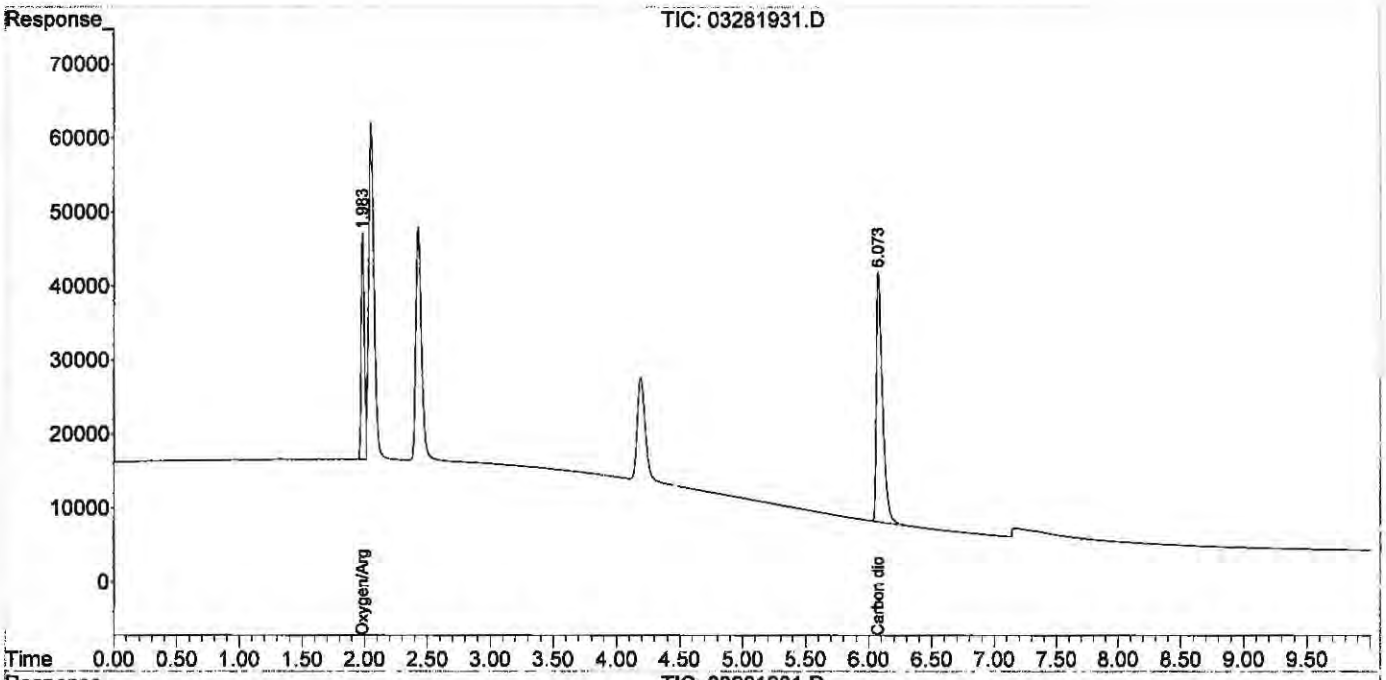
(f)=RT Delta > 1/2 Window (m)=manual int.

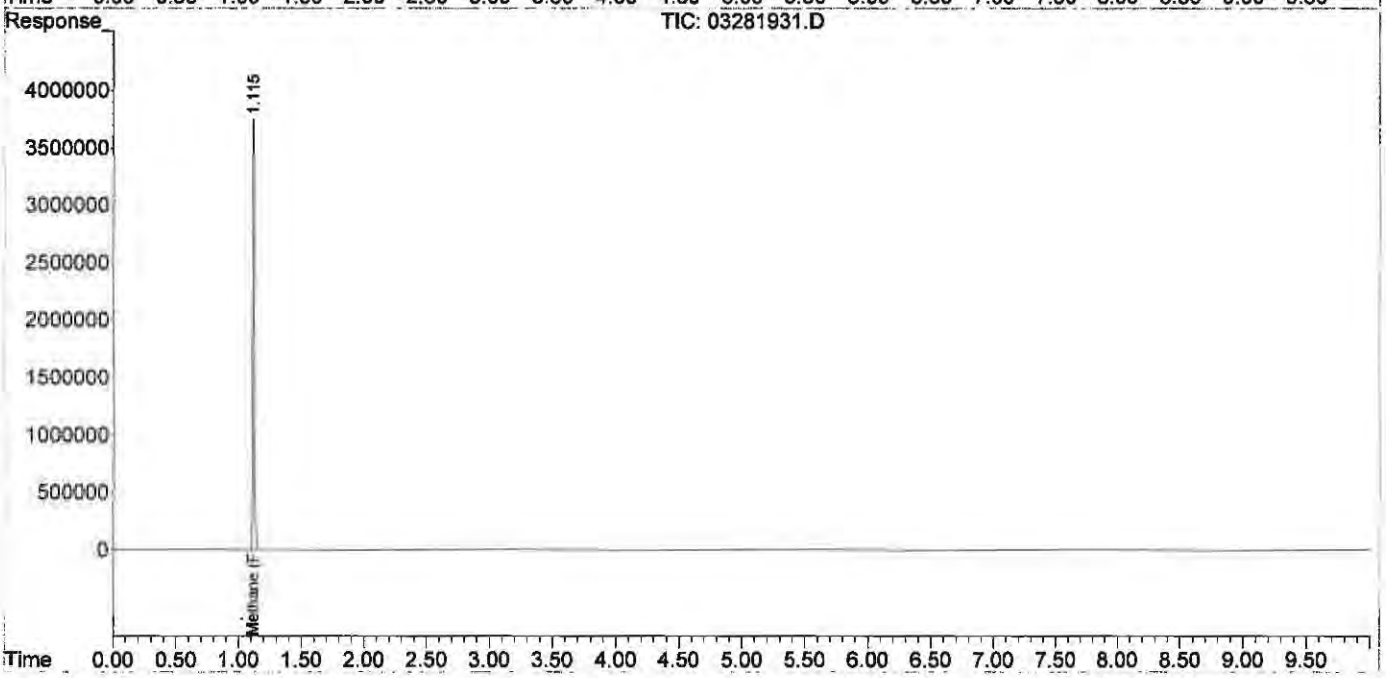
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281931.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 16:57:30
Operator : WH
Sample : std s32-01311901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 18:31:36 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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



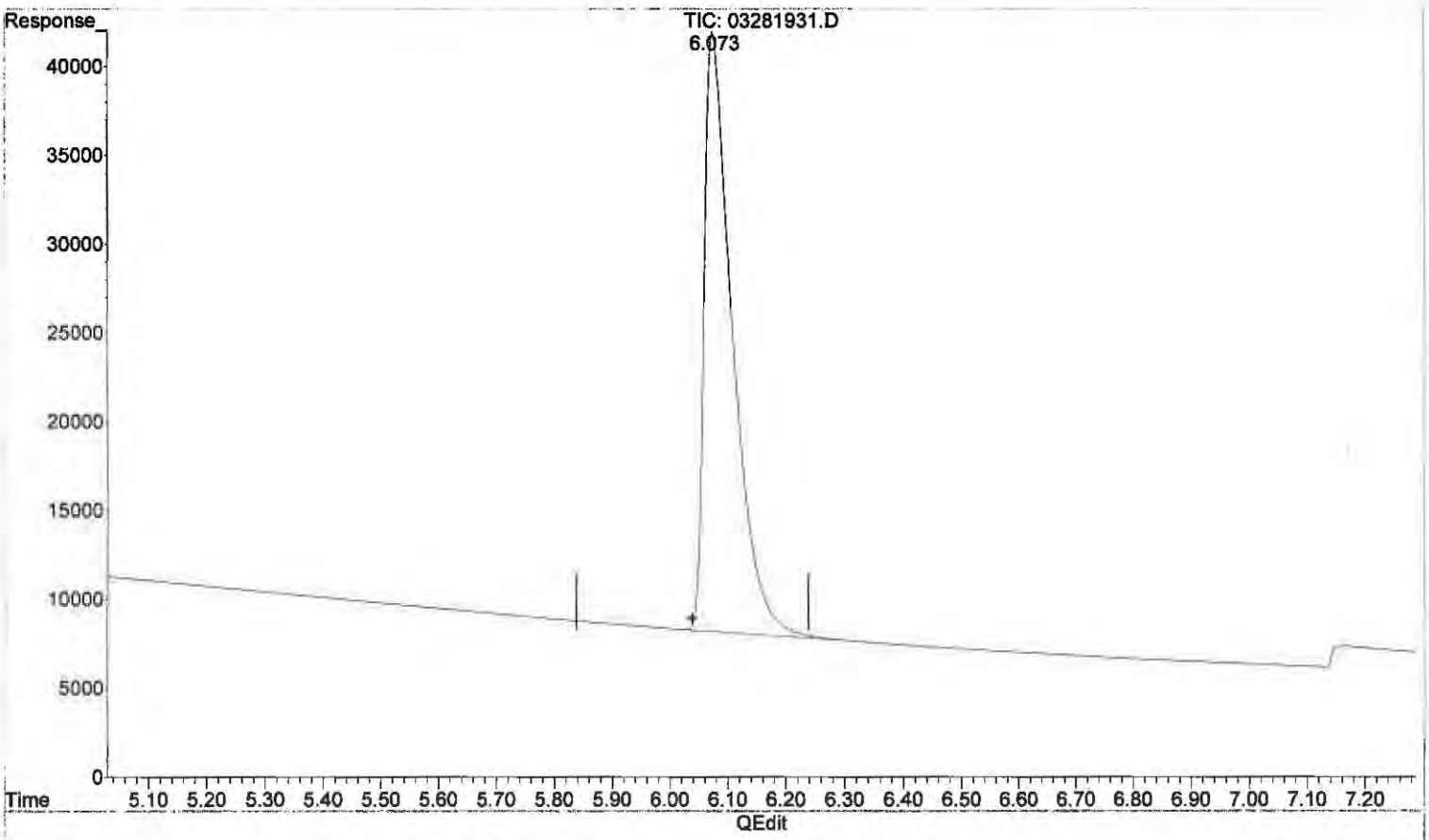


Quantitation Report (Qedit)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281931.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 16:57:30
Operator : WH
Sample : std s32-01311901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 18:31:36 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(4) Carbon dioxide

6.073min 4873.635 ppm m

response 1143984

3/28/19
BVC
no problem

MK 3/29/19

(+) = Expected Retention Time

RS082817_CO2.M Thu Mar 28 20:11:43 2019 80 of 150 Page: 1

Injection Log

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

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

Injection Log

Directory: I:\GC10\DATA\RSK_FID\2019_03\28\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Acquisition Method	Comments
1	28-Mar-19, 09:14:34	03281901.D	std s32-07231801		WH	RSKBOTH.M	pass
2	28-Mar-19, 09:30:11	03281902.D	std s32-01311901		WH	RSKBOTH.M	pass
3	28-Mar-19, 09:44:40	03281903.D	rb 0.1ml		WH	RSKBOTH.M	pass
4	28-Mar-19, 09:56:00	03281904.D	mcs 0.1ml		WH	RSKBOTH.M	pass
5	28-Mar-19, 10:12:33	03281905.D	P1901501-001 0.1ml		WH	RSKBOTH.M	
6	28-Mar-19, 10:26:53	03281906.D	P1901501-002 0.1ml		WH	RSKBOTH.M	
7	28-Mar-19, 10:34:24	03281907.D	P1901501-003 0.1ml		WH	RSKBOTH.M	
8	28-Mar-19, 10:47:38	03281908.D	P1901501-004 0.1ml		WH	RSKBOTH.M	
9	28-Mar-19, 10:59:22	03281909.D	P1901501-005 0.1ml		WH	RSKBOTH.M	
10	28-Mar-19, 11:07:53	03281910.D	P1901501-006 0.1ml		WH	RSKBOTH.M	
11	28-Mar-19, 11:21:11	03281911.D	P1901501-007 0.1ml		WH	RSKBOTH.M	
12	28-Mar-19, 11:31:06	03281912.D	P1901501-007ms 0.1ml		WH	RSKBOTH.M	
13	28-Mar-19, 11:44:22	03281913.D	P1901501-007msd 0.1ml		WH	RSKBOTH.M	
14	28-Mar-19, 11:57:36	03281914.D	fid lcs s30-05241604		WH	RSKBOTH.M	
15	28-Mar-19, 12:18:46	03281915.D	fid lcs s30-05241604		WH	RSKBOTH.M	pass
16	28-Mar-19, 12:30:50	03281916.D	fid lcsd s30-05241604		WH	RSKBOTH.M	pass
17	28-Mar-19, 12:49:37	03281917.D	std s32-07231801		WH	RSKBOTH.M	pass
18	28-Mar-19, 13:09:50	03281918.D	std s32-01311901		WH	RSKBOTH.M	pass
19	28-Mar-19, 13:36:52	03281919.D	mcs 0.1ml		WH	RSKBOTH.M	pass
20	28-Mar-19, 13:46:41	03281920.D	lcs tcd S32-10081801		WH	RSKBOTH.M	pass
21	28-Mar-19, 14:17:53	03281921.D	lcsd tcd S32-10081801		WH	RSKBOTH.M	pass
22	28-Mar-19, 14:46:07	03281922.D	P1901501-001 50ul		WH	RSKBOTH.M	
23	28-Mar-19, 14:59:14	03281923.D	P1901501-002 50ul		WH	RSKBOTH.M	
24	28-Mar-19, 15:12:57	03281924.D	P1901501-003 50ul		WH	RSKBOTH.M	
25	28-Mar-19, 15:25:25	03281925.D	P1901501-004 50ul		WH	RSKBOTH.M	
26	28-Mar-19, 15:36:07	03281926.D	P1901501-005 50ul		WH	RSKBOTH.M	
27	28-Mar-19, 15:56:58	03281927.D	P1901501-006 50ul		WH	RSKBOTH.M	
28	28-Mar-19, 16:08:13	03281928.D	P1901501-007 50ul		WH	RSKBOTH.M	
29	28-Mar-19, 16:23:34	03281929.D	P1901501-007ms 50ul		WH	RSKBOTH.M	
30	28-Mar-19, 16:41:20	03281930.D	P1901501-007msd 50ul		WH	RSKBOTH.M	
31	28-Mar-19, 16:57:30	03281931.D	std s32-01311901		WH	RSKBOTH.M	pass
32	28-Mar-19, 17:49:38	03281932.D	loq		WH	RSKBOTH.M	
33	28-Mar-19, 18:01:49	03281933.D	loq		WH	RSKBOTH.M	
34	28-Mar-19, 18:21:24	03281934.D	lod		WH	RSKBOTH.M	

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281905.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 10:12:33
Operator : WH
Sample : P1901501-001 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 11:31:52 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.989f	169122	0.213	ppm
2)	Carbon monoxide	1.989f	169122	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	5.953	13189168	54107.452	ppm
6)	Methane (FID)	1.117	2151298	237.172	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

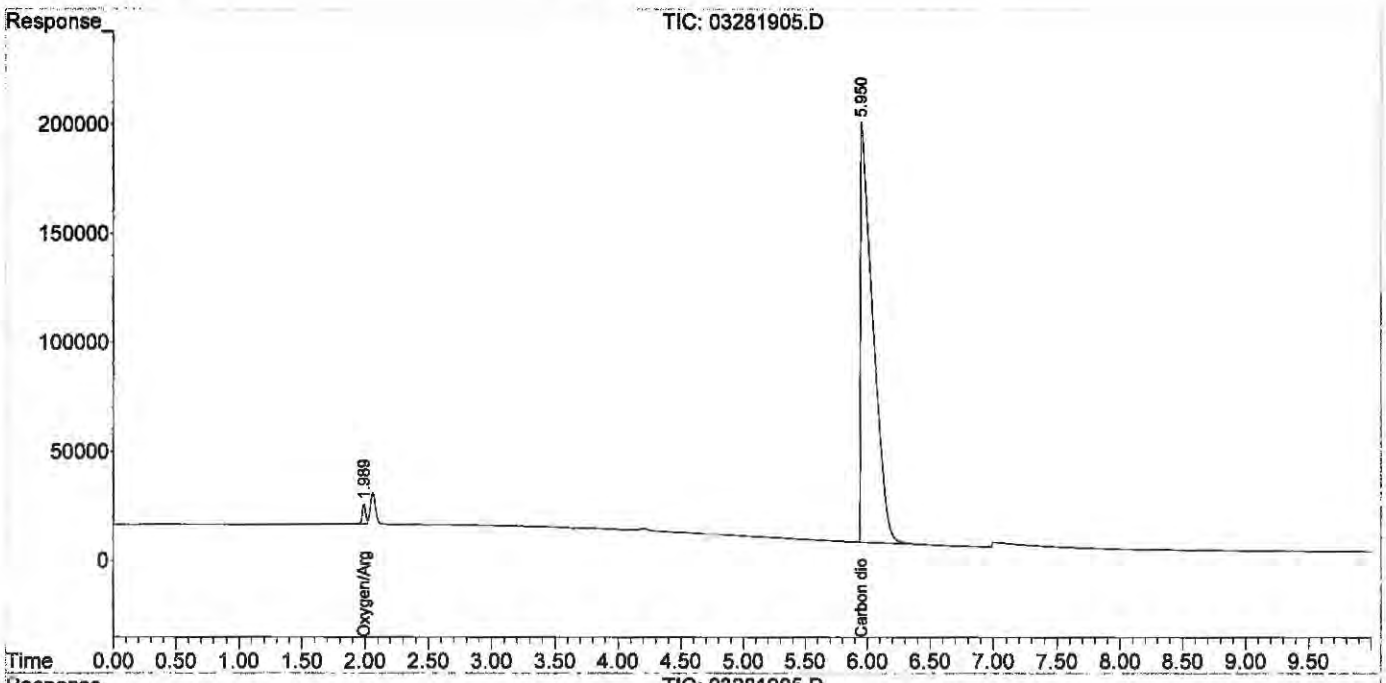
(f)=RT Delta > 1/2 Window (m)=manual int.

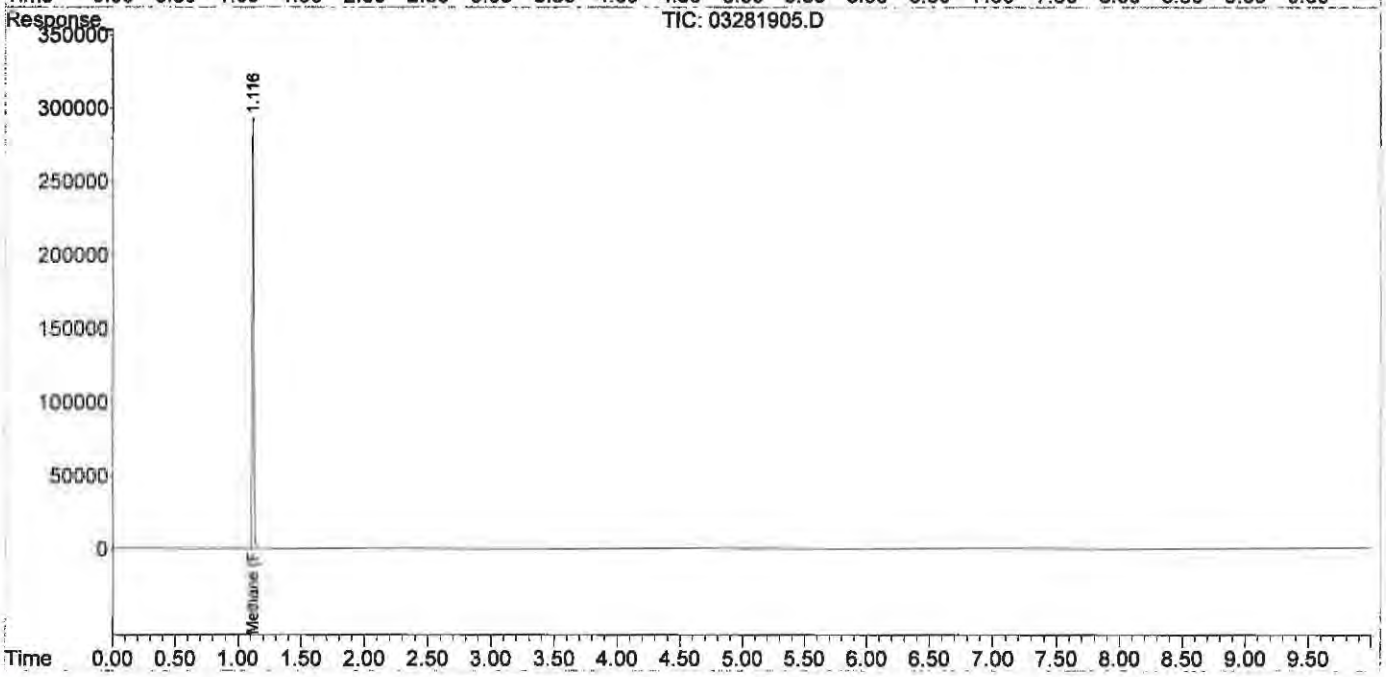
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281905.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 10:12:33
Operator : WH
Sample : P1901501-001 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 11:31:52 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281906.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 10:26:53
Operator : WH
Sample : P1901501-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 19:43:35 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.987f	233865	0.295	ppm
2)	Carbon monoxide	1.987f	233865	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.116	37059	4.086	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

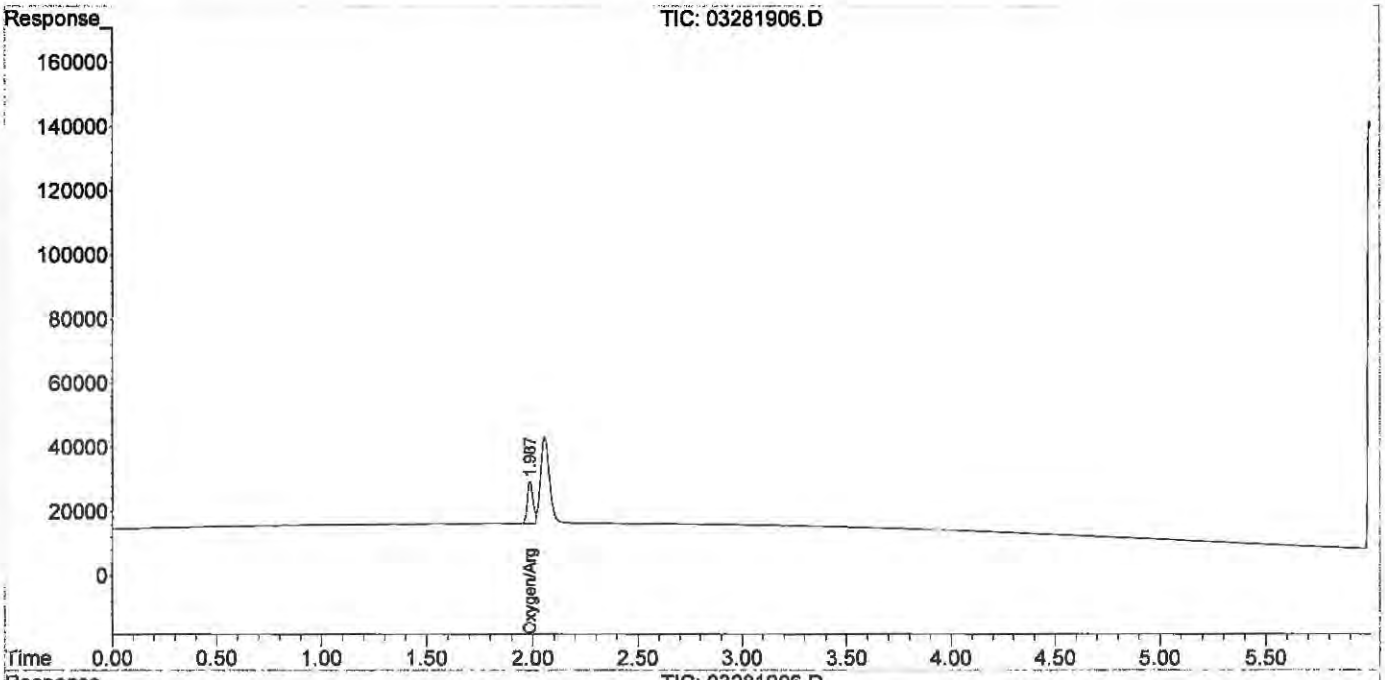
(f)=RT Delta > 1/2 Window (m)=manual int.

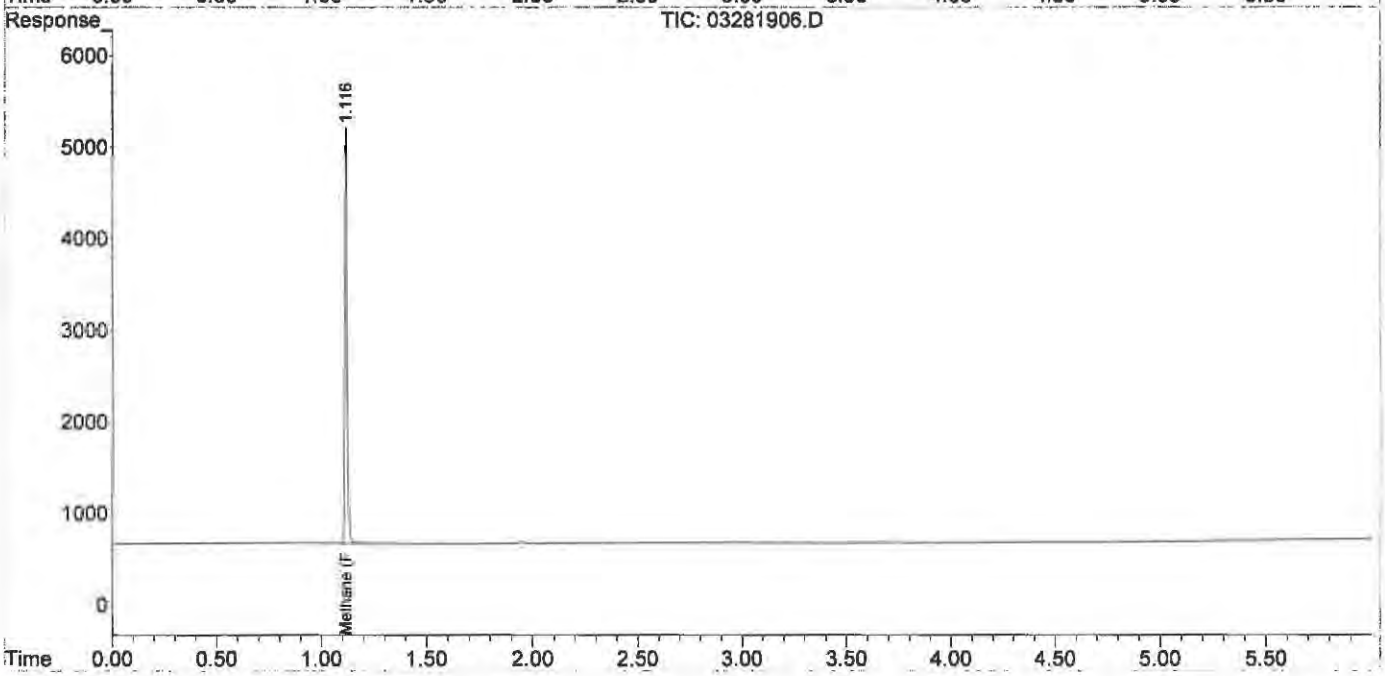
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281906.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 10:26:53
Operator : WH
Sample : P1901501-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 19:43:35 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281907.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 10:34:24
Operator : WH
Sample : P1901501-003 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 19:43:55 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.643f	463530	0.585	ppm
2)	Carbon monoxide	1.643f	463530	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	5.993	7900069	32409.370	ppm
6)	Methane (FID)	1.117	6129	0.676	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

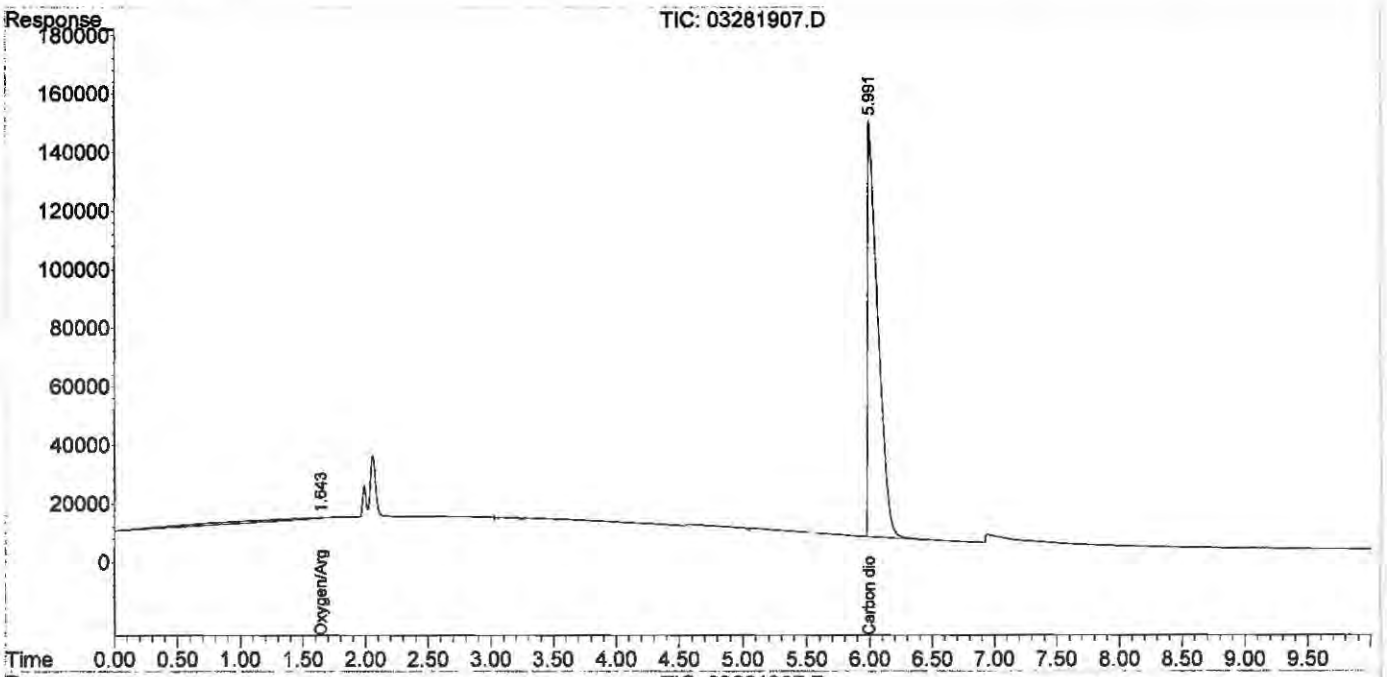
(f)=RT Delta > 1/2 Window (m)=manual int.

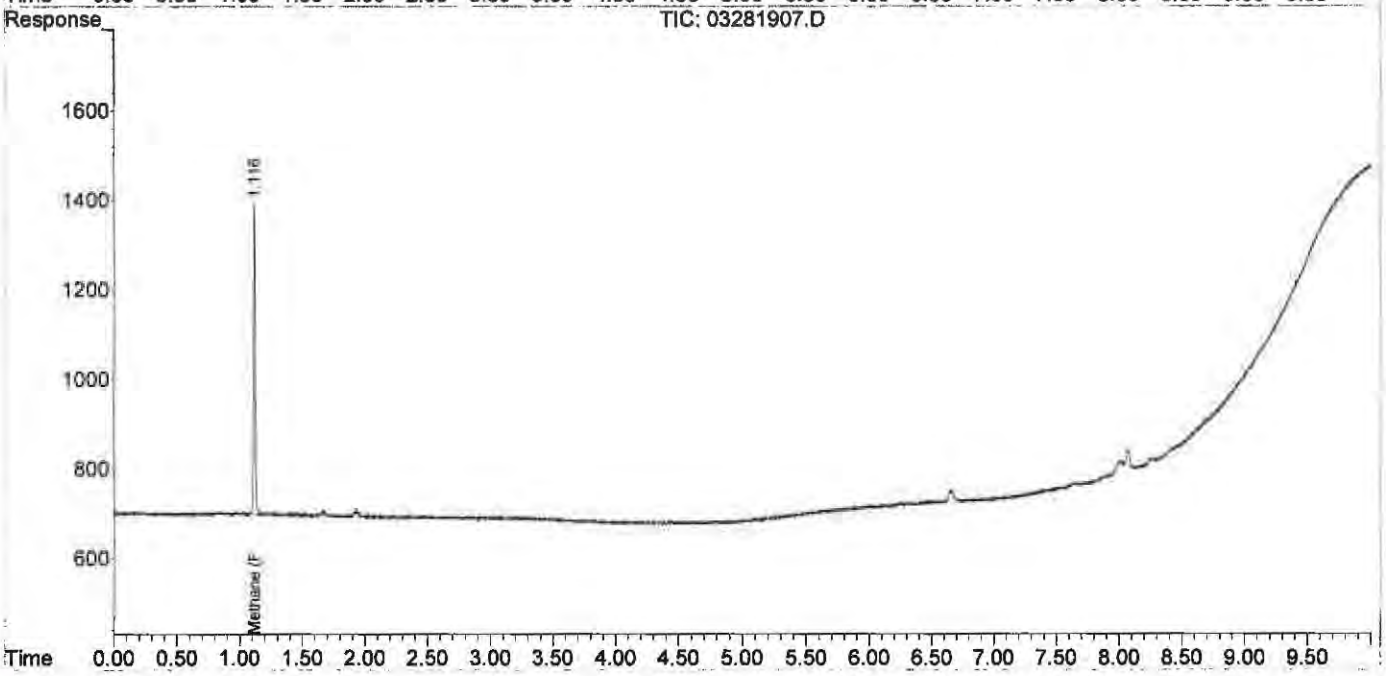
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281907.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 10:34:24
Operator : WH
Sample : P1901501-003 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 19:43:55 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281908.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 10:47:38
Operator : WH
Sample : P1901501-004 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 19:44:23 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.987f	1154896	1.457	ppm
2)	Carbon monoxide	1.987f	1154896	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	5.977	9437690	38717.330	ppm
6)	Methane (FID)	1.115	1265061	139.468	ppm
7)	Ethylene	1.674	94408	5.642	ppm
8)	Ethane	1.938	2315	0.137	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	6.222	9127	1400.023	ppm
12)	Isobutane	6.653	76575	2.877	ppm
13)	n-Butane	6.653	76575	2.877	ppm

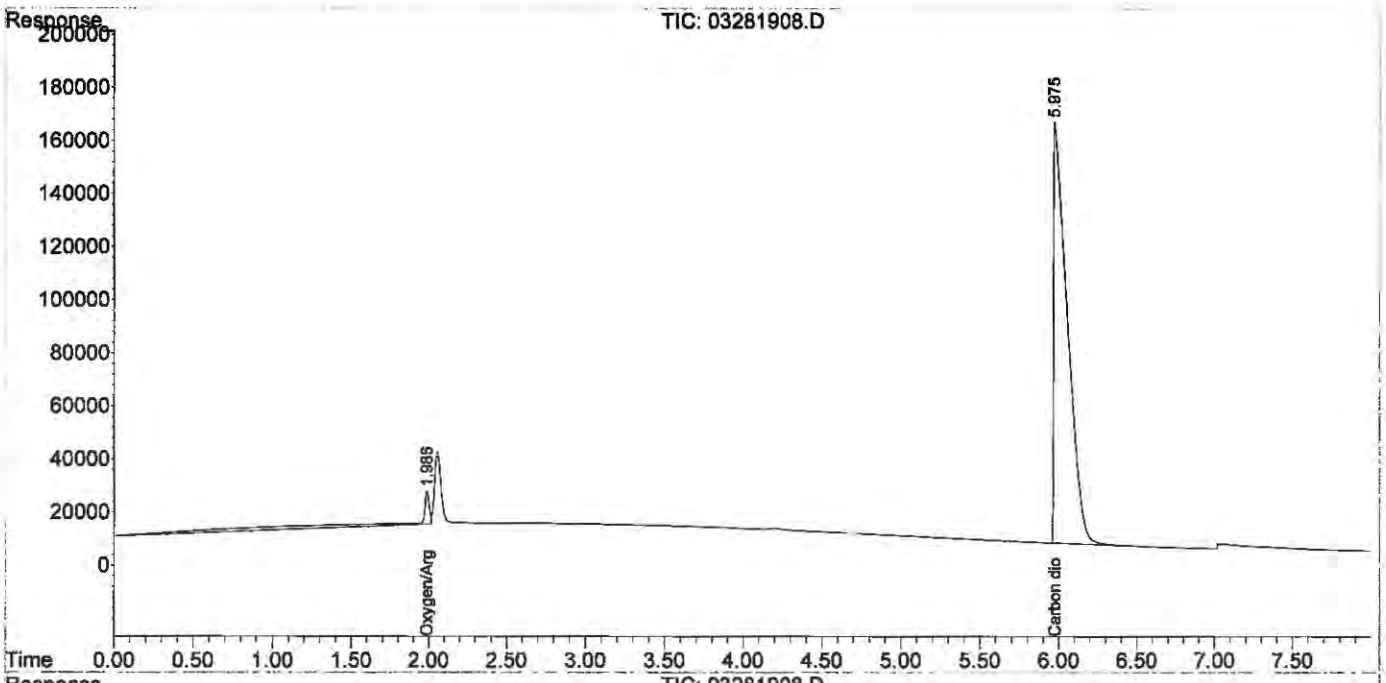
(f)=RT Delta > 1/2 Window (m)=manual int.

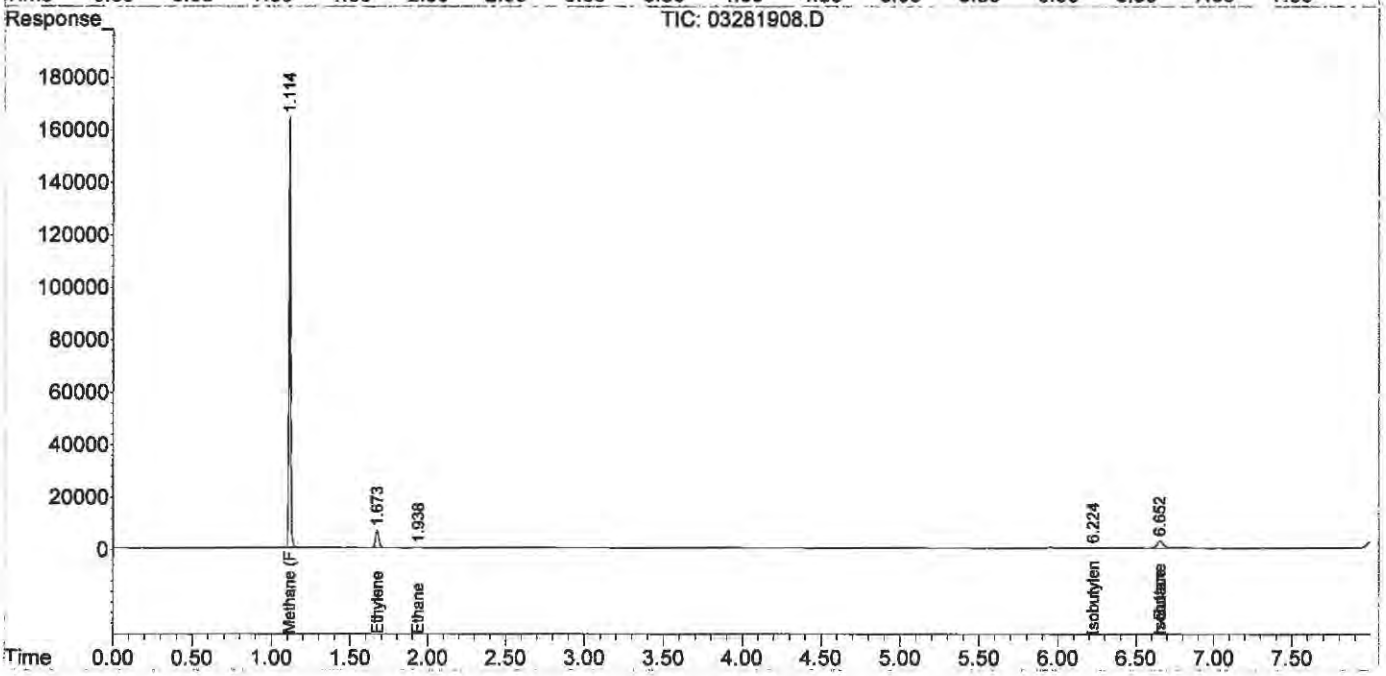
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281908.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 10:47:38
Operator : WH
Sample : P1901501-004 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 19:44:23 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281909.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 10:59:22
Operator : WH
Sample : P1901501-005 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 19:44:52 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.980f	170152	0.215	ppm
2)	Carbon monoxide	1.980f	170152	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	5.968	10202094	41853.233	ppm
6)	Methane (FID)	1.107	14990086	1652.594	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

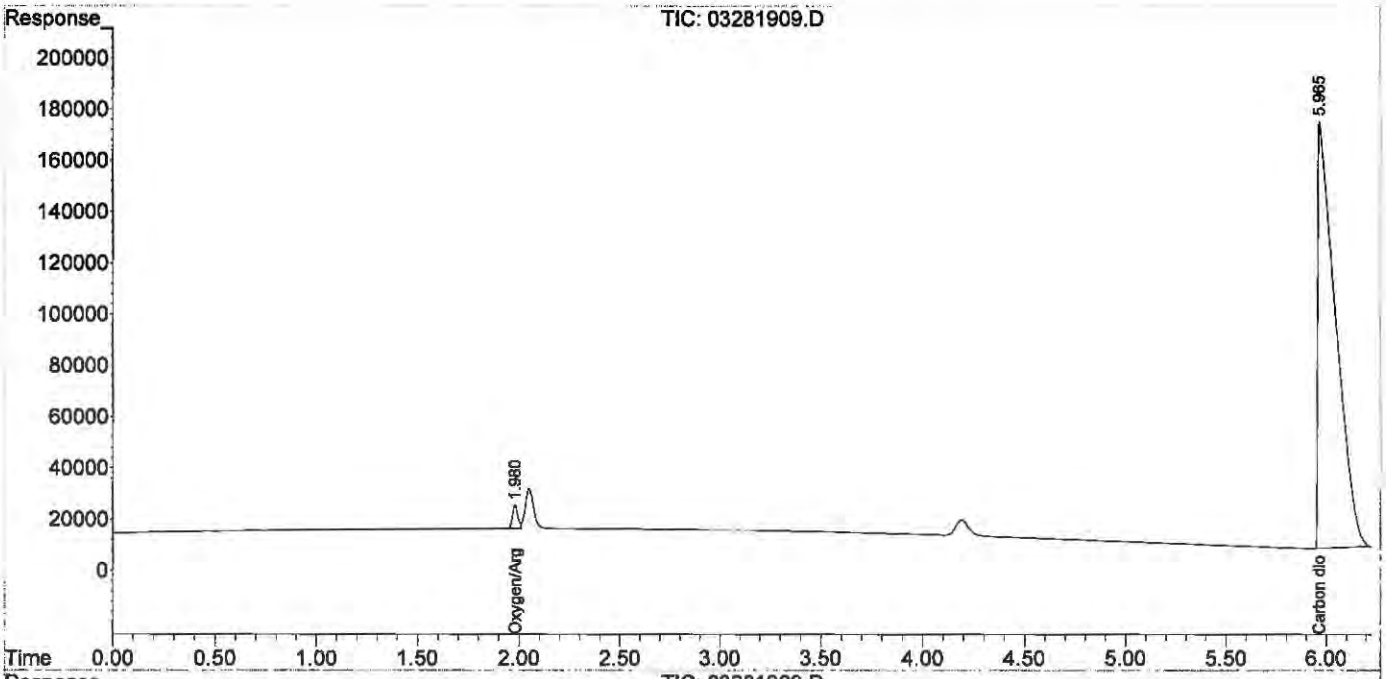
(f)=RT Delta > 1/2 Window (m)=manual int.

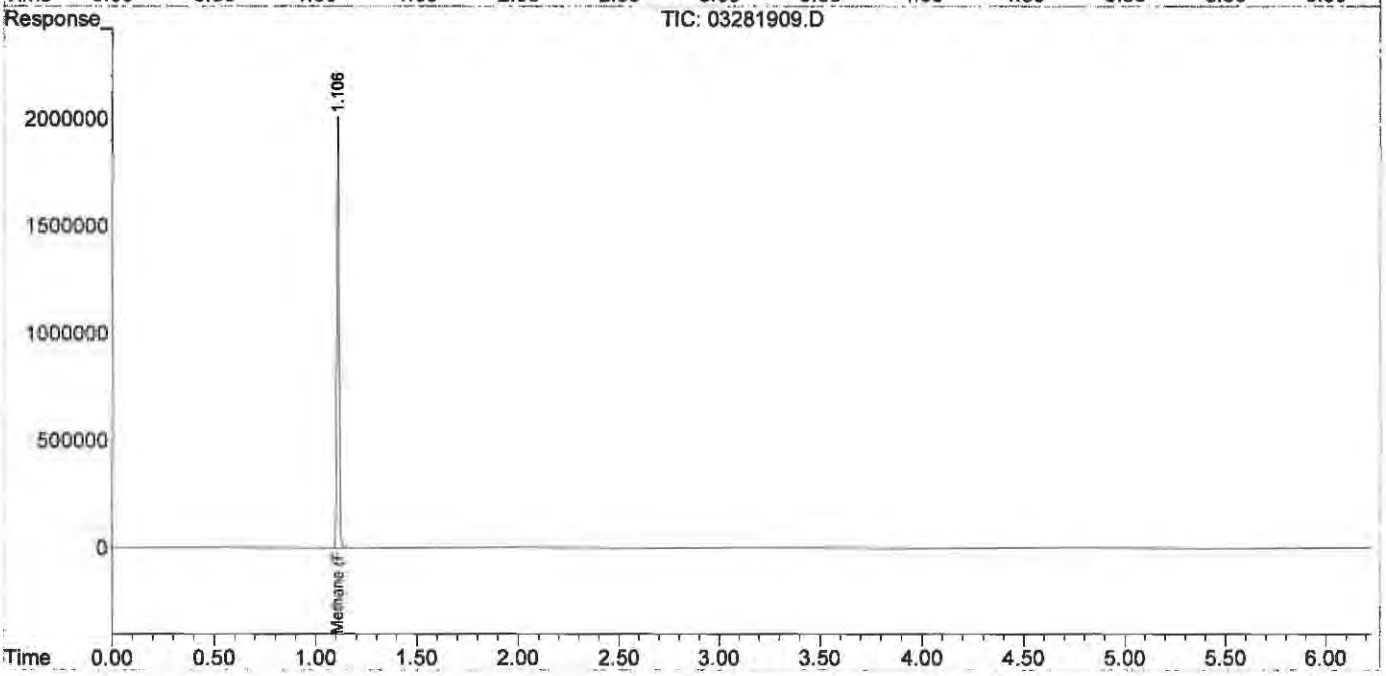
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281909.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 10:59:22
Operator : WH
Sample : P1901501-005 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 19:44:52 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281910.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 11:07:53
Operator : WH
Sample : P1901501-006 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 19:45:22 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.989f	154633	0.195	ppm
2)	Carbon monoxide	1.989f	154633	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	5.970	10388274	42617.018	ppm
6)	Methane (FID)	1.115	13881010	1530.323	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

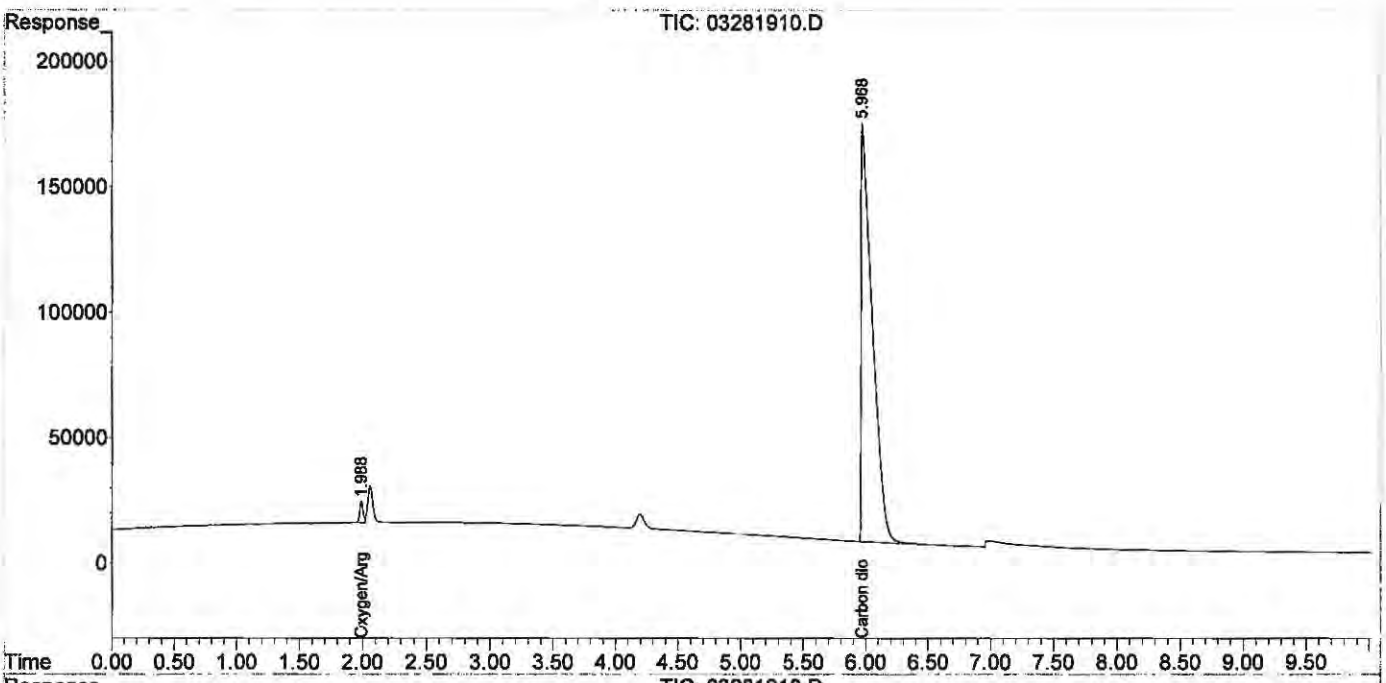
(f)=RT Delta > 1/2 Window (m)=manual int.

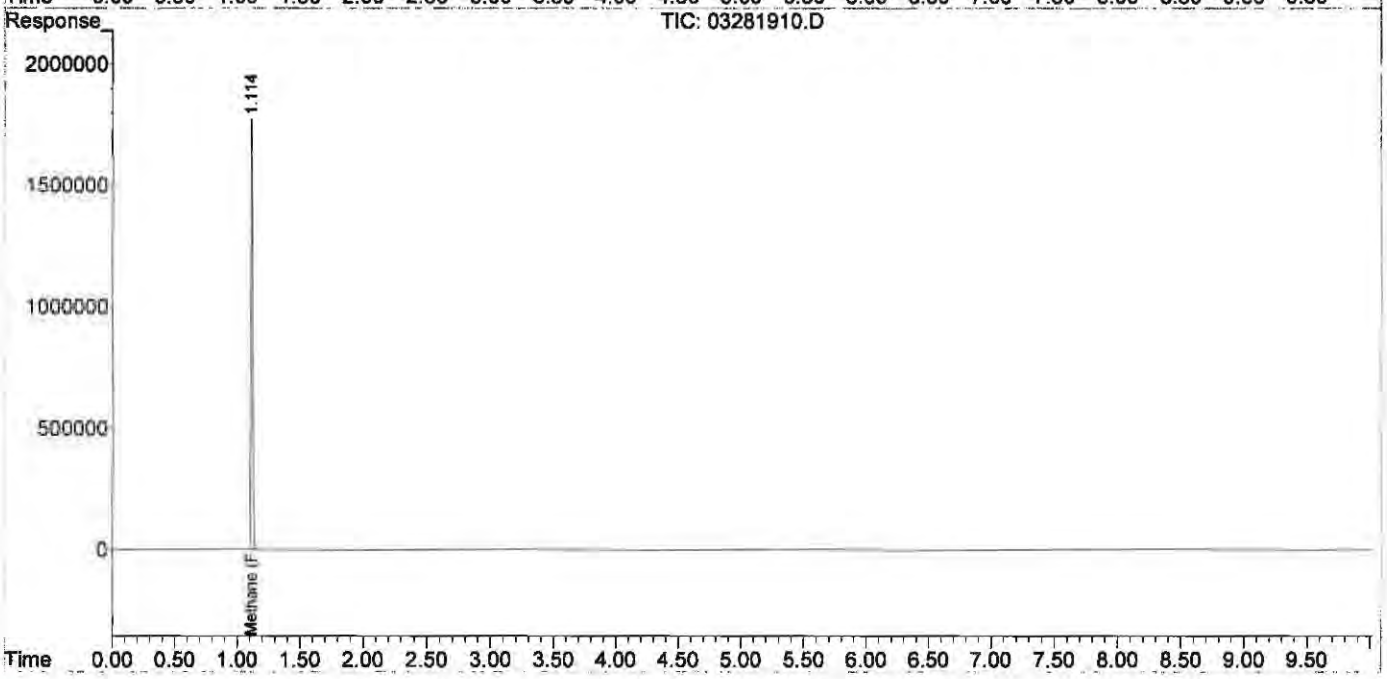
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281910.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 11:07:53
Operator : WH
Sample : P1901501-006 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 19:45:22 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281911.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 11:21:11
Operator : WH
Sample : P1901501-007 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 13:27:10 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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

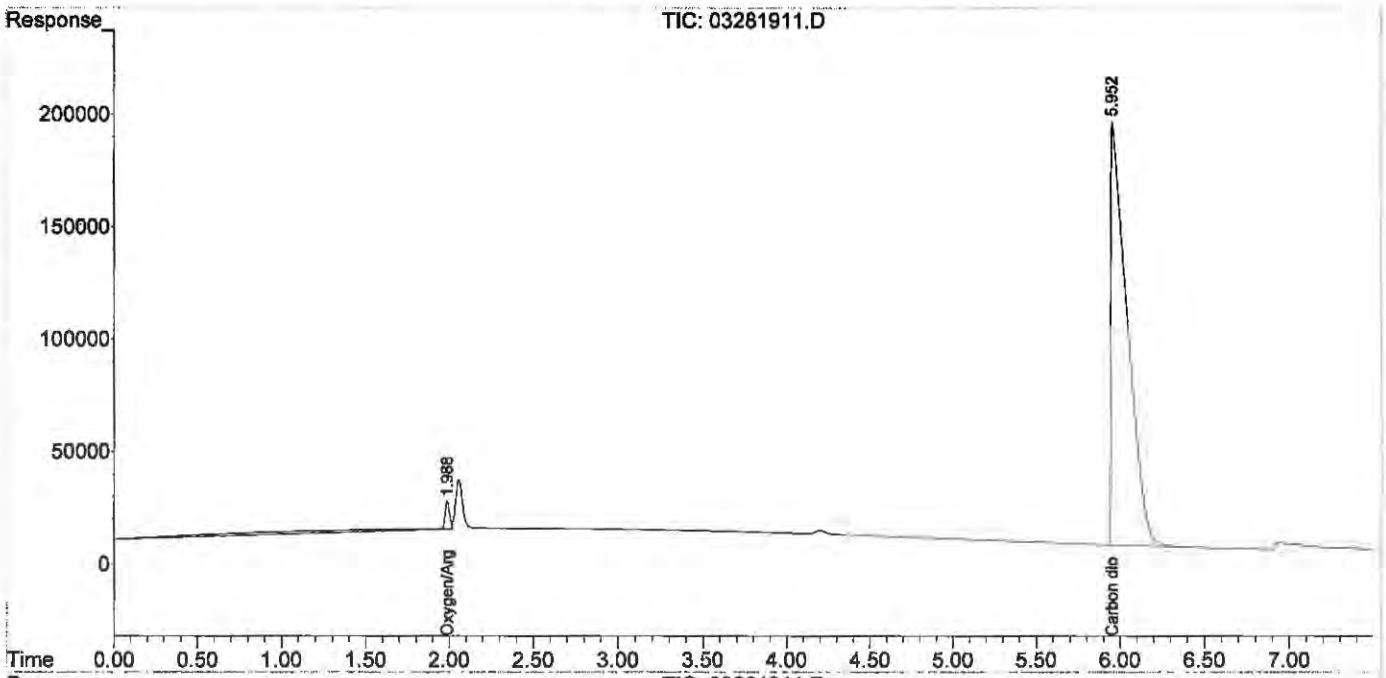
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.988f	1137423	1.435	ppm	
2)	Carbon monoxide	1.988f	1137423	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	5.955	12571752	51574.554	ppm	
6)	Methane (FID)	1.115	3979451	438.718	ppm	
7)	Ethylene	1.675	3550	0.212	ppm	
8)	Ethane	1.940	712	0.042	ppm	m
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	6.653	33229	1.248	ppm	
13)	n-Butane	6.653	33229	1.248	ppm	

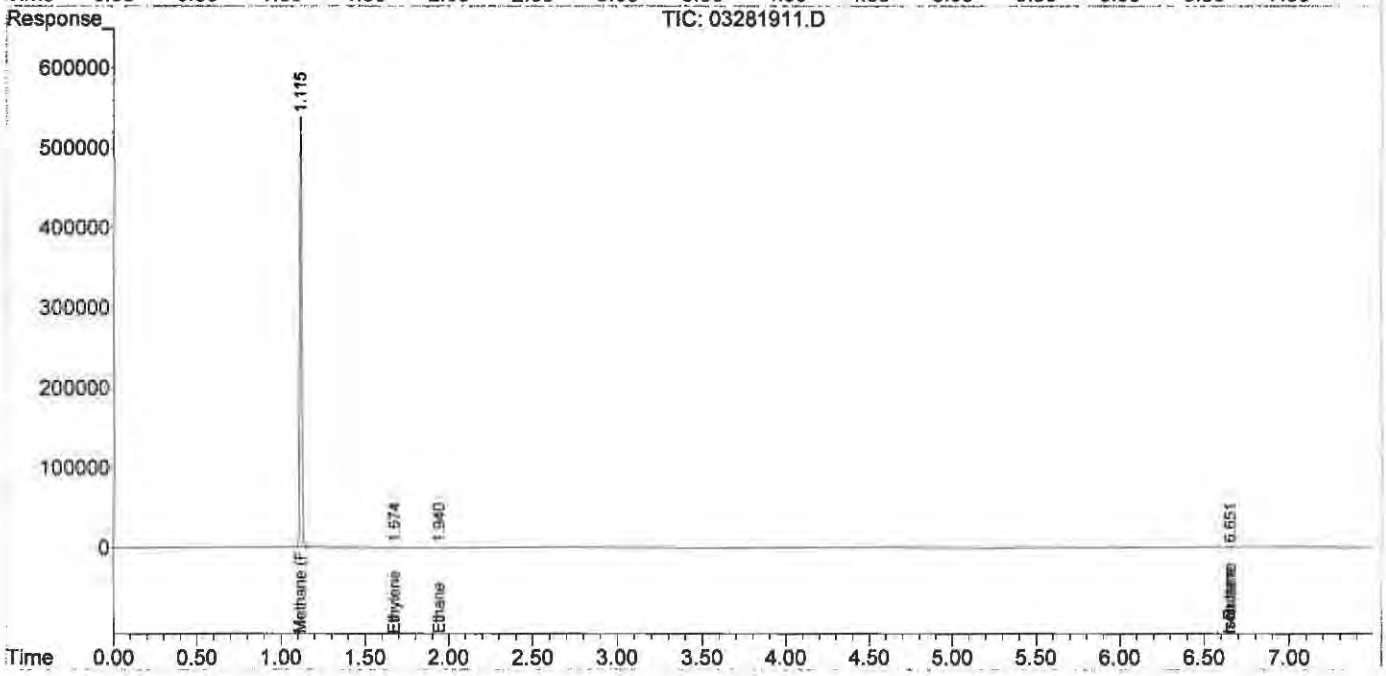
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281911.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 11:21:11
Operator : WH
Sample : P1901501-007 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 13:27:10 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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



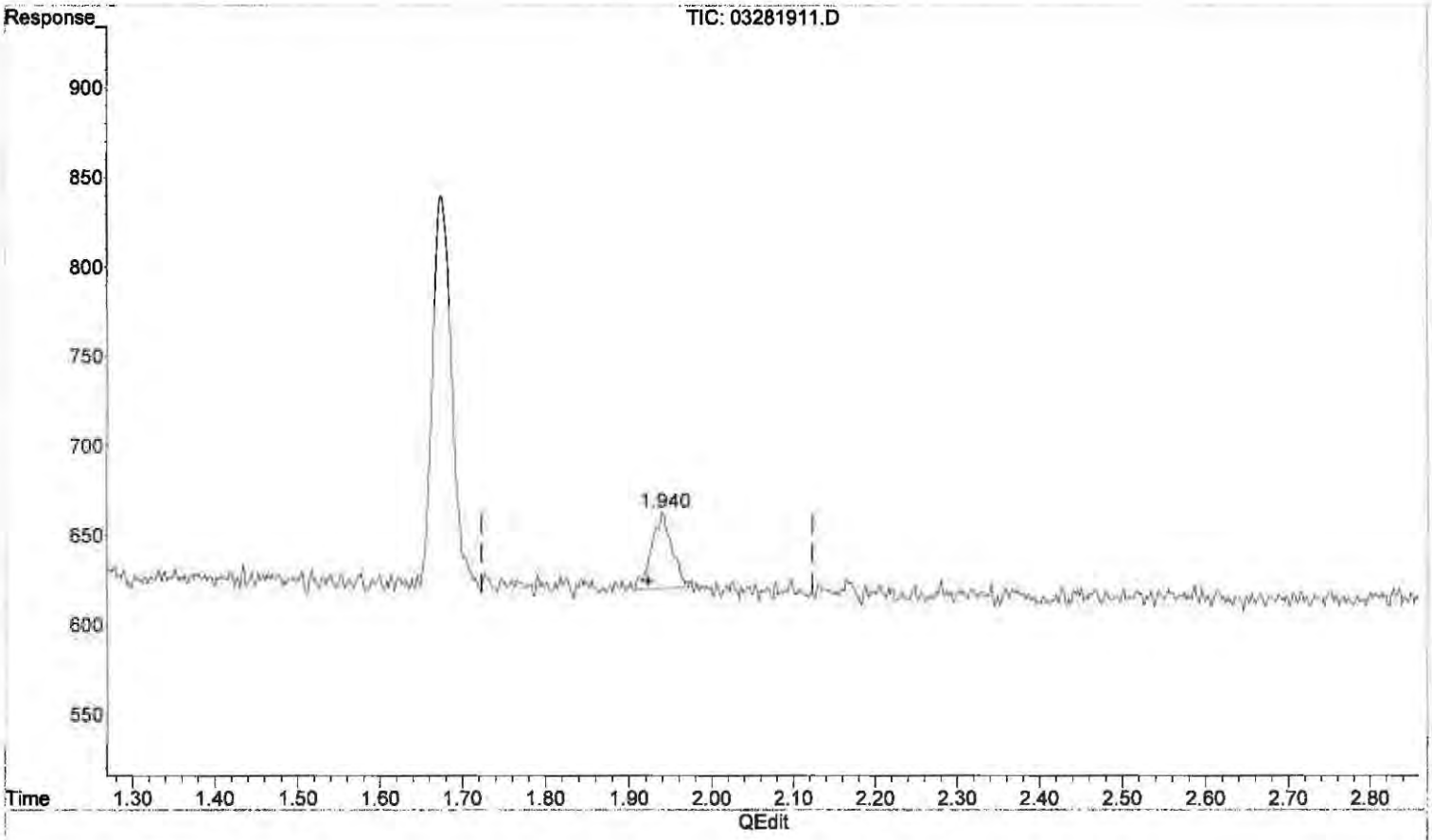


Quantitation Report (Qedit)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281911.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 11:21:11
Operator : WH
Sample : P1901501-007 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 13:27:10 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(8) Ethane

1.940min 0.042 ppm m

response 712

MR 3/29/19

LA 7/28/19 no previous

(+) = Expected Retention Time

RS091217_R.M Thu Mar 28 19:46:06 2019

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Page: 1

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Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281904.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 09:56:00
Operator : WH
Sample : mcs 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 11:10:45 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.986f	656735	0.829	ppm	
2)	Carbon monoxide	1.986f	656735	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	6.097f	51172	209.928	ppm	
6)	Methane (FID)	1.109	1074	0.118	ppm	m
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

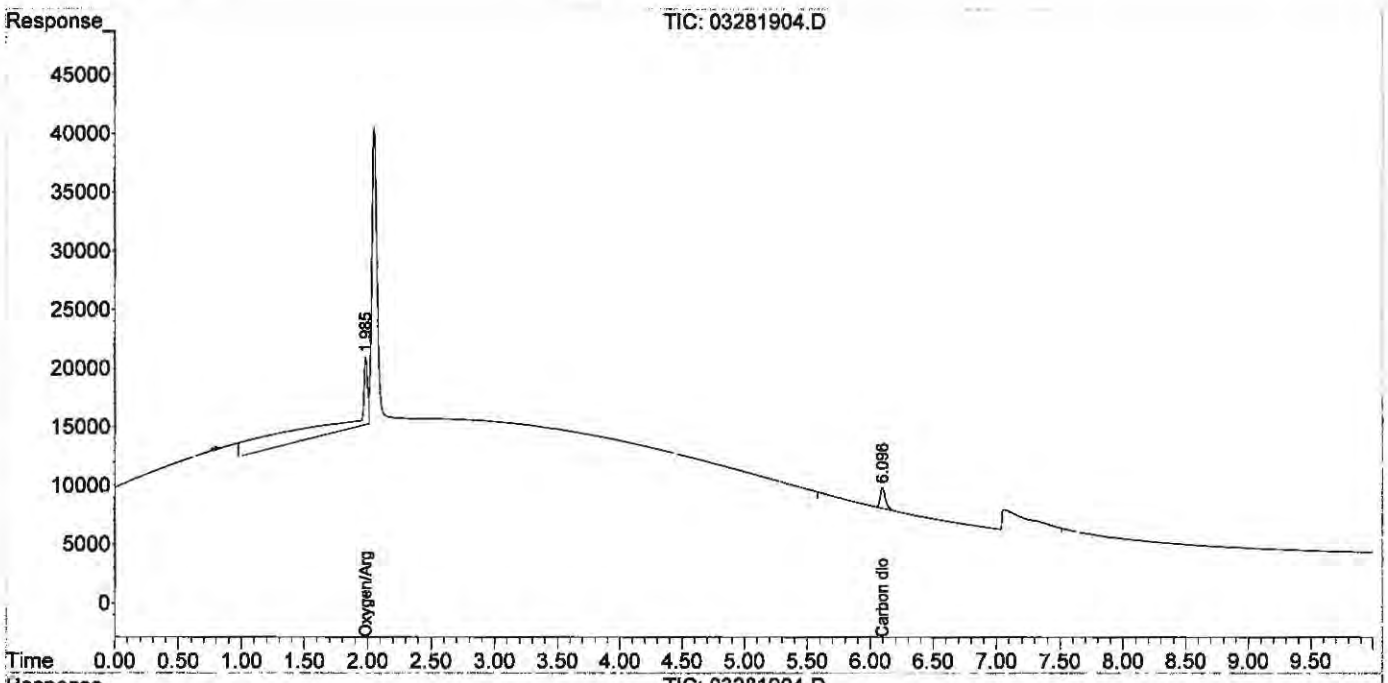
(f)=RT Delta > 1/2 Window (m)=manual int.

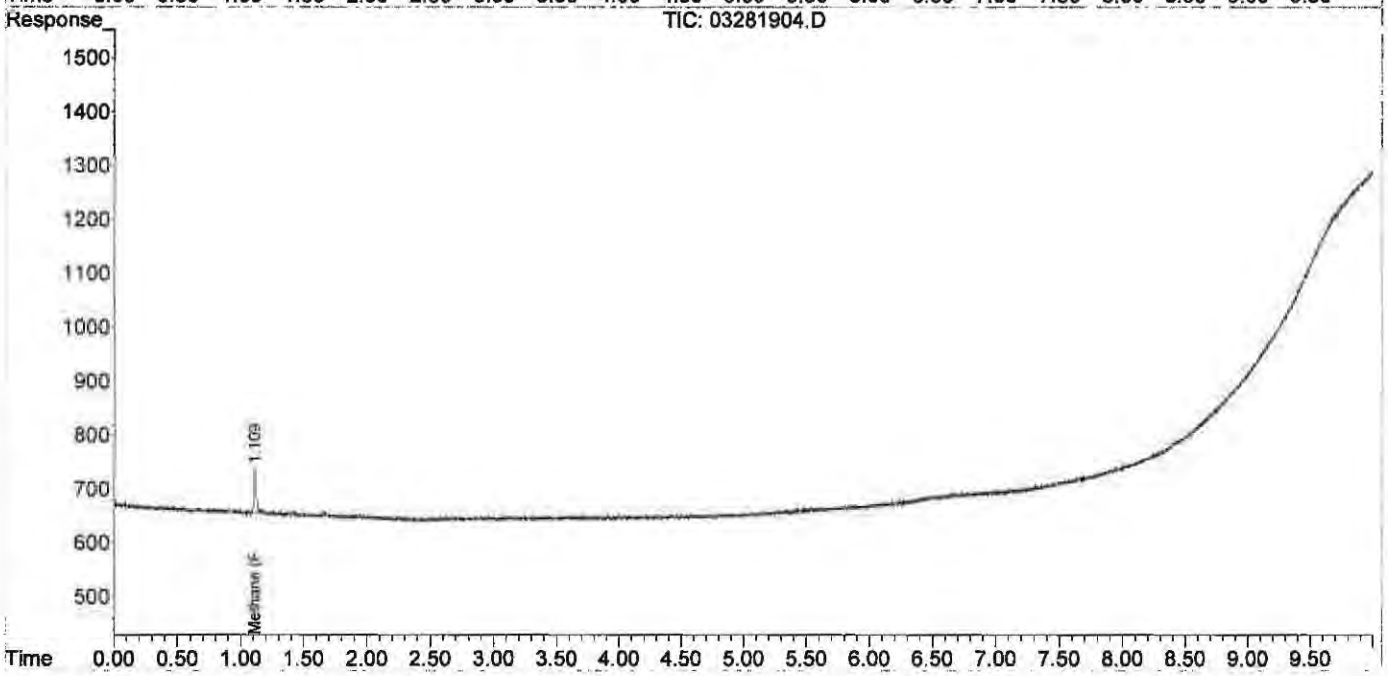
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281904.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 09:56:00
Operator : WH
Sample : mcs 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 11:10:45 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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



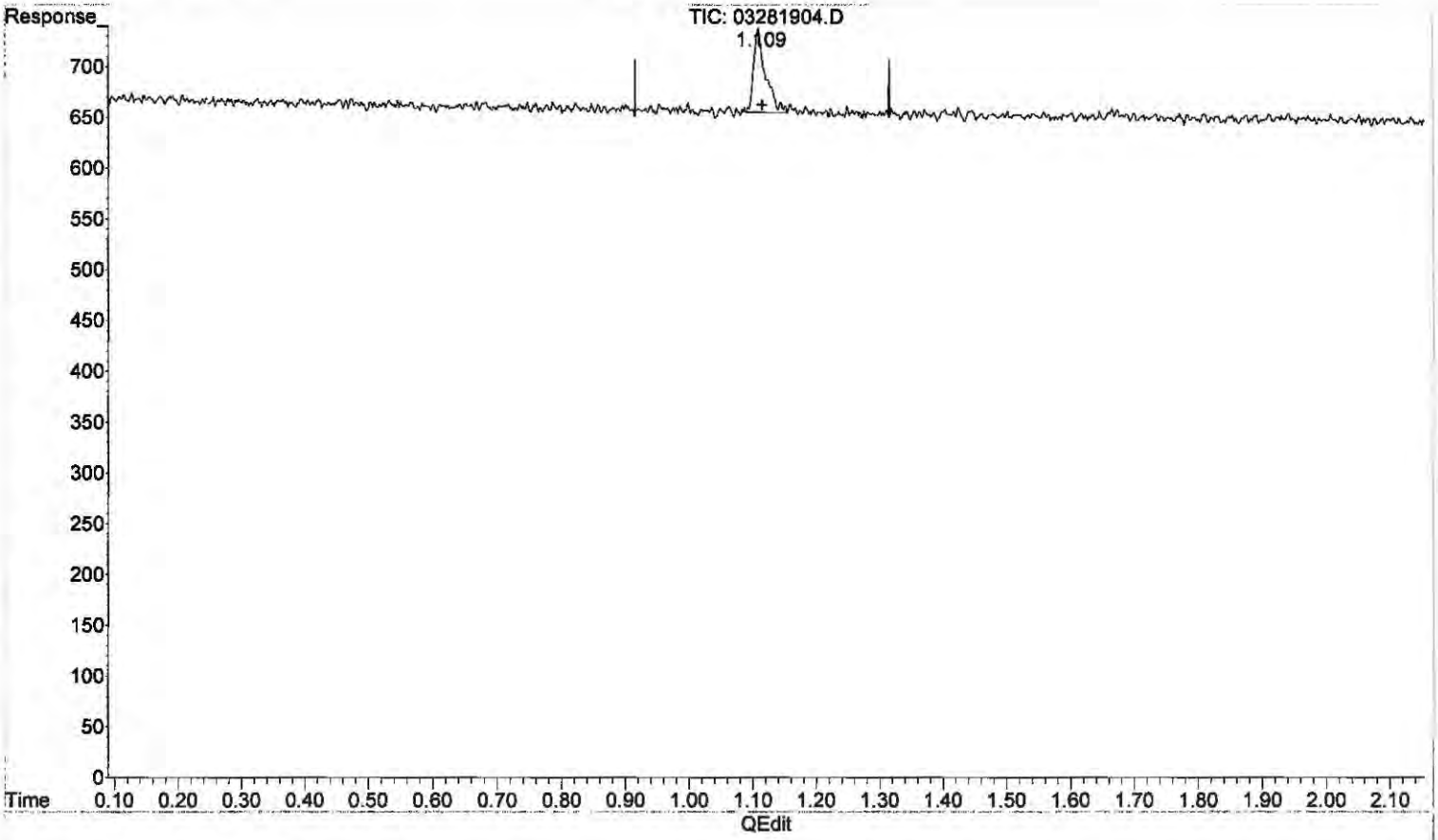


Quantitation Report (Qedit)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281904.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 09:56:00
Operator : WH
Sample : mcs 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 11:10:45 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(6) Methane (FID)

1.109min 0.118 ppm m

response 1074

ME 3/29/19

3/28/19 MP no previous

(+) = Expected Retention Time

RS091217_R.M Thu Mar 28 19:42:49 2019 100 of 150 Page: 1

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281912.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 11:31:06
Operator : WH
Sample : P1901501-007ms 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 13:27:40 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.978f	10791402	13.615	ppm	
2)	Carbon monoxide	1.978f	10791402	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	5.954	12450269	51076.180	ppm	
6)	Methane (FID)	1.108	2535211	279.496	ppm	
7)	Ethylene	1.663	12097	0.723	ppm	m
8)	Ethane	1.925	11641	0.687	ppm	m
9)	Propylene	4.302	14200	0.606	ppm	
10)	Propane	4.426	17955	0.722	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	6.651	36149	1.358	ppm	
13)	n-Butane	6.651	36149	1.358	ppm	

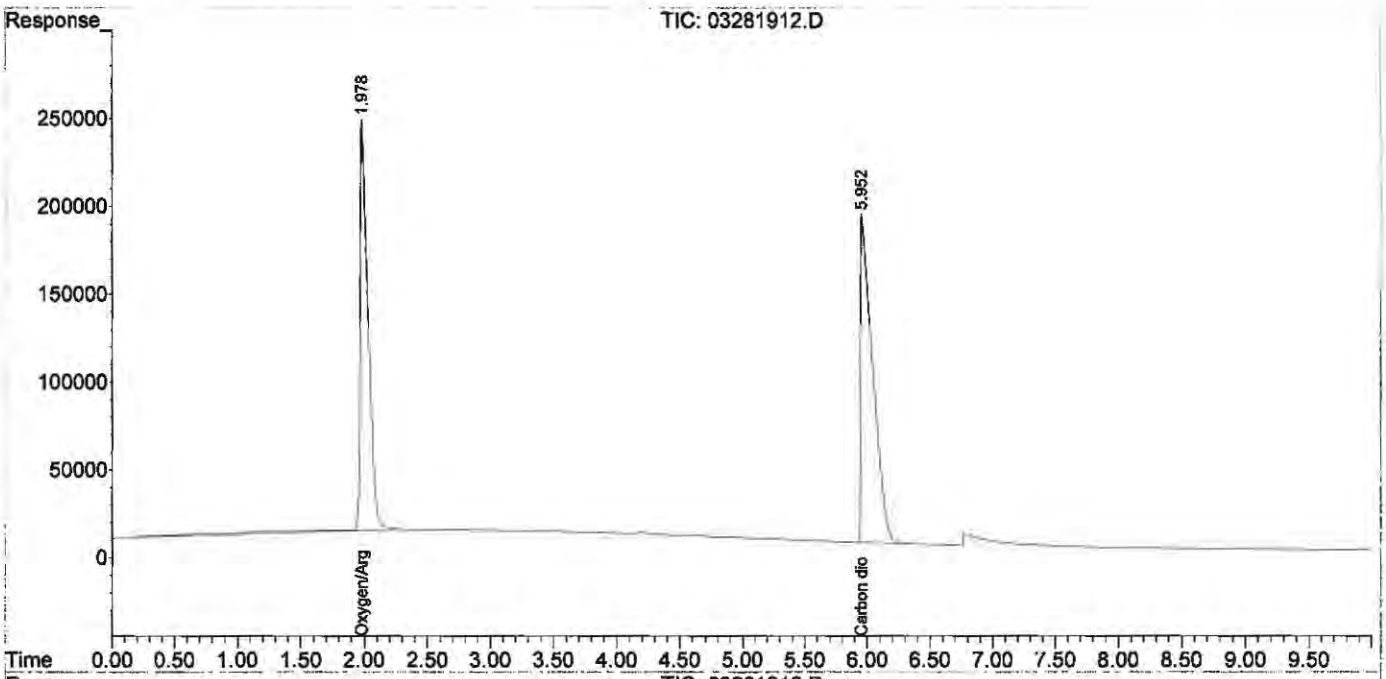
(f)=RT Delta > 1/2 Window (m)=manual int.

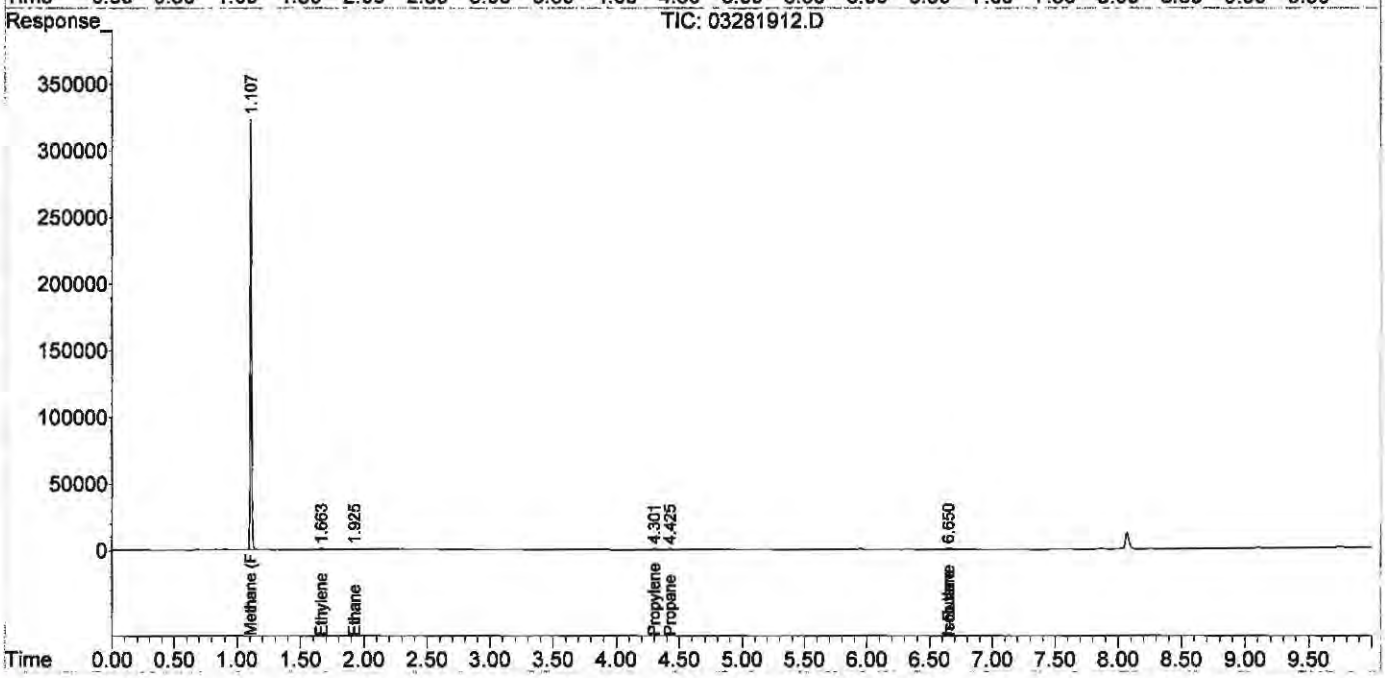
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281912.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 11:31:06
Operator : WH
Sample : P1901501-007ms 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 13:27:40 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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



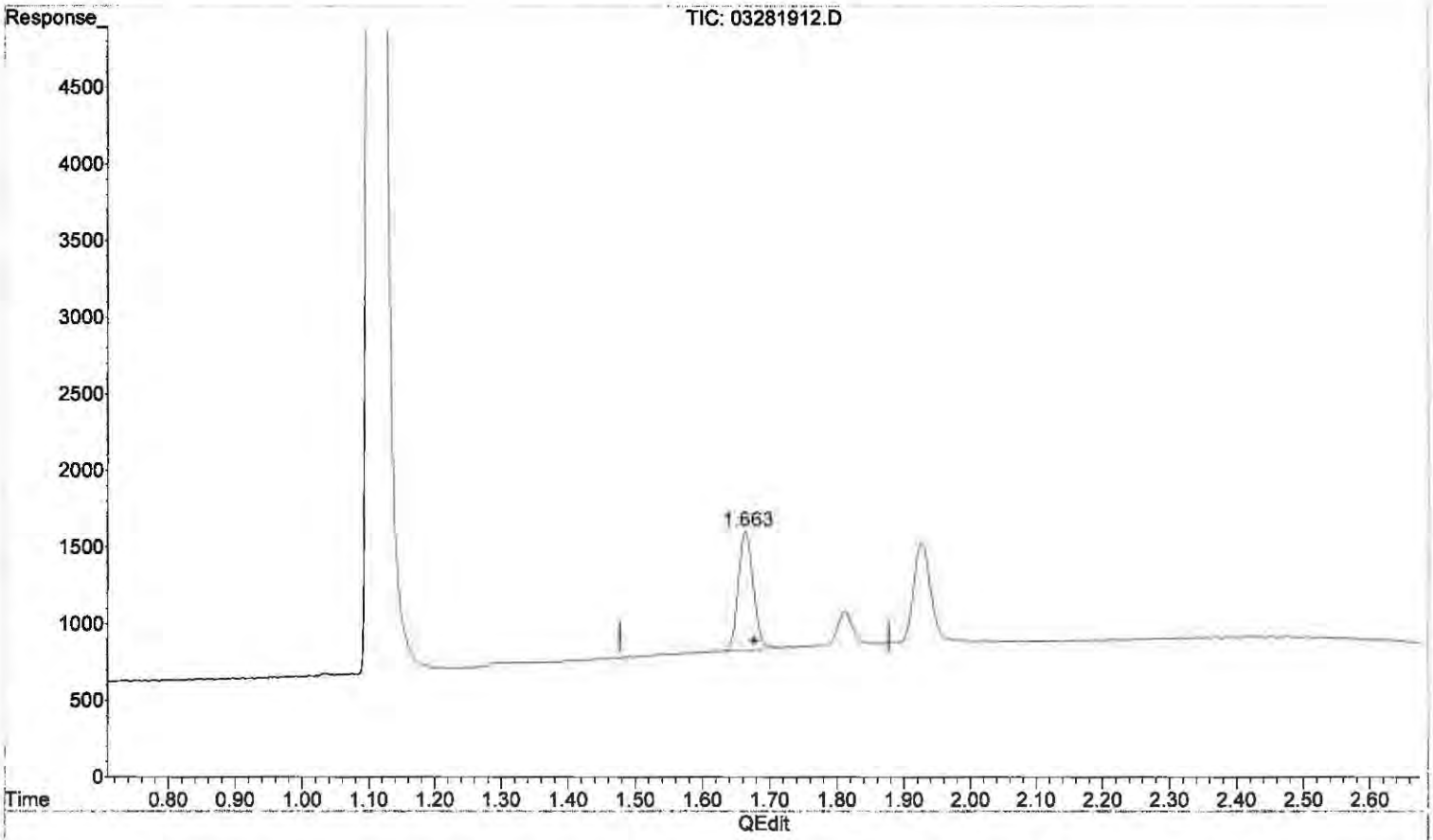


Quantitation Report (Qedit)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281912.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 11:31:06
Operator : WH
Sample : P1901501-007ms 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 13:27:40 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(7) Ethylene

1.663min 0.723 ppm m

response 12097

MR 3/29/19

3/28/19
BLC
no previous

(+) = Expected Retention Time

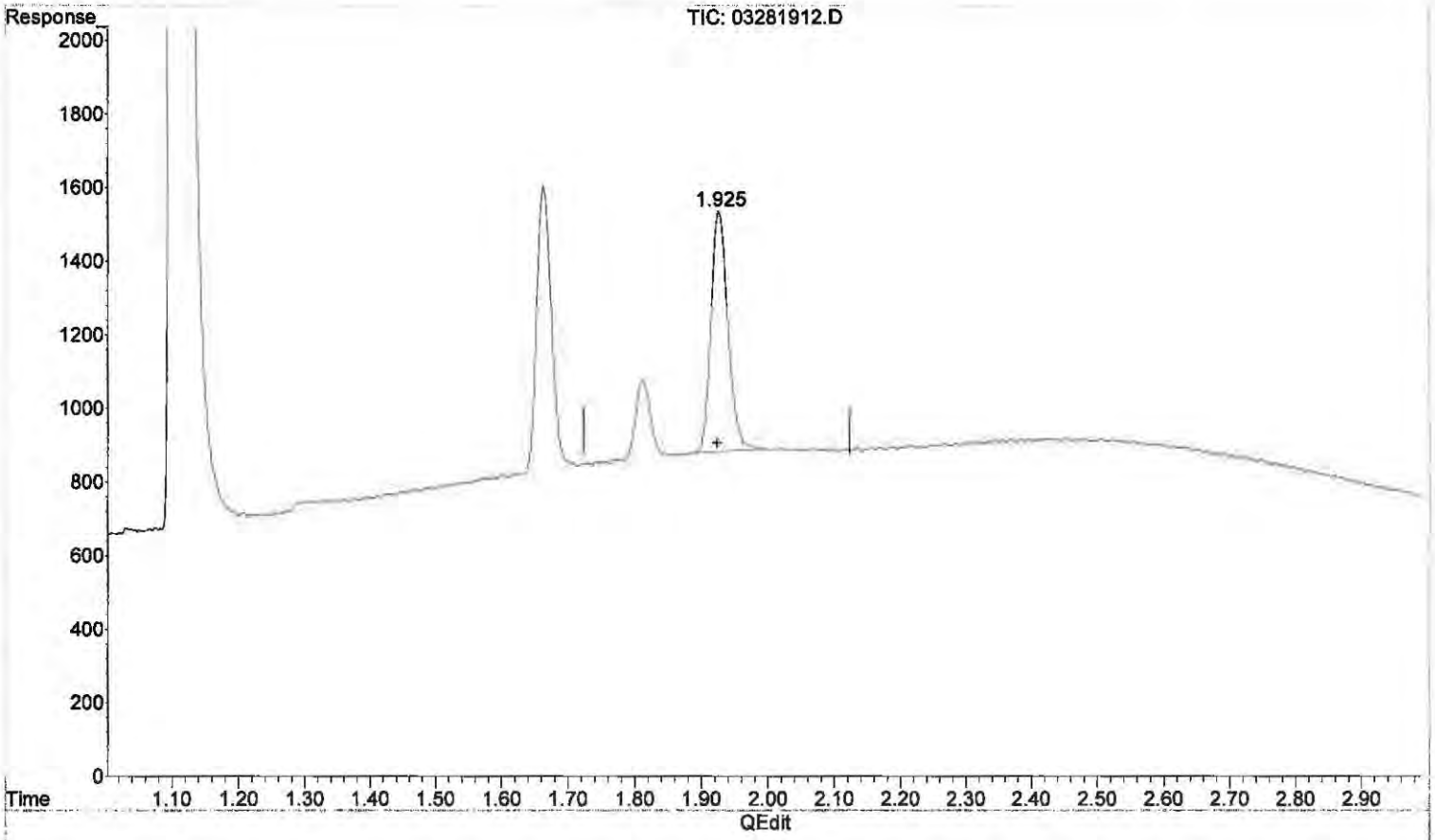
RS091217_R.M Thu Mar 28 19:46:39 2019

Quantitation Report (Qedit)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281912.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 11:31:06
Operator : WH
Sample : P1901501-007ms 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 13:27:40 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(8) Ethane

1.925min 0.687 ppm m

response 11641

MR 3/29/19

3/29/19 BLC no good QC

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281913.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 11:44:22
Operator : WH
Sample : P1901501-007msd 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 13:28:31 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.982f	9448858	11.921	ppm
2)	Carbon monoxide	1.982f	9448858	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	5.955	11767838	48276.566	ppm
6)	Methane (FID)	1.111	2968915	327.310	ppm
7)	Ethylene	1.670	12074	0.722	ppm
8)	Ethane	1.933	11324	0.668	ppm
9)	Propylene	4.313	13380	0.571	ppm
10)	Propane	4.436	16994	0.683	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.651	55016	2.067	ppm
13)	n-Butane	6.651	55016	2.067	ppm

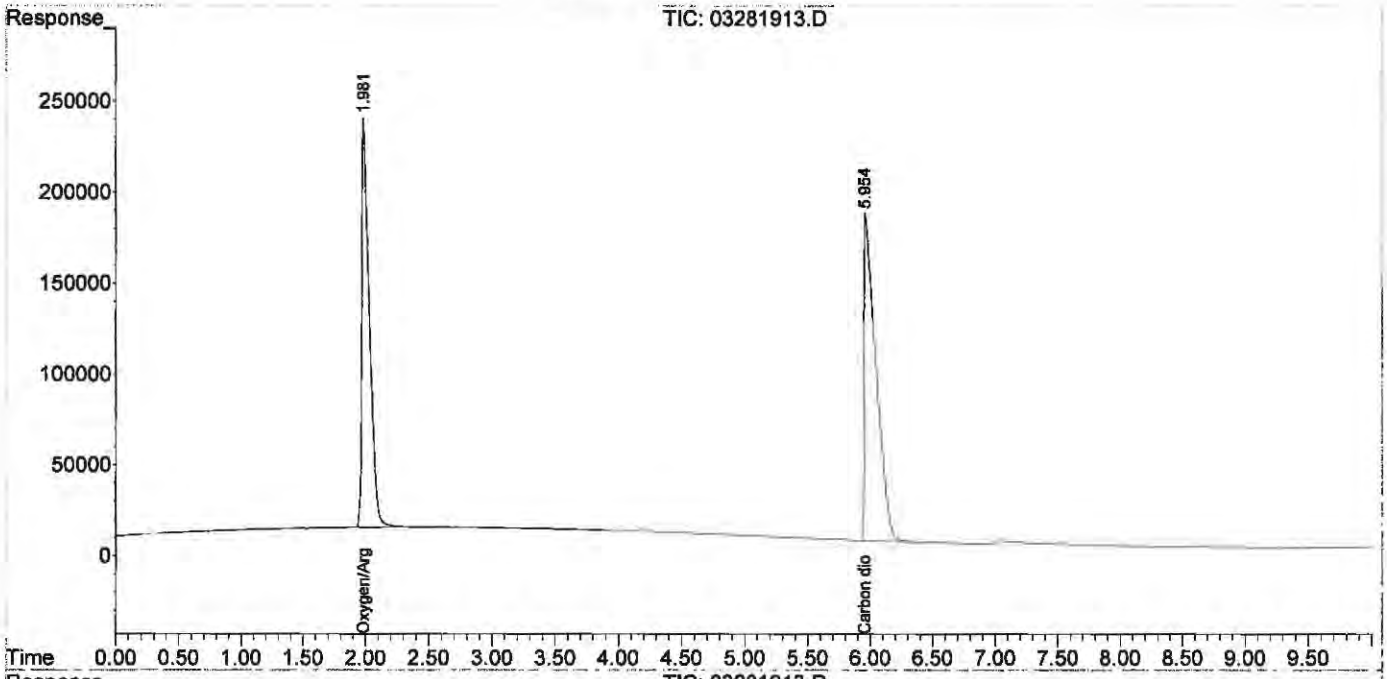
(f)=RT Delta > 1/2 Window (m)=manual int.

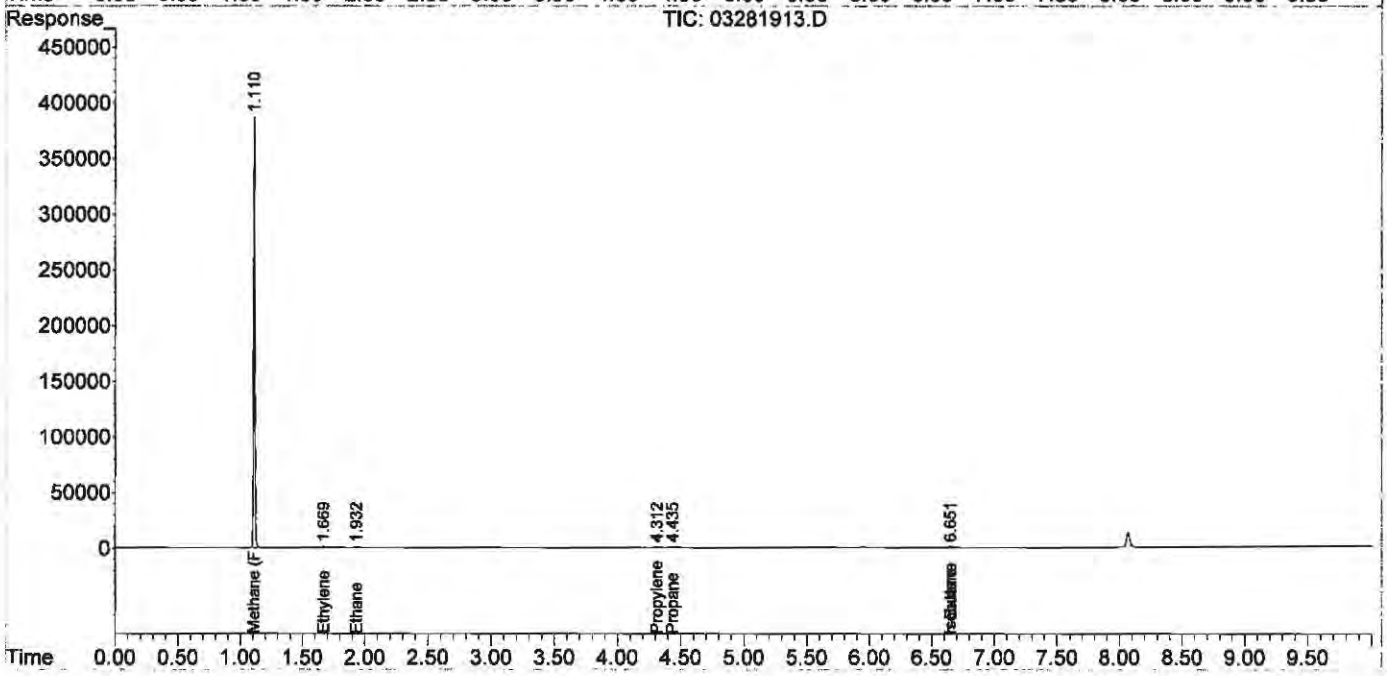
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281913.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 11:44:22
Operator : WH
Sample : P1901501-007msd 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 13:28:31 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281915.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 12:18:46
Operator : WH
Sample : fid lcs s30-05241604
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 13:29:28 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.941f	2875352	3.628	ppm
2)	Carbon monoxide	1.941f	2875352	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.093f	84004	344.621	ppm
6)	Methane (FID)	1.117	12420	1.369	ppm
7)	Ethylene	1.680	16497	0.986	ppm
8)	Ethane	1.943	20840	1.230	ppm
9)	Propylene	4.315	22617	0.965	ppm
10)	Propane	4.437	32278	1.297	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.650	51004	1.916	ppm
13)	n-Butane	6.650	51004	1.916	ppm

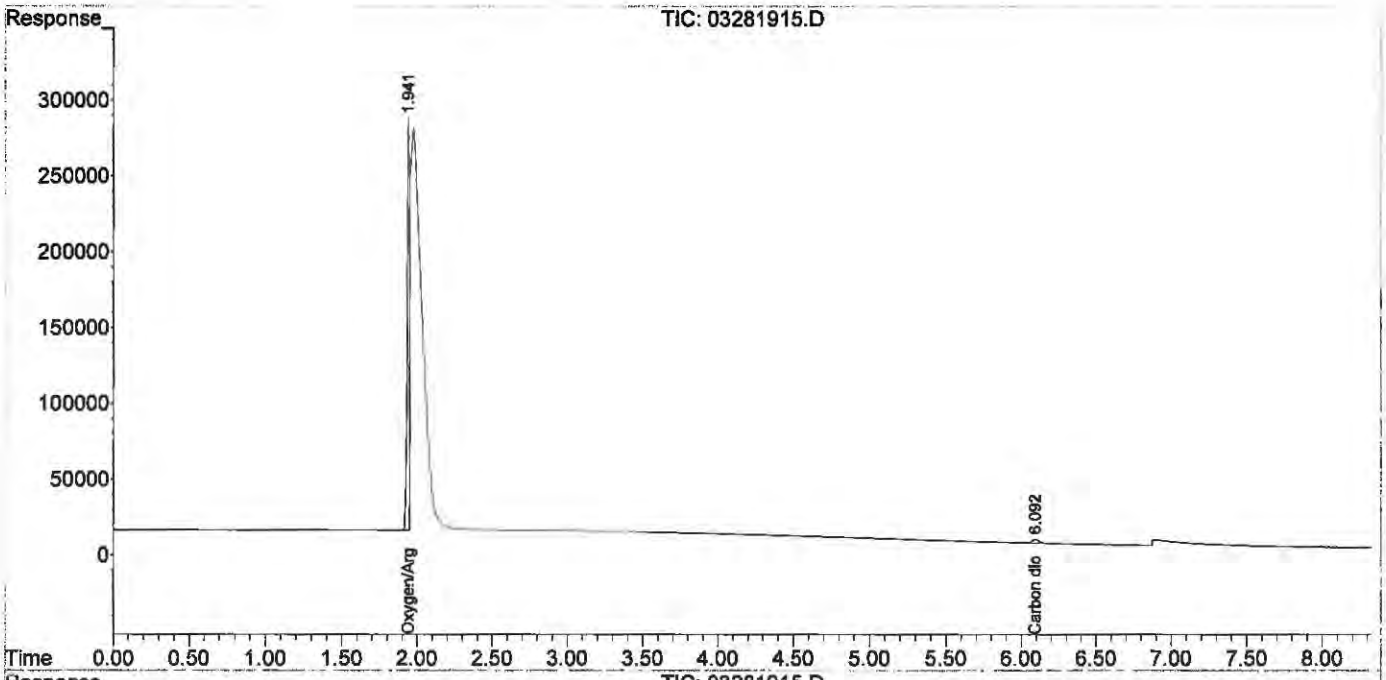
(f)=RT Delta > 1/2 Window (m)=manual int.

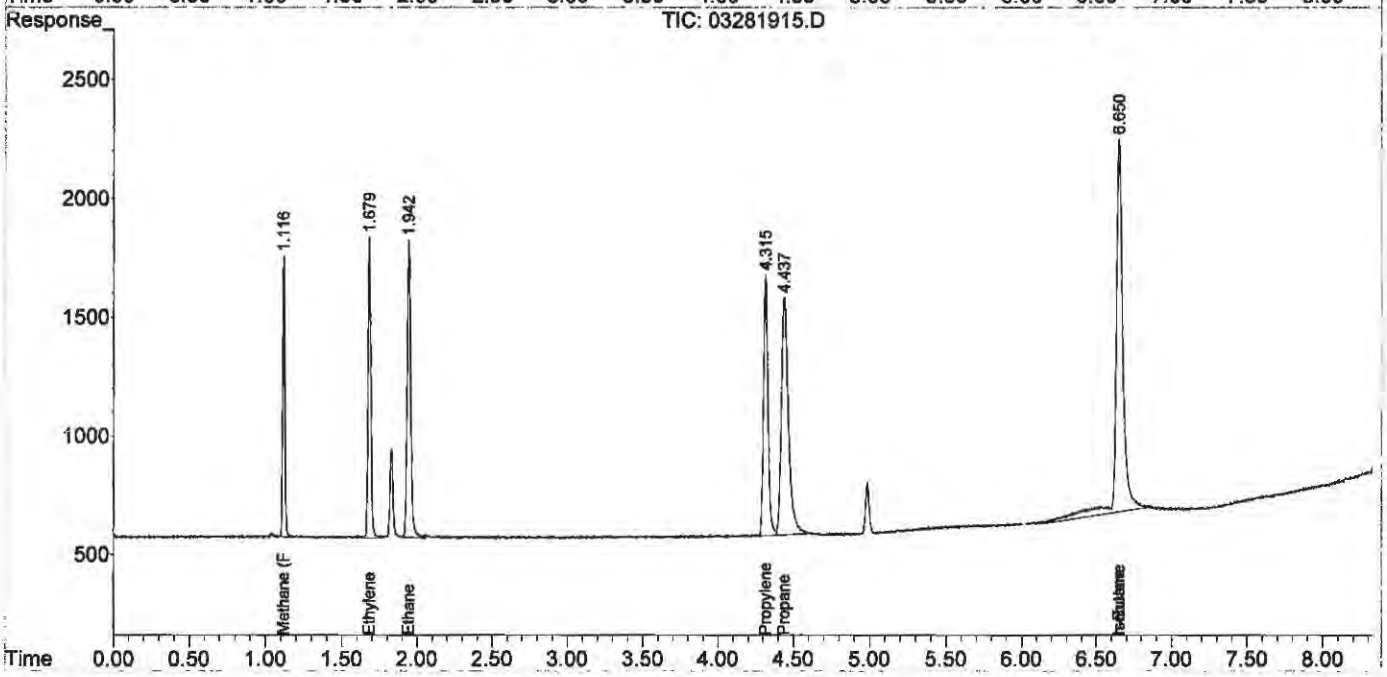
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281915.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 12:18:46
Operator : WH
Sample : fid lcs s30-05241604
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 13:29:28 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281916.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 12:30:50
Operator : WH
Sample : fid lcsd s30-05241604
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 14:01:18 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.941f	2875150	3.627	ppm
2)	Carbon monoxide	1.941f	2875150	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.094f	82185	337.157	ppm
6)	Methane (FID)	1.115	12412	1.368	ppm
7)	Ethylene	1.678	16157	0.965	ppm
8)	Ethane	1.940	20590	1.215	ppm
9)	Propylene	4.315	22508	0.961	ppm
10)	Propane	4.437	32334	1.300	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.650	43045	1.617	ppm
13)	n-Butane	6.650	43045	1.617	ppm

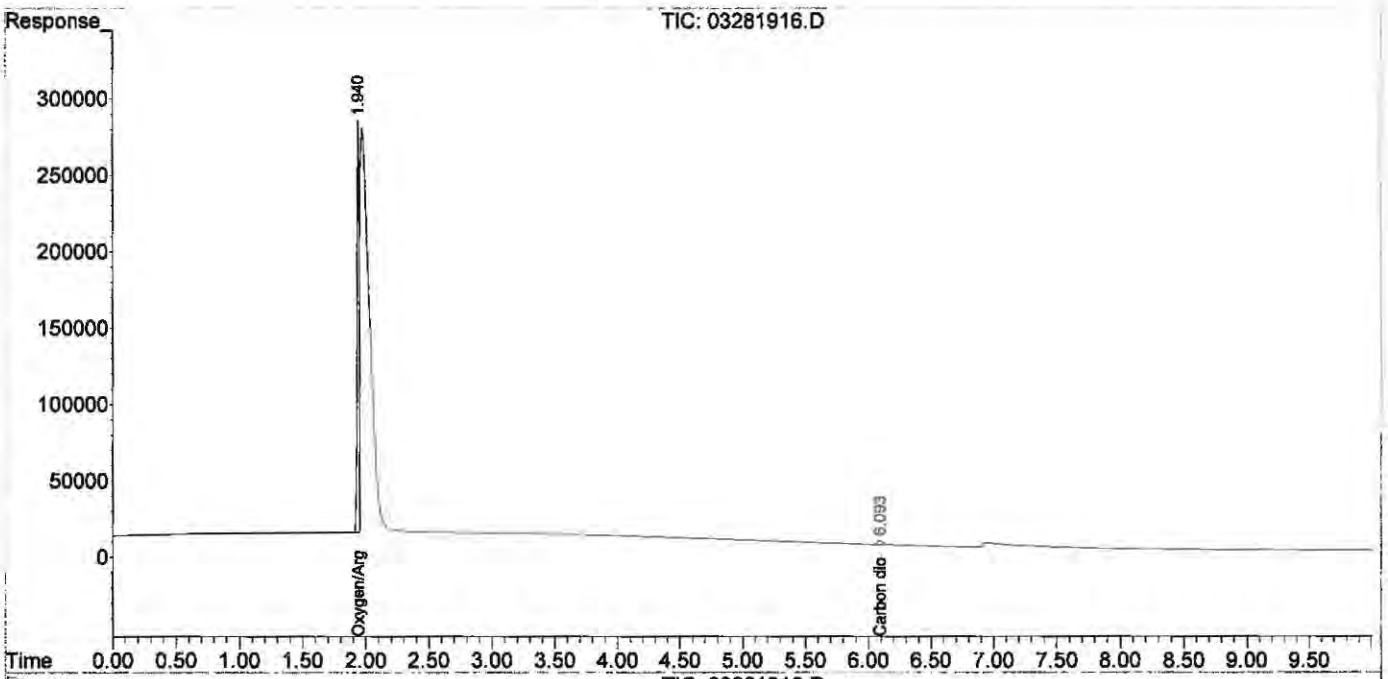
(f)=RT Delta > 1/2 Window (m)=manual int.

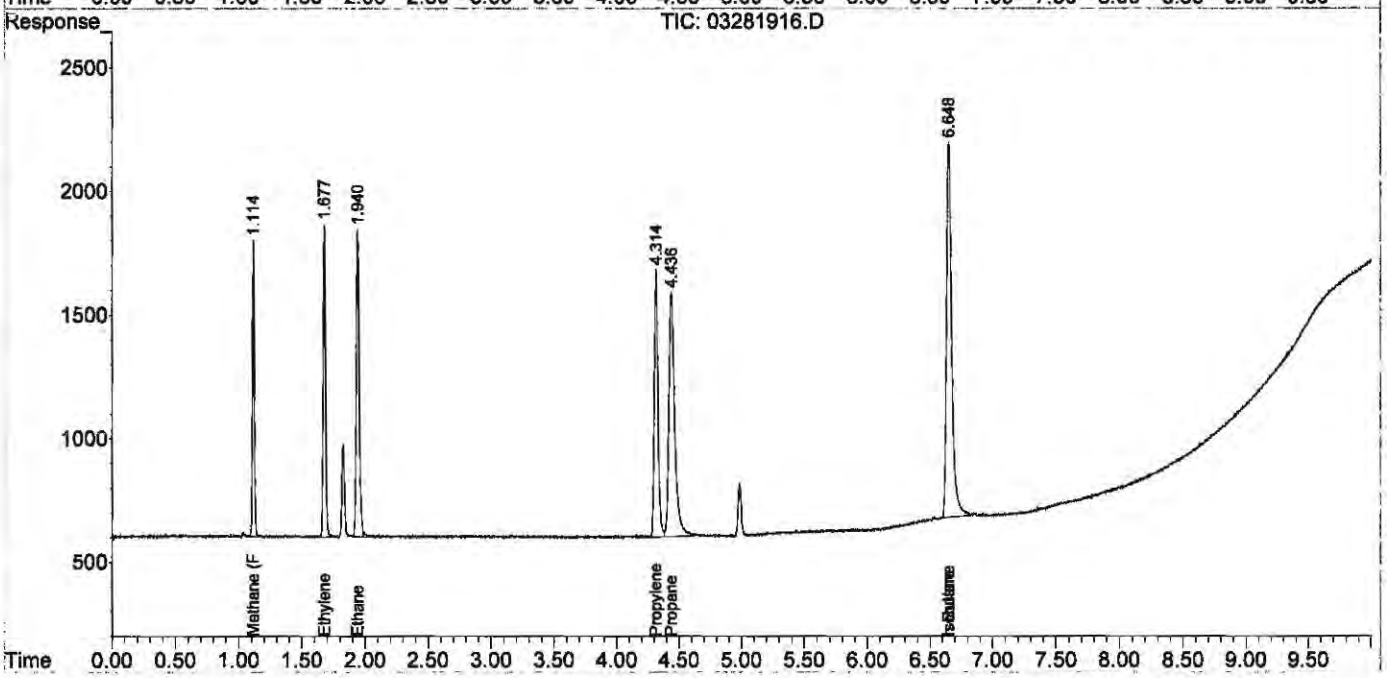
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281916.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 12:30:50
Operator : WH
Sample : fid lcsd s30-05241604
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 14:01:18 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Response Factor Report HP5890

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

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

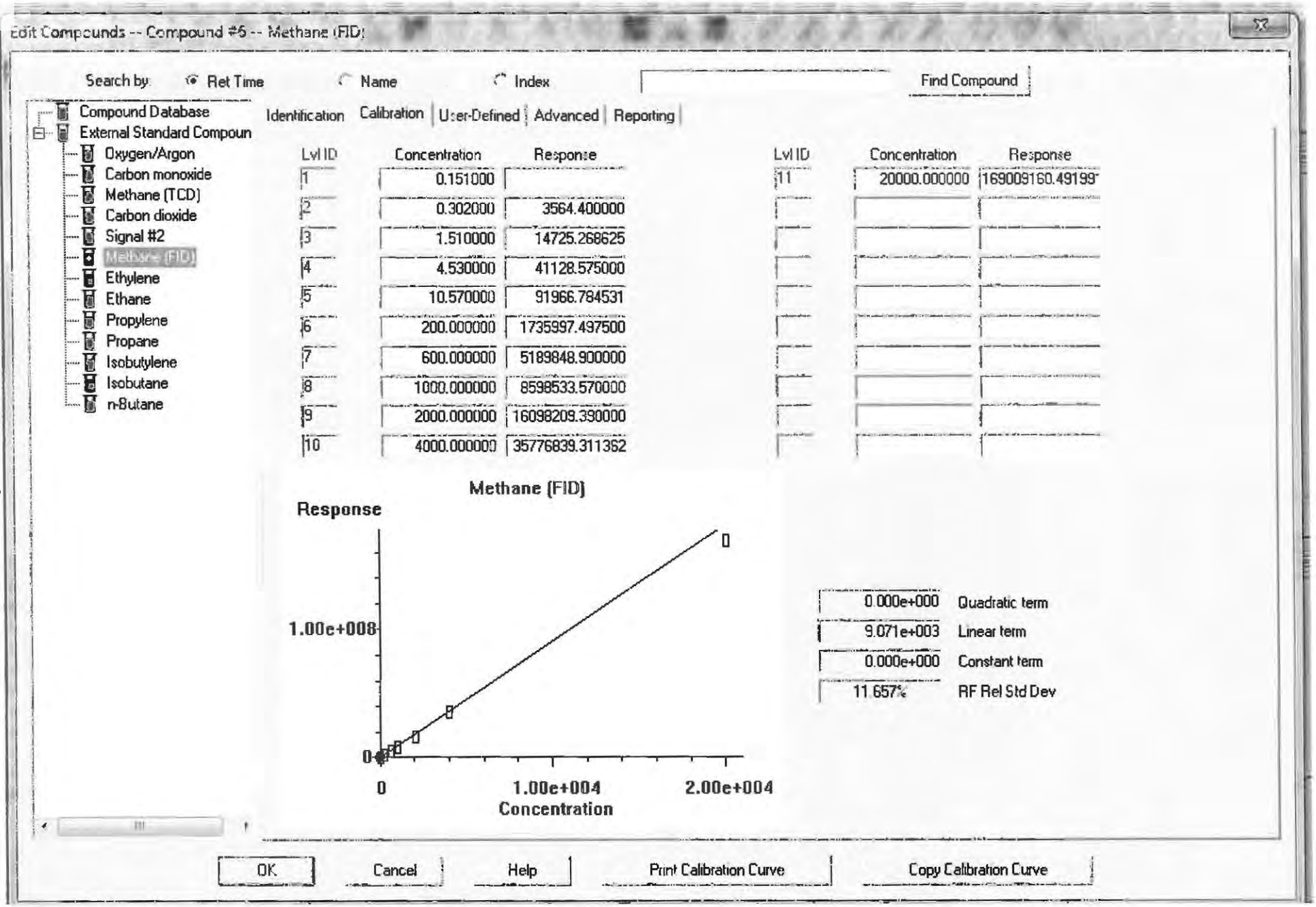
	Compound	1	2	3	4	5	6	Avg		%RSD
1)	Oxygen/Argon	3.739		1.014			0.001	0.793	E6	189.17
2)	Carbon monoxide	3.739		1.014			0.001	0.594	E6	221.92
3)	Methane (TCD)						2.161	0.951	E2	106.37
4)	Carbon dioxide	2.365	2.569	2.558	2.361	2.459	2.314	2.438	E2	4.44

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

	Compound	1	2	3	4	5	6	Avg		%RSD
6)	Methane (FID)		1.180	0.975	0.908	0.870	0.868	0.907	E4	11.66
7)	Ethylene	1.736	1.638	1.780	1.720	1.628	1.670	1.673	E4	3.90
8)	Ethane	1.781	1.676	1.784	1.730	1.692	1.675	1.695	E4	3.83
9)	Propylene	2.505	2.296	2.592	2.480	2.346	2.252	2.343	E4	6.56
10)	Propane	2.439	2.283	2.645	2.555	2.433	2.522	2.488	E4	4.20
11)	Isobutylene							0.652	E1	138.46
12)	Isobutane	6.058	4.793	2.214	1.553	1.353		2.662	E4	86.17
13)	n-Butane	6.058	4.793	2.214	1.553	1.353		2.662	E4	86.17

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

RS091217_R.M Wed Sep 13 15:11:48 2017


Edit Compounds -- Compound #6 -- Methane (FID)
Search by: Ret Time Name Index
Find Compound
Compound Database
External Standard Compoun
Oxygen/Argon
Carbon monoxide
Methane (TCD)
Carbon dioxide
Signal #2
Methane (FID)
Ethylene
Ethane
Propylene
Propane
Isobutylene
Isobutane
n-Butane
Identification Calibration User-Defined Advanced Reporting
Lvl ID Concentration Response
1 0.151000
2 0.302000 3564.400000
3 1.510000 14725.268625
4 4.530000 41128.575000
5 10.570000 91966.784531
6 200.000000 1735997.497500
7 600.000000 5189848.900000
8 1000.000000 8598533.570000
9 2000.000000 16098209.390000
10 4000.000000 35776839.311362
Lvl ID Concentration Response
11 20000.000000 169009160.49199
Methane (FID)
Response
1.00e+008
0
0
1.00e+004
2.00e+004
Concentration
0.000e+000 Quadratic term
9.071e+003 Linear term
0.000e+000 Constant term
11.657% RF Rel Std Dev
OK
Cancel
Help
Print Calibration Curve
Copy Calibration Curve

00948473

Edit Compounds -- Compound #7 -- Ethylene

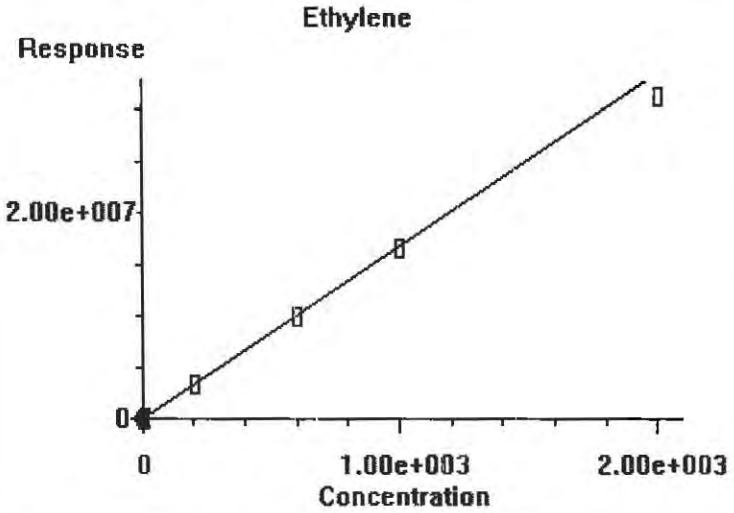
Search by: Ret Time | Name | Index | Find Compound

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

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	2621.970000
2	0.302000	4946.731301
3	1.510000	26884.746847
4	4.530000	77902.721497
5	10.570000	172085.529560
6	200.000000	3339702.313219
7	600.000000	10007758.776971
8	1000.000000	16608503.805988
9	2000.000000	31192443.898600
10	4000.000000	

Lvl ID	Concentration	Response
11	20000.000000	



0.000e+000	Quadratic term
1.673e+004	Linear term
0.000e+000	Constant term
3.897%	RF Rel Std Dev

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

Edit Compounds -- Compound #8 -- Ethane

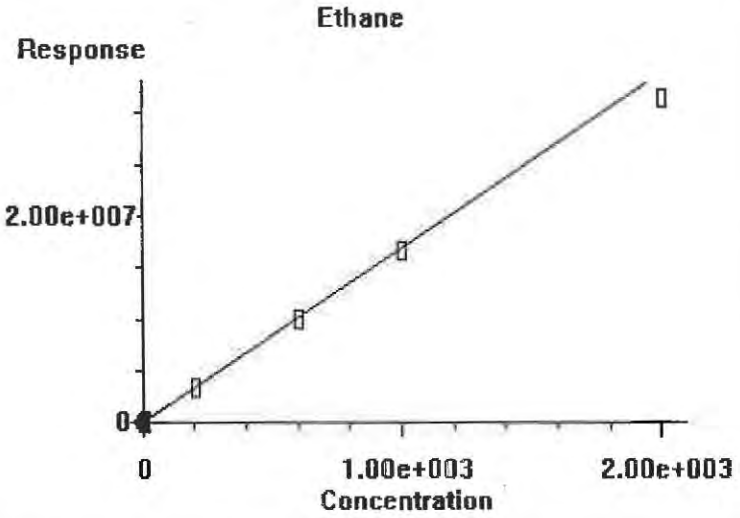
Search by: Ret Time | Name | Index — Find Compound

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

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	2689.928008
2	0.302000	5060.331943
3	1.510000	26943.667500
4	4.530000	78353.525045
5	10.570000	178840.731148
6	200.000000	3350442.319129
7	600.000000	10048964.218029
8	1000.000000	16703164.879012
9	2000.000000	31424217.938900
10	4000.000000	

Lvl ID	Concentration	Response
11	20000.000000	



0.000e+000	Quadratic term
1.695e+004	Linear term
0.000e+000	Constant term
3.831%	RF Rel Std Dev

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

Edit Compounds -- Compound #9 -- Propylene

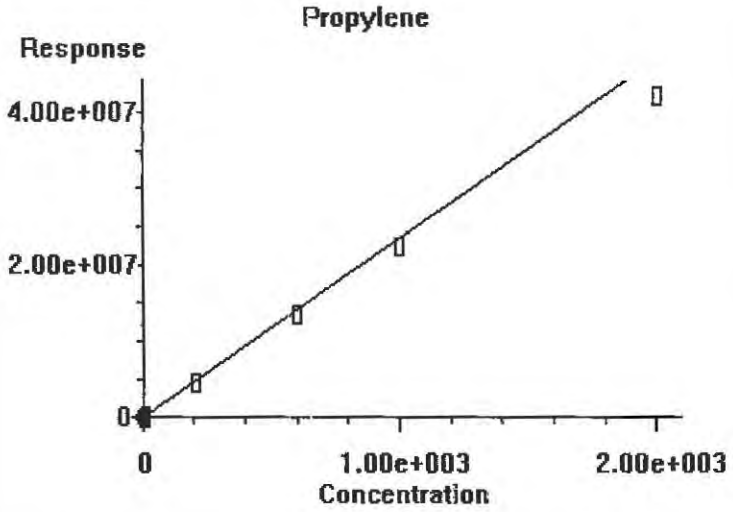
Search by: Ret Time | Name | Index | Find Compound

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

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	3782.537646
2	0.302000	6933.285530
3	1.510000	39139.518208
4	4.530000	112341.896872
5	10.570000	248003.903623
6	200.000000	4504060.086084
7	600.000000	13569342.761419
8	1000.000000	22494887.720990
9	2000.000000	42124689.656800
10	4000.000000	

Lvl ID	Concentration	Response
11	20000.000000	



0.000e+000	Quadratic term
2.343e+004	Linear term
0.000e+000	Constant term
6.559%	RF Rel Std Dev

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

Edit Compounds -- Compound #10 -- Propane

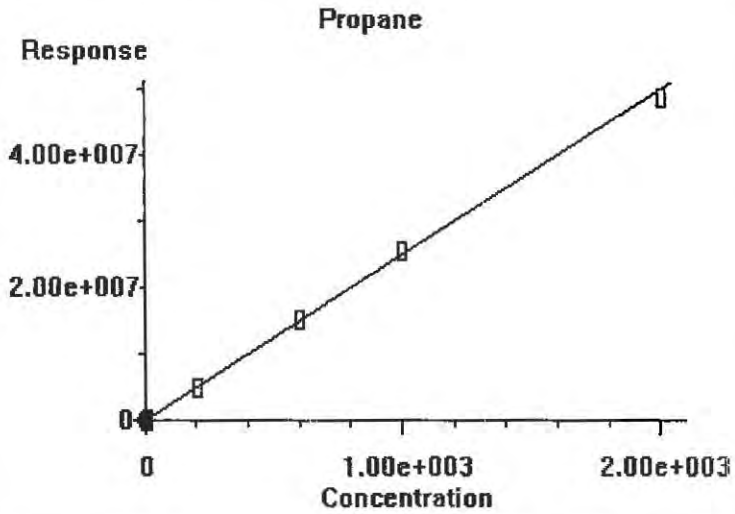
Search by: Ret Time | Name | Index — Find Compound

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

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	3682.897354
2	0.302000	6894.237803
3	1.510000	39934.166792
4	4.530000	115723.428128
5	10.570000	257124.432806
6	200.000000	5043035.663916
7	600.000000	15251325.797404
8	1000.000000	25459410.657938
9	2000.000000	48583085.287451
10	4000.000000	

Lvl ID	Concentration	Response
11	20000.000000	



0.000e+000	Quadratic term
2.488e+004	Linear term
0.000e+000	Constant term
4.200%	RF Rel Std Dev

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

Calibration Status Report HP5890

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

#	ID	Conc	ISTD Conc	Path\File
1	1	0	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121702.D
2	2	0	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121703.D
3	3	3	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121704.D
4	4	10	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121705.D
5	5	25	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121706.D
6	6	125	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121707.D
7	7	5000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121708.D
8	8	25000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121709.D
9	9	2000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121710.D
10	10	30000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121711.D
11	11	20000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121712.D

#	ID	Update Time	Quant Time	Acquisition Time
1	1	Sep 13 11:04 2017	Sep 12 15:03 2017	12-Sep-2017, 10:52
2	2	Sep 13 11:05 2017	Sep 13 11:05 2017	12-Sep-2017, 11:05
3	3	Sep 13 11:06 2017	Sep 13 11:05 2017	12-Sep-2017, 11:45
4	4	Sep 13 11:09 2017	Sep 13 11:06 2017	12-Sep-2017, 12:09
5	5	Sep 13 11:09 2017	Sep 13 11:09 2017	12-Sep-2017, 12:30
6	6	Sep 13 11:10 2017	Sep 13 11:10 2017	12-Sep-2017, 12:47
7	7	Sep 13 11:11 2017	Sep 13 11:10 2017	12-Sep-2017, 13:00
8	8	Sep 13 11:12 2017	Sep 13 11:11 2017	12-Sep-2017, 13:47
9	9	Sep 13 11:12 2017	Sep 13 11:12 2017	12-Sep-2017, 14:07
10	10	Sep 13 11:14 2017	Sep 13 11:13 2017	12-Sep-2017, 14:48
11	11	Sep 13 11:14 2017	Sep 13 11:14 2017	12-Sep-2017, 15:21

RS091217_R.M Wed Sep 13 15:11:22 2017

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121702.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 10:52
Operator : MC
Sample : 0.151ppm 0.250ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 12 11:03:15 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.767	373920	0.128	ppm	
2)	Carbon monoxide	1.767	373920	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	1.595	2622	0.156	ppm	
8)	Ethane	1.848	2690	0.156	ppm	
9)	Propylene	4.222	3783	0.154	ppm	
10)	Propane	4.348	3683	0.139	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	6.582f	6058	NoCal	ppm	
13)	n-Butane	6.582f	6058	NoCal	ppm	

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

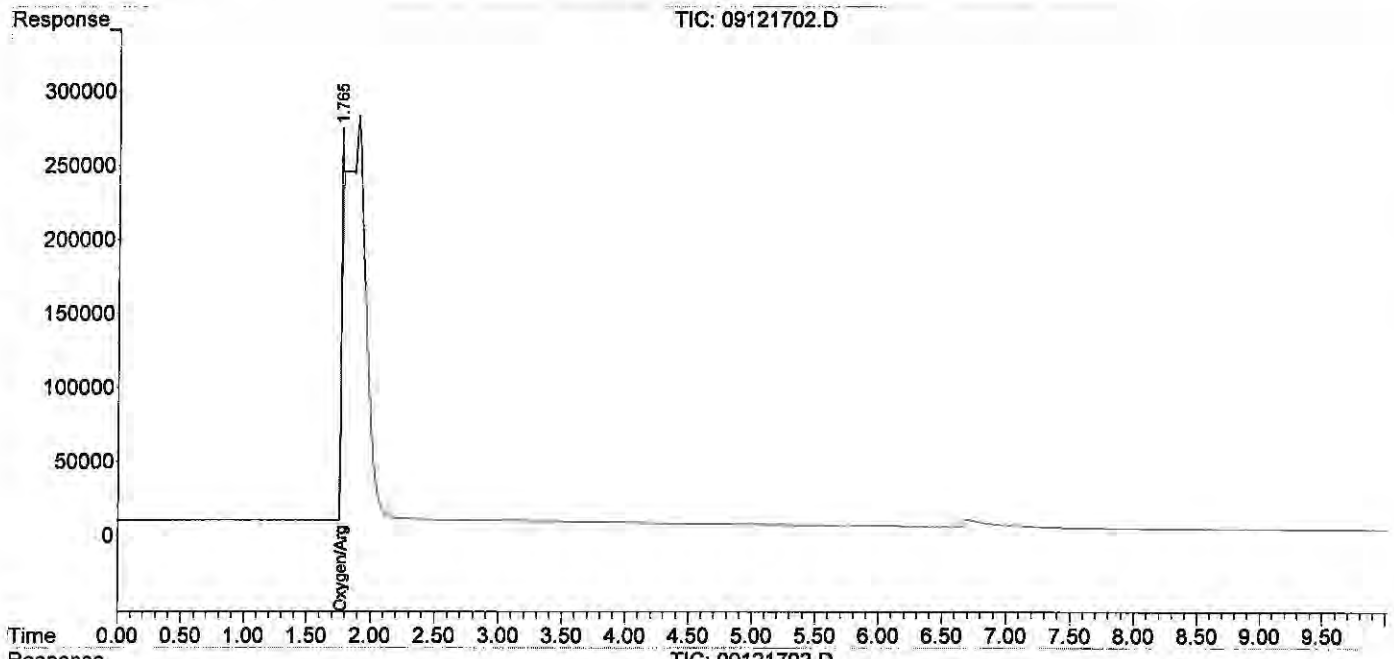
9/13/17

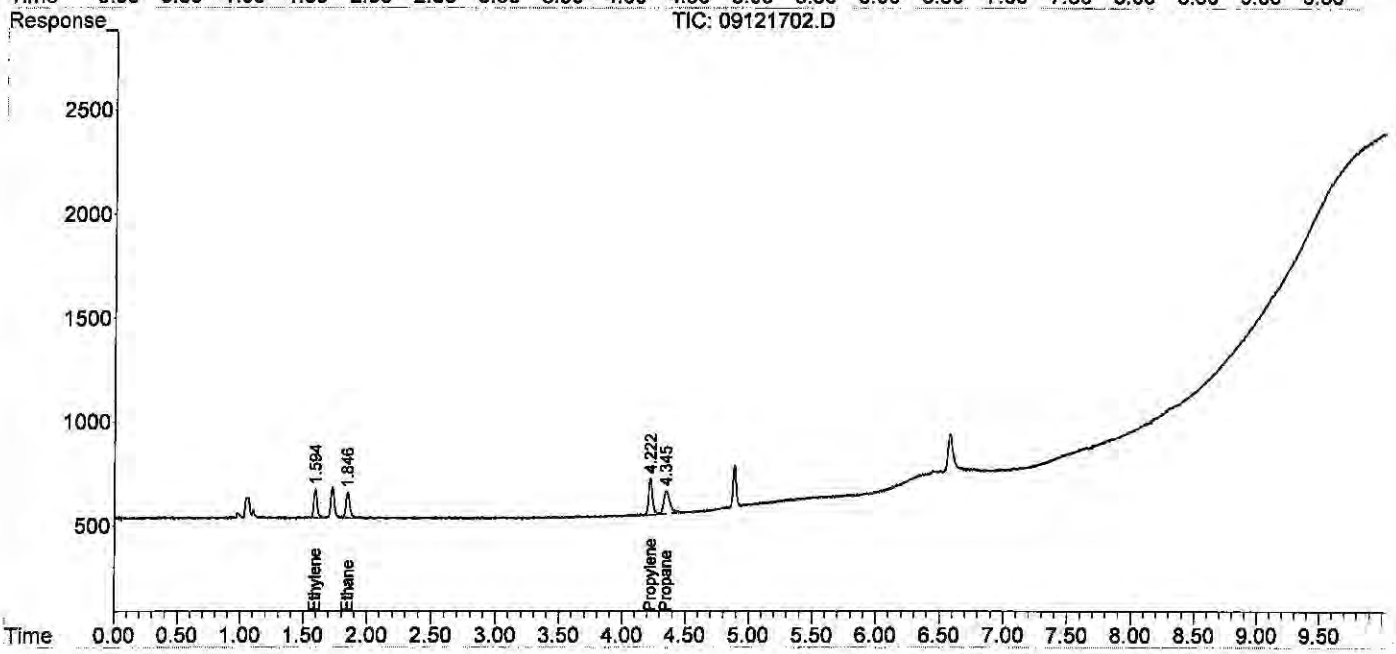
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121702.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 10:52
Operator : MC
Sample : 0.151ppm 0.250ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 12 11:03:15 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121703.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:05
Operator : MC
Sample : 0.302ppm 0.5ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:03 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.913f	-25181981	N.D.	ppm	
2)	Carbon monoxide	1.913f	-25181981	1.089	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.049	3564	0.391	ppm	m
7)	Ethylene	1.577	4947	0.292	ppm	
8)	Ethane	1.828	5060	0.293	ppm	
9)	Propylene	4.207	6933	0.281	ppm	
10)	Propane	4.337	6894	0.268	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	6.579f	9587	0.158	ppm	
13)	n-Butane	6.579f	9587	0.158	ppm	

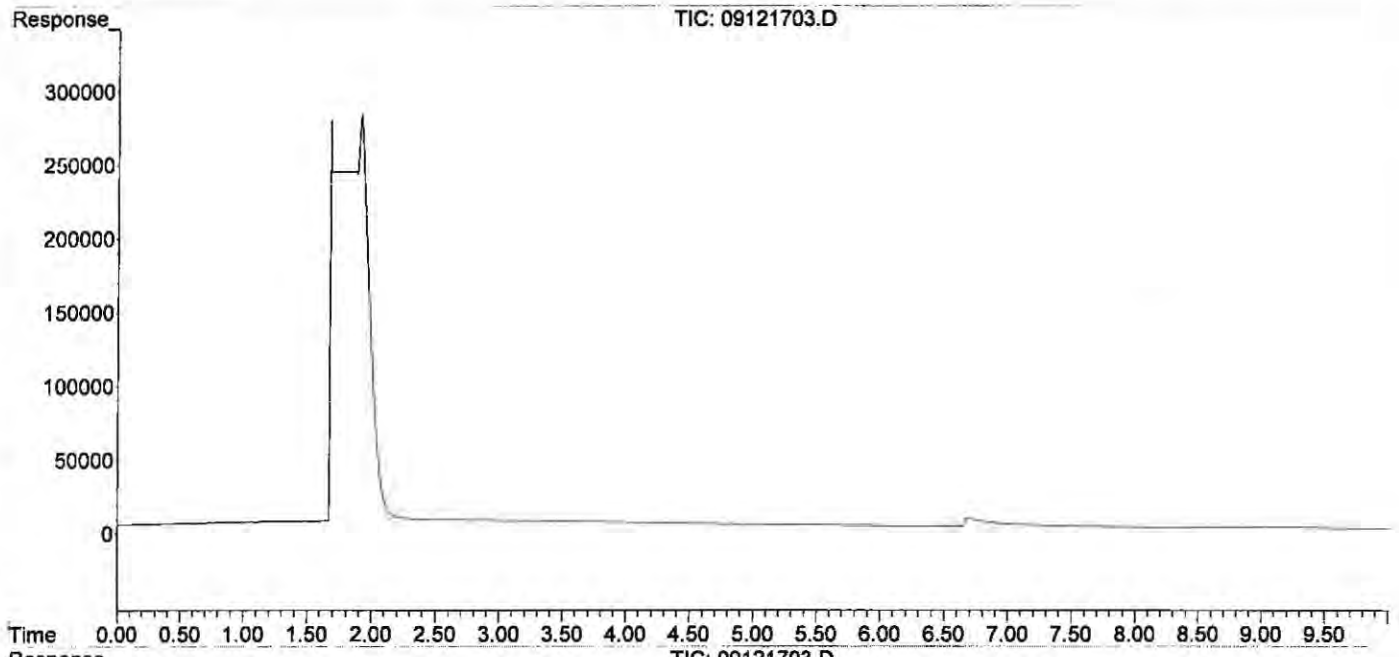
(f)=RT Delta > 1/2 Window (m)=manual int.

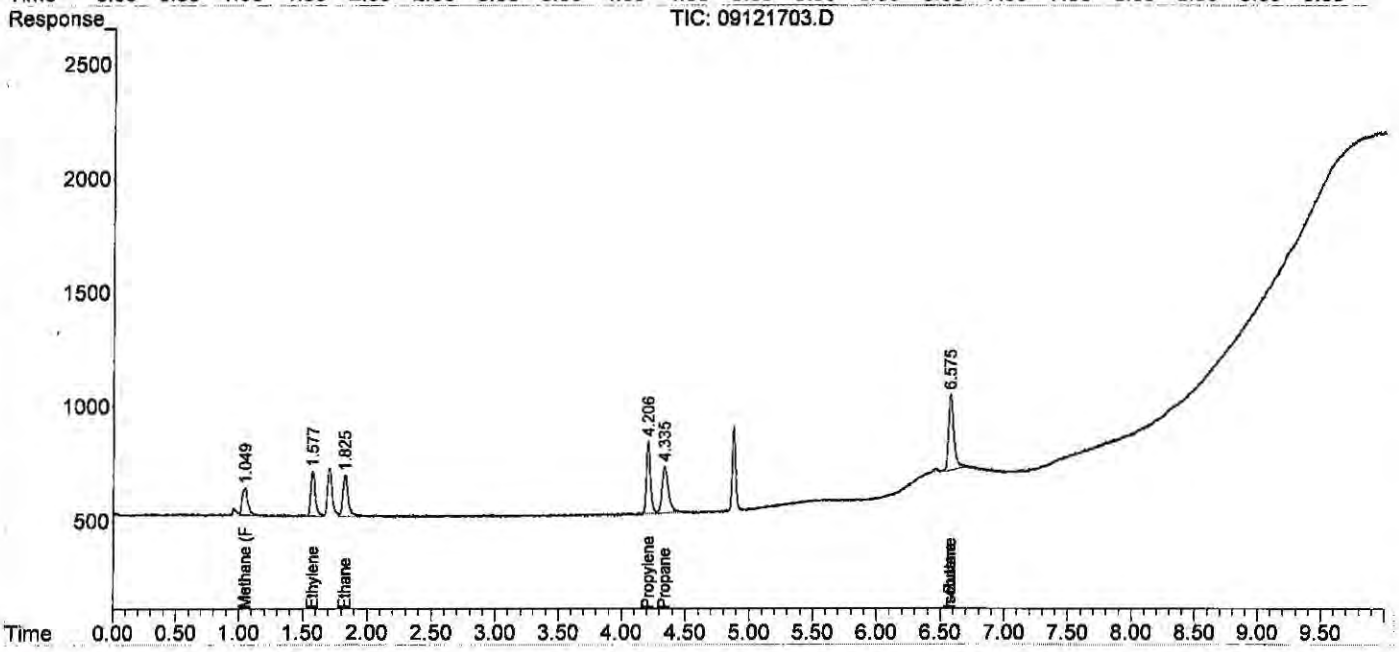
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121703.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:05
Operator : MC
Sample : 0.302ppm 0.5ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:03 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

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

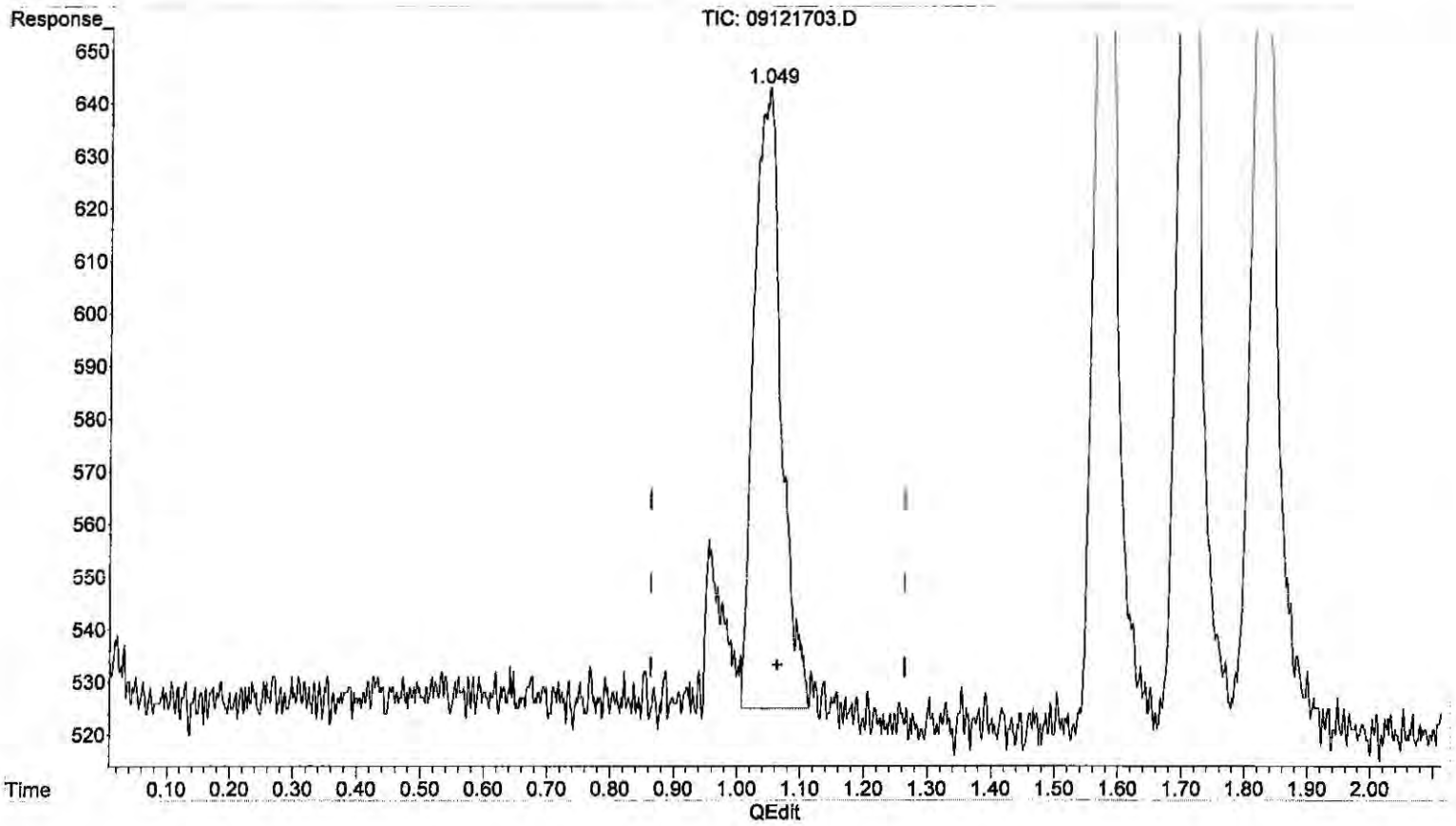




Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121703.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:05
Operator : MC
Sample : 0.302ppm 0.5ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:03 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(6) Methane (FID)
1.049min 0.391 ppm m
response 3564

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121704.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:45
Operator : MC
Sample : 1.51ppm 0.1ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:55 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

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

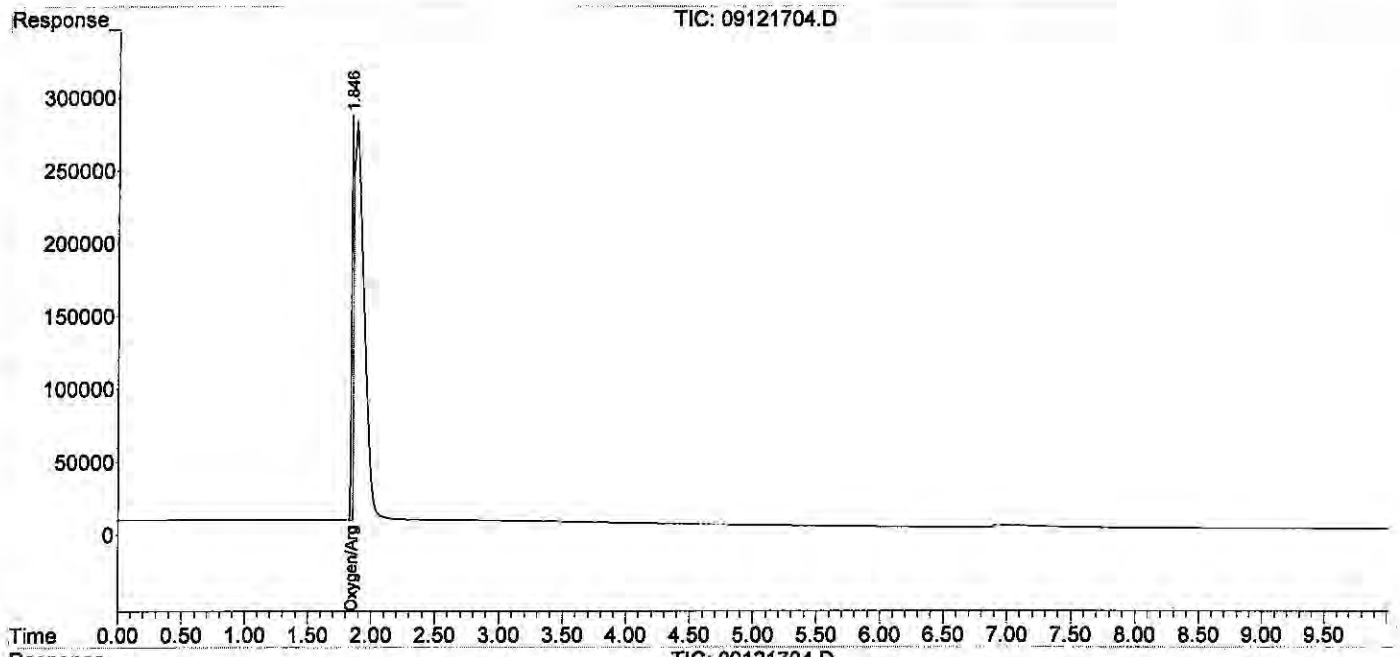
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.847	2536230	1.056	ppm
2)	Carbon monoxide	1.847	2536230	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.064	14725	1.613	ppm
7)	Ethylene	1.598	26885	1.582	ppm
8)	Ethane	1.851	26944	1.555	ppm
9)	Propylene	4.220	39140	1.589	ppm
10)	Propane	4.349	39934	1.596	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.578f	55348	1.020	ppm
13)	n-Butane	6.578f	55348	1.020	ppm

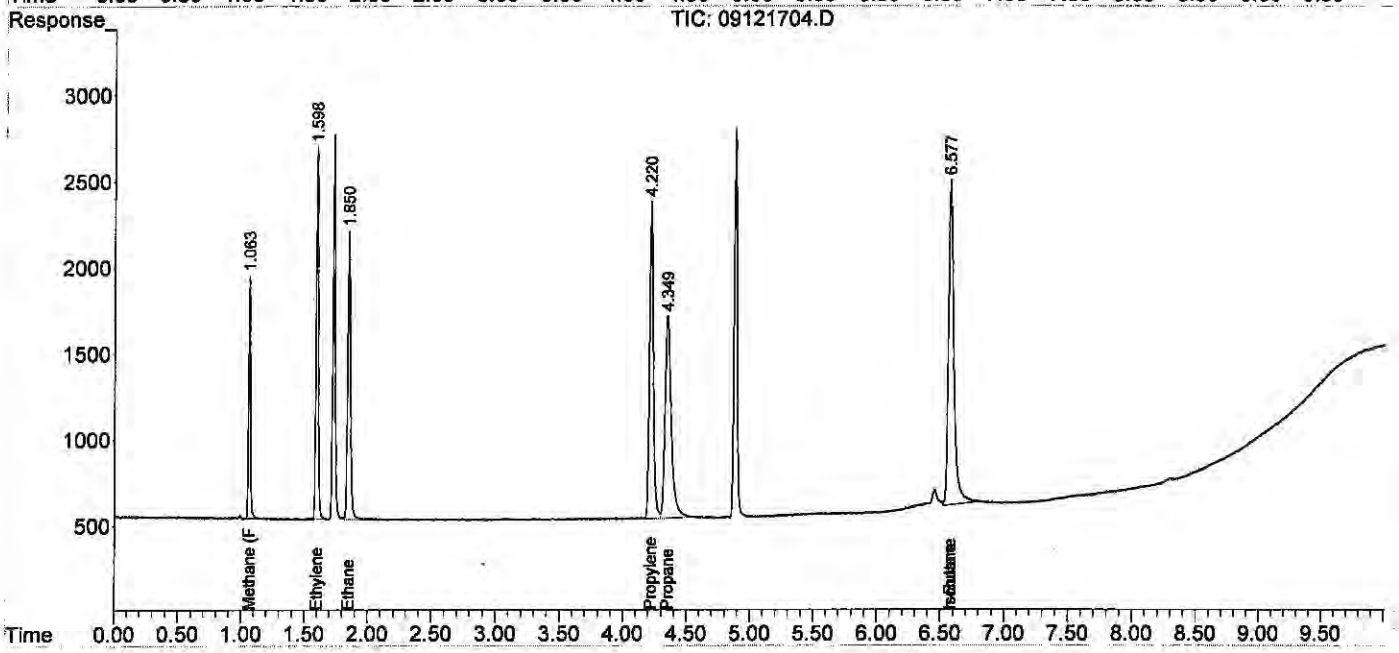
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121704.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:45
Operator : MC
Sample : 1.51ppm 0.1ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:55 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121705.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:09
Operator : MC
Sample : 4.53ppm 0.3ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:06:32 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

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

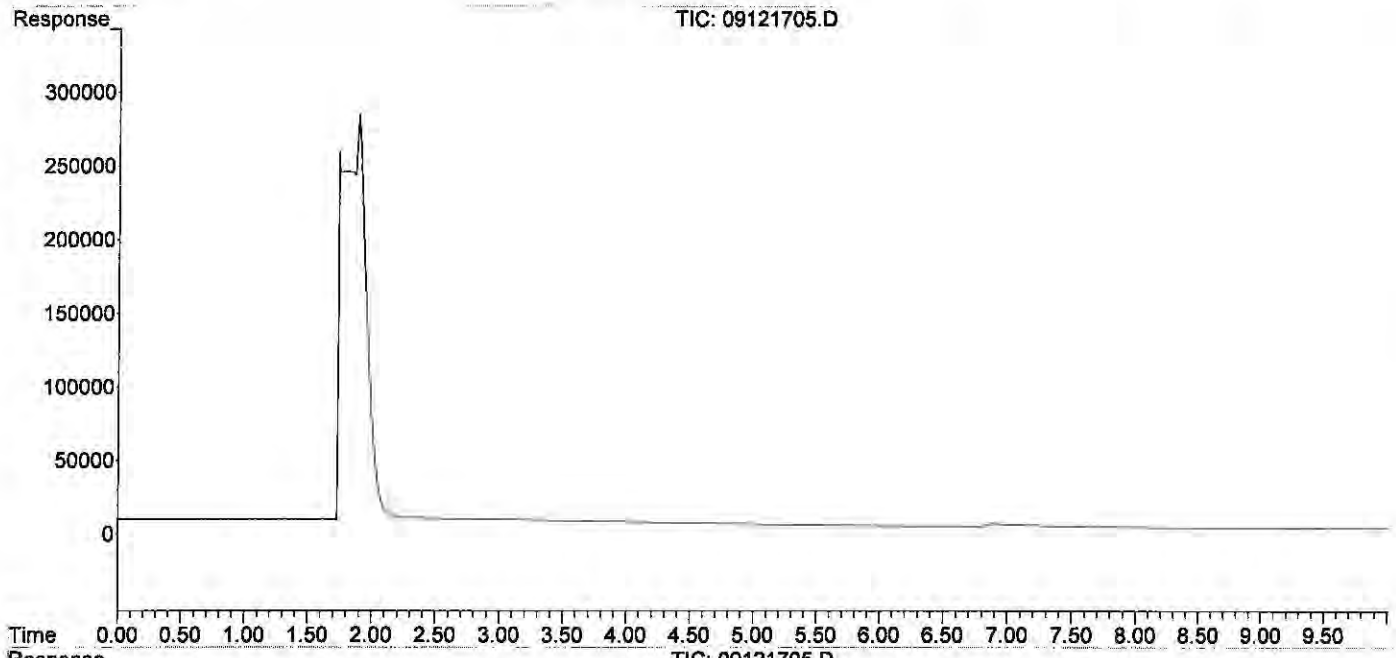
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.738	-331216	N.D.	ppm
2)	Carbon monoxide	1.738	-331216	0.019	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.052	41129	4.522	ppm
7)	Ethylene	1.586	77903	4.637	ppm
8)	Ethane	1.838	78354	4.558	ppm
9)	Propylene	4.218	112342	4.614	ppm
10)	Propane	4.347	115723	4.680	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.580f	155256	3.565	ppm
13)	n-Butane	6.580f	155256	3.565	ppm

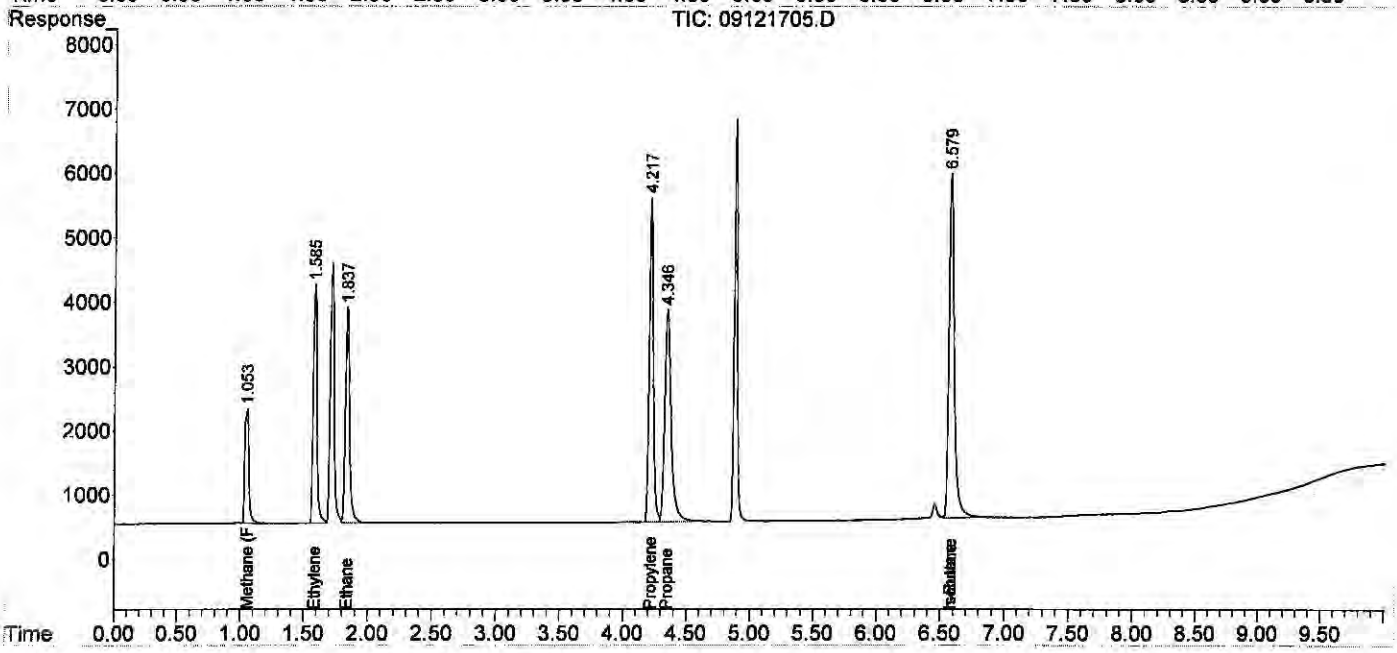
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121705.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:09
Operator : MC
Sample : 4.53ppm 0.3ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:06:32 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121706.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:30
Operator : MC
Sample : 10.57ppm 0.7ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:24 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.929f	-31871242	N.D.	ppm
2)	Carbon monoxide	1.929f	-31871242	1.818	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.025	91967	10.135	ppm
7)	Ethylene	1.568	172086	10.273	ppm
8)	Ethane	1.822	178841	10.441	ppm
9)	Propylene	4.214	248004	10.236	ppm
10)	Propane	4.344	257124	10.458	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.578f	338181	9.254	ppm
13)	n-Butane	6.578f	338181	9.254	ppm

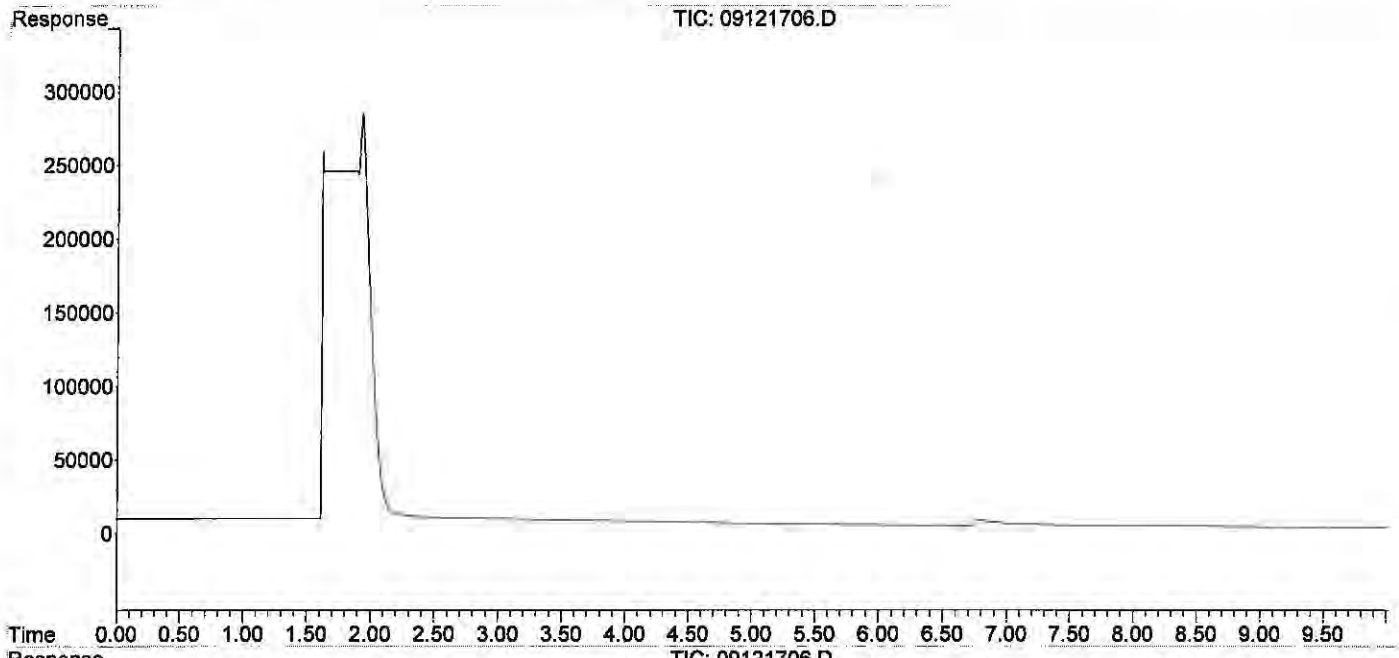
(f)=RT Delta > 1/2 Window (m)=manual int.

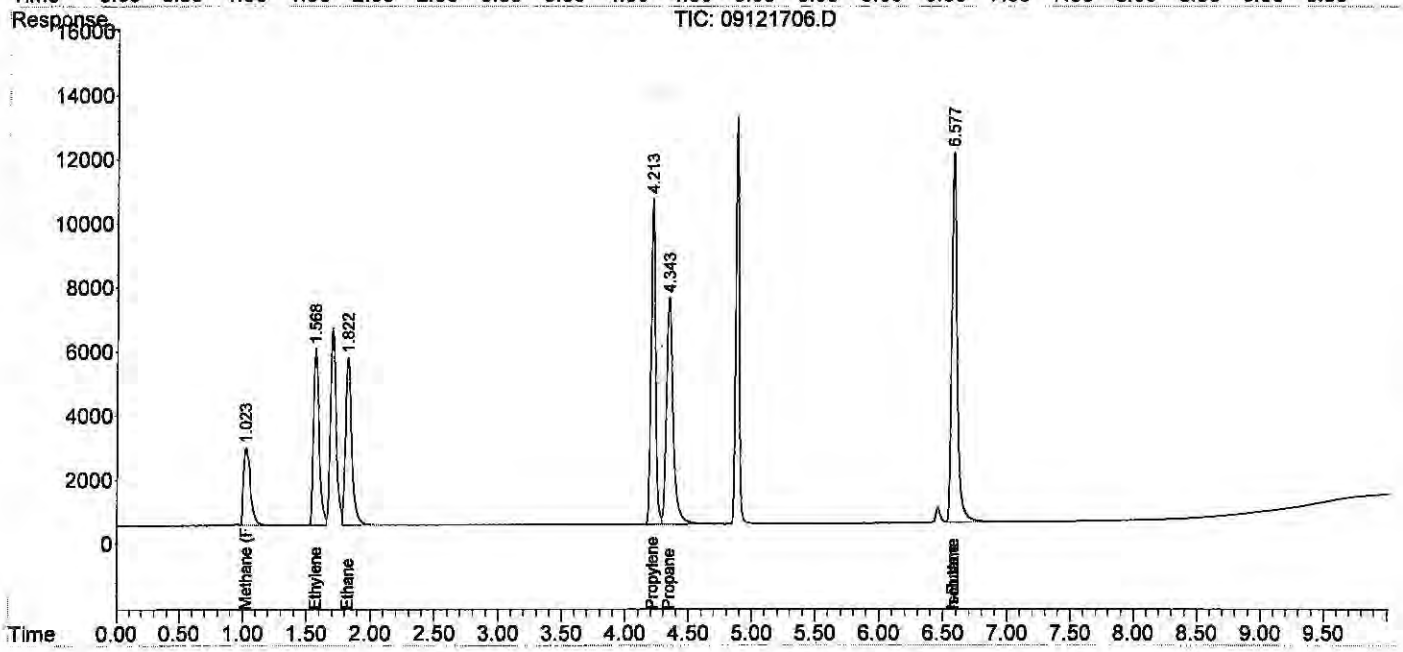
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121706.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:30
Operator : MC
Sample : 10.57ppm 0.7ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:24 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121707.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:47
Operator : MC
Sample : 200ppm 0.1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:59 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

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

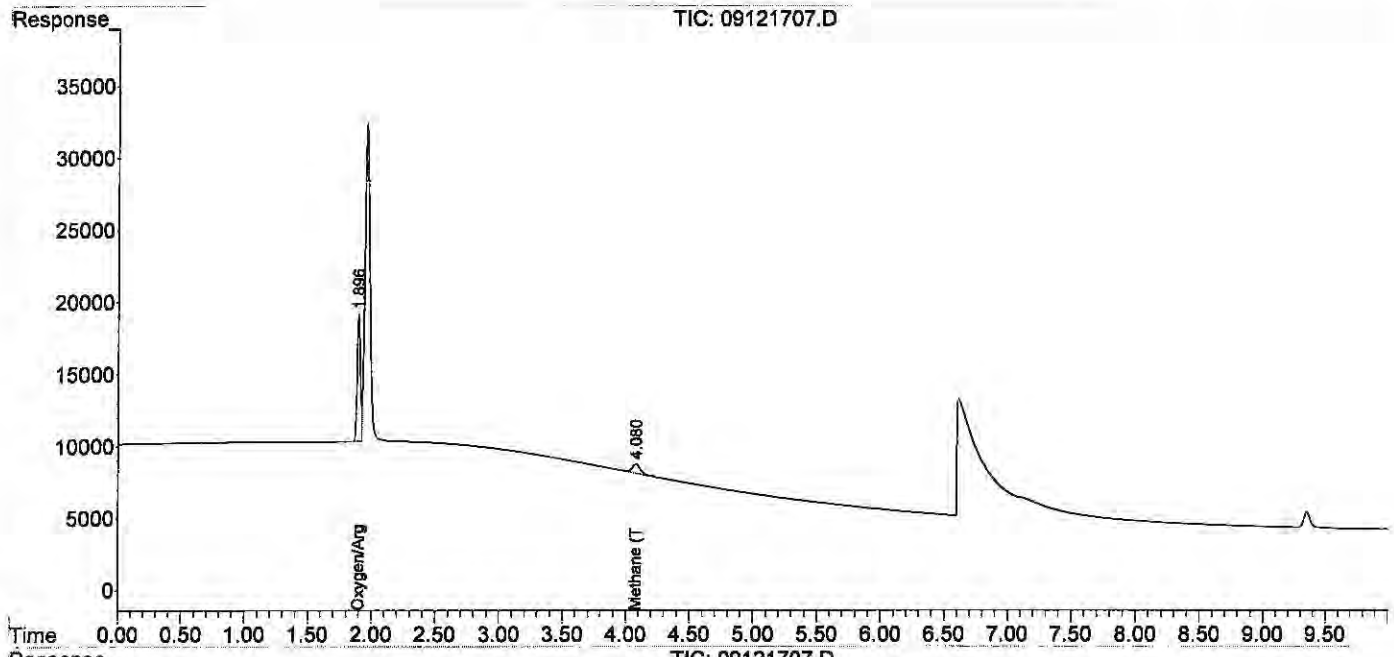
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.897	155286	0.065	ppm
2)	Carbon monoxide	1.897	155286	N.D.	ppm
3)	Methane (TCD)	4.079f	27015	2856.472	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.063	1735997	190.792	ppm
7)	Ethylene	1.597	3339702	198.758	ppm
8)	Ethane	1.849	3350442	194.597	ppm
9)	Propylene	4.201	4504060	185.706	ppm
10)	Propane	4.333	5043036	204.809	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

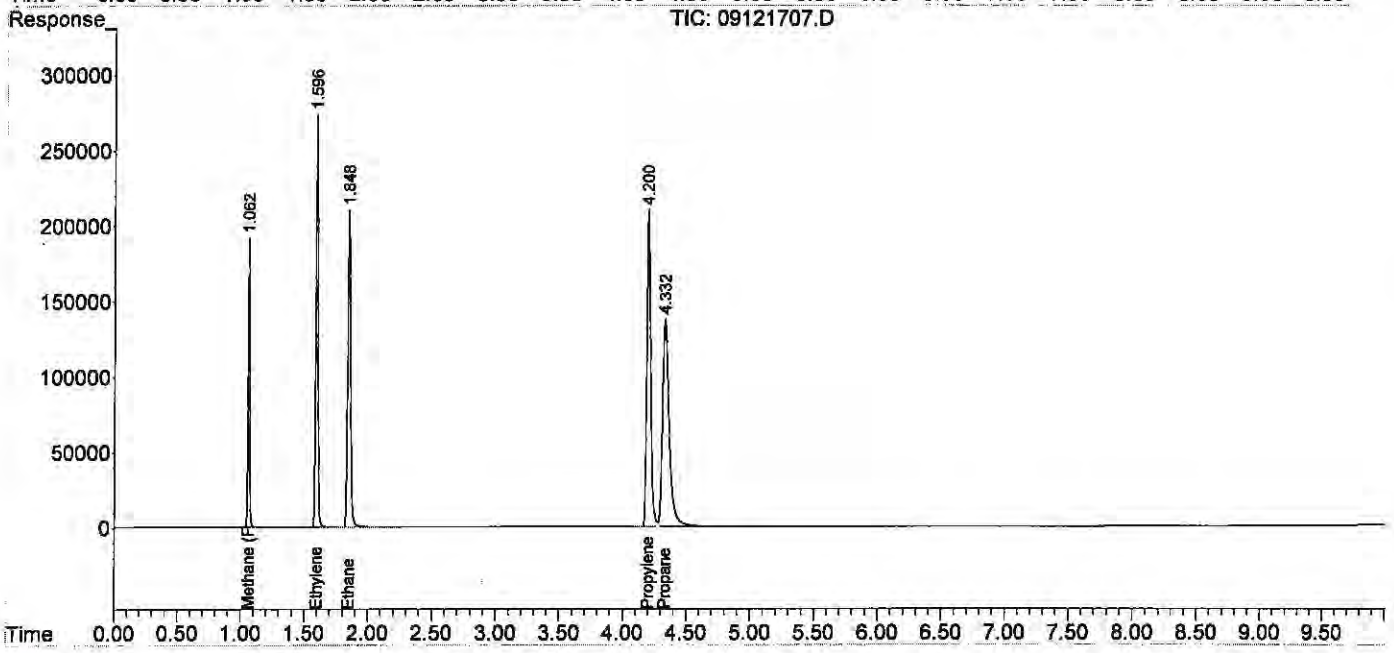
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121707.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:47
Operator : MC
Sample : 200ppm 0.1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:59 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121708.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:00
Operator : MC
Sample : 600ppm 0.3ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:10:57 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:10:50 2017
Response via : Initial Calibration
Integrator: ChemStation

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

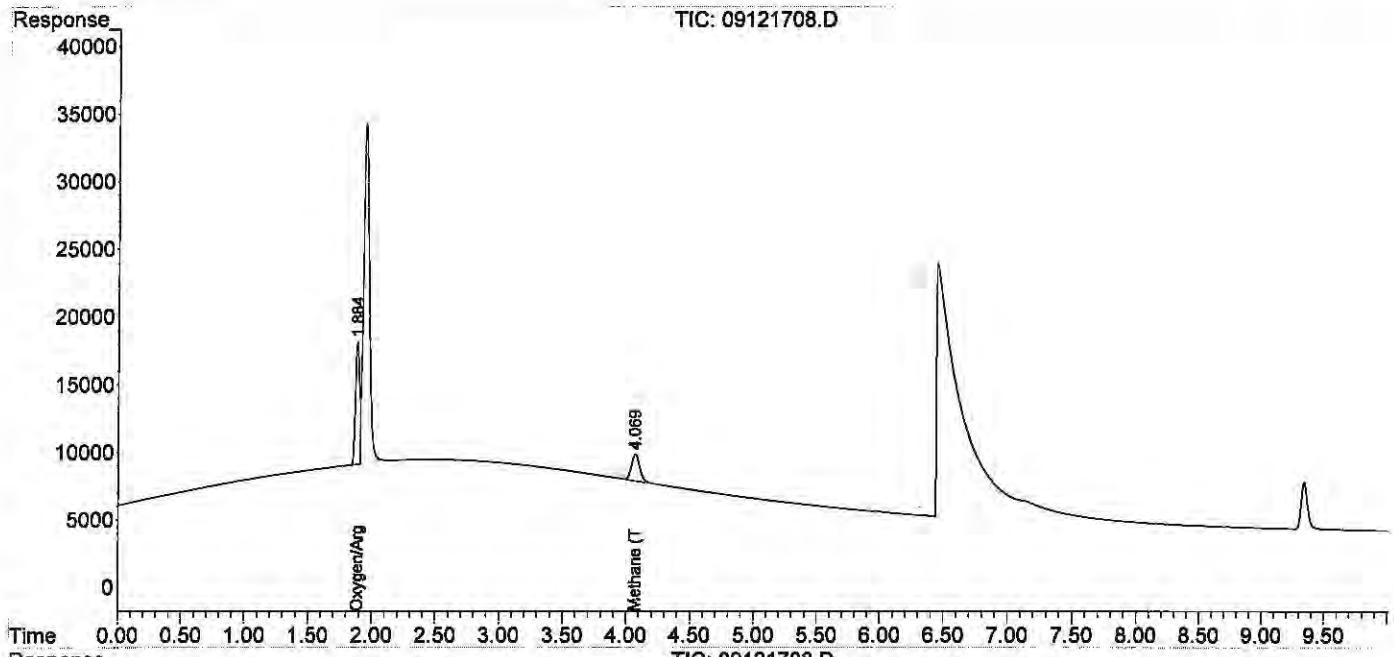
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.884	196022	0.124	ppm
2)	Carbon monoxide	1.884	196022	N.D.	ppm
3)	Methane (TCD)	4.070f	88282	782.730	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.044	5189849	539.759	ppm
7)	Ethylene	1.573	10007759	590.286	ppm
8)	Ethane	1.822	10048964	583.213	ppm
9)	Propylene	4.160	13569343	562.612	ppm
10)	Propane	4.300	15251326	615.171	ppm
11)	Isobutylene	6.143	9815	NoCal	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

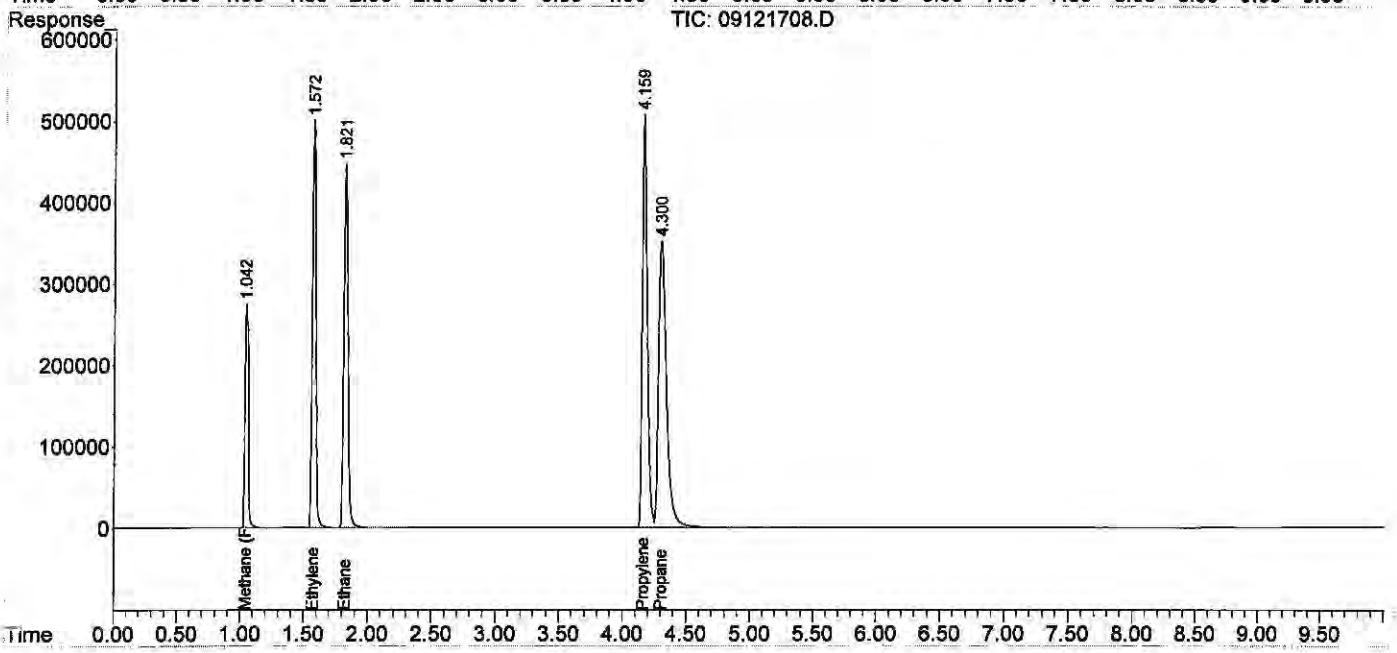
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121708.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:00
Operator : MC
Sample : 600ppm 0.3ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:10:57 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:10:50 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121709.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:47
Operator : MC
Sample : 1000ppm 0.5ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:11:46 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:11:38 2017
Response via : Initial Calibration
Integrator: ChemStation

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

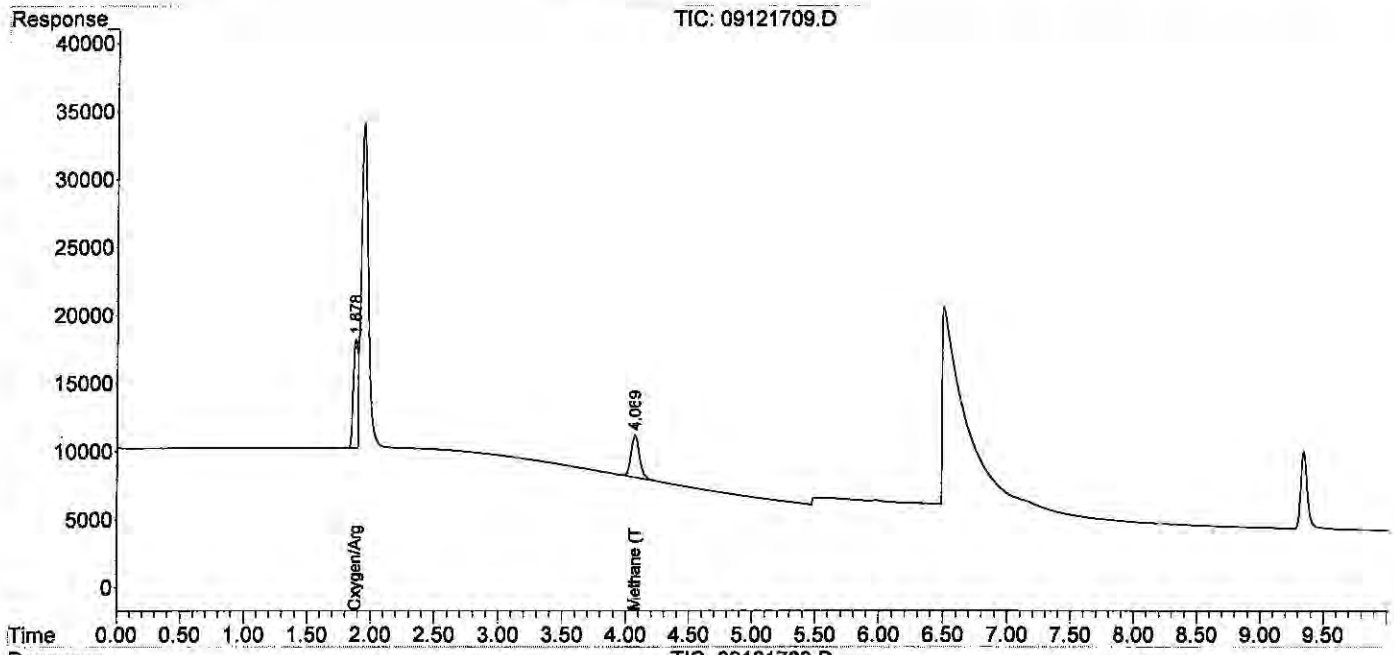
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.879	192611	0.162	ppm
2)	Carbon monoxide	1.879	192611	N.D.	ppm
3)	Methane (TCD)	4.070f	145492	1244.729	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.039	8598534	945.644	ppm
7)	Ethylene	1.576	16608504	981.887	ppm
8)	Ethane	1.827	16709165	973.644	ppm
9)	Propylene	4.161	22494888	941.060	ppm
10)	Propane	4.298	25459411	1023.223	ppm
11)	Isobutylene	6.138	16970	8645.243	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

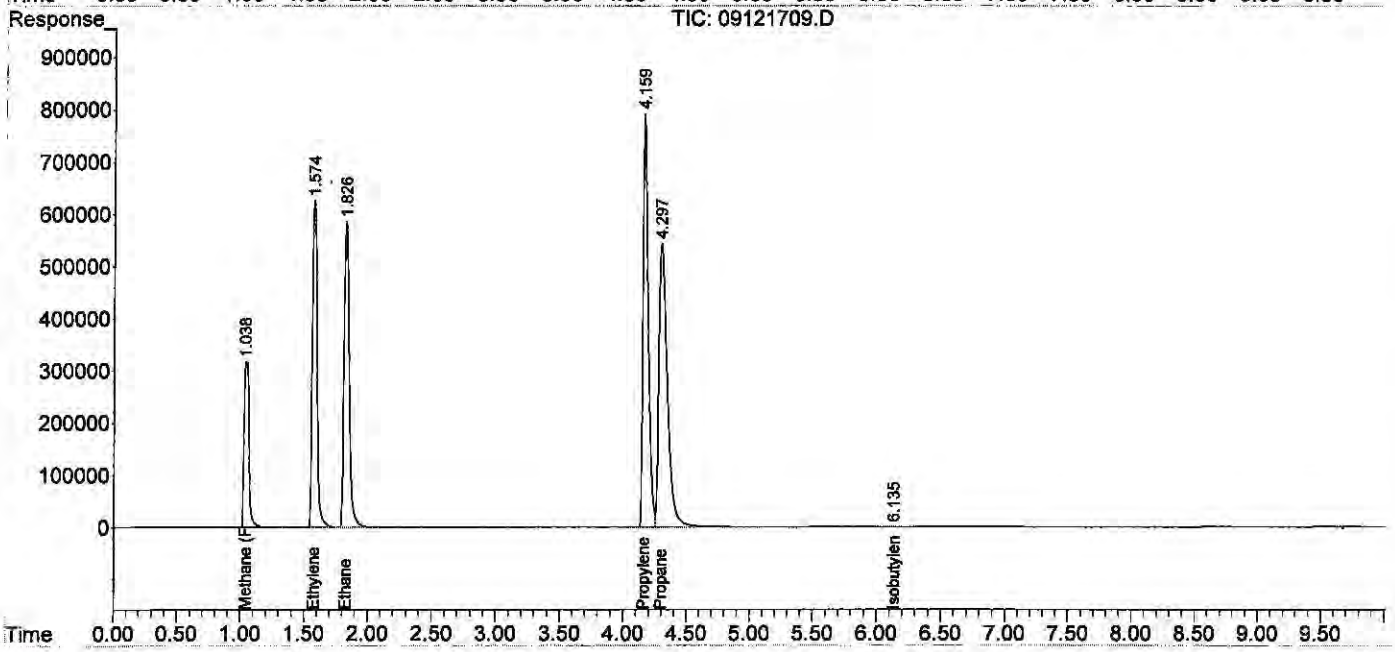
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121709.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:47
Operator : MC
Sample : 1000ppm 0.5ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:11:46 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:11:38 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121710.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:07
Operator : MC
Sample : 2000ppm 1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:12:33 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:12:25 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.922f	1578147	1.659	ppm	
2)	Carbon monoxide	1.922f	1578147	N.D.	ppm	
3)	Methane (TCD)	4.057f	281651	3526.607	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.016	16098209	1763.622	ppm	
7)	Ethylene	1.552	31192444	1848.268	ppm	
8)	Ethane	1.801	31424218	1837.143	ppm	
9)	Propylene	4.129	42124690	1775.341	ppm	m
10)	Propane	4.269	48583085	1946.921	ppm	
11)	Isobutylene	6.136	33832	25613.603	ppm	
12)	Isobutane	6.576f	3845	0.120	ppm	
13)	n-Butane	6.576f	3845	0.120	ppm	

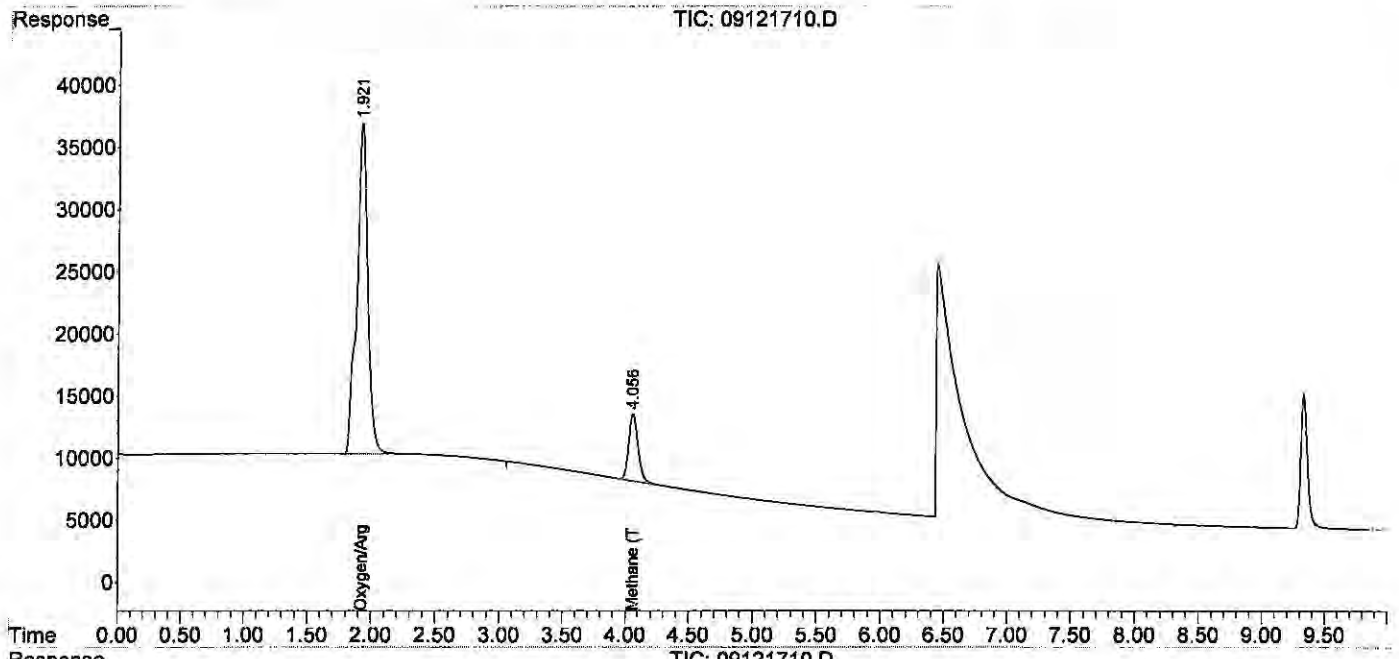
(f)=RT Delta > 1/2 Window (m)=manual int.

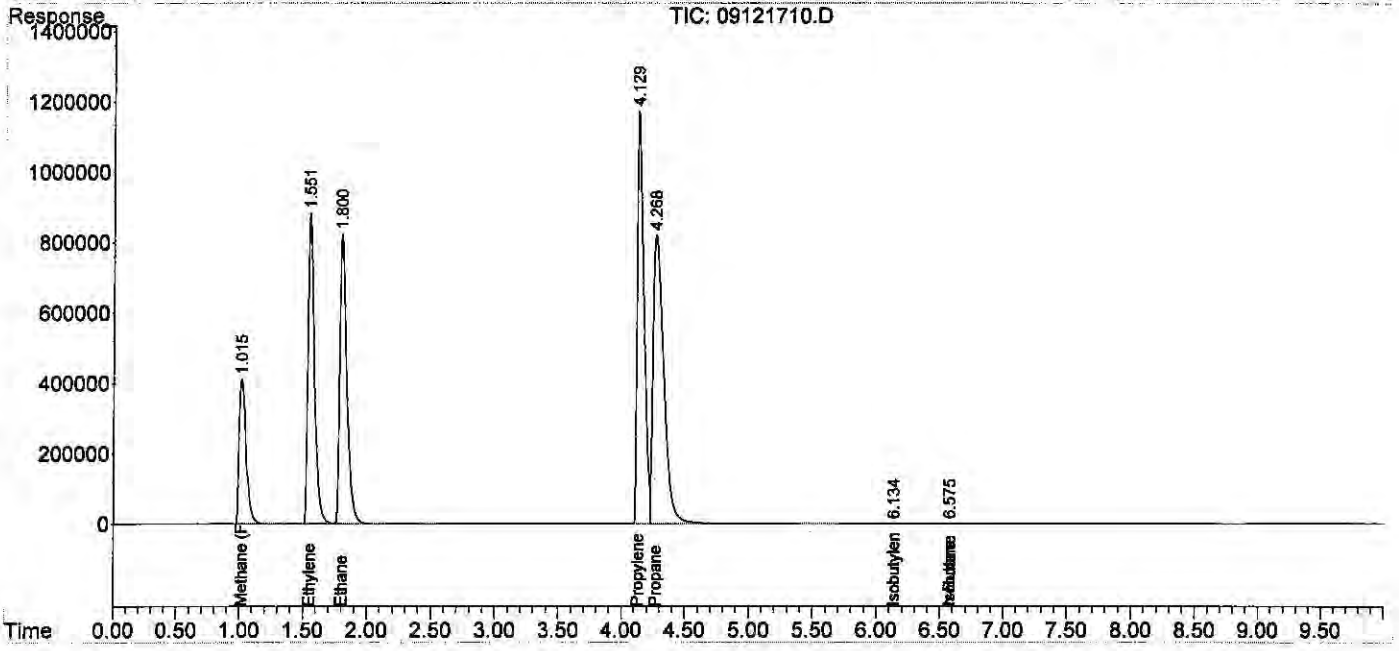
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121710.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:07
Operator : MC
Sample : 2000ppm 1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:12:33 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:12:25 2017
Response via : Initial Calibration
Integrator: ChemStation

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



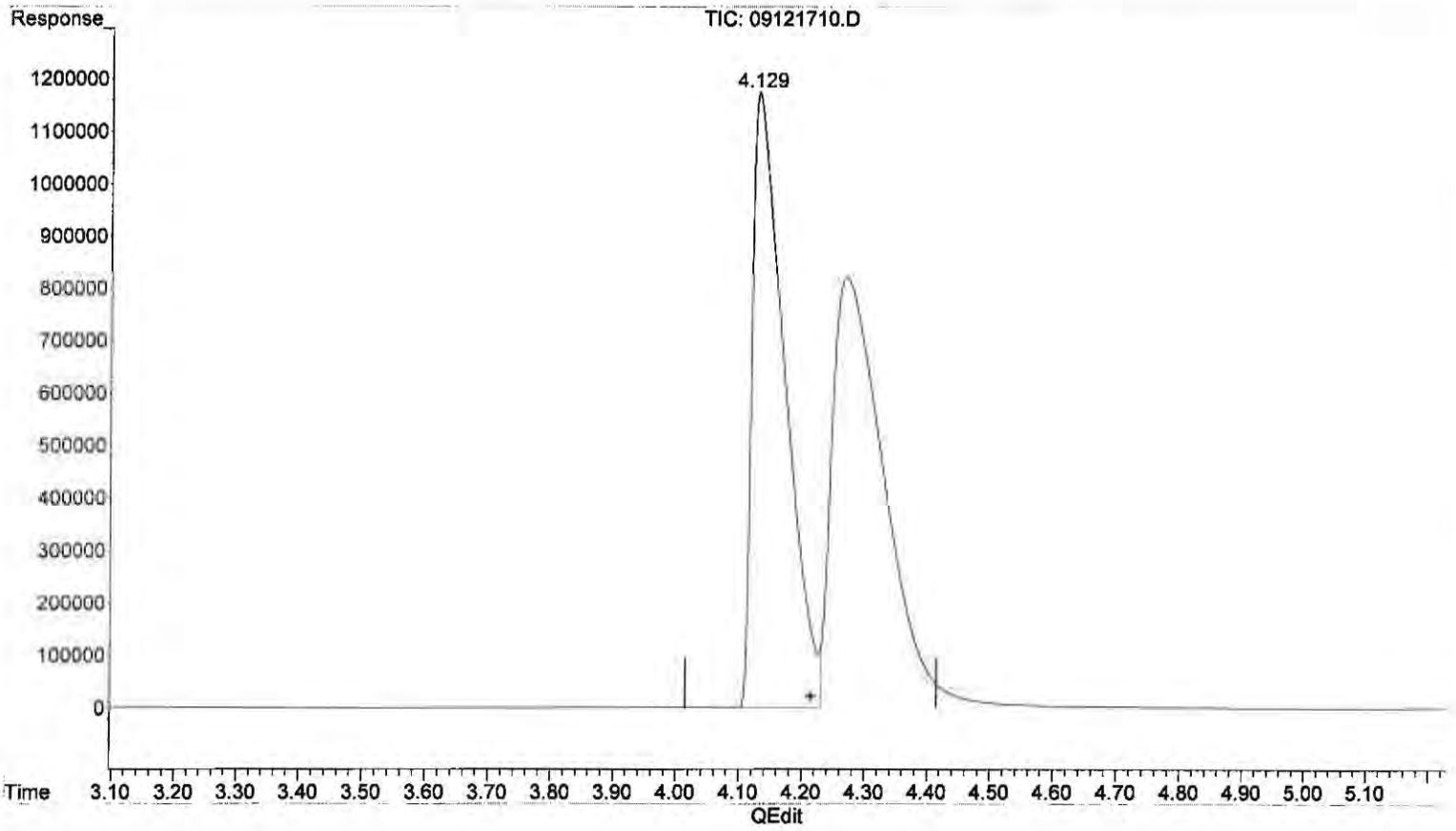


Quantitation Report (Qedit)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121710.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:07
Operator : MC
Sample : 2000ppm 1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:12:33 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:12:25 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(9) Propylene
4.129min 1775.341 ppm m
response 42124690

(+) = Expected Retention Time

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121711.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:48
Operator : MC
Sample : 4000ppm 0.1ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:13:37 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

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

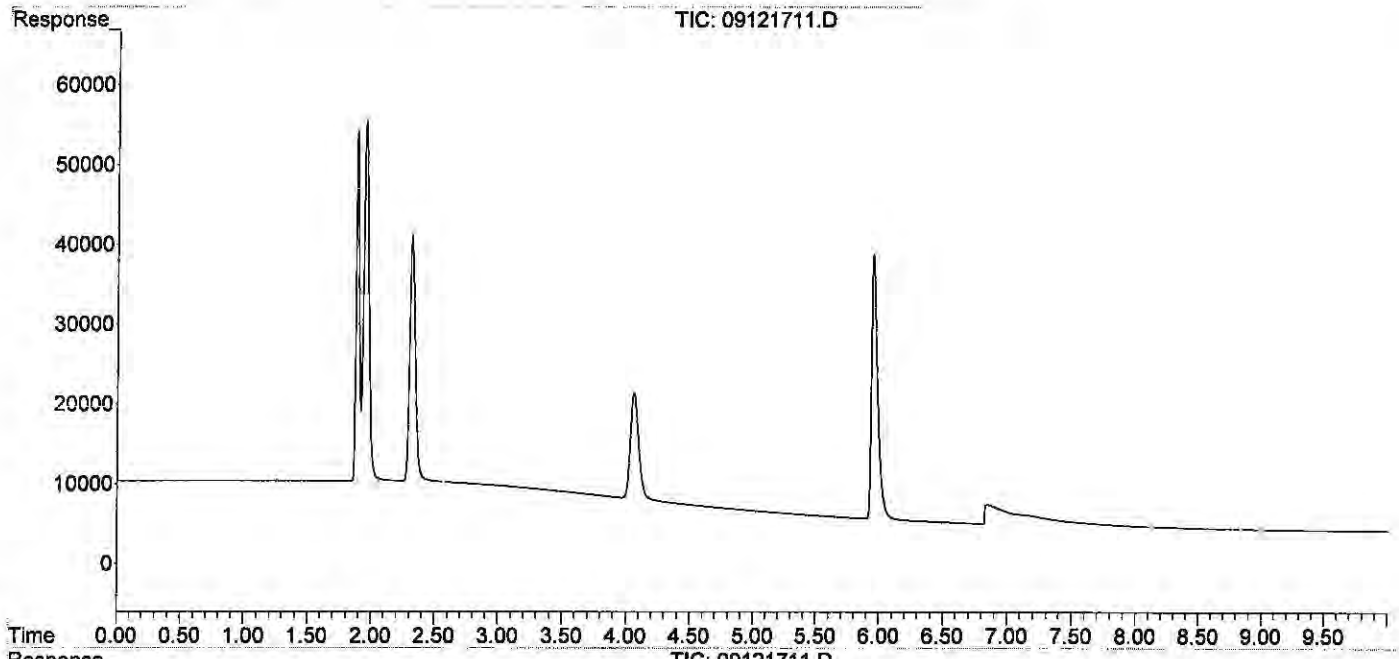
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	0.000	0	N.D.	ppm	d
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	0.000	0	N.D.	ppm	d
6)	Methane (FID)	1.059	35776839	3925.122	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

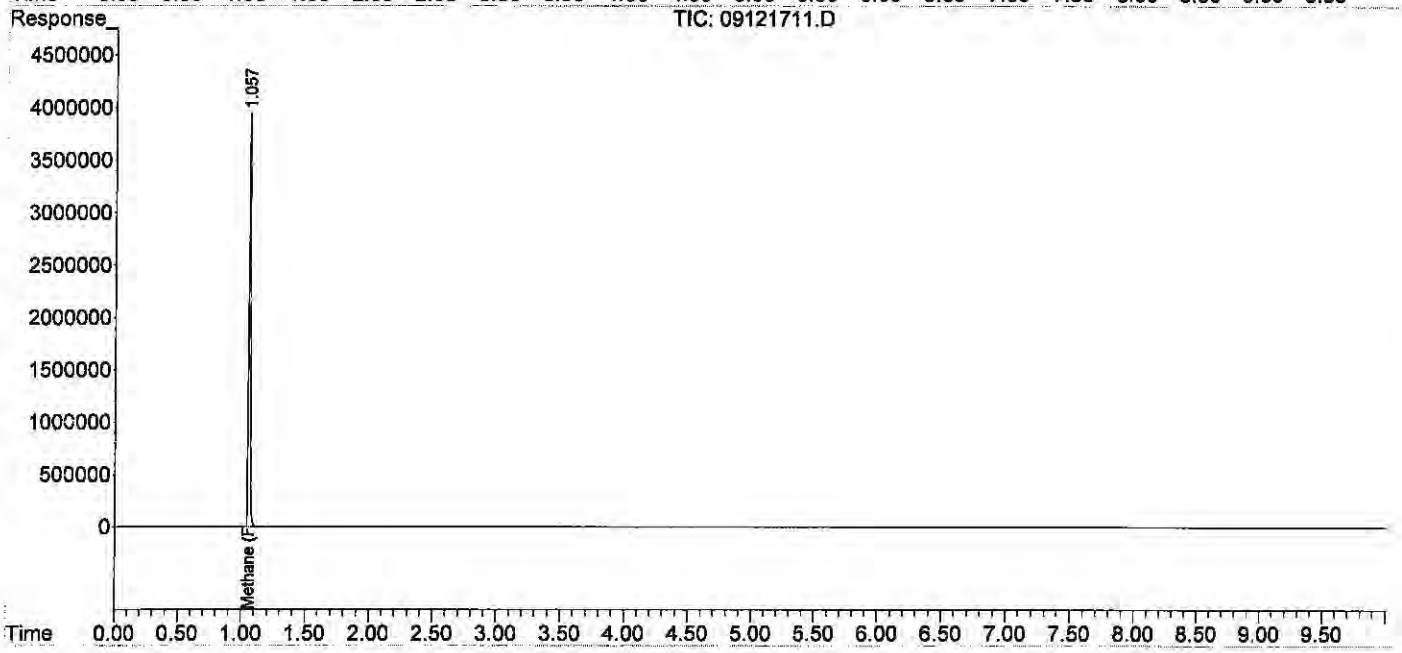
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121711.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:48
Operator : MC
Sample : 4000ppm 0.1ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:13:37 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121712.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 15:21
Operator : MC
Sample : 20000ppm 0.5ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:14:17 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

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

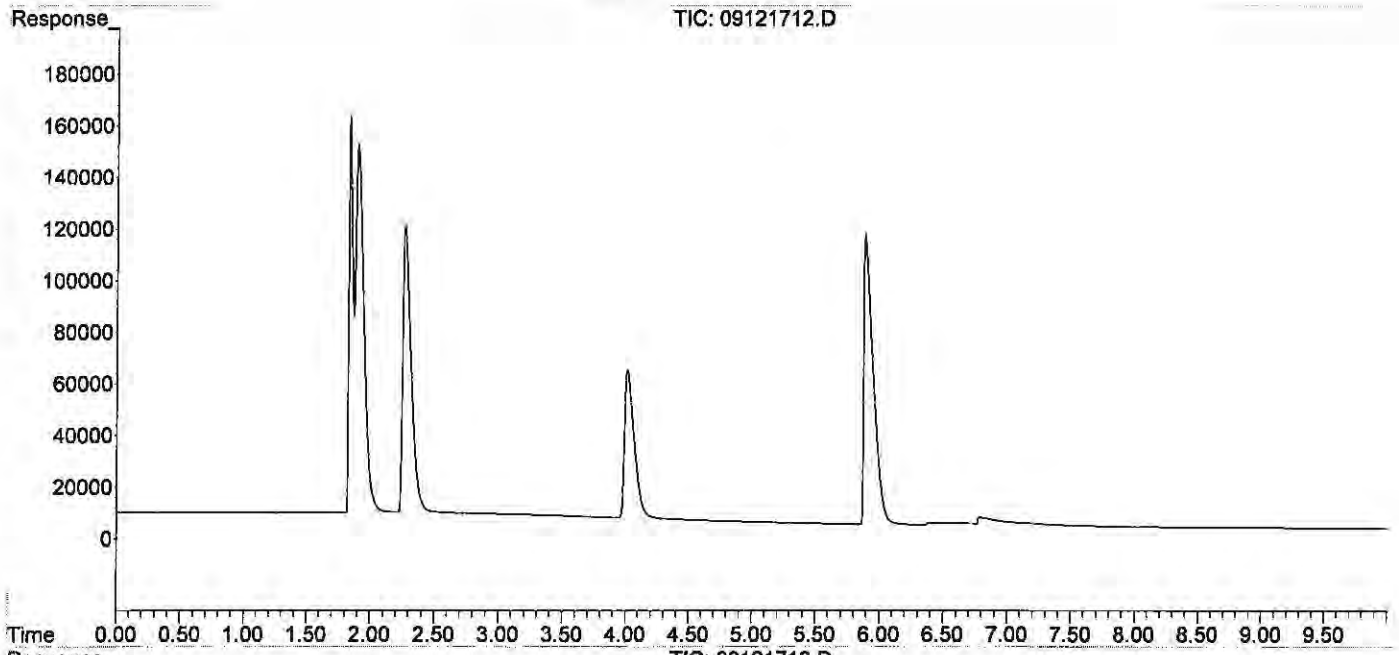
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.836	3190788	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	0.000	0	N.D.	ppm	d
6)	Methane (FID)	1.034	169009160	18492.064	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

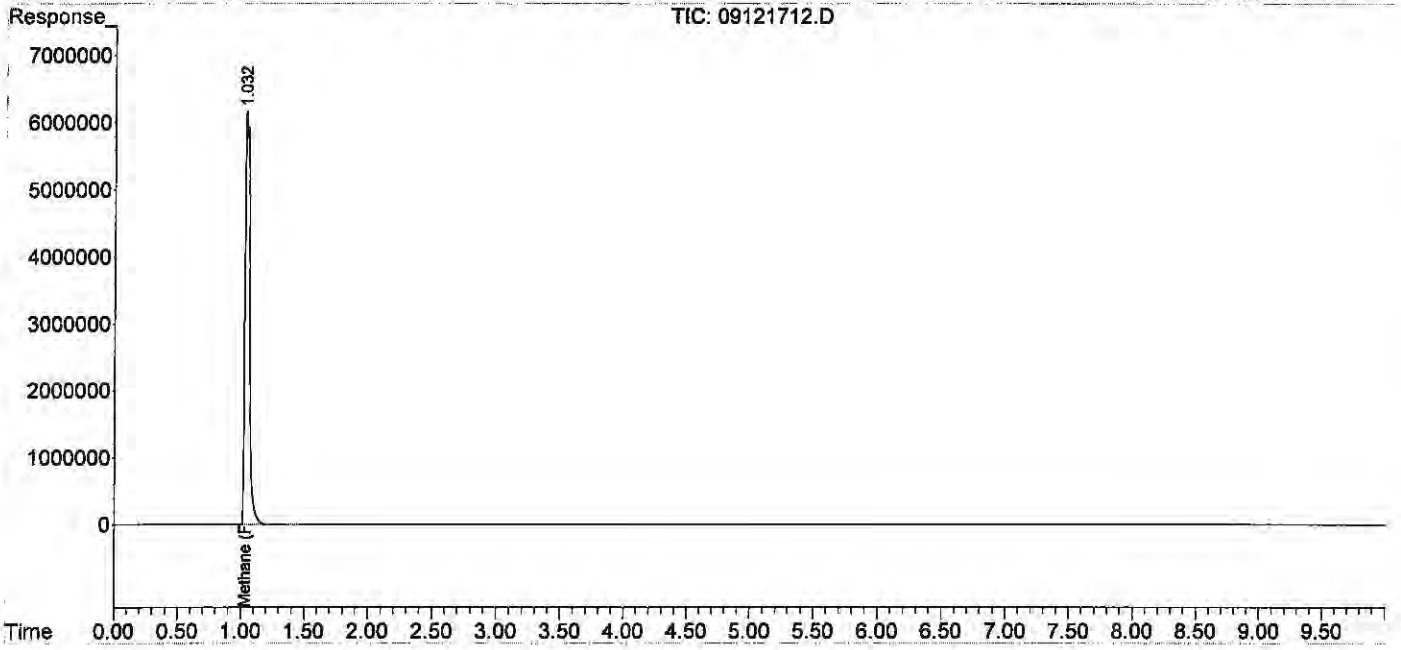
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121712.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 15:21
Operator : MC
Sample : 20000ppm 0.5ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:14:17 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 16:15
Operator : MC
Sample : icv s30-05241604
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:15:11 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.843	2922459	3.687	ppm	
2)	Carbon monoxide	1.843	2922459	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	actual %D
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.063	13748	1.516	ppm	1510 1.50 101.1
7)	Ethylene	1.598	24153	1.443	ppm	1490 1.50 96.2
8)	Ethane	1.850	24488	1.445	ppm	1500 1.50 96.3
9)	Propylene	4.221	36004	1.537	ppm	1490 1.50 102.5
10)	Propane	4.350	37738	1.517	ppm	1511 1.51 100.5
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	6.579f	48019	1.804	ppm	9/14/2
13)	n-Butane	6.579f	48019	1.804	ppm	

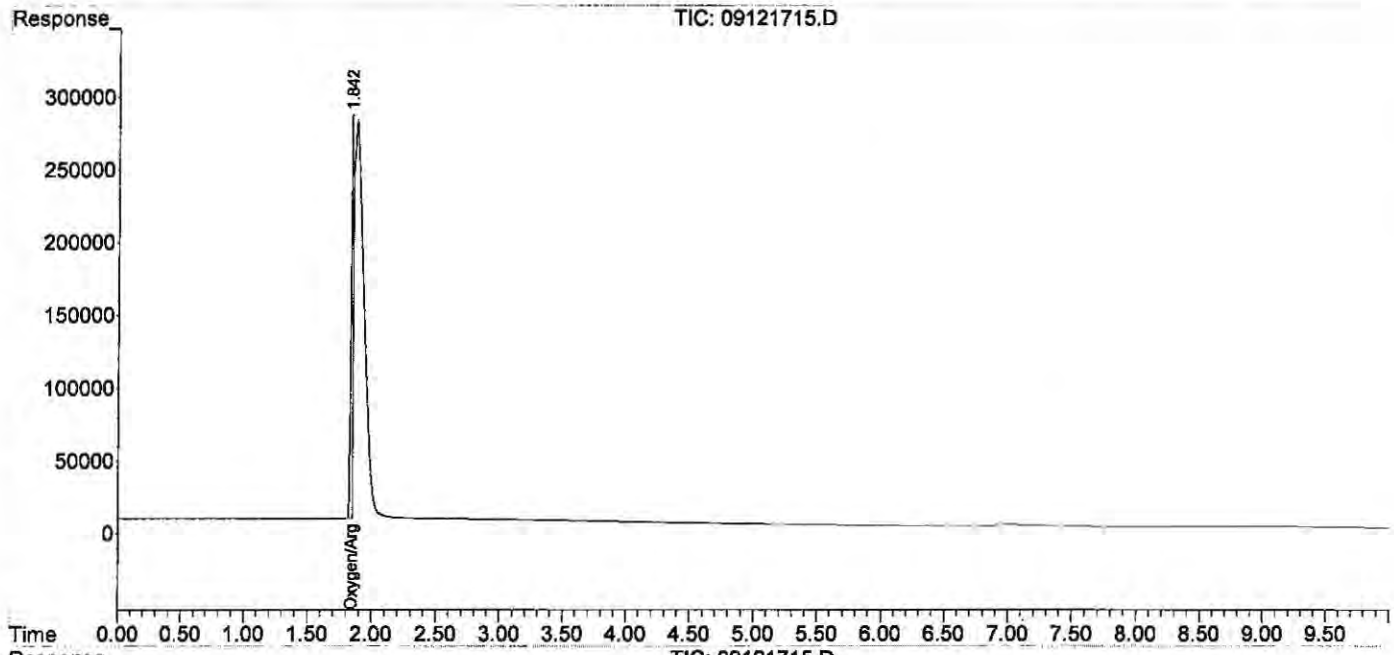
(f)=RT Delta > 1/2 Window (m)=manual int.

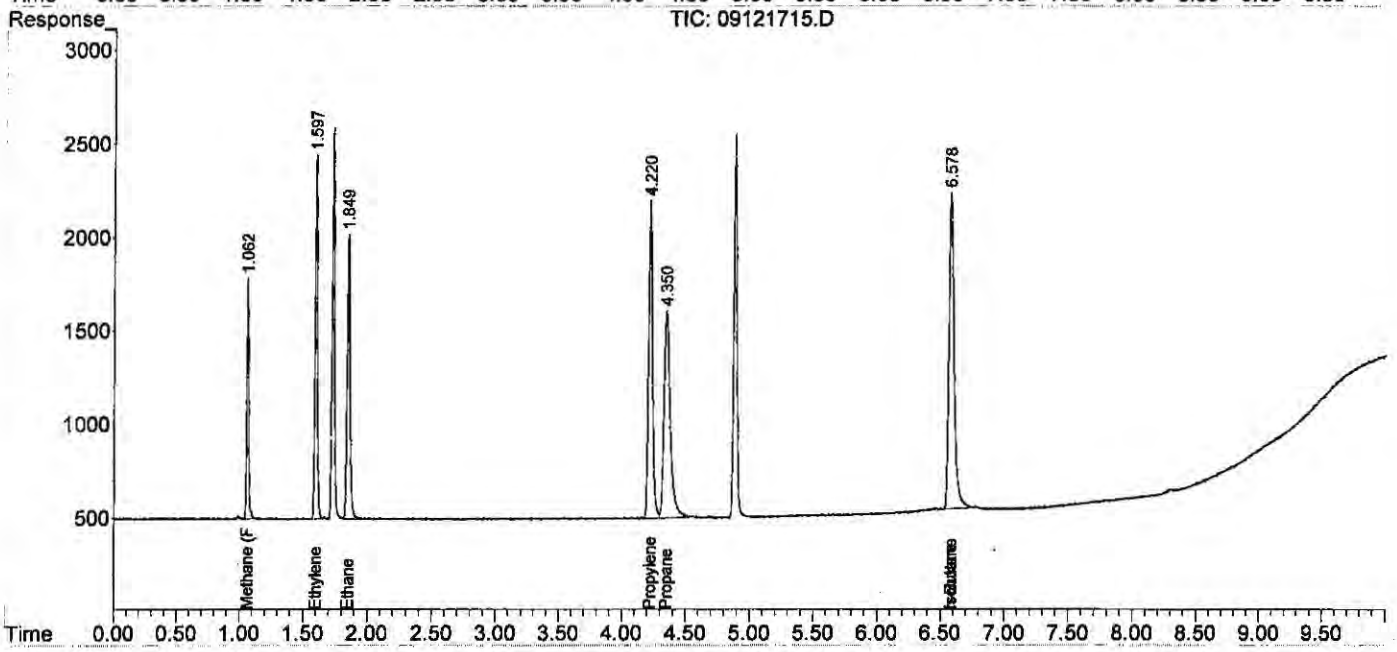
9/14/2017

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 16:15
Operator : MC
Sample : icv s30-05241604
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:15:11 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

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





ALS Environmental

Method : RSK175 Headspace Method for Dissolved Hydrocarbon in Water by FID/TCD
Client : ALS Laboratory Group
Service Request: P1901501
Sample Vol. (ml) : 32.00 ml
Analyst : WH
Date Analysis : 03/28/19
Head Space Vol.(ml) : 8.00 ml
Instrument : GC#10
Detector : FID#10, TCD#10
Gas Constant : 24.05684 (20°C)

HEAD SPACE RESULT (ppm)

Sample ID	Inj. Vol.	Methane	Ethylene	Ethane
std s32-07231801	0.100	1.549	1.567	1.509
ACTUAL		1.51	1.51	1.51
%Difference		2.6%	3.8%	0.1%
mcs 0.1ml	0.100	0.118	0.000	0.000
rb 0.1ml	0.100	0.000	0.000	0.000
fid lcs s30-05241604	0.100	1.369	0.986	1.230
fid lcsd s30-05241604	0.100	1.368	0.965	1.215
P1901501-001 0.1ml	0.100	237.172	0.000	0.000
P1901501-002 0.1ml	0.100	4.086	0.000	0.000
P1901501-003 0.1ml	0.100	0.676	0.000	0.000
P1901501-004 0.1ml	0.100	139.468	5.642	0.137
P1901501-005 0.1ml	0.100	1652.59	0.000	0.000
P1901501-006 0.1ml	0.100	1530.32	0.000	0.000
P1901501-007 0.1ml	0.100	438.718	0.212	0.042
P1901501-007ms 0.1ml	0.100	279.496	0.723	0.687
P1901501-007msd 0.1ml	0.100	327.310	0.722	0.668
std s32-07231801		1.700	1.699	1.654
ACTUAL		1.51	1.51	1.51
%Difference		12.6%	12.5%	9.5%

FINAL HEAD SPACE RESULT (ppm)

	Methane	Ethylene	Ethane
WWt.	16.04	28.05	30.07
HENRY'S CONSTANT	3.76E+04	1.02E+04	2.63E+04
RL	1.30	1.00	0.60
mcs 0.1ml	1.180	0.000	0.000
fid lcs s30-05241604	13.690	9.860	12.300
fid lcsd s30-05241604	13.680	9.650	12.150
P1901501-001 0.1ml	2371.720	0.000	0.000
P1901501-002 0.1ml	40.860	0.000	0.000
P1901501-003 0.1ml	6.760	0.000	0.000
P1901501-004 0.1ml	1394.680	56.420	1.370
P1901501-005 0.1ml	16525.94	0.000	0.000
P1901501-006 0.1ml	15303.23	0.000	0.000
P1901501-007 0.1ml	4387.180	2.120	0.420
P1901501-007ms 0.1ml	2794.960	7.230	6.870
P1901501-007msd 0.1ml	3273.100	7.220	6.680

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281901.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 09:14:34
Operator : WH
Sample : std s32-07231801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 10:27:04 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

3/28/19

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

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.116	14049	1.549	ppm
7)	Ethylene	1.679	26230	1.567	ppm
8)	Ethane	1.943	25575	1.509	ppm
9)	Propylene	4.319	36673	1.565	ppm
10)	Propane	4.443	37576	1.510	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.652	49435	1.857	ppm
13)	n-Butane	6.652	49435	1.857	ppm

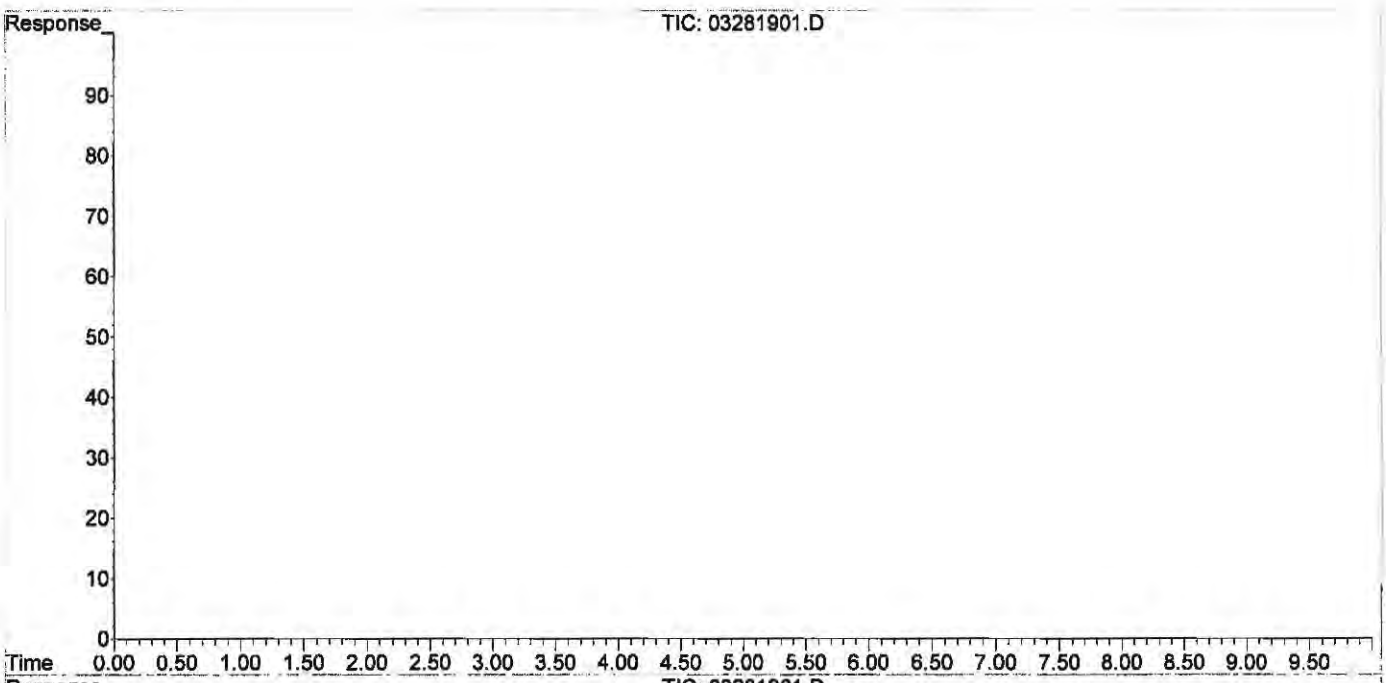
(f)=RT Delta > 1/2 Window (m)=manual int.

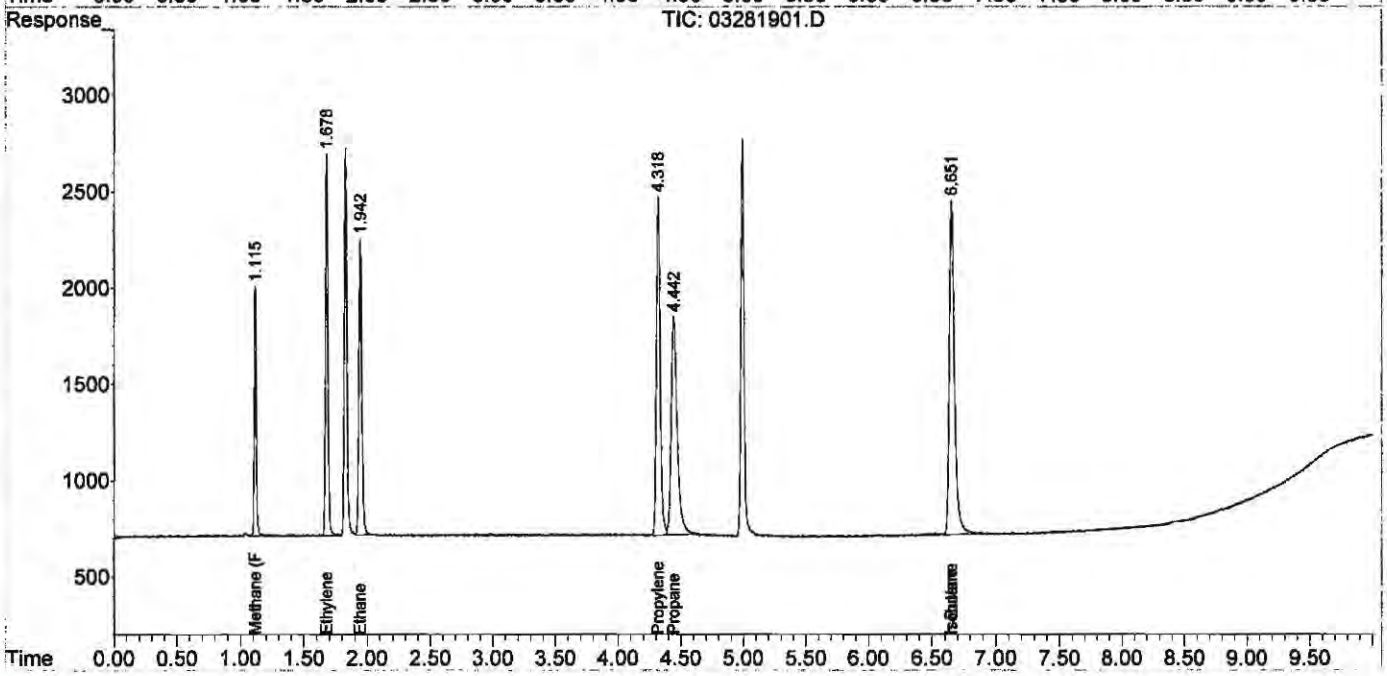
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281901.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 09:14:34
Operator : WH
Sample : std s32-07231801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 10:27:04 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281917.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 12:49:37
Operator : WH
Sample : std s32-07231801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 14:07:37 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.932f	3331050	4.203	ppm
2)	Carbon monoxide	1.932f	3331050	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.115	15419	1.700	ppm
7)	Ethylene	1.678	28436	1.699	ppm
8)	Ethane	1.941	28027	1.654	ppm
9)	Propylene	4.315	40696	1.737	ppm
10)	Propane	4.439	42069	1.691	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.649	56171	2.110	ppm
13)	n-Butane	6.649	56171	2.110	ppm

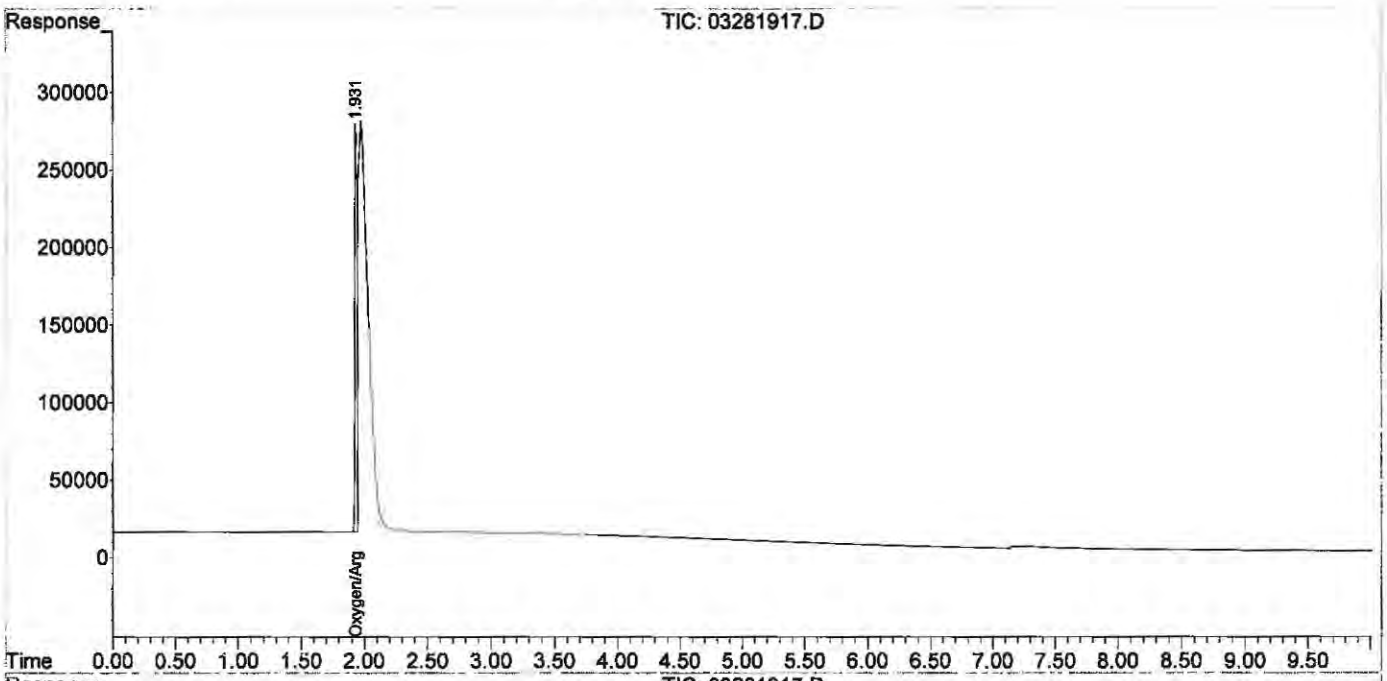
(f)=RT Delta > 1/2 Window (m)=manual int.

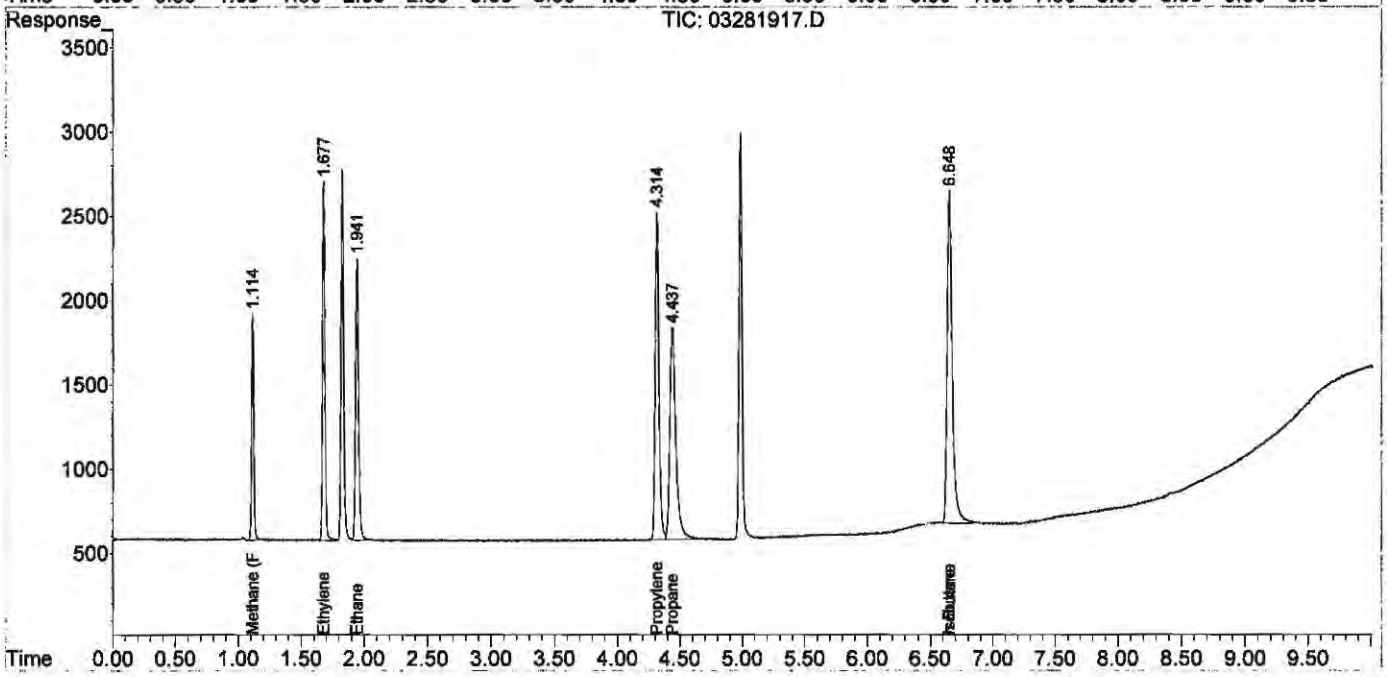
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_03\28\
Data File : 03281917.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 28-Mar-2019, 12:49:37
Operator : WH
Sample : std s32-07231801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Mar 28 14:07:37 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Injection Log

Directory: I:\GC10\DATA\RSK_FID\2017_09\12\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Acquisition Method	Comments
1	12-Sep-17, 08:38:08	09121701.D	test		MC	RSKBOTH.M	
2	12-Sep-17, 10:52:40	09121702.D	0.151ppm 0.250ml s32-09121702		MC	RSKBOTH.M	Curve
3	12-Sep-17, 11:05:49	09121703.D	0.302ppm 0.5ml s32-09121702		MC	RSKBOTH.M	Curve
4	12-Sep-17, 11:45:34	09121704.D	1.51ppm 0.1ml s32-09051701		MC	RSKBOTH.M	Curve
5	12-Sep-17, 12:09:33	09121705.D	4.53ppm 0.3ml s32-09051701		MC	RSKBOTH.M	Curve
6	12-Sep-17, 12:30:23	09121706.D	10.57ppm 0.7ml s32-09051701		MC	RSKBOTH.M	Curve
7	12-Sep-17, 12:47:18	09121707.D	200ppm 0.1ml s32-09121701		MC	RSKBOTH.M	Curve
8	12-Sep-17, 13:00:22	09121708.D	600ppm 0.3ml s32-09121701		MC	RSKBOTH.M	Curve
9	12-Sep-17, 13:47:48	09121709.D	1000ppm 0.5ml s32-09121701		MC	RSKBOTH.M	Curve
10	12-Sep-17, 14:07:58	09121710.D	2000ppm 1ml s32-09121701		MC	RSKBOTH.M	Curve
11	12-Sep-17, 14:48:48	09121711.D	4000ppm 0.1ml s32-08231701		MC	RSKBOTH.M	Curve
12	12-Sep-17, 15:21:51	09121712.D	20000ppm 0.5ml s32-08231701		MC	RSKBOTH.M	Curve
13	12-Sep-17, 15:38:59	09121713.D	mb 0.5ml		MC	RSKBOTH.M	Pass
14	12-Sep-17, 15:55:35	09121714.D	mb 0.1ml		MC	RSKBOTH.M	Pass
15	12-Sep-17, 16:15:26	09121715.D	icv s30-05241604		MC	RSKBOTH.M	Pass

Injection Log

Directory: I:\GC10\DATA\RSK_FID\2019_03\28\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Acquisition Method	Comments
1	28-Mar-19, 09:14:34	03281901.D	std s32-07231801		WH	RSKBOTH.M	pass
2	28-Mar-19, 09:30:11	03281902.D	std s32-01311901		WH	RSKBOTH.M	pass
3	28-Mar-19, 09:44:40	03281903.D	rb 0.1ml		WH	RSKBOTH.M	pass
4	28-Mar-19, 09:56:00	03281904.D	mcs 0.1ml		WH	RSKBOTH.M	pass
5	28-Mar-19, 10:12:33	03281905.D	P1901501-001 0.1ml		WH	RSKBOTH.M	
6	28-Mar-19, 10:26:53	03281906.D	P1901501-002 0.1ml		WH	RSKBOTH.M	
7	28-Mar-19, 10:34:24	03281907.D	P1901501-003 0.1ml		WH	RSKBOTH.M	
8	28-Mar-19, 10:47:38	03281908.D	P1901501-004 0.1ml		WH	RSKBOTH.M	
9	28-Mar-19, 10:59:22	03281909.D	P1901501-005 0.1ml		WH	RSKBOTH.M	
10	28-Mar-19, 11:07:53	03281910.D	P1901501-006 0.1ml		WH	RSKBOTH.M	
11	28-Mar-19, 11:21:11	03281911.D	P1901501-007 0.1ml		WH	RSKBOTH.M	
12	28-Mar-19, 11:31:06	03281912.D	P1901501-007ms 0.1ml		WH	RSKBOTH.M	
13	28-Mar-19, 11:44:22	03281913.D	P1901501-007msd 0.1ml		WH	RSKBOTH.M	
14	28-Mar-19, 11:57:36	03281914.D	fid lcs s30-05241604		WH	RSKBOTH.M	
15	28-Mar-19, 12:18:46	03281915.D	fid lcs s30-05241604		WH	RSKBOTH.M	pass
16	28-Mar-19, 12:30:50	03281916.D	fid lcsd s30-05241604		WH	RSKBOTH.M	pass
17	28-Mar-19, 12:49:37	03281917.D	std s32-07231801		WH	RSKBOTH.M	pass
18	28-Mar-19, 13:09:50	03281918.D	std s32-01311901		WH	RSKBOTH.M	pass
19	28-Mar-19, 13:36:52	03281919.D	mcs 0.1ml		WH	RSKBOTH.M	pass
20	28-Mar-19, 13:46:41	03281920.D	lcs tcd S32-10081801		WH	RSKBOTH.M	pass
21	28-Mar-19, 14:17:53	03281921.D	lcsd tcd S32-10081801		WH	RSKBOTH.M	pass
22	28-Mar-19, 14:46:07	03281922.D	P1901501-001 50ul		WH	RSKBOTH.M	
23	28-Mar-19, 14:59:14	03281923.D	P1901501-002 50ul		WH	RSKBOTH.M	
24	28-Mar-19, 15:12:57	03281924.D	P1901501-003 50ul		WH	RSKBOTH.M	
25	28-Mar-19, 15:25:25	03281925.D	P1901501-004 50ul		WH	RSKBOTH.M	
26	28-Mar-19, 15:36:07	03281926.D	P1901501-005 50ul		WH	RSKBOTH.M	
27	28-Mar-19, 15:56:58	03281927.D	P1901501-006 50ul		WH	RSKBOTH.M	
28	28-Mar-19, 16:08:13	03281928.D	P1901501-007 50ul		WH	RSKBOTH.M	
29	28-Mar-19, 16:23:34	03281929.D	P1901501-007ms 50ul		WH	RSKBOTH.M	
30	28-Mar-19, 16:41:20	03281930.D	P1901501-007msd 50ul		WH	RSKBOTH.M	
31	28-Mar-19, 16:57:30	03281931.D	std s32-01311901		WH	RSKBOTH.M	pass
32	28-Mar-19, 17:49:38	03281932.D	loq		WH	RSKBOTH.M	
33	28-Mar-19, 18:01:49	03281933.D	loq		WH	RSKBOTH.M	
34	28-Mar-19, 18:21:24	03281934.D	lod		WH	RSKBOTH.M	

HS19031013 8260 Raw Data

ALS WO# HS19031013

MSVOA06 -Logbook

Batch: 34473
Date: 03-14-2019
Method: 8260
Comments:

Analyst: Presenta Cabascango
Reviewer:
Laboratory: Houston

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	E
1	BFB	TUNE	03-14-2019 11:09 am	1.00	50 mL	50 mL	X031401.D	Liquid	Y	N
	Auto find/ puregd									
2	VSTD000.25	ICAL1	03-14-2019 11:33 am	1.00	50 mL	50 mL	X031402.D	Liquid	Y	N
	0.1 uL cal std/100 mL DI									
3	VSTD000.5	ICAL2	03-14-2019 11:57 am	1.00	50 mL	50 mL	X031403.D	Liquid	Y	N
	0.10 uL cal std/50 mL DI									
4	VSTD001	ICAL3	03-14-2019 12:44 pm	1.00	50 mL	50 mL	X031404.D	Liquid	Y	N
	0.20 uL cal std/50 mL DI									
5	VSTD002	ICAL4	03-14-2019 01:08 pm	1.00	50 mL	50 mL	X031405.D	Liquid	Y	N
	0.40 uL cal std/50 mL DI									
6	VSTD005	ICAL5	03-14-2019 01:32 pm	1.00	50 mL	50 mL	X031406.D	Liquid	Y	N
	1.0 uL cal std/50 mL DI									
7	VSTD020	ICAL6	03-14-2019 01:56 pm	1.00	50 mL	50 mL	X031407.D	Liquid	Y	N
	4.0 uL cal std/50 mL DI									
8	VSTD050	ICAL7	03-14-2019 02:20 pm	1.00	50 mL	50 mL	X031408.D	Liquid	Y	N
	10 uL cal std/50 mL DI									
9	VSTD100	ICAL8	03-14-2019 02:44 pm	1.00	50 mL	50 mL	X031409.D	Liquid	Y	N
	20 uL cal std/50 mL DI									
10	VSTD150	ICAL9	03-14-2019 03:08 pm	1.00	50 mL	50 mL	X031410.D	Liquid	Y	N
	30 uL cal std/50 mL DI									
11	VSTD200	ICAL	03-14-2019 03:32 pm	1.00	50 mL	50 mL	X031411.D	Liquid	Y	N
	40 uL cal std/50 mL DI									
12	BLANK	SAMP	03-14-2019 03:56 pm	1.00	50 mL	50 mL	X031412.D	Liquid	Y	N
	clean up blank									
13	ICV	ICV	03-14-2019 04:20 pm	1.00	50 mL	50 mL	X031413.D	Liquid	Y	N
	10 uL ical std/50 mL DI									
14	BFB	TUNE	03-14-2019 05:08 pm	1.00	50 mL	50 mL	Y031401.D	Liquid	Y	N
	Auto find/ purged									
15	CCV	SAMP	03-14-2019 05:32 pm	1.00	50 mL	50 mL	Y031402a.D	Liquid	Y	N
	10 uL cal std/50 mL DI/ not used									
16	CCV	CCV	03-14-2019 05:56 pm	1.00	50 mL	50 mL	Y031403.D	Liquid	Y	N
	10 uL cal std/50 mL DI									
17	CCB	SAMP	03-14-2019 06:20 pm	1.00	50 mL	50 mL	Y031404.D	Liquid	Y	N
18	VLCSW-190314	LCS	03-14-2019 06:44 pm	1.00	50 mL	50 mL	Y031405.D	Liquid	Y	N
	4.0 uL cal std/50 mL DI									
19	BLANK	SAMP	03-14-2019 07:08 pm	1.00	50 mL	50 mL	Y031406.D	Liquid	Y	N
20	BLANK	SAMP	03-14-2019 07:32 pm	1.00	50 mL	50 mL	Y031407.D	Liquid	Y	N
21	VBLKW-190314	MBLK	03-14-2019 07:56 pm	1.00	50 mL	50 mL	Y031408.D	Liquid	Y	N
22	HS19030400-04	SAMP	03-14-2019 08:20 pm	1.00	50 mL	50 mL	Y031409.D	Liquid	Y	≥
23	HS19030400-18	SAMP	03-14-2019 08:44 pm	1.00	50 mL	50 mL	Y031410.D	Liquid	Y	≥
24	HS19030400-07	SAMP	03-14-2019 09:08 pm	1.00	50 mL	50 mL	Y031411.D	Liquid	Y	≥
25	HS19030400-01	SAMP	03-14-2019 09:32 pm	1.00	50 mL	50 mL	Y031412.D	Liquid	Y	≥
26	HS19030400-07MS	MS	03-14-2019 09:56 pm	1.00	50 mL	50 mL	Y031413.D	Liquid	Y	≥
	3.5 uL cal std/40 mL samp									
27	HS19030400-07MSD	MSD	03-14-2019 10:20 pm	1.00	50 mL	50 mL	Y031414.D	Liquid	Y	≥
	3.5 uL cal std/40 mL samp									
28	HS19030400-01	SAMP	03-14-2019 10:44 pm	5.00	10 mL	50 mL	Y031415.D	Liquid	Y	≥
29	HS19030665-07	SAMP	03-14-2019 11:08 pm	5.00	10 mL	50 mL	Y031416.D	Liquid	Y	≥
30	HS19030400-02	SAMP	03-14-2019 11:32 pm	1.00	50 mL	50 mL	Y031417.D	Liquid	Y	≥
31	HS19030400-03	SAMP	03-14-2019 11:57 pm	1.00	50 mL	50 mL	Y031418.D	Liquid	Y	≥

MSVOA06 -Logbook

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	E
32	HS19030400-05	SAMP	03-15-2019 12:21 am	1.00	50 mL	50 mL	Y031419.D	Liquid	Y	>
33	HS19030400-06	SAMP	03-15-2019 12:45 am	1.00	50 mL	50 mL	Y031420.D	Liquid	Y	>
34	HS19030400-08	SAMP	03-15-2019 01:09 am	1.00	50 mL	50 mL	Y031421.D	Liquid	Y	>
35	HS19030400-10	SAMP	03-15-2019 01:33 am	1.00	50 mL	50 mL	Y031422.D	Liquid	Y	>
36	HS19030400-11	SAMP	03-15-2019 01:57 am	1.00	50 mL	50 mL	Y031423.D	Liquid	Y	>
37	HS19030400-14	SAMP	03-15-2019 02:21 am	1.00	50 mL	50 mL	Y031424.D	Liquid	Y	>
38	HS19030400-09	SAMP	03-15-2019 02:45 am	1.00	50 mL	50 mL	Y031425.D	Liquid	Y	>
39	HS19030400-12DL	SAMP	03-15-2019 03:09 am	5.00	10 mL	50 mL	Y031426.D	Liquid	Y	>
40	HS19030400-12	SAMP	03-15-2019 03:33 am	25.00	2 mL	50 mL	Y031427.D	Liquid	Y	>
41	HS19030400-13	SAMP	03-15-2019 03:57 am	25.00	2 mL	50 mL	Y031428.D	Liquid	Y	>
42	HS19030400-13DL	SAMP	03-15-2019 04:21 am	5.00	10 mL	50 mL	Y031429.D	Liquid	Y	N
43	CCV-END	SAMP	03-15-2019 04:45 am	1.00	50 mL	50 mL	Y031430.D	Liquid	Y	N

10 uL cal std/50 mL DI

Chemical	Value
SURR SPK ID	30502-65-03
IS ID	30502-65-04
ICV STD ID	30603-58-01
LCS/MS ID	30502-68-01/02
CAL STD ID	30603-58-01
BFB ID	30502-65-03
pH Paper	634-40-13

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS19031013

Matrix Spike - Sample No.: ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
cis-1,3-Dichloropropene	50.00	49.41	99	80-120
trans-1,3-Dichloroprope	50.00	50.99	102	80-120
1,3-Dichlorobenzene	50.00	46.39	93	80-120
2,2-Dichloropropane	50.00	47.72	95	80-120
1,1-Dichloropropene	50.00	43.76	88	80-120
Dibromomethane	50.00	47.53	95	80-120
1,2-Dibromoethane	50.00	48.81	98	80-120
trans-1,2-Dichloroethen	50.00	47.93	96	80-120
1,1,1,2-Tetrachloroetha	50.00	49.11	98	80-120
1,1,1-Trichloroethane	50.00	46.00	92	80-120
1,1,2,2-Tetrachloroetha	50.00	47.55	95	80-120
1,1,2-Trichloroethane	50.00	47.95	96	80-120
1,1-Dichloroethane	50.00	46.85	94	80-120
1,1-Dichloroethene	50.00	46.44	93	80-120
Trichloroethene	50.00	46.49	93	80-120
1,2,3-Trichlorobenzene	50.00	46.88	94	80-120
Trichlorofluoromethane	50.00	46.29	92	80-120
1,2,4-Trichlorobenzene	50.00	47.65	95	80-120
1,2,4-Trimethylbenzene	50.00	46.27	92	80-120
Tetrachloroethene	50.00	44.64	89	80-120
1,2-Dichlorobenzene	50.00	46.56	93	80-120
1,2-Dichloroethane	50.00	46.77	94	80-120
1,2-Dichloropropane	50.00	47.38	95	80-120
1,3,5-Trimethylbenzene	50.00	45.37	91	80-120
1,3-Dichloropropane	50.00	47.78	96	80-120
1,4-Dichlorobenzene	50.00	46.47	93	80-120
Toluene	50.00	47.30	95	80-120
2-Butanone	100.00	100.69	101	80-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

_____

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS19031013

Matrix Spike - Sample No.: ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
2-Chlorotoluene	50.00	45.31	91	80-120
2-Hexanone	100.00	97.71	98	80-120
4-Chlorotoluene	50.00	46.00	92	80-120
tert-Butylbenzene	50.00	43.02	86	80-120
4-Methyl-2-Pentanone	100.00	94.37	94	80-120
Acetone	100.00	100.98	101	80-120
Benzene	50.00	47.54	95	80-120
Bromobenzene	50.00	47.52	95	80-120
Bromochloromethane	50.00	46.72	93	80-120
Bromodichloromethane	50.00	48.52	97	80-120
Bromoform	50.00	48.53	97	80-120
Bromomethane	50.00	59.21	118	80-120
Carbon Disulfide	100.00	94.71	95	80-120
Carbon Tetrachloride	50.00	44.50	89	80-120
Chlorobenzene	50.00	47.50	95	80-120
Chloroethane	50.00	46.72	93	80-120
Chloroform	50.00	46.84	94	80-120
Chloromethane	50.00	46.87	94	80-120
cis-1,2-Dichloroethene	50.00	46.82	94	80-120
Dibromochloromethane	50.00	49.86	100	80-120
Dichlorodifluoromethane	50.00	45.80	92	80-120
Ethylbenzene	50.00	46.95	94	80-120
Hexachlorobutadiene	50.00	51.65	103	80-120
Isopropylbenzene	50.00	44.55	89	80-120
m,p-Xylenes	100.00	93.23	93	80-120
Methylene Chloride	50.00	48.42	97	80-120
n-Butylbenzene	50.00	45.45	91	80-120
n-Propylbenzene	50.00	44.83	90	80-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

_____

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS19031013

Matrix Spike - Sample No.: ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
Naphthalene	50.00	49.30	99	80-120
o-Xylene	50.00	47.71	95	80-120
sec-Butylbenzene	50.00	43.04	86	80-120
Styrene	50.00	50.09	100	80-120
Vinyl Chloride	50.00	45.01	90	80-120
1,2,3-Trichloropropane	50.00	47.77	96	80-120
p-Isopropyltoluene	50.00	44.63	89	80-120
1,2-Dibromo-3-Chloropro	50.00	51.38	103	80-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

_____

FORM III VOA

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS19031013

Lab File ID: X031401 BFB Injection Date: 03/14/19

Instrument ID: VOA6 BFB Injection Time: 1109

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	21.5
75	30.0 - 60.0% of mass 95	53.3
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.5
173	Less than 2.0% of mass 174	0.5 (0.7)1
174	Greater than 50.0% of mass 95	69.5
175	5.0 - 9.0% of mass 174	5.3 (7.6)1
176	95.0 - 101.0% of mass 174	67.5 (97.2)1
177	5.0 - 9.0% of mass 176	4.7 (7.0)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD000.25	VSTD000.25	X031402	03/14/19	1133
02	VSTD000.5	VSTD000.5	X031403	03/14/19	1157
03	VSTD001	VSTD001	X031404	03/14/19	1244
04	VSTD002	VSTD002	X031405	03/14/19	1308
05	VSTD005	VSTD005	X031406	03/14/19	1332
06	VSTD020	VSTD020	X031407	03/14/19	1356
07	VSTD050	VSTD050	X031408	03/14/19	1420
08	VSTD100	VSTD100	X031409	03/14/19	1444
09	VSTD150	VSTD150	X031410	03/14/19	1508
10	VSTD200	VSTD200	X031411	03/14/19	1532
11	ICV	ICV	X031413	03/14/19	1620
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS19031013

Instrument ID: VOA6 Calibration Date(s): 03/14/19 03/14/19

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1133 1532

LAB FILE ID: RF0.25: X031402 RF0.5: X031403 RF1: X031404
RF2: X031405 RF5: X031406 RF20: X031407

COMPOUND	RF0.25	RF0.5	RF1	RF2	RF5	RF20
cis-1,3-Dichloropropene		0.603	0.564	0.537	0.526	0.549
trans-1,3-Dichloropropene		0.432	0.448	0.437	0.423	0.449
1,3-Dichlorobenzene		1.582	1.686	1.554	1.436	1.466
2,2-Dichloropropane		0.788	0.779	0.704	0.654	0.681
1,1-Dichloropropene		0.561	0.500	0.480	0.384	0.415
Dibromomethane		0.223	0.216	0.211	0.210	0.208
1,2-Dibromoethane		0.323	0.350	0.341	0.321	0.327
trans-1,2-Dichloroethene		0.462	0.489	0.489	0.442	0.470
1,1,1,2-Tetrachloroethane		0.330	0.360	0.341	0.319	0.331
1,1,1-Trichloroethane		0.817	0.776	0.750	0.647	0.697
1,1,2,2-Tetrachloroethane		0.869	0.880	0.837	0.792	0.793
1,1,2-Trichloroethane		0.305	0.277	0.294	0.271	0.271
1,1-Dichloroethane		1.025	0.985	0.918	0.865	0.910
1,1-Dichloroethene		0.499	0.436	0.448	0.367	0.407
Trichloroethene		0.397	0.379	0.359	0.321	0.337
1,2,3-Trichlorobenzene		0.418	0.348	0.342	0.337	0.340
Trichlorofluoromethane		3725	7958	15375	29483	133610
1,2,4-Trichlorobenzene		0.621	0.648	0.631	0.596	0.604
1,2,4-Trimethylbenzene		2.499	2.536	2.425	2.181	2.338
Tetrachloroethene		0.338	0.334	0.316	0.268	0.286
1,2-Dichlorobenzene		1.558	1.503	1.507	1.343	1.391
1,2-Dichloroethane		0.431	0.452	0.453	0.429	0.413
1,2-Dichloropropane		0.387	0.386	0.364	0.330	0.337
1,3,5-Trimethylbenzene		2.416	2.472	2.397	2.159	2.325
1,3-Dichloropropane		0.603	0.612	0.572	0.544	0.544
1,4-Dichlorobenzene		1.726	1.719	1.583	1.412	1.482
Toluene		1.572	1.584	1.525	1.398	1.425
2-Butanone		0.163	0.154	0.133	0.168	0.189
2-Chlorotoluene		2.502	2.311	2.194	1.962	2.024
2-Hexanone		0.215	0.186	0.184	0.190	0.197
4-Chlorotoluene		2.658	2.685	2.464	2.216	2.324
tert-Butylbenzene		2.347	2.260	2.145	1.802	1.955
4-Methyl-2-Pentanone		0.327	0.316	0.297	0.288	0.298
Acetone		5365	6603	8911	16151	52205
Benzene		1.423	1.354	1.270	1.200	1.244
Bromobenzene		0.891	0.920	0.878	0.808	0.843
Bromochloromethane		0.287	0.312	0.298	0.268	0.272
Bromodichloromethane		0.436	0.436	0.441	0.404	0.418
Bromoform		1344	3505	6589	15617	65679
Bromomethane		2332	4965	7815	17098	61792
Carbon Disulfide		1.599	1.531	1.495	1.292	1.409
Carbon Tetrachloride		3862	7557	12783	23333	101790
Chlorobenzene		1.110	1.065	1.013	0.910	0.936
Chloroethane		0.366	0.417	0.388	0.335	0.352

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS1903101

Instrument ID: VOA6 Calibration Date(s): 03/14/19 03/14/19

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1133 1532

LAB FILE ID: RF0.25: X031402 RF0.5: X031403 RF1: X031404
RF2: X031405 RF5: X031406 RF20: X031407

COMPOUND	RF0.25	RF0.5	RF1	RF2	RF5	RF20
Chloroform		0.957	0.945	0.919	0.862	0.874
Chloromethane		4606	9688	18061	38315	146979
cis-1,2-Dichloroethene		0.625	0.589	0.572	0.526	0.549
Dibromochloromethane		0.346	0.366	0.353	0.339	0.356
Dichlorodifluoromethane		2522	4945	9465	18712	86280
Ethylbenzene		0.526	0.503	0.500	0.452	0.471
Hexachlorobutadiene		2088	2972	5403	10475	48583
Isopropylbenzene		1.609	1.522	1.541	1.287	1.396
m,p-Xylenes		0.633	0.631	0.628	0.556	0.587
Methylene Chloride		4119	6642	11530	24802	97872
n-Butylbenzene		2.340	2.173	2.147	1.757	2.084
n-Propylbenzene		3.666	3.732	3.554	3.025	3.365
Naphthalene		0.849	0.916	0.910	0.930	0.951
o-Xylene		0.633	0.626	0.616	0.572	0.597
sec-Butylbenzene		3.182	3.145	3.060	2.432	2.773
Styrene		1.011	1.002	0.997	0.935	1.003
Vinyl Chloride		0.768	0.705	0.677	0.550	0.604
1,2,3-Trichloropropane		0.597	0.657	0.682	0.669	0.615
p-Isopropyltoluene		2.813	2.568	2.448	2.073	2.391
1,2-Dibromo-3-Chloropropane		0.092	0.090	0.102	0.093	0.097
1,2-Dichloroethane-d4		3467	5622	10993	27296	101012
Dibromofluoromethane		2889	4699	8973	23704	90165
Toluene-d8		11732	18273	35730	91809	338966
4-Bromofluorobenzene		5465	7465	14277	34111	126535

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS1903101

Instrument ID: VOA6 Calibration Date(s): 03/14/19 03/14/19

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1133 1532

LAB FILE ID: RF50: X031408 RF100: X031409 RF150: X031410
RF200: X031411

COMPOUND	RF50	RF100	RF150	RF200
cis-1,3-Dichloropropene	0.551	0.572	0.580	0.584
trans-1,3-Dichloropropene	0.450	0.472	0.482	0.488
1,3-Dichlorobenzene	1.390	1.491	1.494	1.509
2,2-Dichloropropane	0.633	0.710	0.702	0.710
1,1-Dichloropropene	0.384	0.441	0.437	0.442
Dibromomethane	0.203	0.207	0.206	0.209
1,2-Dibromoethane	0.319	0.326	0.327	0.330
trans-1,2-Dichloroethene	0.448	0.484	0.477	0.486
1,1,1,2-Tetrachloroethane	0.325	0.340	0.340	0.349
1,1,1-Trichloroethane	0.646	0.740	0.736	0.748
1,1,2,2-Tetrachloroethane	0.759	0.769	0.776	0.783
1,1,2-Trichloroethane	0.257	0.263	0.262	0.266
1,1-Dichloroethane	0.851	0.905	0.894	0.910
1,1-Dichloroethene	0.381	0.430	0.418	0.430
Trichloroethene	0.324	0.349	0.348	0.352
1,2,3-Trichlorobenzene	0.317	0.351	0.360	0.371
Trichlorofluoromethane	300492	681686	996321	1285010
1,2,4-Trichlorobenzene	0.577	0.641	0.643	0.670
1,2,4-Trimethylbenzene	2.201	2.448	2.430	2.468
Tetrachloroethene	0.260	0.302	0.294	0.305
1,2-Dichlorobenzene	1.325	1.394	1.401	1.409
1,2-Dichloroethane	0.398	0.406	0.407	0.410
1,2-Dichloropropane	0.331	0.343	0.341	0.343
1,3,5-Trimethylbenzene	2.148	2.461	2.441	2.477
1,3-Dichloropropane	0.528	0.537	0.537	0.545
1,4-Dichlorobenzene	1.403	1.507	1.503	1.529
Toluene	1.359	1.443	1.415	1.438
2-Butanone	0.176	0.186	0.185	0.188
2-Chlorotoluene	1.930	2.106	2.080	2.098
2-Hexanone	0.192	0.196	0.204	0.209
4-Chlorotoluene	2.222	2.439	2.433	2.462
tert-Butylbenzene	1.755	2.102	2.061	2.075
4-Methyl-2-Pentanone	0.290	0.294	0.307	0.314
Acetone	116587	213087	311676	399404
Benzene	1.215	1.270	1.258	1.274
Bromobenzene	0.805	0.848	0.850	0.858
Bromochloromethane	0.258	0.274	0.272	0.272
Bromodichloromethane	0.412	0.428	0.431	0.434
Bromoform	160732	319308	485383	628243
Bromomethane	143083	298815	443212	557773
Carbon Disulfide	1.322	1.495	1.474	1.510
Carbon Tetrachloride	230636	538968	797749	1041315
Chlorobenzene	0.901	0.945	0.935	0.952
Chloroethane	0.331	0.363	0.353	0.356

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS1903101

Instrument ID: VOA6 Calibration Date(s): 03/14/19 03/14/19

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1133 1532

LAB FILE ID: RF50: X031408 RF100: X031409 RF150: X031410
RF200: X031411

COMPOUND	RF50	RF100	RF150	RF200
Chloroform	0.822	0.875	0.858	0.870
Chloromethane	320320	617186	875713	1116067
cis-1,2-Dichloroethene	0.512	0.547	0.544	0.550
Dibromochloromethane	0.349	0.361	0.361	0.369
Dichlorodifluoromethane	201380	449989	671945	870002
Ethylbenzene	0.441	0.488	0.481	0.491
Hexachlorobutadiene	103418	258057	369069	489122
Isopropylbenzene	1.266	1.469	1.432	1.470
m,p-Xylenes	0.550	0.609	0.597	0.606
Methylene Chloride	232067	455199	665742	861209
n-Butylbenzene	1.862	2.297	2.237	2.296
n-Propylbenzene	3.065	3.637	3.609	3.656
Naphthalene	0.903	0.972	1.015	1.040
o-Xylene	0.562	0.600	0.593	0.600
sec-Butylbenzene	2.433	3.037	2.975	3.044
Styrene	0.955	1.016	1.006	1.024
Vinyl Chloride	0.555	0.651	0.643	0.654
1,2,3-Trichloropropane	0.594	0.597	0.603	0.594
p-Isopropyltoluene	2.158	2.610	2.568	2.626
1,2-Dibromo-3-Chloropropane	0.097	0.101	0.104	0.107
1,2-Dichloroethane-d4	251841	477612	698216	897261
Dibromofluoromethane	226962	423351	630249	804727
Toluene-d8	848357	1596573	2376667	3051020
4-Bromofluorobenzene	309611	588767	872319	1119684

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS1903101

Instrument ID: VOA6 Calibration Date(s): 03/14/19 03/14/19

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1133 1532

COMPOUND	CURVE	COEFFICENTS A0	COEFFICENTS A1	COEFFICENTS A2	%RSD OR R^2	MAX %RSD OR R^2
cis-1,3-Dichloropropene	AVRG		0.56282929		4.314	15.000
trans-1,3-Dichloropropene	AVRG		0.45362299		4.988	15.000
1,3-Dichlorobenzene	AVRG		1.51210519		5.751	15.000
2,2-Dichloropropane	AVRG		0.70673896		7.201	15.000
1,1-Dichloropropene	AVRG		0.44949675		12.660	15.000
Dibromomethane	AVRG		0.21039556		2.906	15.000
1,2-Dibromoethane	AVRG		0.32935984		3.066	15.000
trans-1,2-Dichloroethene	AVRG		0.47189157		3.739	15.000
1,1,1,2-Tetrachloroethane	AVRG		0.33743306		3.700	15.000
1,1,1-Trichloroethane	AVRG		0.72862174		7.760	15.000
1,1,2,2-Tetrachloroethane	AVRG		0.80641218		5.498	15.000
1,1,2-Trichloroethane	AVRG		0.27416946		5.804	15.000
1,1-Dichloroethane	AVRG		0.91820518		5.967	15.000
1,1-Dichloroethene	AVRG		0.42405711		9.084	15.000
Trichloroethene	AVRG		0.35184035		6.934	15.000
1,2,3-Trichlorobenzene	AVRG		0.35392193		8.026	15.000
Trichlorofluoromethane	2ORDR	1.494e-002	1.35004752	-2.52e-002	0.9987782	0.9900000
1,2,4-Trichlorobenzene	AVRG		0.62574577		4.656	15.000
1,2,4-Trimethylbenzene	AVRG		2.39178055		5.280	15.000
Tetrachloroethene	AVRG		0.30046018		8.889	15.000
1,2-Dichlorobenzene	AVRG		1.42577775		5.542	15.000
1,2-Dichloroethane	AVRG		0.42194837		4.804	15.000
1,2-Dichloropropane	AVRG		0.35132451		6.347	15.000
1,3,5-Trimethylbenzene	AVRG		2.36625905		5.465	15.000
1,3-Dichloropropane	AVRG		0.55805183		5.493	15.000
1,4-Dichlorobenzene	AVRG		1.54047371		7.595	15.000
Toluene	AVRG		1.46214912		5.410	15.000
2-Butanone	AVRG		0.17126433		11.066	15.000
2-Chlorotoluene	AVRG		2.13436910		8.427	15.000
2-Hexanone	AVRG		0.19711348		5.291	15.000
4-Chlorotoluene	AVRG		2.43384857		6.808	15.000
tert-Butylbenzene	AVRG		2.05591749		9.446	15.000
4-Methyl-2-Pentanone	AVRG		0.30344923		4.362	15.000
Acetone	LINR	-9.31e-002	8.35824195		0.9998905	0.9900000
Benzene	AVRG		1.27878400		5.429	15.000
Bromobenzene	AVRG		0.85571821		4.346	15.000
Bromochloromethane	AVRG		0.27940186		6.040	15.000
Bromodichloromethane	AVRG		0.42657199		2.922	15.000
Bromoform	LINR	1.875e-002	3.93358437		0.9996359	0.9900000
Bromomethane	LINR	4.342e-003	2.93716961		0.9993998	0.9900000
Carbon Disulfide	AVRG		1.45860390		6.816	15.000
Carbon Tetrachloride	LINR	3.568e-002	2.48626097		0.9983175	0.9900000
Chlorobenzene	AVRG		0.97428996		7.446	15.000
Chloroethane	AVRG		0.36223312		7.365	15.000

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS1903101

Instrument ID: VOA6 Calibration Date(s): 03/14/19 03/14/19

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1133 1532

COMPOUND	CURVE	COEFFICENTS A0	COEFFICENTS A1	COEFFICENTS A2	%RSD OR R^2	MAX %RSD OR R^2
Chloroform	AVRG		0.88685141		4.952	15.000
Chloromethane	LINR	-2.89e-002	1.47742584		0.9994373	0.9900000
cis-1,2-Dichloroethene	AVRG		0.55723113		6.090	15.000
Dibromochloromethane	AVRG		0.35547979		2.769	15.000
Dichlorodifluoromethane	LINR	3.706e-002	1.89206345		0.9985309	0.9900000
Ethylbenzene	AVRG		0.48369196		5.388	15.000
Hexachlorobutadiene	2ORDR	1.919e-002	2.78513326	-0.1765088	0.9979534	0.9900000
Isopropylbenzene	AVRG		1.44361611		7.860	15.000
m,p-Xylenes	AVRG		0.59959782		5.117	15.000
Methylene Chloride	LINR	-7.06e-004	1.92216601		0.9998008	0.9900000
n-Butylbenzene	AVRG		2.13259148		9.462	15.000
n-Propylbenzene	AVRG		3.47889088		7.662	15.000
Naphthalene	AVRG		0.94284173		6.268	15.000
o-Xylene	AVRG		0.59986465		3.898	15.000
sec-Butylbenzene	AVRG		2.89798430		9.941	15.000
Styrene	AVRG		0.99441651		2.982	15.000
Vinyl Chloride	AVRG		0.64536352		10.753	15.000
1,2,3-Trichloropropane	AVRG		0.62320541		5.737	15.000
p-Isopropyltoluene	AVRG		2.47290702		9.514	15.000
1,2-Dibromo-3-Chloropropane	AVRG		9.809e-002		5.914	15.000
1,2-Dichloroethane-d4	LINR	-4.54e-003	1.83985481		0.9999406	0.9900000
Dibromofluoromethane	LINR	-1.57e-003	2.04840666		0.9999951	0.9900000
Toluene-d8	LINR	-4.11e-003	0.80905091		0.9999340	0.9900000
4-Bromofluorobenzene	LINR	-7.16e-003	2.20563472		0.9999496	0.9900000

FORM VI VOA

Data File: \\NAHSTWS005\Target\chem\voa6.i\X190314.b\X031401.D

Date : 14-MAR-2019 11:09

Client ID: BFB

Instrument: voa6.i

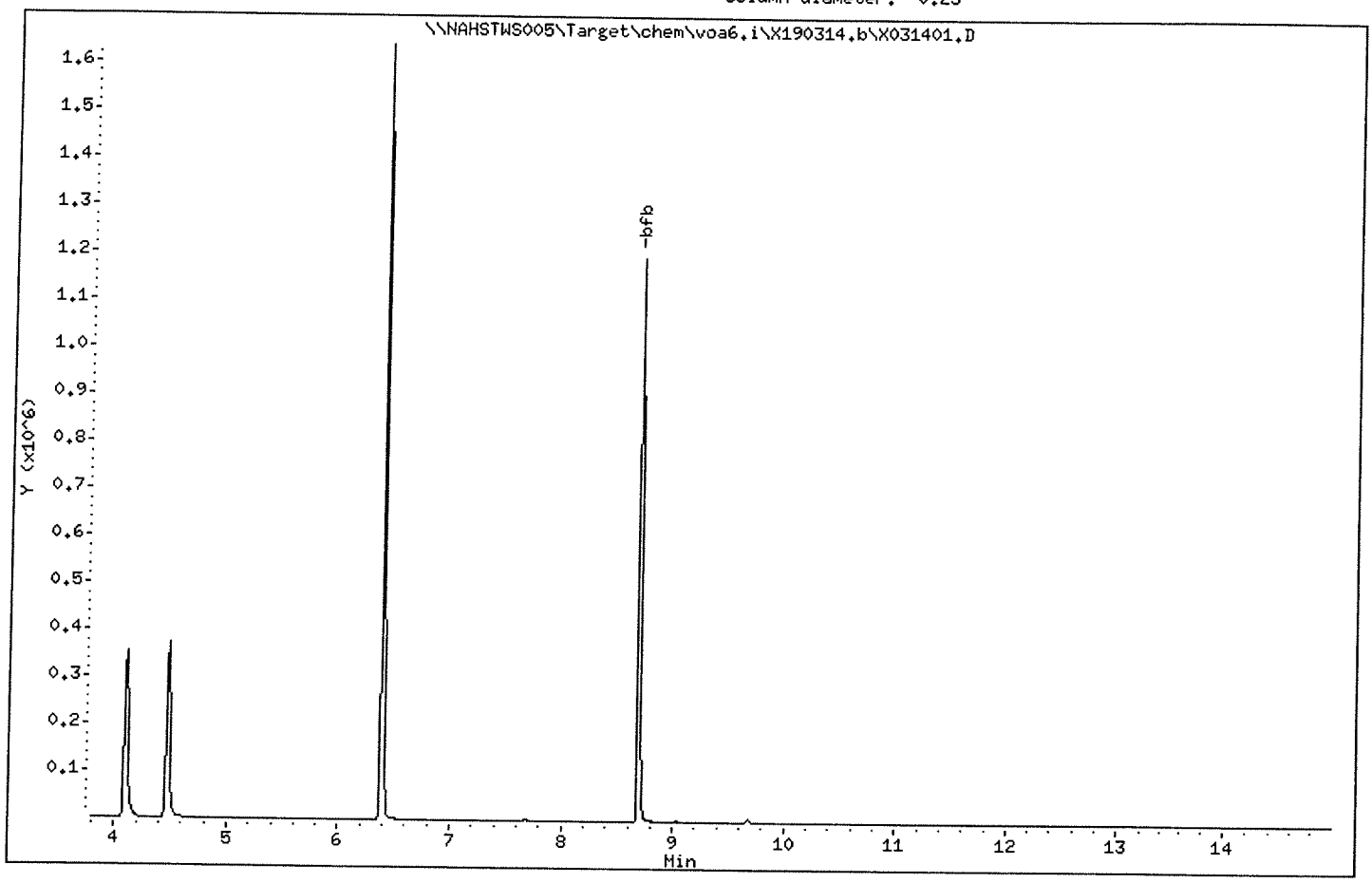
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\NAHSTWS005\Target\chem\voa6.i\X190314.b\X031401.D

Date : 14-MAR-2019 11:09

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

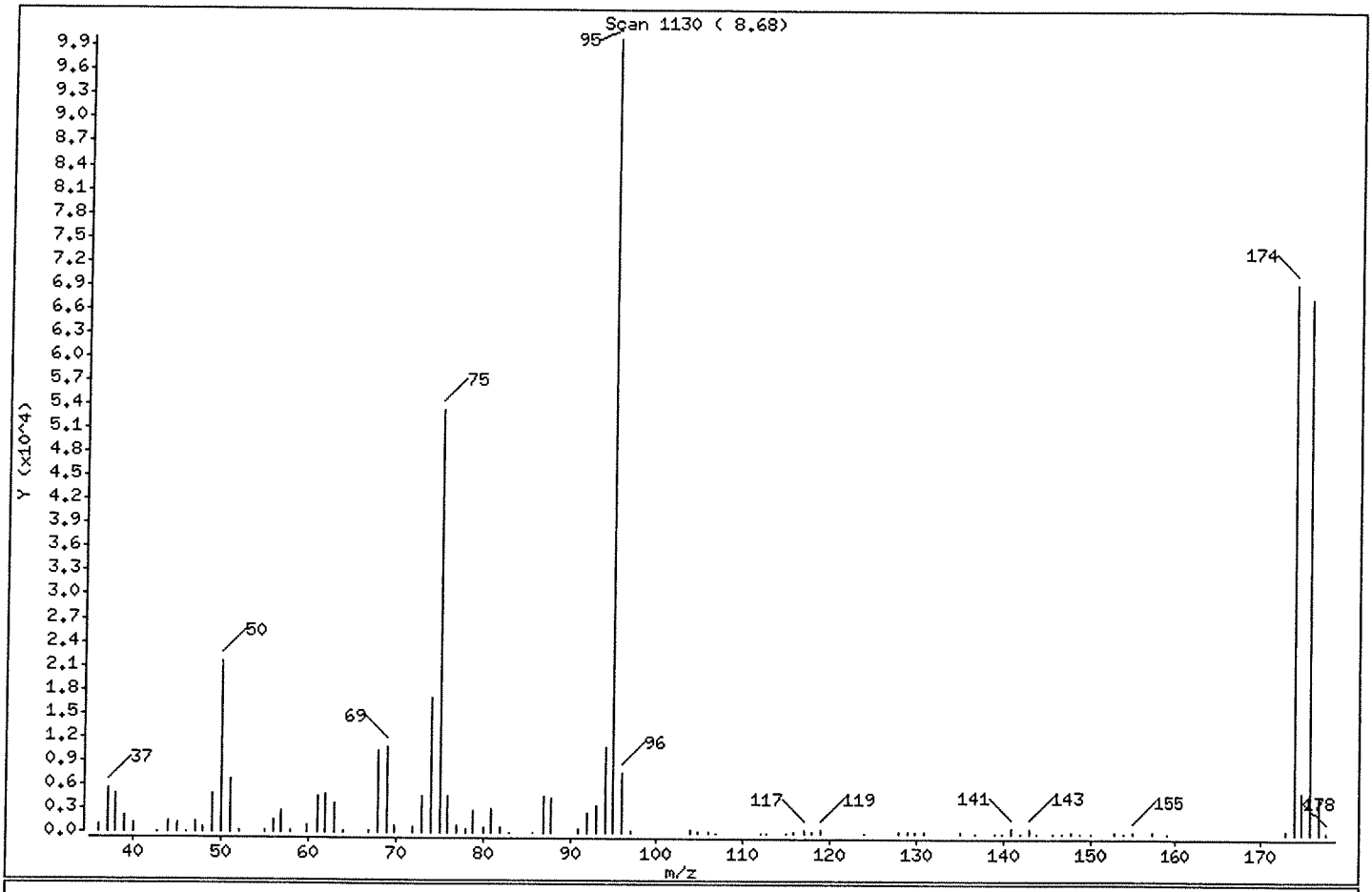
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	21.53
75	30.00 - 60.00% of mass 95	53.30
96	5.00 - 9.00% of mass 95	7.53
173	Less than 2.00% of mass 174	0.48 (0.69)
174	Greater than 50.00% of mass 95	69.48
175	5.00 - 9.00% of mass 174	5.26 (7.56)
176	95.00 - 101.00% of mass 174	67.52 (97.18)
177	5.00 - 9.00% of mass 176	4.71 (6.97)

Data File: \\NAHSTWS005\Target\chem\voa6.i\X190314.b\X031401.D

Date : 14-MAR-2019 11:09

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

Data File: X031401.D
Spectrum: Scan 1130 (8.68)
Location of Maximum: 95.00
Number of points: 90

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	837	64.00	303	94.00	10765	139.70	74
37.00	5560	66.90	307	95.00	99984	140.90	581
38.00	4835	68.00	10362	96.00	7526	141.80	97
39.00	1979	69.00	10724	97.00	255	142.80	725
40.00	1097	69.90	827	103.90	435	143.80	110
42.80	61	72.00	584	104.70	154	145.70	91
44.00	1490	73.00	4661	105.90	299	146.70	72
45.10	1134	74.00	17008	106.80	59	147.80	179
46.10	101	75.00	53288	112.10	56	148.80	69
47.10	1267	76.00	4659	112.70	73	150.00	72
47.90	619	77.00	816	114.90	107	152.80	120
49.00	4749	77.90	465	115.80	273	153.80	87
50.00	21528	78.90	2714	117.00	518	154.80	181
51.00	6619	80.00	798	117.80	263	157.00	160
52.10	201	80.90	2981	118.90	451	158.90	73
55.00	266	81.90	606	124.00	61	172.90	478
56.00	1531	82.90	67	127.90	316	173.90	69472
57.00	2693	85.80	81	128.90	198	174.90	5255
58.00	172	86.90	4695	129.70	249	175.90	67512
59.90	927	87.90	4342	130.90	173	176.90	4708
61.00	4702	91.00	349	134.90	129	177.80	137
62.00	4740	91.90	2569	136.70	107		
63.00	3760	93.00	3416	138.90	60		

Data File: \\NAHSTWS005\Target\chem\voa6.i\X190314.b\X031402.D
Report Date: 29-Mar-2019 19:45

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X190314.b\X031402.D
Lab Smp Id: VSTD000.25 Client Smp ID: VSTD000.25
Inj Date : 14-MAR-2019 11:33
Operator : PC Inst ID: voa6.i
Smp Info : VSTD000.25;VSTD000.25;1;1;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X190314.b\8260W.m
Meth Date : 29-Mar-2019 19:45 voa6.i Quant Type: ISTD
Cal Date : 14-MAR-2019 15:32 Cal File: X031411.D
Als bottle: 2 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	511689	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	771926	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	719423	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	361637	50.0000	
$ 30 Dibromofluoromethane	113	4.111	4.111	(0.981)	1626	0.25000	0.24(a)
$ 35 1,2-Dichloroethane-d4	65	4.490	4.490	(1.072)	2561	0.25000	0.23(Ta)
$ 48 Toluene-d8	98	6.396	6.396	(0.834)	9576	0.25000	0.33(a)
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	5907	0.25000	0.54(aM)
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	1379	0.25000	0.28(a)
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	2020	0.25000	0.27(a)
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	1829	0.25000	0.31(aM)
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	1141	0.25000	0.28(a)
22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	2915	0.25000	0.31(Ta)
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	1217	0.25000	0.28(a)
32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	2446	0.25000	0.35(a)
93 1,2,3-Trichlorobenzene	180	11.761	11.761	(1.216)	618	0.25000	0.24(aM)
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	1285	0.25000	0.28(a)
90 1,2,4-Trichlorobenzene	180	11.352	11.352	(1.174)	1063	0.25000	0.23(aM)
79 1,2,4-Trimethylbenzene	105	9.390	9.390	(0.971)	5274	0.25000	0.30(a)
89 1,2-Dibromo-3-Chloropropane	155	10.665	10.665	(1.103)	124	0.25000	0.17(aM)
57 1,2-Dibromoethane	107	7.270	7.270	(0.948)	1487	0.25000	0.31(a)
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	3015	0.25000	0.29(a)

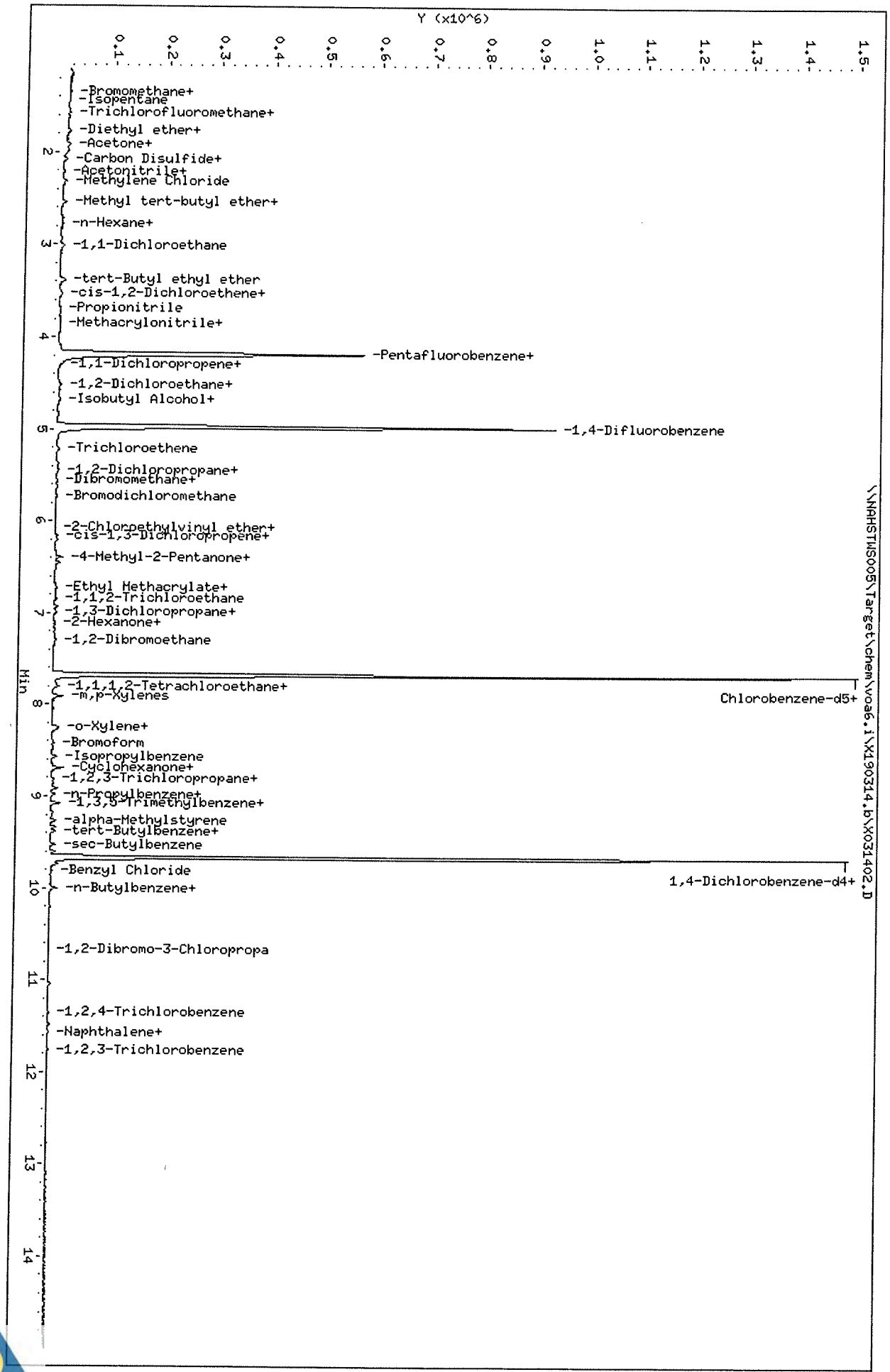
Data File: \\NAHSTWS005\Target\chem\voa6.i\X190314.b\X031402.D
Report Date: 29-Mar-2019 19:45

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33 1,2-Dichloroethane	62	4.569	4.569	(0.919)	2082	0.25000	0.31(aM)
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	1882	0.25000	0.34(aM)
75 1,3,5-Trimethylbenzene	105	9.075	9.075	(0.939)	4936	0.25000	0.28(a)
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	3291	0.25000	0.30(a)
54 1,3-Dichloropropane	76	6.990	6.990	(0.911)	2435	0.25000	0.30(a)
84 1,4-Dichlorobenzene	146	9.691	9.691	(1.002)	3721	0.25000	0.33(a)
26 2,2-Dichloropropane	77	3.523	3.523	(0.841)	2486	0.25000	0.34(aM)
24 2-Butanone	43	3.609	3.609	(0.862)	858	0.50000	0.48(aM)
76 2-Chlorotoluene	91	8.982	8.982	(0.929)	4756	0.25000	0.30(a)
52 2-Hexanone	43	7.112	7.112	(0.927)	1642	0.50000	0.57(a)
77 4-Chlorotoluene	91	9.082	9.082	(0.939)	5358	0.25000	0.30(a)
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	4958	0.25000	0.27(a)
45 4-Methyl-2-Pentanone	43	6.338	6.338	(0.826)	2876	0.50000	0.65(a)
10 Acetone	43	1.976	1.976	(0.472)	4890	0.50000	(a)
37 Benzene	78	4.519	4.519	(0.909)	6242	0.25000	0.31(a)
74 Bromobenzene	156	8.810	8.810	(0.911)	1778	0.25000	0.28(a)
29 Bromochloromethane	128	3.803	3.803	(0.908)	879	0.25000	0.30(a)
39 Bromodichloromethane	83	5.729	5.729	(1.153)	1870	0.25000	0.28(aM)
66 Bromoform	173	8.416	8.416	(1.097)	900	0.25000	1.18(aM)
6 Bromomethane	94	1.346	1.346	(0.321)	1657	0.25000	0.69(aM)
19 Carbon Disulfide	76	2.069	2.069	(0.494)	9170	0.50000	0.61(a)
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	2055	0.25000	2.11(aM)
59 Chlorobenzene	112	7.699	7.699	(1.004)	4461	0.25000	0.31(a)
7 Chloroethane	64	1.403	1.403	(0.335)	1251	0.25000	0.33(aM)
28 Chloroform	83	3.917	3.917	(0.935)	2816	0.25000	0.31(a)
3 Chloromethane	50	1.074	1.074	(0.256)	3463	0.25000	(aM)
27 cis-1,2-Dichloroethene	96	3.538	3.538	(0.844)	1636	0.25000	0.28(a)
46 cis-1,3-Dichloropropene	75	6.166	6.166	(1.241)	2425	0.25000	0.27(a)
55 Dibromochloromethane	129	7.176	7.176	(0.936)	1369	0.25000	0.26(a)
44 Dibromomethane	93	5.558	5.558	(1.118)	947	0.25000	0.29(a)
2 Dichlorodifluoromethane	85	0.973	0.973	(0.232)	1336	0.25000	2.10(aM)
61 Ethylbenzene	106	7.807	7.807	(1.018)	2146	0.25000	0.30(a)
91 Hexachlorobutadiene	225	11.489	11.489	(1.188)	662	0.25000	1.21(aM)
67 Isopropylbenzene	105	8.566	8.566	(1.117)	6324	0.25000	0.30(a)
62 m,p-Xylenes	106	7.914	7.914	(1.032)	5314	0.50000	0.61(a)
17 Methylene Chloride	84	2.306	2.306	(0.550)	2375	0.25000	0.41(a)
87 n-Butylbenzene	91	9.999	9.999	(1.034)	4228	0.25000	0.27(a)
73 n-Propylbenzene	91	8.917	8.917	(0.922)	7052	0.25000	0.28(a)
92 Naphthalene	128	11.567	11.567	(1.196)	1660	0.25000	0.24(a)
63 o-Xylene	106	8.251	8.251	(1.076)	2632	0.25000	0.30(a)
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	5909	0.25000	0.28(a)
64 Styrene	104	8.272	8.272	(1.078)	4023	0.25000	0.28(a)
78 tert-Butylbenzene	119	9.340	9.340	(0.966)	4318	0.25000	0.29(a)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	1322	0.25000	0.30(a)
50 Toluene	91	6.453	6.453	(0.841)	6327	0.25000	0.30(a)
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	1422	0.25000	0.29(a)
51 trans-1,3-Dichloropropene	75	6.697	6.697	(1.347)	1939	0.25000	0.27(a)
38 Trichloroethene	130	5.214	5.214	(1.049)	1642	0.25000	0.30(a)
8 Trichlorofluoromethane	101	1.568	1.568	(0.374)	2294	0.25000	1.04(a)
5 Vinyl Chloride	62	1.145	1.145	(0.273)	2099	0.25000	0.31(aM)

Data File: \\NAHSTWS005\Target\chem\voa6.i\X190314.b\X031402.D
Report Date: 29-Mar-2019 19:45

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



Data File: \\NAHSTWS005\Target\chem\voa6.i\X190314.b\X031402.D
Date : 14-MAR-2019 11:33
Client ID: VSTD000.25
Sample Info: VSTD000.25;VSTD000.25;1;1;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X190314.b\X031403.D
Report Date: 29-Mar-2019 19:45

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X190314.b\X031403.D
Lab Smp Id: VSTD000.5 Client Smp ID: VSTD000.5
Inj Date : 14-MAR-2019 11:57
Operator : PC Inst ID: voa6.i
Smp Info : VSTD000.5;VSTD000.5;1;2;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X190314.b\8260W.m
Meth Date : 29-Mar-2019 19:45 voa6.i Quant Type: ISTD
Cal Date : 14-MAR-2019 11:33 Cal File: X031402.D
Als bottle: 3 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.189	4.189	(1.000)	473435	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	737859	50.0000	
*	47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	702812	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	356016	50.0000	
$	30 Dibromofluoromethane	113	4.110	4.110	(0.981)	2889	0.50000	0.54(a)
$	35 1,2-Dichloroethane-d4	65	4.483	4.483	(1.070)	3467	0.50000	0.44(a)
$	48 Toluene-d8	98	6.395	6.395	(0.834)	11732	0.50000	0.46(a)
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	5465	0.50000	0.49(a)
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	2321	0.50000	0.48(a)
	31 1,1,1-Trichloroethane	97	4.096	4.096	(0.978)	3868	0.50000	0.56(a)
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	3094	0.50000	0.53(aM)
	53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	2146	0.50000	0.55(a)
	22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	4851	0.50000	0.55(a)
	11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	2364	0.50000	0.58(a)
	32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	4139	0.50000	0.62(a)
	93 1,2,3-Trichlorobenzene	180	11.753	11.753	(1.216)	1489	0.50000	0.59(aM)
	71 1,2,3-Trichloropropane	75	8.874	8.874	(0.918)	2126	0.50000	0.47(a)
	90 1,2,4-Trichlorobenzene	180	11.352	11.352	(1.174)	2212	0.50000	0.49(aM)
	79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.970)	8896	0.50000	0.52(a)
	89 1,2-Dibromo-3-Chloropropane	155	10.665	10.665	(1.103)	327	0.50000	0.46(aM)
	57 1,2-Dibromoethane	107	7.269	7.269	(0.948)	2268	0.50000	0.48(a)
	88 1,2-Dichlorobenzene	146	9.998	9.998	(1.034)	5545	0.50000	0.54(a)

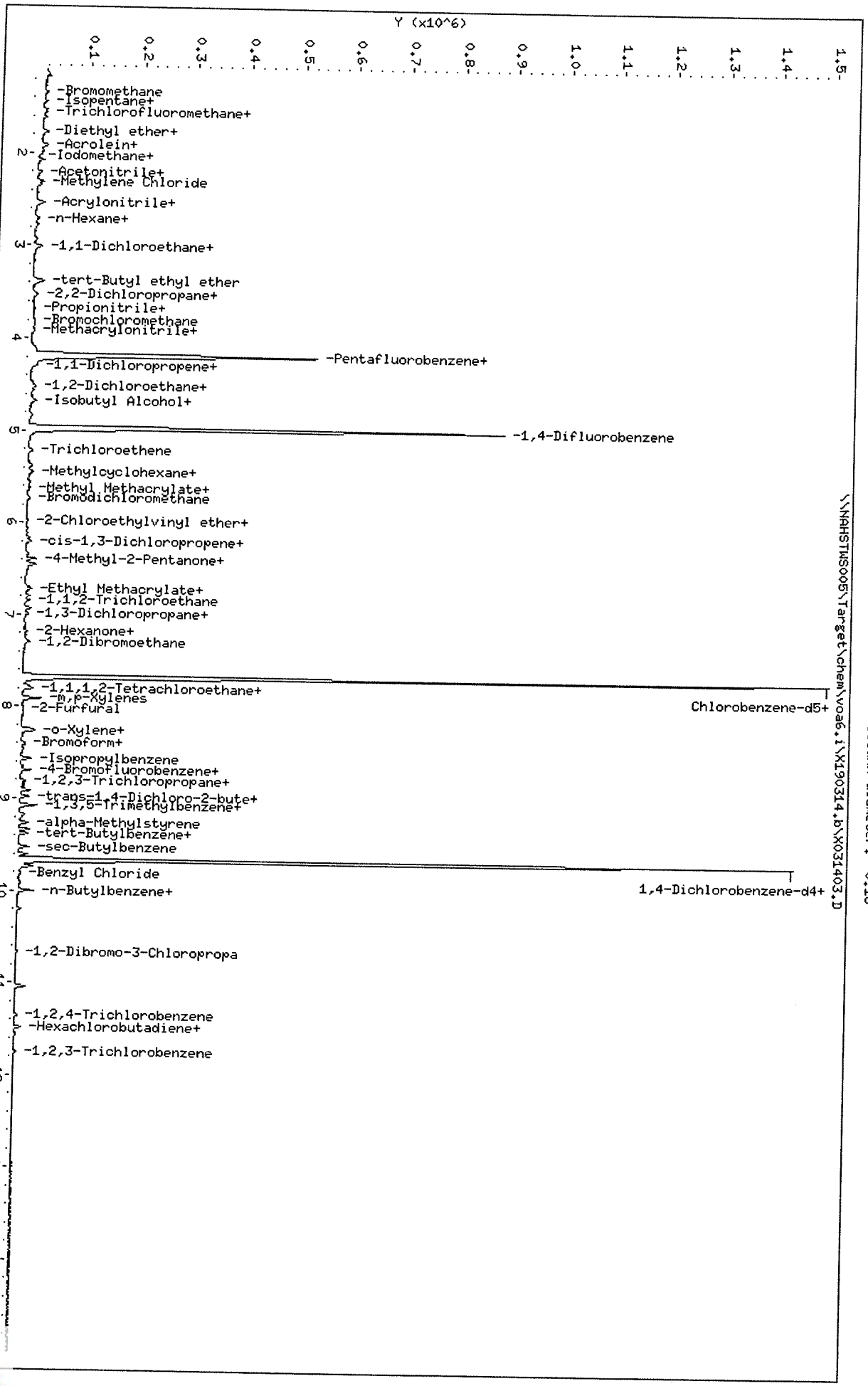
Data File: \\NAHSTWS005\Target\chem\voa6.i\X190314.b\X031403.D
Report Date: 29-Mar-2019 19:45

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	3181	0.50000	0.51(a)
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	2856	0.50000	0.55(aM)
75 1,3,5-Trimethylbenzene	105	9.074	9.074	(0.939)	8603	0.50000	0.51(a)
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	5631	0.50000	0.52(a)
54 1,3-Dichloropropane	76	6.990	6.990	(0.911)	4241	0.50000	0.54(a)
84 1,4-Dichlorobenzene	146	9.690	9.690	(1.002)	6145	0.50000	0.56(a)
26 2,2-Dichloropropane	77	3.516	3.516	(0.839)	3729	0.50000	0.55(a)
24 2-Butanone	43	3.609	3.609	(0.862)	1544	1.00000	0.95(aM)
76 2-Chlorotoluene	91	8.981	8.981	(0.929)	8909	0.50000	0.58(a)
52 2-Hexanone	43	7.105	7.105	(0.926)	3025	1.00000	1.09(a)
77 4-Chlorotoluene	91	9.074	9.074	(0.939)	9464	0.50000	0.54(a)
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	10014	0.50000	0.56(a)
45 4-Methyl-2-Pentanone	43	6.338	6.338	(0.826)	4602	1.00000	1.07(a)
10 Acetone	43	1.976	1.976	(0.472)	5365	1.00000	0.08(a)
37 Benzene	78	4.526	4.526	(0.911)	10502	0.50000	0.55(a)
74 Bromobenzene	156	8.809	8.809	(0.911)	3173	0.50000	0.52(a)
29 Bromochloromethane	128	3.802	3.802	(0.908)	1359	0.50000	0.51(a)
39 Bromodichloromethane	83	5.736	5.736	(1.154)	3215	0.50000	0.51(aM)
66 Bromoform	173	8.415	8.415	(1.097)	1344	0.50000	1.31(Ta)
6 Bromomethane	94	1.338	1.338	(0.320)	2332	0.50000	0.94(aM)
19 Carbon Disulfide	76	2.076	2.076	(0.496)	15137	1.00000	1.09(a)
34 Carbon Tetrachloride	117	4.275	4.275	(0.860)	3862	0.50000	2.43(aM)
59 Chlorobenzene	112	7.699	7.699	(1.004)	7805	0.50000	0.56(a)
7 Chloroethane	64	1.403	1.403	(0.335)	1731	0.50000	0.50(aM)
28 Chloroform	83	3.910	3.910	(0.933)	4529	0.50000	0.53(a)
3 Chloromethane	50	1.073	1.073	(0.256)	4606	0.50000	(aM)
27 cis-1,2-Dichloroethene	96	3.537	3.537	(0.844)	2960	0.50000	0.56(a)
46 cis-1,3-Dichloropropene	75	6.166	6.166	(1.241)	4447	0.50000	0.53(a)
55 Dibromochloromethane	129	7.183	7.183	(0.937)	2430	0.50000	0.48(a)
44 Dibromomethane	93	5.565	5.565	(1.120)	1648	0.50000	0.53(a)
2 Dichlorodifluoromethane	85	0.973	0.973	(0.232)	2522	0.50000	2.35(a)
61 Ethylbenzene	106	7.807	7.807	(1.018)	3697	0.50000	0.54(a)
91 Hexachlorobutadiene	225	11.488	11.488	(1.188)	2088	0.50000	1.77(a)
67 Isopropylbenzene	105	8.566	8.566	(1.117)	11310	0.50000	0.55(a)
62 m,p-Xylenes	106	7.907	7.907	(1.031)	8894	1.00000	1.05(a)
17 Methylene Chloride	84	2.305	2.305	(0.550)	4119	0.50000	0.80(a)
87 n-Butylbenzene	91	9.998	9.998	(1.034)	8330	0.50000	0.54(a)
73 n-Propylbenzene	91	8.917	8.917	(0.922)	13053	0.50000	0.52(a)
92 Naphthalene	128	11.560	11.560	(1.196)	3023	0.50000	0.45(a)
63 o-Xylene	106	8.251	8.251	(1.076)	4452	0.50000	0.52(a)
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	11329	0.50000	0.54(a)
64 Styrene	104	8.265	8.265	(1.078)	7107	0.50000	0.50(a)
78 tert-Butylbenzene	119	9.339	9.339	(0.966)	8355	0.50000	0.57(a)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	2375	0.50000	0.56(a)
50 Toluene	91	6.453	6.453	(0.841)	11045	0.50000	0.53(a)
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	2187	0.50000	0.48(a)
51 trans-1,3-Dichloropropene	75	6.689	6.689	(1.346)	3186	0.50000	0.47(a)
38 Trichloroethene	130	5.214	5.214	(1.049)	2928	0.50000	0.56(a)
8 Trichlorofluoromethane	101	1.560	1.560	(0.373)	3725	0.50000	1.27(a)
5 Vinyl Chloride	62	1.145	1.145	(0.273)	3637	0.50000	0.59(a)

Data File: \\NAHSTWS005\Target\chem\voa6.i\X190314.b\X031403.D
Report Date: 29-Mar-2019 19:45

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.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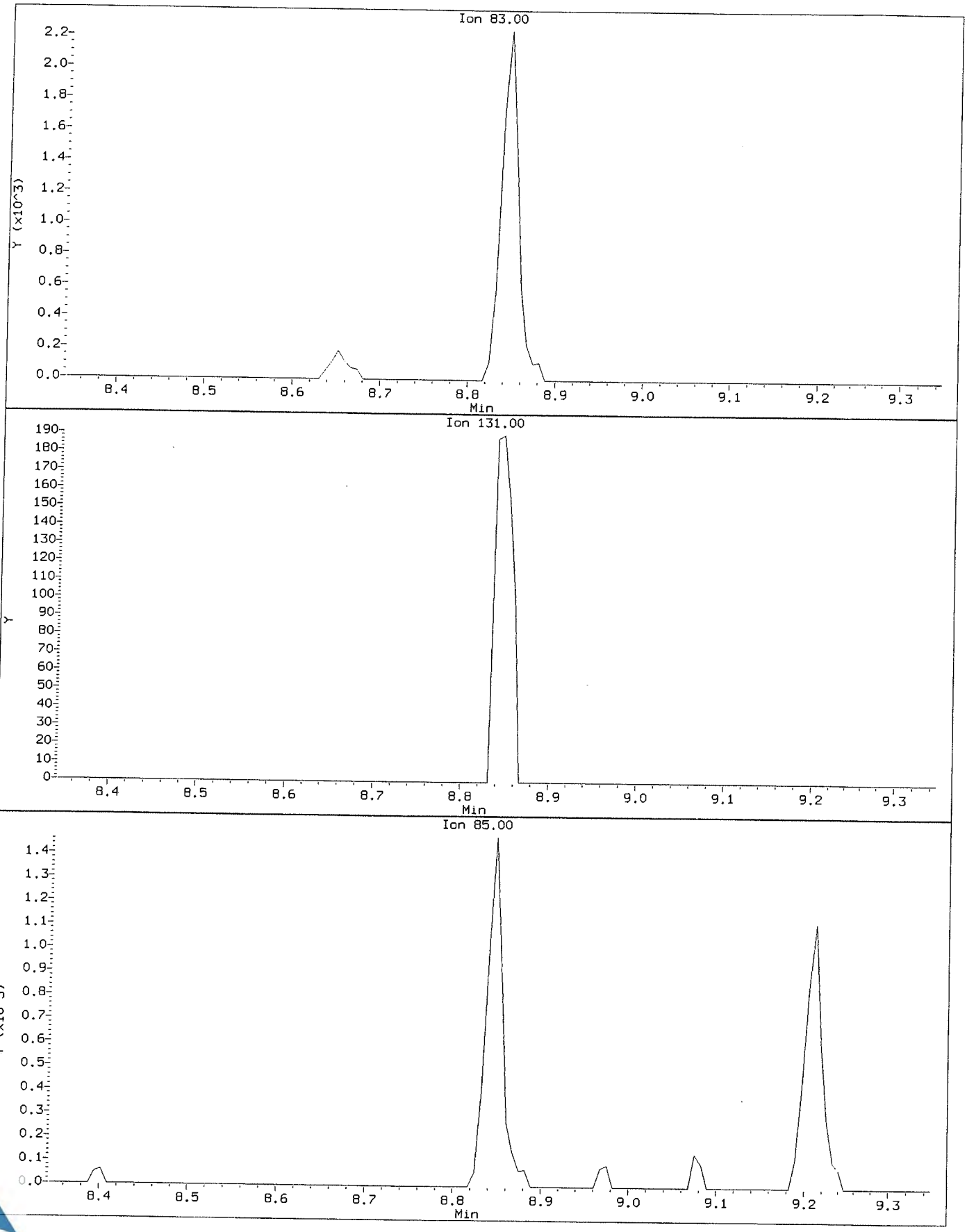
Date : 14-MAR-2019 11:57
Client ID: VSTD000.5
Sample Info: VSTD000.5;VSTD000.5;1;2;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
\\NAHSTWS005\Target\chem\voa6.i\X190314.b\X031403.D
Y (x10^6)
Min
-Bromomethane
-Isopentane+
-Trichlorofluoromethane+
-Diethyl ether+
-Acrolein+
-Iodomethane+
-Acetonitrile+
-Methylene Chloride
-Acrylonitrile+
-n-Hexane+
-1,1-Dichloroethane+
-tert-Butyl ethyl ether
-2,2-Dichloropropane+
-Propionitrile+
-Bromochloromethane
-Methacrylonitrile+
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-Isobutyl Alcohol+
-1,4-Difluorobenzene
-Trichloroethene
-Methylcyclohexane+
-Methyl Methacrylate+
-Bromodichloromethane
-2-Chloroethylvinyl ether+
-cis-1,3-Dichloropropene+
-4-Methyl-2-Pentanone+
-Ethyl Methacrylate+
-1,1,2-Trichloroethane
-1,3-Dichloropropane+
-2-Hexanone+
-1,2-Dibromoethane
Chlorobenzene-d5+
-1,1,1,2-Tetrachloroethane+
-m,p-Xylenes
-2-Furfural
-o-Xylene+
-Bromoform+
-Isopropylbenzene
-4-Bromofluorobenzene+
-1,2,3-Trichloropropane+
-trans-1,4-Dichloro-2-bute+
-1,3,5-Trimethylbenzene+
-alpha-Methylstyrene
-tert-Butylbenzene+
-sec-Butylbenzene
1,4-Dichlorobenzene-d4+
-Benzyl Chloride
-n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Hexachlorobutadiene+
-1,2,3-Trichlorobenzene

Data File: \\NAHSTWS005\Target\chem\voa6.i\X190314.b\Before\X031403.D
Injection Date: 14-MAR-2019 11:57
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5



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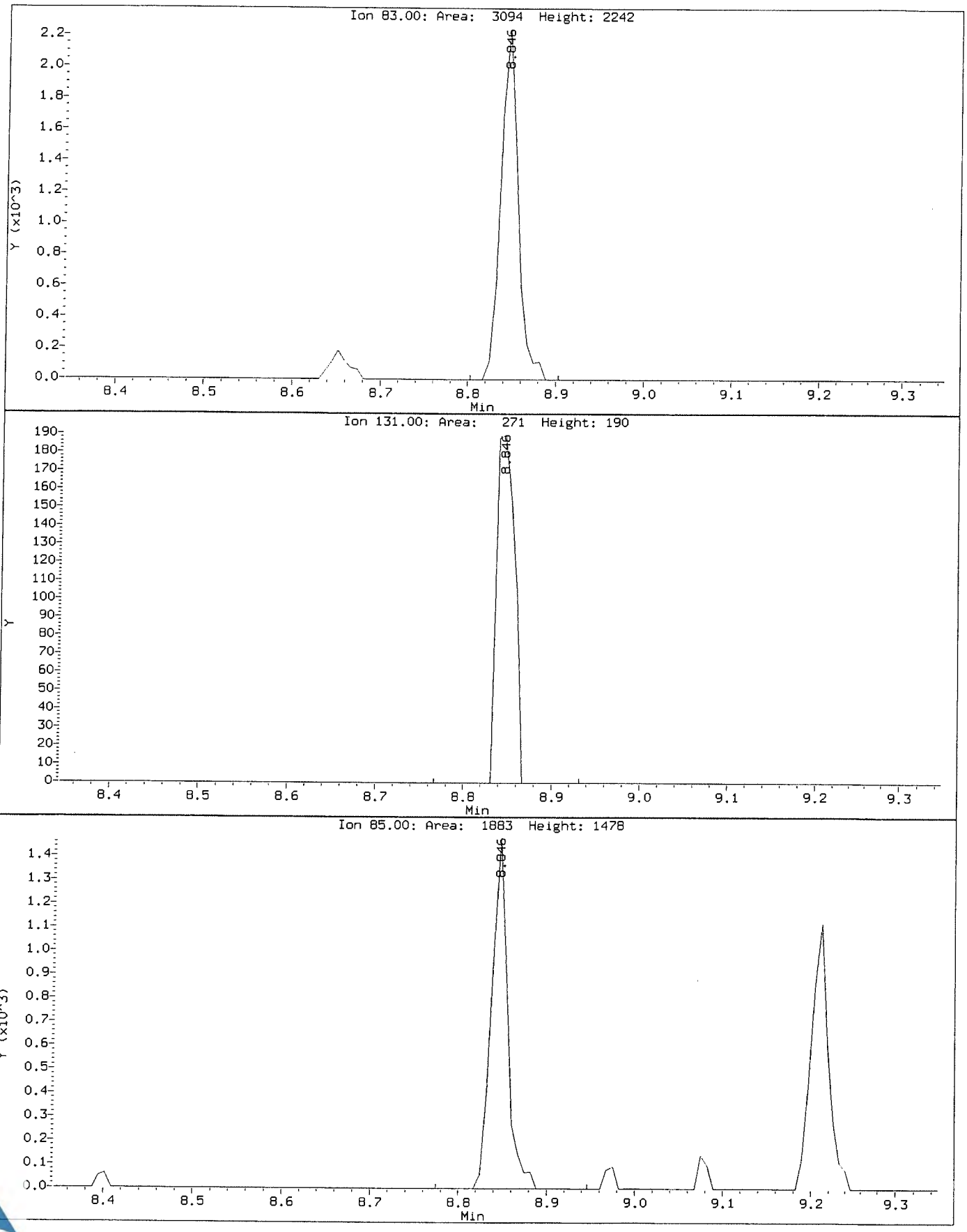
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5



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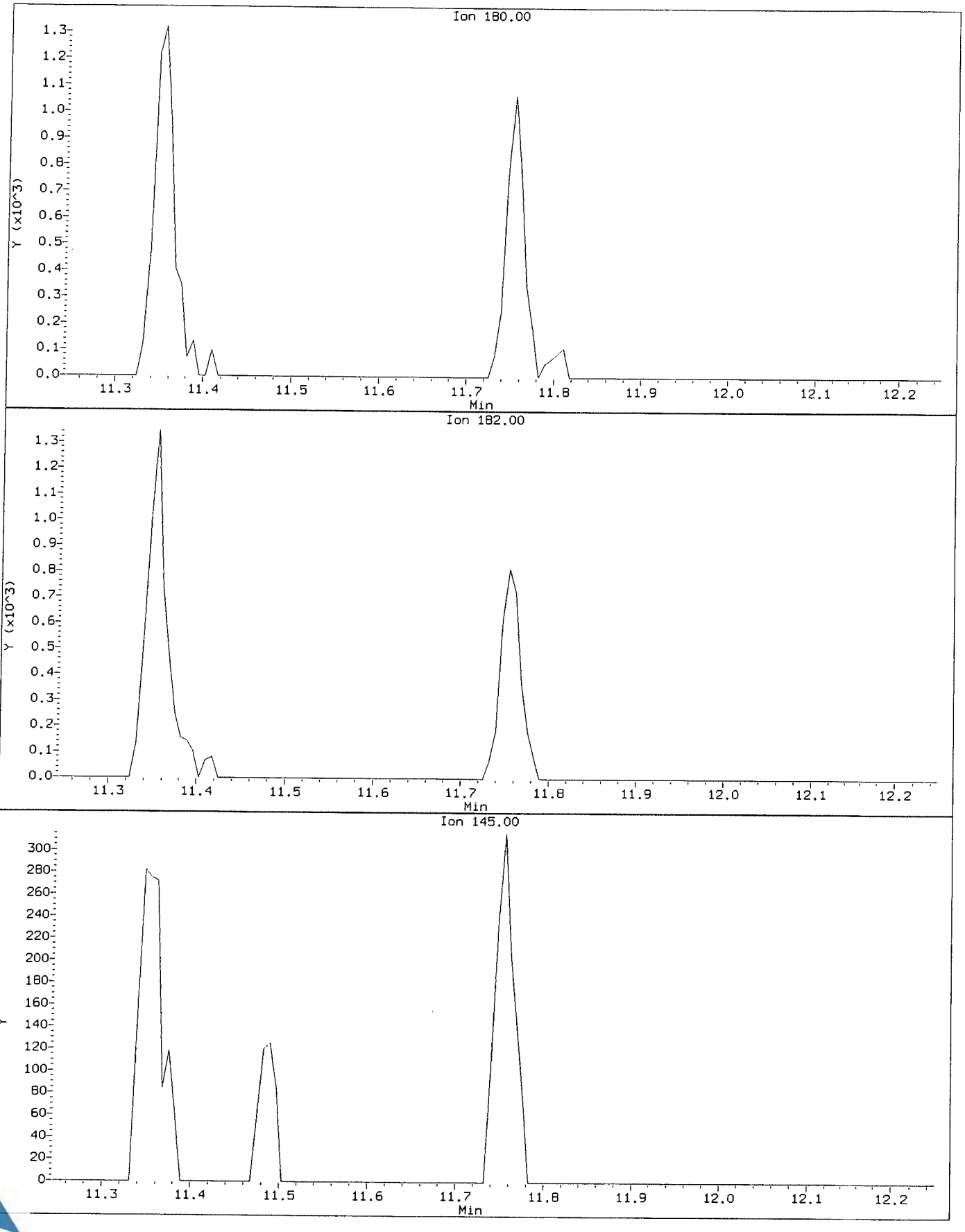
Injection Date: 14-MAR-2019 11:57
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2,3-Trichlorobenzene
CAS Number: 87-61-6



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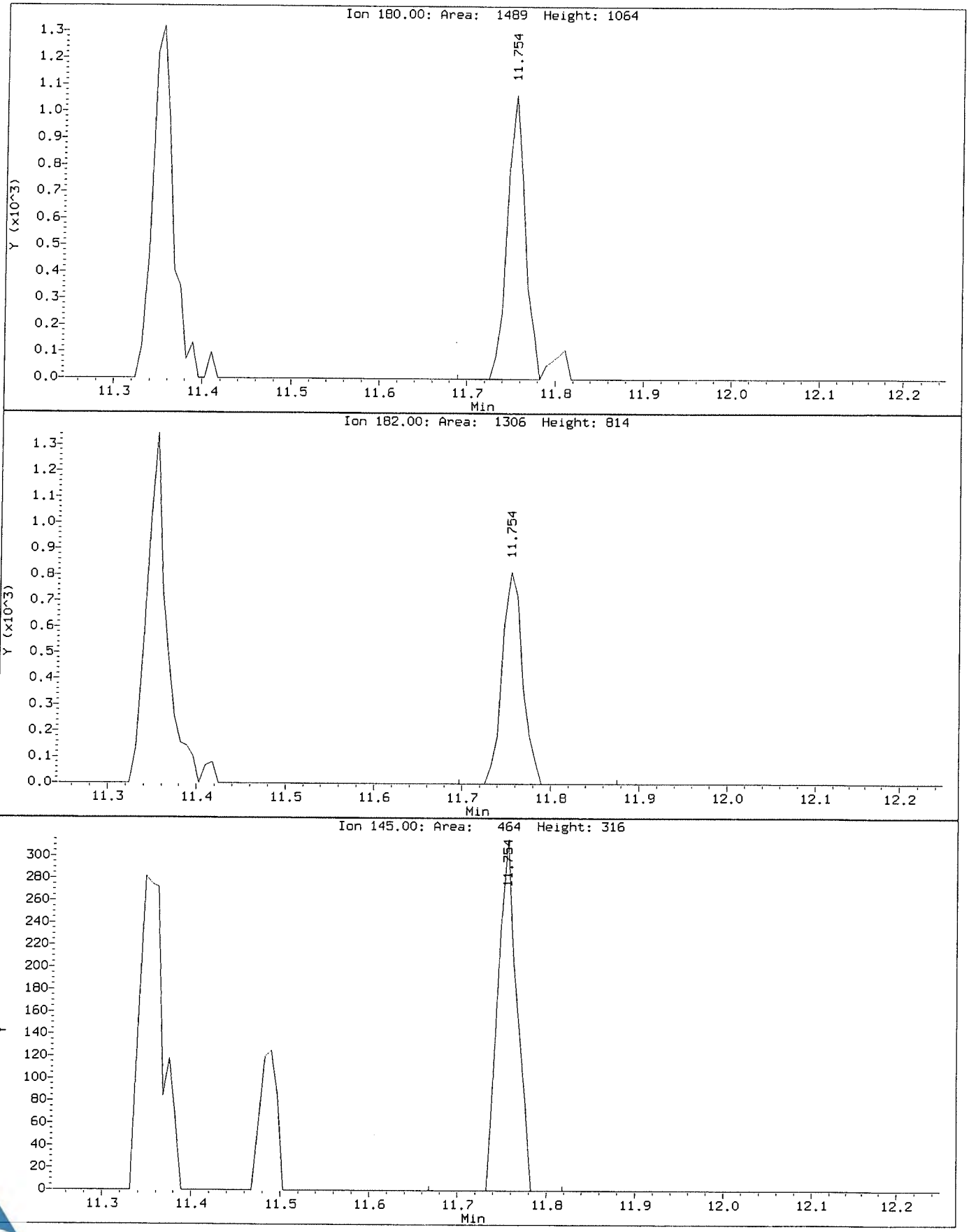
Client Sample ID: VSTD000.5

Compound: 1,2,3-Trichlorobenzene
CAS Number: 87-61-6



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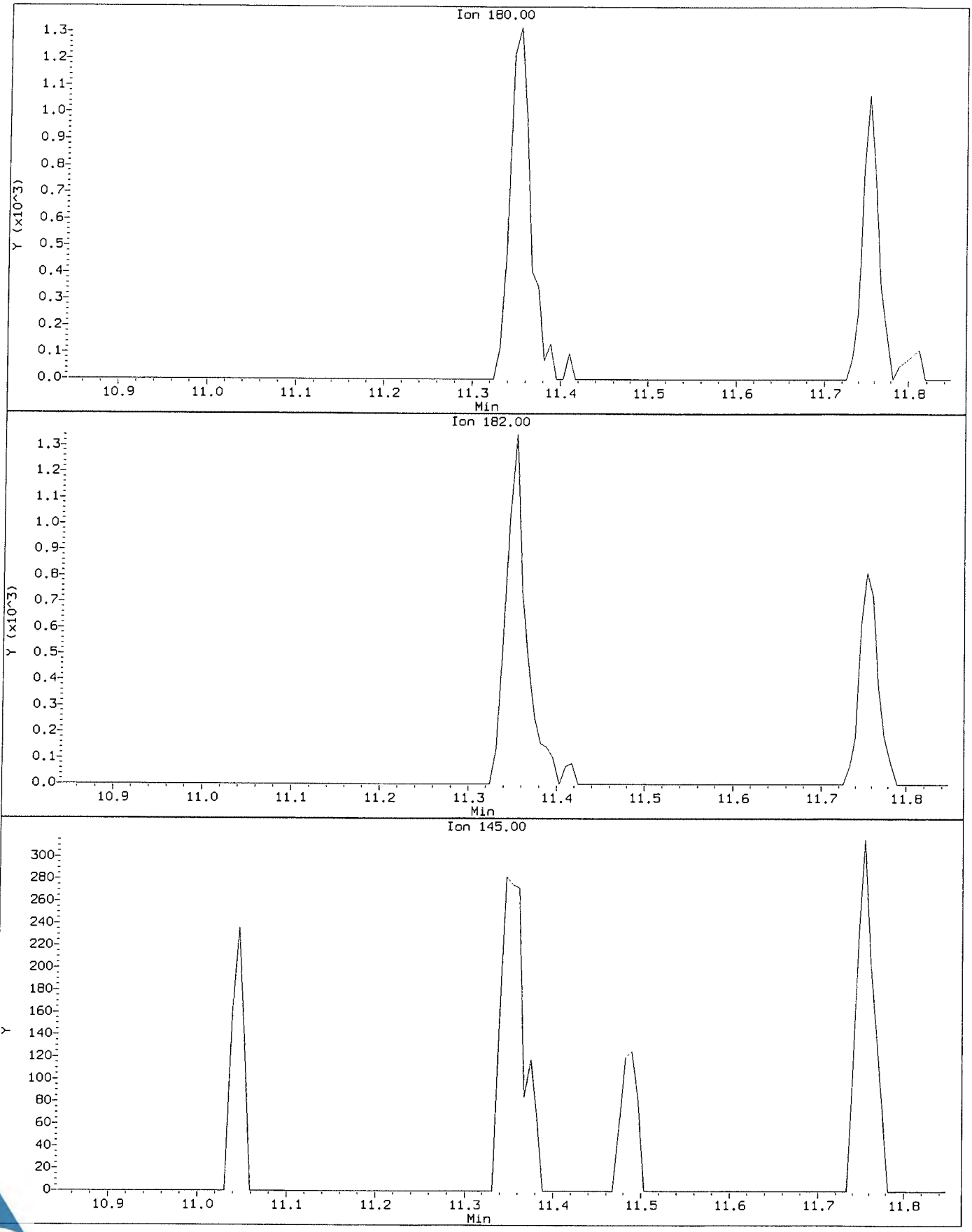
Injection Date: 14-MAR-2019 11:57
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2,4-Trichlorobenzene
CAS Number: 120-82-1



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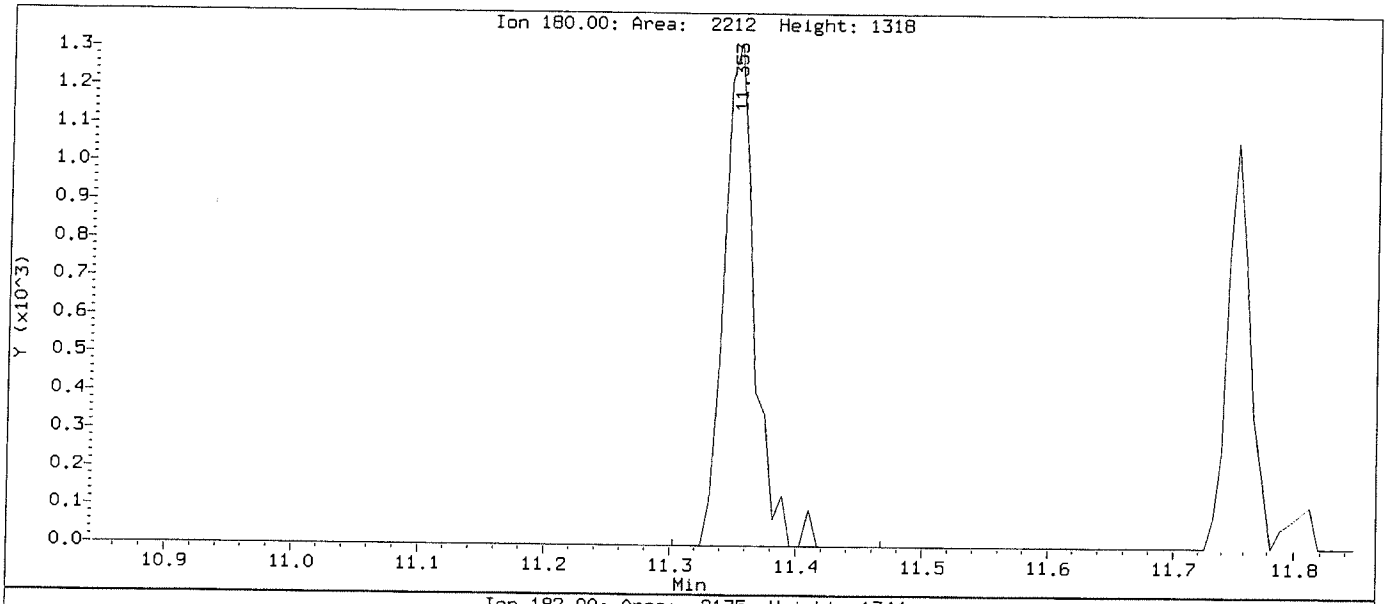
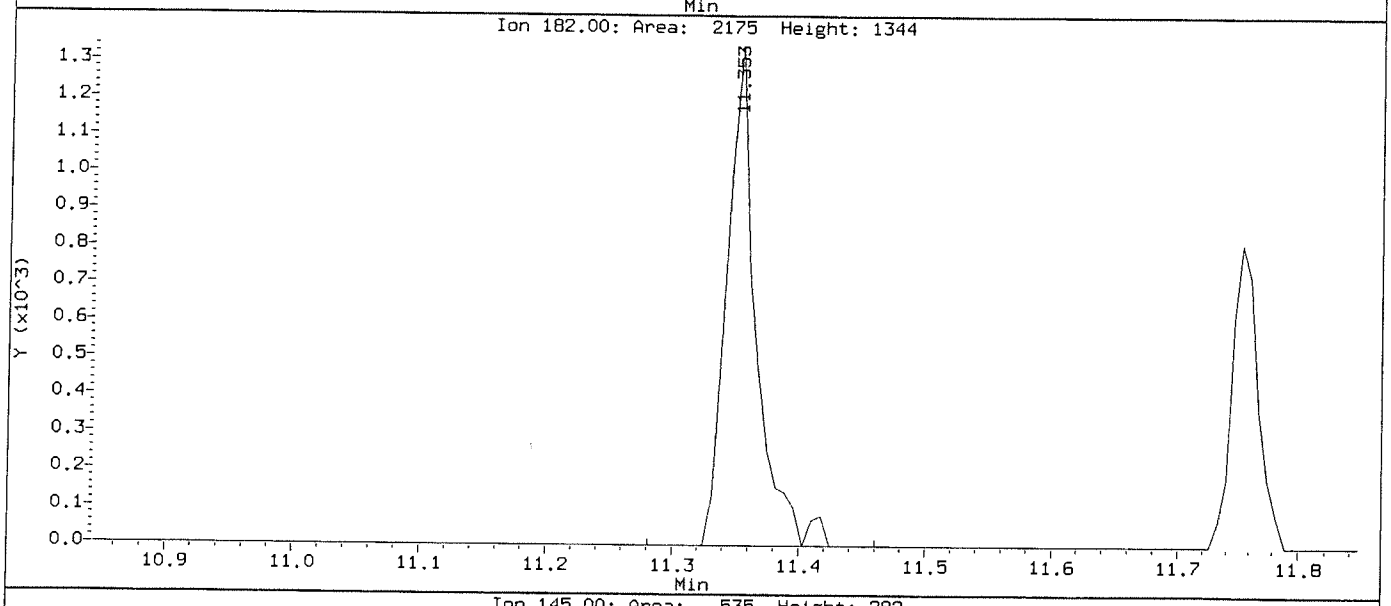
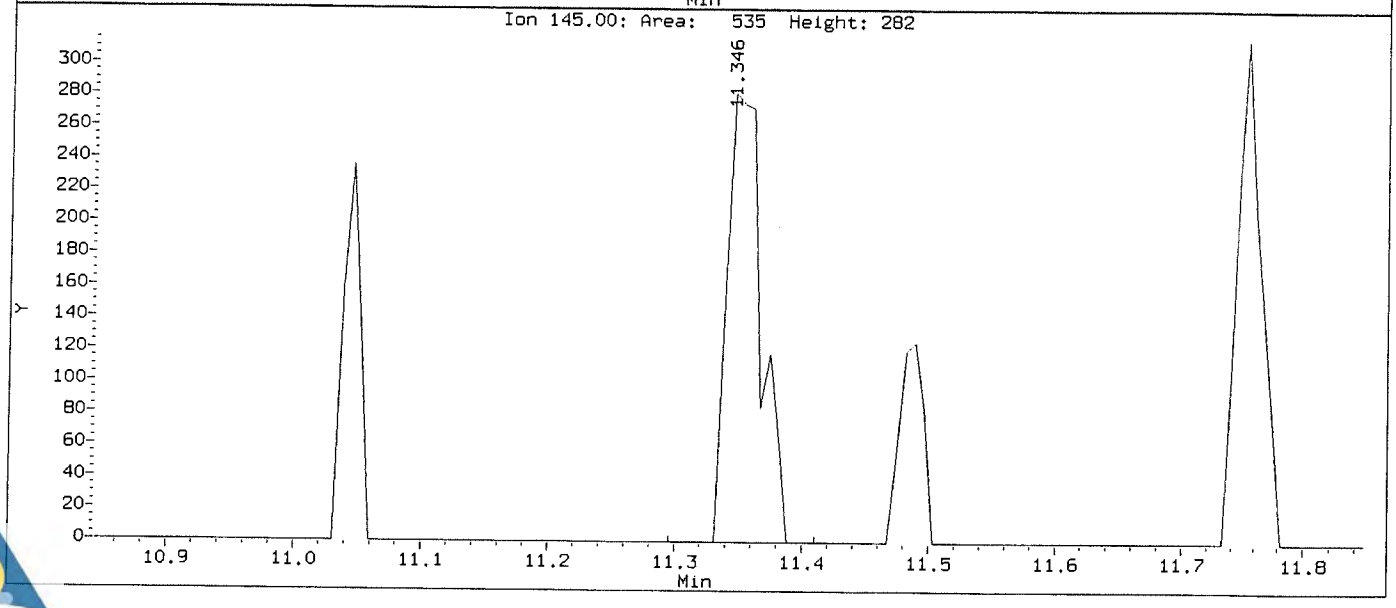
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2,4-Trichlorobenzene
CAS Number: 120-82-1







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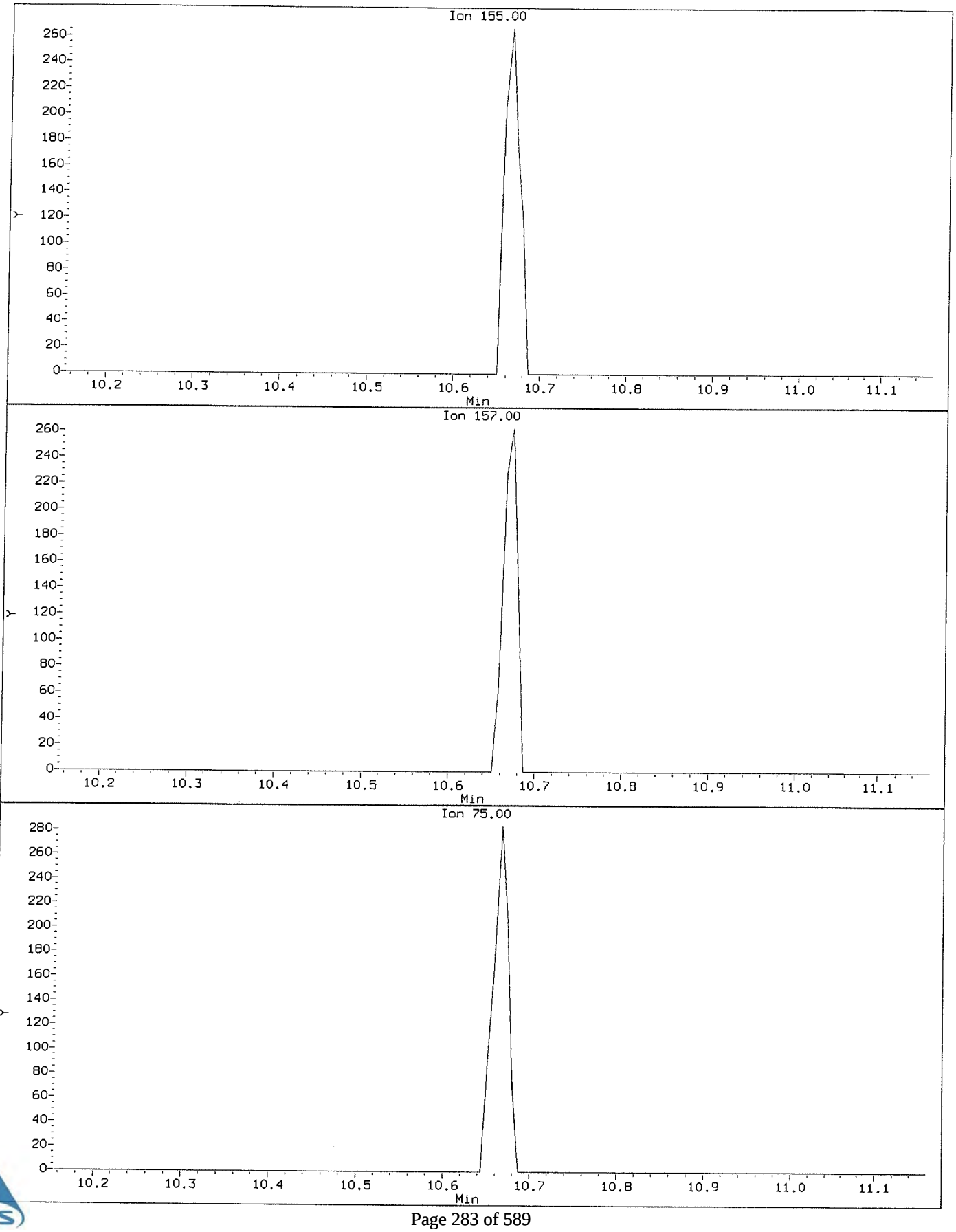
Injection Date: 14-MAR-2019 11:57
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8



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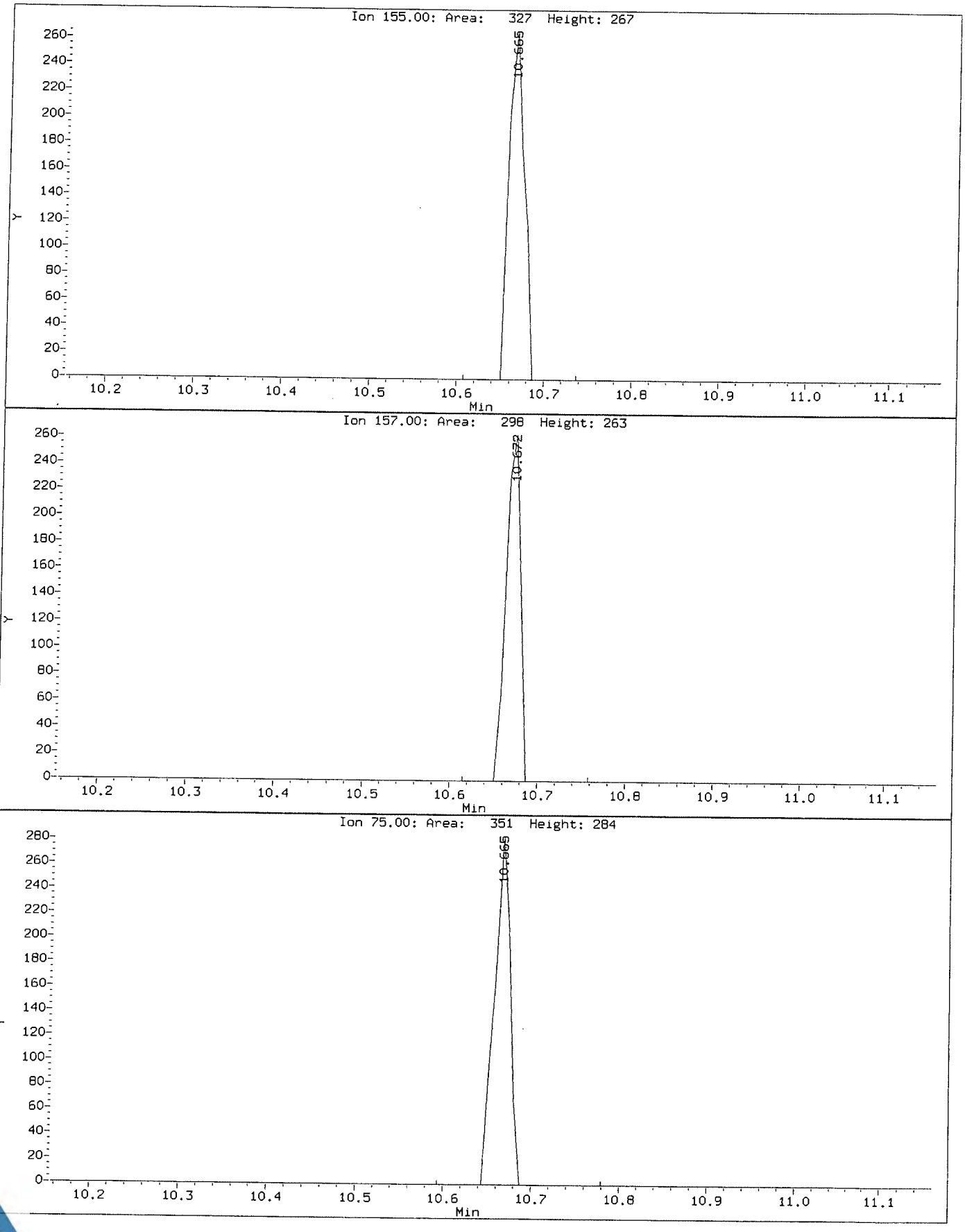
Client Sample ID: VSTD000.5

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8



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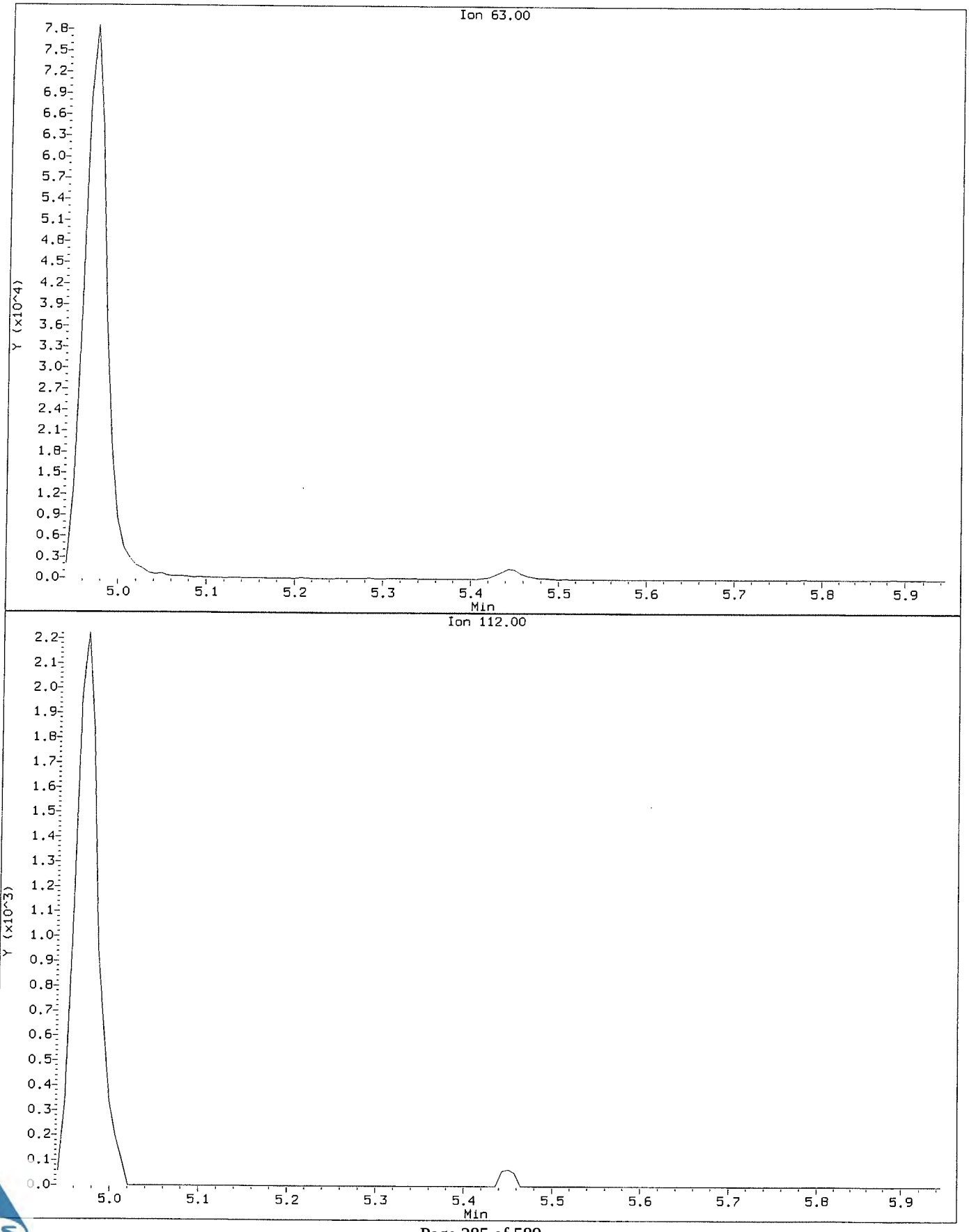
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2-Dichloropropane
CAS Number: 78-87-5



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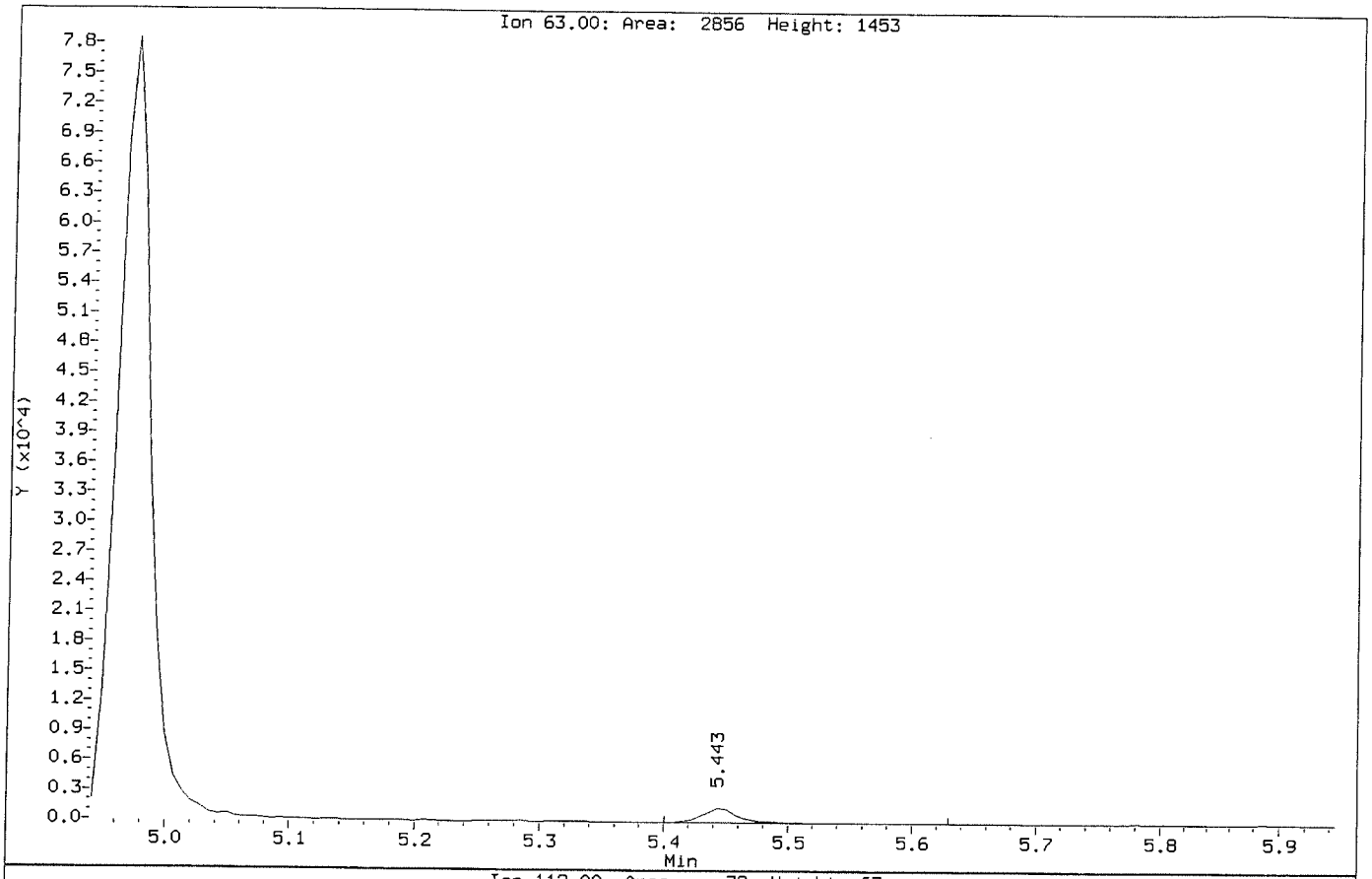
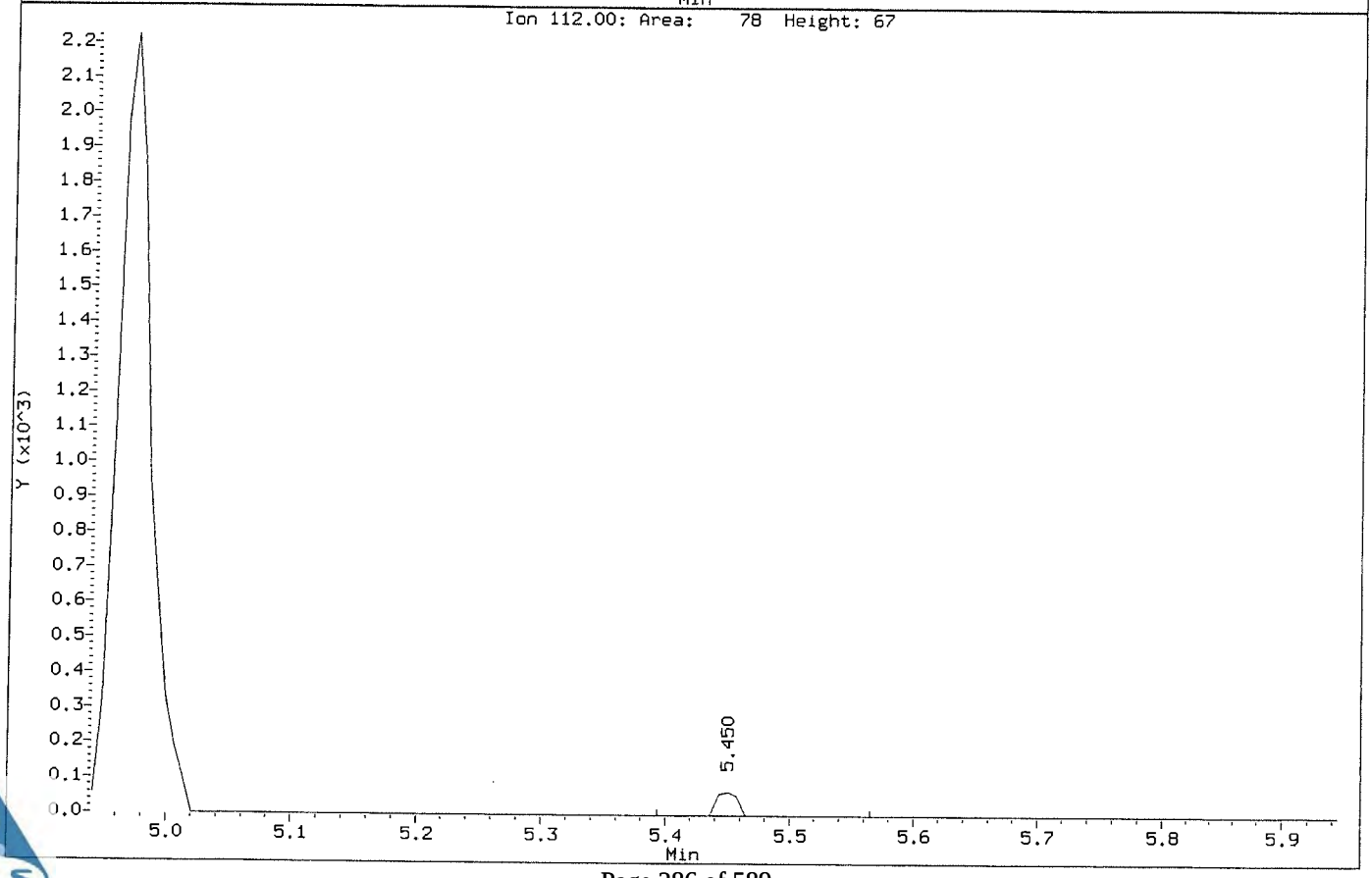
Client Sample ID: VSTD000.5

Compound: 1,2-Dichloropropane
CAS Number: 78-87-5





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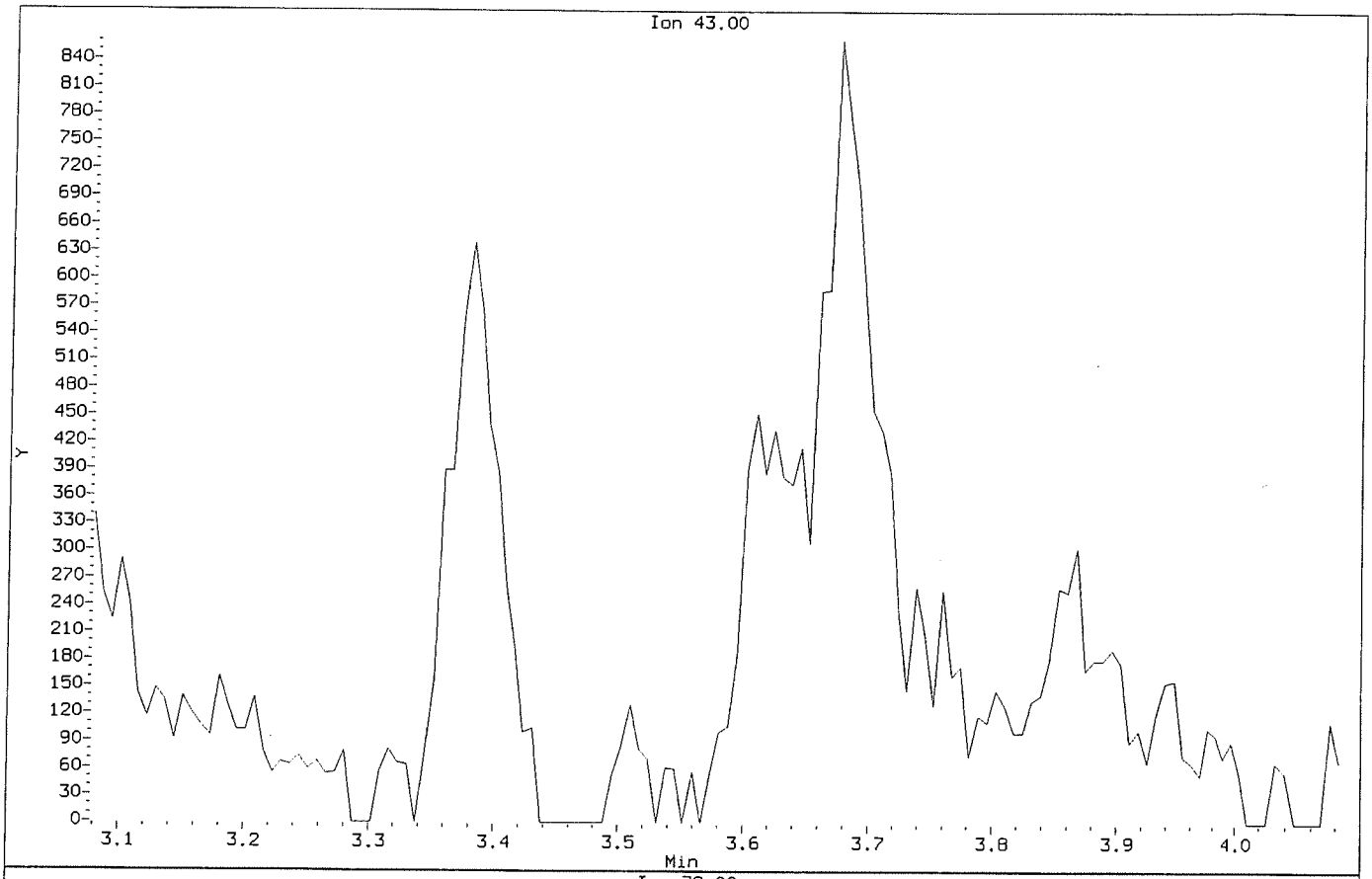
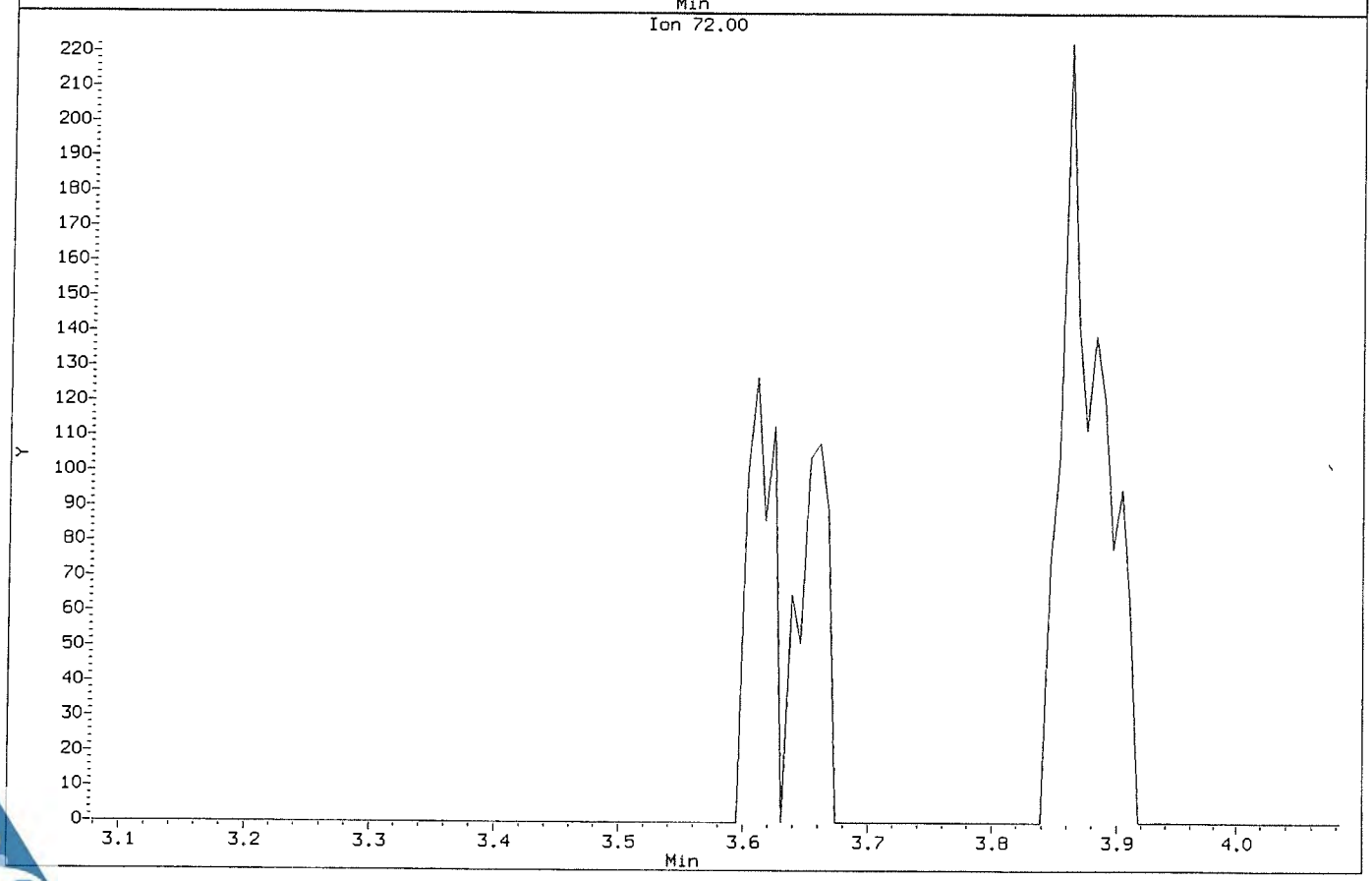
Client Sample ID: VSTD000.5

Compound: 2-Butanone
CAS Number: 78-93-3





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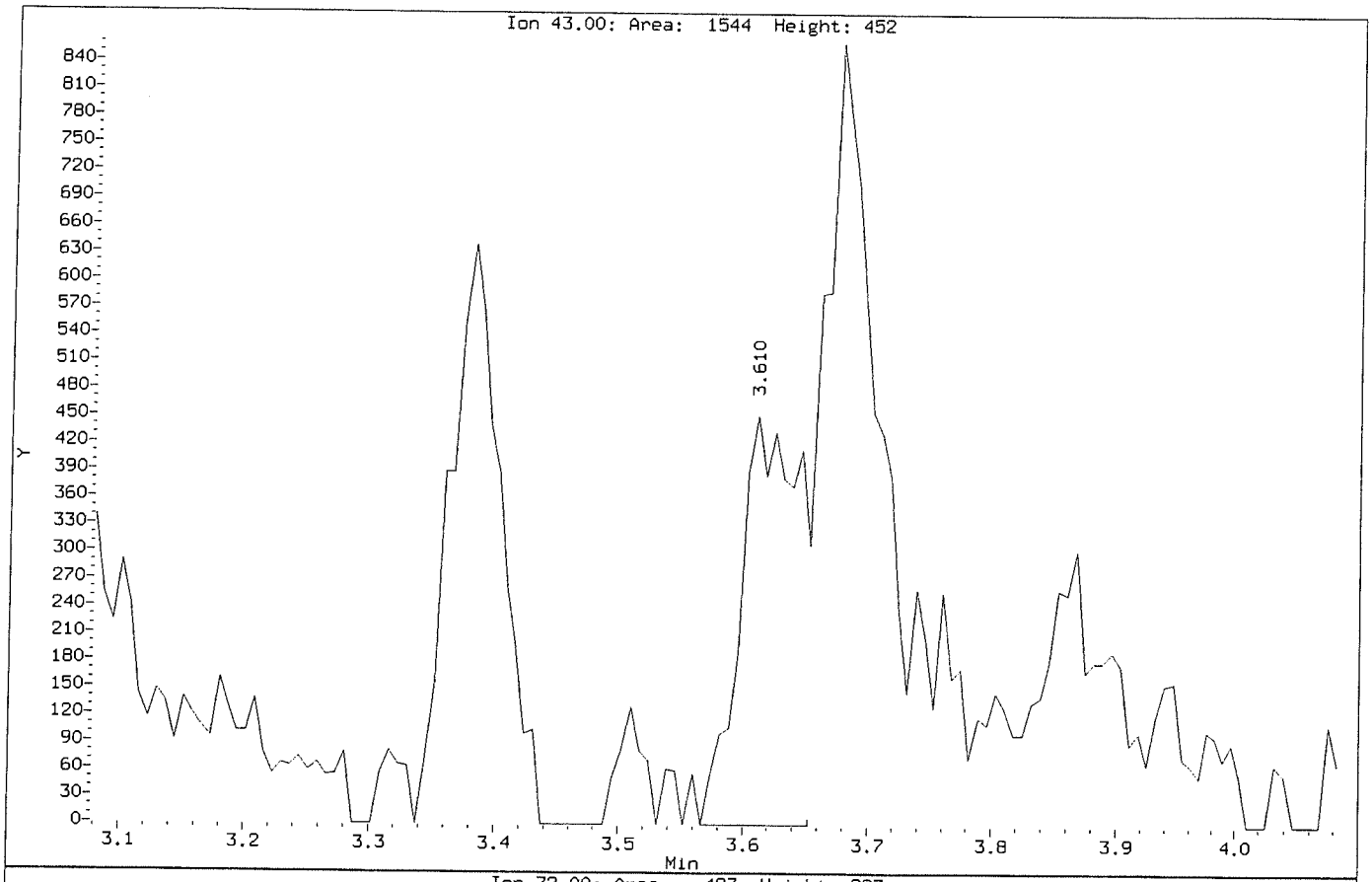
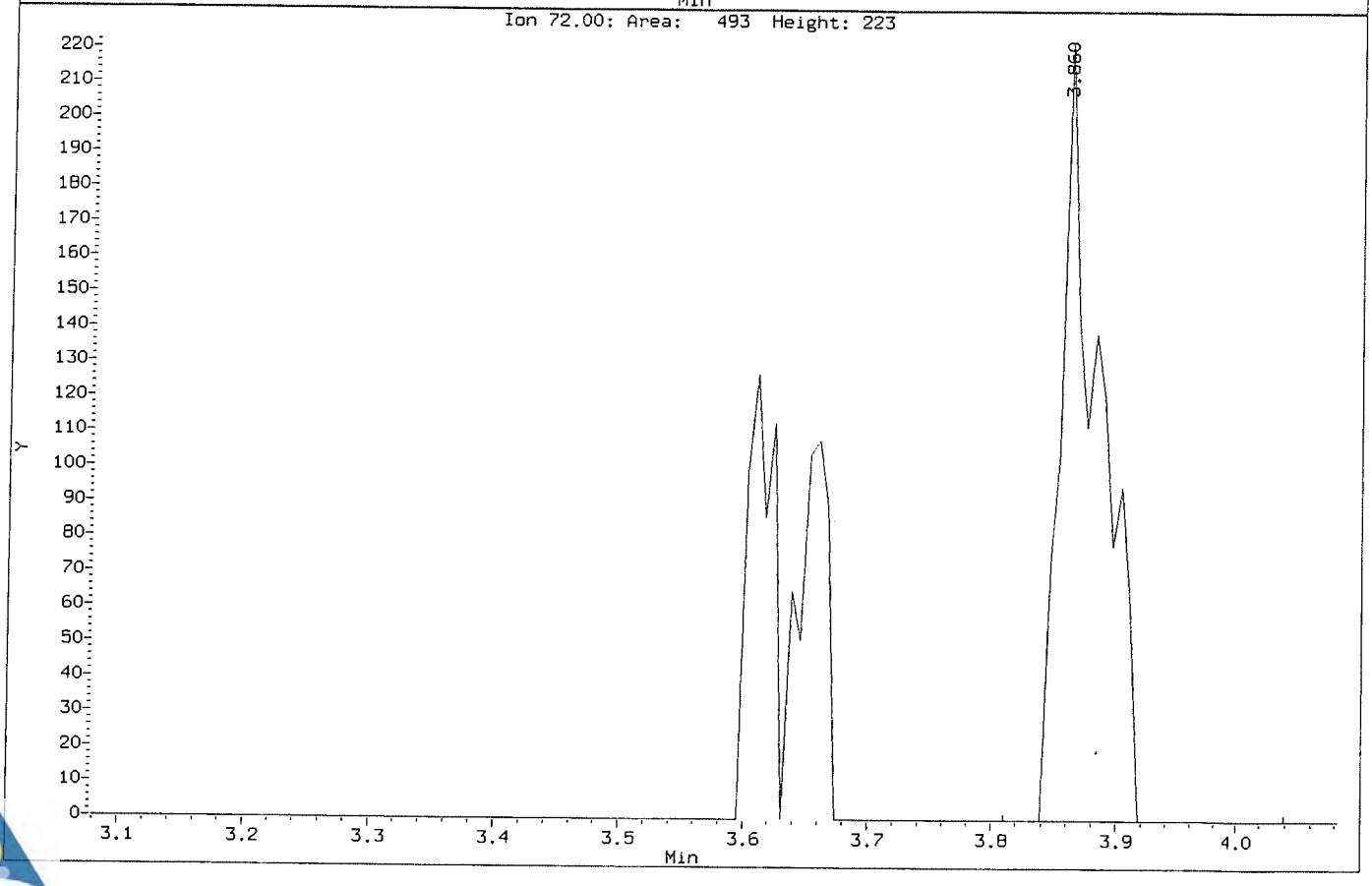
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 2-Butanone
CAS Number: 78-93-3





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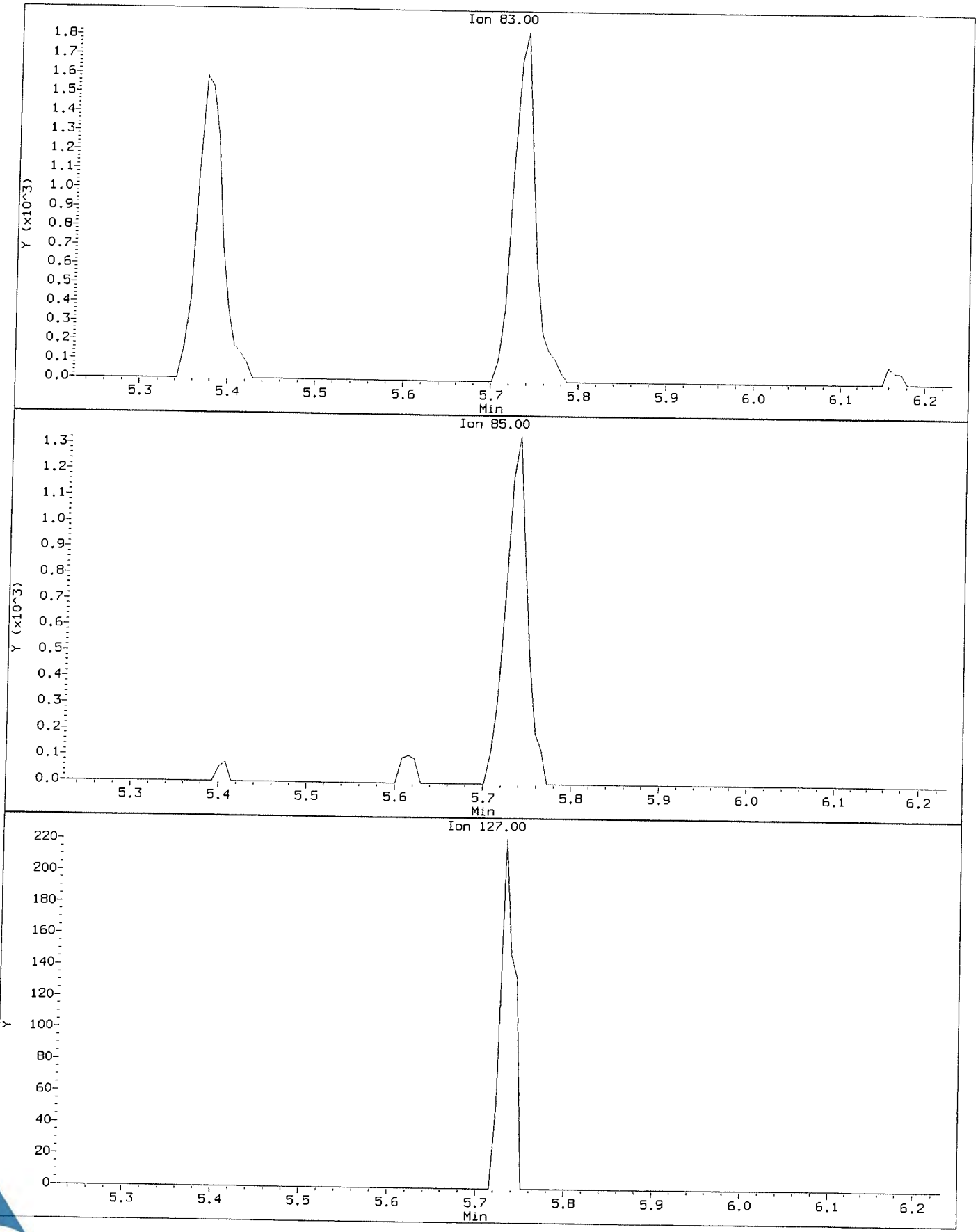
Injection Date: 14-MAR-2019 11:57
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Bromodichloromethane
CAS Number: 75-27-4



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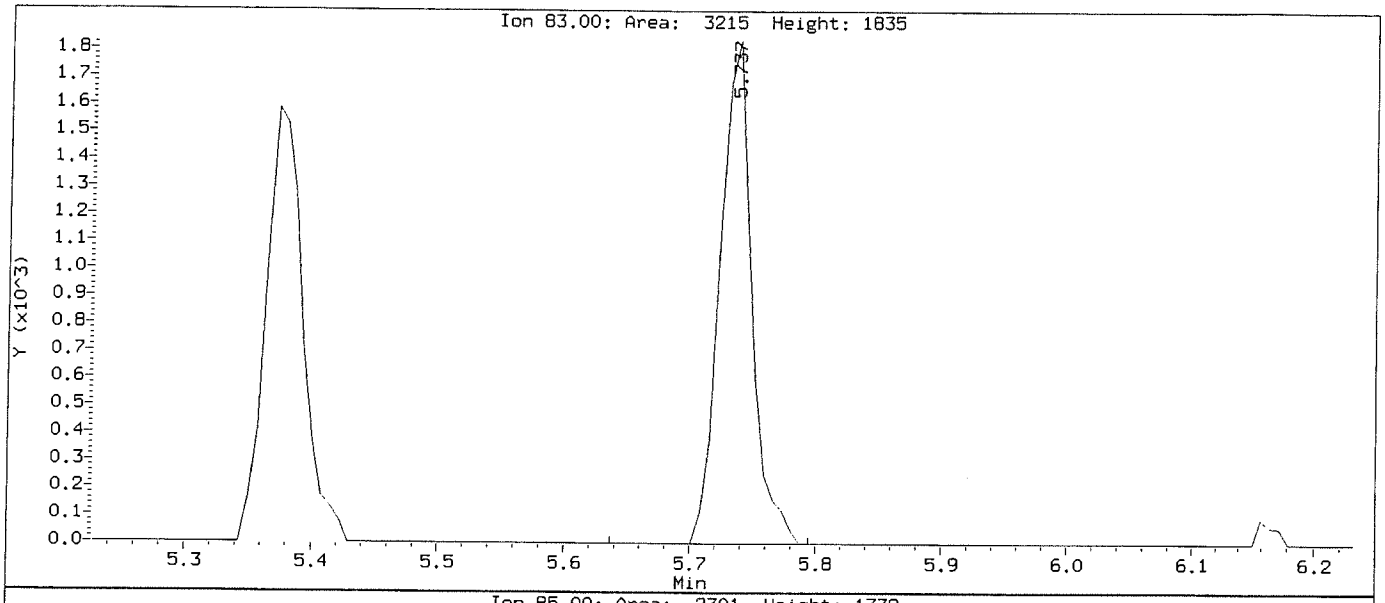
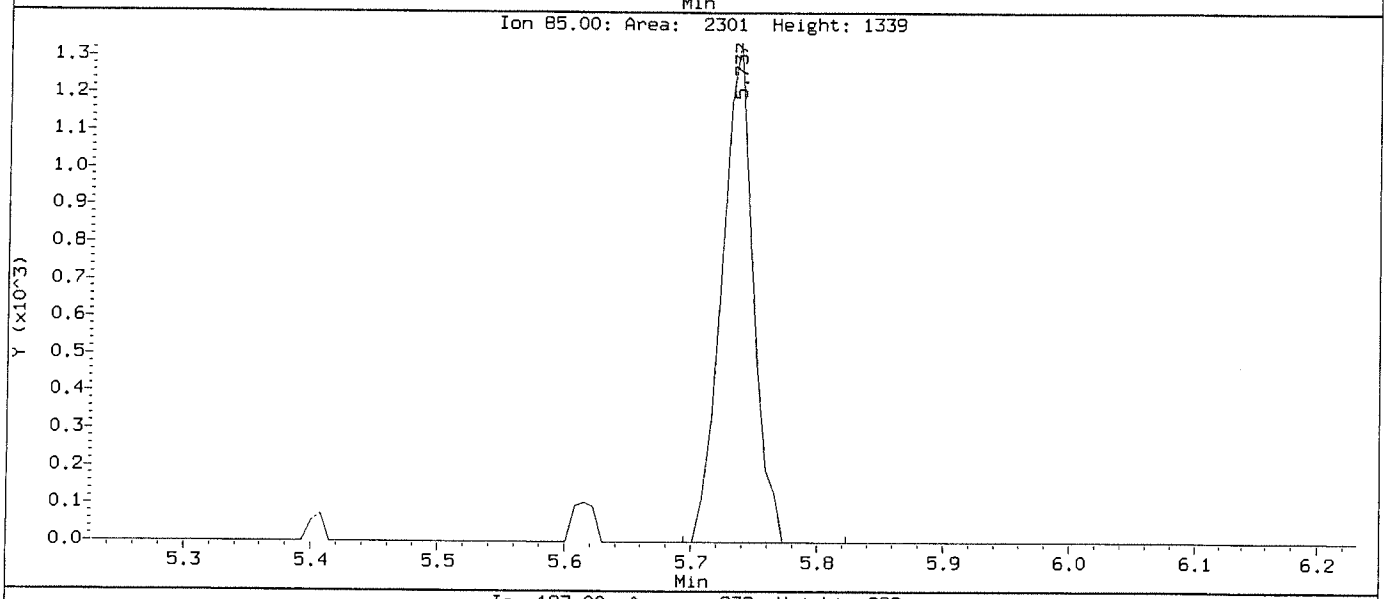
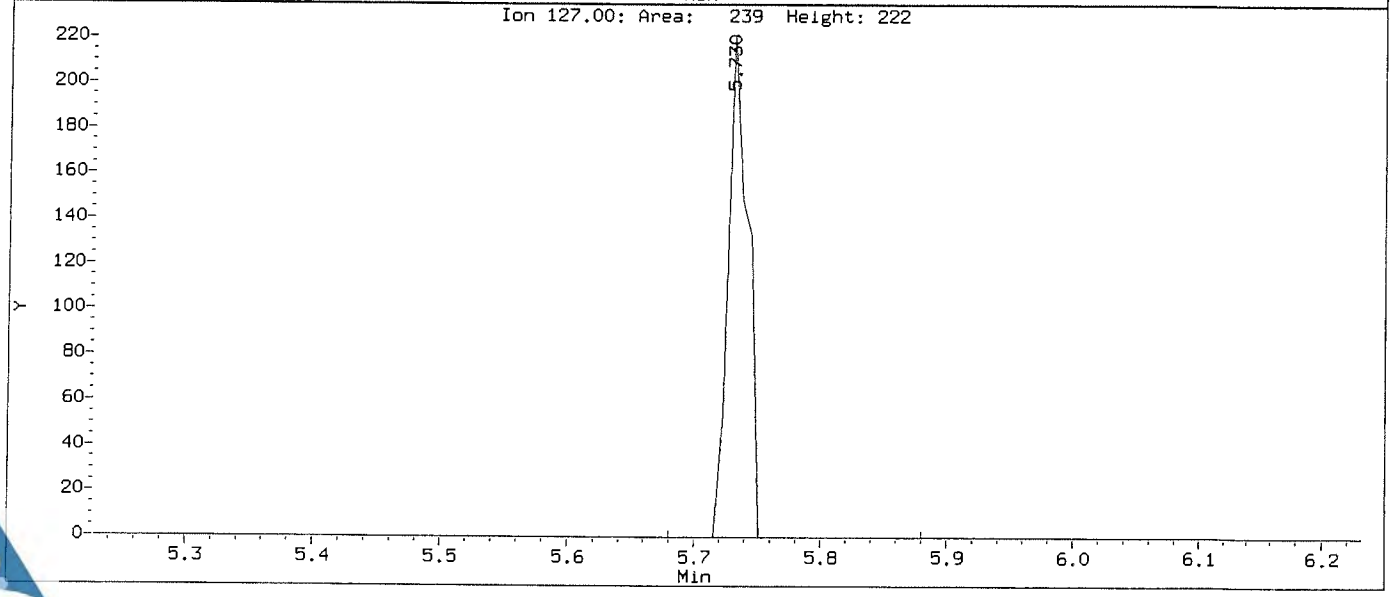
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Bromodichloromethane
CAS Number: 75-27-4







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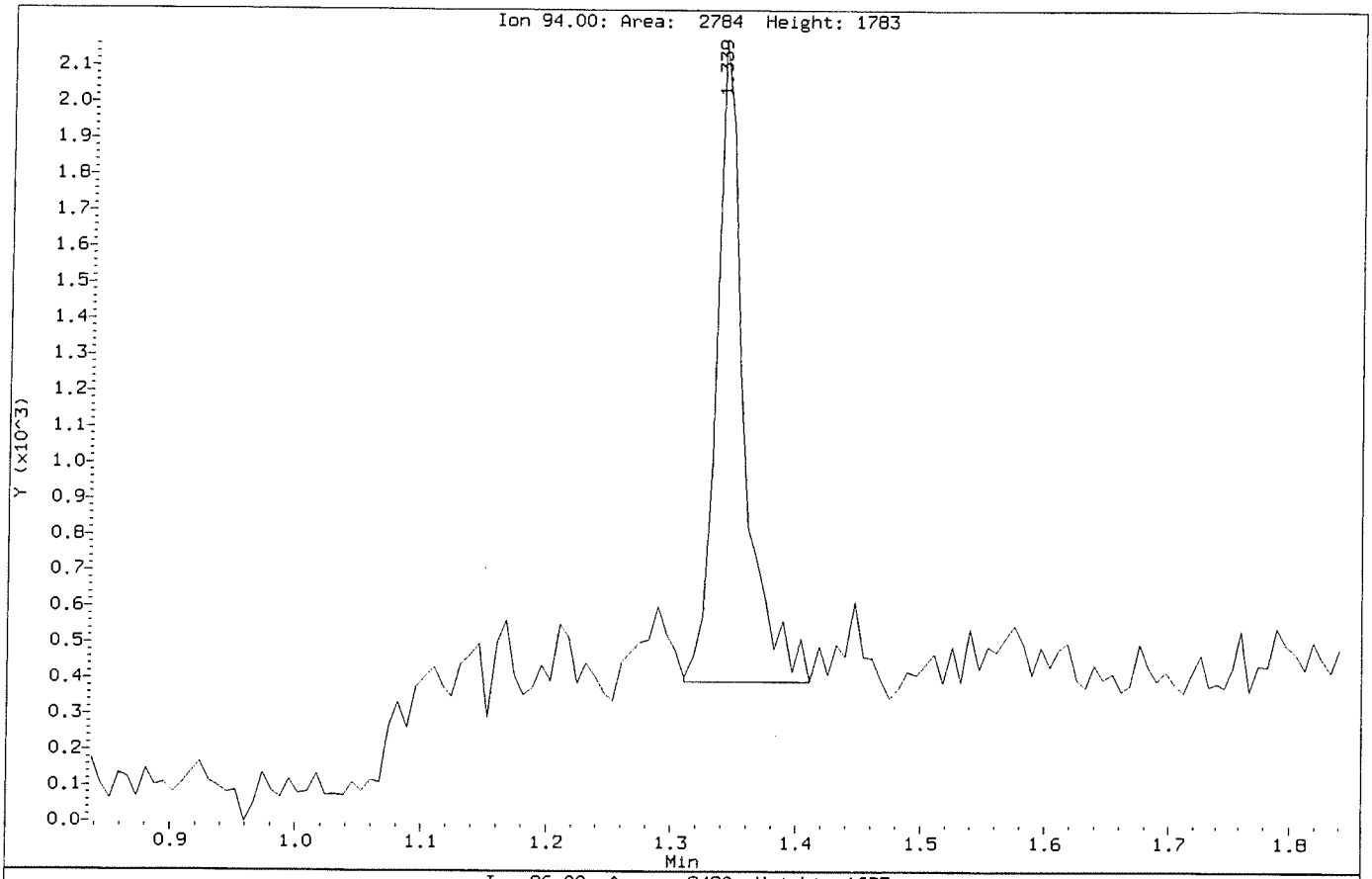
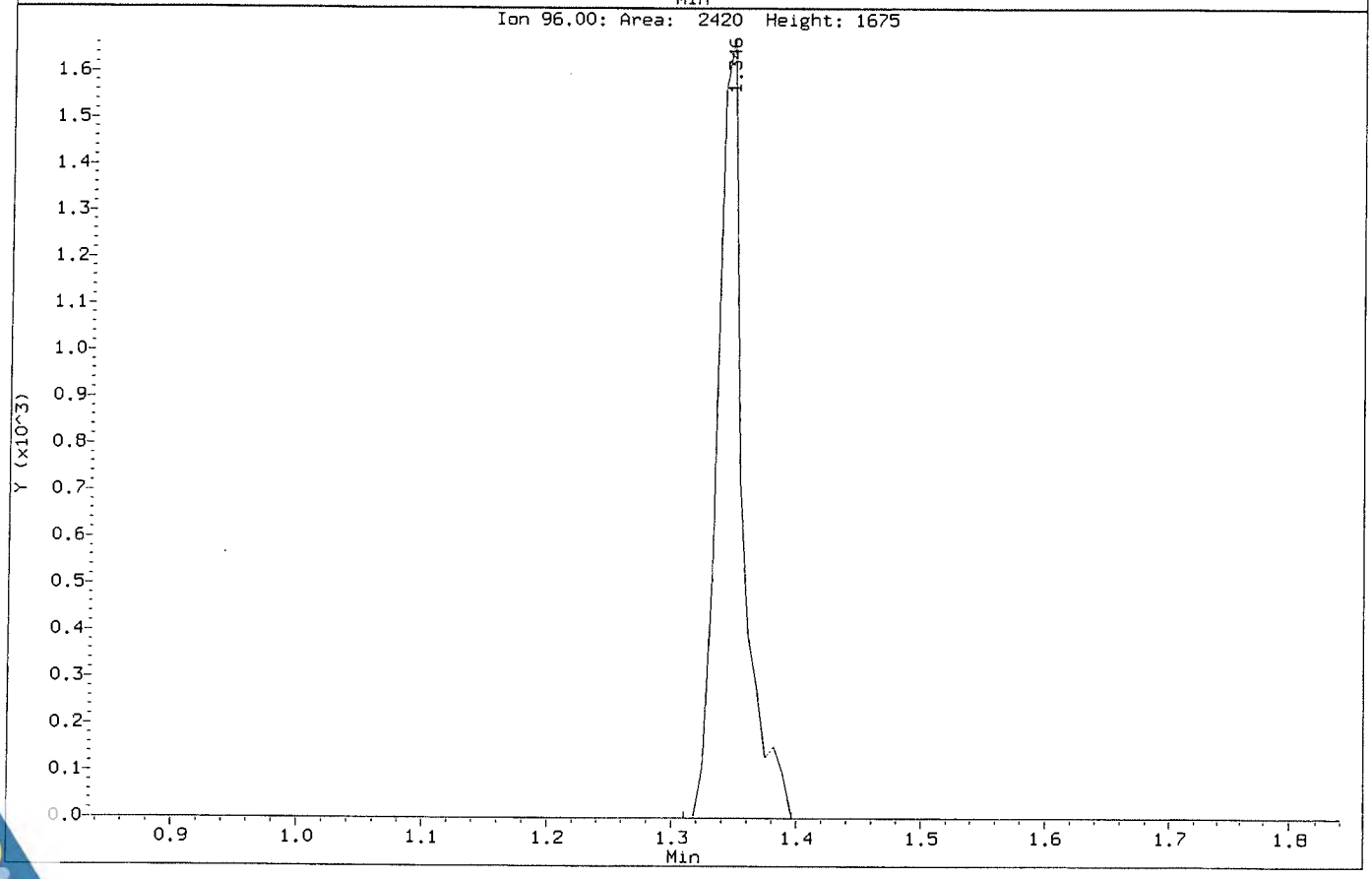
Client Sample ID: VSTD000.5

Compound: Bromomethane
CAS Number: 74-83-9





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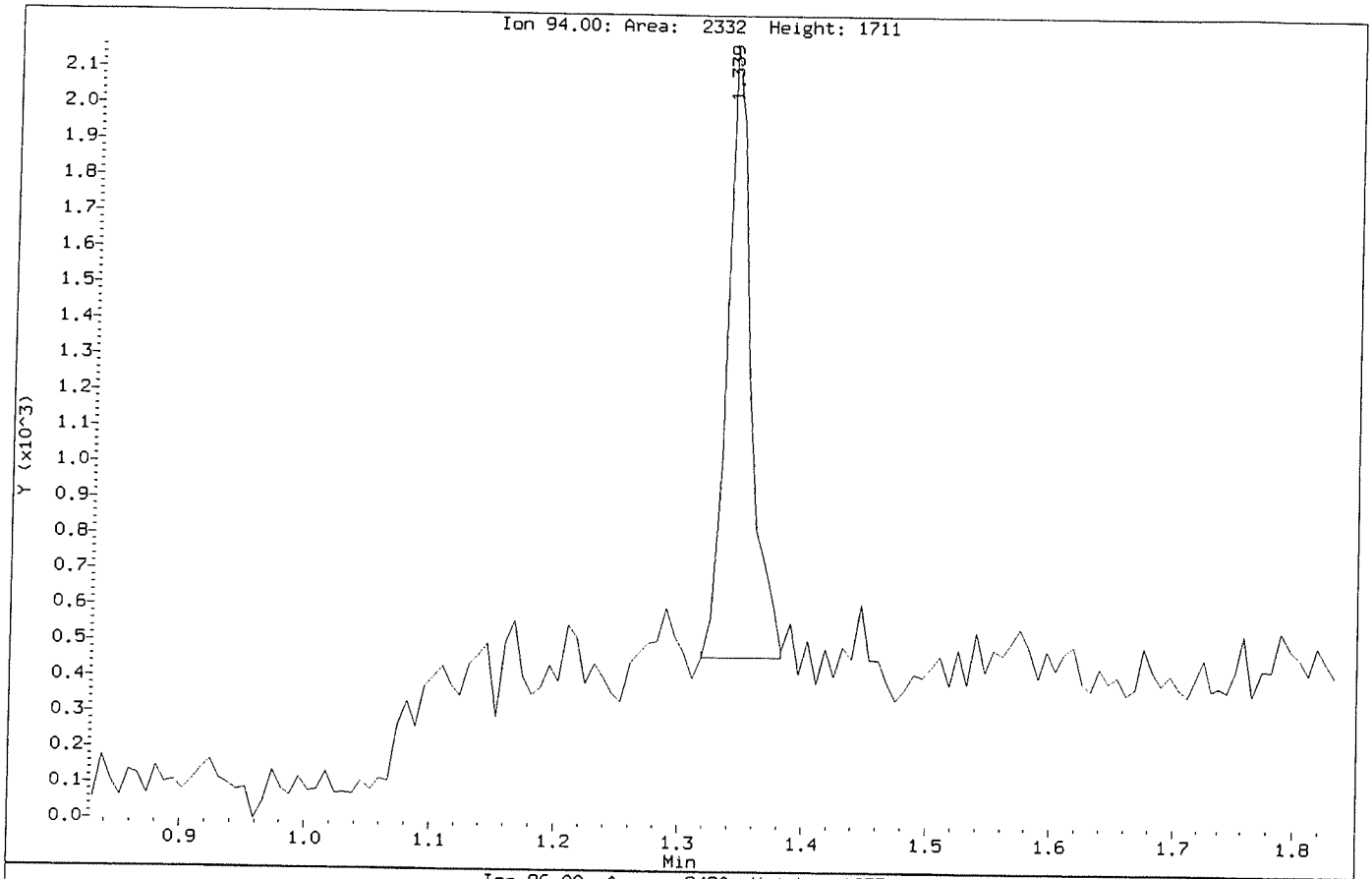
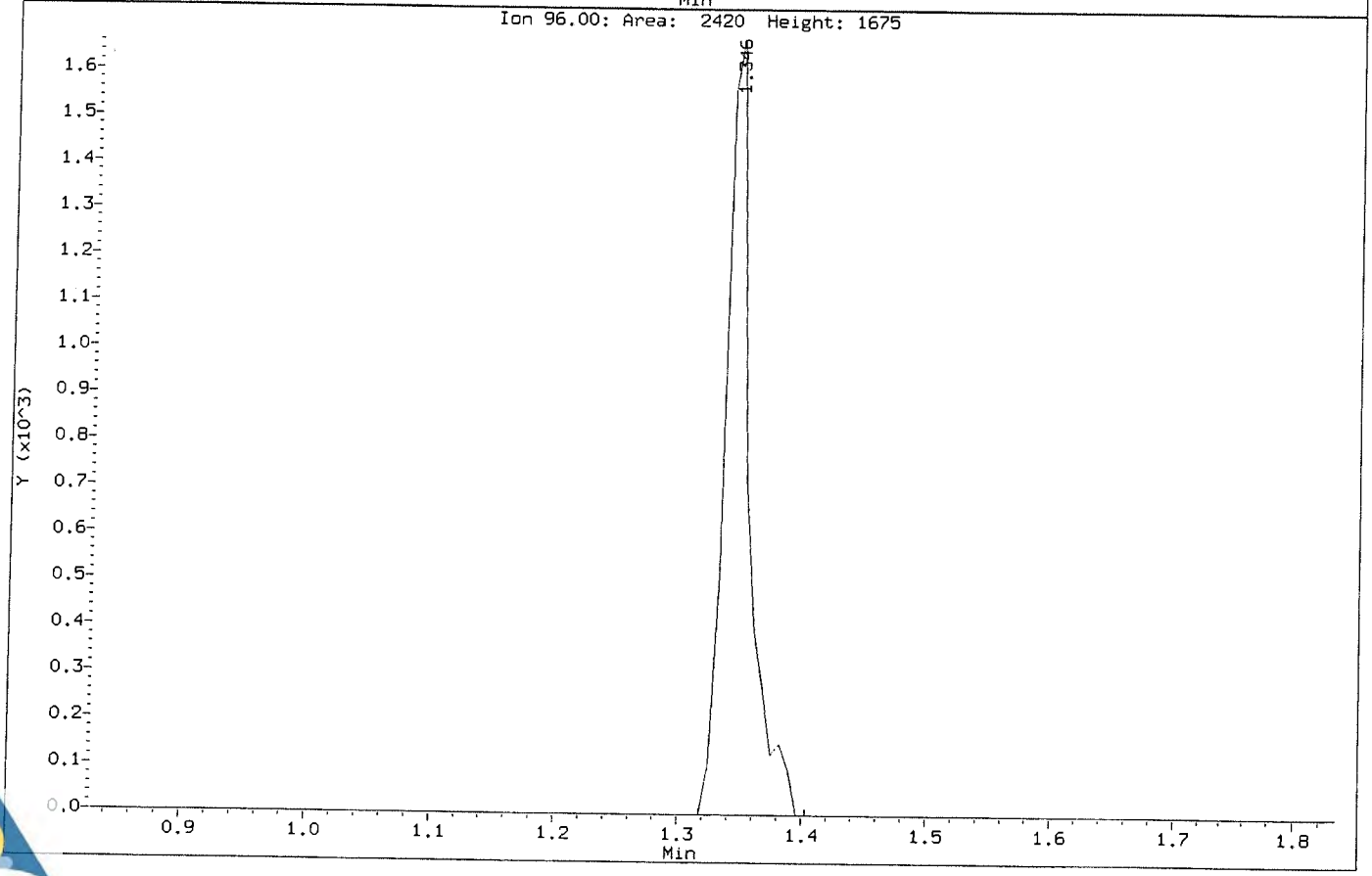
Compound: Bromomethane
CAS Number: 74-83-9





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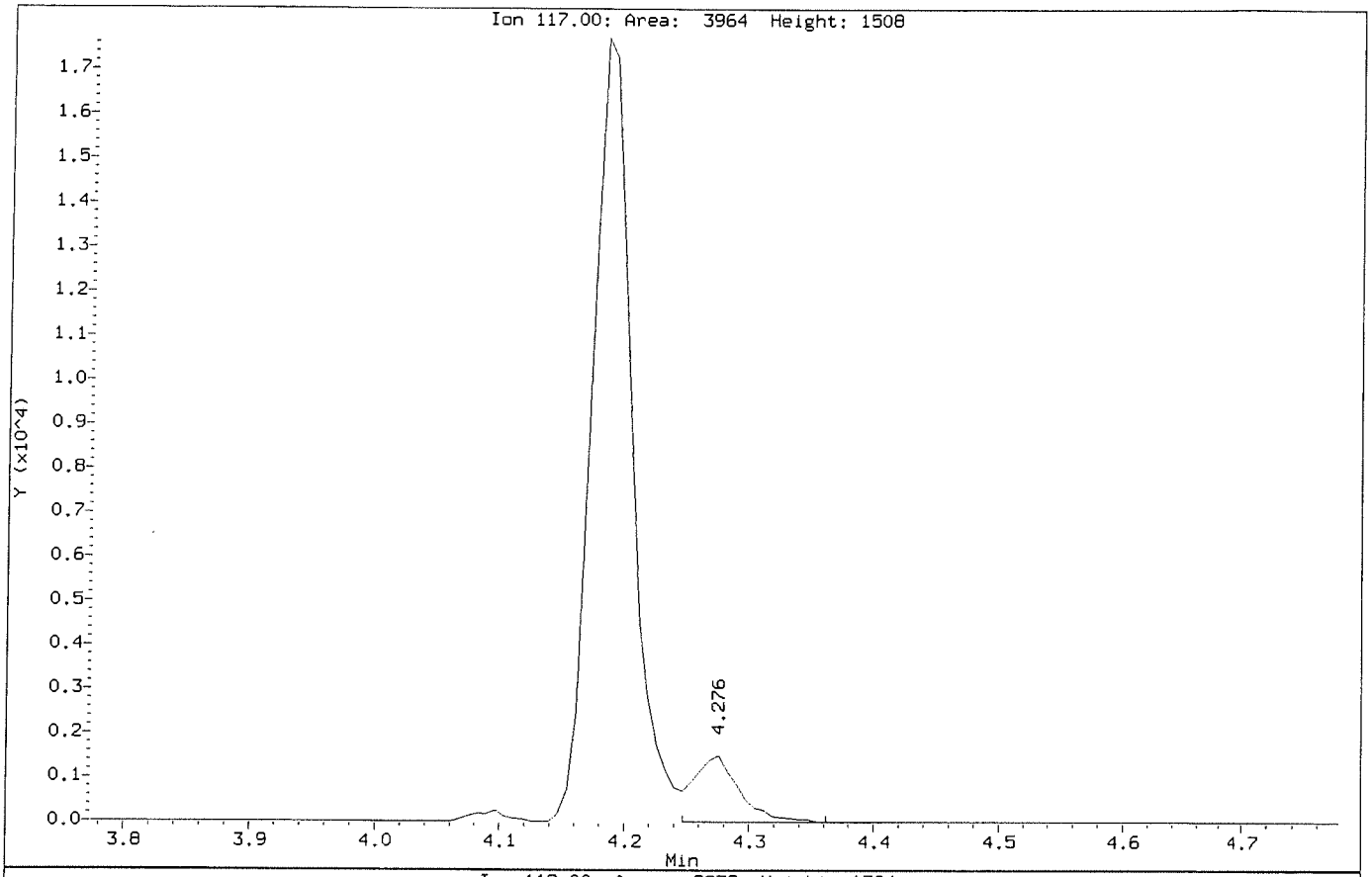
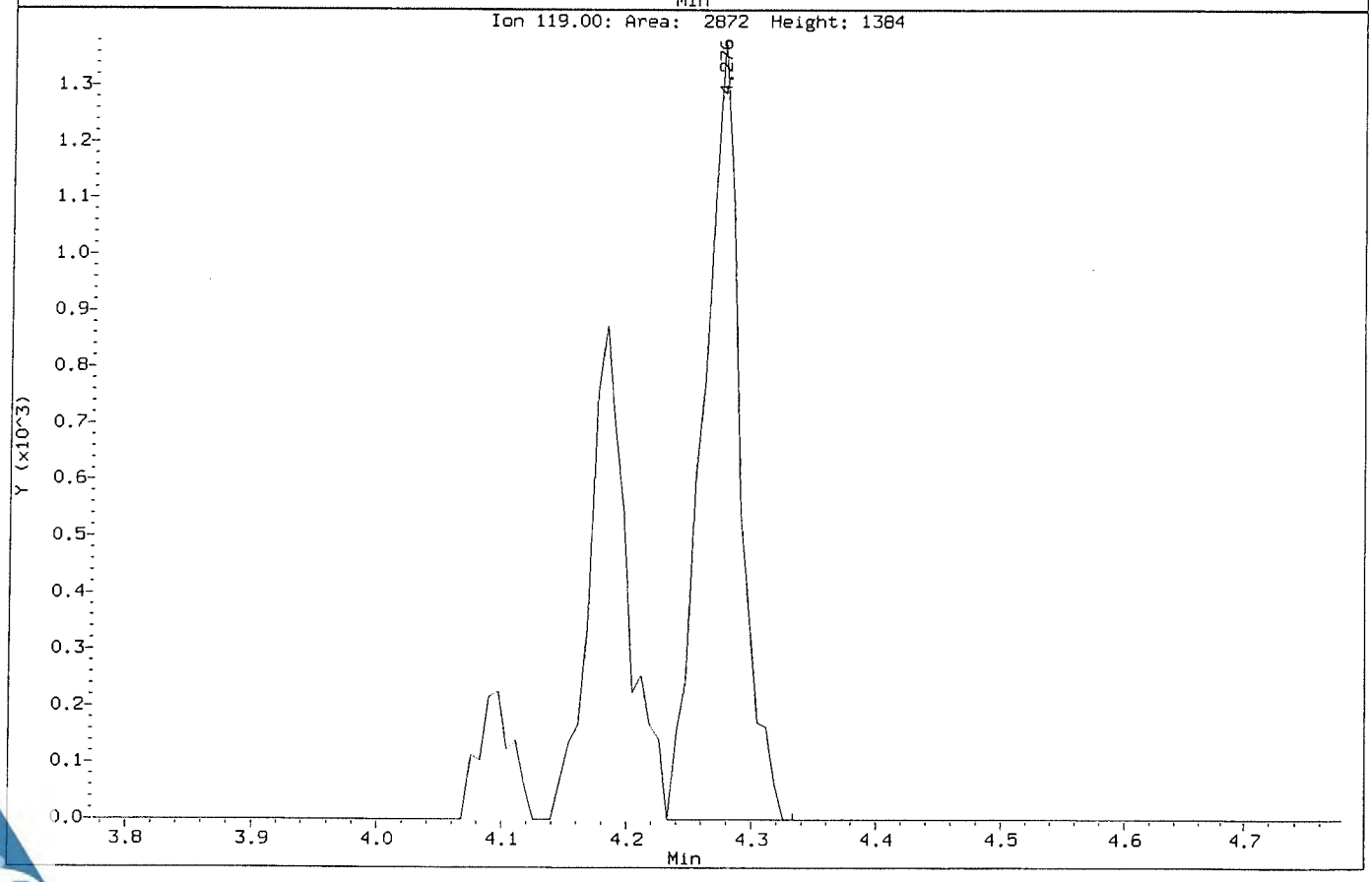
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





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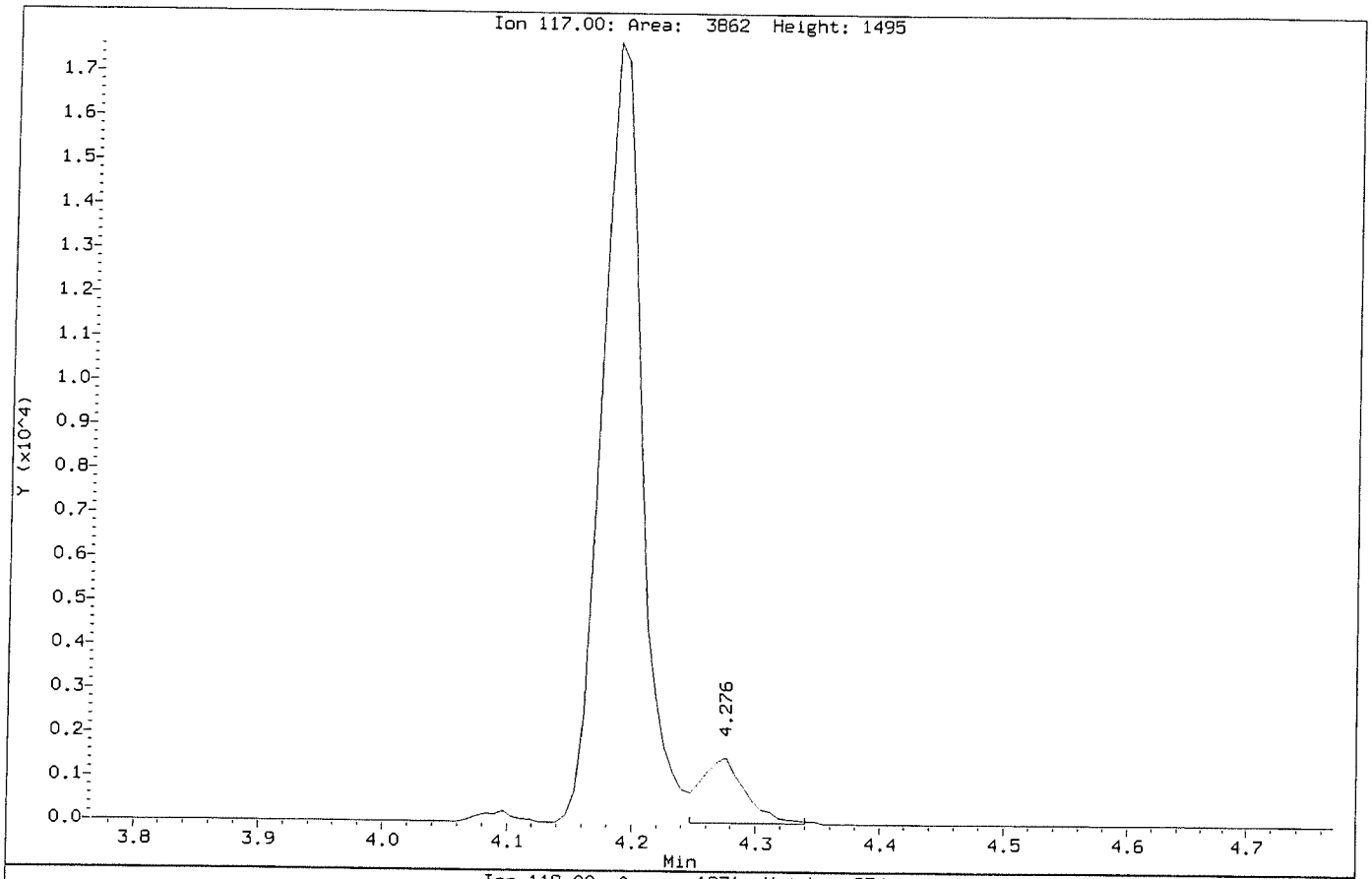
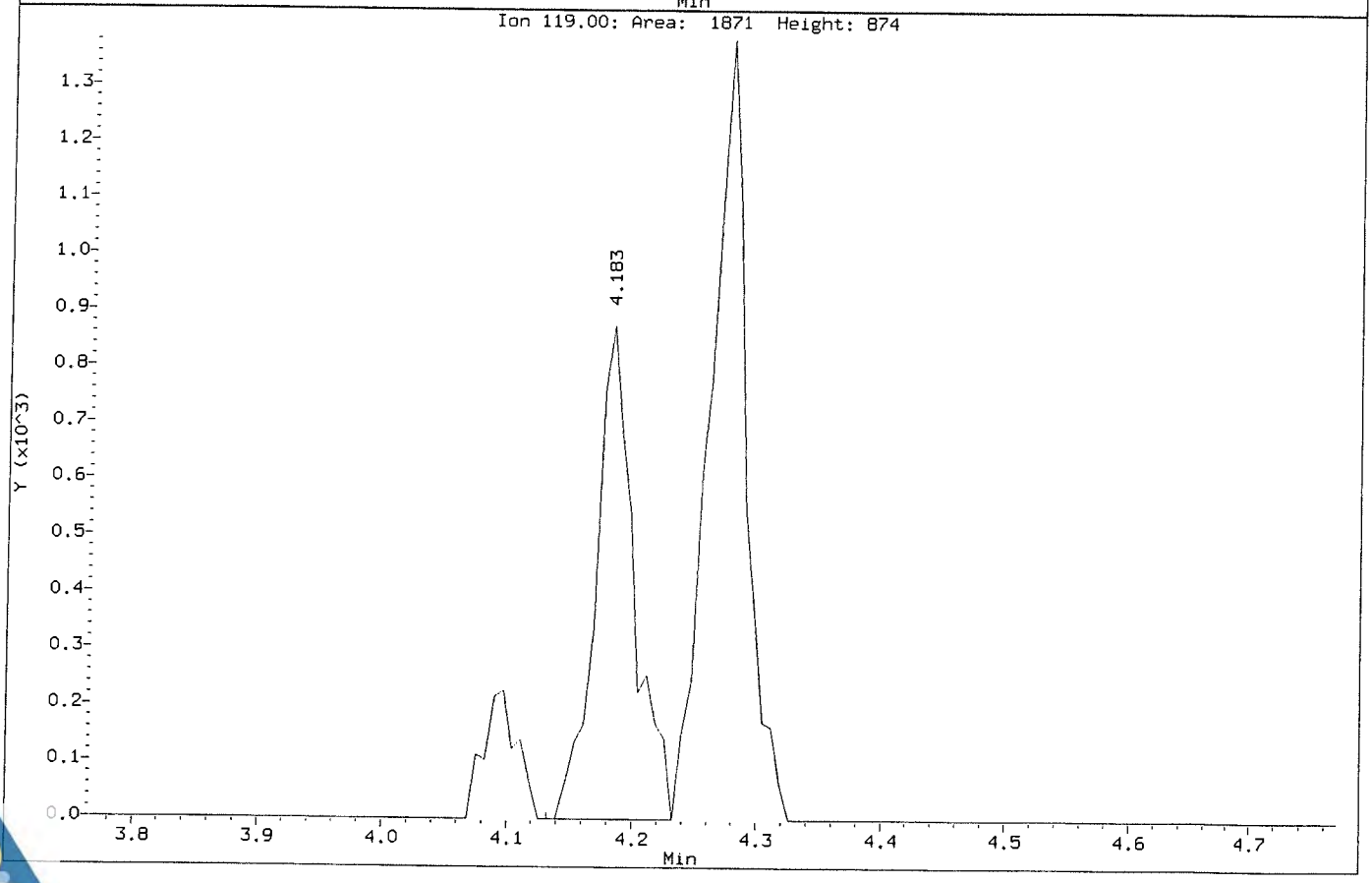
Compound: Carbon Tetrachloride
CAS Number: 56-23-5





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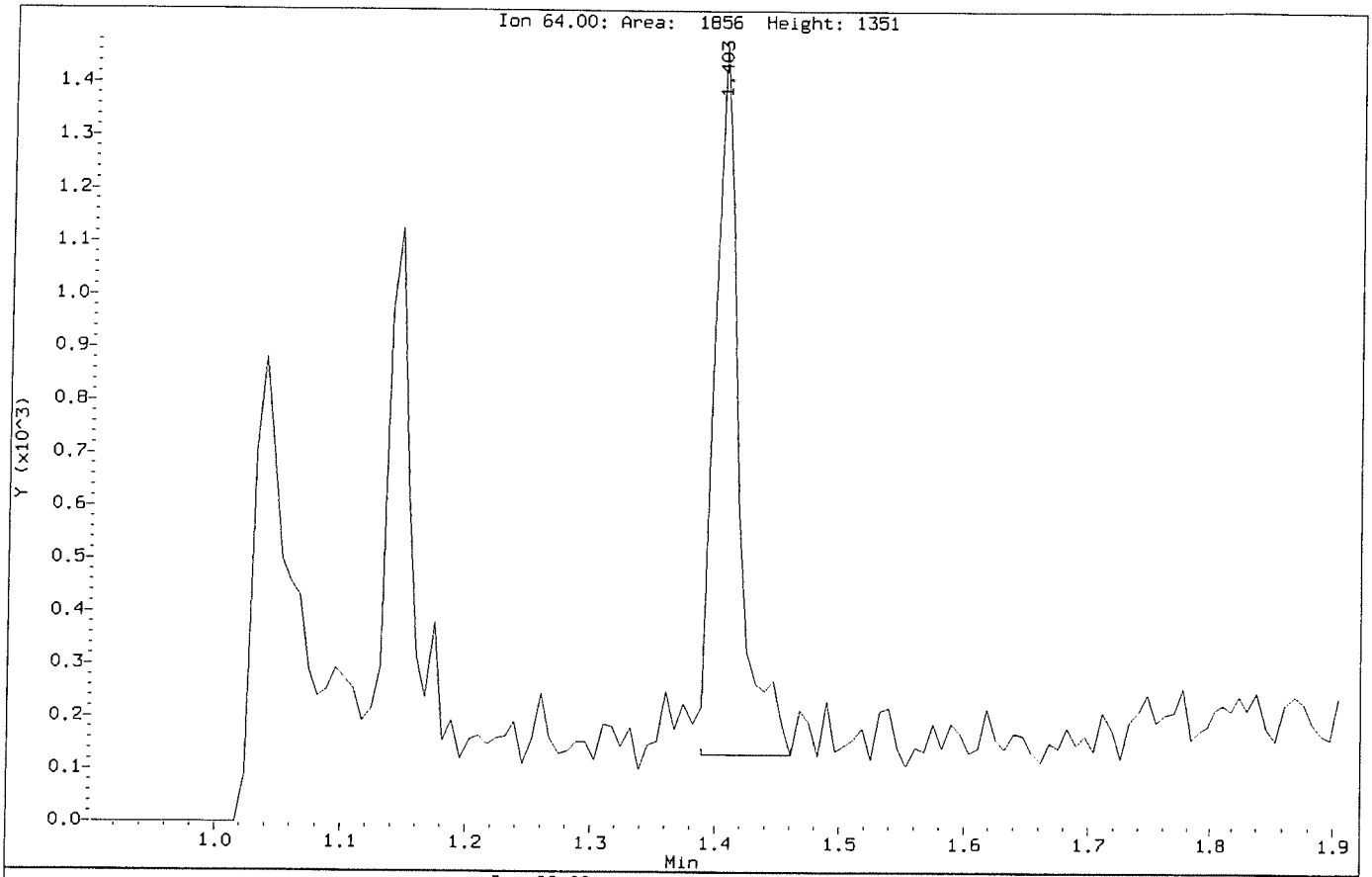
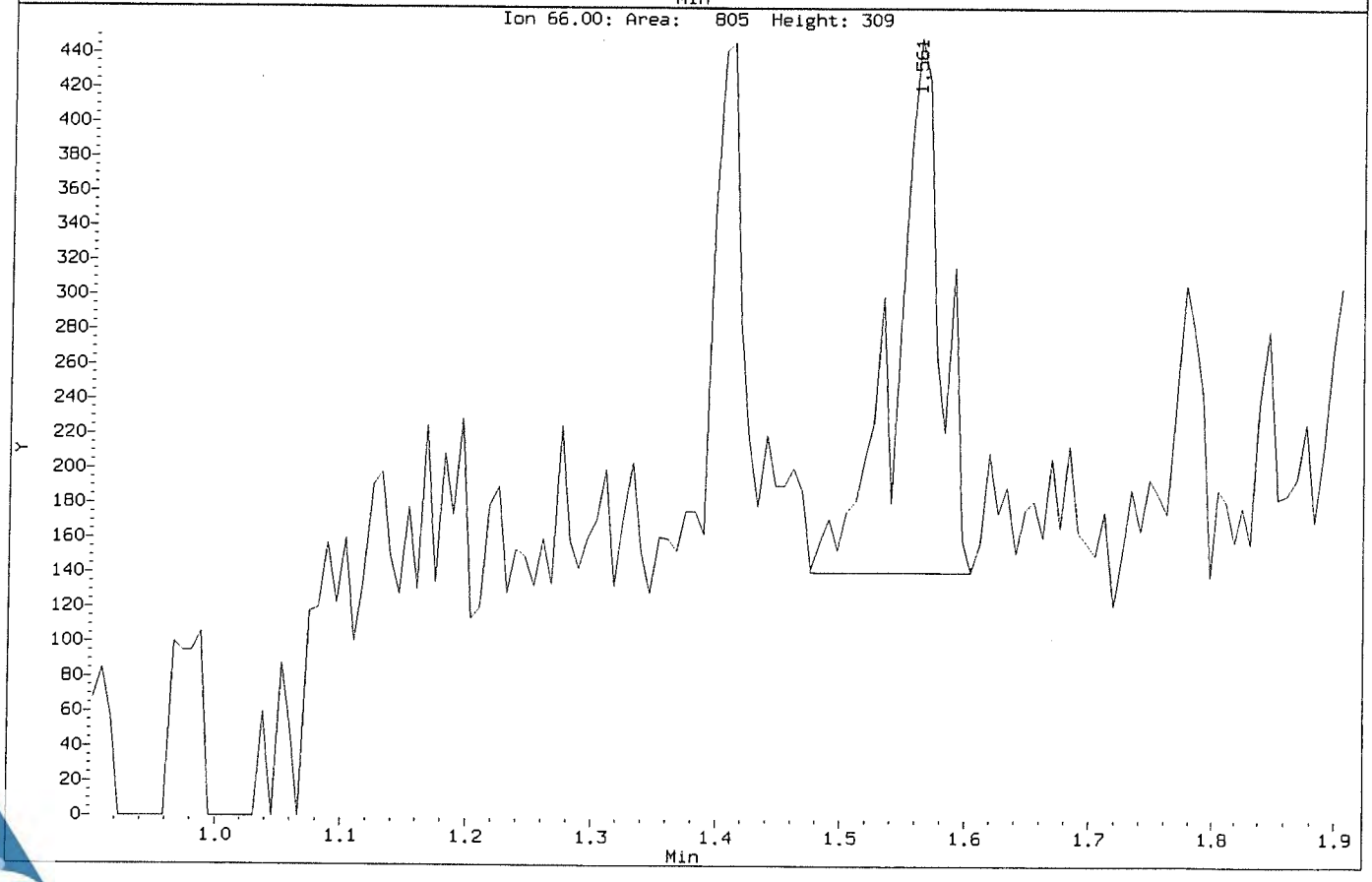
Injection Date: 14-MAR-2019 11:57
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Chloroethane
CAS Number: 75-00-3





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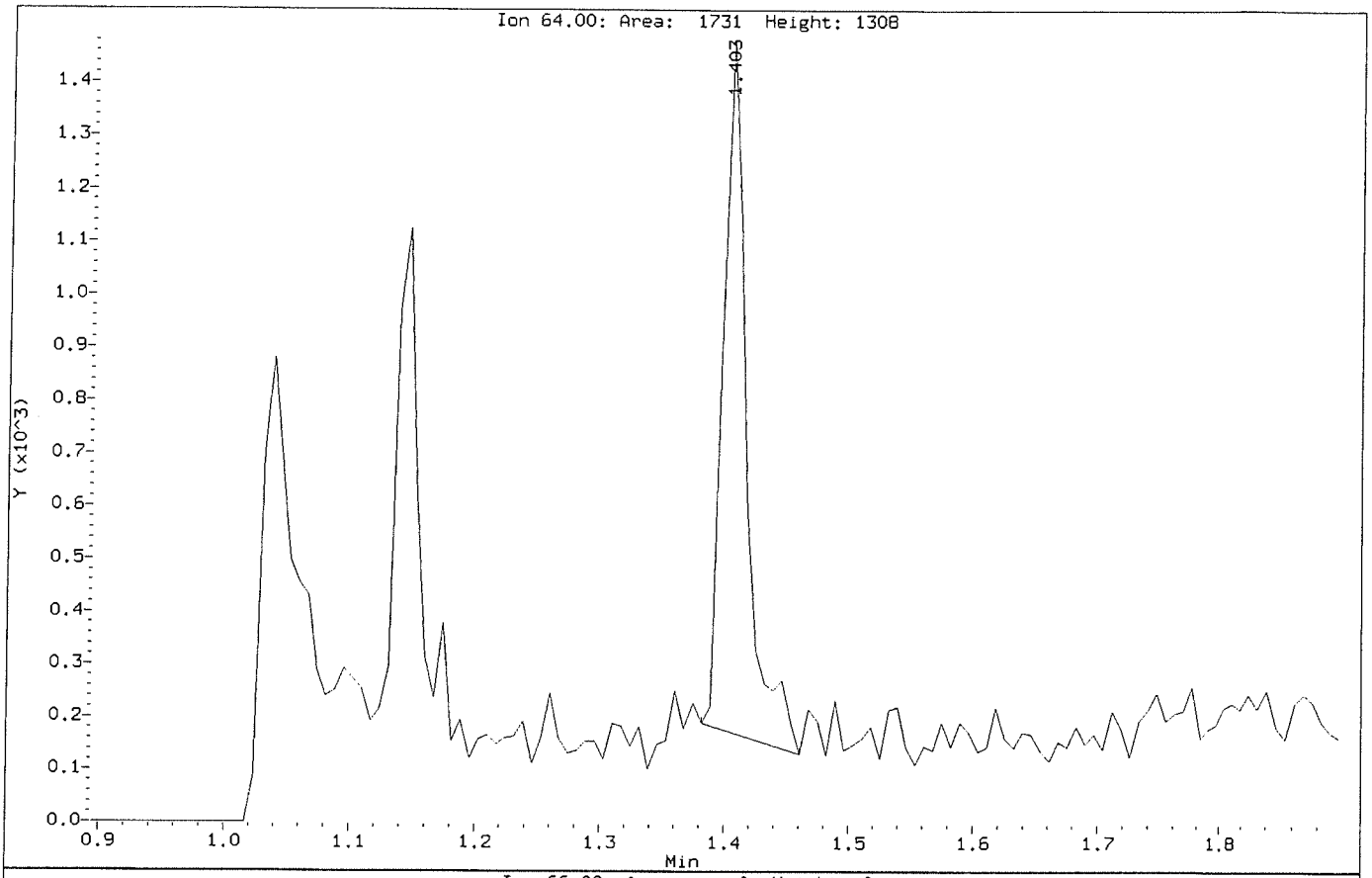
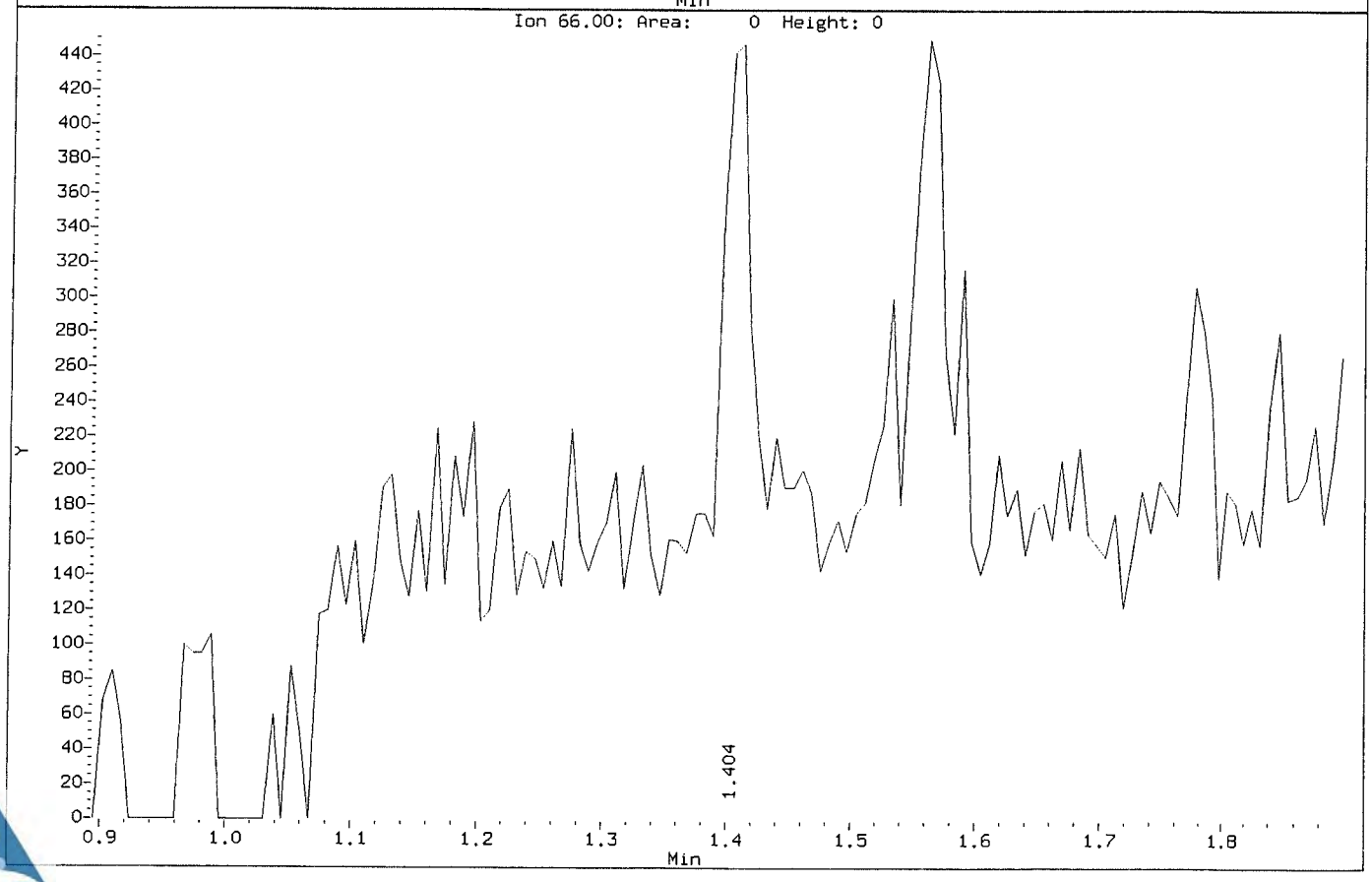
Instrument: voa6.i
Client Sample ID: VSTD000.5

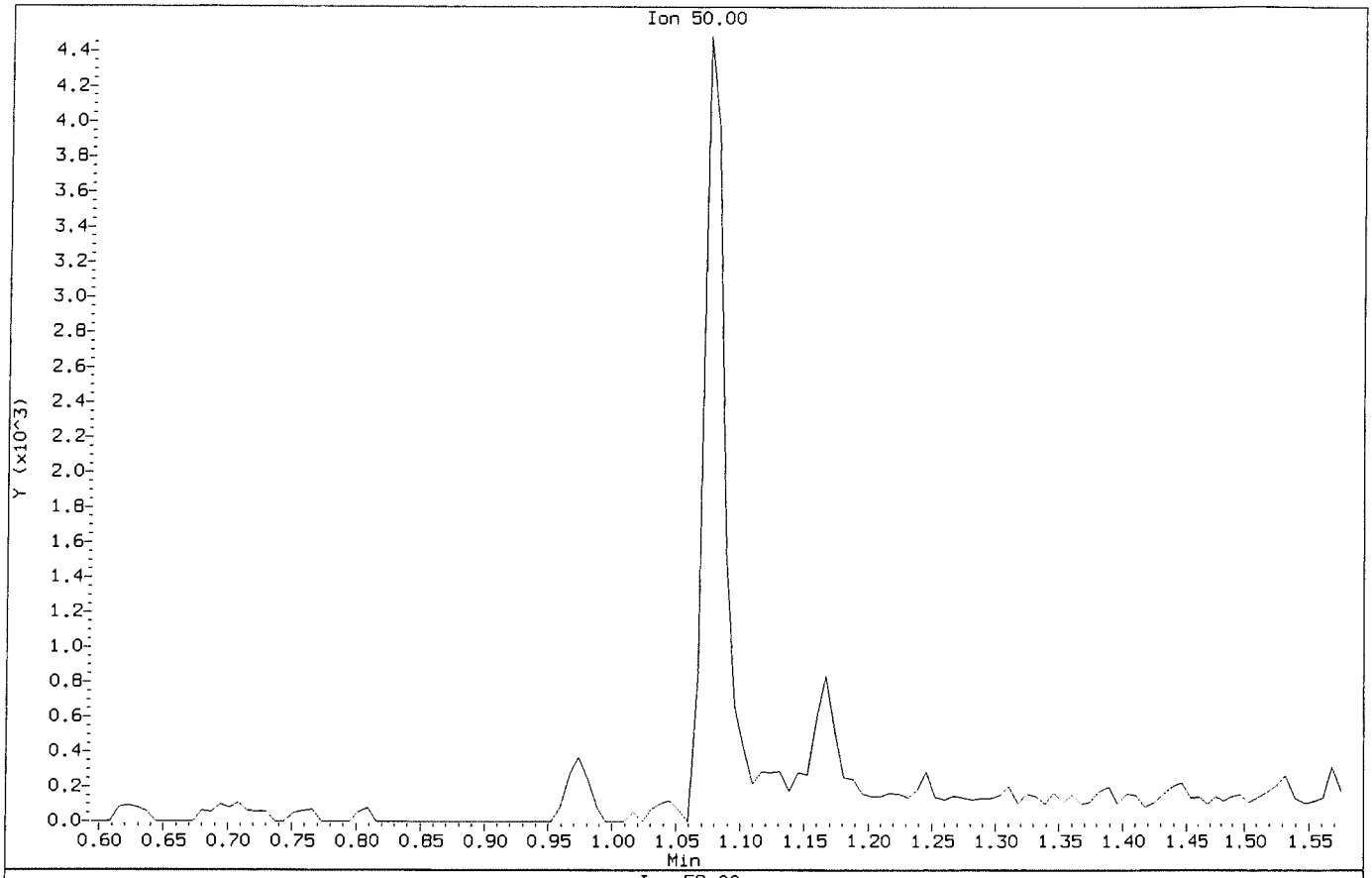
Compound: Chloroethane
CAS Number: 75-00-3

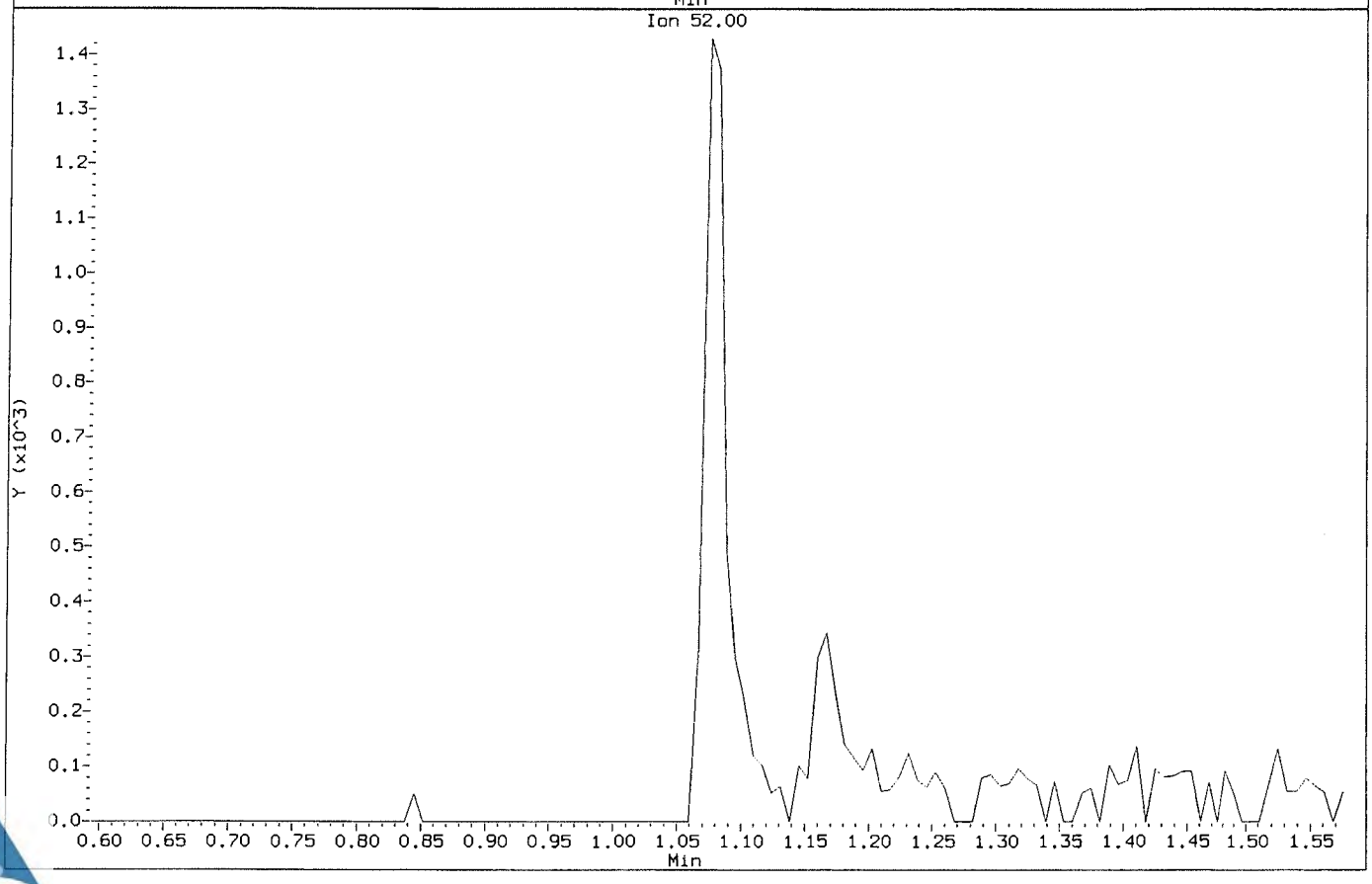




Data File: \\NAHSTWS005\Target\chem\voa6.i\X190314.b\Before\X031403.D
Injection Date: 14-MAR-2019 11:57
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Chloromethane
CAS Number: 74-87-3





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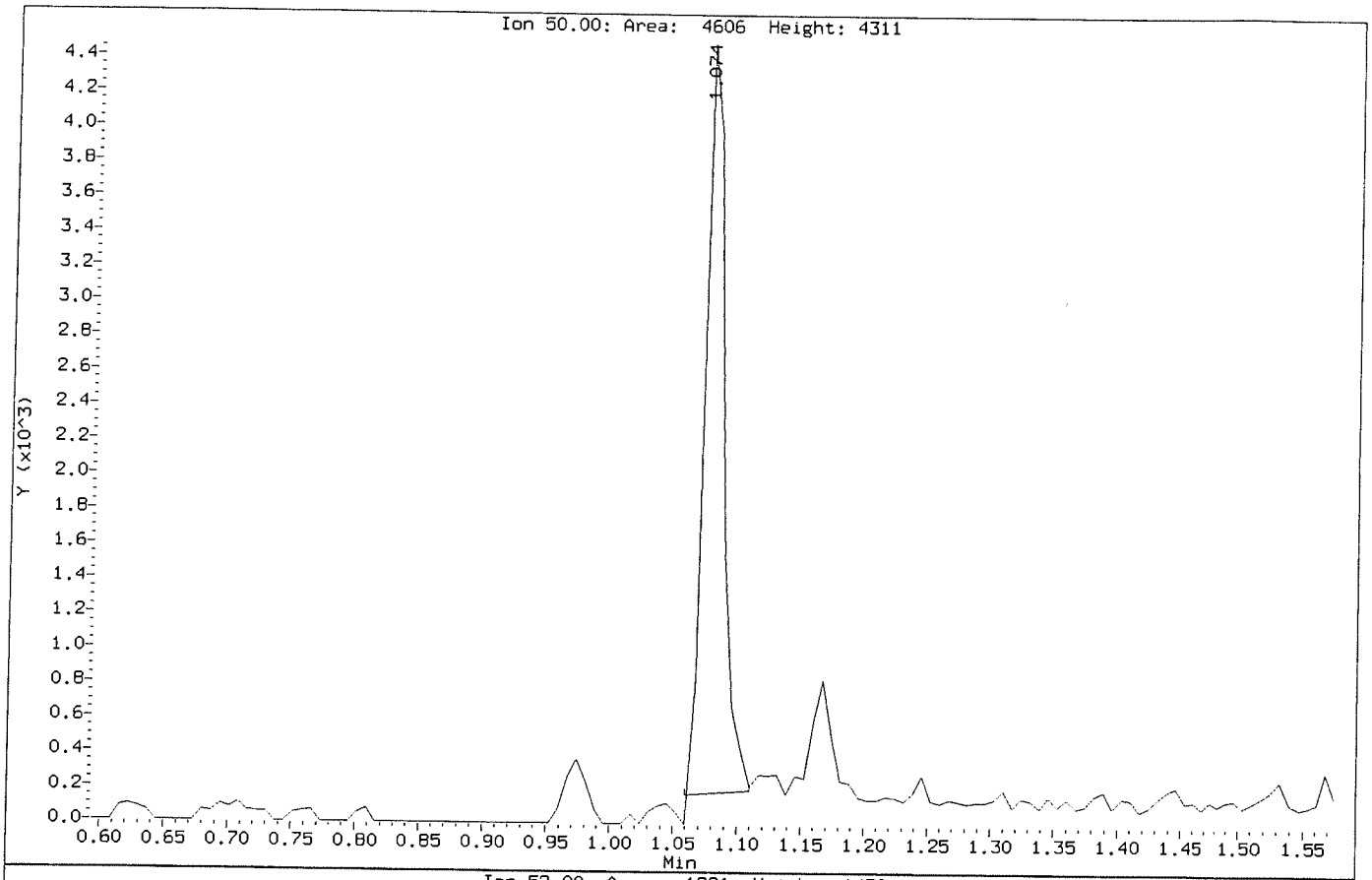
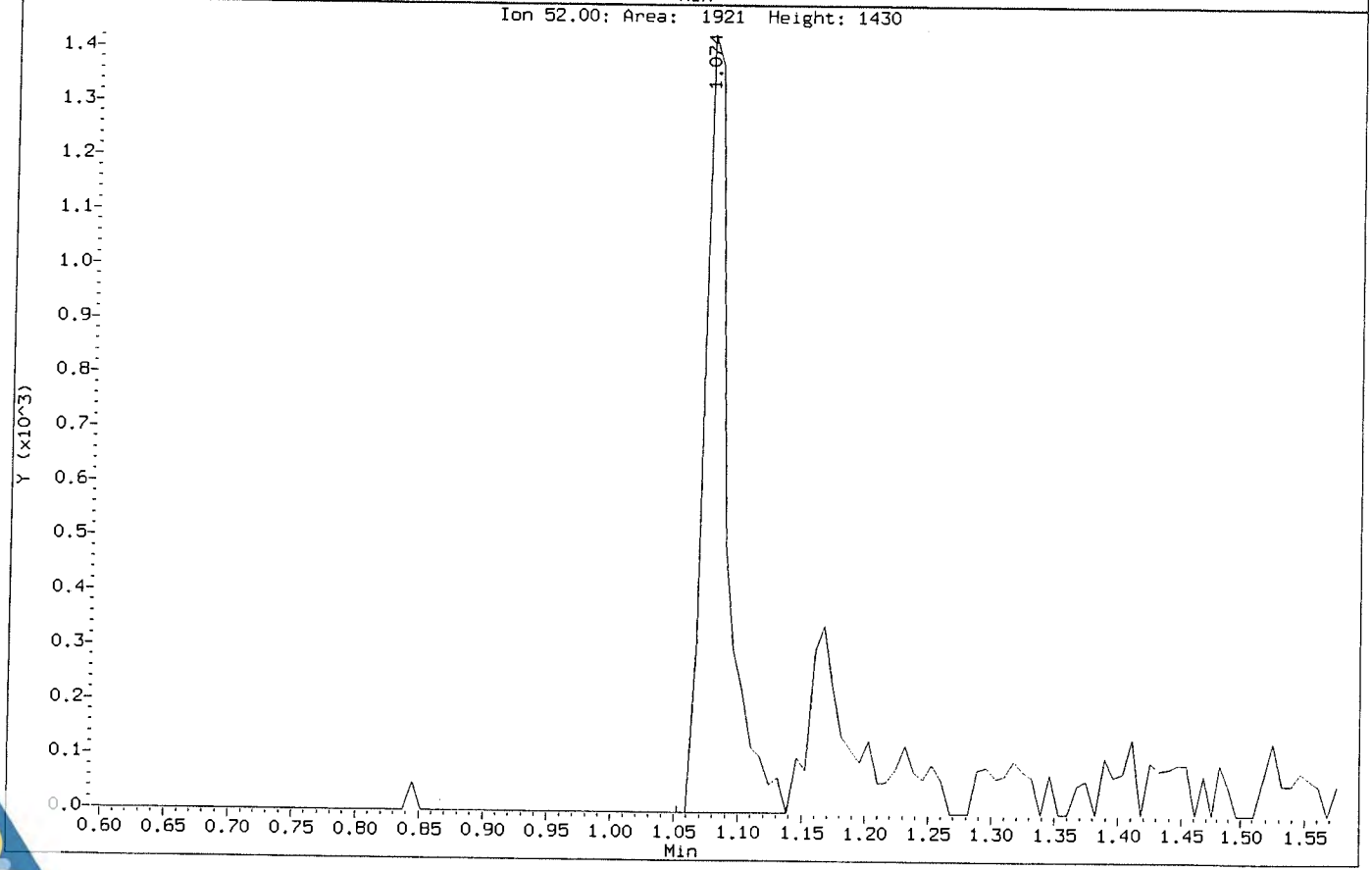
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Chloromethane
CAS Number: 74-87-3





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Report Date: 29-Mar-2019 19:45

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X190314.b\X031404.D
Lab Smp Id: VSTD001 Client Smp ID: VSTD001
Inj Date : 14-MAR-2019 12:44
Operator : PC Inst ID: voa6.i
Smp Info : VSTD001;VSTD001;1;3;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X190314.b\8260W.m
Meth Date : 29-Mar-2019 19:45 voa6.i Quant Type: ISTD
Cal Date : 14-MAR-2019 11:57 Cal File: X031403.D
Als bottle: 5 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.189	4.189	(1.000)	483793	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	749403	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	714726	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	357021	50.0000	
$	30 Dibromofluoromethane	113	4.111	4.111	(0.981)	4699	1.00000	0.91(a)
$	35 1,2-Dichloroethane-d4	65	4.483	4.483	(1.070)	5622	1.00000	0.84(a)
$	48 Toluene-d8	98	6.396	6.396	(0.834)	18273	1.00000	0.82(a)
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	7465	1.00000	0.79(a)
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	5147	1.00000	1.06(a)
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	7509	1.00000	1.06(a)
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	6281	1.00000	1.09(aM)
	53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	3963	1.00000	1.01(a)
	22 1,1-Dichloroethane	63	2.922	2.922	(0.697)	9532	1.00000	1.07(a)
	11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	4218	1.00000	1.02(a)
	32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	7501	1.00000	1.11(a)
	93 1,2,3-Trichlorobenzene	180	11.754	11.754	(1.216)	2488	1.00000	0.98(a)
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	4692	1.00000	1.05(aM)
	90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.173)	4629	1.00000	1.03(a)
	79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	18112	1.00000	1.06(a)
	89 1,2-Dibromo-3-Chloropropane	155	10.665	10.665	(1.103)	645	1.00000	0.92(a)
	57 1,2-Dibromoethane	107	7.269	7.269	(0.948)	5006	1.00000	1.06(a)
	88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	10733	1.00000	1.05(a)

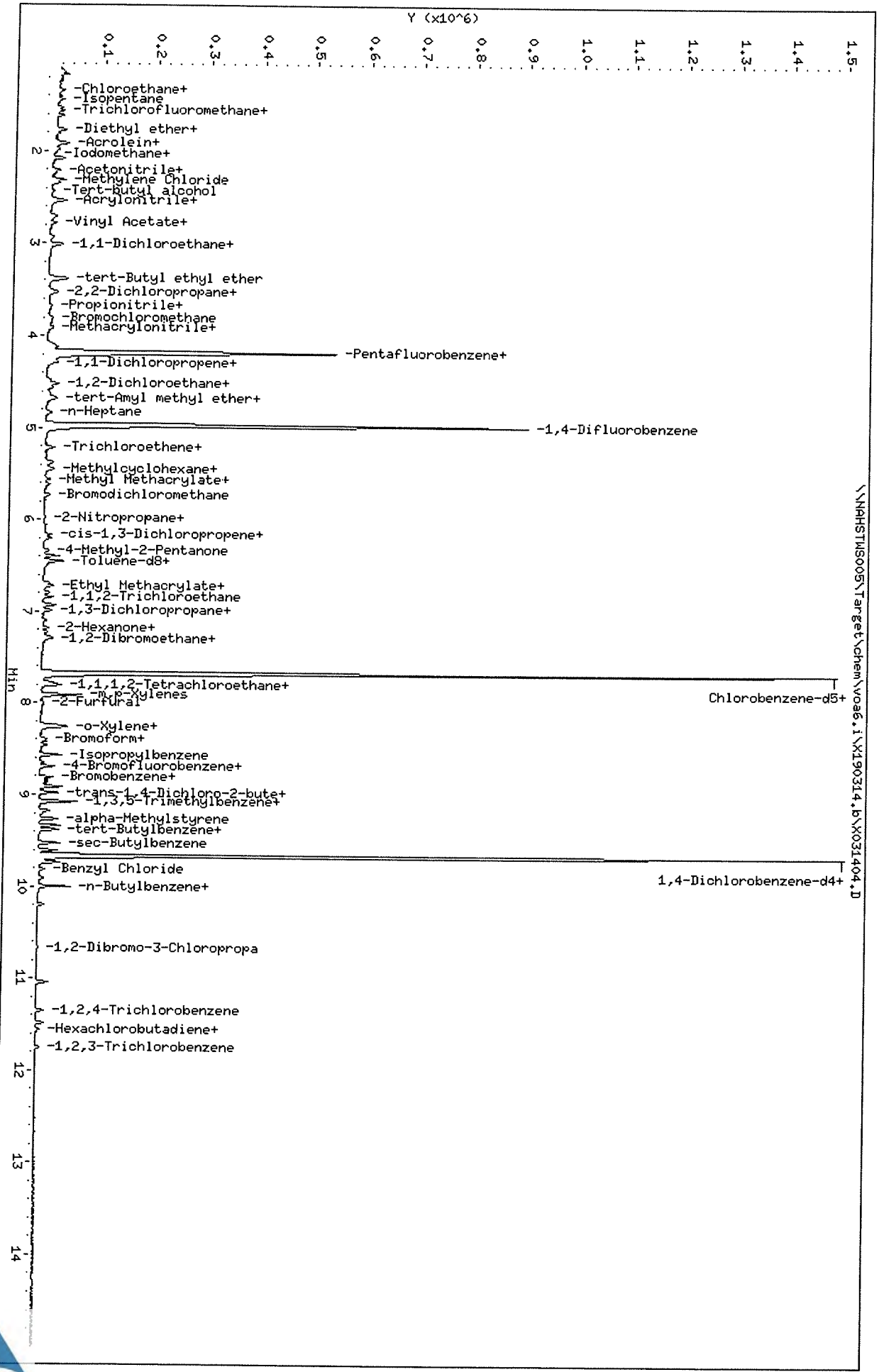
Data File: \\NAHSTWS005\Target\chem\voa6.i\X190314.b\X031404.D
Report Date: 29-Mar-2019 19:45

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33 1,2-Dichloroethane	62	4.569	4.569	(0.919)	6769	1.00000	1.07(a)
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	5786	1.00000	1.09(aM)
75 1,3,5-Trimethylbenzene	105	9.075	9.075	(0.939)	17654	1.00000	1.04(a)
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	12042	1.00000	1.11(a)
54 1,3-Dichloropropane	76	6.990	6.990	(0.911)	8748	1.00000	1.09(a)
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	12275	1.00000	1.11(a)
26 2,2-Dichloropropane	77	3.516	3.516	(0.839)	7541	1.00000	1.10(a)
24 2-Butanone	43	3.616	3.616	(0.863)	2985	2.00000	1.80(a)
76 2-Chlorotoluene	91	8.981	8.981	(0.929)	16504	1.00000	1.08(a)
52 2-Hexanone	43	7.098	7.098	(0.925)	5315	2.00000	1.88(a)
77 4-Chlorotoluene	91	9.075	9.075	(0.939)	19175	1.00000	1.10(a)
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	18334	1.00000	1.03(a)
45 4-Methyl-2-Pentanone	43	6.338	6.338	(0.826)	9026	2.00000	2.08(a)
10 Acetone	43	1.976	1.976	(0.472)	6603	2.00000	1.04(a)
37 Benzene	78	4.519	4.519	(0.909)	20297	1.00000	1.05(a)
74 Bromobenzene	156	8.810	8.810	(0.911)	6573	1.00000	1.07(a)
29 Bromochloromethane	128	3.803	3.803	(0.908)	3024	1.00000	1.11(a)
39 Bromodichloromethane	83	5.729	5.729	(1.153)	6534	1.00000	1.02(a)
66 Bromoform	173	8.416	8.416	(1.097)	3505	1.00000	1.90(Ta)
6 Bromomethane	94	1.338	1.338	(0.320)	4965	1.00000	1.72(aM)
19 Carbon Disulfide	76	2.069	2.069	(0.494)	29631	2.00000	2.09(a)
34 Carbon Tetrachloride	117	4.275	4.275	(0.860)	7557	1.00000	3.03(aM)
59 Chlorobenzene	112	7.699	7.699	(1.004)	15223	1.00000	1.09(a)
7 Chloroethane	64	1.403	1.403	(0.335)	4035	1.00000	1.15(a)
28 Chloroform	83	3.917	3.917	(0.935)	9140	1.00000	1.06(a)
3 Chloromethane	50	1.073	1.073	(0.256)	9688	1.00000	0.03(a)
27 cis-1,2-Dichloroethene	96	3.538	3.538	(0.844)	5696	1.00000	1.05(a)
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	8458	1.00000	1.00(a)
55 Dibromochloromethane	129	7.184	7.184	(0.937)	5231	1.00000	1.02(a)
44 Dibromomethane	93	5.558	5.558	(1.118)	3244	1.00000	1.02(a)
2 Dichlorodifluoromethane	85	0.973	0.973	(0.232)	4945	1.00000	2.82(a)
61 Ethylbenzene	106	7.807	7.807	(1.018)	7185	1.00000	1.03(a)
91 Hexachlorobutadiene	225	11.489	11.489	(1.188)	2972	1.00000	2.11(a)
67 Isopropylbenzene	105	8.566	8.566	(1.117)	21754	1.00000	1.05(a)
62 m,p-Xylenes	106	7.907	7.907	(1.031)	18045	2.00000	2.10(a)
17 Methylene Chloride	84	2.305	2.305	(0.550)	6642	1.00000	1.28(a)
87 n-Butylbenzene	91	9.999	9.999	(1.034)	15517	1.00000	1.01(a)
73 n-Propylbenzene	91	8.917	8.917	(0.922)	26650	1.00000	1.07(a)
92 Naphthalene	128	11.553	11.553	(1.195)	6542	1.00000	0.97(a)
63 o-Xylene	106	8.244	8.244	(1.075)	8953	1.00000	1.04(a)
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	22460	1.00000	1.08(a)
64 Styrene	104	8.265	8.265	(1.078)	14331	1.00000	1.00(a)
78 tert-Butylbenzene	119	9.340	9.340	(0.966)	16138	1.00000	1.09(a)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	4772	1.00000	1.11(a)
50 Toluene	91	6.453	6.453	(0.841)	22643	1.00000	1.08(a)
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	4728	1.00000	1.03(a)
51 trans-1,3-Dichloropropene	75	6.689	6.689	(1.346)	6722	1.00000	0.98(a)
38 Trichloroethene	130	5.214	5.214	(1.049)	5684	1.00000	1.07(a)
8 Trichlorofluoromethane	101	1.561	1.561	(0.373)	7958	1.00000	1.85(a)
5 Vinyl Chloride	62	1.145	1.145	(0.273)	6821	1.00000	1.09(a)

Data File: \\NAHSTWS005\Target\chem\voa6.i\X190314.b\X031404.D
Report Date: 29-Mar-2019 19:45

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



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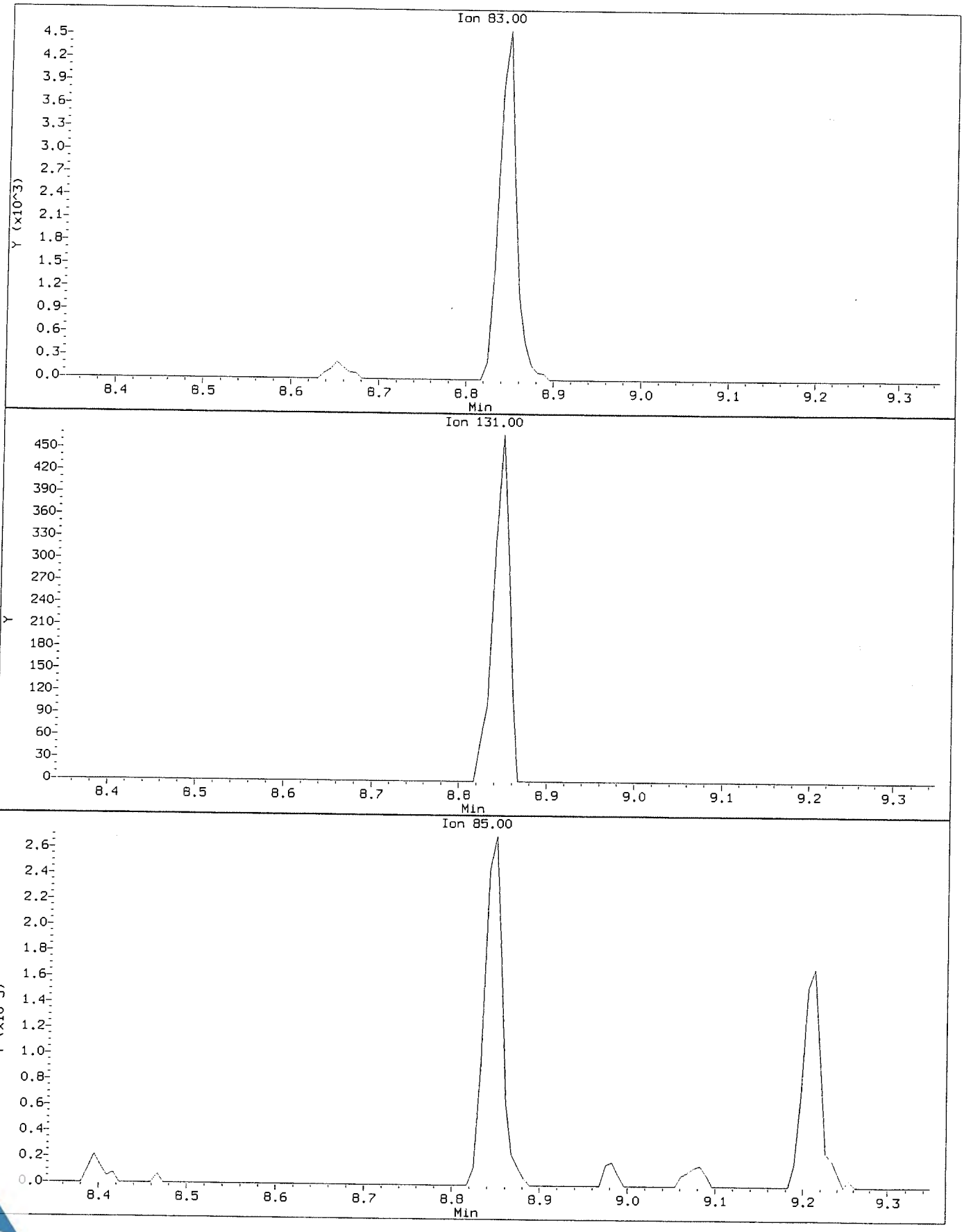
Date : 14-MAR-2019 12:44
Client ID: VSTD001
Sample Info: VSTD001;VSTD001;1;3;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X190314.b\Before\X031404.D
Injection Date: 14-MAR-2019 12:44
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5



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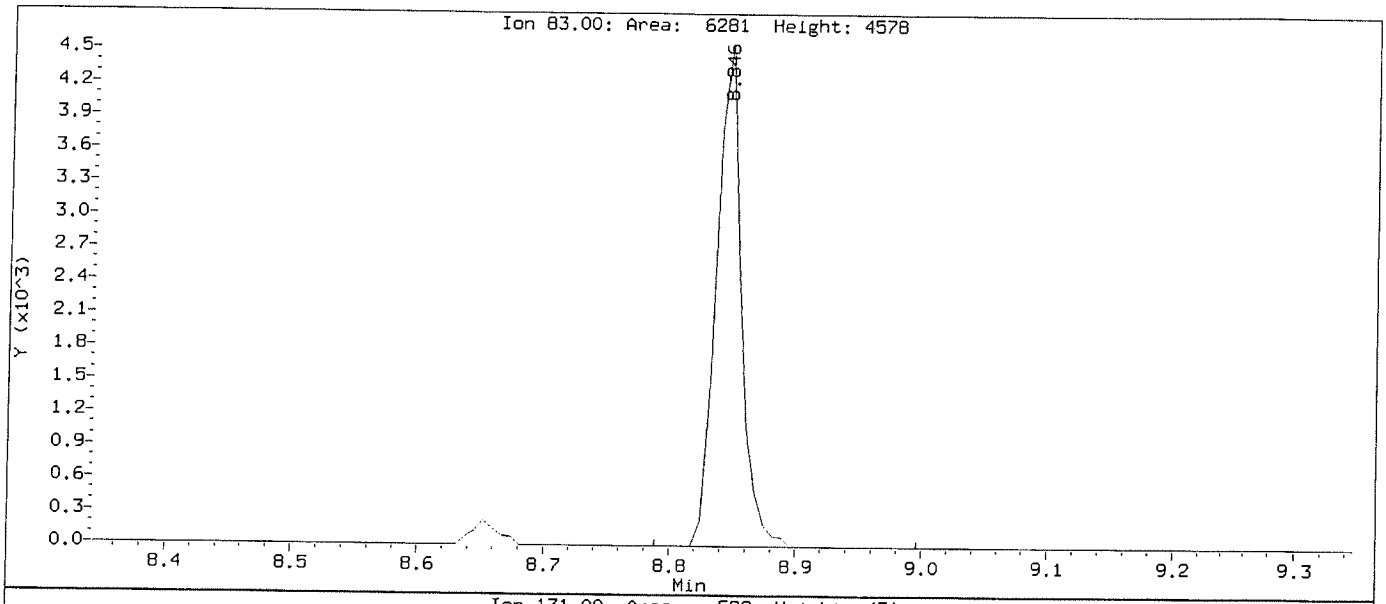
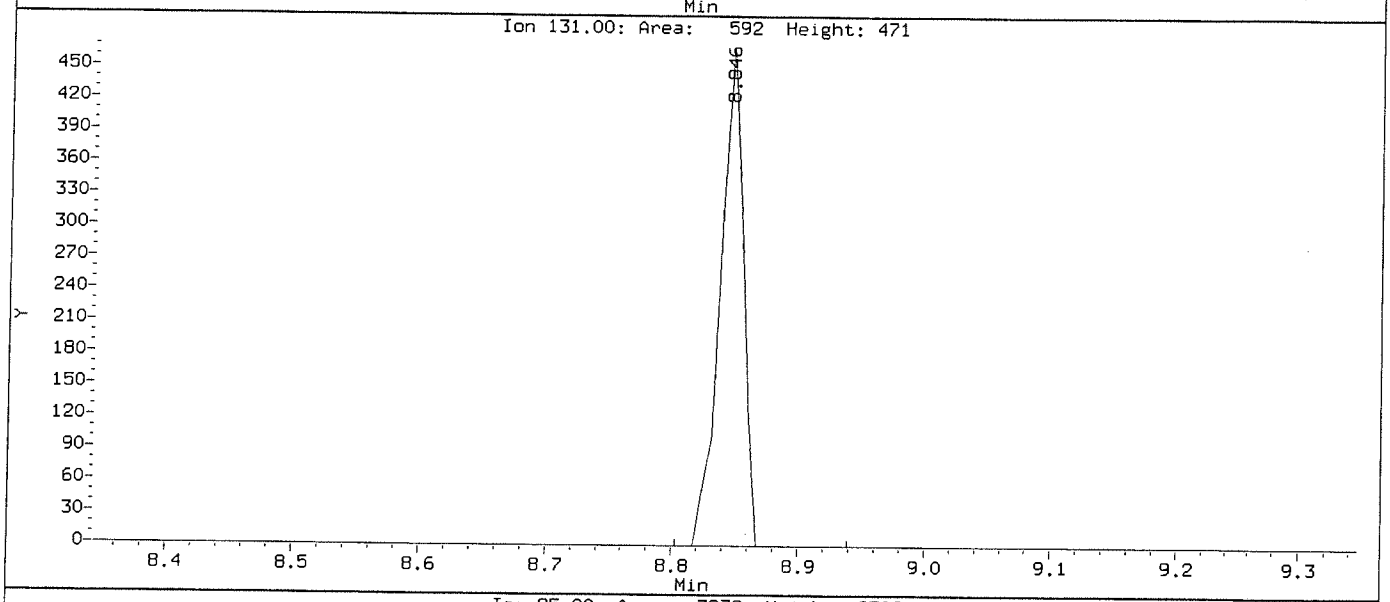
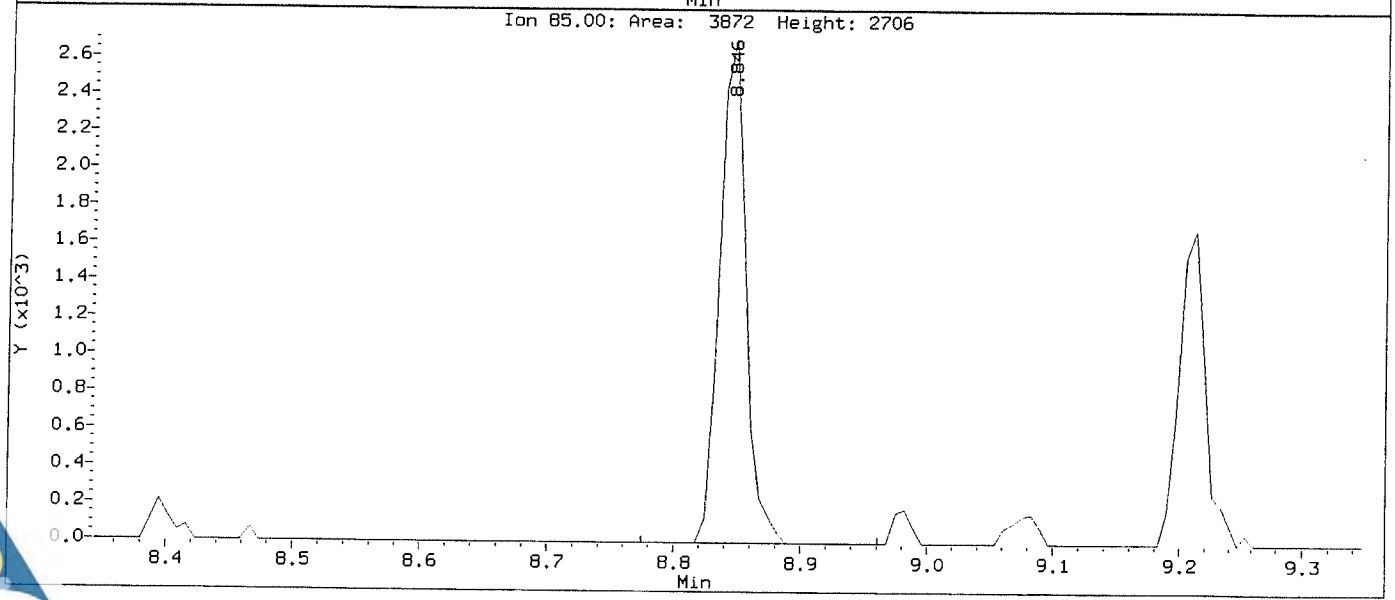
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5







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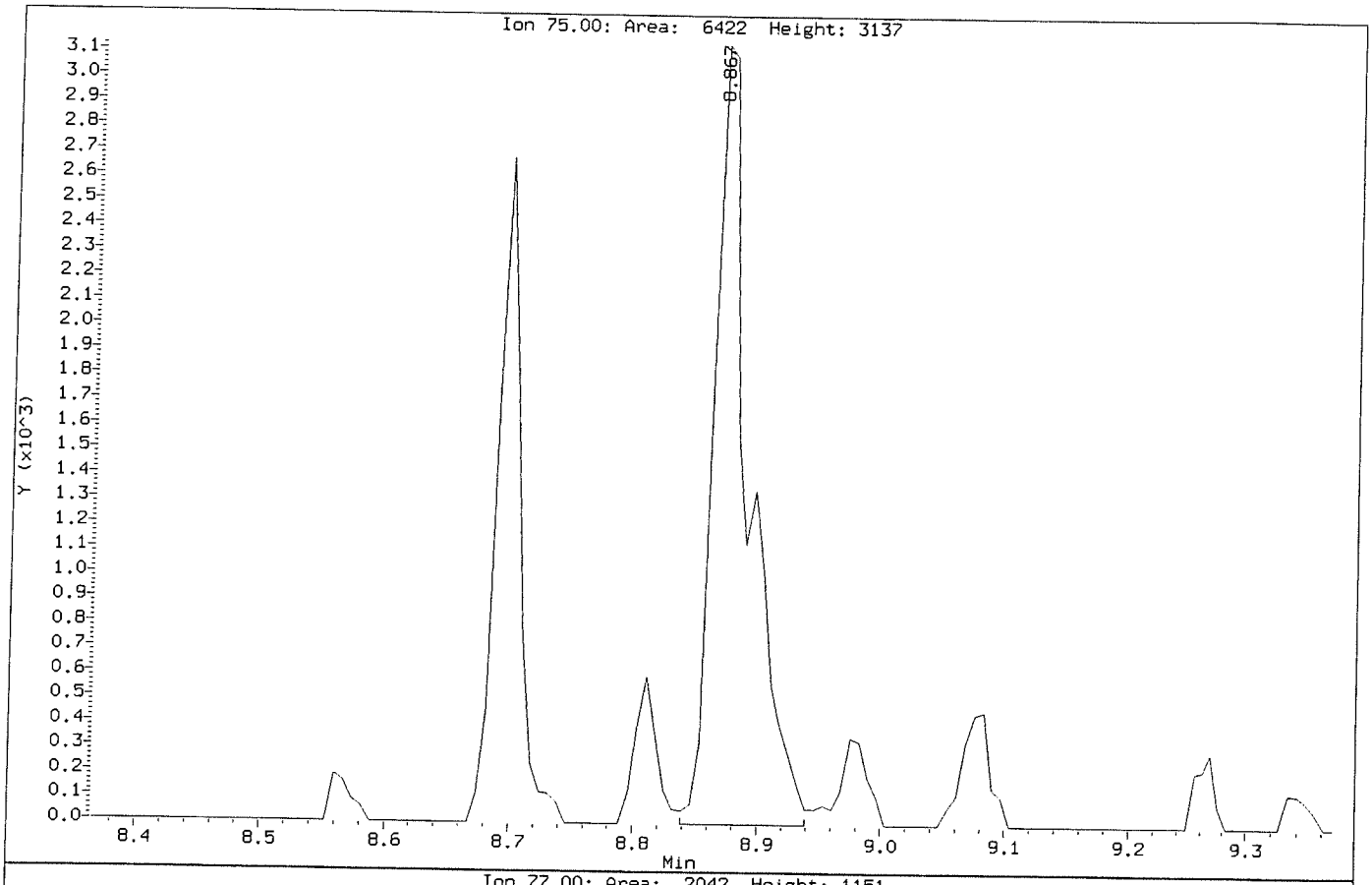
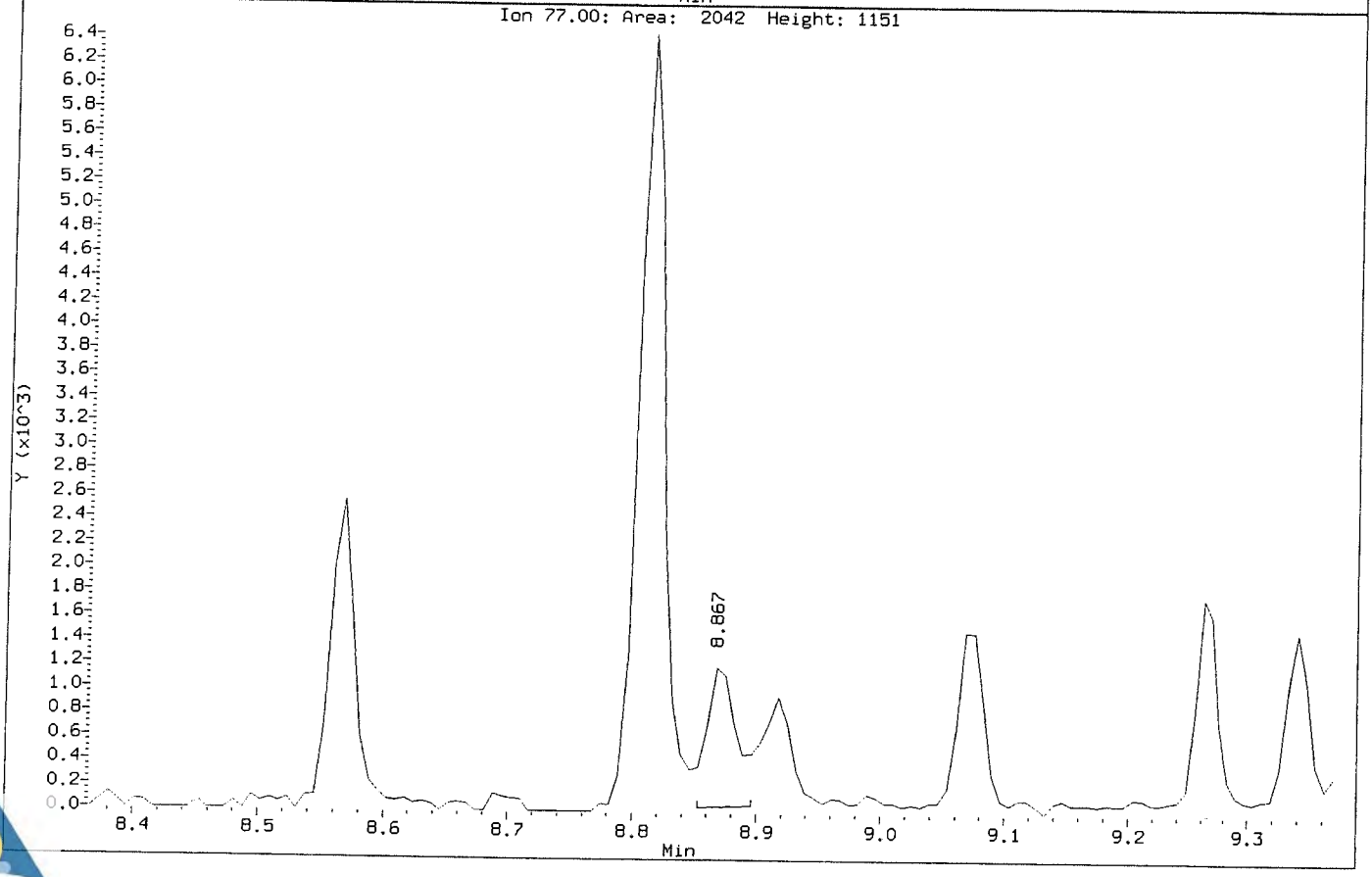
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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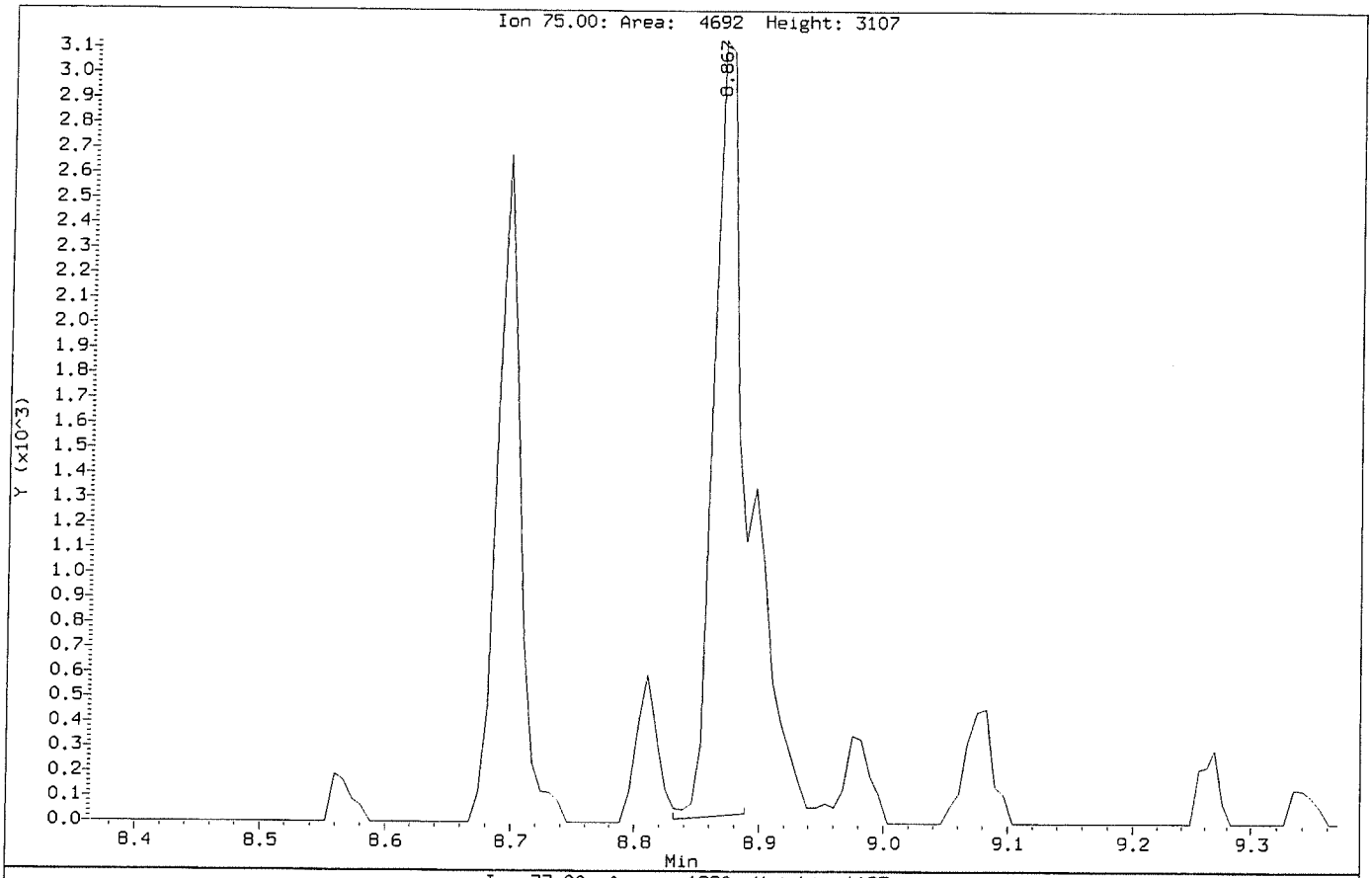
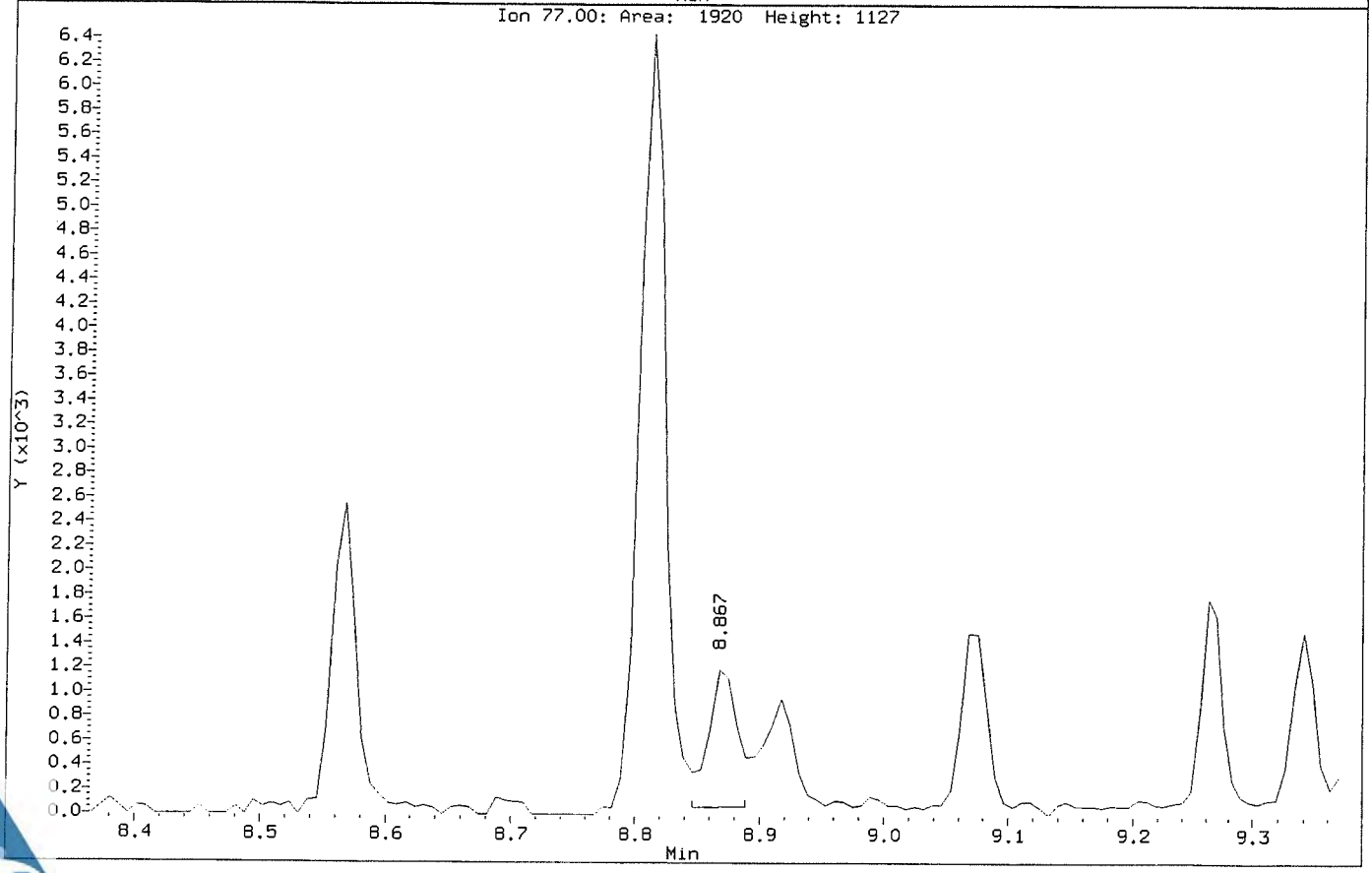
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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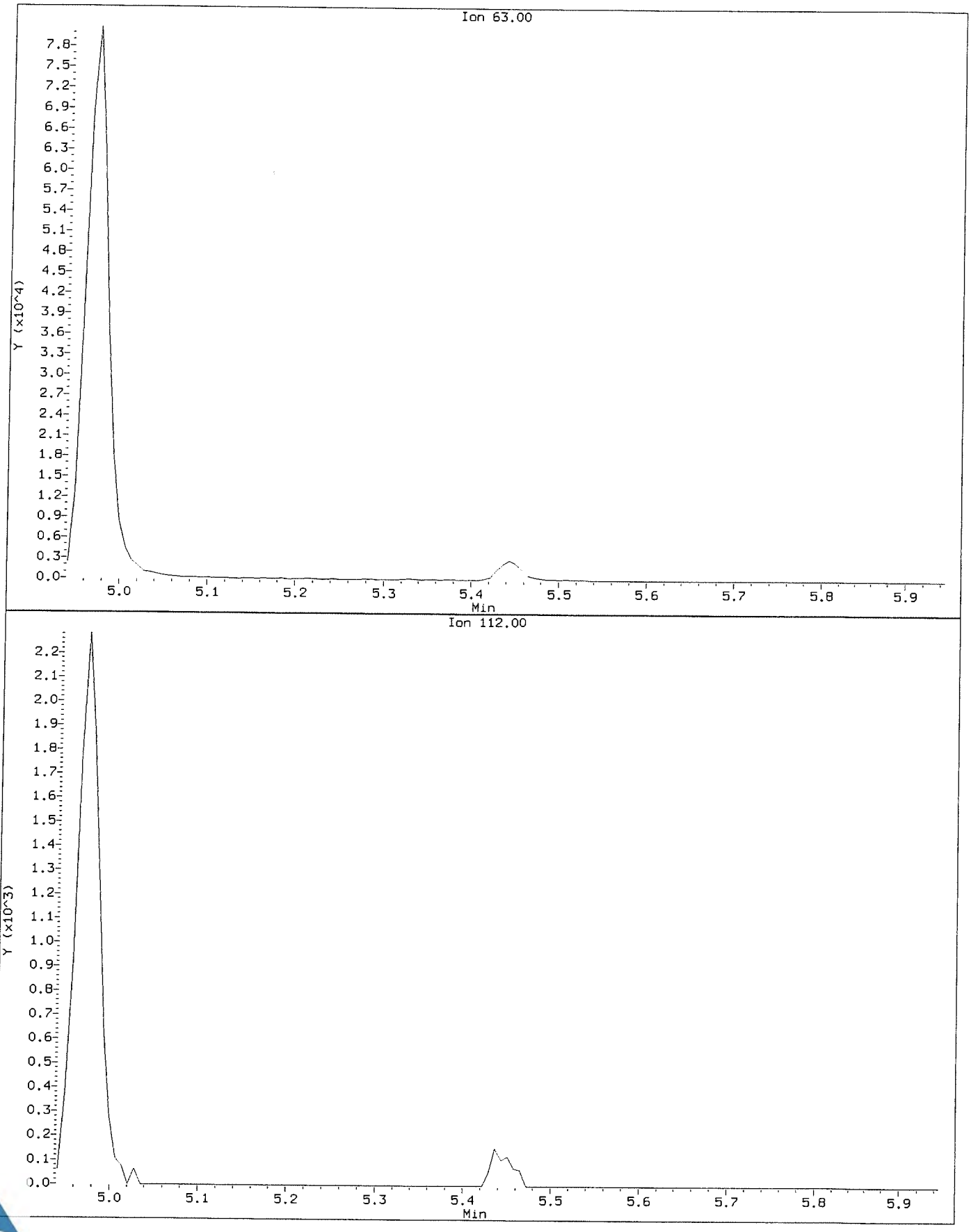
Injection Date: 14-MAR-2019 12:44
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2-Dichloropropane
CAS Number: 78-87-5



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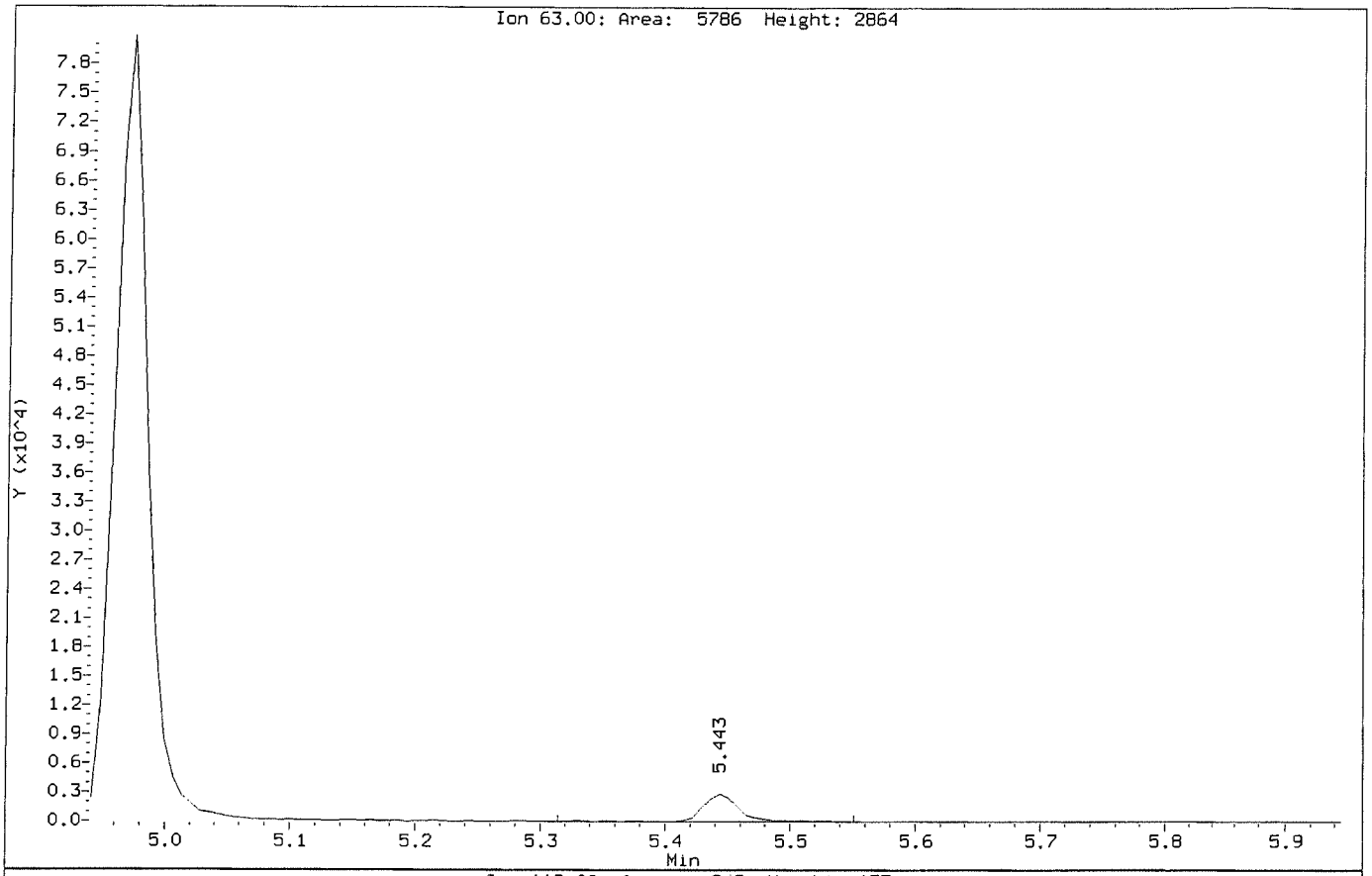
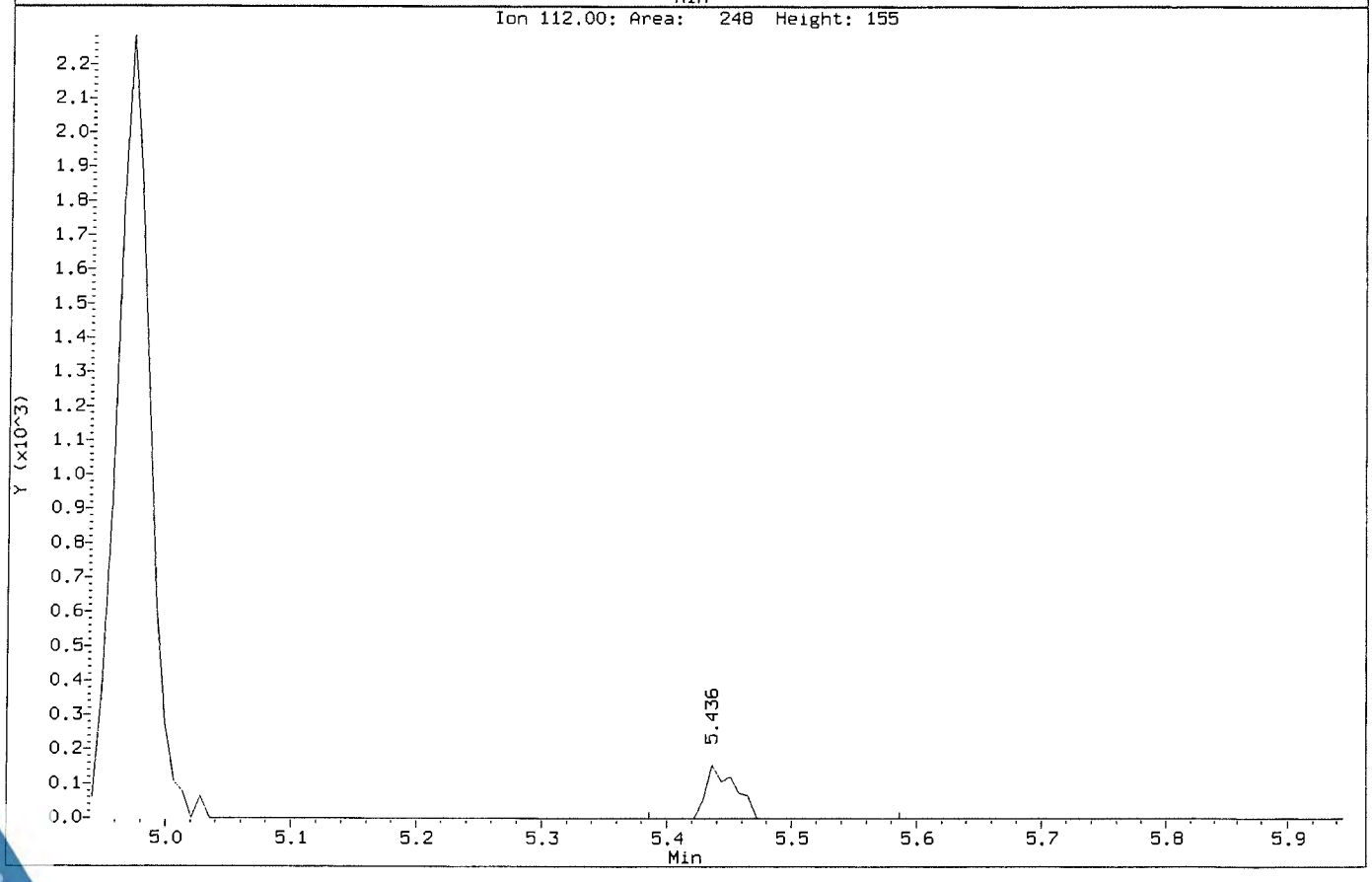
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2-Dichloropropane
CAS Number: 78-87-5





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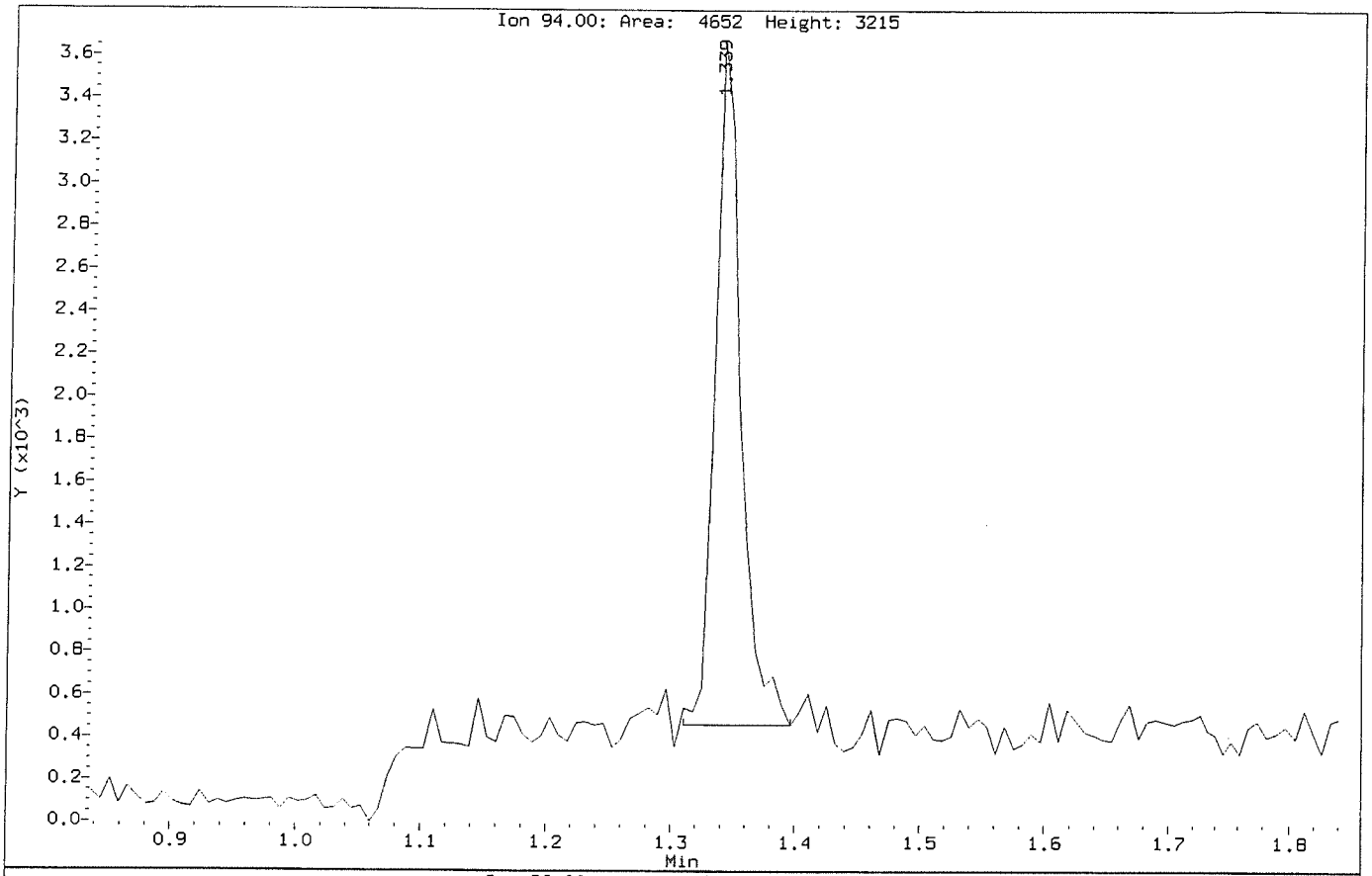
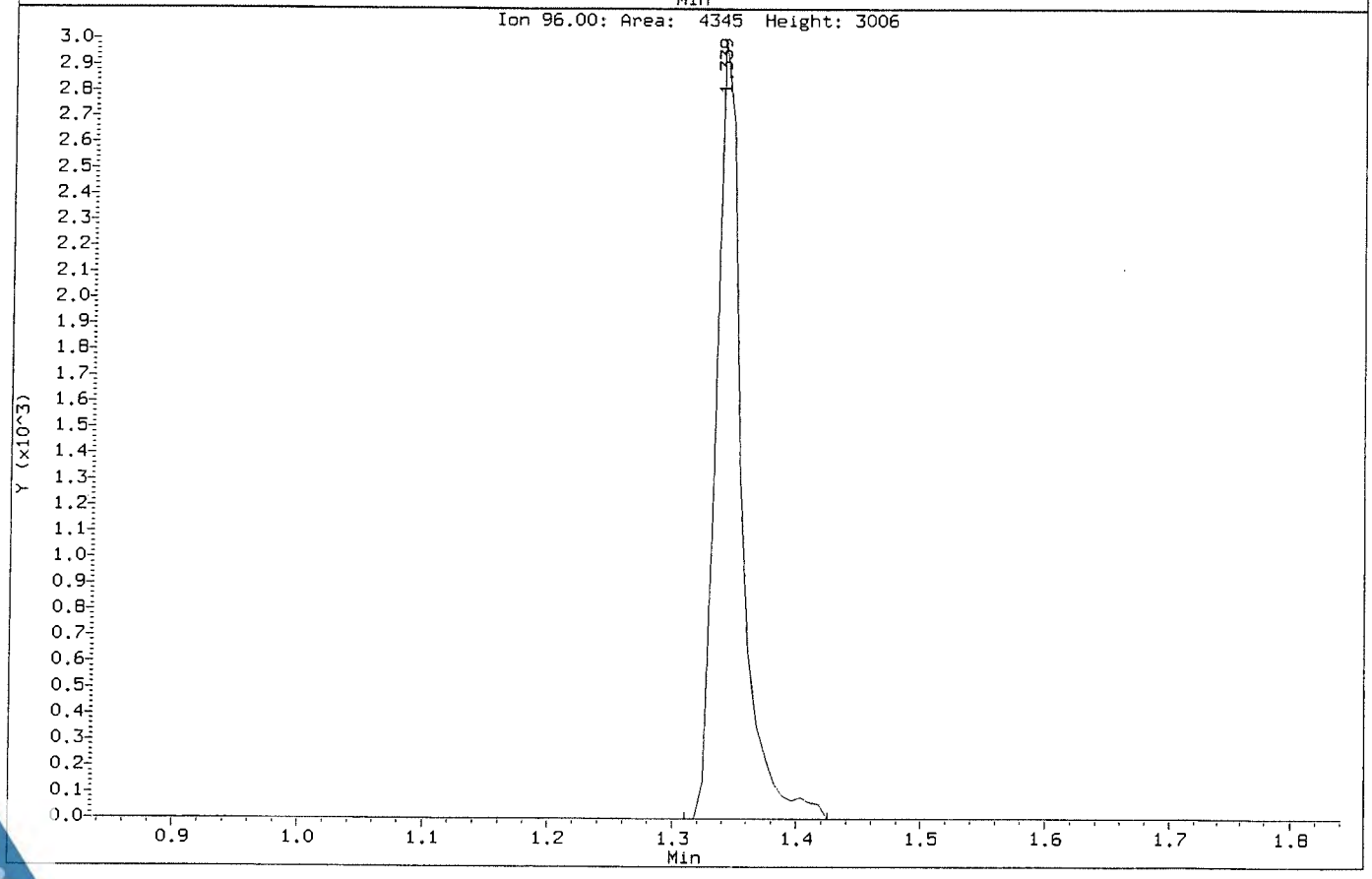
Injection Date: 14-MAR-2019 12:44
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Bromomethane
CAS Number: 74-83-9





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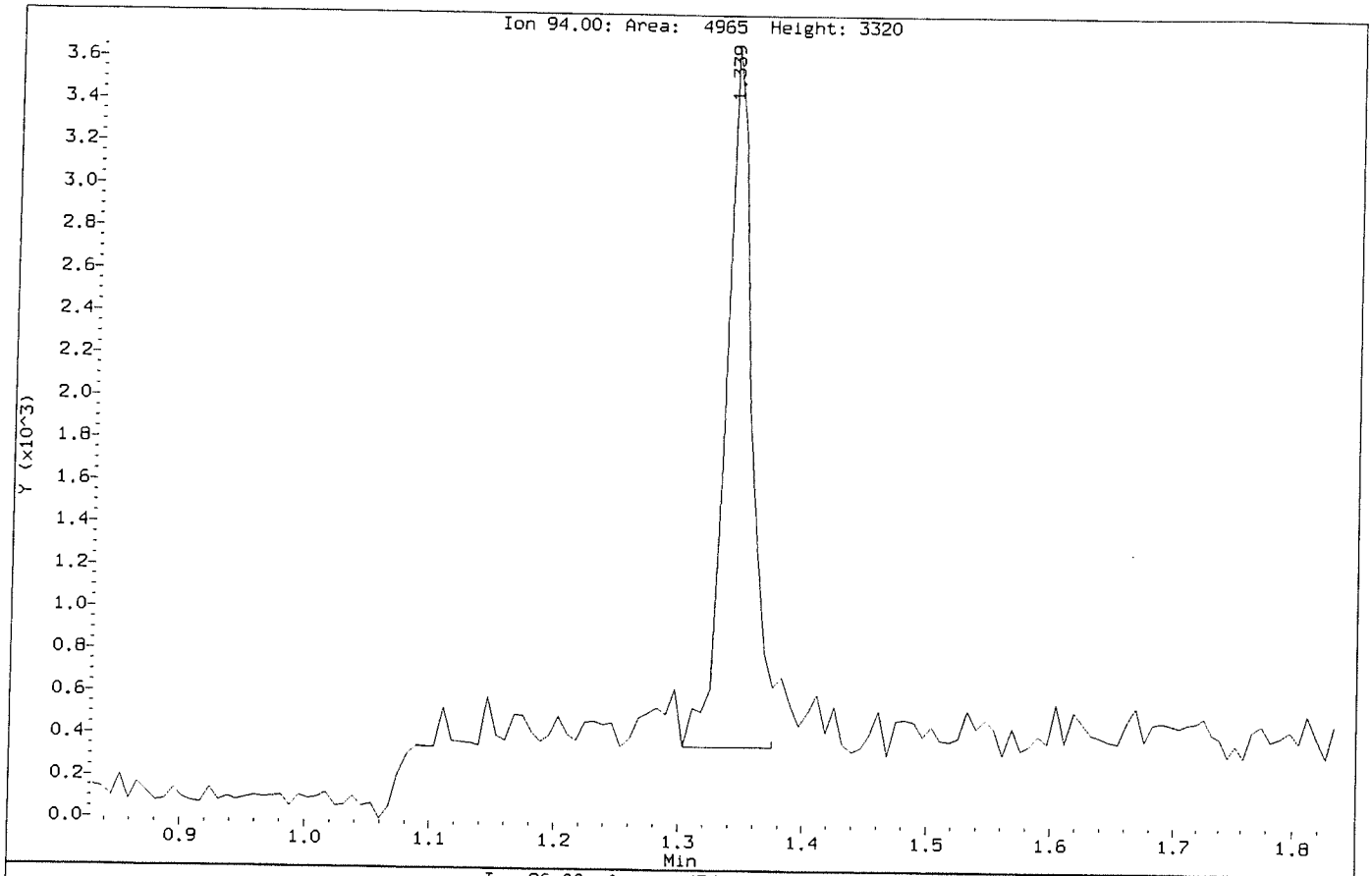
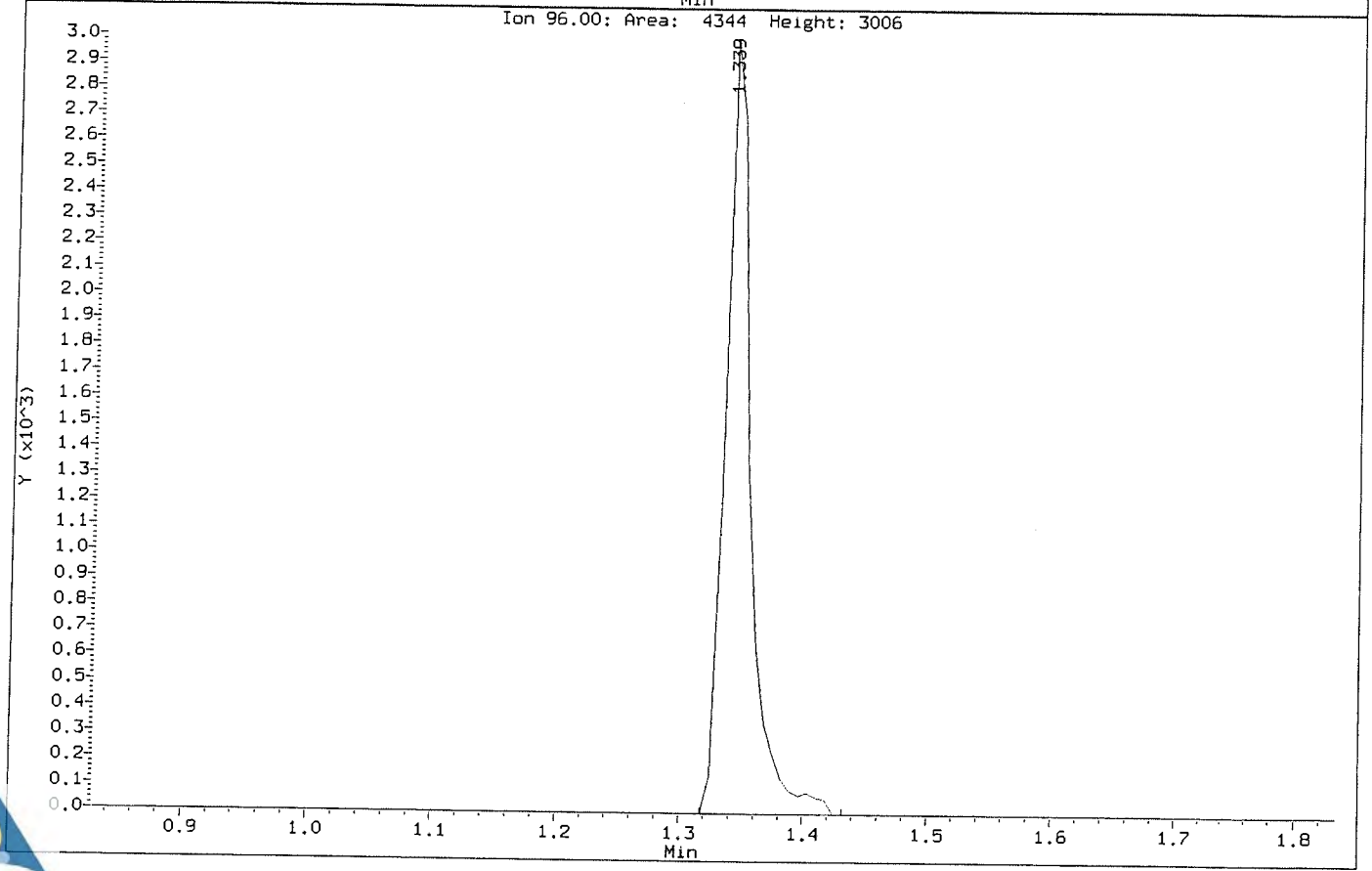
Client Sample ID: VSTD001

Compound: Bromomethane
CAS Number: 74-83-9





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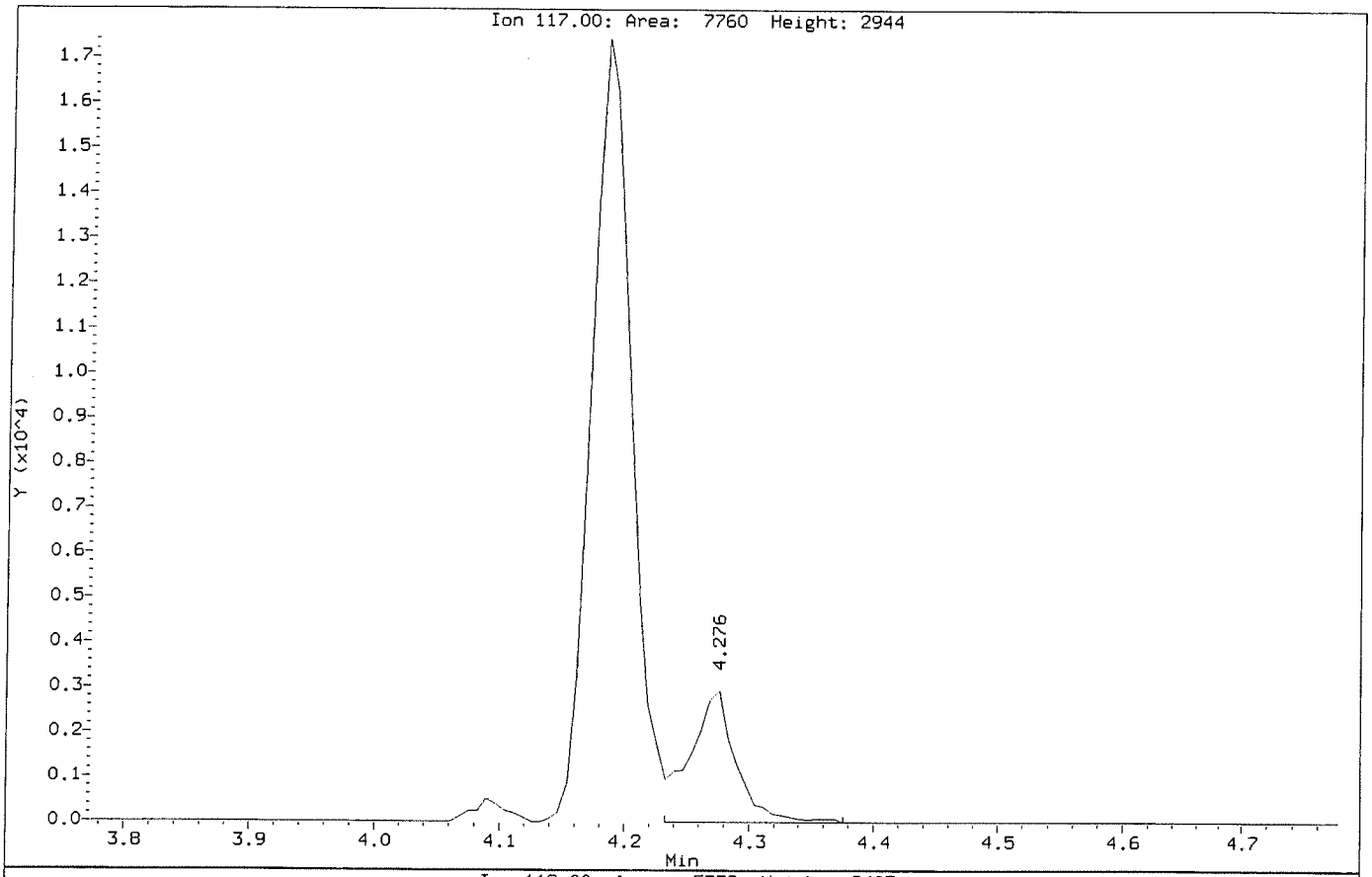
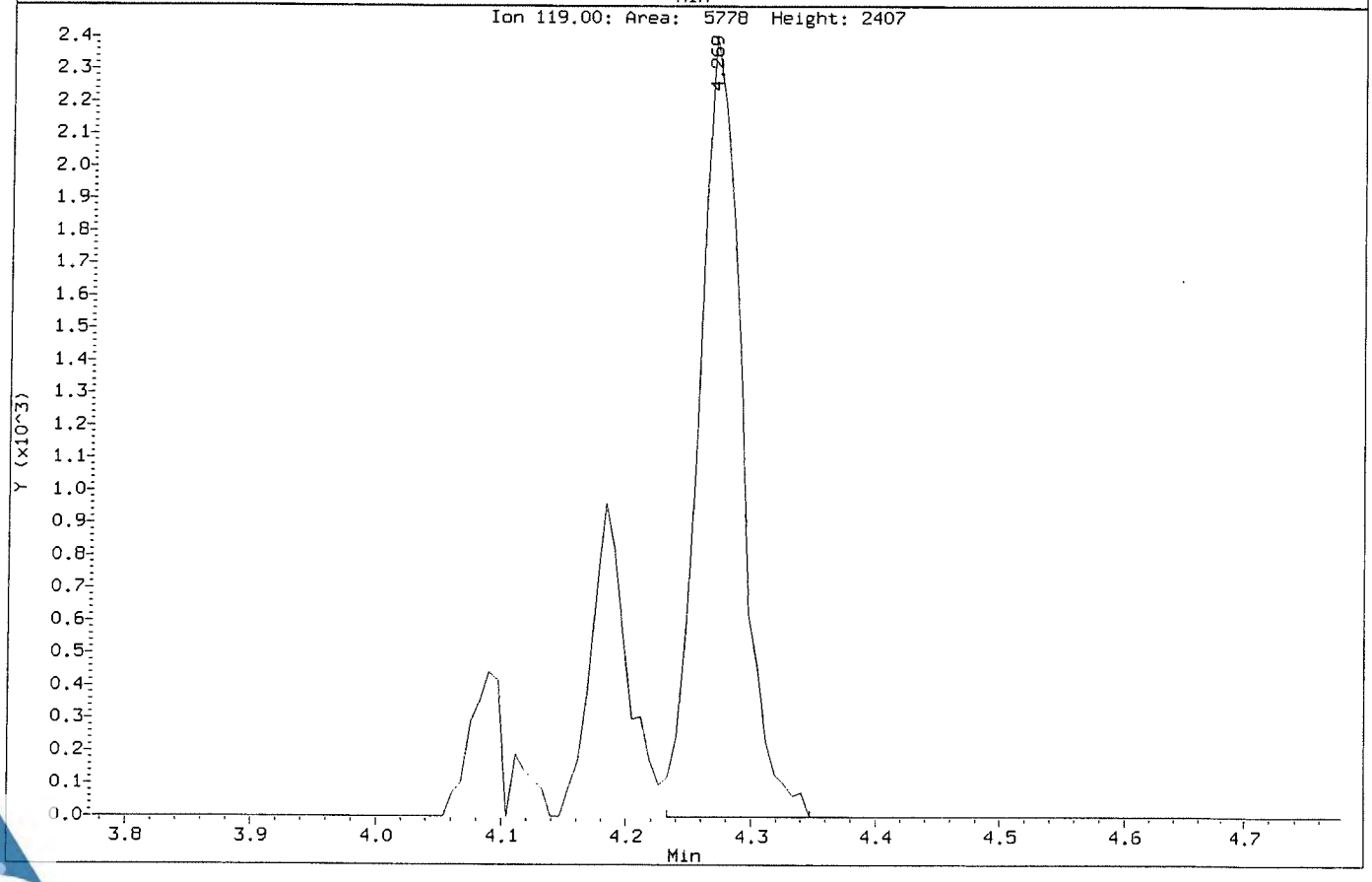
Injection Date: 14-MAR-2019 12:44
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





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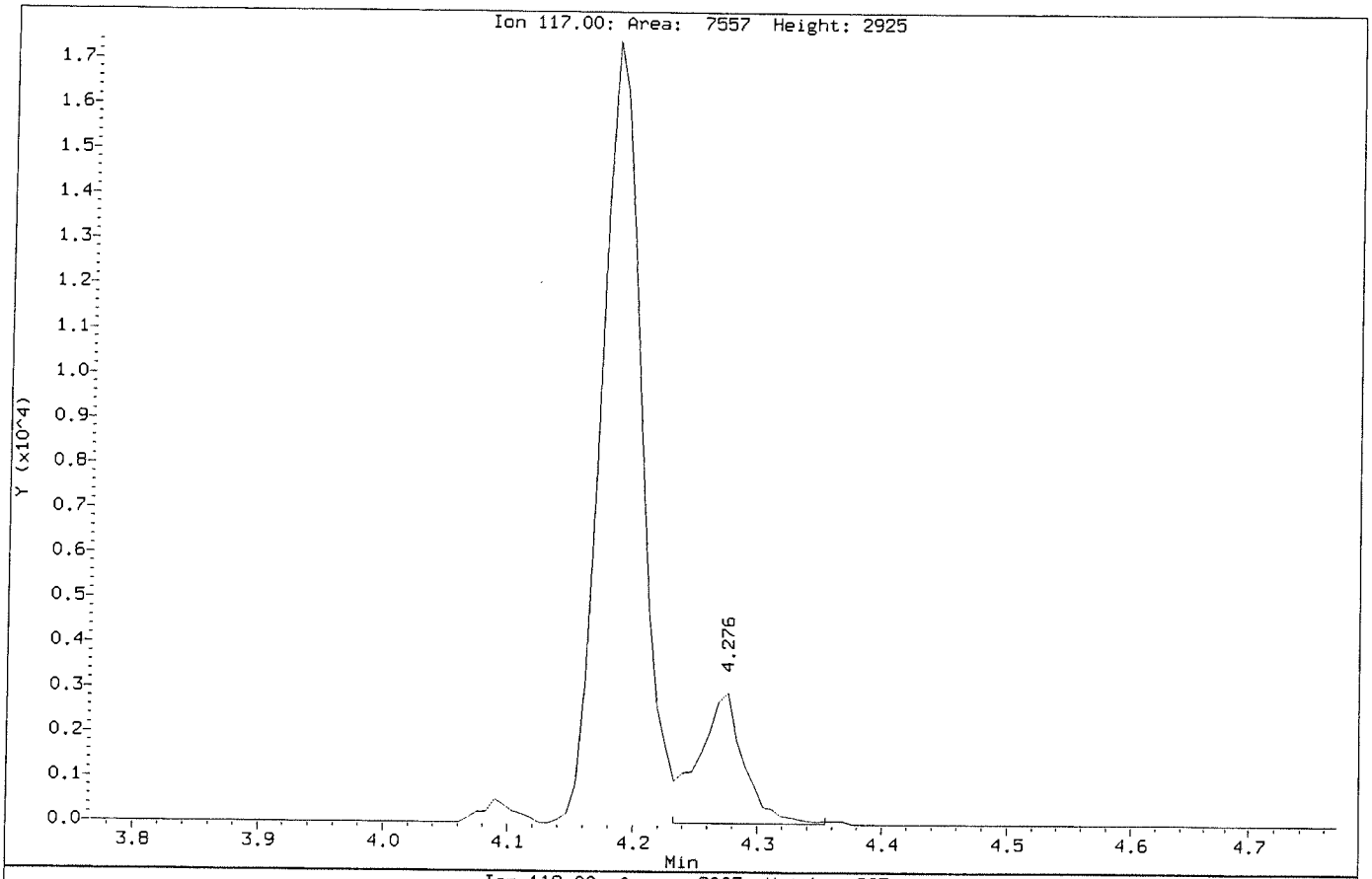
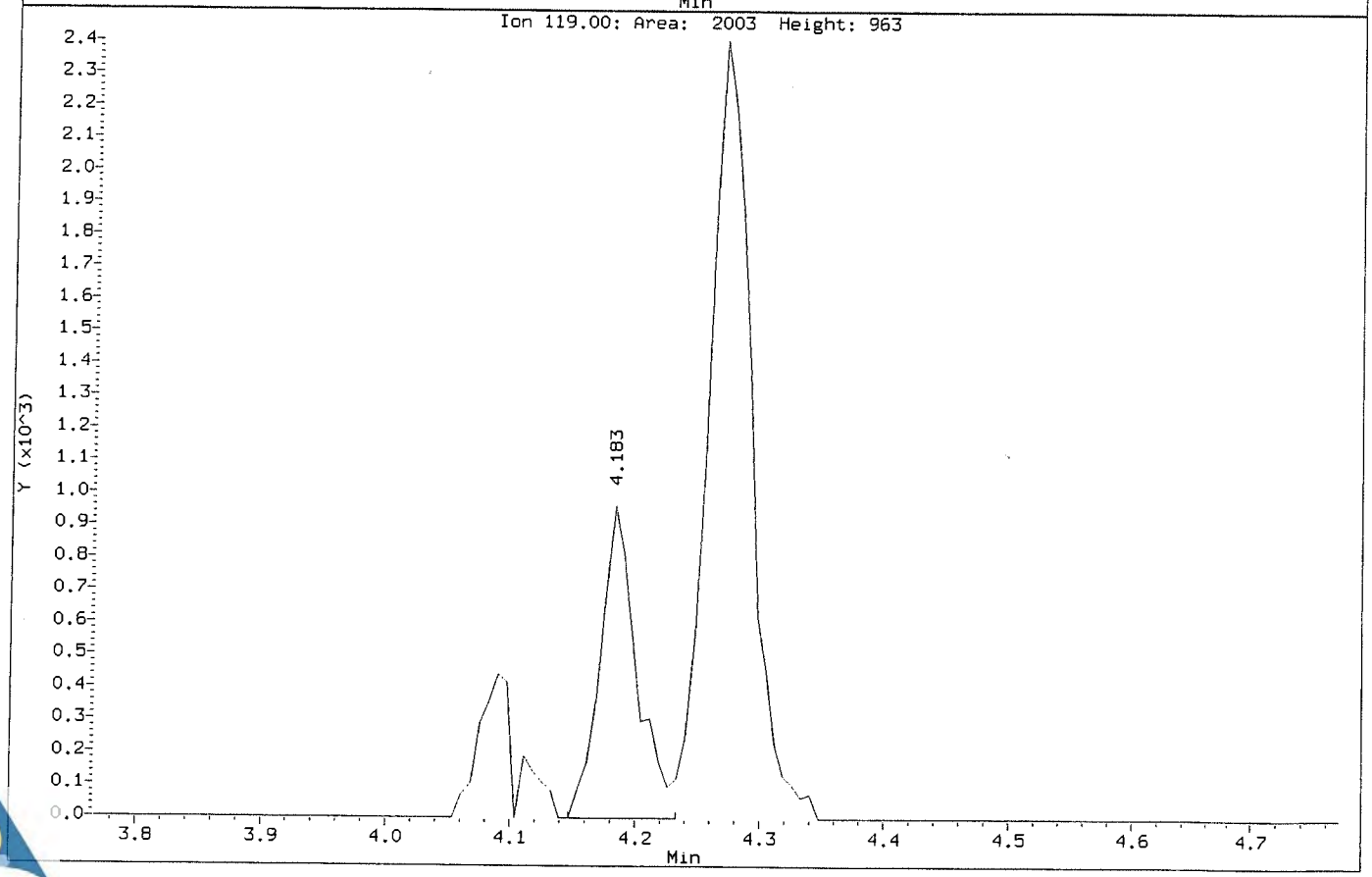
Injection Date: 14-MAR-2019 12:44
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





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Report Date: 29-Mar-2019 19:45

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X190314.b\X031405.D
Lab Smp Id: VSTD002 Client Smp ID: VSTD002
Inj Date : 14-MAR-2019 13:08
Operator : PC Inst ID: voa6.i
Smp Info : VSTD002;VSTD002;1;4;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X190314.b\8260W.m
Meth Date : 29-Mar-2019 19:45 voa6.i Quant Type: ISTD
Cal Date : 14-MAR-2019 12:44 Cal File: X031404.D
Als bottle: 6 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	478926	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	740505	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	697885	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	352809	50.0000	
$ 30 Dibromofluoromethane	113	4.111	4.111	(0.981)	8973	2.00000	1.84(a)
$ 35 1,2-Dichloroethane-d4	65	4.483	4.483	(1.070)	10993	2.00000	1.88(a)
$ 48 Toluene-d8	98	6.396	6.396	(0.834)	35730	2.00000	1.86(a)
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	14277	2.00000	1.89(a)
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	9528	2.00000	2.02(a)
31 1,1,1-Trichloroethane	97	4.096	4.096	(0.978)	14379	2.00000	2.06(a)
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	11807	2.00000	2.07(a)
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	8215	2.00000	2.14(a)
22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	17593	2.00000	2.00(a)
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	8586	2.00000	2.11(a)
32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	14206	2.00000	2.13(a)
93 1,2,3-Trichlorobenzene	180	11.754	11.754	(1.216)	4834	2.00000	1.93(a)
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	9629	2.00000	2.18(aM)
90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.173)	8911	2.00000	2.01(a)
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	34225	2.00000	2.02(a)
89 1,2-Dibromo-3-Chloropropane	155	10.665	10.665	(1.103)	1444	2.00000	2.08(a)
57 1,2-Dibromoethane	107	7.269	7.269	(0.948)	9520	2.00000	2.07(a)
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	21272	2.00000	2.11(a)

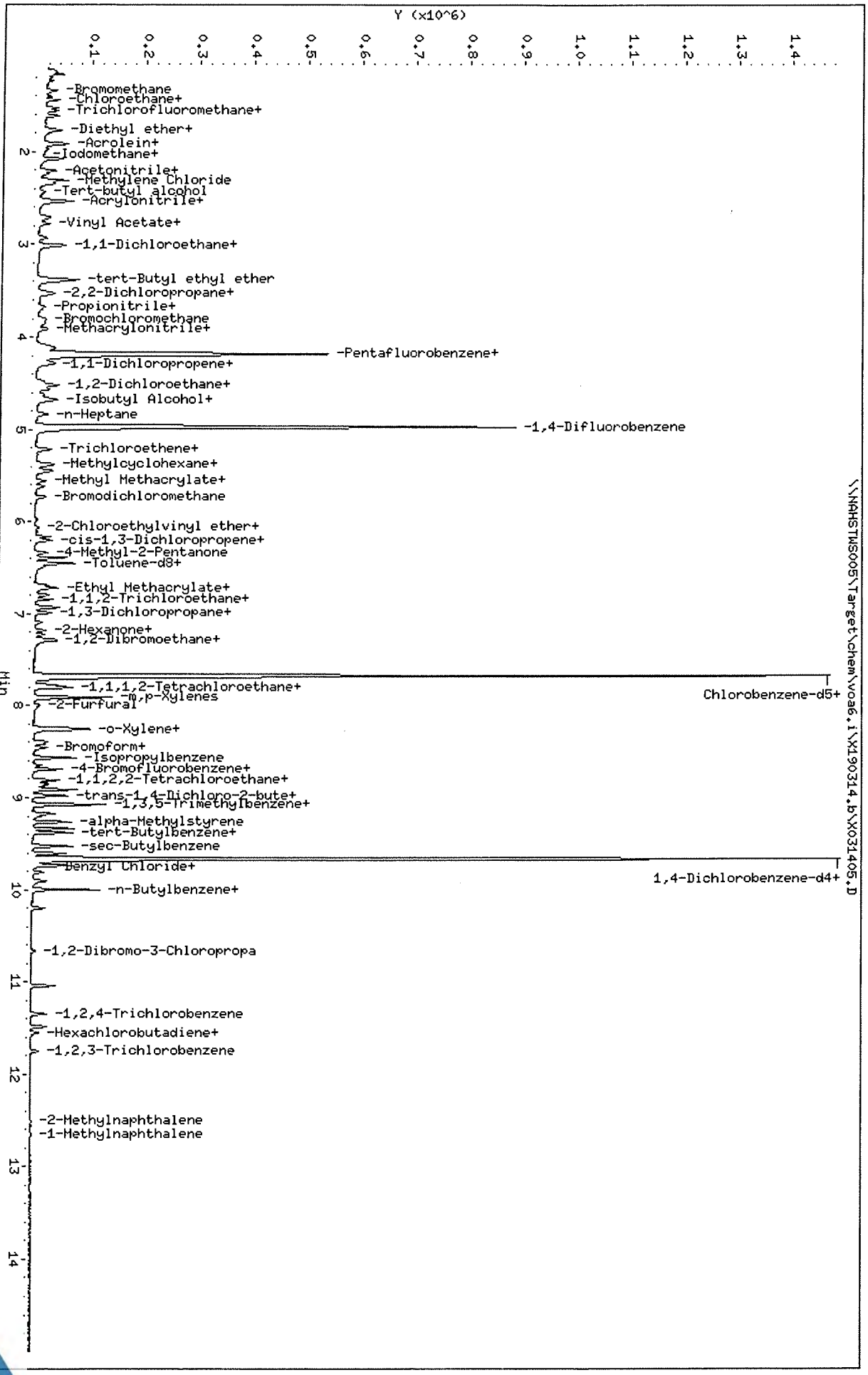
Data File: \\NAHSTWS005\Target\chem\voa6.i\X190314.b\X031405.D
Report Date: 29-Mar-2019 19:45

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	13420	2.00000	2.14(a)
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	10778	2.00000	2.07(aM)
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	33825	2.00000	2.02(a)
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	21933	2.00000	2.05(a)
54 1,3-Dichloropropane	76	6.990	6.990	(0.911)	15969	2.00000	2.05(a)
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	22337	2.00000	2.05(a)
26 2,2-Dichloropropane	77	3.516	3.516	(0.839)	13477	2.00000	1.99(a)
24 2-Butanone	43	3.602	3.602	(0.860)	5086	4.00000	3.10(a)
76 2-Chlorotoluene	91	8.981	8.981	(0.929)	30961	2.00000	2.05(a)
52 2-Hexanone	43	7.098	7.098	(0.925)	10301	4.00000	3.74(a)
77 4-Chlorotoluene	91	9.075	9.075	(0.939)	34775	2.00000	2.02(a)
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	34553	2.00000	1.98(a)
45 4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	16579	4.00000	3.91(a)
10 Acetone	43	1.976	1.976	(0.472)	8911	4.00000	3.12(a)
37 Benzene	78	4.519	4.519	(0.909)	37609	2.00000	1.98(a)
74 Bromobenzene	156	8.810	8.810	(0.911)	12388	2.00000	2.05(a)
29 Bromochloromethane	128	3.803	3.803	(0.908)	5714	2.00000	2.13(a)
39 Bromodichloromethane	83	5.729	5.729	(1.153)	13053	2.00000	2.06(a)
66 Bromoform	173	8.416	8.416	(1.097)	6589	2.00000	2.79(Ta)
6 Bromomethane	94	1.338	1.338	(0.320)	7815	2.00000	2.61(a)
19 Carbon Disulfide	76	2.076	2.076	(0.496)	57285	4.00000	4.10(a)
34 Carbon Tetrachloride	117	4.275	4.275	(0.860)	12783	2.00000	3.93(aM)
59 Chlorobenzene	112	7.699	7.699	(1.004)	28290	2.00000	2.08(a)
7 Chloroethane	64	1.403	1.403	(0.335)	7444	2.00000	2.14(a)
28 Chloroform	83	3.917	3.917	(0.935)	17598	2.00000	2.07(a)
3 Chloromethane	50	1.073	1.073	(0.256)	18061	2.00000	1.33(a)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	10962	2.00000	2.05(a)
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	15914	2.00000	1.90(a)
55 Dibromochloromethane	129	7.184	7.184	(0.937)	9850	2.00000	1.98(a)
44 Dibromomethane	93	5.558	5.558	(1.118)	6254	2.00000	2.00(a)
2 Dichlorodifluoromethane	85	0.973	0.973	(0.232)	9465	2.00000	3.72(a)
61 Ethylbenzene	106	7.807	7.807	(1.018)	13954	2.00000	2.06(a)
91 Hexachlorobutadiene	225	11.488	11.488	(1.188)	5403	2.00000	3.08(a)
67 Isopropylbenzene	105	8.566	8.566	(1.117)	43031	2.00000	2.13(a)
62 m,p-Xylenes	106	7.907	7.907	(1.031)	35035	4.00000	4.18(a)
17 Methylene Chloride	84	2.305	2.305	(0.550)	11530	2.00000	2.27(a)
87 n-Butylbenzene	91	9.999	9.999	(1.034)	30300	2.00000	2.01(a)
73 n-Propylbenzene	91	8.917	8.917	(0.922)	50157	2.00000	2.04(a)
92 Naphthalene	128	11.553	11.553	(1.195)	12837	2.00000	1.92(a)
63 o-Xylene	106	8.244	8.244	(1.075)	17200	2.00000	2.05(a)
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	43188	2.00000	2.11(a)
64 Styrene	104	8.265	8.265	(1.078)	27843	2.00000	2.00(a)
78 tert-Butylbenzene	119	9.340	9.340	(0.966)	30267	2.00000	2.08(a)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	8827	2.00000	2.10(a)
50 Toluene	91	6.453	6.453	(0.841)	42576	2.00000	2.08(a)
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	9364	2.00000	2.07(a)
51 trans-1,3-Dichloropropene	75	6.689	6.689	(1.346)	12937	2.00000	1.92(a)
38 Trichloroethene	130	5.214	5.214	(1.049)	10630	2.00000	2.04(a)
8 Trichlorofluoromethane	101	1.561	1.561	(0.373)	15375	2.00000	2.91(a)
5 Vinyl Chloride	62	1.145	1.145	(0.273)	12963	2.00000	2.09(a)

Data File: \\NAHSTWS005\Target\chem\voa6.i\X190314.b\X031405.D
Report Date: 29-Mar-2019 19:45

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



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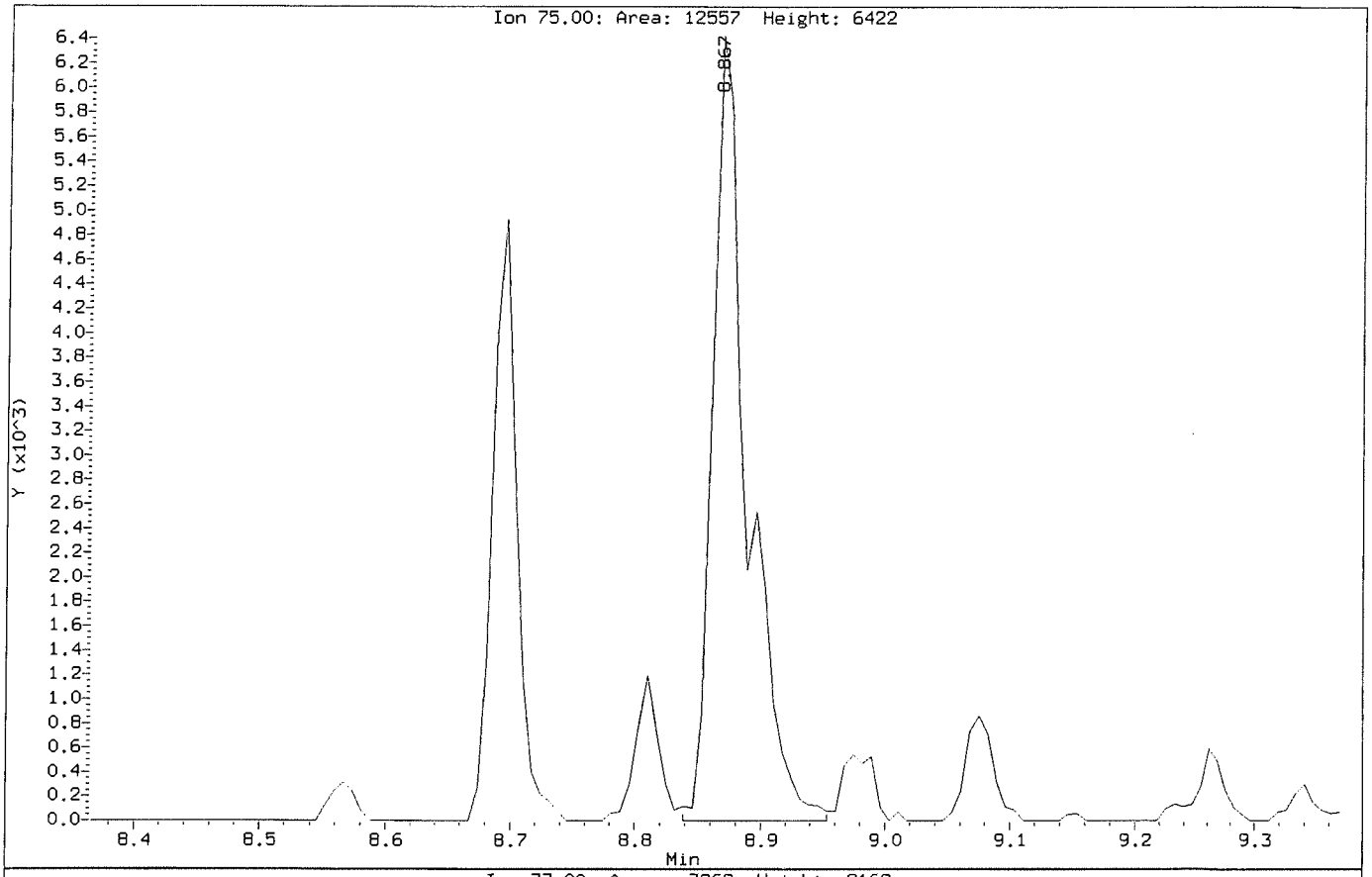
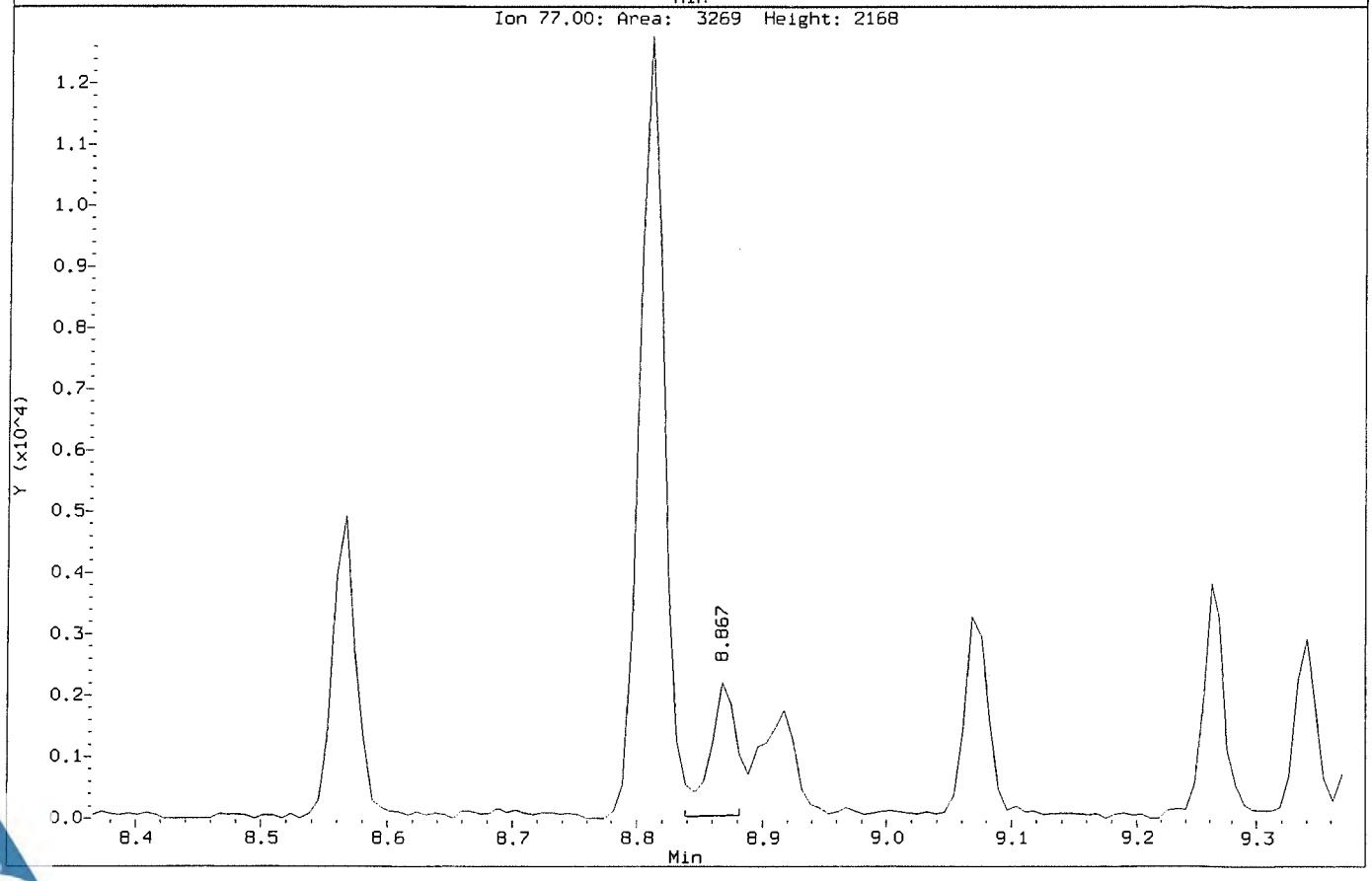
Date : 14-MAR-2019 13:08
Client ID: VSTD002
Sample Info: VSTD002;VSTD002;1;4;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X190314.b\Before\X031405.D
Injection Date: 14-MAR-2019 13:08
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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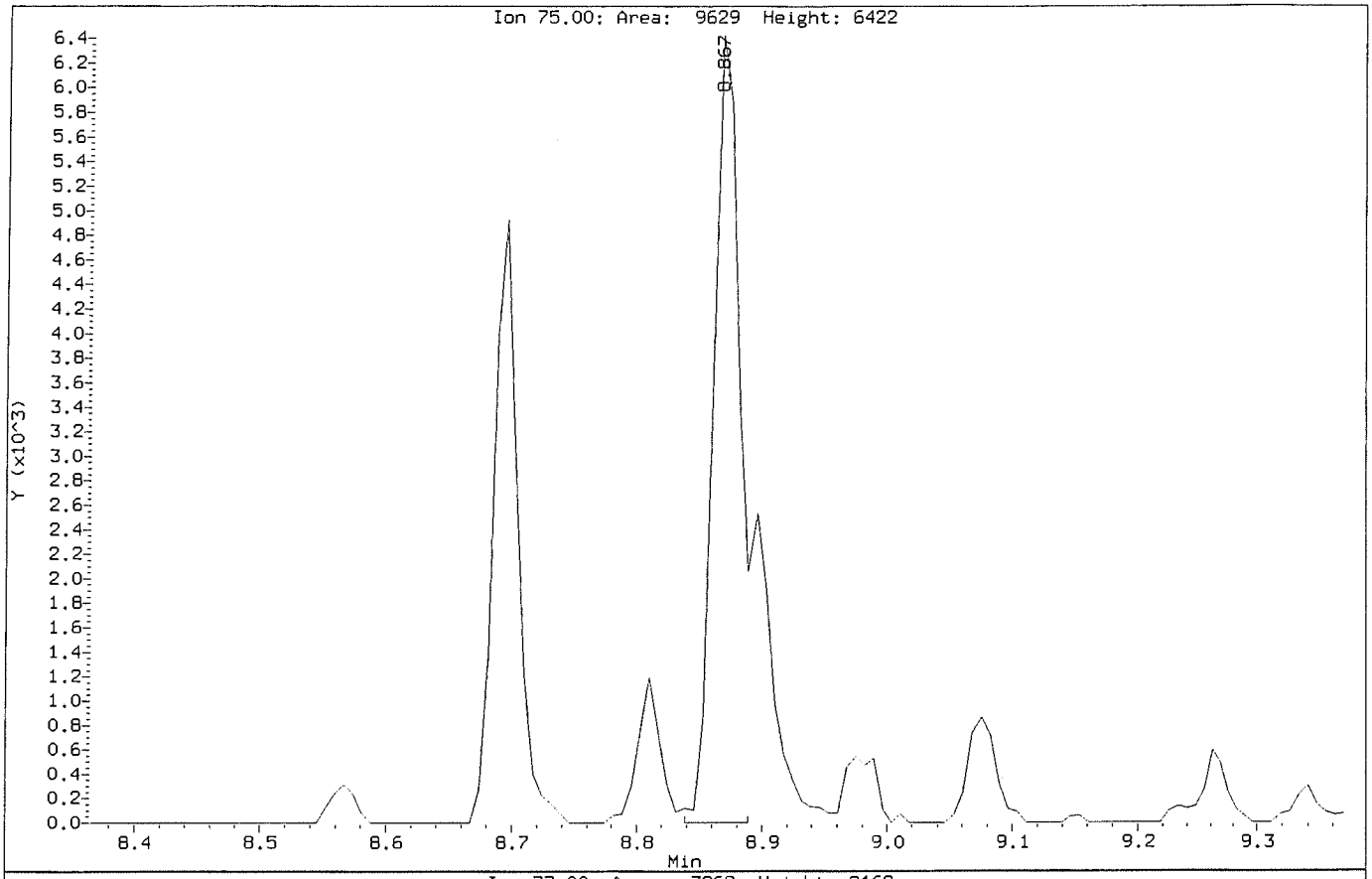
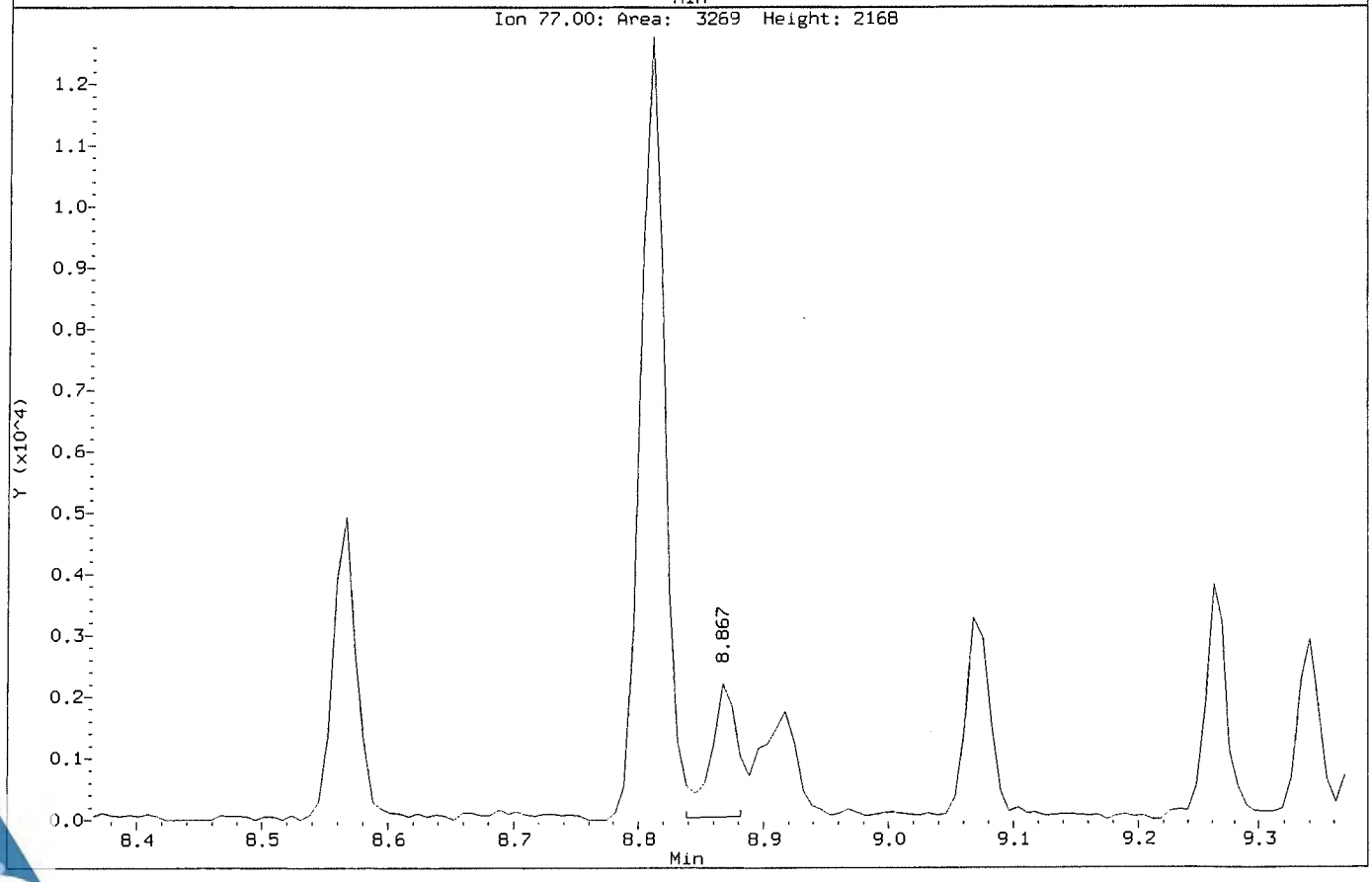
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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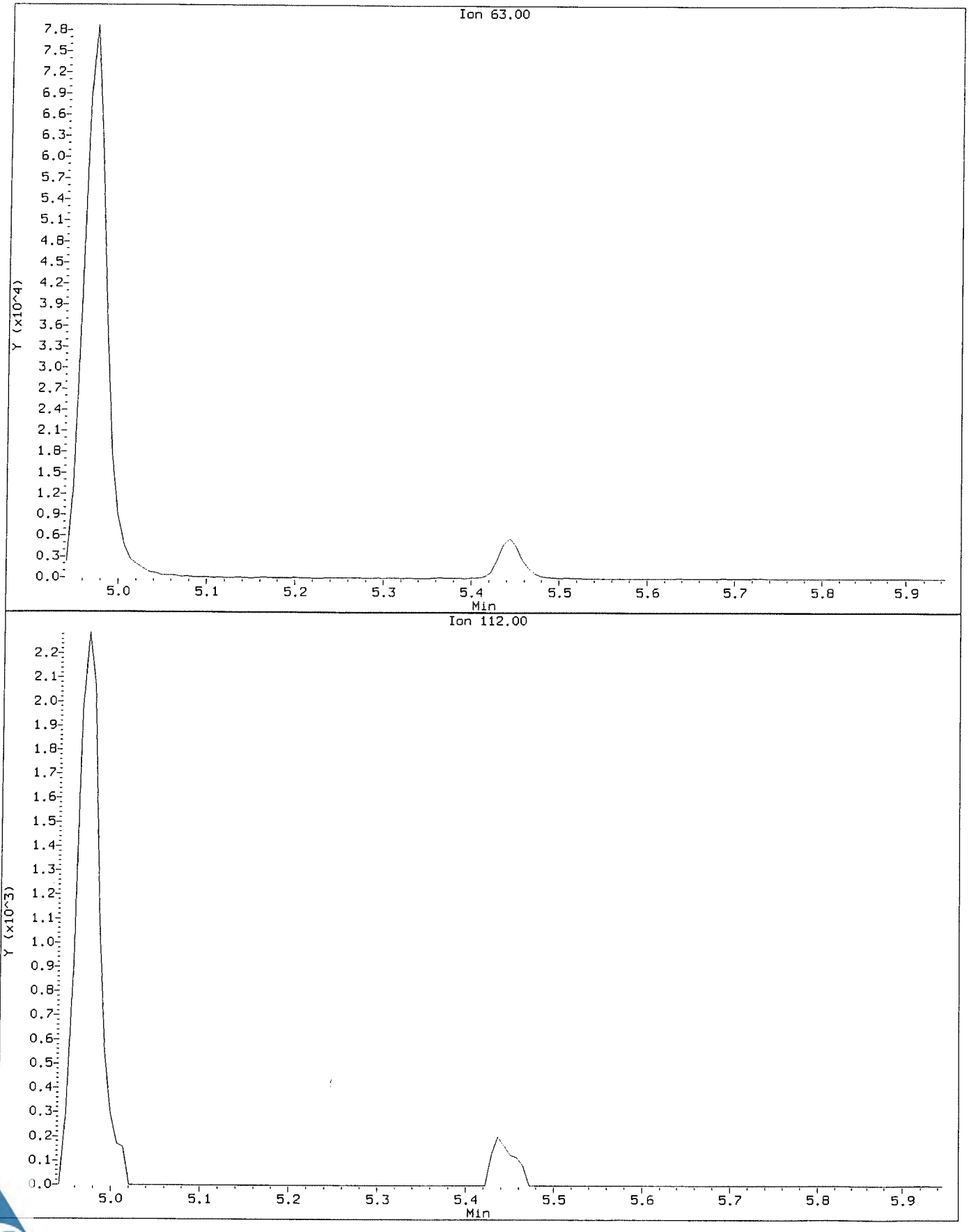
Injection Date: 14-MAR-2019 13:08
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: 1,2-Dichloropropane
CAS Number: 78-87-5



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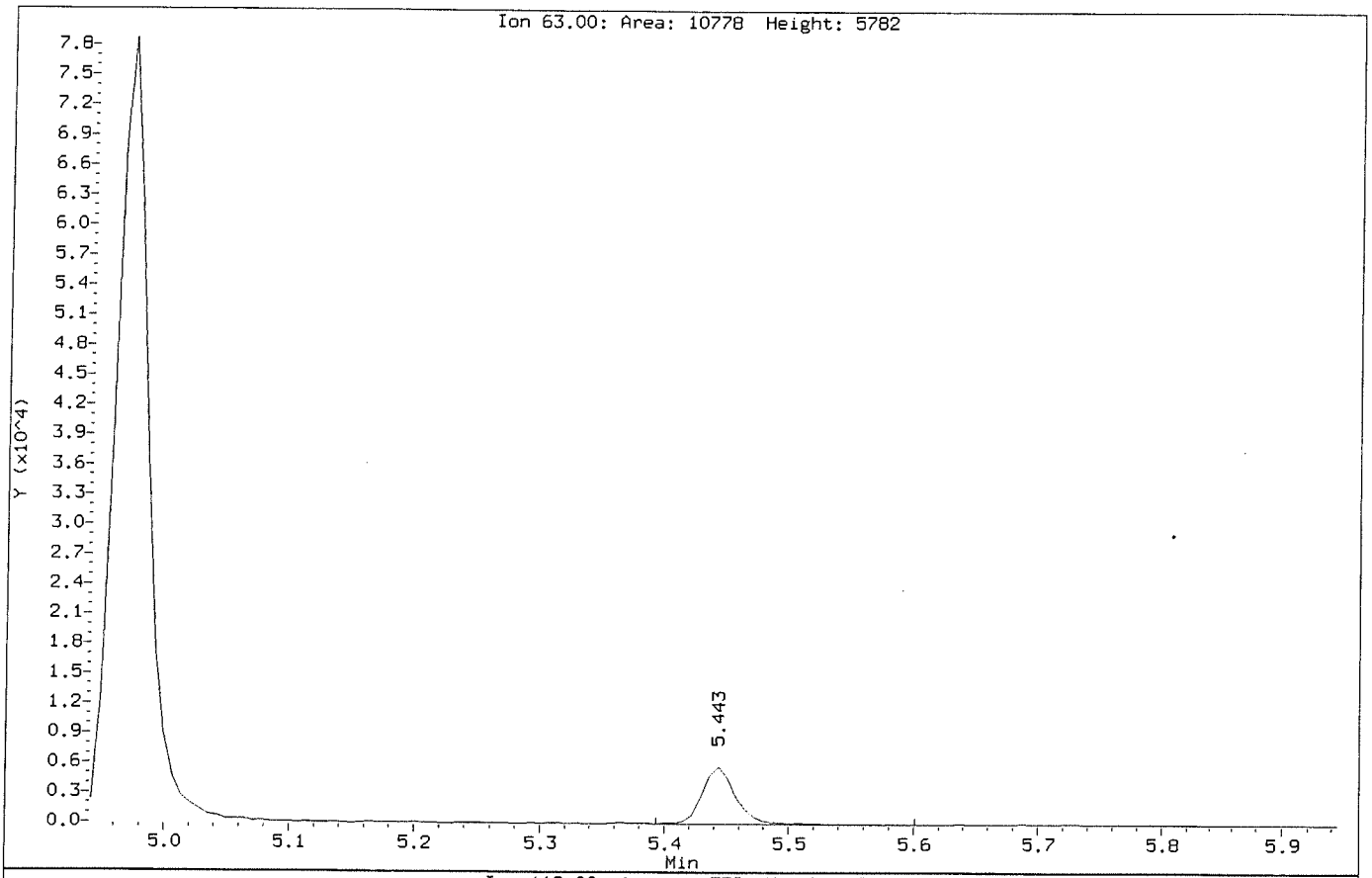
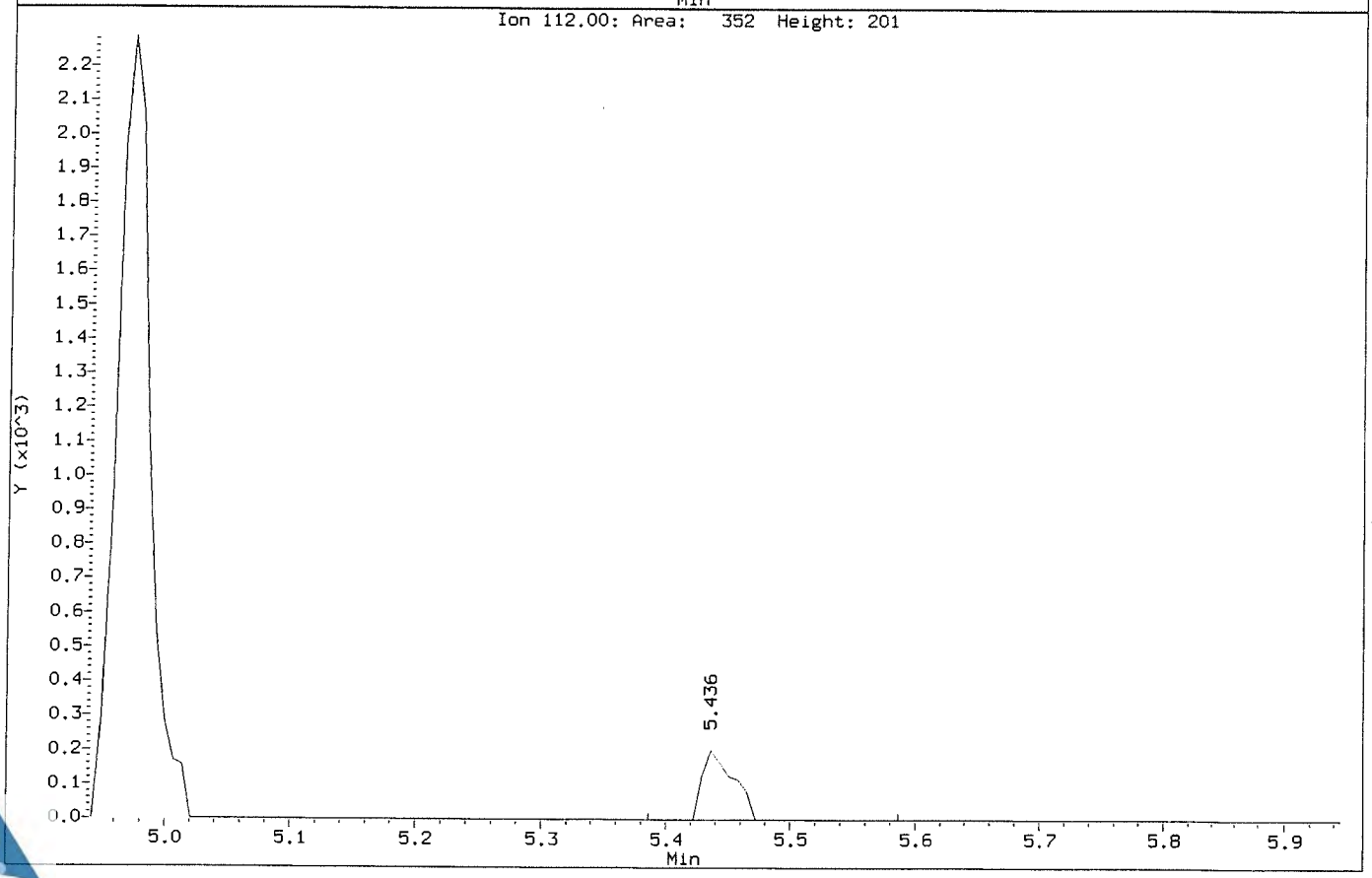
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: 1,2-Dichloropropane
CAS Number: 78-87-5





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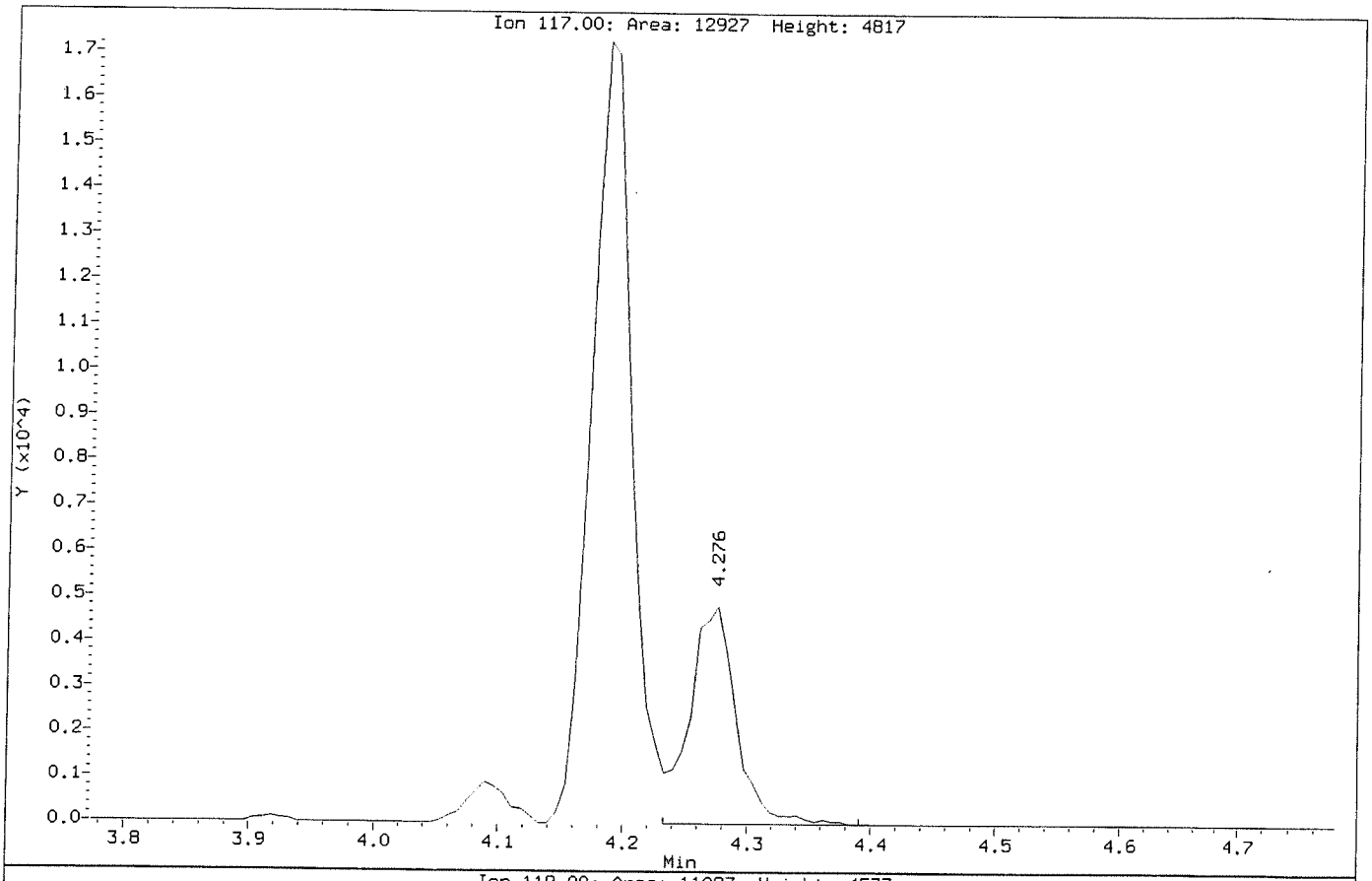
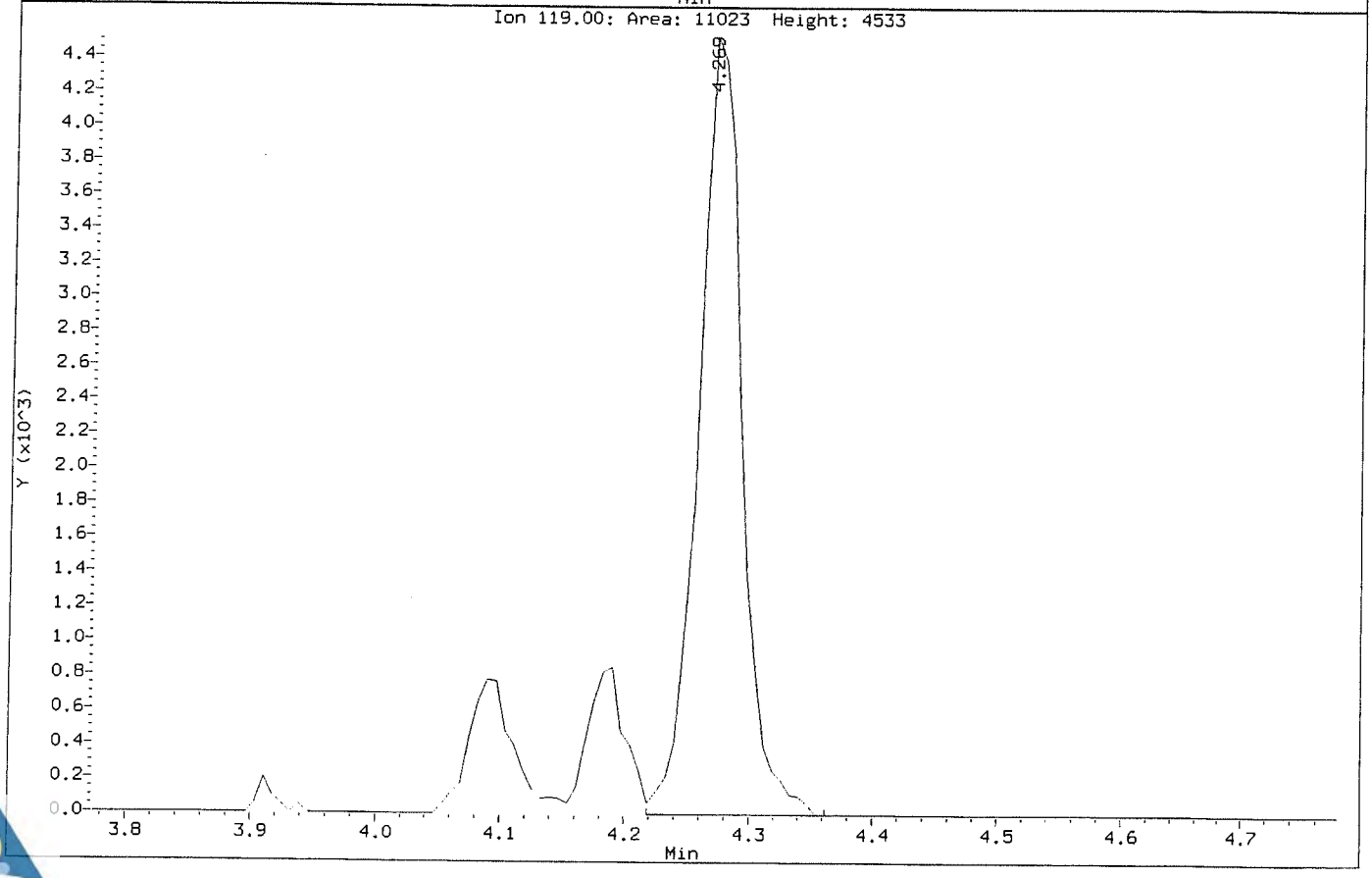
Injection Date: 14-MAR-2019 13:08
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





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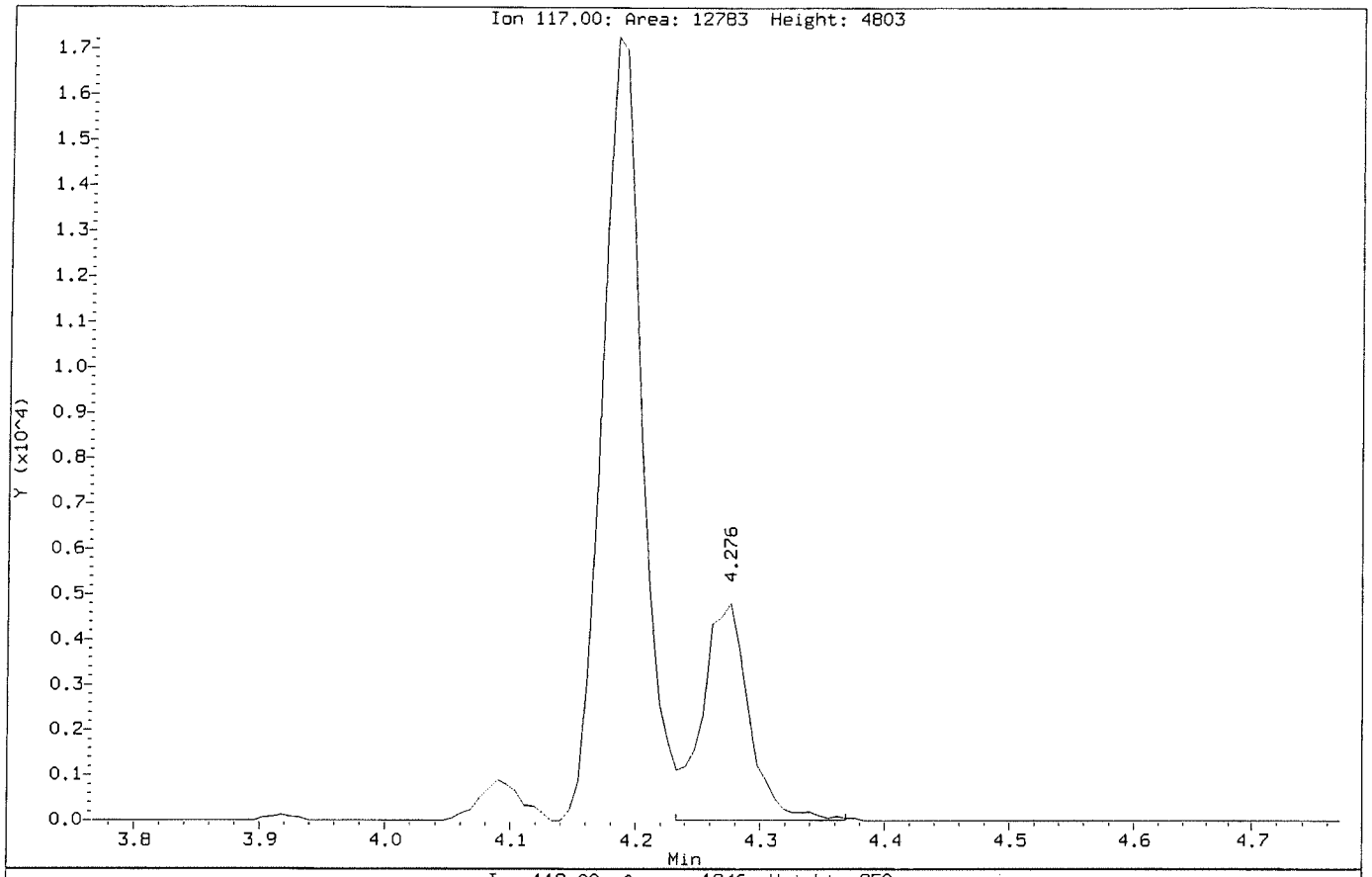
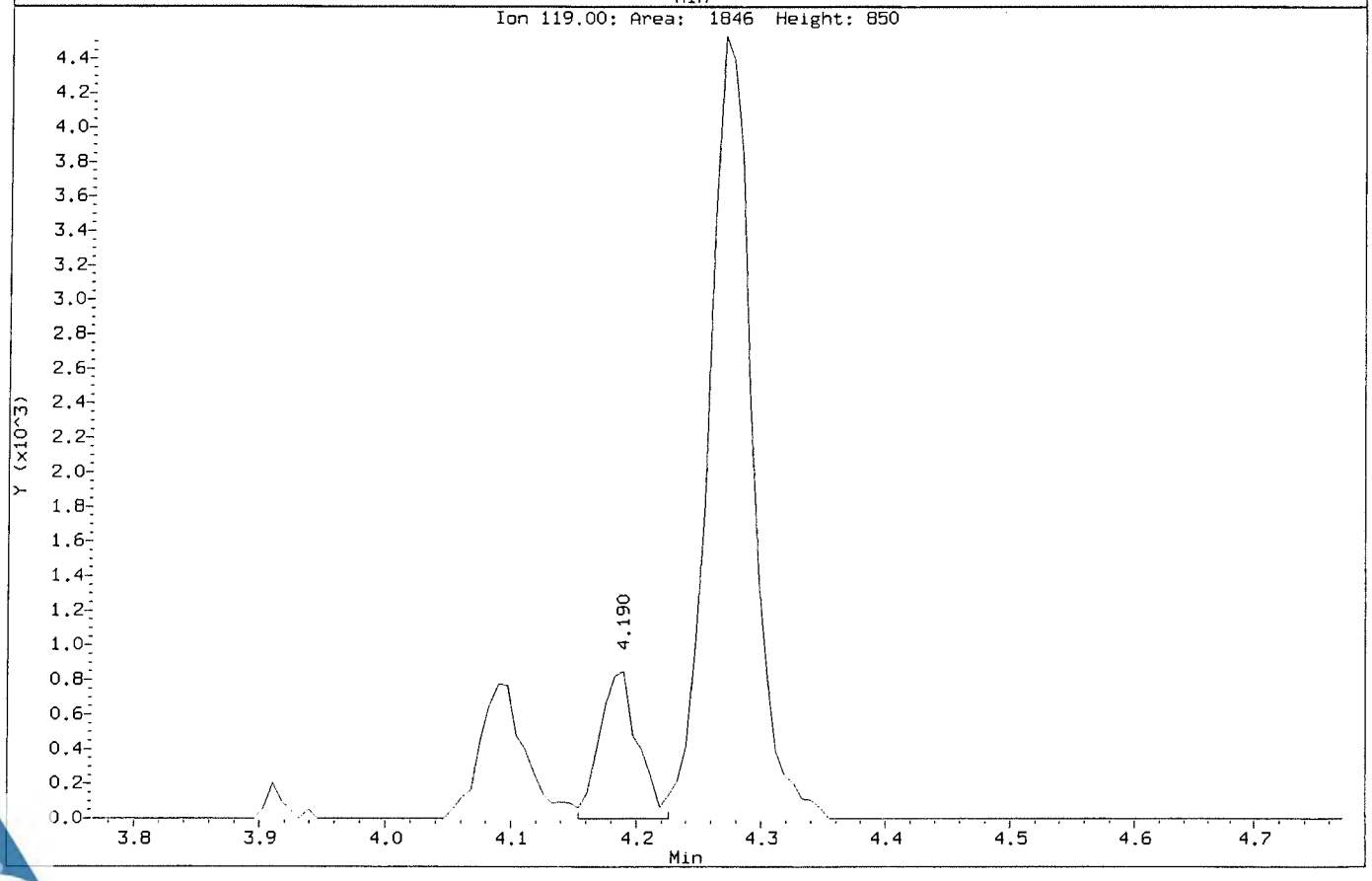
Injection Date: 14-MAR-2019 13:08
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





Data File: \\NAHSTWS005\Target\chem\voa6.i\X190314.b\X031406.D
Report Date: 29-Mar-2019 19:45

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X190314.b\X031406.D
Lab Smp Id: VSTD005 Client Smp ID: VSTD005
Inj Date : 14-MAR-2019 13:32
Operator : PC Inst ID: voa6.i
Smp Info : VSTD005;VSTD005;1;5;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X190314.b\8260W.m
Meth Date : 29-Mar-2019 19:45 voa6.i Quant Type: ISTD
Cal Date : 14-MAR-2019 13:08 Cal File: X031405.D
Als bottle: 7 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.189	4.189	(1.000)	461718	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	725660	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	690700	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	352934	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.103	(0.979)	23704	5.00000	5.17
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	27296	5.00000	5.21
$	48 Toluene-d8	98	6.389	6.389	(0.833)	91809	5.00000	5.17
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	34111	5.00000	5.08
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	22060	5.00000	4.73(a)
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	29869	5.00000	4.43(a)
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	27961	5.00000	4.91(a)
	53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	18703	5.00000	4.93(a)
	22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	39940	5.00000	4.71(a)
	11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	16949	5.00000	4.32(a)
	32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	27884	5.00000	4.27(a)
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	11895	5.00000	4.76(a)
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	23598	5.00000	5.36(M)
	90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.173)	21032	5.00000	4.76(a)
	79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	76988	5.00000	4.56(a)
	89 1,2-Dibromo-3-Chloropropane	155	10.665	10.665	(1.103)	3270	5.00000	4.72(a)
	57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	22168	5.00000	4.87(a)
	88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	47414	5.00000	4.71(a)

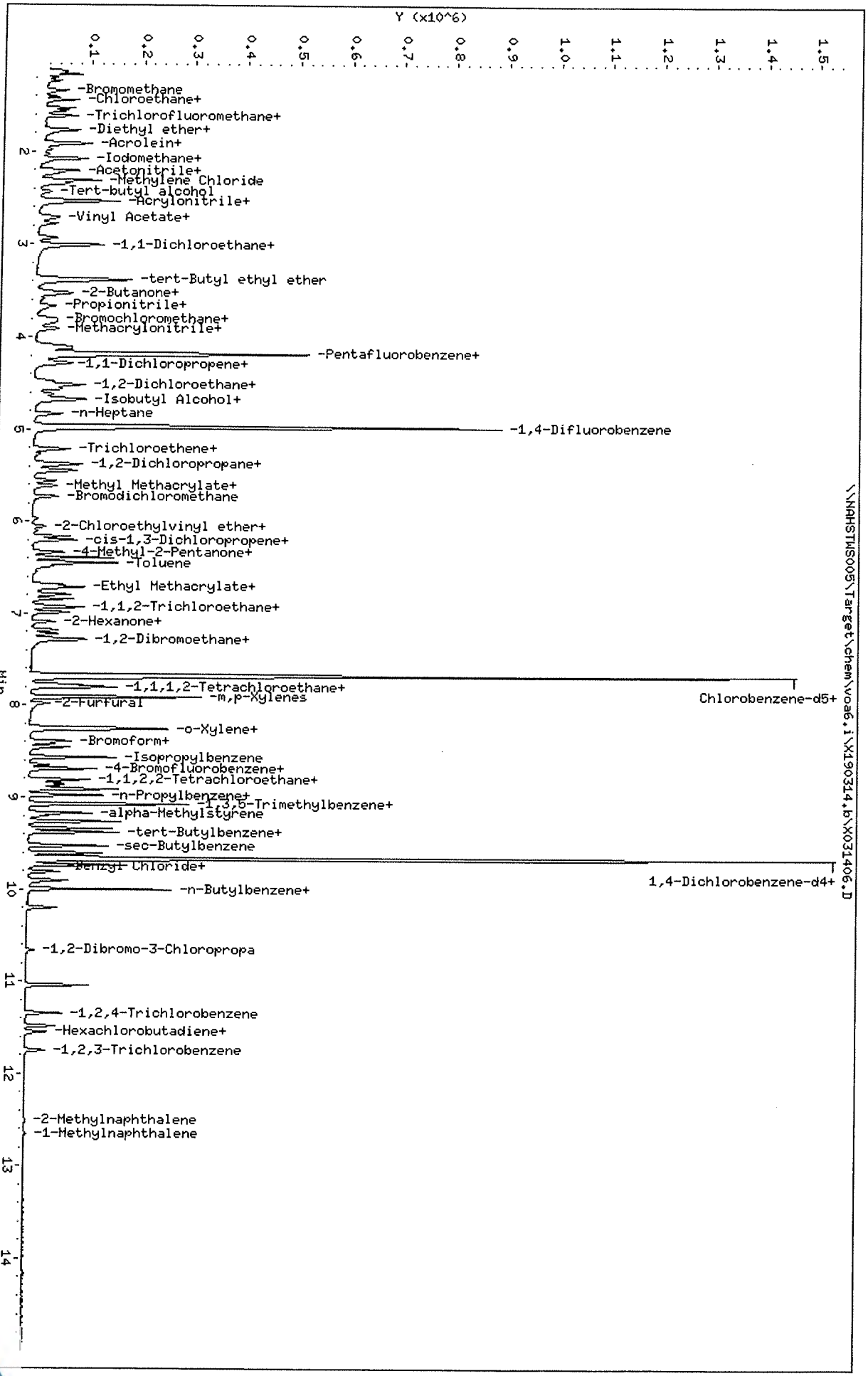
Data File: \\NAHSTWS005\Target\chem\voa6.i\X190314.b\X031406.D
Report Date: 29-Mar-2019 19:45

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	31106	5.00000	5.07
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	23911	5.00000	4.68(a)
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	76207	5.00000	4.56(a)
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	50699	5.00000	4.75(a)
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	37561	5.00000	4.87(a)
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	49839	5.00000	4.58(a)
26 2,2-Dichloropropane	77	3.516	3.516	(0.839)	30218	5.00000	4.63(a)
24 2-Butanone	43	3.588	3.588	(0.856)	15482	10.0000	9.78
76 2-Chlorotoluene	91	8.982	8.982	(0.929)	69257	5.00000	4.59(a)
52 2-Hexanone	43	7.090	7.090	(0.924)	26285	10.0000	9.65
77 4-Chlorotoluene	91	9.075	9.075	(0.939)	78227	5.00000	4.55(a)
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	73154	5.00000	4.19(a)
45 4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	39820	10.0000	9.49
10 Acetone	43	1.976	1.976	(0.472)	16151	10.0000	9.96
37 Benzene	78	4.519	4.519	(0.909)	87102	5.00000	4.69(a)
74 Bromobenzene	156	8.810	8.810	(0.911)	28505	5.00000	4.71(a)
29 Bromochloromethane	128	3.803	3.803	(0.908)	12375	5.00000	4.79(a)
39 Bromodichloromethane	83	5.730	5.730	(1.153)	29297	5.00000	4.73(a)
66 Bromoform	173	8.416	8.416	(1.097)	15617	5.00000	5.38
6 Bromomethane	94	1.339	1.339	(0.320)	17098	5.00000	5.65
19 Carbon Disulfide	76	2.076	2.076	(0.496)	119343	10.0000	8.86
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	23333	5.00000	5.78(M)
59 Chlorobenzene	112	7.699	7.699	(1.004)	62856	5.00000	4.67(a)
7 Chloroethane	64	1.403	1.403	(0.335)	15451	5.00000	4.61(a)
28 Chloroform	83	3.917	3.917	(0.935)	39823	5.00000	4.86(a)
3 Chloromethane	50	1.074	1.074	(0.256)	38315	5.00000	4.68(a)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	24307	5.00000	4.72(a)
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	38177	5.00000	4.67(a)
55 Dibromochloromethane	129	7.184	7.184	(0.937)	23410	5.00000	4.76(a)
44 Dibromomethane	93	5.558	5.558	(1.118)	15254	5.00000	4.99(a)
2 Dichlorodifluoromethane	85	0.973	0.973	(0.232)	18712	5.00000	5.68
61 Ethylbenzene	106	7.800	7.800	(1.017)	31216	5.00000	4.67(a)
91 Hexachlorobutadiene	225	11.489	11.489	(1.188)	10475	5.00000	5.08
67 Isopropylbenzene	105	8.566	8.566	(1.117)	88891	5.00000	4.45(a)
62 m,p-Xylenes	106	7.907	7.907	(1.031)	76850	10.0000	9.27
17 Methylene Chloride	84	2.306	2.306	(0.550)	24802	5.00000	5.12
87 n-Butylbenzene	91	9.999	9.999	(1.034)	62016	5.00000	4.11(a)
73 n-Propylbenzene	91	8.917	8.917	(0.922)	106774	5.00000	4.34(a)
92 Naphthalene	128	11.546	11.546	(1.194)	32812	5.00000	4.93(a)
63 o-Xylene	106	8.244	8.244	(1.075)	39477	5.00000	4.76(a)
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	85826	5.00000	4.19(a)
64 Styrene	104	8.265	8.265	(1.077)	64566	5.00000	4.70(a)
78 tert-Butylbenzene	119	9.340	9.340	(0.966)	63619	5.00000	4.38(a)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	18484	5.00000	4.45(a)
50 Toluene	91	6.453	6.453	(0.841)	96534	5.00000	4.77(a)
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	20418	5.00000	4.68(a)
51 trans-1,3-Dichloropropene	75	6.689	6.689	(1.346)	30731	5.00000	4.66(a)
38 Trichloroethene	130	5.214	5.214	(1.049)	23294	5.00000	4.56(a)
8 Trichlorofluoromethane	101	1.561	1.561	(0.373)	29483	5.00000	5.05
5 Vinyl Chloride	62	1.145	1.145	(0.273)	25416	5.00000	4.26(a)

Data File: \\NAHSTWS005\Target\chem\voa6.i\X190314.b\X031406.D
Report Date: 29-Mar-2019 19:45

QC Flag Legend

a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



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Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

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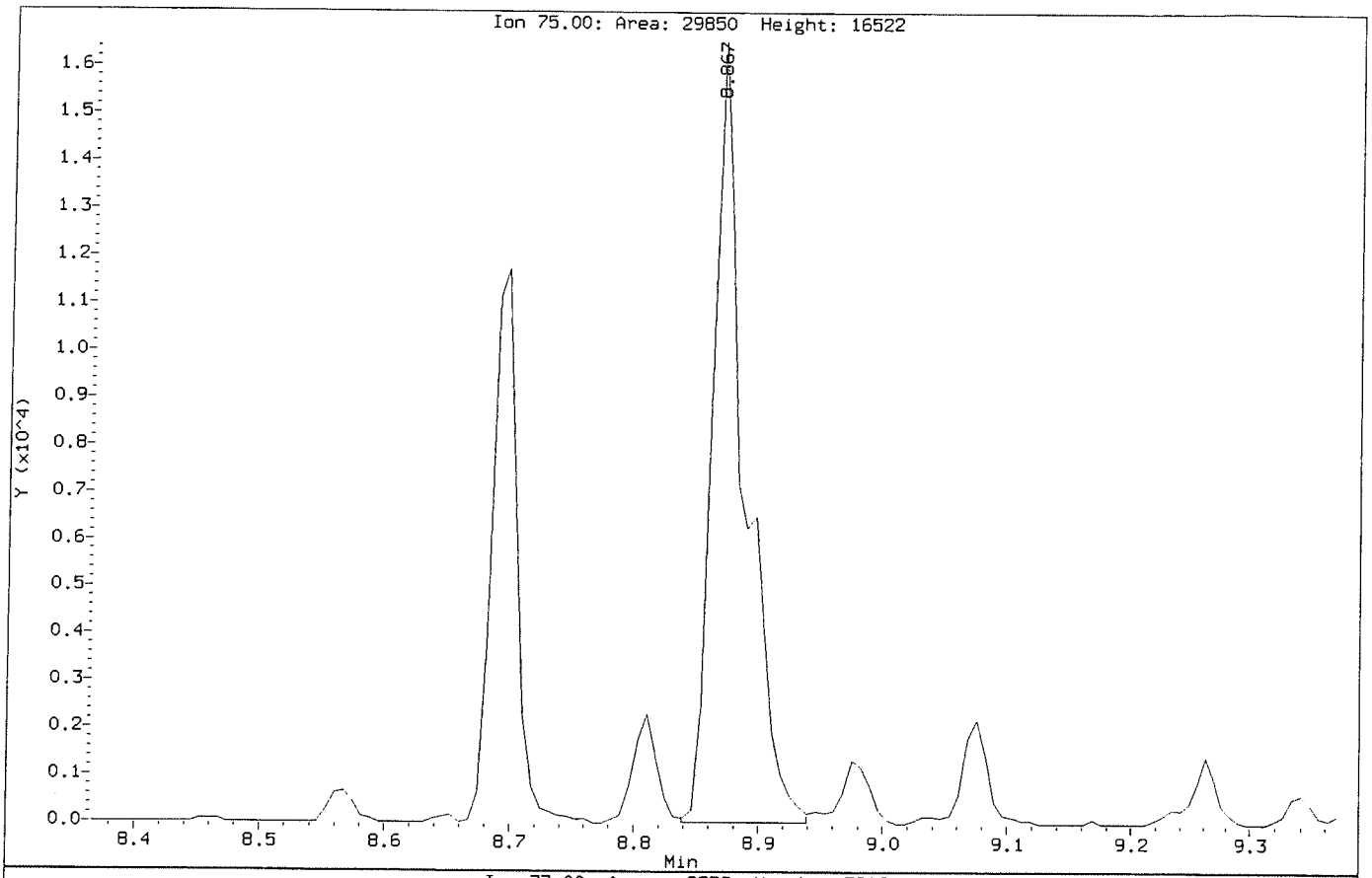
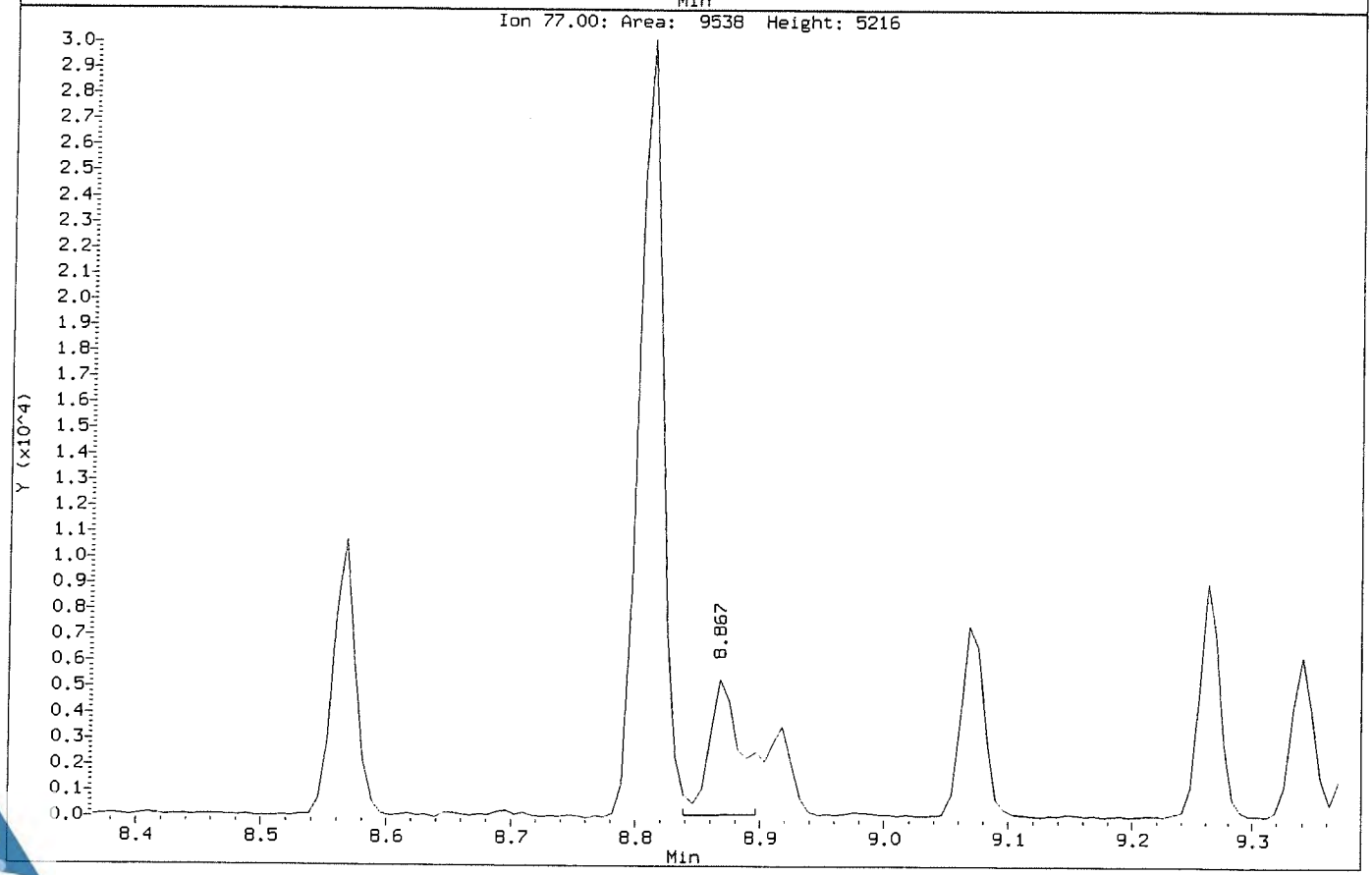
Injection Date: 14-MAR-2019 13:32
Instrument: voa6.i
Client Sample ID: VSTD005

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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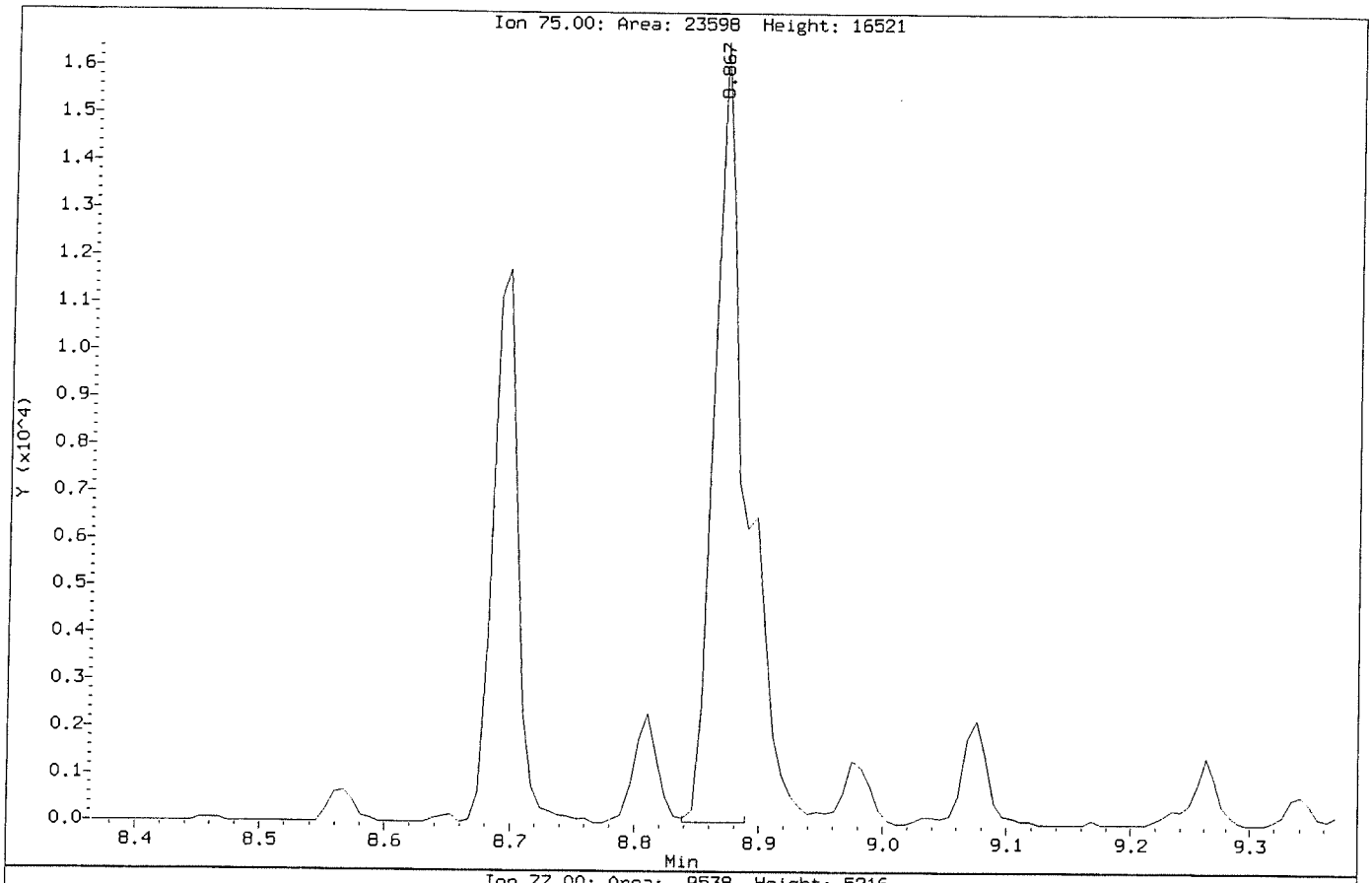
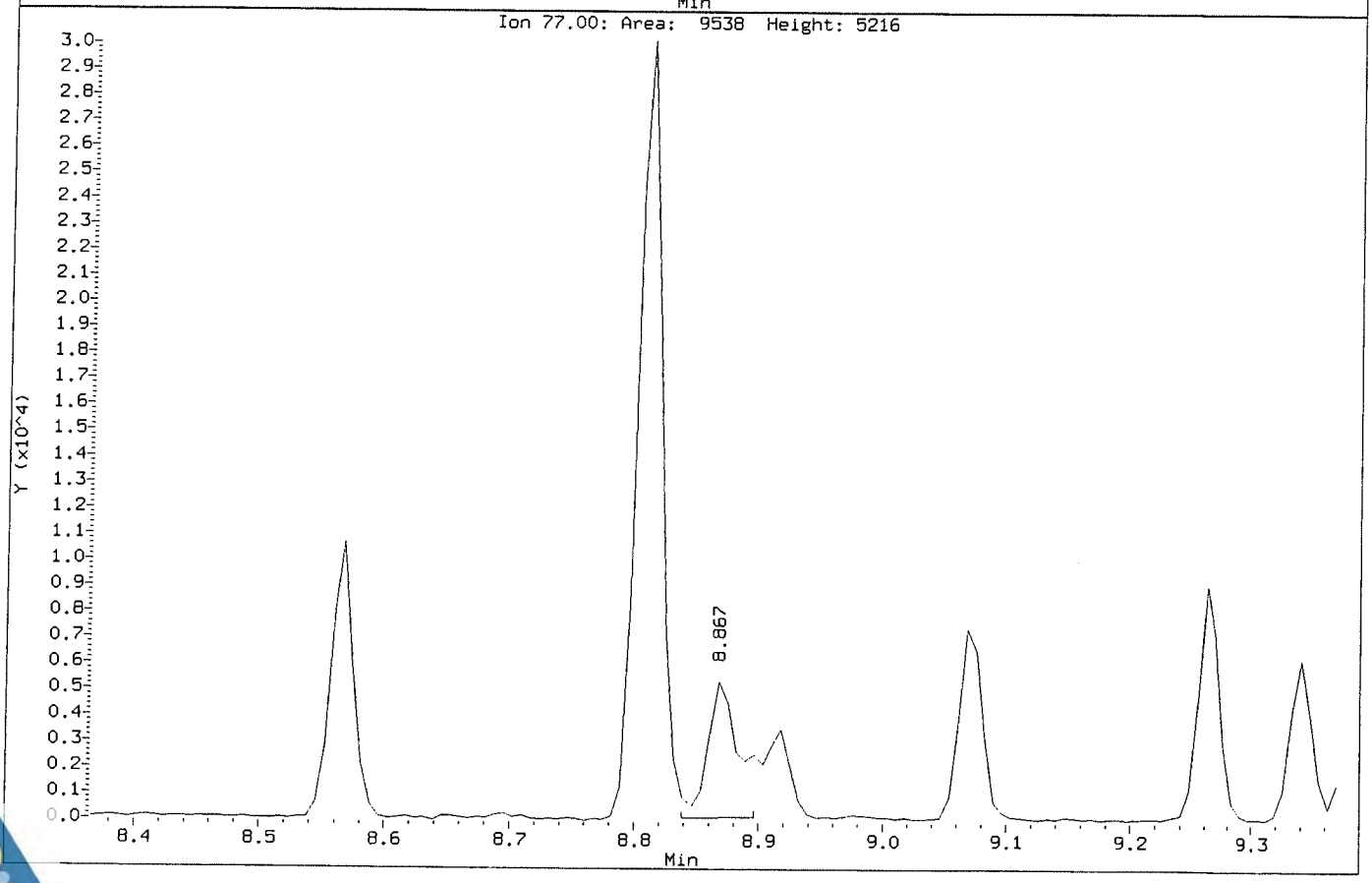
Client Sample ID: VSTD005

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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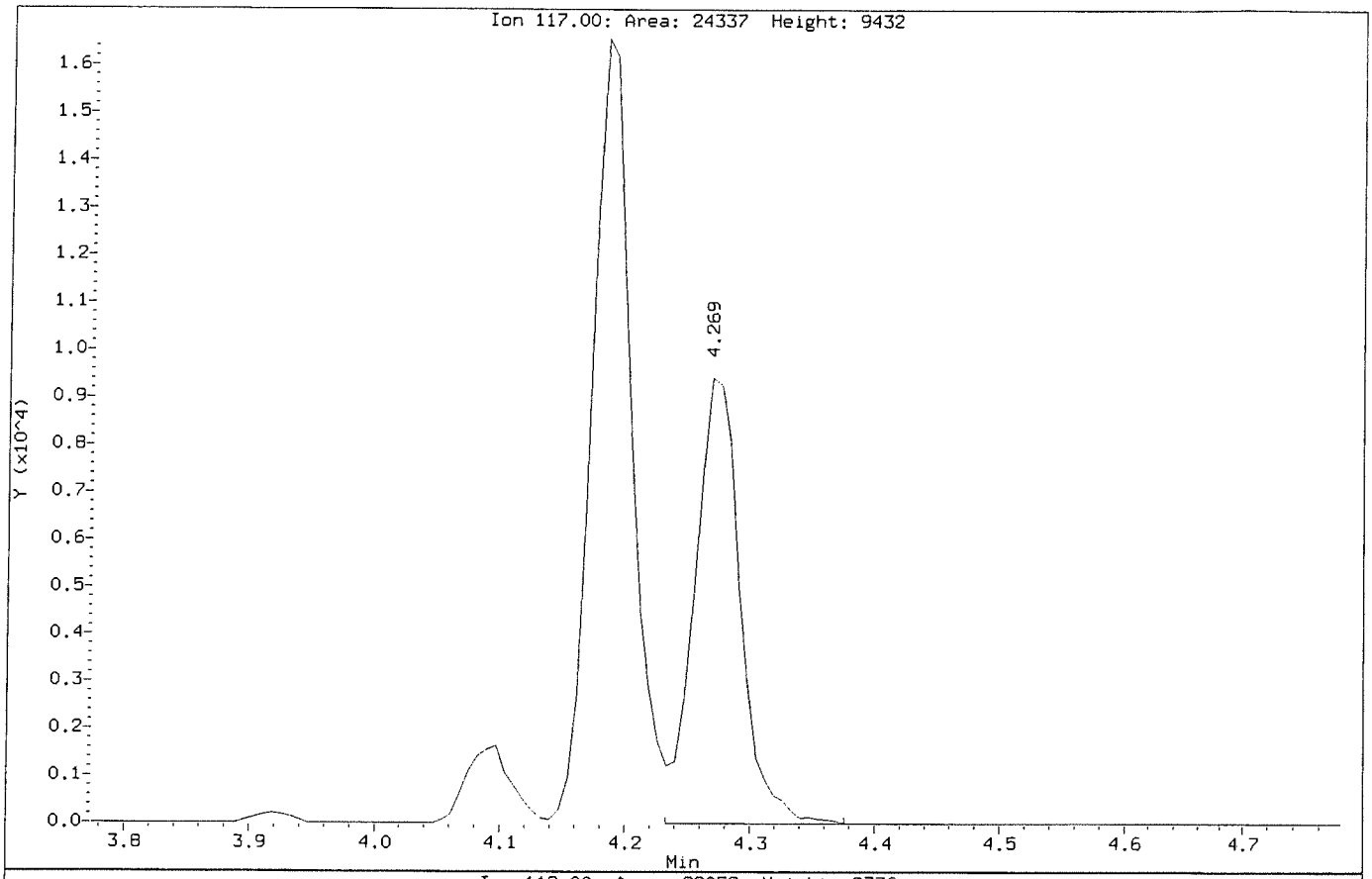
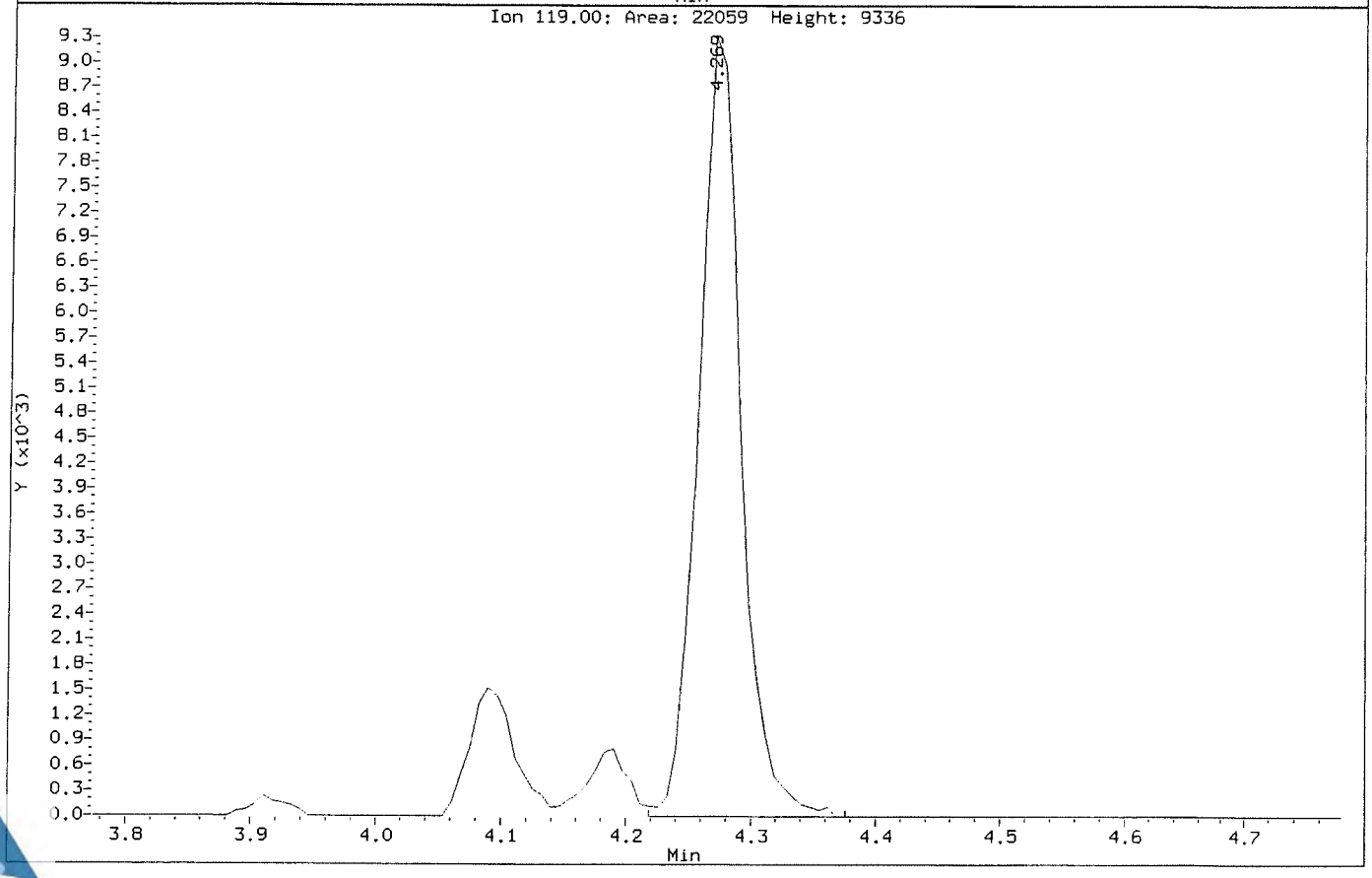
Instrument: voa6.i
Client Sample ID: VSTD005

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





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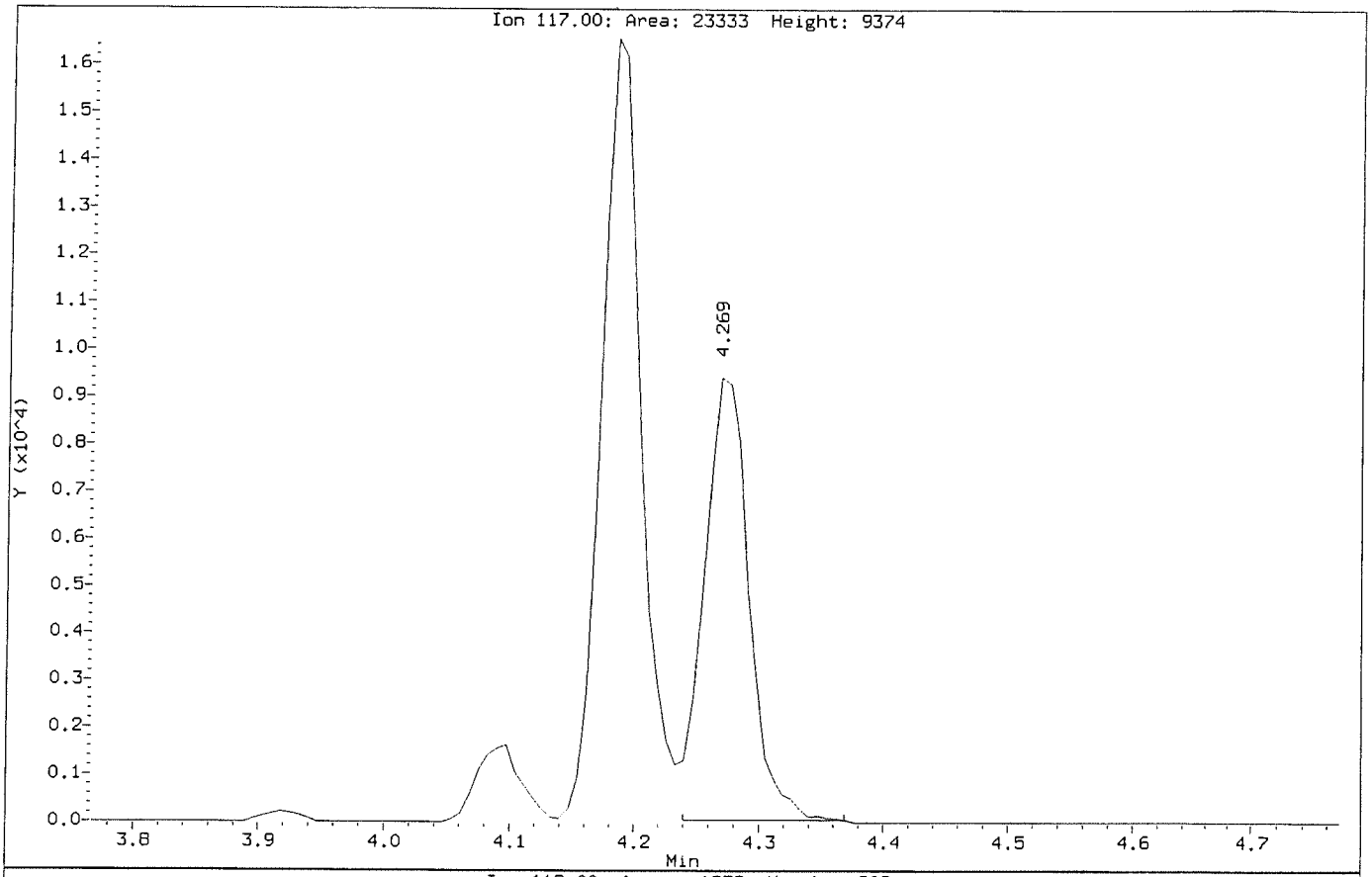
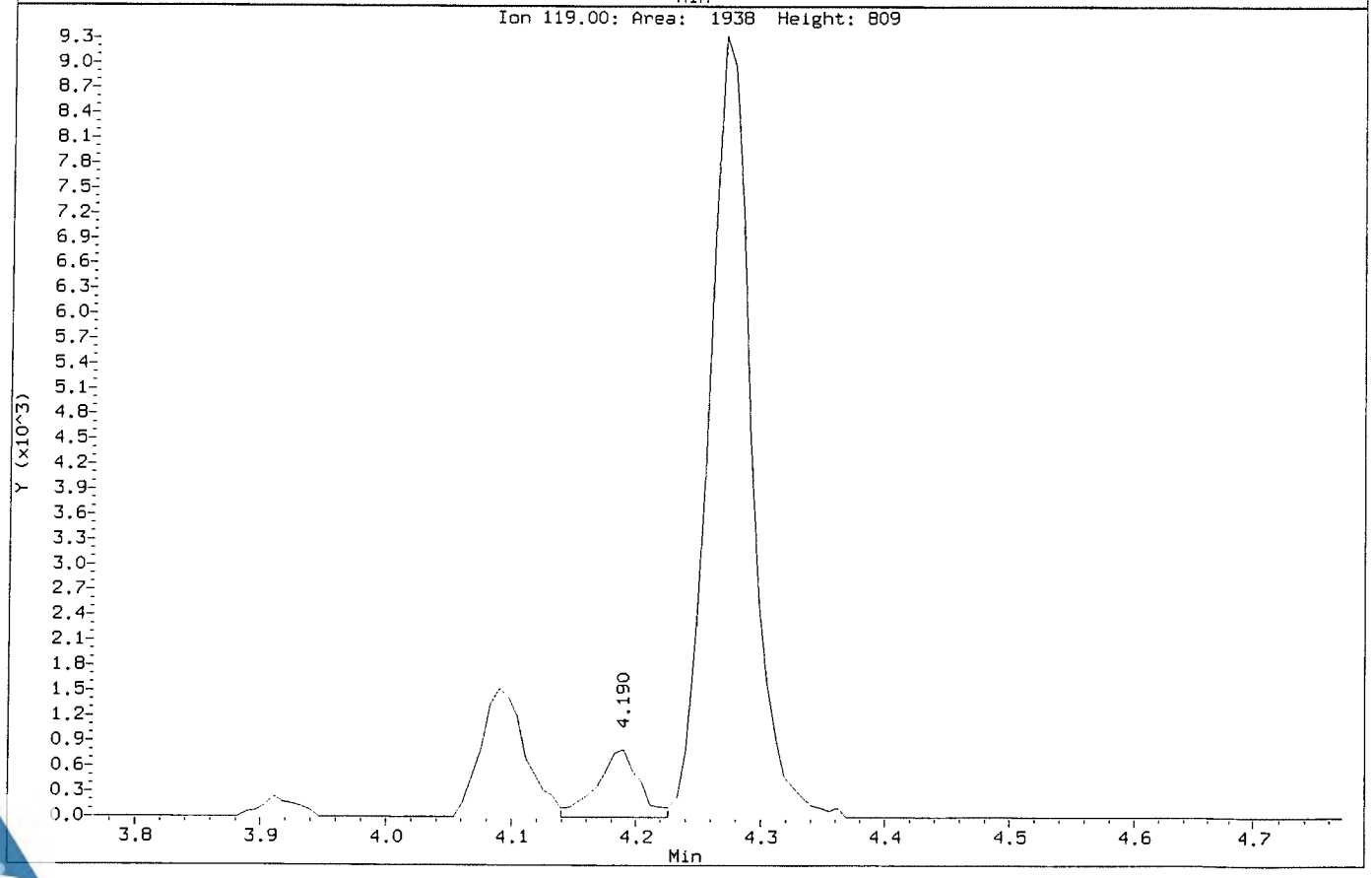
Instrument: voa6.i
Client Sample ID: VSTD005

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





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Report Date: 29-Mar-2019 19:45

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Data file : \\NAHSTWS005\Target\chem\voa6.i\X190314.b\X031407.D
Lab Smp Id: VSTD020 Client Smp ID: VSTD020
Inj Date : 14-MAR-2019 13:56
Operator : PC Inst ID: voa6.i
Smp Info : VSTD020;VSTD020;1;6;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X190314.b\8260W.m
Meth Date : 29-Mar-2019 19:45 voa6.i Quant Type: ISTD
Cal Date : 14-MAR-2019 13:32 Cal File: X031406.D
Als bottle: 8 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	455159	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	719487	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	678548	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	346952	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	90165	20.0000	20.21
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	101012	20.0000	20.18
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	338966	20.0000	20.00
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	126535	20.0000	20.20
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	89825	20.0000	19.61
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	126940	20.0000	19.13
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	110092	20.0000	19.67
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	73605	20.0000	19.78
22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	165620	20.0000	19.81
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	74190	20.0000	19.21
32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	119514	20.0000	18.47
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	47179	20.0000	19.21
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	85418	20.0000	19.75(M)
90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.173)	83769	20.0000	19.29
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	324407	20.0000	19.54
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	13452	20.0000	19.76
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	88769	20.0000	19.86
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	193023	20.0000	19.51

Data File: \\NAHSTWS005\Target\chem\voa6.i\X190314.b\X031407.D
Report Date: 29-Mar-2019 19:45

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	118865	20.0000	19.57
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	97047	20.0000	19.19
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	322667	20.0000	19.65
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	203479	20.0000	19.39
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	147799	20.0000	19.51
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	205693	20.0000	19.24
26 2,2-Dichloropropane	77	3.516	3.516	(0.839)	124026	20.0000	19.27
24 2-Butanone	43	3.581	3.581	(0.855)	68954	40.0000	44.22
76 2-Chlorotoluene	91	8.974	8.974	(0.928)	280964	20.0000	18.97
52 2-Hexanone	43	7.090	7.090	(0.924)	106908	40.0000	39.96
77 4-Chlorotoluene	91	9.075	9.075	(0.939)	322595	20.0000	19.10
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	331876	20.0000	19.34
45 4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	161874	40.0000	39.30
10 Acetone	43	1.976	1.976	(0.472)	52205	40.0000	43.27
37 Benzene	78	4.519	4.519	(0.909)	358052	20.0000	19.45
74 Bromobenzene	156	8.810	8.810	(0.911)	116987	20.0000	19.70
29 Bromochloromethane	128	3.803	3.803	(0.908)	49630	20.0000	19.51
39 Bromodichloromethane	83	5.729	5.729	(1.153)	120167	20.0000	19.57
66 Bromoform	173	8.416	8.416	(1.097)	65679	20.0000	19.97
6 Bromomethane	94	1.339	1.339	(0.320)	61792	20.0000	20.15
19 Carbon Disulfide	76	2.076	2.076	(0.496)	513065	40.0000	38.64
34 Carbon Tetrachloride	117	4.275	4.275	(0.860)	101790	20.0000	19.37(M)
59 Chlorobenzene	112	7.699	7.699	(1.004)	254066	20.0000	19.21
7 Chloroethane	64	1.403	1.403	(0.335)	64014	20.0000	19.41
28 Chloroform	83	3.917	3.917	(0.935)	159049	20.0000	19.70
3 Chloromethane	50	1.073	1.073	(0.256)	146979	20.0000	22.40
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	99946	20.0000	19.70
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	158080	20.0000	19.51
55 Dibromochloromethane	129	7.176	7.176	(0.936)	96548	20.0000	20.01
44 Dibromomethane	93	5.558	5.558	(1.118)	59802	20.0000	19.75
2 Dichlorodifluoromethane	85	0.973	0.973	(0.232)	86280	20.0000	19.78
61 Ethylbenzene	106	7.800	7.800	(1.017)	127939	20.0000	19.49
91 Hexachlorobutadiene	225	11.489	11.489	(1.188)	48583	20.0000	20.28
67 Isopropylbenzene	105	8.566	8.566	(1.117)	378968	20.0000	19.34
62 m,p-Xylenes	106	7.907	7.907	(1.031)	318482	40.0000	39.13
17 Methylene Chloride	84	2.306	2.306	(0.550)	97872	20.0000	20.63
87 n-Butylbenzene	91	9.999	9.999	(1.034)	289287	20.0000	19.54
73 n-Propylbenzene	91	8.917	8.917	(0.922)	466942	20.0000	19.34
92 Naphthalene	128	11.546	11.546	(1.194)	132022	20.0000	20.17
63 o-Xylene	106	8.244	8.244	(1.075)	161982	20.0000	19.89
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	384788	20.0000	19.13
64 Styrene	104	8.258	8.258	(1.077)	272253	20.0000	20.17
78 tert-Butylbenzene	119	9.340	9.340	(0.966)	271293	20.0000	19.01
56 Tetrachloroethene	164	6.933	6.933	(0.904)	77718	20.0000	19.06
50 Toluene	91	6.453	6.453	(0.841)	386854	20.0000	19.49
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	85639	20.0000	19.93
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	129304	20.0000	19.80
38 Trichloroethene	130	5.214	5.214	(1.049)	97034	20.0000	19.16
8 Trichlorofluoromethane	101	1.561	1.561	(0.373)	133610	20.0000	20.45
5 Vinyl Chloride	62	1.145	1.145	(0.273)	110016	20.0000	18.72

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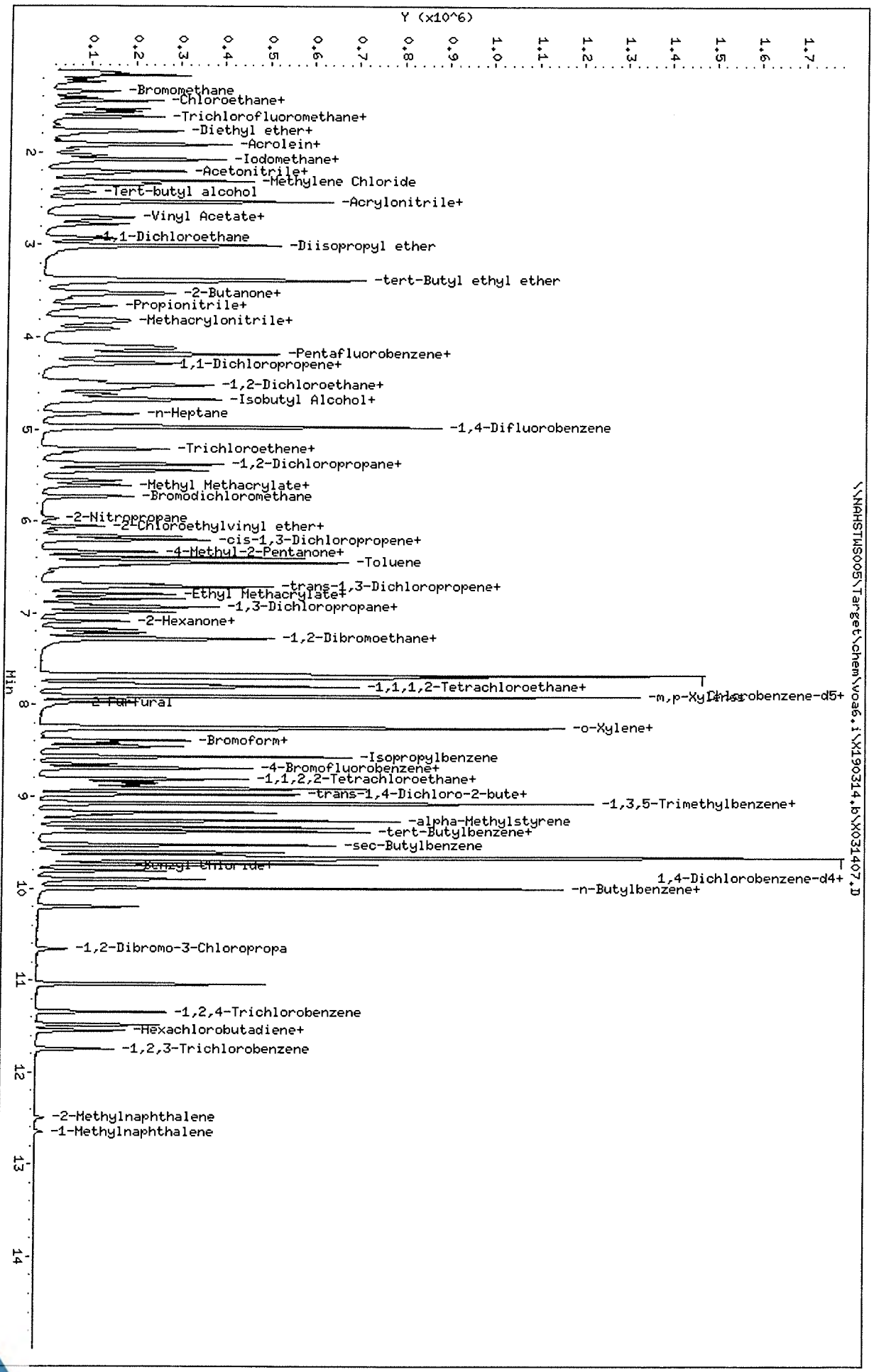
Report Date: 29-Mar-2019 19:45

QC Flag Legend

M - Compound response manually integrated.



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Sample Info: VSTD020;VSTD020;1;6;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

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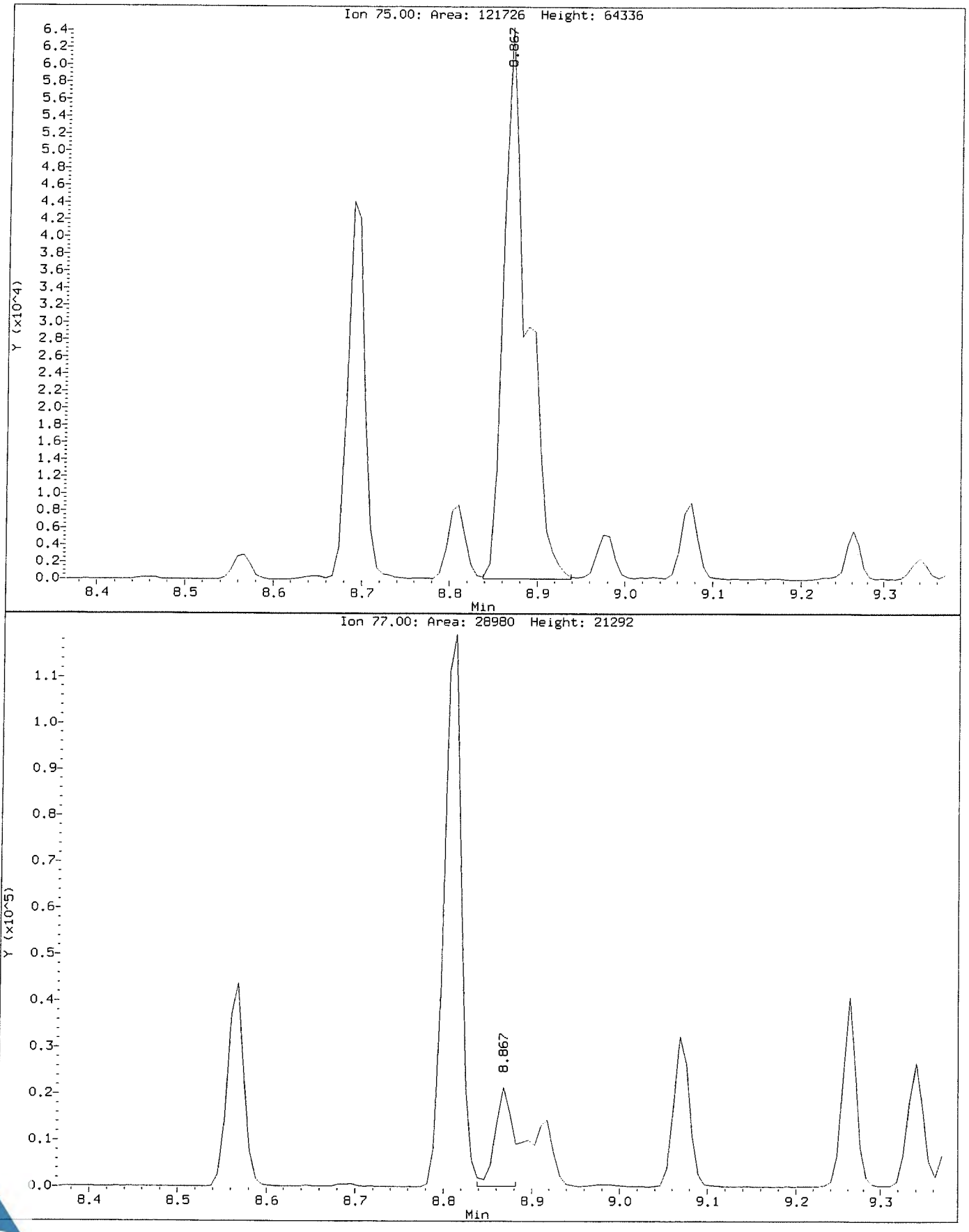
Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



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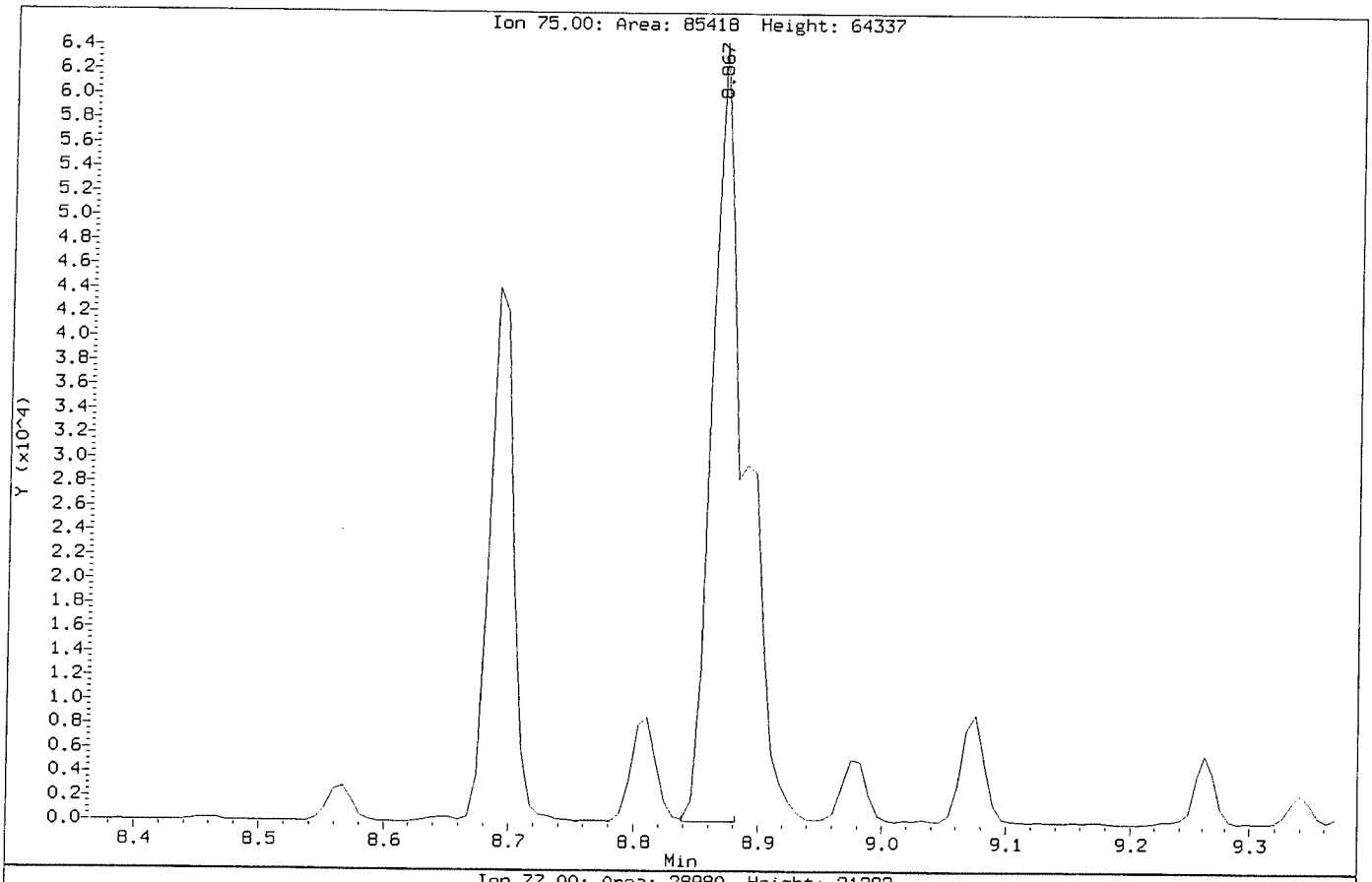
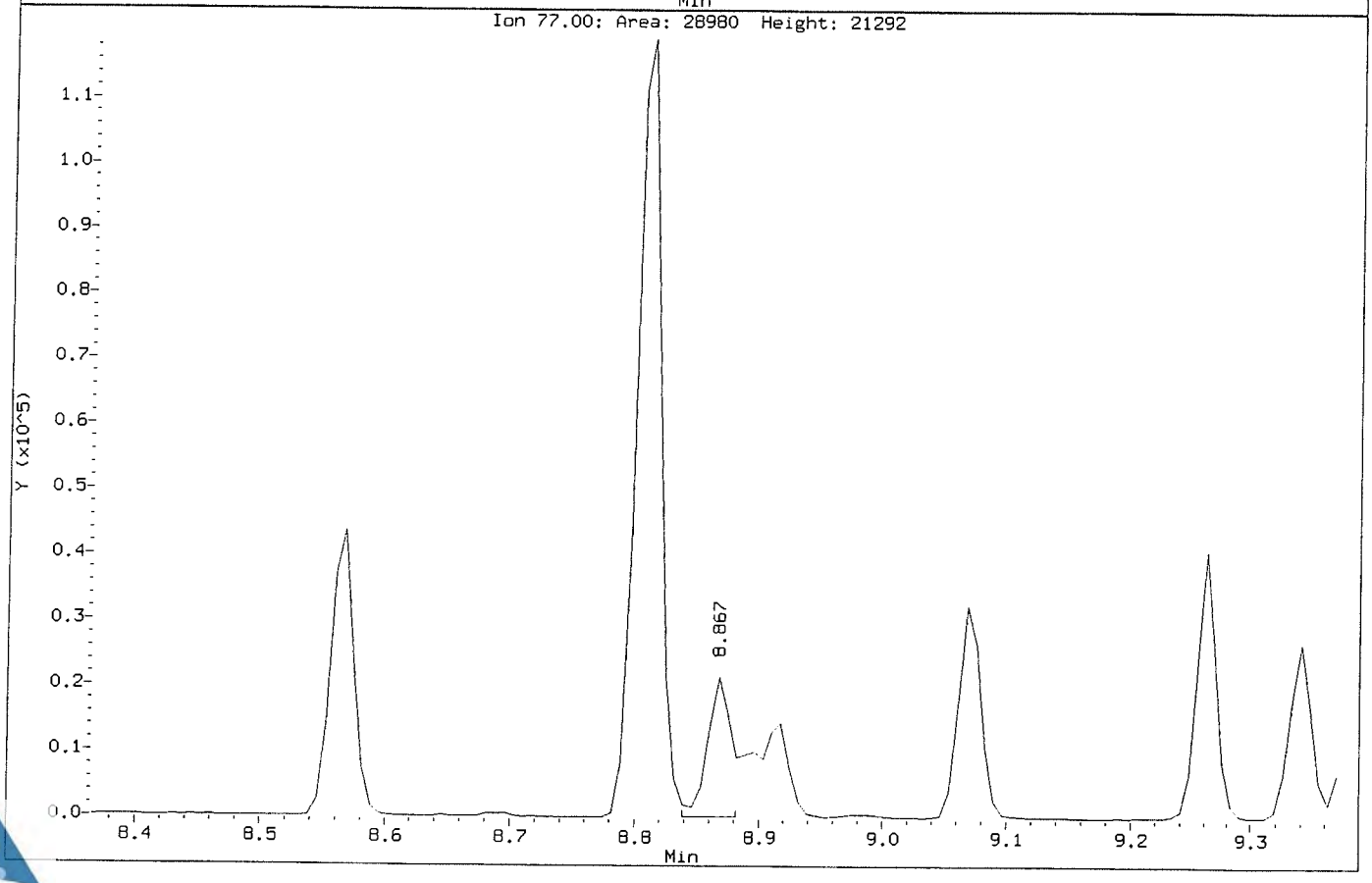
Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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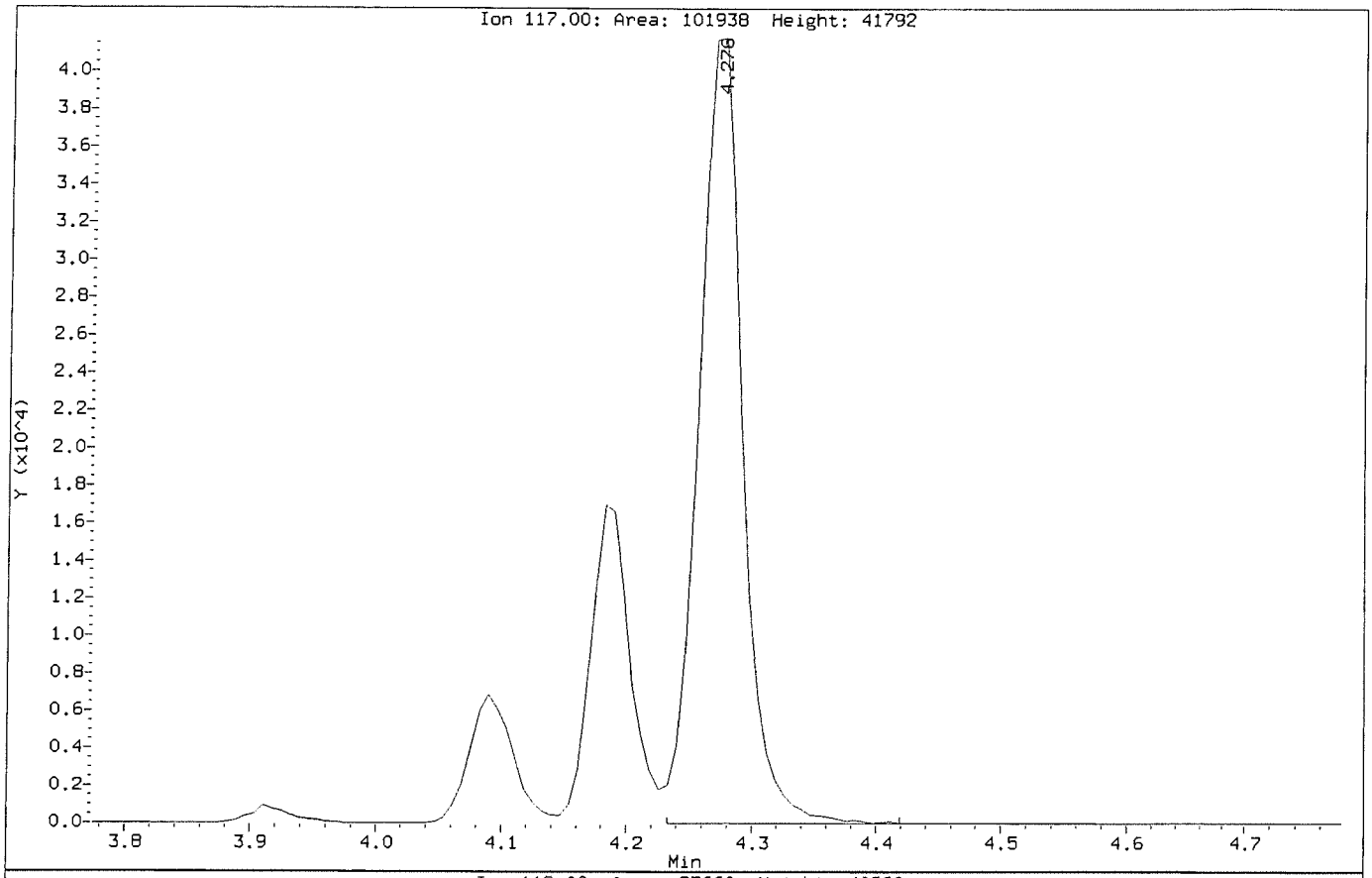
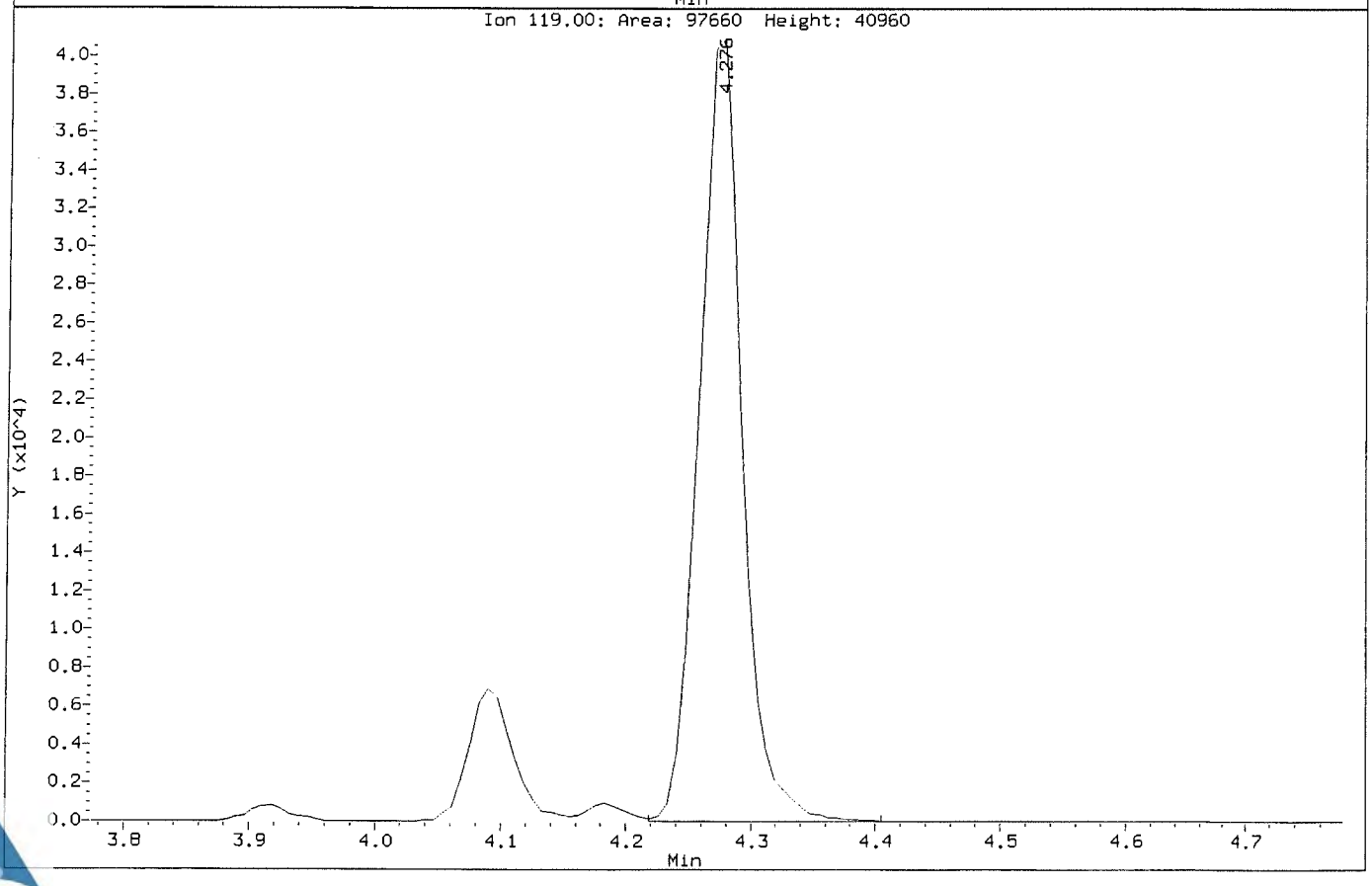
Instrument: voa6.i
Client Sample ID: VSTD020

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





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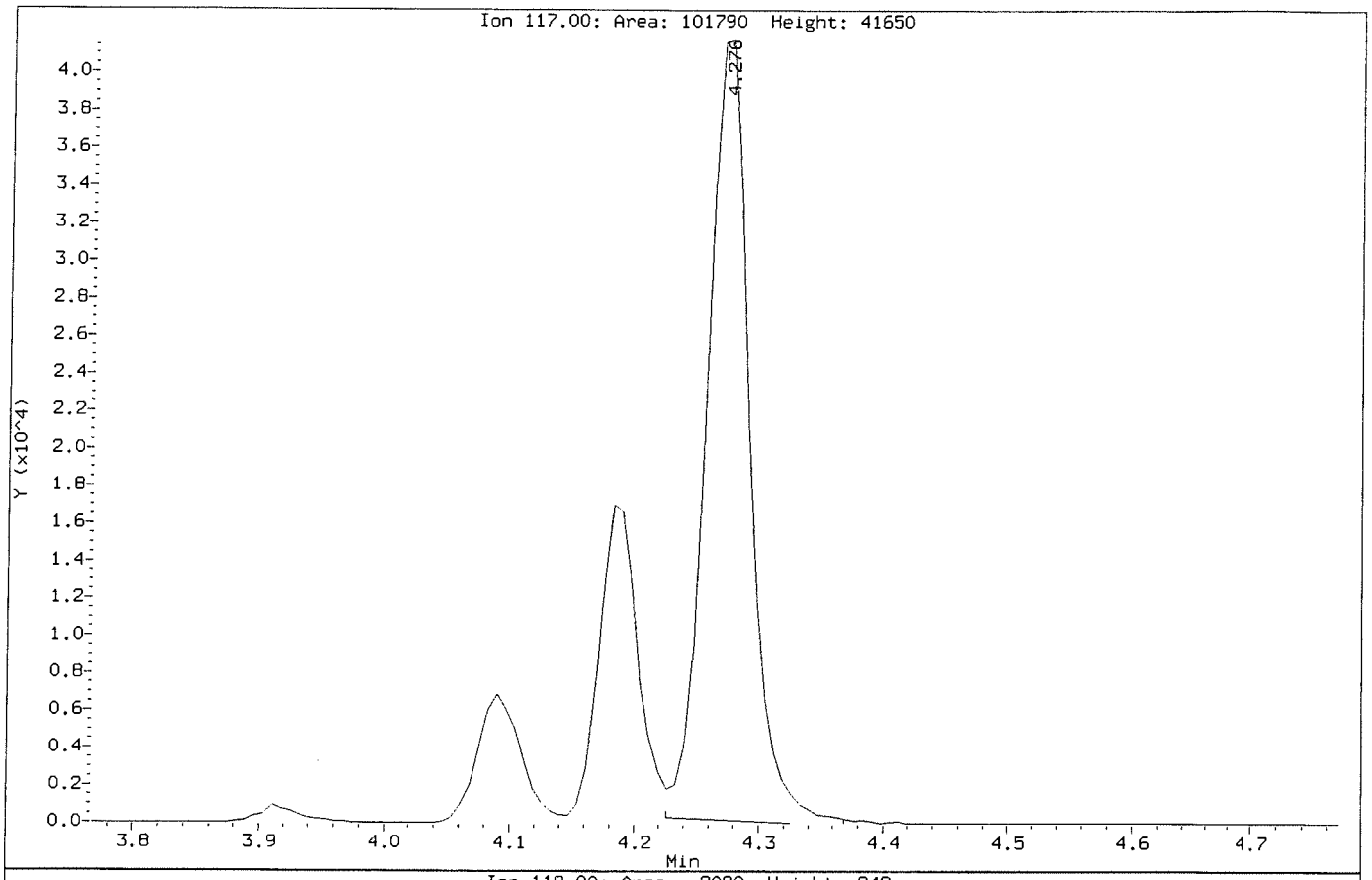
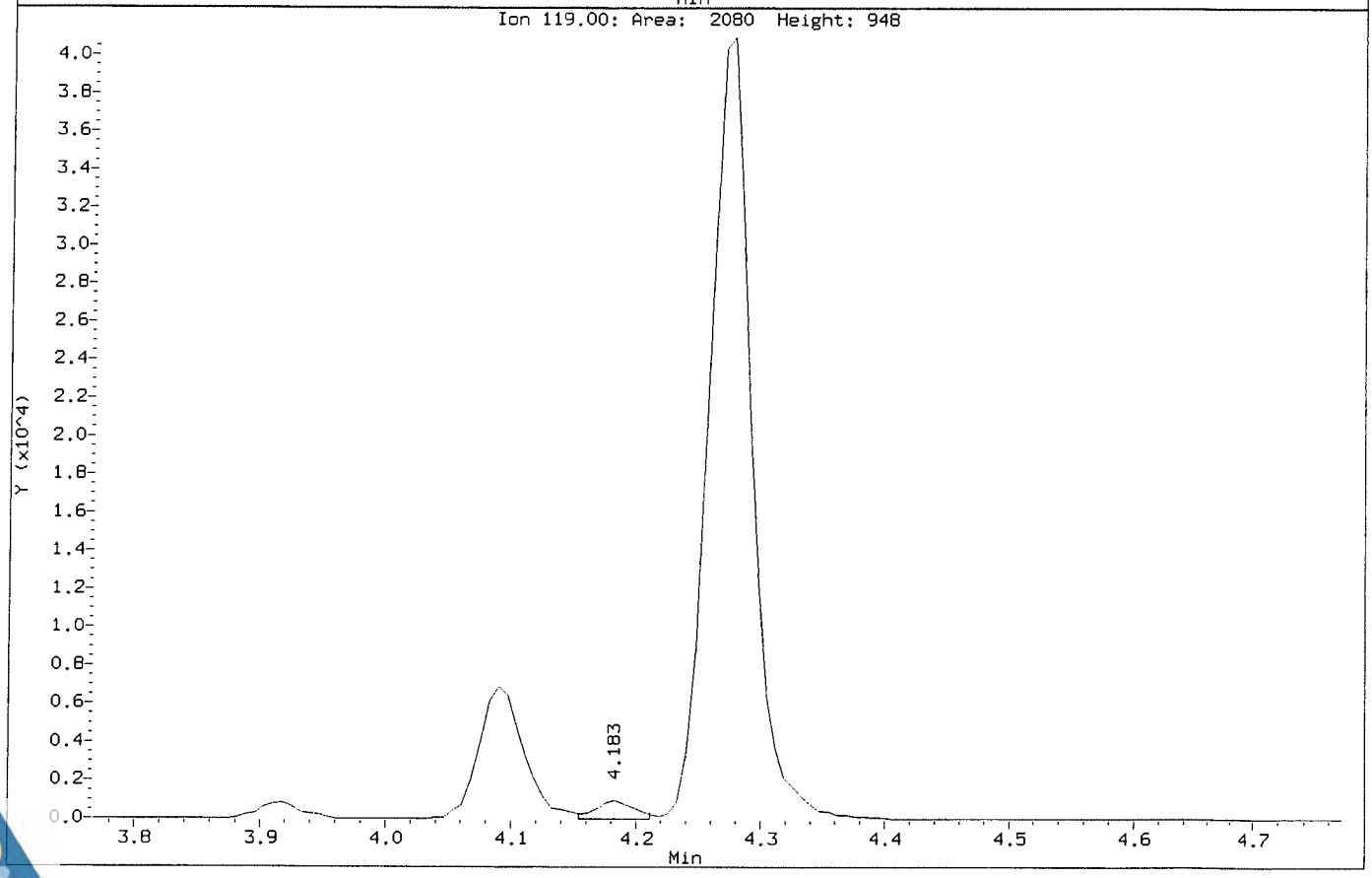
Instrument: voa6.i
Client Sample ID: VSTD020

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





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Report Date: 29-Mar-2019 19:45

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X190314.b\X031408.D
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Inj Date : 14-MAR-2019 14:20
Operator : PC Inst ID: voa6.i
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Misc Info : HS18090001;WATER;0;1;
Comment :
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Meth Date : 29-Mar-2019 19:45 voa6.i Quant Type: ISTD
Cal Date : 14-MAR-2019 13:56 Cal File: X031407.D
Als bottle: 9 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	464771	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	707275	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	671467	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	341377	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	226962	50.0000	49.93
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	251841	50.0000	49.62
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	848357	50.0000	50.90
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	309611	50.0000	50.49
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	218554	50.0000	48.22
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	300292	50.0000	44.33
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	258976	50.0000	47.03
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	172799	50.0000	46.93
22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	395598	50.0000	46.34
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	176984	50.0000	44.89
32 1,1-Dichloropropene	75	4.283	4.283	(0.862)	271634	50.0000	42.72
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	108337	50.0000	44.83
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	202921	50.0000	47.69(M)
90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.173)	196986	50.0000	46.10
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	751323	50.0000	46.00
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	33100	50.0000	49.42
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	214168	50.0000	48.42
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	452464	50.0000	46.48

Data File: \\NAHSTWS005\Target\chem\voa6.i\X190314.b\X031408.D
Report Date: 29-Mar-2019 19:45

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	281266	50.0000	47.12
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	233880	50.0000	47.06
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	733186	50.0000	45.38
83 1,3-Dichlorobenzene	146	9.605	9.605	(0.993)	474576	50.0000	45.96
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	354670	50.0000	47.32
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	479009	50.0000	45.54
26 2,2-Dichloropropane	77	3.516	3.516	(0.839)	294128	50.0000	44.77
24 2-Butanone	43	3.581	3.581	(0.855)	163366	100.000	102.61
76 2-Chlorotoluene	91	8.974	8.974	(0.928)	658806	50.0000	45.20
52 2-Hexanone	43	7.090	7.090	(0.924)	258616	100.000	97.69
77 4-Chlorotoluene	91	9.075	9.075	(0.939)	758392	50.0000	45.63
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	736608	50.0000	43.62
45 4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	389924	100.000	95.68
10 Acetone	43	1.976	1.976	(0.472)	116587	100.000	100.17
37 Benzene	78	4.519	4.519	(0.909)	859672	50.0000	47.52
74 Bromobenzene	156	8.810	8.810	(0.911)	274915	50.0000	47.05
29 Bromochloromethane	128	3.803	3.803	(0.908)	119984	50.0000	46.19
39 Bromodichloromethane	83	5.729	5.729	(1.153)	291800	50.0000	48.35
66 Bromoform	173	8.416	8.416	(1.097)	160732	50.0000	48.01
6 Bromomethane	94	1.339	1.339	(0.320)	143083	50.0000	45.42
19 Carbon Disulfide	76	2.069	2.069	(0.494)	1229145	100.000	90.65
34 Carbon Tetrachloride	117	4.275	4.275	(0.860)	230636	50.0000	42.32(M)
59 Chlorobenzene	112	7.699	7.699	(1.004)	605220	50.0000	46.25
7 Chloroethane	64	1.403	1.403	(0.335)	153754	50.0000	45.66
28 Chloroform	83	3.910	3.910	(0.933)	382054	50.0000	46.34
3 Chloromethane	50	1.074	1.074	(0.256)	320320	50.0000	49.46
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	237996	50.0000	45.94
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	389602	50.0000	48.93
55 Dibromochloromethane	129	7.176	7.176	(0.936)	234189	50.0000	49.05
44 Dibromomethane	93	5.558	5.558	(1.118)	143675	50.0000	48.27
2 Dichlorodifluoromethane	85	0.973	0.973	(0.232)	201380	50.0000	42.84
61 Ethylbenzene	106	7.800	7.800	(1.017)	296445	50.0000	45.63
91 Hexachlorobutadiene	225	11.489	11.489	(1.188)	103418	50.0000	42.33
67 Isopropylbenzene	105	8.566	8.566	(1.117)	849988	50.0000	43.84
62 m,p-Xylenes	106	7.907	7.907	(1.031)	738281	100.000	91.68
17 Methylene Chloride	84	2.306	2.306	(0.550)	232067	50.0000	47.95
87 n-Butylbenzene	91	9.999	9.999	(1.034)	635679	50.0000	43.65
73 n-Propylbenzene	91	8.917	8.917	(0.922)	1046353	50.0000	44.05
92 Naphthalene	128	11.546	11.546	(1.194)	308220	50.0000	47.88
63 o-Xylene	106	8.244	8.244	(1.075)	377510	50.0000	46.86
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	830691	50.0000	41.98
64 Styrene	104	8.258	8.258	(1.077)	641050	50.0000	48.00
78 tert-Butylbenzene	119	9.340	9.340	(0.966)	599120	50.0000	42.68
56 Tetrachloroethene	164	6.933	6.933	(0.904)	174876	50.0000	43.33
50 Toluene	91	6.446	6.446	(0.840)	912673	50.0000	46.48
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	208234	50.0000	47.47
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	318214	50.0000	49.59
38 Trichloroethene	130	5.214	5.214	(1.049)	229444	50.0000	46.10
8 Trichlorofluoromethane	101	1.561	1.561	(0.373)	300492	50.0000	43.86
5 Vinyl Chloride	62	1.145	1.145	(0.273)	258146	50.0000	43.03

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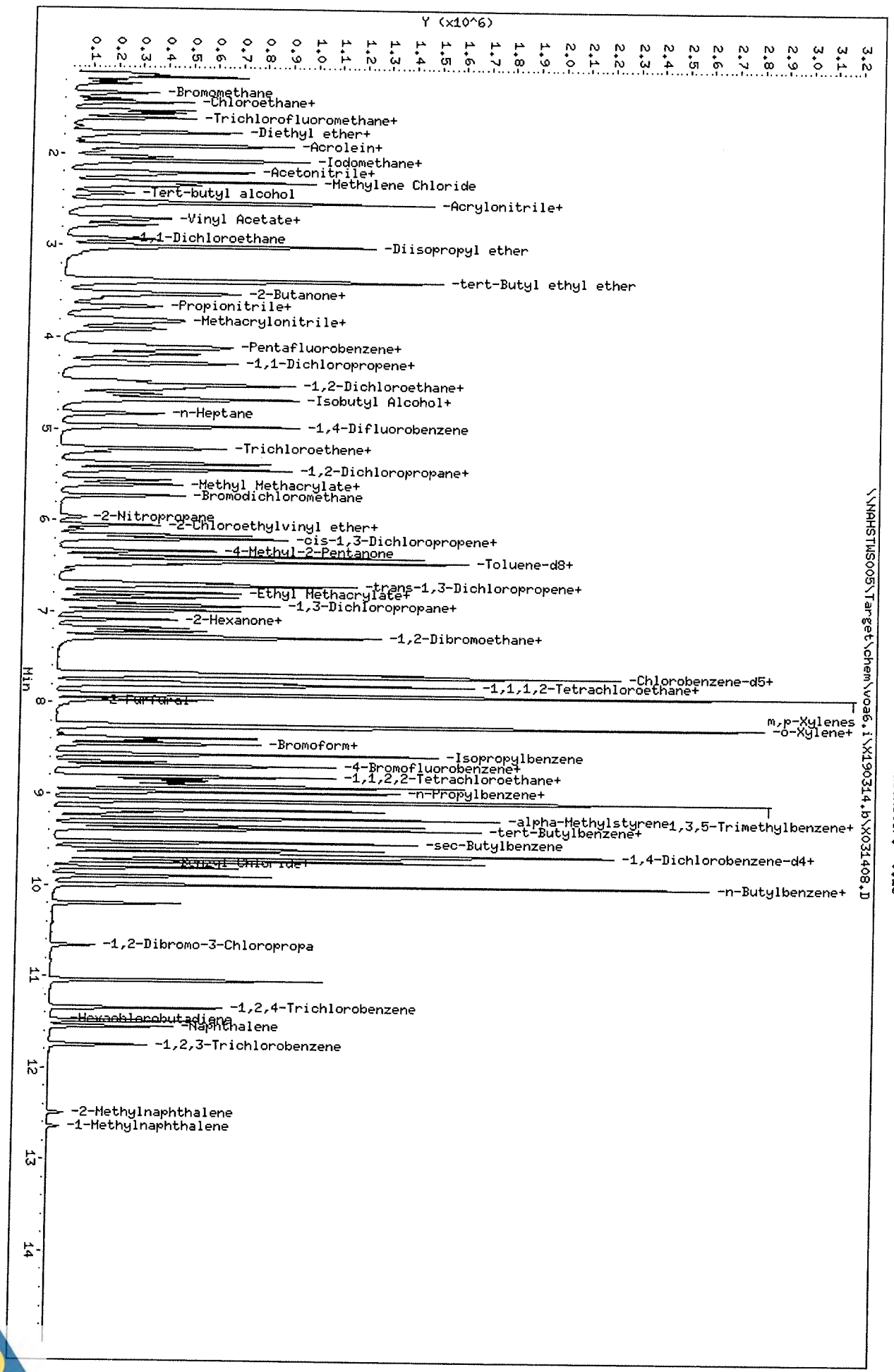
QC Flag Legend

M - Compound response manually integrated.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Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
\\NAHSTWS005\Target\chem\voa6.i\X190314.b\X031408.D
Y (x10^6)
Min
-Bromomethane
-Chloroethane+
-Trichlorofluoromethane+
-Diethyl ether+
-Acrolein+
-Iodomethane+
-Acetonitrile+
-Methylene Chloride
-Tert-butyl alcohol
-Acrylonitrile+
-Vinyl Acetate+
-1,1-Dichloroethane
-Diisopropyl ether
-tert-Butyl ethyl ether
-2-Butanone+
-Propionitrile+
-Methacrylonitrile+
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-Isobutyl Alcohol+
-n-Heptane
-1,4-Difluorobenzene
-Trichloroethene+
-1,2-Dichloropropane+
-Methyl Methacrylate+
-Bromodichloromethane
-2-Nitropropane
-2-Chloroethylvinyl ether+
-cis-1,3-Dichloropropene+
-4-Methyl-2-Pentanone
-Toluene-d8+
-trans-1,3-Dichloropropene+
-Ethyl Methacrylate+
-1,3-Dichloropropane+
-2-Hexanone+
-1,2-Dibromoethane+
-Chlorobenzene-d5+
-1,1,1,2-Tetrachloroethane+
-2-Furfural
m,p-Xylenes
-o-Xylene+
-Bromoform+
-Isopropylbenzene
-4-Bromofluorobenzene+
-1,1,2,2-Tetrachloroethane+
-n-Propylbenzene+
-alpha-Methylstyrene
1,3,5-Trimethylbenzene+
-tert-Butylbenzene+
-sec-Butylbenzene
-1,4-Dichlorobenzene-d4+
-Benzyl Chloride
-n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Hexachlorobutadiene
-Naphthalene
-1,2,3-Trichlorobenzene
-2-Methylnaphthalene
-1-Methylnaphthalene

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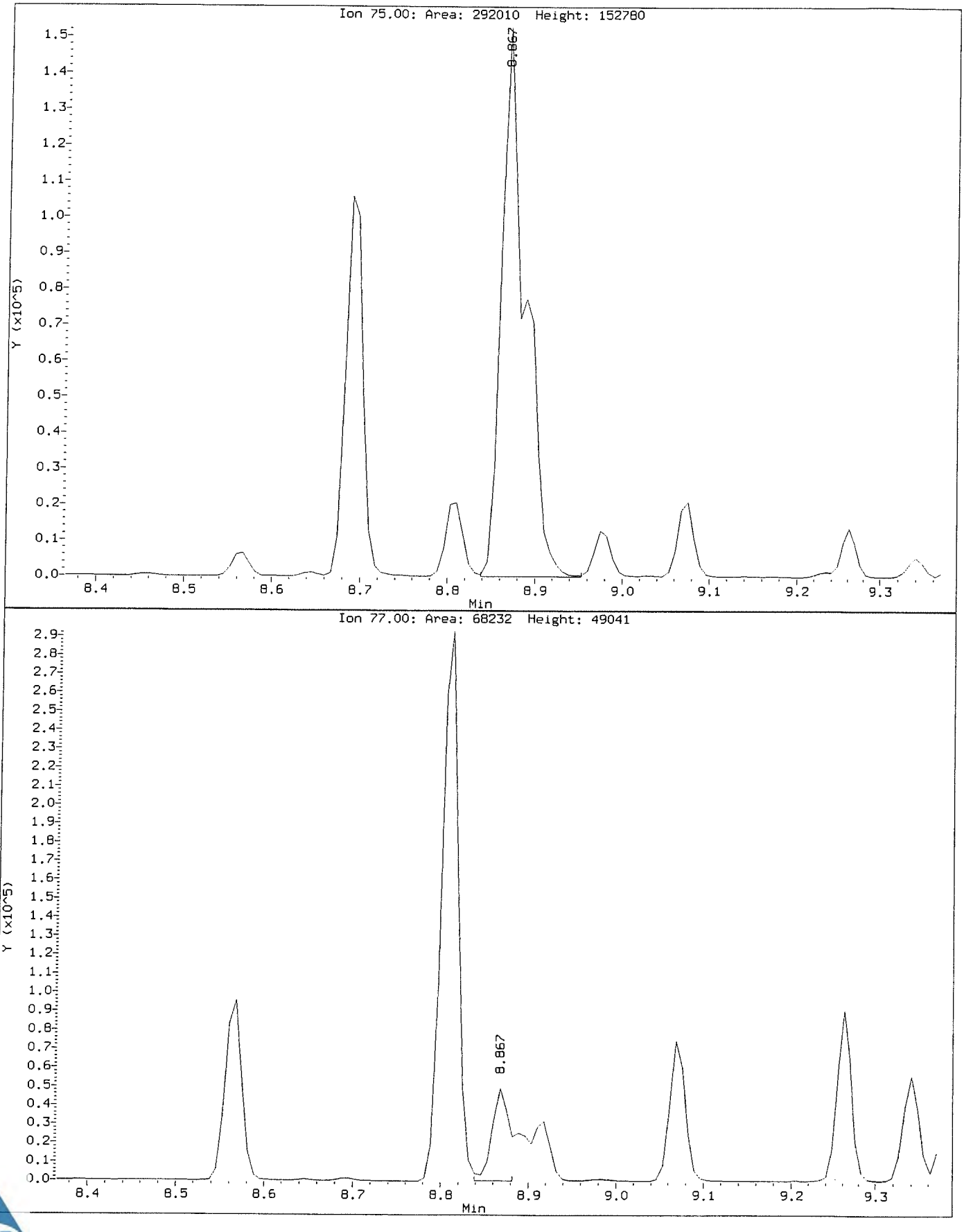
Injection Date: 14-MAR-2019 14:20
Instrument: voa6.i
Client Sample ID: VSTD050

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



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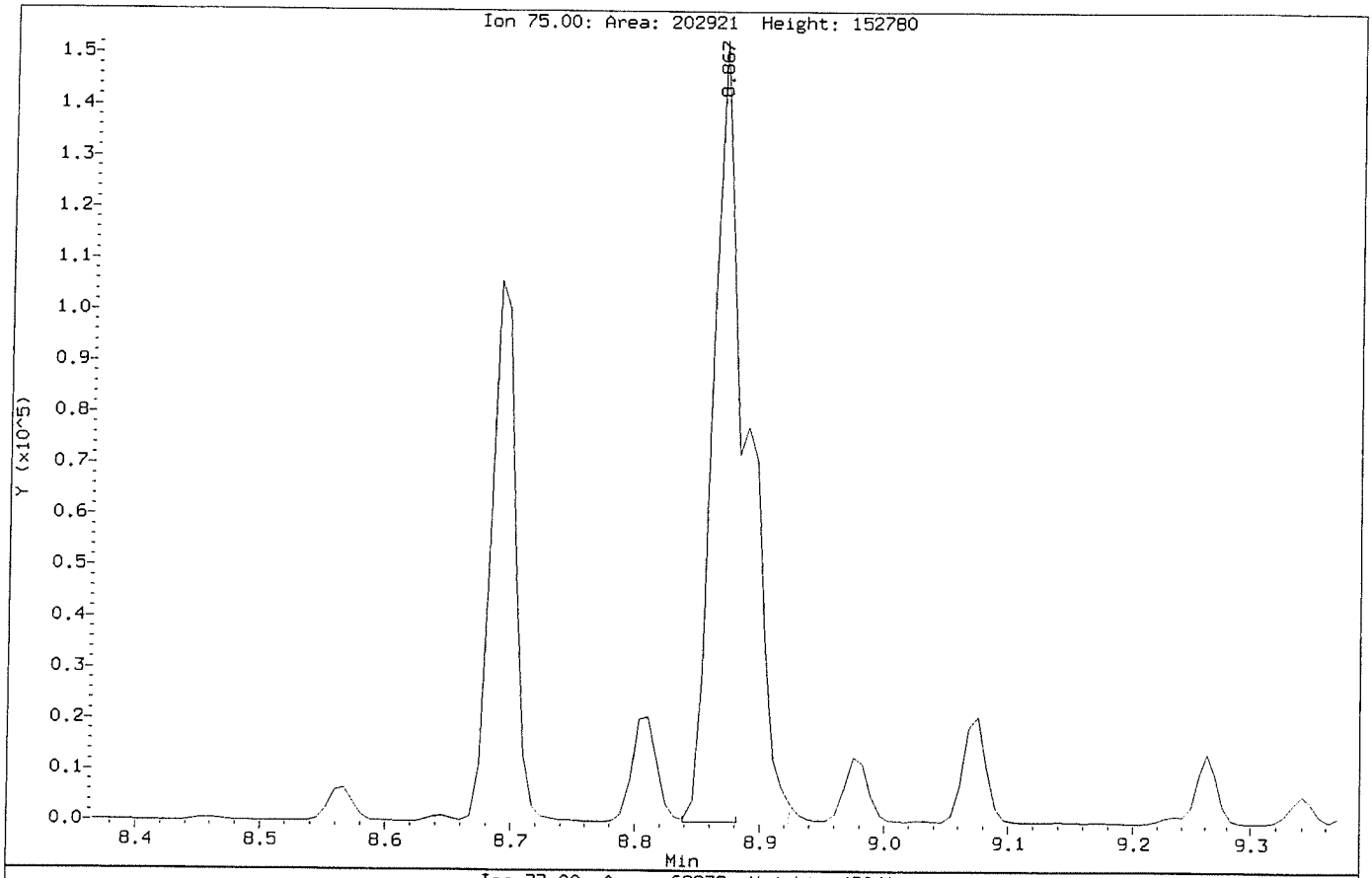
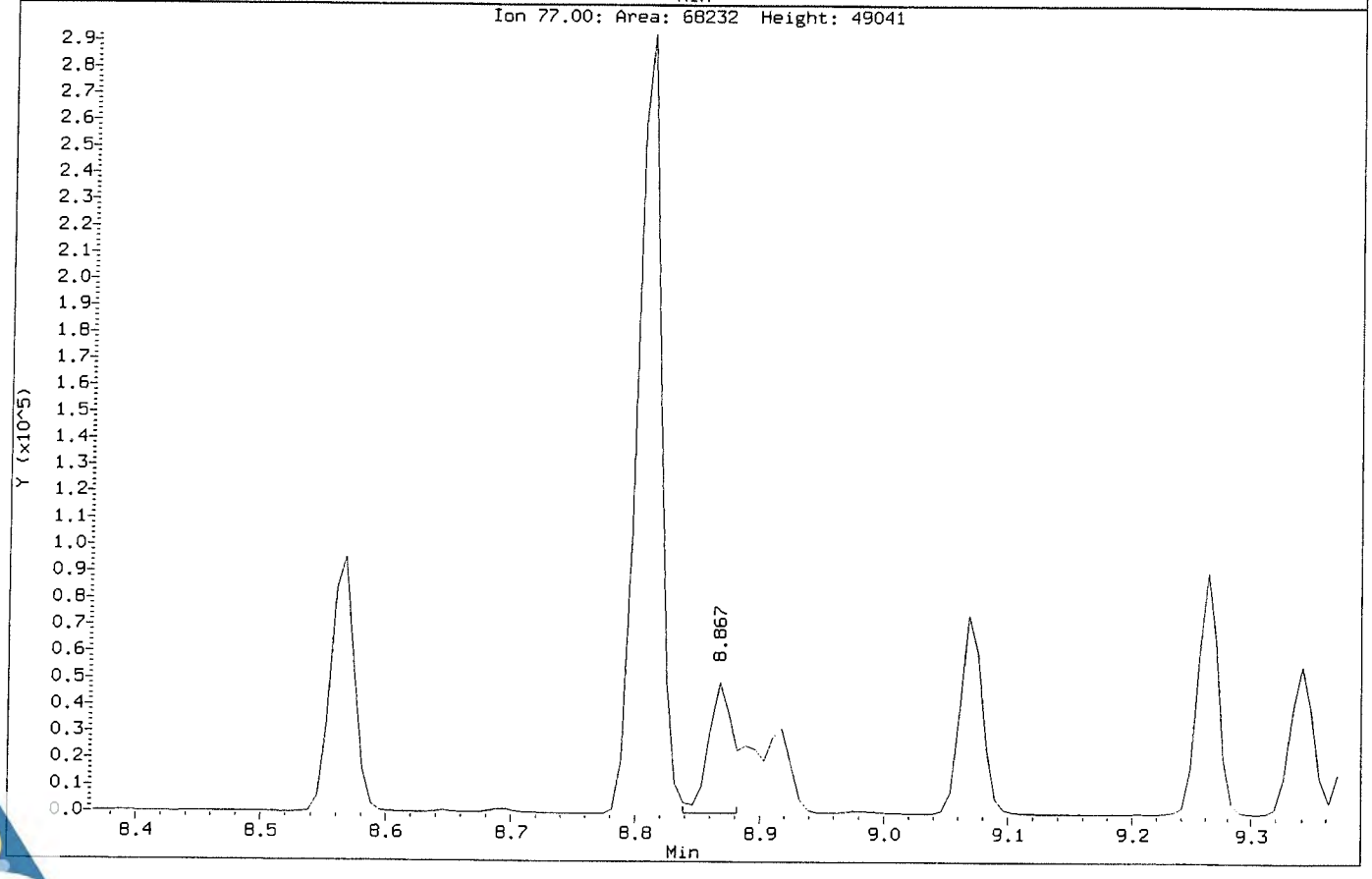
Client Sample ID: VSTD050

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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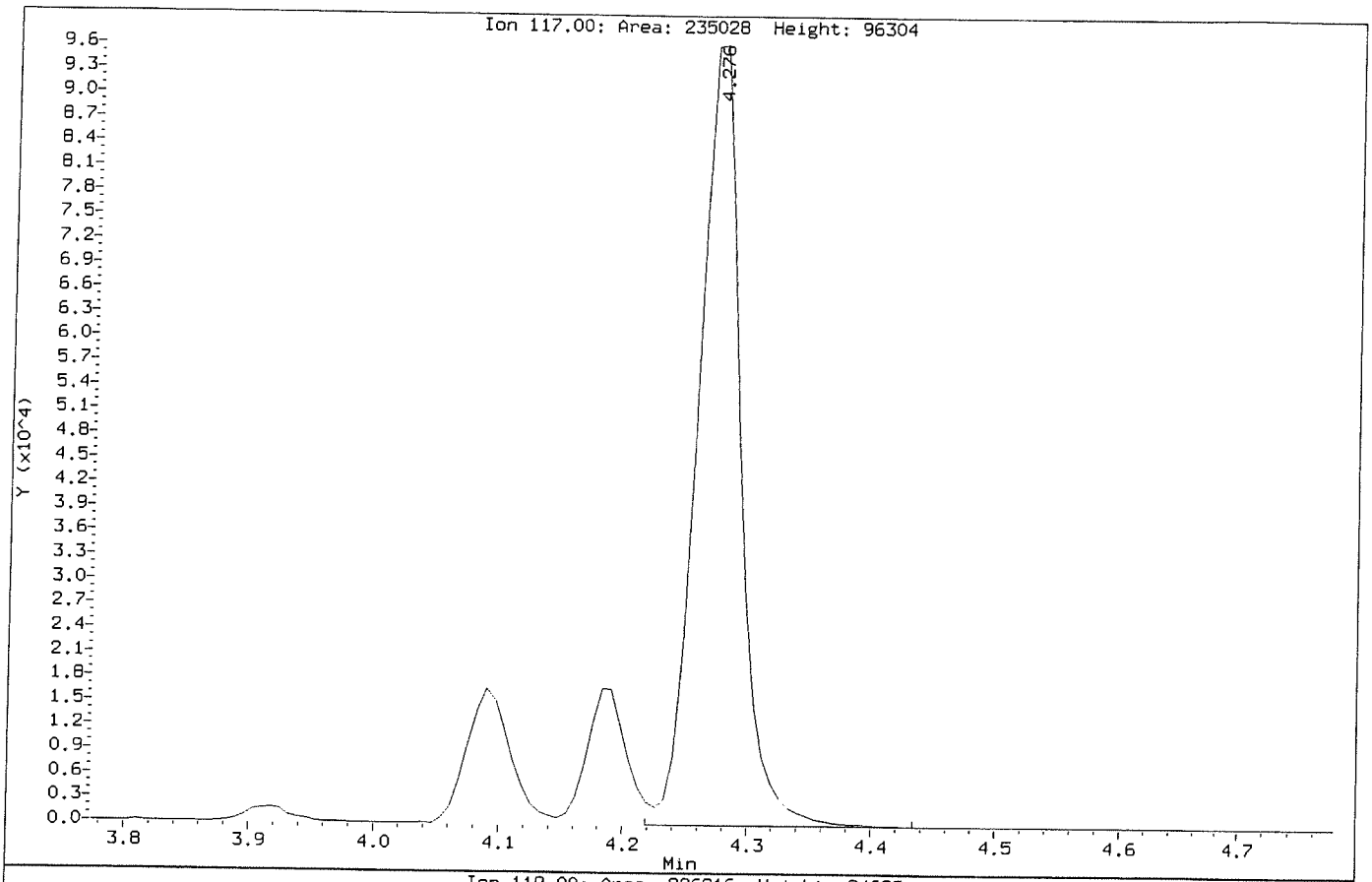
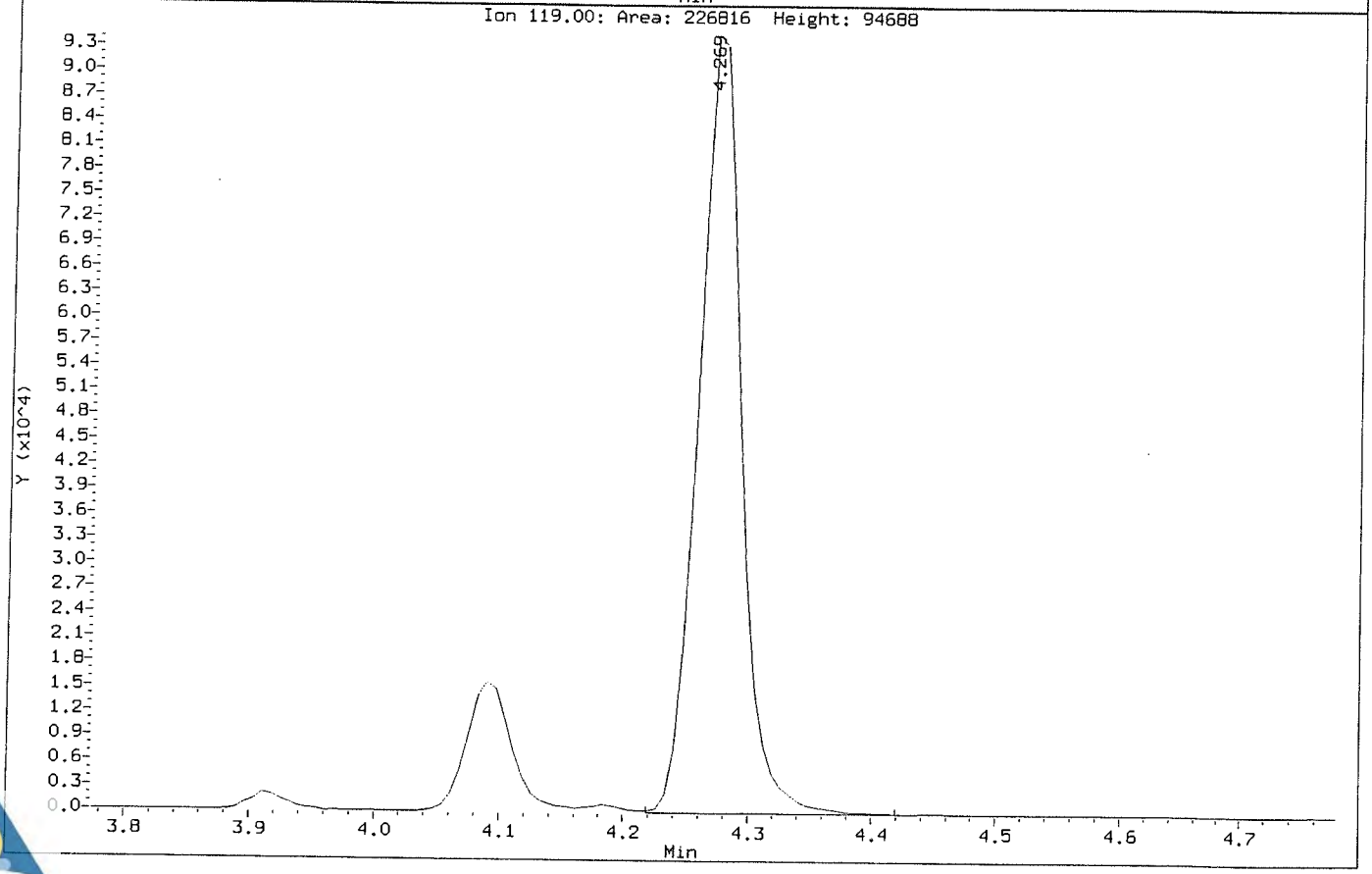
Injection Date: 14-MAR-2019 14:20
Instrument: voa6.i
Client Sample ID: VSTD050

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





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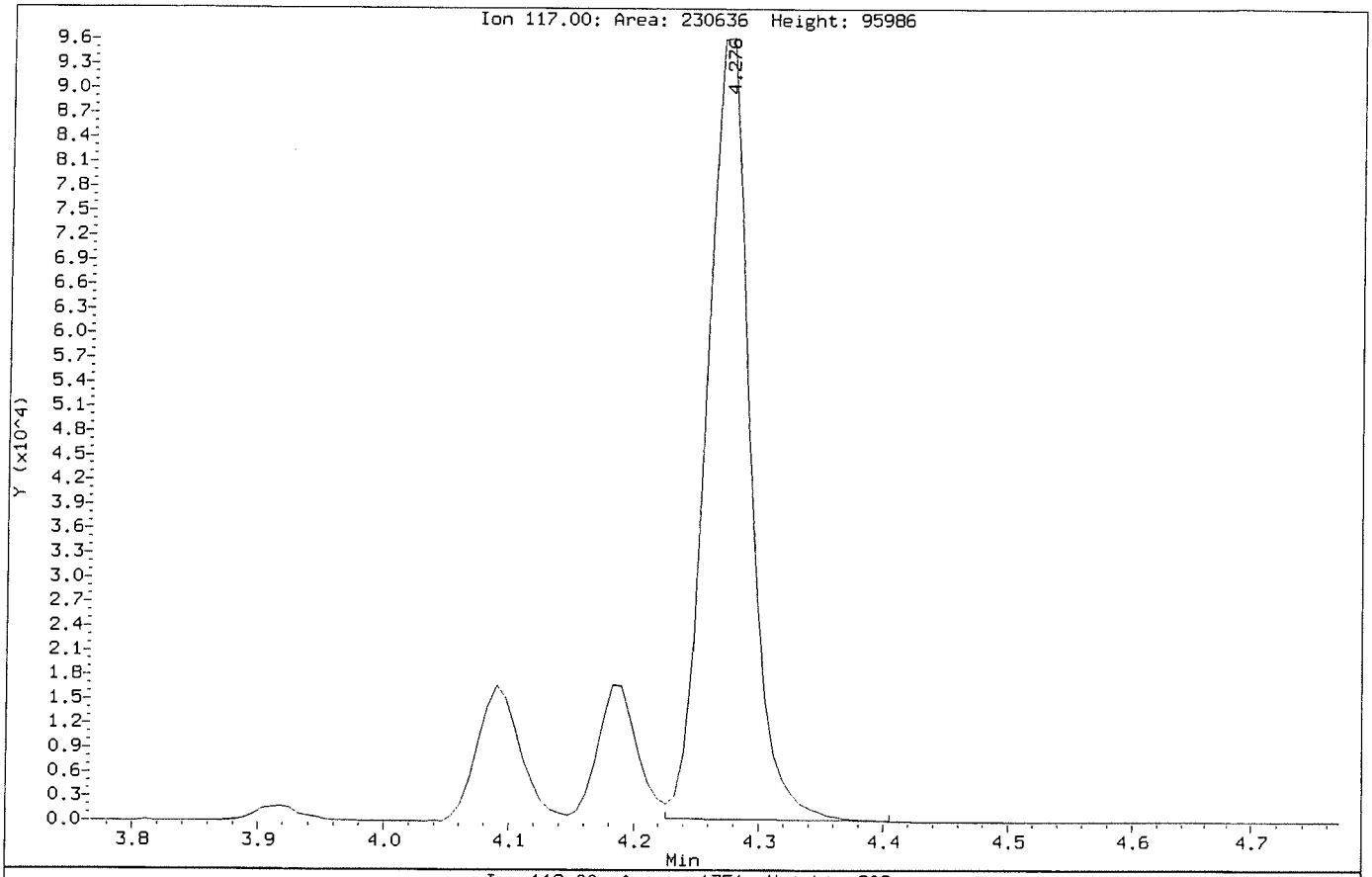
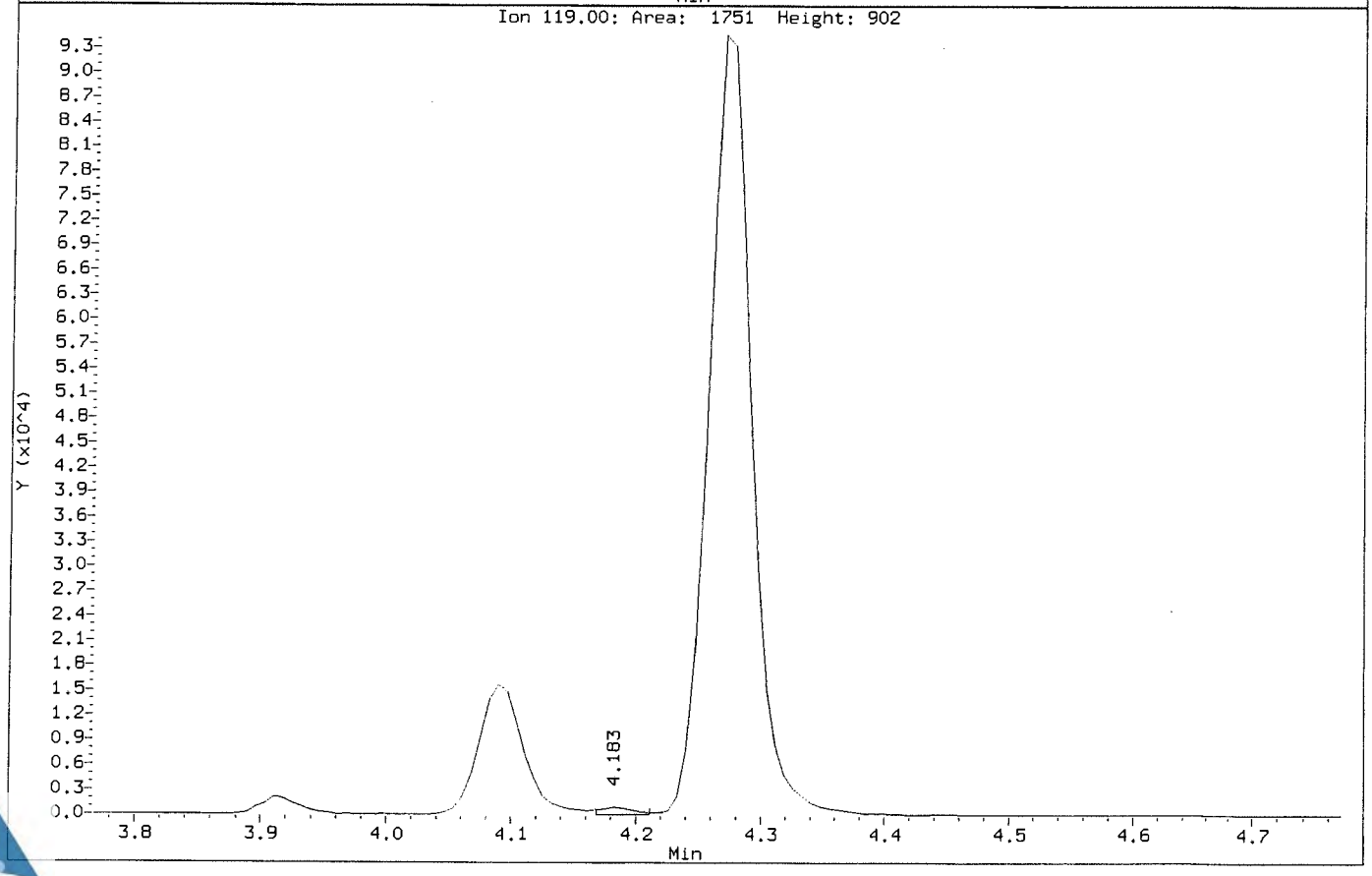
Instrument: voa6.i
Client Sample ID: VSTD050

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





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Report Date: 29-Mar-2019 19:45

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X190314.b\X031409.D
Lab Smp Id: VSTD100 Client Smp ID: VSTD100
Inj Date : 14-MAR-2019 14:44
Operator : PC Inst ID: voa6.i
Smp Info : VSTD100;VSTD100;1;8;
Misc Info : HS18090001;WATER;0;1;
Comment :
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Meth Date : 29-Mar-2019 19:45 voa6.i Quant Type: ISTD
Cal Date : 14-MAR-2019 14:20 Cal File: X031408.D
Als bottle: 10 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	433895	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	679870	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	647442	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	327544	50.0000	
$ 30 Dibromofluoromethane	113	4.104	4.104	(0.979)	423351	100.000	99.85
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	477612	100.000	101.03
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	1596573	100.000	99.54
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	588767	100.000	99.92
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	440219	100.000	100.75
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	641787	100.000	101.50
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	503593	100.000	95.32
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	340638	100.000	95.94
22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	785593	100.000	98.59
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	372820	100.000	101.31
32 1,1-Dichloropropene	75	4.283	4.283	(0.862)	600062	100.000	98.17
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	229884	100.000	99.15
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	390888	100.000	95.74(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	419893	100.000	102.43
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	1603501	100.000	102.34
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	65949	100.000	102.63
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	422260	100.000	99.00
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	913451	100.000	97.79

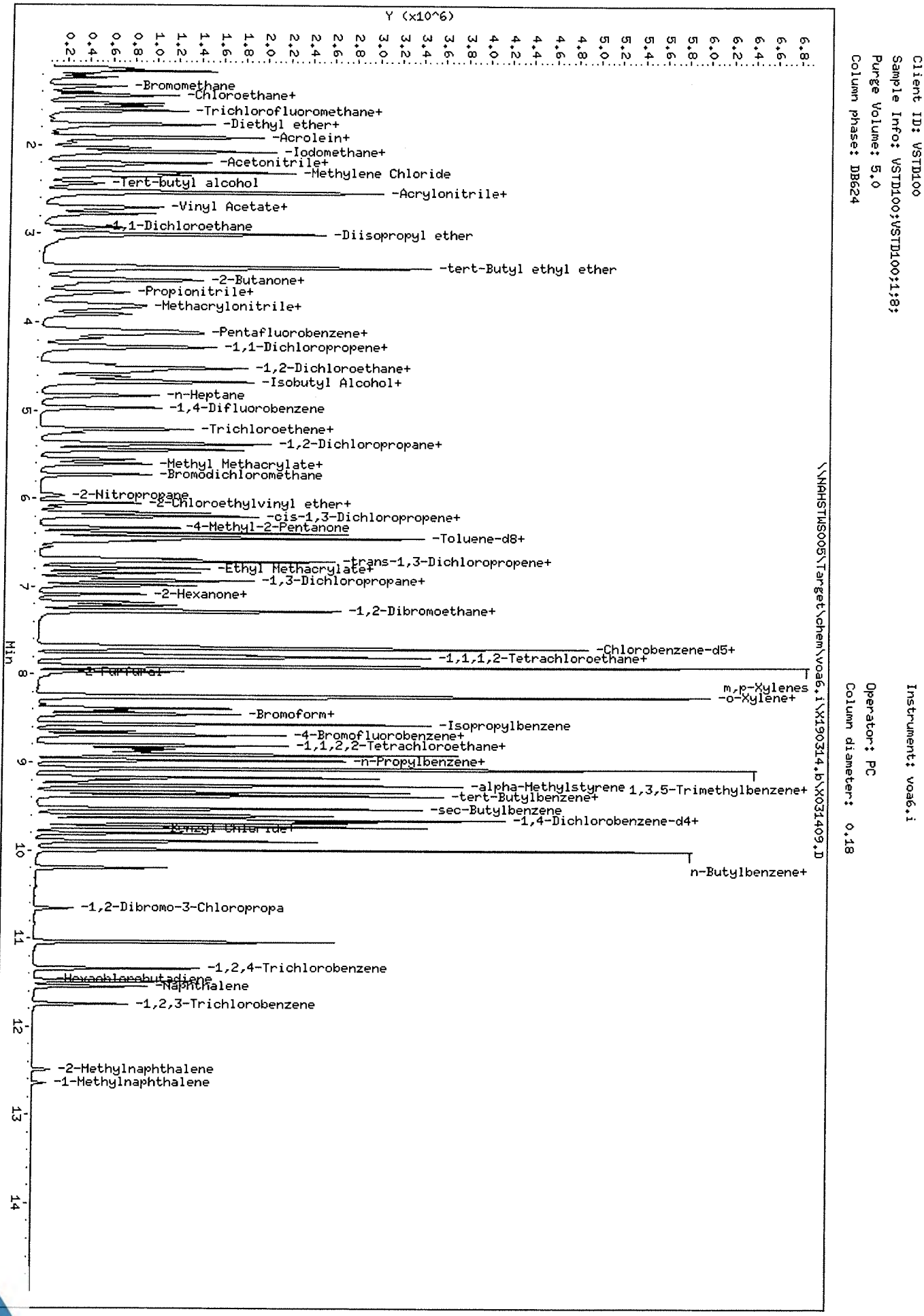
Data File: \\NAHSTWS005\Target\chem\voa6.i\X190314.b\X031409.D
Report Date: 29-Mar-2019 19:45

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	551449	100.000	96.11
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	466673	100.000	97.68
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	1612171	100.000	104.00
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	976521	100.000	98.58
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	695258	100.000	96.21
84 1,4-Dichlorobenzene	146	9.684	9.684	(1.001)	987089	100.000	97.81
26 2,2-Dichloropropane	77	3.516	3.516	(0.839)	616259	100.000	100.48
24 2-Butanone	43	3.581	3.581	(0.855)	322208	200.000	216.79(A)
76 2-Chlorotoluene	91	8.982	8.982	(0.929)	1379585	100.000	98.66
52 2-Hexanone	43	7.090	7.090	(0.924)	506963	200.000	198.62
77 4-Chlorotoluene	91	9.075	9.075	(0.939)	1597877	100.000	100.21
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	1710141	100.000	105.56
45 4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	761096	200.000	193.69
10 Acetone	43	1.976	1.976	(0.472)	213087	200.000	200.58(A)
37 Benzene	78	4.519	4.519	(0.909)	1726940	100.000	99.31
74 Bromobenzene	156	8.810	8.810	(0.911)	555304	100.000	99.06
29 Bromochloromethane	128	3.803	3.803	(0.908)	237711	100.000	98.04
39 Bromodichloromethane	83	5.730	5.730	(1.153)	582503	100.000	100.42
66 Bromoform	173	8.416	8.416	(1.097)	319308	100.000	97.93
6 Bromomethane	94	1.339	1.339	(0.320)	298815	100.000	101.35
19 Carbon Disulfide	76	2.069	2.069	(0.494)	2594996	200.000	205.01(A)
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	538968	100.000	100.33(H)
59 Chlorobenzene	112	7.699	7.699	(1.004)	1224218	100.000	97.03
7 Chloroethane	64	1.403	1.403	(0.335)	314853	100.000	100.16
28 Chloroform	83	3.910	3.910	(0.933)	759710	100.000	98.71
3 Chloromethane	50	1.074	1.074	(0.256)	617186	100.000	103.63
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	474623	100.000	98.15
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	777246	100.000	101.56
55 Dibromochloromethane	129	7.176	7.176	(0.936)	467876	100.000	101.64
44 Dibromomethane	93	5.558	5.558	(1.118)	280976	100.000	98.21
2 Dichlorodifluoromethane	85	0.973	0.973	(0.232)	449989	100.000	99.96
61 Ethylbenzene	106	7.800	7.800	(1.017)	632333	100.000	100.95
91 Hexachlorobutadiene	225	11.489	11.489	(1.188)	258057	100.000	105.19
67 Isopropylbenzene	105	8.566	8.566	(1.117)	1901806	100.000	101.73
62 m,p-Xylenes	106	7.907	7.907	(1.031)	1576561	200.000	203.05(A)
17 Methylene Chloride	84	2.306	2.306	(0.550)	455199	100.000	100.79
87 n-Butylbenzene	91	9.999	9.999	(1.034)	1504611	100.000	107.70
73 n-Propylbenzene	91	8.917	8.917	(0.922)	2382361	100.000	104.53
92 Naphthalene	128	11.546	11.546	(1.194)	636562	100.000	103.06
63 o-Xylene	106	8.244	8.244	(1.075)	776441	100.000	99.95
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	1989321	100.000	104.78
64 Styrene	104	8.258	8.258	(1.077)	1315615	100.000	102.17
78 tert-Butylbenzene	119	9.340	9.340	(0.966)	1377385	100.000	102.27
56 Tetrachloroethene	164	6.933	6.933	(0.904)	391389	100.000	100.59
50 Toluene	91	6.453	6.453	(0.841)	1868708	100.000	98.70
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	420227	100.000	102.61
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	642538	100.000	104.17
38 Trichloroethene	130	5.214	5.214	(1.049)	474965	100.000	99.27
8 Trichlorofluoromethane	101	1.561	1.561	(0.373)	681686	100.000	103.68
5 Vinyl Chloride	62	1.145	1.145	(0.273)	564808	100.000	100.85

Data File: \\NAHSTWS005\Target\chem\voa6.i\X190314.b\X031409.D
Report Date: 29-Mar-2019 19:45

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.
H - Operator selected an alternate compound hit.


Y (x10^6)
Min
-Bromomethane
-Chloroethane+
-Trichlorofluoromethane+
-Diethyl ether+
-Acrolein+
-Iodomethane+
-Acetonitrile+
-Methylene Chloride
-Tert-butyl alcohol
-Acrylonitrile+
-Vinyl Acetate+
-1,1-Dichloroethane
-Diisopropyl ether
-tert-Butyl ethyl ether
-2-Butanone+
-Propionitrile+
-Methacrylonitrile+
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-Isobutyl Alcohol+
-n-Heptane
-1,4-Difluorobenzene
-Trichloroethene+
-1,2-Dichloropropane+
-Methyl Methacrylate+
-Bromodichloromethane
-2-Nitropropane
-2-Chloroethylvinyl ether+
-cis-1,3-Dichloropropene+
-4-Methyl-2-Pentanone
-Toluene-d8+
-trans-1,3-Dichloropropene+
-Ethyl Methacrylate+
-1,3-Dichloropropane+
-2-Hexanone+
-1,2-Dibromoethane+
-Chlorobenzene-d5+
-1,1,1,2-Tetrachloroethane+
-2-Pentanol
m,p-Xylenes
-o-Xylene+
-Bromoform+
-Isopropylbenzene
-4-Bromofluorobenzene+
-1,1,2,2-Tetrachloroethane+
-n-Propylbenzene+
-alpha-Methylstyrene
1,3,5-Trimethylbenzene+
-tert-Butylbenzene+
-sec-Butylbenzene
-1,4-Dichlorobenzene-d4+
-Benzyl Chloride
n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Hexachlorobutadiene
-Naphthalene
-1,2,3-Trichlorobenzene
-2-Methylnaphthalene
-1-Methylnaphthalene
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Client ID: VSTD100
Sample Info: VSTD100;VSTD100;1;8;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18

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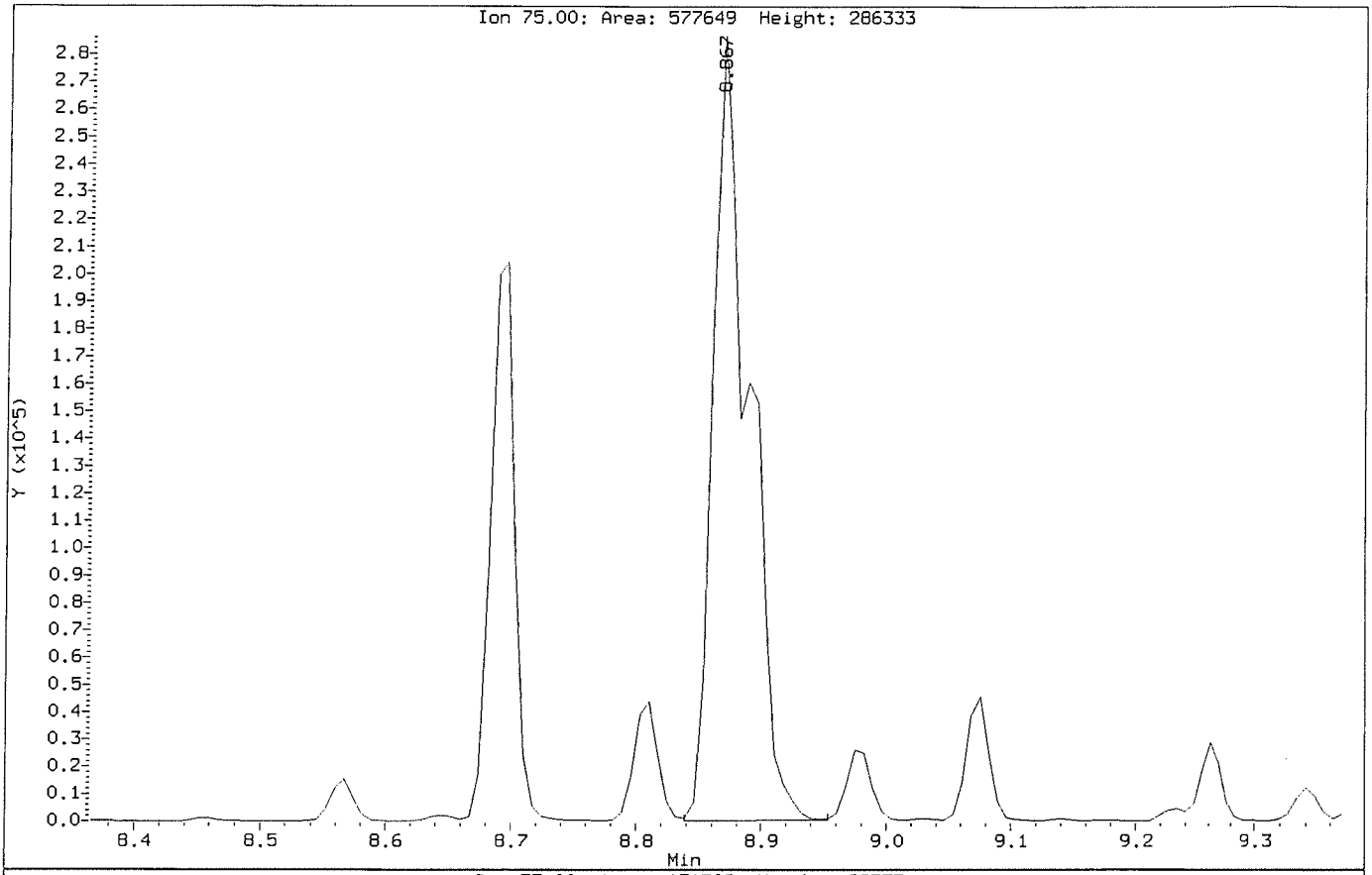
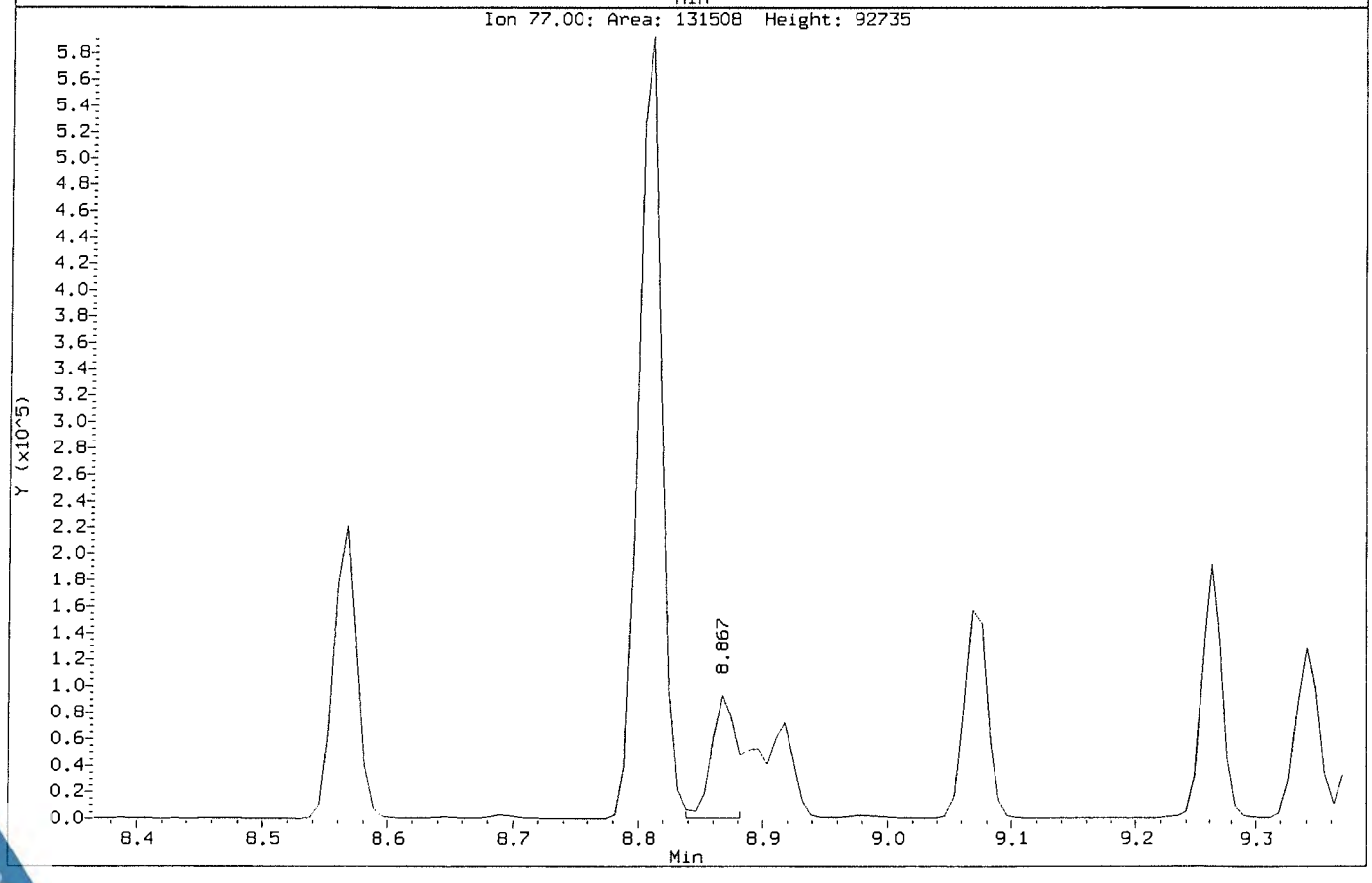
Injection Date: 14-MAR-2019 14:44
Instrument: voa6.i
Client Sample ID: VSTD100

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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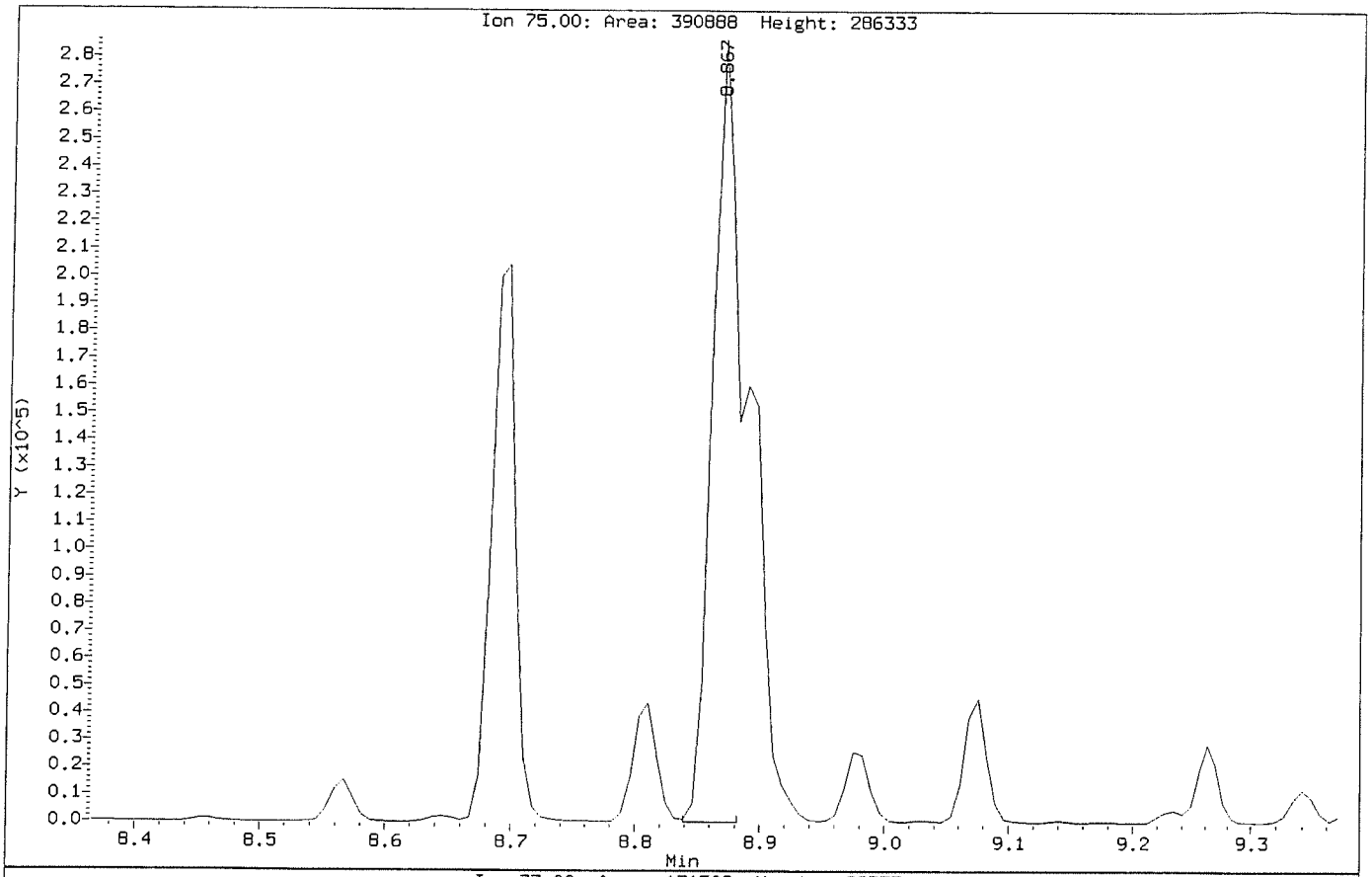
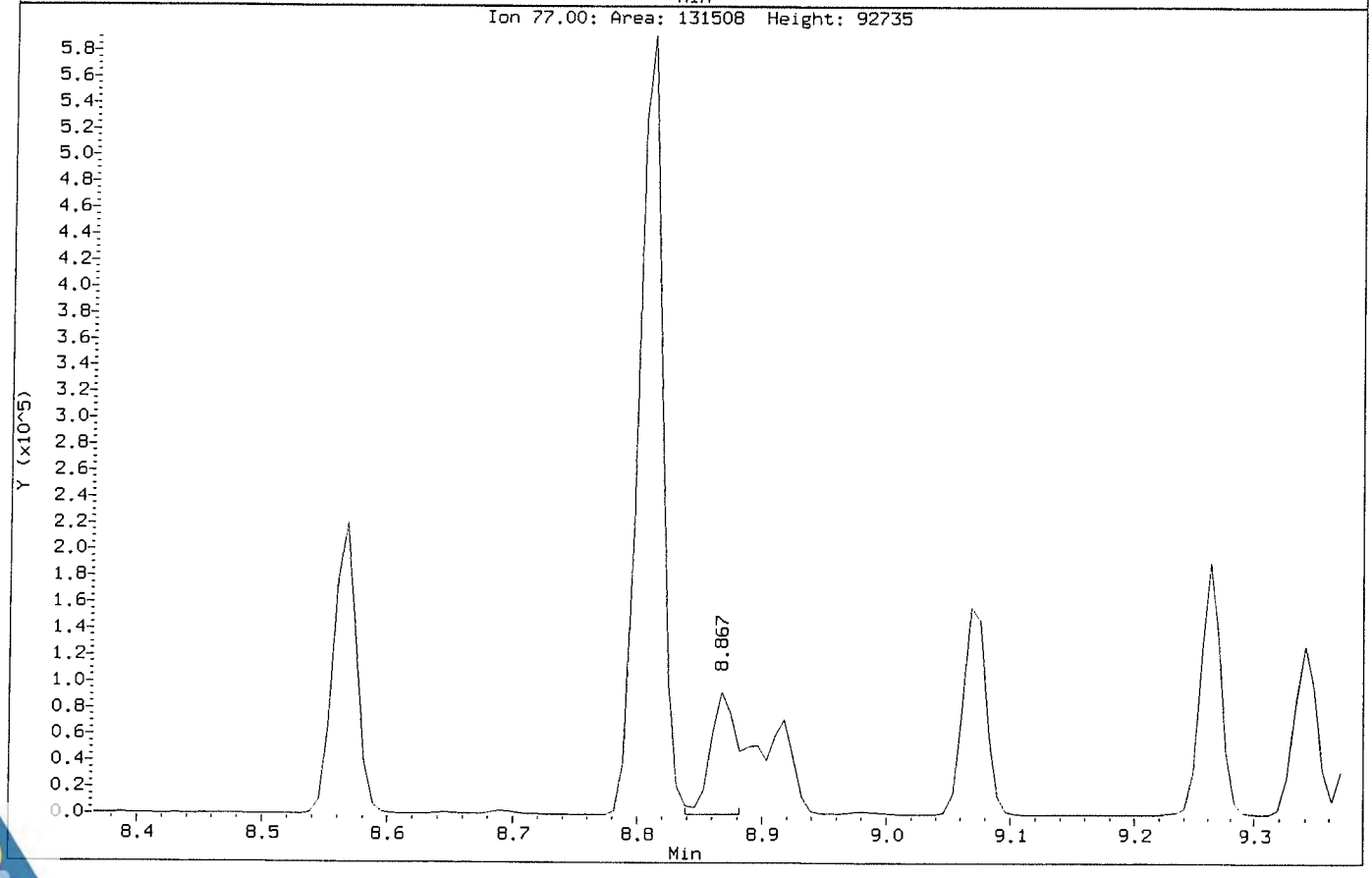
Instrument: voa6.i
Client Sample ID: VSTD100

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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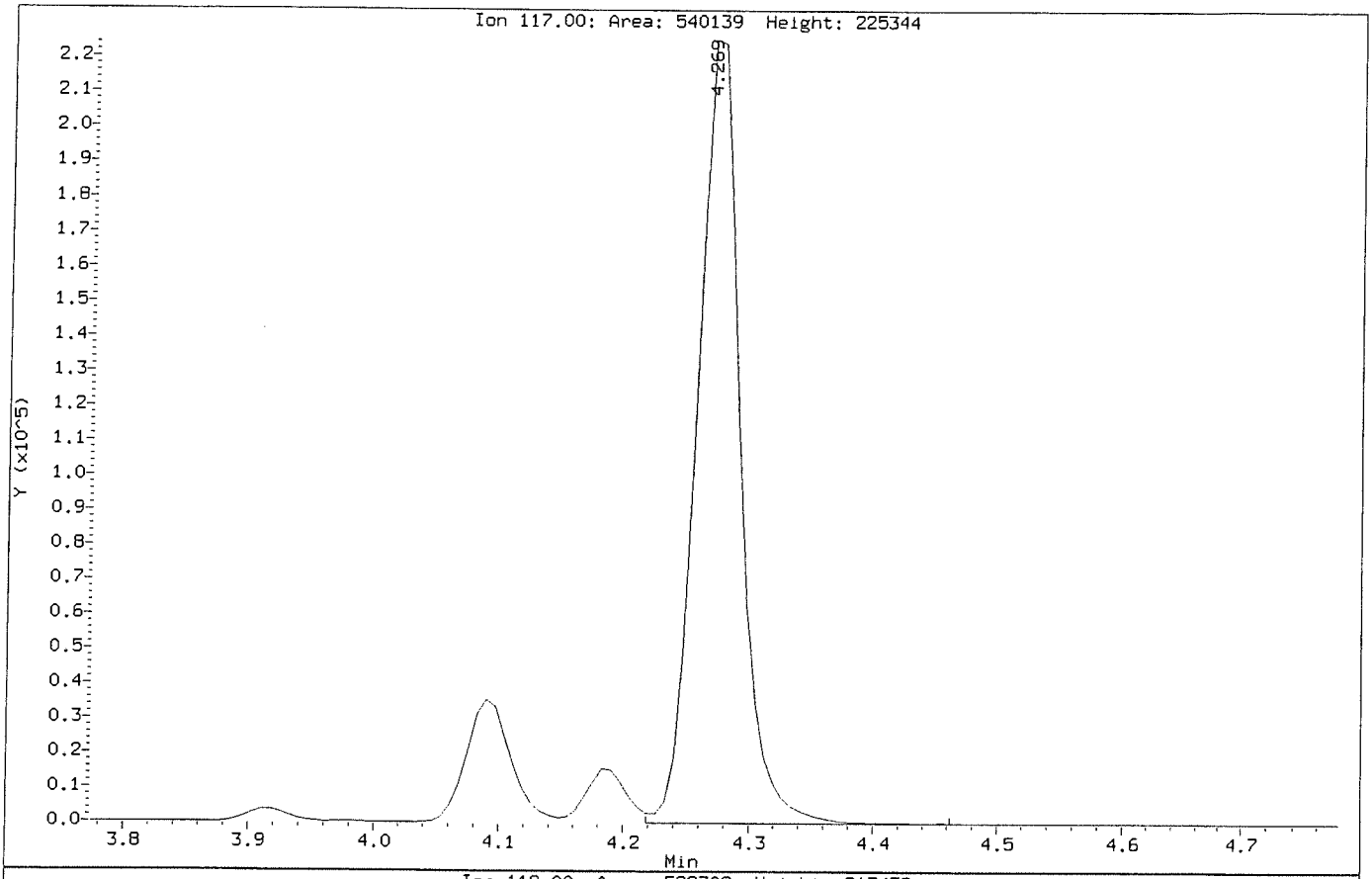
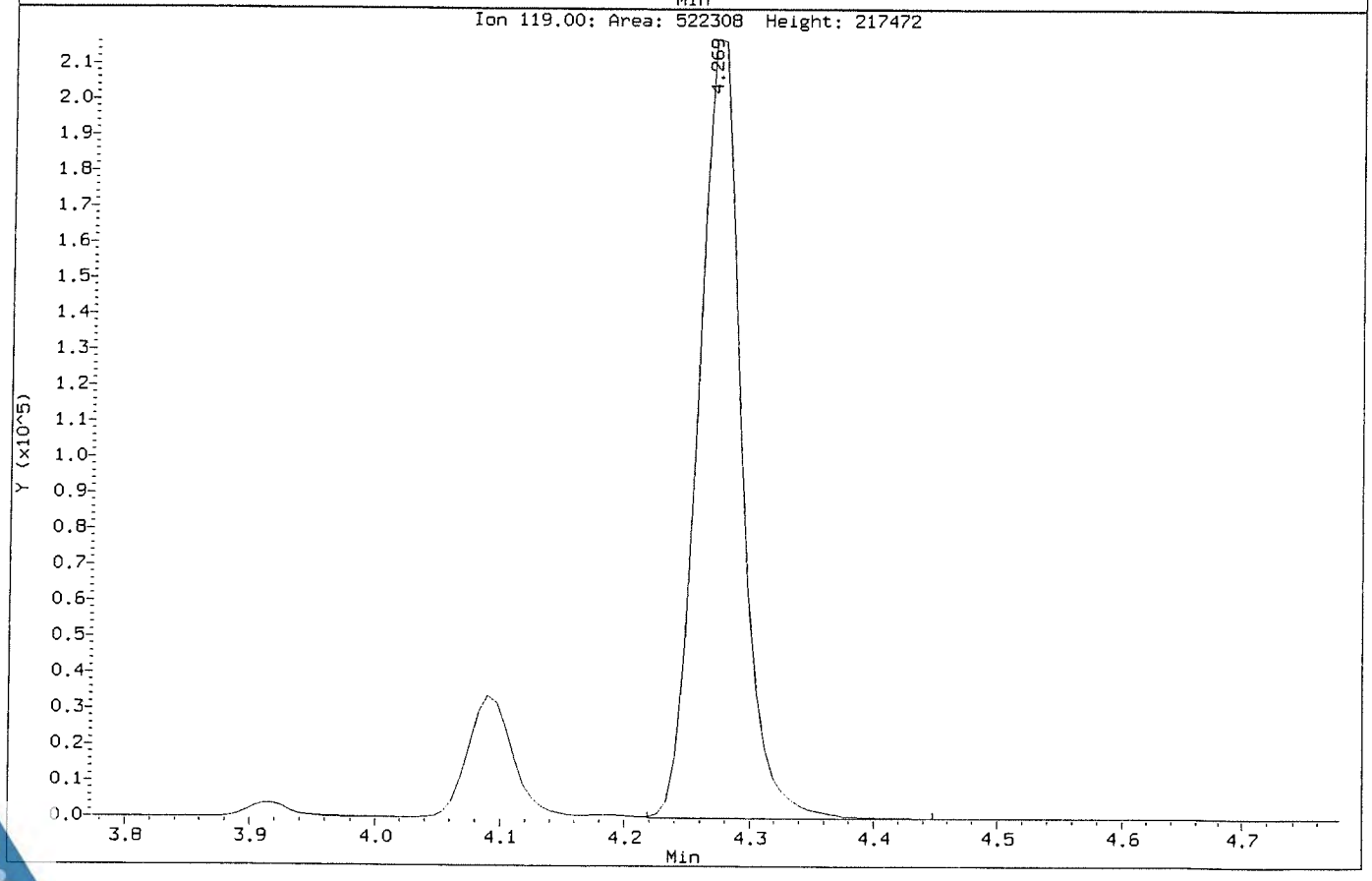
Instrument: voa6.i
Client Sample ID: VSTD100

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





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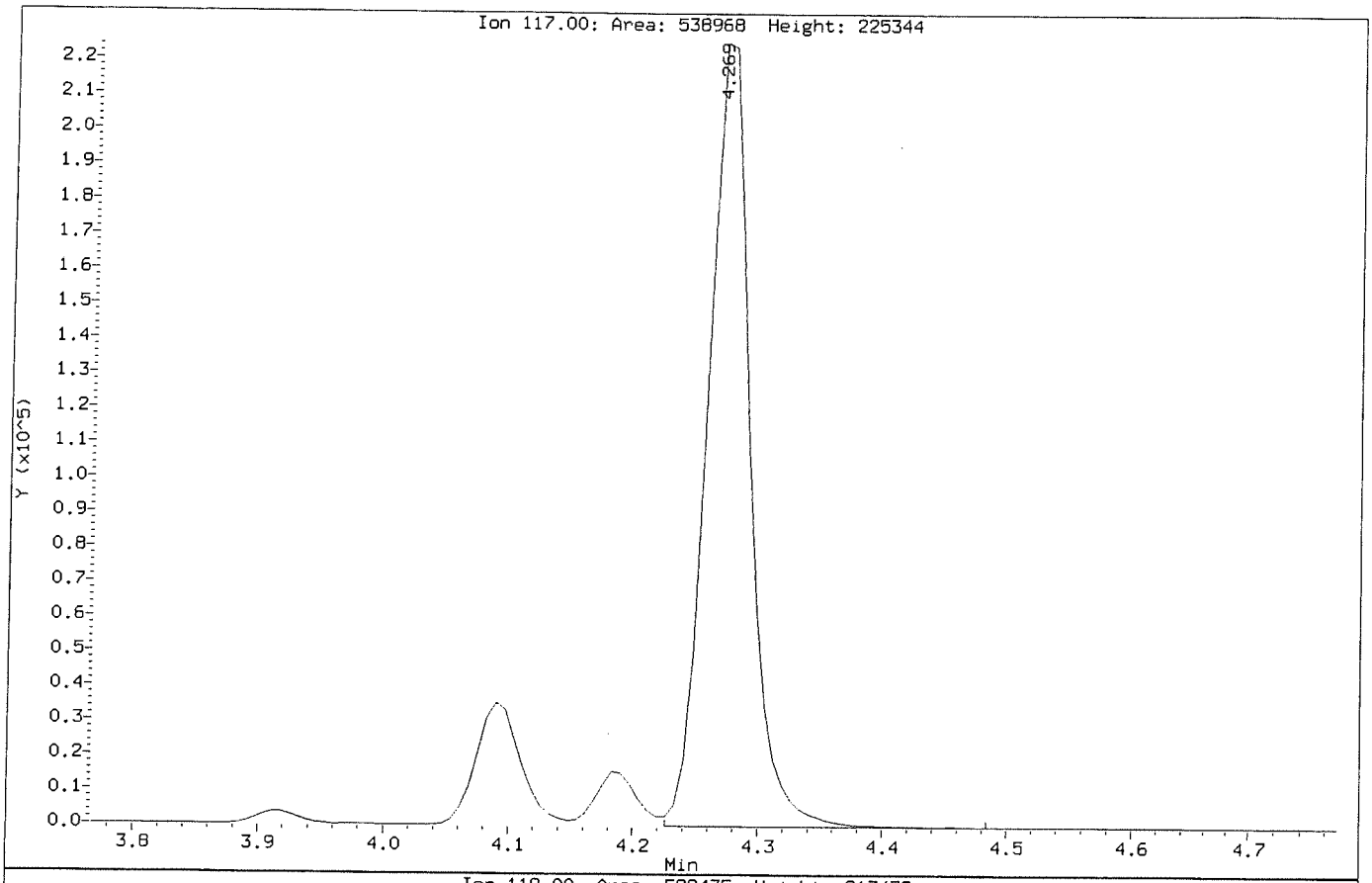
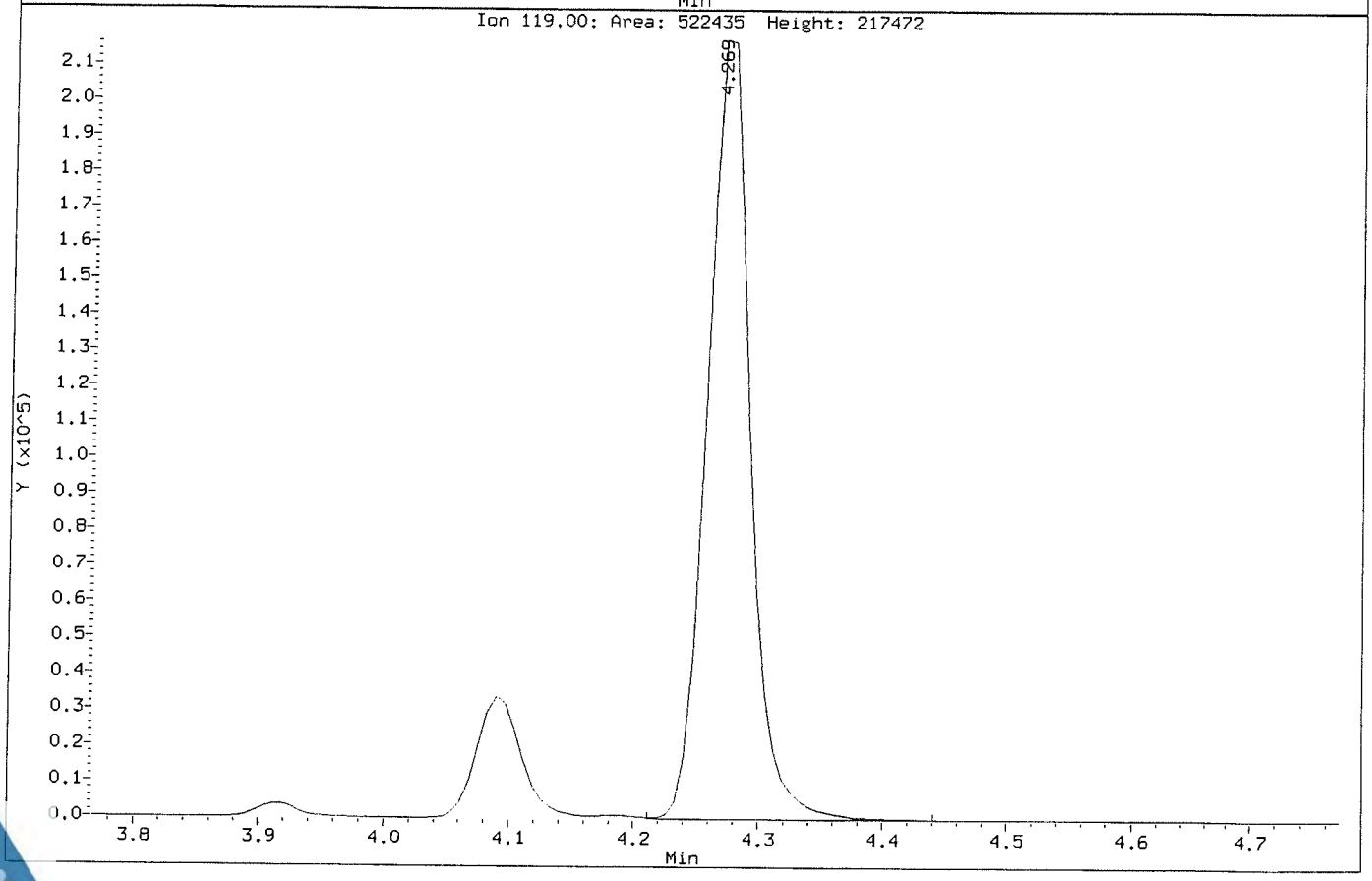
Instrument: voa6.i
Client Sample ID: VSTD100

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





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Report Date: 29-Mar-2019 19:45

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X190314.b\X031410.D
Lab Smp Id: VSTD150 Client Smp ID: VSTD150
Inj Date : 14-MAR-2019 15:08
Operator : PC Inst ID: voa6.i
Smp Info : VSTD150;VSTD150;1;9;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X190314.b\8260W.m
Meth Date : 29-Mar-2019 19:45 voa6.i Quant Type: ISTD
Cal Date : 14-MAR-2019 14:44 Cal File: X031409.D
Als bottle: 11 Calibration Sample, Level: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.189	4.189	(1.000)	430667	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	670891	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	644755	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	321470	50.0000	
$	30 Dibromofluoromethane	113	4.104	4.104	(0.979)	630249	150.000	149.80
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	698216	150.000	148.91
$	48 Toluene-d8	98	6.389	6.389	(0.833)	2376667	150.000	148.90
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	872319	150.000	148.84
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	657715	150.000	151.15
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	950656	150.000	151.47
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	748527	150.000	144.37
	53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	506251	150.000	143.19
	22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	1155028	150.000	146.04
	11 1,1-Dichloroethene	96	1.912	1.912	(0.456)	540725	150.000	148.04
	32 1,1-Dichloropropene	75	4.283	4.283	(0.862)	879655	150.000	145.84
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	346778	150.000	152.39
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	581256	150.000	145.06(M)
	90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.173)	620516	150.000	154.23
	79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	2343579	150.000	152.40
	89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	100688	150.000	159.66
	57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	632643	150.000	148.95
	88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	1351436	150.000	147.42

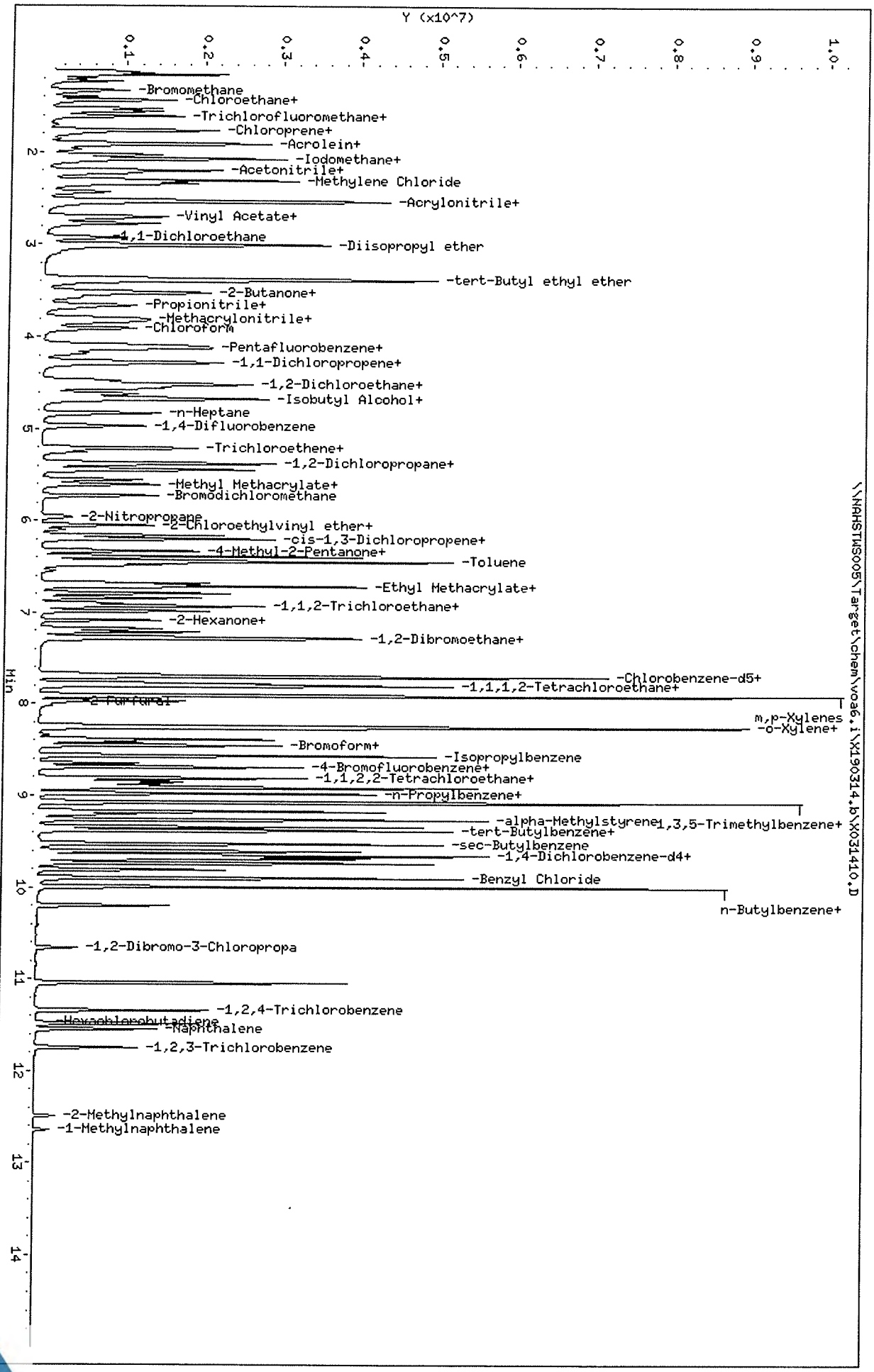
Data File: \\NAHSTWS005\Target\chem\voa6.i\X190314.b\X031410.D
Report Date: 29-Mar-2019 19:45

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	818929	150.000	144.64
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	686588	150.000	145.64
75 1,3,5-Trimethylbenzene	105	9.075	9.075	(0.939)	2354049	150.000	154.73
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	1440522	150.000	148.17
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	1038285	150.000	144.28
84 1,4-Dichlorobenzene	146	9.691	9.691	(1.002)	1449628	150.000	146.36
26 2,2-Dichloropropane	77	3.516	3.516	(0.839)	906538	150.000	148.92
24 2-Butanone	43	3.581	3.581	(0.855)	478178	300.000	324.15(A)
76 2-Chlorotoluene	91	8.982	8.982	(0.929)	2006428	150.000	146.21
52 2-Hexanone	43	7.090	7.090	(0.924)	787705	300.000	309.90(A)
77 4-Chlorotoluene	91	9.075	9.075	(0.939)	2346498	150.000	149.95
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	2477104	150.000	155.79
45 4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	1186232	300.000	303.15(A)
10 Acetone	43	1.976	1.976	(0.472)	311676	300.000	297.78(A)
37 Benzene	78	4.519	4.519	(0.909)	2531611	150.000	147.54
74 Bromobenzene	156	8.810	8.810	(0.911)	819955	150.000	149.03
29 Bromochloromethane	128	3.803	3.803	(0.908)	350800	150.000	145.76
39 Bromodichloromethane	83	5.730	5.730	(1.153)	867208	150.000	151.51
66 Bromoform	173	8.416	8.416	(1.097)	485383	150.000	149.00
6 Bromomethane	94	1.331	1.331	(0.318)	443212	150.000	151.35
19 Carbon Disulfide	76	2.069	2.069	(0.494)	3807843	300.000	303.08(A)
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	797749	150.000	149.60(H)
59 Chlorobenzene	112	7.699	7.699	(1.004)	1808471	150.000	143.94
7 Chloroethane	64	1.403	1.403	(0.335)	455694	150.000	146.05
28 Chloroform	83	3.910	3.910	(0.933)	1108384	150.000	145.10
3 Chloromethane	50	1.074	1.074	(0.256)	875713	150.000	148.76
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	703301	150.000	146.53
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	1166394	150.000	154.44
55 Dibromochloromethane	129	7.176	7.176	(0.936)	698638	150.000	152.40
44 Dibromomethane	93	5.558	5.558	(1.118)	415060	150.000	147.02
2 Dichlorodifluoromethane	85	0.973	0.973	(0.232)	671945	150.000	149.45
61 Ethylbenzene	106	7.800	7.800	(1.017)	930055	150.000	149.11
91 Hexachlorobutadiene	225	11.489	11.489	(1.188)	369069	150.000	149.20
67 Isopropylbenzene	105	8.566	8.566	(1.117)	2769171	150.000	148.75
62 m,p-Xylenes	106	7.907	7.907	(1.031)	2311119	300.000	298.90(A)
17 Methylene Chloride	84	2.306	2.306	(0.550)	665742	150.000	148.53
87 n-Butylbenzene	91	9.999	9.999	(1.034)	2157109	150.000	157.32
73 n-Propylbenzene	91	8.917	8.917	(0.922)	3481014	150.000	155.63
92 Naphthalene	128	11.546	11.546	(1.194)	978698	150.000	161.45
63 o-Xylene	106	8.244	8.244	(1.075)	1146315	150.000	148.19
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	2869017	150.000	153.98
64 Styrene	104	8.265	8.265	(1.078)	1946303	150.000	151.78
78 tert-Butylbenzene	119	9.340	9.340	(0.966)	1988126	150.000	150.40
56 Tetrachloroethene	164	6.933	6.933	(0.904)	569558	150.000	147.00
50 Toluene	91	6.446	6.446	(0.840)	2737298	150.000	145.17
20 trans-1,2-Dichloroethene	96	2.528	2.528	(0.603)	616134	150.000	151.58
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	969906	150.000	159.35
38 Trichloroethene	130	5.214	5.214	(1.049)	700871	150.000	148.46
8 Trichlorofluoromethane	101	1.561	1.561	(0.373)	996321	150.000	150.16
5 Vinyl Chloride	62	1.138	1.138	(0.272)	830650	150.000	149.43

Data File: \\NAHSTWS005\Target\chem\voa6.i\X190314.b\X031410.D
Report Date: 29-Mar-2019 19:45

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.
H - Operator selected an alternate compound hit.



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Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

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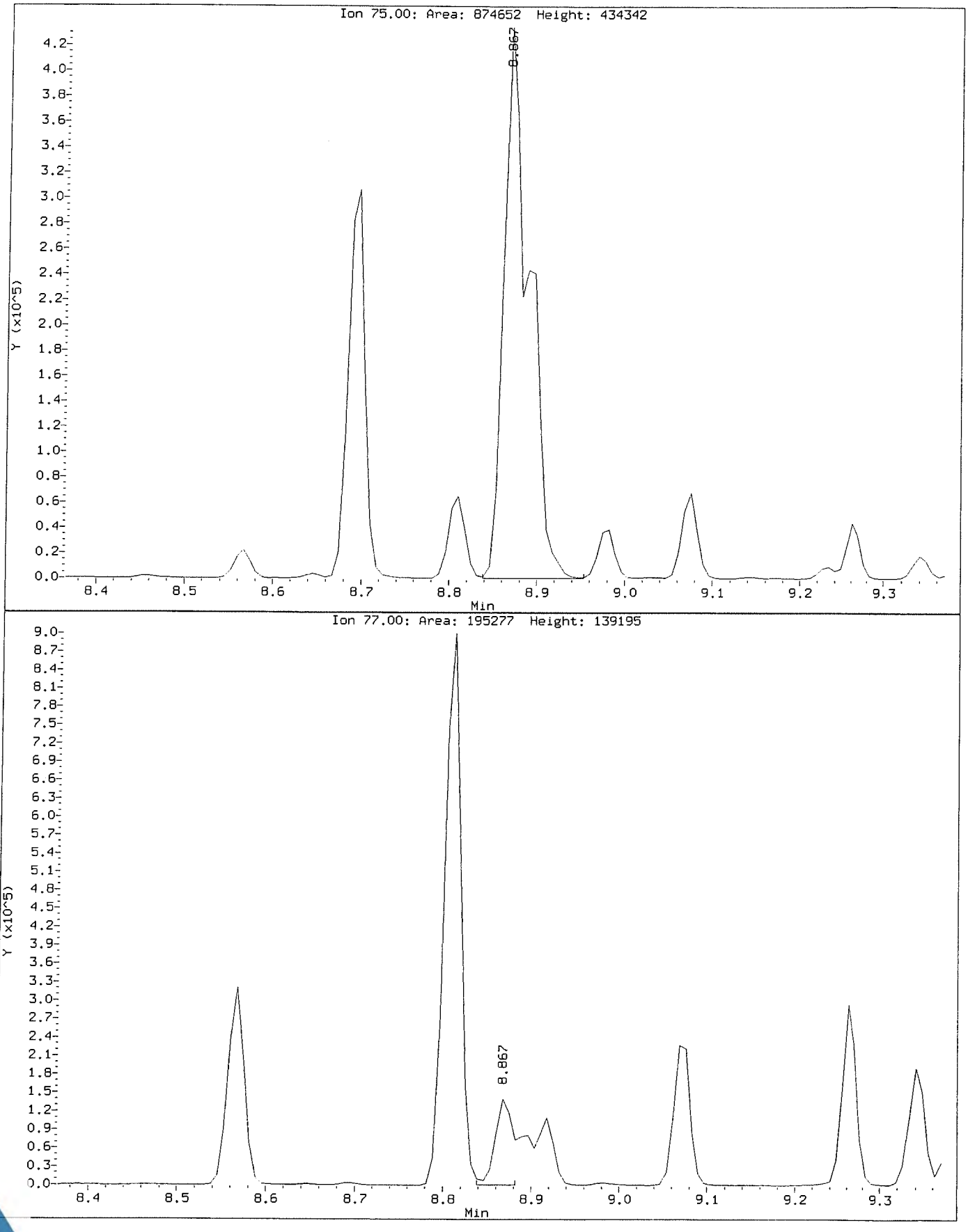
Instrument: voa6.i
Client Sample ID: VSTD150

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



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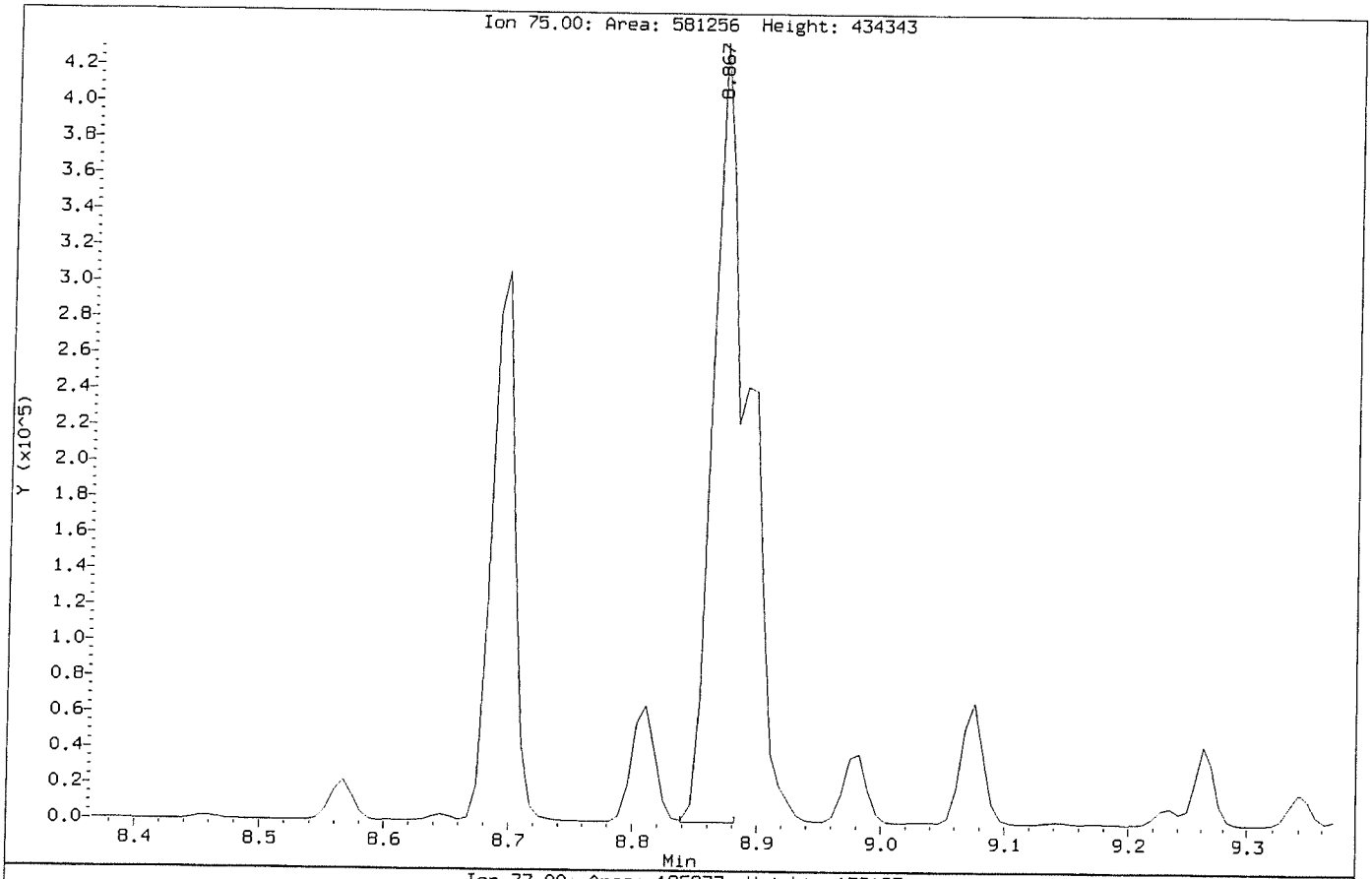
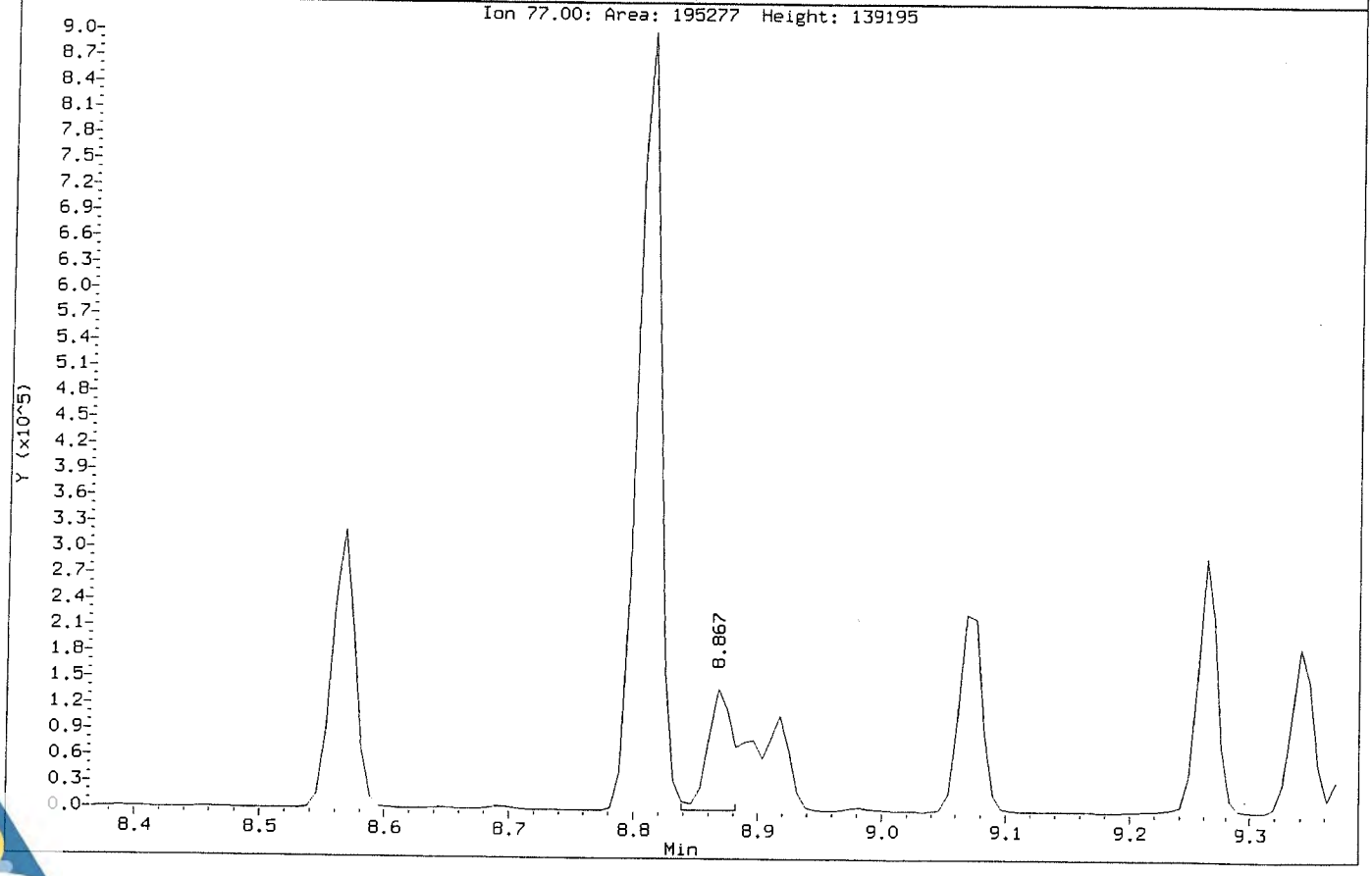
Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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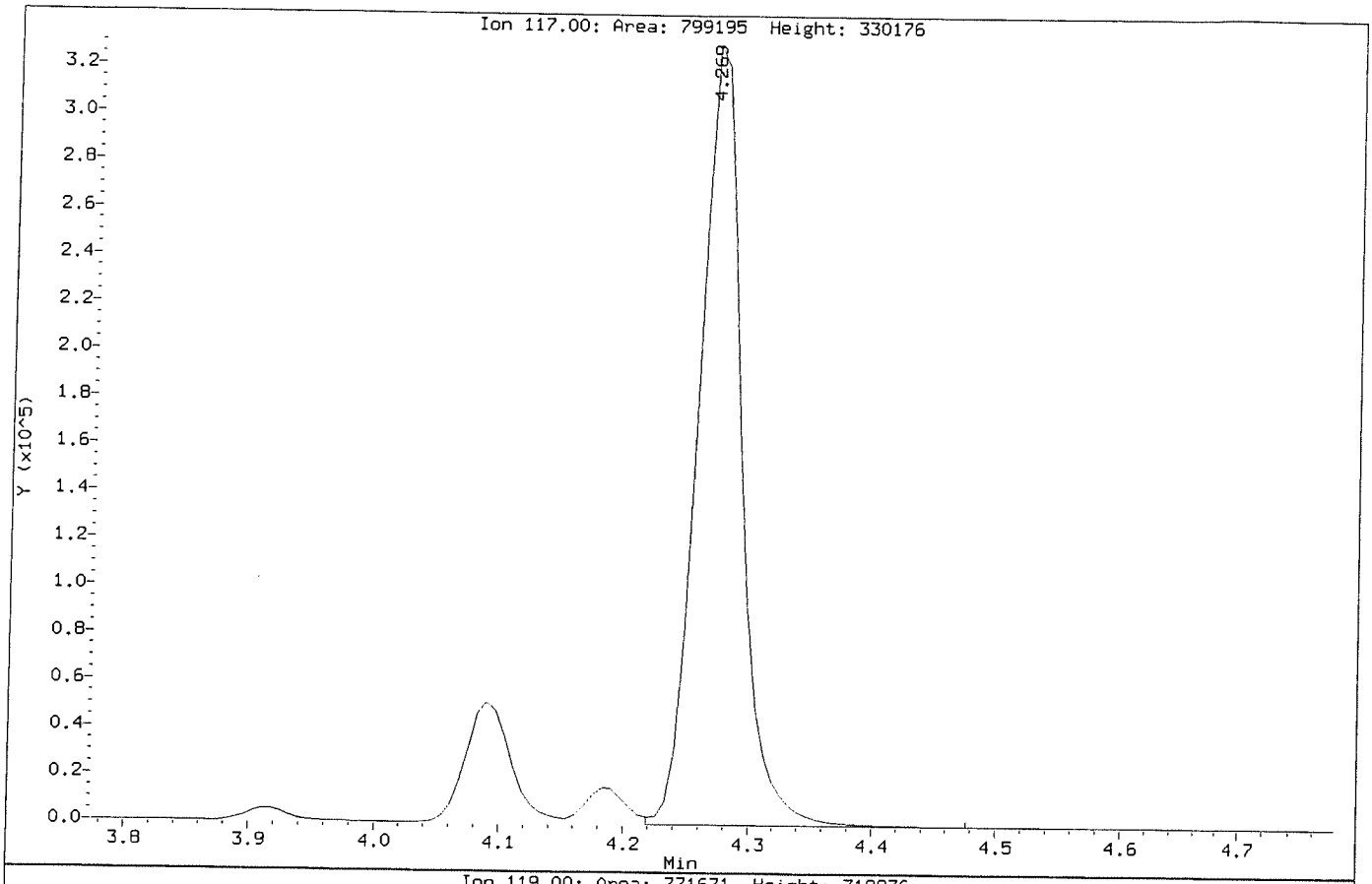
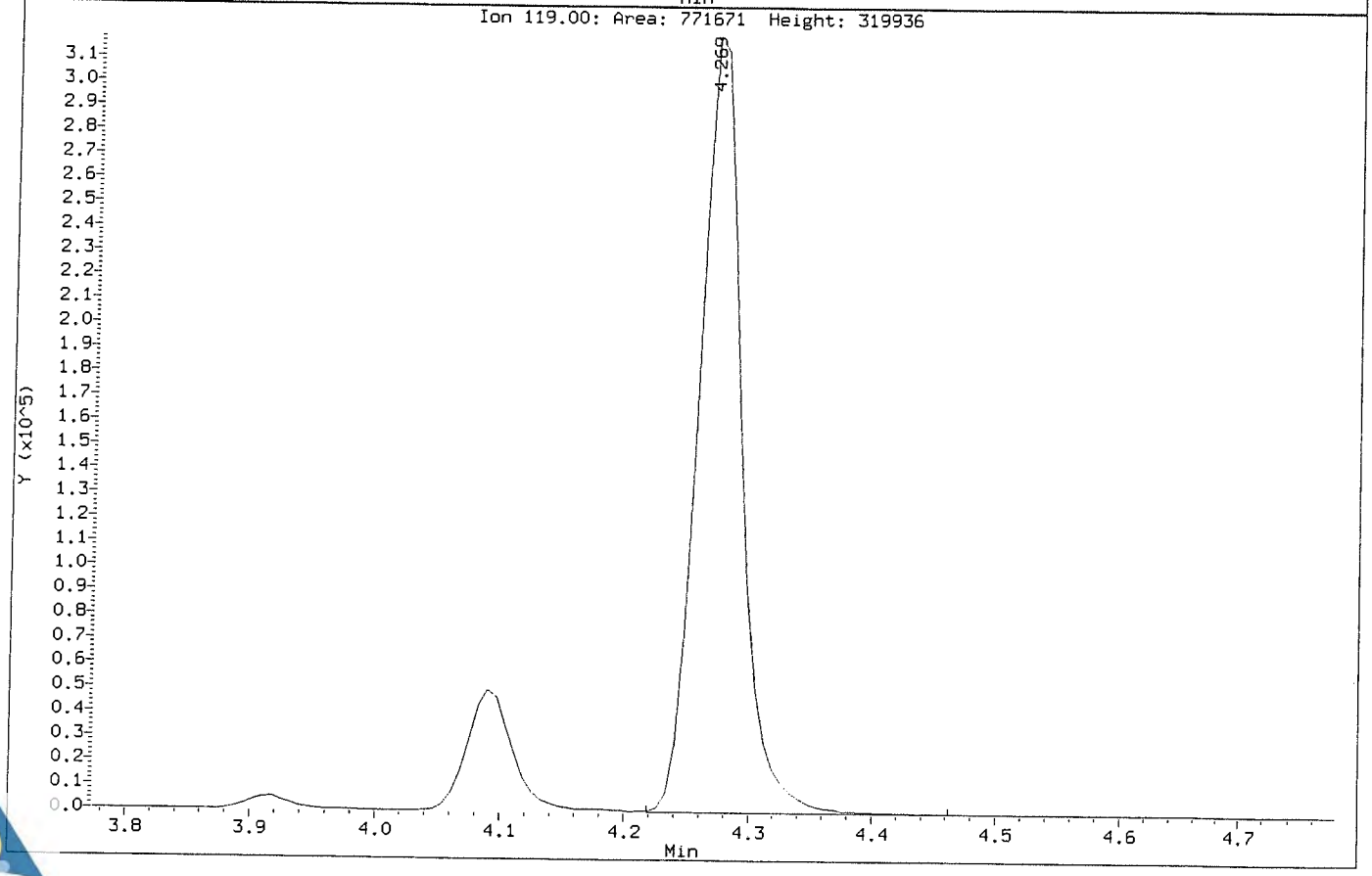
Instrument: voa6.i
Client Sample ID: VSTD150

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





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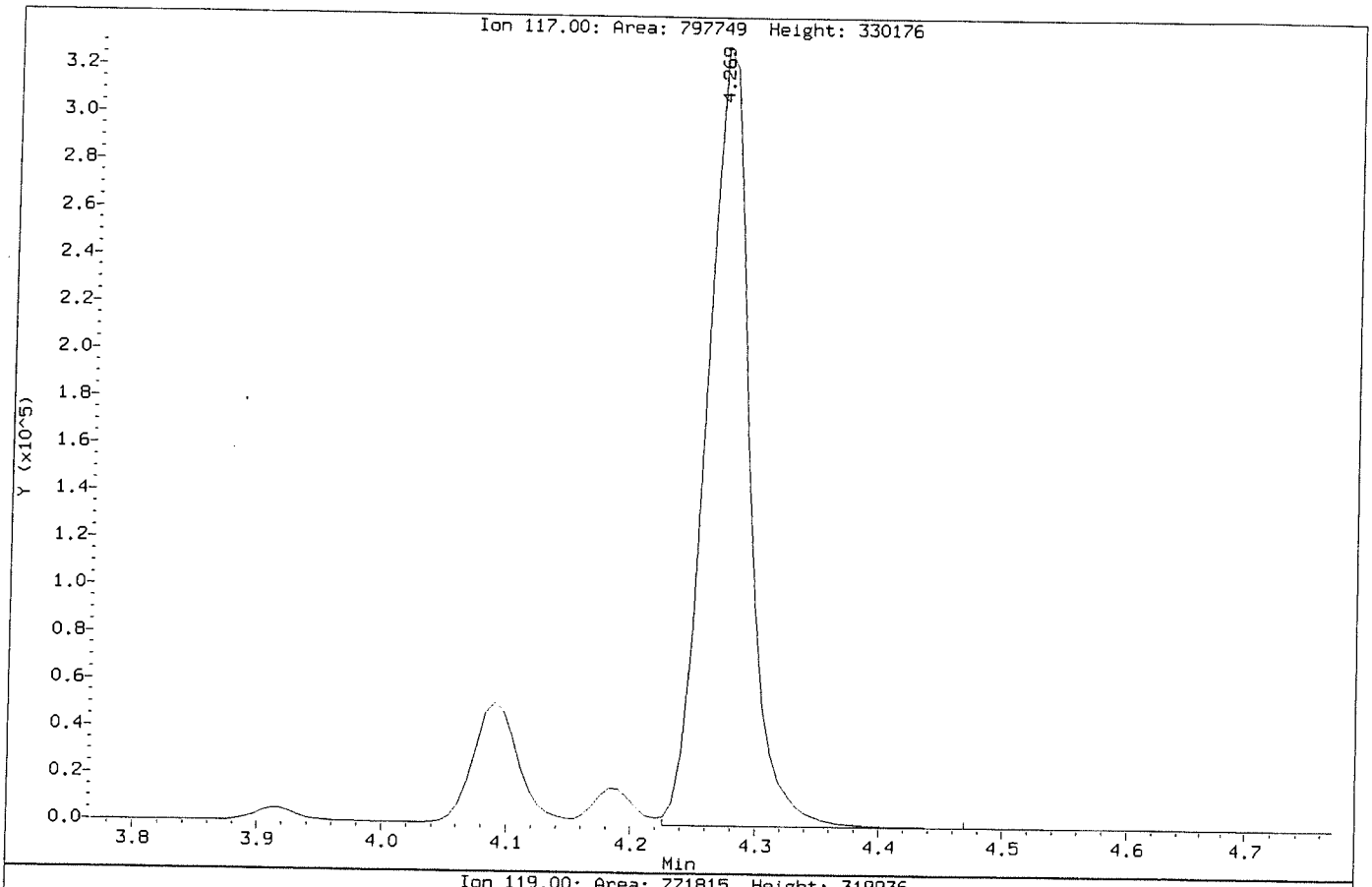
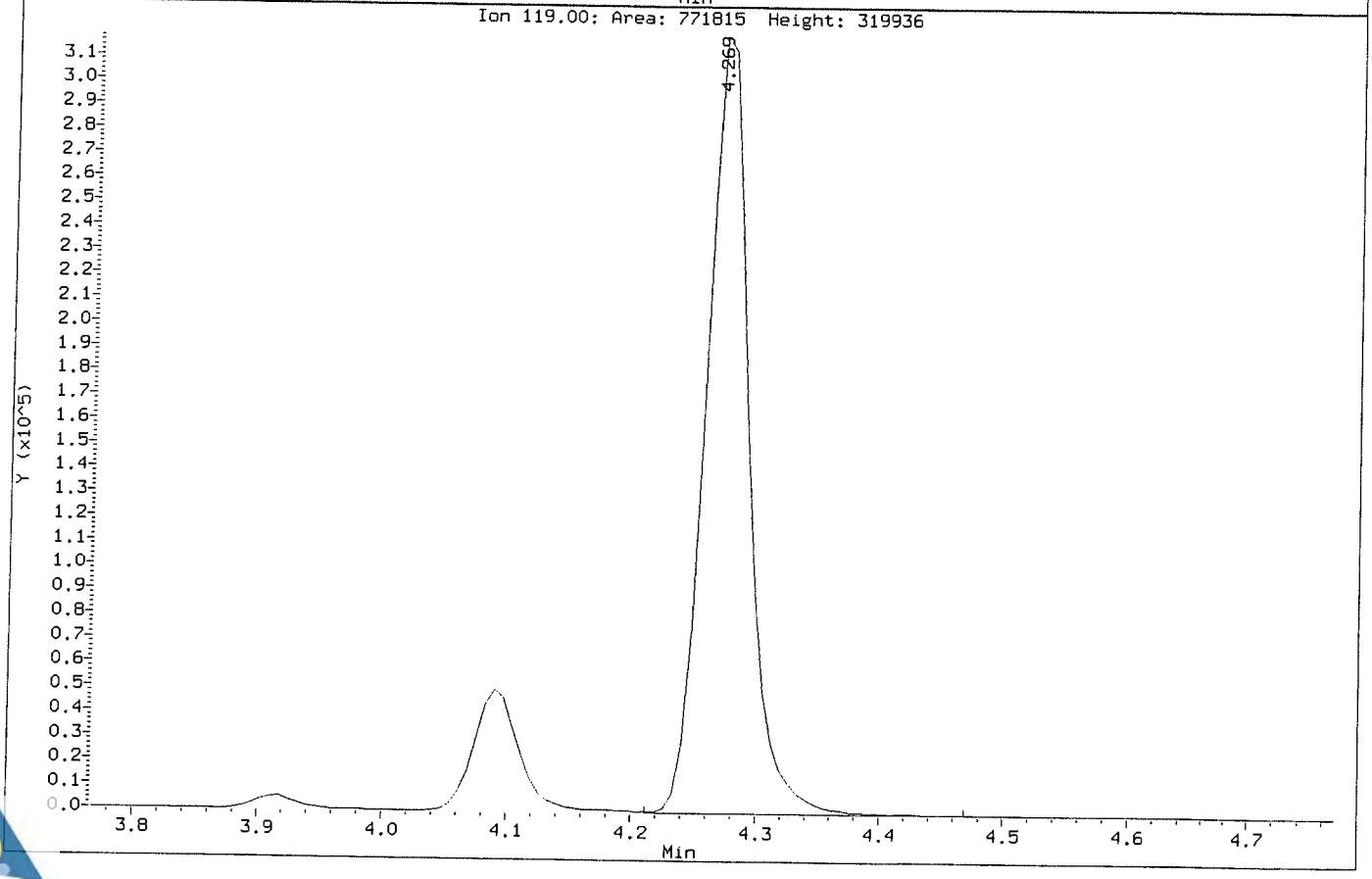
Instrument: voa6.i
Client Sample ID: VSTD150

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





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Report Date: 29-Mar-2019 19:45

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X190314.b\X031411.D
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Inj Date : 14-MAR-2019 15:32
Operator : PC Inst ID: voa6.i
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Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X190314.b\8260W.m
Meth Date : 29-Mar-2019 19:45 voa6.i Quant Type: ISTD
Cal Date : 14-MAR-2019 15:08 Cal File: X031410.D
Als bottle: 12 Calibration Sample, Level: 10
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	411509	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	647564	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	614017	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	308766	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	804727	200.000	200.20(A)
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	897261	200.000	200.35(A)
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	3051020	200.000	200.80(A)
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	1119684	200.000	200.74(A)
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	858266	200.000	207.12(A)
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	1231786	200.000	205.41(A)
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	967460	200.000	194.27
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	654671	200.000	194.44
22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	1498839	200.000	198.33
11 1,1-Dichloroethene	96	1.911	1.911	(0.456)	707051	200.000	202.58(A)
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	1146187	200.000	196.88
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	458515	200.000	209.79(A)
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	734045	200.000	190.73(M)
90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.173)	827162	200.000	214.05(A)
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	3048047	200.000	206.36(A)
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	131731	200.000	217.47(A)
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	810920	200.000	200.49(A)
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	1739758	200.000	197.59

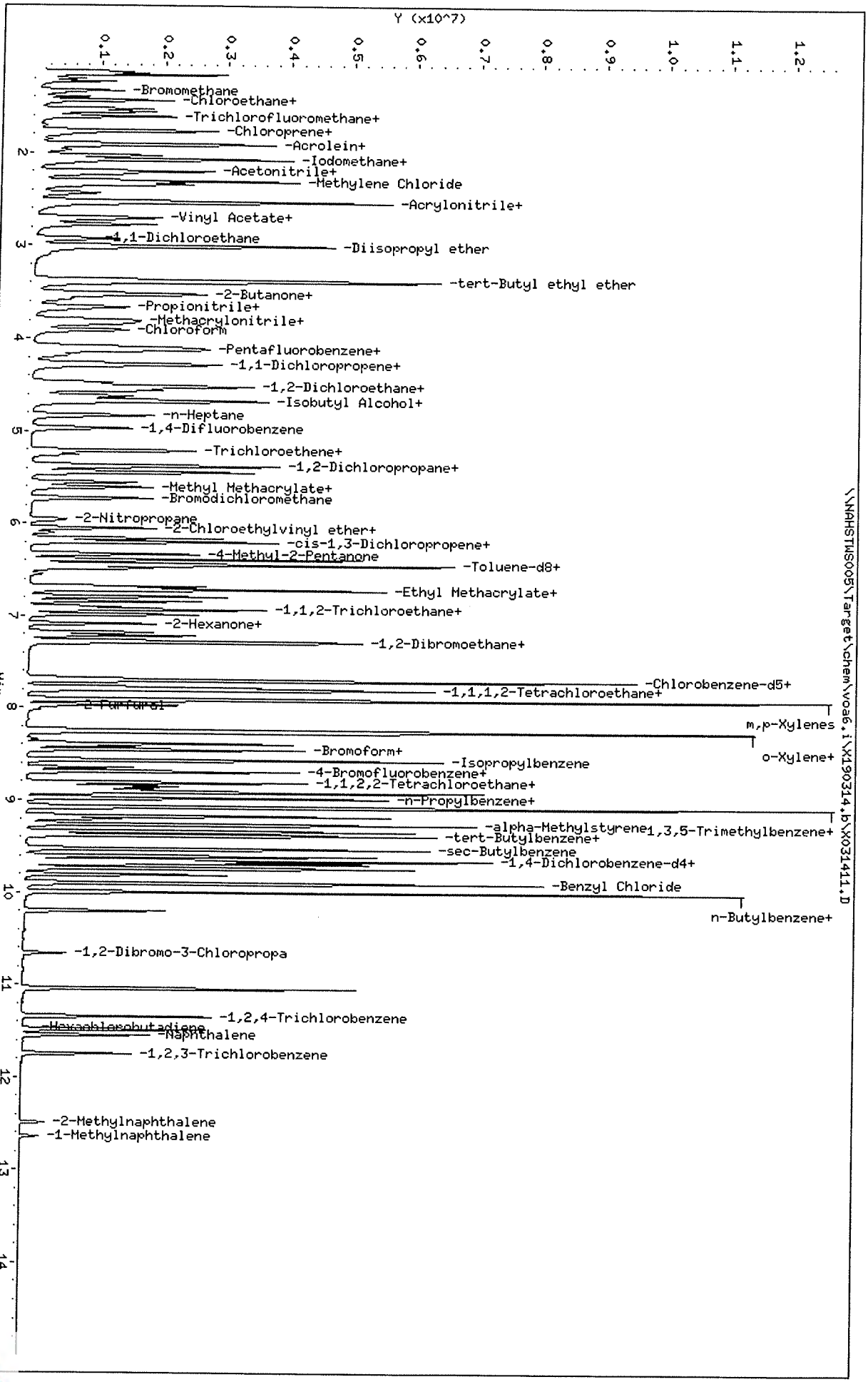
Data File: \\NAHSTWS005\Target\chem\voa6.i\X190314.b\X031411.D
Report Date: 29-Mar-2019 19:45

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	1061832	200.000	194.30
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	888995	200.000	195.37
75	1,3,5-Trimethylbenzene	105	9.074	9.074	(0.939)	3058911	200.000	209.33(A)
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	1864237	200.000	199.64
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	1337906	200.000	195.22
84	1,4-Dichlorobenzene	146	9.691	9.691	(1.002)	1888366	200.000	198.50
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	1168357	200.000	200.86(A)
24	2-Butanone	43	3.580	3.580	(0.855)	618401	400.000	438.72(A)
76	2-Chlorotoluene	91	8.981	8.981	(0.929)	2591847	200.000	196.64
52	2-Hexanone	43	7.090	7.090	(0.924)	1027763	400.000	424.58(A)
77	4-Chlorotoluene	91	9.074	9.074	(0.939)	3040670	200.000	202.30(A)
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	3243747	200.000	212.41(A)
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	1540671	400.000	413.44(A)
10	Acetone	43	1.976	1.976	(0.472)	399404	400.000	400.96(A)
37	Benzene	78	4.519	4.519	(0.909)	3300078	200.000	199.25
74	Bromobenzene	156	8.809	8.809	(0.911)	1059735	200.000	200.54(A)
29	Bromochloromethane	128	3.802	3.802	(0.908)	448619	200.000	195.09
39	Bromodichloromethane	83	5.729	5.729	(1.153)	1123375	200.000	203.33(A)
66	Bromoform	173	8.415	8.415	(1.097)	628243	200.000	202.17(A)
6	Bromomethane	94	1.331	1.331	(0.318)	557773	200.000	199.27
19	Carbon Disulfide	76	2.069	2.069	(0.494)	4970894	400.000	414.08(A)
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	1041315	200.000	201.68(AH)
59	Chlorobenzene	112	7.699	7.699	(1.004)	2337852	200.000	195.39
7	Chloroethane	64	1.396	1.396	(0.333)	586468	200.000	196.71
28	Chloroform	83	3.910	3.910	(0.933)	1432631	200.000	196.27
3	Chloromethane	50	1.073	1.073	(0.256)	1116067	200.000	198.90
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	905648	200.000	197.47
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	1512246	200.000	207.45(A)
55	Dibromochloromethane	129	7.183	7.183	(0.937)	905876	200.000	207.51(A)
44	Dibromomethane	93	5.557	5.557	(1.118)	540401	200.000	198.32
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	870002	200.000	201.86(A)
61	Ethylbenzene	106	7.807	7.807	(1.018)	1205244	200.000	202.90(A)
91	Hexachlorobutadiene	225	11.488	11.488	(1.188)	489122	200.000	199.41
67	Isopropylbenzene	105	8.566	8.566	(1.117)	3611756	200.000	203.73(A)
62	m,p-Xylenes	106	7.907	7.907	(1.031)	2976653	400.000	404.25(A)
17	Methylene Chloride	84	2.305	2.305	(0.550)	861209	200.000	201.10(A)
87	n-Butylbenzene	91	9.999	9.999	(1.034)	2835827	200.000	215.33(A)
73	n-Propylbenzene	91	8.917	8.917	(0.922)	4515416	200.000	210.18(A)
92	Naphthalene	128	11.546	11.546	(1.194)	1284759	200.000	220.65(A)
63	o-Xylene	106	8.244	8.244	(1.075)	1473723	200.000	200.05(A)
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	3760203	200.000	210.11(A)
64	Styrene	104	8.265	8.265	(1.078)	2514448	200.000	205.90(A)
78	tert-Butylbenzene	119	9.340	9.340	(0.966)	2562931	200.000	201.86(A)
56	Tetrachloroethene	164	6.933	6.933	(0.904)	749268	200.000	203.06(A)
50	Toluene	91	6.453	6.453	(0.841)	3532138	200.000	196.71
20	trans-1,2-Dichloroethene	96	2.527	2.527	(0.603)	799766	200.000	205.92(A)
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	1265137	200.000	215.34(A)
38	Trichloroethene	130	5.214	5.214	(1.049)	910524	200.000	199.81
8	Trichlorofluoromethane	101	1.560	1.560	(0.373)	1285010	200.000	199.23
5	Vinyl Chloride	62	1.138	1.138	(0.272)	1077324	200.000	202.83(A)

Data File: \\NAHSTWS005\Target\chem\voa6.i\X190314.b\X031411.D
Report Date: 29-Mar-2019 19:45

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.
H - Operator selected an alternate compound hit.



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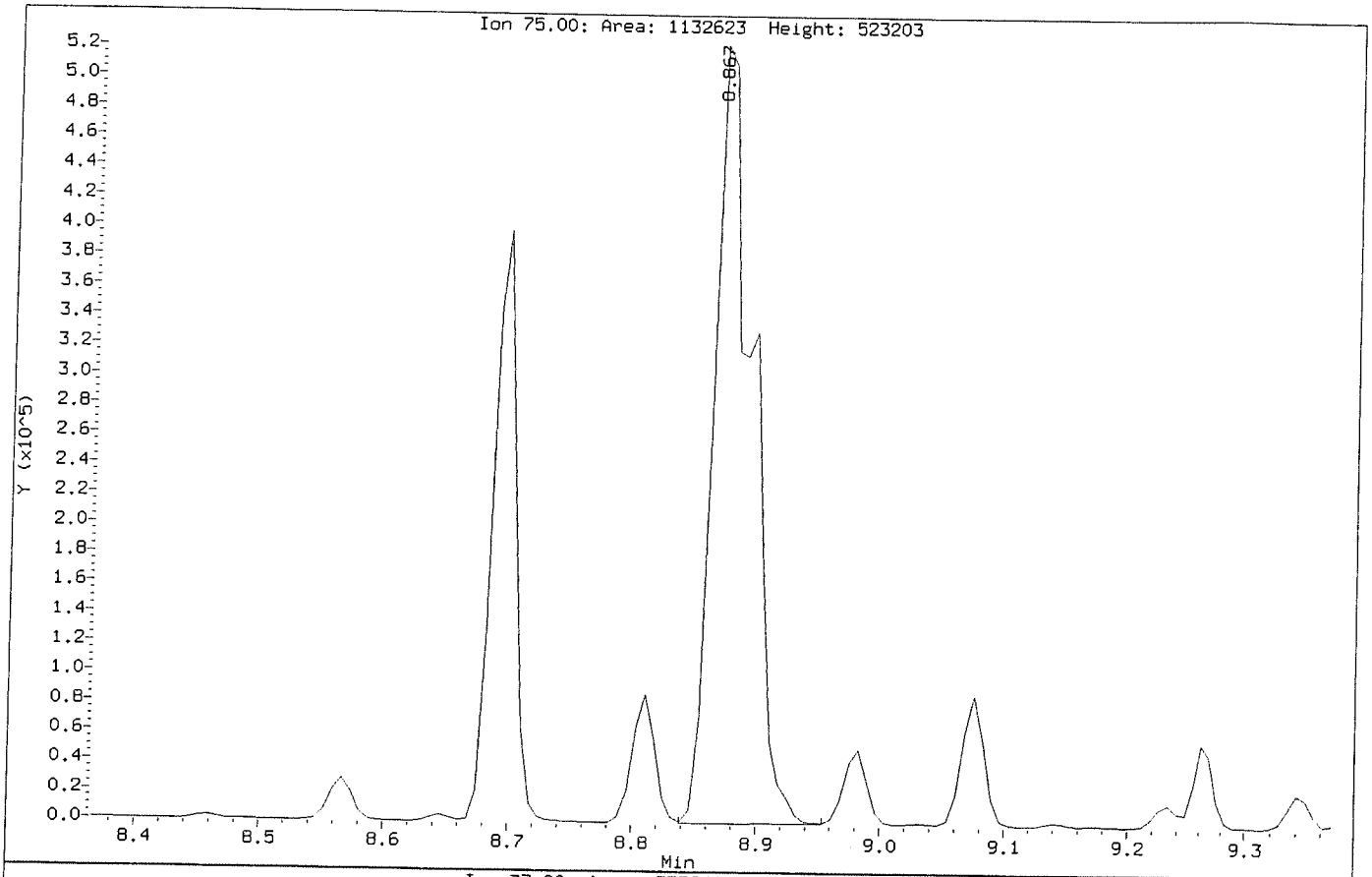
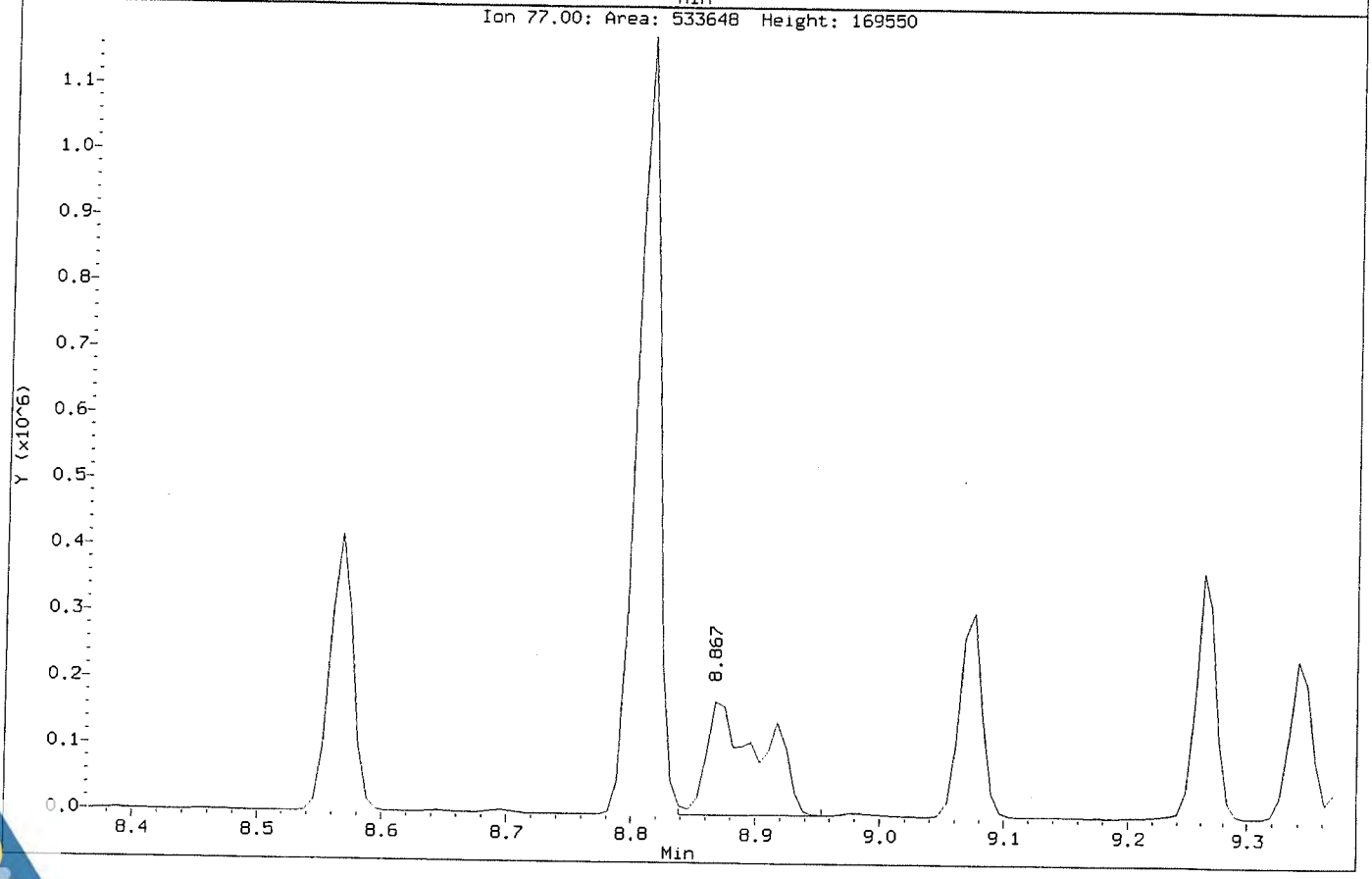
Date : 14-MAR-2019 15:32
Client ID: VSTD200
Sample Info: VSTD200;VSTD200;1;10;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X190314.b\Before\X031411.D
Injection Date: 14-MAR-2019 15:32
Instrument: voa6.i
Client Sample ID: VSTD200

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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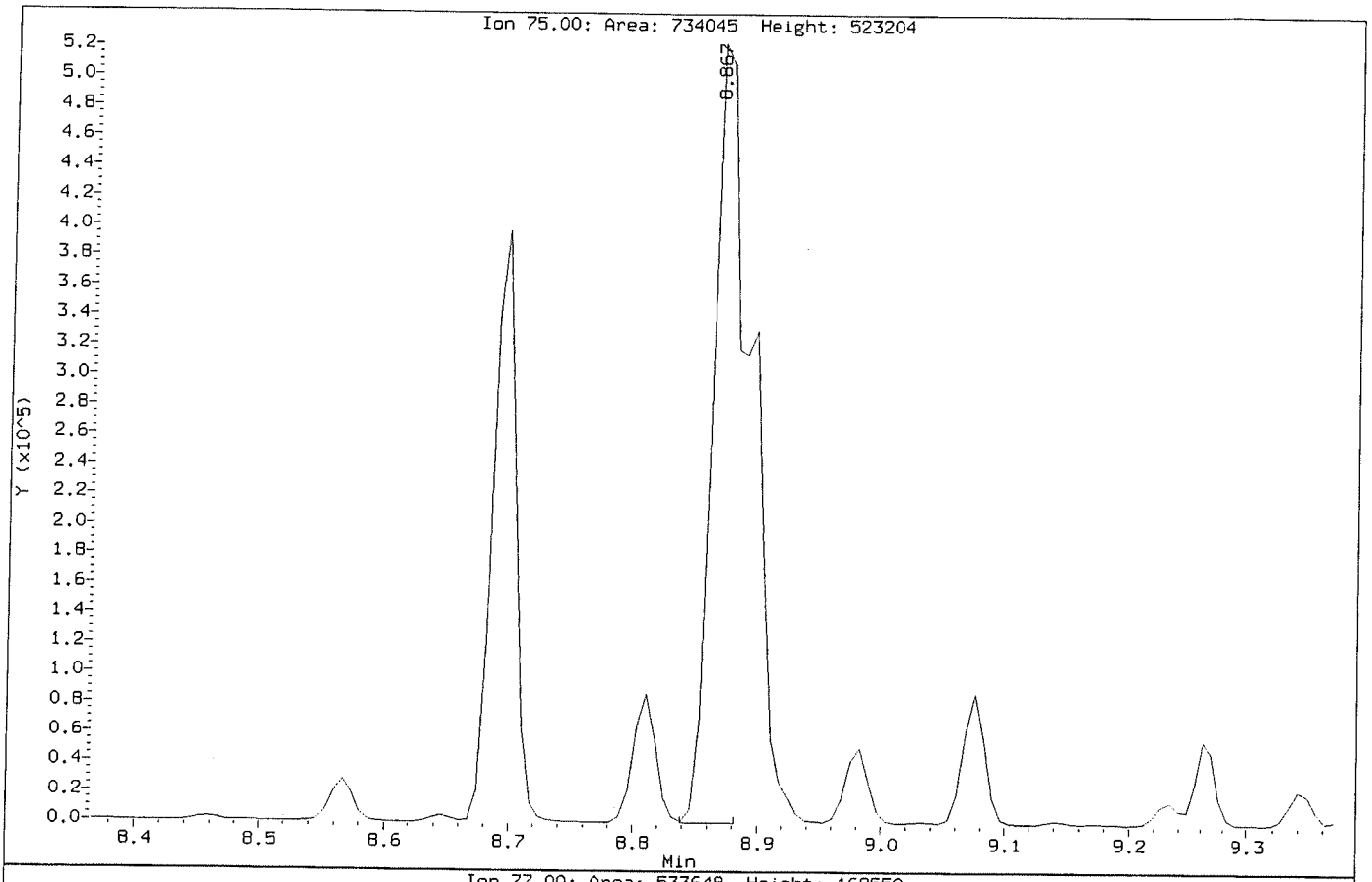
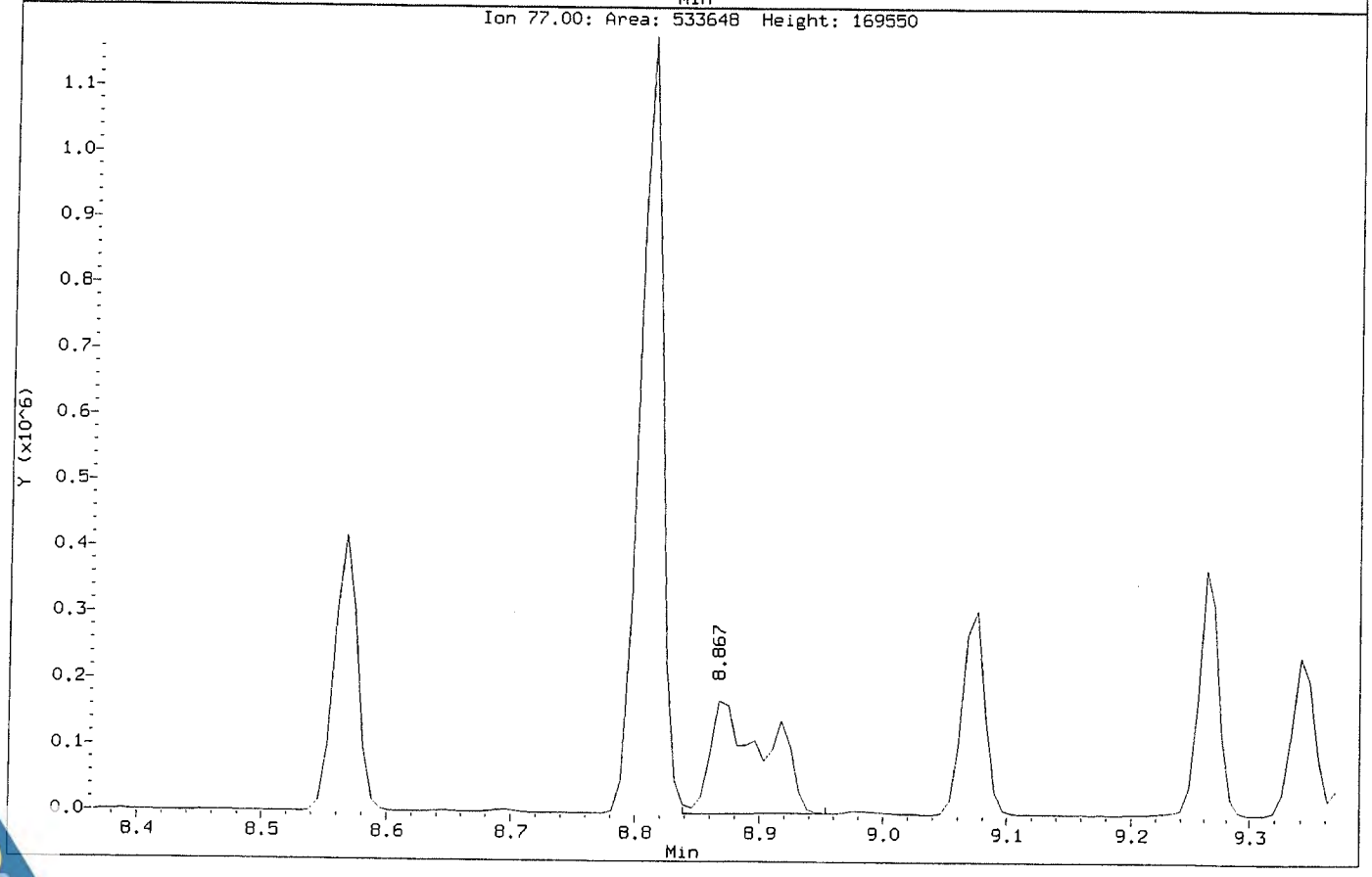
Instrument: voa6.i
Client Sample ID: VSTD200

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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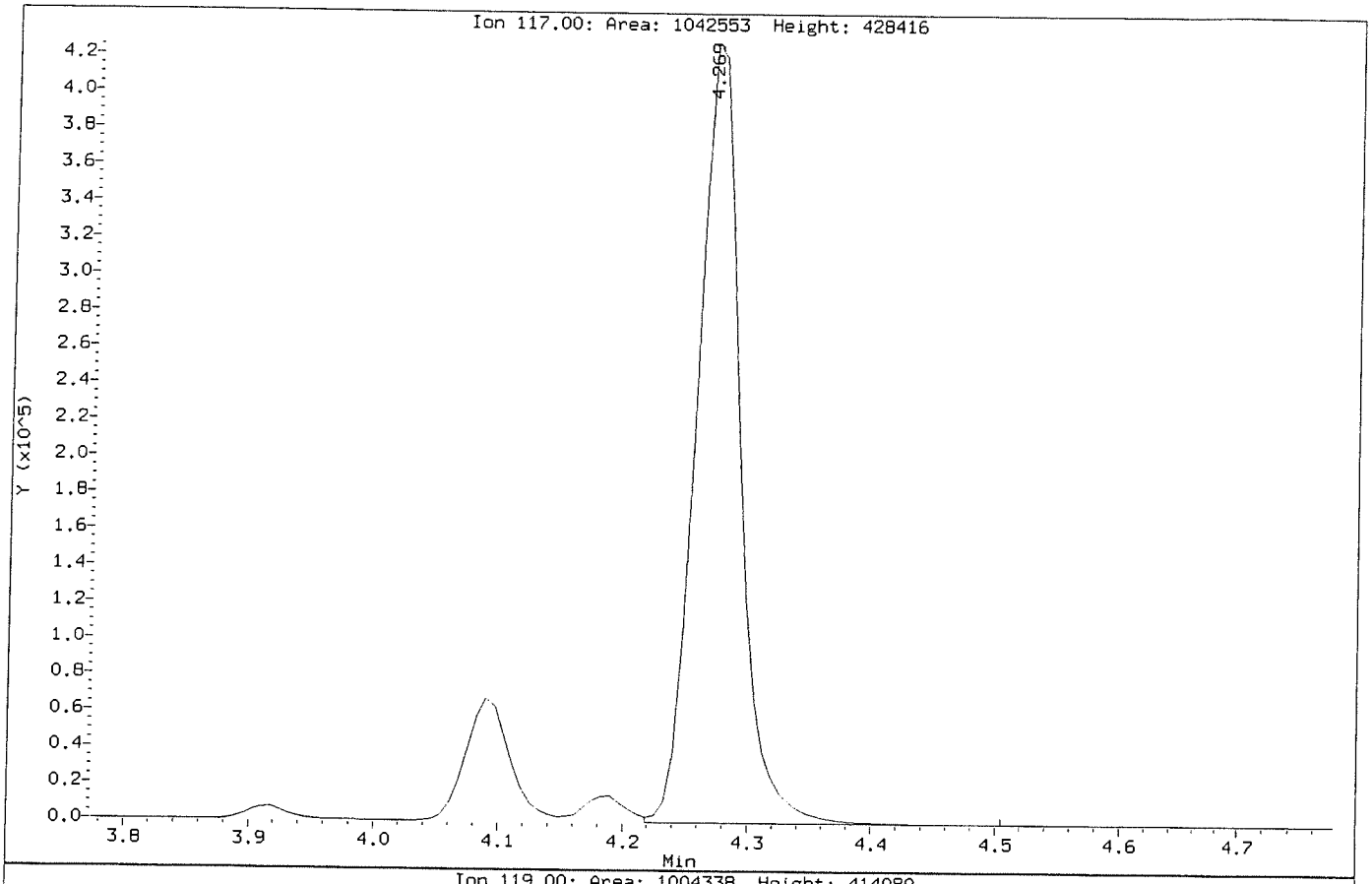
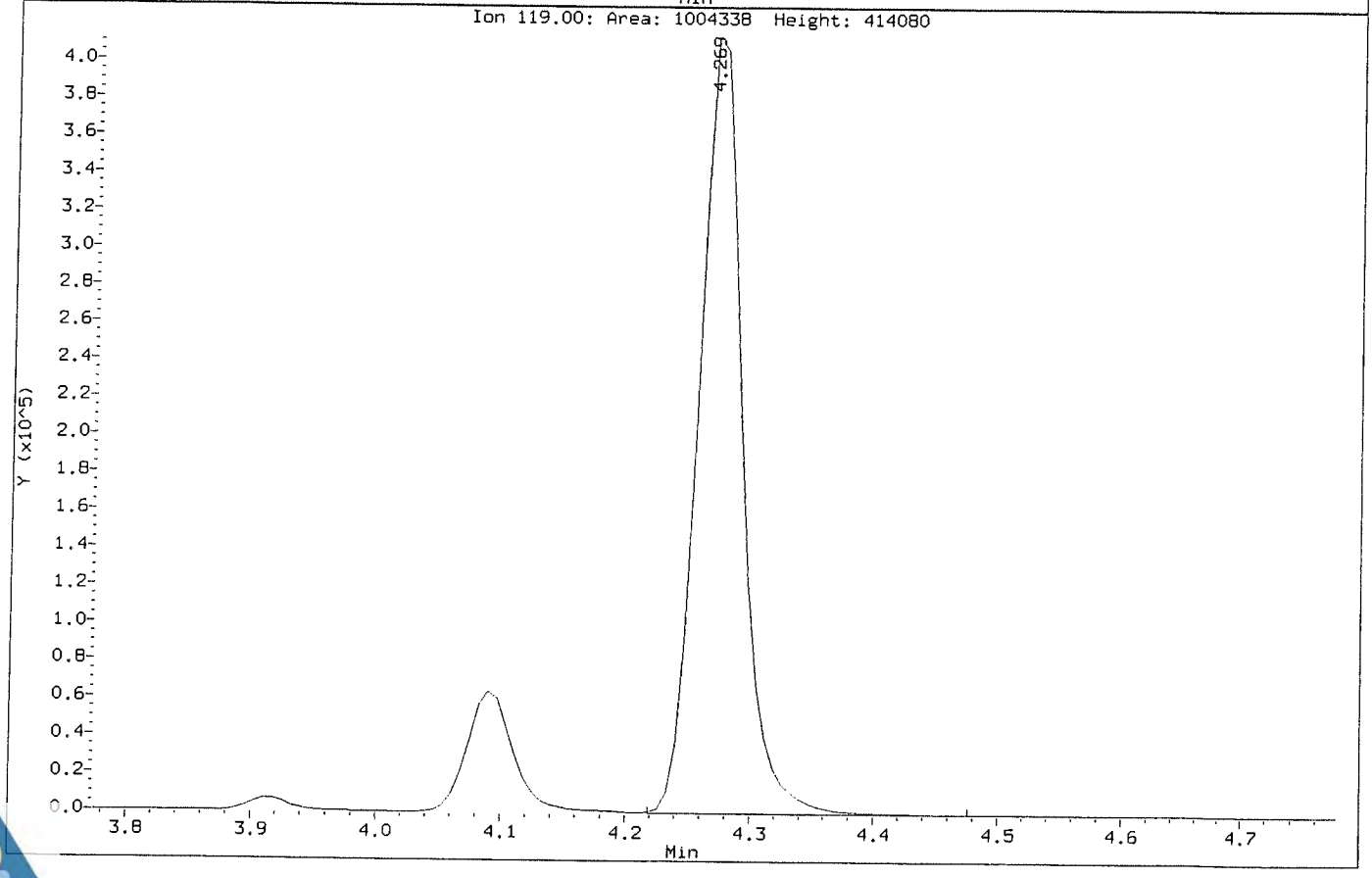
Injection Date: 14-MAR-2019 15:32
Instrument: voa6.i
Client Sample ID: VSTD200

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





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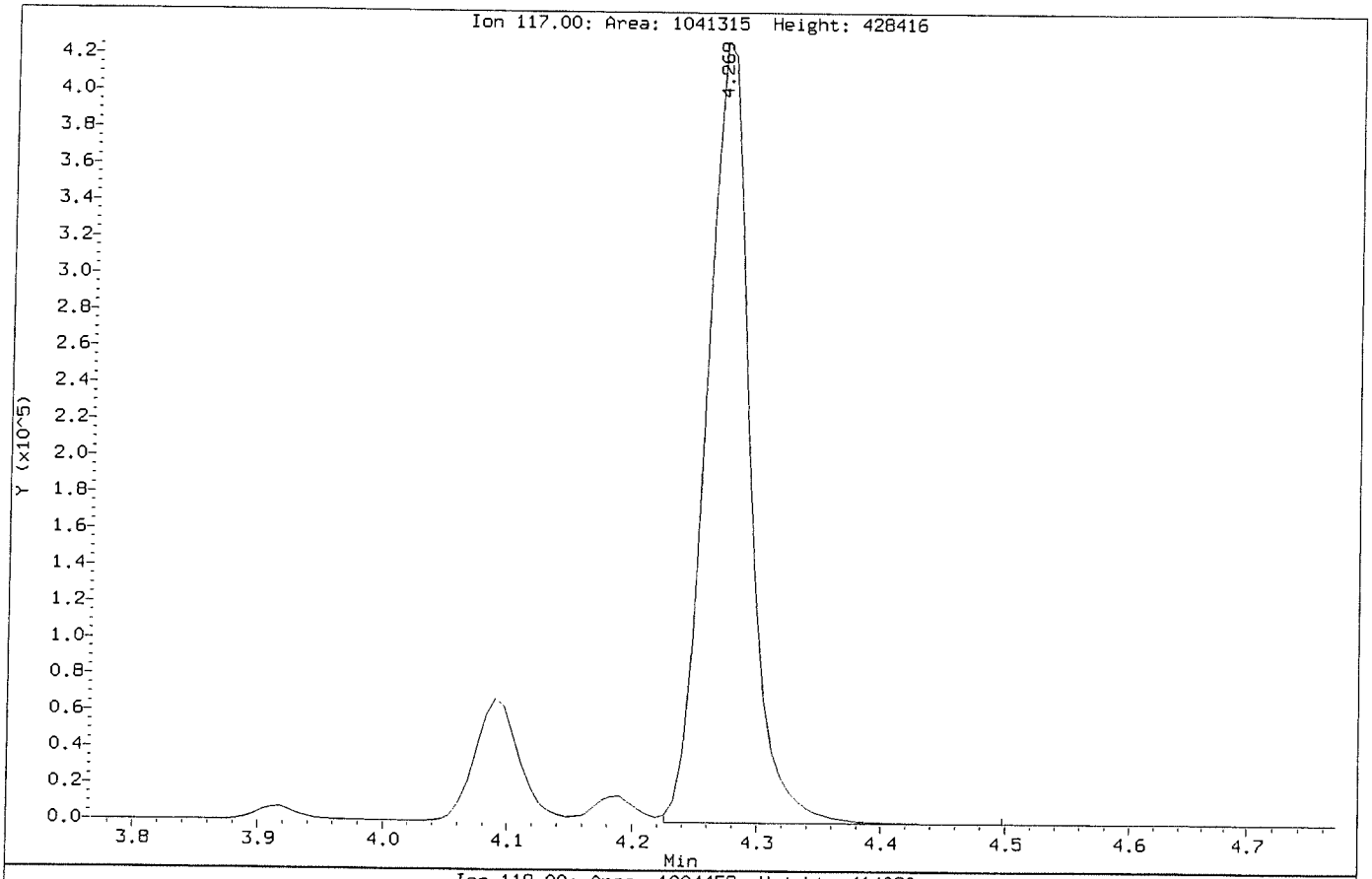
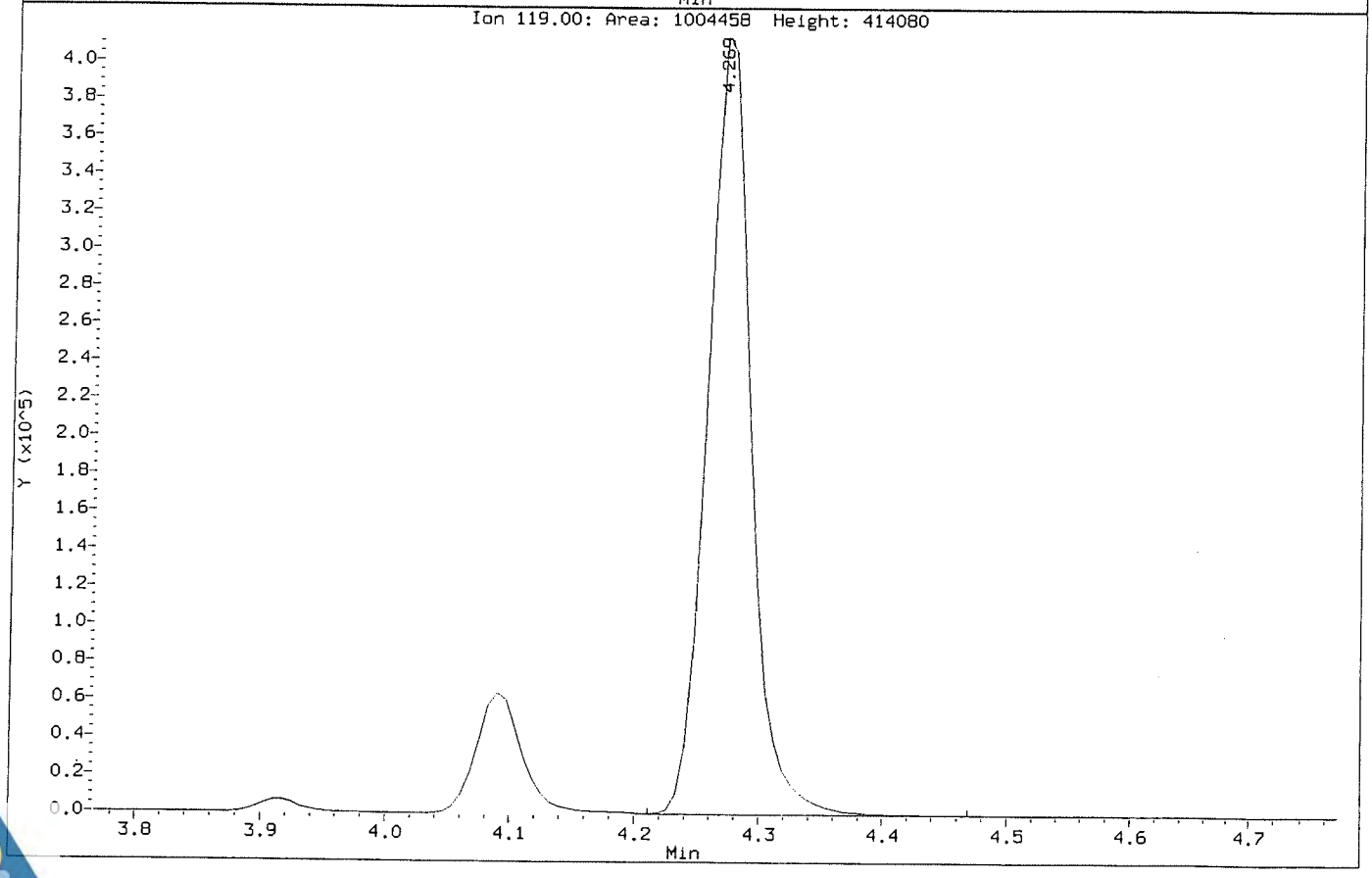
Injection Date: 14-MAR-2019 15:32
Instrument: voa6.i
Client Sample ID: VSTD200

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





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Report Date: 29-Mar-2019 19:45

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X190314.b\X031413.D
Lab Smp Id: ICV Client Smp ID: ICV
Inj Date : 14-MAR-2019 16:20
Operator : PC Inst ID: voa6.i
Smp Info : CCV;CCV;2;;ICV
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X190314.b\8260W.m
Meth Date : 29-Mar-2019 19:45 voa6.i Quant Type: ISTD
Cal Date : 14-MAR-2019 15:32 Cal File: X031411.D
Als bottle: 14 QC Sample: METHSPIKE
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	435137	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	673646	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	632221	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	322814	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	211721	49.7555	49.75
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	238554	50.2060	50.20
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	799081	50.9234	50.92
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	298270	51.6707	51.67
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	209546	49.1126	49.11
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	291735	46.0077	46.00
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	247607	47.5580	47.55
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	166245	47.9546	47.95
22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	374430	46.8570	46.85
11 1,1-Dichloroethene	96	1.919	1.911	(0.458)	171406	46.4457	46.44
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	265021	43.7615	43.76
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	107137	46.8867	46.88
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	192228	47.7753	47.77(M)
90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.173)	192506	47.6501	47.65
79 1,2,4-Trimethylbenzene	105	9.382	9.383	(0.970)	714541	46.2726	46.27
89 1,2-Dibromo-3-Chloropropane	155	10.657	10.658	(1.102)	32538	51.3806	51.38
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	203312	48.8195	48.81
88 1,2-Dichlorobenzene	146	9.998	9.999	(1.034)	428639	46.5648	46.56

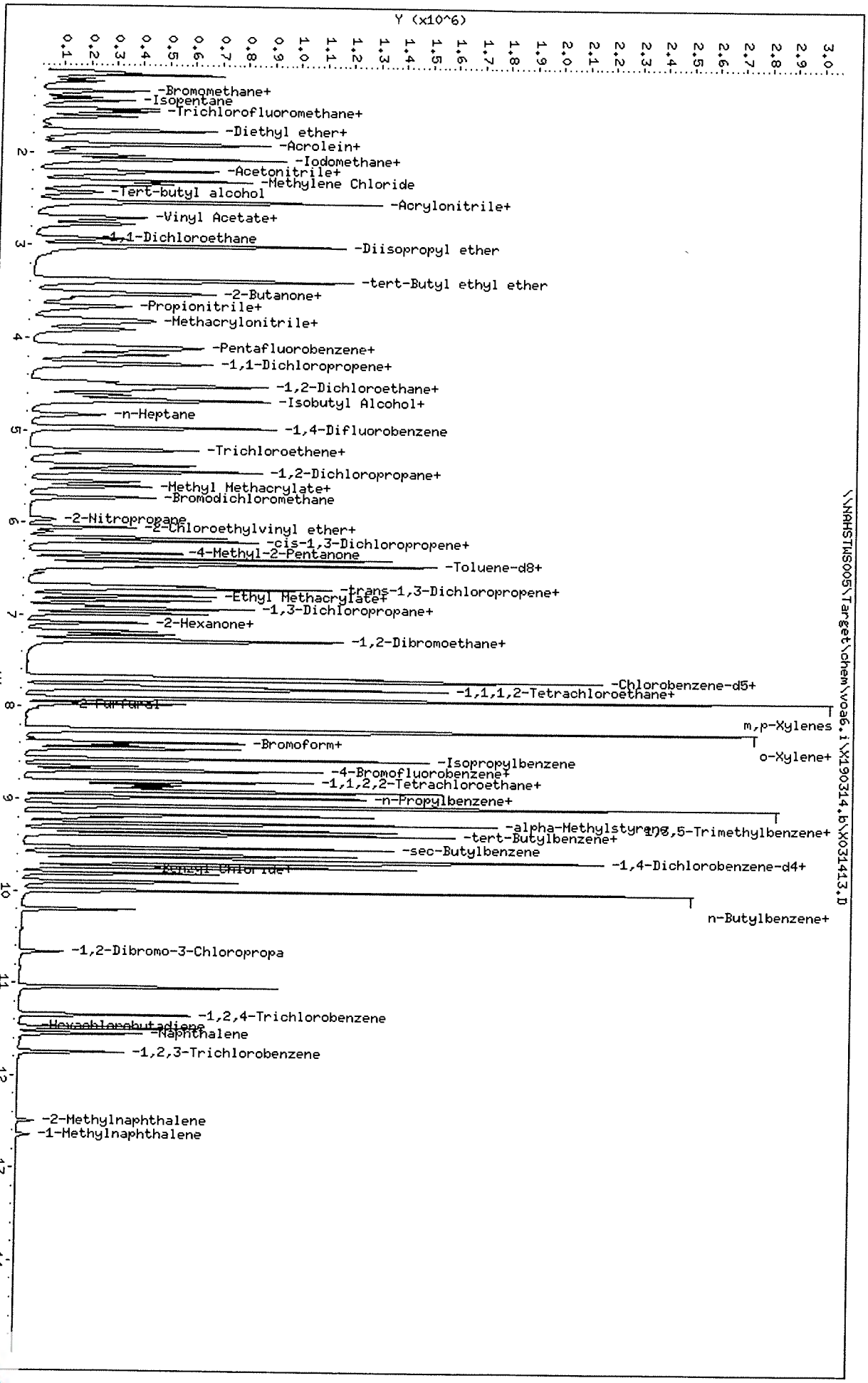
Data File: \\NAHSTWS005\Target\chem\voa6.i\X190314.b\X031413.D
Report Date: 29-Mar-2019 19:45

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	265911	46.7752	46.77
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	224283	47.3834	47.38
75 1,3,5-Trimethylbenzene	105	9.067	9.074	(0.938)	693156	45.3718	45.37
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	452977	46.3993	46.39
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	337205	47.7882	47.78
84 1,4-Dichlorobenzene	146	9.683	9.691	(1.001)	462227	46.4749	46.47
26 2,2-Dichloropropane	77	3.516	3.516	(0.839)	293566	47.7299	47.72
24 2-Butanone	43	3.580	3.580	(0.855)	150082	100.694	100.69
76 2-Chlorotoluene	91	8.981	8.981	(0.929)	624428	45.3138	45.31
52 2-Hexanone	43	7.090	7.090	(0.924)	243550	97.7176	97.71
77 4-Chlorotoluene	91	9.074	9.074	(0.939)	722914	46.0056	46.00
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	712627	44.6346	44.63
45 4-Methyl-2-Pentanone	43	6.324	6.331	(0.824)	362104	94.3731	94.37
10 Acetone	43	1.976	1.976	(0.472)	109995	100.985	100.98
37 Benzene	78	4.519	4.519	(0.909)	819120	47.5432	47.54
74 Bromobenzene	156	8.809	8.809	(0.911)	262589	47.5295	47.52
29 Bromochloromethane	128	3.802	3.802	(0.908)	113623	46.7284	46.72
39 Bromodichloromethane	83	5.729	5.729	(1.153)	278906	48.5293	48.52
66 Bromoform	173	8.415	8.415	(1.097)	153006	48.5368	48.53
6 Bromomethane	94	1.338	1.331	(0.320)	174814	59.2167	59.21
19 Carbon Disulfide	76	2.069	2.069	(0.494)	1202286	94.7141	94.71
34 Carbon Tetrachloride	117	4.275	4.268	(0.860)	231488	44.5025	44.50
59 Chlorobenzene	112	7.699	7.699	(1.004)	585209	47.5033	47.50
7 Chloroethane	64	1.403	1.396	(0.335)	147285	46.7212	46.72
28 Chloroform	83	3.910	3.910	(0.933)	361556	46.8456	46.84
3 Chloromethane	50	1.073	1.073	(0.256)	284635	46.8751	46.87
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	227080	46.8260	46.82
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	374699	49.4133	49.41
55 Dibromochloromethane	129	7.176	7.183	(0.936)	224145	49.8672	49.86
44 Dibromomethane	93	5.557	5.557	(1.118)	134731	47.5302	47.53
2 Dichlorodifluoromethane	85	0.973	0.973	(0.232)	202140	45.8004	45.80
61 Ethylbenzene	106	7.799	7.807	(1.017)	287185	46.9563	46.95
91 Hexachlorobutadiene	225	11.488	11.488	(1.188)	120356	51.6521	51.65
67 Isopropylbenzene	105	8.566	8.566	(1.117)	813384	44.5600	44.55
62 m,p-Xylenes	106	7.907	7.907	(1.031)	706849	93.2326	93.23
17 Methylene Chloride	84	2.305	2.305	(0.550)	219395	48.4223	48.42
87 n-Butylbenzene	91	9.998	9.999	(1.034)	625806	45.4517	45.45
73 n-Propylbenzene	91	8.917	8.917	(0.922)	1007066	44.8368	44.83
92 Naphthalene	128	11.546	11.546	(1.194)	300143	49.3068	49.30
63 o-Xylene	106	8.244	8.244	(1.075)	361943	47.7186	47.71
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	805357	43.0437	43.04
64 Styrene	104	8.265	8.265	(1.078)	629872	50.0939	50.09
78 tert-Butylbenzene	119	9.339	9.340	(0.966)	571107	43.0258	43.02
56 Tetrachloroethene	164	6.933	6.933	(0.904)	169609	44.6440	44.64
50 Toluene	91	6.453	6.453	(0.841)	874629	47.3079	47.30
20 trans-1,2-Dichloroethene	96	2.535	2.527	(0.605)	196837	47.9301	47.93
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	311632	50.9900	50.99
38 Trichloroethene	130	5.214	5.214	(1.049)	220380	46.4906	46.49
8 Trichlorofluoromethane	101	1.560	1.560	(0.373)	297435	46.2985	46.29
5 Vinyl Chloride	62	1.145	1.138	(0.273)	252814	45.0133	45.01

Data File: \\NAHSTWS005\Target\chem\voa6.i\X190314.b\X031413.D
Report Date: 29-Mar-2019 19:45

QC Flag Legend

M - Compound response manually integrated.

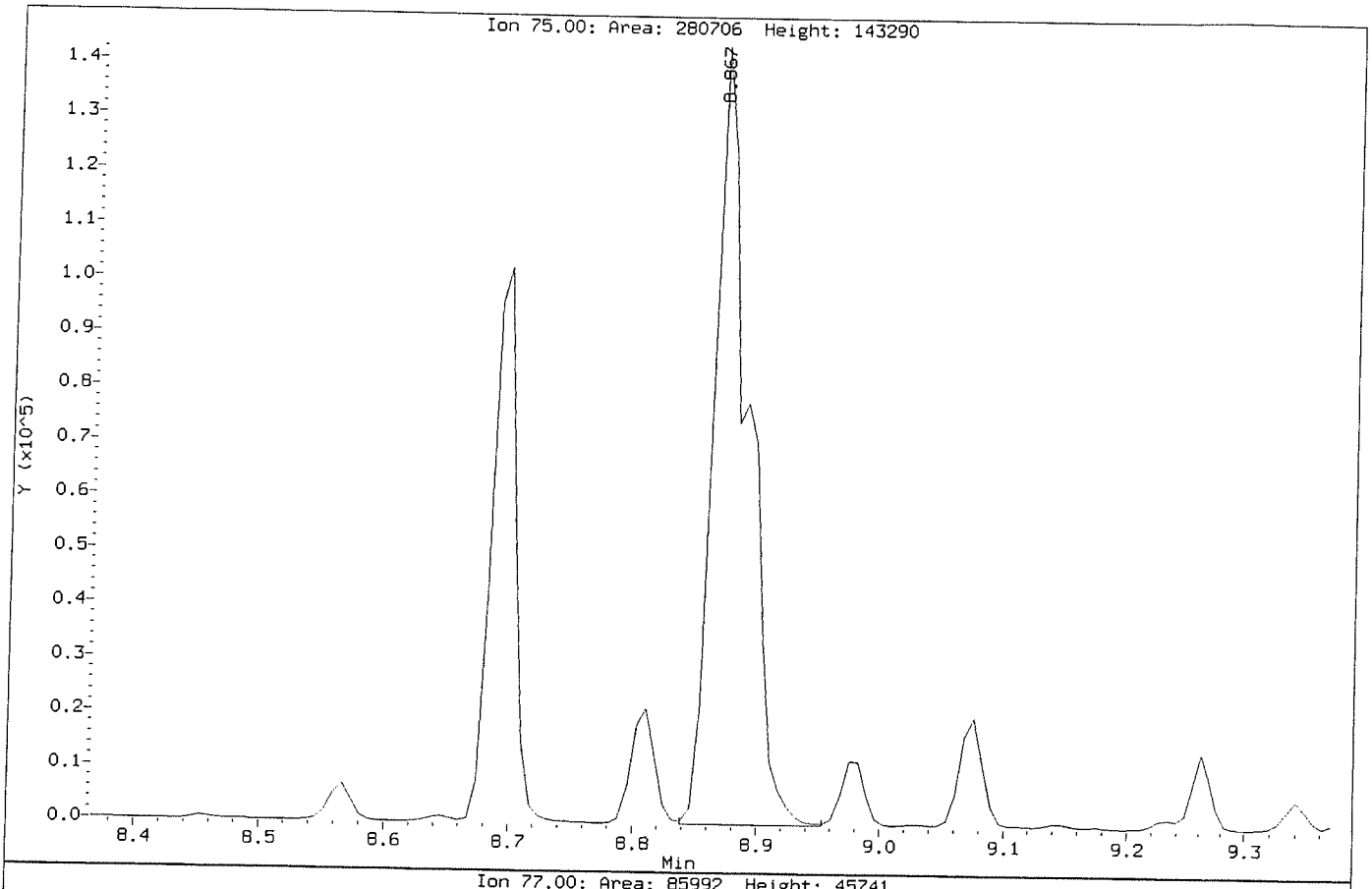


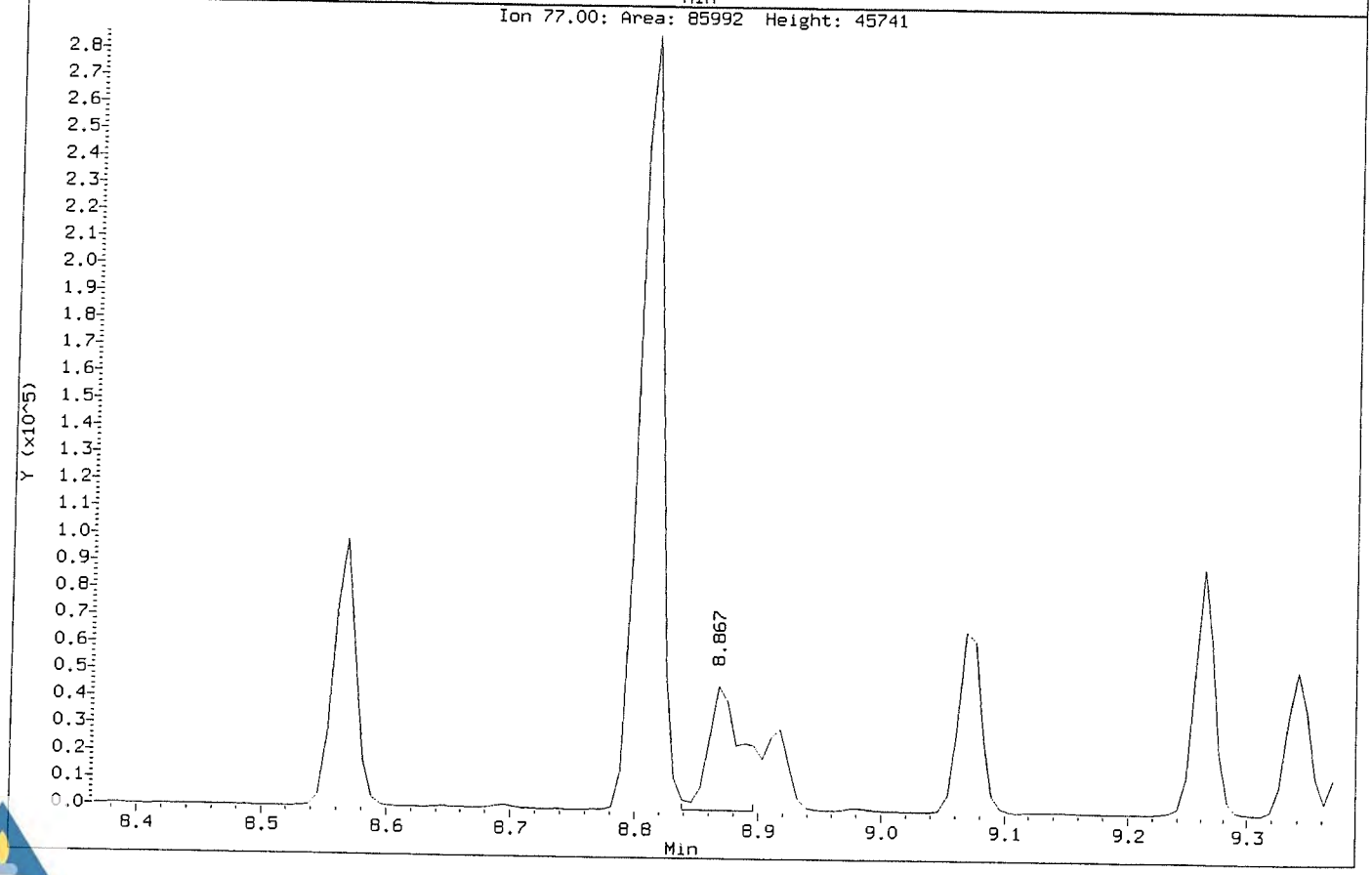
Data File: \\NAHSTWS005\Target\chem\voa6.i\X190314.b\X031413.D
Date : 14-MAR-2019 16:20
Client ID: ICV
Sample Info: CCV;CCV;2;;ICV
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X190314.b\Before\X031413.D
Injection Date: 14-MAR-2019 16:20
Instrument: voa6.i
Client Sample ID: CCV

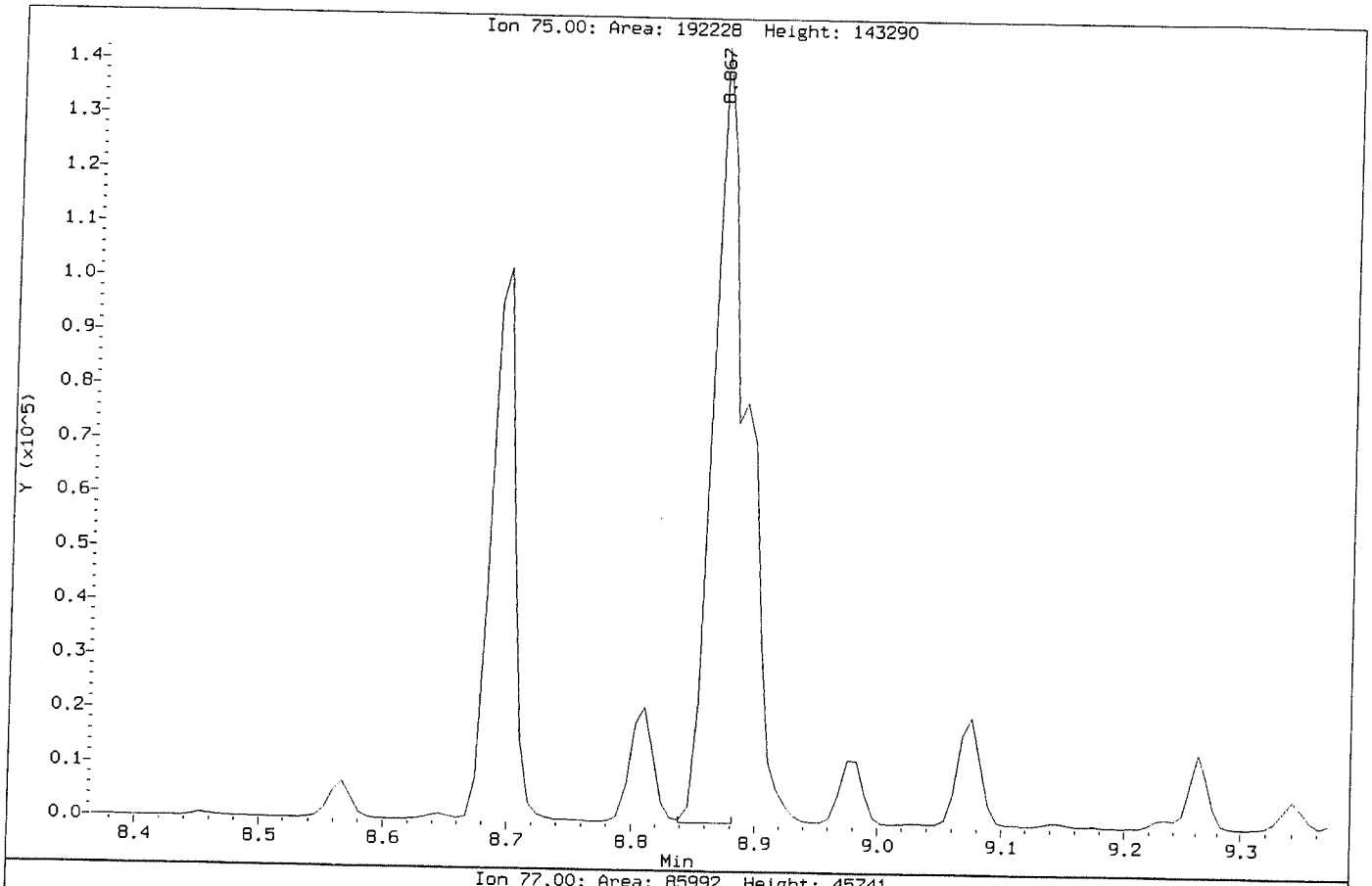
Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4

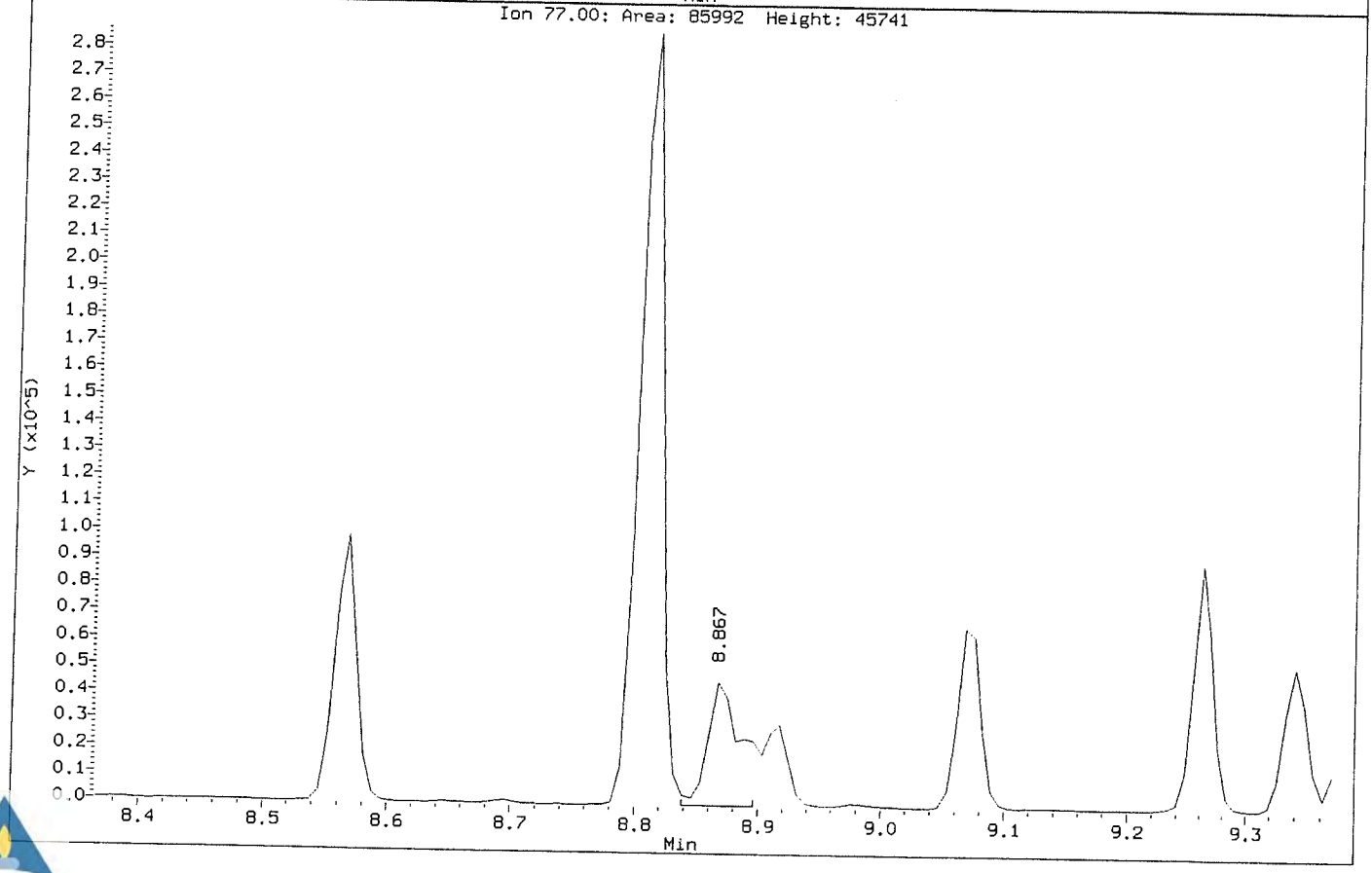




Data File: \\NAHSTWS005\Target\chem\voa6.i\X190314.b\X031413.D
Injection Date: 14-MAR-2019 16:20
Instrument: voa6.i
Client Sample ID: ICV

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





MSVOA06 -Logbook

Batch: 34484
Date: 03-26-2019
Method: 8260
Comments:

Analyst: Presenta Cabascango
Reviewer:
Laboratory: Houston

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	p
1	BFB	TUNE	03-26-2019 12:38 pm	1.00	50 mL	50 mL	X032601.D	Liquid	Y	r
	Auto find/ purged									
2	CCV	CCV	03-26-2019 01:02 pm	1.00	50 mL	50 mL	X032602.D	Liquid	Y	r
	10 uL ical std/50 mL DI									
3	VLCSW-190326	LCS	03-26-2019 01:26 pm	1.00	50 mL	50 mL	X032603.D	Liquid	Y	r
	10 uL ical std/50 mL DI									
4	CCB	SAMP	03-26-2019 01:51 pm	1.00	50 mL	50 mL	X032604.D	Liquid	Y	r
5	BLANK	SAMP	03-26-2019 02:15 pm	1.00	50 mL	50 mL	X032605.D	Liquid	Y	r
6	BLANK	SAMP	03-26-2019 02:39 pm	1.00	50 mL	50 mL	X032606.D	Liquid	Y	r
7	VBLKW-190325	MBLK	03-26-2019 03:03 pm	1.00	50 mL	50 mL	X032607.D	Liquid	Y	r
8	HS19031013-08	SAMP	03-26-2019 03:27 pm	1.00	50 mL	50 mL	X032608.D	Liquid	Y	>
9	HS19031189-02	SAMP	03-26-2019 03:51 pm	1.00	50 mL	50 mL	X032609.D	Liquid	Y	>
10	HS19031013-01	SAMP	03-26-2019 04:15 pm	1.00	50 mL	50 mL	X032610.D	Liquid	Y	>
11	HS19031013-07	SAMP	03-26-2019 04:39 pm	1.00	50 mL	50 mL	X032611.D	Liquid	Y	>
12	HS19031013-07MS	MS	03-26-2019 05:03 pm	1.00	50 mL	50 mL	X032612.D	Liquid	Y	>
	3.5 uL ical std/40 mL samp									
13	HS19031013-07MSD	MSD	03-26-2019 05:27 pm	1.00	50 mL	50 mL	X032613.D	Liquid	Y	>
	3.5 uL ical std/40 mL samp									
14	HS19031013-07	SAMP	03-26-2019 05:54 pm	25.00	2 mL	50 mL	X032614.D	Liquid	Y	>
15	BLK	SAMP	03-26-2019 06:18 pm	1.00	50 mL	50 mL	X032615.D	Liquid	Y	r
	clean up blank									
16	HS19031013-02	SAMP	03-26-2019 06:42 pm	1.00	50 mL	50 mL	X032616.D	Liquid	Y	>
17	HS19031013-03	SAMP	03-26-2019 07:06 pm	1.00	50 mL	50 mL	X032617.D	Liquid	Y	>
18	HS19031013-04	SAMP	03-26-2019 07:30 pm	1.00	50 mL	50 mL	X032618.D	Liquid	Y	>
19	HS19031013-05	SAMP	03-26-2019 07:54 pm	1.00	50 mL	50 mL	X032619.D	Liquid	Y	>
20	HS19031013-06	SAMP	03-26-2019 08:18 pm	1.00	50 mL	50 mL	X032620.D	Liquid	Y	>
21	HS19031189-01	SAMP	03-26-2019 08:42 pm	1.00	50 mL	50 mL	X032621.D	Liquid	Y	>
22	HS19031242-20	SAMP	03-26-2019 09:09 pm	100.0(	500 µL	50 mL	X032622.D	Liquid	Y	>
23	HS19031242-21	SAMP	03-26-2019 09:35 pm	100.0(	500 µL	50 mL	X032623.D	Liquid	Y	>
24	HS19031242-22	SAMP	03-26-2019 10:02 pm	100.0(	500 µL	50 mL	X032624.D	Liquid	Y	>
25	HS19031242-23	SAMP	03-26-2019 10:28 pm	100.0(	500 µL	50 mL	X032625.D	Liquid	Y	>
26	HS19031242-24	SAMP	03-26-2019 10:55 pm	100.0(	500 µL	50 mL	X032626.D	Liquid	Y	>
27	HS19031242-25	SAMP	03-26-2019 11:21 pm	100.0(	500 µL	50 mL	X032627.D	Liquid	Y	>
28	HS19031289-01	SAMP	03-26-2019 11:48 pm	100.0(	500 µL	50 mL	X032628.D	Liquid	Y	>
29	CCV_END	CCV	03-27-2019 12:12 am	1.00	50 mL	50 mL	X032629.D	Liquid	Y	r
	10 uL ical std/50 mL DI									

MSVOA06 -Logbook

Chemical	Value
SURR SPK ID	30502-69-03
IS ID	30502-69-04
LCS/MS ID	30603-59-01
CAL STD ID	30502-69-01/02
BFB ID	30202-69-03
pH Paper	634-40-13

FORM 2
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS19031013

	CLIENT SAMPLE NO.	SMC1 (DCE) #	SMC2 #	SMC3 (TOL) #	OTHER #	TOT OUT
01	VLCSW-190326	90	92	106	99	0
02	VBLKW-190325	90	91	106	98	0
03	HS19031013-0	90	91	106	99	0
04	HS19031013-0	94	91	108	97	0
05	HS19031013-0	96	92	101	102	0
06	HS19031013-0	94	92	109	95	0
07	HS19031013-0	94	93	102	101	0
08	HS19031013-0	91	91	104	100	0
09	HS19031013-0	90	91	106	97	0
10	HS19031013-0	92	92	107	98	0
11	HS19031013-0	93	92	104	101	0
12	HS19031013-0	94	92	107	98	0
13	HS19031013-0	93	91	101	100	0
14						
15						
16						
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21						
22						
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24						
25						
26						
27						
28						

		QC LIMITS
SMC1 (DCE)	= 1,2-Dichloroethane-d4	(0-130)
SMC2	= Dibromofluoromethane	(0-130)
SMC3 (TOL)	= Toluene-d8	(0-130)
OTHER	= 4-Bromofluorobenzene	(0-130)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

FORM 4
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

VBLKW-190325

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS19031013

Lab File ID: X032607 Lab Sample ID: VBLKW-190325

Date Analyzed: 03/26/19 Time Analyzed: 1503

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: VOA6

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VLCSW-190326	VLCSW-190326	X032603	1326
02	HS19031013-0	HS19031013-08	X032608	1527
03	HS19031013-0	HS19031013-01	X032610	1615
04	HS19031013-0	HS19031013-07	X032611	1639
05	HS19031013-0	HS19031013-07M	X032612	1703
06	HS19031013-0	HS19031013-07M	X032613	1727
07	HS19031013-0	HS19031013-07D	X032614	1754
08	HS19031013-0	HS19031013-02	X032616	1842
09	HS19031013-0	HS19031013-03	X032617	1906
10	HS19031013-0	HS19031013-04	X032618	1930
11	HS19031013-0	HS19031013-05	X032619	1954
12	HS19031013-0	HS19031013-06	X032620	2018
13				
14				
15				
16				
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22				
23				
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26				
27				
28				
29				
30				

COMMENTS:

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS19031013

Lab File ID: X032601 BFB Injection Date: 03/26/19

Instrument ID: VOA6 BFB Injection Time: 1238

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	18.1
75	30.0 - 60.0% of mass 95	48.3
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.9
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	Greater than 50.0% of mass 95	86.2
175	5.0 - 9.0% of mass 174	6.3 (7.4)1
176	95.0 - 101.0% of mass 174	82.9 (96.2)1
177	5.0 - 9.0% of mass 176	5.7 (6.8)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CCV	CCV	X032602	03/26/19	1302
02	VLCSW-190326	VLCSW-190326	X032603	03/26/19	1326
03	VBLKW-190325	VBLKW-190325	X032607	03/26/19	1503
04	HS19031013-0	HS19031013-08	X032608	03/26/19	1527
05	HS19031013-0	HS19031013-01	X032610	03/26/19	1615
06	HS19031013-0	HS19031013-07	X032611	03/26/19	1639
07	HS19031013-0	HS19031013-07M	X032612	03/26/19	1703
08	HS19031013-0	HS19031013-07M	X032613	03/26/19	1727
09	HS19031013-0	HS19031013-07D	X032614	03/26/19	1754
10	HS19031013-0	HS19031013-02	X032616	03/26/19	1842
11	HS19031013-0	HS19031013-03	X032617	03/26/19	1906
12	HS19031013-0	HS19031013-04	X032618	03/26/19	1930
13	HS19031013-0	HS19031013-05	X032619	03/26/19	1954
14	HS19031013-0	HS19031013-06	X032620	03/26/19	2018
15	CCV_END	CCV_END	X032629	03/27/19	0012
16					
17					
18					
19					
20					
21					
22					

FORM V VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS19031013

Instrument ID: VOA6 Calibration Date: 03/26/19 Time: 1302

Lab File ID: X032602 Init. Calib. Date(s): 03/14/19 03/14/19

Init. Calib. Times: 1133 1532

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
cis-1,3-Dichloropropene	0.5630000	0.6041412	0.6041412	0.2	-7.31	20.00	AVRG
trans-1,3-Dichloropropene	0.4530000	0.5288441	0.5288441	0.1	-16.74	20.00	AVRG
1,3-Dichlorobenzene	1.5120000	1.6505748	1.6505748	0.6	-9.16	20.00	AVRG
2,2-Dichloropropane	0.7070000	0.6960929	0.6960929	0.1	1.54	20.00	AVRG
1,1-Dichloropropene	0.4490000	0.4198729	0.4198729	0.1	6.49	20.00	AVRG
Dibromomethane	0.2100000	0.2321560	0.2321560	0.1	-10.55	20.00	AVRG
1,2-Dibromoethane	0.3290000	0.3813137	0.3813137	0.1	-15.90	20.00	AVRG
trans-1,2-Dichloroethene	0.4720000	0.4543996	0.4543996	0.1	3.73	20.00	AVRG
1,1,1,2-Tetrachloroethane	0.3370000	0.3894072	0.3894072	0.1	-15.55	20.00	AVRG
1,1,1-Trichloroethane	0.7280000	0.6955094	0.6955094	0.1	4.46	20.00	AVRG
1,1,2,2-Tetrachloroethane	0.8060000	0.8662057	0.8662057	0.3	-7.47	20.00	AVRG
1,1,2-Trichloroethane	0.2740000	0.3047168	0.3047168	0.1	-11.21	20.00	AVRG
1,1-Dichloroethane	0.9180000	0.8859342	0.8859342	0.2	3.49	20.00	AVRG
1,1-Dichloroethene	0.4240000	0.3925128	0.3925128	0.1	7.43	20.00	AVRG
Trichloroethene	0.3520000	0.3532310	0.3532310	0.2	-0.35	20.00	AVRG
1,2,3-Trichlorobenzene	0.3540000	0.3977511	0.3977511	0.1	-12.36	20.00	AVRG
Trichlorofluoromethane	47.020633	50.000000	0.6945235	0.1	5.96	20.00	2RDR
1,2,4-Trichlorobenzene	0.6260000	0.7115944	0.7115944	0.2	-13.67	20.00	AVRG
1,2,4-Trimethylbenzene	2.3920000	2.7875516	2.7875516	0.1	-16.54	20.00	AVRG
Tetrachloroethene	0.3000000	0.3244633	0.3244633	0.2	-8.15	20.00	AVRG
1,2-Dichlorobenzene	1.4260000	1.5489750	1.5489750	0.4	-8.62	20.00	AVRG
1,2-Dichloroethane	0.4220000	0.4400786	0.4400786	0.1	-4.28	20.00	AVRG
1,2-Dichloropropane	0.3510000	0.3624363	0.3624363	0.1	-3.26	20.00	AVRG
1,3,5-Trimethylbenzene	2.3660000	2.6574826	2.6574826	0.1	-12.32	20.00	AVRG
1,3-Dichloropropane	0.5580000	0.6241237	0.6241237	0.1	-11.85	20.00	AVRG
1,4-Dichlorobenzene	1.5400000	1.6699066	1.6699066	0.4	-8.44	20.00	AVRG
Toluene	1.4620000	1.6137098	1.6137098	0.4	-10.38	20.00	AVRG
2-Butanone	0.1710000	0.1819476	0.1819476	0.1	-6.40	20.00	AVRG
2-Chlorotoluene	2.1340000	2.2545570	2.2545570	0.1	-5.65	20.00	AVRG
2-Hexanone	0.1970000	0.2246881	0.2246881	0.1	-14.05	20.00	AVRG
4-Chlorotoluene	2.4340000	2.6356444	2.6356444	0.1	-8.28	20.00	AVRG
tert-Butylbenzene	2.0560000	2.1842526	2.1842526	0.1	-6.24	20.00	AVRG
4-Methyl-2-Pentanone	0.3030000	0.3357699	0.3357699	0.1	-10.82	20.00	AVRG
Acetone	99.512108	100.00000	0.1246288	0.1	0.49	20.00	LINR
Benzene	1.2790000	1.3558231	1.3558231	0.5	-6.01	20.00	AVRG
Bromobenzene	0.8560000	0.9777735	0.9777735	0.1	-14.22	20.00	AVRG
Bromochloromethane	0.2790000	0.2813575	0.2813575	0.1	-0.84	20.00	AVRG
Bromodichloromethane	0.4270000	0.4800225	0.4800225	0.2	-12.42	20.00	AVRG
Bromoform	59.369781	50.000000	0.2970932	0.1	-18.74	20.00	LINR
Bromomethane	50.487590	50.000000	0.3423055	0.1	-0.98	20.00	LINR
Carbon Disulfide	1.4580000	1.3170572	1.3170572	0.1	9.67	20.00	AVRG
Carbon Tetrachloride	51.639874	50.000000	0.4010494	0.1	-3.28	20.00	LINR

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS1903101

Instrument ID: VOA6 Calibration Date: 03/26/19 Time: 1302

Lab File ID: X032602 Init. Calib. Date(s): 03/14/19 03/14/19

Init. Calib. Times: 1133 1532

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Chlorobenzene	0.9740000	1.0430237	1.0430237	0.5	-7.09	20.00	AVRG
Chloroethane	0.3620000	0.3330588	0.3330588	0.1	7.99	20.00	AVRG
Chloroform	0.8870000	0.8839273	0.8839273	0.2	0.35	20.00	AVRG
Chloromethane	51.040100	50.000000	0.7105087	0.1	-2.08	20.00	LINR
cis-1,2-Dichloroethene	0.5570000	0.5464851	0.5464851	0.1	1.89	20.00	AVRG
Dibromochloromethane	0.3560000	0.4124775	0.4124775	0.1	-15.86	20.00	AVRG
Dichlorodifluoromethane	54.047172	50.000000	0.5517155	0.1	-8.09	20.00	LINR
Ethylbenzene	0.4840000	0.5406670	0.5406670	0.1	-11.71	20.00	AVRG
Hexachlorobutadiene	56.828100	50.000000	0.4119479	0.1	-13.66	20.00	2RDR
Isopropylbenzene	1.4440000	1.5800005	1.5800005	0.1	-9.42	20.00	AVRG
m,p-Xylenes	0.6000000	0.6600727	0.6600727	0.1	-10.01	20.00	AVRG
Methylene Chloride	50.678571	50.000000	0.5276741	0.1	-1.36	20.00	LINR
n-Butylbenzene	2.1320000	2.4328116	2.4328116	0.5	-14.11	20.00	AVRG
n-Propylbenzene	3.4790000	3.7532426	3.7532426	0.1	-7.88	20.00	AVRG
Naphthalene	0.9430000	1.0912327	1.0912327	0.2	-15.72	20.00	AVRG
o-Xylene	0.6000000	0.6519184	0.6519184	0.3	-8.65	20.00	AVRG
sec-Butylbenzene	2.8980000	3.0830340	3.0830340	0.1	-6.38	20.00	AVRG
Styrene	0.9940000	1.1630163	1.1630163	0.3	-17.00	20.00	AVRG
Vinyl Chloride	0.6450000	0.5980523	0.5980523	0.1	7.28	20.00	AVRG
1,2,3-Trichloropropane	0.6230000	0.7171106	0.7171106	0.1	-15.11	20.00	AVRG
p-Isopropyltoluene	2.4730000	2.7502113	2.7502113	0.1	-11.21	20.00	AVRG
1,2-Dibromo-3-Chloropropane	9.8e-002	0.1141964	0.1141964	0.05	-16.53	20.00	AVRG
1,2-Dichloroethane-d4	44.573396	50.000000	0.4869982	0.1	10.85	20.00	LINR
Dibromofluoromethane	46.243094	50.000000	0.4522679	0.1	7.51	20.00	LINR
Toluene-d8	52.666476	50.000000	1.3070154	0.1	-5.33	20.00	LINR
4-Bromofluorobenzene	49.706454	50.000000	0.4539700	0.1	0.59	20.00	LINR

FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS19031013

Instrument ID: VOA6 Calibration Date: 03/27/19 Time: 0012

Lab File ID: X032629 Init. Calib. Date(s): 03/14/19 03/14/19

Init. Calib. Times: 1133 1532

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE	
cis-1,3-Dichloropropene	0.5630000	0.5920002	0.5920002	0.2	-5.15	50.00	AVRG	
trans-1,3-Dichloropropene	0.4530000	0.5209555	0.5209555	0.1	-15.00	50.00	AVRG	
1,3-Dichlorobenzene	1.5120000	1.7003546	1.7003546	0.6	-12.46	50.00	AVRG	
2,2-Dichloropropane	0.7070000	0.6430504	0.6430504	0.1	9.04	50.00	AVRG	
1,1-Dichloropropene	0.4490000	0.4405170	0.4405170	0.1	1.89	50.00	AVRG	
Dibromomethane	0.2100000	0.2363941	0.2363941	0.1	-12.57	50.00	AVRG	
1,2-Dibromoethane	0.3290000	0.3835050	0.3835050	0.1	-16.57	50.00	AVRG	
trans-1,2-Dichloroethene	0.4720000	0.4633437	0.4633437	0.1	1.83	50.00	AVRG	
1,1,1,2-Tetrachloroethane	0.3370000	0.3998511	0.3998511	0.1	-18.65	50.00	AVRG	
1,1,1-Trichloroethane	0.7280000	0.7182957	0.7182957	0.1	1.33	50.00	AVRG	
1,1,2,2-Tetrachloroethane	0.8060000	0.8756105	0.8756105	0.3	-8.64	50.00	AVRG	
1,1,2-Trichloroethane	0.2740000	0.3098466	0.3098466	0.1	-13.08	50.00	AVRG	
1,1-Dichloroethane	0.9180000	0.9069761	0.9069761	0.2	1.20	50.00	AVRG	
1,1-Dichloroethene	0.4240000	0.4081982	0.4081982	0.1	3.73	50.00	AVRG	
Trichloroethene	0.3520000	0.3621335	0.3621335	0.2	-2.88	50.00	AVRG	
1,2,3-Trichlorobenzene	0.3540000	0.3275282	0.3275282	0.1	7.48	50.00	AVRG	
Trichlorofluoromethane	47.636559	50.000000	0.7038928	0.1	4.73	50.00	2RDR	
1,2,4-Trichlorobenzene	0.6260000	0.6268201	0.6268201	0.2	-0.13	50.00	AVRG	
1,2,4-Trimethylbenzene	2.3920000	3.2158601	3.2158601	0.1	-34.44	50.00	AVRG	
Tetrachloroethene	0.3000000	0.3304621	0.3304621	0.2	-10.15	50.00	AVRG	
1,2-Dichlorobenzene	1.4260000	1.5851213	1.5851213	0.4	-11.16	50.00	AVRG	
1,2-Dichloroethane	0.4220000	0.4721514	0.4721514	0.1	-11.88	50.00	AVRG	
1,2-Dichloropropane	0.3510000	0.3727243	0.3727243	0.1	-6.19	50.00	AVRG	
1,3,5-Trimethylbenzene	2.3660000	2.8326954	2.8326954	0.1	-19.72	50.00	AVRG	
1,3-Dichloropropane	0.5580000	0.6343810	0.6343810	0.1	-13.69	50.00	AVRG	
1,4-Dichlorobenzene	1.5400000	1.6916925	1.6916925	0.4	-9.85	50.00	AVRG	
Toluene	1.4620000	2.5523958	2.5523958	0.4	-74.58	50.00	AVRG	<-
2-Butanone	0.1710000	0.1744802	0.1744802	0.1	-2.04	50.00	AVRG	
2-Chlorotoluene	2.1340000	2.3817583	2.3817583	0.1	-11.61	50.00	AVRG	
2-Hexanone	0.1970000	0.2264798	0.2264798	0.1	-14.96	50.00	AVRG	
4-Chlorotoluene	2.4340000	2.7273671	2.7273671	0.1	-12.05	50.00	AVRG	
tert-Butylbenzene	2.0560000	2.2491363	2.2491363	0.1	-9.39	50.00	AVRG	
4-Methyl-2-Pentanone	0.3030000	0.3490647	0.3490647	0.1	-15.20	50.00	AVRG	
Acetone	97.879399	100.00000	0.1226754	0.1	2.12	50.00	LINR	
Benzene	1.2790000	5.0864887	5.0864887	0.5	-297.69	50.00	AVRG	<-
Bromobenzene	0.8560000	1.0254161	1.0254161	0.1	-19.79	50.00	AVRG	
Bromochloromethane	0.2790000	0.2932647	0.2932647	0.1	-5.11	50.00	AVRG	
Bromodichloromethane	0.4270000	0.4819026	0.4819026	0.2	-12.86	50.00	AVRG	
Bromoform	58.047443	50.000000	0.2903698	0.1	-16.09	50.00	LINR	
Bromomethane	71.089113	50.000000	0.4825870	0.1	-42.18	50.00	LINR	
Carbon Disulfide	1.4580000	1.3489785	1.3489785	0.1	7.48	50.00	AVRG	
Carbon Tetrachloride	53.309550	50.000000	0.4144806	0.1	-6.62	50.00	LINR	

FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS1903101

Instrument ID: VOA6 Calibration Date: 03/27/19 Time: 0012

Lab File ID: X032629 Init. Calib. Date(s): 03/14/19 03/14/19

Init. Calib. Times: 1133 1532

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Chlorobenzene	0.9740000	1.0769055	1.0769055	0.5	-10.56	50.00	AVRG
Chloroethane	0.3620000	0.2212552	0.2212552	0.1	38.88	50.00	AVRG
Chloroform	0.8870000	0.9092491	0.9092491	0.2	-2.51	50.00	AVRG
Chloromethane	50.339793	50.000000	0.7010286	0.1	-0.68	50.00	LINR
cis-1,2-Dichloroethene	0.5570000	0.5633411	0.5633411	0.1	-1.14	50.00	AVRG
Dibromochloromethane	0.3560000	0.4184406	0.4184406	0.1	-17.54	50.00	AVRG
Dichlorodifluoromethane	53.779411	50.000000	0.5488851	0.1	-7.56	50.00	LINR
Ethylbenzene	0.4840000	0.6032947	0.6032947	0.1	-24.65	50.00	AVRG
Hexachlorobutadiene	50.377013	50.000000	0.3632293	0.1	-0.75	50.00	2RDR
Isopropylbenzene	1.4440000	1.6325015	1.6325015	0.1	-13.05	50.00	AVRG
m,p-Xylenes	0.6000000	0.8032671	0.8032671	0.1	-33.88	50.00	AVRG
Methylene Chloride	52.382021	50.000000	0.5453984	0.1	-4.76	50.00	LINR
n-Butylbenzene	2.1320000	2.3928985	2.3928985	0.5	-12.24	50.00	AVRG
n-Propylbenzene	3.4790000	3.9243104	3.9243104	0.1	-12.80	50.00	AVRG
Naphthalene	0.9430000	1.0848077	1.0848077	0.2	-15.04	50.00	AVRG
o-Xylene	0.6000000	0.7774397	0.7774397	0.3	-29.57	50.00	AVRG
sec-Butylbenzene	2.8980000	3.1324586	3.1324586	0.1	-8.09	50.00	AVRG
Styrene	0.9940000	1.3233883	1.3233883	0.3	-33.14	50.00	AVRG
Vinyl Chloride	0.6450000	0.6070226	0.6070226	0.1	5.89	50.00	AVRG
1,2,3-Trichloropropane	0.6230000	0.7266449	0.7266449	0.1	-16.64	50.00	AVRG
p-Isopropyltoluene	2.4730000	2.7586858	2.7586858	0.1	-11.55	50.00	AVRG
1,2-Dibromo-3-Chloropropane	9.8e-002	0.1075975	0.1075975	0.05	-9.79	50.00	AVRG
1,2-Dichloroethane-d4	44.850385	50.000000	0.4900092	0.1	10.30	50.00	LINR
Dibromofluoromethane	46.853063	50.000000	0.4582234	0.1	6.29	50.00	LINR
Toluene-d8	52.746250	50.000000	1.3089875	0.1	-5.49	50.00	LINR
4-Bromofluorobenzene	48.960565	50.000000	0.4472065	0.1	2.08	50.00	LINR

FORM VII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS19031013

Lab File ID (Standard): X032602 Date Analyzed: 03/26/19

Instrument ID: VOA6 Time Analyzed: 1302

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS1(CBZ) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(DCB) AREA #	RT #
	12 HOUR STD	551184	7.67	619971	4.97	278091	9.67
	UPPER LIMIT	1102368	8.17	1239942	5.47	556182	10.17
	LOWER LIMIT	275592	7.17	309986	4.47	139046	9.17
	CLIENT SAMPLE NO.						
01	VLCSW-190326	539815	7.67	610344	4.97	267257	9.67
02	VBLKW-190325	578209	7.67	652798	4.97	292434	9.67
03	HS19031013-0	578987	7.67	659945	4.97	293417	9.67
04	HS19031013-0	564464	7.67	652966	4.97	277977	9.67
05	HS19031013-0	616395	7.67	660508	4.97	328254	9.67
06	HS19031013-0	538651	7.67	631108	4.97	253964	9.67
07	HS19031013-0	603457	7.67	647862	4.97	312908	9.67
08	HS19031013-0	575738	7.67	644234	4.97	292307	9.67
09	HS19031013-0	583602	7.67	660833	4.97	298071	9.67
10	HS19031013-0	582207	7.67	662497	4.97	298939	9.67
11	HS19031013-0	601827	7.67	661119	4.97	313253	9.66
12	HS19031013-0	560050	7.67	641824	4.97	281586	9.67
13	HS19031013-0	626015	7.67	673306	4.97	322660	9.67
14							
15							
16							
17							
18							
19							
20							

IS1 (CBZ) = Chlorobenzene-d5
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (DCB) = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS19031013

Lab File ID (Standard): X032602 Date Analyzed: 03/26/19

Instrument ID: VOA6 Time Analyzed: 1302

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS4 AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	425018	4.19				
	UPPER LIMIT	850036	4.69				
	LOWER LIMIT	212509	3.69				
	CLIENT SAMPLE NO.						
01	VLCSW-190326	419667	4.19				
02	VBLKW-190325	452532	4.18				
03	HS19031013-0	453999	4.19				
04	HS19031013-0	453595	4.19				
05	HS19031013-0	444081	4.19				
06	HS19031013-0	433309	4.19				
07	HS19031013-0	438907	4.18				
08	HS19031013-0	439715	4.19				
09	HS19031013-0	461743	4.19				
10	HS19031013-0	456136	4.19				
11	HS19031013-0	452653	4.19				
12	HS19031013-0	443609	4.19				
13	HS19031013-0	464782	4.19				
14							
15							
16							
17							
18							
19							
20							

IS4 = Pentafluorobenzene

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM VIII VOA

Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032601.D

Date : 26-MAR-2019 12:38

Client ID: BFB

Instrument: voa6.i

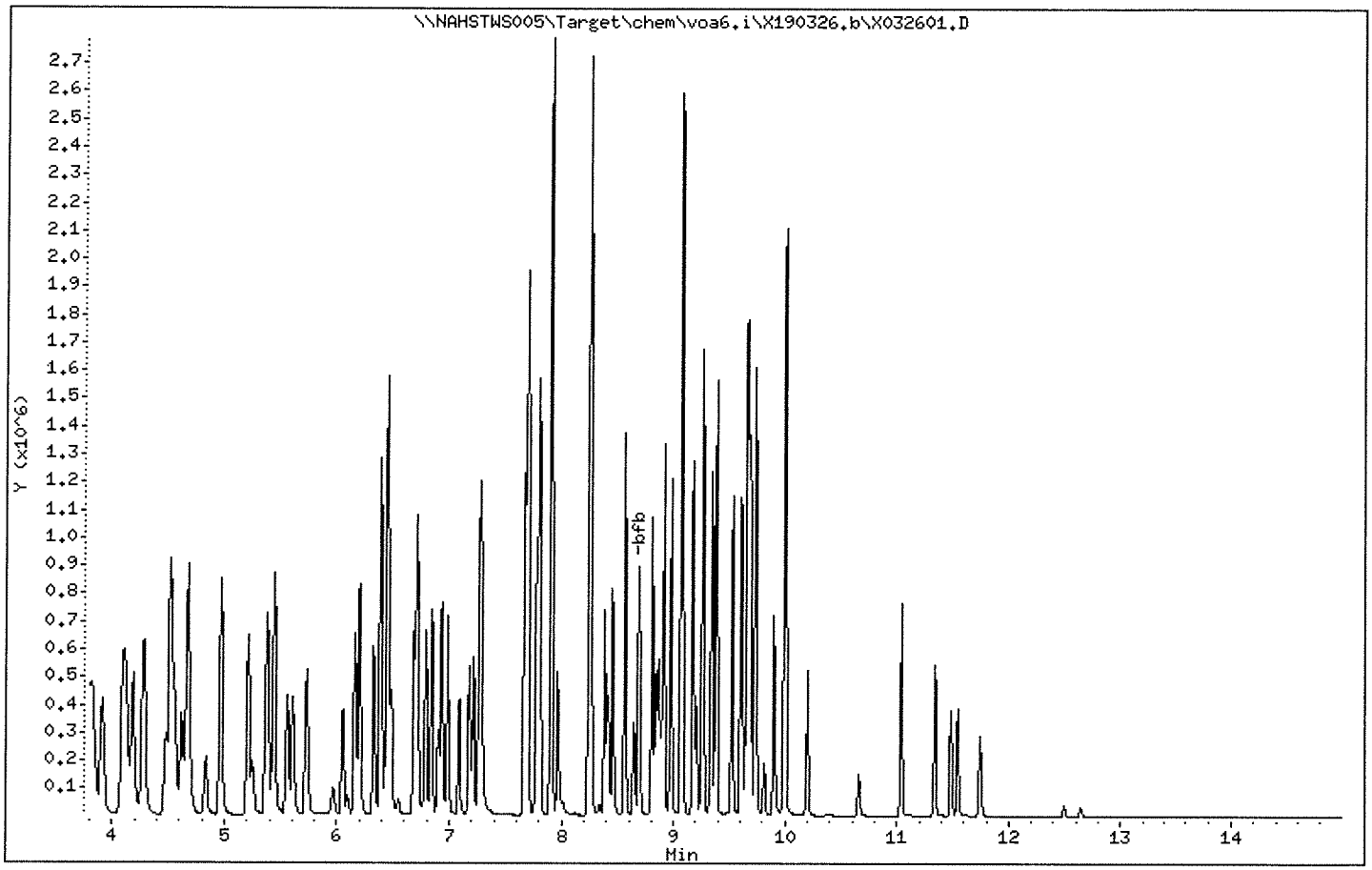
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032601.D

Date : 26-MAR-2019 12:38

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

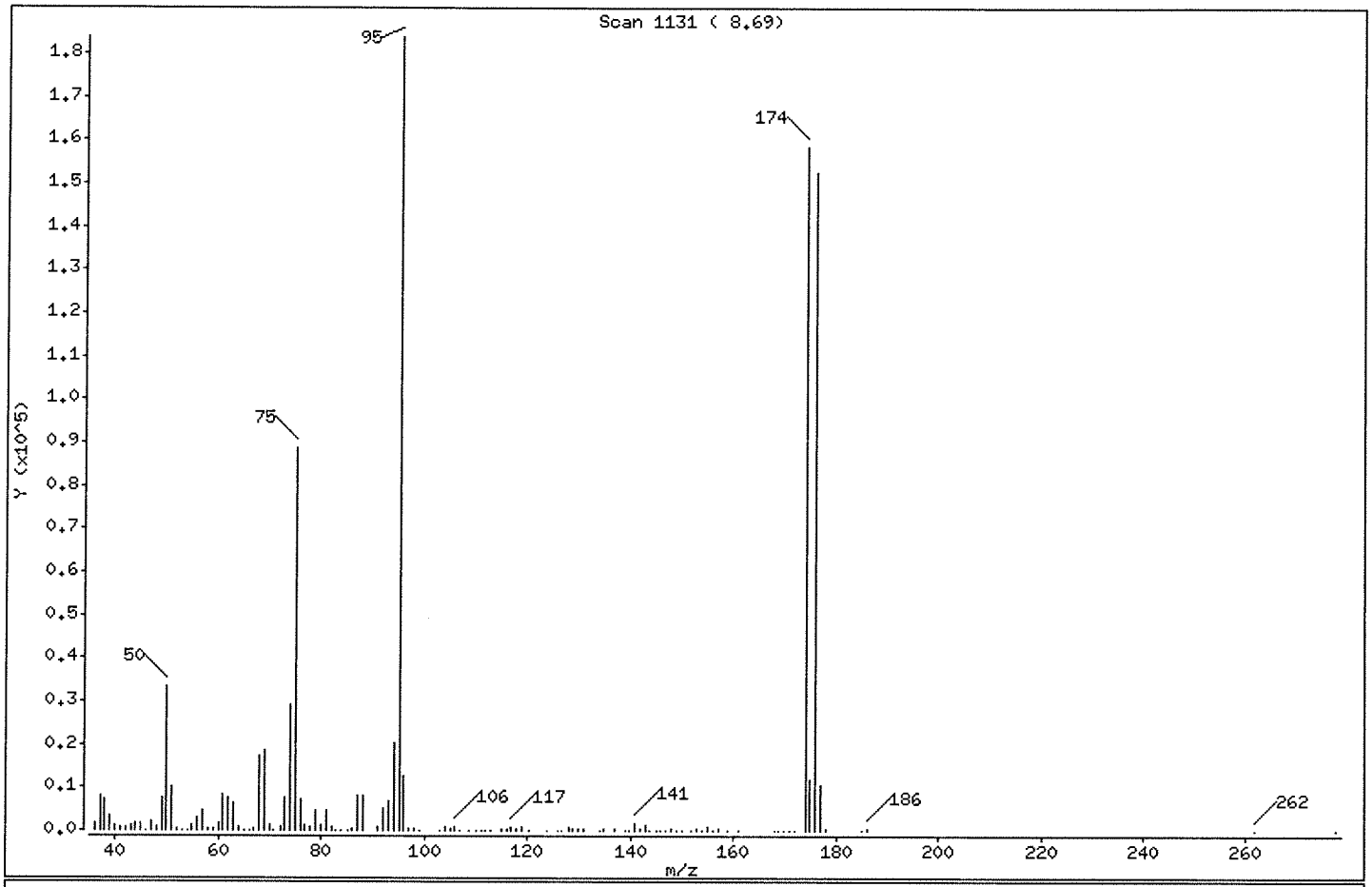
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	18.08
75	30.00 - 60.00% of mass 95	48.35
96	5.00 - 9.00% of mass 95	6.90
173	Less than 2.00% of mass 174	0.00 (0.00)
174	Greater than 50.00% of mass 95	86.17
175	5.00 - 9.00% of mass 174	6.34 (7.36)
176	95.00 - 101.00% of mass 174	82.93 (96.24)
177	5.00 - 9.00% of mass 176	5.67 (6.83)

Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032601.D

Date : 26-MAR-2019 12:38

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

Data File: X032601.D
Spectrum: Scan 1131 (8.69)
Location of Maximum: 95.00
Number of points: 123

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	1696	66.90	496	103.00	115	142.90	1475
37.00	8186	68.00	17384	103.90	734	143.80	158
38.00	7198	69.00	18688	105.00	302	144.90	193
39.00	3173	70.00	1468	105.90	763	145.90	204
40.00	1069	70.90	188	106.90	187	146.80	126
41.10	761	72.00	946	108.70	79	147.80	405
42.00	680	73.00	7575	110.10	99	148.90	135
43.00	1081	74.00	29192	110.90	122	149.90	94
44.00	1556	75.00	88840	111.80	64	151.90	121
45.00	1820	76.00	7005	112.70	99	152.90	225
46.10	162	76.90	1273	113.00	108	153.80	204
47.00	2140	77.90	833	114.90	253	154.90	644
48.00	916	78.90	4542	115.90	595	155.90	50
49.00	7505	80.00	1366	116.80	937	157.00	332
50.00	33224	80.90	4796	117.90	566	158.90	175
51.00	10153	82.00	1005	118.90	870	160.90	141
52.00	389	82.90	172	120.10	86	167.90	56
53.20	165	84.00	166	123.70	114	168.80	71
54.00	59	85.10	110	126.00	57	169.90	138
54.90	1349	86.00	237	126.80	196	170.80	98
56.00	2805	86.90	8034	127.90	680	172.00	86
57.00	4799	87.90	7971	128.90	475	173.90	158336
58.10	281	90.90	645	129.90	610	174.90	11651
59.00	528	92.00	4935	131.00	304	175.90	152384
60.00	1541	93.00	6784	134.00	54	176.90	10412
61.00	8326	94.00	20336	134.70	237	177.90	403
62.00	7772	95.00	183744	136.80	221	185.00	83
63.00	6210	96.00	12670	139.00	93	186.00	443
64.00	661	97.00	334	139.80	120	261.90	55
65.00	167	98.00	428	140.90	1643	277.80	52
66.10	116	99.00	79	141.80	335		

Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032602.D
Report Date: 29-Mar-2019 20:42

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032602.D
Lab Smp Id: CCV Client Smp ID: CCV
Inj Date : 26-MAR-2019 13:02
Operator : PC Inst ID: voa6.i
Smp Info : CCV;CCV;2;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X190326.b\8260W.m
Meth Date : 29-Mar-2019 20:42 voa6.i Quant Type: ISTD
Cal Date : 14-MAR-2019 14:20 Cal File: X031408.D
Als bottle: 2 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.189	4.189	(1.000)	425018	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	619971	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	551184	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	278091	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.103	(0.979)	192222	50.0000	46.24
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	206983	50.0000	44.57
$	48 Toluene-d8	98	6.388	6.388	(0.833)	720406	50.0000	52.66
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	250221	50.0000	49.70
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	214635	50.0000	57.70
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	295604	50.0000	47.72
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	240884	50.0000	53.70
	53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	167955	50.0000	55.57
	22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	376538	50.0000	48.24
	11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	166825	50.0000	46.28
	32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	260309	50.0000	46.70
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	110611	50.0000	56.19
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	199422	50.0000	57.53(M)
	90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	197888	50.0000	56.85
	79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	775193	50.0000	58.27
	89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	31757	50.0000	58.21
	57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	210174	50.0000	57.88
	88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	430756	50.0000	54.32

Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032602.D
Report Date: 29-Mar-2019 20:42

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	272836	50.0000	52.14
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	224700	50.0000	51.58
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	739022	50.0000	56.15
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	459010	50.0000	54.57
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	344007	50.0000	55.91
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	464386	50.0000	54.20
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	295852	50.0000	49.24
24	2-Butanone	43	3.580	3.580	(0.855)	154662	100.000	106.23
76	2-Chlorotoluene	91	8.974	8.974	(0.928)	626972	50.0000	52.81
52	2-Hexanone	43	7.090	7.090	(0.924)	247689	100.000	113.98
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	732949	50.0000	54.14
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	764809	50.0000	55.60
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	370142	100.000	110.65
10	Acetone	43	1.976	1.976	(0.472)	105939	100.000	99.51
37	Benzene	78	4.519	4.519	(0.909)	840571	50.0000	53.01
74	Bromobenzene	156	8.809	8.809	(0.911)	271910	50.0000	57.13
29	Bromochloromethane	128	3.803	3.803	(0.908)	119582	50.0000	50.34
39	Bromodichloromethane	83	5.729	5.729	(1.153)	297600	50.0000	56.26
66	Bromoform	173	8.416	8.416	(1.097)	163753	50.0000	59.36
6	Bromomethane	94	1.338	1.338	(0.320)	145486	50.0000	50.48
19	Carbon Disulfide	76	2.069	2.069	(0.494)	1119546	100.000	90.29
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	248639	50.0000	51.63
59	Chlorobenzene	112	7.699	7.699	(1.004)	574898	50.0000	53.52
7	Chloroethane	64	1.403	1.403	(0.335)	141556	50.0000	45.97
28	Chloroform	83	3.910	3.910	(0.933)	375685	50.0000	49.83
3	Chloromethane	50	1.081	1.081	(0.258)	301979	50.0000	51.04
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	232266	50.0000	49.03
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	374550	50.0000	53.67
55	Dibromochloromethane	129	7.176	7.176	(0.936)	227351	50.0000	58.01
44	Dibromomethane	93	5.557	5.557	(1.118)	143930	50.0000	55.17
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	234489	50.0000	54.04
61	Ethylbenzene	106	7.799	7.799	(1.017)	298007	50.0000	55.88
91	Hexachlorobutadiene	225	11.488	11.488	(1.188)	114559	50.0000	56.82
67	Isopropylbenzene	105	8.566	8.566	(1.117)	870871	50.0000	54.72
62	m,p-Xylenes	106	7.907	7.907	(1.031)	727643	100.000	110.08
17	Methylene Chloride	84	2.305	2.305	(0.550)	224271	50.0000	50.67
87	n-Butylbenzene	91	9.999	9.999	(1.034)	676543	50.0000	57.03
73	n-Propylbenzene	91	8.917	8.917	(0.922)	1043743	50.0000	53.94
92	Naphthalene	128	11.546	11.546	(1.194)	303462	50.0000	57.86
63	o-Xylene	106	8.244	8.244	(1.075)	359327	50.0000	54.33
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	857364	50.0000	53.19
64	Styrene	104	8.258	8.258	(1.077)	641036	50.0000	58.47
78	tert-Butylbenzene	119	9.340	9.340	(0.966)	607421	50.0000	53.12
56	Tetrachloroethene	164	6.933	6.933	(0.904)	178839	50.0000	53.99
50	Toluene	91	6.446	6.446	(0.840)	889451	50.0000	55.18
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	193128	50.0000	48.14
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	327868	50.0000	58.29
38	Trichloroethene	130	5.214	5.214	(1.049)	218993	50.0000	50.19
8	Trichlorofluoromethane	101	1.560	1.560	(0.373)	295185	50.0000	47.02
5	Vinyl Chloride	62	1.145	1.145	(0.273)	254183	50.0000	46.33

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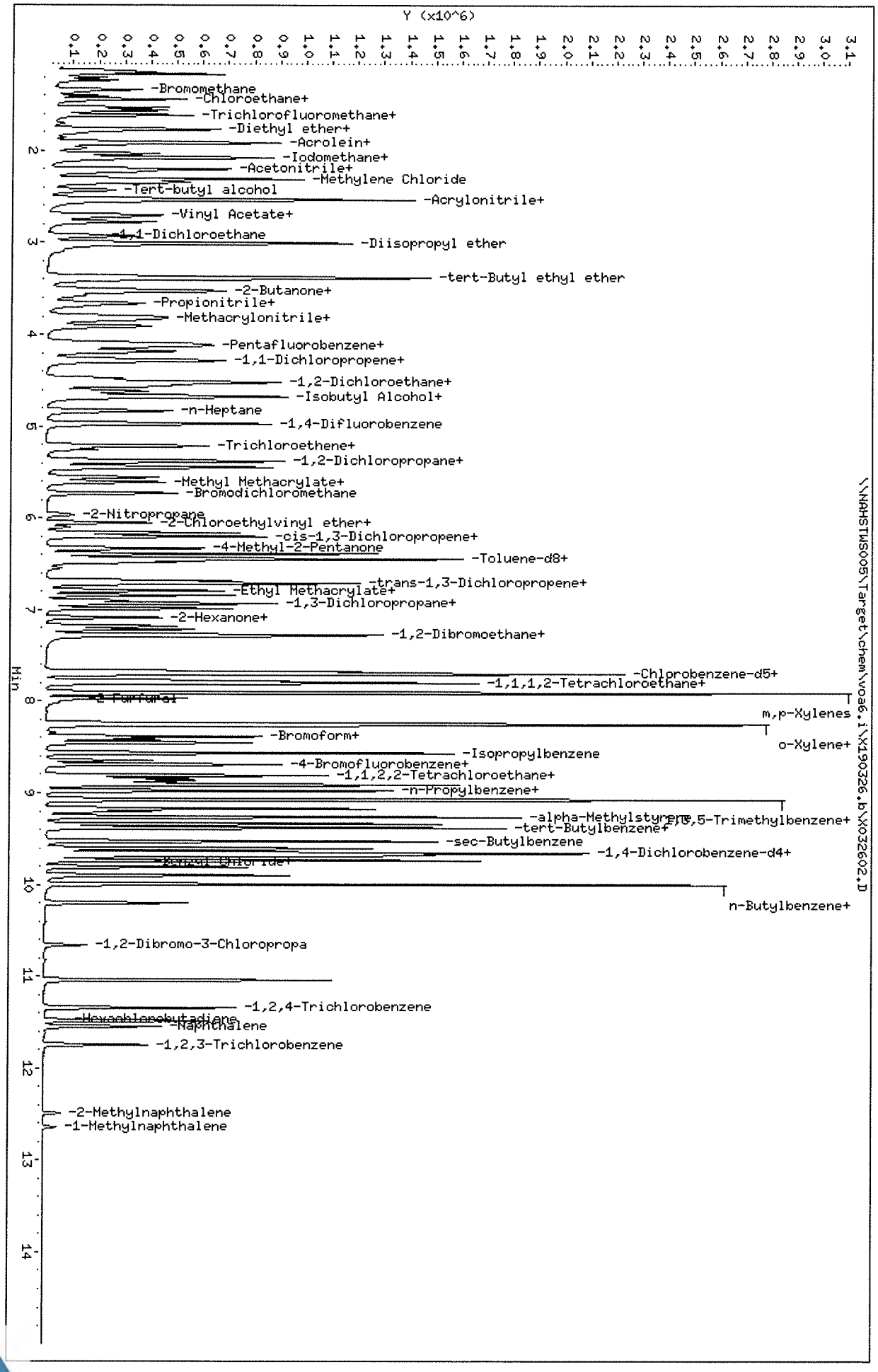
Report Date: 29-Mar-2019 20:42

QC Flag Legend

M - Compound response manually integrated.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Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
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Y (x10^6)
Min
-Bromomethane
-Chloroethane+
-Trichlorofluoromethane+
-Diethyl ether+
-Acrolein+
-Iodomethane+
-Acetonitrile+
-Methylene Chloride
-Tert-butyl alcohol
-Acrylonitrile+
-Vinyl Acetate+
-1,1-Dichloroethane
-Diisopropyl ether
-tert-Butyl ethyl ether
-2-Butanone+
-Propionitrile+
-Methacrylonitrile+
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-Isobutyl Alcohol+
-n-Heptane
-1,4-Difluorobenzene
-Trichloroethene+
-1,2-Dichloropropane+
-Methyl Methacrylate+
-Bromodichloromethane
-2-Nitropropane
-2-Chloroethylvinyl ether+
-cis-1,3-Dichloropropene+
-4-Methyl-2-Pentanone
-Toluene-d8+
-trans-1,3-Dichloropropene+
-Ethyl Methacrylate+
-1,3-Dichloropropane+
-2-Hexanone+
-1,2-Dibromoethane+
-Chlorobenzene-d5+
-1,1,1,2-Tetrachloroethane+
-2-Furfural
m,p-Xylenes
o-Xylene+
-Bromoform+
-Isopropylbenzene
-4-Bromofluorobenzene+
-1,1,2,2-Tetrachloroethane+
-n-Propylbenzene+
-alpha-Methylstyrene
-1,3,5-Trimethylbenzene+
-tert-Butylbenzene+
-sec-Butylbenzene
-1,4-Dichlorobenzene-d4+
-Benzyl Chloride+
n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Hexachlorobutadiene
-Naphthalene
-1,2,3-Trichlorobenzene
-2-Methylnaphthalene
-1-Methylnaphthalene

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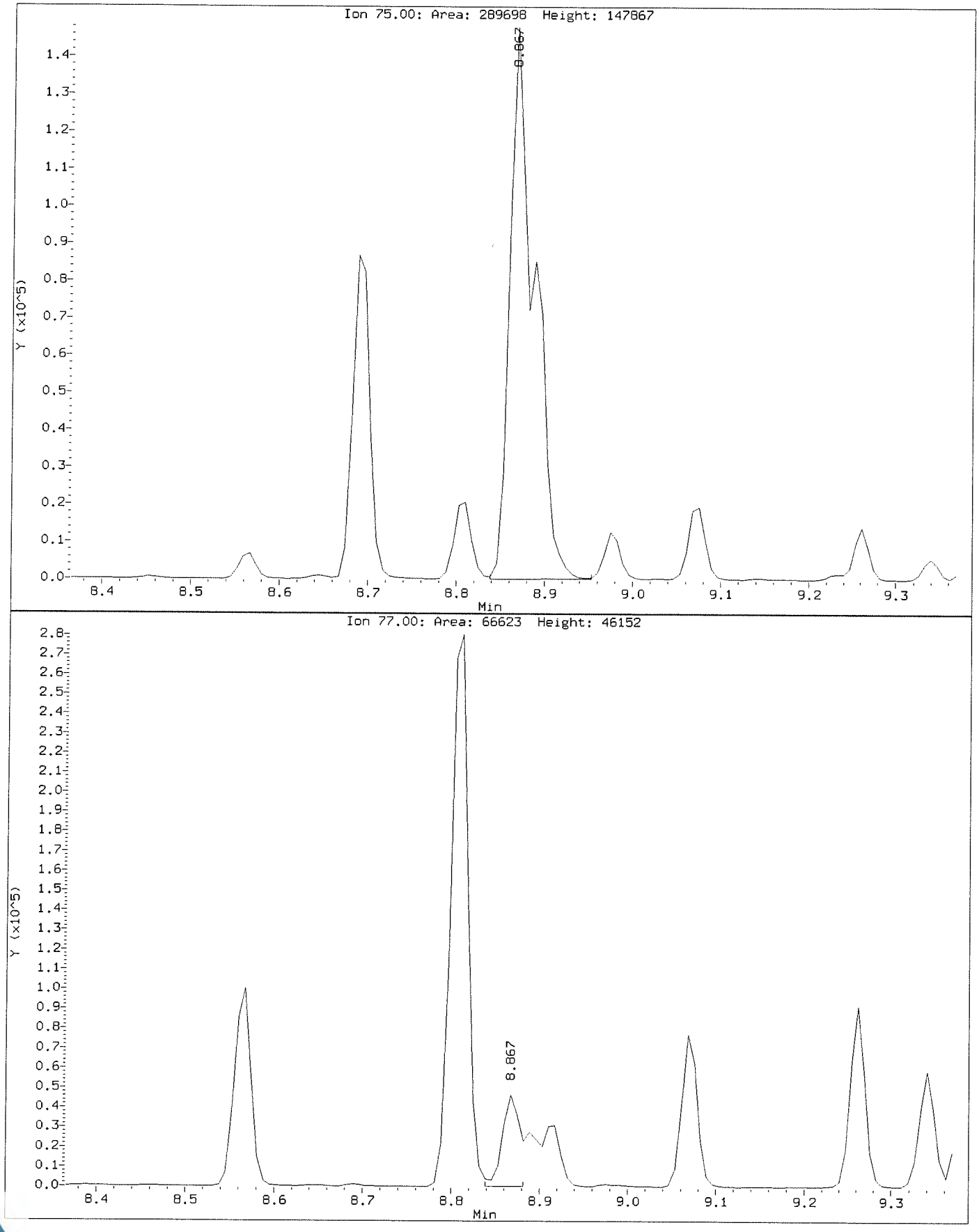
Injection Date: 26-MAR-2019 13:02
Instrument: voa6.i
Client Sample ID: CCV

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



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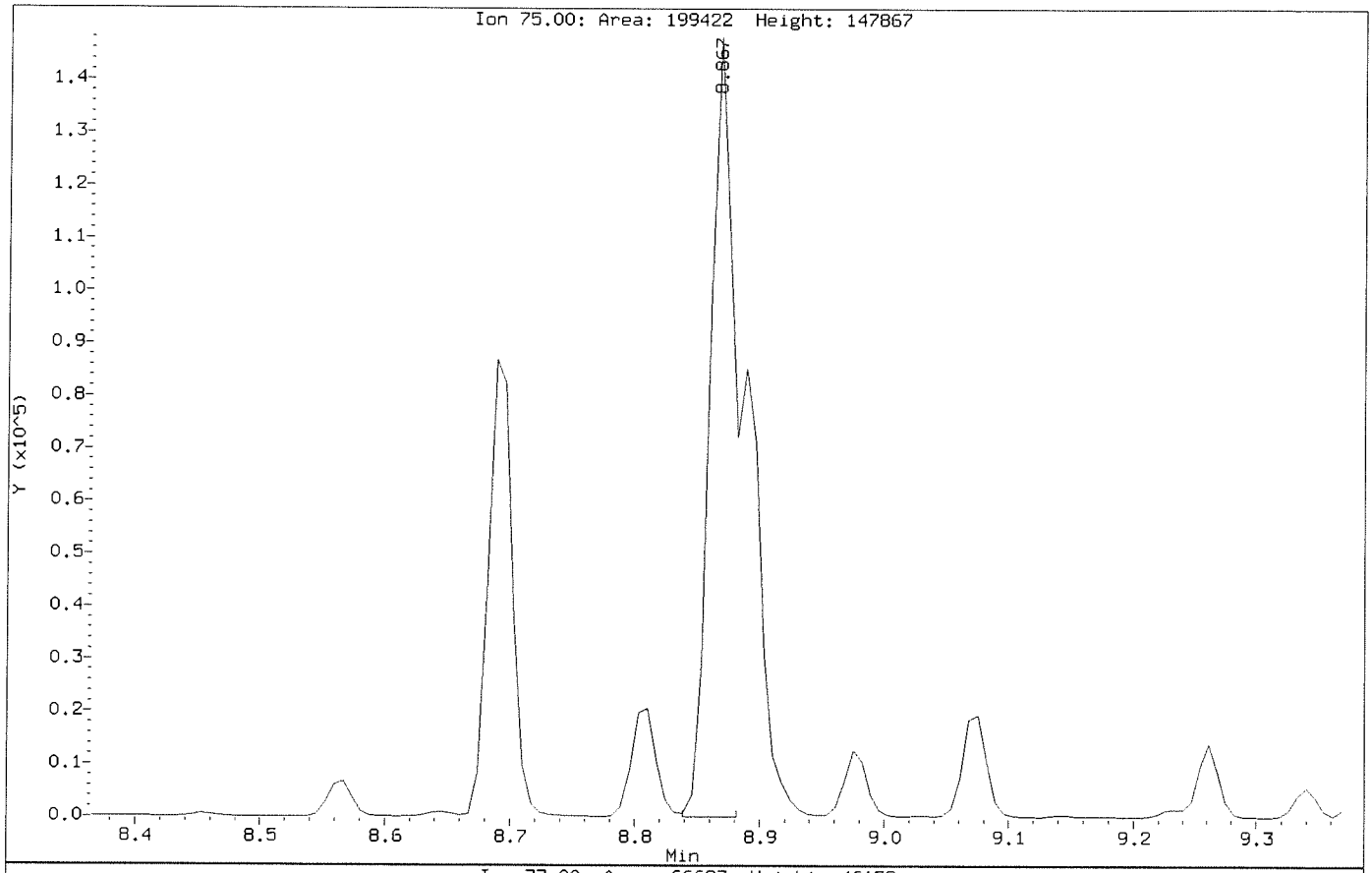
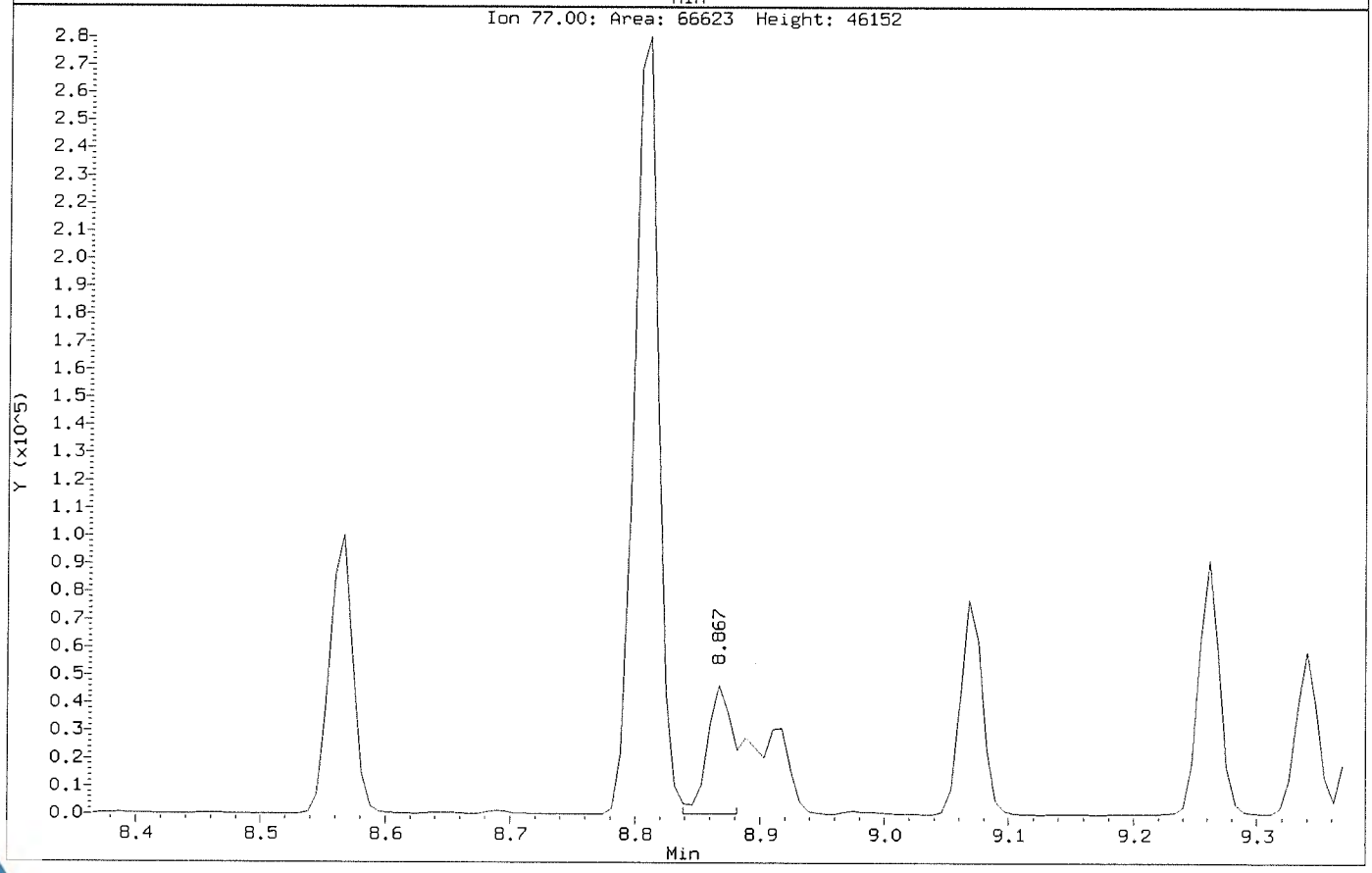
Injection Date: 26-MAR-2019 13:02
Instrument: voa6.i
Client Sample ID: CCV

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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Report Date: 29-Mar-2019 20:42

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032603.D
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Inj Date : 26-MAR-2019 13:26
Operator : PC Inst ID: voa6.i
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Misc Info : HS18090001;WATER;0;1;
Comment :
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Meth Date : 29-Mar-2019 20:42 voa6.i Quant Type: ISTD
Cal Date : 14-MAR-2019 14:20 Cal File: X031408.D
Als bottle: 2 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	419667	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	610344	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	539815	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	267257	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	189365	46.1365	46.13
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	206682	45.0786	45.07
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	709069	52.9304	52.93
$ 69 4-Bromofluorobenzene	95	8.695	8.688	(1.134)	243187	49.3238	49.32
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	215590	59.1788	59.17
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	305211	49.9072	49.90
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	243564	56.5063	56.50
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	168004	56.7578	56.75
22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	376262	48.8220	48.82
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	174279	48.9650	48.96
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	275705	50.2474	50.24
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	118003	62.3773	62.37
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	200396	60.1587	60.15(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	207644	62.0815	62.08
79 1,2,4-Trimethylbenzene	105	9.382	9.383	(0.970)	793273	62.0501	62.05
89 1,2-Dibromo-3-Chloropropane	155	10.657	10.658	(1.102)	31901	60.8465	60.84
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	211241	59.4063	59.40
88 1,2-Dichlorobenzene	146	9.998	9.999	(1.034)	435376	57.1286	57.12

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Report Date: 29-Mar-2019 20:42

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	275942	53.5740	53.57
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	224529	52.3551	52.35
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	765892	60.5545	60.55
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	467175	57.8014	57.80
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	344016	57.0991	57.09
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	468144	56.8547	56.85
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	303849	51.2229	51.22
24	2-Butanone	43	3.580	3.580	(0.855)	157762	109.749	109.74
76	2-Chlorotoluene	91	8.974	8.974	(0.928)	638879	56.0003	56.00
52	2-Hexanone	43	7.090	7.090	(0.924)	249228	117.113	117.11
77	4-Chlorotoluene	91	9.074	9.075	(0.939)	746265	57.3641	57.36
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	798776	60.4308	60.43
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	379538	115.850	115.84
10	Acetone	43	1.976	1.976	(0.472)	109571	104.457	104.45
37	Benzene	78	4.519	4.519	(0.909)	847550	54.2955	54.29
74	Bromobenzene	156	8.809	8.809	(0.911)	272717	59.6242	59.62
29	Bromochloromethane	128	3.802	3.803	(0.908)	121290	51.7203	51.72
39	Bromodichloromethane	83	5.729	5.729	(1.153)	294179	56.4956	56.49
66	Bromoform	173	8.415	8.416	(1.097)	163449	60.4897	60.48
6	Bromomethane	94	1.338	1.338	(0.320)	150171	52.7680	52.76
19	Carbon Disulfide	76	2.069	2.069	(0.494)	1158180	94.6028	94.60
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	263550	55.4633	55.46
59	Chlorobenzene	112	7.699	7.699	(1.004)	574764	54.6420	54.64
7	Chloroethane	64	1.403	1.403	(0.335)	145768	47.9445	47.94
28	Chloroform	83	3.910	3.910	(0.933)	375742	50.4782	50.47
3	Chloromethane	50	1.081	1.081	(0.258)	302422	51.7873	51.78
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	233937	50.0183	50.01
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	369981	53.8515	53.85
55	Dibromochloromethane	129	7.176	7.176	(0.936)	228848	59.6290	59.62
44	Dibromomethane	93	5.557	5.557	(1.118)	143114	55.7238	55.72
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	255458	59.4396	59.43
61	Ethylbenzene	106	7.799	7.799	(1.017)	306004	58.5981	58.59
91	Hexachlorobutadiene	225	11.488	11.488	(1.188)	120663	62.0329	62.03
67	Isopropylbenzene	105	8.566	8.566	(1.117)	906568	58.1666	58.16
62	m,p-Xylenes	106	7.907	7.907	(1.031)	741412	114.531	114.53
17	Methylene Chloride	84	2.305	2.305	(0.550)	221444	50.6778	50.67
87	n-Butylbenzene	91	9.998	9.999	(1.034)	713534	62.5962	62.59
73	n-Propylbenzene	91	8.917	8.917	(0.922)	1091024	58.6725	58.67
92	Naphthalene	128	11.546	11.546	(1.194)	319893	63.4756	63.47
63	o-Xylene	106	8.244	8.244	(1.075)	362723	56.0076	56.00
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	898577	58.0096	58.00
64	Styrene	104	8.258	8.258	(1.077)	638718	59.4930	59.49
78	tert-Butylbenzene	119	9.339	9.340	(0.966)	630715	57.3943	57.39
56	Tetrachloroethene	164	6.933	6.933	(0.904)	187955	57.9418	57.94
50	Toluene	91	6.446	6.446	(0.840)	903141	57.2122	57.21
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	195026	49.2397	49.23
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	324279	58.5624	58.56
38	Trichloroethene	130	5.214	5.214	(1.049)	222904	51.9000	51.90
8	Trichlorofluoromethane	101	1.560	1.560	(0.373)	310417	49.9868	49.98
5	Vinyl Chloride	62	1.145	1.145	(0.273)	263592	48.6623	48.66

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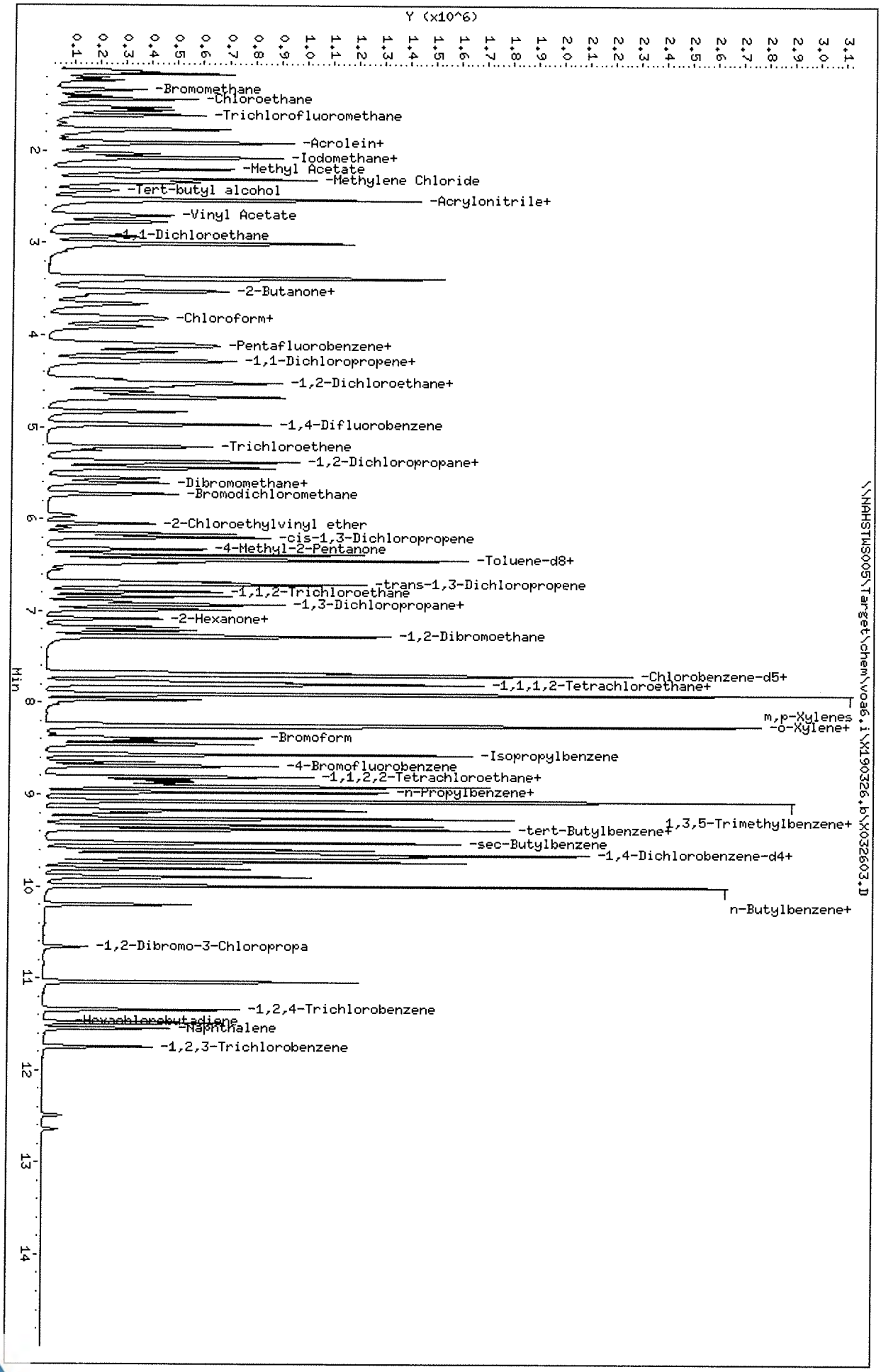
QC Flag Legend

M - Compound response manually integrated.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Min
1 2 3 4 5 6 7 8 9 10 11 12 13 14
-Bromomethane
-Chloroethane
-Trichlorofluoromethane
-Acrolein+
-Iodomethane+
-Methyl Acetate
-Methylene Chloride
-Tert-butyl alcohol
-Acrylonitrile+
-Vinyl Acetate
-1,1-Dichloroethane
-2-Butanone+
-Chloroform+
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-1,4-Difluorobenzene
-Trichloroethene
-1,2-Dichloropropane+
-Dibromomethane+
-Bromodichloromethane
-2-Chloroethylvinyl ether
-cis-1,3-Dichloropropene
-4-Methyl-2-Pentanone
-Toluene-d8+
-trans-1,3-Dichloropropene
-1,1,2-Trichloroethane
-1,3-Dichloropropane+
-2-Hexanone+
-1,2-Dibromoethane
-Chlorobenzene-d5+
-1,1,1,2-Tetrachloroethane+
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-o-Xylene+
-Bromoform
-Isopropylbenzene
-4-Bromofluorobenzene
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-n-Propylbenzene+
1,3,5-Trimethylbenzene+
-tert-Butylbenzene+
-sec-Butylbenzene
-1,4-Dichlorobenzene-d4+
n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
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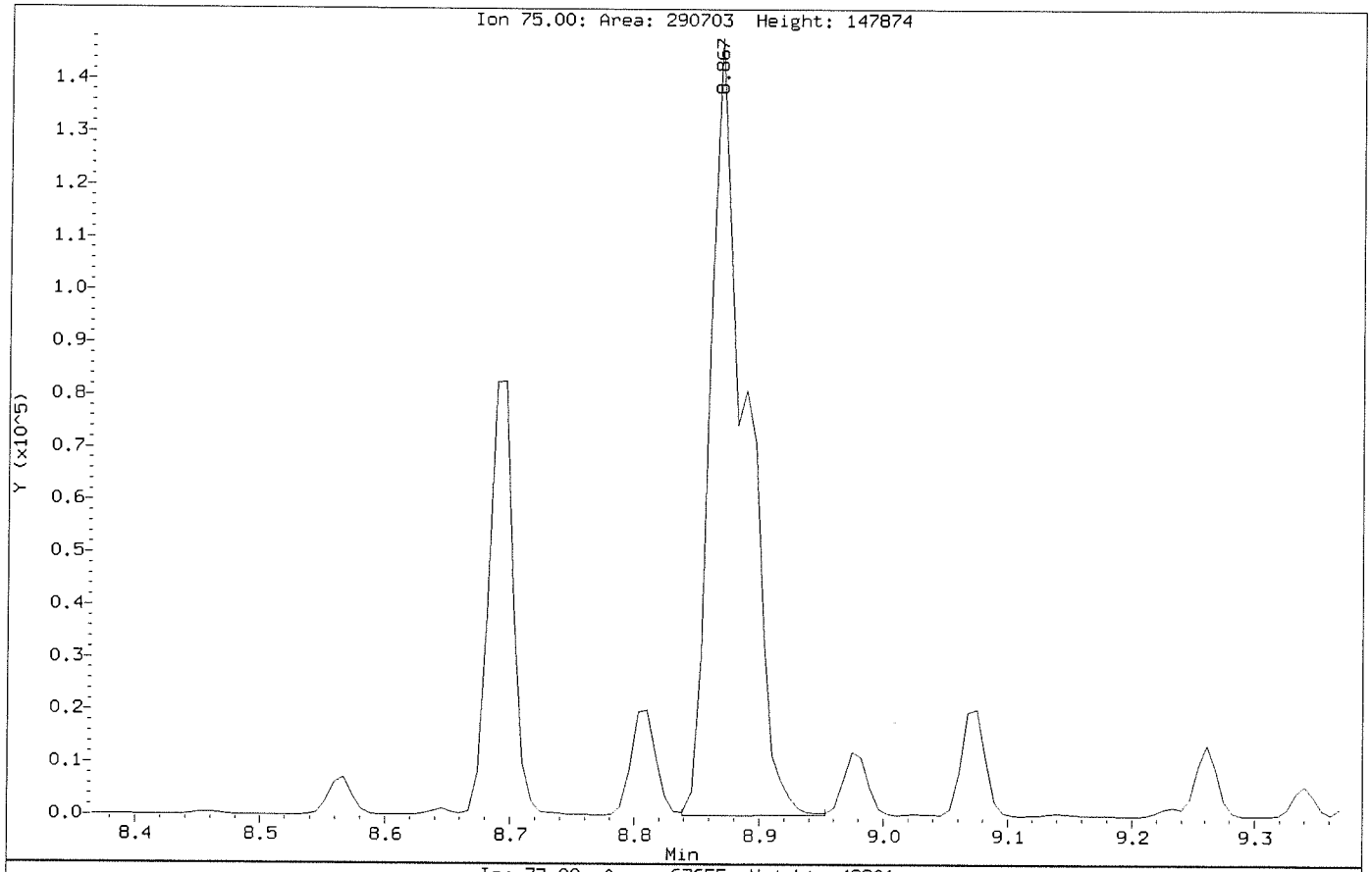
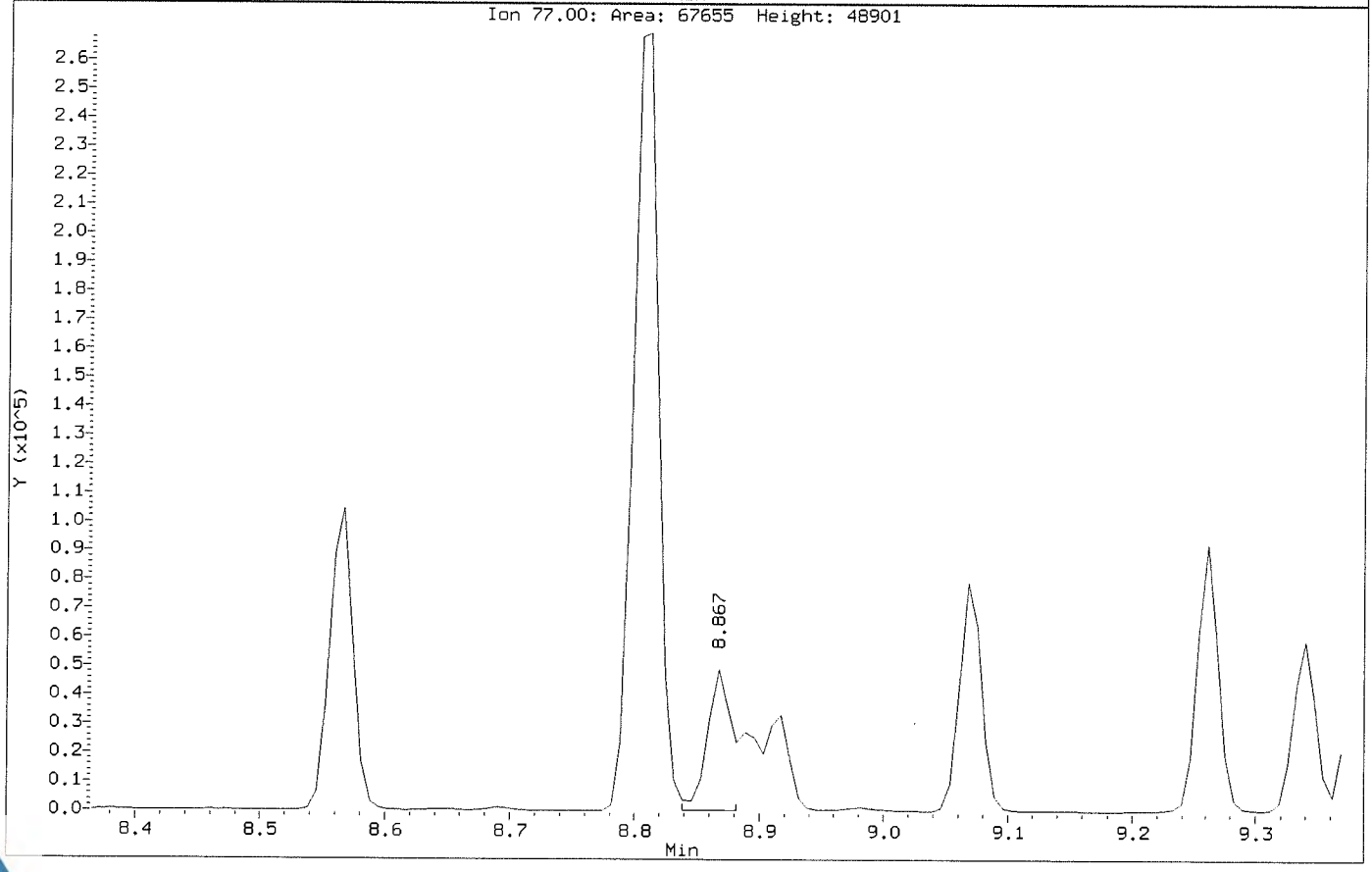
Client Sample ID: VLCSW-190326

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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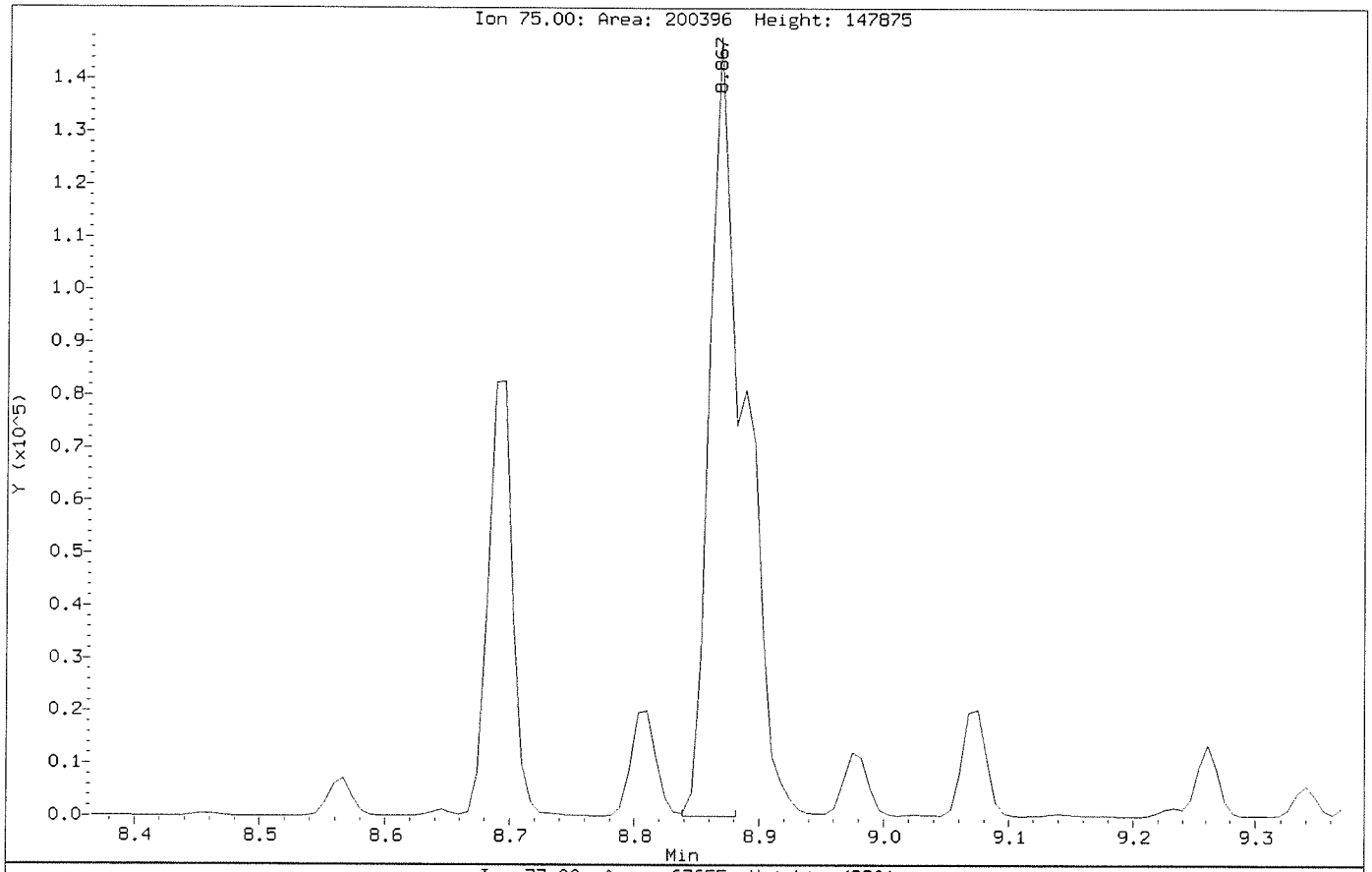
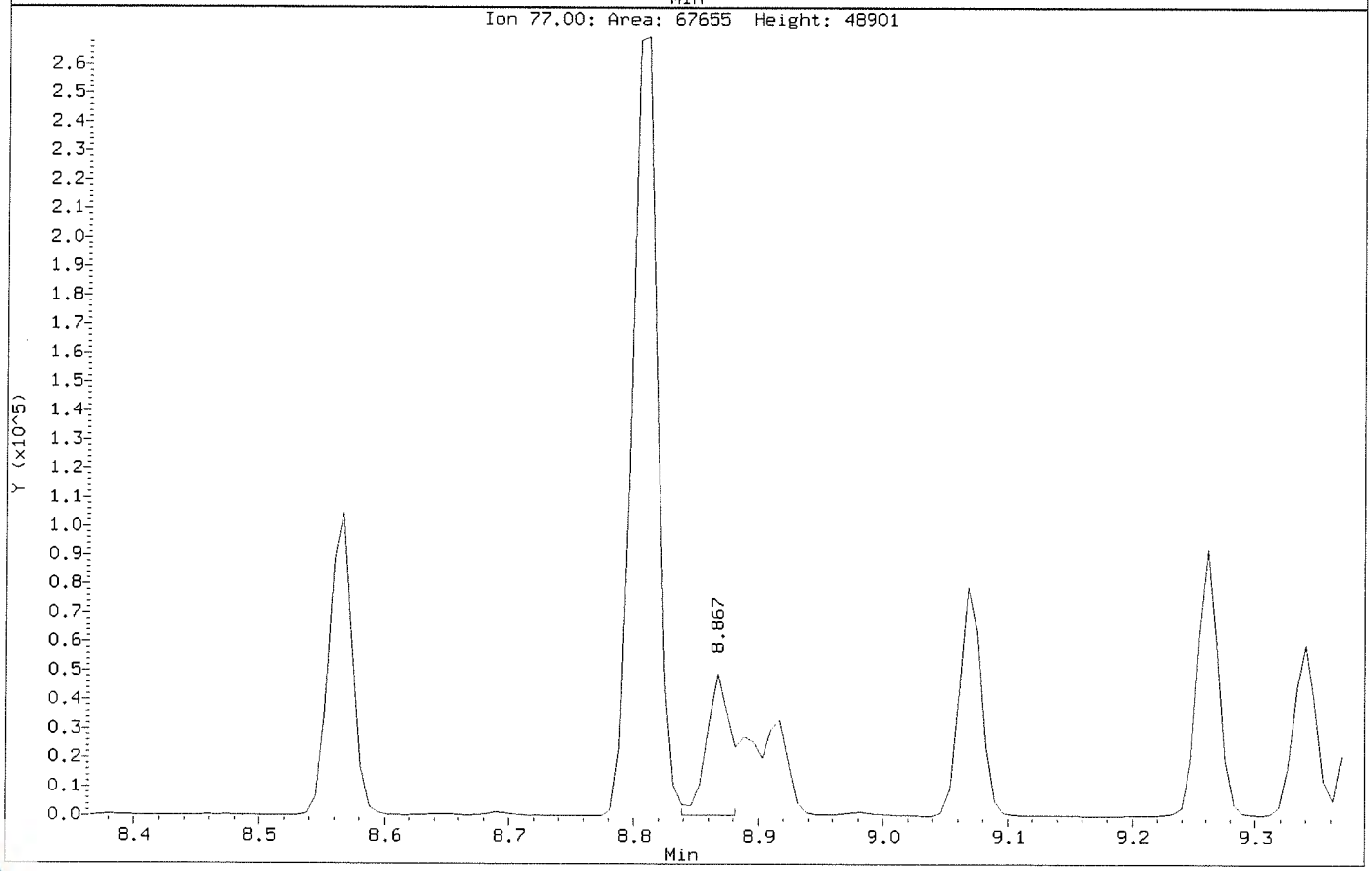
Injection Date: 26-MAR-2019 13:26
Instrument: voa6.i
Client Sample ID: VLCSW-190326

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032607.D
Report Date: 29-Mar-2019 20:42

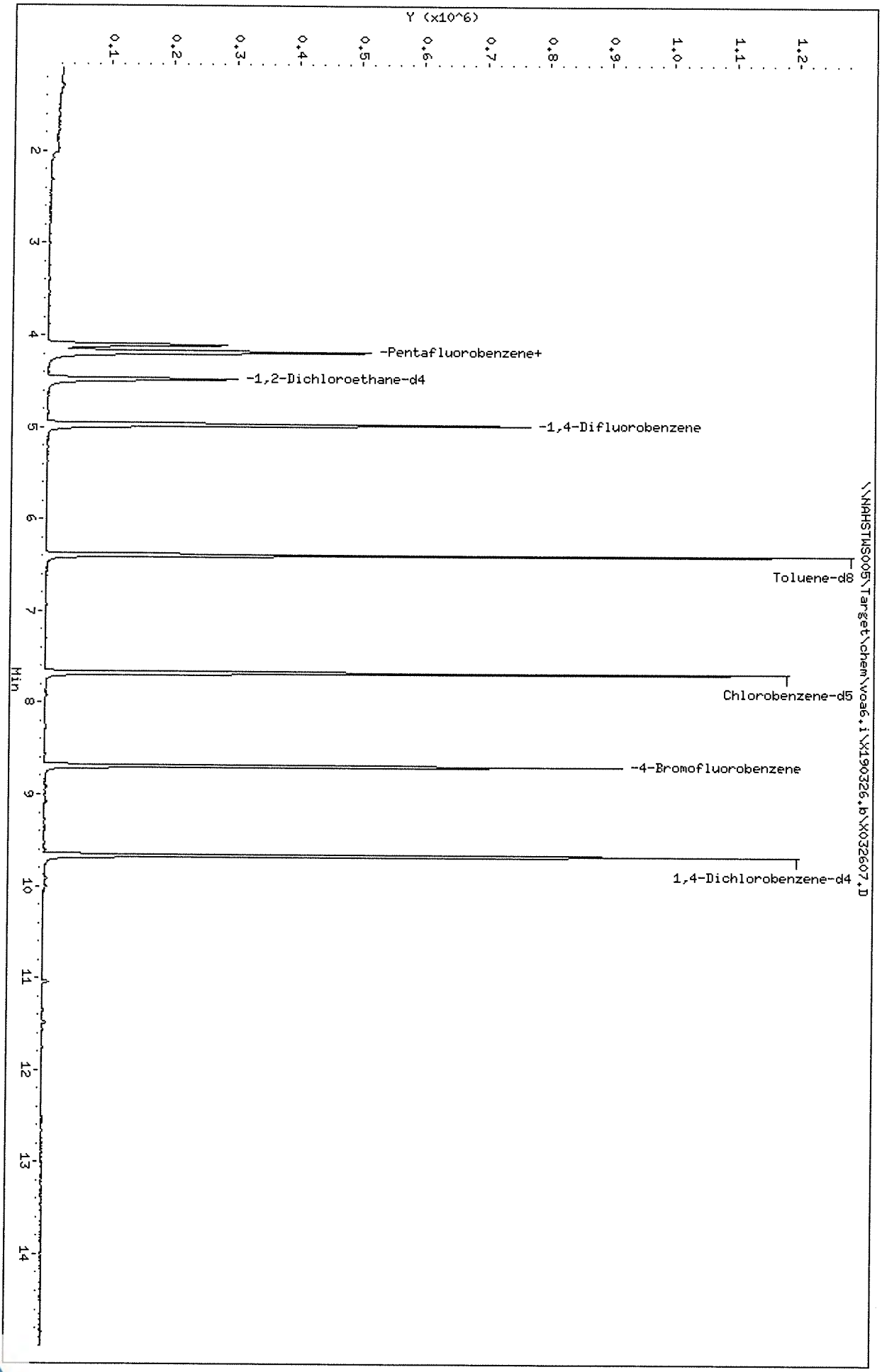
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032607.D
Lab Smp Id: VBLKW-190325 Client Smp ID: VBLKW-190325
Inj Date : 26-MAR-2019 15:03
Operator : PC Inst ID: voa6.i
Smp Info : VBLKW-190325;VBLKW-190325;3;;BLANK
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X190326.b\8260W.m
Meth Date : 29-Mar-2019 20:42 voa6.i Quant Type: ISTD
Cal Date : 14-MAR-2019 14:20 Cal File: X031408.D
Als bottle: 6 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.189	(1.000)	452532	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	652798	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	578209	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	292434	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	200557	45.3132	45.31
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	222933	45.0919	45.09
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	760299	52.9863	52.98
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	258222	48.8925	48.89


Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032607.D
Date : 26-MAR-2019 15:03
Client ID: VBLKW-190325
Sample Info: VBLKW-190325;VBLKW-190325;3;;BLANK
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
Y (x10^6)
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
Min
2
3
4
5
6
7
8
9
10
11
12
13
14
-Pentafluorobenzene+
-1,2-Dichloroethane-d4
-1,4-Difluorobenzene
Toluene-d8
Chlorobenzene-d5
-4-Bromofluorobenzene
1,4-Dichlorobenzene-d4
\\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032607.D

Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032608.D
Report Date: 29-Mar-2019 20:42

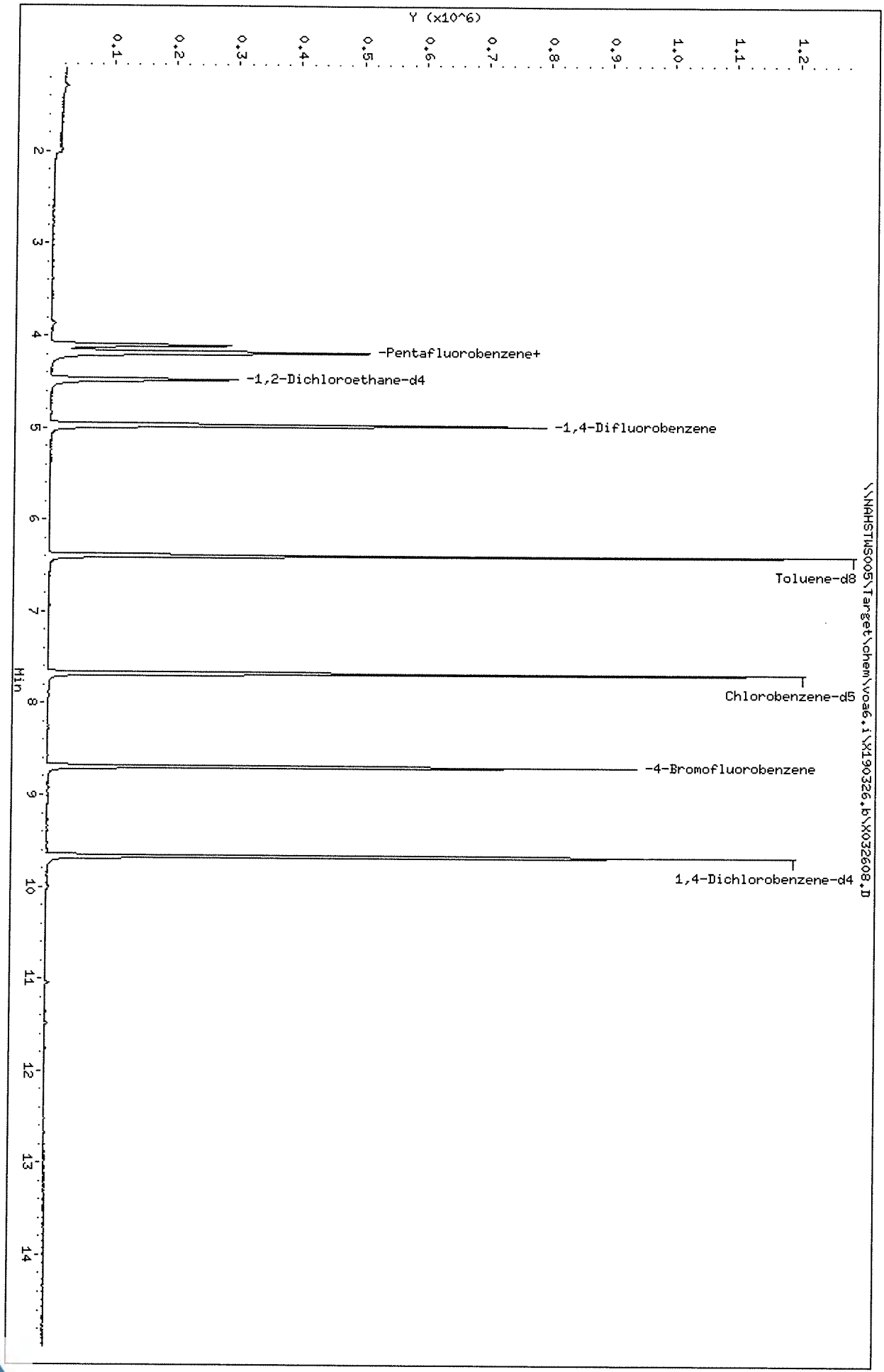
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032608.D
Lab Smp Id: HS19031013-08 Client Smp ID: HS19031013-08
Inj Date : 26-MAR-2019 15:27
Operator : PC Inst ID: voa6.i
Smp Info : HS19031013-08;HS19031013-08;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X190326.b\8260W.m
Meth Date : 29-Mar-2019 20:42 voa6.i Quant Type: ISTD
Cal Date : 14-MAR-2019 14:20 Cal File: X031408.D
Als bottle: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	453999	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	659945	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	578987	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	293417	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	202069	45.5076	45.50
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	224457	45.2543	45.25
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	765223	53.2588	53.25
$ 69 4-Bromofluorobenzene	95	8.695	8.688	(1.134)	262378	49.6179	49.61


Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032608.D
Date : 26-MAR-2019 15:27
Client ID: HS19031013-08
Sample Info: HS19031013-08;HS19031013-08;;;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
Y (x10^6)
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
2
3
4
5
6
7
8
9
10
11
12
13
14
Min
-Pentafluorobenzene+
-1,2-Dichloroethane-d4
-1,4-Difluorobenzene
Toluene-d8
Chlorobenzene-d5
-4-Bromofluorobenzene
1,4-Dichlorobenzene-d4
\\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032608.D

Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032610.D
Report Date: 29-Mar-2019 20:42

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032610.D
Lab Smp Id: HS19031013-01 Client Smp ID: HS19031013-01
Inj Date : 26-MAR-2019 16:15
Operator : PC Inst ID: voa6.i
Smp Info : HS19031013-01;HS19031013-01;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X190326.b\8260W.m
Meth Date : 29-Mar-2019 20:42 voa6.i Quant Type: ISTD
Cal Date : 14-MAR-2019 14:20 Cal File: X031408.D
Als bottle: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7087

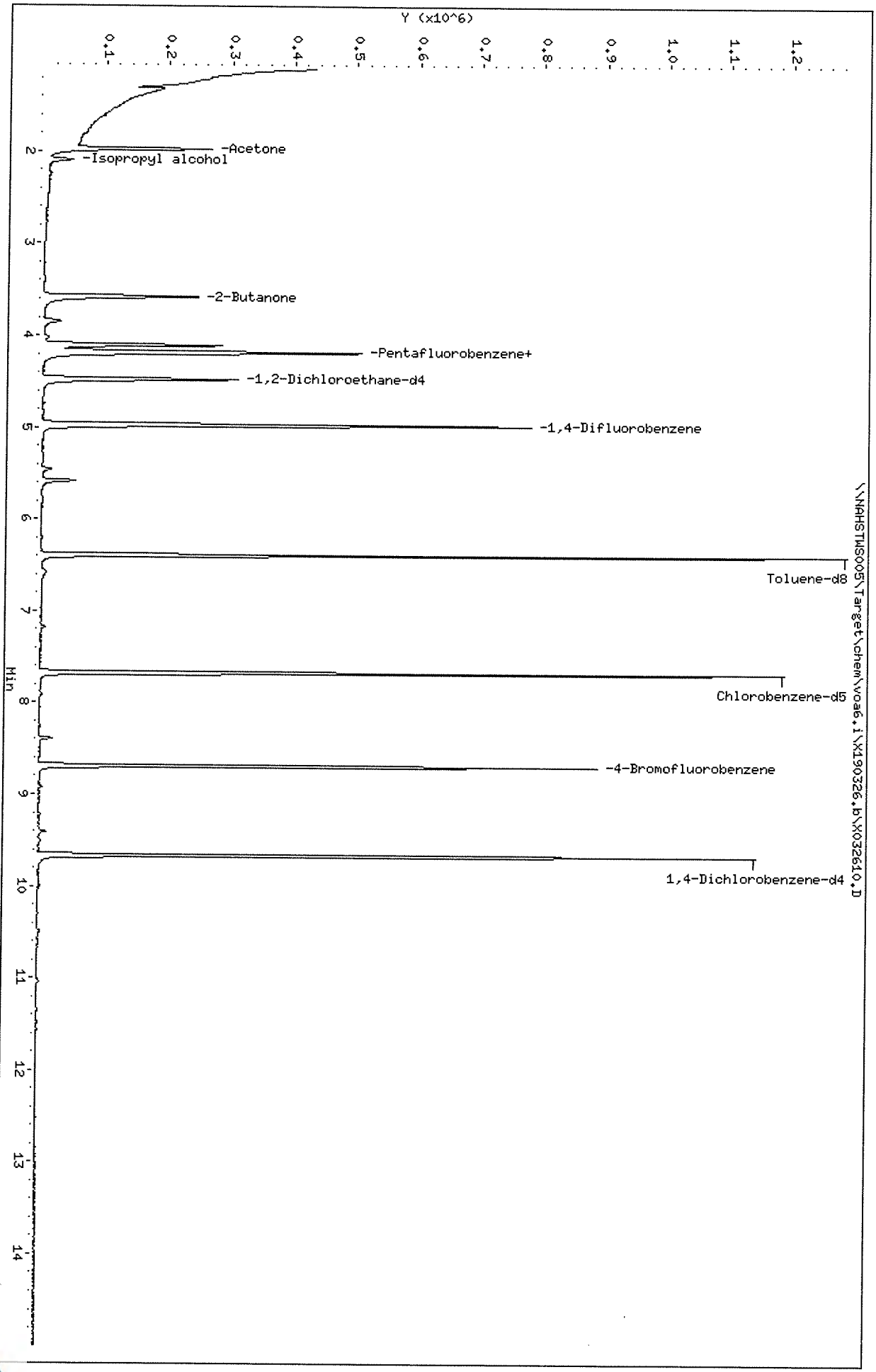
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	453595	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	652966	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	564464	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	277977	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	202309	45.6024	45.60
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	231925	46.8094	46.80
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	760185	54.2733	54.27
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	250185	48.5216	48.52
24 2-Butanone	43	3.573	3.580	(0.853)	373922	240.667	240.66(A)
10 Acetone	43	1.976	1.976	(0.472)	281870	255.040	255.04(A)

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.



Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032610.D
Date : 26-MAR-2019 16:15
Client ID: HS19031013-01
Sample Info: HS19031013-01;HS19031013-01;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032610.D

Date : 26-MAR-2019 16:15

Client ID: HS19031013-01

Instrument: voa6.i

Sample Info: HS19031013-01;HS19031013-01;;;

Purge Volume: 5.0

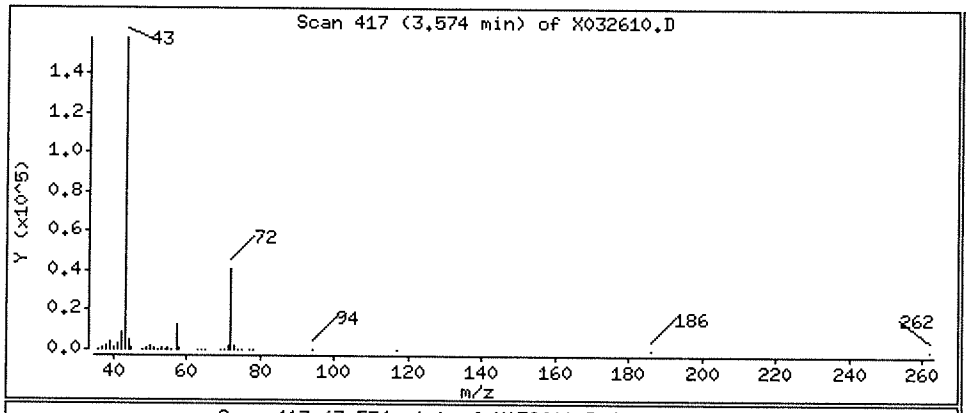
Operator: PC

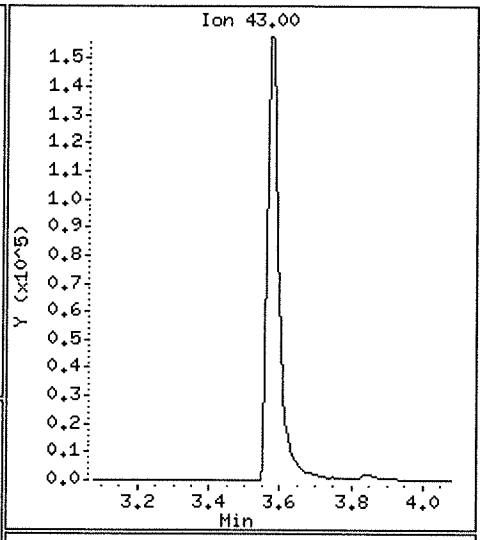
Column phase: DB624

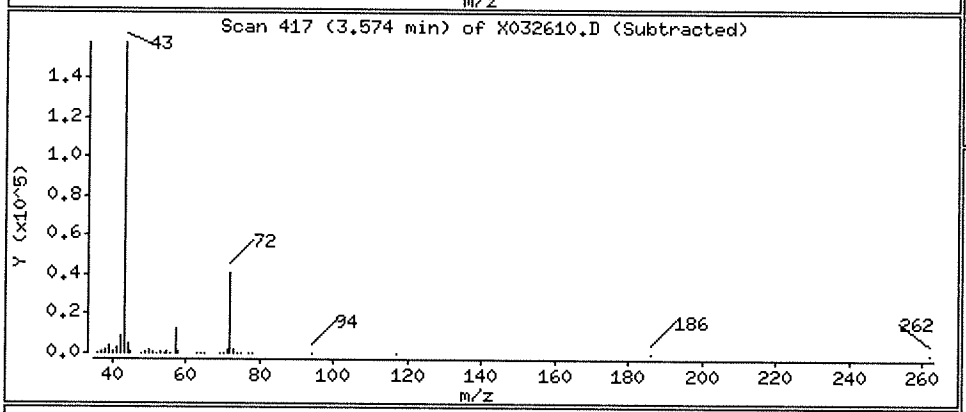
Column diameter: 0.18

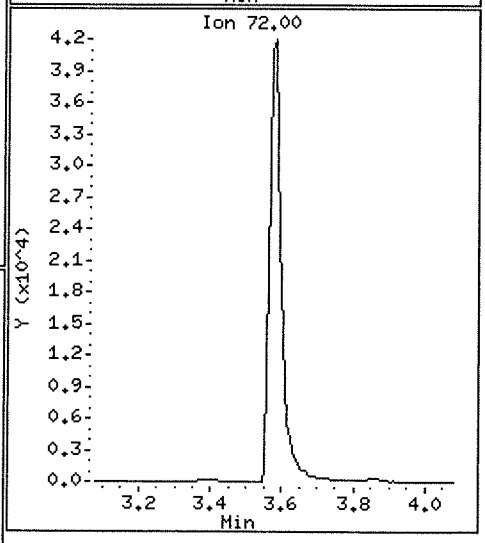
24 2-Butanone

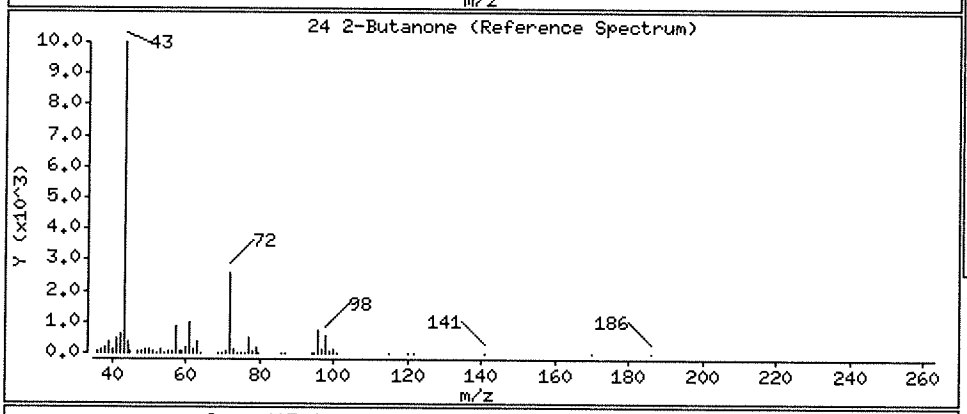
Concentration: 240.66 ug/l

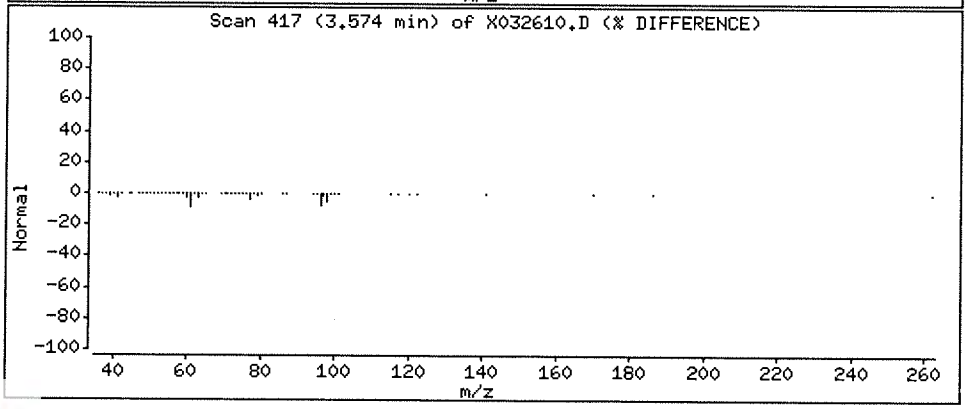












Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032610.D

Date : 26-MAR-2019 16:15

Client ID: HS19031013-01

Instrument: voa6.i

Sample Info: HS19031013-01;HS19031013-01;;;

Purge Volume: 5.0

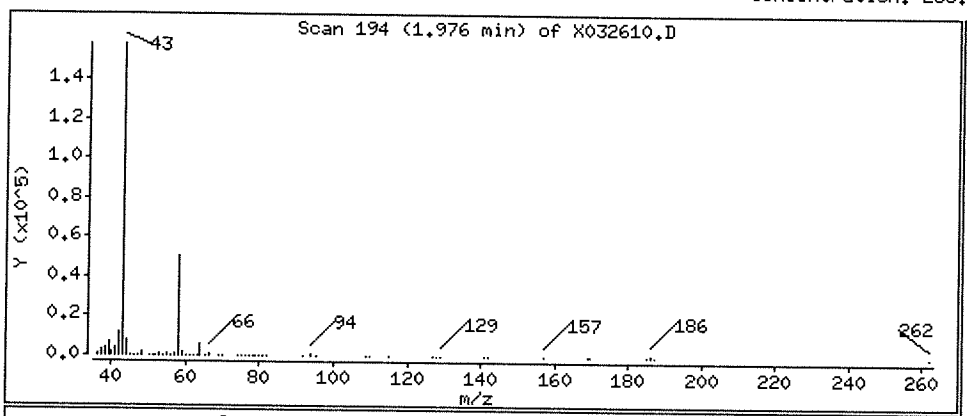
Operator: PC

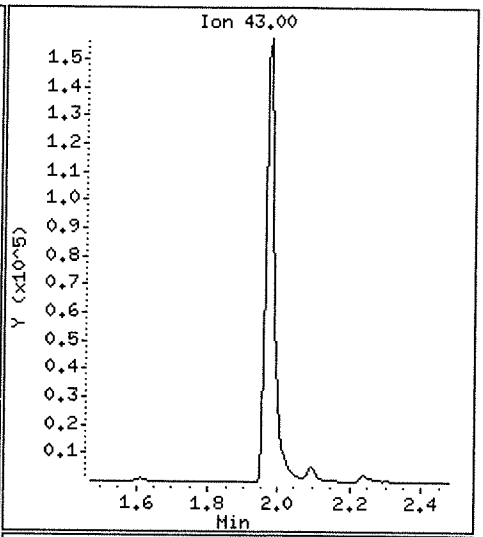
Column phase: DB624

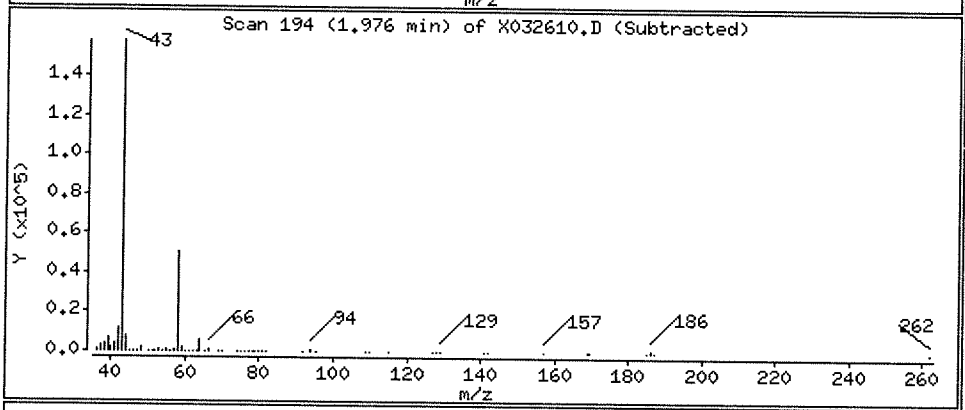
Column diameter: 0.18

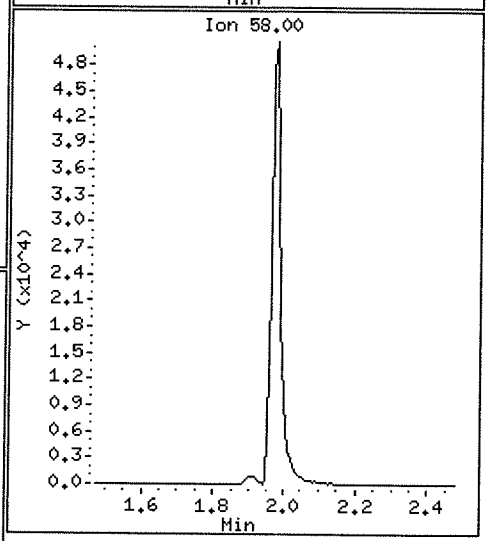
10 Acetone

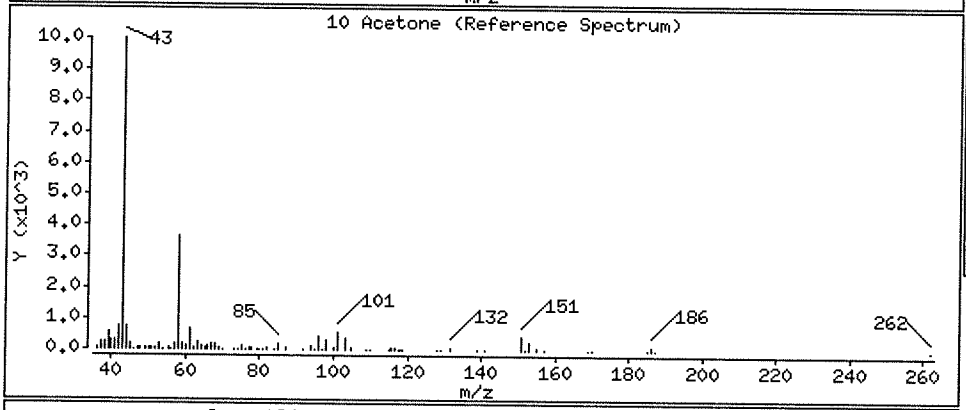
Concentration: 255.04 ug/l

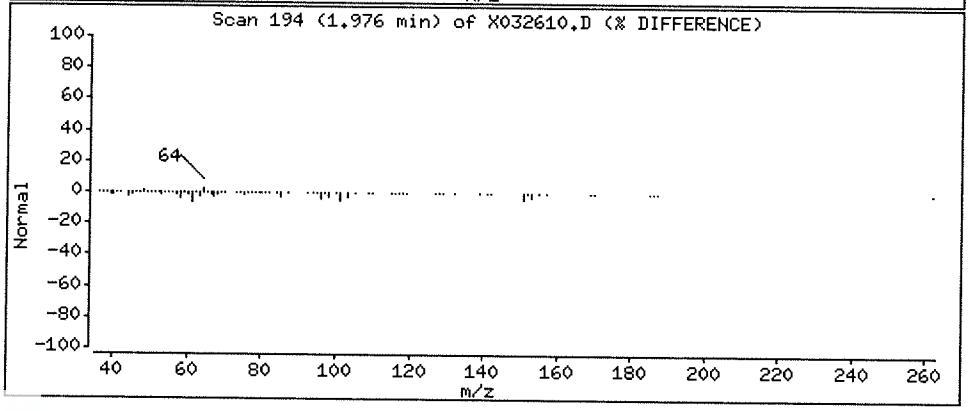












Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032611.D
Report Date: 29-Mar-2019 20:42

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032611.D
Lab Smp Id: HS19031013-07 Client Smp ID: HS19031013-07
Inj Date : 26-MAR-2019 16:39
Operator : PC Inst ID: voa6.i
Smp Info : HS19031013-07;HS19031013-07;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X190326.b\8260W.m
Meth Date : 29-Mar-2019 20:42 voa6.i Quant Type: ISTD
Cal Date : 14-MAR-2019 14:20 Cal File: X031408.D
Als bottle: 10
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

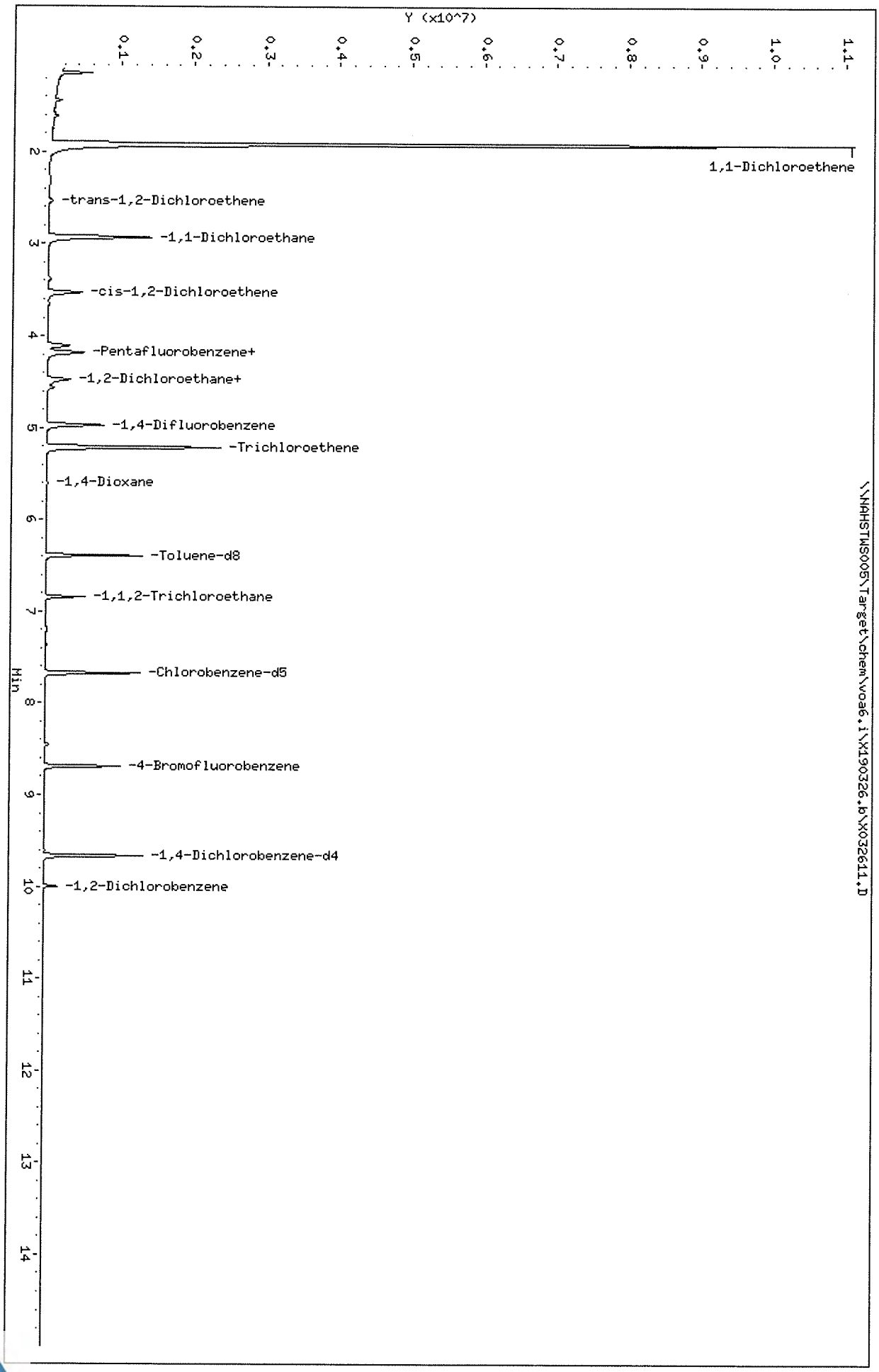
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	444081	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	660508	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	616395	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	328254	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	201069	46.2951	46.29
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	231952	47.8227	47.82
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	773422	50.5522	50.55
$ 69 4-Bromofluorobenzene	95	8.695	8.688	(1.134)	286990	50.9884	50.98
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	128229	37.9383	37.93
22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	1516817	185.995	185.99
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	4133035	1097.37	1097.36(A)
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	70923	7.57696	7.57
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	76641	13.7497	13.74
37 Benzene	78	4.519	4.519	(0.909)	51362	3.04044	3.04(a)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	244613	49.4256	49.42
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	20599	4.91487	4.91(a)
38 Trichloroethene	130	5.207	5.214	(1.048)	824154	177.319	177.31
5 Vinyl Chloride	62	1.145	1.145	(0.273)	308415	53.8070	53.80

Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032611.D
Report Date: 29-Mar-2019 20:42

QC Flag Legend

a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).
A - Target compound detected but, quantitated amount
    exceeded maximum amount.


Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032611.D
Date : 26-MAR-2019 16:39
Client ID: HS19031013-07
Sample Info: HS19031013-07;HS19031013-07;;;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
\\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032611.D
Y (x10^7)
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
Hin
1,1-Dichloroethene
-trans-1,2-Dichloroethene
-1,1-Dichloroethane
-cis-1,2-Dichloroethene
-Pentafluorobenzene+
-1,2-Dichloroethane+
-1,4-Difluorobenzene
-Trichloroethene
-1,4-Dioxane
-Toluene-d8
-1,1,2-Trichloroethane
-Chlorobenzene-d5
-4-Bromofluorobenzene
-1,4-Dichlorobenzene-d4
-1,2-Dichlorobenzene
2
3
4
5
6
7
8
9
10
11
12
13
14

Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032611.D

Date : 26-MAR-2019 16:39

Client ID: HS19031013-07

Instrument: voa6.i

Sample Info: HS19031013-07;HS19031013-07;;;

Purge Volume: 5.0

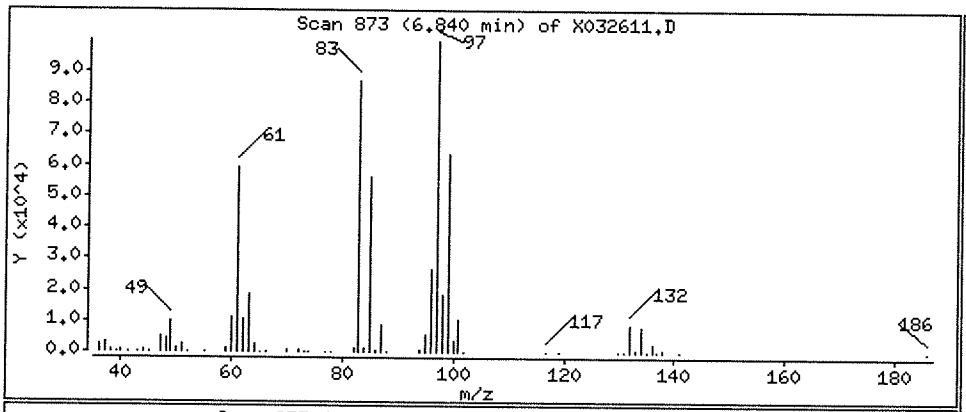
Operator: PC

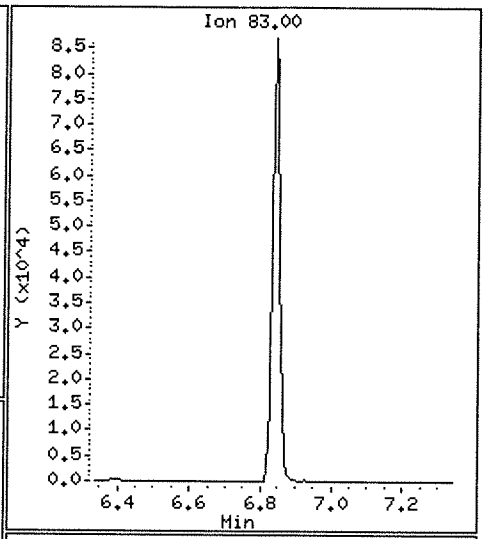
Column phase: DB624

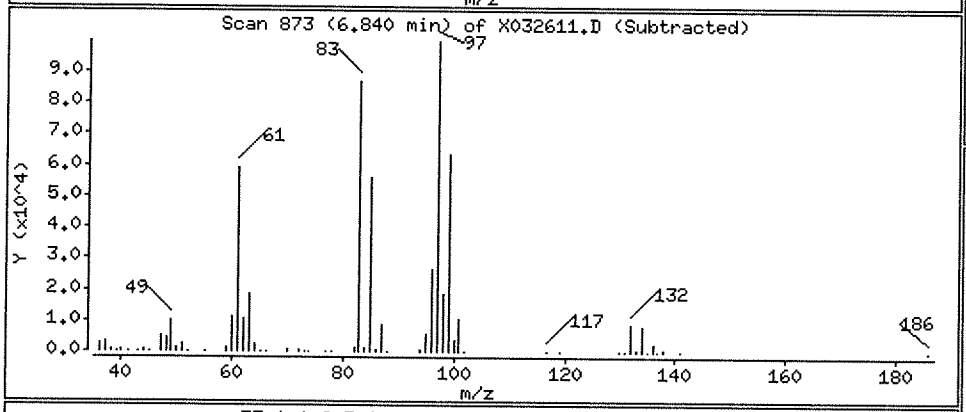
Column diameter: 0.18

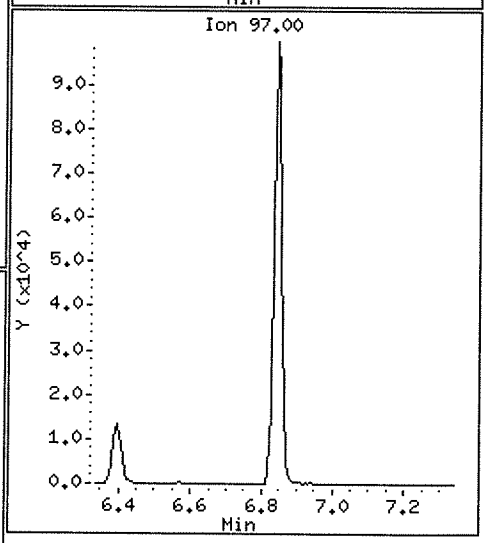
53 1,1,2-Trichloroethane

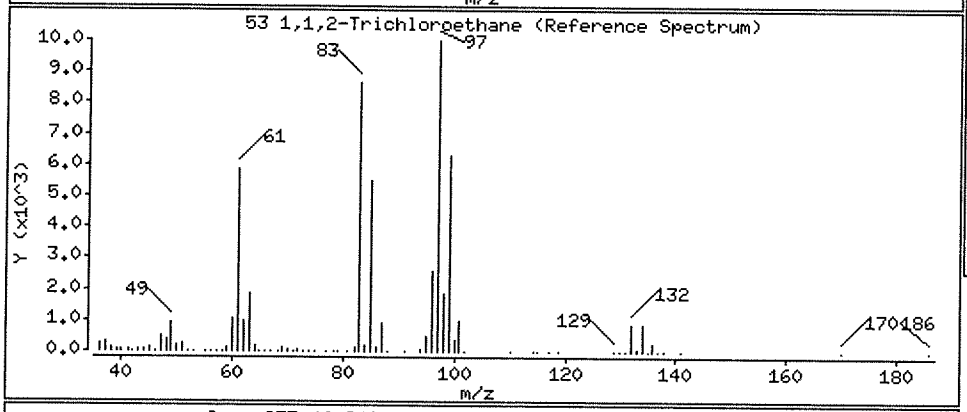
Concentration: 37.93 ug/l

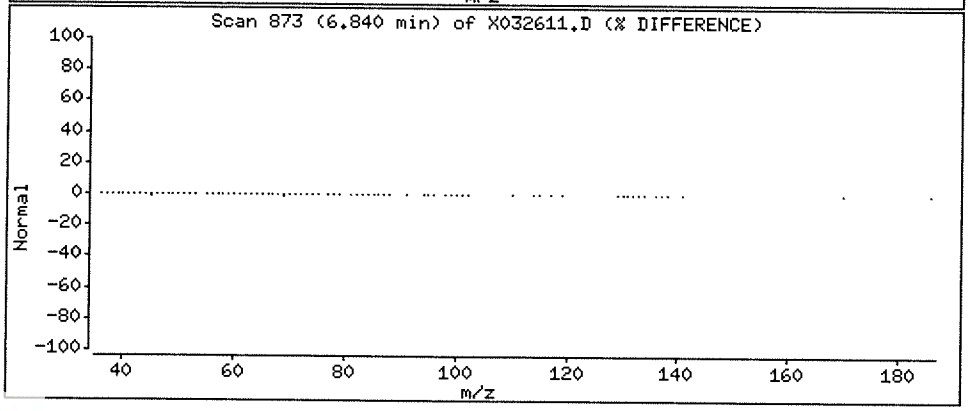












Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032611.D

Date : 26-MAR-2019 16:39

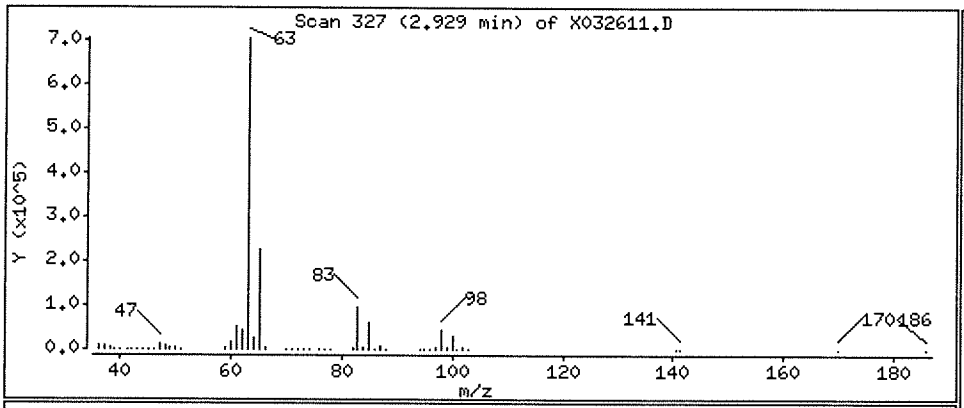
Client ID: HS19031013-07 Instrument: voa6.i

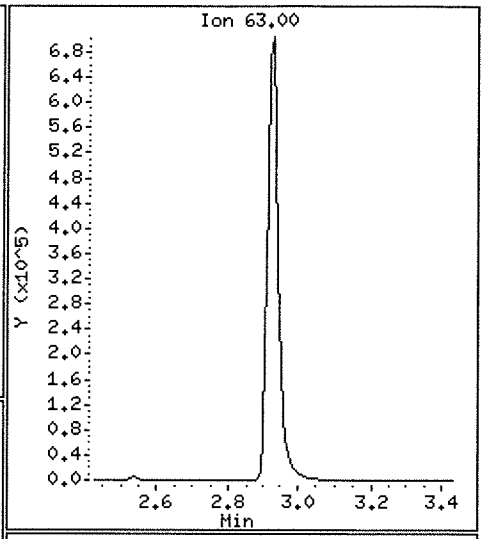
Sample Info: HS19031013-07;HS19031013-07;;;

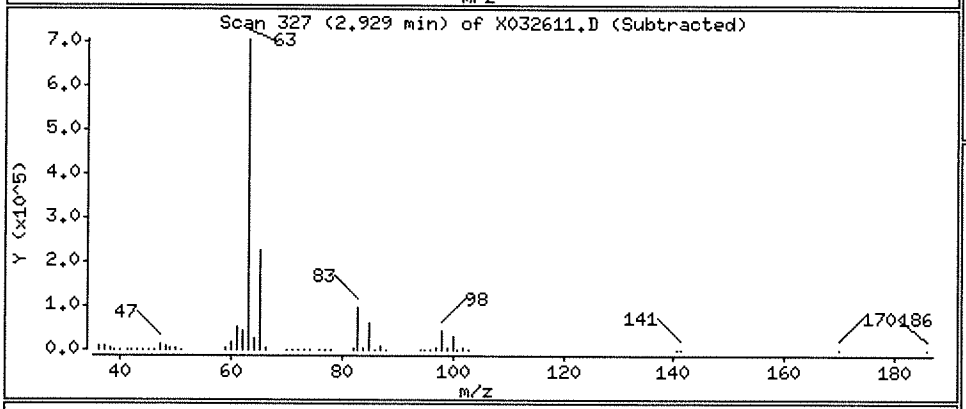
Purge Volume: 5.0 Operator: PC

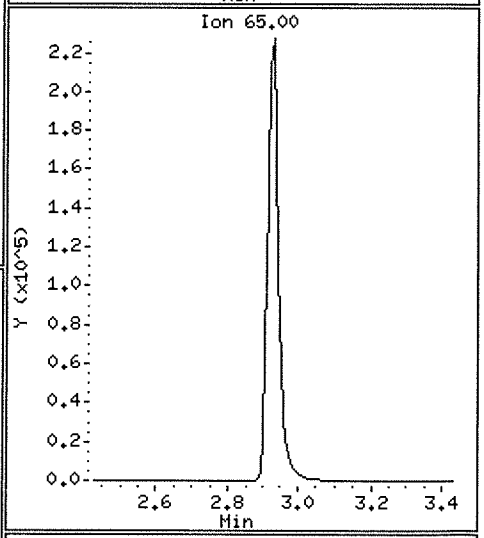
Column phase: DB624 Column diameter: 0.18

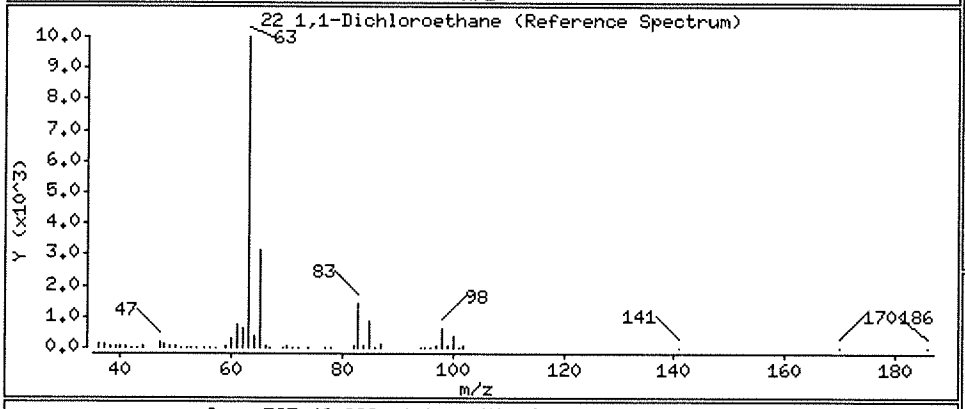
22 1,1-Dichloroethane Concentration: 185.99 ug/l

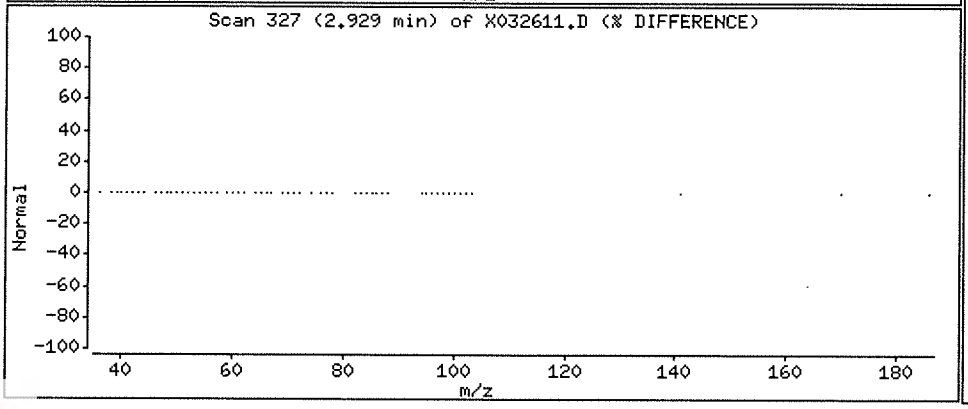


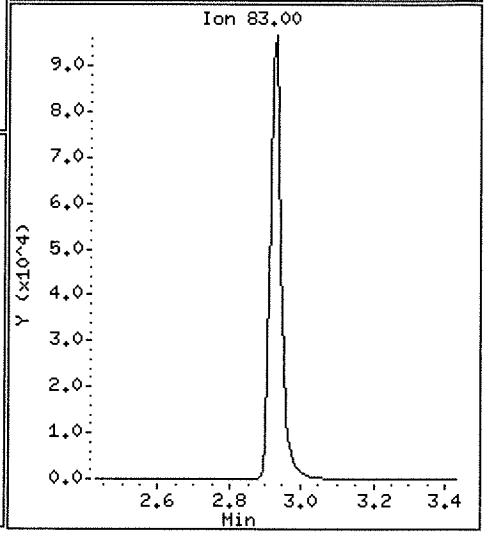












Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032611.D

Date : 26-MAR-2019 16:39

Client ID: HS19031013-07

Instrument: voa6.i

Sample Info: HS19031013-07;HS19031013-07;;;

Purge Volume: 5.0

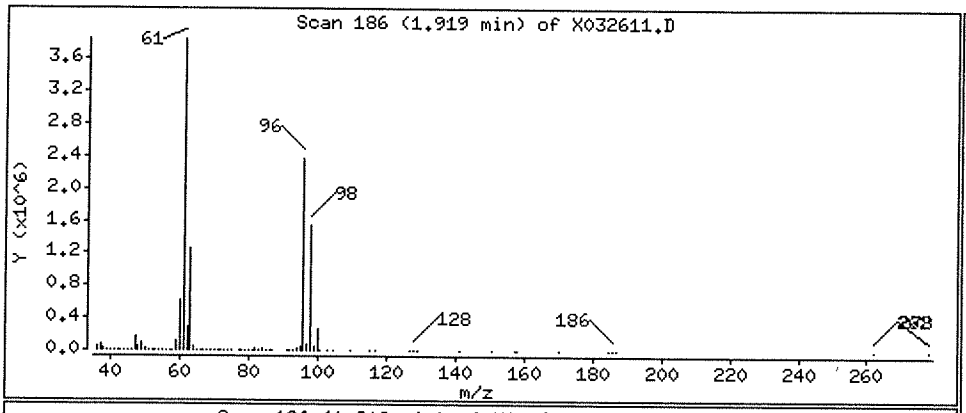
Operator: PC

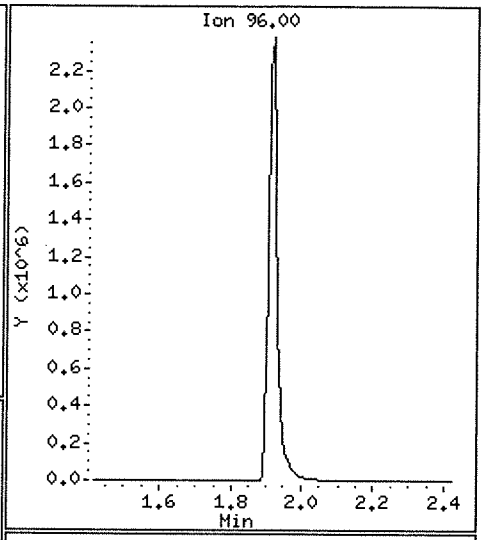
Column phase: DB624

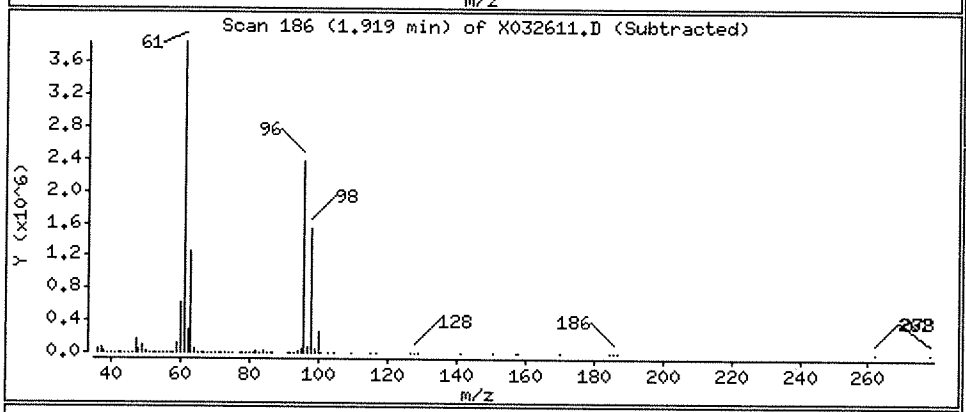
Column diameter: 0.18

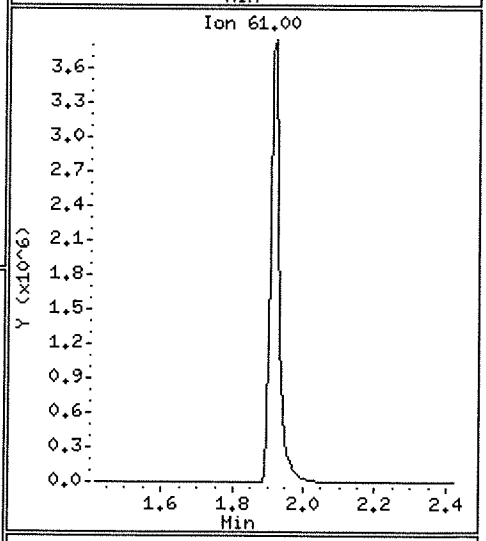
11 1,1-Dichloroethene

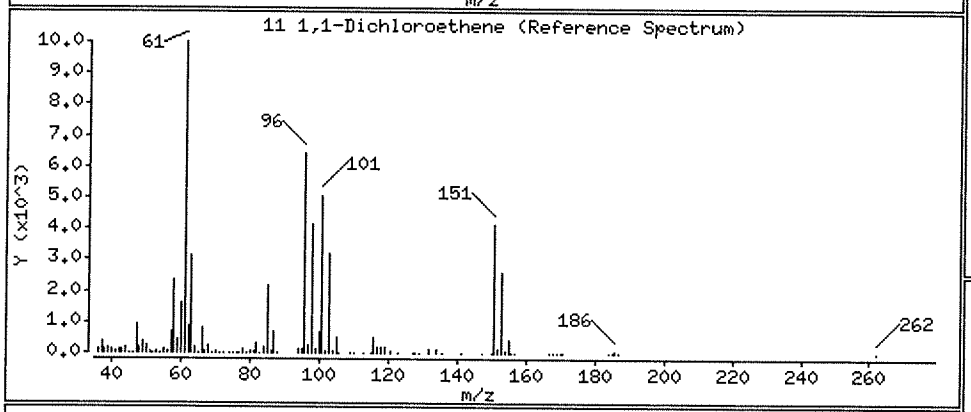
Concentration: 1097.36 ug/l

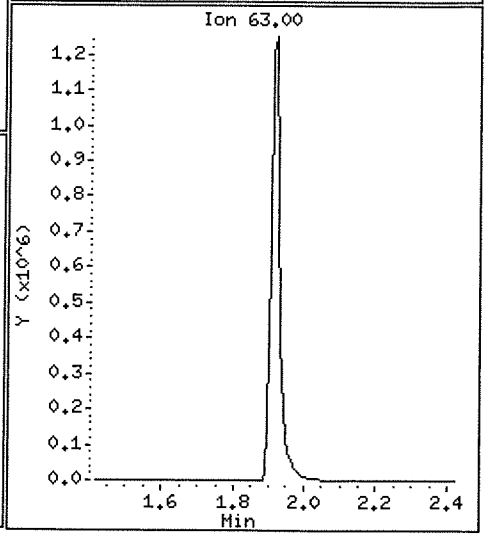


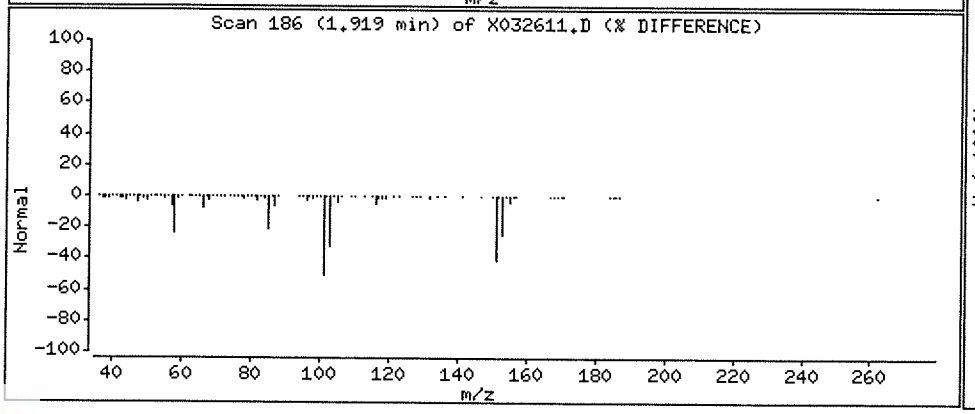












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Date : 26-MAR-2019 16:39

Client ID: HS19031013-07

Instrument: voa6.i

Sample Info: HS19031013-07;HS19031013-07;;;

Purge Volume: 5.0

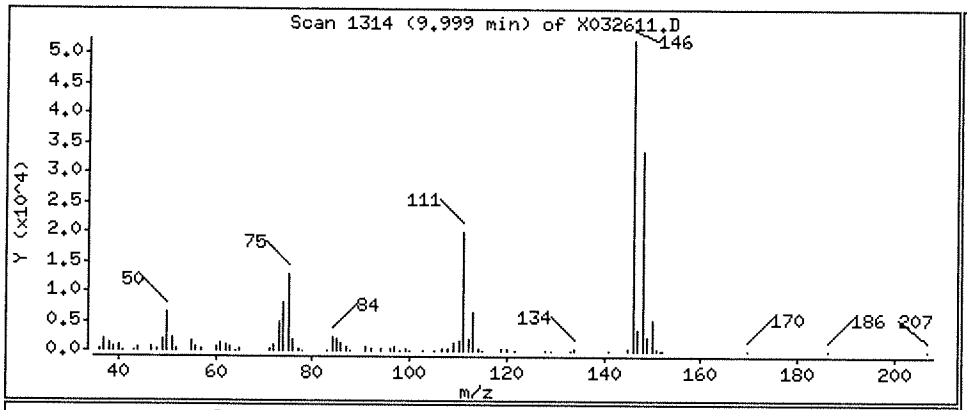
Operator: PC

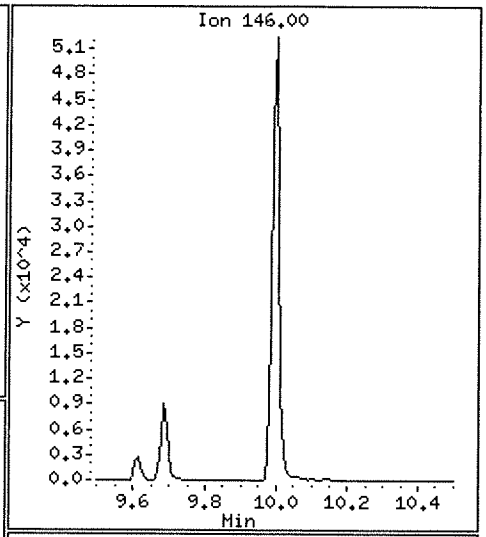
Column phase: DB624

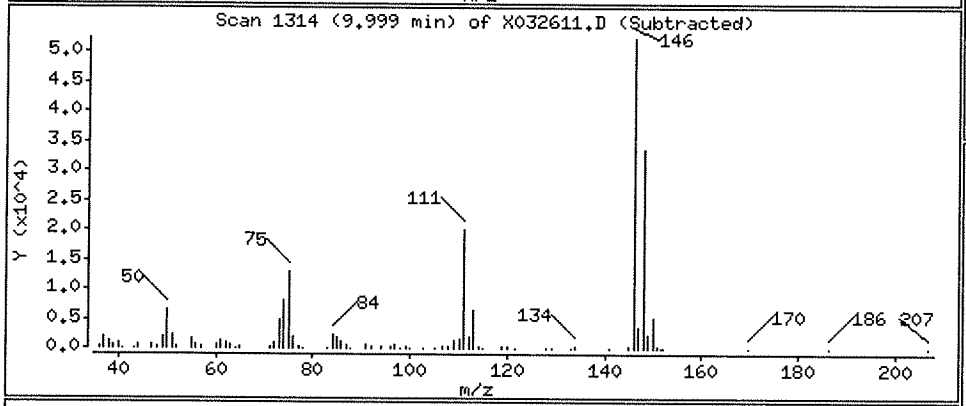
Column diameter: 0.18

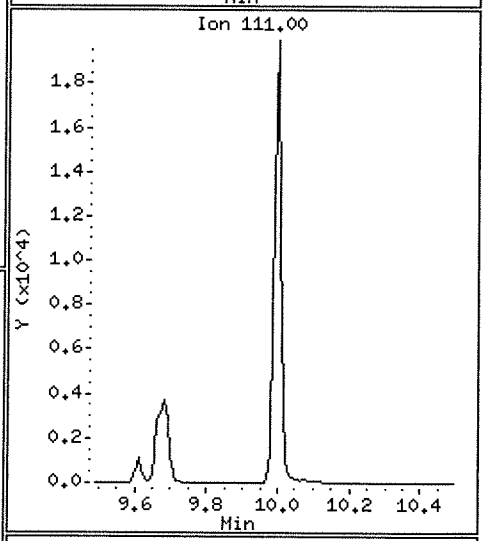
88 1,2-Dichlorobenzene

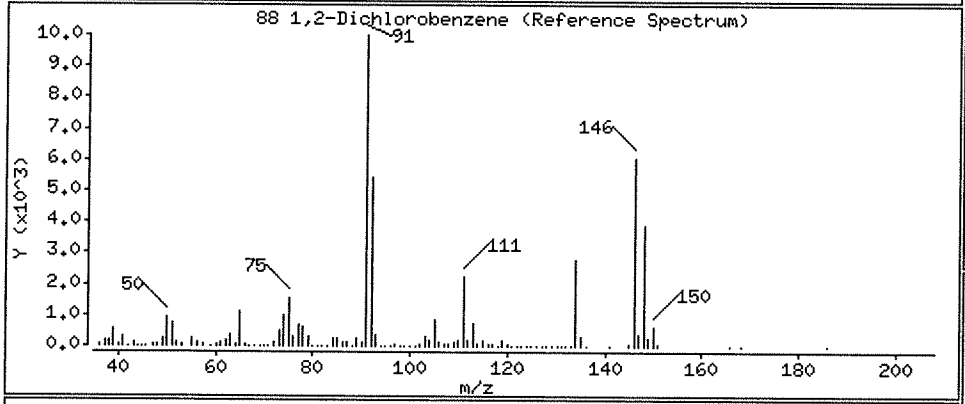
Concentration: 7.57 ug/l

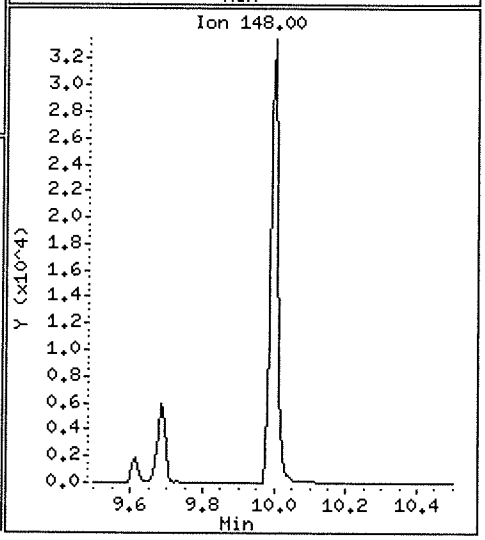


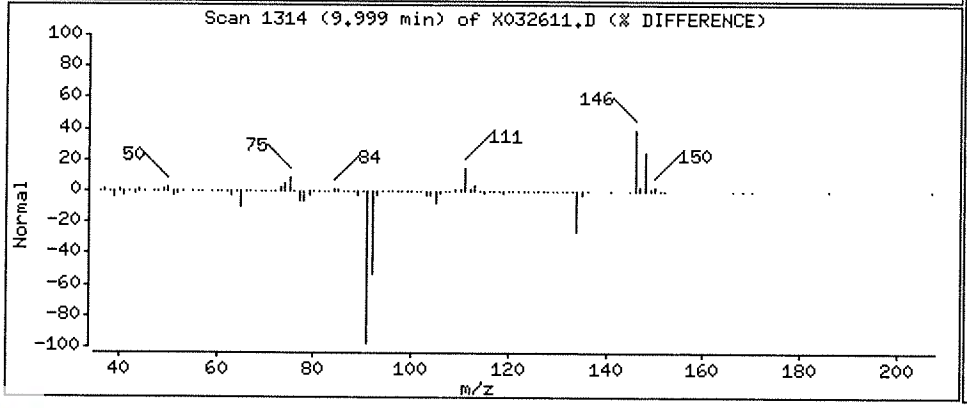












Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032611.D

Date : 26-MAR-2019 16:39

Client ID: HS19031013-07

Instrument: voa6.i

Sample Info: HS19031013-07;HS19031013-07;;;

Purge Volume: 5.0

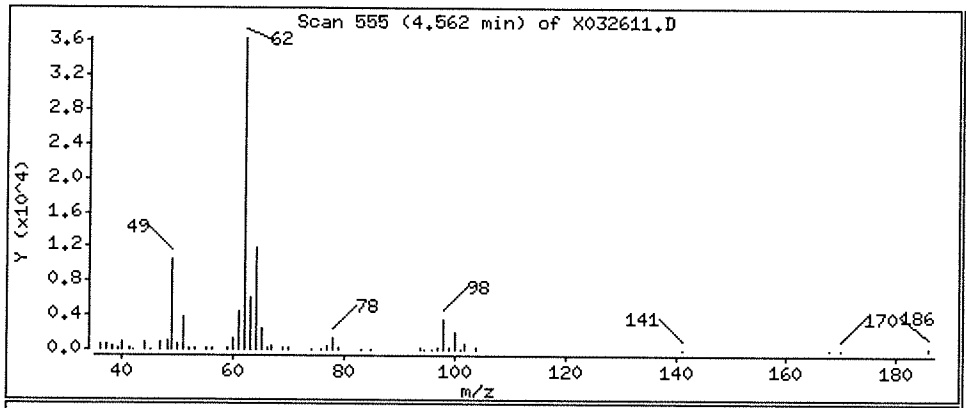
Operator: PC

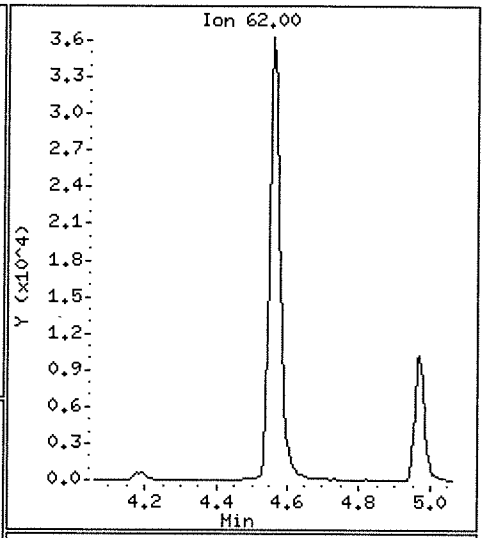
Column phase: DB624

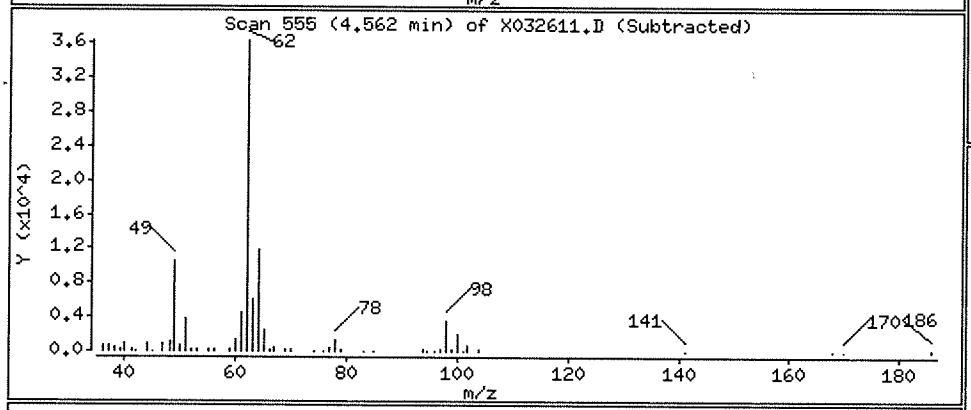
Column diameter: 0.18

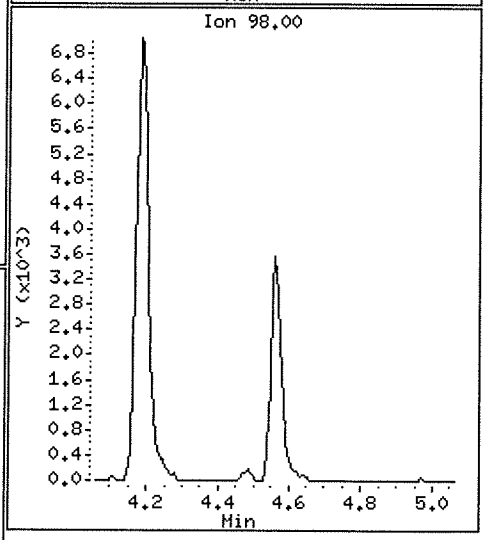
33 1,2-Dichloroethane

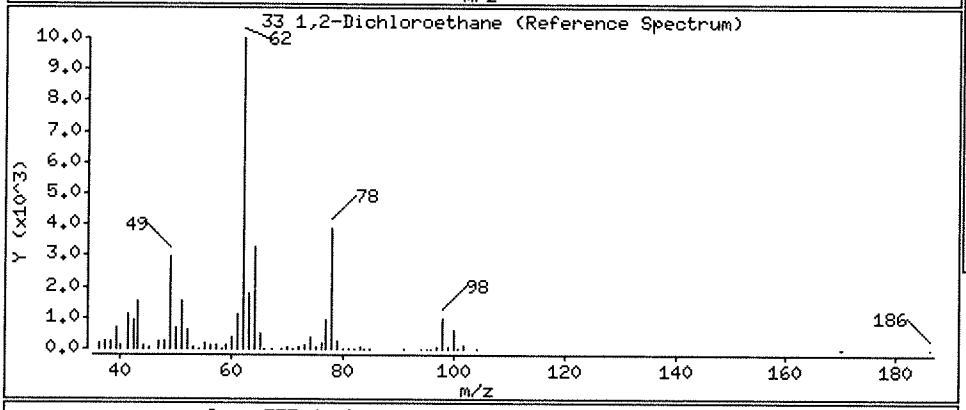
Concentration: 13.74 ug/l

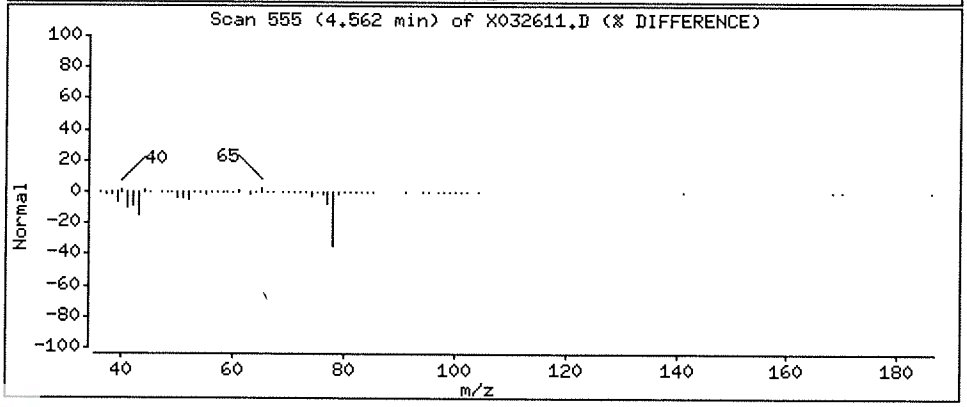












Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032611.D

Date : 26-MAR-2019 16:39

Client ID: HS19031013-07

Instrument: voa6.i

Sample Info: HS19031013-07;HS19031013-07;;;

Purge Volume: 5.0

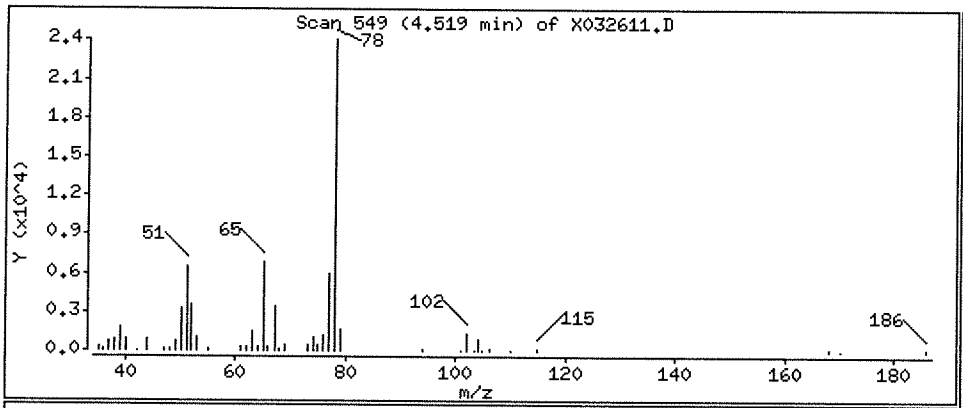
Operator: PC

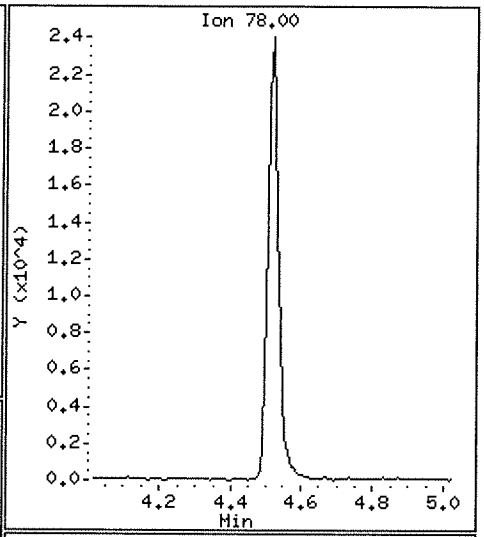
Column phase: DB624

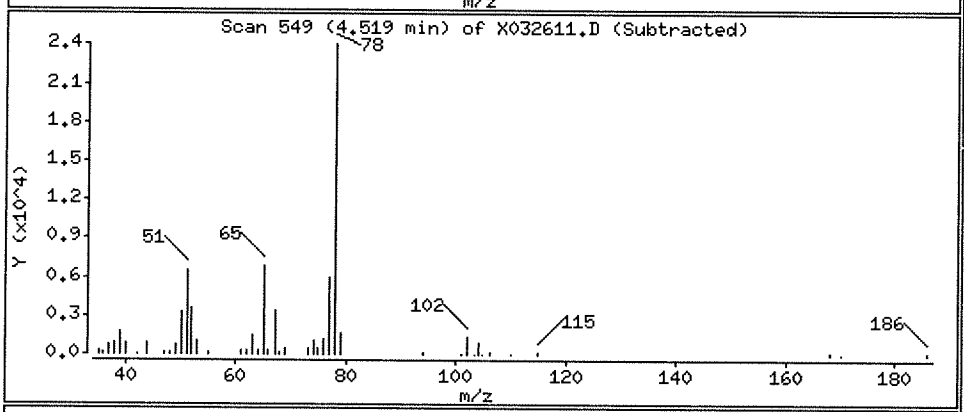
Column diameter: 0.18

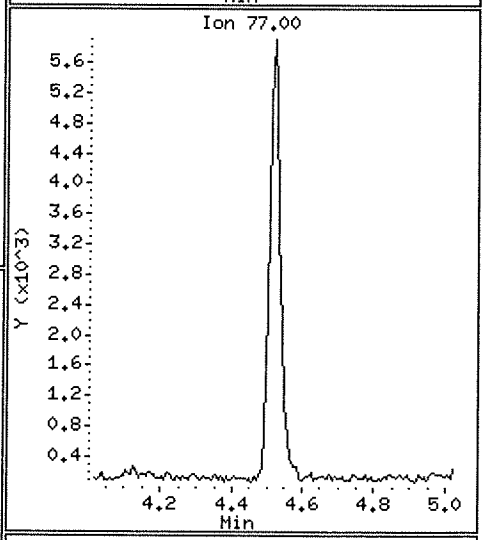
37 Benzene

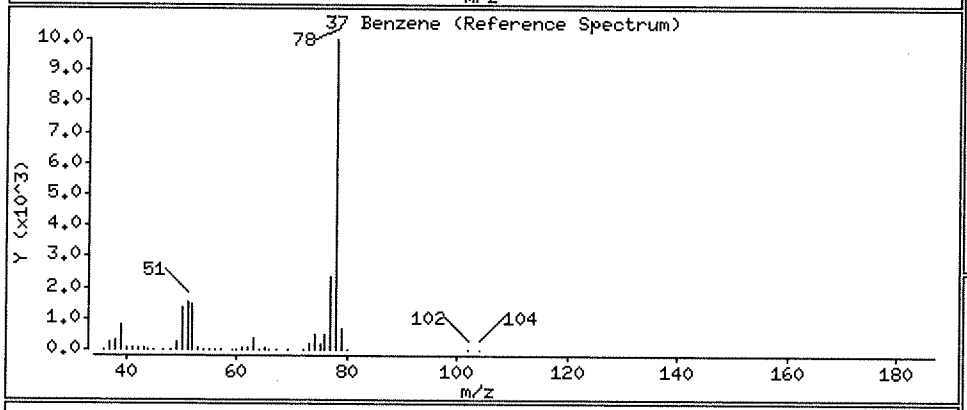
Concentration: 3.04 ug/l

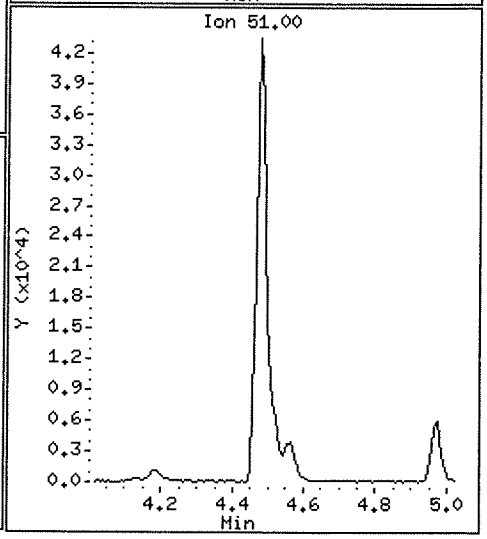


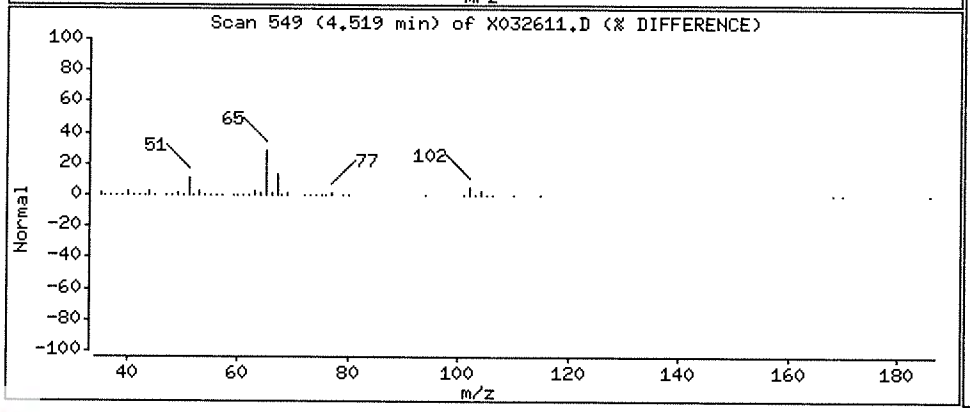












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Date : 26-MAR-2019 16:39

Client ID: HS19031013-07

Instrument: voa6.i

Sample Info: HS19031013-07;HS19031013-07;;;

Purge Volume: 5.0

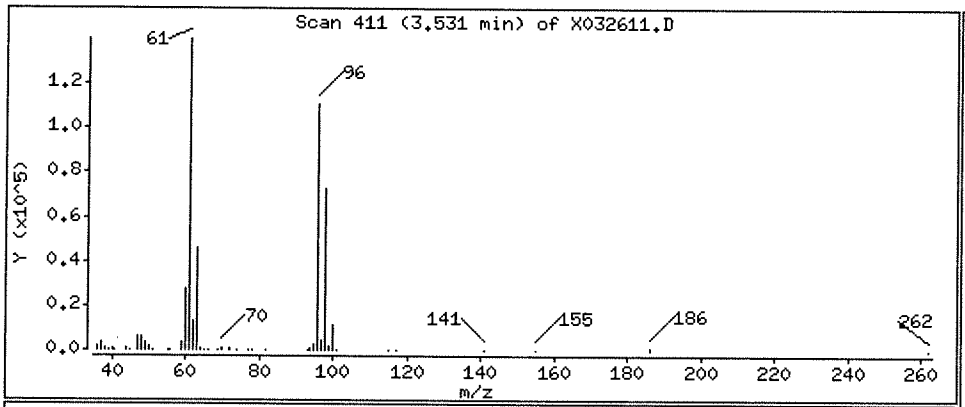
Operator: PC

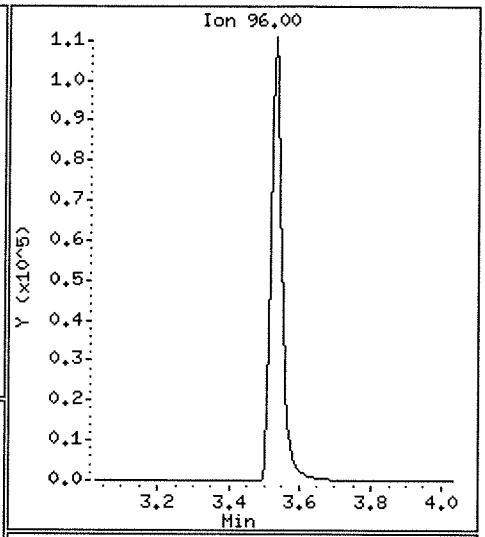
Column phase: DB624

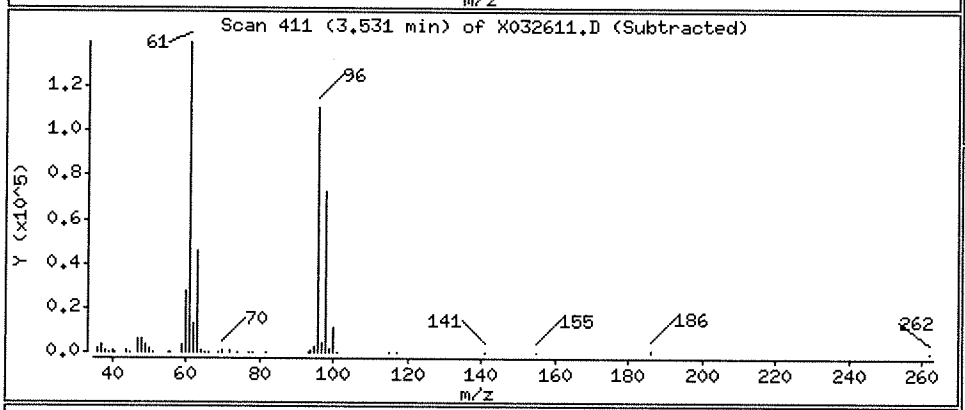
Column diameter: 0.18

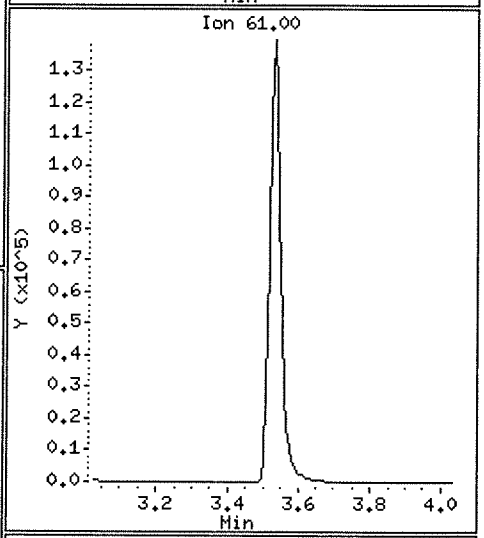
27 cis-1,2-Dichloroethene

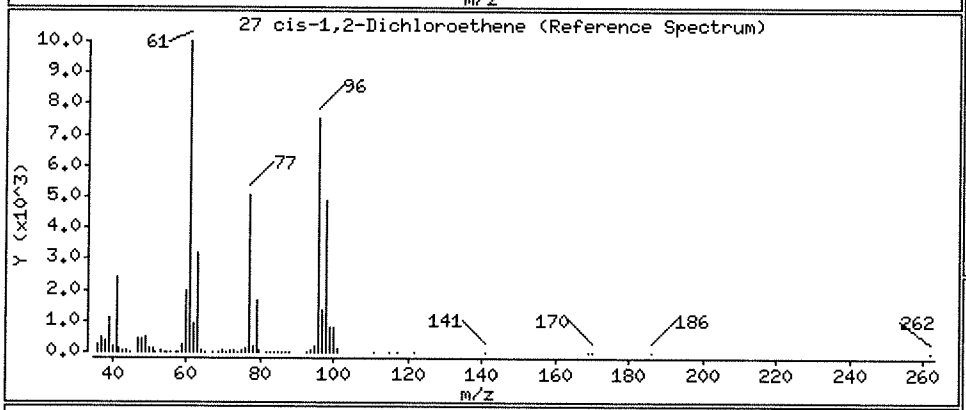
Concentration: 49.42 ug/l

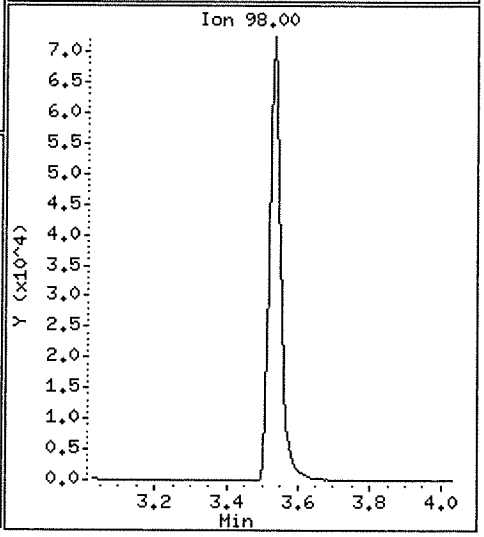


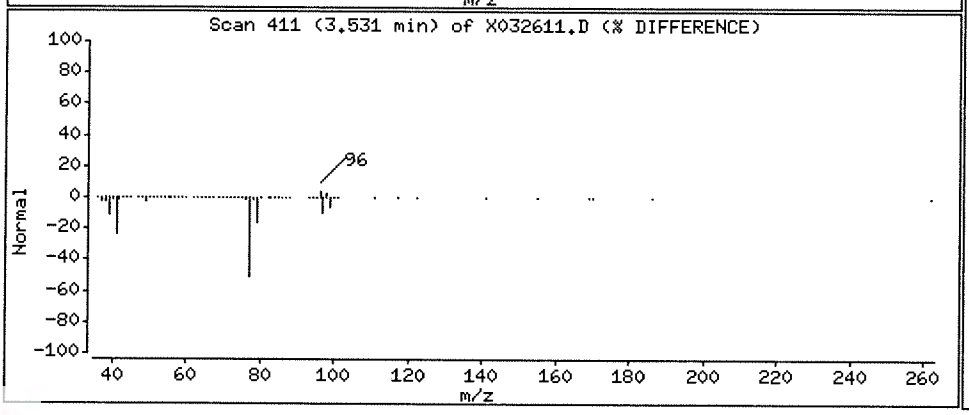












Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032611.D

Date : 26-MAR-2019 16:39

Client ID: HS19031013-07

Instrument: voa6.i

Sample Info: HS19031013-07;HS19031013-07;;;

Purge Volume: 5.0

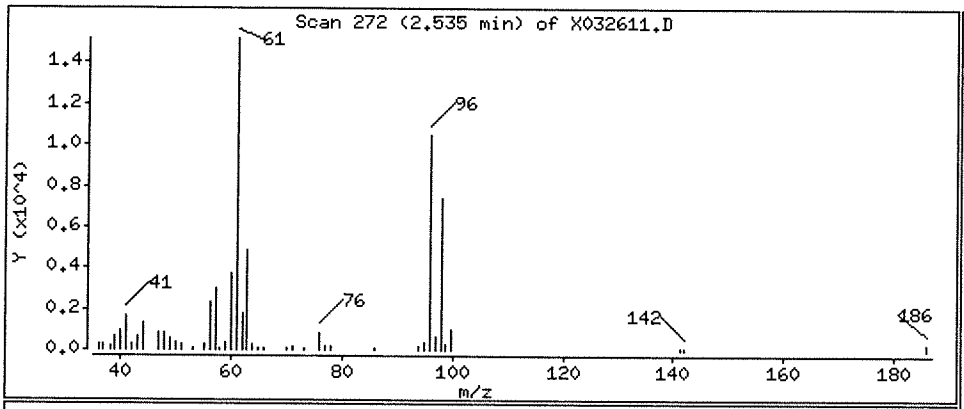
Operator: PC

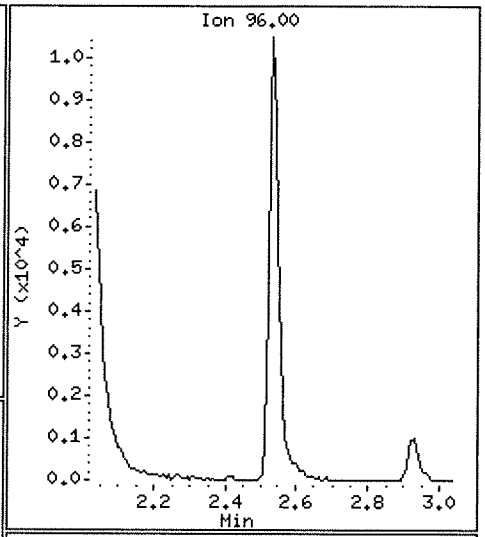
Column phase: DB624

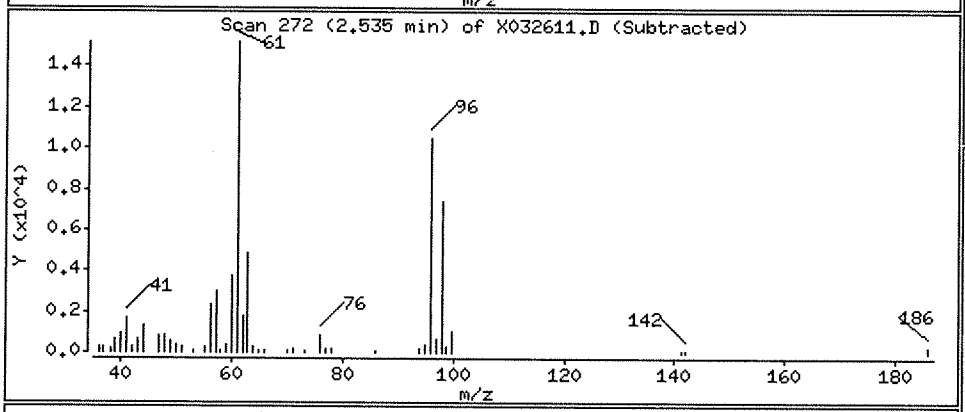
Column diameter: 0.18

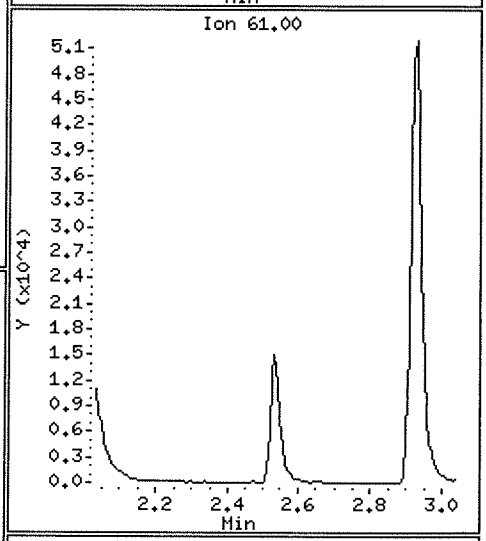
20 trans-1,2-Dichloroethene

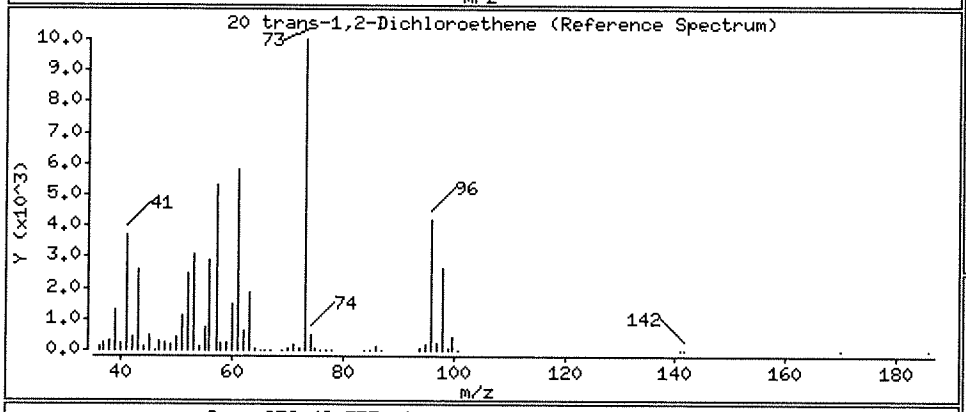
Concentration: 4.91 ug/l

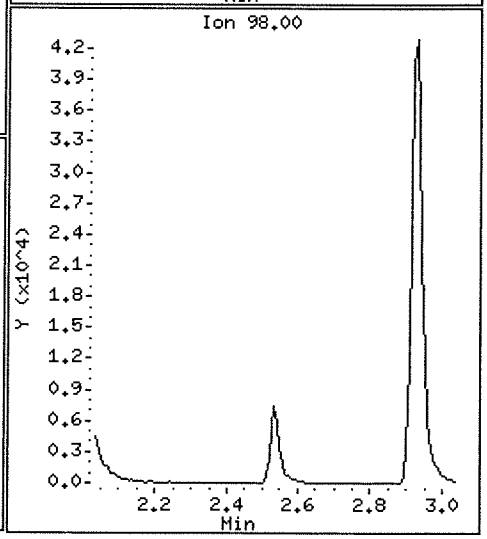


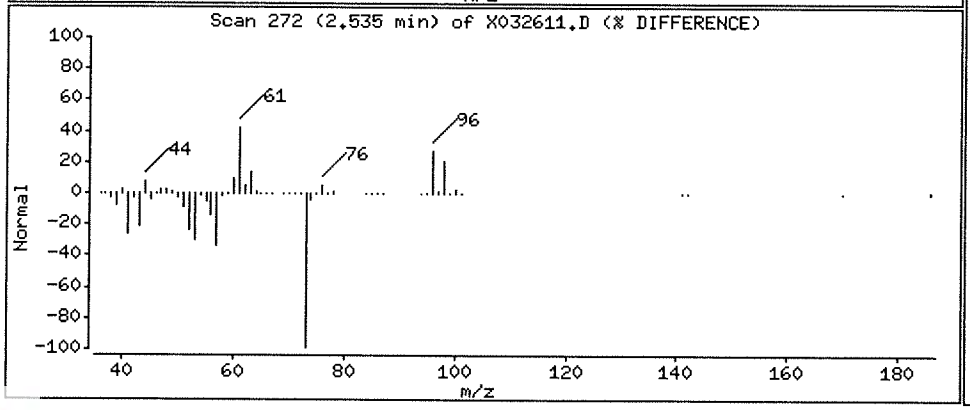












Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032611.D

Date : 26-MAR-2019 16:39

Client ID: HS19031013-07

Instrument: voa6.i

Sample Info: HS19031013-07;HS19031013-07;;;

Purge Volume: 5.0

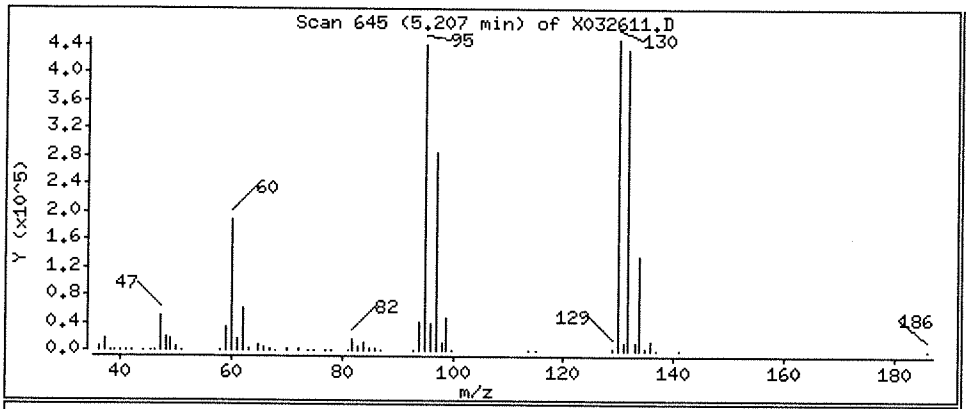
Operator: PC

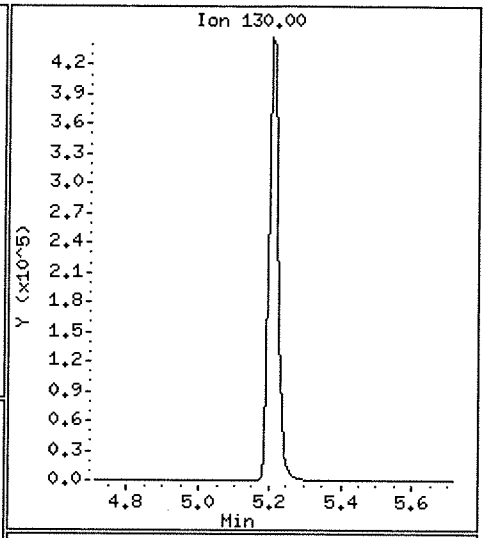
Column phase: DB624

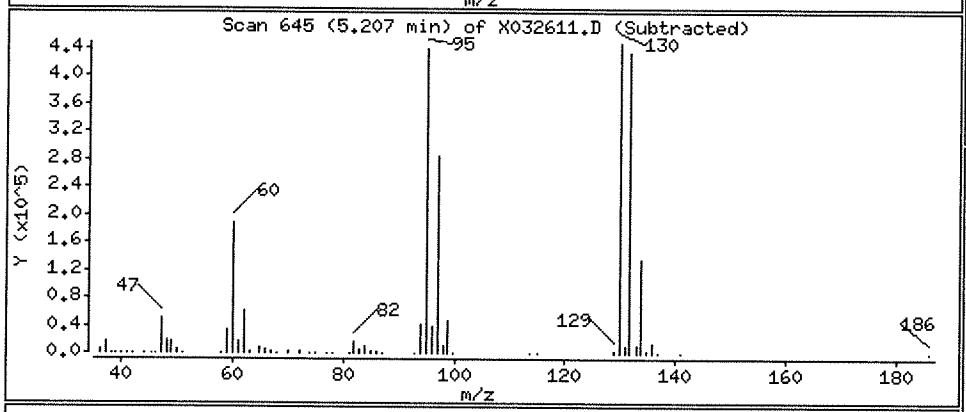
Column diameter: 0.18

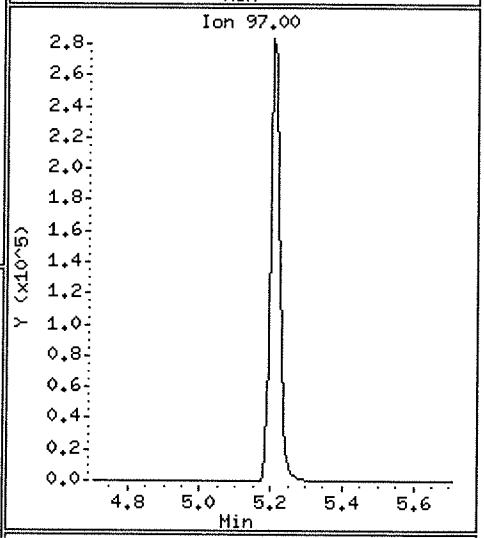
38 Trichloroethene

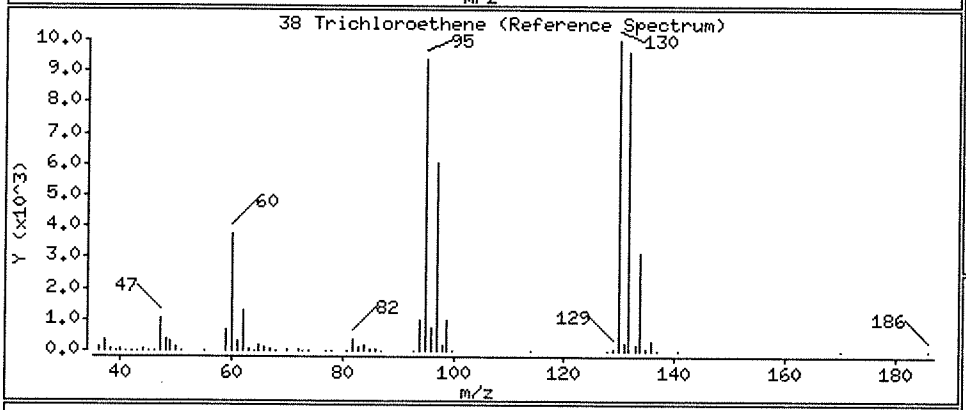
Concentration: 177.31 ug/l

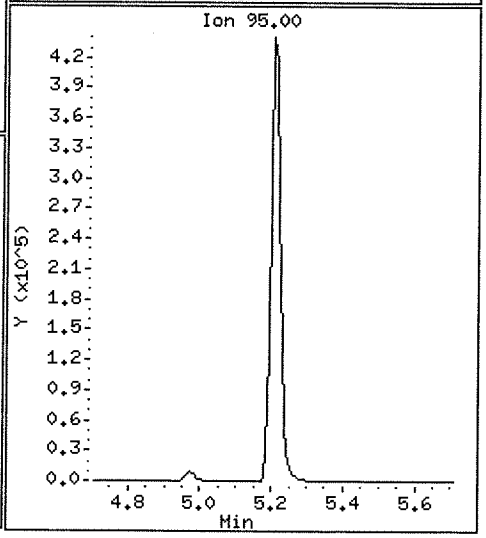


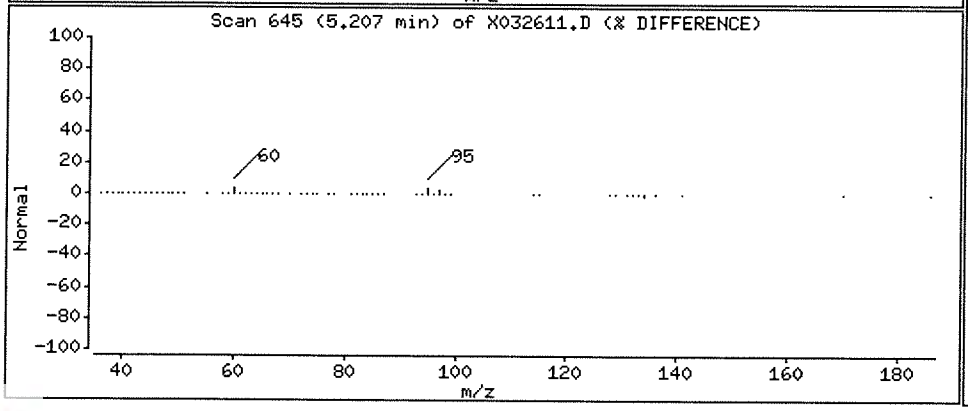












Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032611.D

Date : 26-MAR-2019 16:39

Client ID: HS19031013-07

Instrument: voa6.i

Sample Info: HS19031013-07;HS19031013-07;;;

Purge Volume: 5.0

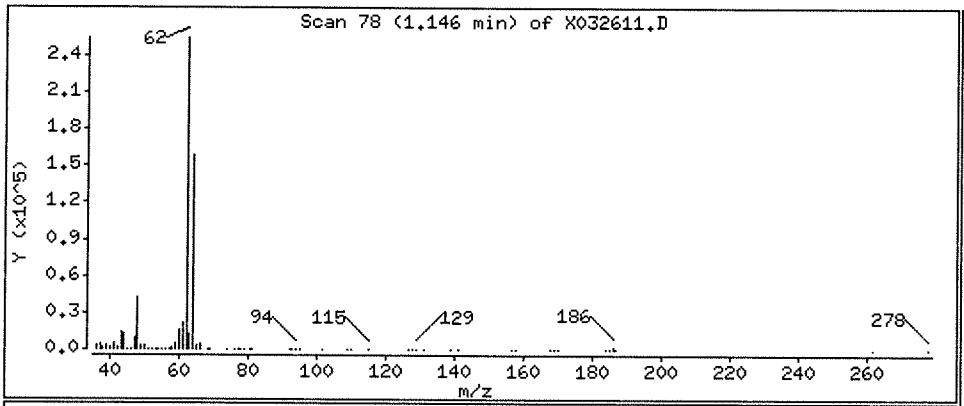
Operator: PC

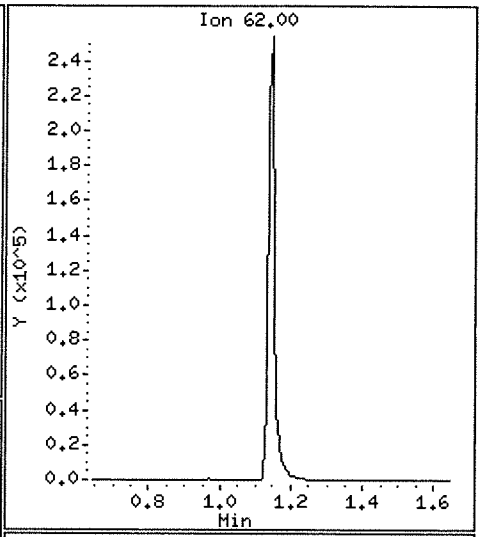
Column phase: DB624

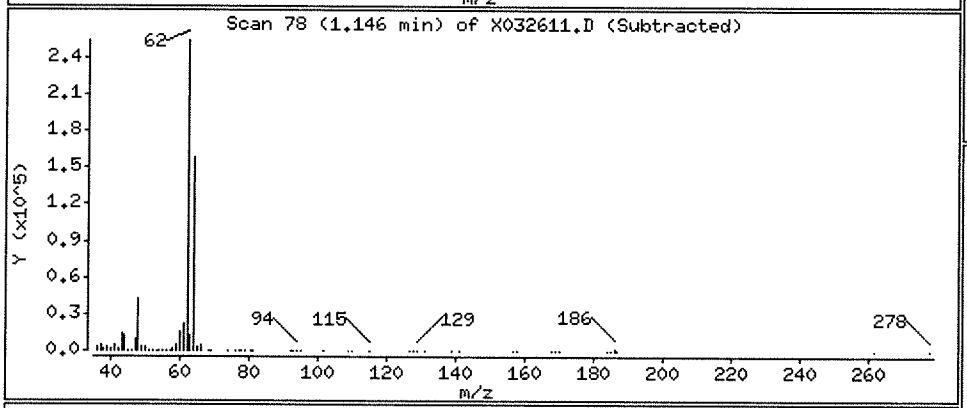
Column diameter: 0.18

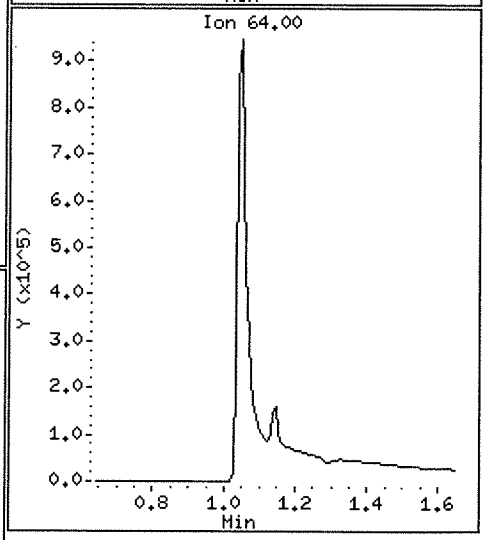
5 Vinyl Chloride

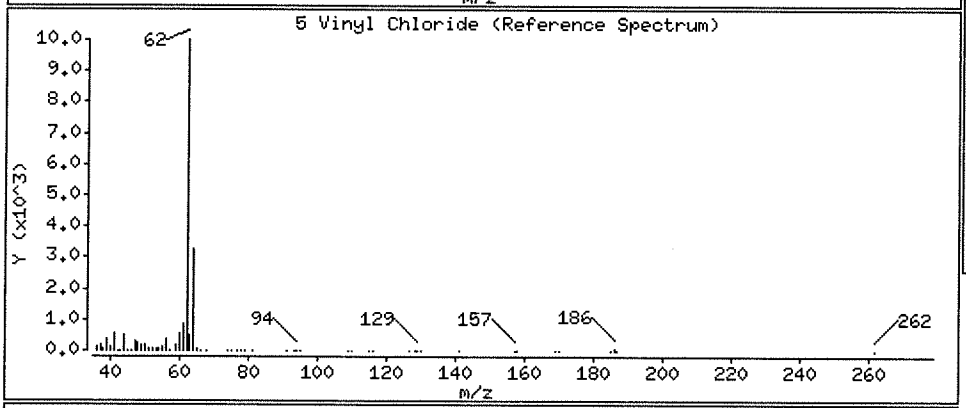
Concentration: 53.80 ug/l

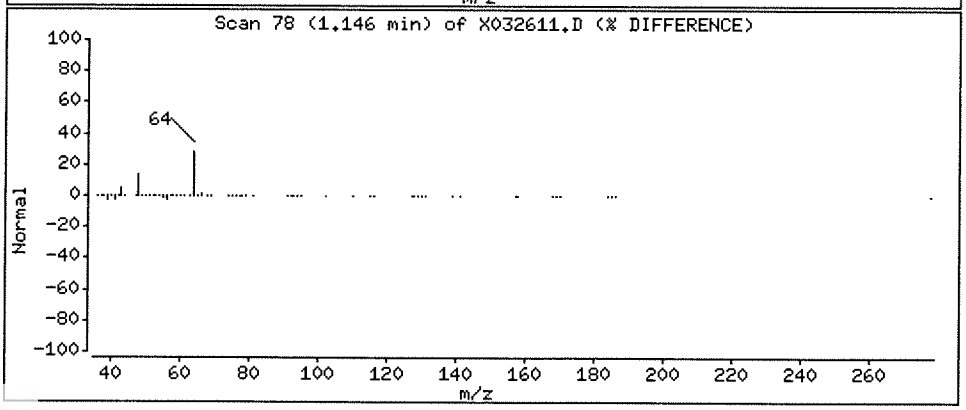












Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032612.D
Report Date: 29-Mar-2019 20:42

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032612.D
Lab Smp Id: HS19031013-07MS Client Smp ID: HS19031013-07MS
Inj Date : 26-MAR-2019 17:03
Operator : PC Inst ID: voa6.i
Smp Info : HS19031013-07MS;HS19031013-07MS;3;;MS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X190326.b\8260W.m
Meth Date : 29-Mar-2019 20:42 voa6.i Quant Type: ISTD
Cal Date : 14-MAR-2019 14:20 Cal File: X031408.D
Als bottle: 11 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	433309	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	631108	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	538651	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	253964	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	194834	45.9742	45.97
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	223834	47.2937	47.29
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	730679	54.6682	54.66
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	232978	47.3410	47.34
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	40558	11.1571	11.15
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	70403	11.1497	11.14
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	64556	15.7608	15.76
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	156646	53.0350	53.03
22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	1475988	185.488	185.48
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	3860316	1050.44	1050.43(A)
32 1,1-Dichloropropene	75	4.290	4.282	(0.863)	63231	11.1447	11.14
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	19395	10.7890	10.78
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	50889	16.0765	16.07(M)
90 1,2,4-Trichlorobenzene	180	11.345	11.338	(1.173)	32201	10.1314	10.13
79 1,2,4-Trimethylbenzene	105	9.382	9.383	(0.970)	136119	11.2046	11.20
89 1,2-Dibromo-3-Chloropropane	155	10.657	10.658	(1.102)	9716	19.5018	19.50
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	44006	12.4023	12.40
88 1,2-Dichlorobenzene	146	9.998	9.999	(1.034)	147382	20.3512	20.35

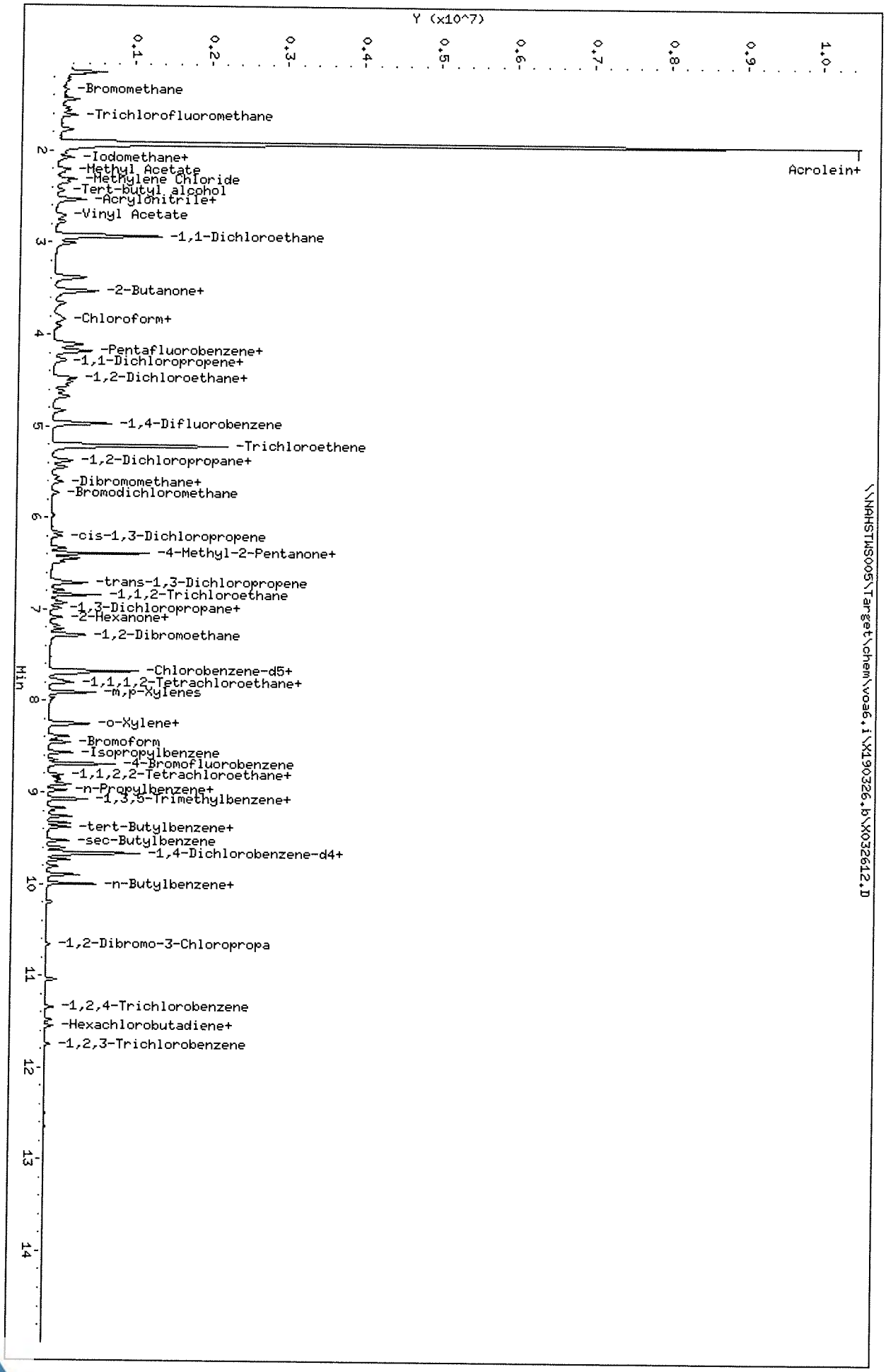
Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032612.D
Report Date: 29-Mar-2019 20:42

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	127389	23.9188	23.91
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	42727	9.63519	9.63
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	131915	10.9756	10.97
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	83399	10.8587	10.85
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	70609	11.7449	11.74
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	93355	11.9311	11.93
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	66427	10.8457	10.84
24	2-Butanone	43	3.580	3.580	(0.855)	49661	33.4596	33.45
76	2-Chlorotoluene	91	8.974	8.974	(0.928)	118437	10.9249	10.92
52	2-Hexanone	43	7.090	7.090	(0.924)	81147	38.2137	38.21
77	4-Chlorotoluene	91	9.074	9.075	(0.939)	131916	10.6709	10.67
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	131469	10.4668	10.46
45	4-Methyl-2-Pentanone	43	6.331	6.324	(0.825)	116355	35.5927	35.59
10	Acetone	43	1.976	1.976	(0.472)	37390	31.4057	31.40
37	Benzene	78	4.519	4.519	(0.909)	214990	13.3195	13.31
74	Bromobenzene	156	8.809	8.809	(0.911)	49379	11.3608	11.36
29	Bromochloromethane	128	3.802	3.803	(0.908)	22308	9.21305	9.21
39	Bromodichloromethane	83	5.729	5.729	(1.153)	52973	9.83849	9.83
66	Bromoform	173	8.415	8.416	(1.097)	34473	13.5250	13.52
6	Bromomethane	94	1.338	1.338	(0.320)	29818	10.3231	10.32
19	Carbon Disulfide	76	2.069	2.069	(0.494)	297971	23.5727	23.57
34	Carbon Tetrachloride	117	4.275	4.268	(0.860)	60631	13.7270	13.72
59	Chlorobenzene	112	7.699	7.699	(1.004)	110333	10.5119	10.51
7	Chloroethane	64	1.145	1.403	(0.273)	549513	175.050	175.05
28	Chloroform	83	3.910	3.910	(0.933)	72926	9.48864	9.48
3	Chloromethane	50	1.080	1.081	(0.258)	53140	7.61330	7.61
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	267621	55.4188	55.41
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	68164	9.59499	9.59
55	Dibromochloromethane	129	7.176	7.176	(0.936)	43934	11.4722	11.47
44	Dibromomethane	93	5.557	5.557	(1.118)	28201	10.6193	10.61
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	55378	13.9437	13.94
61	Ethylbenzene	106	7.799	7.799	(1.017)	57071	10.9524	10.95
91	Hexachlorobutadiene	225	11.481	11.488	(1.187)	14436	8.84651	8.84
67	Isopropylbenzene	105	8.566	8.566	(1.117)	170740	10.9786	10.97
62	m,p-Xylenes	106	7.907	7.907	(1.031)	139544	21.6030	21.60
17	Methylene Chloride	84	2.305	2.305	(0.550)	42891	9.47797	9.47
87	n-Butylbenzene	91	9.998	9.999	(1.034)	104189	9.61860	9.61
73	n-Propylbenzene	91	8.917	8.917	(0.922)	195049	11.0383	11.03
92	Naphthalene	128	11.546	11.546	(1.194)	68423	14.2877	14.28
63	o-Xylene	106	8.244	8.244	(1.075)	71408	11.0498	11.04
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	155537	10.5666	10.56
64	Styrene	104	8.265	8.258	(1.078)	111061	10.3671	10.36
78	tert-Butylbenzene	119	9.339	9.340	(0.966)	118470	11.3449	11.34
56	Tetrachloroethene	164	6.933	6.933	(0.904)	40951	12.6514	12.65
50	Toluene	91	6.453	6.446	(0.841)	180260	11.4438	11.44
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	59042	14.4375	14.43
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	58167	10.1589	10.15
38	Trichloroethene	130	5.214	5.214	(1.049)	793017	178.568	178.56
8	Trichlorofluoromethane	101	1.560	1.560	(0.373)	80198	13.1973	13.19
5	Vinyl Chloride	62	1.145	1.145	(0.273)	345684	61.8084	61.80

Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032612.D
Report Date: 29-Mar-2019 20:42

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.


Y (x10^7)
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0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
Min
2
3
4
5
6
7
8
9
10
11
12
13
14
-Bromomethane
-Trichlorofluoromethane
-Iodomethane+
-Methyl Acetate
-Methylene Chloride
-Tert-butyl alcohol
-Acrylonitrile+
-Vinyl Acetate
-1,1-Dichloroethane
-2-Butanone+
-Chloroform+
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-1,4-Difluorobenzene
-Trichloroethene
-1,2-Dichloropropane+
-Dibromomethane+
-Bromodichloromethane
-cis-1,3-Dichloropropene
-4-Methyl-2-Pentanone+
-trans-1,3-Dichloropropene
-1,1,2-Trichloroethane
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-1,2-Dibromoethane
-Chlorobenzene-d5+
-1,1,1,2-Tetrachloroethane+
-m,p-Xylenes
-o-Xylene+
-Bromoform
-Isopropylbenzene
-4-Bromofluorobenzene
-1,1,2,2-Tetrachloroethane+
-n-Propylbenzene+
-1,3,5-Trimethylbenzene+
-tert-Butylbenzene+
-sec-Butylbenzene
-1,4-Dichlorobenzene-d4+
-n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
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Acrolein+
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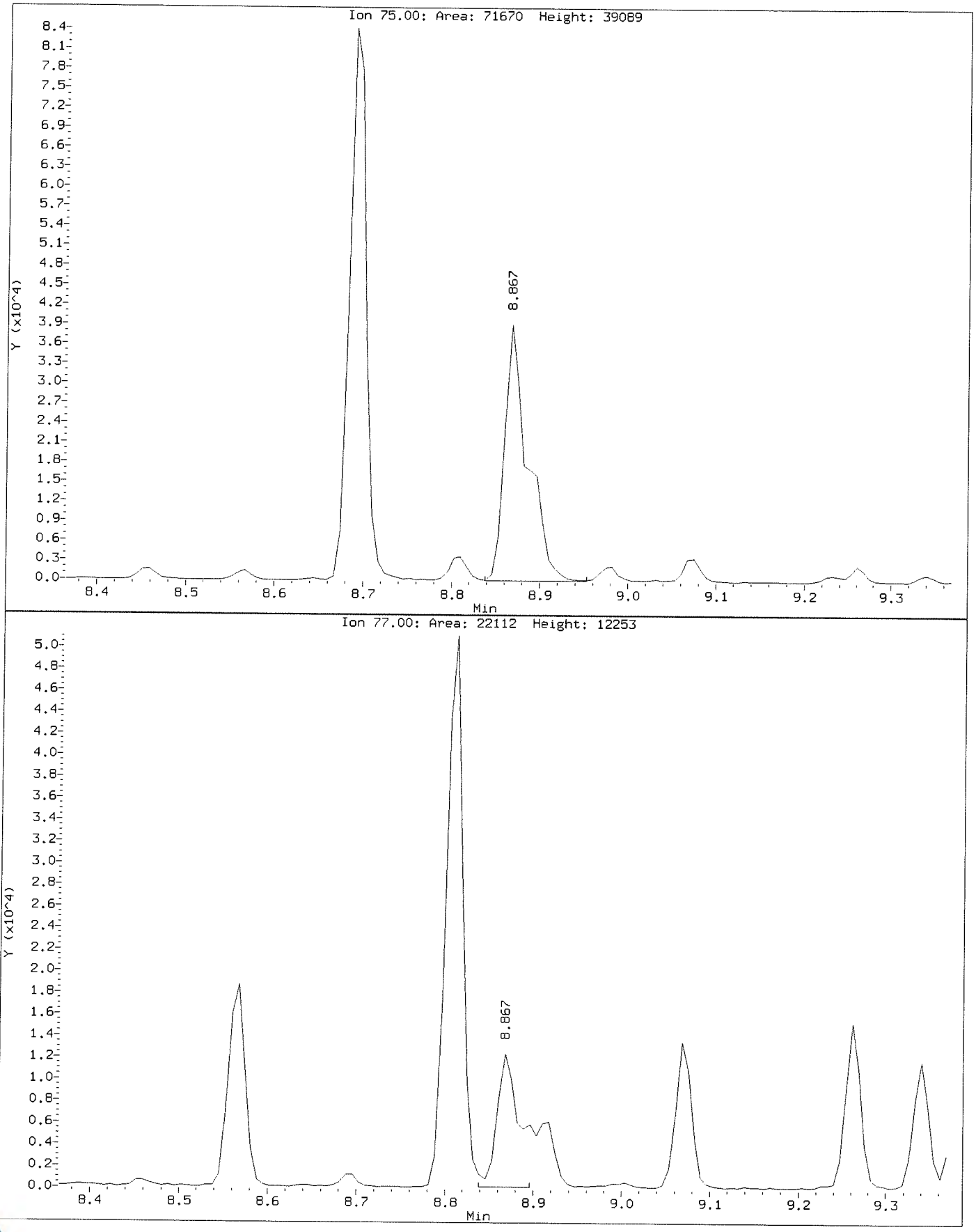
Date : 26-MAR-2019 17:03
Client ID: HS19031013-07MS
Sample Info: HS19031013-07MS;HS19031013-07MS;3;;MS
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\BEFORE\X032612.D
Injection Date: 26-MAR-2019 17:03
Instrument: voa6.i
Client Sample ID: HS19031013-07MS

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



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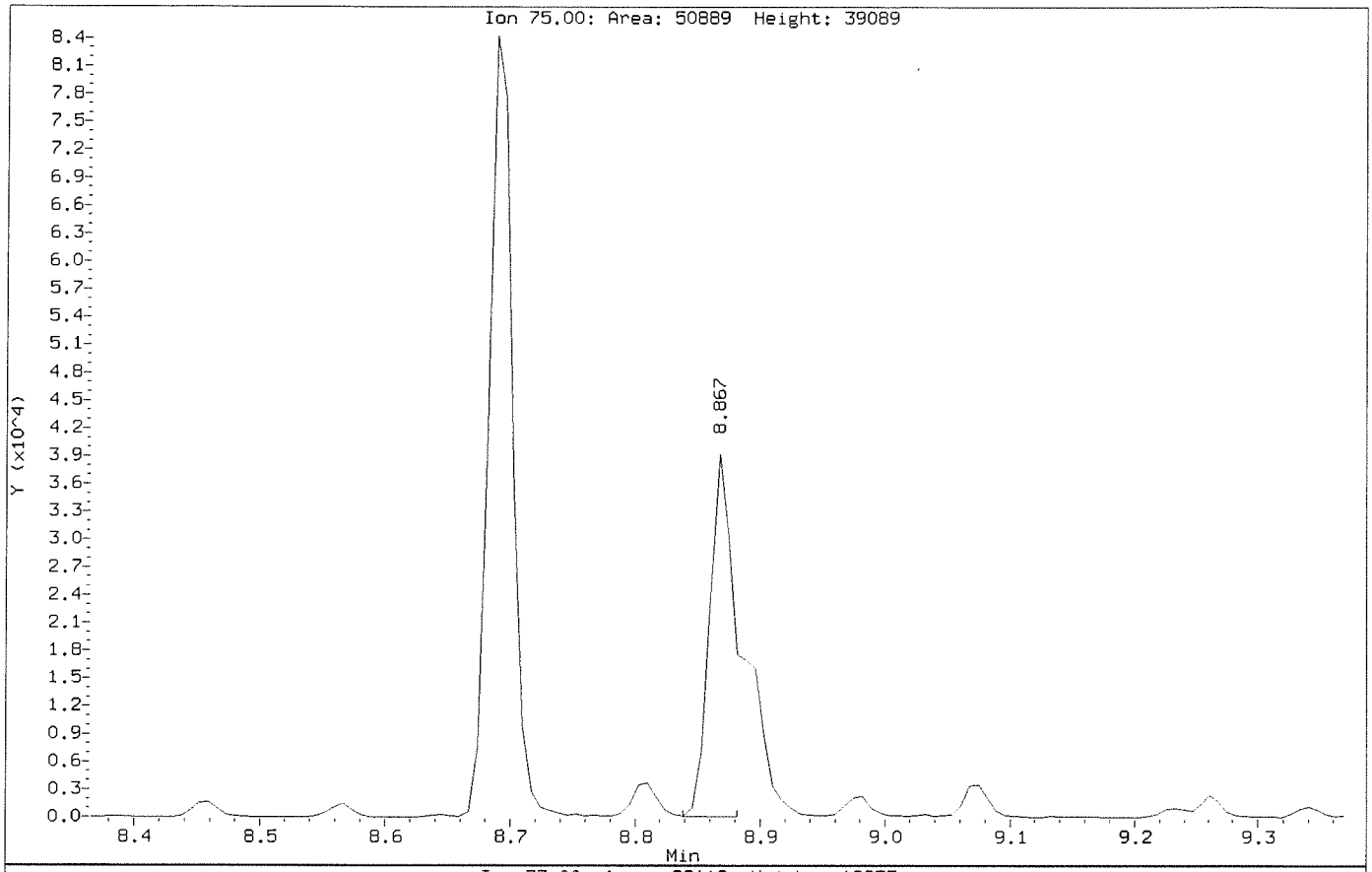
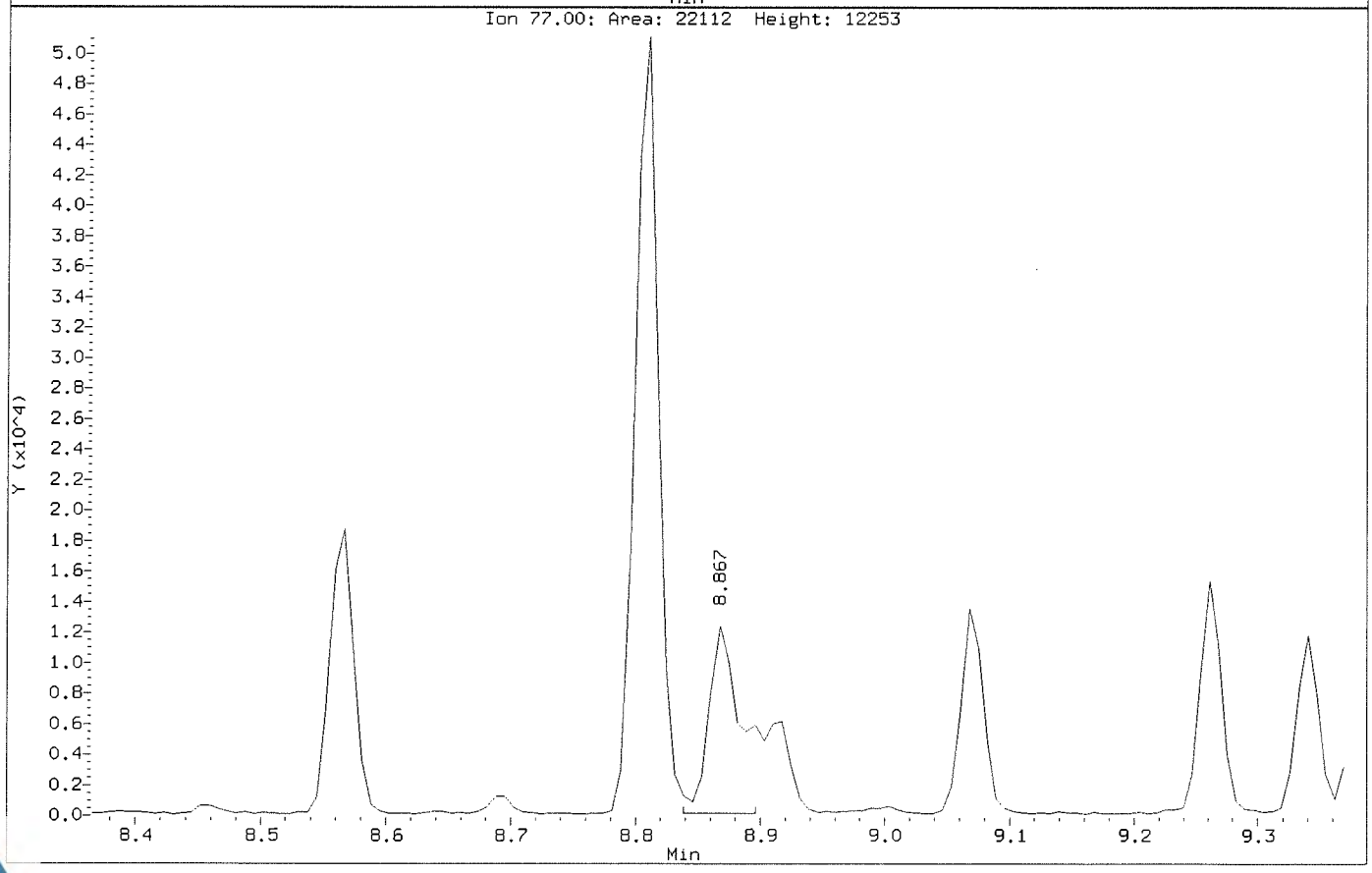
Injection Date: 26-MAR-2019 17:03
Instrument: voa6.i
Client Sample ID: HS19031013-07MS

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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Report Date: 29-Mar-2019 20:42

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032613.D
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Inj Date : 26-MAR-2019 17:27
Operator : PC Inst ID: voa6.i
Smp Info : HS19031013-07MSD;HS19031013-07MSD;3;;MSD
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X190326.b\8260W.m
Meth Date : 29-Mar-2019 20:42 voa6.i Quant Type: ISTD
Cal Date : 14-MAR-2019 14:20 Cal File: X031408.D
Als bottle: 11 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.189	(1.000)	438907	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	647862	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	603457	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	312908	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	198823	46.3176	46.31
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	224393	46.8048	46.80
$ 48 Toluene-d8	98	6.389	6.388	(0.833)	763069	50.9465	50.94
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	279316	50.6868	50.68
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	58199	14.2906	14.29
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	87817	13.7301	13.73
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	82983	16.4432	16.44
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	221322	66.8851	66.88
22 1,1-Dichloroethane	63	2.929	2.929	(0.700)	2006385	248.927	248.92(A)
11 1,1-Dichloroethene	96	1.919	1.919	(0.459)	4698577	1262.23	1262.23(A)
32 1,1-Dichloropropene	75	4.283	4.282	(0.862)	81502	13.9936	13.99
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	30978	13.9862	13.98
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	64113	16.4387	16.43(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	53516	13.6659	13.66
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	206994	13.8290	13.82
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	11188	18.2262	18.22
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	63291	15.9219	15.92
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	224716	25.1846	25.18

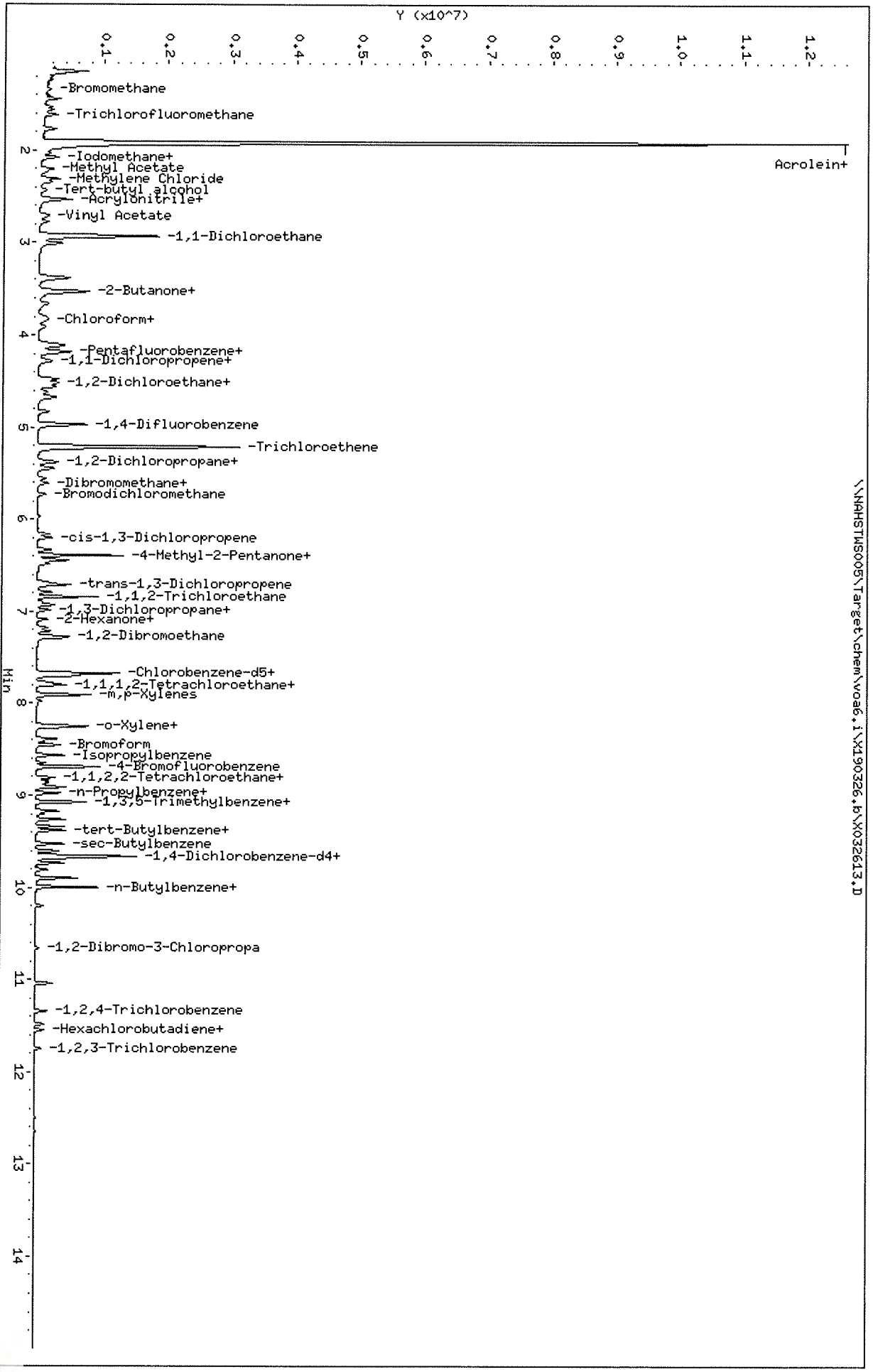
Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032613.D
Report Date: 29-Mar-2019 20:42

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	181313	33.1633	33.16
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	61120	13.4265	13.42
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	201567	13.6116	13.61
83	1,3-Dichlorobenzene	146	9.605	9.612	(0.993)	130853	13.8279	13.82
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	99840	14.8236	14.82
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	143643	14.8999	14.89
26	2,2-Dichloropropane	77	3.516	3.516	(0.841)	83378	13.4397	13.43
24	2-Butanone	43	3.581	3.580	(0.856)	53621	35.6669	35.66
76	2-Chlorotoluene	91	8.974	8.974	(0.928)	180321	13.4999	13.49
52	2-Hexanone	43	7.090	7.090	(0.924)	92531	38.8951	38.89
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	202636	13.3038	13.30
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	211080	13.6393	13.63
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	138093	37.7059	37.70
10	Acetone	43	1.976	1.976	(0.473)	38463	31.9675	31.96
37	Benzene	78	4.519	4.519	(0.909)	297251	17.9396	17.93
74	Bromobenzene	156	8.810	8.809	(0.911)	73378	13.7021	13.70
29	Bromochloromethane	128	3.803	3.803	(0.909)	33127	13.5067	13.50
39	Bromodichloromethane	83	5.730	5.729	(1.153)	77938	14.1008	14.10
66	Bromoform	173	8.416	8.416	(1.097)	47413	16.3906	16.39
6	Bromomethane	94	1.339	1.338	(0.320)	38264	13.0203	13.02
19	Carbon Disulfide	76	2.069	2.069	(0.495)	376628	29.4153	29.41
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	72094	15.6177	15.61
59	Chlorobenzene	112	7.699	7.699	(1.004)	163885	13.9372	13.93
7	Chloroethane	64	1.145	1.403	(0.274)	679662	213.748	213.74(A)
28	Chloroform	83	3.910	3.910	(0.935)	103163	13.2517	13.25
3	Chloromethane	50	1.074	1.081	(0.257)	74173	11.0378	11.03
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	377140	77.1018	77.10
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	99875	13.6952	13.69
55	Dibromochloromethane	129	7.176	7.176	(0.936)	63646	14.8347	14.83
44	Dibromomethane	93	5.558	5.557	(1.118)	40039	14.6870	14.68
2	Dichlorodifluoromethane	85	0.973	0.973	(0.233)	60495	14.8924	14.89
61	Ethylbenzene	106	7.800	7.799	(1.017)	83893	14.3708	14.37
91	Hexachlorobutadiene	225	11.489	11.488	(1.188)	26953	12.8890	12.88
67	Isopropylbenzene	105	8.566	8.566	(1.117)	249469	14.3182	14.31
62	m,p-Xylenes	106	7.907	7.907	(1.031)	203543	28.1268	28.12
17	Methylene Chloride	84	2.306	2.305	(0.551)	60442	13.1998	13.19
87	n-Butylbenzene	91	9.999	9.999	(1.034)	180597	13.5318	13.53
73	n-Propylbenzene	91	8.917	8.917	(0.922)	303053	13.9197	13.91
92	Naphthalene	128	11.546	11.546	(1.194)	98783	16.7416	16.74
63	o-Xylene	106	8.244	8.244	(1.075)	101921	14.0778	14.07
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	250069	13.7885	13.78
64	Styrene	104	8.258	8.258	(1.077)	166801	13.8981	13.89
78	tert-Butylbenzene	119	9.340	9.340	(0.966)	176570	13.7235	13.72
56	Tetrachloroethene	164	6.933	6.933	(0.904)	56677	15.6294	15.62
50	Toluene	91	6.446	6.446	(0.840)	250504	14.1954	14.19
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	80559	19.4477	19.44
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	85454	14.5387	14.53
38	Trichloroethene	130	5.207	5.214	(1.048)	1074394	235.671	235.67(A)
8	Trichlorofluoromethane	101	1.561	1.560	(0.373)	90746	14.6495	14.64
5	Vinyl Chloride	62	1.145	1.145	(0.274)	419531	74.0555	74.05

Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032613.D
Report Date: 29-Mar-2019 20:42

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.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0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
Min
2
3
4
5
6
7
8
9
10
11
12
13
14
-Bromomethane
-Trichlorofluoromethane
-Iodomethane+
-Methyl Acetate
-Methylene Chloride
-Tert-butyl alcohol
-Acrylonitrile+
-Vinyl Acetate
-1,1-Dichloroethane
-2-Butanone+
-Chloroform+
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-1,4-Difluorobenzene
-Trichloroethene
-1,2-Dichloropropane+
-Dibromomethane+
-Bromodichloromethane
-cis-1,3-Dichloropropene
-4-Methyl-2-Pentanone+
-trans-1,3-Dichloropropene
-1,1,2-Trichloroethane
-1,3-Dichloropropane+
-2-Hexanone+
-1,2-Dibromoethane
-Chlorobenzene-d5+
-1,1,1,2-Tetrachloroethane+
-m,p-Xylenes
-o-Xylene+
-Bromoform
-Isopropylbenzene
-4-Bromofluorobenzene
-1,1,2,2-Tetrachloroethane+
-n-Propylbenzene+
-1,3,5-Trimethylbenzene+
-tert-Butylbenzene+
-sec-Butylbenzene
-1,4-Dichlorobenzene-d4+
-n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Hexachlorobutadiene+
-1,2,3-Trichlorobenzene
Acrolein+
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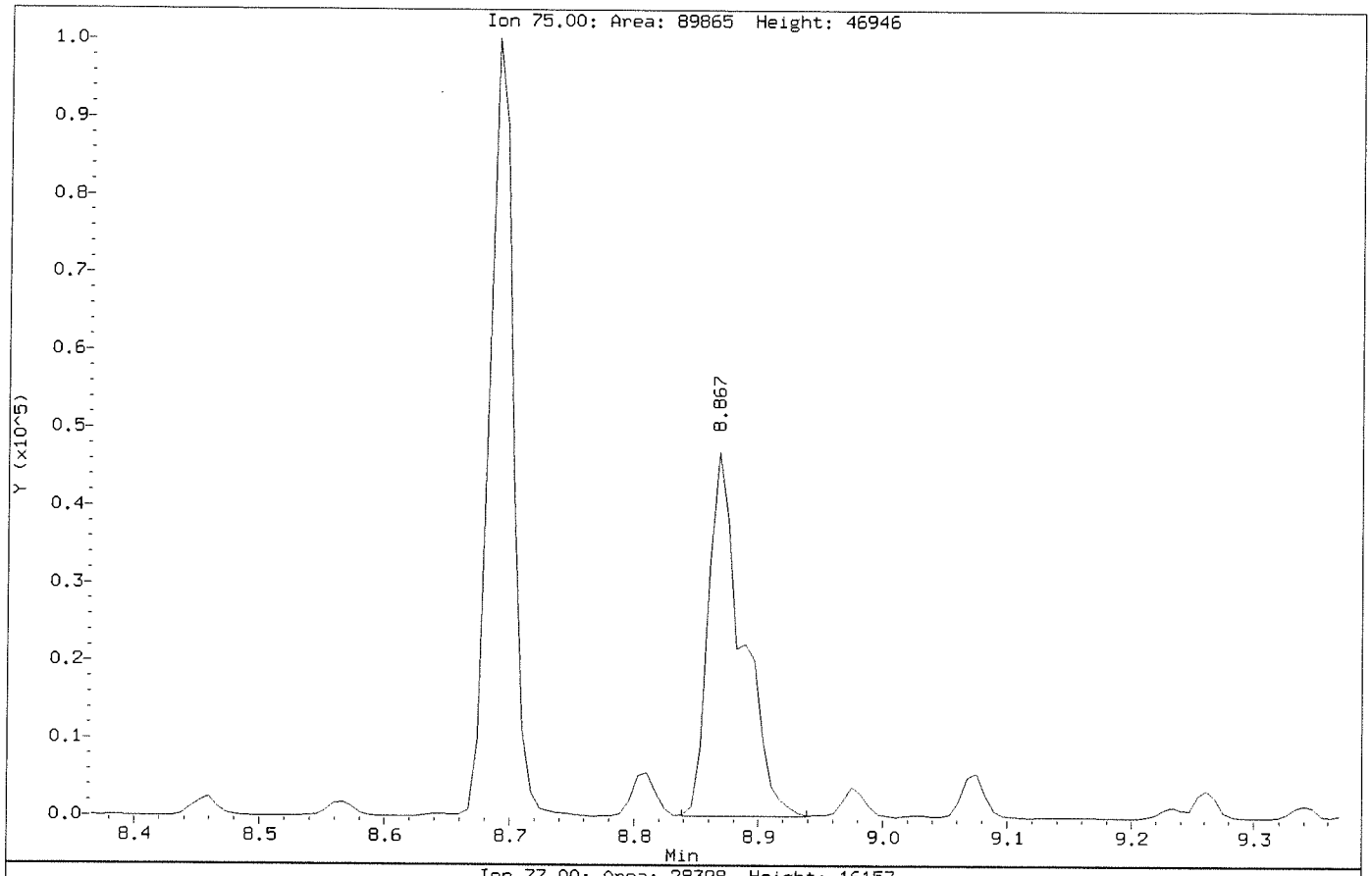
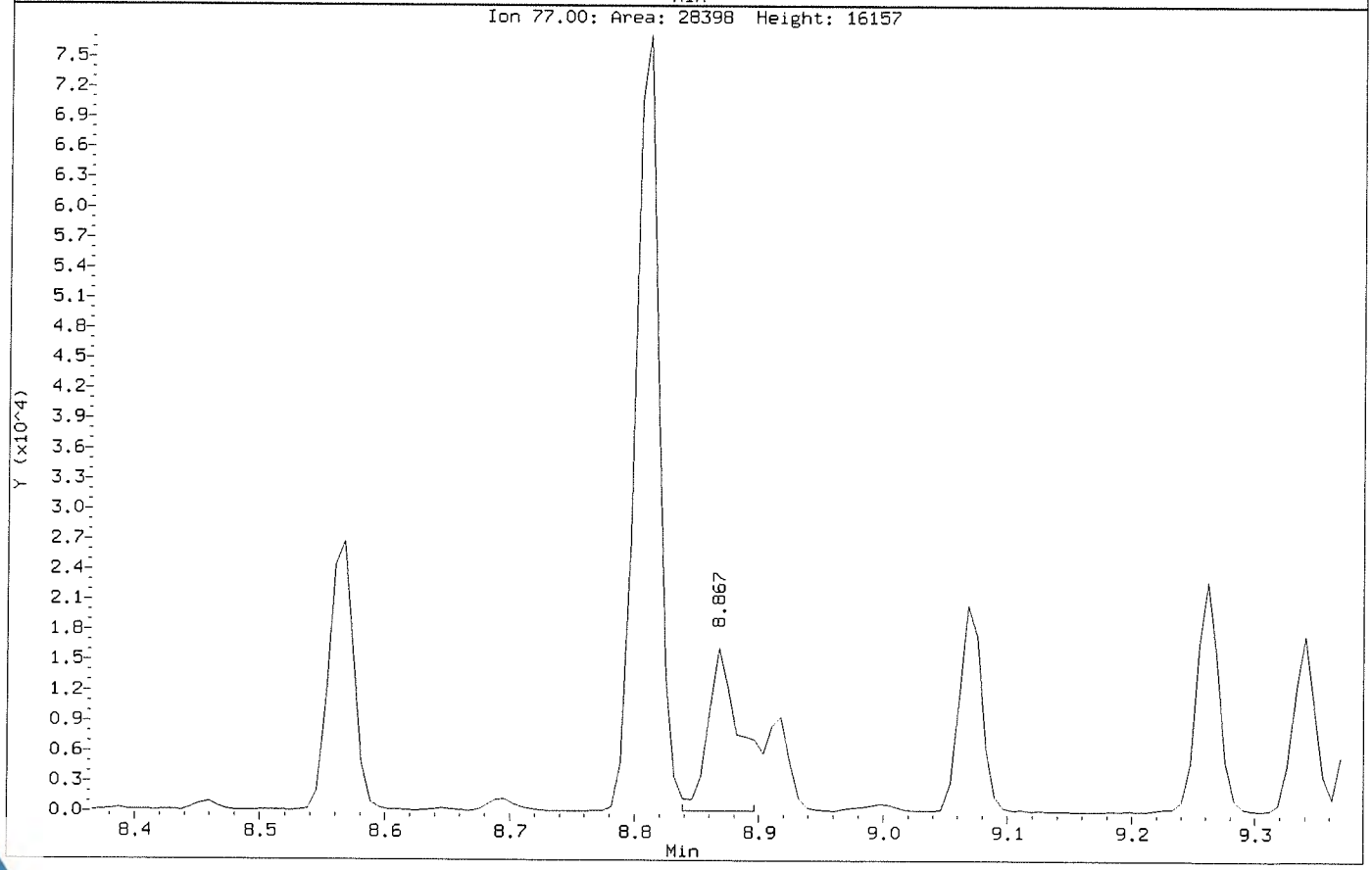
Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032613.D
Date : 26-MAR-2019 17:27
Client ID: HS19031013-07MSD
Sample Info: HS19031013-07MSD;HS19031013-07MSD;3;;MSD
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\BEFORE\X032613.D
Injection Date: 26-MAR-2019 17:27
Instrument: voa6.i
Client Sample ID: HS19031013-07MSD

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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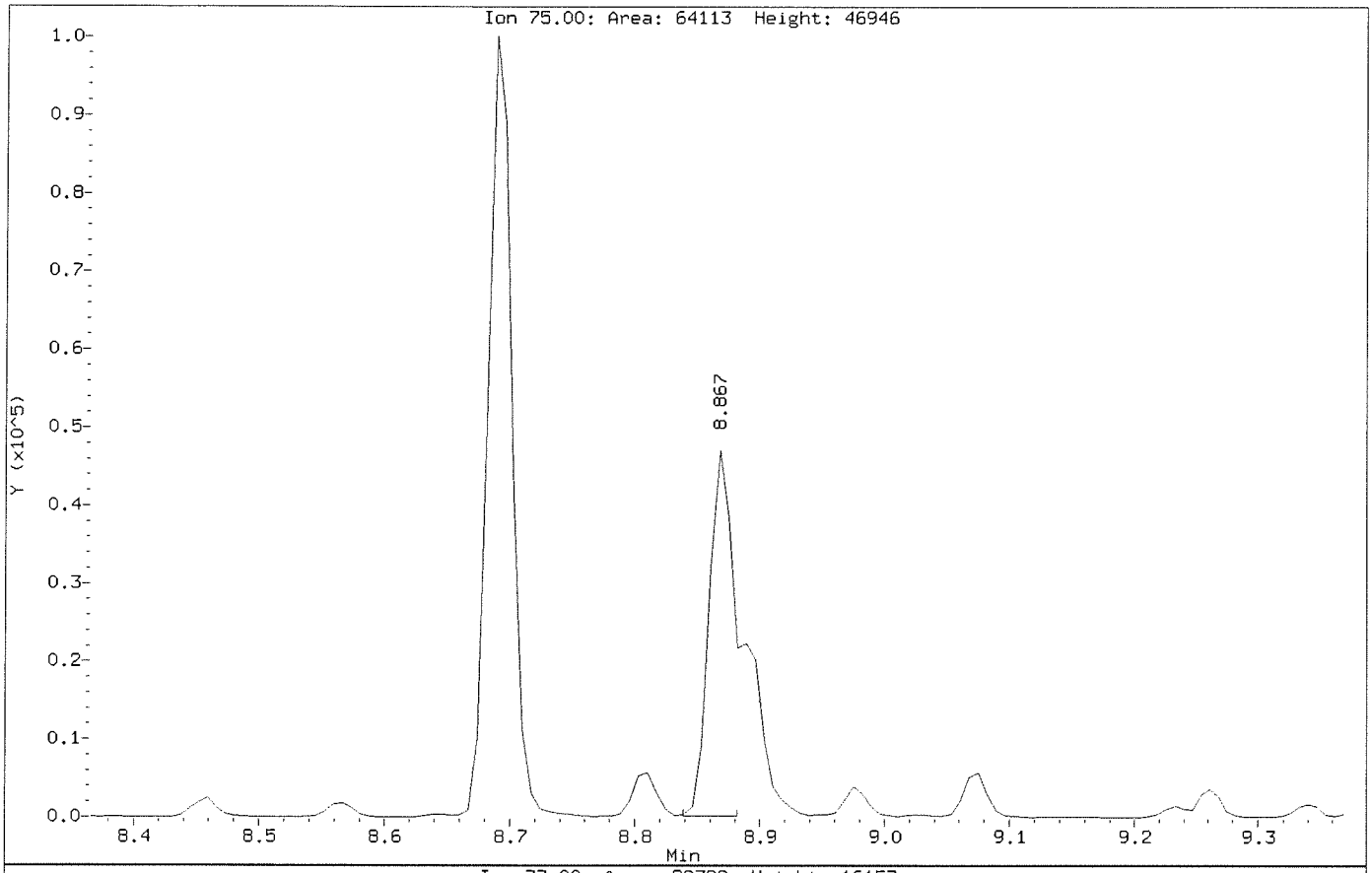
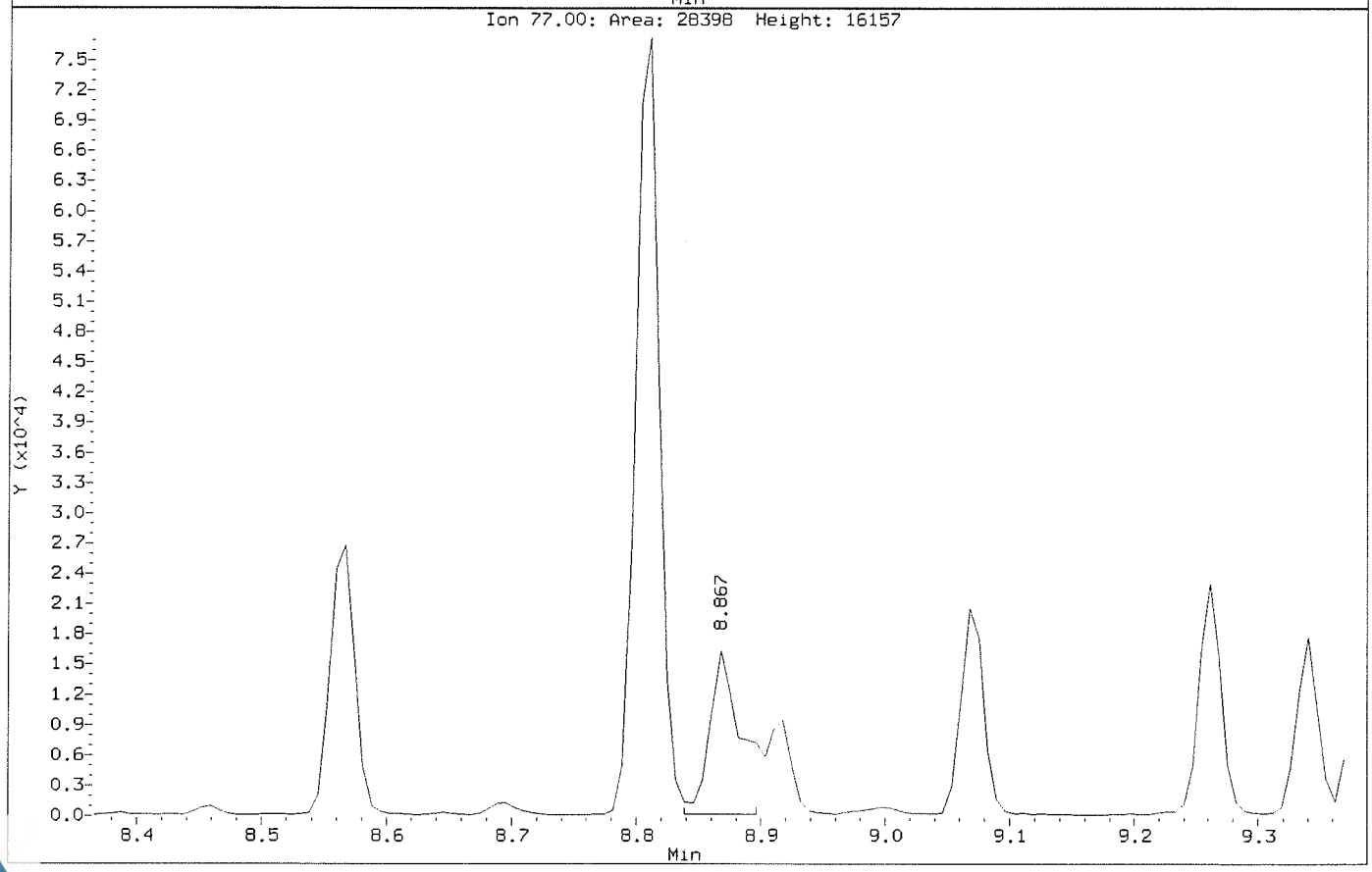
Injection Date: 26-MAR-2019 17:27
Instrument: voa6.i
Client Sample ID: HS19031013-07MSD

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032614.D
Report Date: 29-Mar-2019 20:43

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032614.D
Lab Smp Id: HS19031013-07DL Client Smp ID: HS19031013-07DL
Inj Date : 26-MAR-2019 17:54
Operator : PC Inst ID: voa6.i
Smp Info : HS19031013-07;HS19031013-07;;;
Misc Info : HS18090001;WATER;0;25;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X190326.b\8260W.m
Meth Date : 29-Mar-2019 20:42 voa6.i Quant Type: ISTD
Cal Date : 14-MAR-2019 14:20 Cal File: X031408.D
Als bottle: 12
Dil Factor: 25.00000
Integrator: HP RTE Compound Sublist: bhate.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

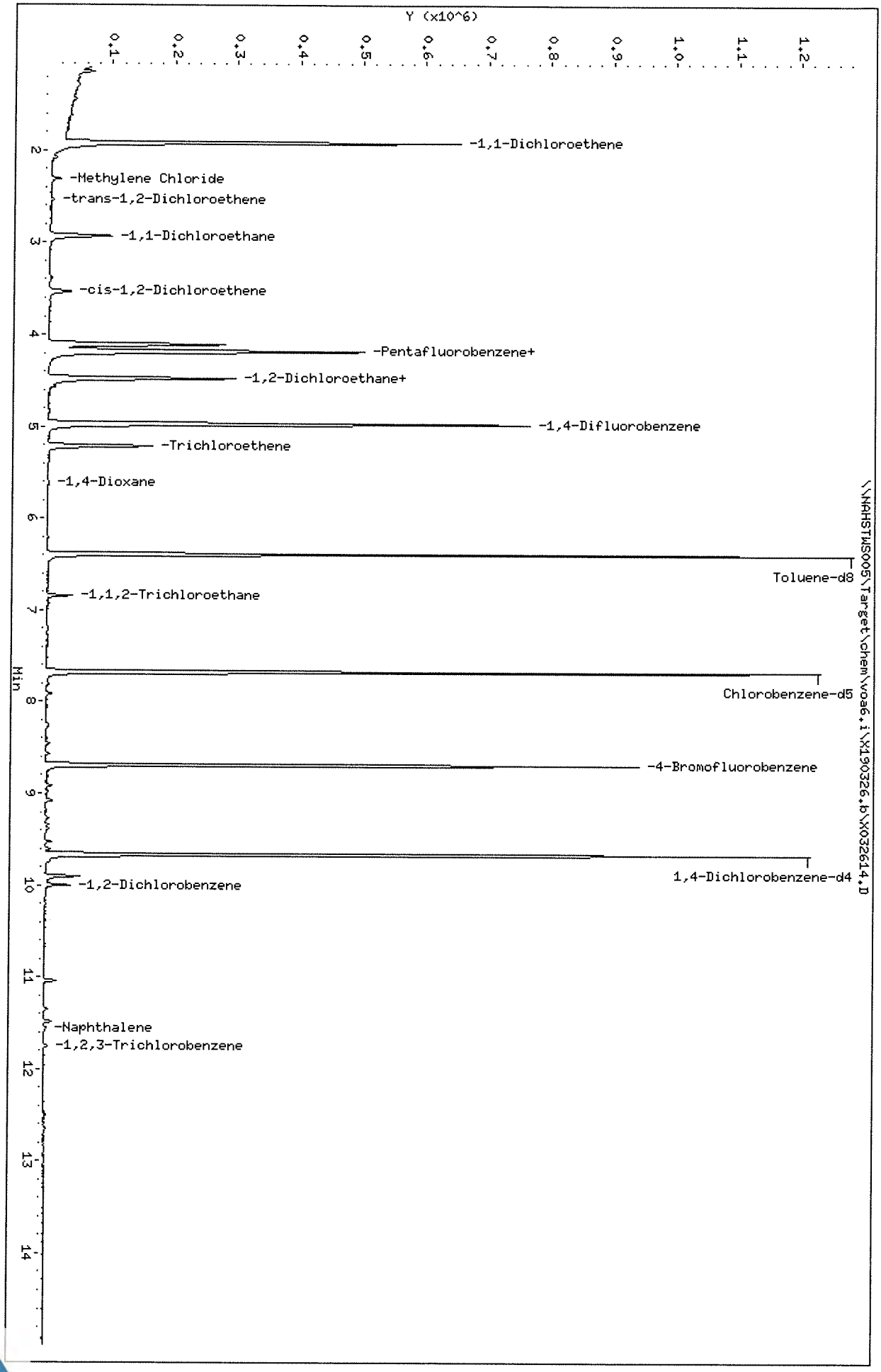
Name	Value	Description
DF	25.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.182	(1.000)	439715	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	644234	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	575738	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	292307	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	195907	45.5532	45.55
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	218213	45.4254	45.42
$ 48 Toluene-d8	98	6.389	6.388	(0.833)	744136	52.0789	52.07
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	262298	49.8846	49.88
53 1,1,2-Trichloroethane	83	6.847	6.840	(0.893)	10182	3.22522	80.63(a)
22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	106139	13.1442	328.60
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	231168	61.9872	1549.68
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	1962	0.94825	23.70(a)
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	9649	1.15761	28.94(a)
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	6913	1.27155	31.78(a)
27 cis-1,2-Dichloroethene	96	3.538	3.530	(0.844)	18233	3.72067	93.01(a)
17 Methylene Chloride	84	2.306	2.306	(0.550)	5881	1.25012	31.25(a)
92 Naphthalene	128	11.553	11.546	(1.195)	4117	0.74692	18.67(a)
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	1757	0.42338	10.58(a)
38 Trichloroethene	130	5.214	5.214	(1.049)	58928	12.9988	324.96

Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032614.D
Report Date: 29-Mar-2019 20:43

QC Flag Legend

a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).



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Date : 26-MAR-2019 17:54
Client ID: HS19031013-07DL
Sample Info: HS19031013-07;HS19031013-07;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032614.D

Date : 26-MAR-2019 17:54

Client ID: HS19031013-07DL

Instrument: voa6.i

Sample Info: HS19031013-07;HS19031013-07;;;

Purge Volume: 5.0

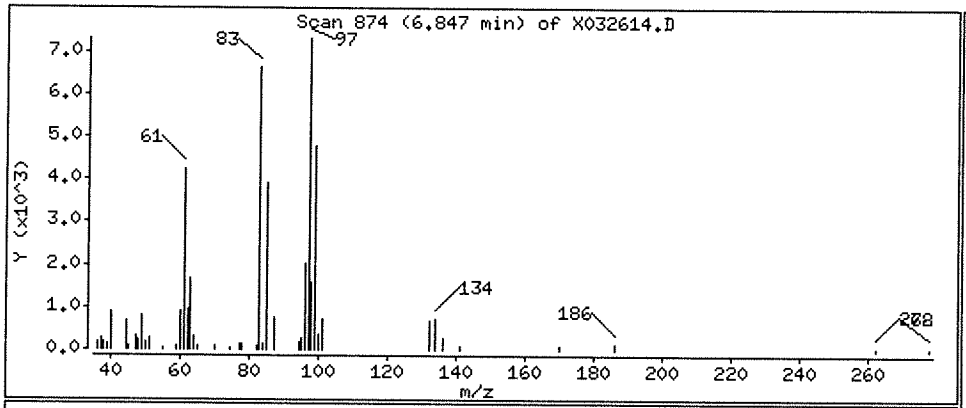
Operator: PC

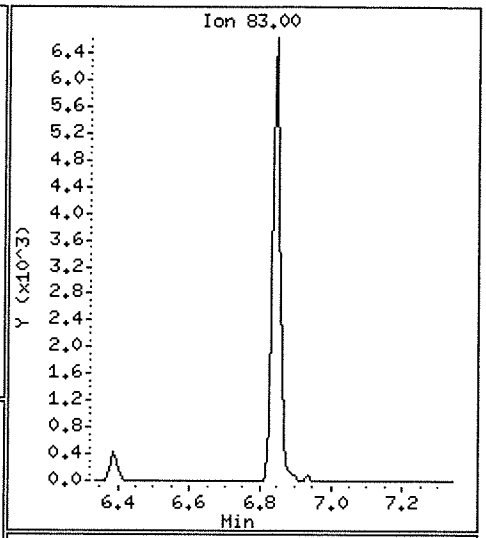
Column phase: DB624

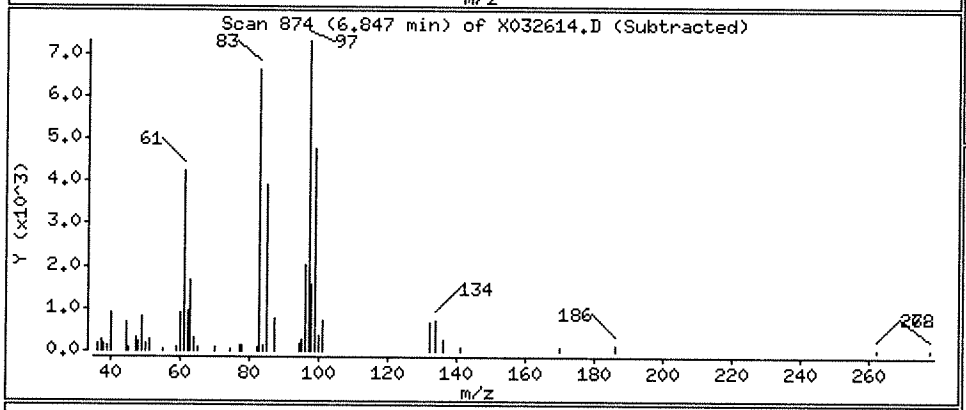
Column diameter: 0.18

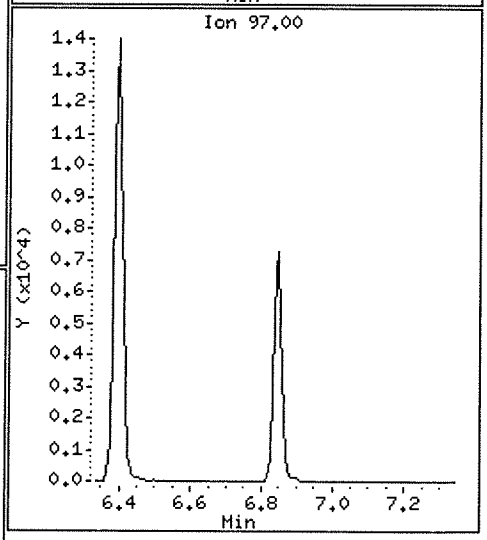
53 1,1,2-Trichloroethane

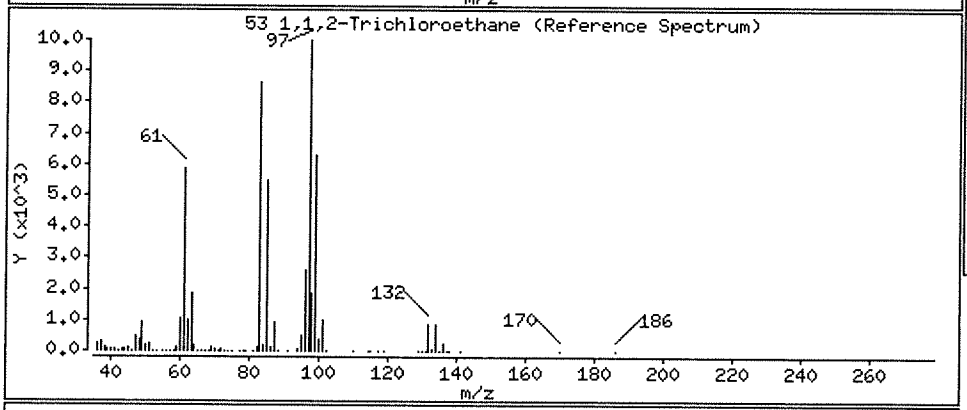
Concentration: 80.63 ug/l

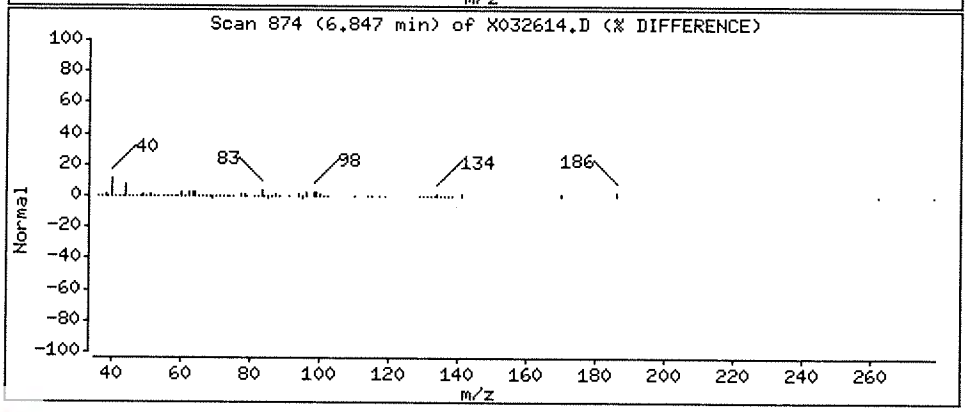












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Date : 26-MAR-2019 17:54

Client ID: HS19031013-07DL

Instrument: voa6.i

Sample Info: HS19031013-07;HS19031013-07;;;

Purge Volume: 5.0

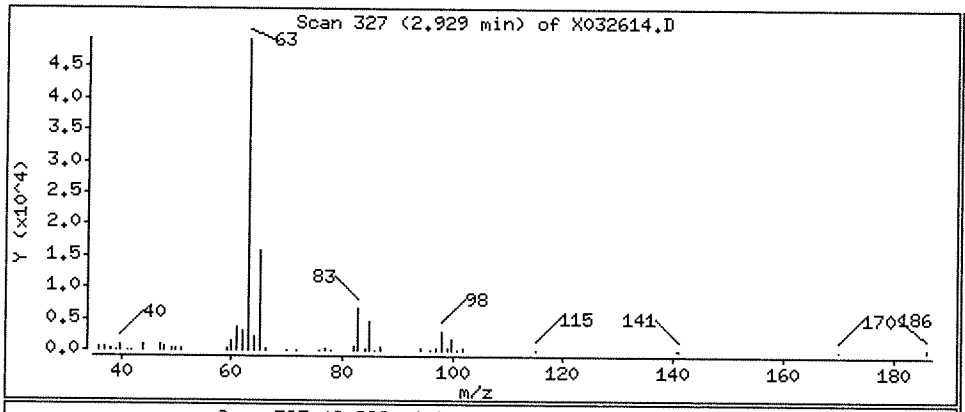
Operator: PC

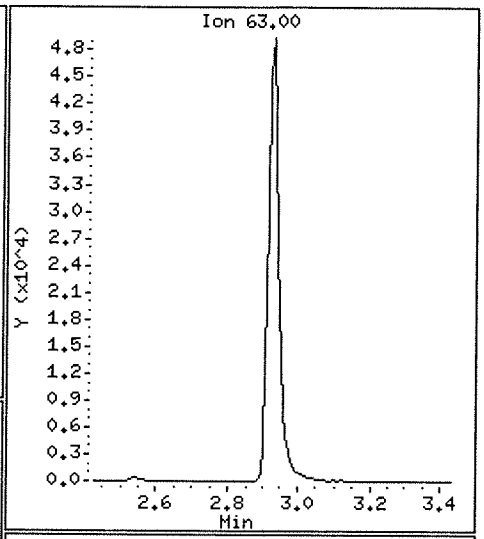
Column phase: DB624

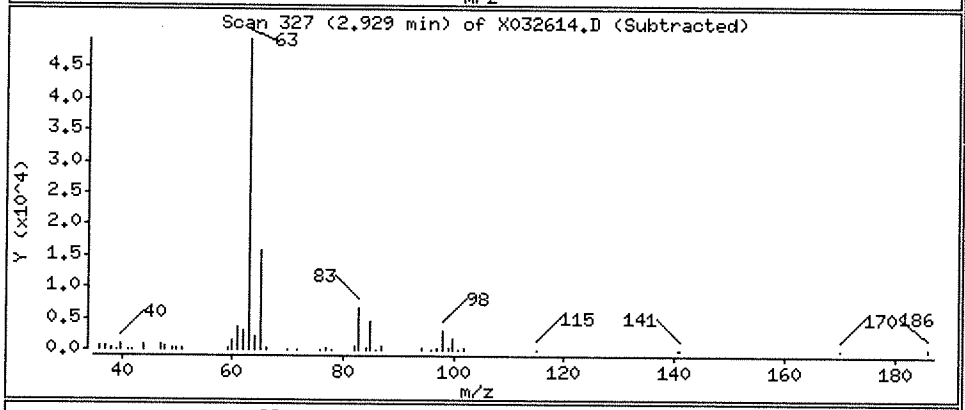
Column diameter: 0.18

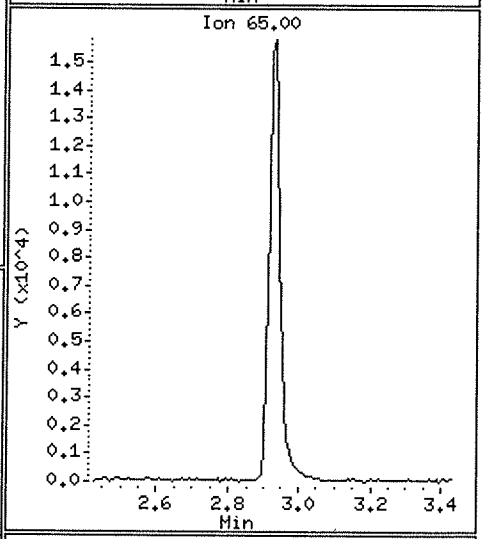
22 1,1-Dichloroethane

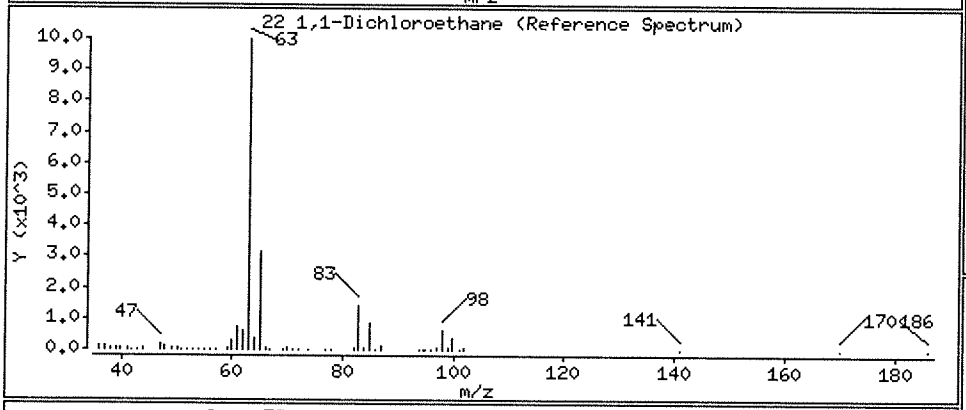
Concentration: 328.60 ug/l

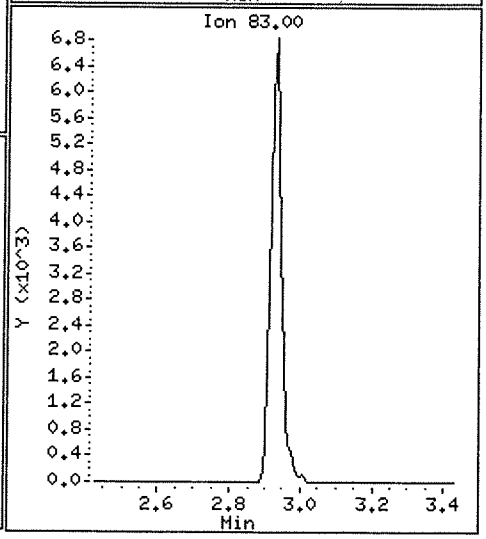


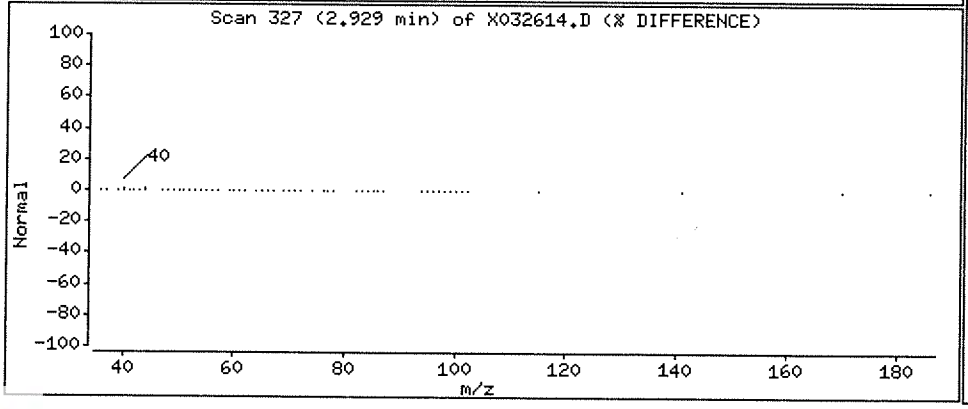












Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032614.D

Date : 26-MAR-2019 17:54

Client ID: HS19031013-07DL

Instrument: voa6.i

Sample Info: HS19031013-07;HS19031013-07;;;

Purge Volume: 5.0

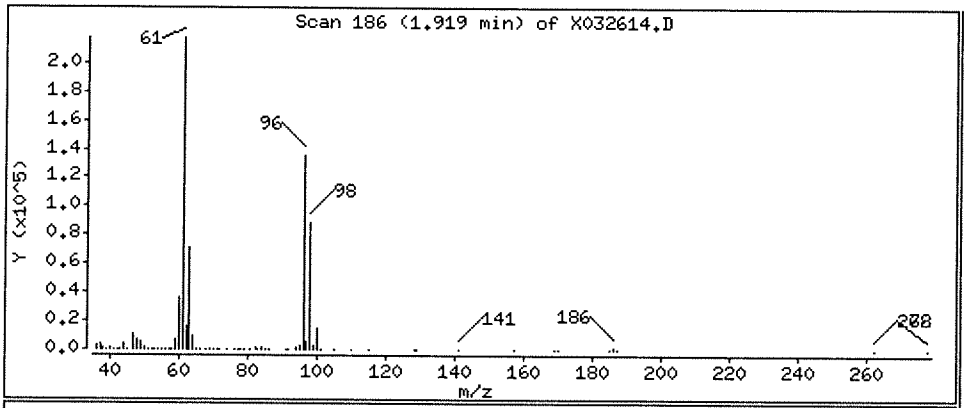
Operator: PC

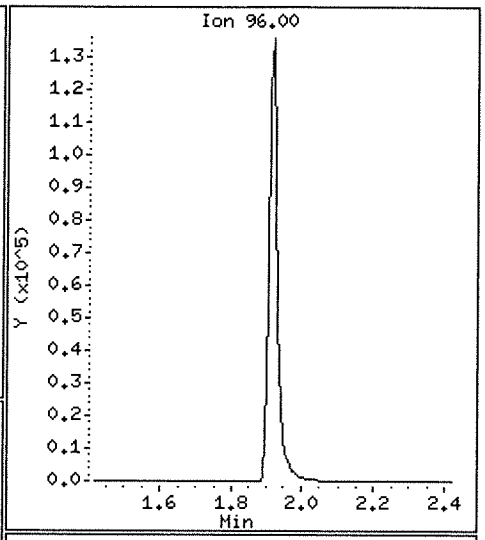
Column phase: DB624

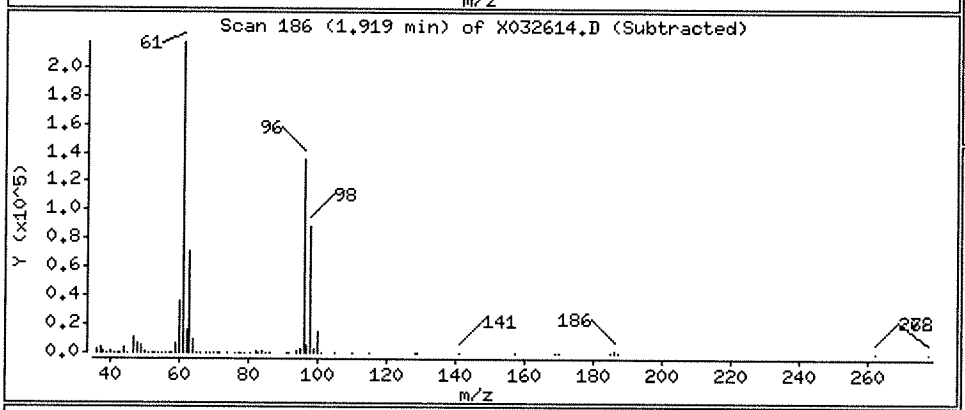
Column diameter: 0.18

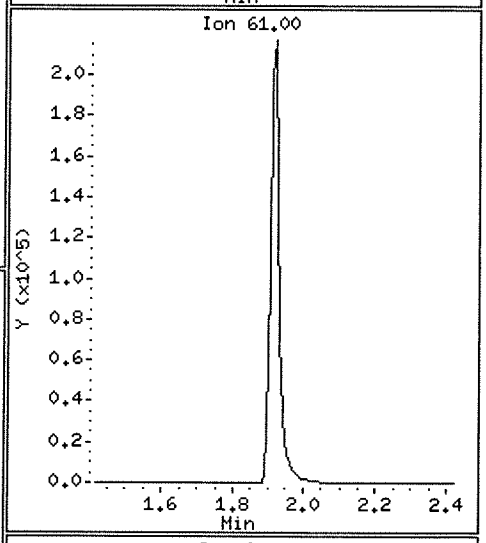
11 1,1-Dichloroethene

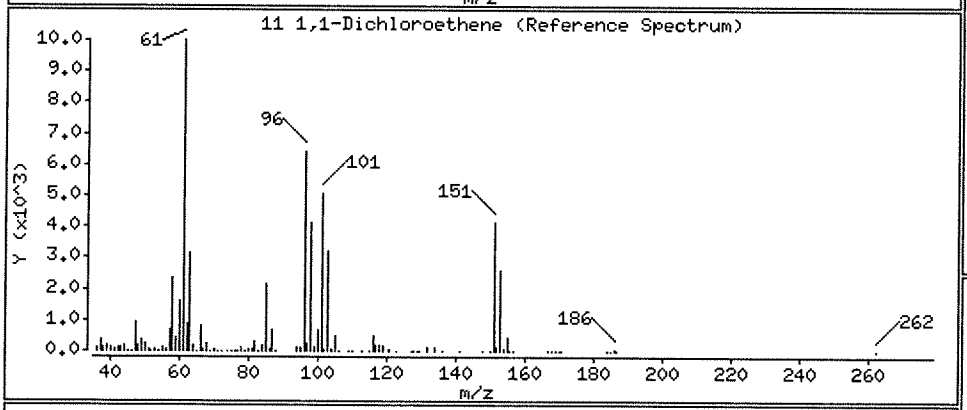
Concentration: 1549.68 ug/l

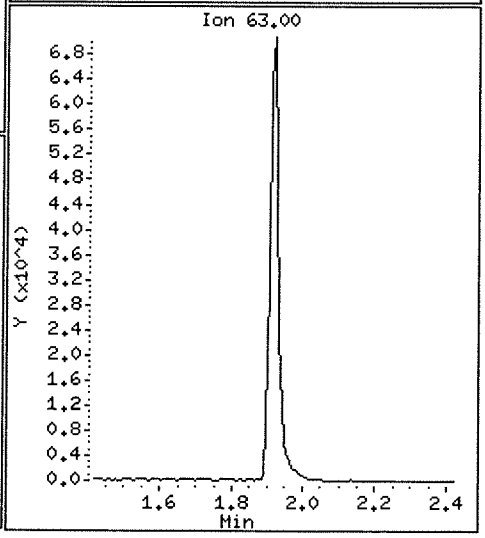


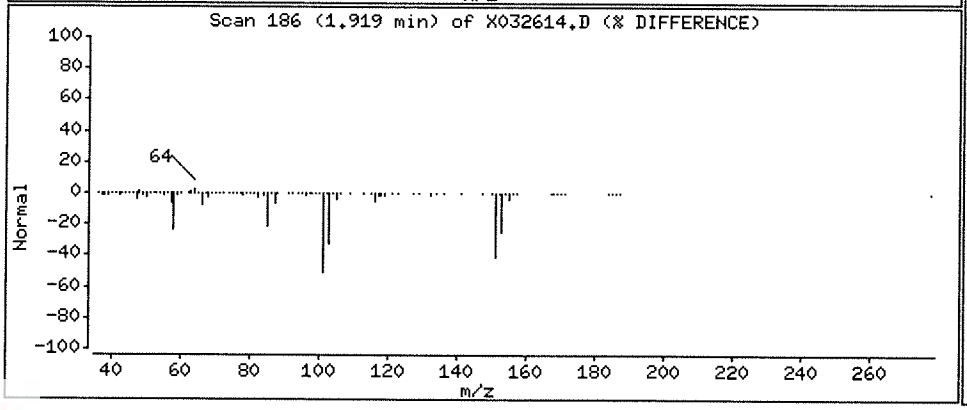












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Date : 26-MAR-2019 17:54

Client ID: HS19031013-07DL

Instrument: voa6.i

Sample Info: HS19031013-07;HS19031013-07;;;

Purge Volume: 5.0

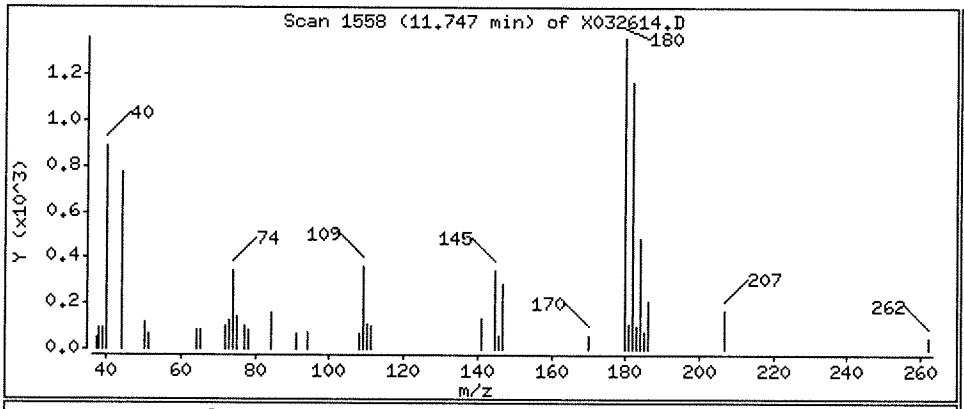
Operator: PC

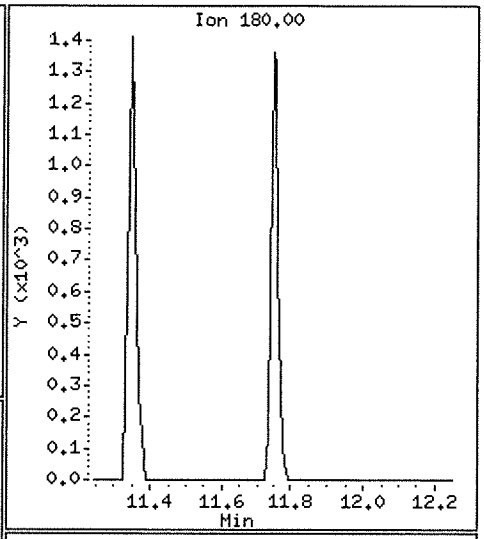
Column phase: DB624

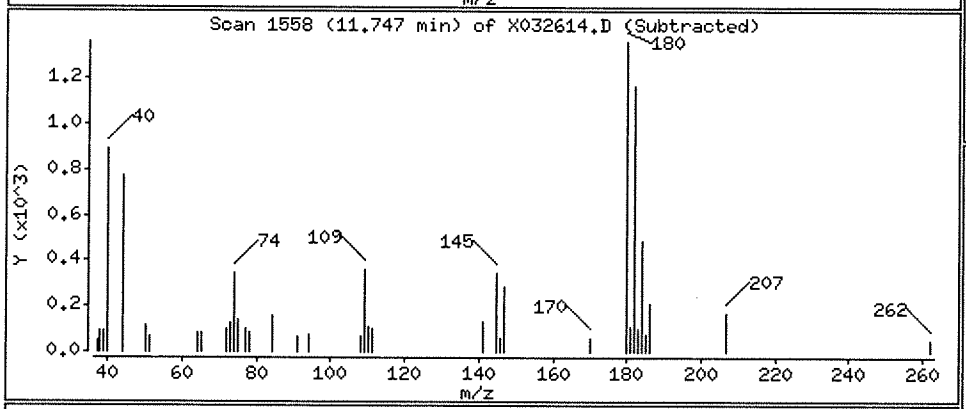
Column diameter: 0.18

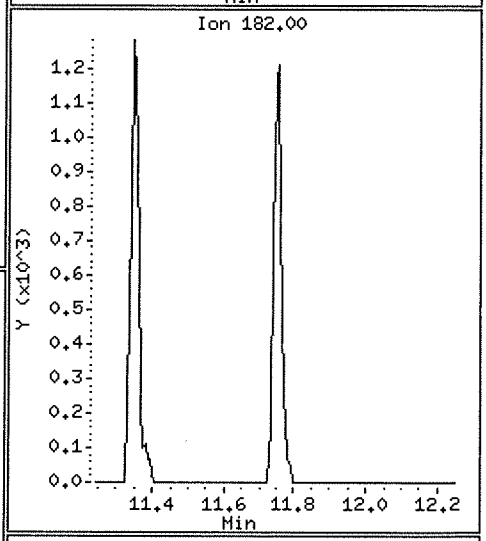
93 1,2,3-Trichlorobenzene

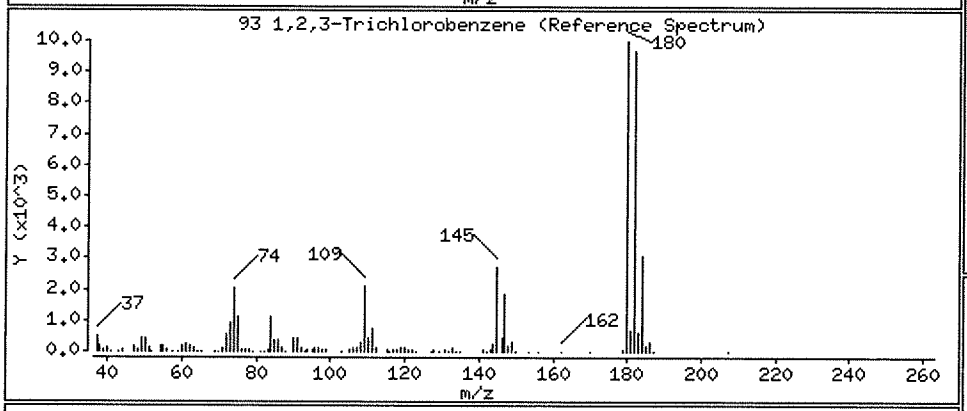
Concentration: 23.70 ug/l

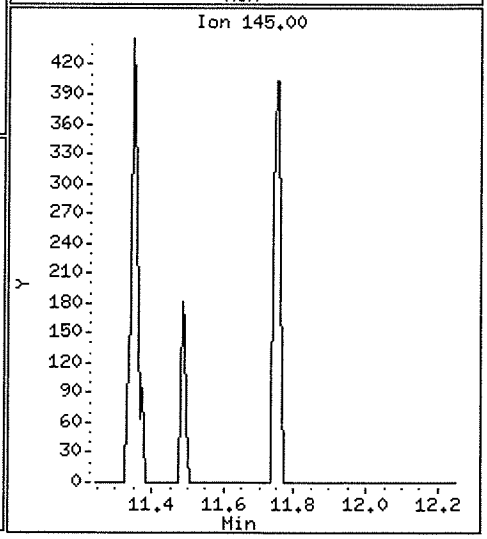


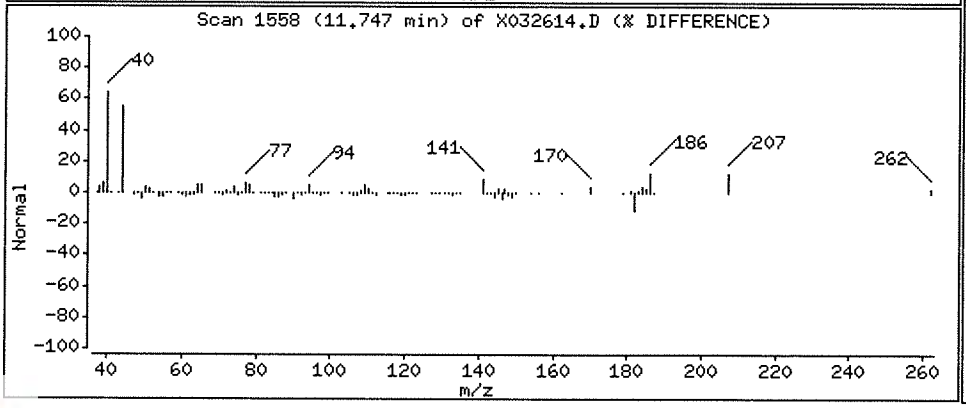












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Date : 26-MAR-2019 17:54

Client ID: HS19031013-07DL

Instrument: voa6.i

Sample Info: HS19031013-07;HS19031013-07;;;

Purge Volume: 5.0

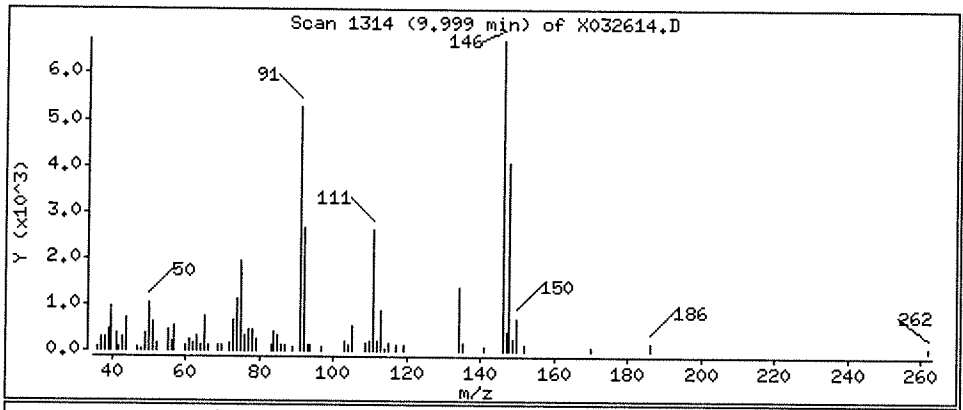
Operator: PC

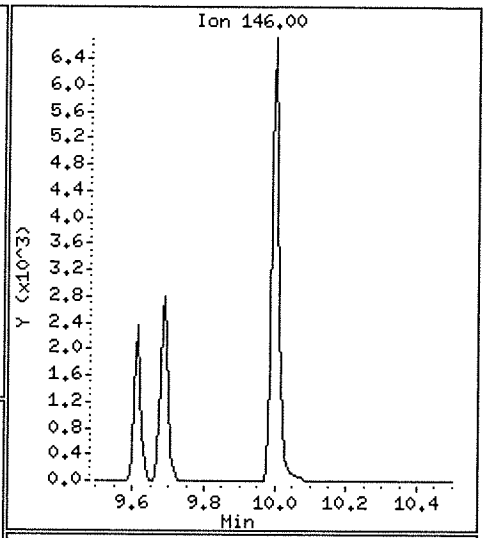
Column phase: DB624

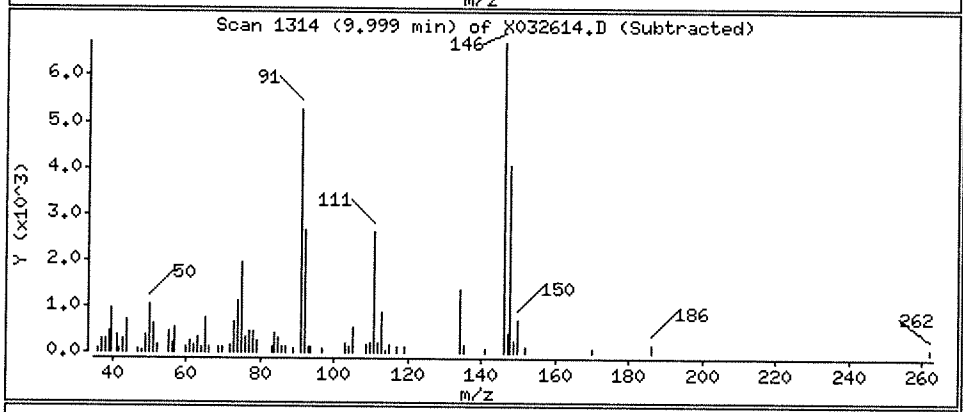
Column diameter: 0.18

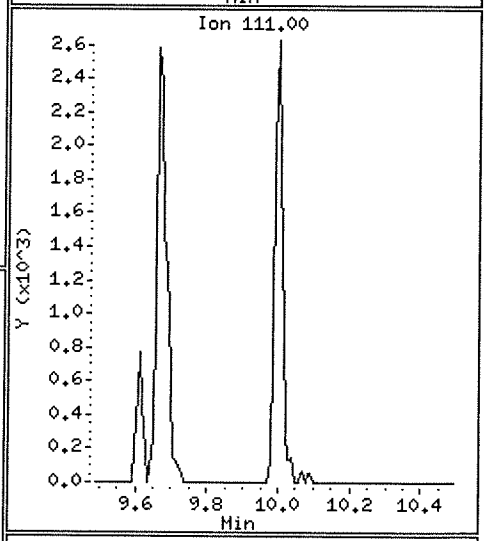
88 1,2-Dichlorobenzene

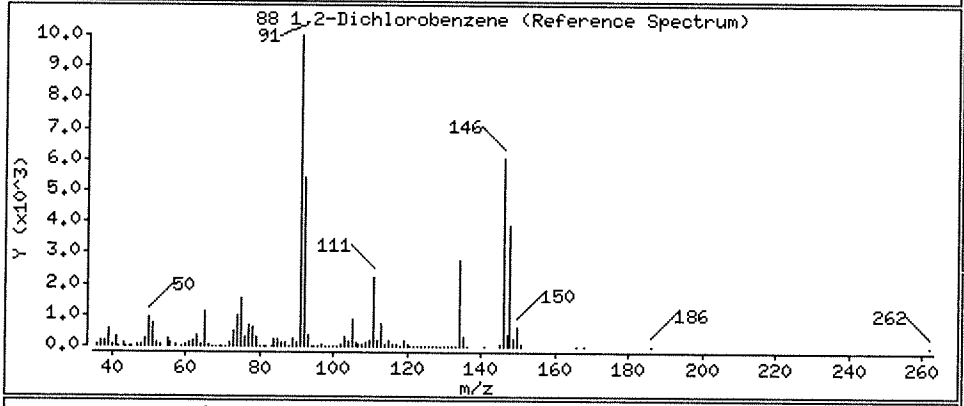
Concentration: 28.94 ug/l

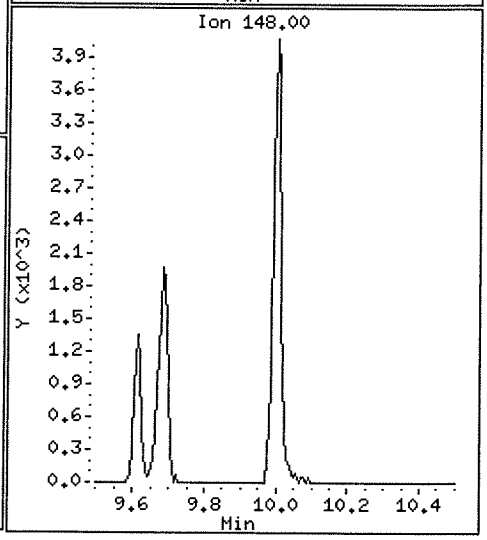


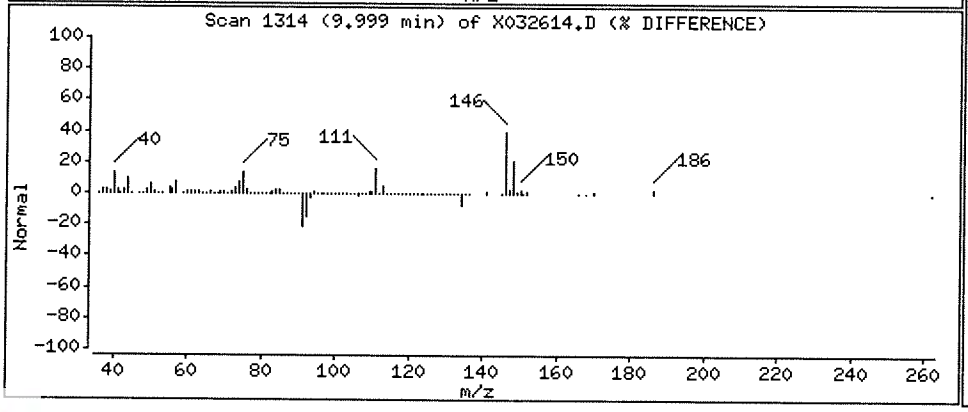












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Date : 26-MAR-2019 17:54

Client ID: HS19031013-07DL

Instrument: voa6.i

Sample Info: HS19031013-07;HS19031013-07;;;

Purge Volume: 5.0

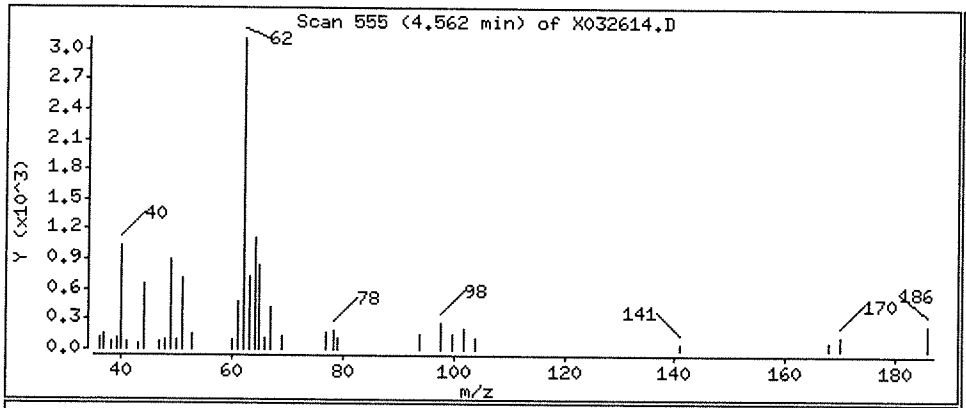
Operator: PC

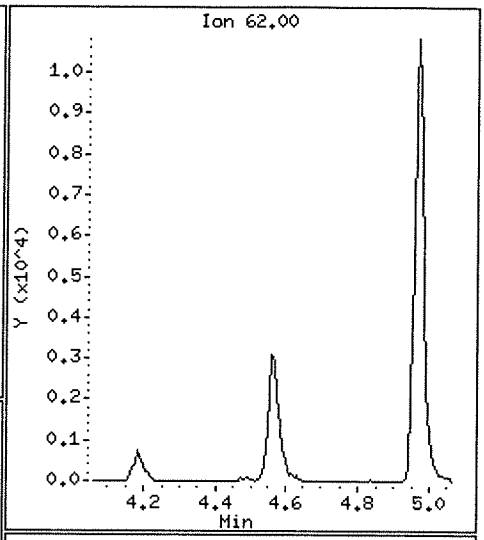
Column phase: DB624

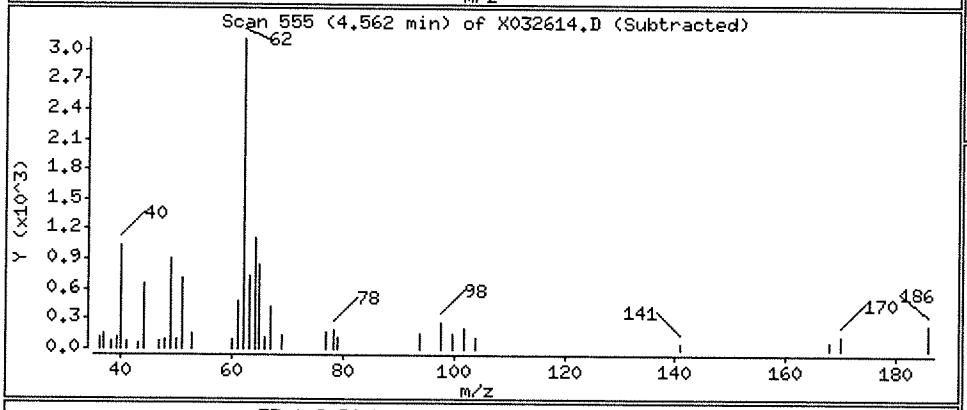
Column diameter: 0.18

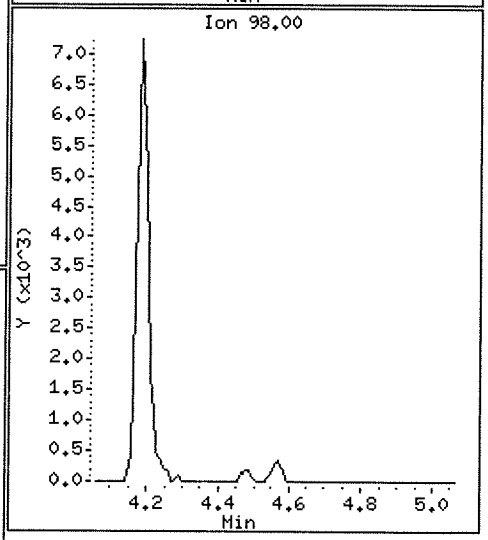
33 1,2-Dichloroethane

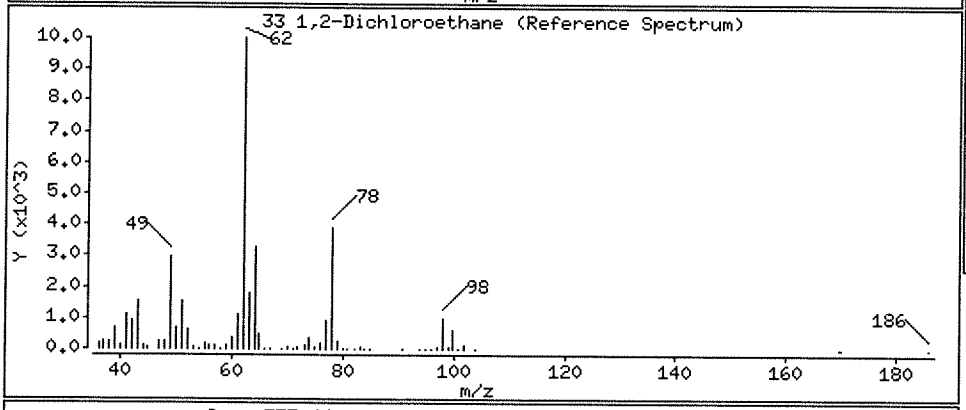
Concentration: 31.78 ug/l

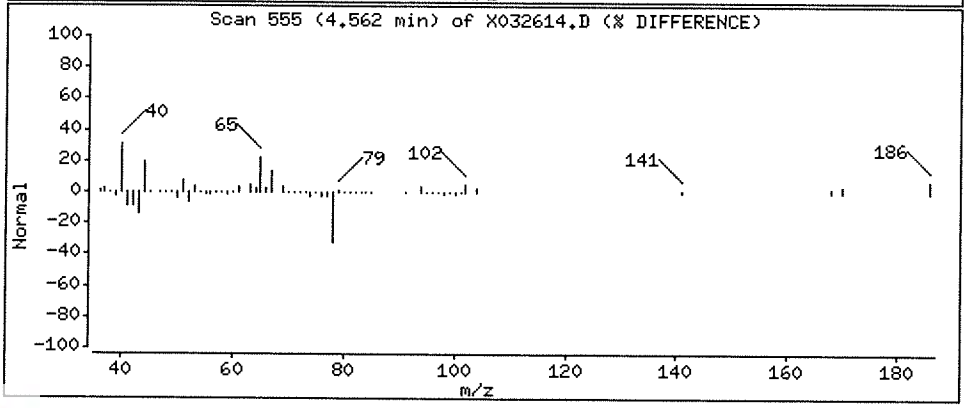












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Date : 26-MAR-2019 17:54

Client ID: HS19031013-07DL

Instrument: voa6.i

Sample Info: HS19031013-07;HS19031013-07;;;

Purge Volume: 5.0

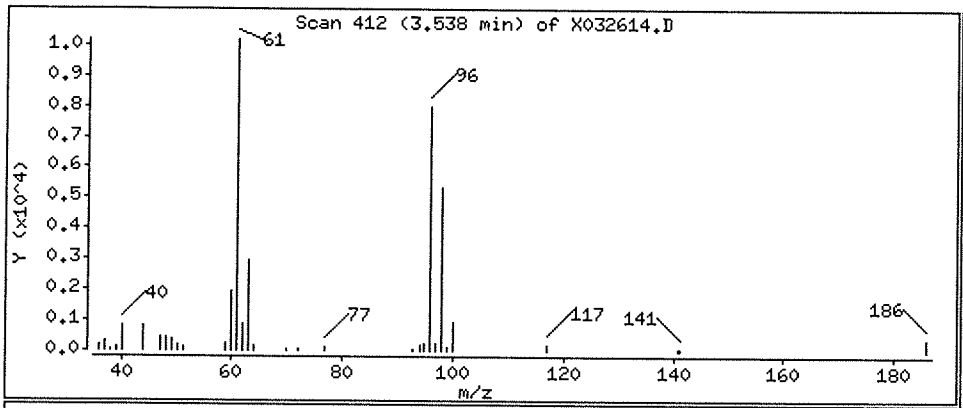
Operator: PC

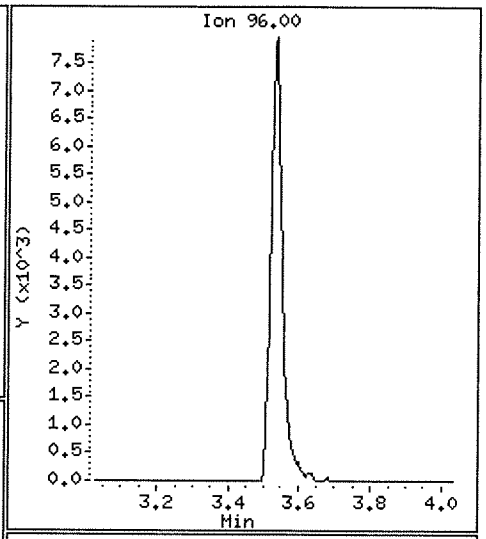
Column phase: DB624

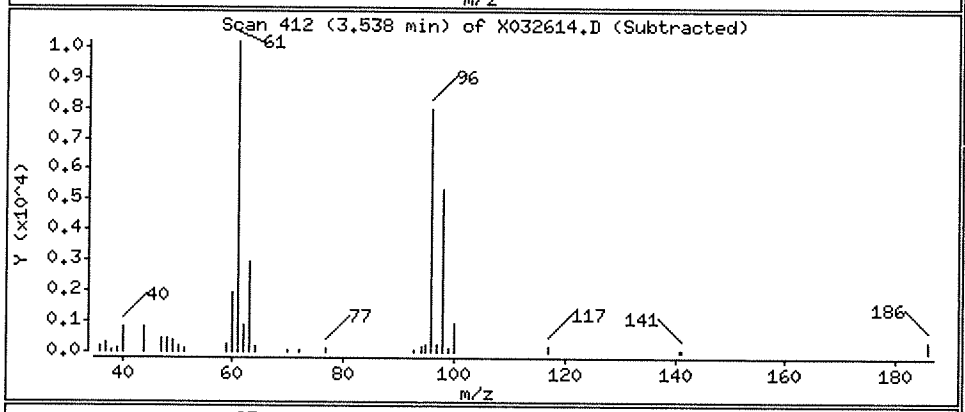
Column diameter: 0.18

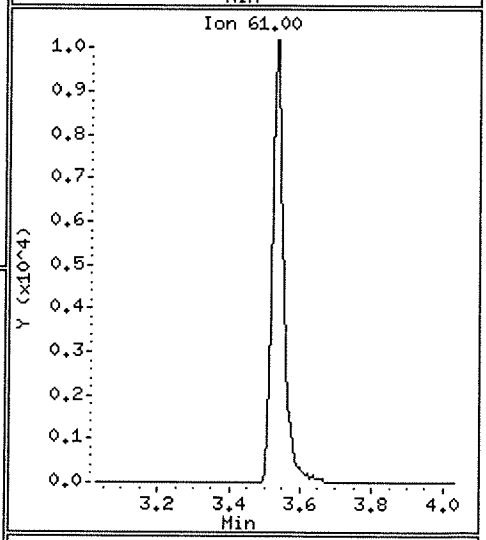
27 cis-1,2-Dichloroethene

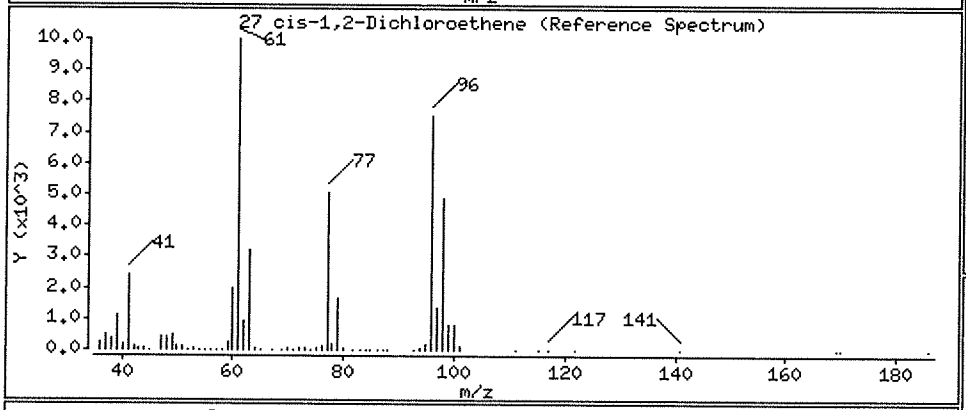
Concentration: 93.01 ug/l

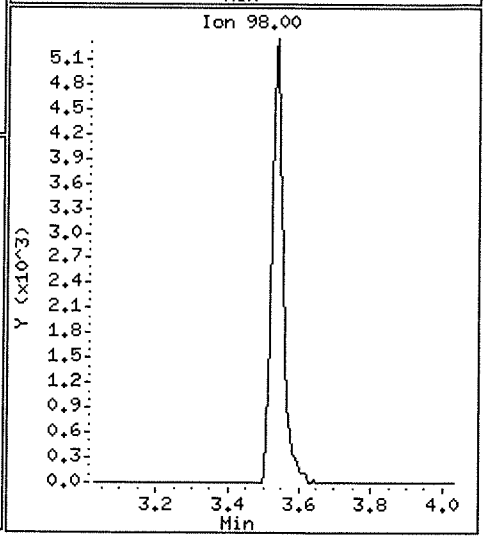


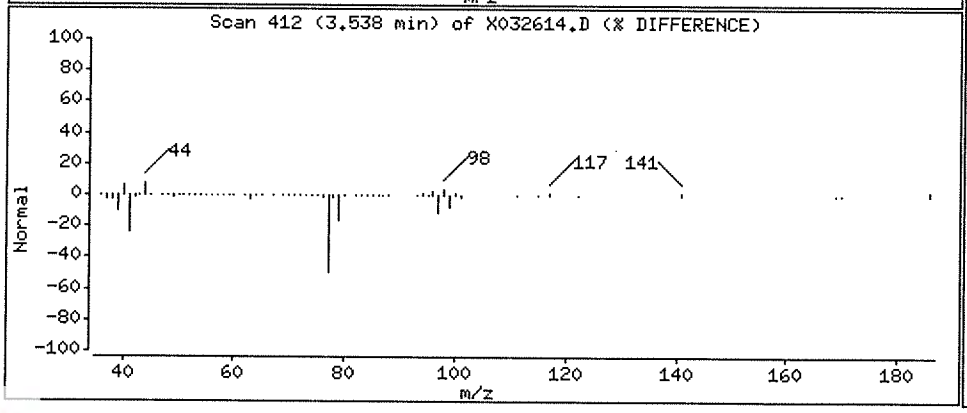












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Date : 26-MAR-2019 17:54

Client ID: HS19031013-07DL

Instrument: voa6.i

Sample Info: HS19031013-07;HS19031013-07;;;

Purge Volume: 5.0

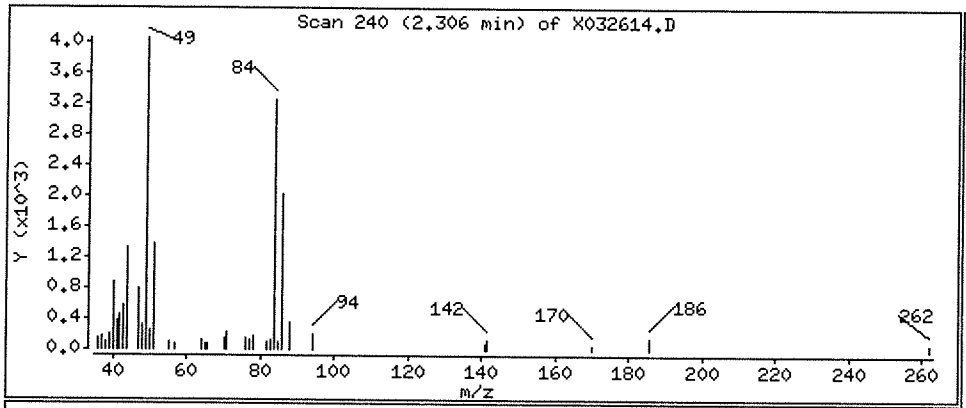
Operator: PC

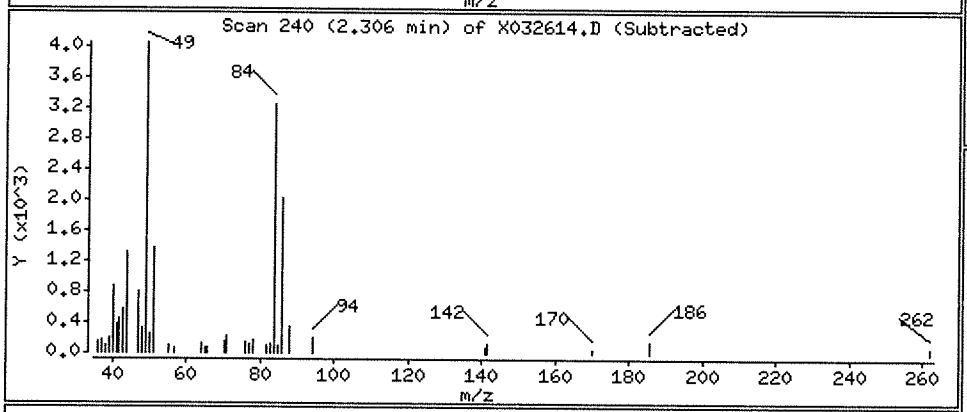
Column phase: DB624

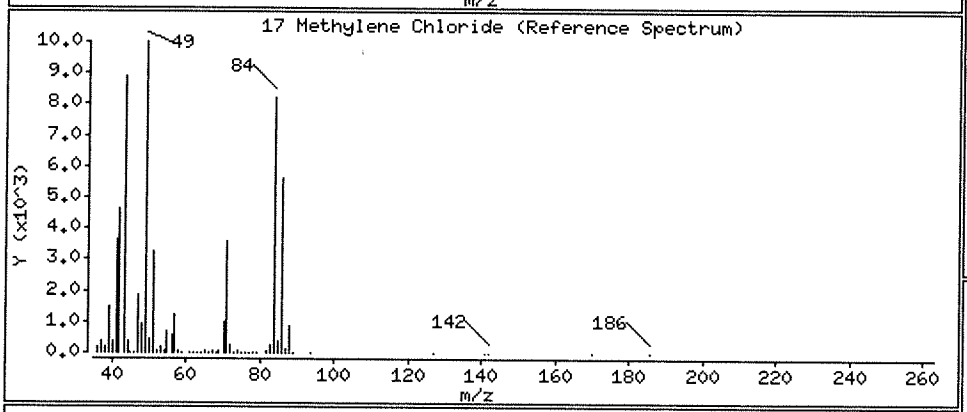
Column diameter: 0.18

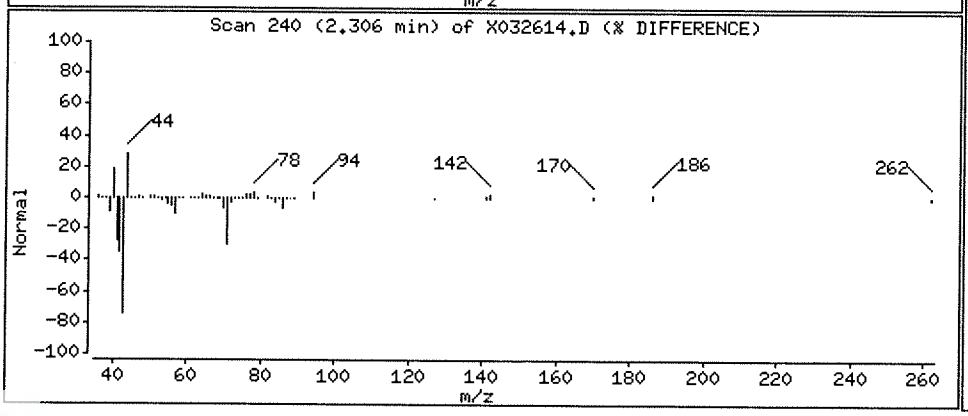
17 Methylene Chloride

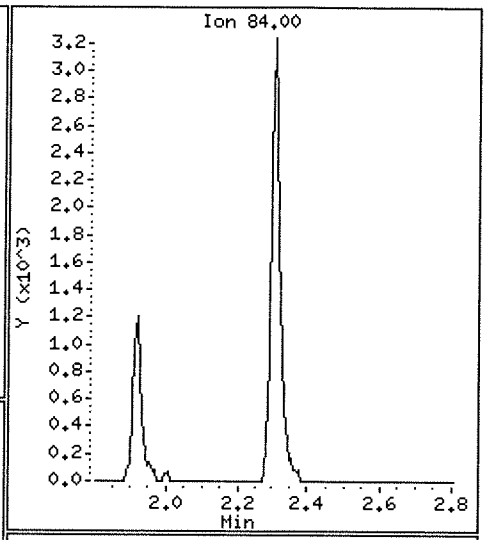
Concentration: 31.25 ug/l

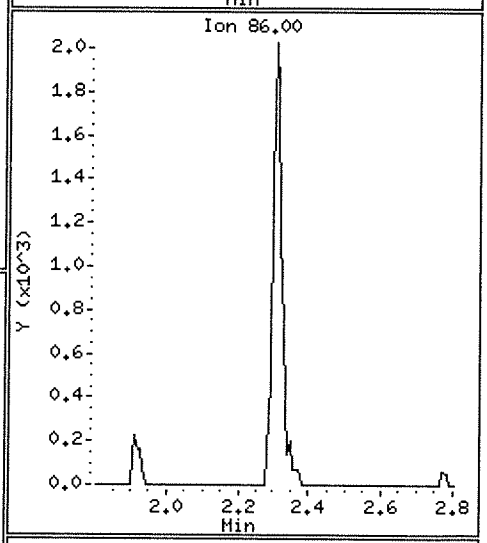


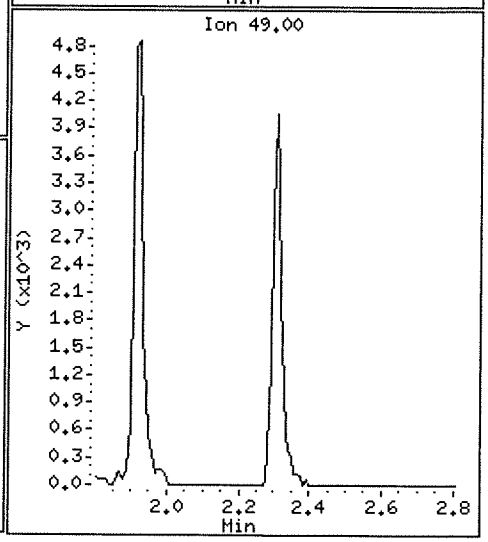












Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032614.D

Date : 26-MAR-2019 17:54

Client ID: HS19031013-07DL

Instrument: voa6.i

Sample Info: HS19031013-07;HS19031013-07;;;

Purge Volume: 5.0

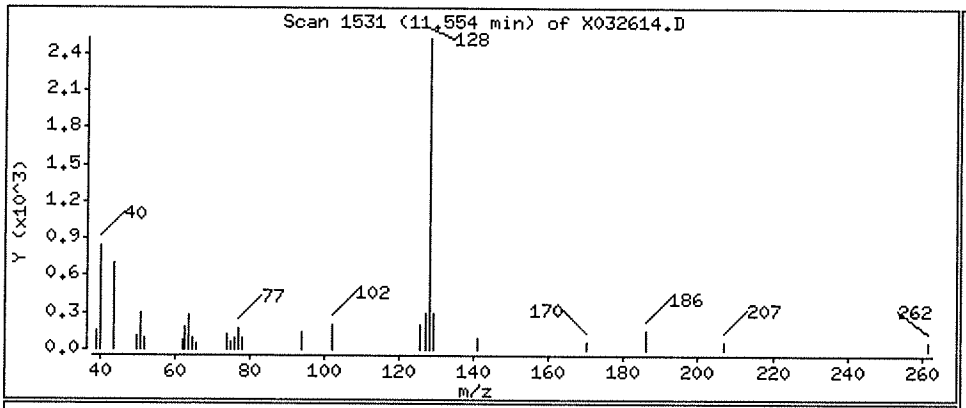
Operator: PC

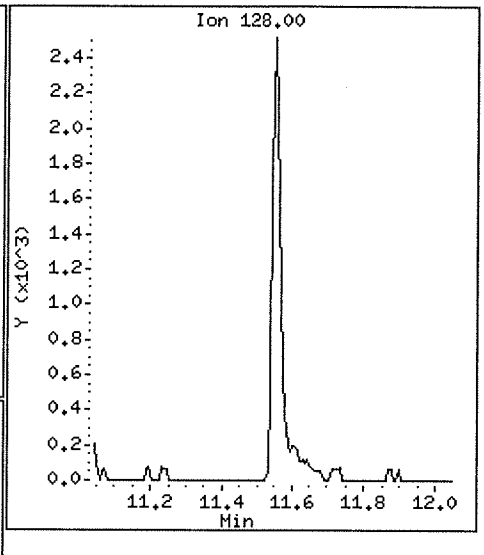
Column phase: DB624

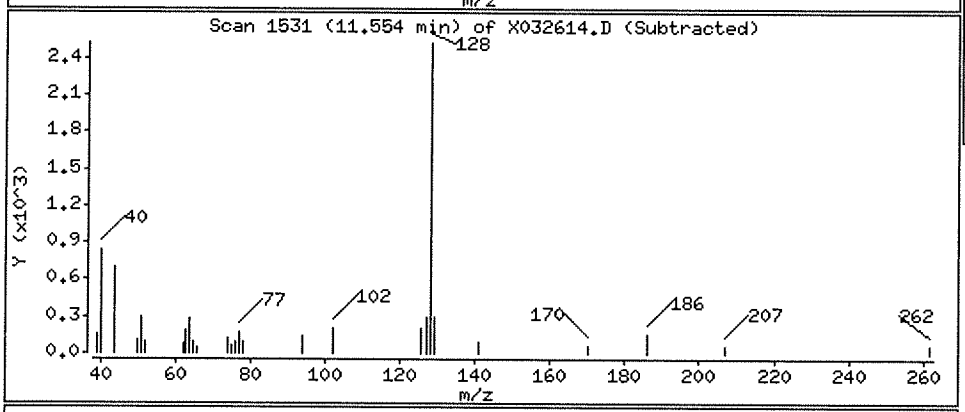
Column diameter: 0.18

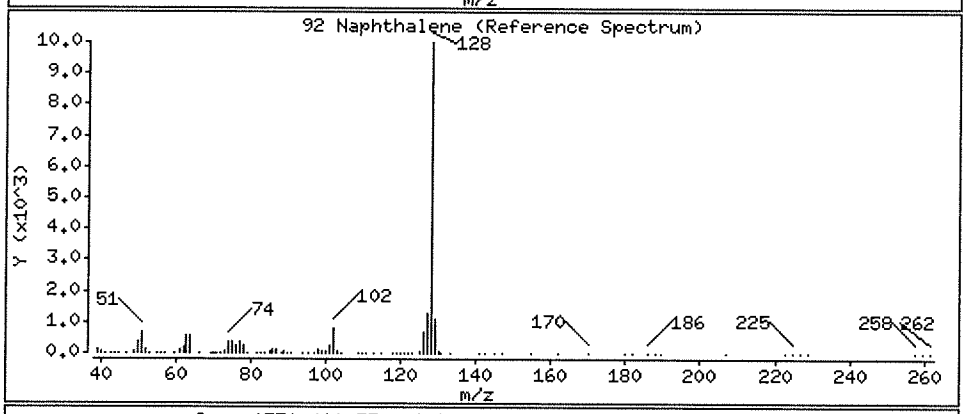
92 Naphthalene

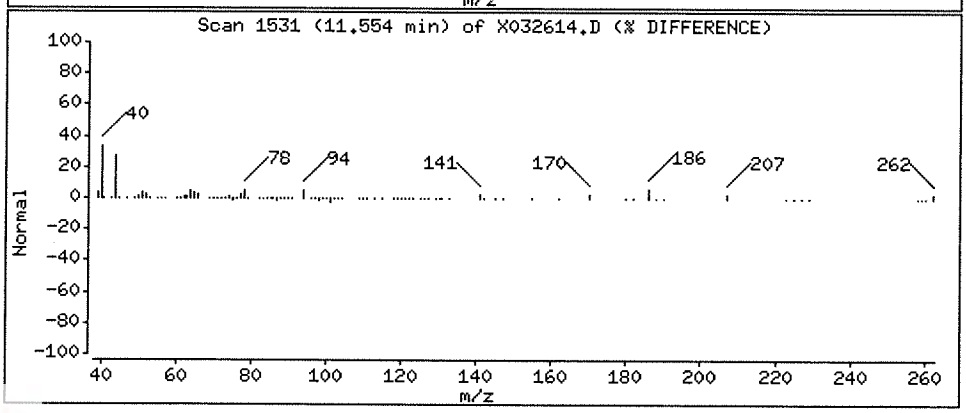
Concentration: 18.67 ug/l











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Date : 26-MAR-2019 17:54

Client ID: HS19031013-07DL

Instrument: voa6.i

Sample Info: HS19031013-07;HS19031013-07;;;

Purge Volume: 5.0

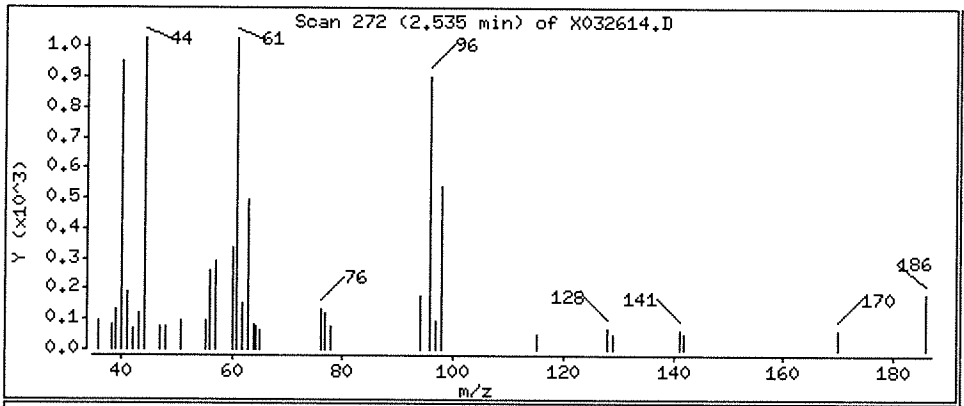
Operator: PC

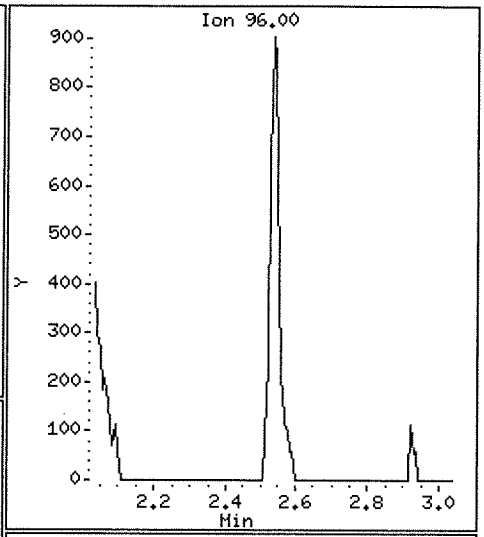
Column phase: DB624

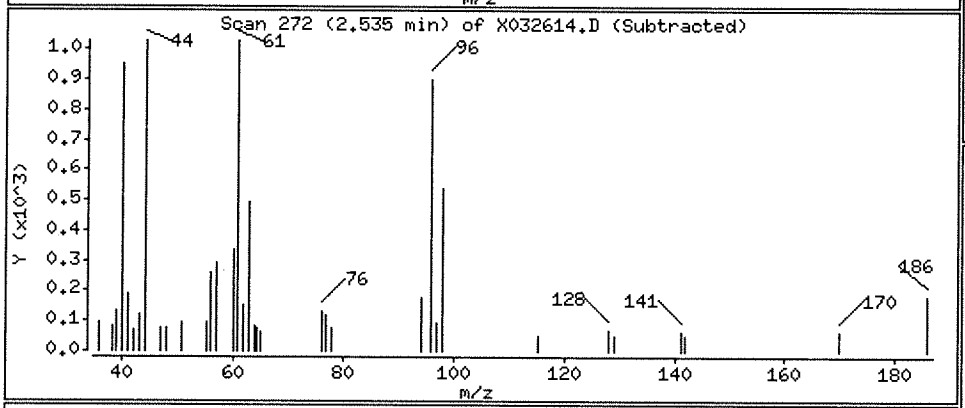
Column diameter: 0.18

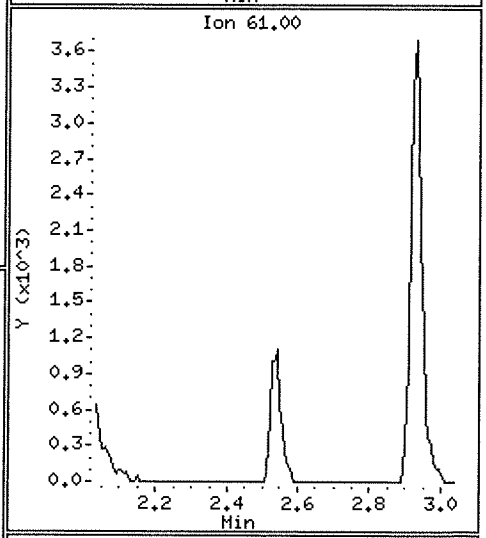
20 trans-1,2-Dichloroethene

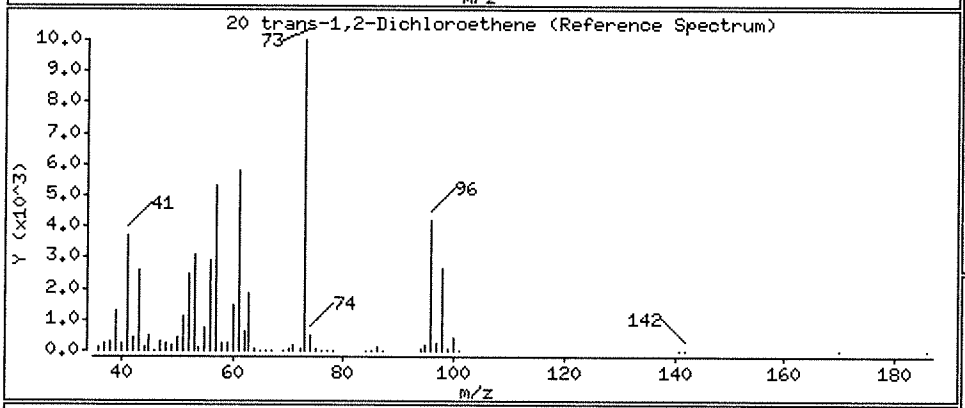
Concentration: 10.58 ug/l

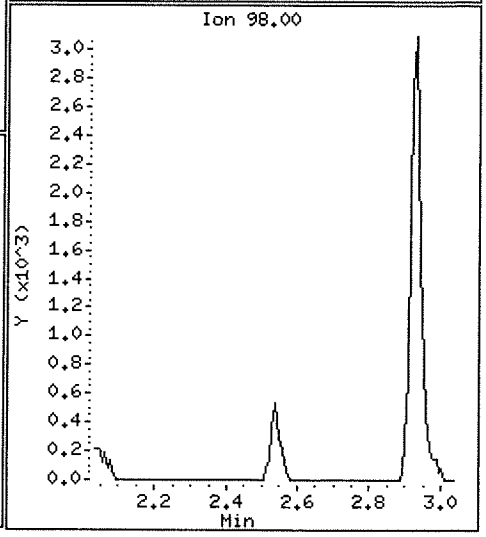


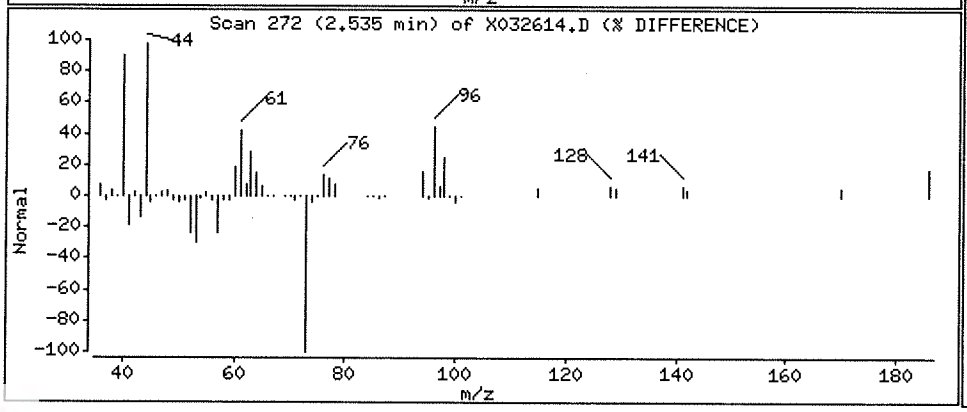












Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032614.D

Date : 26-MAR-2019 17:54

Client ID: HS19031013-07DL

Instrument: voa6.i

Sample Info: HS19031013-07;HS19031013-07;;;

Purge Volume: 5.0

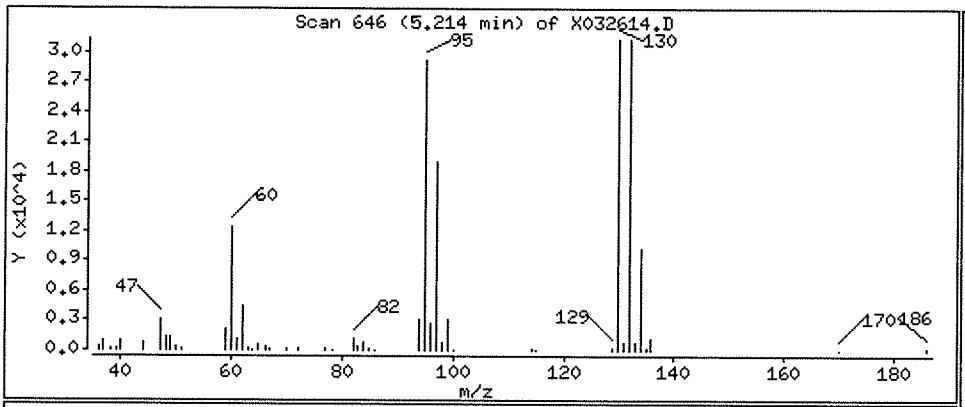
Operator: PC

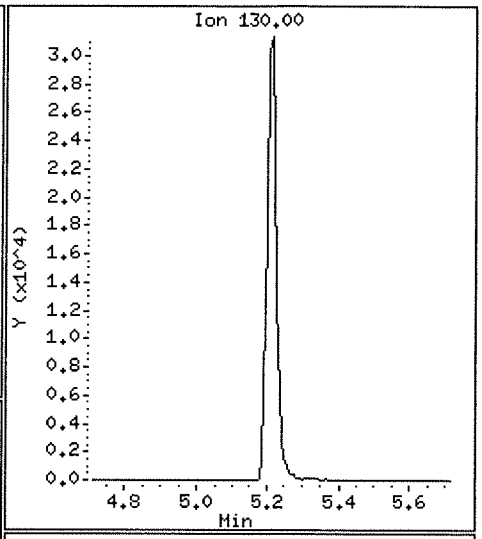
Column phase: DB624

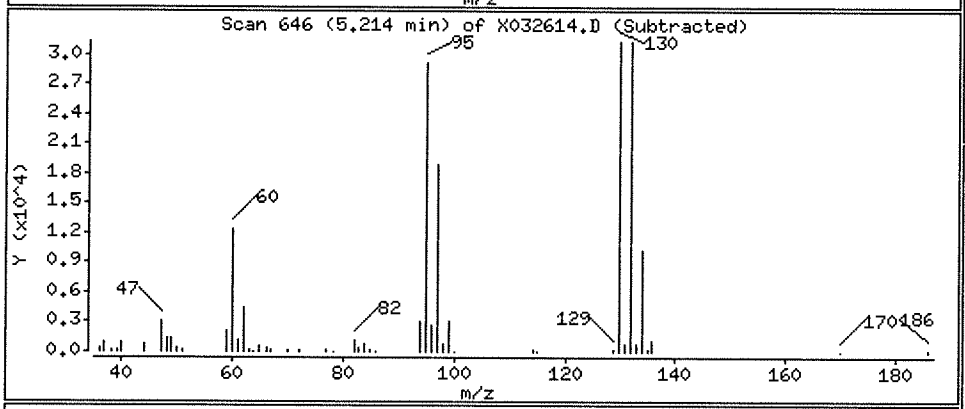
Column diameter: 0.18

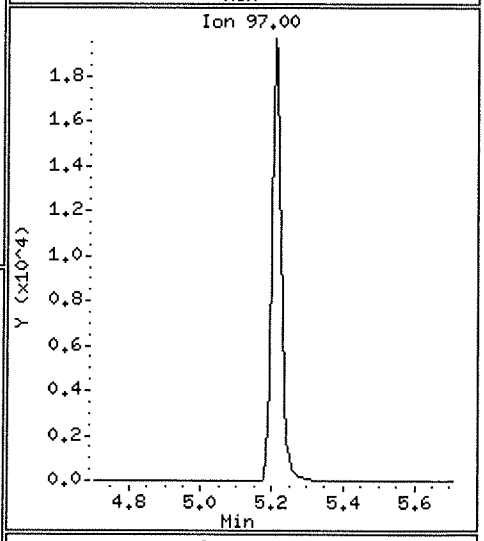
38 Trichloroethene

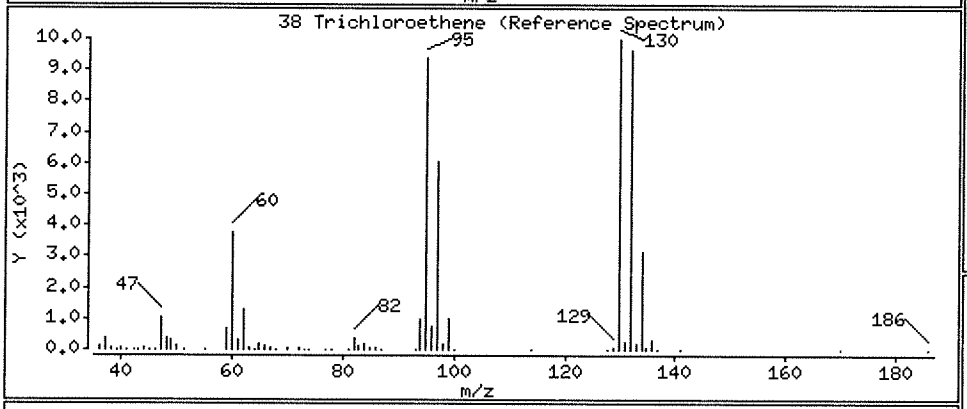
Concentration: 324.96 ug/l

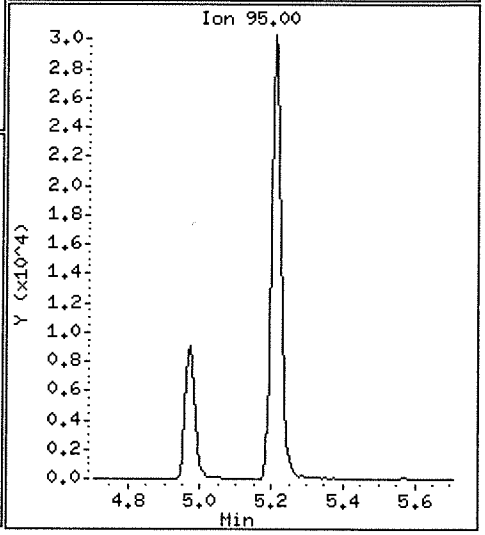


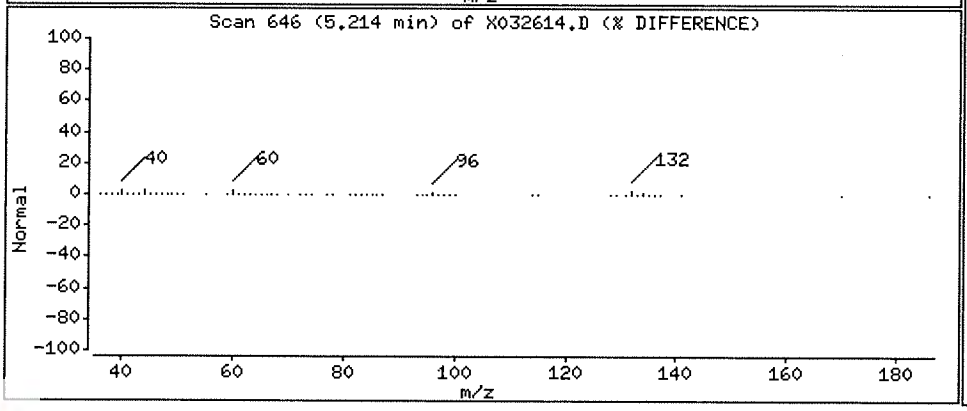












Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032616.D
Report Date: 29-Mar-2019 20:42

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032616.D
Lab Smp Id: HS19031013-02 Client Smp ID: HS19031013-02
Inj Date : 26-MAR-2019 18:42
Operator : PC Inst ID: voa6.i
Smp Info : HS19031013-02;HS19031013-02;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X190326.b\8260W.m
Meth Date : 29-Mar-2019 20:42 voa6.i Quant Type: ISTD
Cal Date : 14-MAR-2019 14:20 Cal File: X031408.D
Als bottle: 14
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7087

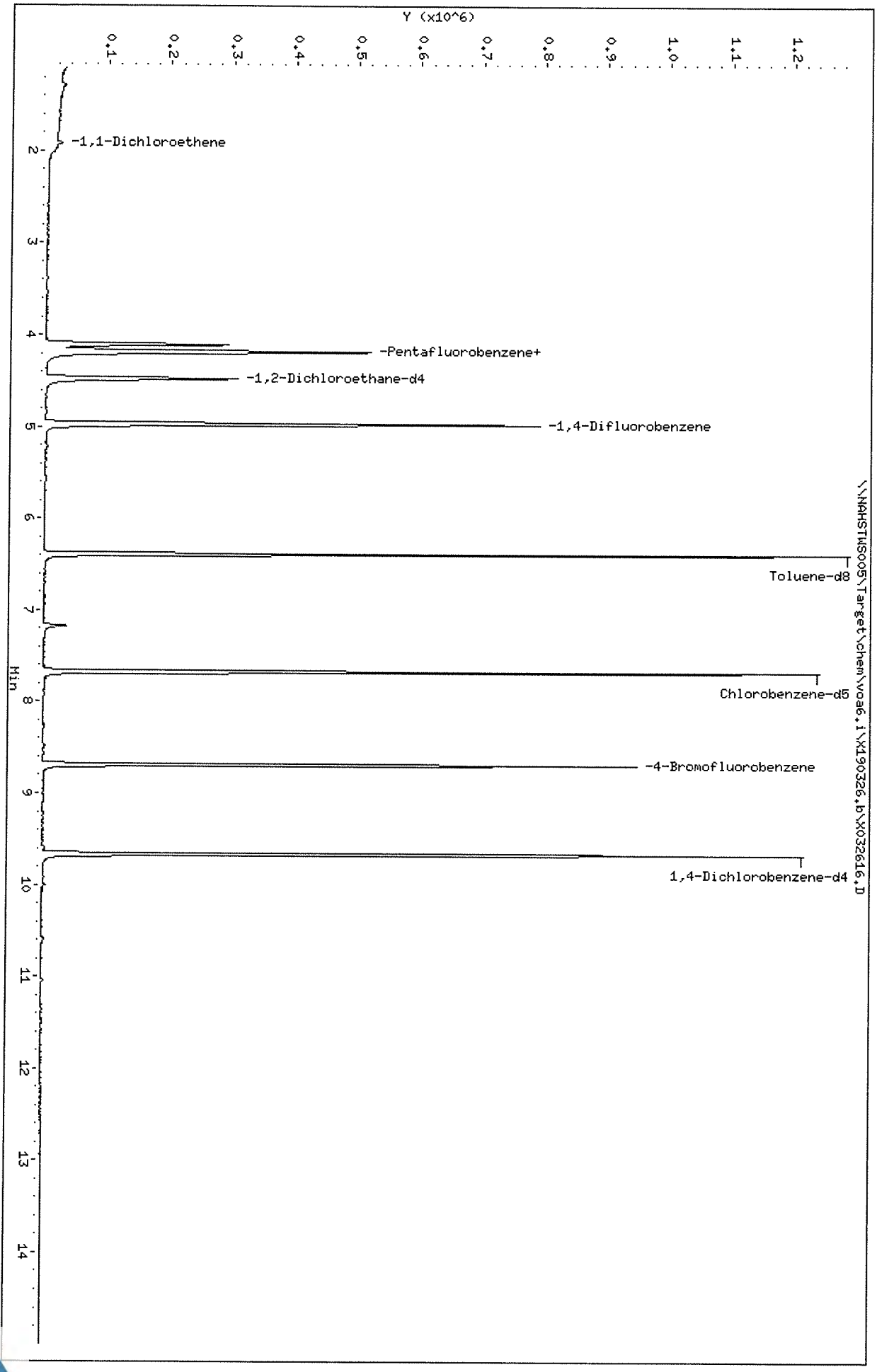
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	461743	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	660833	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	583602	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	298071	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	205824	45.5760	45.57
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	228205	45.2382	45.23
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	764111	52.7590	52.75
$ 69 4-Bromofluorobenzene	95	8.695	8.688	(1.134)	259618	48.7012	48.70
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	3185	0.81331	0.81(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).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Date : 26-MAR-2019 18:42
Client ID: HS19031013-02
Sample Info: HS19031013-02,HS19031013-02,,,
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
Y (x10^6)
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
-1,1-Dichloroethene
-Pentafluorobenzene+
-1,2-Dichloroethane-d4
-1,4-Difluorobenzene
Toluene-d8
Chlorobenzene-d5
-4-Bromofluorobenzene
1,4-Dichlorobenzene-d4
\\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032616.D
Min
2
3
4
5
6
7
8
9
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14

Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032616.D

Date : 26-MAR-2019 18:42

Client ID: HS19031013-02

Instrument: voa6.i

Sample Info: HS19031013-02;HS19031013-02;;;

Purge Volume: 5.0

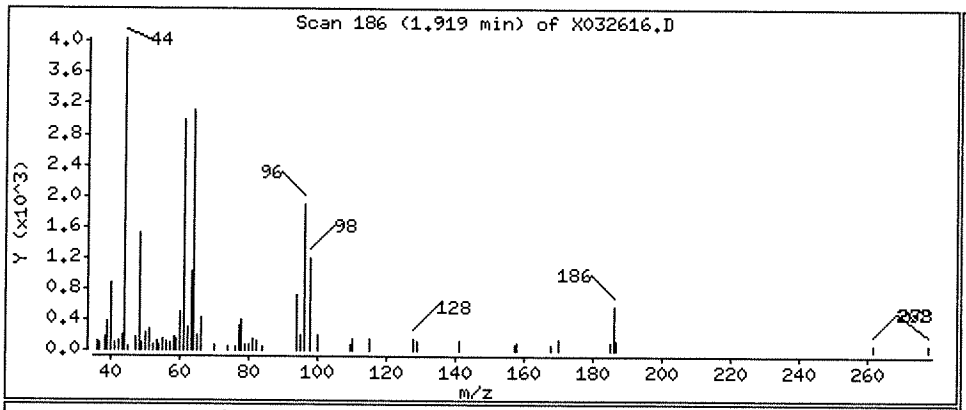
Operator: PC

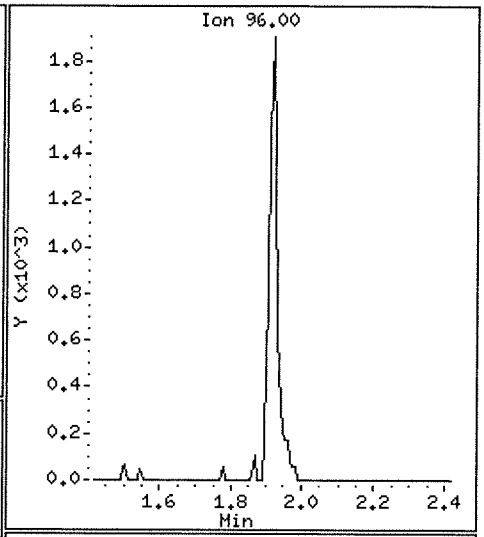
Column phase: DB624

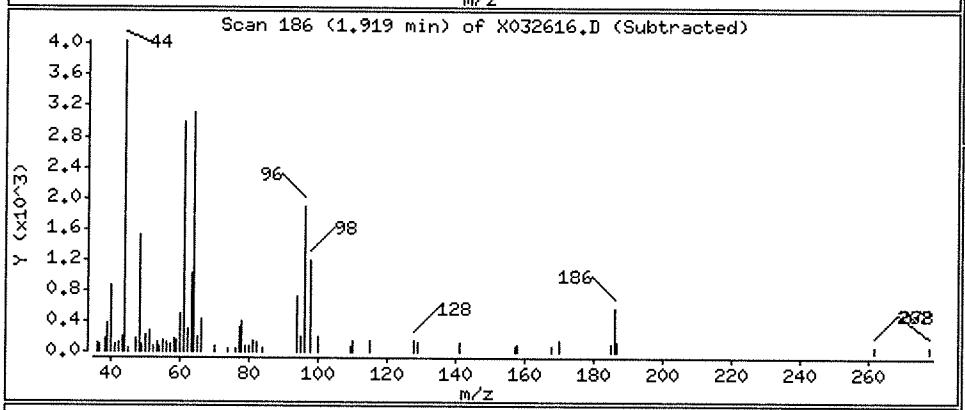
Column diameter: 0.18

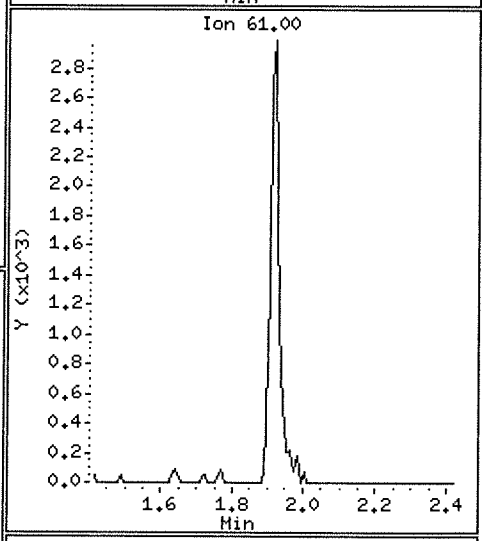
11 1,1-Dichloroethene

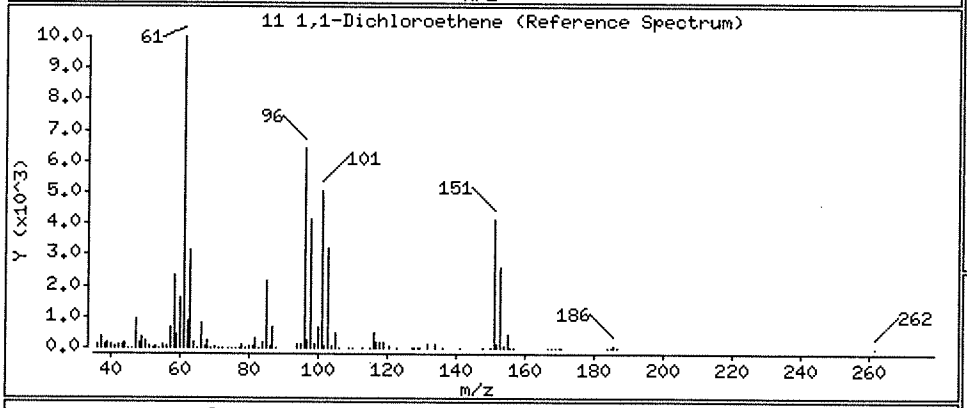
Concentration: 0.81 ug/l

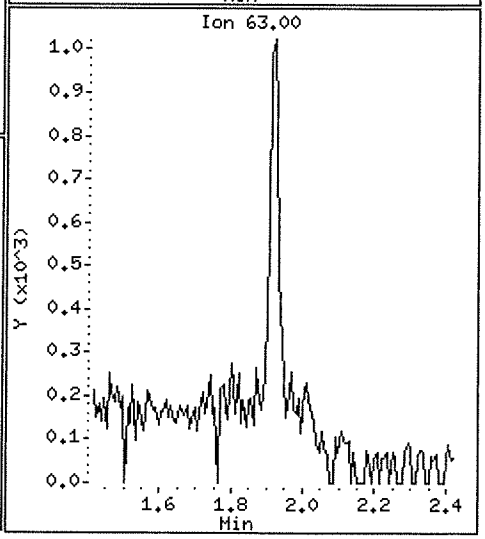


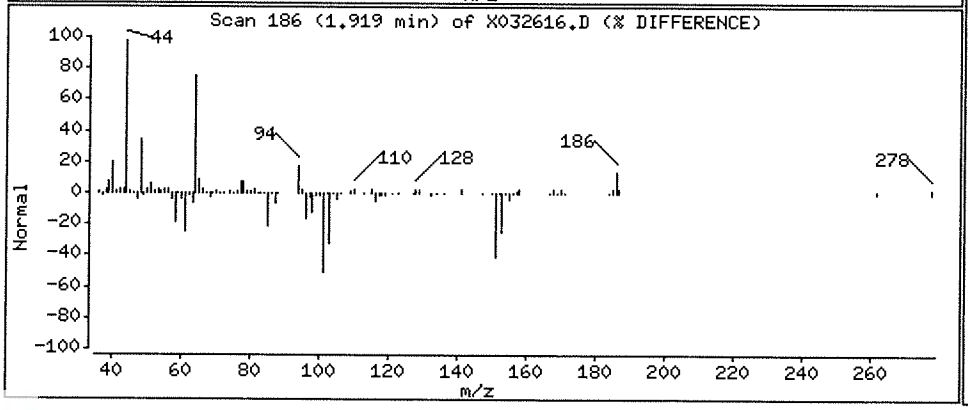












Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032617.D
Report Date: 29-Mar-2019 20:42

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032617.D
Lab Smp Id: HS19031013-03 Client Smp ID: HS19031013-03
Inj Date : 26-MAR-2019 19:06
Operator : PC Inst ID: voa6.i
Smp Info : HS19031013-03;HS19031013-03;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X190326.b\8260W.m
Meth Date : 29-Mar-2019 20:42 voa6.i Quant Type: ISTD
Cal Date : 14-MAR-2019 14:20 Cal File: X031408.D
Als bottle: 15
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7087

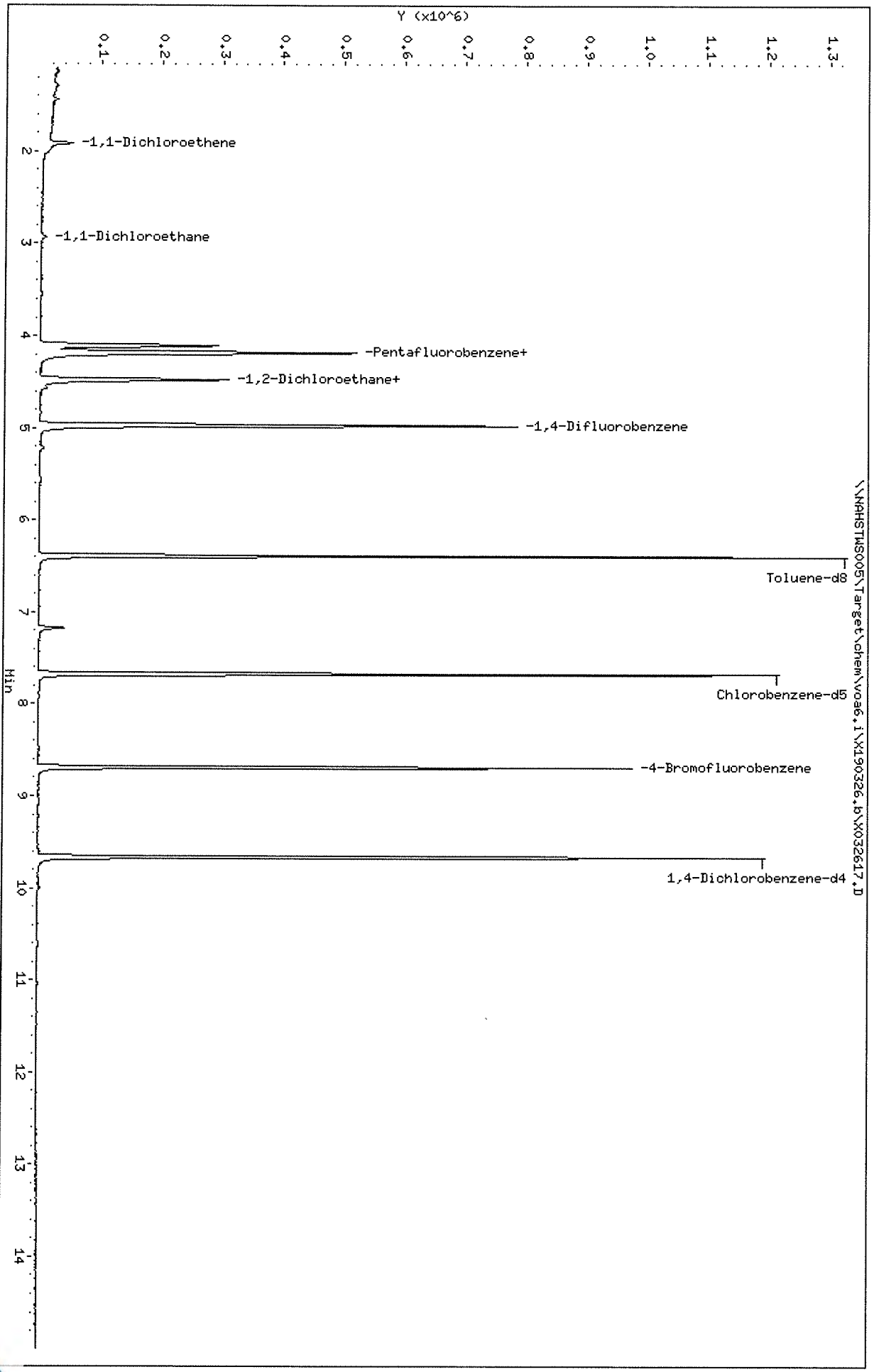
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	456136	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	662497	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	582207	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	298939	50.0000	
$ 30 Dibromofluoromethane	113	4.104	4.103	(0.979)	205127	45.9807	45.98
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	229119	45.9814	45.98
$ 48 Toluene-d8	98	6.389	6.388	(0.833)	770168	53.3067	53.30
$ 69 4-Bromofluorobenzene	95	8.695	8.688	(1.134)	261786	49.2294	49.22
22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	8130	0.97057	0.97(a)
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	13992	3.61686	3.61(a)
33 1,2-Dichloroethane	62	4.569	4.562	(0.919)	8246	1.47493	1.47(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).


Data File: \\NAHSTWS005\Target\chem\voa6,i\X190326,b\X032617.D
Date : 26-MAR-2019 19:06
Client ID: HS19031013-03
Sample Info: HS19031013-03;HS19031013-03;;;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6,i
Operator: PC
Column diameter: 0.18
Y (x10^6)
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
-1,1-Dichloroethene
-1,1-Dichloroethane
-Pentafluorobenzene+
-1,2-Dichloroethane+
-1,4-Difluorobenzene
Toluene-d8
Chlorobenzene-d5
-4-Bromofluorobenzene
1,4-Dichlorobenzene-d4
\\NAHSTWS005\Target\chem\voa6,i\X190326,b\X032617.D
Min
2
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Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032617.D

Date : 26-MAR-2019 19:06

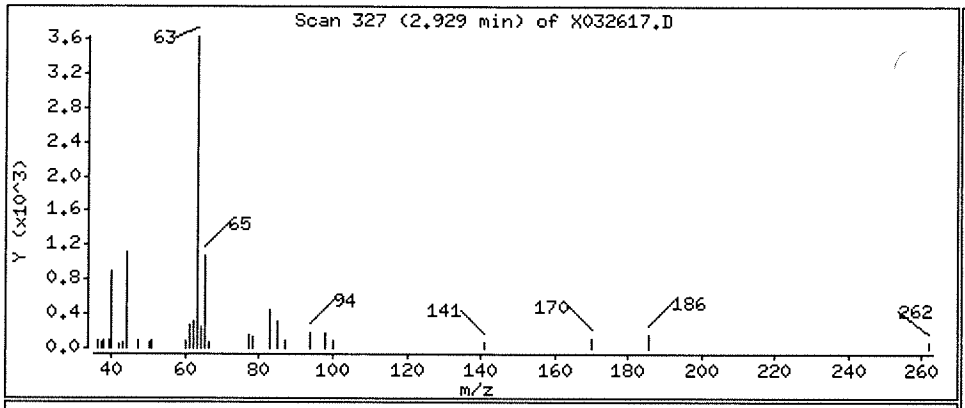
Client ID: HS19031013-03 Instrument: voa6.i

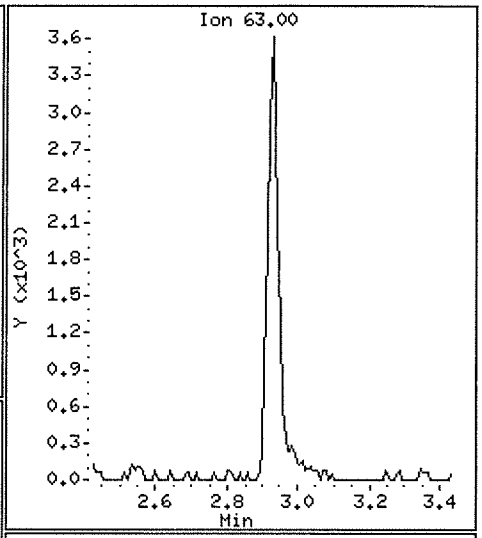
Sample Info: HS19031013-03;HS19031013-03;;;

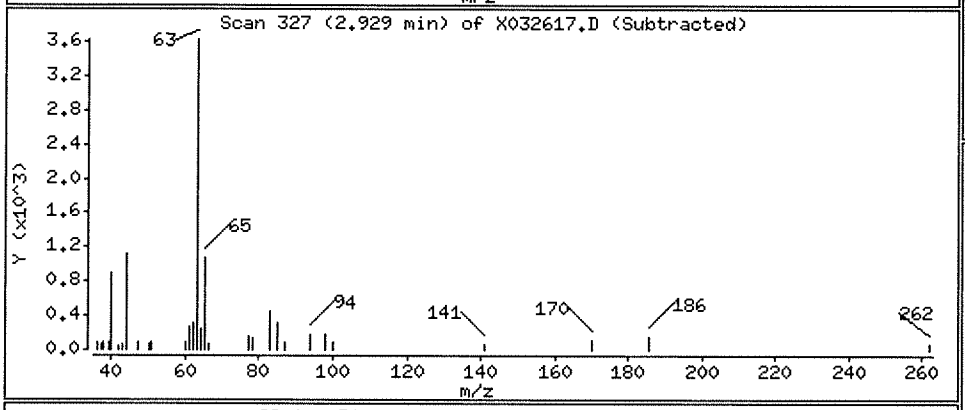
Purge Volume: 5.0 Operator: PC

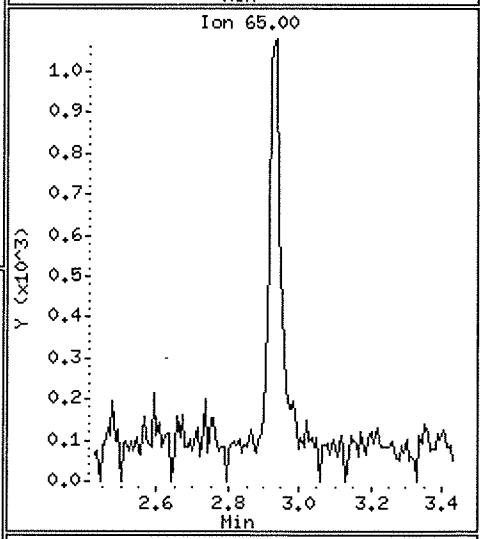
Column phase: DB624 Column diameter: 0.18

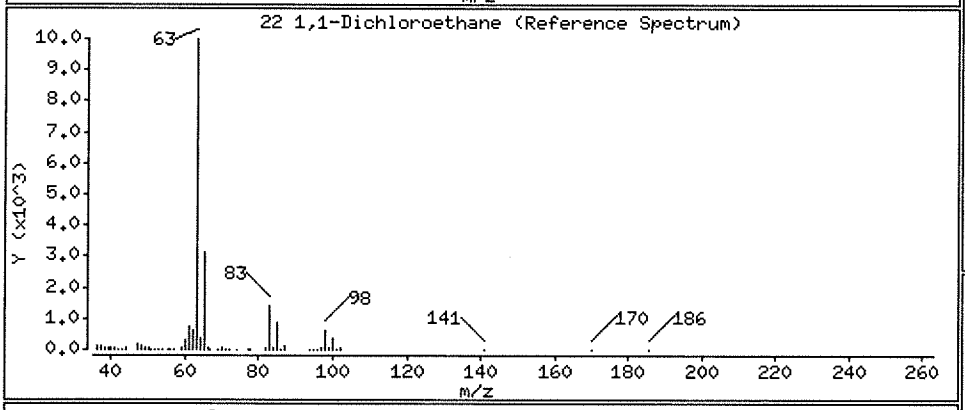
22 1,1-Dichloroethane Concentration: 0.97 ug/l

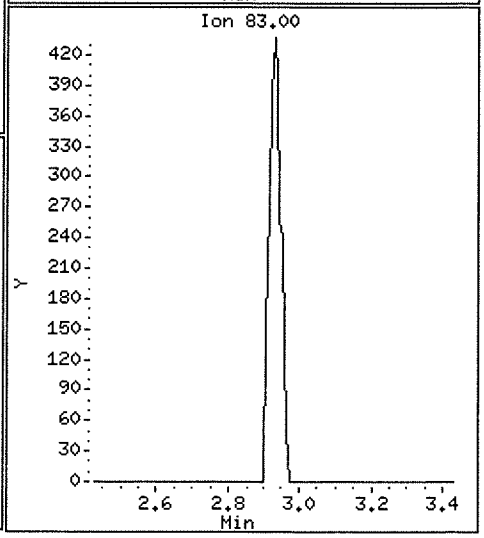


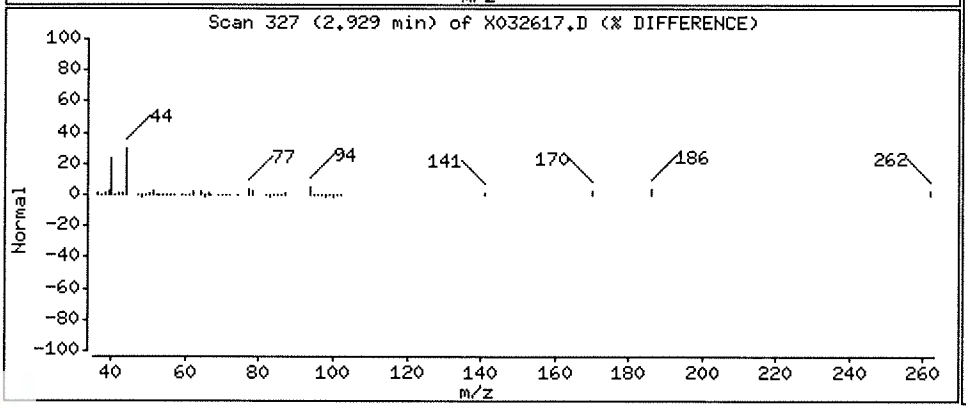












Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032617.D

Date : 26-MAR-2019 19:06

Client ID: HS19031013-03

Instrument: voa6.i

Sample Info: HS19031013-03;HS19031013-03;;;

Purge Volume: 5.0

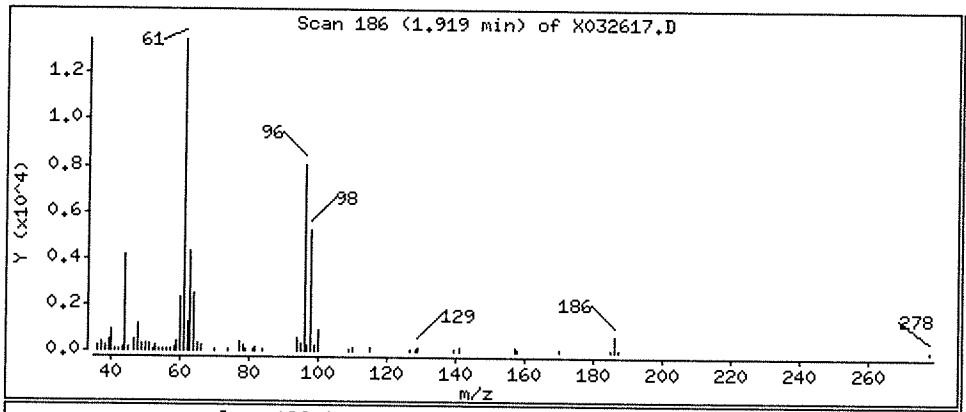
Operator: PC

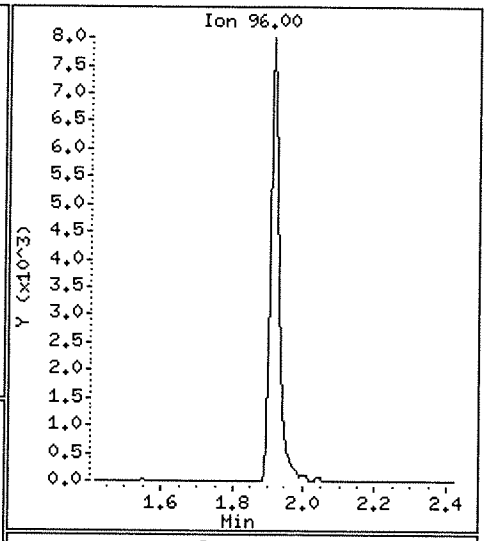
Column phase: DB624

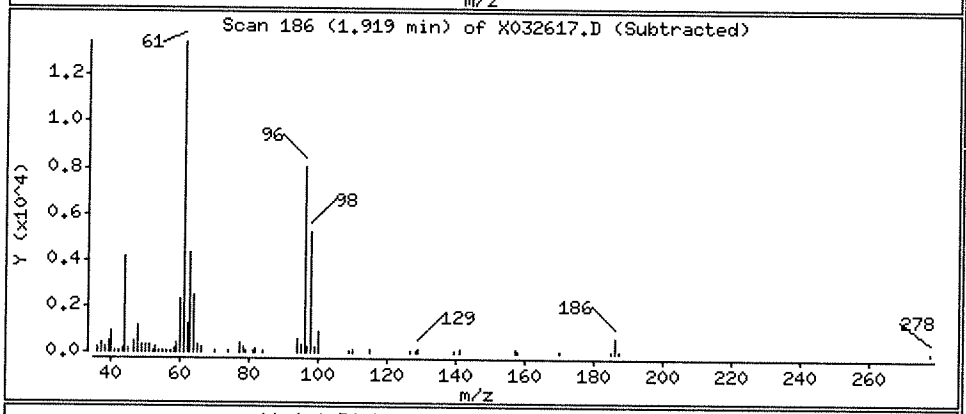
Column diameter: 0.18

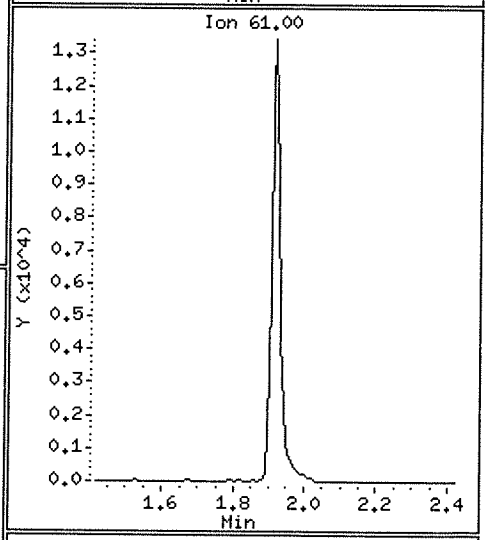
11 1,1-Dichloroethene

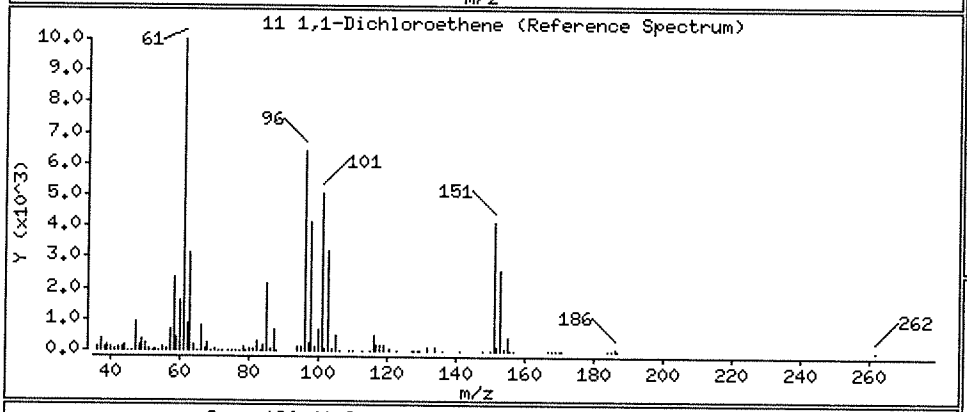
Concentration: 3.61 ug/l

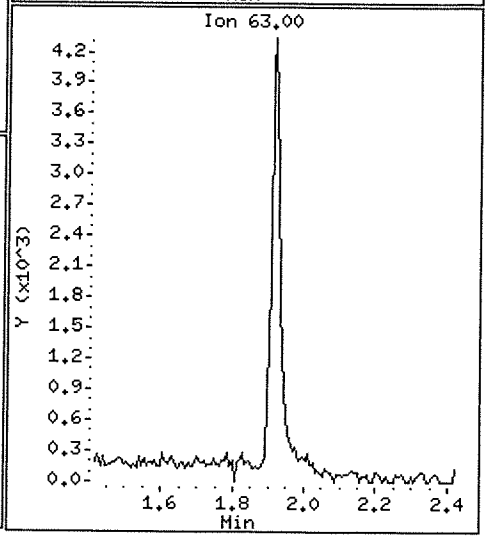


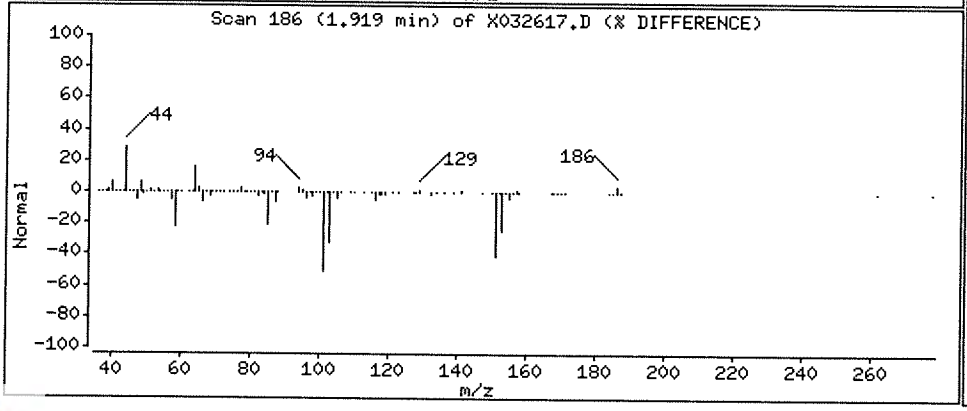












Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032617.D

Date : 26-MAR-2019 19:06

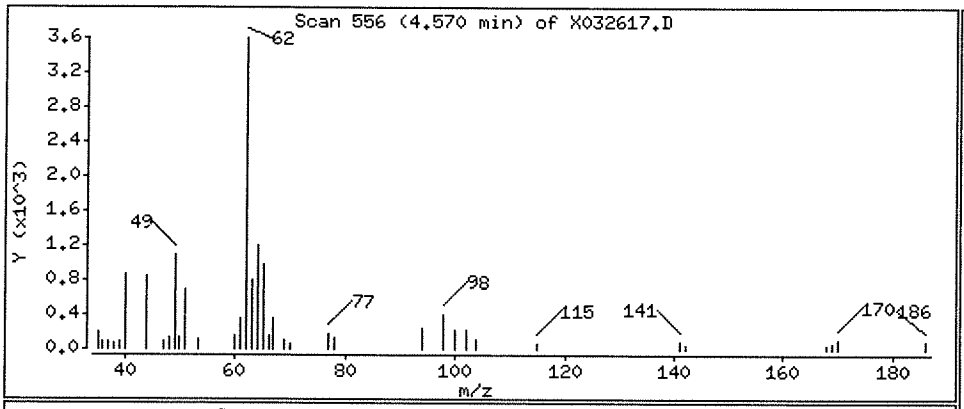
Client ID: HS19031013-03 Instrument: voa6.i

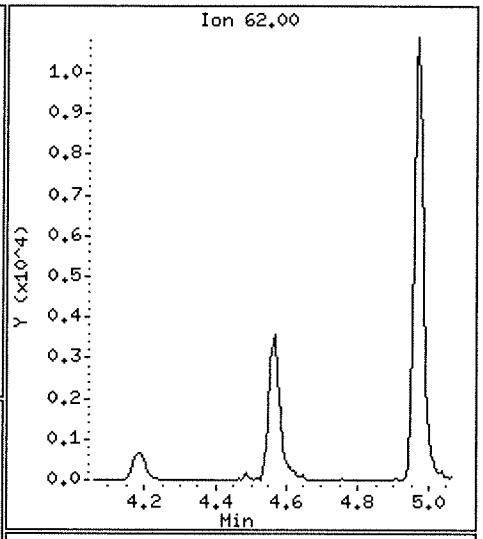
Sample Info: HS19031013-03;HS19031013-03;;;

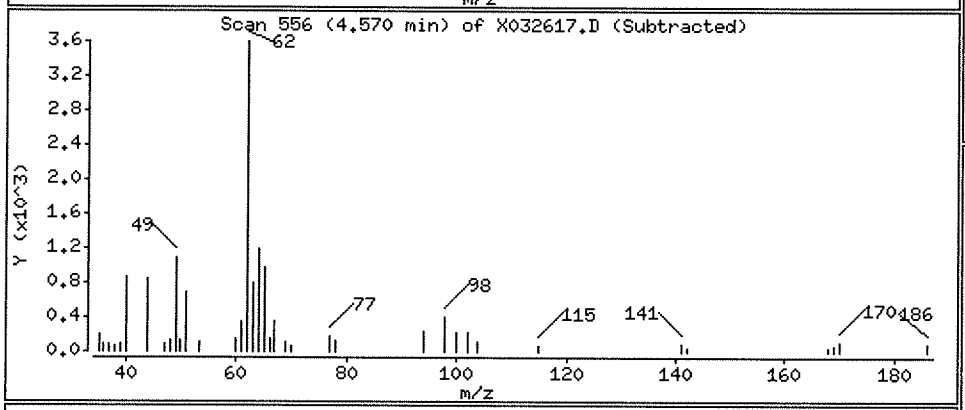
Purge Volume: 5.0 Operator: PC

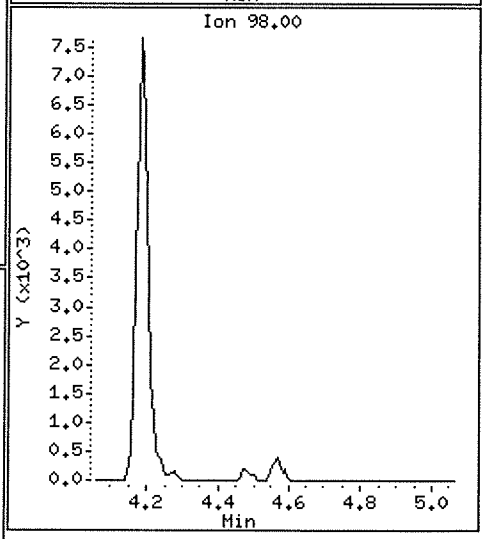
Column phase: DB624 Column diameter: 0.18

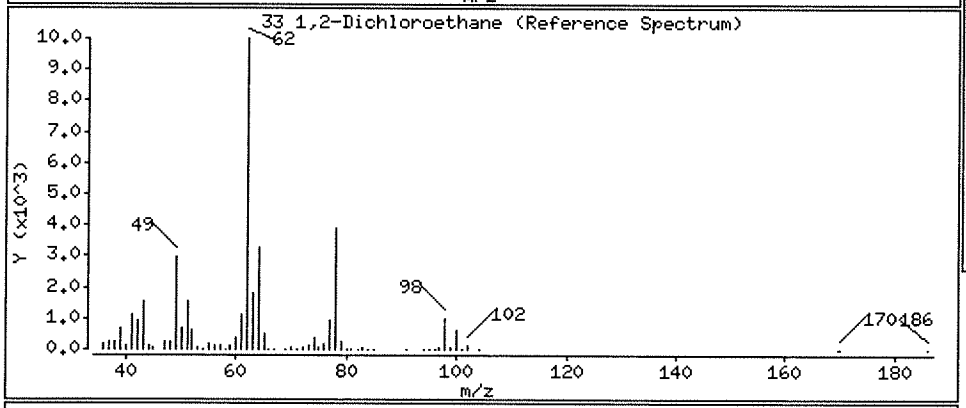
33 1,2-Dichloroethane Concentration: 1.47 ug/l

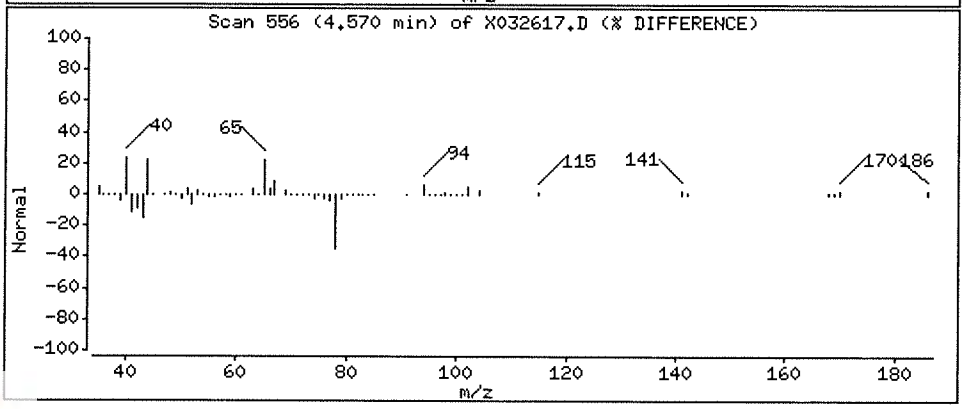












Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032618.D
Report Date: 29-Mar-2019 20:42

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032618.D
Lab Smp Id: HS19031013-04 Client Smp ID: HS19031013-04
Inj Date : 26-MAR-2019 19:30
Operator : PC Inst ID: voa6.i
Smp Info : HS19031013-04;HS19031013-04;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X190326.b\8260W.m
Meth Date : 29-Mar-2019 20:42 voa6.i Quant Type: ISTD
Cal Date : 14-MAR-2019 14:20 Cal File: X031408.D
Als bottle: 16
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7087

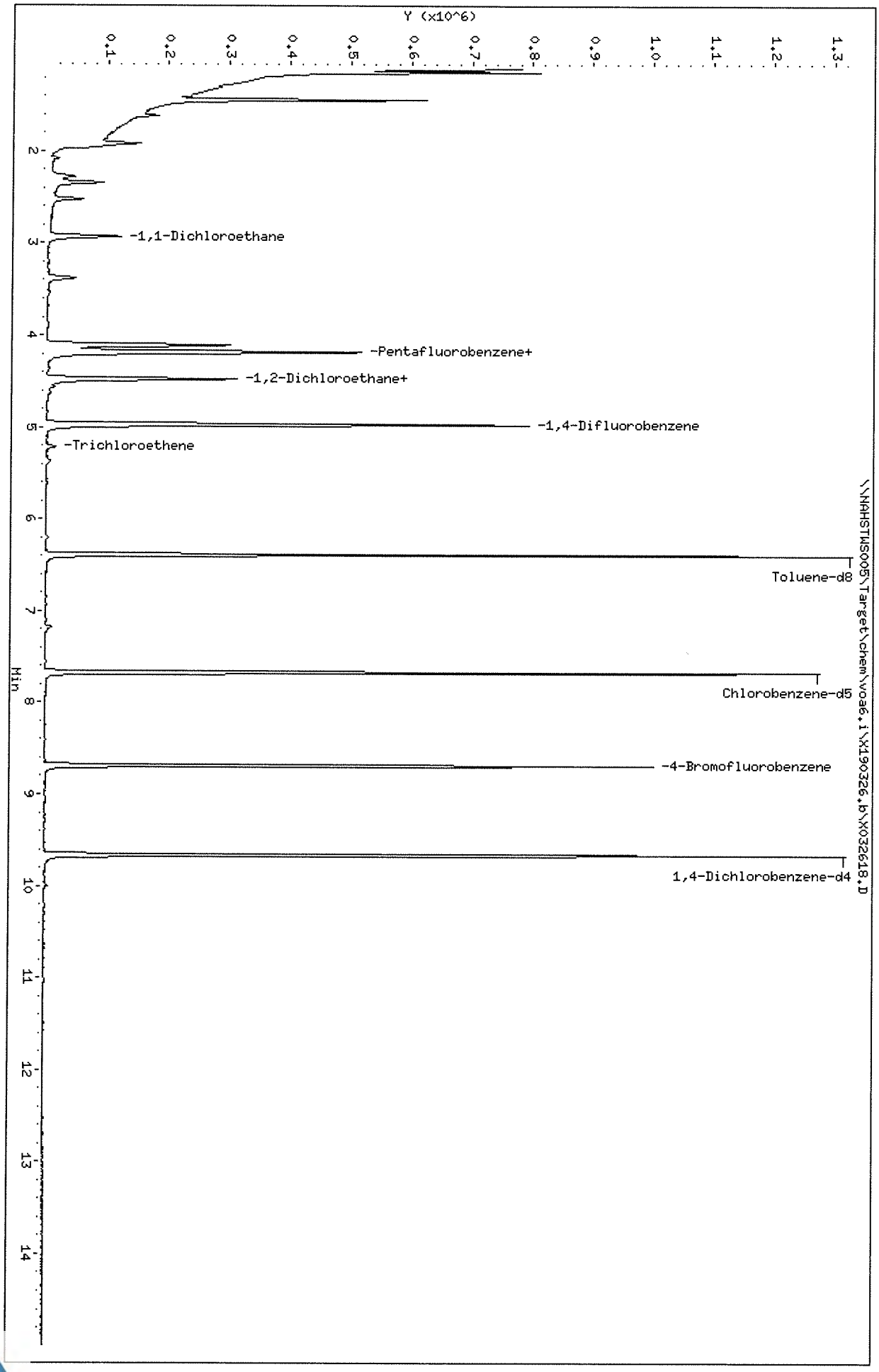
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	452653	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	661119	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	601827	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	313253	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	202598	45.7629	45.76
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	229291	46.3719	46.37
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	773180	51.7646	51.76
$ 69 4-Bromofluorobenzene	95	8.695	8.688	(1.134)	276973	50.3957	50.39
22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	127013	15.2796	15.27
33 1,2-Dichloroethane	62	4.569	4.562	(0.919)	5307	0.95122	0.95(a)
38 Trichloroethene	130	5.214	5.214	(1.049)	4927	1.05908	1.05(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).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Date : 26-MAR-2019 19:30
Client ID: HS19031013-04
Sample Info: HS19031013-04;HS19031013-04;;;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
Y (x10^6)
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
-1,1-Dichloroethane
-Pentafluorobenzene+
-1,2-Dichloroethane+
-1,4-Difluorobenzene
-Trichloroethene
Toluene-d8
Chlorobenzene-d5
-4-Bromofluorobenzene
1,4-Dichlorobenzene-d4
\\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032618.D
Min
2
3
4
5
6
7
8
9
10
11
12
13
14

Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032618.D

Date : 26-MAR-2019 19:30

Client ID: HS19031013-04

Instrument: voa6.i

Sample Info: HS19031013-04;HS19031013-04;;;

Purge Volume: 5.0

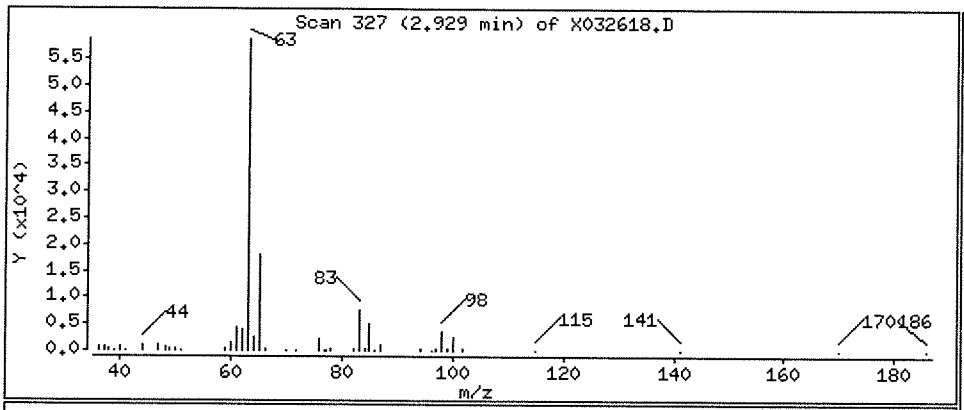
Operator: PC

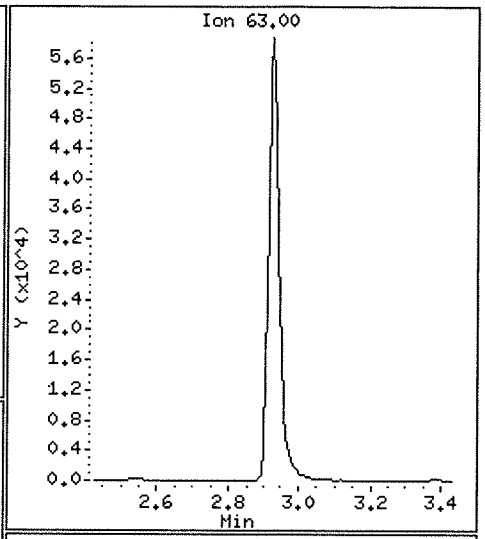
Column phase: DB624

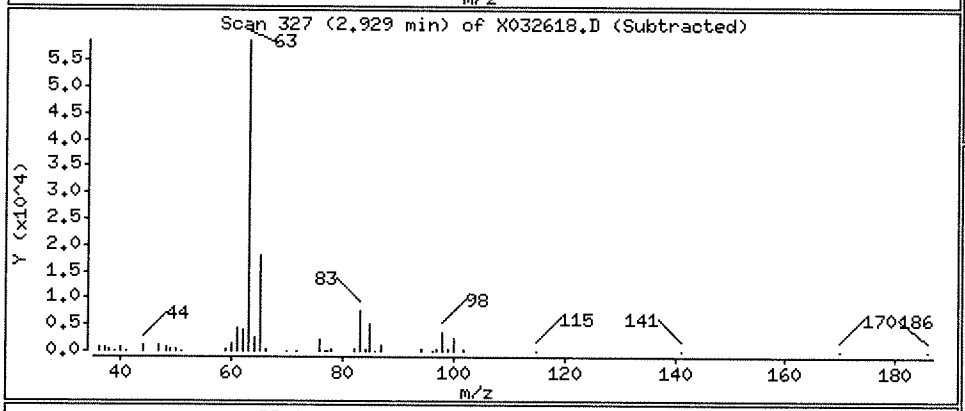
Column diameter: 0.18

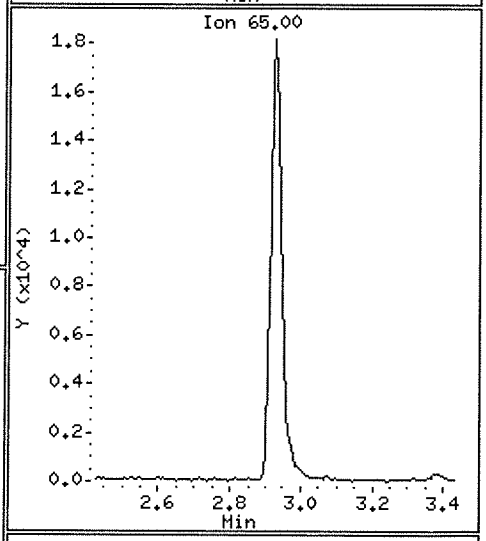
22 1,1-Dichloroethane

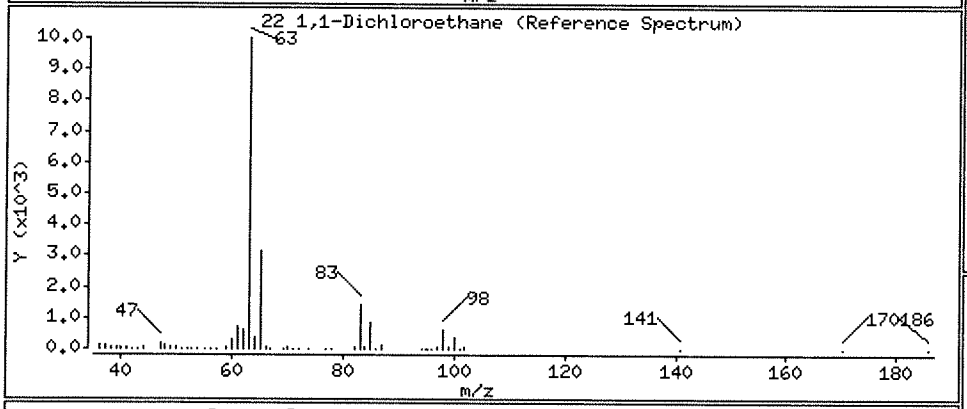
Concentration: 15.27 ug/l

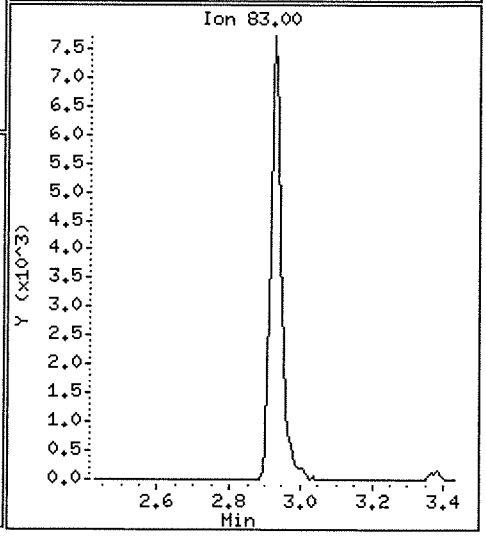


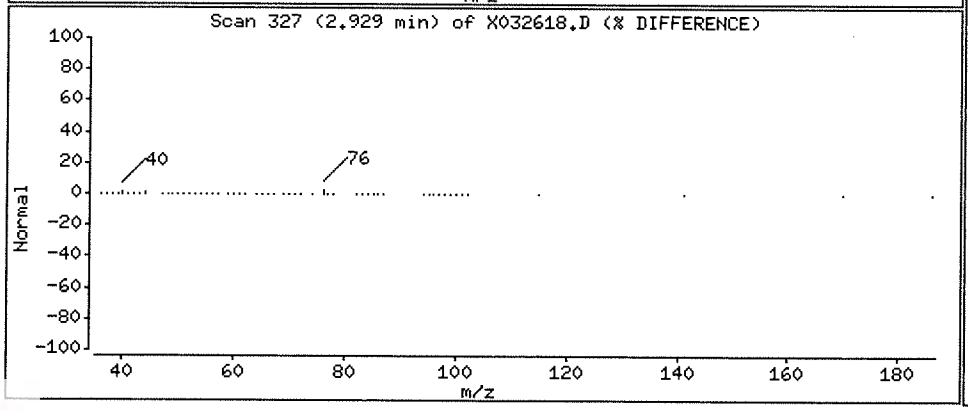












Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032618.D

Date : 26-MAR-2019 19:30

Client ID: HS19031013-04

Instrument: voa6.i

Sample Info: HS19031013-04;HS19031013-04;;;

Purge Volume: 5.0

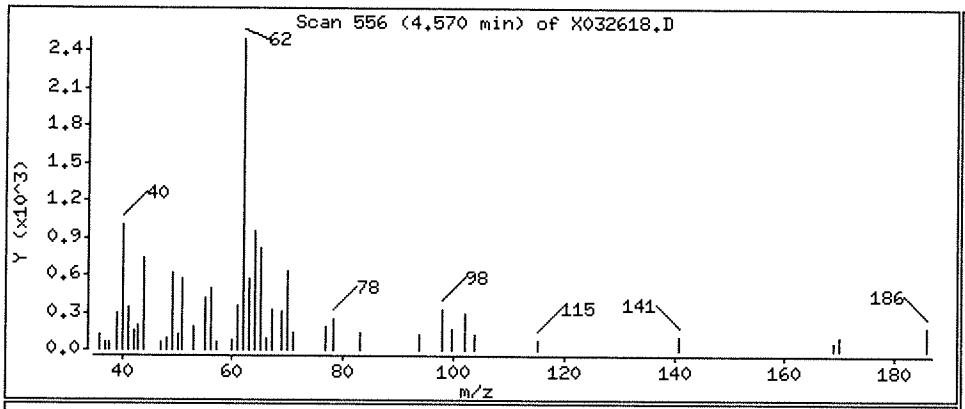
Operator: PC

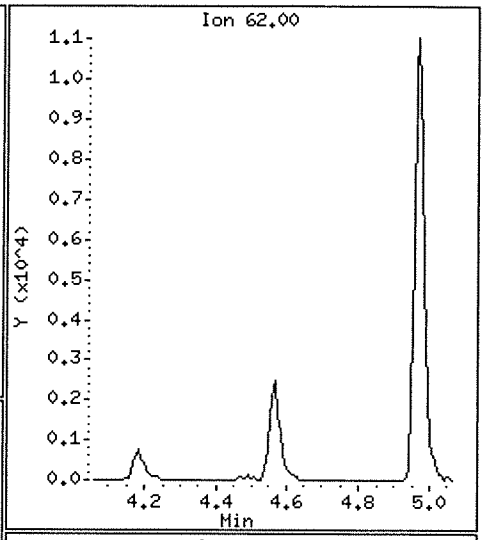
Column phase: DB624

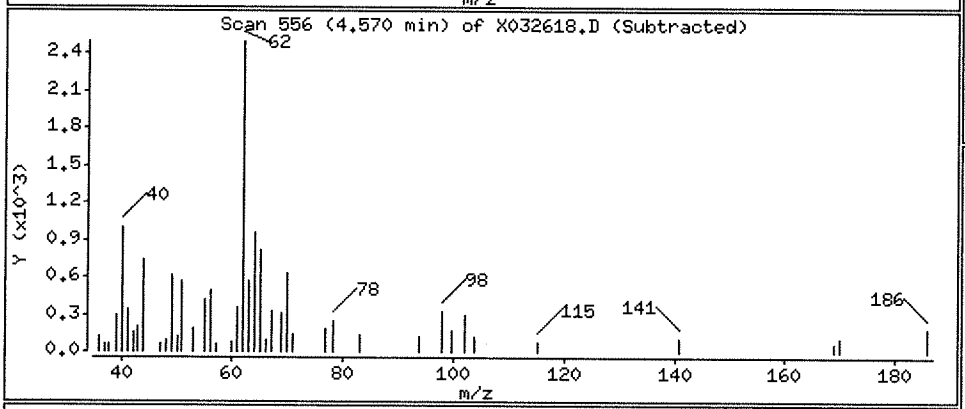
Column diameter: 0.18

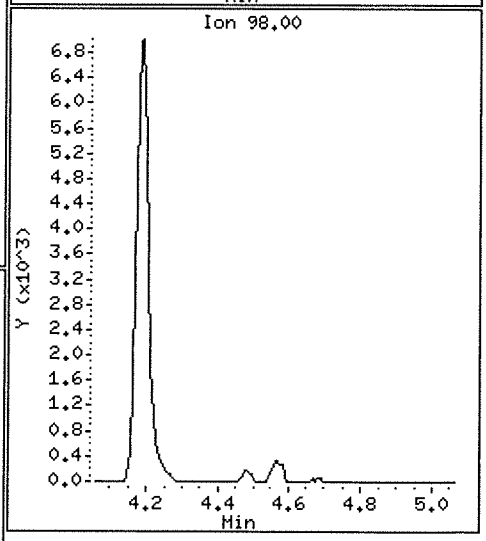
33 1,2-Dichloroethane

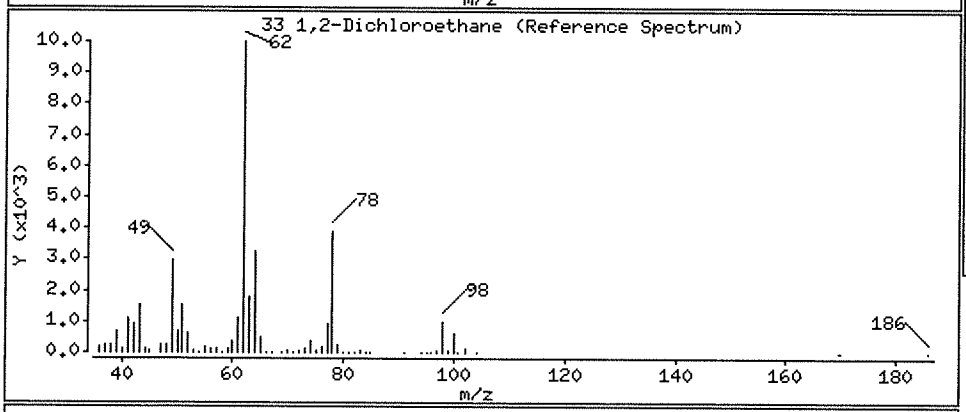
Concentration: 0.95 ug/l

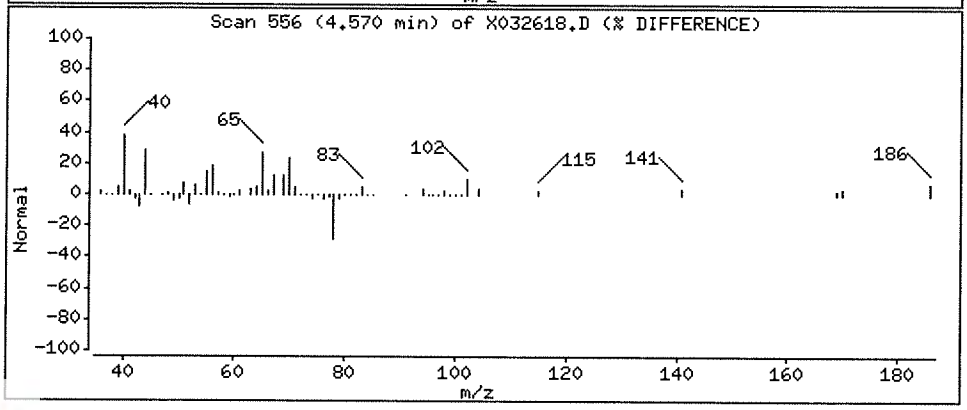












Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032618.D

Date : 26-MAR-2019 19:30

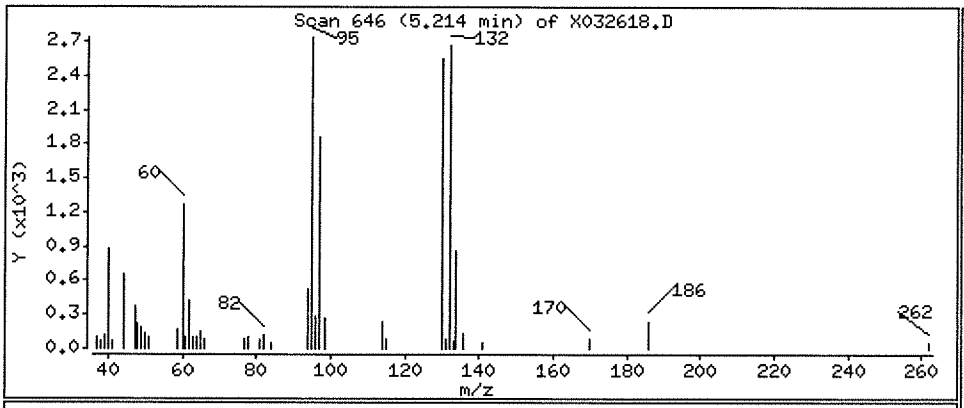
Client ID: HS19031013-04 Instrument: voa6.i

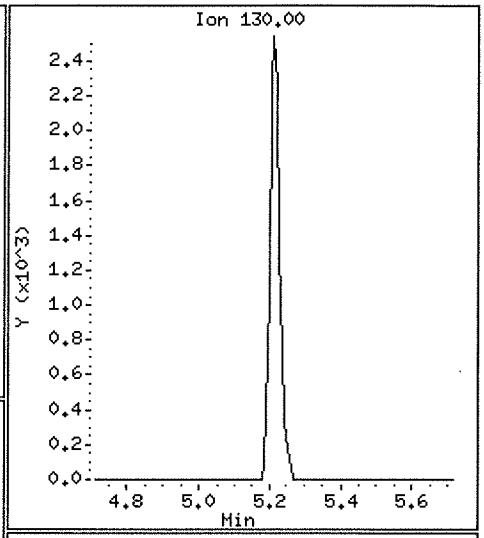
Sample Info: HS19031013-04;HS19031013-04;;;

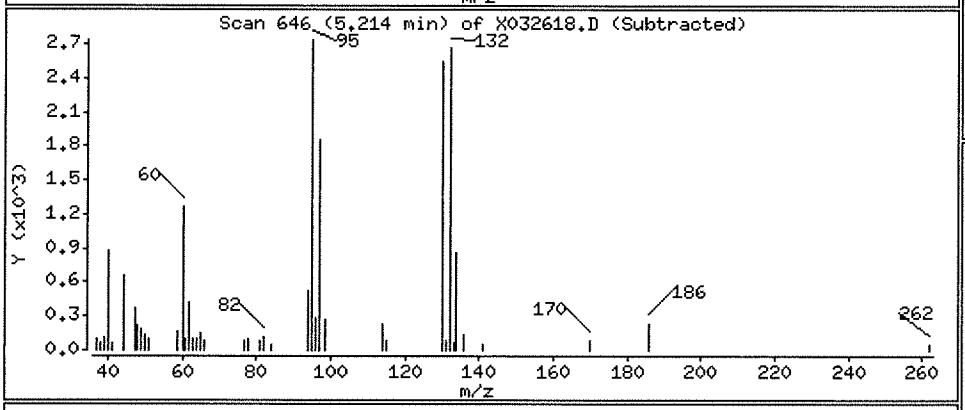
Purge Volume: 5.0 Operator: PC

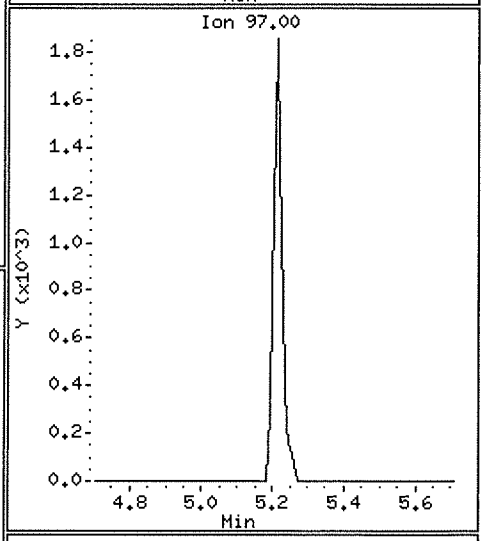
Column phase: DB624 Column diameter: 0.18

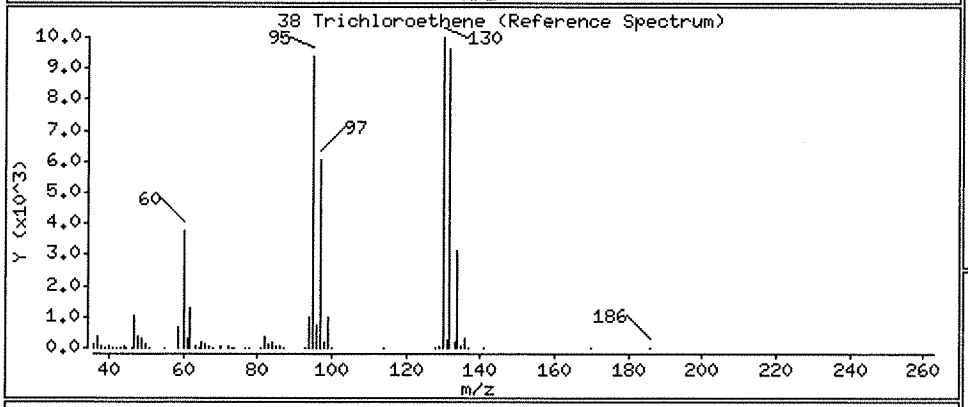
38 Trichloroethene Concentration: 1.05 ug/l

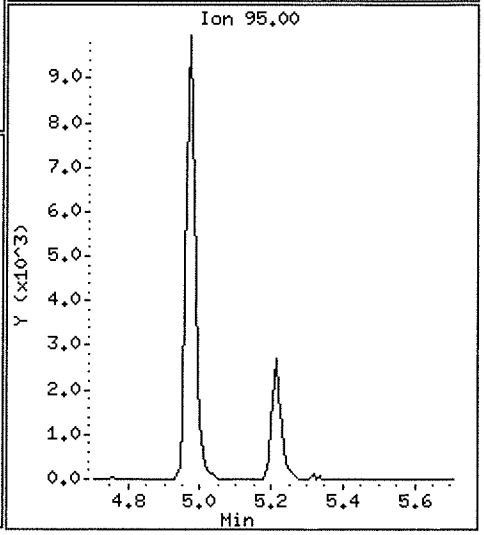


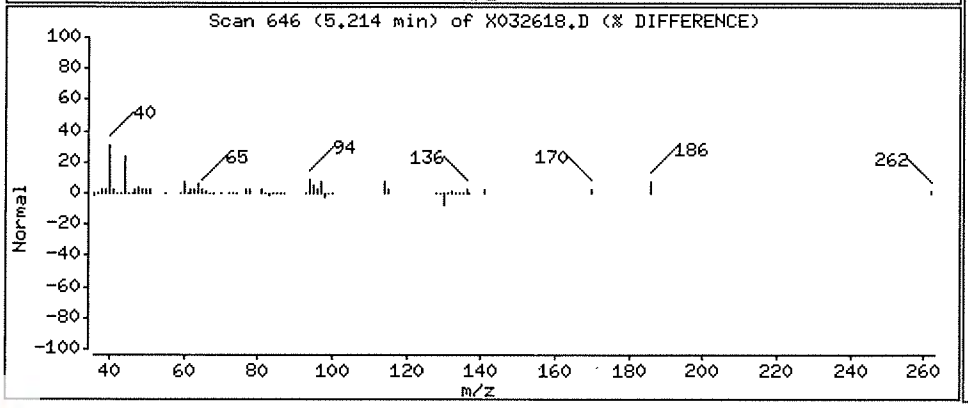












Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032619.D
Report Date: 29-Mar-2019 20:42

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032619.D
Lab Smp Id: HS19031013-05 Client Smp ID: HS19031013-05
Inj Date : 26-MAR-2019 19:54
Operator : PC Inst ID: voa6.i
Smp Info : HS19031013-05;HS19031013-05;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X190326.b\8260W.m
Meth Date : 29-Mar-2019 20:42 voa6.i Quant Type: ISTD
Cal Date : 14-MAR-2019 14:20 Cal File: X031408.D
Als bottle: 17
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7087

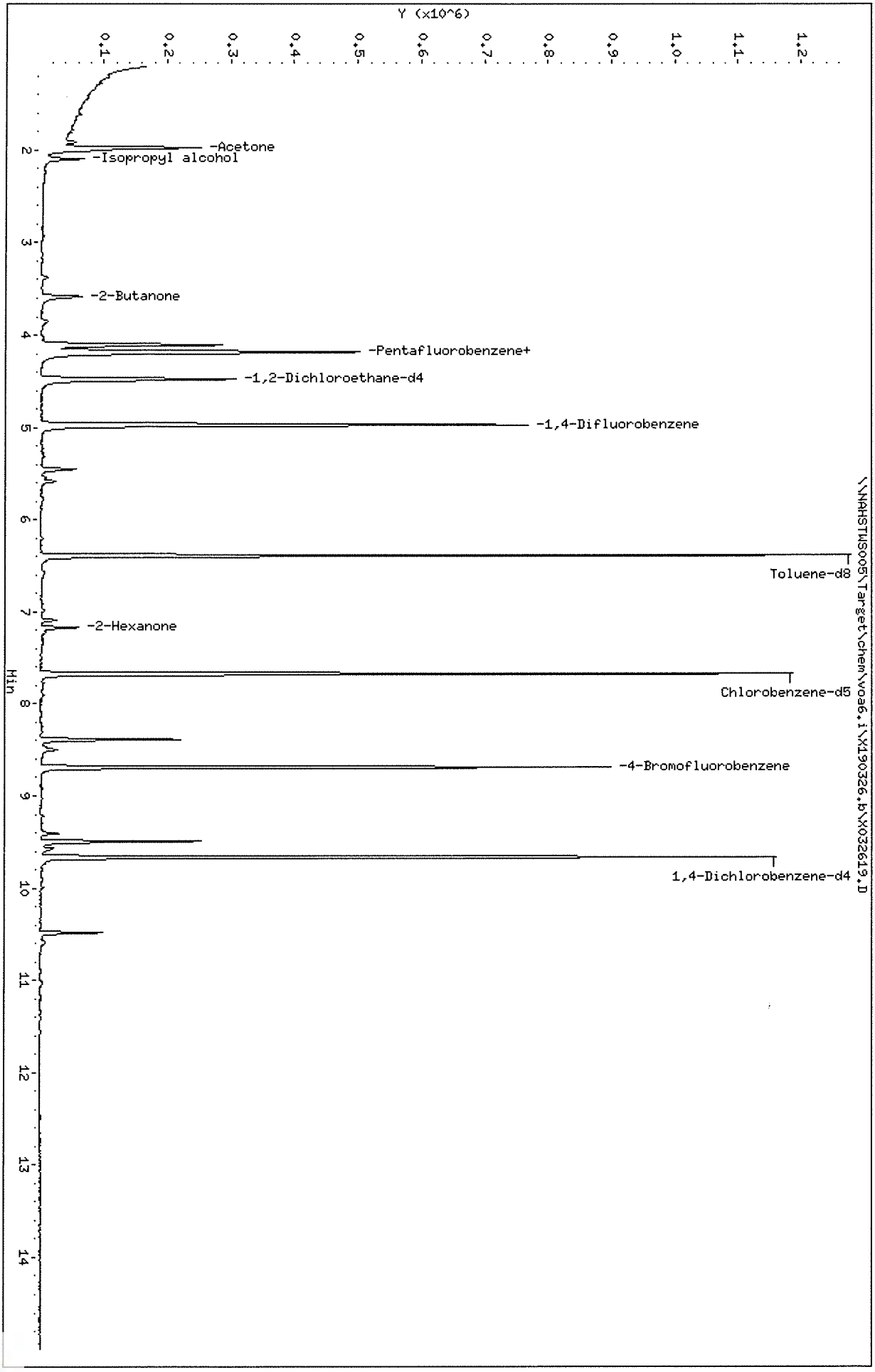
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	443609	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	641824	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	560050	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	281586	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	200042	46.1073	46.10
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	227983	47.0507	47.05
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	746158	53.6895	53.68
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	252140	49.2918	49.29
24 2-Butanone	43	3.580	3.580	(0.855)	94966	62.4987	62.49
52 2-Hexanone	43	7.090	7.090	(0.924)	14606	6.61543	6.61
10 Acetone	43	1.976	1.976	(0.472)	267727	247.563	247.56(A)

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.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Date : 26-MAR-2019 19:54
Client ID: HS19031013-05
Sample Info: HS19031013-05;HS19031013-05;;;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
Y (x10^6)
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
Min
2
3
4
5
6
7
8
9
10
11
12
13
14
-Acetone
-Isopropyl alcohol
-2-Butanone
-Pentafluorobenzene+
-1,2-Dichloroethane-d4
-1,4-Difluorobenzene
Toluene-d8
-2-Hexanone
Chlorobenzene-d5
-4-Bromofluorobenzene
1,4-Dichlorobenzene-d4
\\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032619.D

Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032619.D

Date : 26-MAR-2019 19:54

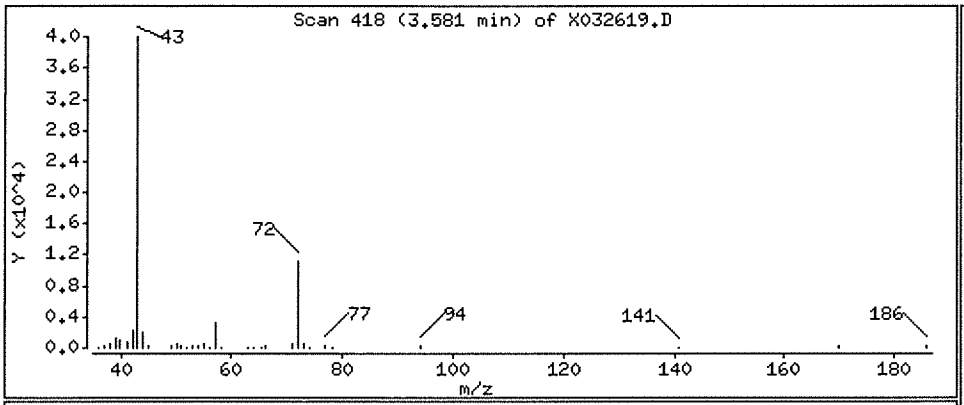
Client ID: HS19031013-05 Instrument: voa6.i

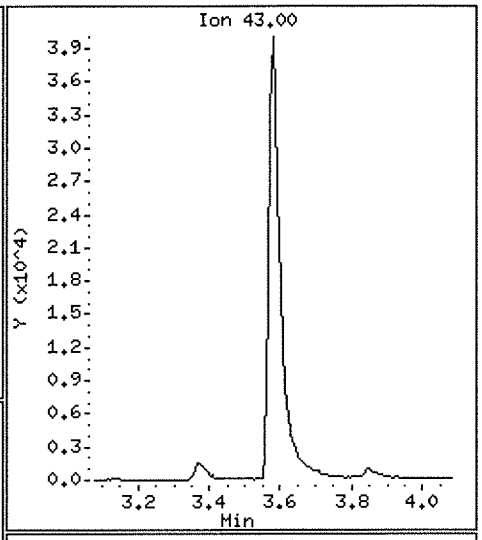
Sample Info: HS19031013-05;HS19031013-05;;;

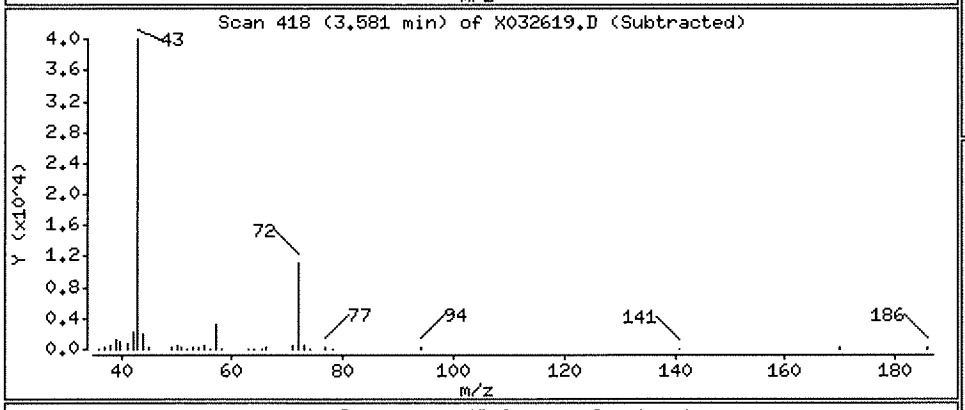
Purge Volume: 5.0 Operator: PC

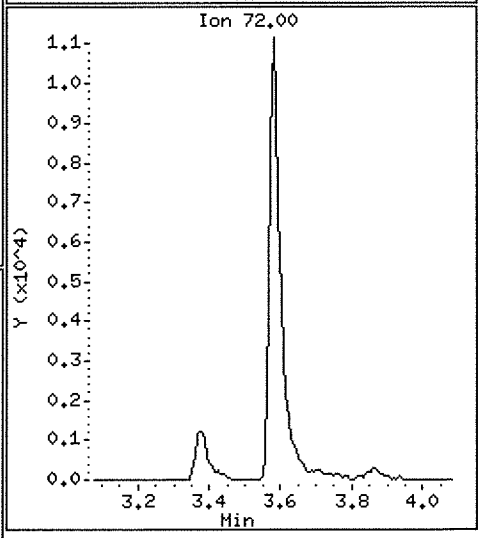
Column phase: DB624 Column diameter: 0.18

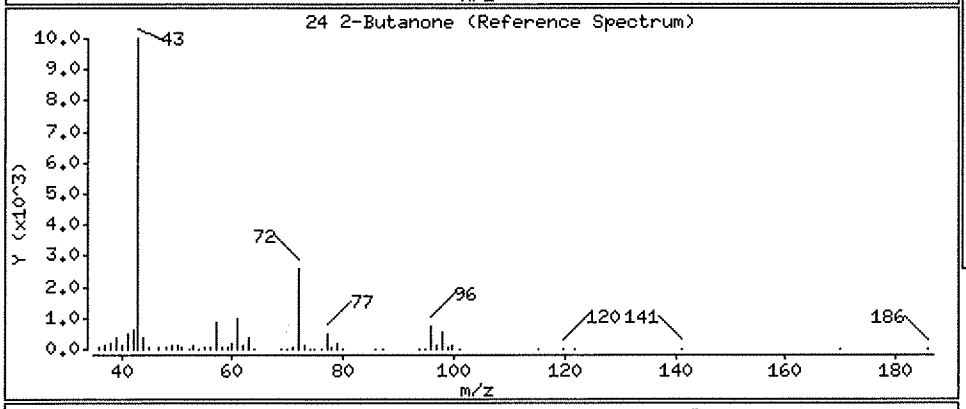
24 2-Butanone Concentration: 62.49 ug/l

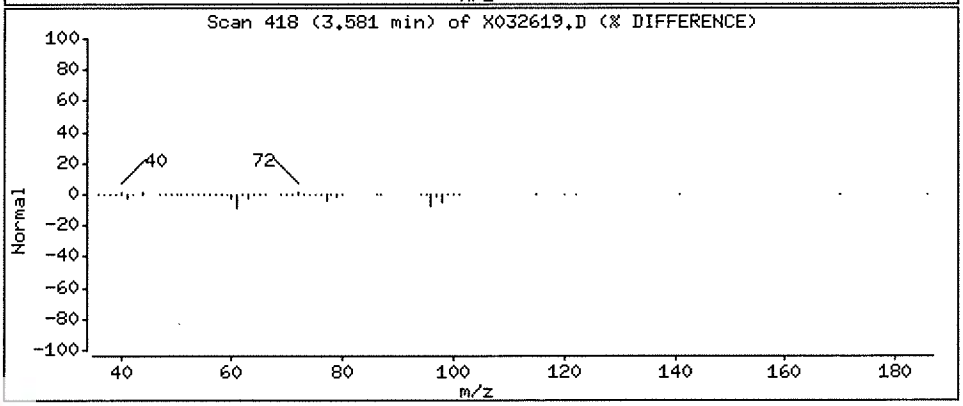












Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032619.D

Date : 26-MAR-2019 19:54

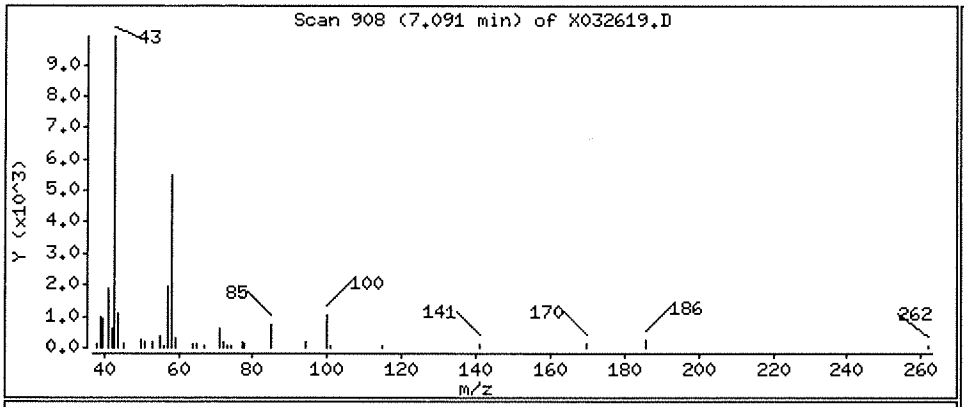
Client ID: HS19031013-05 Instrument: voa6.i

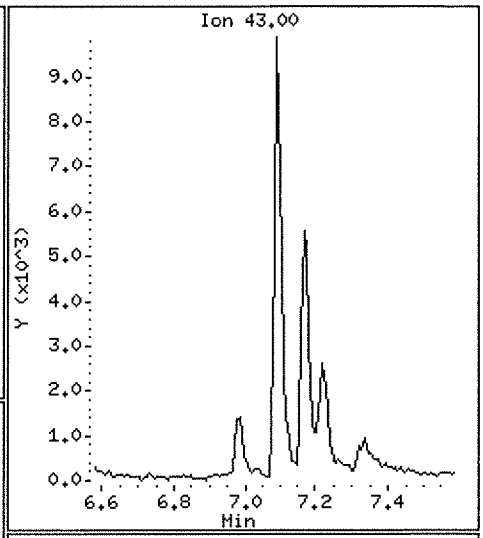
Sample Info: HS19031013-05;HS19031013-05;;;

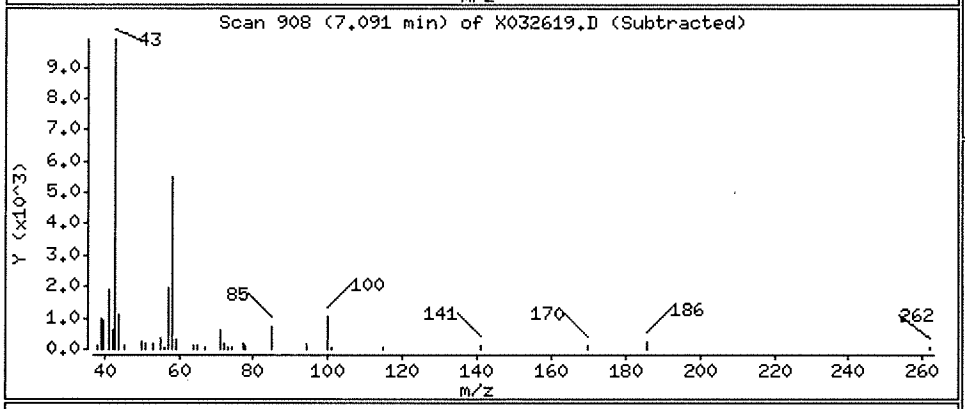
Purge Volume: 5.0 Operator: PC

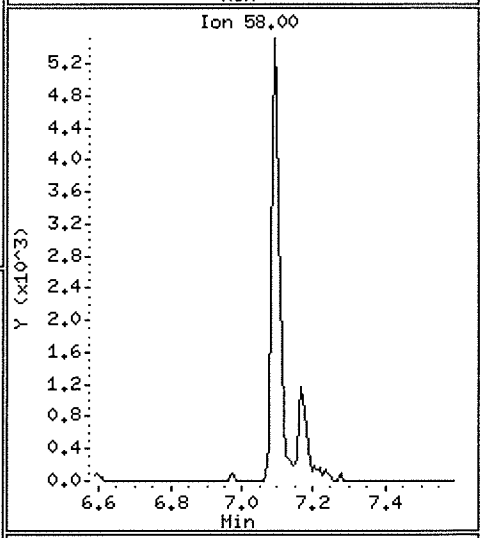
Column phase: DB624 Column diameter: 0.18

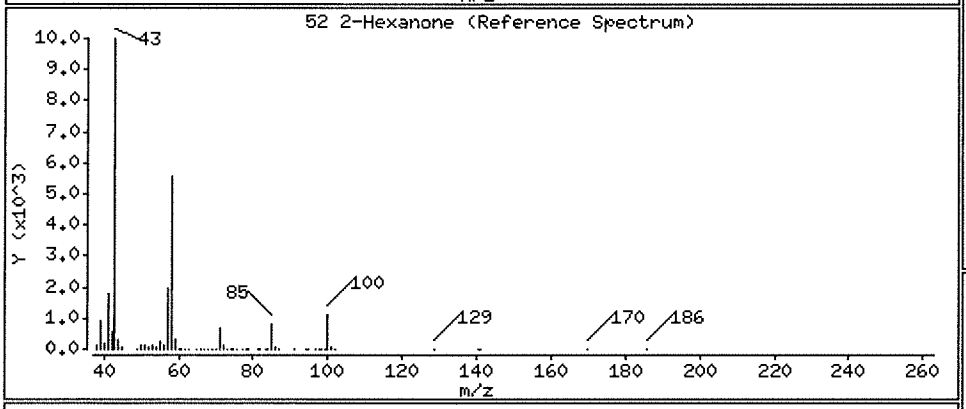
52 2-Hexanone Concentration: 6.61 ug/l

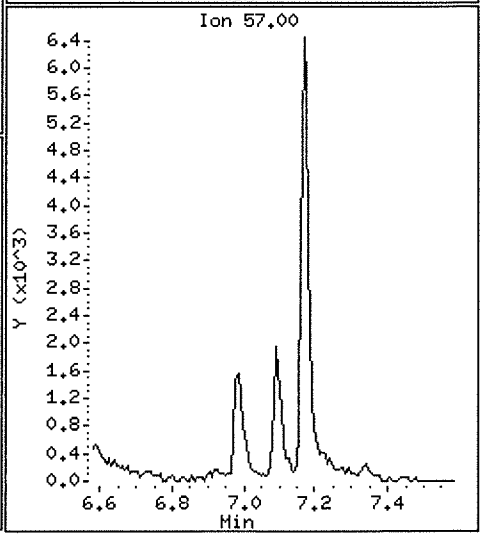


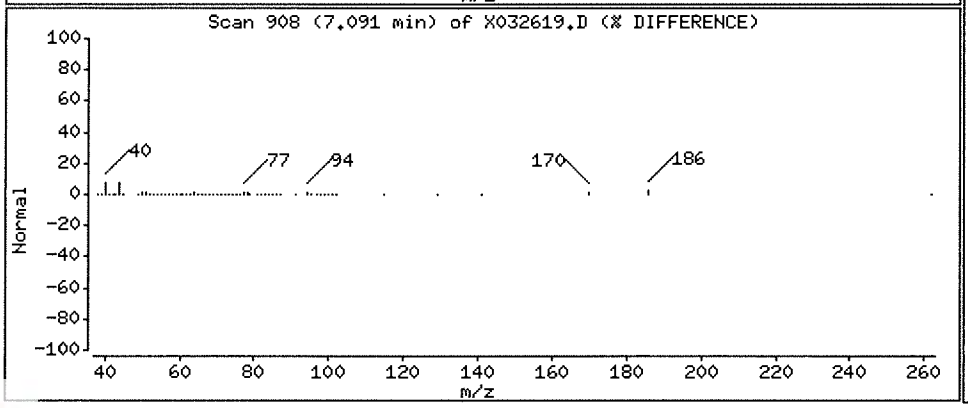












Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032619.D

Date : 26-MAR-2019 19:54

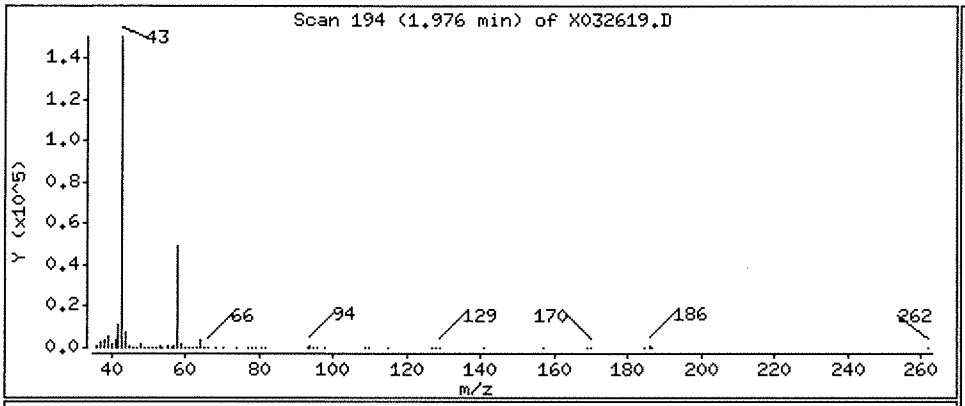
Client ID: HS19031013-05 Instrument: voa6.i

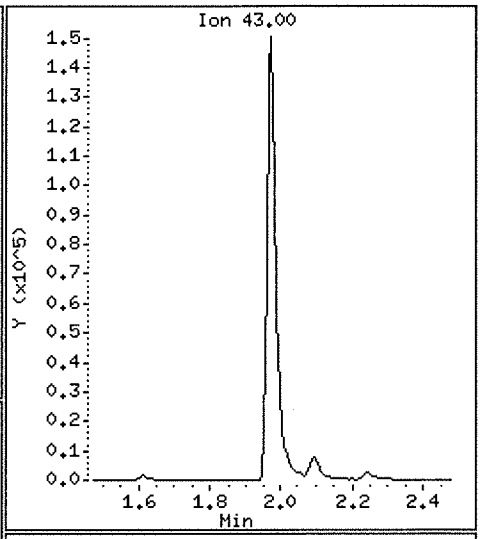
Sample Info: HS19031013-05;HS19031013-05;;;

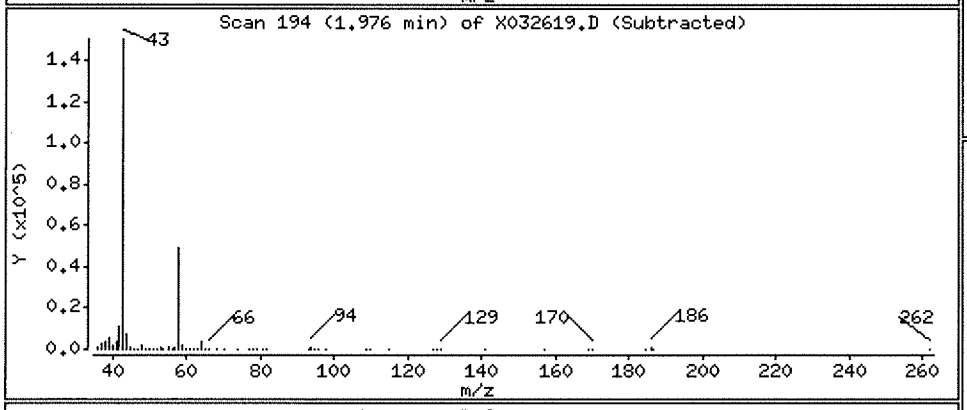
Purge Volume: 5.0 Operator: PC

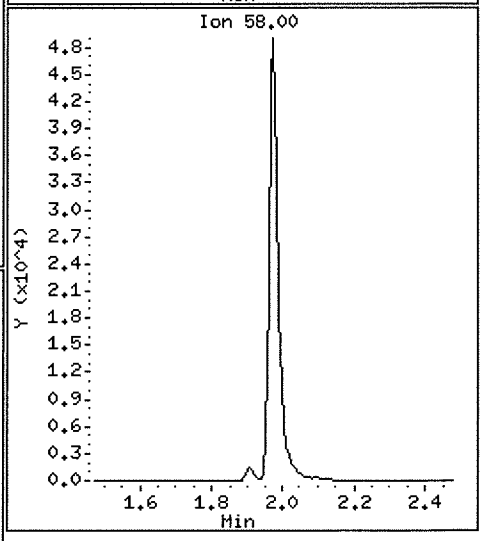
Column phase: DB624 Column diameter: 0.18

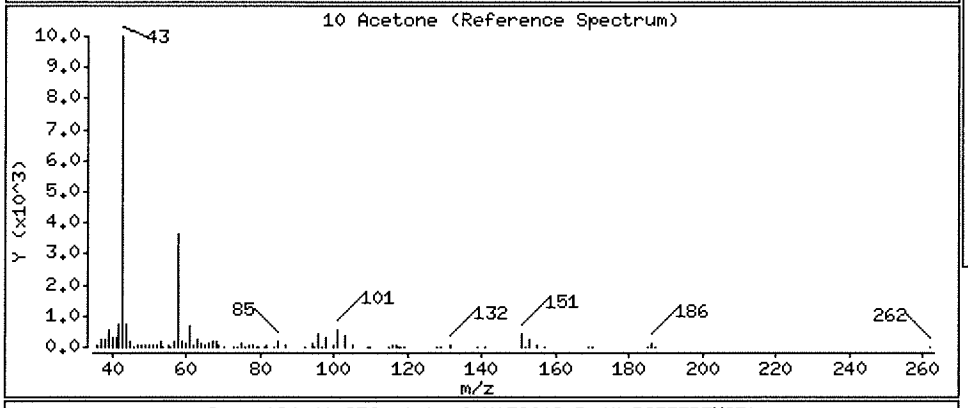
10 Acetone Concentration: 247.56 ug/l

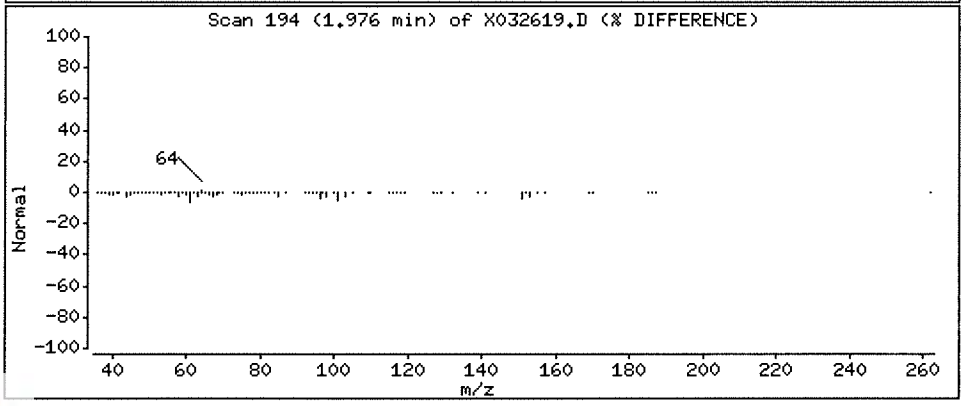












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Report Date: 29-Mar-2019 20:42

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032620.D
Lab Smp Id: HS19031013-06 Client Smp ID: HS19031013-06
Inj Date : 26-MAR-2019 20:18
Operator : PC Inst ID: voa6.i
Smp Info : HS19031013-06;HS19031013-06;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X190326.b\8260W.m
Meth Date : 29-Mar-2019 20:42 voa6.i Quant Type: ISTD
Cal Date : 14-MAR-2019 14:20 Cal File: X031408.D
Als bottle: 18
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7087

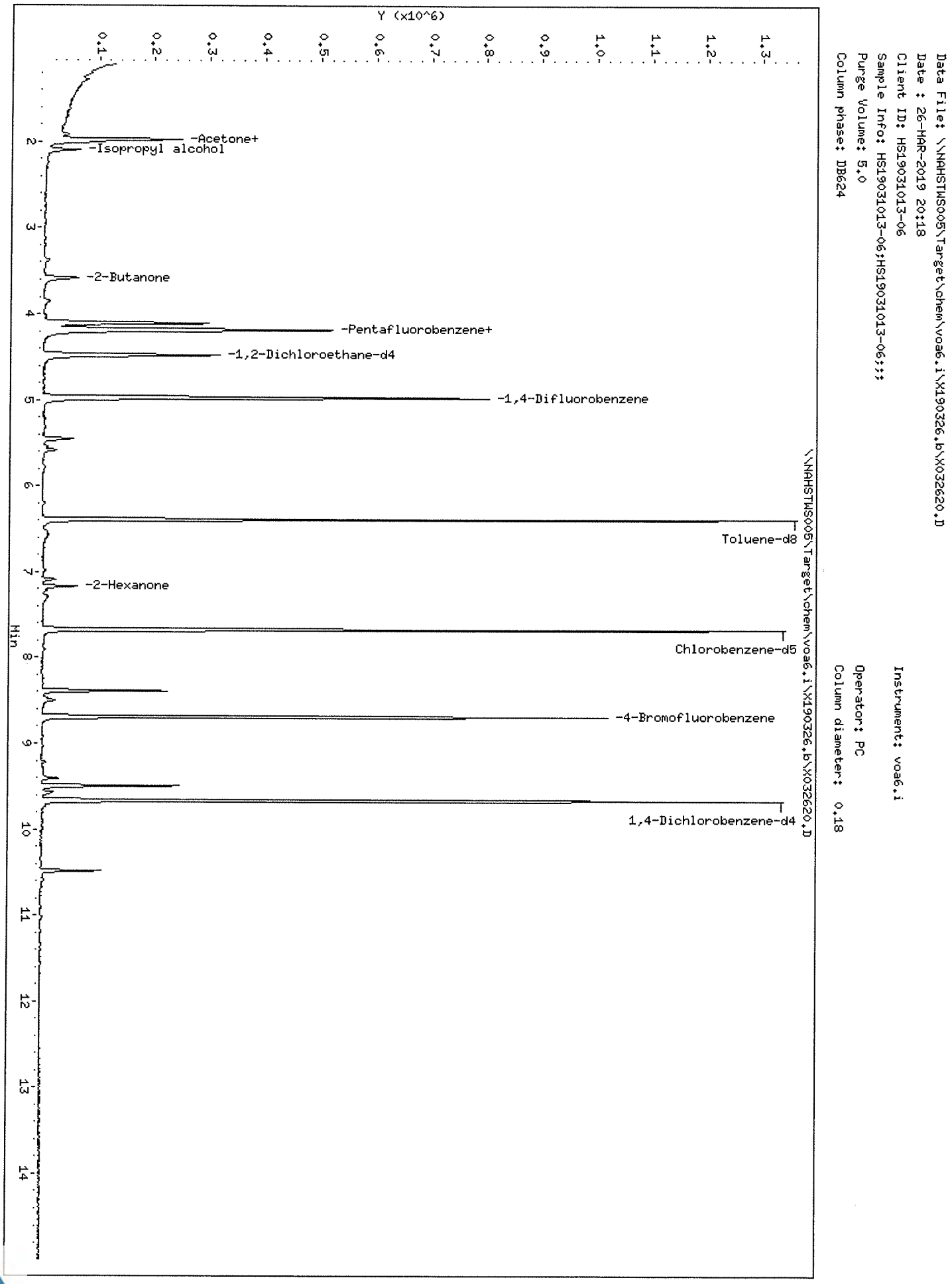
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	464782	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	673306	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	626015	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	322660	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	207356	45.6151	45.61
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	235161	46.3177	46.31
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	786877	50.6417	50.64
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	286880	50.1800	50.17
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	5443	1.38081	1.38(a)
24 2-Butanone	43	3.580	3.580	(0.855)	94652	59.4543	59.45
52 2-Hexanone	43	7.090	7.090	(0.924)	14614	5.92159	5.92
10 Acetone	43	1.976	1.976	(0.472)	266866	235.299	235.29(A)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
A - Target compound detected but, quantitated amount
exceeded maximum amount.


Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032620.D
Date : 26-MAR-2019 20:18
Client ID: HS19031013-06
Sample Info: HS19031013-06;HS19031013-06;;;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
Y (x10^6)
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
2
3
4
5
6
7
8
9
10
11
12
13
14
Min
-Acetone+
-Isopropyl alcohol
-2-Butanone
-Pentafluorobenzene+
-1,2-Dichloroethane-d4
-1,4-Difluorobenzene
Toluene-d8
-2-Hexanone
Chlorobenzene-d5
-4-Bromofluorobenzene
1,4-Dichlorobenzene-d4
\\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032620.D

Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032620.D

Date : 26-MAR-2019 20:18

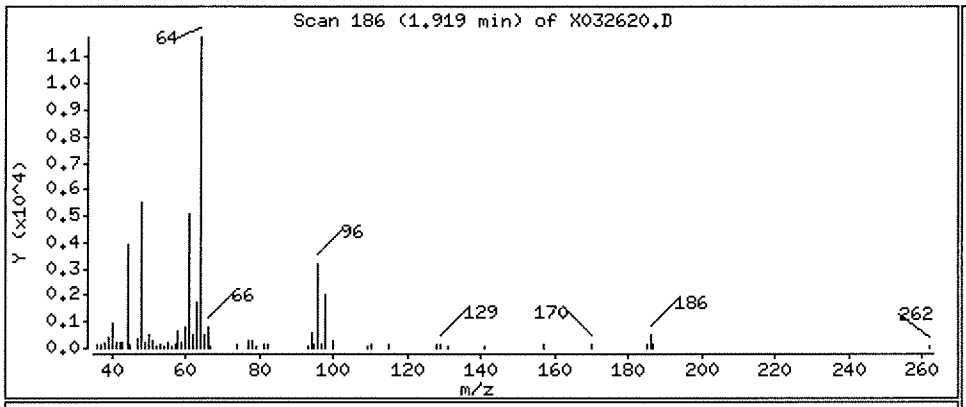
Client ID: HS19031013-06 Instrument: voa6.i

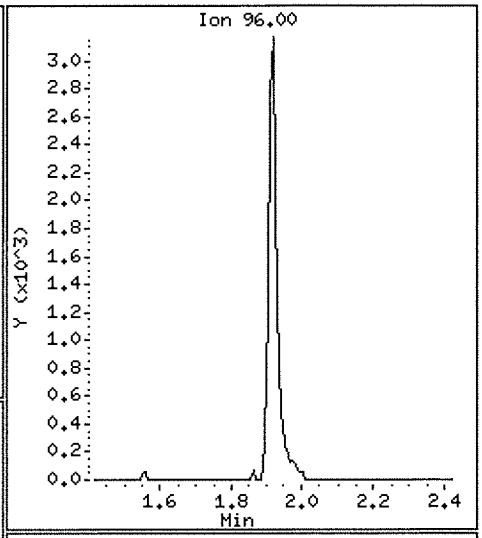
Sample Info: HS19031013-06;HS19031013-06;;;

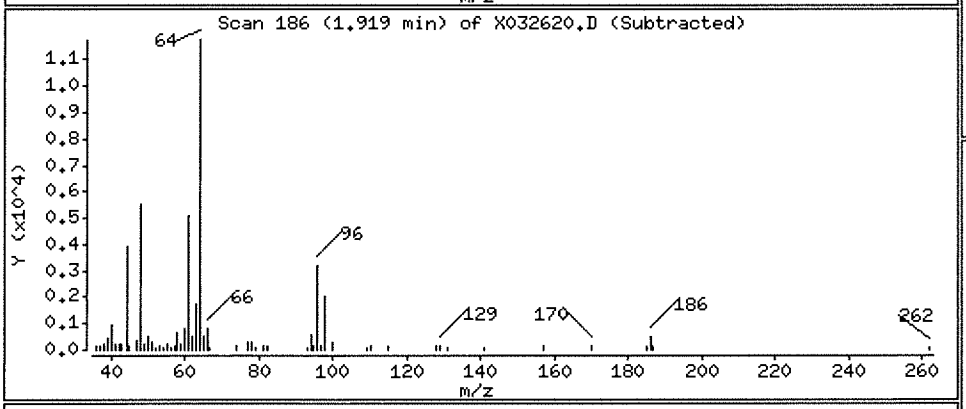
Purge Volume: 5.0 Operator: PC

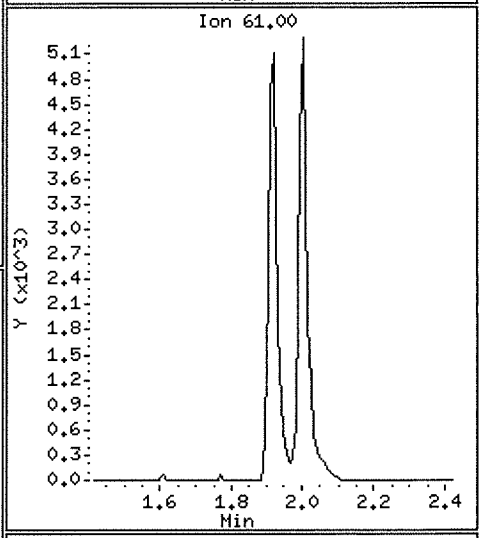
Column phase: DB624 Column diameter: 0.18

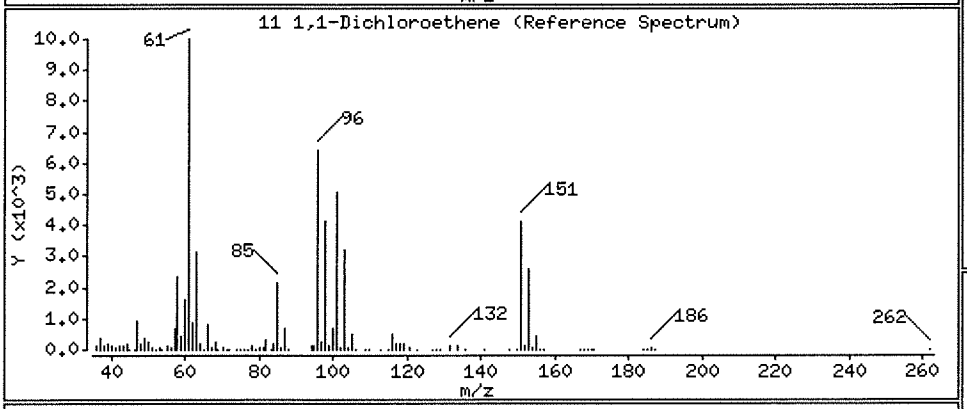
11 1,1-Dichloroethene Concentration: 1.38 ug/l

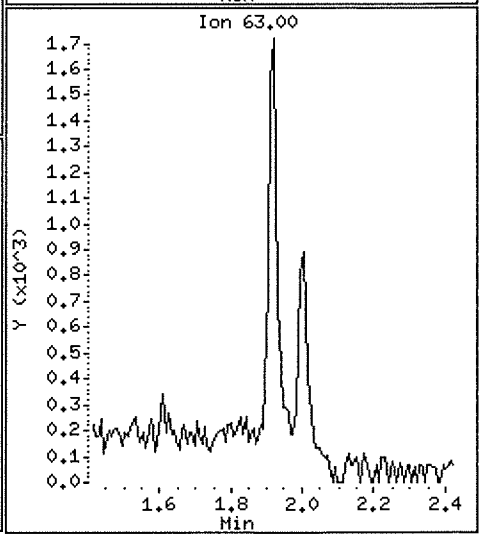


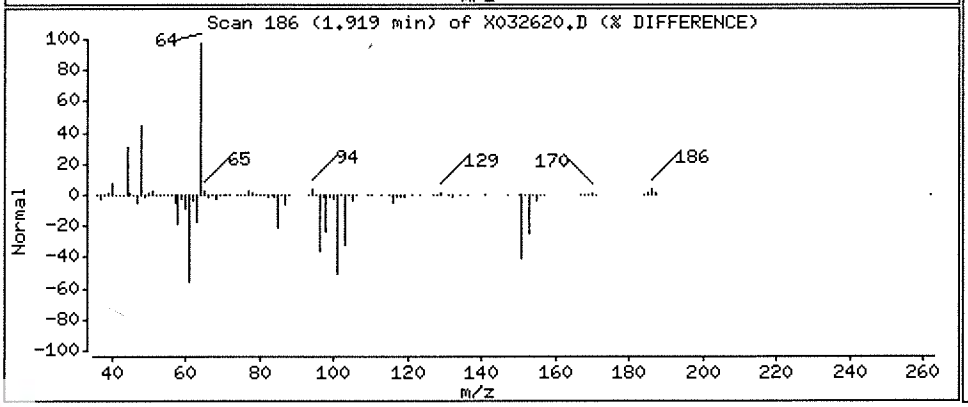












Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032620.D

Date : 26-MAR-2019 20:18

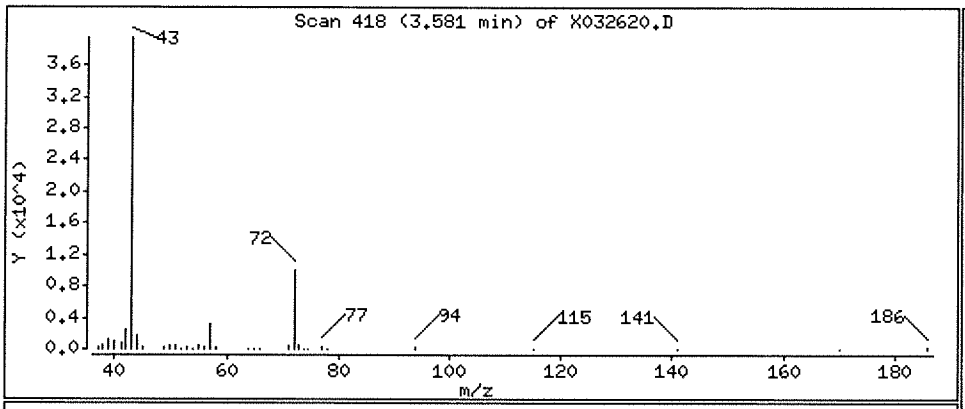
Client ID: HS19031013-06 Instrument: voa6.i

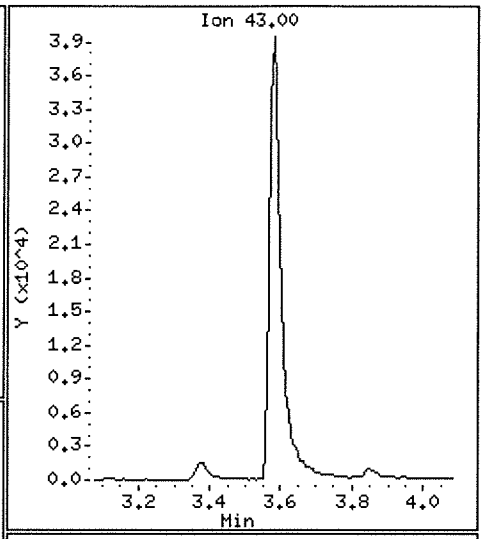
Sample Info: HS19031013-06;HS19031013-06;;;

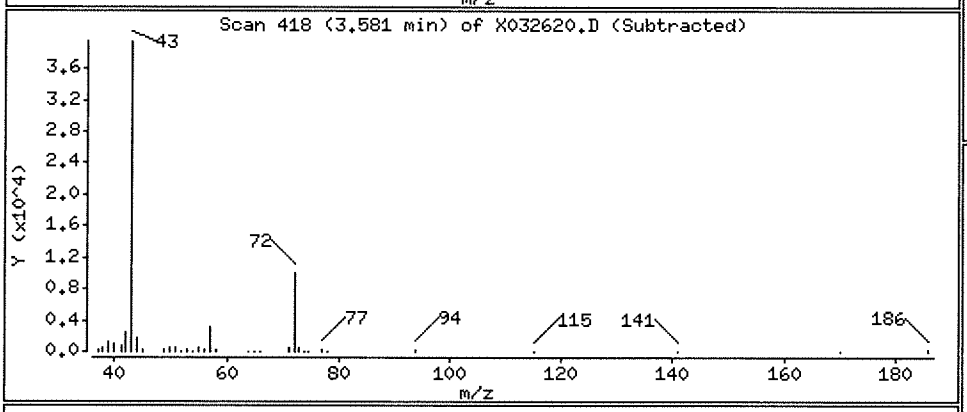
Purge Volume: 5.0 Operator: PC

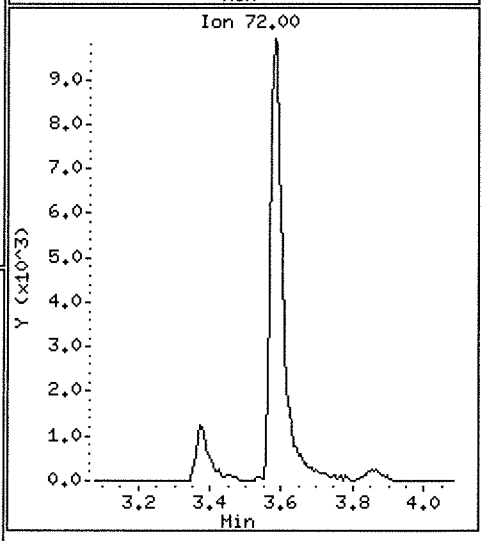
Column phase: DB624 Column diameter: 0.18

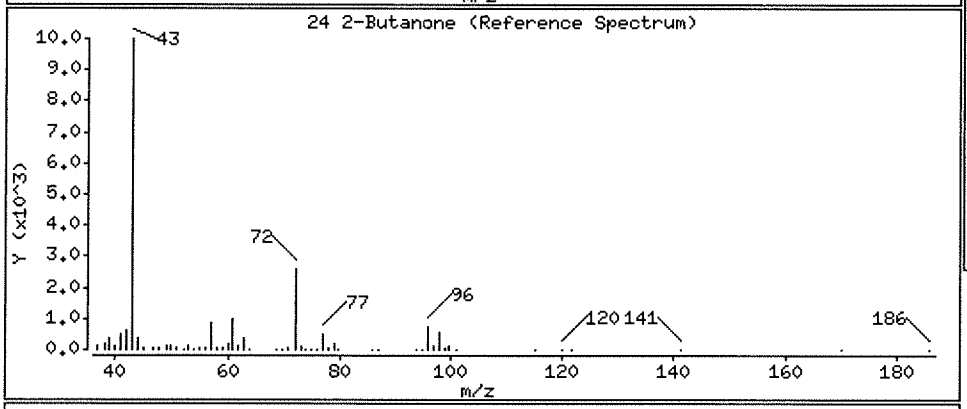
24 2-Butanone Concentration: 59.45 ug/l

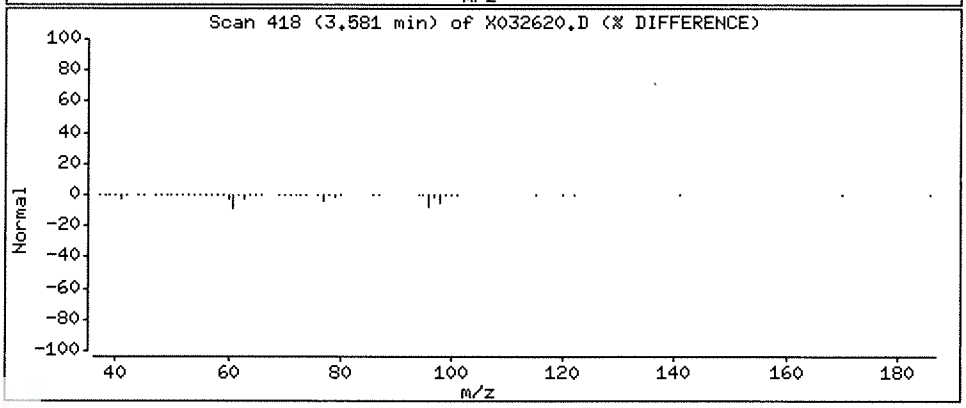












Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032620.D

Date : 26-MAR-2019 20:18

Client ID: HS19031013-06

Instrument: voa6.i

Sample Info: HS19031013-06;HS19031013-06;;;

Purge Volume: 5.0

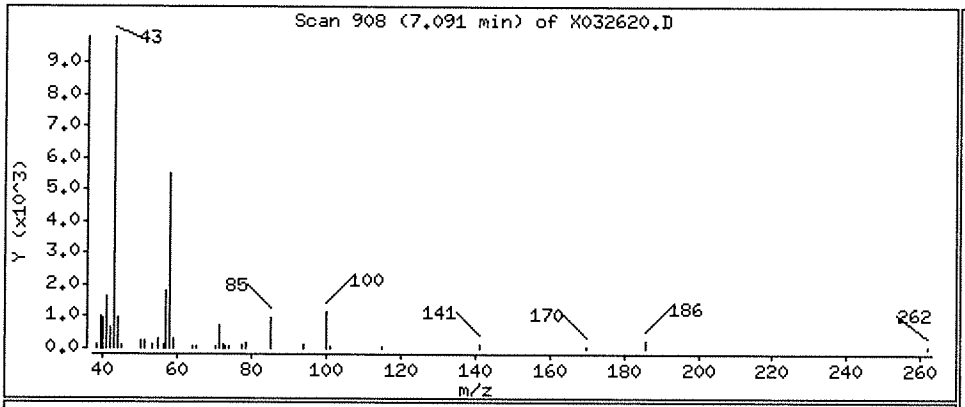
Operator: PC

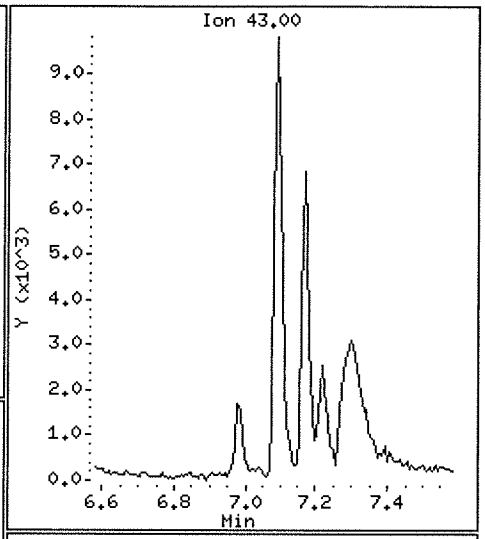
Column phase: DB624

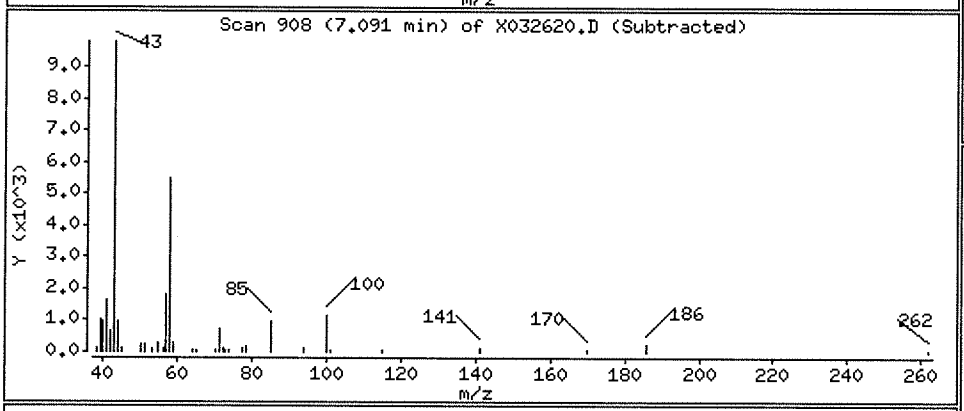
Column diameter: 0.18

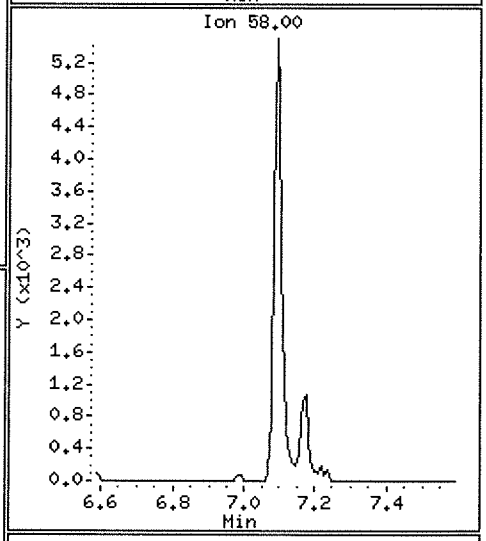
52 2-Hexanone

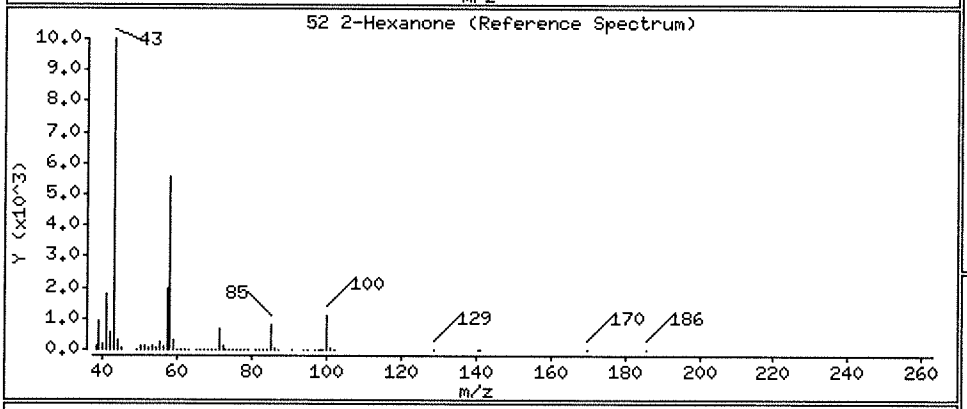
Concentration: 5.92 ug/l

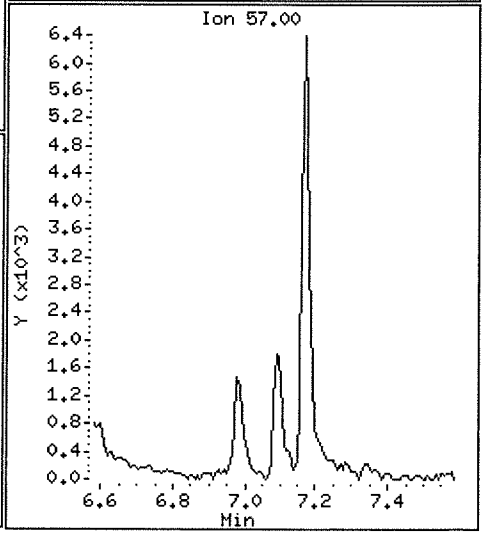


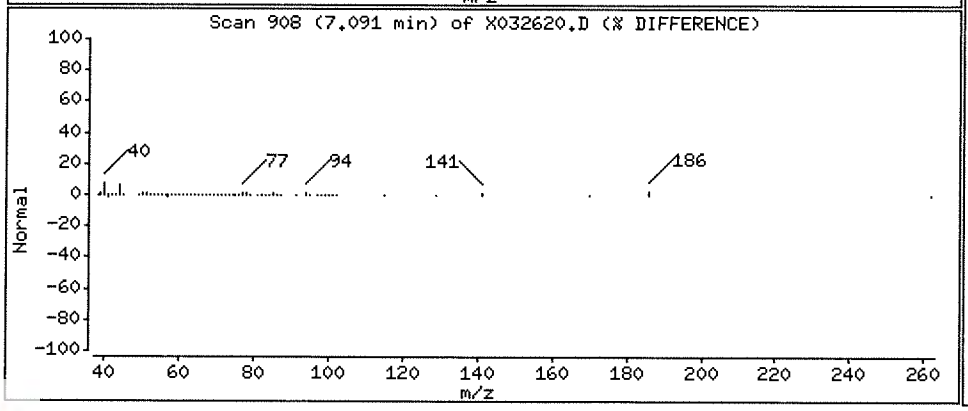












Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032620.D

Date : 26-MAR-2019 20:18

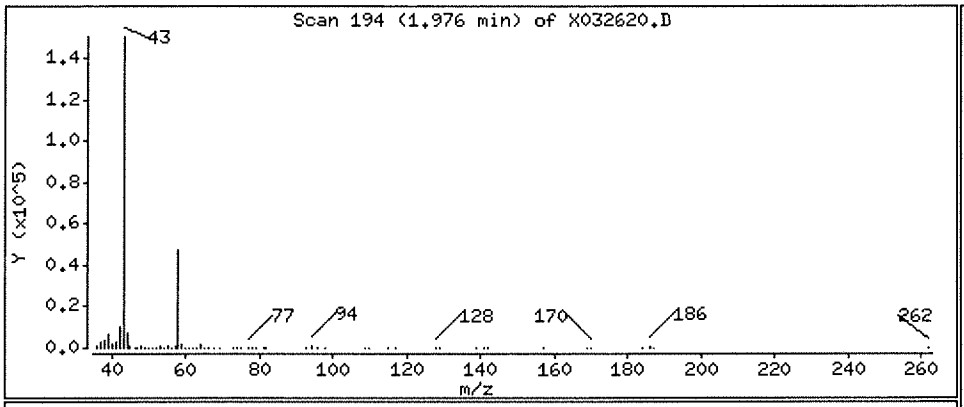
Client ID: HS19031013-06 Instrument: voa6.i

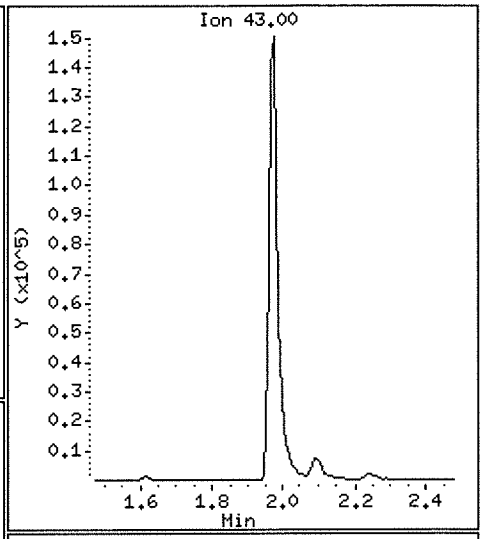
Sample Info: HS19031013-06;HS19031013-06;;;

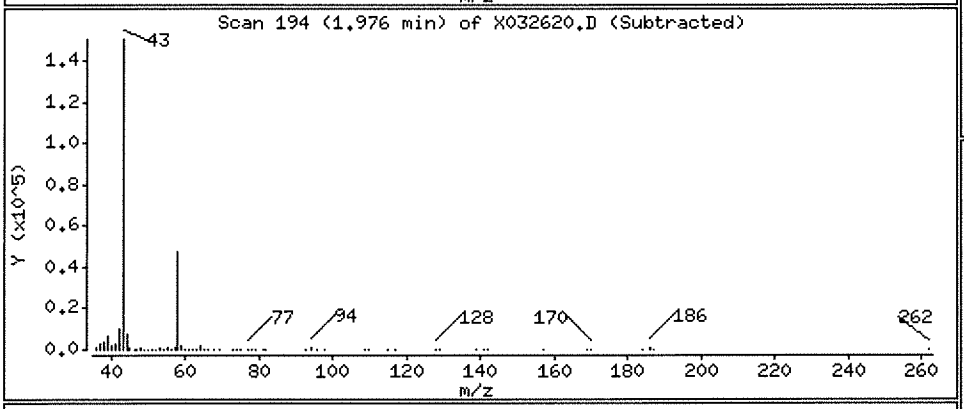
Purge Volume: 5.0 Operator: PC

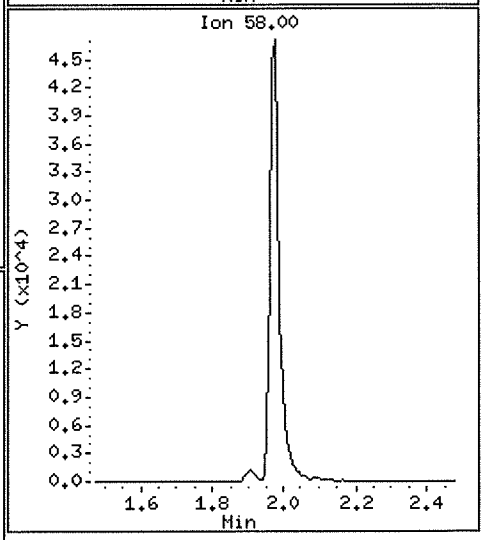
Column phase: DB624 Column diameter: 0.18

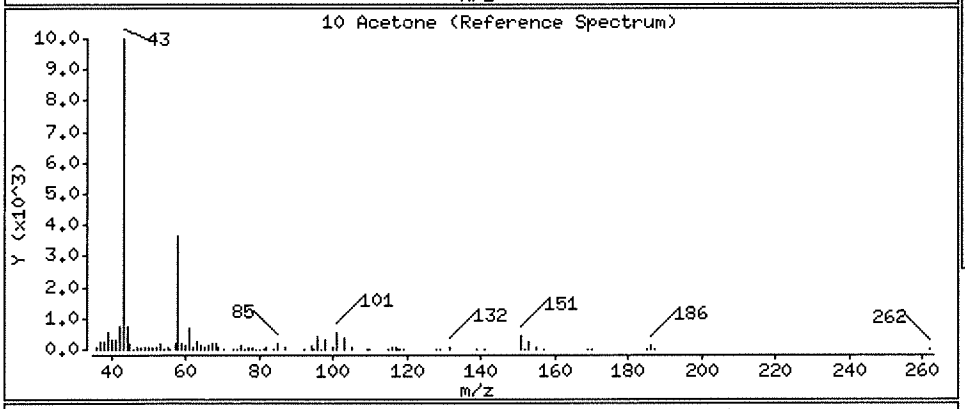
10 Acetone Concentration: 235.29 ug/l

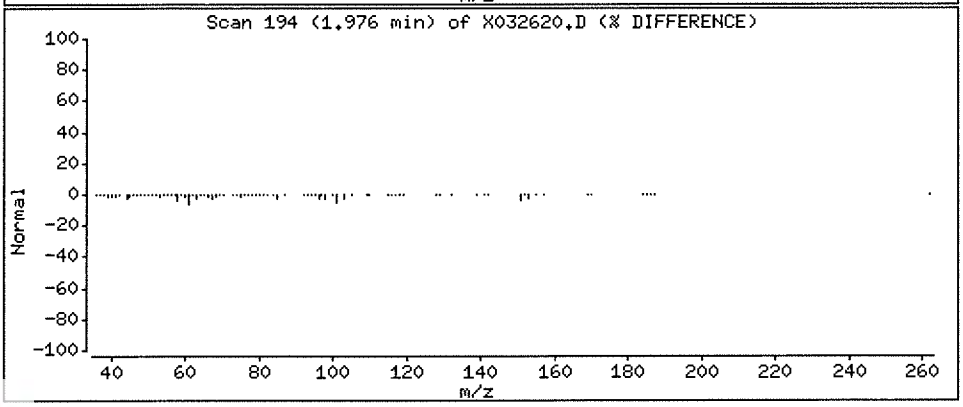












Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032629.D
Report Date: 29-Mar-2019 20:42

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032629.D
Lab Smp Id: CCV_END Client Smp ID: CCV_END
Inj Date : 27-MAR-2019 00:12
Operator : PC Inst ID: voa6.i
Smp Info : CCV_END;CCV_END;2;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X190326.b\8260W.m
Meth Date : 29-Mar-2019 20:42 voa6.i Quant Type: ISTD
Cal Date : 14-MAR-2019 14:20 Cal File: X031408.D
Als bottle: 27 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7087

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	414431	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	601466	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	533096	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	263101	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	189902	50.0000	46.85
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	203075	50.0000	44.85
$	48 Toluene-d8	98	6.388	6.388	(0.833)	697816	50.0000	52.74
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	238404	50.0000	48.96
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	213159	50.0000	59.24
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	297684	50.0000	49.29
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	230374	50.0000	54.29
	53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	165178	50.0000	56.50
	22 1,1-Dichloroethane	63	2.929	2.929	(0.700)	375879	50.0000	49.38
	11 1,1-Dichloroethene	96	1.919	1.919	(0.459)	169170	50.0000	48.13
	32 1,1-Dichloropropene	75	4.283	4.283	(0.862)	264956	50.0000	49.00
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	86173	50.0000	46.27
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	191181	50.0000	58.29(M)
	90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	164917	50.0000	50.08
	79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	846096	50.0000	67.22
	89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	28309	50.0000	54.84
	57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	204445	50.0000	58.21
	88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	417047	50.0000	55.58

Data File: \\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032629.D
Report Date: 29-Mar-2019 20:42

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	283983	50.0000	55.94
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	224181	50.0000	53.04
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	745285	50.0000	59.85
83 1,3-Dichlorobenzene	146	9.605	9.605	(0.993)	447365	50.0000	56.22
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	338186	50.0000	56.83
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	445086	50.0000	54.90
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	266500	50.0000	45.49
24 2-Butanone	43	3.581	3.581	(0.856)	144620	100.000	101.87
76 2-Chlorotoluene	91	8.974	8.974	(0.928)	626643	50.0000	55.79
52 2-Hexanone	43	7.083	7.083	(0.923)	241471	100.000	114.89
77 4-Chlorotoluene	91	9.075	9.075	(0.939)	717573	50.0000	56.02
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	725813	50.0000	55.77
45 4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	372170	100.000	115.03
10 Acetone	43	1.976	1.976	(0.473)	101681	100.000	97.87
37 Benzene	78	4.519	4.519	(0.909)	3059350	50.0000	198.87
74 Bromobenzene	156	8.810	8.810	(0.911)	269788	50.0000	59.91
29 Bromochloromethane	128	3.803	3.803	(0.909)	121538	50.0000	52.48
39 Bromodichloromethane	83	5.729	5.729	(1.153)	289848	50.0000	56.48
66 Bromoform	173	8.416	8.416	(1.097)	154795	50.0000	58.04
6 Bromomethane	94	1.339	1.339	(0.320)	199999	50.0000	71.08
19 Carbon Disulfide	76	2.069	2.069	(0.495)	1118117	100.000	92.48
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	249296	50.0000	53.30
59 Chlorobenzene	112	7.699	7.699	(1.004)	574094	50.0000	55.26
7 Chloroethane	64	1.145	1.145	(0.274)	91695	50.0000	30.54
28 Chloroform	83	3.910	3.910	(0.935)	376821	50.0000	51.26
3 Chloromethane	50	1.081	1.081	(0.258)	290528	50.0000	50.33
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	233466	50.0000	50.54
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	356068	50.0000	52.59
55 Dibromochloromethane	129	7.176	7.176	(0.936)	223069	50.0000	58.85
44 Dibromomethane	93	5.558	5.558	(1.118)	142183	50.0000	56.17
2 Dichlorodifluoromethane	85	0.973	0.973	(0.233)	227475	50.0000	53.77
61 Ethylbenzene	106	7.800	7.800	(1.017)	321614	50.0000	62.36
91 Hexachlorobutadiene	225	11.489	11.489	(1.188)	95566	50.0000	50.37
67 Isopropylbenzene	105	8.566	8.566	(1.117)	870280	50.0000	56.54
62 m,p-Xylenes	106	7.907	7.907	(1.031)	856437	100.000	133.96
17 Methylene Chloride	84	2.306	2.306	(0.551)	226030	50.0000	52.38
87 n-Butylbenzene	91	9.999	9.999	(1.034)	629574	50.0000	56.10
73 n-Propylbenzene	91	8.917	8.917	(0.922)	1032490	50.0000	56.40
92 Naphthalene	128	11.546	11.546	(1.194)	285414	50.0000	57.52
63 o-Xylene	106	8.244	8.244	(1.075)	414450	50.0000	64.80
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	824153	50.0000	54.04
64 Styrene	104	8.258	8.258	(1.077)	705493	50.0000	66.54
78 tert-Butylbenzene	119	9.340	9.340	(0.966)	591750	50.0000	54.69
56 Tetrachloroethene	164	6.933	6.933	(0.904)	176168	50.0000	54.99
50 Toluene	91	6.446	6.446	(0.840)	1360672	50.0000	87.28
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	192024	50.0000	49.09
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	313337	50.0000	57.42
38 Trichloroethene	130	5.214	5.214	(1.049)	217811	50.0000	51.46
8 Trichlorofluoromethane	101	1.561	1.561	(0.373)	291715	50.0000	47.63
5 Vinyl Chloride	62	1.145	1.145	(0.274)	251569	50.0000	47.02

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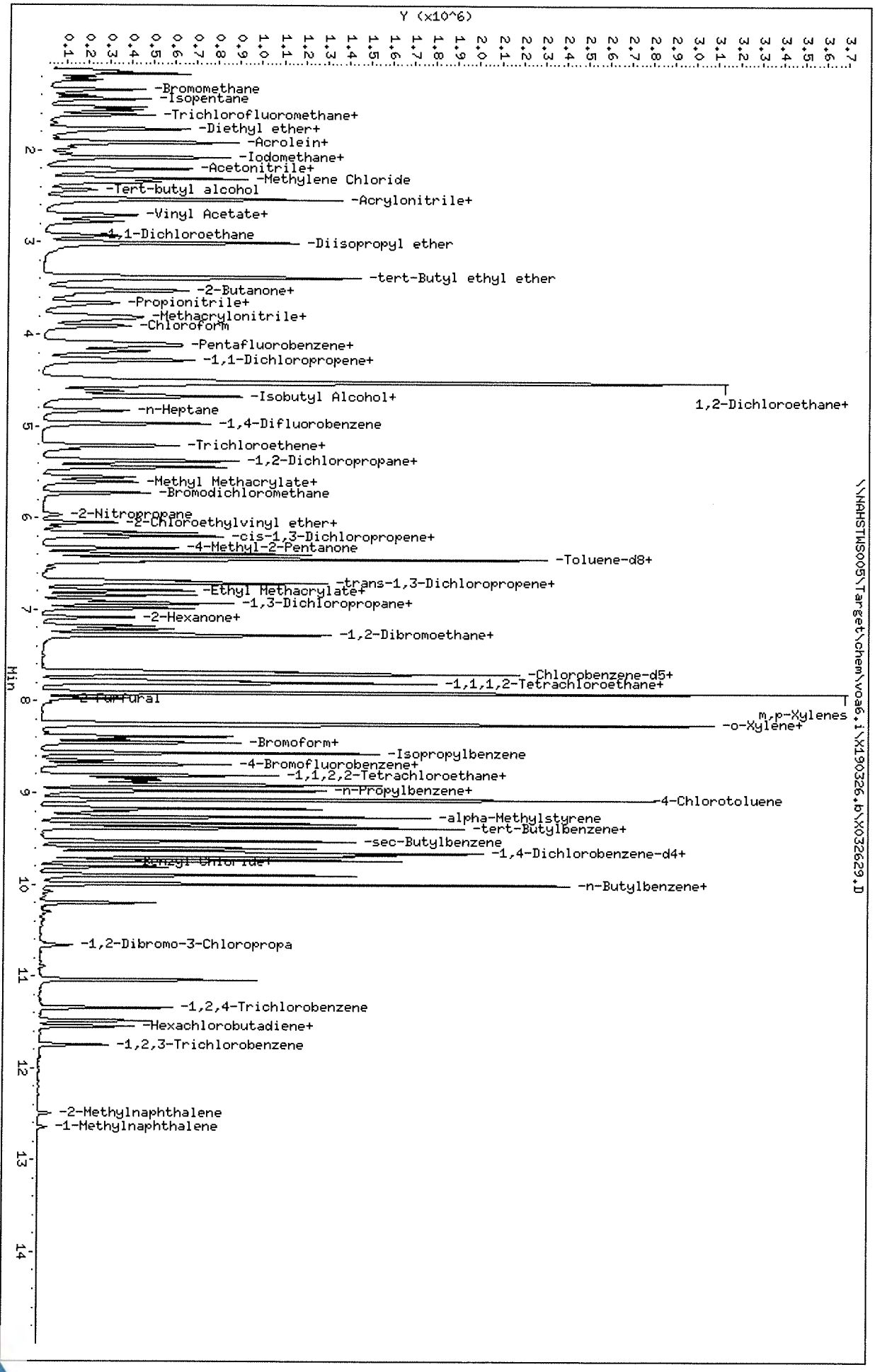
Report Date: 29-Mar-2019 20:42

QC Flag Legend

M - Compound response manually integrated.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Client ID: CCV_END
Sample Info: CCV_END;CCV_END;2;;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
\\NAHSTWS005\Target\chem\voa6.i\X190326.b\X032629.D
Y (x10^6)
Min
-Bromomethane
-Isopentane
-Trichlorofluoromethane+
-Diethyl ether+
-Acrolein+
-Iodomethane+
-Acetonitrile+
-Methylene Chloride
-Tert-butyl alcohol
-Acrylonitrile+
-Vinyl Acetate+
-1,1-Dichloroethane
-Diisopropyl ether
-tert-Butyl ethyl ether
-2-Butanone+
-Propionitrile+
-Methacrylonitrile+
-Chloroform
-Pentafluorobenzene+
-1,1-Dichloropropene+
-Isobutyl Alcohol+
1,2-Dichloroethane+
-n-Heptane
-1,4-Difluorobenzene
-Trichloroethene+
-1,2-Dichloropropane+
-Methyl Methacrylate+
-Bromodichloromethane
-2-Nitropropane
-2-Chloroethylvinyl ether+
-cis-1,3-Dichloropropene+
-4-Methyl-2-Pentanone
-Toluene-d8+
-trans-1,3-Dichloropropene+
-Ethyl Methacrylate+
-1,3-Dichloropropane+
-2-Hexanone+
-1,2-Dibromoethane+
-Chlorobenzene-d5+
-1,1,1,2-Tetrachloroethane+
-2-Furfural
m,p-Xylenes
-o-Xylene+
-Bromoform+
-Isopropylbenzene
-4-Bromofluorobenzene+
-1,1,2,2-Tetrachloroethane+
-n-Propylbenzene+
-4-Chlorotoluene
-alpha-Methylstyrene
-tert-Butylbenzene+
-sec-Butylbenzene
-1,4-Dichlorobenzene-d4+
-Benzyl Chloride+
-n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Hexachlorobutadiene+
-1,2,3-Trichlorobenzene
-2-Methylnaphthalene
-1-Methylnaphthalene

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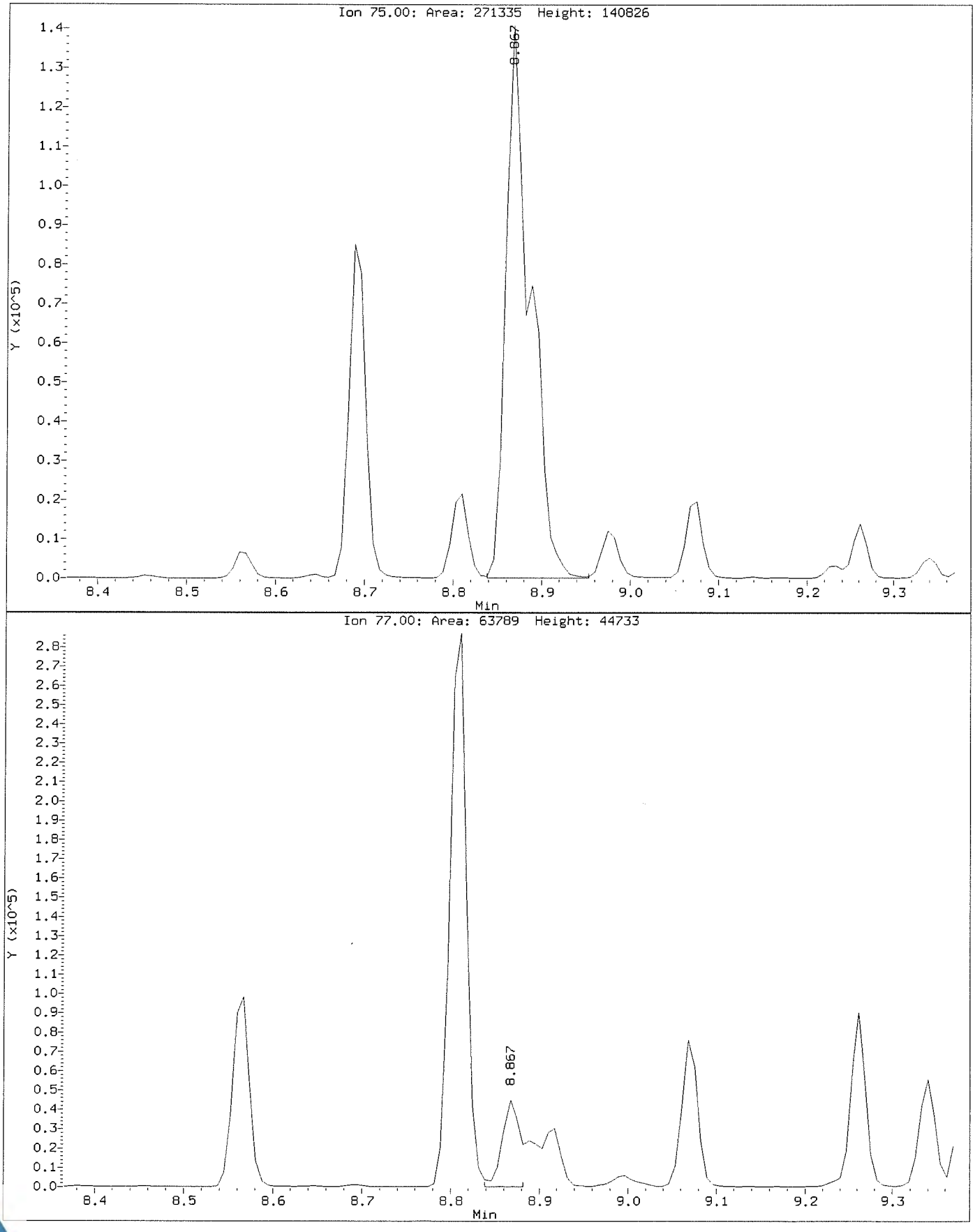
Client Sample ID: CCV_END

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



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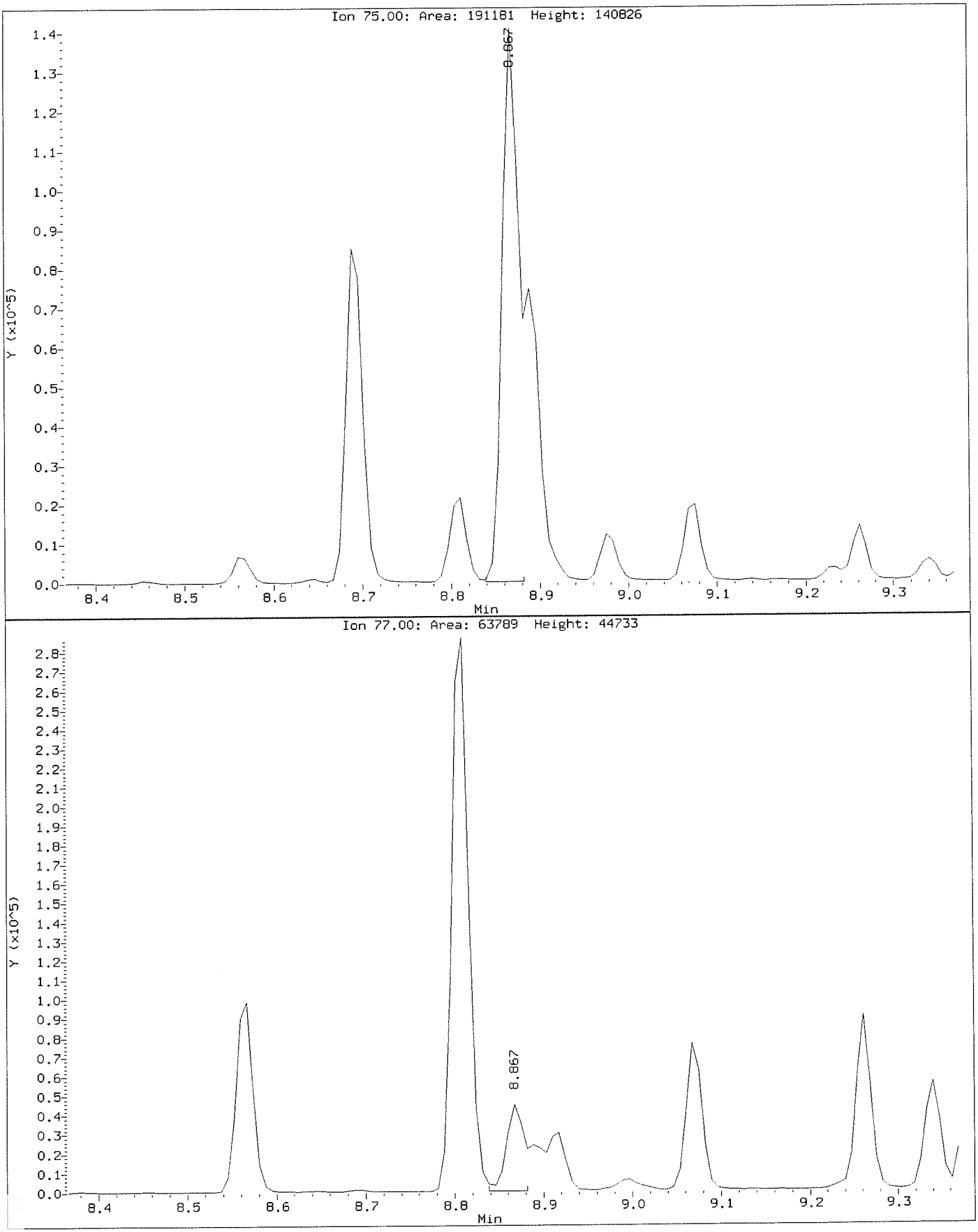
Instrument: voa6.i
Client Sample ID: CCV_END

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



HS19031013 Wet Chem Raw Data

ALS WO# HS19031013

HS19031613

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Operator: ALSHS.NoUser

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(Modified, not saved)

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3	STD3		Standard	93	1.0000	030519	Finished
4	STD4		Standard	94	1.0000	030519	Finished
5	STD5		Standard	95	1.0000	030519	Finished
6	STD6		Standard	96	1.0000	030519	Finished
7	ICV	297.020.6806	Unknown	97	1.0000	030519	Finished
8	ICB		Unknown	98	1.0000	030519	Finished
9	CCV		Unknown	1	1.0000	030519	Finished
10	CCB		Unknown	2	1.0000	030519	Finished
11	WBLKW1-031919		Unknown	5	1.0000	030519	Finished
12	WLCSW1-031919		Unknown	6	1.0000	030519	Finished
13	WLCSDW1-031919		Unknown	7	1.0000	030519	Finished
14	HS19030910-03		Unknown	11	1.0000	030519	Finished
15	HS19030918-01		Unknown	12	1.0000	030519	Finished
16	HS19030918-01MS		Unknown	13	1.0000	030519	Finished
17	HS19030918-01MSD		Unknown	14	1.0000	030519	Finished
18	HS19030918-02		Unknown	15	1.0000	030519	Finished
19	HS19030918-02DF20		Unknown	16	20.0000	030519	Finished
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21	CCB		Unknown	4	1.0000	030519	Finished
22	HS19030918-03		Unknown	17	1.0000	030519	Finished
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24	HS19030933-01DF5		Unknown	19	5.0000	030519	Finished
25	DI H2O		Unknown	10	1.0000	030519	Finished
26	HS19030933-01DF20		Unknown	20	20.0000	030519	Finished
27	HS19030933-01DF100		Unknown	21	100.0000	030519	Finished
28	HS19030936-01		Unknown	22	1.0000	030519	Finished
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34	HS19030948-01		Unknown	26	1.0000	030519	Finished
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36	HS19030949-01		Unknown	28	1.0000	030519	Finished
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38	HS19030850-03DF40		Unknown	43	40.0000	030519	Finished
39	HS19030850-04DF20		Unknown	36	20.0000	030519	Finished
40	HS19030850-04MSDF20		Unknown	37	20.0000	030519	Finished
41	HS19030850-04MSDDF20		Unknown	38	20.0000	030519	Finished
42	DI H2O		Unknown	10	1.0000	030519	Finished

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Sequence: 031919
Operator: ALSHS.NoUser

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3	STD3	3/5/2019 3:40:45 PM	Anions Gradient Program-150mA	10.0	1.00
4	STD4	3/5/2019 3:55:24 PM	Anions Gradient Program-150mA	10.0	1.00
5	STD5	3/5/2019 4:10:02 PM	Anions Gradient Program-150mA	10.0	1.00
6	STD6	3/5/2019 4:24:41 PM	Anions Gradient Program-150mA	10.0	1.00
7	ICV	3/5/2019 4:39:19 PM	Anions Gradient Program-150mA	10.0	1.00
8	ICB	3/5/2019 5:13:31 PM	Anions Gradient Program-150mA	10.0	1.00
9	CCV	3/19/2019 5:25:30 PM	Anions Gradient Program-150mA	10.0	1.00
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13	WLCSDW1-031919	3/19/2019 6:24:04 PM	Anions Gradient Program-150mA	10.0	1.00
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17	HS19030918-01MSD	3/19/2019 7:28:01 PM	Anions Gradient Program-150mA	10.0	1.00
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42	DI H2O	3/20/2019 1:34:04 AM	Anions Gradient Program-150mA	10.0	1.00

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Sequence: 031919
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4	STD4	1.00	3f6d47d9-3f91-11e9-b6db-bd957e66751c		
5	STD5	1.00	4b0711a4-3f93-11e9-b6db-bd957e66751c		
6	STD6	1.00	56a5a019-3f95-11e9-b6db-bd957e66751c		
7	ICV	1.00	624db7e2-3f97-11e9-b6db-bd957e66751c		
8	ICB	1.00	ca4c4f9c-3f9b-11e9-b6db-bd957e66751c		
9	CCV	1.00	6672fb1b-4a95-11e9-b6db-bd957e66751c		
10	CCB	1.00	d19135e5-4a97-11e9-b6db-bd957e66751c		
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12	WLCSW1-031919	1.00	e8d4cebd-4a9b-11e9-b6db-bd957e66751c		
13	WLCSDW1-031919	1.00	f47438d3-4a9d-11e9-b6db-bd957e66751c		
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15	HS19030918-01	1.00	6d0e0013-4aa2-11e9-b6db-bd957e66751c		
16	HS19030918-01MS	1.00	d80e0c63-4aa4-11e9-b6db-bd957e66751c		
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18	HS19030918-02	1.00	ef54a817-4aa8-11e9-b6db-bd957e66751c		
19	HS19030918-02DF20	1.00	faea88d5-4aaa-11e9-b6db-bd957e66751c		
20	CCV1	1.00	06dfc703-4aad-11e9-b6db-bd957e66751c		
21	CCB	1.00	1288ba71-4aaf-11e9-b6db-bd957e66751c		
22	HS19030918-03	1.00	1e235fdb-4ab1-11e9-b6db-bd957e66751c		
23	HS19030918-03DF20	1.00	29afb741-4ab3-11e9-b6db-bd957e66751c		
24	HS19030933-01DF5	1.00	355183ad-4ab5-11e9-b6db-bd957e66751c		
25	DI H2O	1.00	413f9ad9-4ab7-11e9-b6db-bd957e66751c		
26	HS19030933-01DF20	1.00	4cbda43b-4ab9-11e9-b6db-bd957e66751c		
27	HS19030933-01DF100	1.00	585f70a7-4abb-11e9-b6db-bd957e66751c		
28	HS19030936-01	1.00	64013d13-4abd-11e9-b6db-bd957e66751c		
29	HS19030936-01DF10	1.00	6fa7ce2b-4abf-11e9-b6db-bd957e66751c		
30	HS19030945-01	1.00	7b31c33b-4ac1-11e9-b6db-bd957e66751c		
31	HS19030945-01DF10	1.00	86cecafb-4ac3-11e9-b6db-bd957e66751c		
32	CCV	1.00	924a7207-4ac5-11e9-b6db-bd957e66751c		
33	CCB	1.00	9de9dc1d-4ac7-11e9-b6db-bd957e66751c		
34	HS19030948-01	1.00	a97d5a85-4ac9-11e9-b6db-bd957e66751c		
35	HS19030948-01DF10	1.00	b510d8ed-4acb-11e9-b6db-bd957e66751c		
36	HS19030949-01	1.00	c0a1f4ff-4acd-11e9-b6db-bd957e66751c		
37	HS19030949-01DF10	1.00	cc415f15-4acf-11e9-b6db-bd957e66751c		
38	HS19030850-03DF40	1.00	d7bf6877-4ad1-11e9-b6db-bd957e66751c		
39	HS19030850-04DF20	1.00	e35c7037-4ad3-11e9-b6db-bd957e66751c		
40	HS19030850-04MSDF20	1.00	eefbda4d-4ad5-11e9-b6db-bd957e66751c		
41	HS19030850-04MSDDF20	1.00	fad47c73-4ad7-11e9-b6db-bd957e66751c		
42	DI H2O	1.00	067d6fe1-4ada-11e9-b6db-bd957e66751c		

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Sequence: 031919
Operator: ALSHS.NoUser

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2019
Timebase: ICS2100
#Samples: 240

Created: 3/19/2019 6:54:50 PM by ALSHS.NoUser
(Modified, not saved)

No.	Name	Comment	Type	Pos.	Dil. Factor	Method	Status
43	HS19030850-04DF40		Unknown	42	40.0000	030519	Finished
44	CCV1		Unknown	3	1.0000	030519	Finished
45	CCB		Unknown	4	1.0000	030519	Finished
46	MBLK-138831		Unknown	44	1.0000	030519	Finished
47	LCS-138831		Unknown	45	1.0000	030519	Finished
48	LCSD-138831		Unknown	46	1.0000	030519	Finished
49	HS19030344-07DF10		Unknown	47	10.0000	030519	Finished
50	HS19030344-08DF5		Unknown	48	5.0000	030519	Finished
51	HS19030344-09		Unknown	49	1.0000	030519	Finished
52	HS19030344-10		Unknown	50	1.0000	030519	Finished
53	HS19030344-11DF10		Unknown	51	10.0000	030519	Finished
54	HS19030344-12		Unknown	52	1.0000	030519	Finished
55	HS19030344-13		Unknown	53	1.0000	030519	Finished
56	CCV		Unknown	1	1.0000	030519	Finished
57	CCB		Unknown	2	1.0000	030519	Finished
58	HS19030344-14		Unknown	54	1.0000	030519	Finished
59	HS19030559-01		Unknown	55	1.0000	030519	Finished
60	HS19030559-01MS		Unknown	56	1.0000	030519	Finished
61	HS19030559-01MSD		Unknown	57	1.0000	030519	Finished
62	HS19030559-02		Unknown	58	1.0000	030519	Finished
63	HS19030559-03		Unknown	59	1.0000	030519	Finished
64	HS19030642-01		Unknown	60	1.0000	030519	Finished
65	HS19030642-02		Unknown	61	1.0000	030519	Finished
66	HS19030642-03		Unknown	62	1.0000	030519	Finished
67	HS19030642-04		Unknown	63	1.0000	030519	Finished
68	CCV1		Unknown	3	1.0000	030519	Finished
69	CCB		Unknown	4	1.0000	030519	Finished
70	MBLK-138870		Unknown	69	1.0000	030519	Finished
71	LCS-138870		Unknown	70	1.0000	030519	Finished
72	LCSD-138870		Unknown	71	1.0000	030519	Finished
73	HS19030919-06X		Unknown	79	1.0000	030519	Finished
74	HS19030919-05X		Unknown	76	1.0000	030519	Finished
75	HS19030919-05XMS		Unknown	77	1.0000	030519	Finished
76	HS19030919-05XMSD		Unknown	78	1.0000	030519	Finished
77	HS19030919-05		Unknown	81	1.0000	030519	Finished
78	HS19030919-05XMS		Unknown	82	1.0000	030519	Finished
79	HS19030919-06		Unknown	87	1.0000	030519	Finished
80	CCV		Unknown	1	1.0000	030519	Finished
81	CCB		Unknown	2	1.0000	030519	Finished
82	HS19030919-05MS		Unknown	88	1.0000	030519	Finished
83	HS19030919-05MSD		Unknown	89	1.0000	030519	Finished
84	WBLKW1-032019		Unknown	11	1.0000	030519	Finished

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Sequence: 031919
Operator: ALSHS.NoUser

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2019
Timebase: ICS2100
#Samples: 240

Created: 3/19/2019 6:54:50 PM by ALSHS.NoUser
(Modified, not saved)

No.	Name	Inj. Date/Time	Program	Inj. Vol.	*Initial_Vol_Wt
43	HS19030850-04DF40	3/20/2019 1:48:42 AM	Anions Gradient Program-150mA	10.0	1.00
44	CCV1	3/20/2019 2:03:21 AM	Anions Gradient Program-150mA	10.0	1.00
45	CCB	3/20/2019 2:17:59 AM	Anions Gradient Program-150mA	10.0	1.00
46	MBLK-138831	3/20/2019 2:32:38 AM	Anions Gradient Program-150mA	10.0	1.00
47	LCS-138831	3/20/2019 2:47:17 AM	Anions Gradient Program-150mA	10.0	1.00
48	LCSD-138831	3/20/2019 3:01:55 AM	Anions Gradient Program-150mA	10.0	1.00
49	HS19030344-07DF10	3/20/2019 3:16:34 AM	Anions Gradient Program-150mA	10.0	1.00
50	HS19030344-08DF5	3/20/2019 3:31:12 AM	Anions Gradient Program-150mA	10.0	1.00
51	HS19030344-09	3/20/2019 3:45:51 AM	Anions Gradient Program-150mA	10.0	1.00
52	HS19030344-10	3/20/2019 4:00:29 AM	Anions Gradient Program-150mA	10.0	1.00
53	HS19030344-11DF10	3/20/2019 4:15:08 AM	Anions Gradient Program-150mA	10.0	1.00
54	HS19030344-12	3/20/2019 4:29:46 AM	Anions Gradient Program-150mA	10.0	1.00
55	HS19030344-13	3/20/2019 4:44:25 AM	Anions Gradient Program-150mA	10.0	1.00
56	CCV	3/20/2019 4:59:03 AM	Anions Gradient Program-150mA	10.0	1.00
57	CCB	3/20/2019 5:13:42 AM	Anions Gradient Program-150mA	10.0	1.00
58	HS19030344-14	3/20/2019 5:28:20 AM	Anions Gradient Program-150mA	10.0	1.00
59	HS19030559-01	3/20/2019 5:42:59 AM	Anions Gradient Program-150mA	10.0	1.00
60	HS19030559-01MS	3/20/2019 5:57:37 AM	Anions Gradient Program-150mA	10.0	1.00
61	HS19030559-01MSD	3/20/2019 6:12:16 AM	Anions Gradient Program-150mA	10.0	1.00
62	HS19030559-02	3/20/2019 6:26:54 AM	Anions Gradient Program-150mA	10.0	1.00
63	HS19030559-03	3/20/2019 6:41:32 AM	Anions Gradient Program-150mA	10.0	1.00
64	HS19030642-01	3/20/2019 6:56:11 AM	Anions Gradient Program-150mA	10.0	1.00
65	HS19030642-02	3/20/2019 7:10:49 AM	Anions Gradient Program-150mA	10.0	1.00
66	HS19030642-03	3/20/2019 7:25:28 AM	Anions Gradient Program-150mA	10.0	1.00
67	HS19030642-04	3/20/2019 7:40:06 AM	Anions Gradient Program-150mA	10.0	1.00
68	CCV1	3/20/2019 7:54:45 AM	Anions Gradient Program-150mA	10.0	1.00
69	CCB	3/20/2019 8:09:24 AM	Anions Gradient Program-150mA	10.0	1.00
70	MBLK-138870	3/20/2019 8:24:02 AM	Anions Gradient Program-150mA	10.0	1.00
71	LCS-138870	3/20/2019 8:38:41 AM	Anions Gradient Program-150mA	10.0	1.00
72	LCSD-138870	3/20/2019 8:53:19 AM	Anions Gradient Program-150mA	10.0	1.00
73	HS19030919-06X	3/20/2019 9:07:58 AM	Anions Gradient Program-150mA	10.0	1.00
74	HS19030919-05X	3/20/2019 9:22:36 AM	Anions Gradient Program-150mA	10.0	1.00
75	HS19030919-05XMS	3/20/2019 9:37:15 AM	Anions Gradient Program-150mA	10.0	1.00
76	HS19030919-05XMSD	3/20/2019 9:51:53 AM	Anions Gradient Program-150mA	10.0	1.00
77	HS19030919-05	3/20/2019 10:40:53 AM	Anions Gradient Program-150mA	10.0	1.00
78	HS19030919-05XMS	3/20/2019 10:55:32 AM	Anions Gradient Program-150mA	10.0	1.00
79	HS19030919-06	3/20/2019 11:15:01 AM	Anions Gradient Program-150mA	10.0	1.00
80	CCV	3/20/2019 11:29:40 AM	Anions Gradient Program-150mA	10.0	1.00
81	CCB	3/20/2019 11:44:18 AM	Anions Gradient Program-150mA	10.0	1.00
82	HS19030919-05MS	3/20/2019 12:10:27 PM	Anions Gradient Program-150mA	10.0	1.00
83	HS19030919-05MSD	3/20/2019 12:25:06 PM	Anions Gradient Program-150mA	10.0	1.00
84	WBLKW1-032019	3/20/2019 12:55:53 PM	Anions Gradient Program-150mA	10.0	1.00

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Sequence: 031919
Operator: ALSHS.NoUser

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2019
Timebase: ICS2100
#Samples: 240

Created: 3/19/2019 6:54:50 PM by ALSHS.NoUser
(Modified, not saved)

No.	Name	*Final_Volume	GUID	Auto Purif.Frac.	Auto Purif.Ref.
43	HS19030850-04DF40	1.00	1209c747-4adc-11e9-b6db-bd957e66751c		
44	CCV1	1.00	1da6cf07-4ade-11e9-b6db-bd957e66751c		
45	CCB	1.00	293f121b-4ae0-11e9-b6db-bd957e66751c		
46	MBLK-138831	1.00	34d4f2d9-4ae2-11e9-b6db-bd957e66751c		
47	LCS-138831	1.00	407de647-4ae4-11e9-b6db-bd957e66751c		
48	LCSD-138831	1.00	4c58eac3-4ae6-11e9-b6db-bd957e66751c		
49	HS19030344-07DF10	1.00	57fab72f-4ae8-11e9-b6db-bd957e66751c		
50	HS19030344-08DF5	1.00	6384ac3f-4aea-11e9-b6db-bd957e66751c		
51	HS19030344-09	1.00	6f28db01-4aec-11e9-b6db-bd957e66751c		
52	HS19030344-10	1.00	7ad3fe17-4aee-11e9-b6db-bd957e66751c		
53	HS19030344-11DF10	1.00	8673504d-4af0-11e9-b6db-bd957e66751c		
54	HS19030344-12	1.00	920ef03d-4af2-11e9-b6db-bd957e66751c		
55	HS19030344-13	1.00	9d9b47a3-4af4-11e9-b6db-bd957e66751c		
56	CCV	1.00	a941d8bb-4af6-11e9-b6db-bd957e66751c		
57	CCB	1.00	b4e869d3-4af8-11e9-b6db-bd957e66751c		
58	HS19030344-14	1.00	c080ace7-4afa-11e9-b6db-bd957e66751c		
59	HS19030559-01	1.00	cc2016fd-4afc-11e9-b6db-bd957e66751c		
60	HS19030559-01MS	1.00	d7bd1ebd-4afe-11e9-b6db-bd957e66751c		
61	HS19030559-01MSD	1.00	e35561d1-4b00-11e9-b6db-bd957e66751c		
62	HS19030559-02	1.00	eef99093-4b02-11e9-b6db-bd957e66751c		
63	HS19030559-03	1.00	fa8aaca5-4b04-11e9-b6db-bd957e66751c		
64	HS19030642-01	1.00	0625520f-4b07-11e9-b6db-bd957e66751c		
65	HS19030642-02	1.00	11bb32cd-4b09-11e9-b6db-bd957e66751c		
66	HS19030642-03	1.00	1d583a8d-4b0b-11e9-b6db-bd957e66751c		
67	HS19030642-04	1.00	28fc694f-4b0d-11e9-b6db-bd957e66751c		
68	CCV1	1.00	349bd365-4b0f-11e9-b6db-bd957e66751c		
69	CCB	1.00	403d9fd1-4b11-11e9-b6db-bd957e66751c		
70	MBLK-138870	1.00	4c222da5-4b13-11e9-b6db-bd957e66751c		
71	LCS-138870	1.00	57bf3565-4b15-11e9-b6db-bd957e66751c		
72	LCSD-138870	1.00	63577879-4b17-11e9-b6db-bd957e66751c		
73	HS19030919-06X	1.00	6efe0991-4b19-11e9-b6db-bd957e66751c		
74	HS19030919-05X	1.00	7a87fea1-4b1b-11e9-b6db-bd957e66751c		
75	HS19030919-05XMS	1.00	862c2d63-4b1d-11e9-b6db-bd957e66751c		
76	HS19030919-05XMSD	1.00	91c93523-4b1f-11e9-b6db-bd957e66751c		
77	HS19030919-05	1.00	0aca387b-4b26-11e9-b6db-bd957e66751c		
78	HS19030919-05XMS	1.00	75cbd73d-4b28-11e9-b6db-bd957e66751c		
79	HS19030919-06	1.00	cfd595eb-4b2a-11e9-b6db-bd957e66751c		
80	CCV	1.00	3aa2c149-4b2d-11e9-b6db-bd957e66751c		
81	CCB	1.00	46422b5f-4b2f-11e9-b6db-bd957e66751c		
82	HS19030919-05MS	1.00	8e62104b-4b32-11e9-b6db-bd957e66751c		
83	HS19030919-05MSD	1.00	f92cd953-4b34-11e9-b6db-bd957e66751c		
84	WBLKW1-032019	1.00	e70b02ed-4b38-11e9-b6db-bd957e66751c		

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Sequence: 031919 Page 7 of 18
Operator: ALSHS.NoUser Printed: 4/1/2019 4:06:25 PM

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2019
Timebase: ICS2100 Created: 3/19/2019 6:54:50 PM by ALSHS.NoUser
#Samples: 240 (Modified, not saved)

No.	Name	Comment	Type	Pos.	Dil. Factor	Method	Status
85	WLCSW1-032019		Unknown	12	1.0000	030519	Finished
86	WLCSDW1-032019		Unknown	13	1.0000	030519	Finished
87	HS19030964-01DF10		Unknown	14	10.0000	030519	Finished
88	HS19030900-01		Unknown	21	1.0000	030519	Finished
89	HS19030575-01		Unknown	22	1.0000	030519	Finished
90	HS19030575-01MS		Unknown	23	1.0000	030519	Finished
91	HS19030575-01MSD		Unknown	24	1.0000	030519	Finished
92	CCV1		Unknown	3	1.0000	030519	Finished
93	CCB		Unknown	4	1.0000	030519	Finished
94	HS19030979-01		Unknown	25	1.0000	030519	Finished
95	HS19030979-01DF20		Unknown	26	20.0000	030519	Finished
96	HS19030979-02		Unknown	27	1.0000	030519	Finished
97	HS19030979-02DF20		Unknown	28	20.0000	030519	Finished
98	HS19030979-03		Unknown	29	1.0000	030519	Finished
99	HS19030979-03DF20		Unknown	42	20.0000	030519	Finished
100	HS19030995-01DF5		Unknown	57	5.0000	030519	Finished
101	HS19030995-02DF5		Unknown	58	5.0000	030519	Finished
102	HS19030995-03DF5		Unknown	59	5.0000	030519	Finished
103	HS19030995-04DF5		Unknown	60	5.0000	030519	Finished
104	CCV		Unknown	1	1.0000	030519	Finished
105	CCV	RERUN	Unknown	1	1.0000	030519	Finished
106	CCB		Unknown	2	1.0000	030519	Finished
107	HS19031013-02		Unknown	22	1.0000	030519	Finished
108	HS19031013-01DF5		Unknown	21	5.0000	030519	Finished
109	HS19031013-03DF5		Unknown	23	5.0000	030519	Finished
110	HS19031013-04DF5		Unknown	24	5.0000	030519	Finished
111	HS19031013-05DF5		Unknown	25	5.0000	030519	Finished
112	HS19031013-06DF5		Unknown	26	5.0000	030519	Finished
113	HS19031013-07DF5		Unknown	27	5.0000	030519	Finished
114	HS19031013-07MSDF5		Unknown	28	5.0000	030519	Finished
115	HS19031013-07MSDDF5		Unknown	29	5.0000	030519	Finished
116	DI H2O		Unknown	10	1.0000	030519	Finished
117	CCV1		Unknown	3	1.0000	030519	Finished
118	CCB		Unknown	4	1.0000	030519	Finished
119	HS19030937-01DF5		Unknown	39	5.0000	030519	Finished
120	HS19030937-02DF5		Unknown	40	5.0000	030519	Finished
121	HS19030937-03DF5		Unknown	41	5.0000	030519	Finished
122	DI H2O		Unknown	10	1.0000	030519	Finished
123	HS19030995-02DF10		Unknown	8	10.0000	030519	Finished
124	HS19030995-03DF10		Unknown	9	10.0000	030519	Finished
125	DI H2O		Unknown	10	1.0000	030519	Finished
126	HS19031002-02		Unknown	64	1.0000	030519	Finished

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Sequence: 031919 Page 8 of 18
Operator: ALSHS.NoUser Printed: 4/1/2019 4:06:25 PM

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2019
Timebase: ICS2100 Created: 3/19/2019 6:54:50 PM by ALSHS.NoUser
#Samples: 240 (Modified, not saved)

No.	Name	Inj. Date/Time	Program	Inj. Vol.	*Initial_Vol_Wt
85	WLCSW1-032019	3/20/2019 1:10:32 PM	Anions Gradient Program-150mA	10.0	1.00
86	WLCSDW1-032019	3/20/2019 1:25:11 PM	Anions Gradient Program-150mA	10.0	1.00
87	HS19030964-01DF10	3/20/2019 1:39:49 PM	Anions Gradient Program-150mA	10.0	1.00
88	HS19030900-01	3/20/2019 1:58:48 PM	Anions Gradient Program-150mA	10.0	1.00
89	HS19030575-01	3/20/2019 2:22:16 PM	Anions Gradient Program-150mA	10.0	1.00
90	HS19030575-01MS	3/20/2019 2:36:54 PM	Anions Gradient Program-150mA	10.0	1.00
91	HS19030575-01MSD	3/20/2019 2:51:32 PM	Anions Gradient Program-150mA	10.0	1.00
92	CCV1	3/20/2019 3:06:11 PM	Anions Gradient Program-150mA	10.0	1.00
93	CCB	3/20/2019 3:20:49 PM	Anions Gradient Program-150mA	10.0	1.00
94	HS19030979-01	3/20/2019 3:35:28 PM	Anions Gradient Program-150mA	10.0	1.00
95	HS19030979-01DF20	3/20/2019 3:50:06 PM	Anions Gradient Program-150mA	10.0	1.00
96	HS19030979-02	3/20/2019 4:04:45 PM	Anions Gradient Program-150mA	10.0	1.00
97	HS19030979-02DF20	3/20/2019 4:19:23 PM	Anions Gradient Program-150mA	10.0	1.00
98	HS19030979-03	3/20/2019 4:34:02 PM	Anions Gradient Program-150mA	10.0	1.00
99	HS19030979-03DF20	3/20/2019 5:08:54 PM	Anions Gradient Program-150mA	10.0	1.00
100	HS19030995-01DF5	3/20/2019 5:23:33 PM	Anions Gradient Program-150mA	10.0	1.00
101	HS19030995-02DF5	3/20/2019 5:38:11 PM	Anions Gradient Program-150mA	10.0	1.00
102	HS19030995-03DF5	3/20/2019 5:52:50 PM	Anions Gradient Program-150mA	10.0	1.00
103	HS19030995-04DF5	3/20/2019 6:07:28 PM	Anions Gradient Program-150mA	10.0	1.00
104	CCV	3/20/2019 6:34:32 PM	Anions Gradient Program-150mA	10.0	1.00
105	CCV	3/20/2019 7:06:08 PM	Anions Gradient Program-150mA	10.0	1.00
106	CCB	3/20/2019 7:26:29 PM	Anions Gradient Program-150mA	10.0	1.00
107	HS19031013-02	3/20/2019 7:41:08 PM	Anions Gradient Program-150mA	10.0	1.00
108	HS19031013-01DF5	3/20/2019 7:55:46 PM	Anions Gradient Program-150mA	10.0	1.00
109	HS19031013-03DF5	3/20/2019 8:10:24 PM	Anions Gradient Program-150mA	10.0	1.00
110	HS19031013-04DF5	3/20/2019 8:25:03 PM	Anions Gradient Program-150mA	10.0	1.00
111	HS19031013-05DF5	3/20/2019 8:39:41 PM	Anions Gradient Program-150mA	10.0	1.00
112	HS19031013-06DF5	3/20/2019 8:54:20 PM	Anions Gradient Program-150mA	10.0	1.00
113	HS19031013-07DF5	3/20/2019 9:08:58 PM	Anions Gradient Program-150mA	10.0	1.00
114	HS19031013-07MSDF5	3/20/2019 9:23:36 PM	Anions Gradient Program-150mA	10.0	1.00
115	HS19031013-07MSDDF5	3/20/2019 9:38:15 PM	Anions Gradient Program-150mA	10.0	1.00
116	DI H2O	3/20/2019 9:52:53 PM	Anions Gradient Program-150mA	10.0	1.00
117	CCV1	3/20/2019 10:07:32 PM	Anions Gradient Program-150mA	10.0	1.00
118	CCB	3/20/2019 10:22:11 PM	Anions Gradient Program-150mA	10.0	1.00
119	HS19030937-01DF5	3/20/2019 10:36:49 PM	Anions Gradient Program-150mA	10.0	1.00
120	HS19030937-02DF5	3/20/2019 10:51:28 PM	Anions Gradient Program-150mA	10.0	1.00
121	HS19030937-03DF5	3/20/2019 11:06:06 PM	Anions Gradient Program-150mA	10.0	1.00
122	DI H2O	3/20/2019 11:20:45 PM	Anions Gradient Program-150mA	10.0	1.00
123	HS19030995-02DF10	3/20/2019 11:35:23 PM	Anions Gradient Program-150mA	10.0	1.00
124	HS19030995-03DF10	3/20/2019 11:50:02 PM	Anions Gradient Program-150mA	10.0	1.00
125	DI H2O	3/21/2019 12:04:40 AM	Anions Gradient Program-150mA	10.0	1.00
126	HS19031002-02	3/21/2019 12:19:18 AM	Anions Gradient Program-150mA	10.0	1.00

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Sequence: 031919
Operator: ALSHS.NoUser

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2019
Timebase: ICS2100
#Samples: 240

Created: 3/19/2019 6:54:50 PM by ALSHS.NoUser
(Modified, not saved)

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86	WLCSDW1-032019	1.00	5dd89cdf-4b3d-11e9-b6db-bd957e66751c		
87	HS19030964-01DF10	1.00	696cc9d5-4b3f-11e9-b6db-bd957e66751c		
88	HS19030900-01	1.00	b10abc07-4b41-11e9-b6db-bd957e66751c		
89	HS19030575-01	1.00	f7c2a039-4b44-11e9-b6db-bd957e66751c		
90	HS19030575-01MS	1.00	62c1dca5-4b47-11e9-b6db-bd957e66751c		
91	HS19030575-01MSD	1.00	6e57bd63-4b49-11e9-b6db-bd957e66751c		
92	CCV1	1.00	79f989cf-4b4b-11e9-b6db-bd957e66751c		
93	CCB	1.00	8588438b-4b4d-11e9-b6db-bd957e66751c		
94	HS19030979-01	1.00	911e2449-4b4f-11e9-b6db-bd957e66751c		
95	HS19030979-01DF20	1.00	9cc717b7-4b51-11e9-b6db-bd957e66751c		
96	HS19030979-02	1.00	a8536f1d-4b53-11e9-b6db-bd957e66751c		
97	HS19030979-02DF20	1.00	b3fec4e1-4b55-11e9-b6db-bd957e66751c		
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114	HS19031013-07MSDF5	1.00	33c7e7d5-4b80-11e9-b6db-bd957e66751c		
115	HS19031013-07MSDDF5	1.00	3f5dc893-4b82-11e9-b6db-bd957e66751c		
116	DI H2O	1.00	4afd32a9-4b84-11e9-b6db-bd957e66751c		
117	CCV1	1.00	568e4ebb-4b86-11e9-b6db-bd957e66751c		
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120	HS19030937-02DF5	1.00	79a3bfff-4b8c-11e9-b6db-bd957e66751c		
121	HS19030937-03DF5	1.00	85242bb7-4b8e-11e9-b6db-bd957e66751c		
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126	HS19031002-02	1.00	bf3c7979-4b98-11e9-b6db-bd957e66751c		

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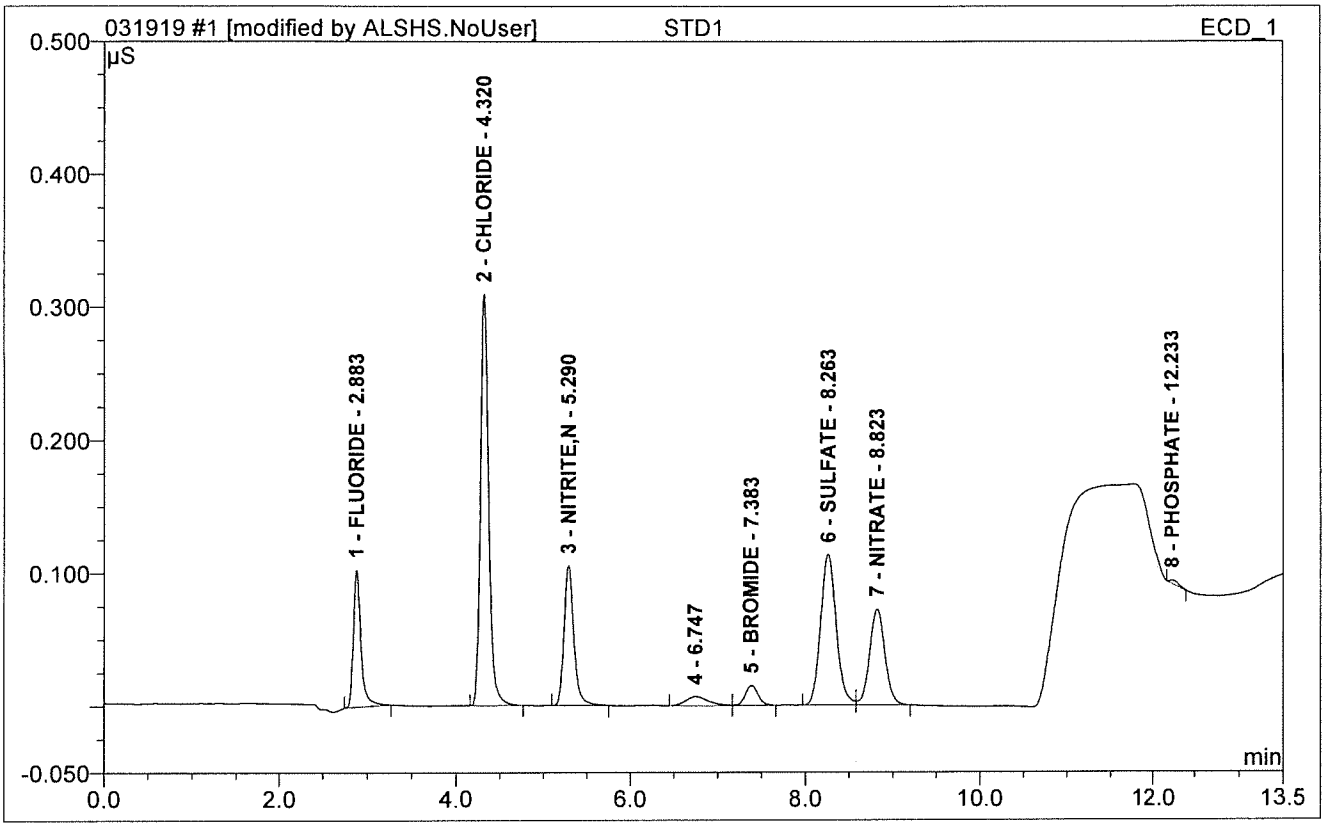
1 STD1

297.020.7208

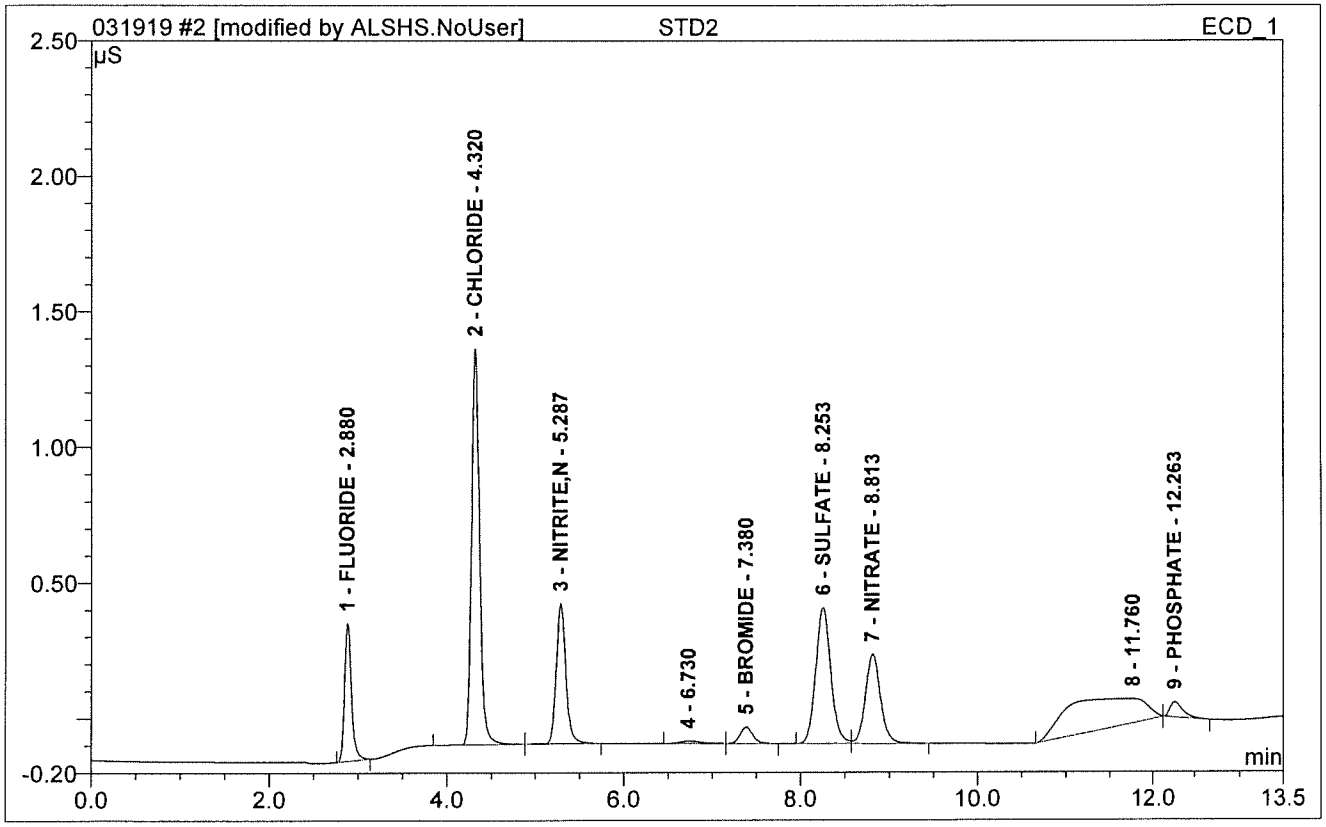
Sample Name:	**STD1**	*Injection Volume:*	**10.0**
Vial Number:	**91**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA**	*Bandwidth:*	**n.a.**
Quantif. Method:	**030519**	*Dilution Factor:*	**1.**
Recording Time:	**3/5/2019 15:11**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.88	FLUORIDE	0.103	0.010	10.17	0.106	1.
2	4.32	CHLORIDE	0.309	0.034	33.41	0.535	1.
3	5.29	NITRITE,N	0.105	0.014	13.70	0.099	1.
5	7.38	BROMIDE	0.015	0.003	2.55	0.137	1.
6	8.26	SULFATE	0.113	0.024	23.32	0.586	1.
7	8.82	NITRATE	0.072	0.015	14.50	0.122	1.
8	12.23	PHOSPHATE	0.002	0.000	0.33	0.159	1.
Total:			0.721	0.099	97.98	1.745	

2 STD2

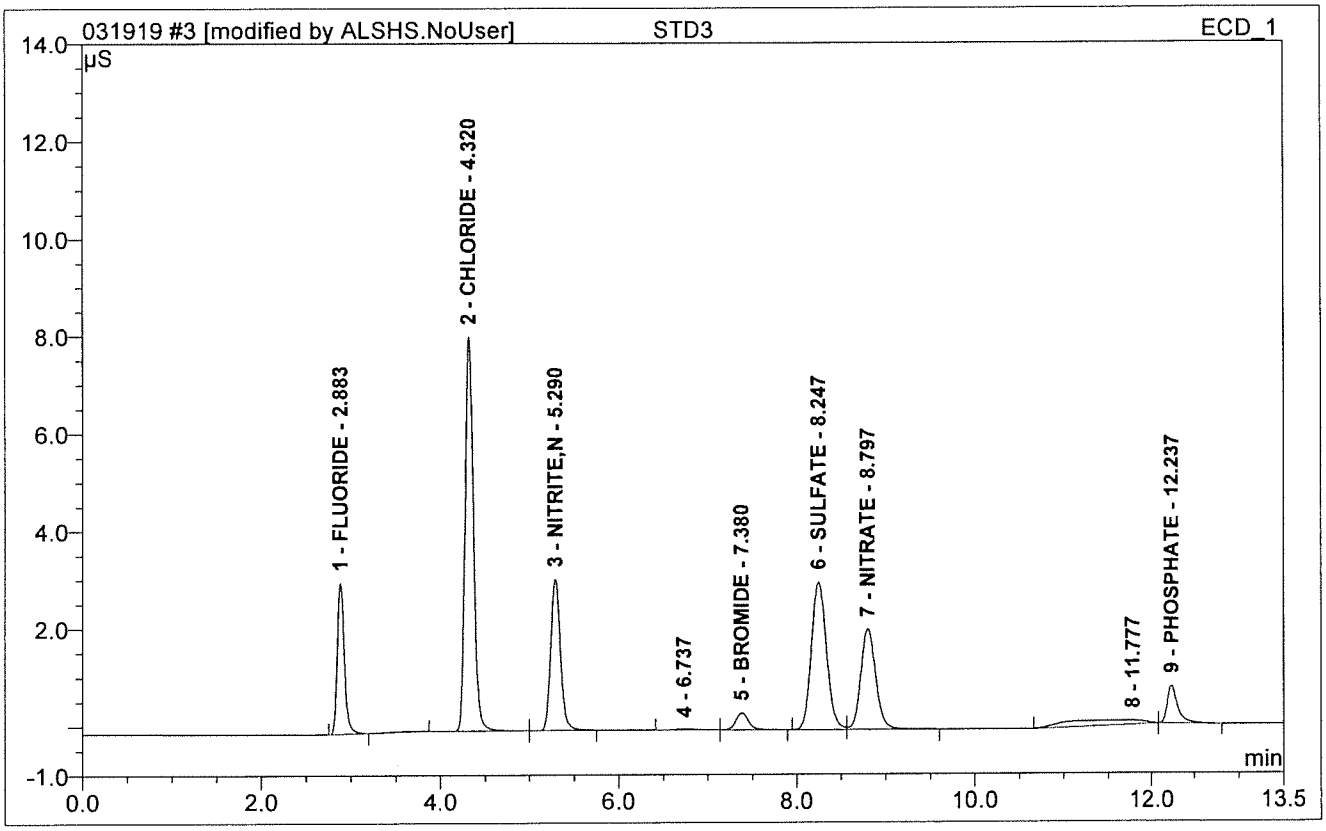
Sample Name:	**STD2**	*Injection Volume:*	**10.0**
Vial Number:	**92**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA**	*Bandwidth:*	**n.a.**
Quantif. Method:	**030519**	*Dilution Factor:*	**1.**
Recording Time:	**3/5/2019 15:26**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.88	FLUORIDE	0.507	0.046	8.06	0.354	1.
2	4.32	CHLORIDE	1.461	0.154	27.16	1.865	1.
3	5.29	NITRITE,N	0.516	0.065	11.53	0.366	1.
5	7.38	BROMIDE	0.061	0.010	1.80	0.349	1.
6	8.25	SULFATE	0.500	0.099	17.55	1.752	1.
7	8.81	NITRATE	0.328	0.064	11.35	0.345	1.
9	12.26	PHOSPHATE	0.057	0.010	1.75	0.279	1.
Total:			3.429	0.449	79.20	5.310	

3 STD3

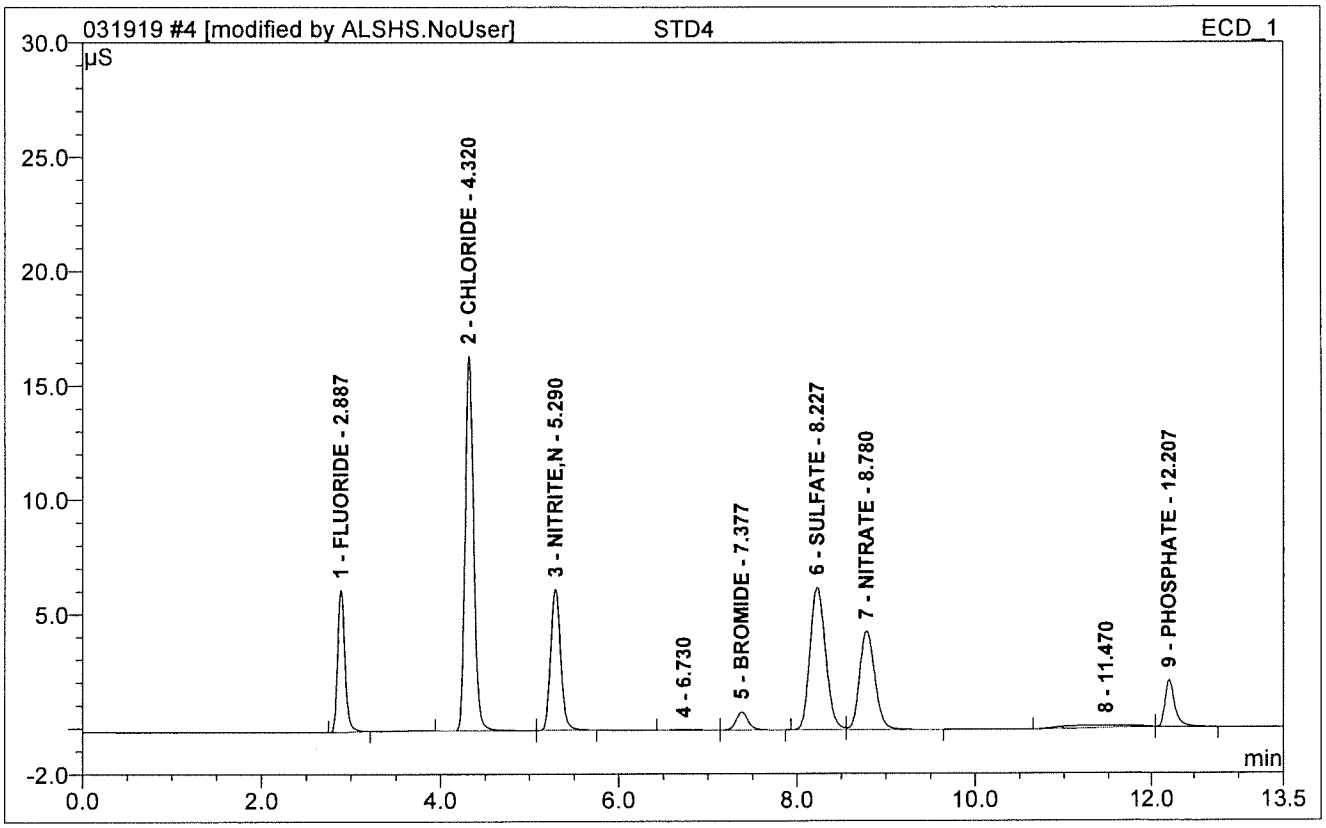
Sample Name:	**STD3**	*Injection Volume:*	**10.0**
Vial Number:	**93**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA**	*Bandwidth:*	**n.a.**
Quantif. Method:	**030519**	*Dilution Factor:*	**1.**
Recording Time:	**3/5/2019 15:40**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.88	FLUORIDE	3.101	0.283	9.98	2.015	1.
2	4.32	CHLORIDE	8.078	0.876	30.91	9.853	1.
3	5.29	NITRITE,N	3.102	0.393	13.87	2.067	1.
5	7.38	BROMIDE	0.352	0.057	2.03	1.666	1.
6	8.25	SULFATE	3.034	0.602	21.25	9.473	1.
7	8.80	NITRATE	2.069	0.398	14.07	1.842	1.
9	12.24	PHOSPHATE	0.783	0.111	3.91	1.535	1.
Total:			20.519	2.720	96.03	28.450	

4 STD4

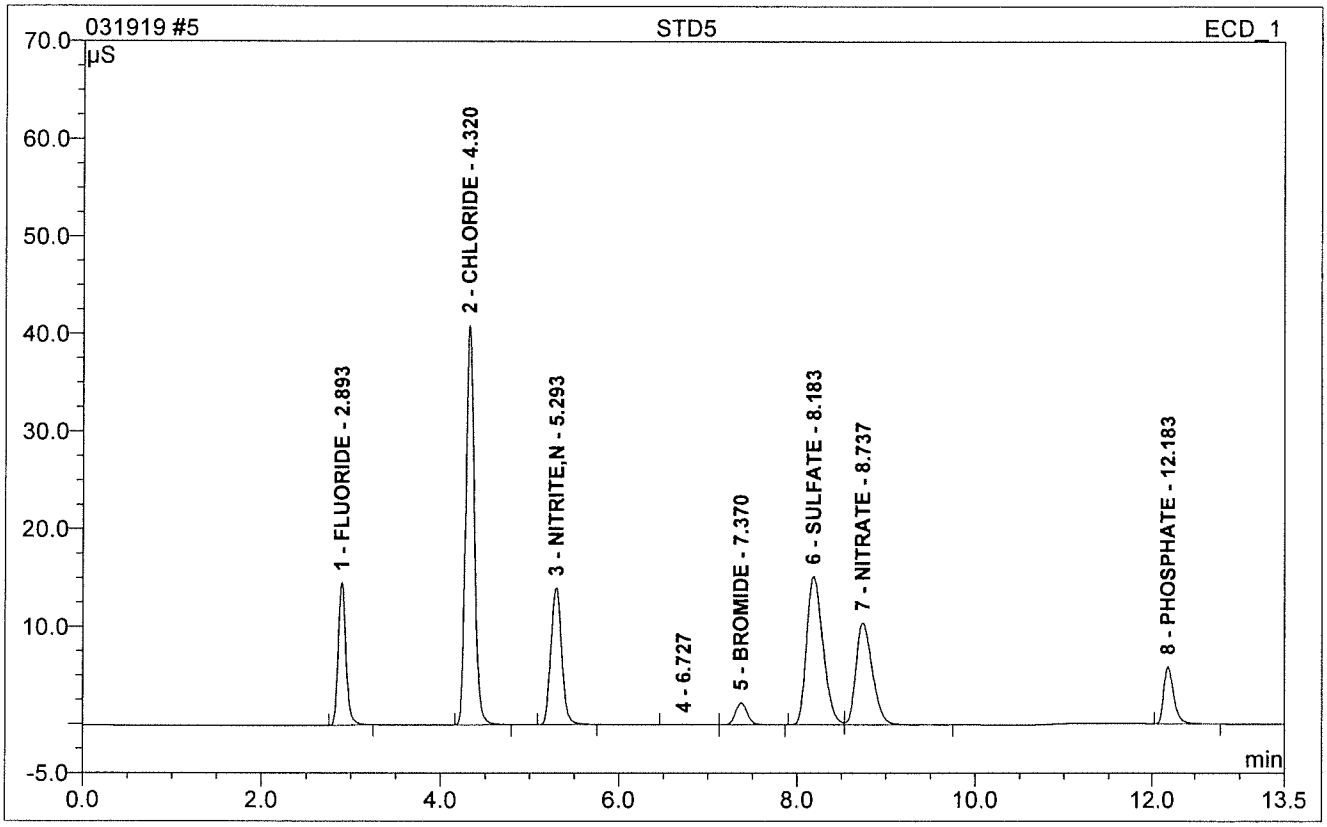
Sample Name:	**STD4**	*Injection Volume:*	**10.0**
Vial Number:	**94**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA**	*Bandwidth:*	**n.a.**
Quantif. Method:	**030519**	*Dilution Factor:*	**1.**
Recording Time:	**3/5/2019 15:55**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.89	FLUORIDE	6.201	0.586	10.07	4.141	1.
2	4.32	CHLORIDE	16.375	1.798	30.85	20.058	1.
3	5.29	NITRITE,N	6.162	0.811	13.93	4.239	1.
5	7.38	BROMIDE	0.791	0.125	2.15	3.554	1.
6	8.23	SULFATE	6.226	1.269	21.79	19.725	1.
7	8.78	NITRATE	4.308	0.856	14.69	3.891	1.
9	12.21	PHOSPHATE	2.030	0.271	4.66	3.533	1.
Total:			42.094	5.717	98.13	59.141	

5 STD5

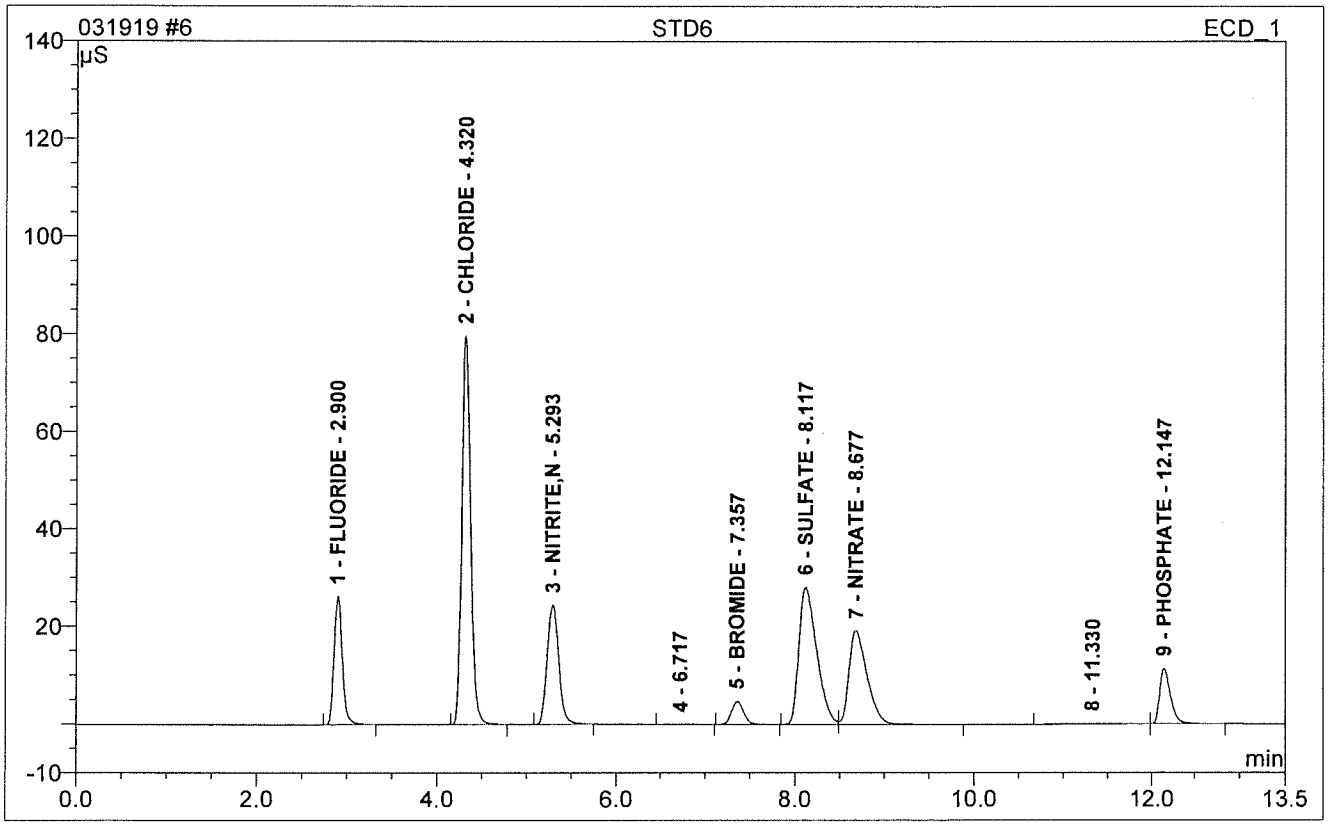
Sample Name:	**STD5**	*Injection Volume:*	**10.0**
Vial Number:	**95**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA**	*Bandwidth:*	**n.a.**
Quantif. Method:	**030519**	*Dilution Factor:*	**1.**
Recording Time:	**3/5/2019 16:10**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.89	FLUORIDE	14.651	1.468	9.96	10.311	1.
2	4.32	CHLORIDE	40.959	4.562	30.95	50.652	1.
3	5.29	NITRITE,N	14.100	1.998	13.55	10.395	1.
5	7.37	BROMIDE	2.266	0.356	2.41	9.992	1.
6	8.18	SULFATE	15.306	3.294	22.35	50.830	1.
7	8.74	NITRATE	10.552	2.251	15.27	10.142	1.
8	12.18	PHOSPHATE	5.866	0.802	5.44	10.139	1.
Total:			103.700	14.730	99.94	152.461	

6 STD6

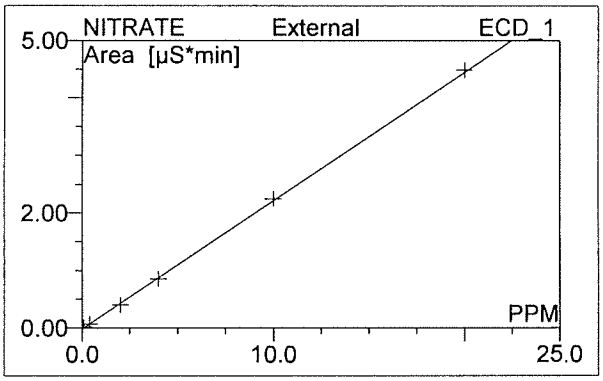
Sample Name:	**STD6**	*Injection Volume:*	**10.0**
Vial Number:	**96**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA**	*Bandwidth:*	**n.a.**
Quantif. Method:	**030519**	*Dilution Factor:*	**1.**
Recording Time:	**3/5/2019 16:24**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**

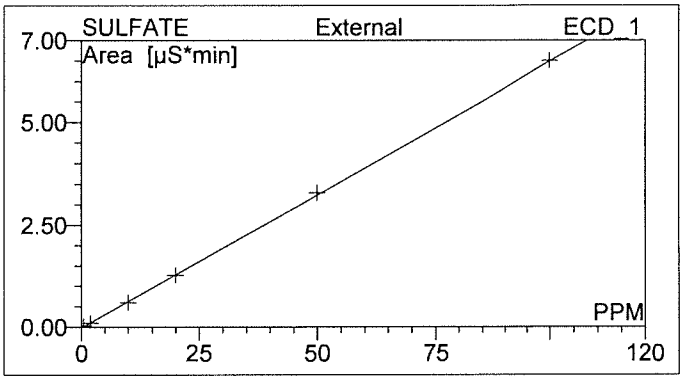


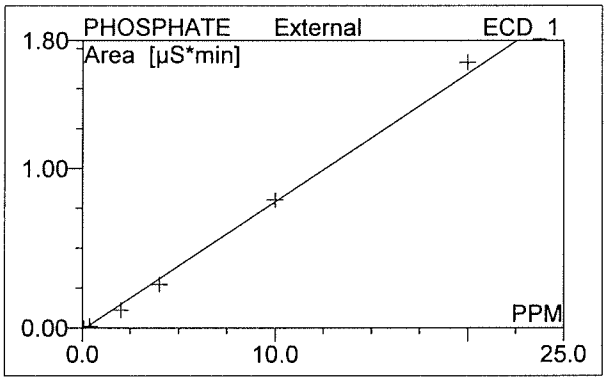
No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.90	FLUORIDE	26.301	2.790	9.63	19.573	1.
2	4.32	CHLORIDE	79.715	8.978	30.97	99.536	1.
3	5.29	NITRITE,N	24.461	3.720	12.83	19.336	1.
5	7.36	BROMIDE	4.675	0.743	2.56	20.802	1.
6	8.12	SULFATE	28.081	6.504	22.44	100.134	1.
7	8.68	NITRATE	19.220	4.487	15.48	20.159	1.
9	12.15	PHOSPHATE	11.248	1.663	5.74	20.854	1.
Total:			193.701	28.885	99.65	300.393	

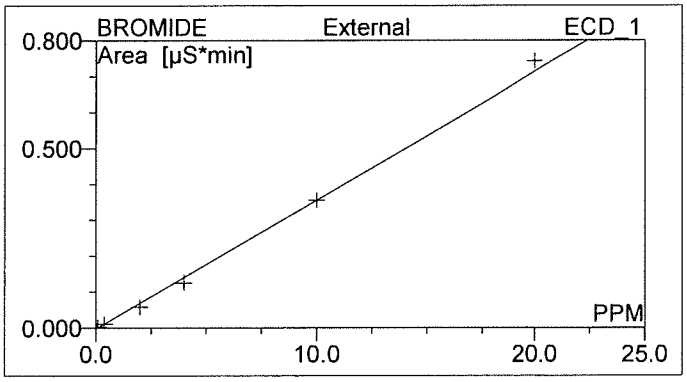
6 STD6

Sample Name:	**STD6**	*Injection Volume:*	**10.0**
Vial Number:	**96**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA**	*Bandwidth:*	**n.a.**
Quantif. Method:	**030519**	*Dilution Factor:*	**1.**
Recording Time:	**3/5/2019 16:24**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**









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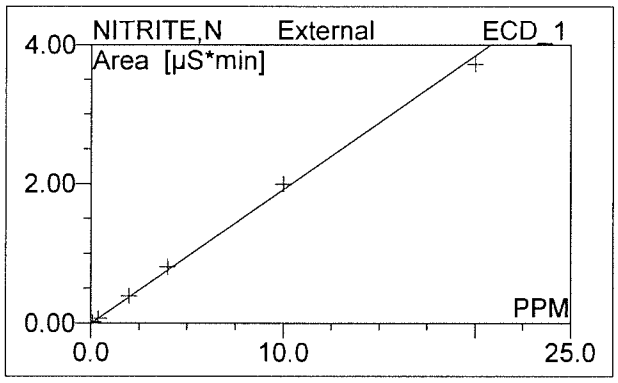
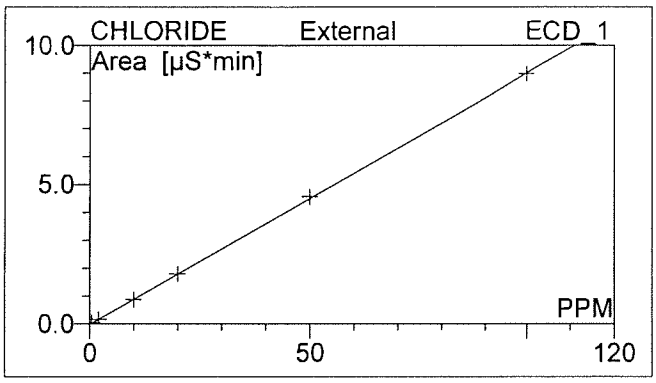
No.	Ret.Time min	Peak Name	Cal.Type	Points	Coeff.Det. %	Offset	Slope	Curve
1	2.90	FLUORIDE	XLOff	6	99.913	-0.0049	0.1428	0.000
2	4.32	CHLORIDE	XLOff	6	99.985	-0.0146	0.0903	0.000
3	5.29	NITRITE,N	XLOff	6	99.832	-0.0052	0.1927	0.000
5	7.36	BROMIDE	XLOff	6	99.537	-0.0023	0.0358	0.000
6	8.12	SULFATE	XLOff	6	99.946	-0.0146	0.0651	0.000
7	8.68	NITRATE	XLOff	6	99.908	-0.0126	0.2232	0.000
9	12.15	PHOSPHATE	XLOff	6	99.200	-0.0125	0.0803	0.000
Average:					99.7599	-0.0095	0.1186	0.0000

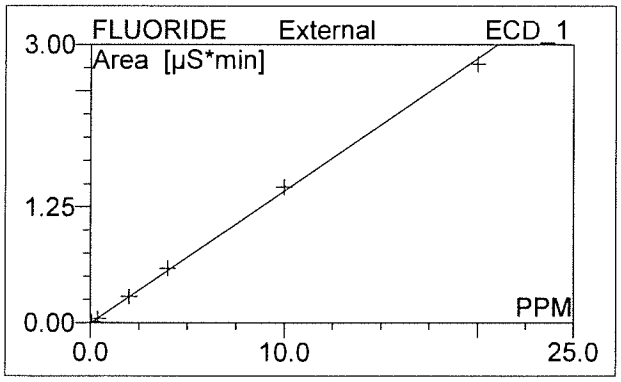
No.	Ret.Time min	Peak Name	Cal.Type	Points	Corr.Coeff. %	RF-Value	Std.Dev.	RSD %
1	2.90	FLUORIDE	XLOff	6	99.956	7.003	0.008	13.916
2	4.32	CHLORIDE	XLOff	6	99.993	11.068	0.011	5.649
3	5.29	NITRITE,N	XLOff	6	99.916	5.190	0.015	18.978
5	7.36	BROMIDE	XLOff	6	99.768	27.906	0.005	34.648
6	8.12	SULFATE	XLOff	6	99.973	15.361	0.015	11.225
7	8.68	NITRATE	XLOff	6	99.954	4.481	0.013	15.130
9	12.15	PHOSPHATE	XLOff	6	99.599	12.448	0.014	59.760
Average:					99.8798	11.9224	0.0116	22.7581

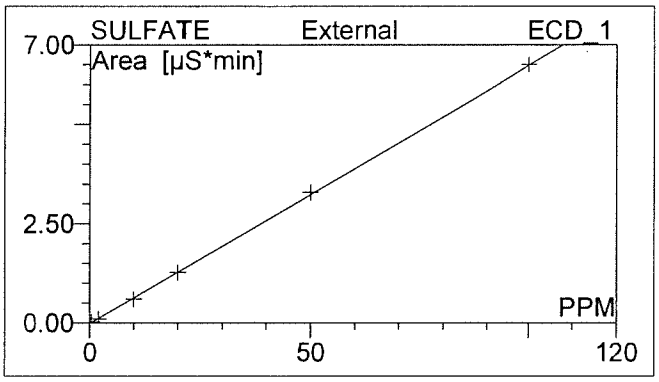
6 STD6

Sample Name:	**STD6**	*Injection Volume:*	**10.0**
Vial Number:	**96**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA**	*Bandwidth:*	**n.a.**
Quantif. Method:	**030519**	*Dilution Factor:*	**1.000**
Recording Time:	**3/5/2019 16:24**	*Sample Weight/Volume:*	**1.000**
Run Time (min):	**13.50**	*Final Volume:*	**1.000**









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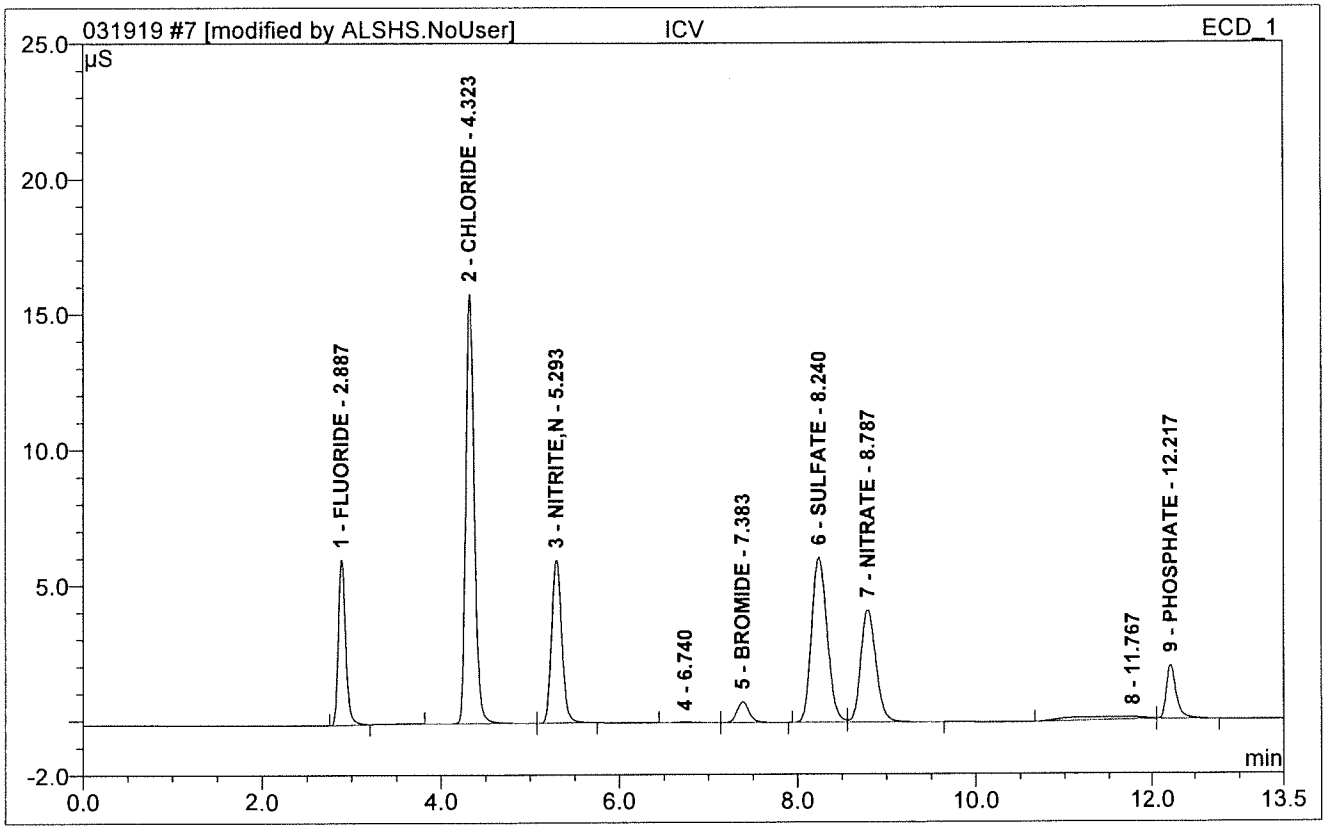
No.	Ret.Time min	Peak Name	Cal.Type	Points	Coeff.Det. %	Offset	Slope	Curve
1	2.90	FLUORIDE	XLOff	6	99.9126	-0.0049	0.1428	0.000
2	4.32	CHLORIDE	XLOff	6	99.9855	-0.0146	0.0903	0.000
3	5.29	NITRITE,N	XLOff	6	99.8316	-0.0052	0.1927	0.000
5	7.36	BROMIDE	XLOff	6	99.5368	-0.0023	0.0358	0.000
6	8.12	SULFATE	XLOff	6	99.9460	-0.0146	0.0651	0.000
7	8.68	NITRATE	XLOff	6	99.9075	-0.0126	0.2232	0.000
9	12.15	PHOSPHATE	XLOff	6	99.1996	-0.0125	0.0803	0.000
Average:					99.7599	-0.0095	0.1186	0.000

No.	Ret.Time min	Peak Name	Cal.Type	Points	Corr.Coeff. %	RF-Value	Std.Dev.	RSD %
1	2.90	FLUORIDE	XLOff	6	99.956	7.003	0.008	13.916
2	4.32	CHLORIDE	XLOff	6	99.993	11.068	0.011	5.649
3	5.29	NITRITE,N	XLOff	6	99.916	5.190	0.015	18.978
5	7.36	BROMIDE	XLOff	6	99.768	27.906	0.005	34.648
6	8.12	SULFATE	XLOff	6	99.973	15.361	0.015	11.225
7	8.68	NITRATE	XLOff	6	99.954	4.481	0.013	15.130
9	12.15	PHOSPHATE	XLOff	6	99.599	12.448	0.014	59.760
Average:					99.8798	11.922	0.012	22.758

7 ICV

297.020.6806

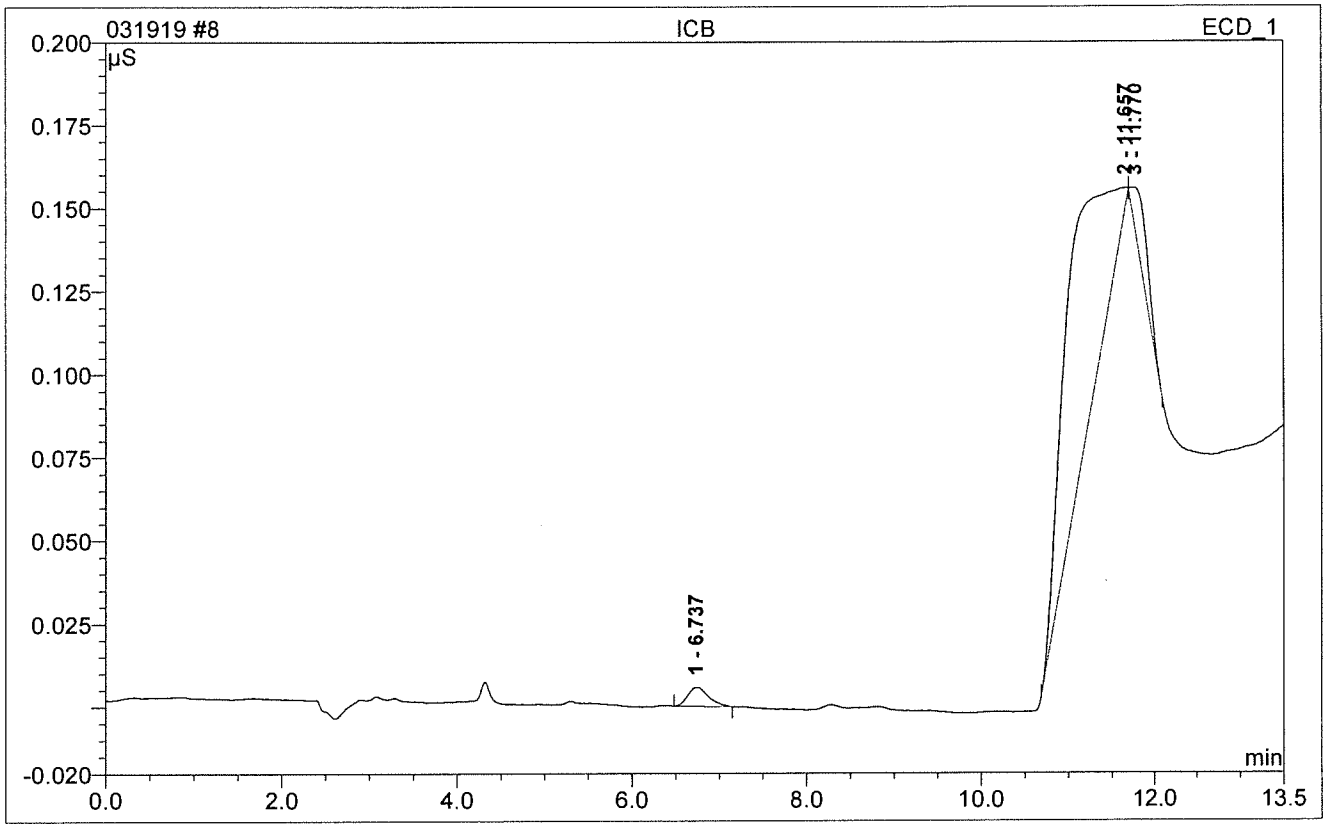
Sample Name:	**ICV**	*Injection Volume:*	**10.0**
Vial Number:	**97**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA**	*Bandwidth:*	**n.a.**
Quantif. Method:	**030519**	*Dilution Factor:*	**1.**
Recording Time:	**3/5/2019 16:39**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.89	FLUORIDE	6.100	0.575	10.17	4.062	1.
2	4.32	CHLORIDE	15.827	1.738	30.72	19.393	1.
3	5.29	NITRITE,N	6.017	0.792	14.00	4.137	1.
5	7.38	BROMIDE	0.764	0.121	2.14	3.443	1.
6	8.24	SULFATE	6.100	1.235	21.84	19.196	1.
7	8.79	NITRATE	4.154	0.823	14.54	3.742	1.
9	12.22	PHOSPHATE	1.972	0.264	4.68	3.447	1.
Total:			40.935	5.548	98.09	57.420	

8 ICB

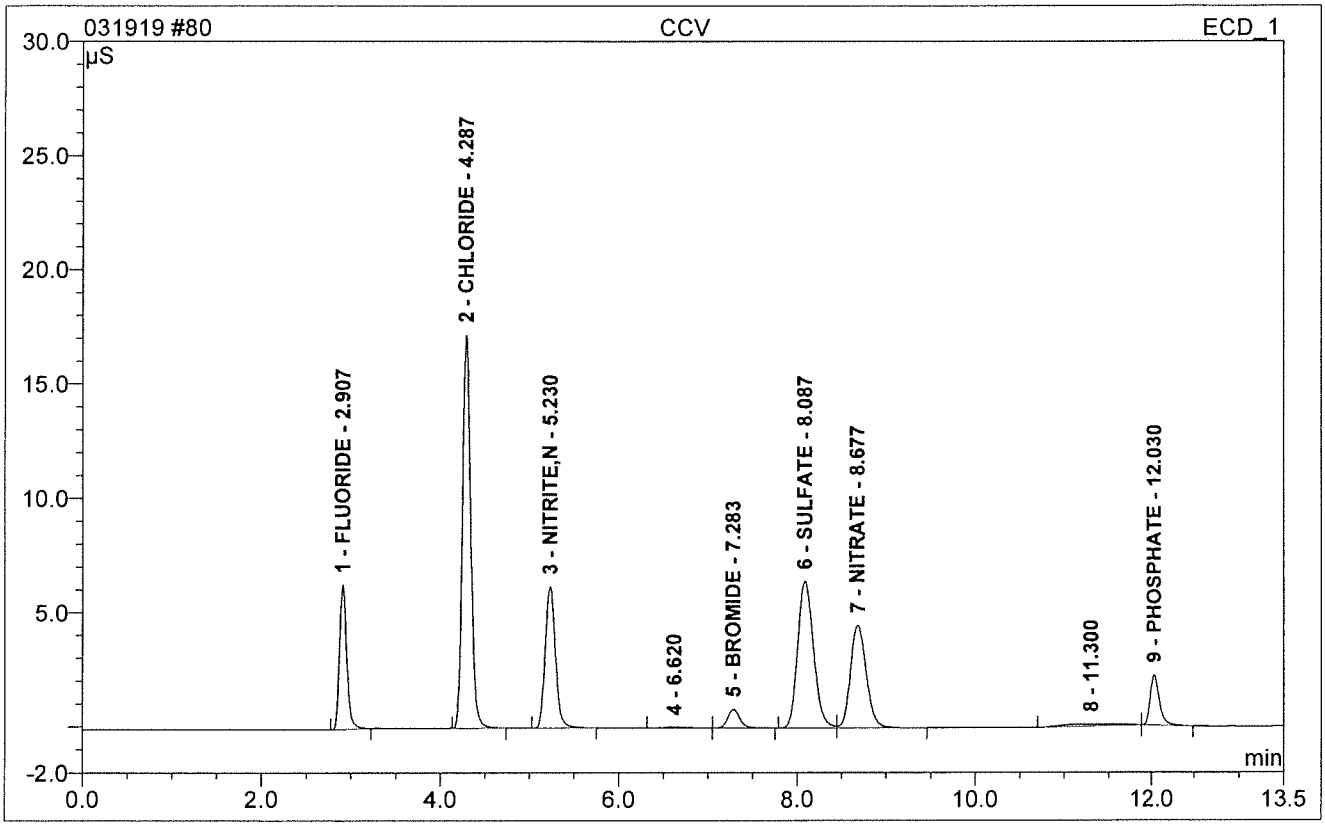
Sample Name:	**ICB**	*Injection Volume:*	**10.0**
Vial Number:	**98**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA**	*Bandwidth:*	**n.a.**
Quantif. Method:	**030519**	*Dilution Factor:*	**1.**
Recording Time:	**3/5/2019 17:13**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
Total:			0.000	0.000	0.00	0.000	

80 CCV

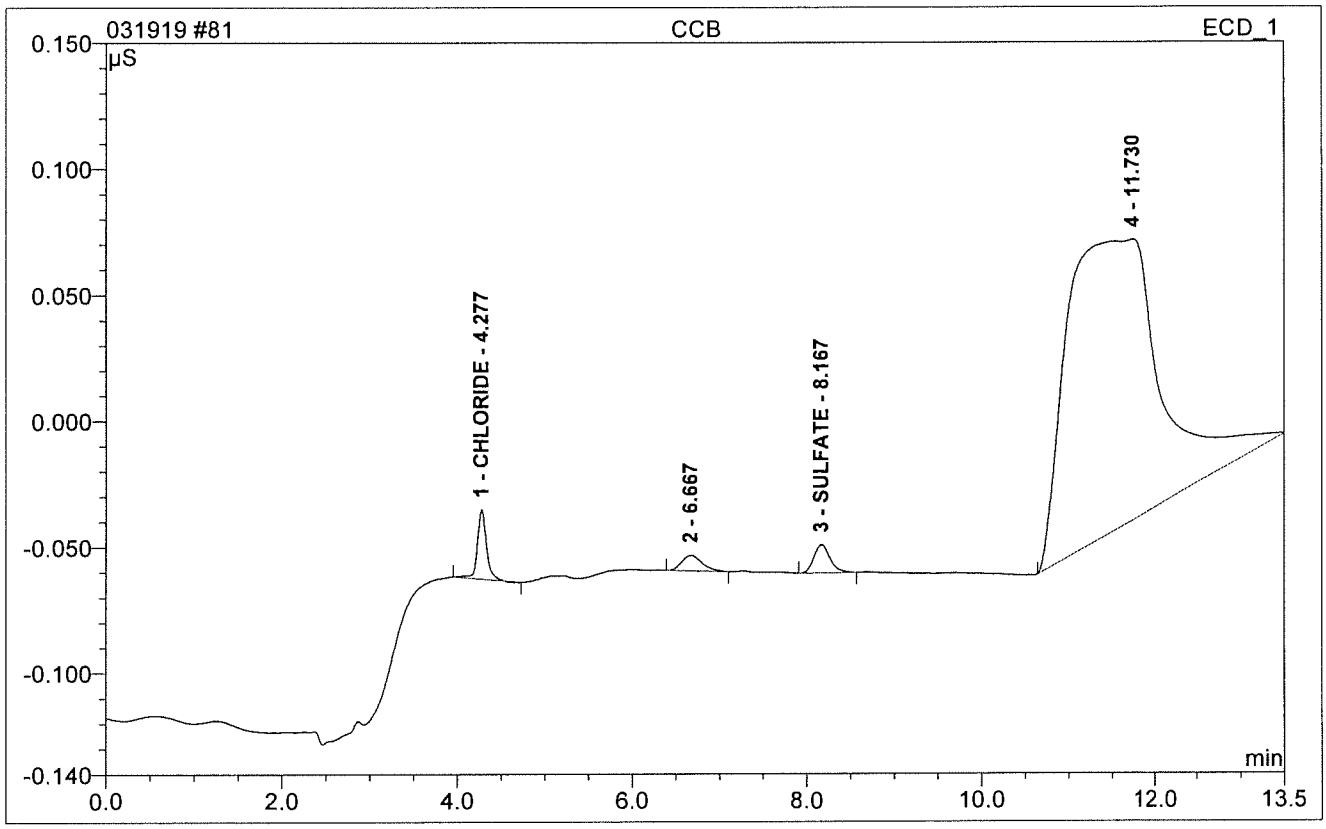
Sample Name:	**CCV**	*Injection Volume:*	**10.0**
Vial Number:	**1**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA**	*Bandwidth:*	**n.a.**
Quantif. Method:	**030519**	*Dilution Factor:*	**1.**
Recording Time:	**3/20/2019 11:29**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.91	FLUORIDE	6.310	0.589	9.81	4.159	1.
2	4.29	CHLORIDE	17.190	1.848	30.77	20.614	1.
3	5.23	NITRITE,N	6.183	0.831	13.85	4.342	1.
5	7.28	BROMIDE	0.821	0.128	2.13	3.641	1.
6	8.09	SULFATE	6.413	1.331	22.17	20.676	1.
7	8.68	NITRATE	4.496	0.914	15.23	4.154	1.
9	12.03	PHOSPHATE	2.184	0.280	4.67	3.645	1.
Total:			43.598	5.923	98.64	61.232	

81 CCB

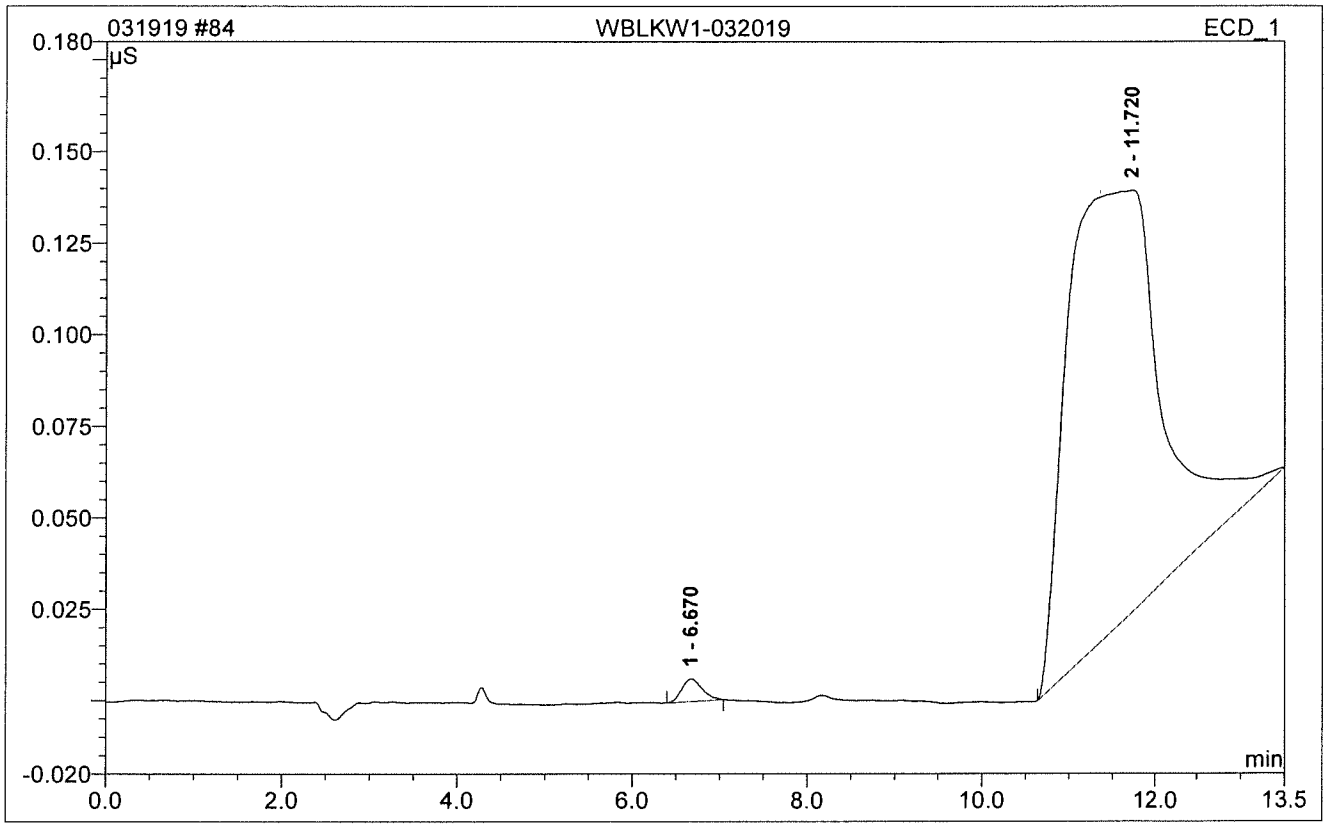
Sample Name:	**CCB**	*Injection Volume:*	**10.0**
Vial Number:	**2**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA**	*Bandwidth:*	**n.a.**
Quantif. Method:	**030519**	*Dilution Factor:*	**1.**
Recording Time:	**3/20/2019 11:44**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	4.28	CHLORIDE	0.027	0.003	2.13	0.198	1.
3	8.17	SULFATE	0.011	0.002	1.57	0.262	1.
Total:			0.039	0.006	3.71	0.460	

84 WBLKW1-032019

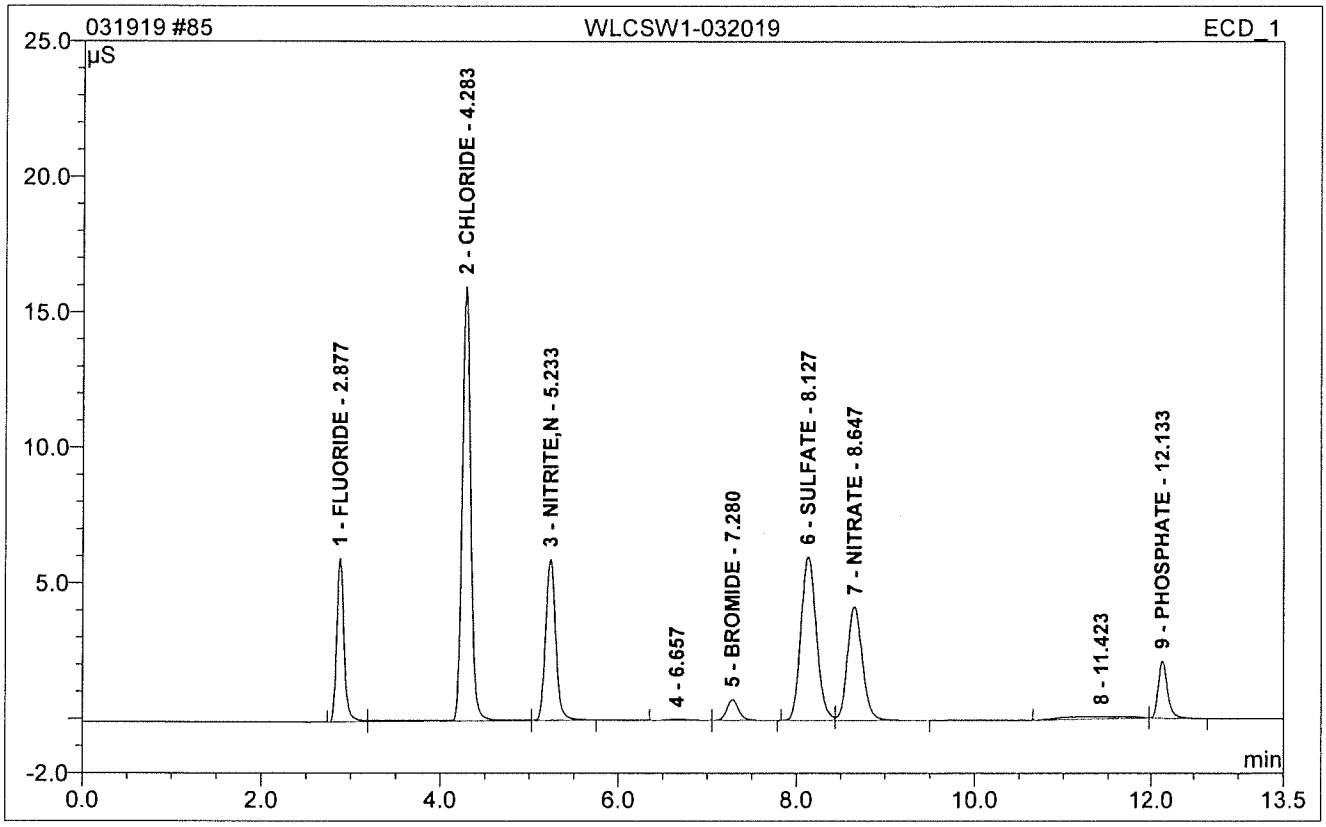
Sample Name:	**WBLKW1-032019**	*Injection Volume:*	**10.0**
Vial Number:	**11**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA**	*Bandwidth:*	**n.a.**
Quantif. Method:	**030519**	*Dilution Factor:*	**1.**
Recording Time:	**3/20/2019 12:55**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
Total:			0.000	0.000	0.00	0.000	

85 WLCSW1-032019

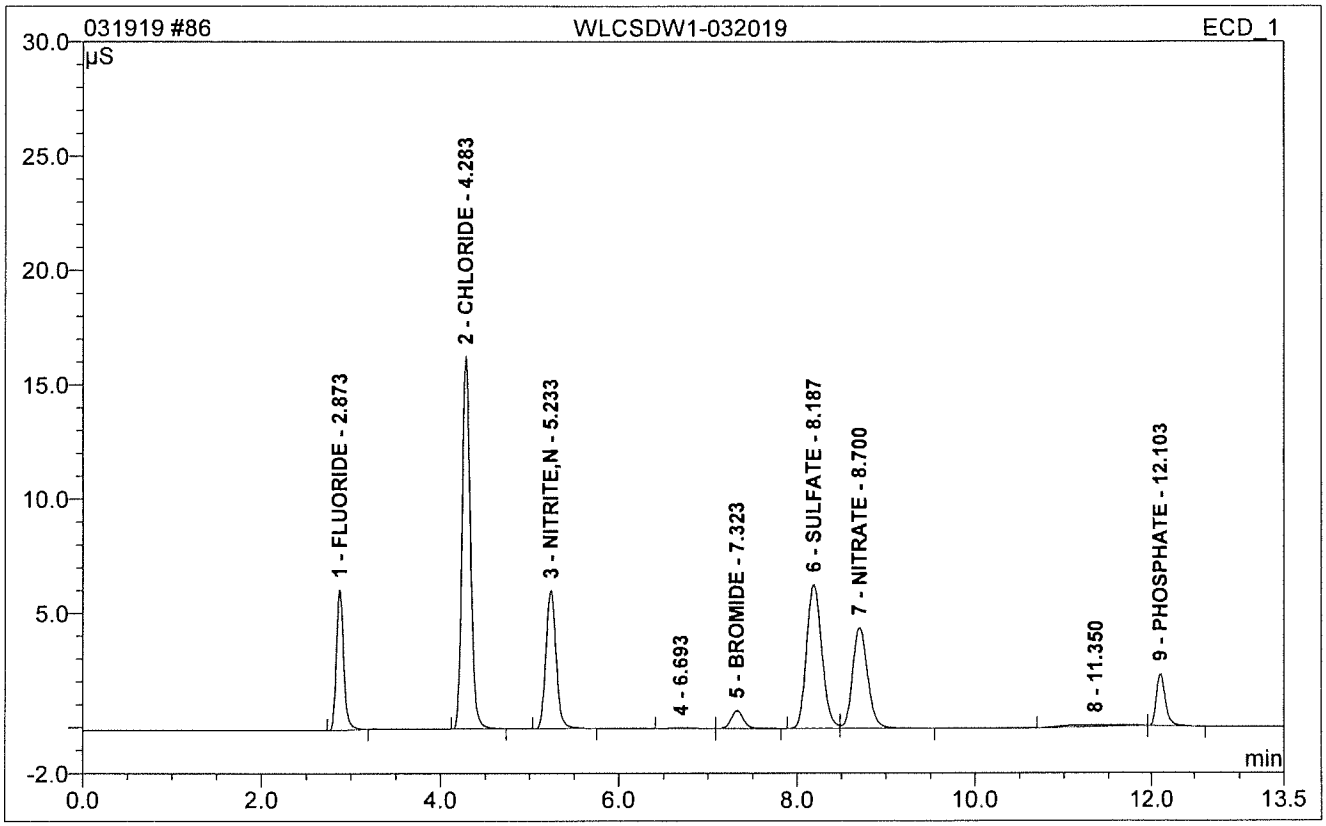
Sample Name:	**WLCSW1-032019**	*Injection Volume:*	**10.0**
Vial Number:	**12**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA**	*Bandwidth:*	**n.a.**
Quantif. Method:	**030519**	*Dilution Factor:*	**1.**
Recording Time:	**3/20/2019 13:10**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.88	FLUORIDE	6.030	0.571	10.05	4.031	1.
2	4.28	CHLORIDE	16.034	1.788	31.49	19.951	1.
3	5.23	NITRITE,N	5.939	0.788	13.87	4.114	1.
5	7.28	BROMIDE	0.768	0.120	2.11	3.415	1.
6	8.13	SULFATE	6.037	1.224	21.56	19.033	1.
7	8.65	NITRATE	4.202	0.826	14.55	3.758	1.
9	12.13	PHOSPHATE	2.104	0.268	4.71	3.486	1.
Total:			41.115	5.584	98.35	57.789	

86 WLCSDW1-032019

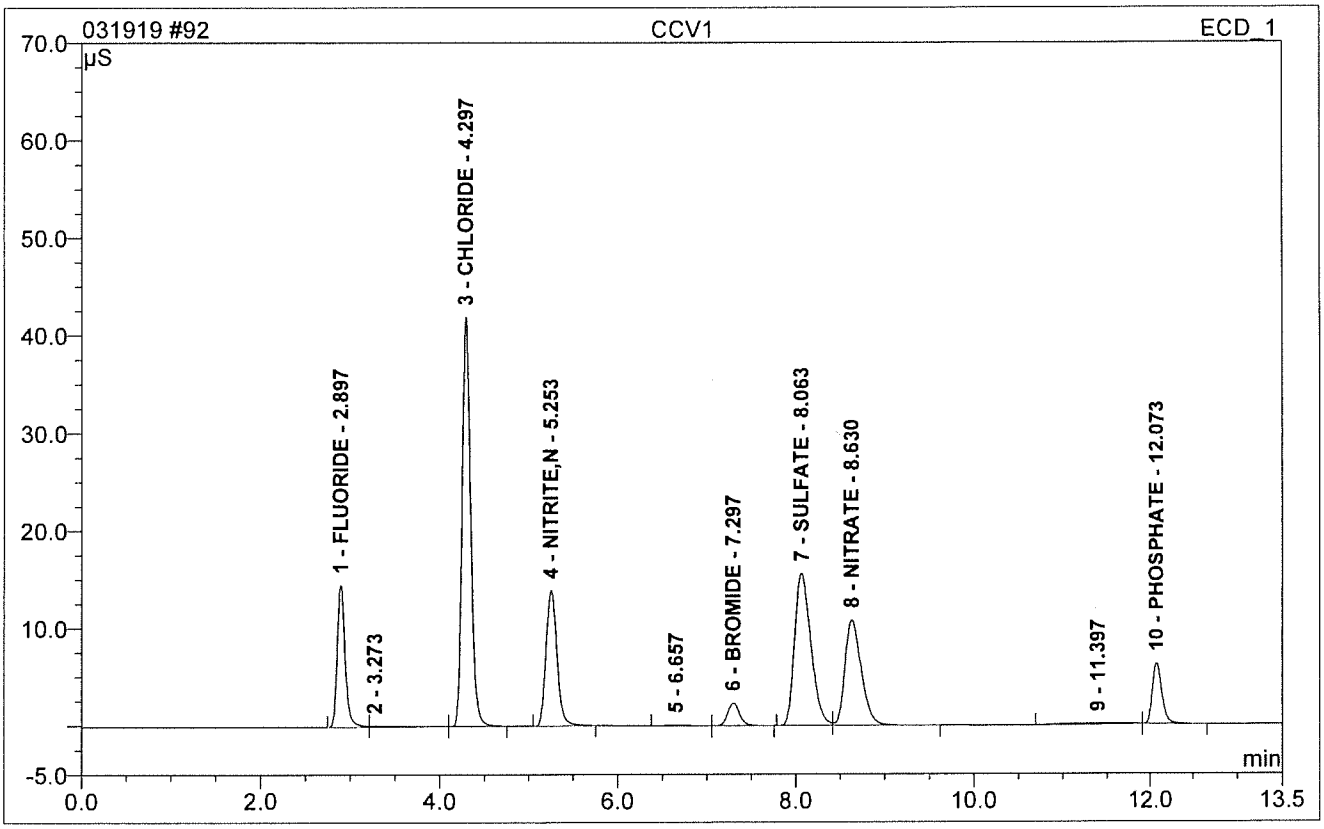
Sample Name:	**WLCSDW1-032019**	*Injection Volume:*	**10.0**
Vial Number:	**13**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA**	*Bandwidth:*	**n.a.**
Quantif. Method:	**030519**	*Dilution Factor:*	**1.**
Recording Time:	**3/20/2019 13:25**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.87	FLUORIDE	6.146	0.576	9.99	4.066	1.
2	4.28	CHLORIDE	16.300	1.769	30.70	19.743	1.
3	5.23	NITRITE,N	6.035	0.799	13.87	4.176	1.
5	7.32	BROMIDE	0.786	0.125	2.16	3.542	1.
6	8.19	SULFATE	6.292	1.264	21.94	19.648	1.
7	8.70	NITRATE	4.418	0.868	15.07	3.948	1.
9	12.10	PHOSPHATE	2.280	0.280	4.86	3.641	1.
Total:			42.257	5.682	98.60	58.765	

92 CCV1

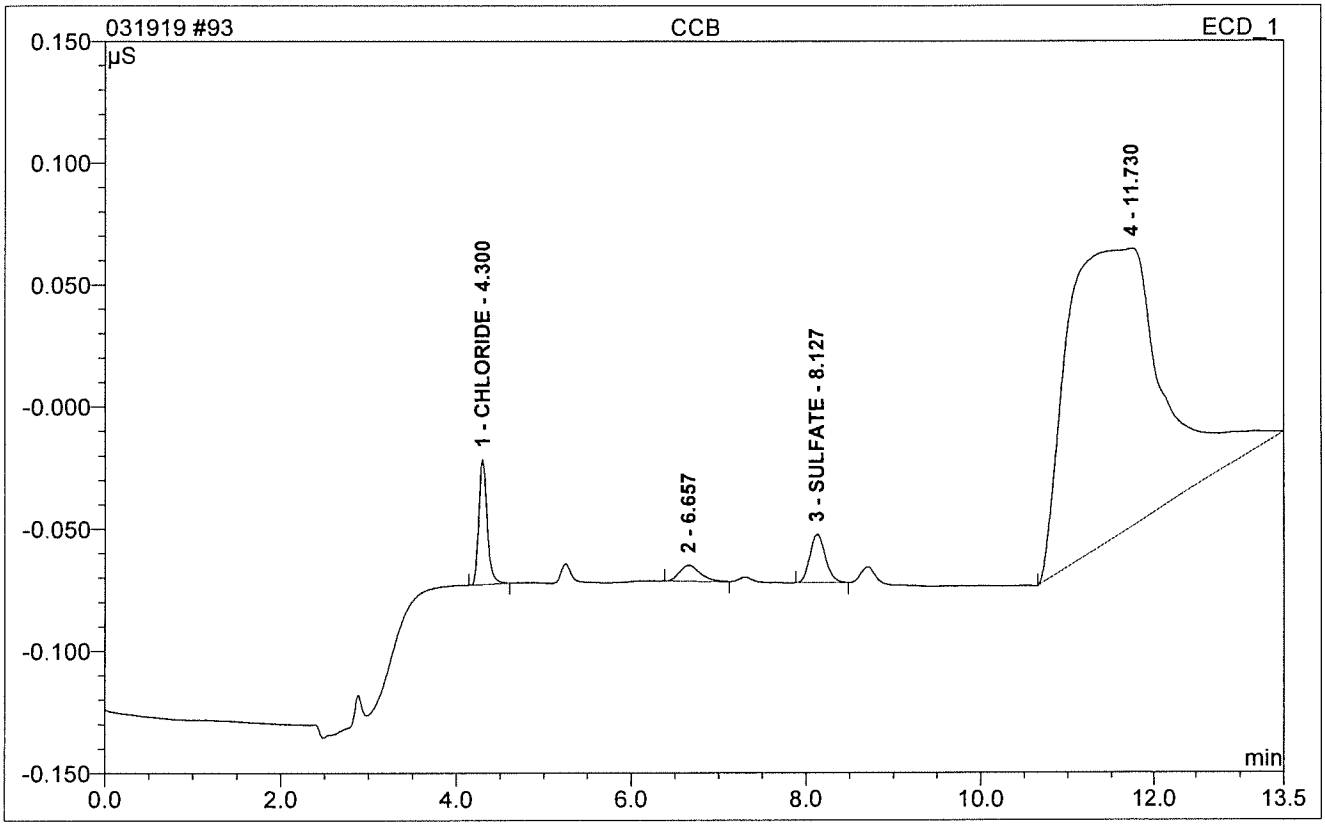
Sample Name:	**CCV1**	*Injection Volume:*	**10.0**
Vial Number:	**3**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA**	*Bandwidth:*	**n.a.**
Quantif. Method:	**030519**	*Dilution Factor:*	**1.**
Recording Time:	**3/20/2019 15:06**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.90	FLUORIDE	14.579	1.471	9.76	10.338	1.
3	4.30	CHLORIDE	41.926	4.656	30.89	51.694	1.
4	5.25	NITRITE,N	13.935	2.008	13.32	10.450	1.
6	7.30	BROMIDE	2.317	0.360	2.39	10.115	1.
7	8.06	SULFATE	15.645	3.348	22.21	51.649	1.
8	8.63	NITRATE	10.838	2.295	15.23	10.339	1.
10	12.07	PHOSPHATE	6.205	0.819	5.44	10.352	1.
Total:			105.445	14.958	99.25	154.937	

93 CCB

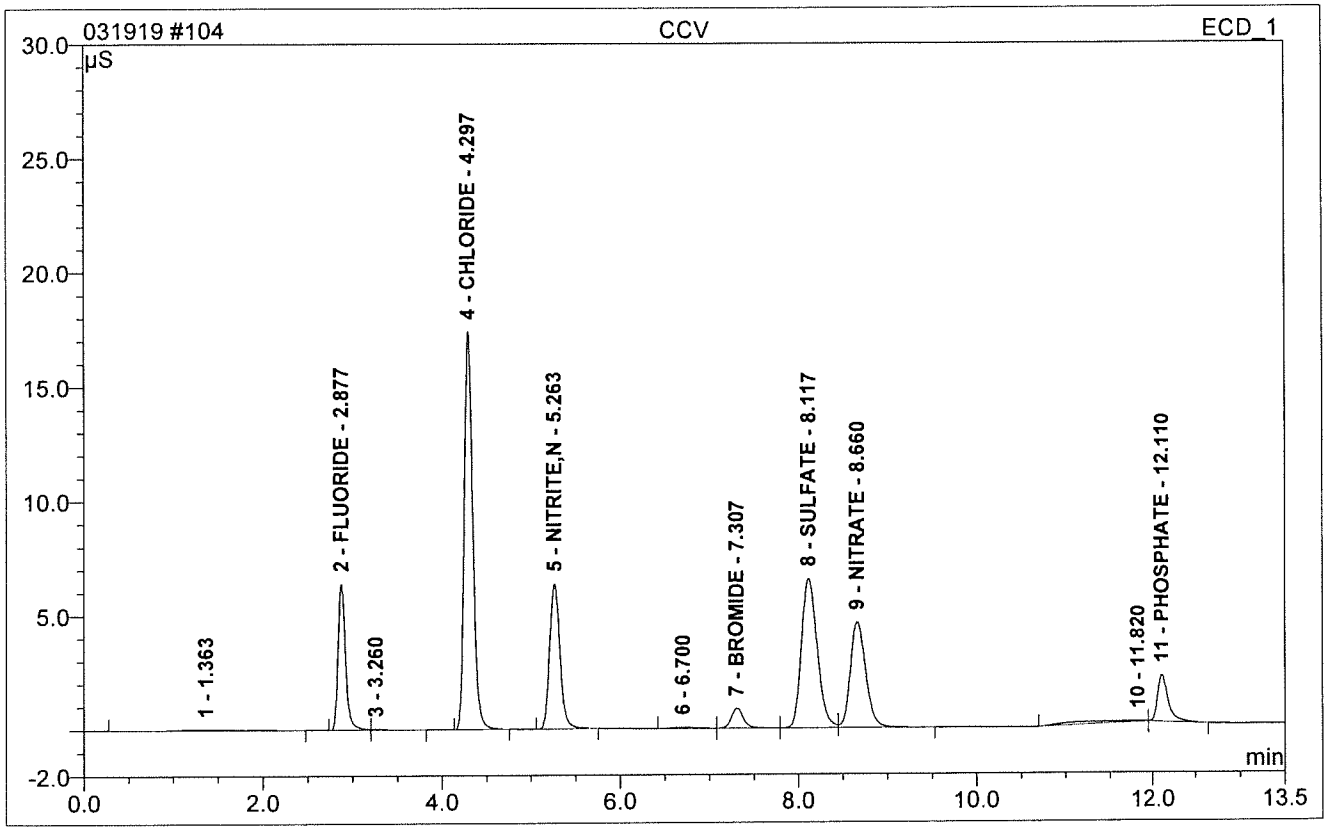
Sample Name:	**CCB**	*Injection Volume:*	**10.0**
Vial Number:	**4**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA**	*Bandwidth:*	**n.a.**
Quantif. Method:	**030519**	*Dilution Factor:*	**1.**
Recording Time:	**3/20/2019 15:20**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	4.30	CHLORIDE	0.051	0.006	3.43	0.225	1.
3	8.13	SULFATE	0.020	0.004	2.45	0.287	1.
Total:			0.071	0.010	5.88	0.512	

104 CCV

Sample Name:	**CCV**	*Injection Volume:*	**10.0**
Vial Number:	**1**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA**	*Bandwidth:*	**n.a.**
Quantif. Method:	**030519**	*Dilution Factor:*	**1.**
Recording Time:	**3/20/2019 18:34**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**

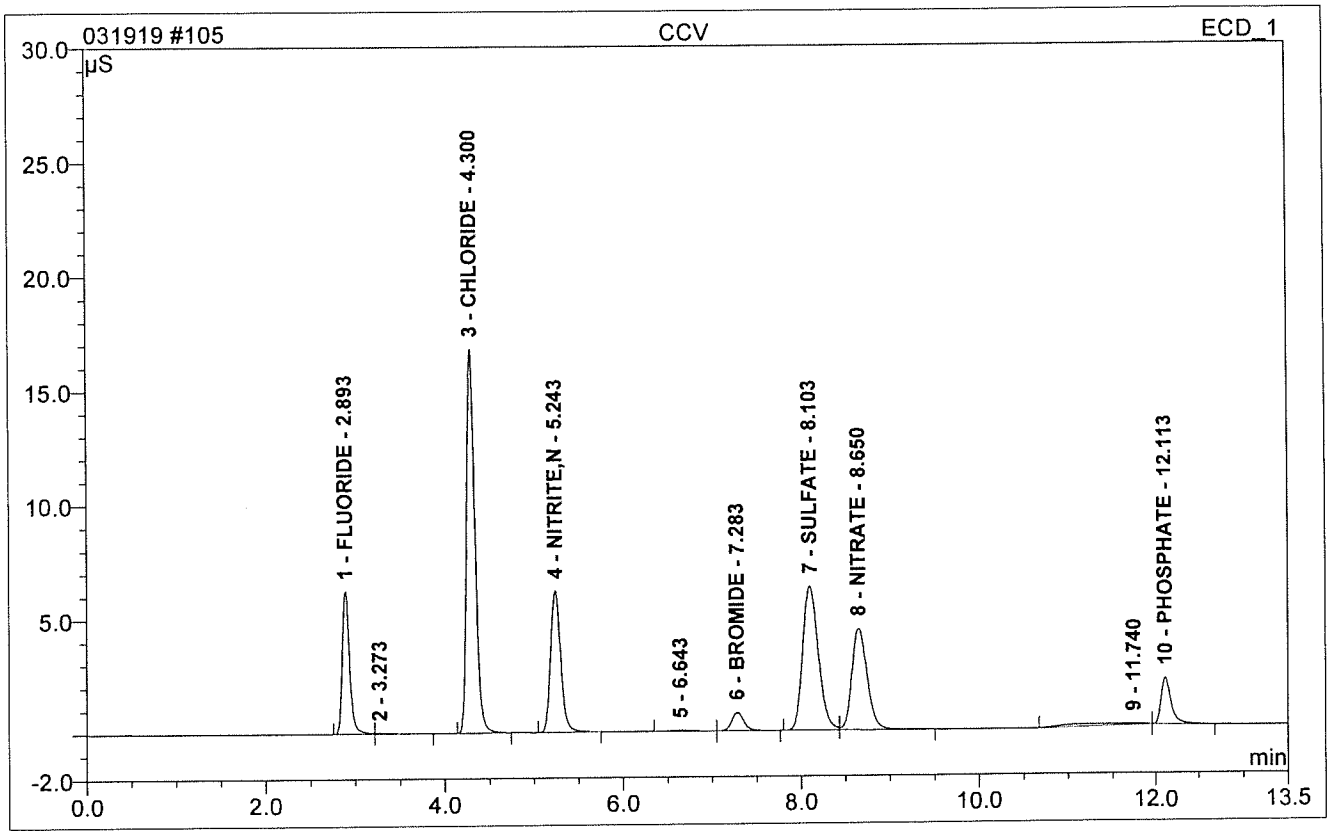


No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
2	2.88	FLUORIDE	6.396	0.613	9.84	4.328	1.
4	4.30	CHLORIDE	17.407	1.925	30.90	21.468	1.
5	5.26	NITRITE,N	6.363	0.860	13.80	4.490	1.
7	7.31	BROMIDE	0.871	0.135	2.17	3.843	1.
8	8.12	SULFATE	6.555	1.349	21.66	20.948	1.
9	8.66	NITRATE	4.646	0.924	14.83	4.196	1.
11	12.11	PHOSPHATE	2.033	0.292	4.69	3.789	1.
Total:			44.271	6.098	97.90	63.061	

105 CCV

RERUN

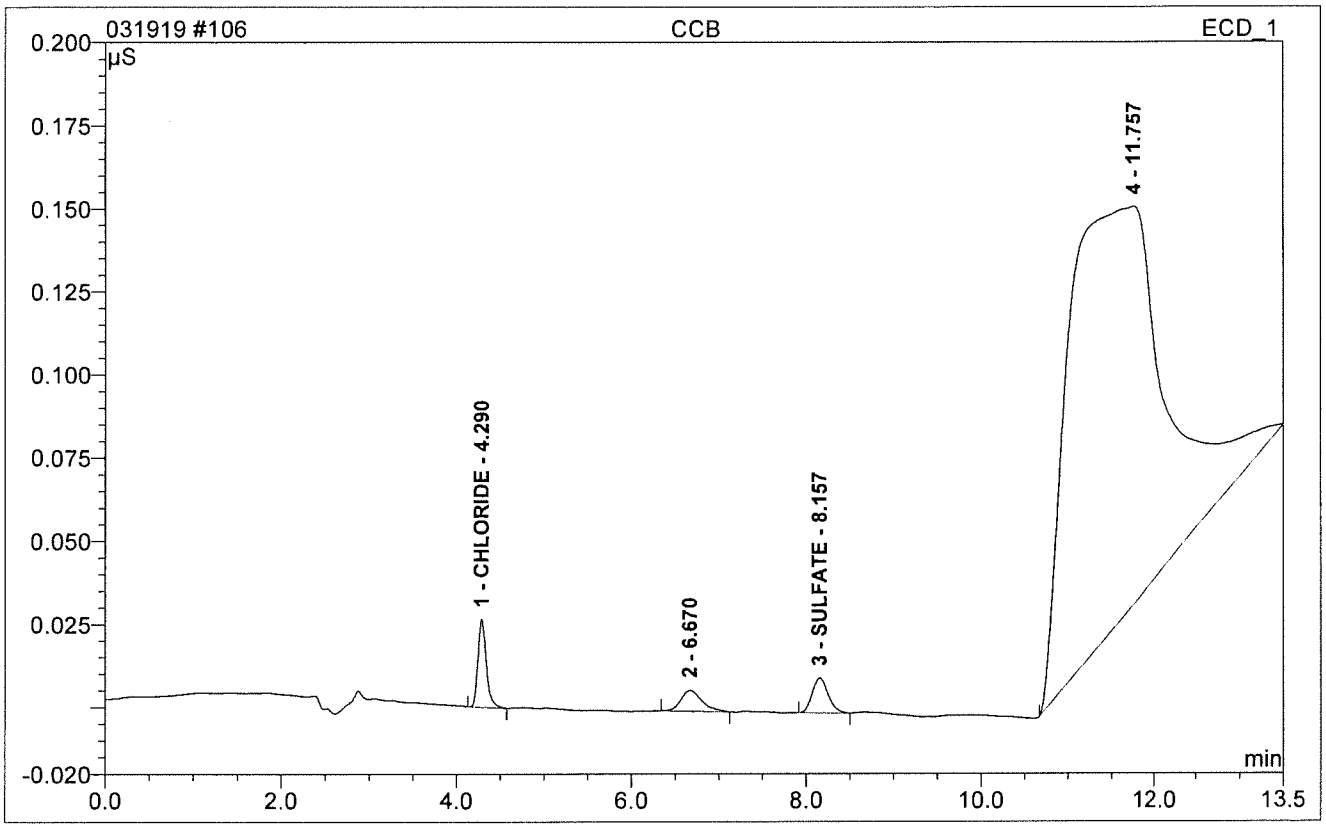
Sample Name:	**CCV**	*Injection Volume:*	**10.0**
Vial Number:	**1**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA**	*Bandwidth:*	**n.a.**
Quantif. Method:	**030519**	*Dilution Factor:*	**1.**
Recording Time:	**3/20/2019 19:06**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.89	FLUORIDE	6.242	0.595	10.00	4.198	1.
3	4.30	CHLORIDE	16.796	1.832	30.80	20.438	1.
4	5.24	NITRITE,N	6.194	0.824	13.86	4.304	1.
6	7.28	BROMIDE	0.818	0.129	2.17	3.663	1.
7	8.10	SULFATE	6.309	1.303	21.91	20.242	1.
8	8.65	NITRATE	4.451	0.883	14.84	4.012	1.
10	12.11	PHOSPHATE	2.040	0.279	4.70	3.632	1.
Total:			42.850	5.845	98.27	60.489	

106 CCB

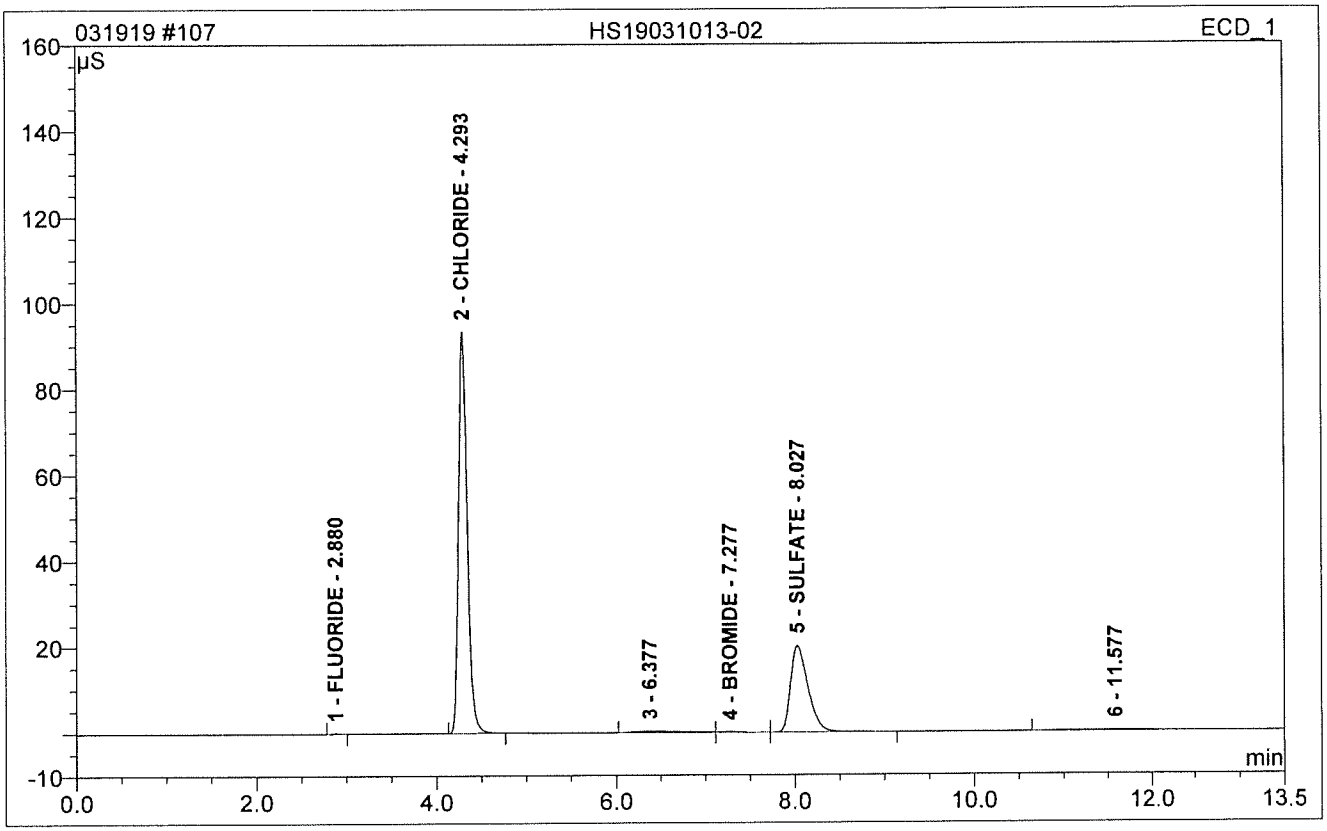
Sample Name:	**CCB**	*Injection Volume:*	**10.0**
Vial Number:	**2**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA**	*Bandwidth:*	**n.a.**
Quantif. Method:	**030519**	*Dilution Factor:*	**1.**
Recording Time:	**3/20/2019 19:26**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	4.29	CHLORIDE	0.027	0.003	1.72	0.195	1.
3	8.16	SULFATE	0.011	0.002	1.29	0.258	1.
Total:			0.037	0.005	3.00	0.453	

107 HS19031013-02

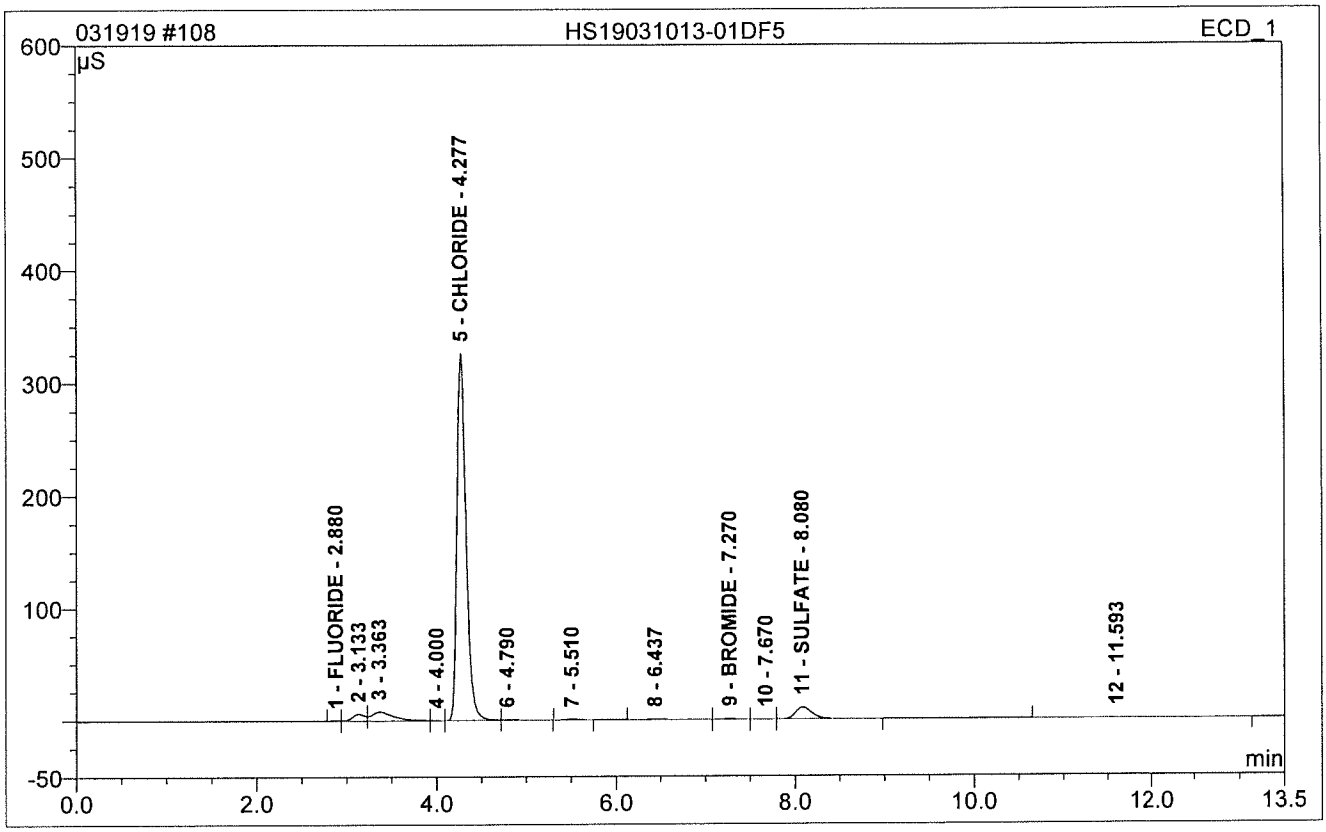
Sample Name:	**HS19031013-02**	*Injection Volume:*	**10.0**
Vial Number:	**22**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA**	*Bandwidth:*	**n.a.**
Quantif. Method:	**030519**	*Dilution Factor:*	**1.**
Recording Time:	**3/20/2019 19:41**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.88	FLUORIDE	0.083	0.007	0.04	0.082	1.
2	4.29	CHLORIDE	93.396	10.455	68.08	115.877	1.
4	7.28	BROMIDE	0.119	0.024	0.16	0.740	1.
5	8.03	SULFATE	20.089	4.545	29.60	70.046	1.
Total:			113.686	15.031	97.88	186.744	

108 HS19031013-01DF5

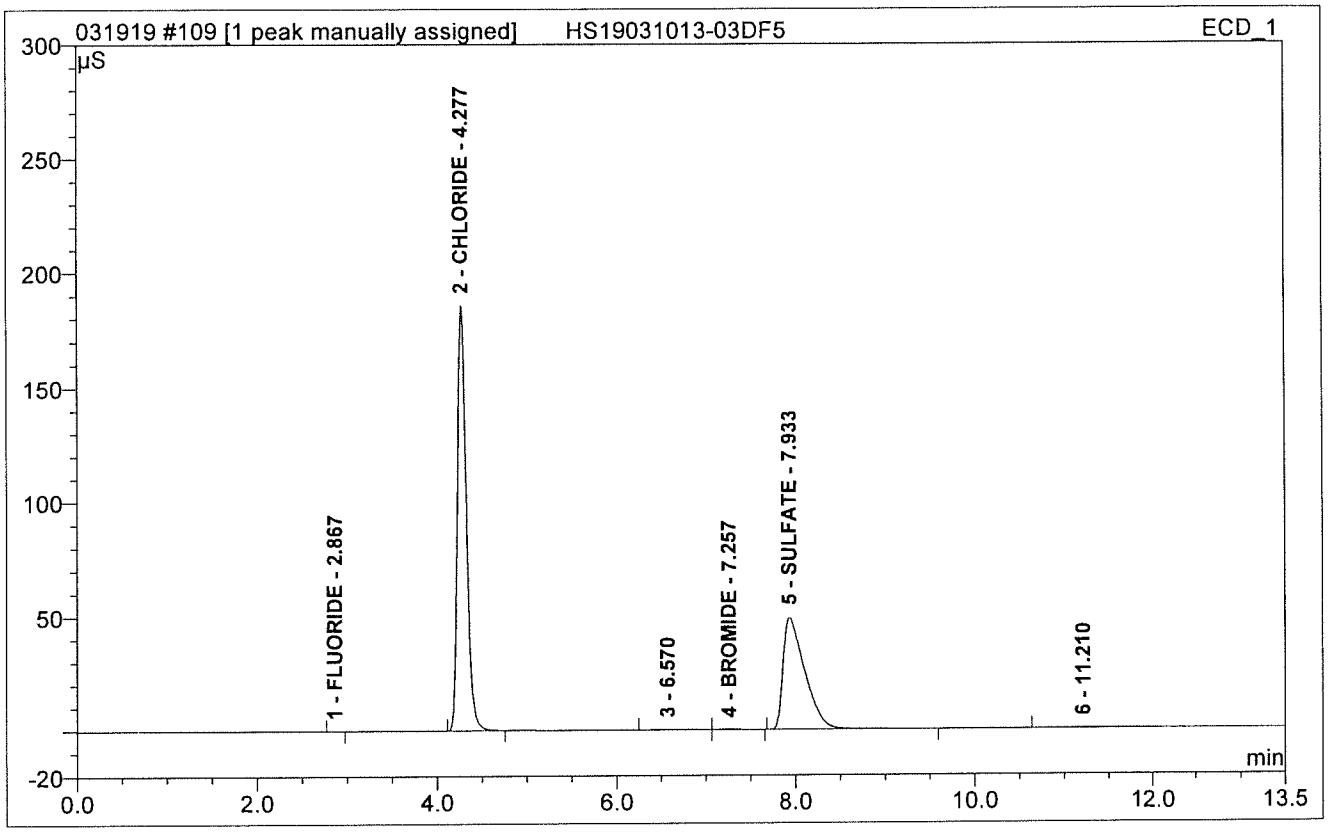
Sample Name:	**HS19031013-01DF5**	*Injection Volume:*	**10.0**
Vial Number:	**21**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA**	*Bandwidth:*	**n.a.**
Quantif. Method:	**030519**	*Dilution Factor:*	**5.**
Recording Time:	**3/20/2019 19:55**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.88	FLUORIDE	0.061	0.005	0.01	0.345	5.
5	4.28	CHLORIDE	325.685	38.020	86.60	2104.860	5.
9	7.27	BROMIDE	0.362	0.058	0.13	8.444	5.
11	8.08	SULFATE	10.366	2.229	5.08	172.303	5.
Total:			336.473	40.312	91.82	2285.952	

109 HS19031013-03DF5

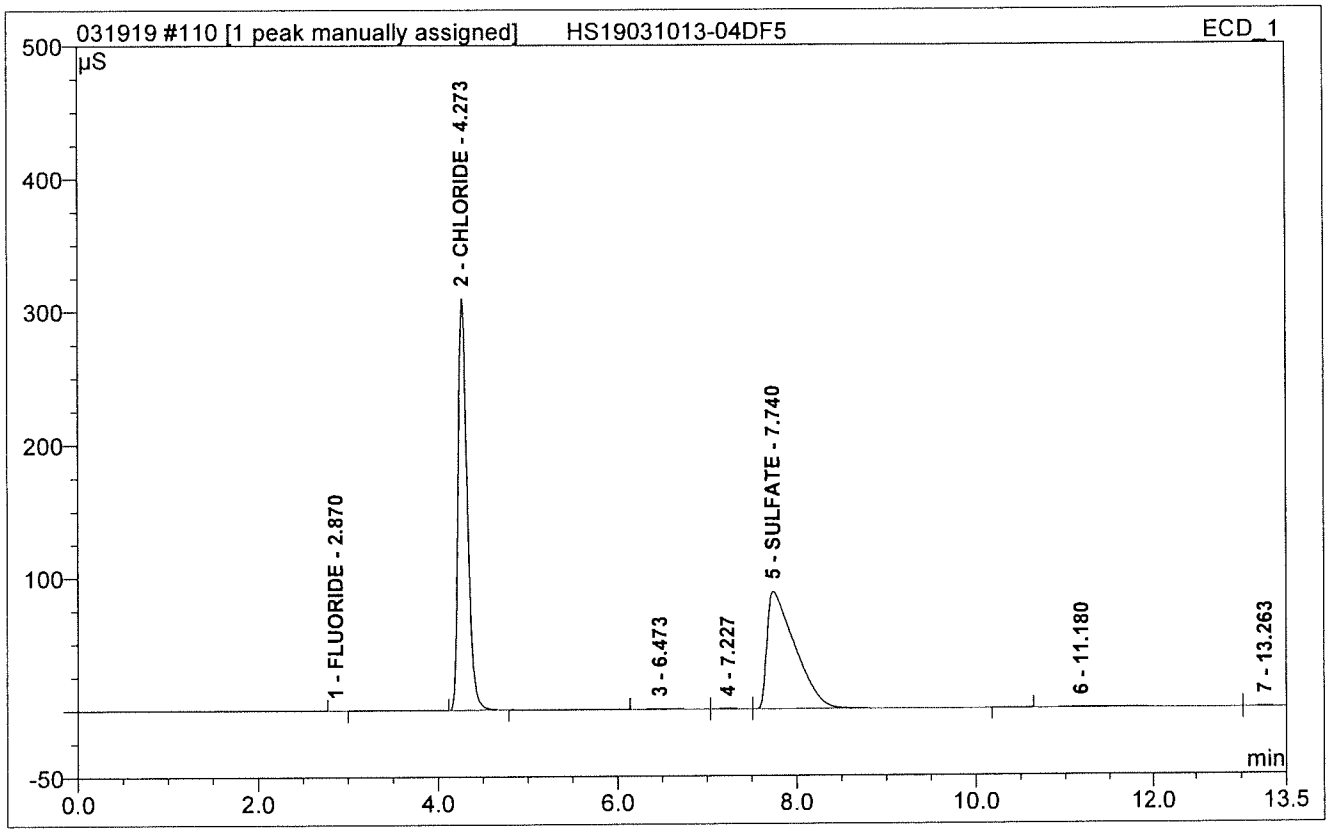
Sample Name:	**HS19031013-03DF5**	*Injection Volume:*	**10.0**
Vial Number:	**23**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA**	*Bandwidth:*	**n.a.**
Quantif. Method:	**030519**	*Dilution Factor:*	**5.**
Recording Time:	**3/20/2019 20:10**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.87	FLUORIDE	0.028	0.002	0.01	0.253	5.
2	4.28	CHLORIDE	185.908	21.344	60.40	1182.016	5.
4	7.26	BROMIDE	0.213	0.036	0.10	5.340	5.
5	7.93	SULFATE	49.086	13.720	38.83	1054.900	5.
Total:			235.236	35.103	99.34	2242.510	

110 HS19031013-04DF5

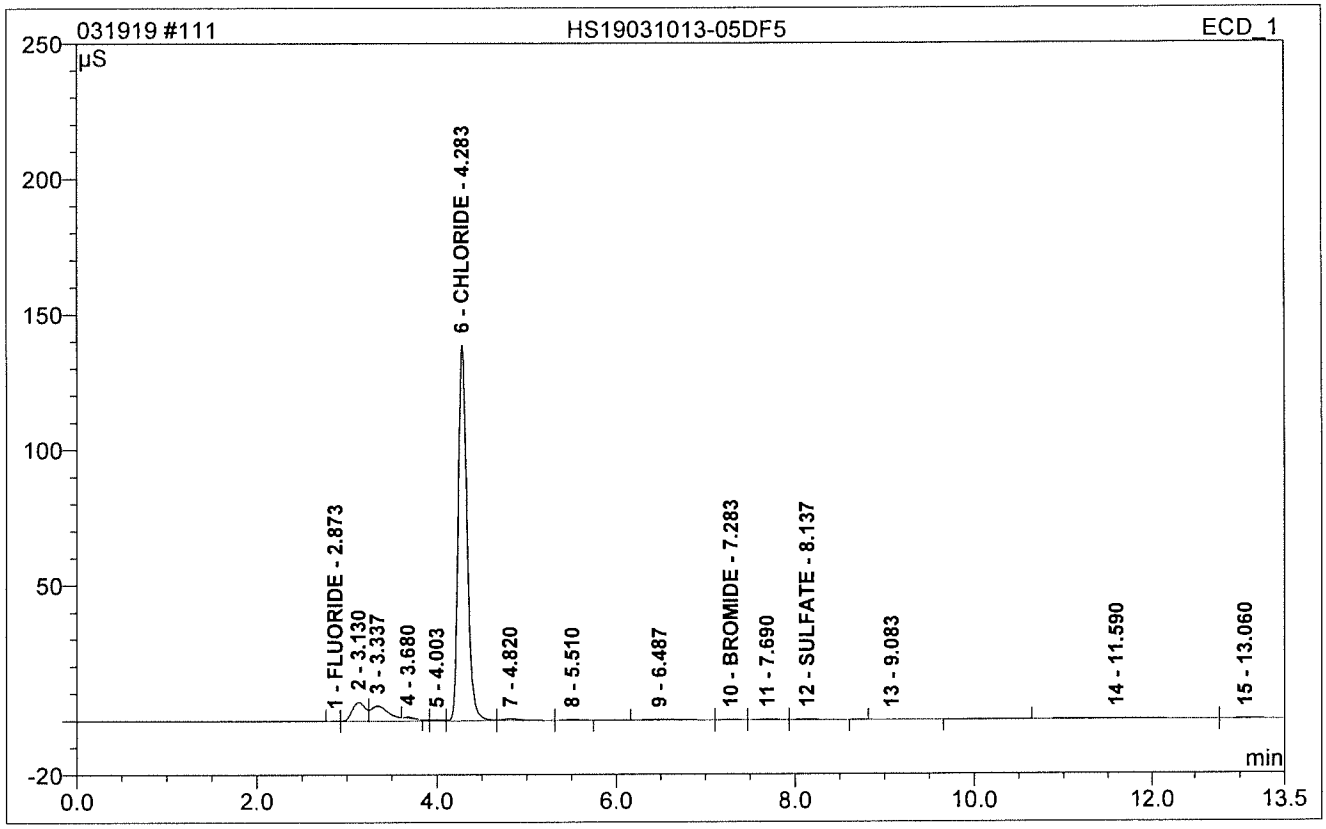
Sample Name:	**HS19031013-04DF5**	*Injection Volume:*	**10.0**
Vial Number:	**24**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA**	*Bandwidth:*	**n.a.**
Quantif. Method:	**030519**	*Dilution Factor:*	**5.**
Recording Time:	**3/20/2019 20:25**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.87	FLUORIDE	0.059	0.005	0.01	0.347	5.
2	4.27	CHLORIDE	309.280	36.218	53.15	2005.149	5.
5	7.74	SULFATE	88.208	31.551	46.30	2424.401	5.
Total:			397.547	67.774	99.45	4429.897	

111 HS19031013-05DF5

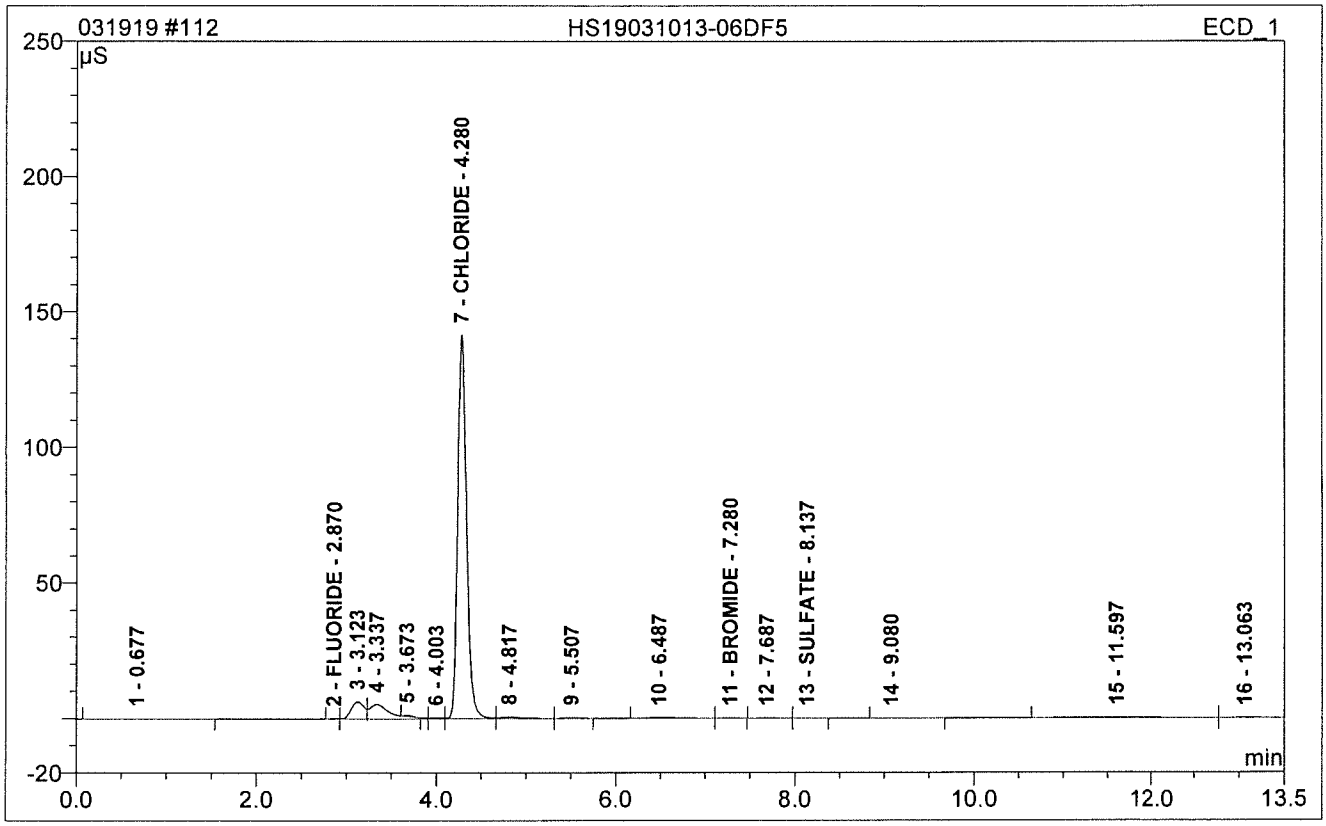
Sample Name:	**HS19031013-05DF5**	*Injection Volume:*	**10.0**
Vial Number:	**25**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA**	*Bandwidth:*	**n.a.**
Quantif. Method:	**030519**	*Dilution Factor:*	**5.**
Recording Time:	**3/20/2019 20:39**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.87	FLUORIDE	0.064	0.005	0.03	0.351	5.
6	4.28	CHLORIDE	138.723	15.816	82.42	876.055	5.
10	7.28	BROMIDE	0.157	0.028	0.14	4.163	5.
12	8.14	SULFATE	0.189	0.042	0.22	4.372	5.
Total:			139.133	15.891	82.81	884.941	

112 HS19031013-06DF5

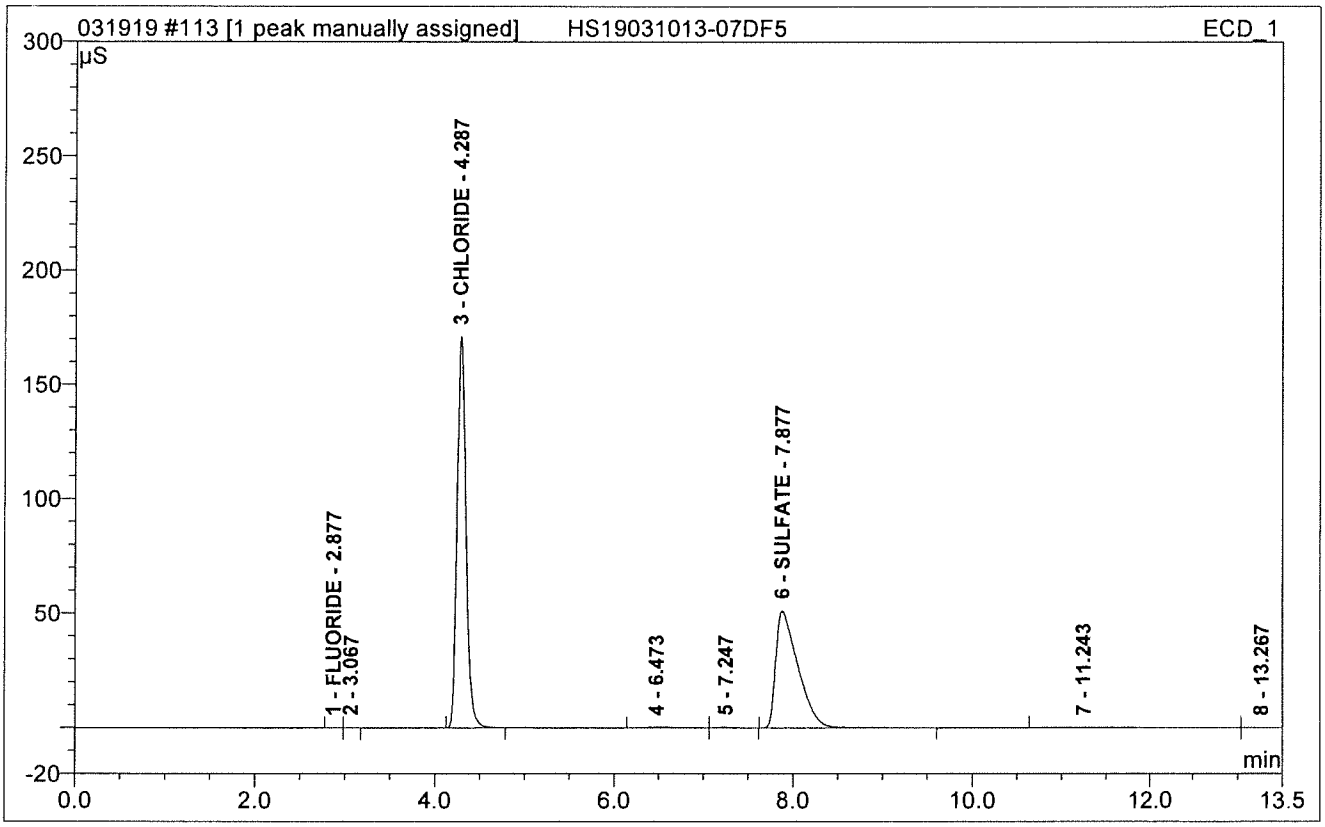
Sample Name:	**HS19031013-06DF5**	*Injection Volume:*	**10.0**
Vial Number:	**26**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA**	*Bandwidth:*	**n.a.**
Quantif. Method:	**030519**	*Dilution Factor:*	**5.**
Recording Time:	**3/20/2019 20:54**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
2	2.87	FLUORIDE	0.067	0.005	0.03	0.363	5.
7	4.28	CHLORIDE	141.488	16.166	84.25	895.456	5.
11	7.28	BROMIDE	0.140	0.021	0.11	3.232	5.
13	8.14	SULFATE	0.034	0.006	0.03	1.593	5.
Total:			141.729	16.199	84.42	900.644	

113 HS19031013-07DF5

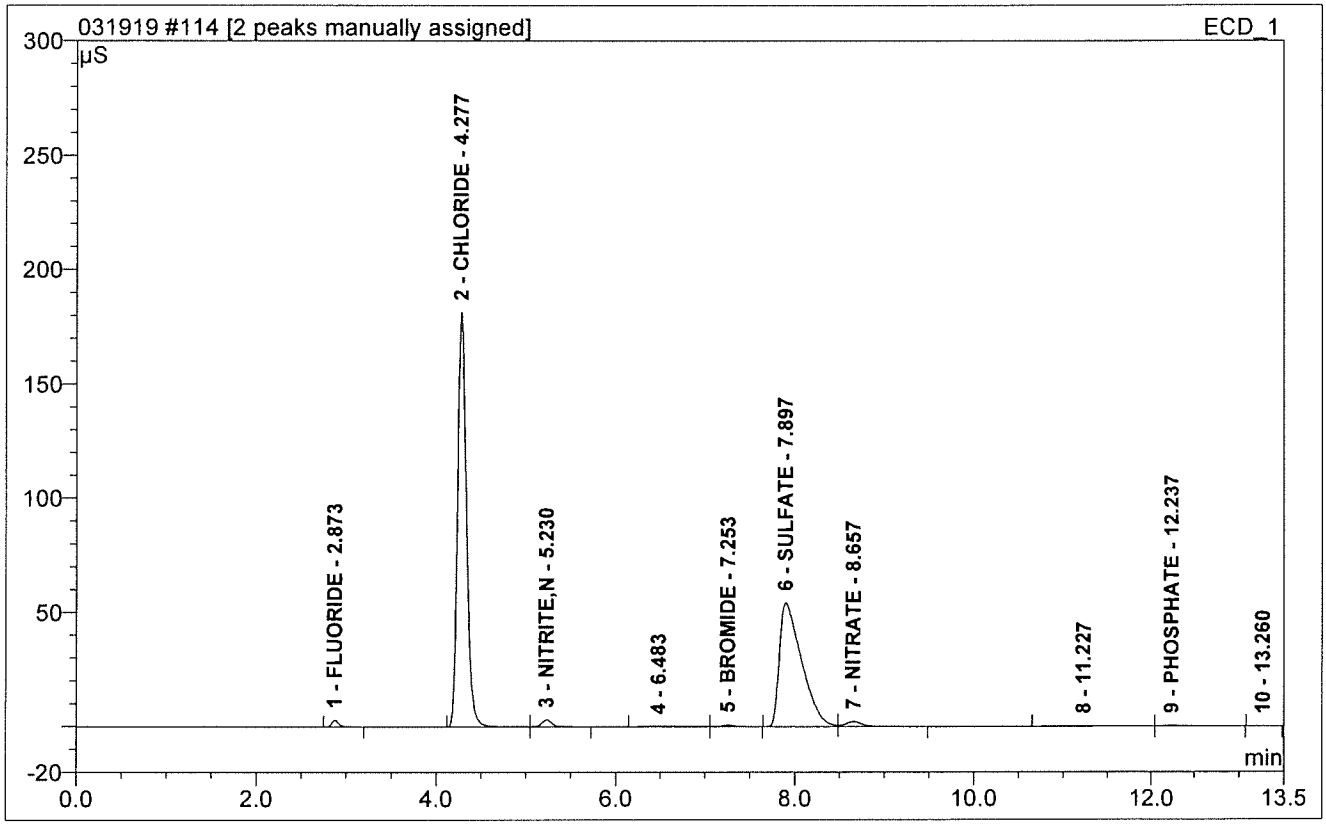
Sample Name:	**HS19031013-07DF5**	*Injection Volume:*	**10.0**
Vial Number:	**27**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA**	*Bandwidth:*	**n.a.**
Quantif. Method:	**030519**	*Dilution Factor:*	**5.**
Recording Time:	**3/20/2019 21:08**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.88	FLUORIDE	0.069	0.006	0.02	0.377	5.
3	4.29	CHLORIDE	170.936	19.716	56.87	1091.916	5.
6	7.88	SULFATE	51.187	14.640	42.23	1125.582	5.
Total:			222.191	34.363	99.11	2217.875	

114 HS19031013-07MSDF5

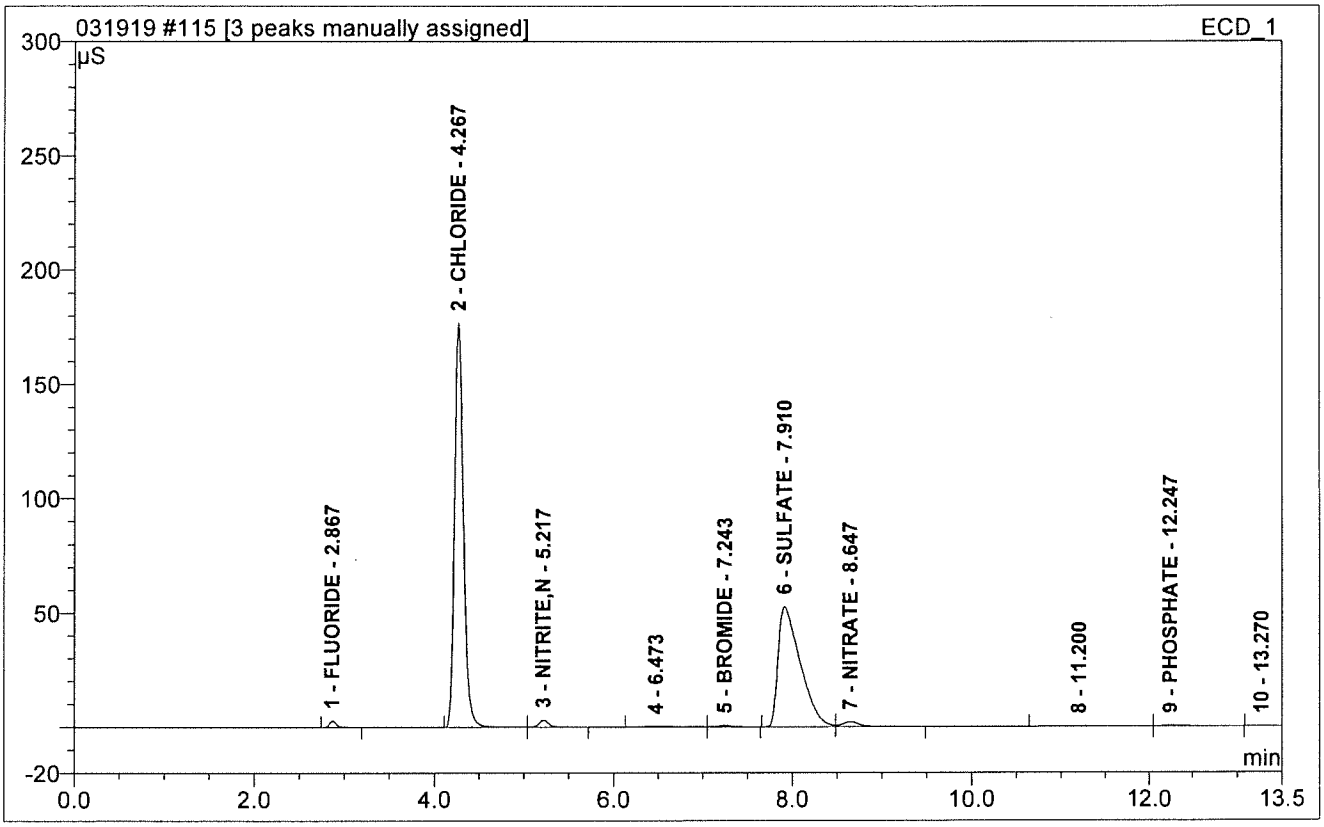
Sample Name:	**HS19031013-07MSDF5**	*Injection Volume:*	**10.0**
Vial Number:	**28**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA**	*Bandwidth:*	**n.a.**
Quantif. Method:	**030519**	*Dilution Factor:*	**5.**
Recording Time:	**3/20/2019 21:23**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.87	FLUORIDE	2.947	0.277	0.73	9.860	5.
2	4.28	CHLORIDE	181.231	20.844	54.97	1154.308	5.
3	5.23	NITRITE,N	3.118	0.396	1.05	10.417	5.
5	7.25	BROMIDE	0.651	0.104	0.27	14.795	5.
6	7.90	SULFATE	54.174	15.539	40.98	1194.630	5.
7	8.66	NITRATE	2.176	0.465	1.23	10.692	5.
9	12.24	PHOSPHATE	0.260	0.073	0.19	5.327	5.
Total:			244.556	37.697	99.43	2400.029	

115 HS19031013-07MSDDF5

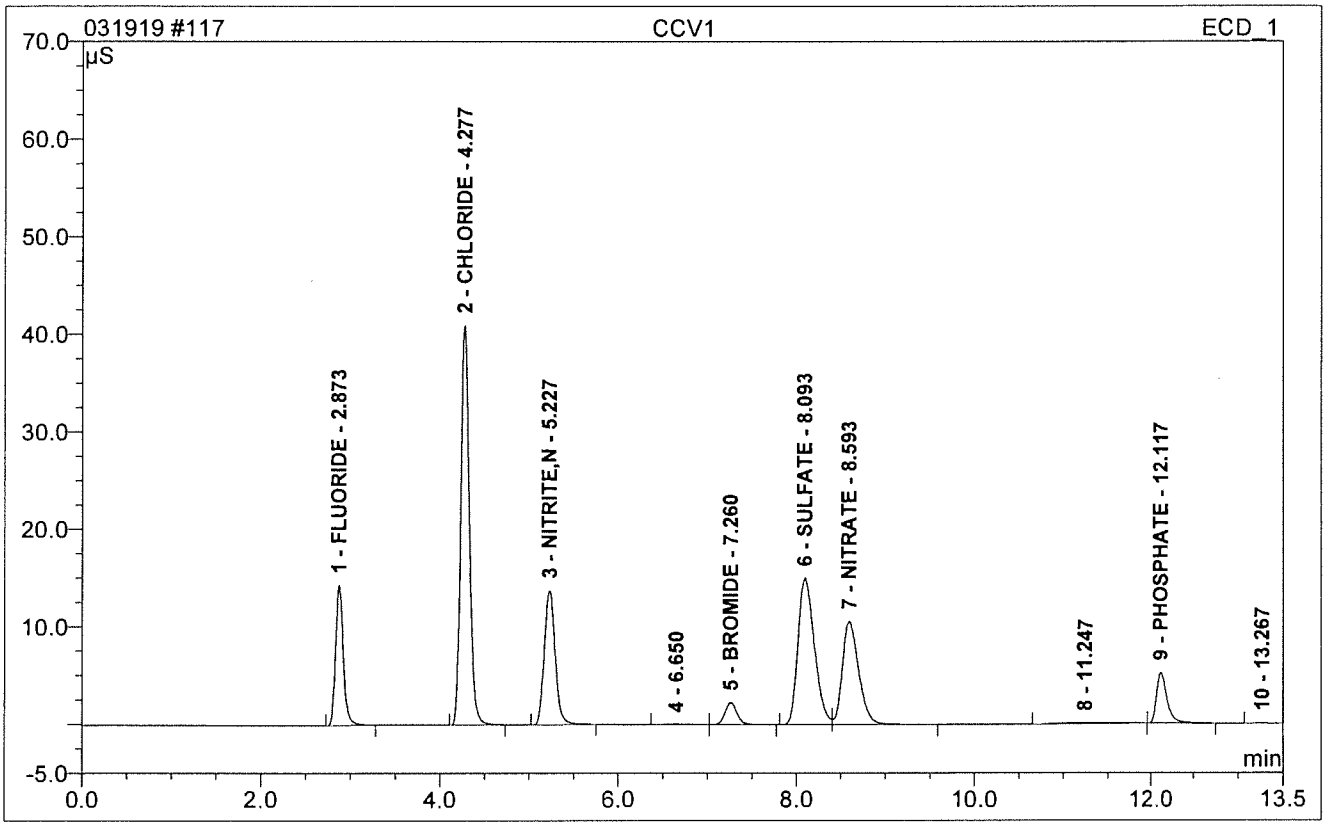
Sample Name:	**HS19031013-07MSDDF5**	*Injection Volume:*	**10.0**
Vial Number:	**29**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA**	*Bandwidth:*	**n.a.**
Quantif. Method:	**030519**	*Dilution Factor:*	**5.**
Recording Time:	**3/20/2019 21:38**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.87	FLUORIDE	2.867	0.268	0.73	9.556	5.
2	4.27	CHLORIDE	176.749	20.272	55.00	1122.655	5.
3	5.22	NITRITE,N	3.029	0.383	1.04	10.085	5.
5	7.24	BROMIDE	0.630	0.101	0.27	14.425	5.
6	7.91	SULFATE	52.822	15.081	40.92	1159.415	5.
7	8.65	NITRATE	2.120	0.456	1.24	10.499	5.
9	12.25	PHOSPHATE	0.254	0.072	0.20	5.250	5.
Total:			238.471	36.633	99.39	2331.885	

117 CCV1

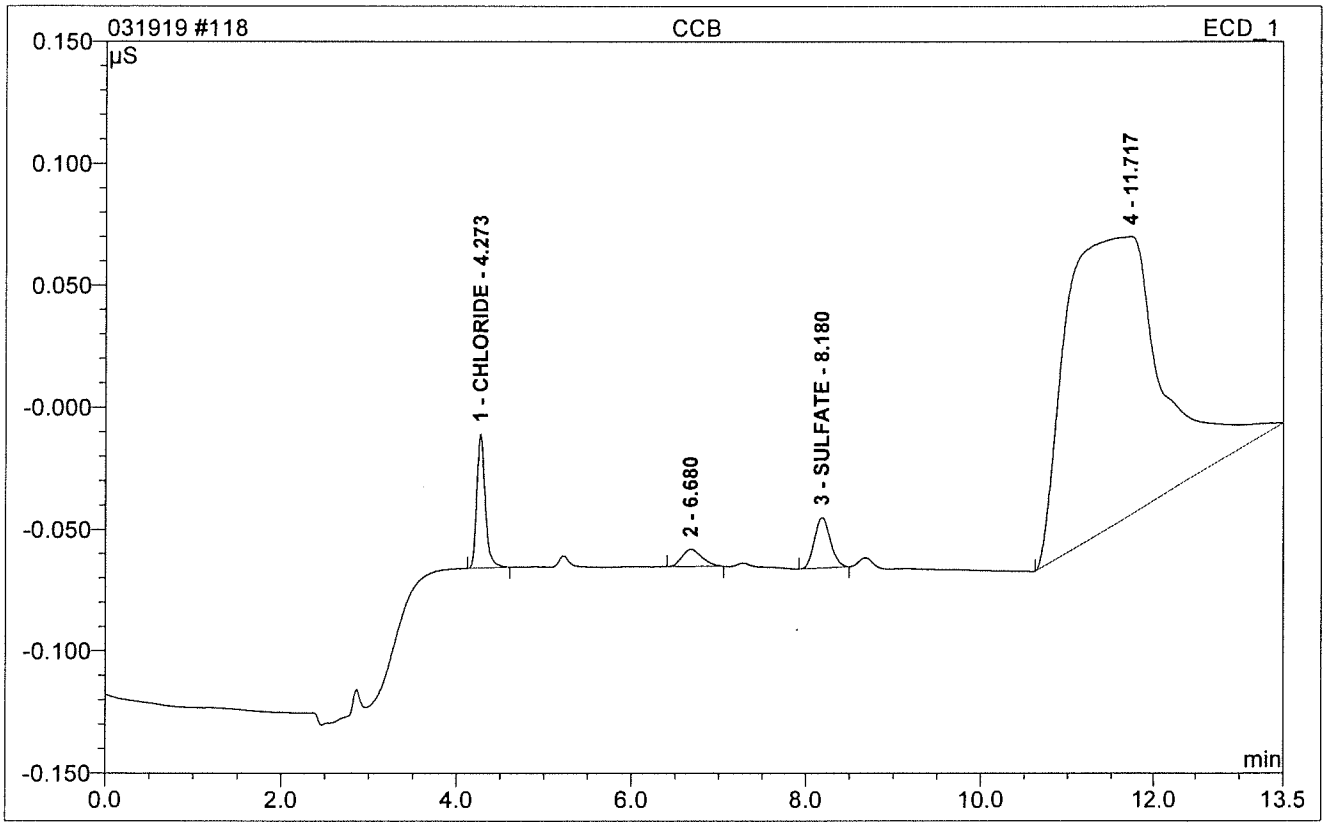
Sample Name:	**CCV1**	*Injection Volume:*	**10.0**
Vial Number:	**3**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA**	*Bandwidth:*	**n.a.**
Quantif. Method:	**030519**	*Dilution Factor:*	**1.**
Recording Time:	**3/20/2019 22:07**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.87	FLUORIDE	14.352	1.436	9.83	10.093	1.
2	4.28	CHLORIDE	40.941	4.534	31.03	50.344	1.
3	5.23	NITRITE,N	13.754	1.960	13.41	10.198	1.
5	7.26	BROMIDE	2.244	0.350	2.39	9.819	1.
6	8.09	SULFATE	14.993	3.230	22.11	49.845	1.
7	8.59	NITRATE	10.584	2.253	15.42	10.153	1.
9	12.12	PHOSPHATE	5.175	0.746	5.10	9.435	1.
Total:			102.043	14.509	99.29	149.887	

118 CCB

Sample Name:	**CCB**	*Injection Volume:*	**10.0**
Vial Number:	**4**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA**	*Bandwidth:*	**n.a.**
Quantif. Method:	**030519**	*Dilution Factor:*	**1.**
Recording Time:	**3/20/2019 22:22**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	4.27	CHLORIDE	0.055	0.006	3.71	0.230	1.
3	8.18	SULFATE	0.021	0.004	2.63	0.292	1.
Total:			0.076	0.011	6.34	0.522	

HS19031013

Sequence: 040219
Operator: ALSHS.NoUser

Printed: 4/11/2019 6:30:23 PM

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2019
Timebase: ICS2100
#Samples: 76

Created: 4/2/2019 2:16:42 PM by ALSHS.NoUser
Last Update: 4/11/2019 6:30:14 PM by ALSHS.NoUser

No.	Name	Comment	Type	Pos.	Dil. Factor	Method	Status
1	STD1	297.020.7208	Standard	91	1.0000	032119	Finished
2	STD2		Standard	92	1.0000	032119	Finished
3	STD3		Standard	93	1.0000	032119	Finished
4	STD4		Standard	94	1.0000	032119	Finished
5	STD5		Standard	95	1.0000	032119	Finished
6	STD6		Standard	96	1.0000	032119	Finished
7	ICV	297.020.6806	Unknown	97	1.0000	032119	Finished
8	ICB		Unknown	98	1.0000	032119	Finished
9	CCV		Unknown	1	1.0000	032119	Finished
10	CCB		Unknown	2	1.0000	032119	Finished
11	WBLKW-040219		Unknown	11	1.0000	032119	Finished
12	WLCSW-040219		Unknown	12	1.0000	032119	Finished
13	WLCSDW-040219		Unknown	13	1.0000	032119	Finished
14	HS19030042-01DF2		Unknown	14	2.0000	032119	Finished
15	HS19030042-01DF20		Unknown	15	20.0000	032119	Finished
16	HS19030046-01DF2		Unknown	16	2.0000	032119	Finished
17	HS19030046-01DF20		Unknown	17	20.0000	032119	Finished
18	HS19040040-01		Unknown	18	1.0000	032119	Finished
19	DI H2O		Unknown	10	1.0000	032119	Finished
20	DI H2O		Unknown	10	1.0000	032119	Finished
21	CCV1		Unknown	3	1.0000	032119	Finished
22	CCB		Unknown	4	1.0000	032119	Finished
23	HS19040115-01		Unknown	19	1.0000	032119	Finished
24	CCV1		Unknown	3	1.0000	032119	Finished
25	CCB		Unknown	4	1.0000	032119	Finished
26	HS19040105-01		Unknown	33	1.0000	032119	Finished
27	HS19031172-01DF500		Unknown	21	500.0000	032119	Finished
28	HS19031172-01MSDF500		Unknown	22	500.0000	032119	Finished
29	HS19031172-01MSDDF500		Unknown	23	500.0000	032119	Finished
30	HS19031172-02DF500		Unknown	24	500.0000	032119	Finished
31	HS19031172-03DF50		Unknown	25	50.0000	032119	Finished
32	HS19031172-04DF500		Unknown	26	500.0000	032119	Finished
33	HS19040063-01		Unknown	29	1.0000	032119	Finished
34	HS19040063-01MS		Unknown	30	1.0000	032119	Finished
35	HS19040063-01MSD		Unknown	31	1.0000	032119	Finished
36	CCV		Unknown	1	1.0000	032119	Finished
37	CCB		Unknown	2	1.0000	032119	Finished
38	DI H2O		Unknown	2	1.0000	032119	Finished
39	HS19040115-01		Unknown	19	1.0000	032119	Finished
40	HS19040065-01		Unknown	32	1.0000	032119	Finished
41	HS19031331-04DF20		Unknown	34	20.0000	032119	Finished
42	HS19031331-05DF10		Unknown	35	10.0000	032119	Finished

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Sequence: 040219
Operator: ALSHS.NoUser

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2019
Timebase: ICS2100
#Samples: 76

Created: 4/2/2019 2:16:42 PM by ALSHS.NoUser
Last Update: 4/11/2019 6:30:14 PM by ALSHS.NoUser

No.	Name	Inj. Date/Time	Program	Inj. Vol.	*Initial_Vol_Wt
1	STD1	3/21/2019 3:01:53 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
2	STD2	3/21/2019 3:16:31 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
3	STD3	3/21/2019 3:31:10 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
4	STD4	3/21/2019 3:45:48 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
5	STD5	3/21/2019 4:00:26 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
6	STD6	3/21/2019 4:15:05 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
7	ICV	3/21/2019 4:29:42 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
8	ICB	3/21/2019 5:07:46 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
9	CCV	4/2/2019 1:32:28 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
10	CCB	4/2/2019 1:47:12 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
11	WBLKW-040219	4/2/2019 2:01:57 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
12	WLCSW-040219	4/2/2019 2:22:52 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
13	WLCSDW-040219	4/2/2019 2:37:36 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
14	HS19030042-01DF2	4/2/2019 2:52:21 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
15	HS19030042-01DF20	4/2/2019 3:07:06 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
16	HS19030046-01DF2	4/2/2019 3:21:50 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
17	HS19030046-01DF20	4/2/2019 3:36:35 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
18	HS19040040-01	4/2/2019 3:51:19 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
19	DI H2O	4/2/2019 4:06:04 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
20	DI H2O	4/2/2019 4:20:49 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
21	CCV1	4/2/2019 4:35:33 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
22	CCB	4/2/2019 4:50:18 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
23	HS19040115-01	4/2/2019 5:05:02 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
24	CCV1	4/2/2019 5:39:48 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
25	CCB	4/2/2019 5:54:33 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
26	HS19040105-01	4/2/2019 6:09:17 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
27	HS19031172-01DF500	4/2/2019 6:24:02 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
28	HS19031172-01MSDF500	4/2/2019 6:38:47 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
29	HS19031172-01MSDDF500	4/2/2019 6:53:31 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
30	HS19031172-02DF500	4/2/2019 7:08:16 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
31	HS19031172-03DF50	4/2/2019 7:23:00 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
32	HS19031172-04DF500	4/2/2019 7:37:45 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
33	HS19040063-01	4/2/2019 7:52:30 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
34	HS19040063-01MS	4/2/2019 8:07:15 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
35	HS19040063-01MSD	4/2/2019 8:21:59 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
36	CCV	4/2/2019 8:36:44 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
37	CCB	4/2/2019 8:51:28 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
38	DI H2O	4/2/2019 9:06:13 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
39	HS19040115-01	4/2/2019 9:20:58 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
40	HS19040065-01	4/2/2019 9:35:43 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
41	HS19031331-04DF20	4/2/2019 9:50:27 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
42	HS19031331-05DF10	4/2/2019 10:05:12 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00

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Sequence: 040219
Operator: ALSHS.NoUser

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2019
Timebase: ICS2100
#Samples: 76

Created: 4/2/2019 2:16:42 PM by ALSHS.NoUser
Last Update: 4/11/2019 6:30:14 PM by ALSHS.NoUser

No.	Name	*Final_Volume	GUID	Auto Purif.Frac.	Auto Purif.Ref.
1	STD1	1.00	ab134b69-4c13-11e9-b6db-bd957e66751c		
2	STD2	1.00	16318633-4c16-11e9-b6db-bd957e66751c		
3	STD3	1.00	21bddd99-4c18-11e9-b6db-bd957e66751c		
4	STD4	1.00	2d5faa05-4c1a-11e9-b6db-bd957e66751c		
5	STD5	1.00	38e73cbf-4c1c-11e9-b6db-bd957e66751c		
6	STD6	1.00	442e7067-4c1e-11e9-b6db-bd957e66751c		
7	ICV	1.00	4fd763d5-4c20-11e9-b6db-bd957e66751c		
8	ICB	1.00	40d0abe3-4c25-11e9-b6db-bd957e66751c		
9	CCV	1.00	2a55883f-5575-11e9-b6db-bd957e66751c		
10	CCB	1.00	98cba9a3-5577-11e9-b6db-bd957e66751c		
11	WBLKW-040219	1.00	a80f4513-5579-11e9-b6db-bd957e66751c		
12	WLCSW-040219	1.00	3473fa2b-557c-11e9-b6db-bd957e66751c		
13	WLCSDW-040219	1.00	a323539f-557e-11e9-b6db-bd957e66751c		
14	HS19030042-01DF2	1.00	b272dabd-5580-11e9-b6db-bd957e66751c		
15	HS19030042-01DF20	1.00	c1cbeb33-5582-11e9-b6db-bd957e66751c		
16	HS19030046-01DF2	1.00	d10f86a3-5584-11e9-b6db-bd957e66751c		
17	HS19030046-01DF20	1.00	e05a4915-5586-11e9-b6db-bd957e66751c		
18	HS19040040-01	1.00	ef9de485-5588-11e9-b6db-bd957e66751c		
19	DI H2O	1.00	fef2304f-558a-11e9-b6db-bd957e66751c		
20	DI H2O	1.00	0e1b920d-558d-11e9-b6db-bd957e66751c		
21	CCV1	1.00	1d5a68d1-558f-11e9-b6db-bd957e66751c		
22	CCB	1.00	2c947ae9-5591-11e9-b6db-bd957e66751c		
23	HS19040115-01	1.00	3bdcdb05-5593-11e9-b6db-bd957e66751c		
24	CCV1	1.00	b7a44fa3-5597-11e9-b6db-bd957e66751c		
25	CCB	1.00	2653a917-559a-11e9-b6db-bd957e66751c		
26	HS19040105-01	1.00	35a33035-559c-11e9-b6db-bd957e66751c		
27	HS19031172-01DF500	1.00	44e4694f-559e-11e9-b6db-bd957e66751c		
28	HS19031172-01MSDF500	1.00	542804bf-55a0-11e9-b6db-bd957e66751c		
29	HS19031172-01MSDDF500	1.00	6379ee33-55a2-11e9-b6db-bd957e66751c		
30	HS19031172-02DF500	1.00	72b662a1-55a4-11e9-b6db-bd957e66751c		
31	HS19031172-03DF50	1.00	81f2d70f-55a6-11e9-b6db-bd957e66751c		
32	HS19031172-04DF500	1.00	914be785-55a8-11e9-b6db-bd957e66751c		
33	HS19040063-01	1.00	a07c7045-55aa-11e9-b6db-bd957e66751c		
34	HS19040063-01MS	1.00	afc9950d-55ac-11e9-b6db-bd957e66751c		
35	HS19040063-01MSD	1.00	bf715299-55ae-11e9-b6db-bd957e66751c		
36	CCV	1.00	ce68a349-55b0-11e9-b6db-bd957e66751c		
37	CCB	1.00	ddb10365-55b2-11e9-b6db-bd957e66751c		
38	DI H2O	1.00	ed054f2f-55b4-11e9-b6db-bd957e66751c		
39	HS19040115-01	1.00	fc48ea9f-55b6-11e9-b6db-bd957e66751c		
40	HS19040065-01	1.00	0be71ed3-55b9-11e9-b6db-bd957e66751c		
41	HS19031331-04DF20	1.00	1b108091-55bb-11e9-b6db-bd957e66751c		
42	HS19031331-05DF10	1.00	2a699107-55bd-11e9-b6db-bd957e66751c		

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Sequence: 040219
Operator: ALSHS.NoUser

Printed: 4/11/2019 6:30:23 PM

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2019
Timebase: ICS2100
#Samples: 76

Created: 4/2/2019 2:16:42 PM by ALSHS.NoUser
Last Update: 4/11/2019 6:30:14 PM by ALSHS.NoUser

No.	Name	Comment	Type	Pos.	Dil. Factor	Method	Status
43	HS19031331-05DF100		Unknown	36	100.0000	032119	Finished
44	HS19031331-06DF100		Unknown	37	100.0000	032119	Finished
45	HS19031331-07DF100		Unknown	38	100.0000	032119	Finished
46	HS19031331-08DF100		Unknown	39	100.0000	032119	Finished
47	CCV1		Unknown	3	1.0000	032119	Finished
48	CCB		Unknown	4	1.0000	032119	Finished
49	HS19031549-01DF10		Unknown	27	10.0000	032119	Finished
50	HS19031550-01DF10		Unknown	28	10.0000	032119	Finished
51	DI H2O		Unknown	10	1.0000	032119	Finished
52	DI H2O		Unknown	10	1.0000	032119	Finished
53	CCV		Unknown	1	1.0000	032119	Finished
54	CCB		Unknown	2	1.0000	032119	Finished
55	WBLKW2-040219		Unknown	42	1.0000	032119	Finished
56	WLCSW2-040219		Unknown	43	1.0000	032119	Finished
57	WLCSDW2-040219		Unknown	44	1.0000	032119	Finished
58	HS19031013-01DF50		Unknown	45	50.0000	032119	Finished
59	HS19031013-02DF5		Unknown	46	5.0000	032119	Finished
60	HS19031013-03DF50		Unknown	47	50.0000	032119	Finished
61	HS19031013-04DF50		Unknown	48	50.0000	032119	Finished
62	HS19031013-05DF50		Unknown	49	50.0000	032119	Finished
63	HS19031013-06DF50		Unknown	50	50.0000	032119	Finished
64	HS19031189-01DF10		Unknown	54	10.0000	032119	Finished
65	CCV1		Unknown	3	1.0000	032119	Finished
66	CCB		Unknown	4	1.0000	032119	Finished
67	HS19031013-07DF50		Unknown	51	50.0000	032119	Finished
68	HS19031013-07MSDF50		Unknown	52	50.0000	032119	Finished
69	HS19031013-07MSDDF50		Unknown	53	50.0000	032119	Finished
70	HS19031032-01		Unknown	57	1.0000	032119	Finished
71	HS19031032-01DF10		Unknown	58	10.0000	032119	Finished
72	DI H2O		Unknown	10	1.0000	032119	Finished
73	HS19031508-01DF10		Unknown	55	10.0000	032119	Finished
74	HS19031511-01DF10		Unknown	56	10.0000	032119	Finished
75	CCV		Unknown	1	1.0000	032119	Finished
76	CCB		Unknown	2	1.0000	032119	Finished

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Sequence: 040219
Operator: ALSHS.NoUser

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2019
Timebase: ICS2100
#Samples: 76

Created: 4/2/2019 2:16:42 PM by ALSHS.NoUser
Last Update: 4/11/2019 6:30:14 PM by ALSHS.NoUser

No.	Name	Inj. Date/Time	Program	Inj. Vol.	*Initial_Vol_Wt
43	HS19031331-05DF100	4/2/2019 10:19:57 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
44	HS19031331-06DF100	4/2/2019 10:34:42 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
45	HS19031331-07DF100	4/2/2019 10:49:26 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
46	HS19031331-08DF100	4/2/2019 11:04:11 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
47	CCV1	4/2/2019 11:18:55 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
48	CCB	4/2/2019 11:33:40 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
49	HS19031549-01DF10	4/2/2019 11:48:24 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
50	HS19031550-01DF10	4/3/2019 12:03:09 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
51	DI H2O	4/3/2019 12:17:54 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
52	DI H2O	4/3/2019 12:32:38 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
53	CCV	4/3/2019 12:47:23 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
54	CCB	4/3/2019 1:02:08 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
55	WBLKW2-040219	4/3/2019 1:16:52 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
56	WLCSW2-040219	4/3/2019 1:31:37 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
57	WLCSDW2-040219	4/3/2019 1:46:21 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
58	HS19031013-01DF50	4/3/2019 2:01:06 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
59	HS19031013-02DF5	4/3/2019 2:15:51 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
60	HS19031013-03DF50	4/3/2019 2:30:35 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
61	HS19031013-04DF50	4/3/2019 2:45:20 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
62	HS19031013-05DF50	4/3/2019 3:00:05 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
63	HS19031013-06DF50	4/3/2019 3:14:49 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
64	HS19031189-01DF10	4/3/2019 3:29:34 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
65	CCV1	4/3/2019 3:44:19 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
66	CCB	4/3/2019 3:59:03 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
67	HS19031013-07DF50	4/3/2019 4:13:48 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
68	HS19031013-07MSDF50	4/3/2019 4:28:32 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
69	HS19031013-07MSDDF50	4/3/2019 4:43:17 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
70	HS19031032-01	4/3/2019 4:58:03 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
71	HS19031032-01DF10	4/3/2019 5:12:47 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
72	DI H2O	4/3/2019 5:27:32 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
73	HS19031508-01DF10	4/3/2019 5:42:17 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
74	HS19031511-01DF10	4/3/2019 5:57:01 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
75	CCV	4/3/2019 6:11:46 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
76	CCB	4/3/2019 6:26:31 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00

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Sequence: 040219
Operator: ALSHS.NoUser

Printed: 4/11/2019 6:30:23 PM

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2019
Timebase: ICS2100
#Samples: 76

Created: 4/2/2019 2:16:42 PM by ALSHS.NoUser
Last Update: 4/11/2019 6:30:14 PM by ALSHS.NoUser

No.	Name	*Final_Volume	GUID	Auto Purif.Frac.	Auto Purif.Ref.
43	HS19031331-05DF100	1.00	39e8c6dd-55bf-11e9-b6db-bd957e66751c		
44	HS19031331-06DF100	1.00	493126f9-55c1-11e9-b6db-bd957e66751c		
45	HS19031331-07DF100	1.00	5874c269-55c3-11e9-b6db-bd957e66751c		
46	HS19031331-08DF100	1.00	67b85dd9-55c5-11e9-b6db-bd957e66751c		
47	CCV1	1.00	76f4d247-55c7-11e9-b6db-bd957e66751c		
48	CCB	1.00	86360b61-55c9-11e9-b6db-bd957e66751c		
49	HS19031549-01DF10	1.00	957c0927-55cb-11e9-b6db-bd957e66751c		
50	HS19031550-01DF10	1.00	a4bd4241-55cd-11e9-b6db-bd957e66751c		
51	DI H2O	1.00	b40cc95f-55cf-11e9-b6db-bd957e66751c		
52	DI H2O	1.00	c3493dcd-55d1-11e9-b6db-bd957e66751c		
53	CCV	1.00	d2919de9-55d3-11e9-b6db-bd957e66751c		
54	CCB	1.00	e1d79baf-55d5-11e9-b6db-bd957e66751c		
55	WBLKW2-040219	1.00	f118d4c9-55d7-11e9-b6db-bd957e66751c		
56	WLCSW2-040219	1.00	006abe3d-55da-11e9-b6db-bd957e66751c		
57	WLCSDW2-040219	1.00	0fa732ab-55dc-11e9-b6db-bd957e66751c		
58	HS19031013-01DF50	1.00	1eeace1b-55de-11e9-b6db-bd957e66751c		
59	HS19031013-02DF5	1.00	2e3f19e5-55e0-11e9-b6db-bd957e66751c		
60	HS19031013-03DF50	1.00	3d82b555-55e2-11e9-b6db-bd957e66751c		
61	HS19031013-04DF50	1.00	4ccb1571-55e4-11e9-b6db-bd957e66751c		
62	HS19031013-05DF50	1.00	5c1cfee5-55e6-11e9-b6db-bd957e66751c		
63	HS19031013-06DF50	1.00	6b655f01-55e8-11e9-b6db-bd957e66751c		
64	HS19031189-01DF10	1.00	7aadbf1d-55ea-11e9-b6db-bd957e66751c		
65	CCV1	1.00	89f3bce3-55ec-11e9-b6db-bd957e66751c		
66	CCB	1.00	993c1cff-55ee-11e9-b6db-bd957e66751c		
67	HS19031013-07DF50	1.00	a873ccc1-55f0-11e9-b6db-bd957e66751c		
68	HS19031013-07MSDF50	1.00	b7b76831-55f2-11e9-b6db-bd957e66751c		
69	HS19031013-07MSDDF50	1.00	c6fb03a1-55f4-11e9-b6db-bd957e66751c		
70	HS19031032-01	1.00	d6a3ac90-55f6-11e9-b6db-bd957e66751c		
71	HS19031032-01DF10	1.00	e6496834-55f8-11e9-b6db-bd957e66751c		
72	DI H2O	1.00	f58d6ab5-55fa-11e9-b6db-bd957e66751c		
73	HS19031508-01DF10	1.00	04d5cad1-55fd-11e9-b6db-bd957e66751c		
74	HS19031511-01DF10	1.00	141e2aed-55ff-11e9-b6db-bd957e66751c		
75	CCV	1.00	23668b09-5601-11e9-b6db-bd957e66751c		
76	CCB	1.00	32aa2679-5603-11e9-b6db-bd957e66751c		

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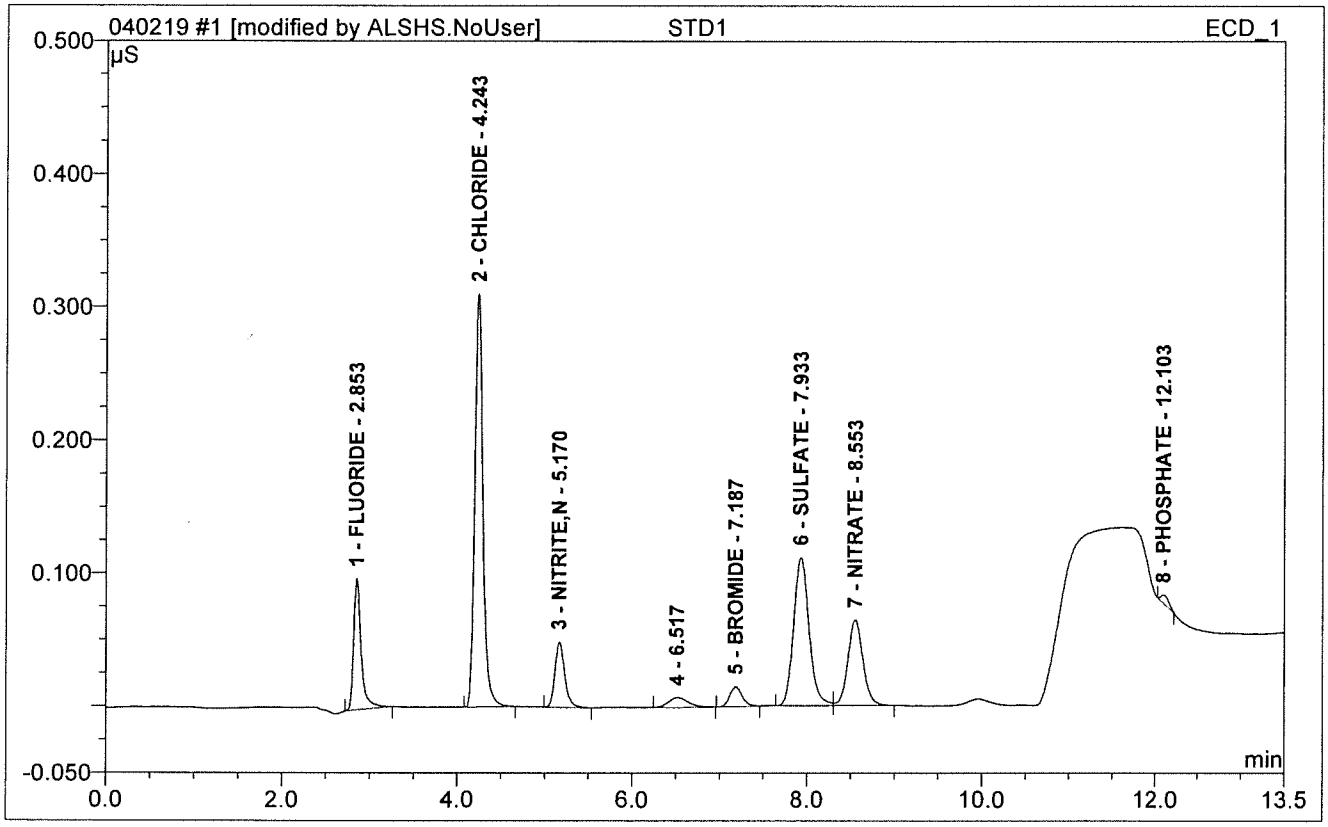
1 STD1

297.020.7208

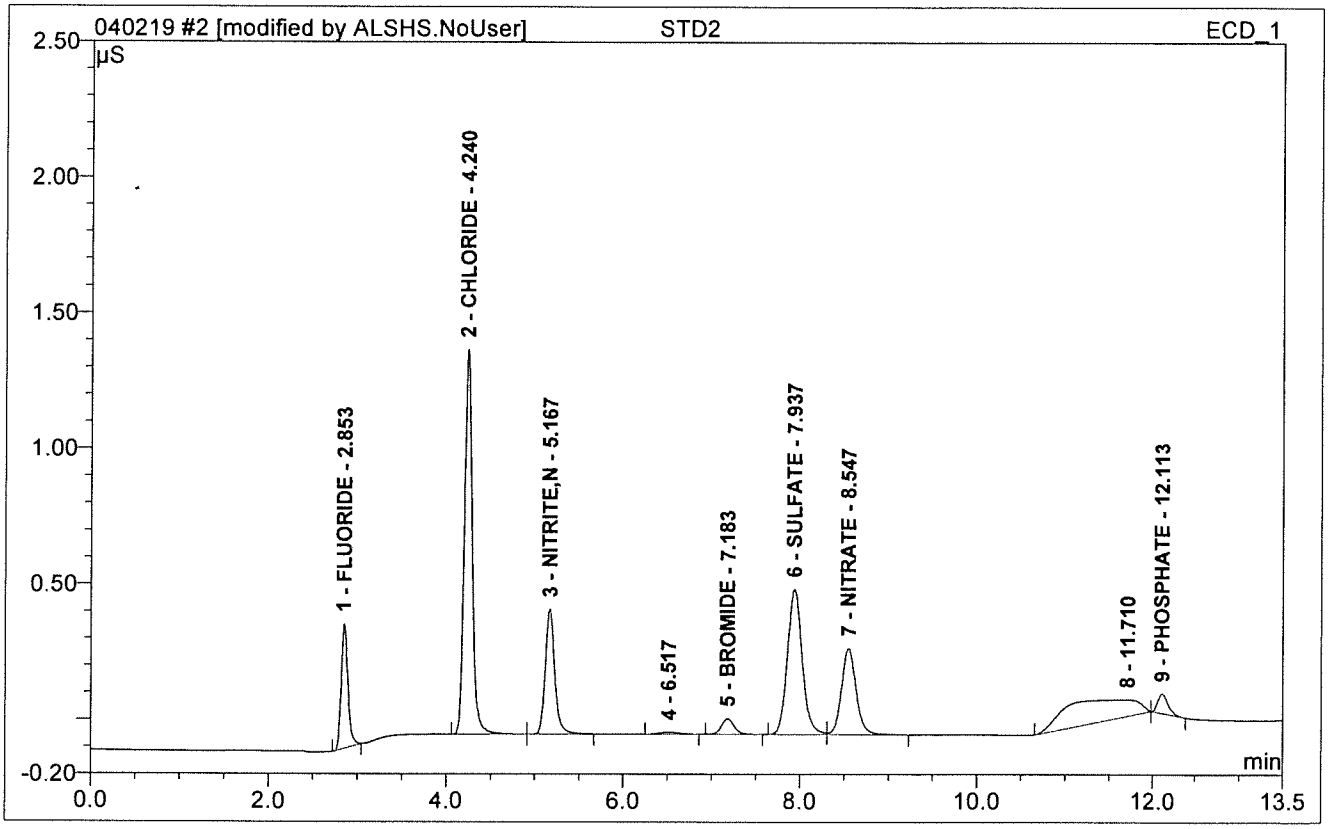
Sample Name:	**STD1**	*Injection Volume:*	**10.0**
Vial Number:	**91**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**032119**	*Dilution Factor:*	**1.**
Recording Time:	**3/21/2019 15:01**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.85	FLUORIDE	0.099	0.010	10.95	0.113	1.
2	4.24	CHLORIDE	0.311	0.033	36.81	0.575	1.
3	5.17	NITRITE,N	0.049	0.006	7.07	0.103	1.
5	7.19	BROMIDE	0.015	0.002	2.71	0.132	1.
6	7.93	SULFATE	0.112	0.023	25.31	0.552	1.
7	8.55	NITRATE	0.065	0.013	14.26	0.127	1.
8	12.10	PHOSPHATE	0.006	0.001	0.79	0.163	1.
Total:			0.656	0.088	97.90	1.763	

2 STD2

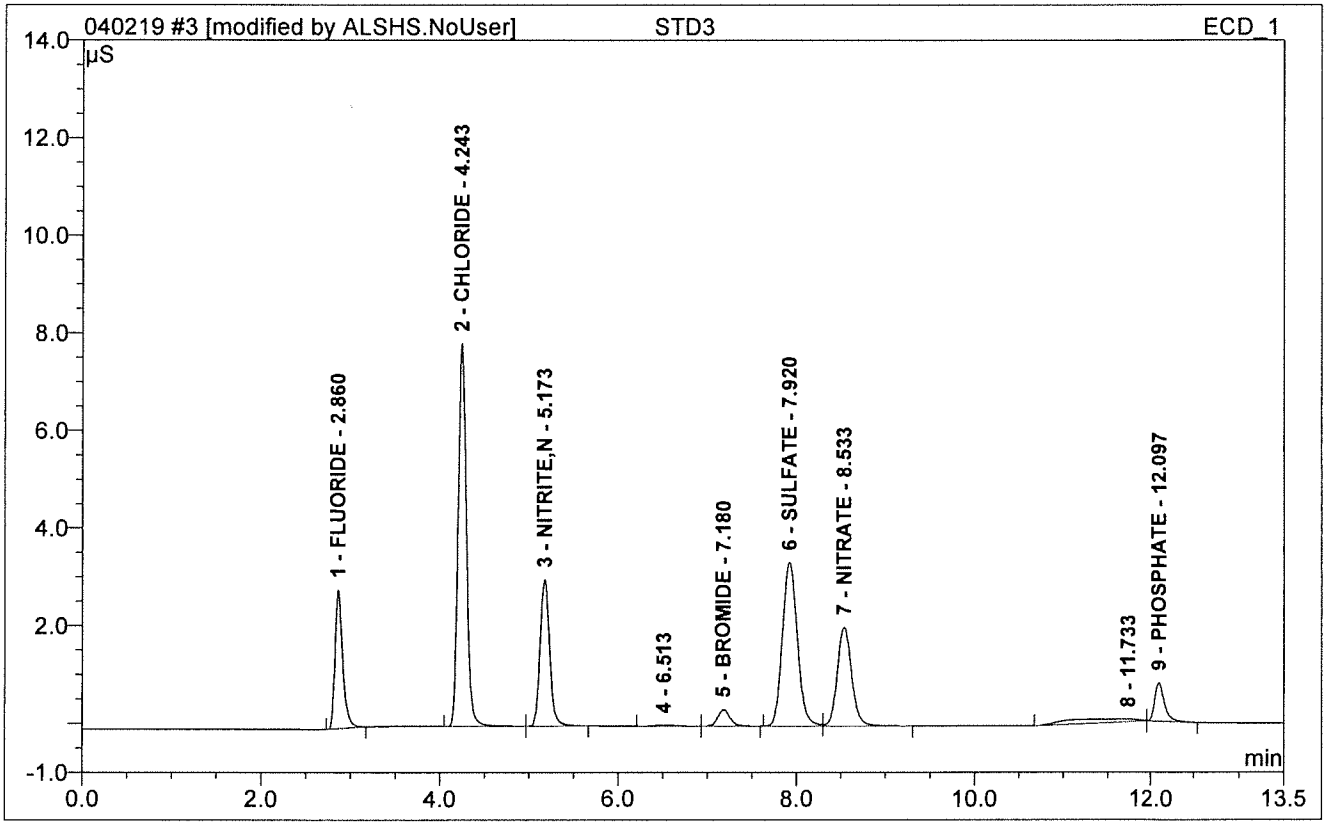
Sample Name:	**STD2**	*Injection Volume:*	**10.0**
Vial Number:	**92**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**032119**	*Dilution Factor:*	**1.**
Recording Time:	**3/21/2019 15:16**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.85	FLUORIDE	0.460	0.040	7.80	0.326	1.
2	4.24	CHLORIDE	1.419	0.146	28.82	1.817	1.
3	5.17	NITRITE,N	0.462	0.057	11.26	0.364	1.
5	7.18	BROMIDE	0.058	0.009	1.85	0.342	1.
6	7.94	SULFATE	0.538	0.105	20.58	1.797	1.
7	8.55	NITRATE	0.319	0.061	12.03	0.343	1.
9	12.11	PHOSPHATE	0.073	0.010	2.00	0.282	1.
Total:			3.328	0.429	84.34	5.270	

3 STD3

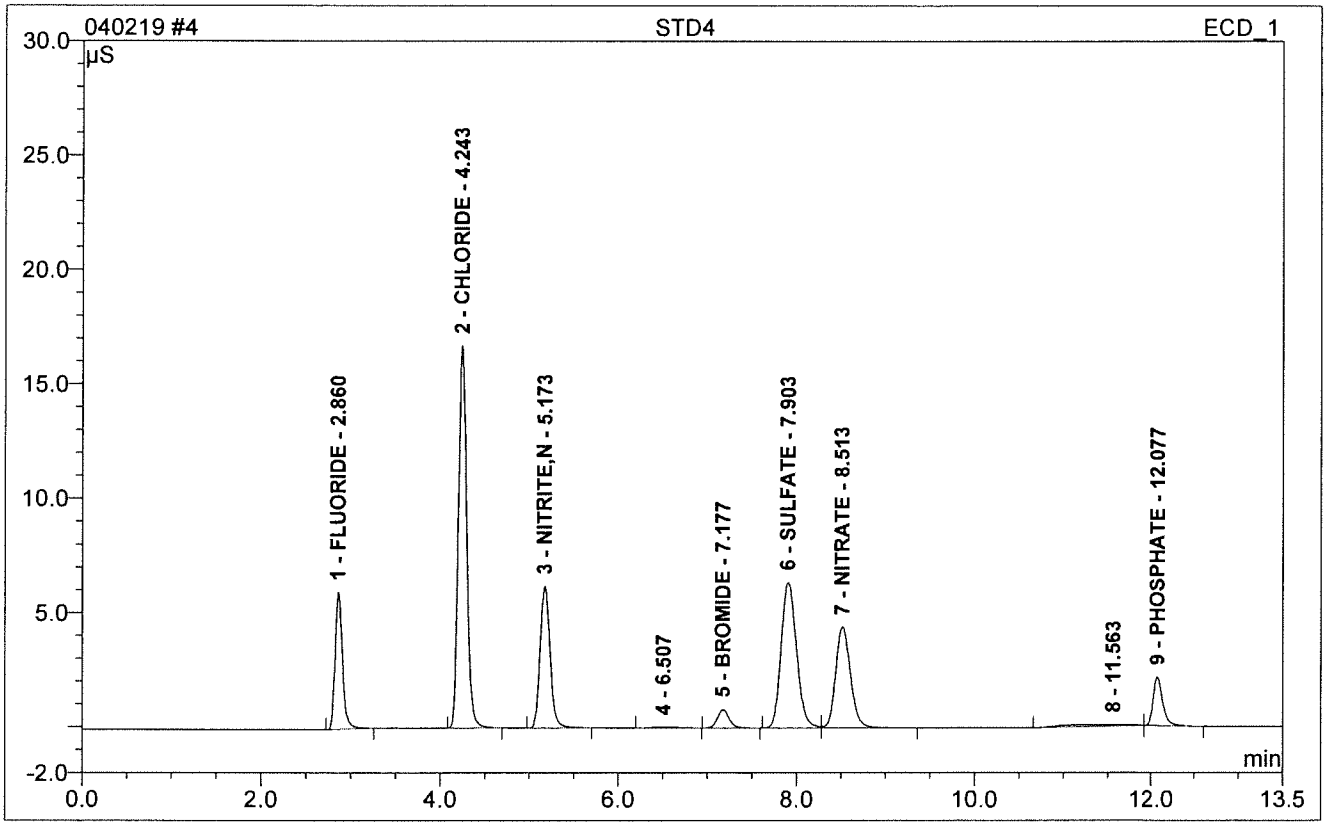
Sample Name:	**STD3**	*Injection Volume:*	**10.0**
Vial Number:	**93**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**032119**	*Dilution Factor:*	**1.**
Recording Time:	**3/21/2019 15:31**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.86	FLUORIDE	2.842	0.282	10.26	2.066	1.
2	4.24	CHLORIDE	7.837	0.836	30.35	9.380	1.
3	5.17	NITRITE,N	2.998	0.373	13.55	1.987	1.
5	7.18	BROMIDE	0.334	0.053	1.92	1.650	1.
6	7.92	SULFATE	3.346	0.654	23.76	10.172	1.
7	8.53	NITRATE	2.022	0.379	13.76	1.765	1.
9	12.10	PHOSPHATE	0.784	0.103	3.76	1.454	1.
Total:			20.164	2.681	97.36	28.476	

4 STD4

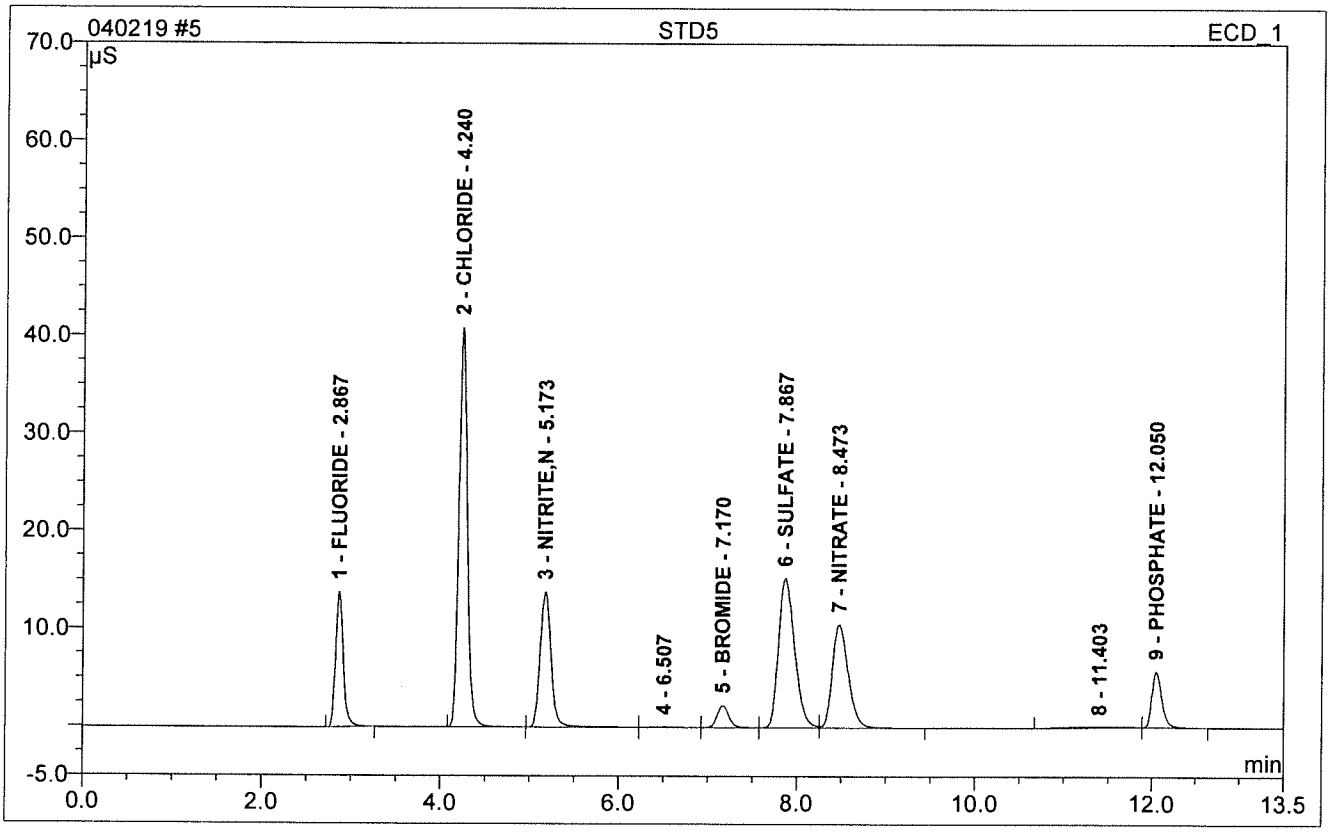
Sample Name:	**STD4**	*Injection Volume:*	**10.0**
Vial Number:	**94**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**032119**	*Dilution Factor:*	**1.**
Recording Time:	**3/21/2019 15:45**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.86	FLUORIDE	6.004	0.570	9.81	4.124	1.
2	4.24	CHLORIDE	16.707	1.806	31.12	20.029	1.
3	5.17	NITRITE,N	6.216	0.811	13.98	4.239	1.
5	7.18	BROMIDE	0.805	0.123	2.13	3.779	1.
6	7.90	SULFATE	6.393	1.281	22.07	19.726	1.
7	8.51	NITRATE	4.433	0.859	14.80	3.914	1.
9	12.08	PHOSPHATE	2.112	0.274	4.73	3.603	1.
Total:			42.669	5.725	98.64	59.415	

5 STD5

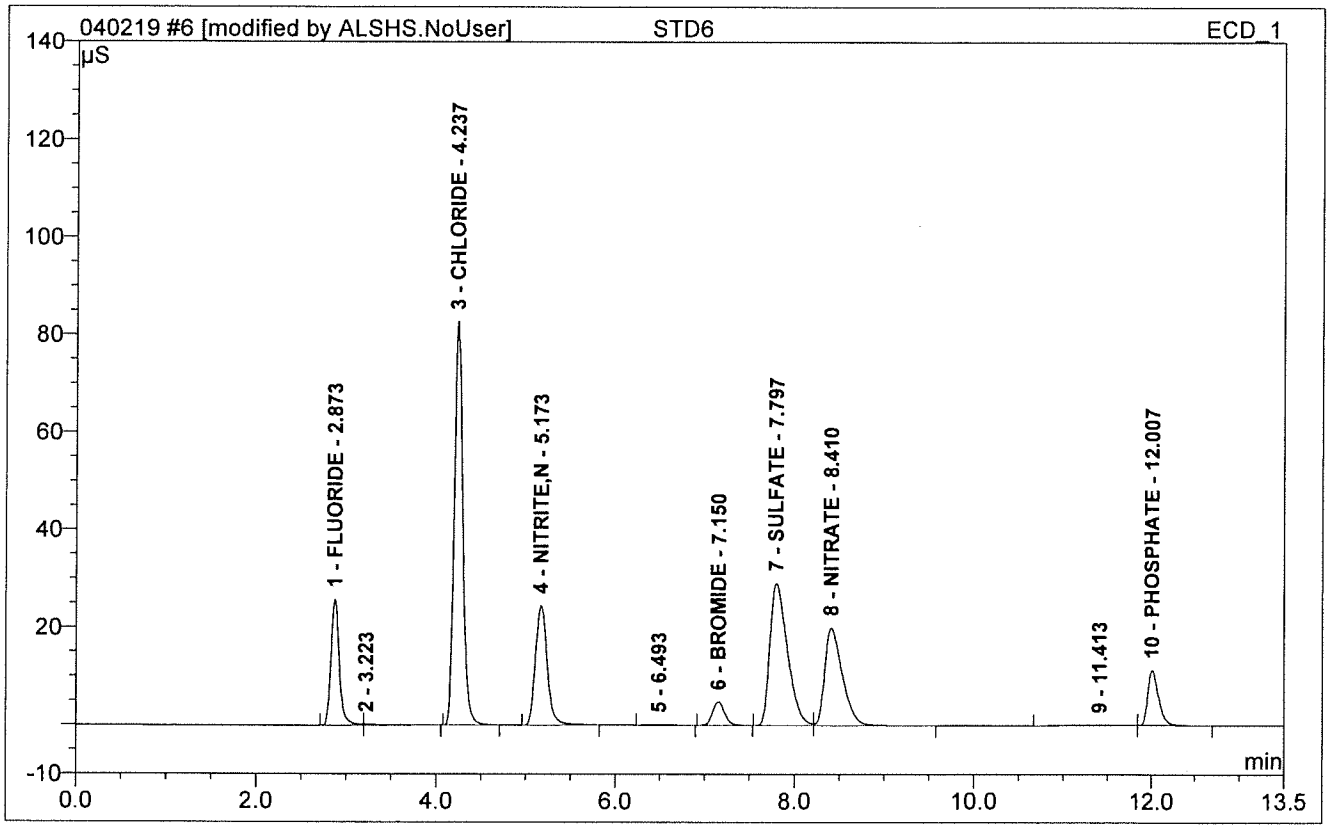
Sample Name:	**STD5**	*Injection Volume:*	**10.0**
Vial Number:	**95**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**032119**	*Dilution Factor:*	**1.**
Recording Time:	**3/21/2019 16:00**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.87	FLUORIDE	13.878	1.390	9.60	10.006	1.
2	4.24	CHLORIDE	40.904	4.496	31.04	49.541	1.
3	5.17	NITRITE,N	13.858	1.984	13.70	10.264	1.
5	7.17	BROMIDE	2.267	0.349	2.41	10.597	1.
6	7.87	SULFATE	15.306	3.219	22.22	49.250	1.
7	8.47	NITRATE	10.619	2.196	15.16	9.898	1.
9	12.05	PHOSPHATE	5.690	0.772	5.33	9.855	1.
Total:			102.521	14.406	99.46	149.412	

6 STD6

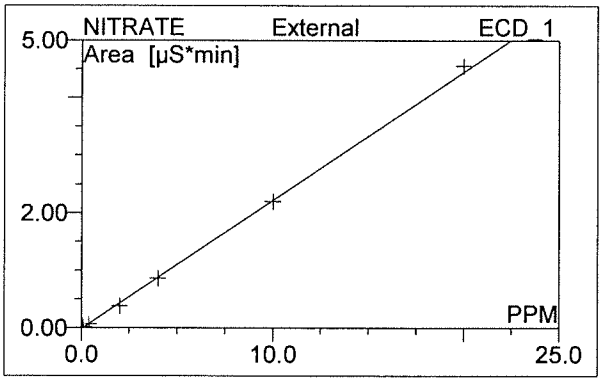
Sample Name:	**STD6**	*Injection Volume:*	**10.0**
Vial Number:	**96**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**032119**	*Dilution Factor:*	**1.**
Recording Time:	**3/21/2019 16:15**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**

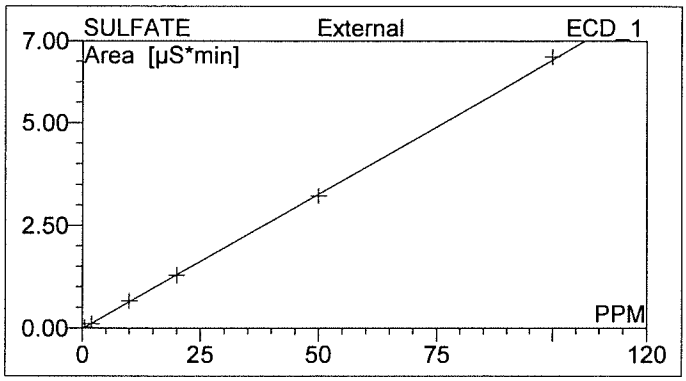


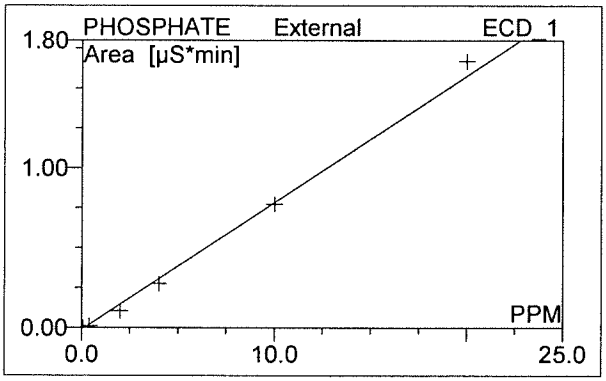
No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.87	FLUORIDE	25.835	2.766	9.39	19.866	1.
3	4.24	CHLORIDE	82.765	9.200	31.22	101.157	1.
4	5.17	NITRITE,N	24.564	3.789	12.86	19.542	1.
6	7.15	BROMIDE	4.859	0.754	2.56	22.792	1.
7	7.80	SULFATE	29.202	6.615	22.45	101.003	1.
8	8.41	NITRATE	20.094	4.555	15.46	20.453	1.
10	12.01	PHOSPHATE	11.290	1.669	5.67	21.143	1.
Total:			198.610	29.348	99.61	305.956	

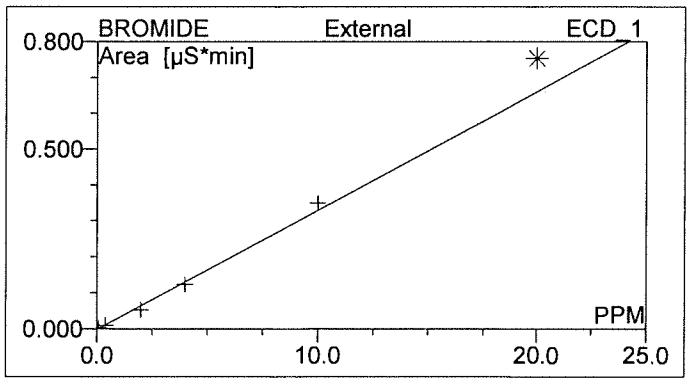
6 STD6

Sample Name:	**STD6**	*Injection Volume:*	**10.0**
Vial Number:	**96**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**032119**	*Dilution Factor:*	**1.**
Recording Time:	**3/21/2019 16:15**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**









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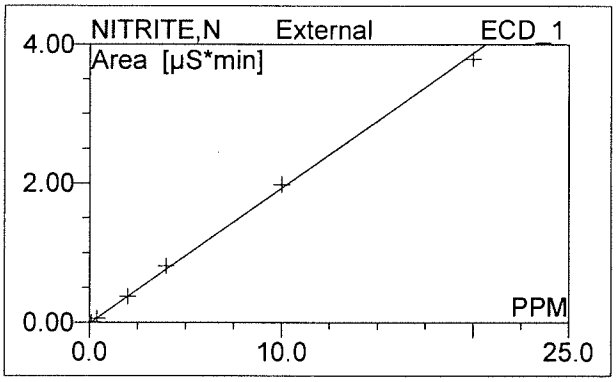
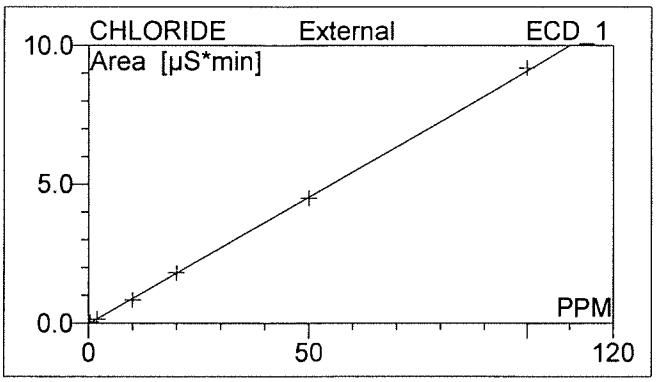
No.	Ret.Time min	Peak Name	Cal.Type	Points	Coeff.Det. %	Offset	Slope	Curve
1	2.87	FLUORIDE	XLOff	6	99.934	-0.0058	0.1395	0.000
3	4.24	CHLORIDE	XLOff	6	99.950	-0.0191	0.0911	0.000
4	5.17	NITRITE,N	XLOff	6	99.896	-0.0137	0.1946	0.000
6	7.15	BROMIDE	XLOff	5	99.137	-0.0019	0.0331	0.000
7	7.80	SULFATE	XLOff	6	99.968	-0.0133	0.0656	0.000
8	8.41	NITRATE	XLOff	6	99.834	-0.0155	0.2235	0.000
10	12.01	PHOSPHATE	XLOff	6	99.034	-0.0122	0.0795	0.000
Average:					99.6790	-0.0117	0.1182	0.0000

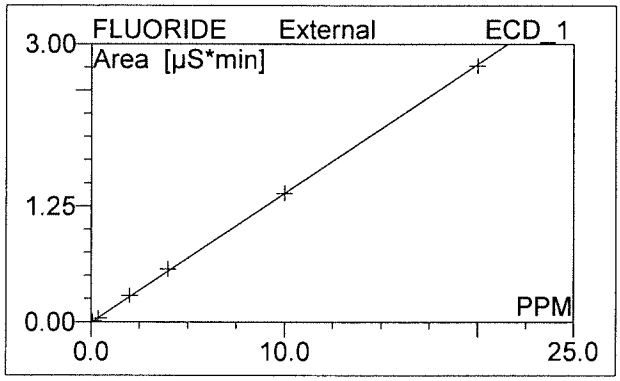
No.	Ret.Time min	Peak Name	Cal.Type	Points	Corr.Coeff. %	RF-Value	Std.Dev.	RSD %
1	2.87	FLUORIDE	XLOff	6	99.967	7.166	0.007	12.315
3	4.24	CHLORIDE	XLOff	6	99.975	10.973	0.020	10.687
4	5.17	NITRITE,N	XLOff	6	99.948	5.139	0.012	16.620
6	7.15	BROMIDE	XLOff	5	99.567	30.167	0.004	39.803
7	7.80	SULFATE	XLOff	6	99.984	15.239	0.011	8.539
8	8.41	NITRATE	XLOff	6	99.917	4.475	0.018	20.936
10	12.01	PHOSPHATE	XLOff	6	99.516	12.573	0.015	65.326
Average:					99.8392	12.2473	0.0125	24.8896

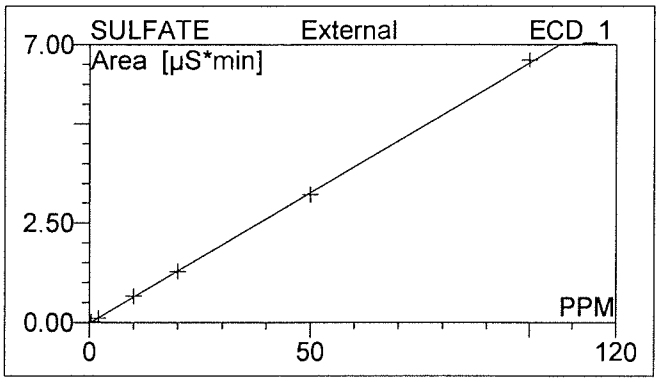
6 STD6

Sample Name:	**STD6**	*Injection Volume:*	**10.0**
Vial Number:	**96**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**032119**	*Dilution Factor:*	**1.000**
Recording Time:	**3/21/2019 16:15**	*Sample Weight/Volume:*	**1.000**
Run Time (min):	**13.50**	*Final Volume:*	**1.000**









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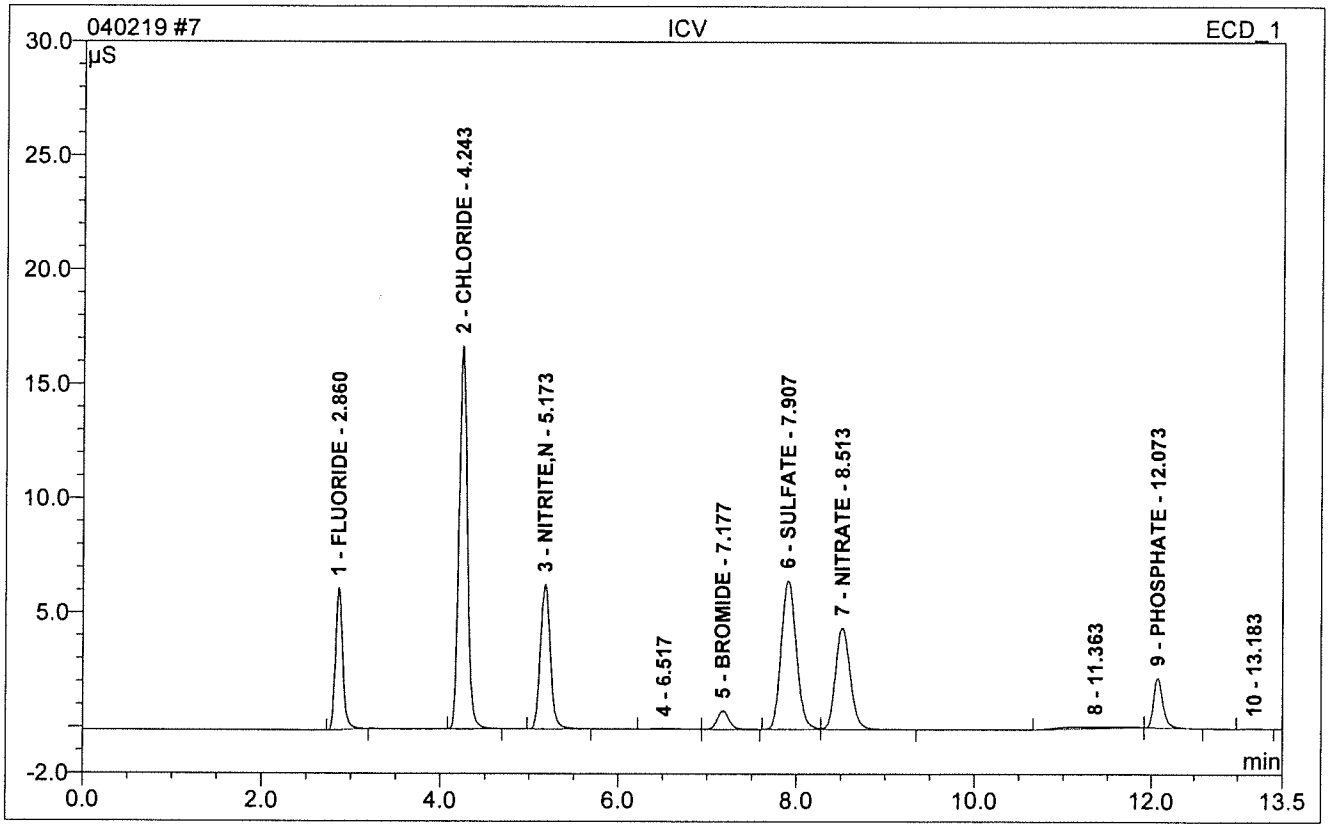
No.	Ret.Time min	Peak Name	Cal.Type	Points	Coeff.Det. %	Offset	Slope	Curve
1	2.87	FLUORIDE	XLOff	6	99.9340	-0.0058	0.1395	0.000
3	4.24	CHLORIDE	XLOff	6	99.9503	-0.0191	0.0911	0.000
4	5.17	NITRITE,N	XLOff	6	99.8962	-0.0137	0.1946	0.000
6	7.15	BROMIDE	XLOff	5	99.1367	-0.0019	0.0331	0.000
7	7.80	SULFATE	XLOff	6	99.9681	-0.0133	0.0656	0.000
8	8.41	NITRATE	XLOff	6	99.8344	-0.0155	0.2235	0.000
10	12.01	PHOSPHATE	XLOff	6	99.0335	-0.0122	0.0795	0.000
Average:					99.6790	-0.0117	0.1182	0.000

No.	Ret.Time min	Peak Name	Cal.Type	Points	Corr.Coeff. %	RF-Value	Std.Dev.	RSD %
1	2.87	FLUORIDE	XLOff	6	99.967	7.166	0.007	12.315
3	4.24	CHLORIDE	XLOff	6	99.975	10.973	0.020	10.687
4	5.17	NITRITE,N	XLOff	6	99.948	5.139	0.012	16.620
6	7.15	BROMIDE	XLOff	5	99.567	30.167	0.004	39.803
7	7.80	SULFATE	XLOff	6	99.984	15.239	0.011	8.539
8	8.41	NITRATE	XLOff	6	99.917	4.475	0.018	20.936
10	12.01	PHOSPHATE	XLOff	6	99.516	12.573	0.015	65.326
Average:					99.8392	12.247	0.013	24.890

7 ICV

297.020.6806

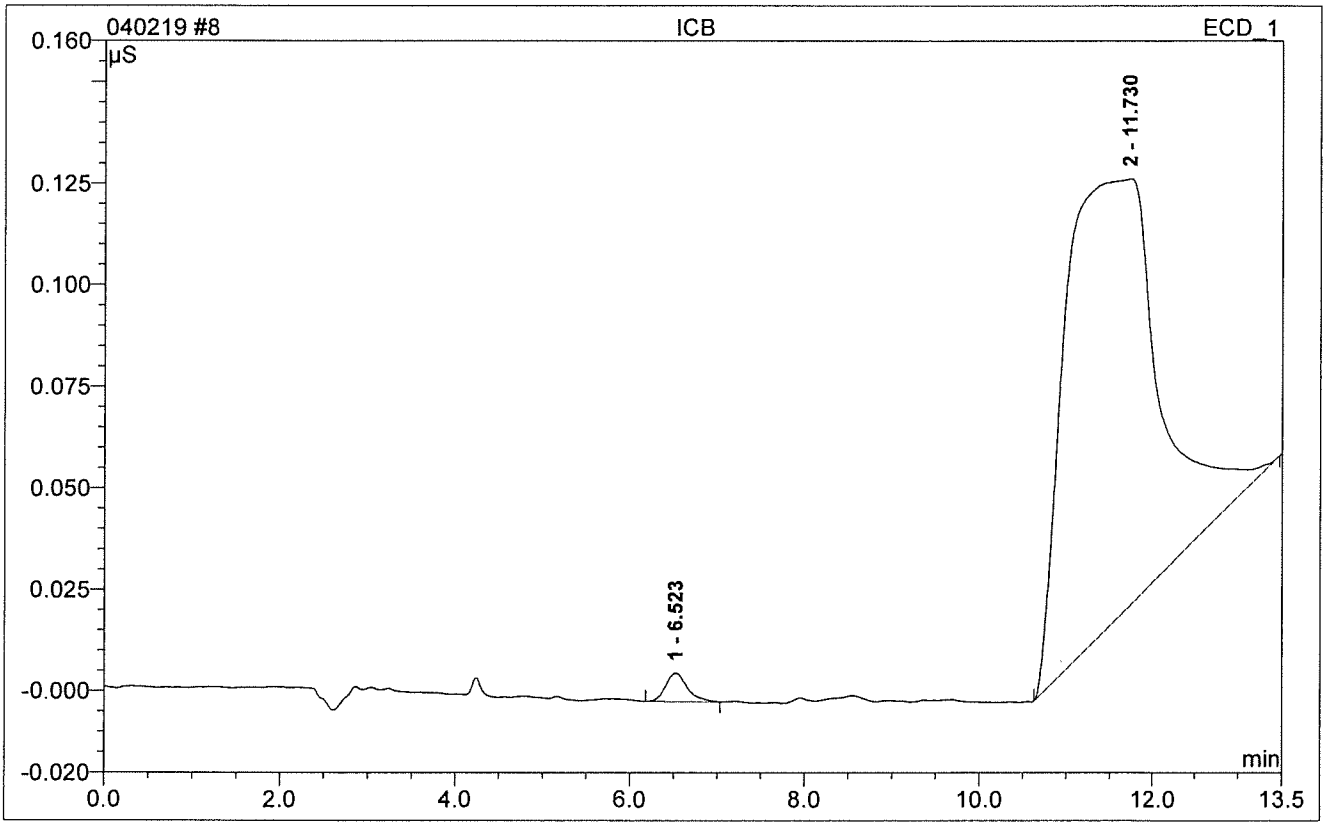
Sample Name:	**ICV**	*Injection Volume:*	**10.0**
Vial Number:	**97**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**032119**	*Dilution Factor:*	**1.**
Recording Time:	**3/21/2019 16:29**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.86	FLUORIDE	6.193	0.582	9.95	4.212	1.
2	4.24	CHLORIDE	16.737	1.810	30.94	20.070	1.
3	5.17	NITRITE,N	6.300	0.821	14.03	4.288	1.
5	7.18	BROMIDE	0.816	0.126	2.15	3.850	1.
6	7.91	SULFATE	6.500	1.295	22.13	19.930	1.
7	8.51	NITRATE	4.441	0.858	14.67	3.909	1.
9	12.07	PHOSPHATE	2.166	0.279	4.77	3.663	1.
Total:			43.153	5.770	98.63	59.923	

8 ICB

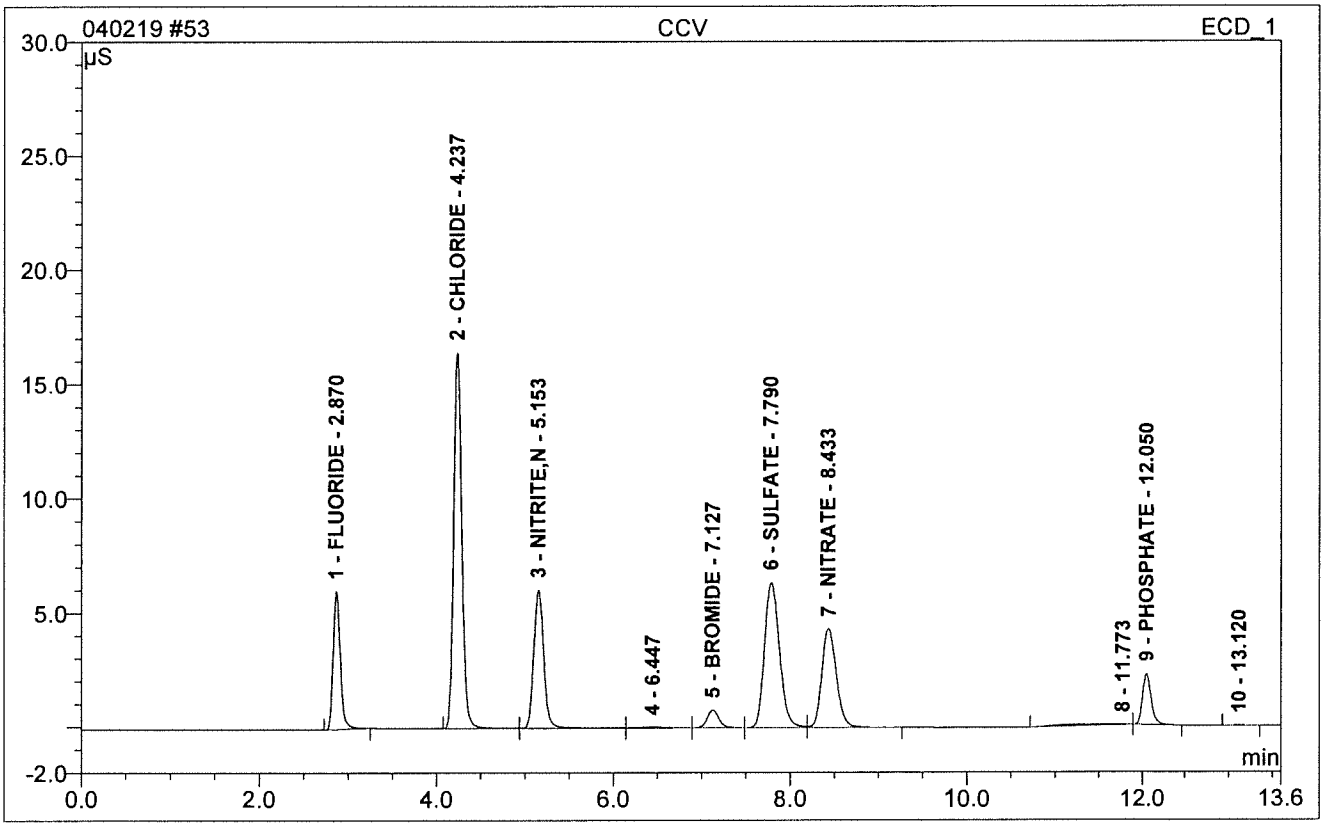
Sample Name:	**ICB**	*Injection Volume:*	**10.0**
Vial Number:	**98**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**032119**	*Dilution Factor:*	**1.**
Recording Time:	**3/21/2019 17:07**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
Total:			0.000	0.000	0.00	0.000	

53 CCV

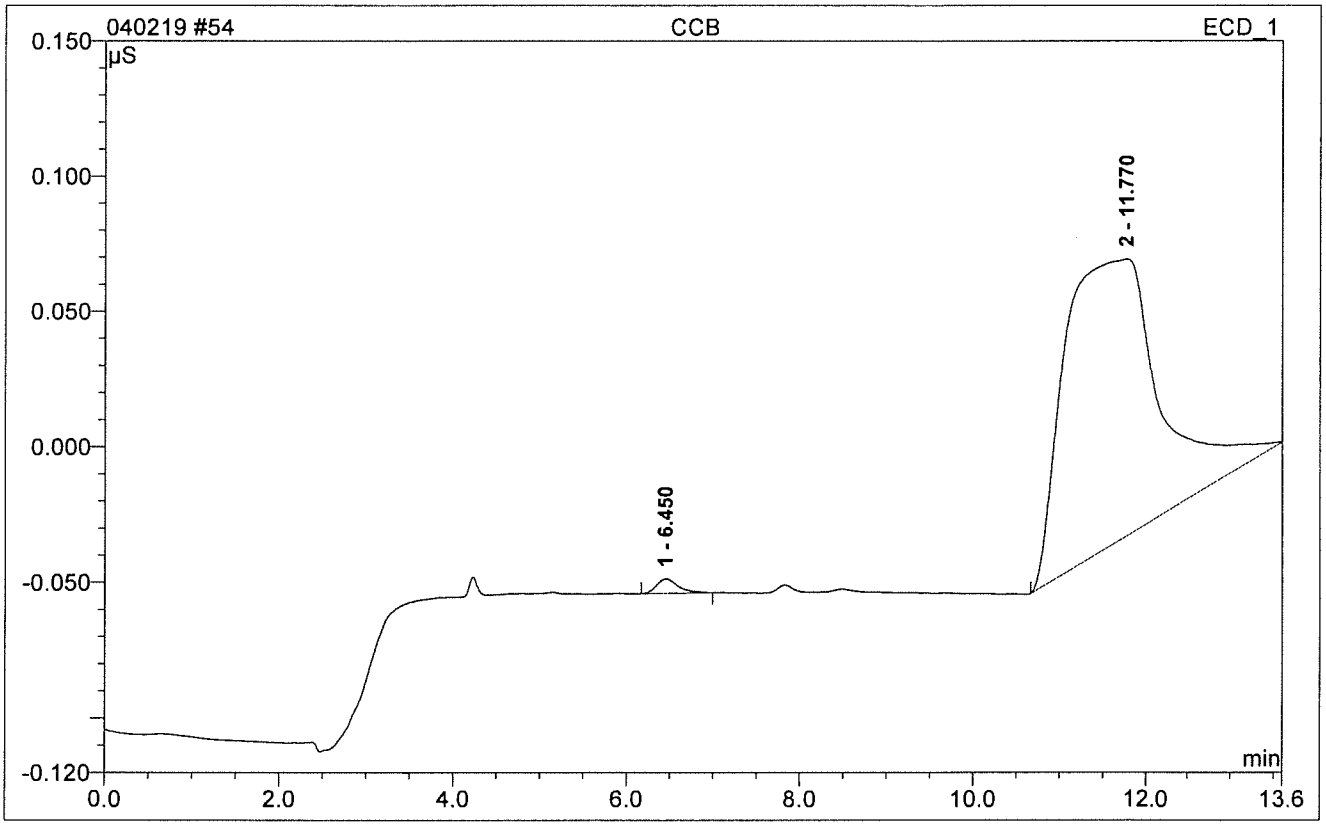
Sample Name:	**CCV**	*Injection Volume:*	**10.0**
Vial Number:	**1**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**032119**	*Dilution Factor:*	**1.**
Recording Time:	**4/3/2019 0:47**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.87	FLUORIDE	6.052	0.564	9.97	4.086	1.
2	4.24	CHLORIDE	16.435	1.758	31.06	19.504	1.
3	5.15	NITRITE,N	6.058	0.795	14.05	4.158	1.
5	7.13	BROMIDE	0.791	0.122	2.15	3.724	1.
6	7.79	SULFATE	6.377	1.255	22.17	19.325	1.
7	8.43	NITRATE	4.361	0.835	14.76	3.807	1.
9	12.05	PHOSPHATE	2.233	0.271	4.78	3.556	1.
Total:			42.307	5.600	98.93	58.160	

54 CCB

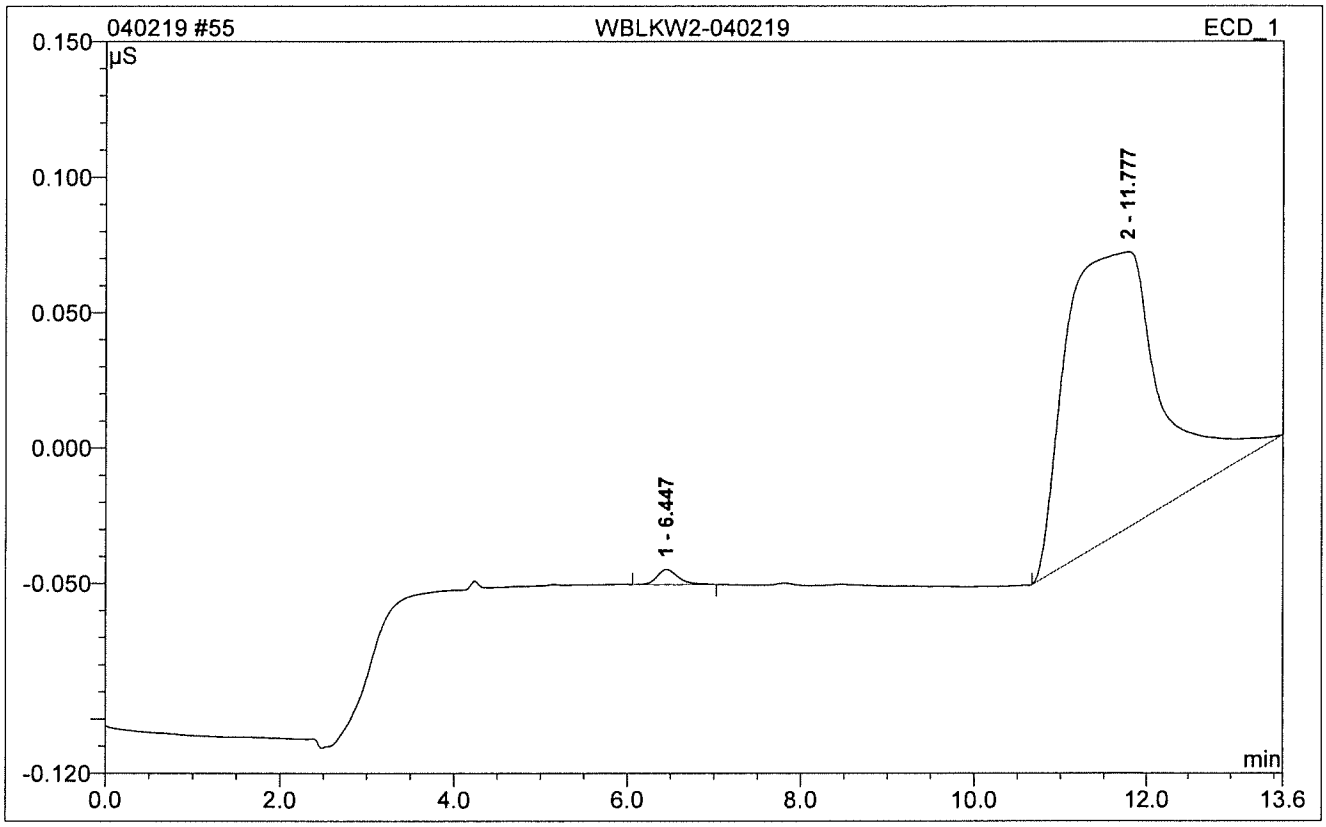
Sample Name:	**CCB**	*Injection Volume:*	**10.0**
Vial Number:	**2**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**032119**	*Dilution Factor:*	**1.**
Recording Time:	**4/3/2019 1:02**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
Total:			0.000	0.000	0.00	0.000	

55 WBLKW2-040219

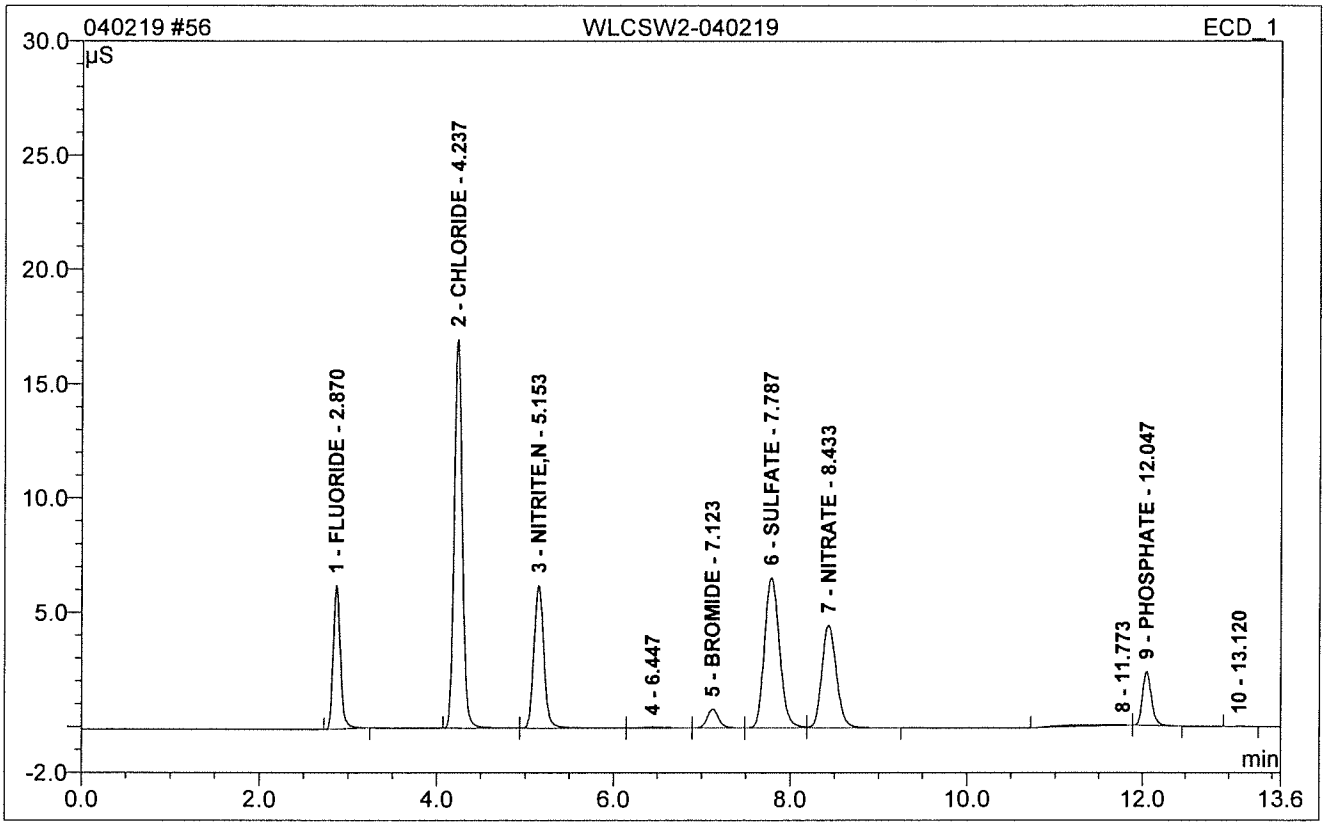
Sample Name:	**WBLKW2-040219**	*Injection Volume:*	**10.0**
Vial Number:	**42**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**032119**	*Dilution Factor:*	**1.**
Recording Time:	**4/3/2019 1:16**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
Total:			0.000	0.000	0.00	0.000	

56 WLCSW2-040219

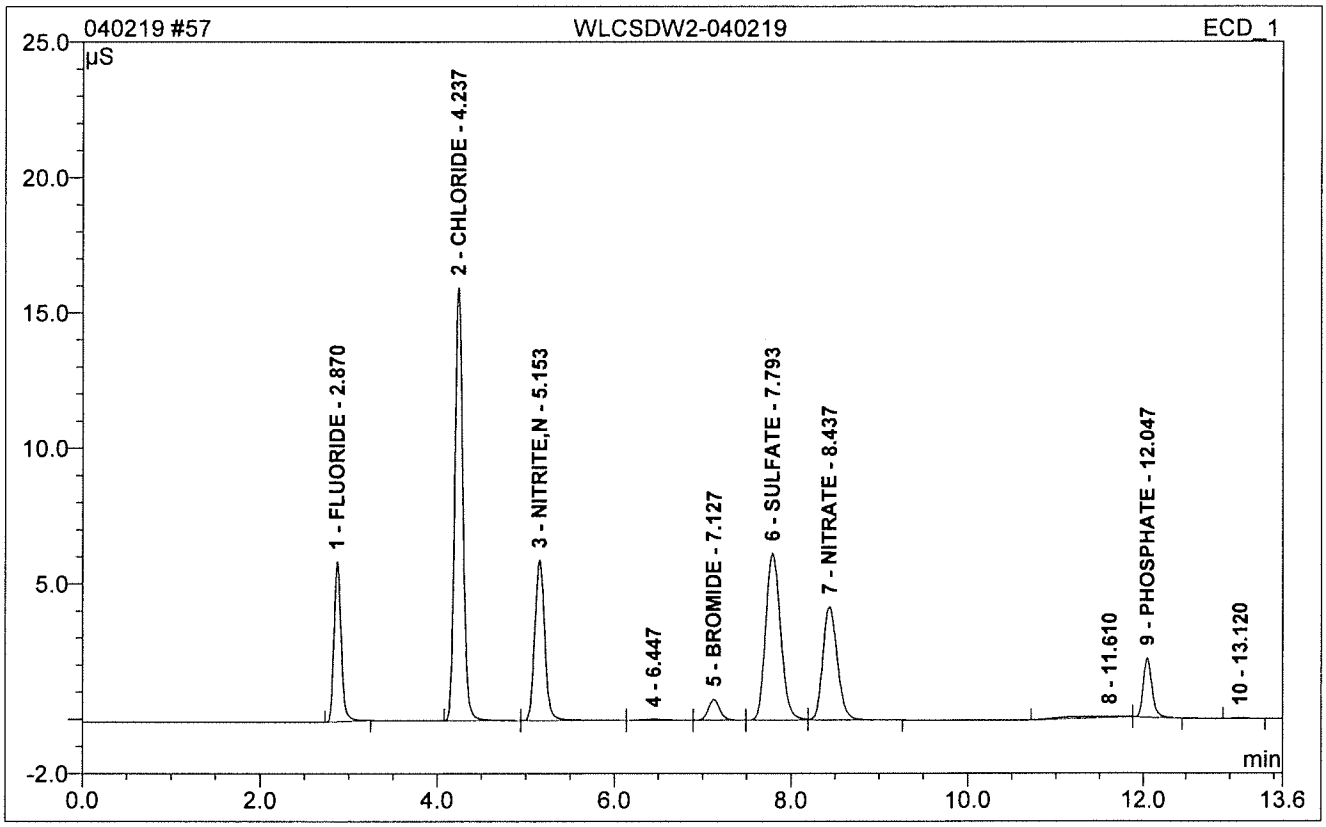
Sample Name:	**WLCSW2-040219**	*Injection Volume:*	**10.0**
Vial Number:	**43**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**032119**	*Dilution Factor:*	**1.**
Recording Time:	**4/3/2019 1:31**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.87	FLUORIDE	6.281	0.585	9.98	4.235	1.
2	4.24	CHLORIDE	17.002	1.824	31.12	20.225	1.
3	5.15	NITRITE,N	6.238	0.822	14.02	4.294	1.
5	7.12	BROMIDE	0.826	0.126	2.16	3.873	1.
6	7.79	SULFATE	6.583	1.298	22.14	19.980	1.
7	8.43	NITRATE	4.500	0.863	14.73	3.932	1.
9	12.05	PHOSPHATE	2.345	0.284	4.84	3.720	1.
Total:			43.775	5.802	99.00	60.258	

57 WLCSDW2-040219

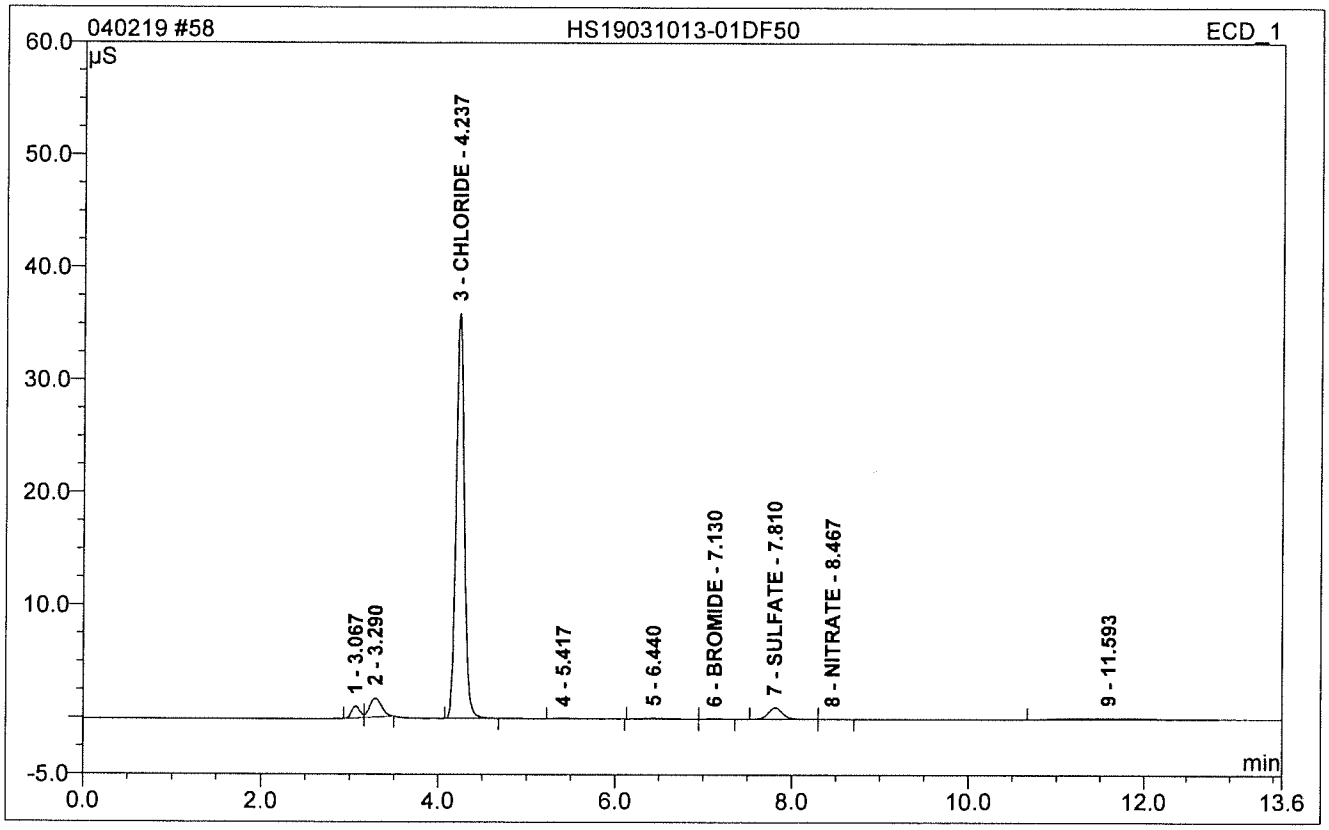
Sample Name:	**WLCSDW2-040219**	*Injection Volume:*	**10.0**
Vial Number:	**44**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**032119**	*Dilution Factor:*	**1.**
Recording Time:	**4/3/2019 1:46**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.87	FLUORIDE	5.917	0.549	10.00	3.977	1.
2	4.24	CHLORIDE	15.974	1.708	31.10	18.950	1.
3	5.15	NITRITE,N	5.929	0.776	14.13	4.060	1.
5	7.13	BROMIDE	0.768	0.118	2.14	3.609	1.
6	7.79	SULFATE	6.171	1.212	22.06	18.667	1.
7	8.44	NITRATE	4.214	0.806	14.68	3.678	1.
9	12.05	PHOSPHATE	2.187	0.264	4.80	3.472	1.
Total:			41.161	5.433	98.92	56.412	

58 HS19031013-01DF50

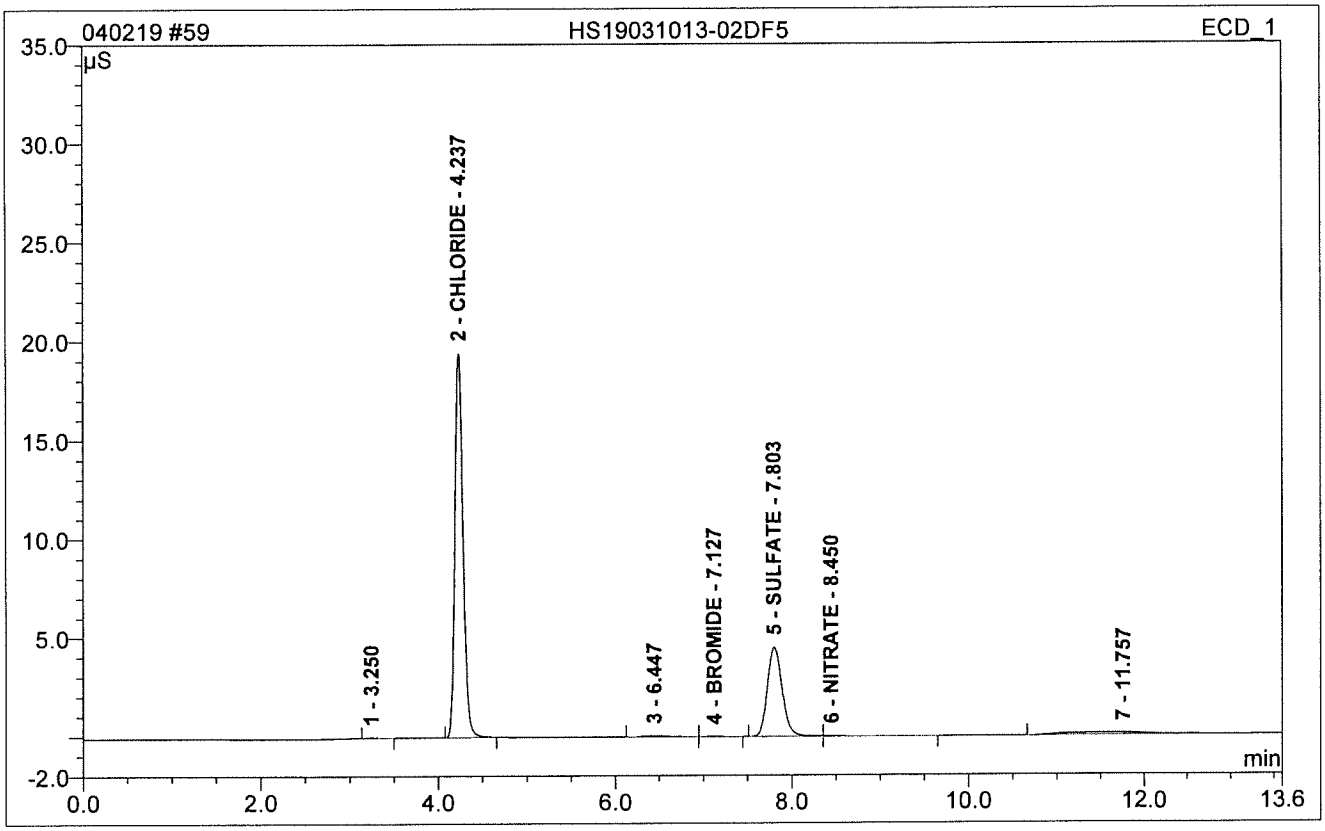
Sample Name:	**HS19031013-01DF50**	*Injection Volume:*	**10.0**
Vial Number:	**45**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**032119**	*Dilution Factor:*	**50.**
Recording Time:	**4/3/2019 2:01**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
3	4.24	CHLORIDE	35.956	3.891	83.85	2145.430	50.
6	7.13	BROMIDE	0.031	0.005	0.11	10.570	50.
7	7.81	SULFATE	1.023	0.191	4.12	155.852	50.
8	8.47	NITRATE	0.009	0.002	0.03	3.804	50.
Total:			37.019	4.089	88.11	2315.655	

59 HS19031013-02DF5

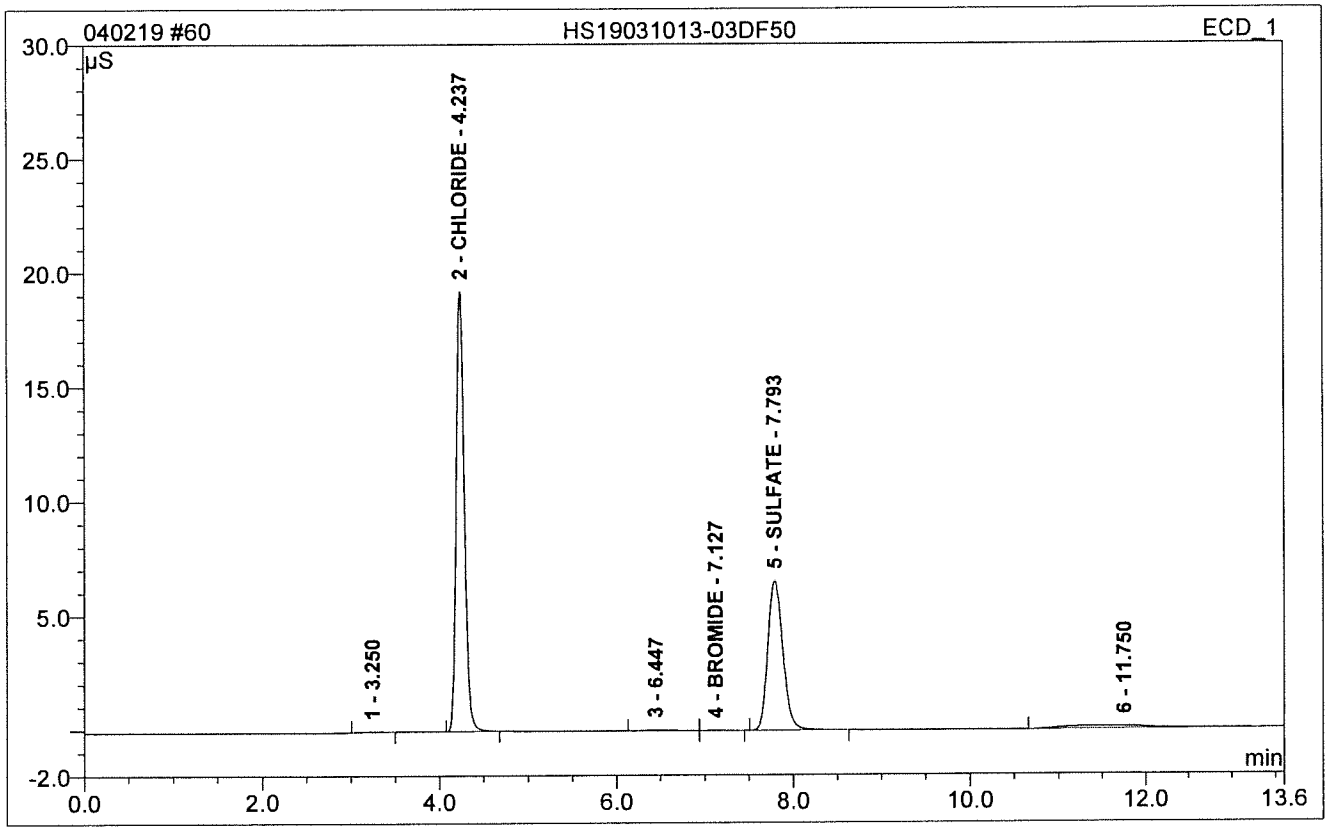
Sample Name:	**HS19031013-02DF5**	*Injection Volume:*	**10.0**
Vial Number:	**46**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**032119**	*Dilution Factor:*	**5.**
Recording Time:	**4/3/2019 2:15**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
2	4.24	CHLORIDE	19.421	2.080	66.58	115.141	5.
4	7.13	BROMIDE	0.020	0.004	0.11	0.826	5.
5	7.80	SULFATE	4.499	0.878	28.11	67.910	5.
6	8.45	NITRATE	0.016	0.005	0.17	0.463	5.
Total:			23.956	2.966	94.97	184.340	

60 HS19031013-03DF50

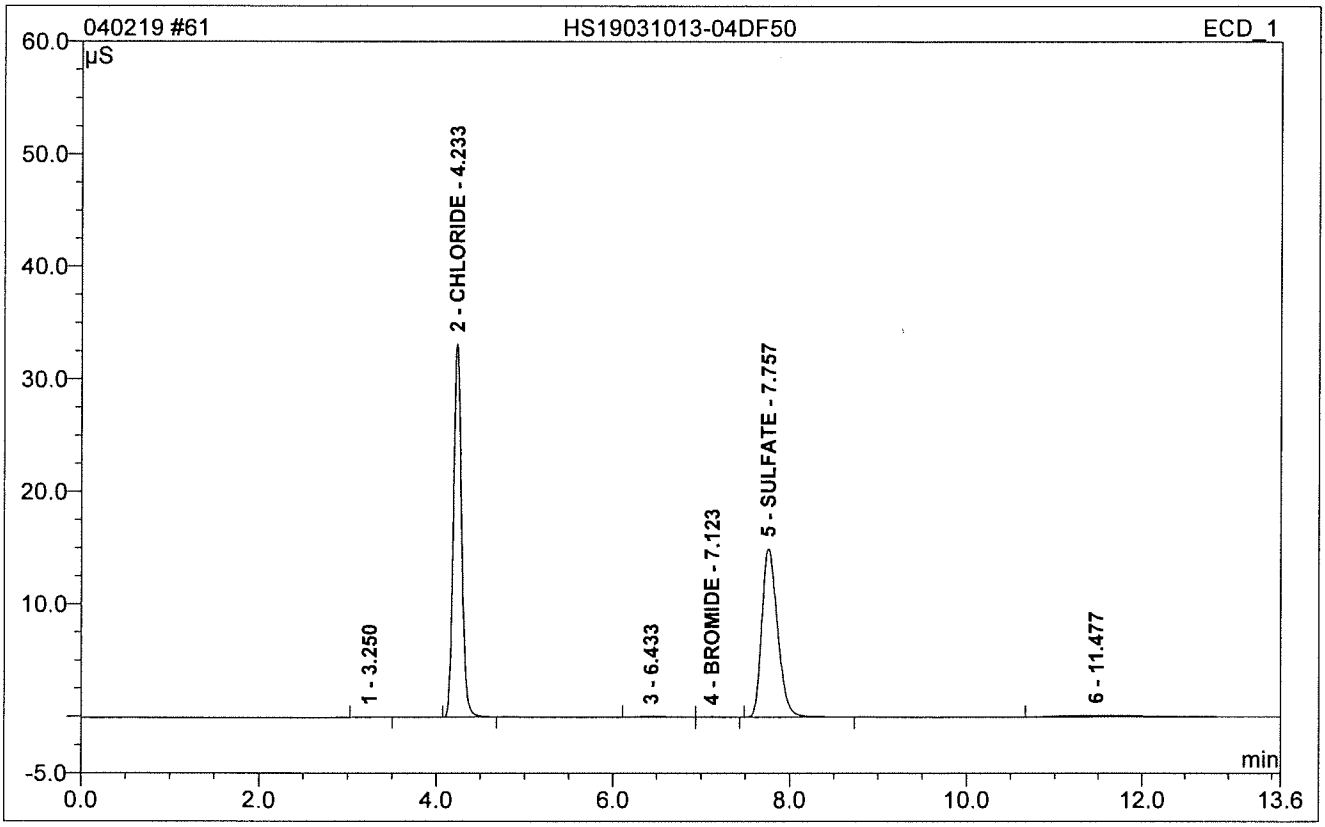
Sample Name:	**HS19031013-03DF50**	*Injection Volume:*	**10.0**
Vial Number:	**47**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**032119**	*Dilution Factor:*	**50.**
Recording Time:	**4/3/2019 2:30**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
2	4.24	CHLORIDE	19.231	2.058	58.76	1139.691	50.
4	7.13	BROMIDE	0.018	0.003	0.09	7.572	50.
5	7.79	SULFATE	6.529	1.291	36.87	994.072	50.
Total:			25.778	3.353	95.72	2141.335	

61 HS19031013-04DF50

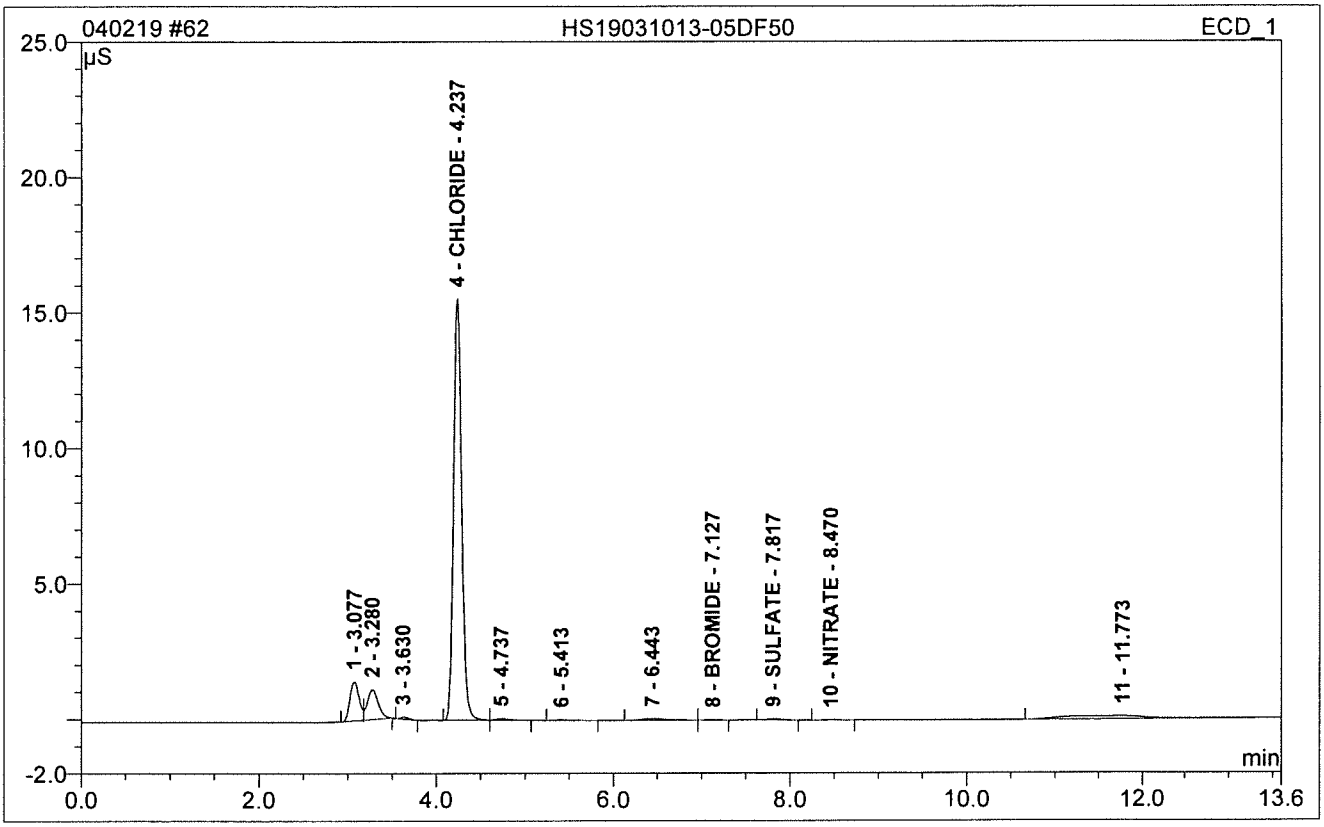
Sample Name:	**HS19031013-04DF50**	*Injection Volume:*	**10.0**
Vial Number:	**48**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**032119**	*Dilution Factor:*	**50.**
Recording Time:	**4/3/2019 2:45**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
2	4.23	CHLORIDE	33.141	3.582	52.13	1975.504	50.
4	7.12	BROMIDE	0.037	0.006	0.09	12.340	50.
5	7.76	SULFATE	14.992	3.117	45.37	2385.019	50.
Total:			48.169	6.705	97.59	4372.864	

62 HS19031013-05DF50

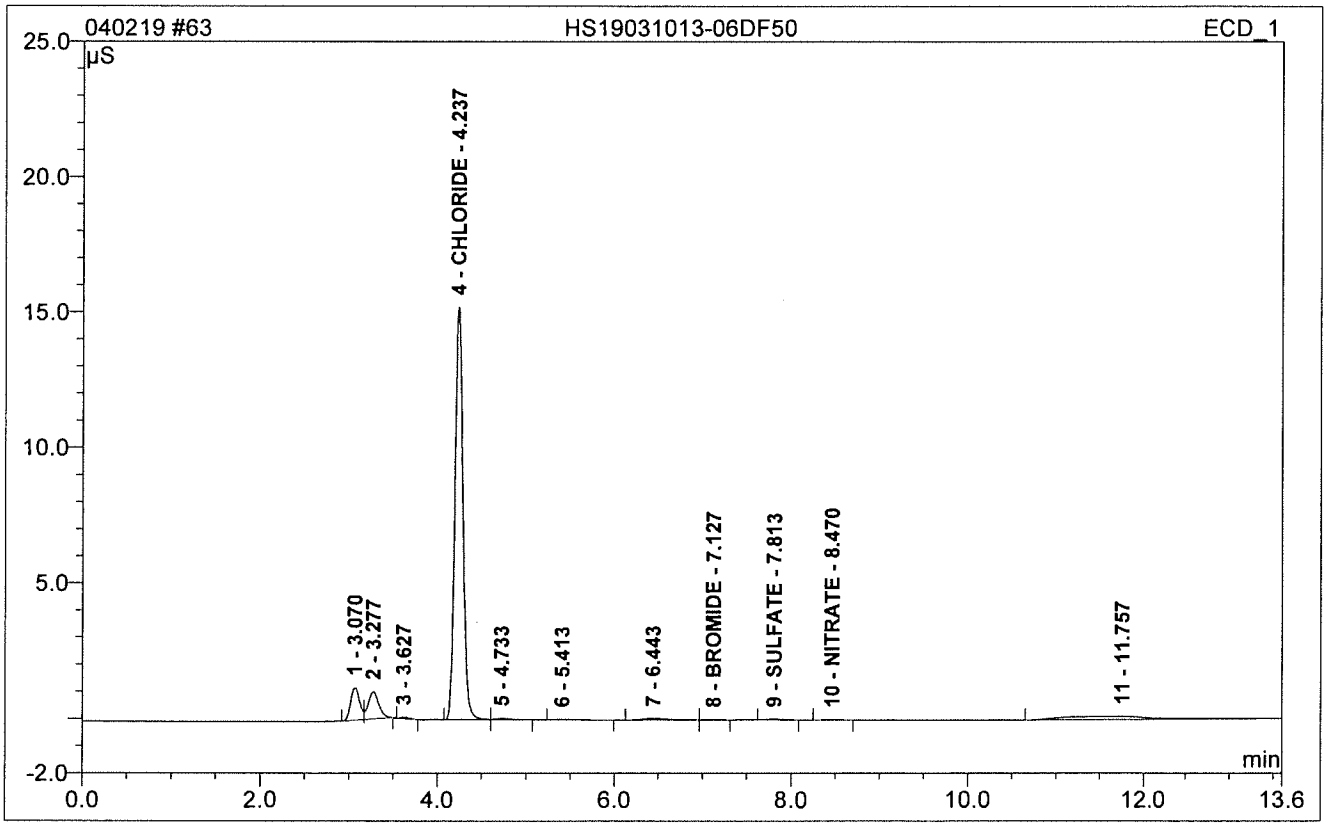
Sample Name:	**HS19031013-05DF50**	*Injection Volume:*	**10.0**
Vial Number:	**49**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**032119**	*Dilution Factor:*	**50.**
Recording Time:	**4/3/2019 3:00**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
4	4.24	CHLORIDE	15.541	1.656	76.02	918.800	50.
8	7.13	BROMIDE	0.014	0.002	0.10	6.294	50.
9	7.82	SULFATE	0.038	0.007	0.31	15.374	50.
10	8.47	NITRATE	0.012	0.002	0.10	3.967	50.
Total:			15.605	1.667	76.55	944.435	

63 HS19031013-06DF50

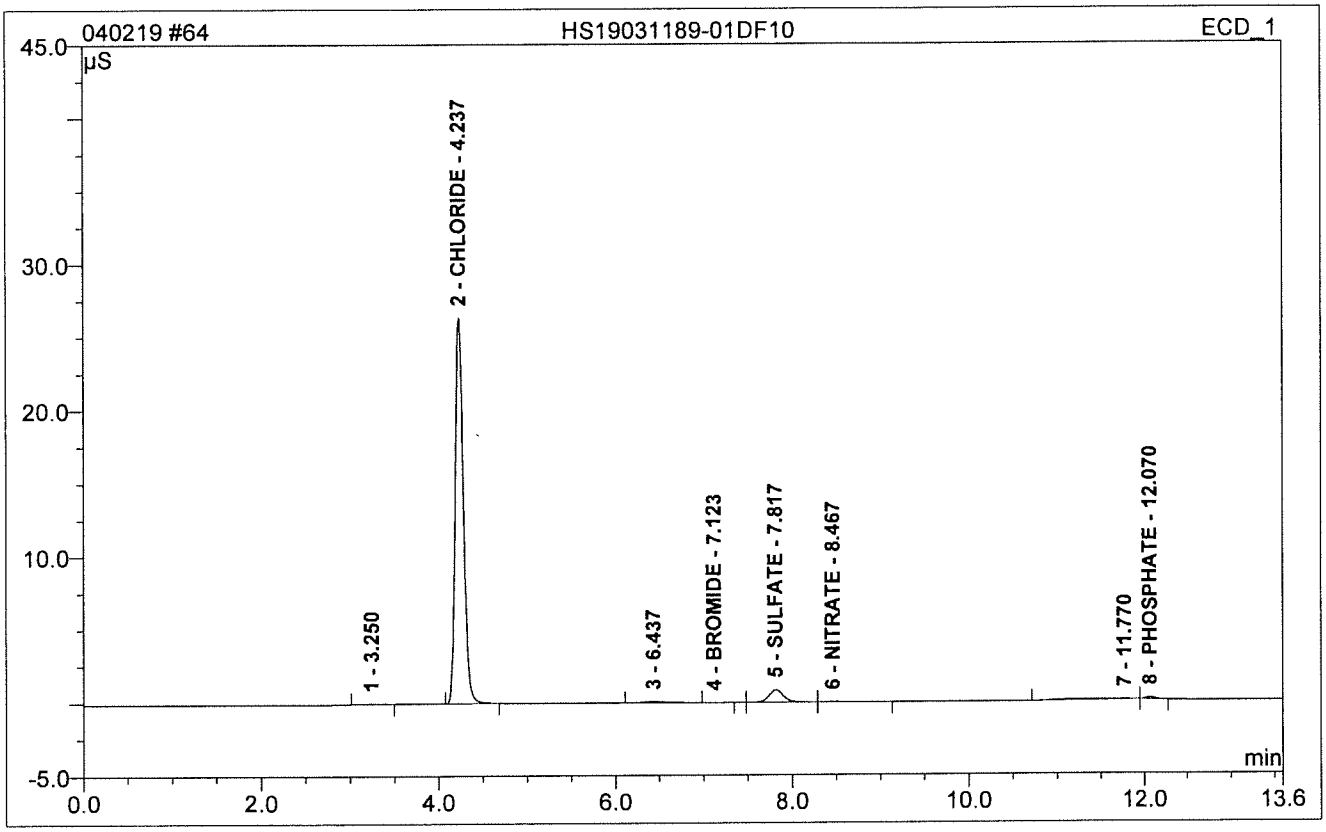
Sample Name:	**HS19031013-06DF50**	*Injection Volume:*	**10.0**
Vial Number:	**50**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**032119**	*Dilution Factor:*	**50.**
Recording Time:	**4/3/2019 3:14**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
4	4.24	CHLORIDE	15.227	1.622	77.72	900.278	50.
8	7.13	BROMIDE	0.014	0.002	0.11	6.249	50.
9	7.81	SULFATE	0.025	0.005	0.22	13.648	50.
10	8.47	NITRATE	0.011	0.002	0.10	3.926	50.
Total:			15.278	1.631	78.15	924.100	

64 HS19031189-01DF10

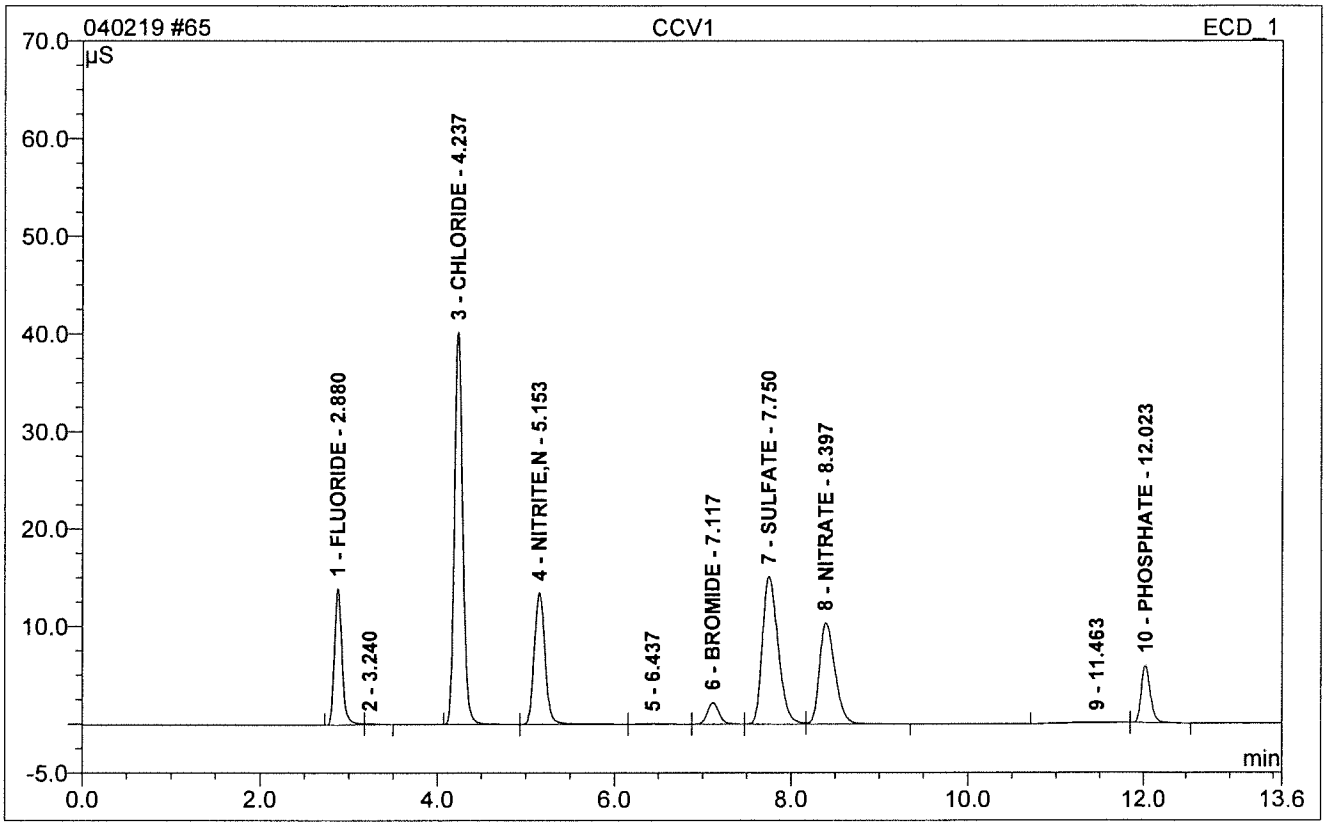
Sample Name:	**HS19031189-01DF10**	*Injection Volume:*	**10.0**
Vial Number:	**54**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**032119**	*Dilution Factor:*	**10.**
Recording Time:	**4/3/2019 3:29**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
2	4.24	CHLORIDE	26.372	2.841	91.44	313.880	10.
4	7.12	BROMIDE	0.007	0.001	0.03	0.887	10.
5	7.82	SULFATE	0.852	0.162	5.22	26.756	10.
6	8.47	NITRATE	0.017	0.004	0.13	0.869	10.
8	12.07	PHOSPHATE	0.130	0.016	0.50	3.495	10.
Total:			27.377	3.024	97.32	345.886	

65 CCV1

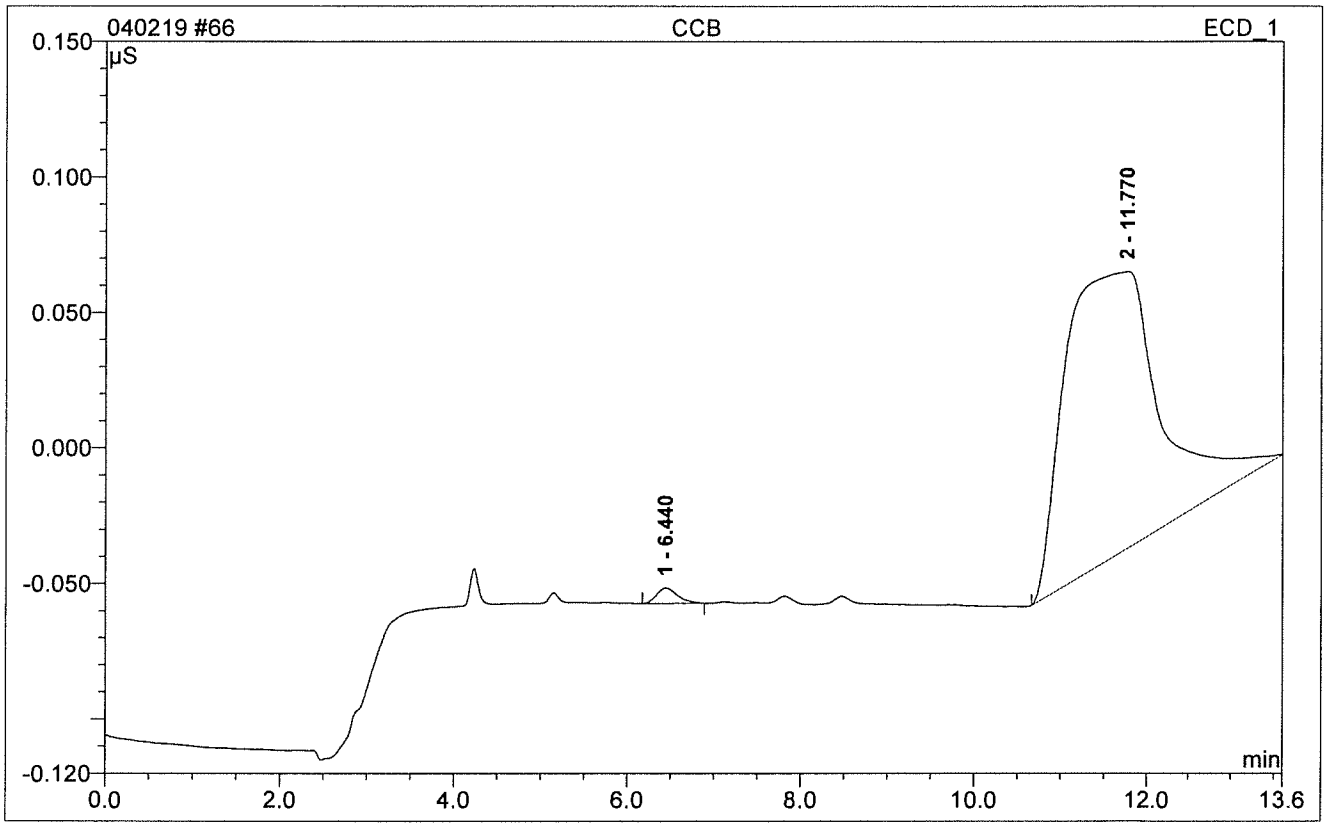
Sample Name:	**CCV1**	*Injection Volume:*	**10.0**
Vial Number:	**3**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**032119**	*Dilution Factor:*	**1.**
Recording Time:	**4/3/2019 3:44**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.88	FLUORIDE	13.969	1.385	9.83	9.966	1.
3	4.24	CHLORIDE	40.218	4.363	30.97	48.079	1.
4	5.15	NITRITE,N	13.523	1.918	13.61	9.924	1.
6	7.12	BROMIDE	2.217	0.339	2.41	10.279	1.
7	7.75	SULFATE	15.149	3.136	22.26	47.997	1.
8	8.40	NITRATE	10.389	2.122	15.06	9.565	1.
10	12.02	PHOSPHATE	5.847	0.749	5.32	9.575	1.
Total:			101.312	14.011	99.46	145.385	

66 CCB

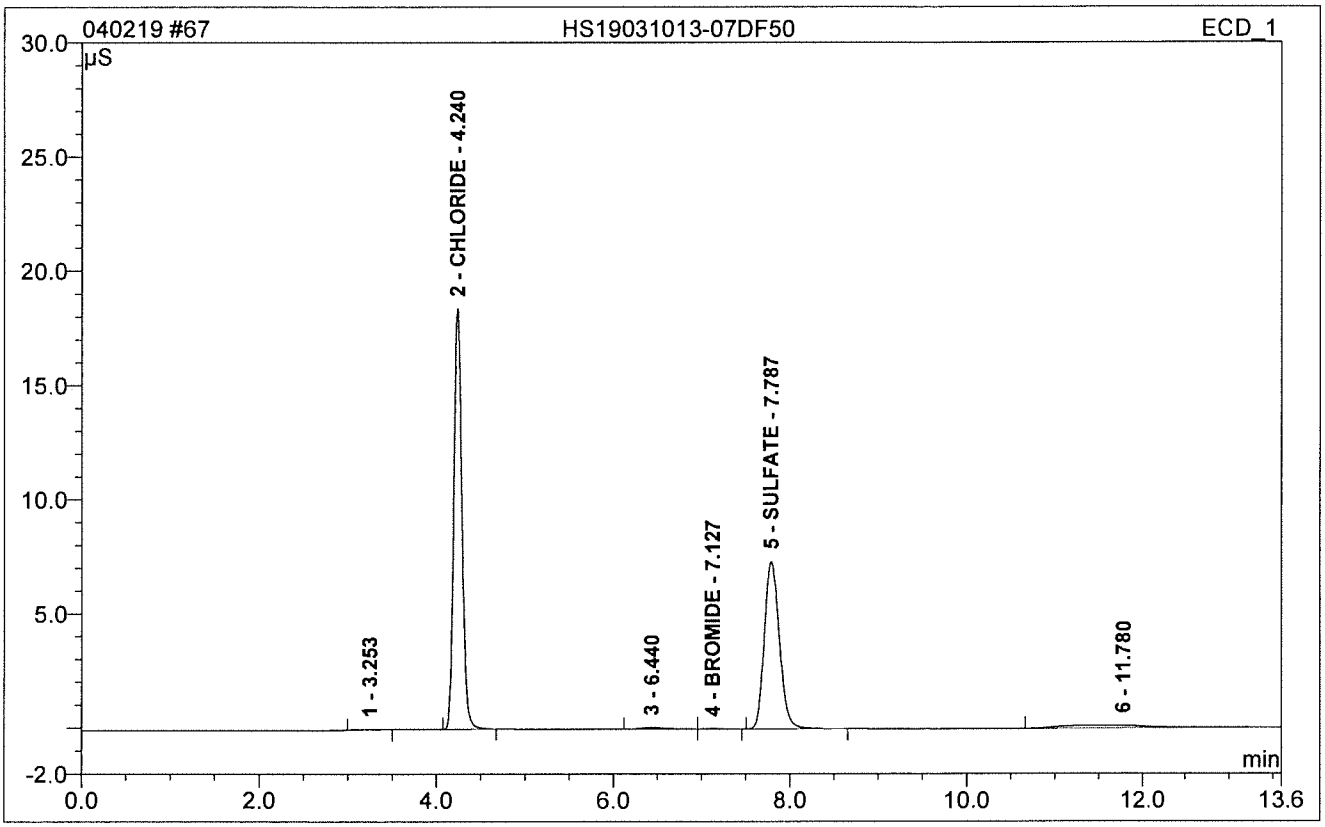
Sample Name:	**CCB**	*Injection Volume:*	**10.0**
Vial Number:	**4**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**032119**	*Dilution Factor:*	**1.**
Recording Time:	**4/3/2019 3:59**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
Total:			0.000	0.000	0.00	0.000	

67 HS19031013-07DF50

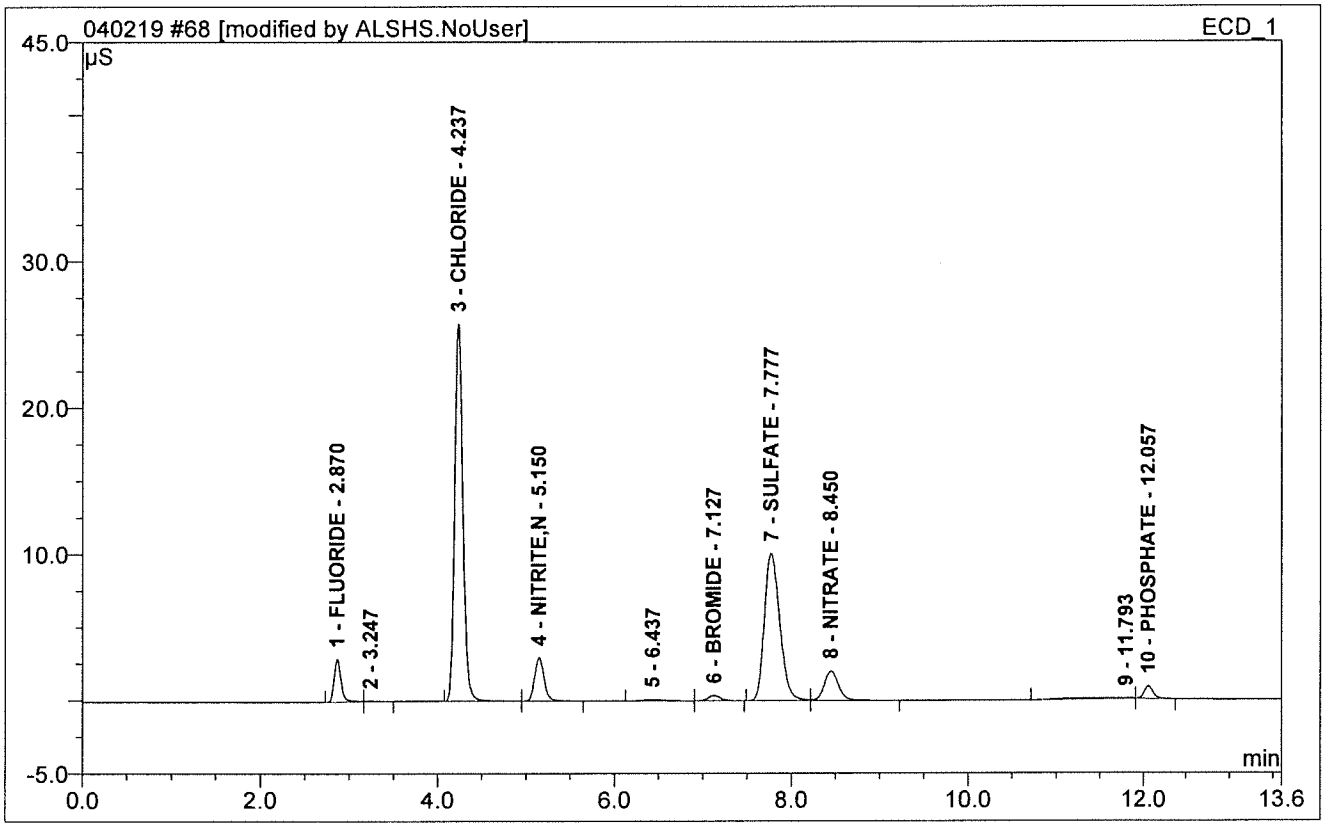
Sample Name:	**HS19031013-07DF50**	*Injection Volume:*	**10.0**
Vial Number:	**51**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**032119**	*Dilution Factor:*	**50.**
Recording Time:	**4/3/2019 4:13**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
2	4.24	CHLORIDE	18.396	1.967	54.79	1089.749	50.
4	7.13	BROMIDE	0.022	0.004	0.11	8.737	50.
5	7.79	SULFATE	7.311	1.455	40.53	1118.930	50.
Total:			25.729	3.426	95.42	2217.416	

68 HS19031013-07MSDF50

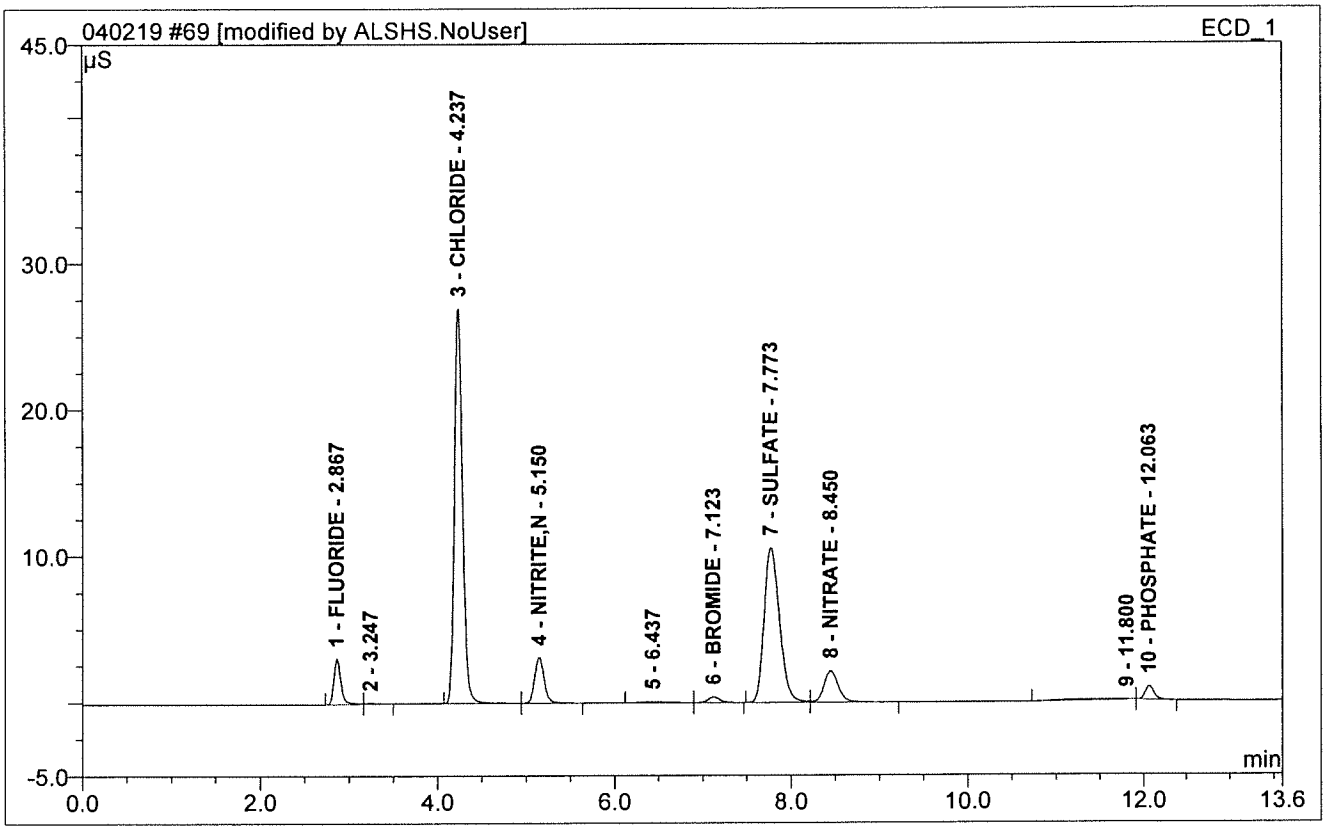
Sample Name:	**HS19031013-07MSDF50**	*Injection Volume:*	**10.0**
Vial Number:	**52**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**032119**	*Dilution Factor:*	**50.**
Recording Time:	**4/3/2019 4:28**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.87	FLUORIDE	2.930	0.266	4.39	97.471	50.
3	4.24	CHLORIDE	25.769	2.779	45.80	1535.355	50.
4	5.15	NITRITE,N	2.984	0.371	6.11	98.720	50.
6	7.13	BROMIDE	0.364	0.057	0.93	88.367	50.
7	7.78	SULFATE	10.116	2.040	33.63	1564.863	50.
8	8.45	NITRATE	2.018	0.380	6.27	88.525	50.
10	12.06	PHOSPHATE	0.858	0.103	1.69	72.196	50.
Total:			45.039	5.996	98.82	3545.498	

69 HS19031013-07MSDDF50

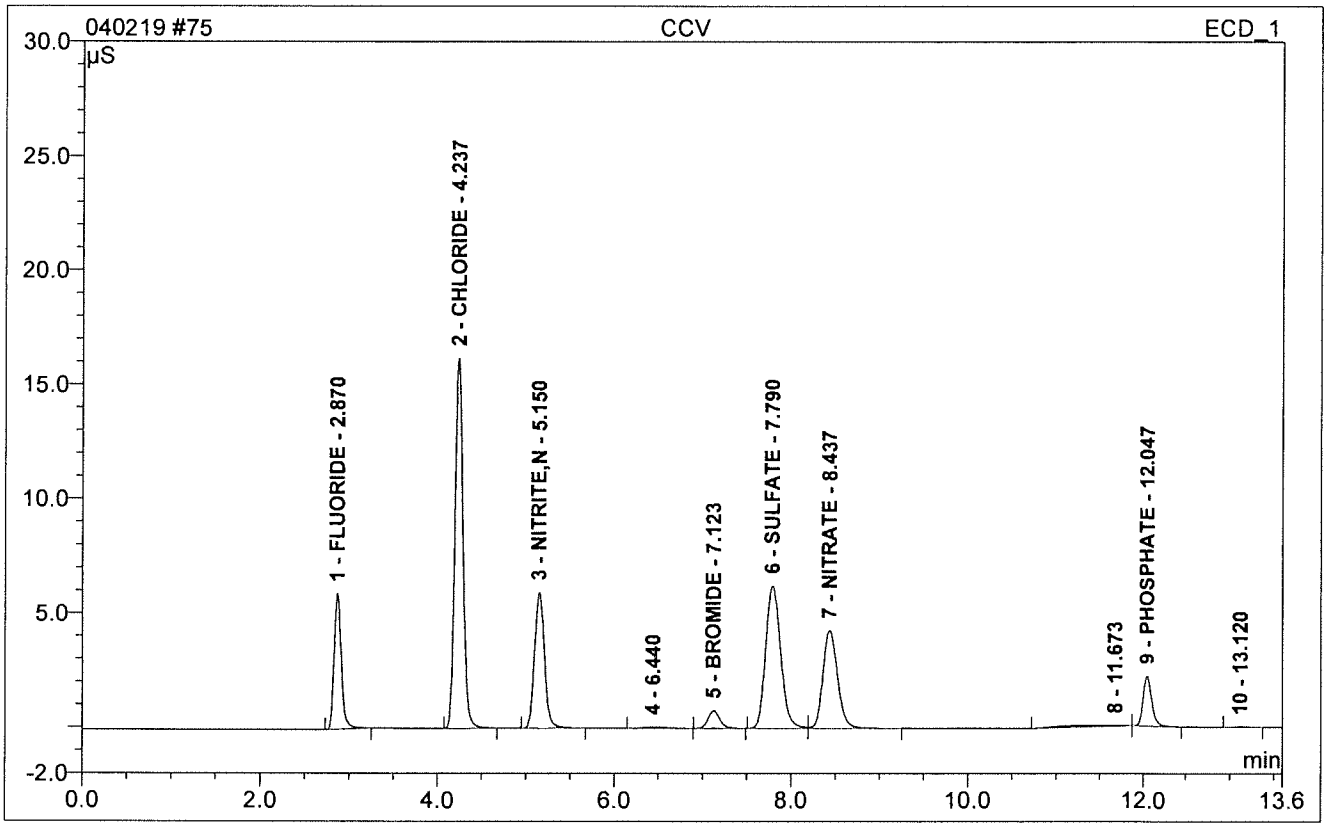
Sample Name:	**HS19031013-07MSDDF50**	*Injection Volume:*	**10.0**
Vial Number:	**53**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**032119**	*Dilution Factor:*	**50.**
Recording Time:	**4/3/2019 4:43**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.87	FLUORIDE	3.092	0.282	4.43	102.982	50.
3	4.24	CHLORIDE	26.946	2.907	45.72	1605.383	50.
4	5.15	NITRITE,N	3.131	0.390	6.14	103.751	50.
6	7.12	BROMIDE	0.385	0.060	0.94	92.957	50.
7	7.77	SULFATE	10.549	2.136	33.60	1637.971	50.
8	8.45	NITRATE	2.122	0.400	6.29	93.009	50.
10	12.06	PHOSPHATE	0.932	0.111	1.75	77.723	50.
Total:			47.157	6.286	98.87	3713.776	

75 CCV

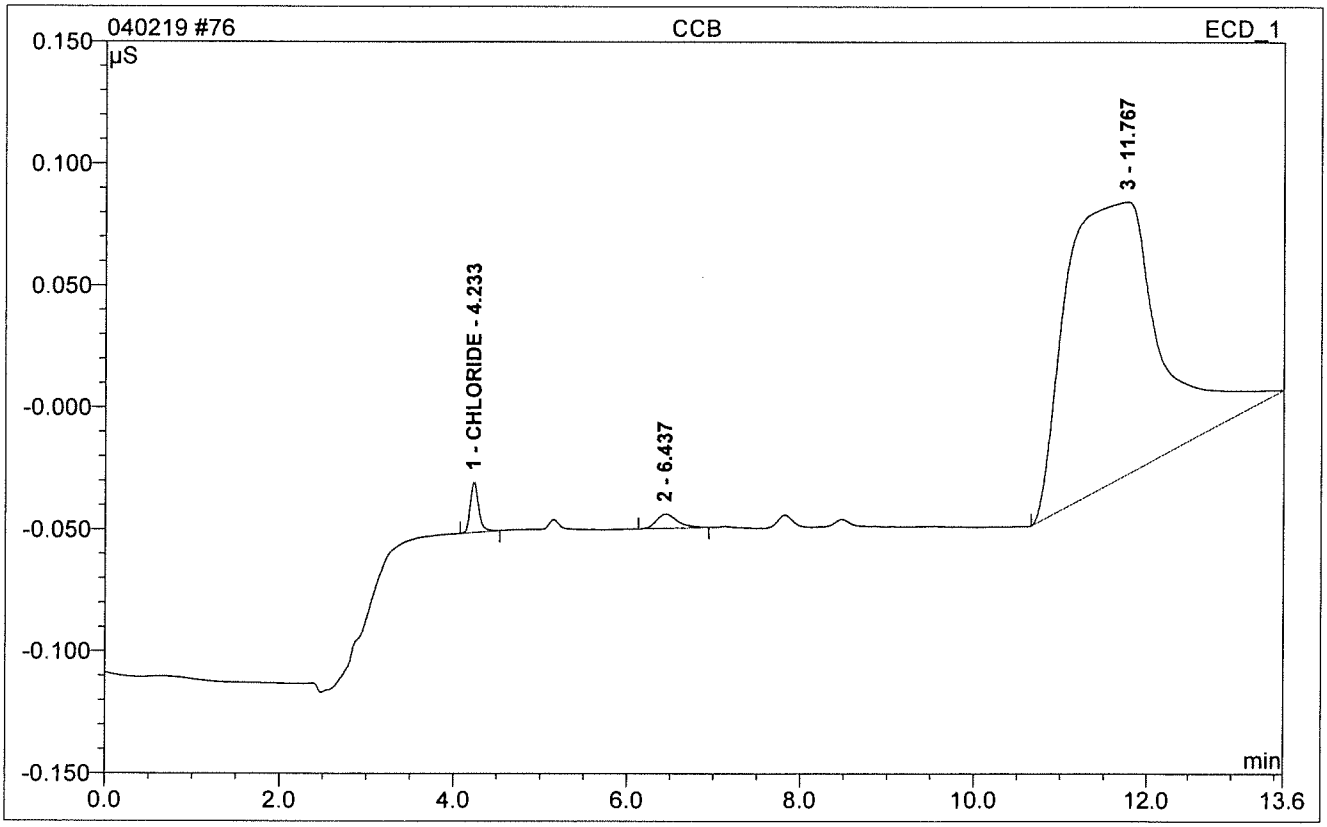
Sample Name:	**CCV**	*Injection Volume:*	**10.0**
Vial Number:	**1**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**032119**	*Dilution Factor:*	**1.**
Recording Time:	**4/3/2019 6:11**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.87	FLUORIDE	5.955	0.555	10.00	4.019	1.
2	4.24	CHLORIDE	16.187	1.729	31.15	19.181	1.
3	5.15	NITRITE,N	5.956	0.774	13.94	4.048	1.
5	7.12	BROMIDE	0.767	0.117	2.10	3.578	1.
6	7.79	SULFATE	6.258	1.232	22.19	18.971	1.
7	8.44	NITRATE	4.288	0.821	14.78	3.741	1.
9	12.05	PHOSPHATE	2.176	0.264	4.75	3.466	1.
Total:			41.587	5.490	98.92	57.004	

76 CCB

Sample Name:	**CCB**	*Injection Volume:*	**10.0**
Vial Number:	**2**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**032119**	*Dilution Factor:*	**1.**
Recording Time:	**4/3/2019 6:26**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	4.23	CHLORIDE	0.021	0.002	1.52	0.235	1.
Total:			0.021	0.002	1.52	0.235	

HS19031013

Sequence: 040319
Operator: ALSHS.NoUser

Printed: 4/11/2019 6:36:33 PM

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2019
Timebase: ICS2100
#Samples: 294

Created: 4/3/2019 10:56:31 AM by ALSHS.NoUser
(Modified, not saved)

No.	Name	Comment	Type	Pos.	Dil. Factor	Method	Status
1	STD1	297.020.7208	Standard	91	1.0000	032119	Finished
2	STD2		Standard	92	1.0000	032119	Finished
3	STD3		Standard	93	1.0000	032119	Finished
4	STD4		Standard	94	1.0000	032119	Finished
5	STD5		Standard	95	1.0000	032119	Finished
6	STD6		Standard	96	1.0000	032119	Finished
7	ICV	297.020.6806	Unknown	97	1.0000	032119	Finished
8	ICB		Unknown	98	1.0000	032119	Finished
9	CCV		Unknown	1	1.0000	032119	Finished
10	CCB		Unknown	2	1.0000	032119	Finished
11	WBLKW-040319		Unknown	59	1.0000	032119	Finished
12	WLCSW-040319		Unknown	60	1.0000	032119	Finished
13	HS19040154-04DF5		Unknown	62	5.0000	032119	Finished
14	HS19040154-03DF5		Unknown	64	5.0000	032119	Finished
15	HS19040154-02DF5		Unknown	66	5.0000	032119	Finished
16	HS19040154-01DF5		Unknown	68	5.0000	032119	Finished
17	DI H2O		Unknown	10	1.0000	032119	Finished
18	HS19040154-04DF50		Unknown	63	50.0000	032119	Finished
19	HS19040154-02DF50		Unknown	67	50.0000	032119	Finished
20	WLCSDW-040319		Unknown	61	1.0000	032119	Finished
21	CCV1		Unknown	3	1.0000	032119	Finished
22	CCB		Unknown	4	1.0000	032119	Finished
23	HS19040154-01DF100		Unknown	69	100.0000	032119	Finished
24	HS19040154-03DF100		Unknown	65	100.0000	032119	Finished
25	HS19040064-01DF10		Unknown	40	10.0000	032119	Finished
26	HS19040064-02DF10		Unknown	41	10.0000	032119	Finished
27	DI H2O		Unknown	10	1.0000	032119	Finished
28	HS19031550-01DF5		Unknown	71	5.0000	032119	Finished
29	HS19031549-01DF5		Unknown	70	5.0000	032119	Finished
30	HS19040173-03		Unknown	72	1.0000	032119	Finished
31	HS19040173-05		Unknown	73	1.0000	032119	Finished
32	HS19040173-06		Unknown	74	1.0000	032119	Finished
33	CCV		Unknown	1	1.0000	032119	Finished
34	CCB		Unknown	2	1.0000	032119	Finished
35	MBLK-139466		Unknown	75	1.0000	032119	Finished
36	LCS-139466		Unknown	76	1.0000	032119	Finished
37	LCSD-139466		Unknown	77	1.0000	032119	Finished
38	HS19040144-01DF5		Unknown	21	5.0000	032119	Finished
39	HS19040144-02DF5		Unknown	22	5.0000	032119	Finished
40	HS19040144-03DF5		Unknown	23	5.0000	032119	Finished
41	DI H2O		Unknown	10	1.0000	032119	Finished
42	HS19031513-01		Unknown	78	1.0000	032119	Finished

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Sequence: 040319
Operator: ALSHS.NoUser

Printed: 4/11/2019 6:36:33 PM

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2019
Timebase: ICS2100
#Samples: 294

Created: 4/3/2019 10:56:31 AM by ALSHS.NoUser
(Modified, not saved)

No.	Name	Inj. Date/Time	Program	Inj. Vol.	*Initial_Vol_Wt
1	STD1	3/21/2019 3:01:53 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
2	STD2	3/21/2019 3:16:31 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
3	STD3	3/21/2019 3:31:10 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
4	STD4	3/21/2019 3:45:48 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
5	STD5	3/21/2019 4:00:26 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
6	STD6	3/21/2019 4:15:05 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
7	ICV	3/21/2019 4:29:42 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
8	ICB	3/21/2019 5:07:46 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
9	CCV	4/3/2019 9:52:06 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
10	CCB	4/3/2019 10:09:30 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
11	WBLKW-040319	4/3/2019 10:24:15 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
12	WLCSW-040319	4/3/2019 10:39:00 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
13	HS19040154-04DF5	4/3/2019 11:00:20 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
14	HS19040154-03DF5	4/3/2019 11:22:33 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
15	HS19040154-02DF5	4/3/2019 11:37:17 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
16	HS19040154-01DF5	4/3/2019 11:52:02 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
17	DI H2O	4/3/2019 12:16:53 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
18	HS19040154-04DF50	4/3/2019 12:31:38 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
19	HS19040154-02DF50	4/3/2019 12:46:22 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
20	WLCSDW-040319	4/3/2019 1:01:07 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
21	CCV1	4/3/2019 1:15:51 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
22	CCB	4/3/2019 1:30:36 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
23	HS19040154-01DF100	4/3/2019 1:45:21 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
24	HS19040154-03DF100	4/3/2019 2:00:05 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
25	HS19040064-01DF10	4/3/2019 2:14:50 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
26	HS19040064-02DF10	4/3/2019 2:29:35 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
27	DI H2O	4/3/2019 2:44:19 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
28	HS19031550-01DF5	4/3/2019 2:59:04 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
29	HS19031549-01DF5	4/3/2019 3:13:49 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
30	HS19040173-03	4/3/2019 3:57:04 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
31	HS19040173-05	4/3/2019 4:11:49 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
32	HS19040173-06	4/3/2019 4:26:33 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
33	CCV	4/3/2019 4:41:18 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
34	CCB	4/3/2019 4:56:03 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
35	MBLK-139466	4/3/2019 5:32:09 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
36	LCS-139466	4/3/2019 6:13:46 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
37	LCSD-139466	4/3/2019 6:28:31 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
38	HS19040144-01DF5	4/3/2019 6:50:38 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
39	HS19040144-02DF5	4/3/2019 7:05:22 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
40	HS19040144-03DF5	4/3/2019 7:20:07 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
41	DI H2O	4/3/2019 7:34:51 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
42	HS19031513-01	4/3/2019 7:49:36 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00

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Sequence: 040319
Operator: ALSHS.NoUser

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2019
Timebase: ICS2100
#Samples: 294

Created: 4/3/2019 10:56:31 AM by ALSHS.NoUser
(Modified, not saved)

No.	Name	*Final_Volume	GUID	Auto Purif.Frac.	Auto Purif.Ref.
1	STD1	1.00	ab134b69-4c13-11e9-b6db-bd957e66751c		
2	STD2	1.00	16318633-4c16-11e9-b6db-bd957e66751c		
3	STD3	1.00	21bddd99-4c18-11e9-b6db-bd957e66751c		
4	STD4	1.00	2d5faa05-4c1a-11e9-b6db-bd957e66751c		
5	STD5	1.00	38e73cbf-4c1c-11e9-b6db-bd957e66751c		
6	STD6	1.00	442e7067-4c1e-11e9-b6db-bd957e66751c		
7	ICV	1.00	4fd763d5-4c20-11e9-b6db-bd957e66751c		
8	ICB	1.00	40d0abe3-4c25-11e9-b6db-bd957e66751c		
9	CCV	1.00	eb1e7fc1-561f-11e9-b6db-bd957e66751c		
10	CCB	1.00	fa5af42f-5621-11e9-b6db-bd957e66751c		
11	WBLKW-040319	1.00	6907eb4d-5624-11e9-b6db-bd957e66751c		
12	WLCSW-040319	1.00	78635e19-5626-11e9-b6db-bd957e66751c		
13	HS19040154-04DF5	1.00	13d00d65-5629-11e9-b6db-bd957e66751c		
14	HS19040154-03DF5	1.00	2e7fcd47-562c-11e9-b6db-bd957e66751c		
15	HS19040154-02DF5	1.00	9d10285d-562e-11e9-b6db-bd957e66751c		
16	HS19040154-01DF5	1.00	ac4eff21-5630-11e9-b6db-bd957e66751c		
17	DI H2O	1.00	c631b61f-5633-11e9-b6db-bd957e66751c		
18	HS19040154-04DF50	1.00	348b3b7b-5636-11e9-b6db-bd957e66751c		
19	HS19040154-02DF50	1.00	43d39b97-5638-11e9-b6db-bd957e66751c		
20	WLCSDW-040319	1.00	52c162ef-563a-11e9-b6db-bd957e66751c		
21	CCV1	1.00	620e87b7-563c-11e9-b6db-bd957e66751c		
22	CCB	1.00	71522327-563e-11e9-b6db-bd957e66751c		
23	HS19040154-01DF100	1.00	809f47ef-5640-11e9-b6db-bd957e66751c		
24	HS19040154-03DF100	1.00	90022cb7-5642-11e9-b6db-bd957e66751c		
25	HS19040064-01DF10	1.00	9f54178b-5644-11e9-b6db-bd957e66751c		
26	HS19040064-02DF10	1.00	aea8719d-5646-11e9-b6db-bd957e66751c		
27	DI H2O	1.00	bdfa5b11-5648-11e9-b6db-bd957e66751c		
28	HS19031550-01DF5	1.00	cd320ad3-564a-11e9-b6db-bd957e66751c		
29	HS19031549-01DF5	1.00	dc780899-564c-11e9-b6db-bd957e66751c		
30	HS19040173-03	1.00	883e16e3-5652-11e9-b6db-bd957e66751c		
31	HS19040173-05	1.00	f6bdc19f-5654-11e9-b6db-bd957e66751c		
32	HS19040173-06	1.00	05f0acb5-5657-11e9-b6db-bd957e66751c		
33	CCV	1.00	153b6f27-5659-11e9-b6db-bd957e66751c		
34	CCB	1.00	2483cf43-565b-11e9-b6db-bd957e66751c		
35	MBLK-139466	1.00	d07d1c5b-565f-11e9-b6db-bd957e66751c		
36	LCS-139466	1.00	a11ac39d-5665-11e9-b6db-bd957e66751c		
37	LCSD-139466	1.00	0fbbcf0d-5668-11e9-b6db-bd957e66751c		
38	HS19040144-01DF5	1.00	c760643d-566a-11e9-b6db-bd957e66751c		
39	HS19040144-02DF5	1.00	35bc4bef-566d-11e9-b6db-bd957e66751c		
40	HS19040144-03DF5	1.00	4504ac0b-566f-11e9-b6db-bd957e66751c		
41	DI H2O	1.00	544aa9d1-5671-11e9-b6db-bd957e66751c		
42	HS19031513-01	1.00	6384bbe9-5673-11e9-b6db-bd957e66751c		

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Sequence: 040319
Operator: ALSHS.NoUser

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2019
Timebase: ICS2100
#Samples: 294

Created: 4/3/2019 10:56:31 AM by ALSHS.NoUser
(Modified, not saved)

No.	Name	Comment	Type	Pos.	Dil. Factor	Method	Status
169	HS19040244-01		Unknown	90	1.0000	032119	Finished
170	HS19040251-15		Unknown	97	1.0000	032119	Finished
171	HS19040251-18		Unknown	98	1.0000	032119	Finished
172	HS19040251-01		Unknown	91	1.0000	032119	Finished
173	HS19040251-09		Unknown	92	1.0000	032119	Finished
174	HS19040251-09MS		Unknown	93	1.0000	032119	Finished
175	HS19040251-09MSD		Unknown	94	1.0000	032119	Finished
176	CCV1		Unknown	3	1.0000	032119	Finished
177	CCB		Unknown	4	1.0000	032119	Finished
178	HS19040251-10		Unknown	95	1.0000	032119	Finished
179	HS19040251-12		Unknown	96	1.0000	032119	Finished
180	HS19040246-01DF20		Unknown	99	20.0000	032119	Finished
181	HS19031548-01		Unknown	11	1.0000	032119	Finished
182	HS19031548-02		Unknown	13	1.0000	032119	Finished
183	HS19031548-03		Unknown	15	1.0000	032119	Finished
184	HS19031548-03MS		Unknown	16	1.0000	032119	Finished
185	HS19031548-03MSD		Unknown	17	1.0000	032119	Finished
186	HS19031548-01DF10		Unknown	12	10.0000	032119	Finished
187	HS19031548-02DF10		Unknown	14	10.0000	032119	Finished
188	CCV		Unknown	1	1.0000	032119	Finished
189	CCB		Unknown	2	1.0000	032119	Finished
190	HS19031548-04		Unknown	21	1.0000	032119	Finished
191	HS19031548-05		Unknown	23	1.0000	032119	Finished
192	HS19031548-06		Unknown	25	1.0000	032119	Finished
193	HS19031548-04DF10		Unknown	22	10.0000	032119	Finished
194	HS19031548-05DF10		Unknown	24	10.0000	032119	Finished
195	HS19031548-06DF10		Unknown	26	10.0000	032119	Finished
196	HS19031548-03DF10		Unknown	18	10.0000	032119	Finished
197	HS19031548-03MSDF10		Unknown	19	10.0000	032119	Finished
198	HS19031548-03MSDDF10		Unknown	20	10.0000	032119	Finished
199	CCV1		Unknown	3	1.0000	032119	Finished
200	CCB		Unknown	4	1.0000	032119	Finished
201	WBLKW1-040519		Unknown	27	1.0000	032119	Finished
202	WLCSW1-040519		Unknown	28	1.0000	032119	Finished
203	WLCSDW1-040519		Unknown	29	1.0000	032119	Finished
204	HS19031013-05DF5	BSLN KMU 4.05.19	Unknown	30	5.0000	032119	Finished
205	HS19031013-06DF5	BSLN KMU 4.05.19	Unknown	31	5.0000	032119	Finished
206	HS19040017-01DF10		Unknown	32	10.0000	032119	Finished
207	HS19040017-01MSDF10		Unknown	33	10.0000	032119	Finished
208	HS19040017-01MSDDF10		Unknown	34	10.0000	032119	Finished
209	CCV		Unknown	1	1.0000	032119	Finished
210	CCB		Unknown	2	1.0000	032119	Finished

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Sequence: 040319
Operator: ALSHS.NoUser

Printed: 4/11/2019 6:36:39 PM

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2019
Timebase: ICS2100
#Samples: 294

Created: 4/3/2019 10:56:31 AM by ALSHS.NoUser
(Modified, not saved)

No.	Name	Inj. Date/Time	Program	Inj. Vol.	*Initial_Vol_Wt
169	HS19040244-01	4/5/2019 5:47:11 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
170	HS19040251-15	4/5/2019 6:01:55 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
171	HS19040251-18	4/5/2019 6:16:40 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
172	HS19040251-01	4/5/2019 6:31:25 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
173	HS19040251-09	4/5/2019 6:46:09 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
174	HS19040251-09MS	4/5/2019 7:00:54 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
175	HS19040251-09MSD	4/5/2019 7:15:38 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
176	CCV1	4/5/2019 7:30:23 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
177	CCB	4/5/2019 7:45:08 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
178	HS19040251-10	4/5/2019 7:59:52 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
179	HS19040251-12	4/5/2019 8:14:37 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
180	HS19040246-01DF20	4/5/2019 8:29:22 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
181	HS19031548-01	4/5/2019 8:44:07 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
182	HS19031548-02	4/5/2019 8:58:51 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
183	HS19031548-03	4/5/2019 9:13:36 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
184	HS19031548-03MS	4/5/2019 9:28:20 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
185	HS19031548-03MSD	4/5/2019 9:43:05 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
186	HS19031548-01DF10	4/5/2019 9:57:50 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
187	HS19031548-02DF10	4/5/2019 10:12:34 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
188	CCV	4/5/2019 10:34:33 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
189	CCB	4/5/2019 10:49:18 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
190	HS19031548-04	4/5/2019 11:04:02 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
191	HS19031548-05	4/5/2019 11:18:47 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
192	HS19031548-06	4/5/2019 11:33:31 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
193	HS19031548-04DF10	4/5/2019 11:48:16 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
194	HS19031548-05DF10	4/5/2019 12:03:00 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
195	HS19031548-06DF10	4/5/2019 12:17:45 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
196	HS19031548-03DF10	4/5/2019 12:32:30 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
197	HS19031548-03MSDF10	4/5/2019 12:47:14 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
198	HS19031548-03MSDDF10	4/5/2019 1:01:59 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
199	CCV1	4/5/2019 1:16:43 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
200	CCB	4/5/2019 1:31:28 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
201	WBLKW1-040519	4/5/2019 2:09:52 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
202	WLCSW1-040519	4/5/2019 2:24:37 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
203	WLCSDW1-040519	4/5/2019 2:39:22 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
204	HS19031013-05DF5	4/5/2019 2:54:06 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
205	HS19031013-06DF5	4/5/2019 3:08:51 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
206	HS19040017-01DF10	4/5/2019 3:23:35 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
207	HS19040017-01MSDF10	4/5/2019 3:38:20 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
208	HS19040017-01MSDDF10	4/5/2019 3:53:05 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
209	CCV	4/5/2019 4:07:49 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
210	CCB	4/5/2019 4:22:34 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00

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Sequence: 040319
Operator: ALSHS.NoUser

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2019
Timebase: ICS2100
#Samples: 294

Created: 4/3/2019 10:56:31 AM by ALSHS.NoUser
(Modified, not saved)

No.	Name	*Final_Volume	GUID	Auto Purif.Frac.	Auto Purif.Ref.
169	HS19040244-01	1.00	09130359-5790-11e9-b6db-bd957e66751c		
170	HS19040251-15	1.00	18569ec9-5792-11e9-b6db-bd957e66751c		
171	HS19040251-18	1.00	2790b0e1-5794-11e9-b6db-bd957e66751c		
172	HS19040251-01	1.00	36cac2f9-5796-11e9-b6db-bd957e66751c		
173	HS19040251-09	1.00	460e5e69-5798-11e9-b6db-bd957e66751c		
174	HS19040251-09MS	1.00	5551f9d9-579a-11e9-b6db-bd957e66751c		
175	HS19040251-09MSD	1.00	648e6e47-579c-11e9-b6db-bd957e66751c		
176	CCV1	1.00	73d46c0d-579e-11e9-b6db-bd957e66751c		
177	CCB	1.00	831ccc29-57a0-11e9-b6db-bd957e66751c		
178	HS19040251-10	1.00	92652c45-57a2-11e9-b6db-bd957e66751c		
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180	HS19040246-01DF20	1.00	b1495e3f-57a6-11e9-b6db-bd957e66751c		
181	HS19031548-01	1.00	c07eabab-57a8-11e9-b6db-bd957e66751c		
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184	HS19031548-03MS	1.00	ee50a4fd-57ae-11e9-b6db-bd957e66751c		
185	HS19031548-03MSD	1.00	fd94406d-57b0-11e9-b6db-bd957e66751c		
186	HS19031548-01DF10	1.00	0cd31731-57b3-11e9-b6db-bd957e66751c		
187	HS19031548-02DF10	1.00	1c11edf5-57b5-11e9-b6db-bd957e66751c		
188	CCV	1.00	cec6ed19-57b7-11e9-b6db-bd957e66751c		
189	CCB	1.00	3d6333dd-57ba-11e9-b6db-bd957e66751c		
190	HS19031548-04	1.00	4cab93f9-57bc-11e9-b6db-bd957e66751c		
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193	HS19031548-04DF10	1.00	7a6cdcf1-57c2-11e9-b6db-bd957e66751c		
194	HS19031548-05DF10	1.00	89a9515f-57c4-11e9-b6db-bd957e66751c		
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199	CCV1	1.00	d5fb5a8f-57ce-11e9-b6db-bd957e66751c		
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210	CCB	1.00	cc0974a5-57e8-11e9-b6db-bd957e66751c		

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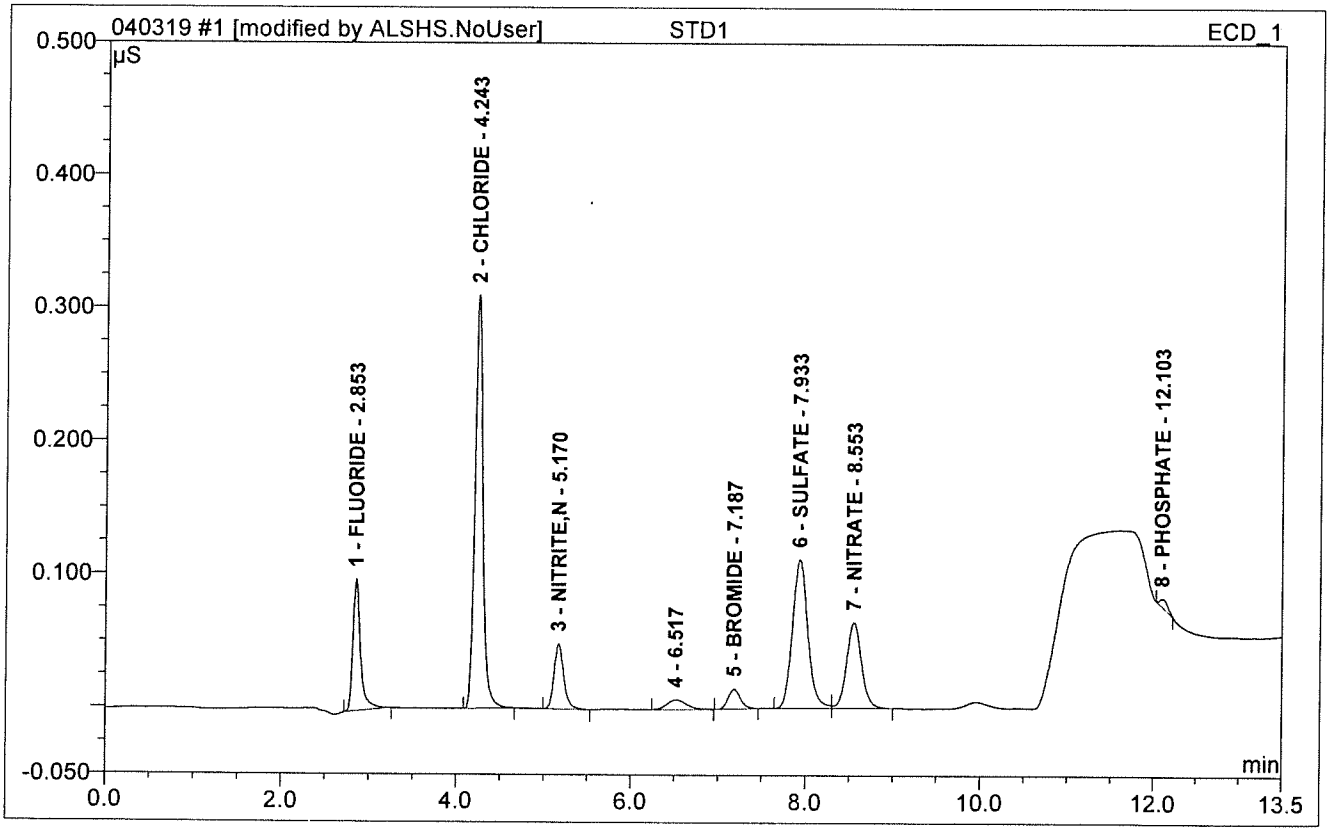
1 STD1

297.020.7208

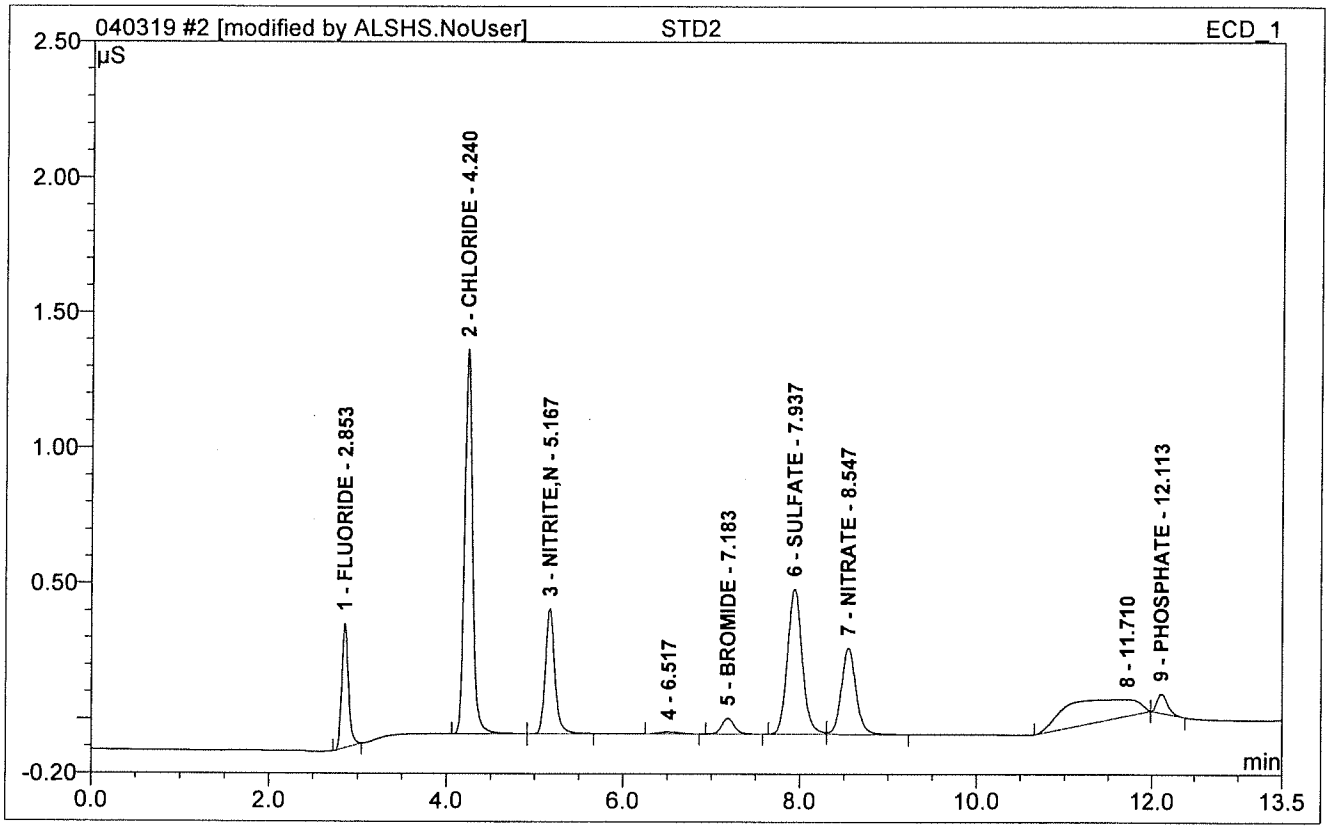
Sample Name:	**STD1**	*Injection Volume:*	**10.0**
Vial Number:	**91**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**032119**	*Dilution Factor:*	**1.**
Recording Time:	**3/21/2019 15:01**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.85	FLUORIDE	0.099	0.010	10.95	0.113	1.
2	4.24	CHLORIDE	0.311	0.033	36.81	0.575	1.
3	5.17	NITRITE,N	0.049	0.006	7.07	0.103	1.
5	7.19	BROMIDE	0.015	0.002	2.71	0.132	1.
6	7.93	SULFATE	0.112	0.023	25.31	0.552	1.
7	8.55	NITRATE	0.065	0.013	14.26	0.127	1.
8	12.10	PHOSPHATE	0.006	0.001	0.79	0.163	1.
Total:			0.656	0.088	97.90	1.763	

2 STD2

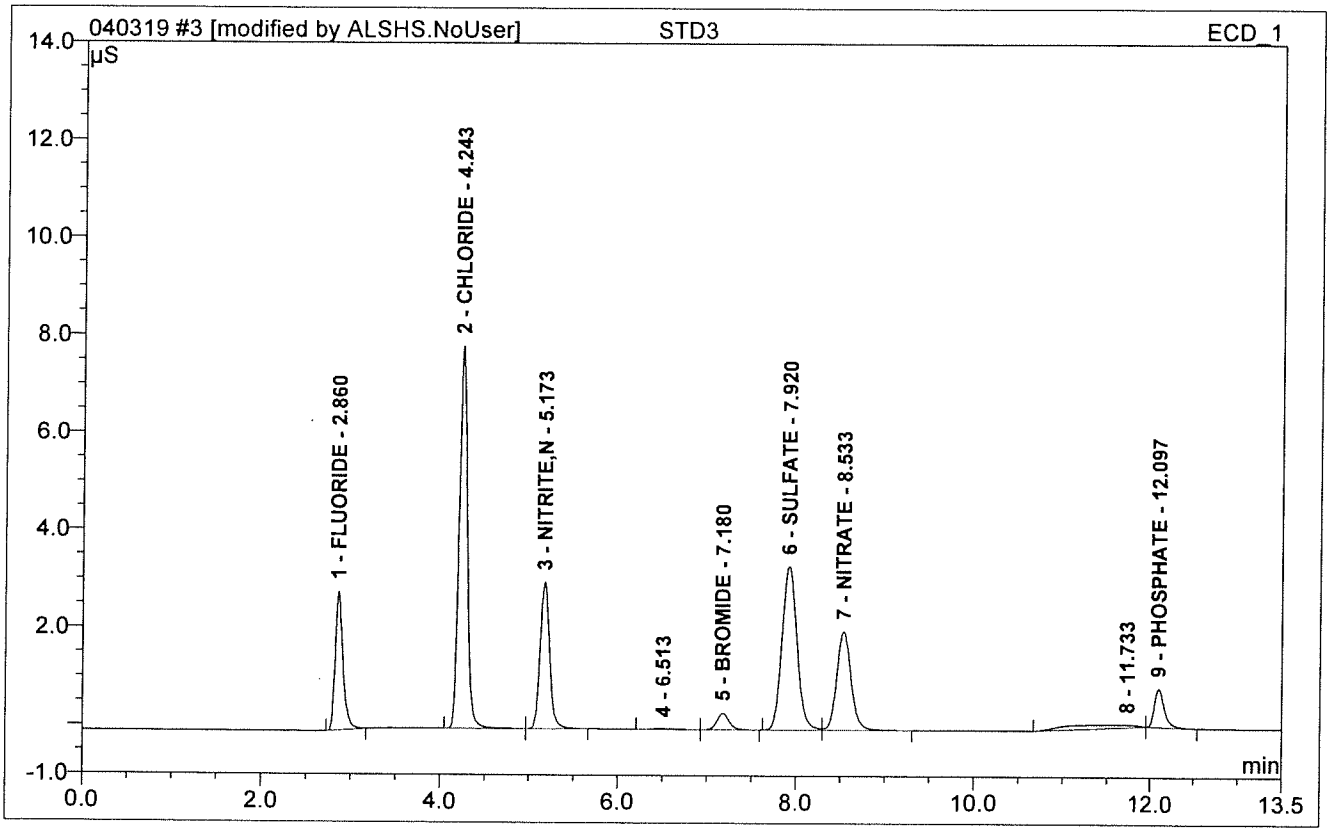
Sample Name:	**STD2**	*Injection Volume:*	**10.0**
Vial Number:	**92**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**032119**	*Dilution Factor:*	**1.**
Recording Time:	**3/21/2019 15:16**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.85	FLUORIDE	0.460	0.040	7.80	0.326	1.
2	4.24	CHLORIDE	1.419	0.146	28.82	1.817	1.
3	5.17	NITRITE,N	0.462	0.057	11.26	0.364	1.
5	7.18	BROMIDE	0.058	0.009	1.85	0.342	1.
6	7.94	SULFATE	0.538	0.105	20.58	1.797	1.
7	8.55	NITRATE	0.319	0.061	12.03	0.343	1.
9	12.11	PHOSPHATE	0.073	0.010	2.00	0.282	1.
Total:			3.328	0.429	84.34	5.270	

3 STD3

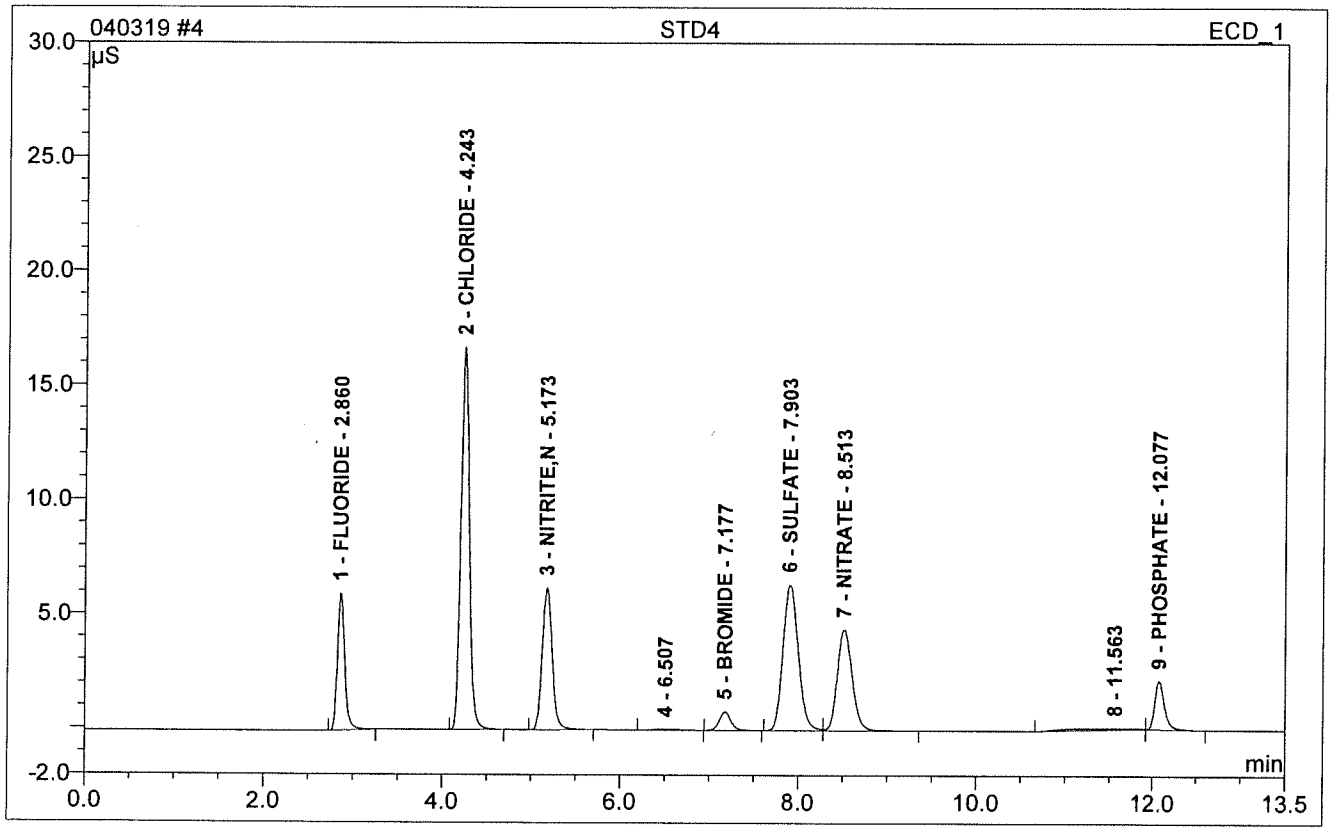
Sample Name:	**STD3**	*Injection Volume:*	**10.0**
Vial Number:	**93**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**032119**	*Dilution Factor:*	**1.**
Recording Time:	**3/21/2019 15:31**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.86	FLUORIDE	2.842	0.282	10.26	2.066	1.
2	4.24	CHLORIDE	7.837	0.836	30.35	9.380	1.
3	5.17	NITRITE,N	2.998	0.373	13.55	1.987	1.
5	7.18	BROMIDE	0.334	0.053	1.92	1.650	1.
6	7.92	SULFATE	3.346	0.654	23.76	10.172	1.
7	8.53	NITRATE	2.022	0.379	13.76	1.765	1.
9	12.10	PHOSPHATE	0.784	0.103	3.76	1.454	1.
Total:			20.164	2.681	97.36	28.476	

4 STD4

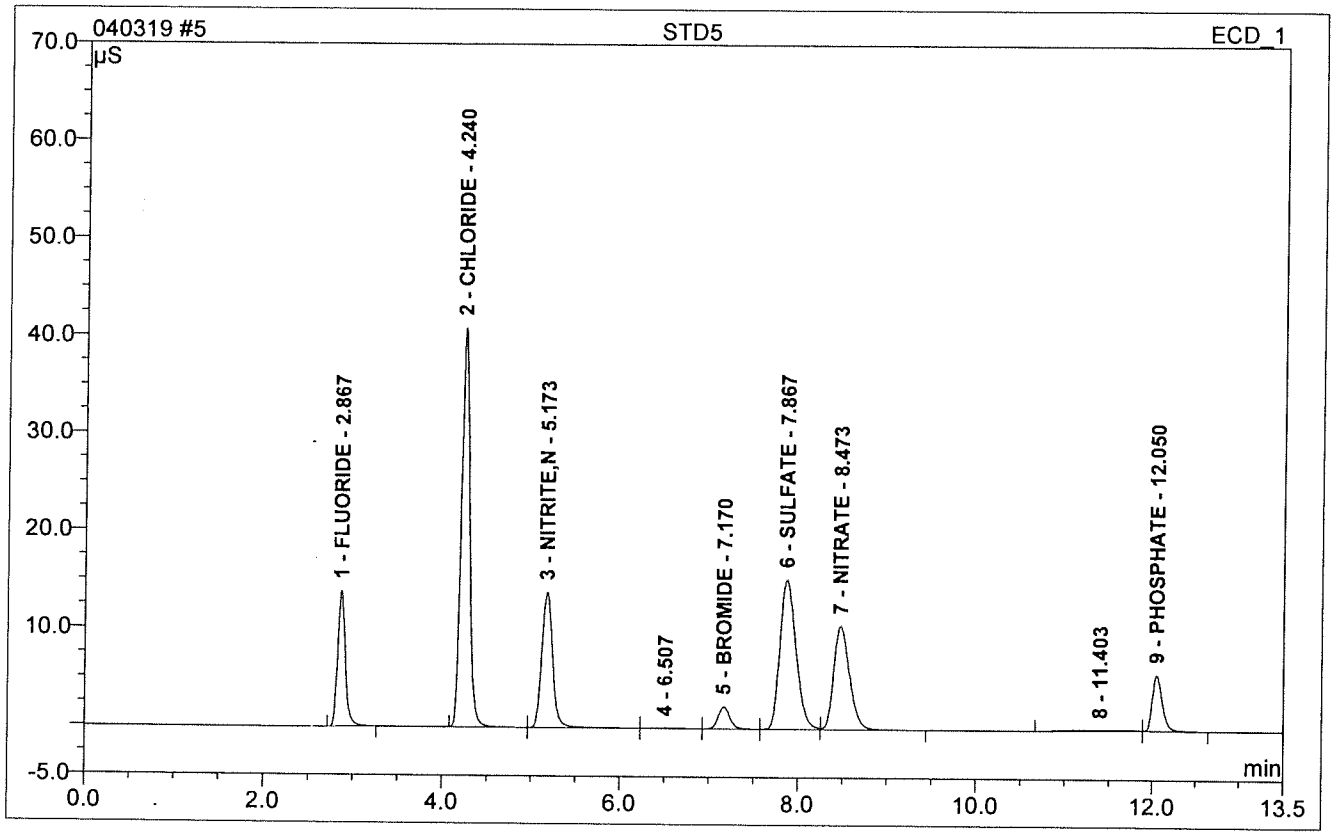
Sample Name:	**STD4**	*Injection Volume:*	**10.0**
Vial Number:	**94**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**032119**	*Dilution Factor:*	**1.**
Recording Time:	**3/21/2019 15:45**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.86	FLUORIDE	6.004	0.570	9.81	4.124	1.
2	4.24	CHLORIDE	16.707	1.806	31.12	20.029	1.
3	5.17	NITRITE,N	6.216	0.811	13.98	4.239	1.
5	7.18	BROMIDE	0.805	0.123	2.13	3.779	1.
6	7.90	SULFATE	6.393	1.281	22.07	19.726	1.
7	8.51	NITRATE	4.433	0.859	14.80	3.914	1.
9	12.08	PHOSPHATE	2.112	0.274	4.73	3.603	1.
Total:			42.669	5.725	98.64	59.415	

5 STD5

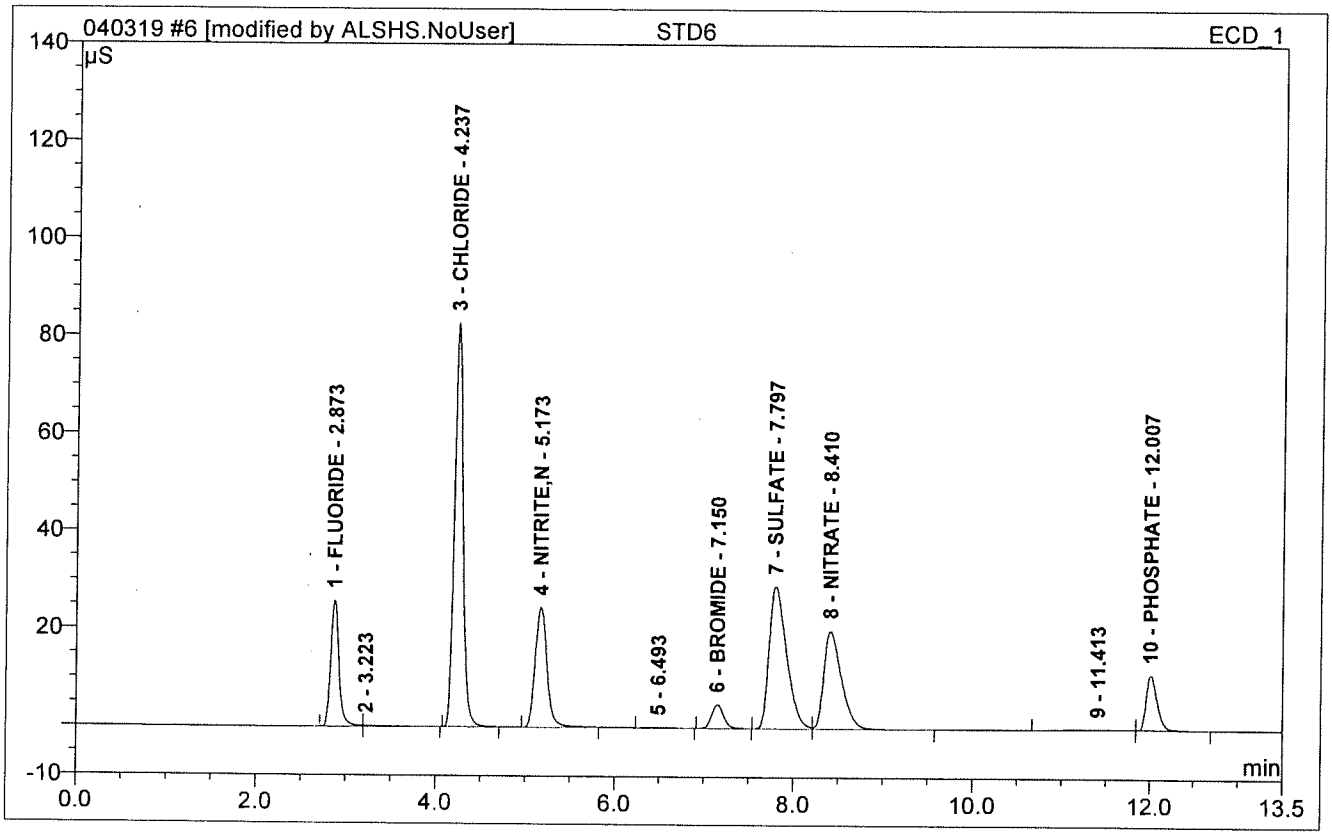
Sample Name:	**STD5**	*Injection Volume:*	**10.0**
Vial Number:	**95**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**032119**	*Dilution Factor:*	**1.**
Recording Time:	**3/21/2019 16:00**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.87	FLUORIDE	13.878	1.390	9.60	10.006	1.
2	4.24	CHLORIDE	40.904	4.496	31.04	49.541	1.
3	5.17	NITRITE,N	13.858	1.984	13.70	10.264	1.
5	7.17	BROMIDE	2.267	0.349	2.41	10.597	1.
6	7.87	SULFATE	15.306	3.219	22.22	49.250	1.
7	8.47	NITRATE	10.619	2.196	15.16	9.898	1.
9	12.05	PHOSPHATE	5.690	0.772	5.33	9.855	1.
Total:			102.521	14.406	99.46	149.412	

6 STD6

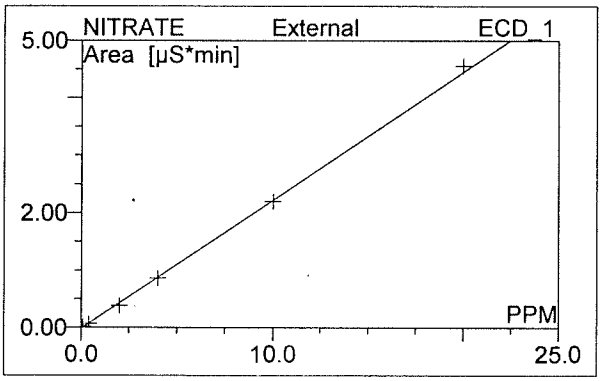
Sample Name:	**STD6**	*Injection Volume:*	**10.0**
Vial Number:	**96**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**032119**	*Dilution Factor:*	**1.**
Recording Time:	**3/21/2019 16:15**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**

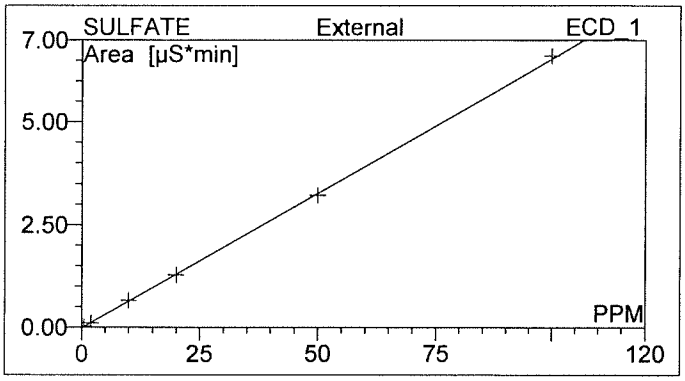


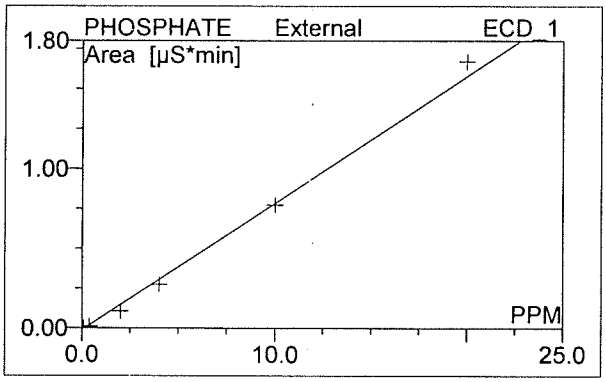
No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.87	FLUORIDE	25.835	2.766	9.39	19.866	1.
3	4.24	CHLORIDE	82.765	9.200	31.22	101.157	1.
4	5.17	NITRITE,N	24.564	3.789	12.86	19.542	1.
6	7.15	BROMIDE	4.859	0.754	2.56	22.792	1.
7	7.80	SULFATE	29.202	6.615	22.45	101.003	1.
8	8.41	NITRATE	20.094	4.555	15.46	20.453	1.
10	12.01	PHOSPHATE	11.290	1.669	5.67	21.143	1.
Total:			198.610	29.348	99.61	305.956	

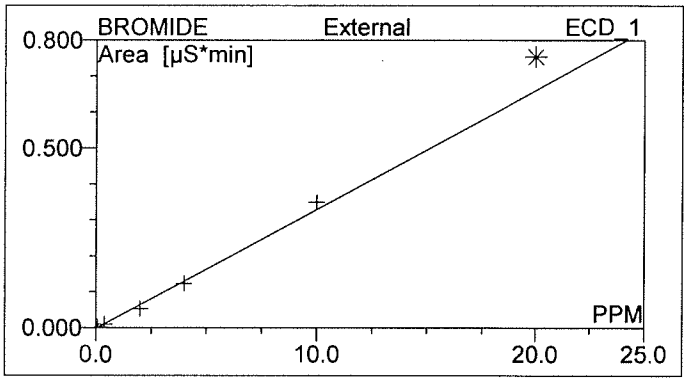
6 STD6

Sample Name:	**STD6**	*Injection Volume:*	**10.0**
Vial Number:	**96**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**032119**	*Dilution Factor:*	**1.**
Recording Time:	**3/21/2019 16:15**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**









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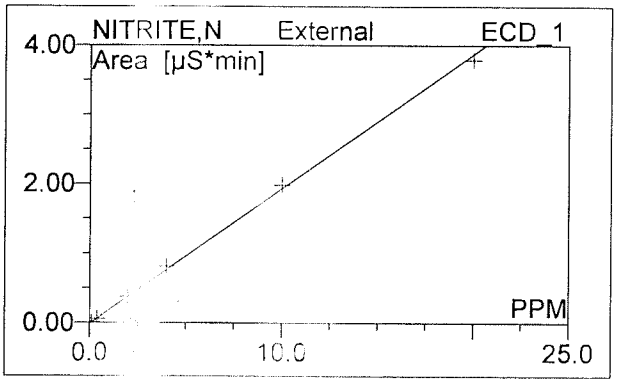
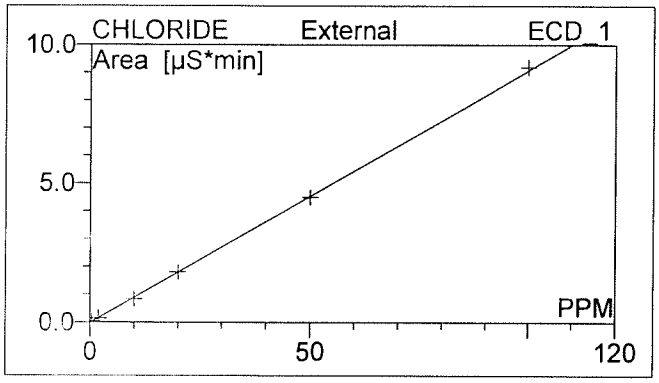
No.	Ret.Time min	Peak Name	Cal.Type	Points	Coeff.Det. %	Offset	Slope	Curve
1	2.87	FLUORIDE	XLOff	6	99.934	-0.0058	0.1395	0.000
3	4.24	CHLORIDE	XLOff	6	99.950	-0.0191	0.0911	0.000
4	5.17	NITRITE,N	XLOff	6	99.896	-0.0137	0.1946	0.000
6	7.15	BROMIDE	XLOff	5	99.137	-0.0019	0.0331	0.000
7	7.80	SULFATE	XLOff	6	99.968	-0.0133	0.0656	0.000
8	8.41	NITRATE	XLOff	6	99.834	-0.0155	0.2235	0.000
10	12.01	PHOSPHATE	XLOff	6	99.034	-0.0122	0.0795	0.000
Average:					99.6790	-0.0117	0.1182	0.0000

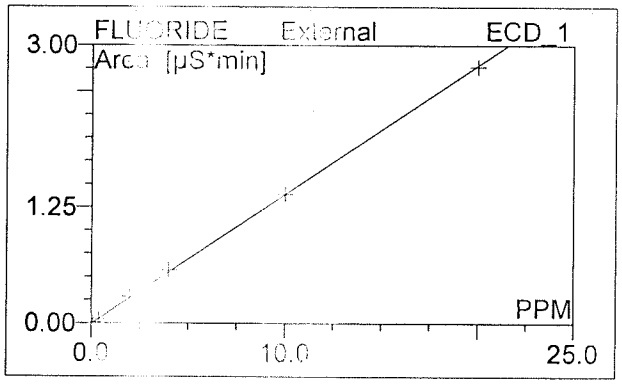
No.	Ret.Time min	Peak Name	Cal.Type	Points	Corr.Coeff. %	RF-Value	Std.Dev.	RSD %
1	2.87	FLUORIDE	XLOff	6	99.967	7.166	0.007	12.315
3	4.24	CHLORIDE	XLOff	6	99.975	10.973	0.020	10.687
4	5.17	NITRITE,N	XLOff	6	99.948	5.139	0.012	16.620
6	7.15	BROMIDE	XLOff	5	99.567	30.167	0.004	39.803
7	7.80	SULFATE	XLOff	6	99.984	15.239	0.011	8.539
8	8.41	NITRATE	XLOff	6	99.917	4.475	0.018	20.936
10	12.01	PHOSPHATE	XLOff	6	99.516	12.573	0.015	65.326
Average:					99.8392	12.2473	0.0125	24.8896

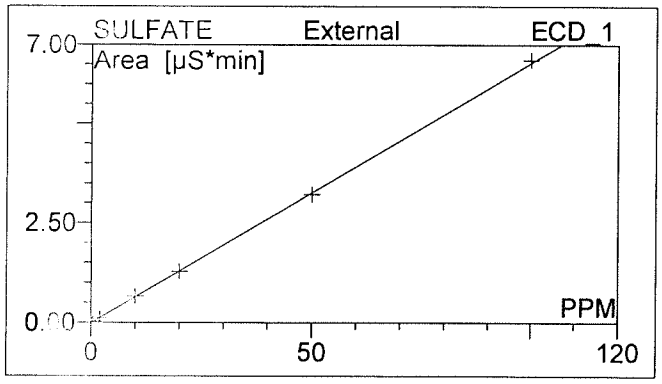
6 STD6

Sample Name:	STD6	*Injection Volume:*	**10.0**
Vial Number:	96	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**032119**	*Dilution Factor:*	**1.000**
Recording Time:	**3/21/2019 16:15**	*Sample Weight/Volume:*	**1.000**
Run Time (min):	13.50	*Final Volume:*	**1.000**









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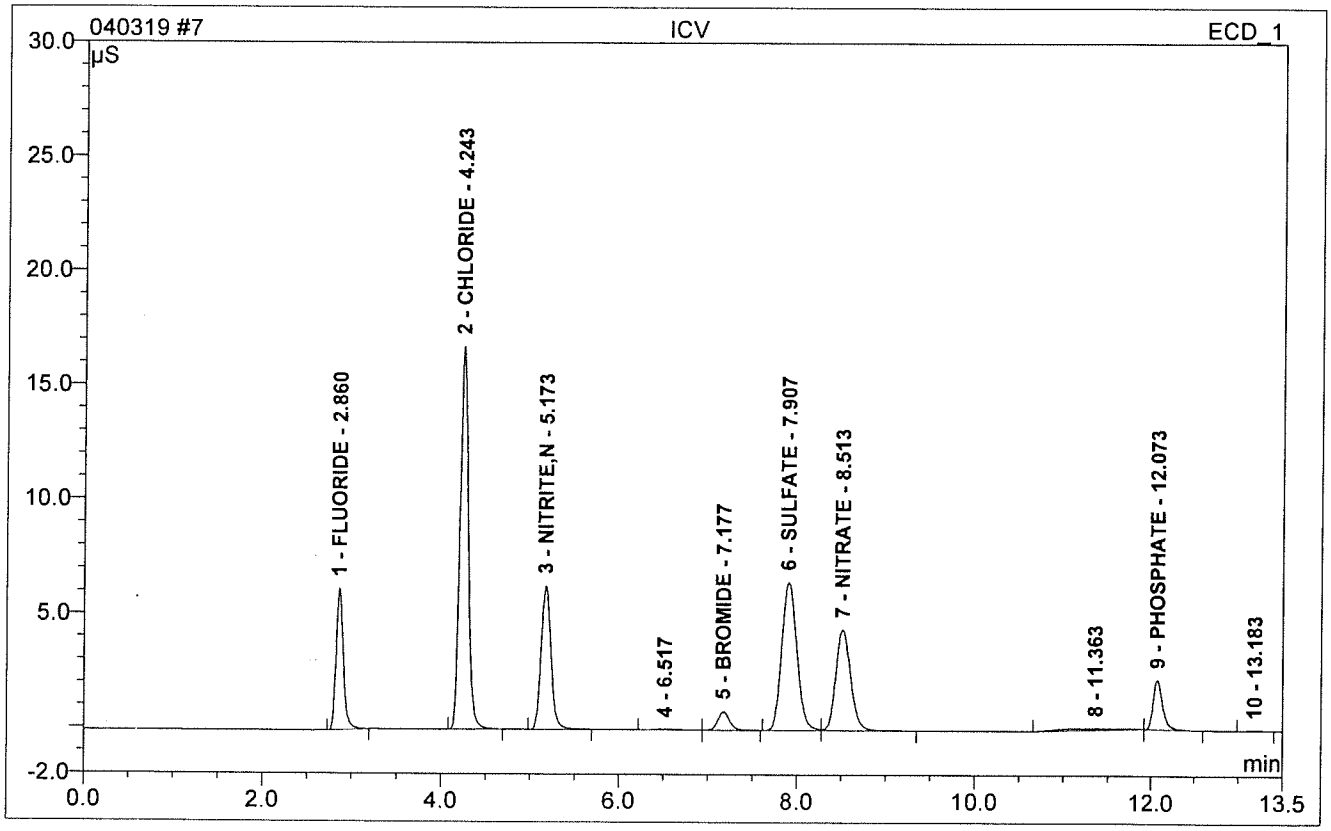
No.	Ret.Time min	Peak Name	Cal.Type	Points	Coeff.Det. %	Offset	Slope	Curve
1	2.87	FLUORIDE	XLOff	6	99.9340	-0.0058	0.1395	0.000
3	4.24	CHLORIDE	XLOff	6	99.9503	-0.0191	0.0911	0.000
4	5.17	NITRITE,N	XLOff	6	99.8962	-0.0137	0.1946	0.000
6	7.15	BROMIDE	XLOff	5	99.1367	-0.0019	0.0331	0.000
7	7.80	SULFATE	XLOff	6	99.9681	-0.0133	0.0656	0.000
8	8.41	NITRATE	XLOff	6	99.8344	-0.0155	0.2235	0.000
10	12.01	PHOSPHATE	XLOff	6	99.0335	-0.0122	0.0795	0.000
Average:					99.6790	-0.0117	0.1182	0.000

No.	Ret.Time min	Peak Name	Cal.Type	Points	Corr.Coeff. %	RF-Value	Std.Dev.	RSD %
1	2.87	FLUORIDE	XLOff	6	99.967	7.166	0.007	12.315
3	4.21	CHLORIDE	XLOff	6	99.975	10.973	0.020	10.687
4	5.17	NITRITE,N	XLOff	6	99.948	5.139	0.012	16.620
6	7.15	BROMIDE	XLOff	5	99.567	30.167	0.004	39.803
7	7.80	SULFATE	XLOff	6	99.984	15.239	0.011	8.539
8	8.41	NITRATE	XLOff	6	99.917	4.475	0.018	20.936
10	12.01	PHOSPHATE	XLOff	6	99.516	12.573	0.015	65.326
Average:					99.8392	12.247	0.013	24.890

7 ICV

297.020.6806

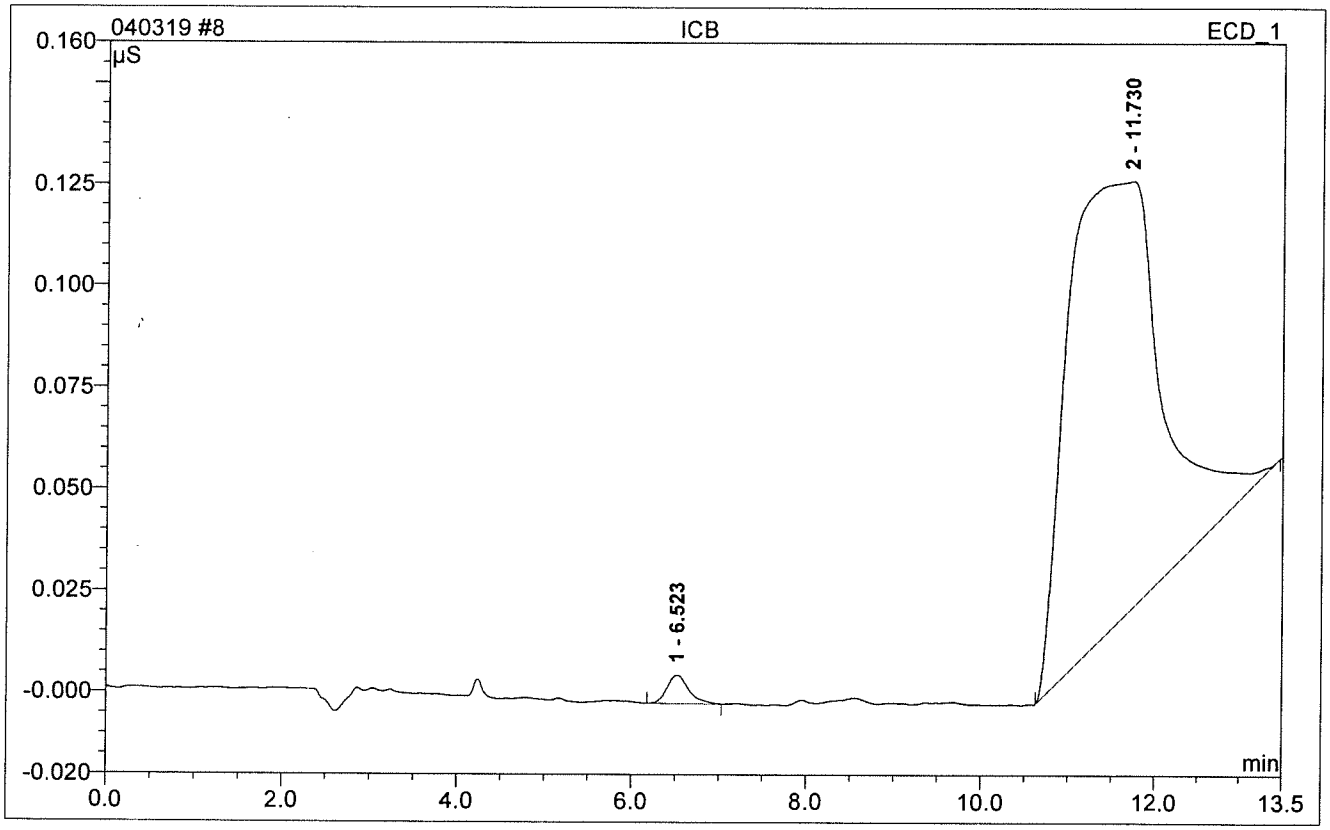
Sample Name:	**ICV**	*Injection Volume:*	**10.0**
Vial Number:	**97**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**032119**	*Dilution Factor:*	**1.**
Recording Time:	**3/21/2019 16:29**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.86	FLUORIDE	6.193	0.582	9.95	4.212	1.
2	4.24	CHLORIDE	16.737	1.810	30.94	20.070	1.
3	5.17	NITRITE,N	6.300	0.821	14.03	4.288	1.
5	7.18	BROMIDE	0.816	0.126	2.15	3.850	1.
6	7.91	SULFATE	6.500	1.295	22.13	19.930	1.
7	8.51	NITRATE	4.441	0.858	14.67	3.909	1.
9	12.07	PHOSPHATE	2.166	0.279	4.77	3.663	1.
Total:			43.153	5.770	98.63	59.923	

8 ICB

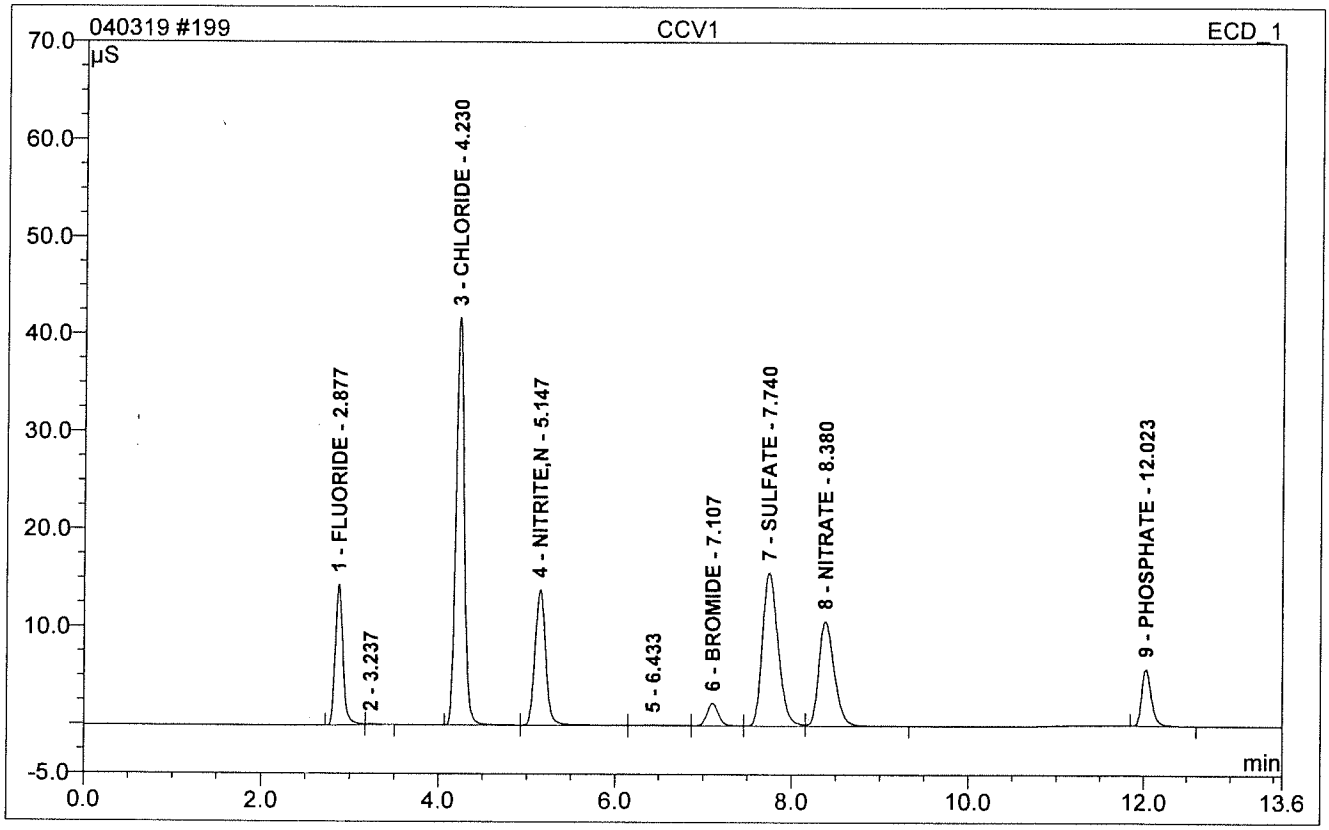
Sample Name:	**ICB**	*Injection Volume:*	**10.0**
Vial Number:	**98**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**032119**	*Dilution Factor:*	**1.**
Recording Time:	**3/21/2019 17:07**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
Total:			0.000	0.000	0.00	0.000	

199 CCV1

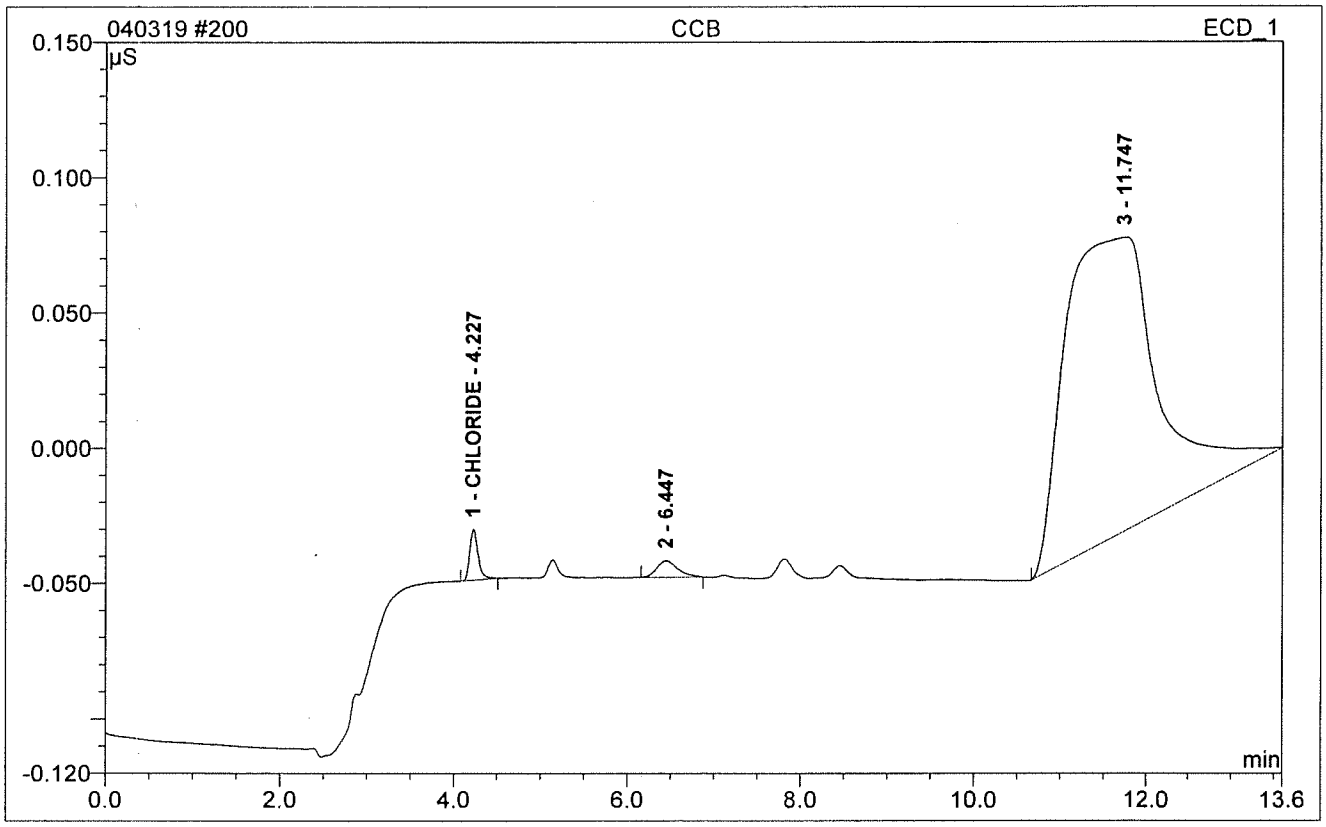
Sample Name:	**CCV1**	*Injection Volume:*	**10.0**
Vial Number:	**3**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**032119**	*Dilution Factor:*	**1.**
Recording Time:	**4/5/2019 13:16**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.88	FLUORIDE	14.476	1.446	9.91	10.407	1.
3	4.23	CHLORIDE	41.746	4.540	31.09	50.022	1.
4	5.15	NITRITE,N	13.953	1.987	13.61	10.281	1.
6	7.11	BROMIDE	2.303	0.351	2.40	10.650	1.
7	7.74	SULFATE	15.774	3.265	22.36	49.961	1.
8	8.38	NITRATE	10.813	2.212	15.15	9.966	1.
9	12.02	PHOSPHATE	5.792	0.765	5.24	9.768	1.
Total:			104.858	14.566	99.76	151.054	

200 CCB

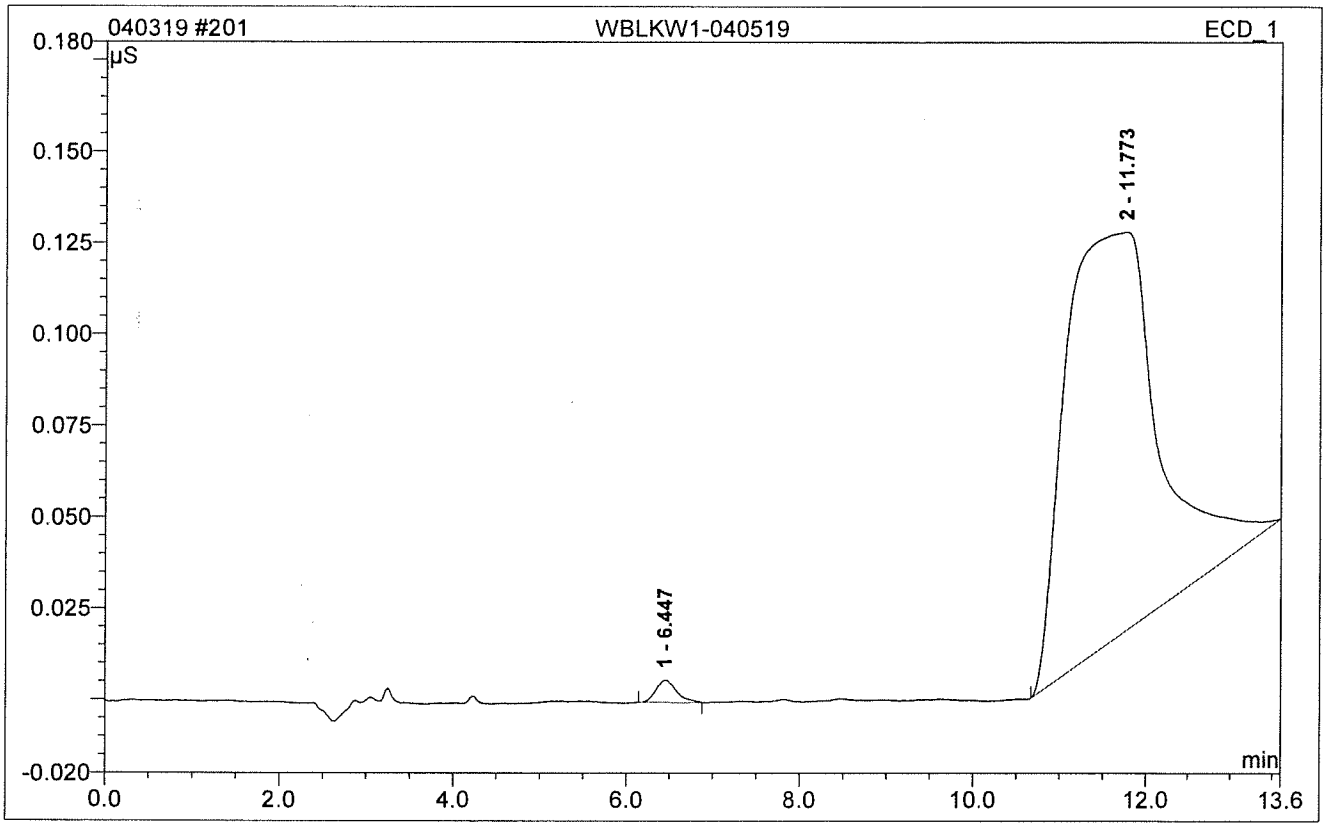
Sample Name:	**CCB**	*Injection Volume:*	**10.0**
Vial Number:	**4**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**032119**	*Dilution Factor:*	**1.**
Recording Time:	**4/5/2019 13:31**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	4.23	CHLORIDE	0.019	0.002	1.45	0.233	1.
Total:			0.019	0.002	1.45	0.233	

201 WBLKW1-040519

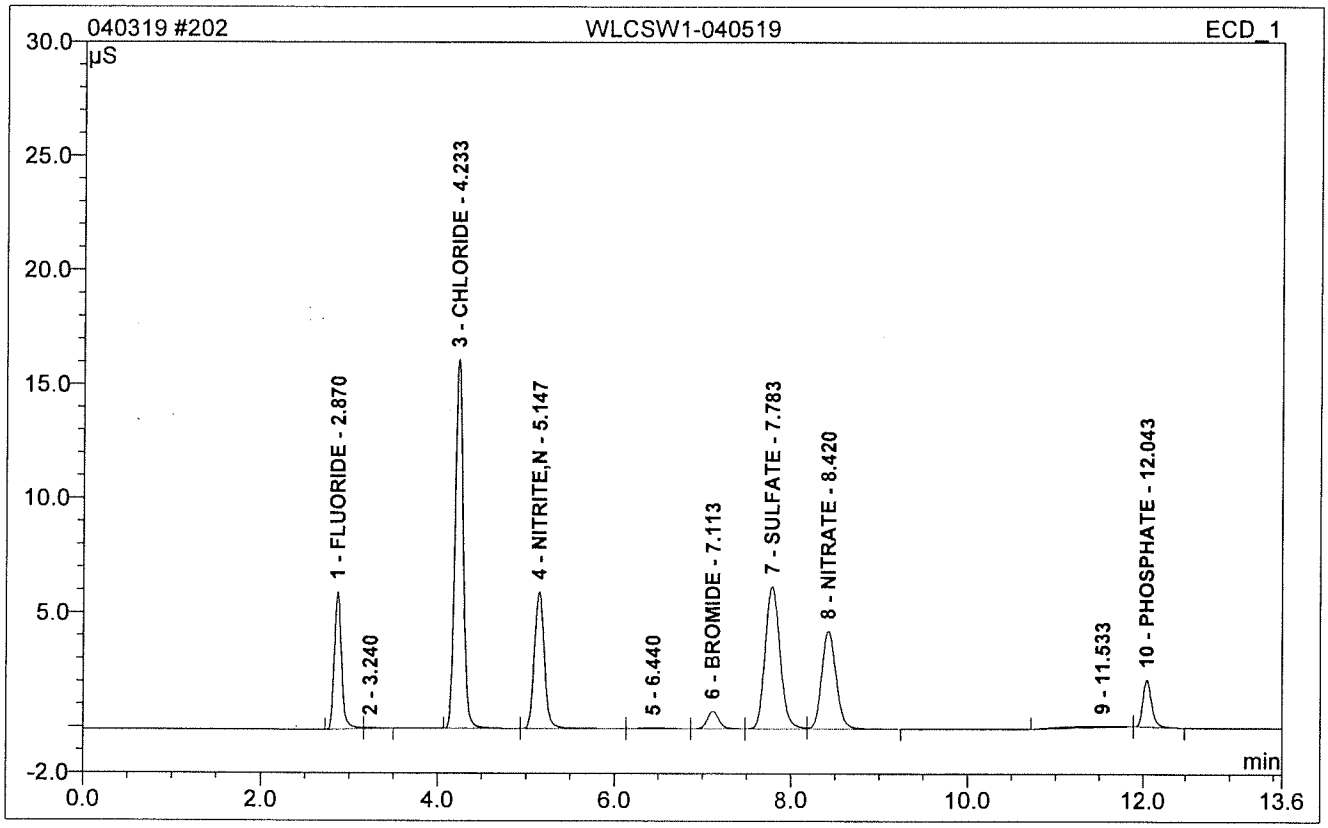
Sample Name:	**WBLKW1-040519**	*Injection Volume:*	**10.0**
Vial Number:	**27**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**032119**	*Dilution Factor:*	**1.**
Recording Time:	**4/5/2019 14:09**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
Total:			0.000	0.000	0.00	0.000	

202 WLCSW1-040519

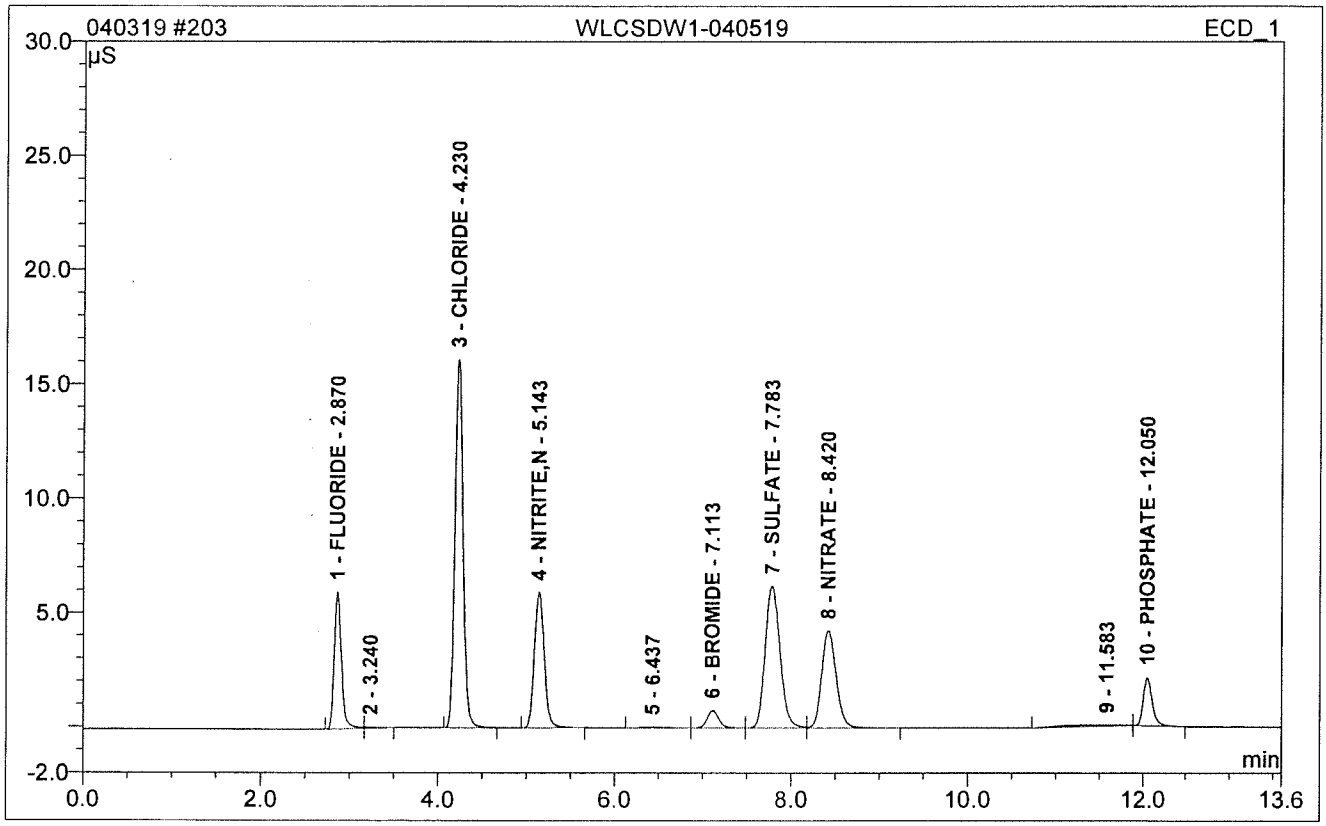
Sample Name:	**WLCSW1-040519**	*Injection Volume:*	**10.0**
Vial Number:	**28**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**032119**	*Dilution Factor:*	**1.**
Recording Time:	**4/5/2019 14:24**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.87	FLUORIDE	6.009	0.564	10.16	4.082	1.
3	4.23	CHLORIDE	16.147	1.729	31.16	19.182	1.
4	5.15	NITRITE,N	5.977	0.784	14.14	4.101	1.
6	7.11	BROMIDE	0.769	0.118	2.12	3.609	1.
7	7.78	SULFATE	6.235	1.223	22.04	18.843	1.
8	8.42	NITRATE	4.263	0.814	14.66	3.710	1.
10	12.04	PHOSPHATE	2.056	0.255	4.60	3.363	1.
Total:			41.457	5.487	98.88	56.891	

203 WLCSDW1-040519

Sample Name:	**WLCSDW1-040519**	*Injection Volume:*	**10.0**
Vial Number:	**29**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**032119**	*Dilution Factor:*	**1.**
Recording Time:	**4/5/2019 14:39**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**

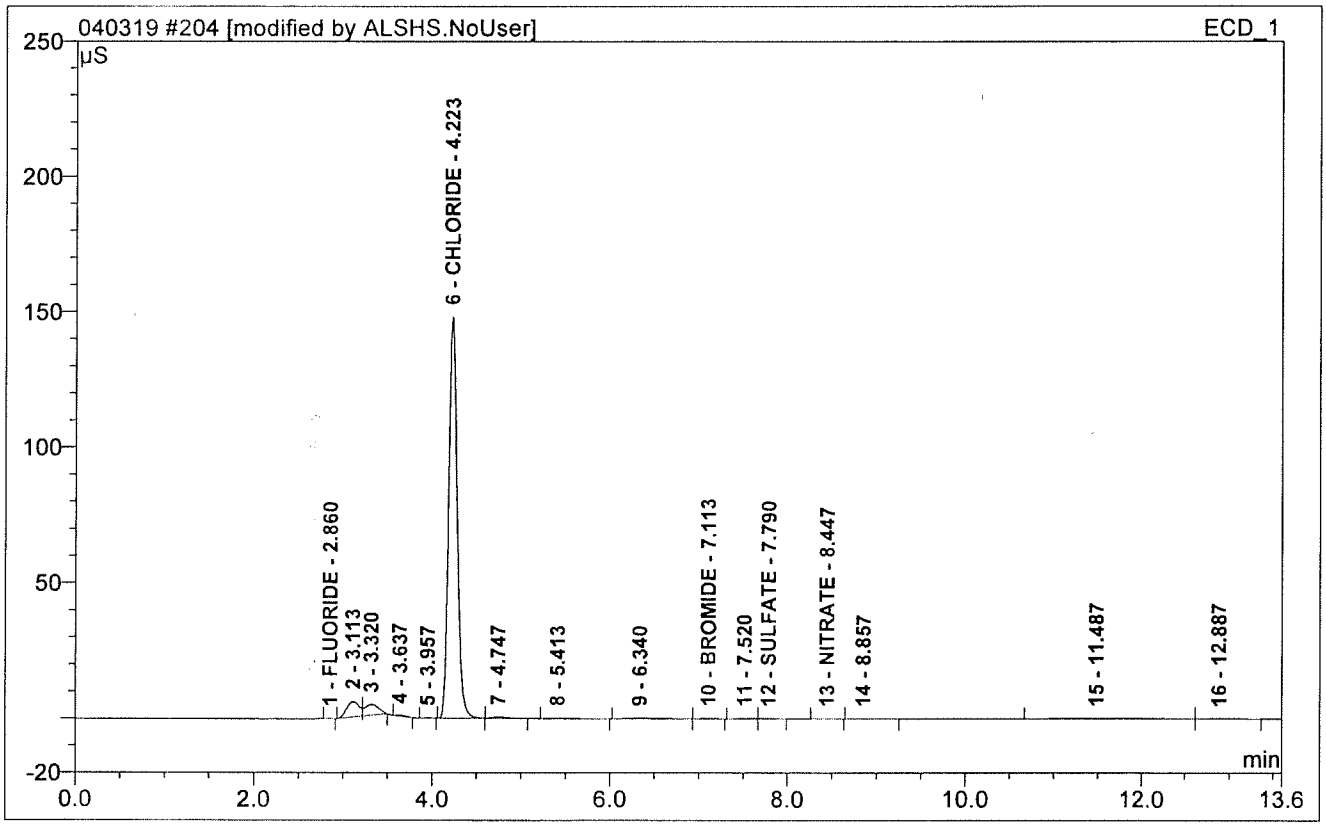


No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.87	FLUORIDE	5.998	0.563	10.19	4.080	1.
3	4.23	CHLORIDE	16.110	1.719	31.09	19.070	1.
4	5.14	NITRITE,N	5.957	0.774	14.00	4.048	1.
6	7.11	BROMIDE	0.766	0.117	2.12	3.592	1.
7	7.78	SULFATE	6.246	1.224	22.15	18.860	1.
8	8.42	NITRATE	4.254	0.811	14.68	3.700	1.
10	12.05	PHOSPHATE	2.090	0.259	4.68	3.404	1.
Total:			41.421	5.468	98.90	56.753	

204 HS19031013-05DF5

BSLN KMU 4.05.19

Sample Name:	**HS19031013-05DF5**	*Injection Volume:*	**10.0**
Vial Number:	**30**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**032119**	*Dilution Factor:*	**5.**
Recording Time:	**4/5/2019 14:54**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**

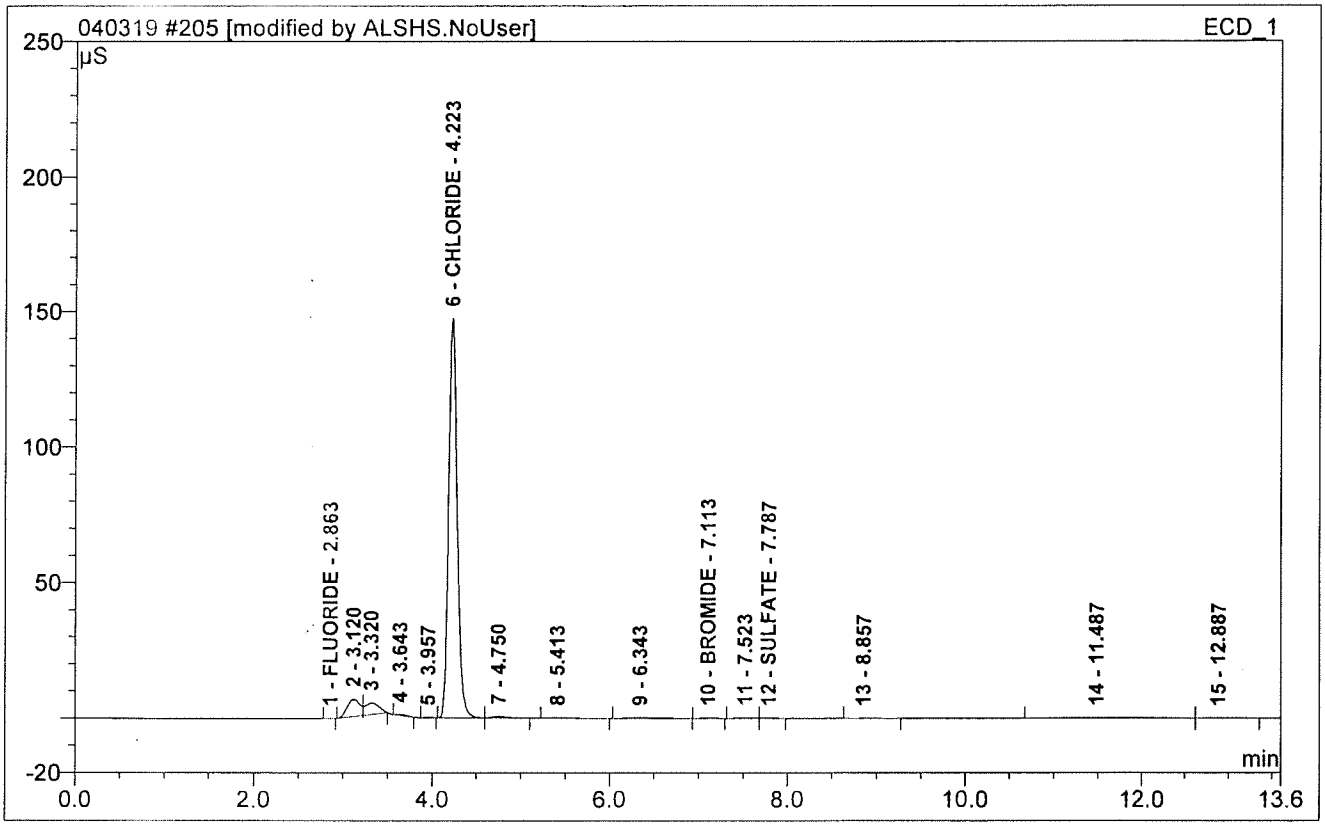


No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.86	FLUORIDE	0.045	0.003	0.02	0.314	5.
6	4.22	CHLORIDE	147.944	16.420	88.77	901.889	5.
10	7.11	BROMIDE	0.146	0.021	0.12	3.528	5.
12	7.79	SULFATE	0.087	0.017	0.09	2.329	5.
13	8.45	NITRATE	0.015	0.003	0.01	0.404	5.
Total:			148.237	16.464	89.01	908.464	

205 HS19031013-06DF5

BSLN KMU 4.05.19

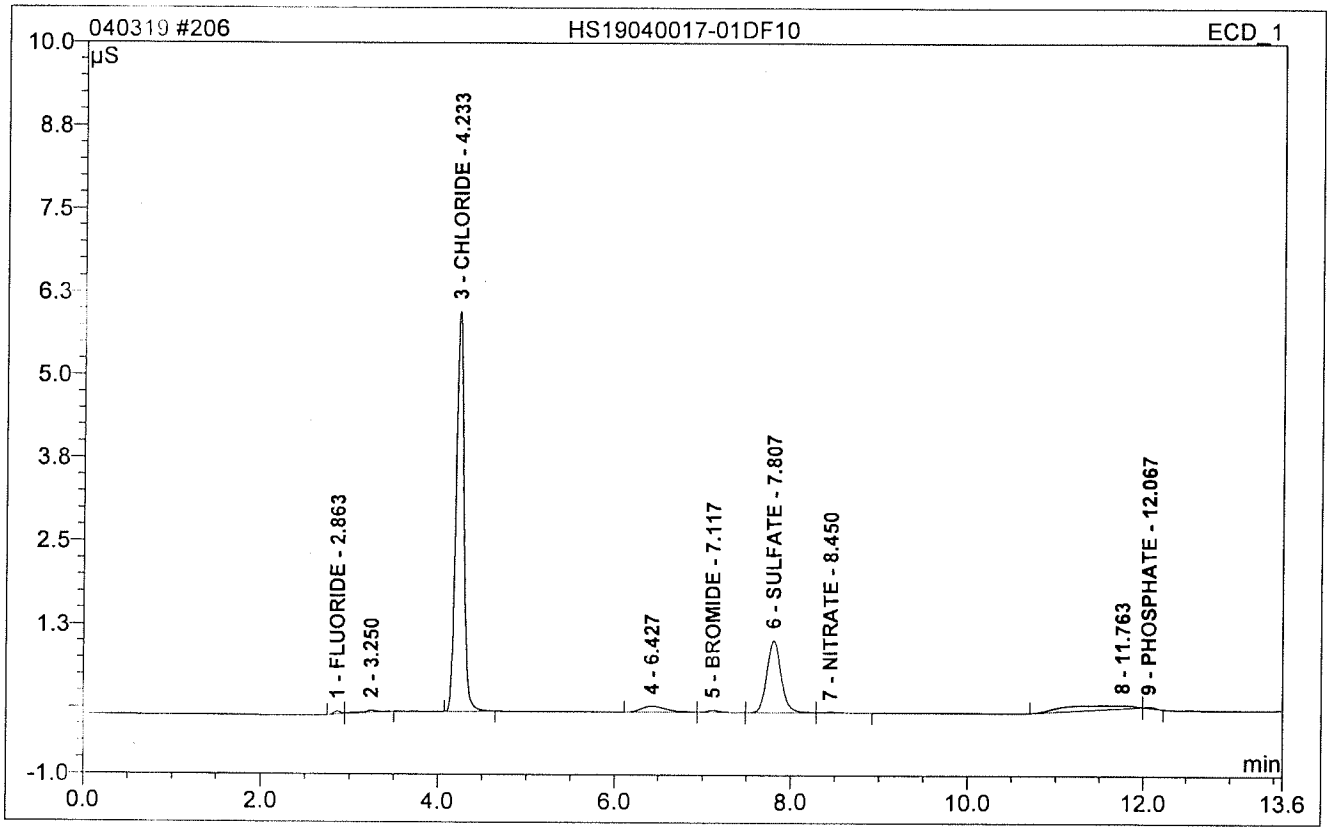
Sample Name:	**HS19031013-06DF5**	*Injection Volume:*	**10.0**
Vial Number:	**31**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**032119**	*Dilution Factor:*	**5.**
Recording Time:	**4/5/2019 15:08**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.86	FLUORIDE	0.042	0.003	0.01	0.308	5.
6	4.22	CHLORIDE	147.307	16.374	87.86	899.384	5.
10	7.11	BROMIDE	0.145	0.021	0.11	3.506	5.
12	7.79	SULFATE	0.077	0.015	0.08	2.132	5.
Total:			147.572	16.413	88.07	905.331	

206 HS19040017-01DF10

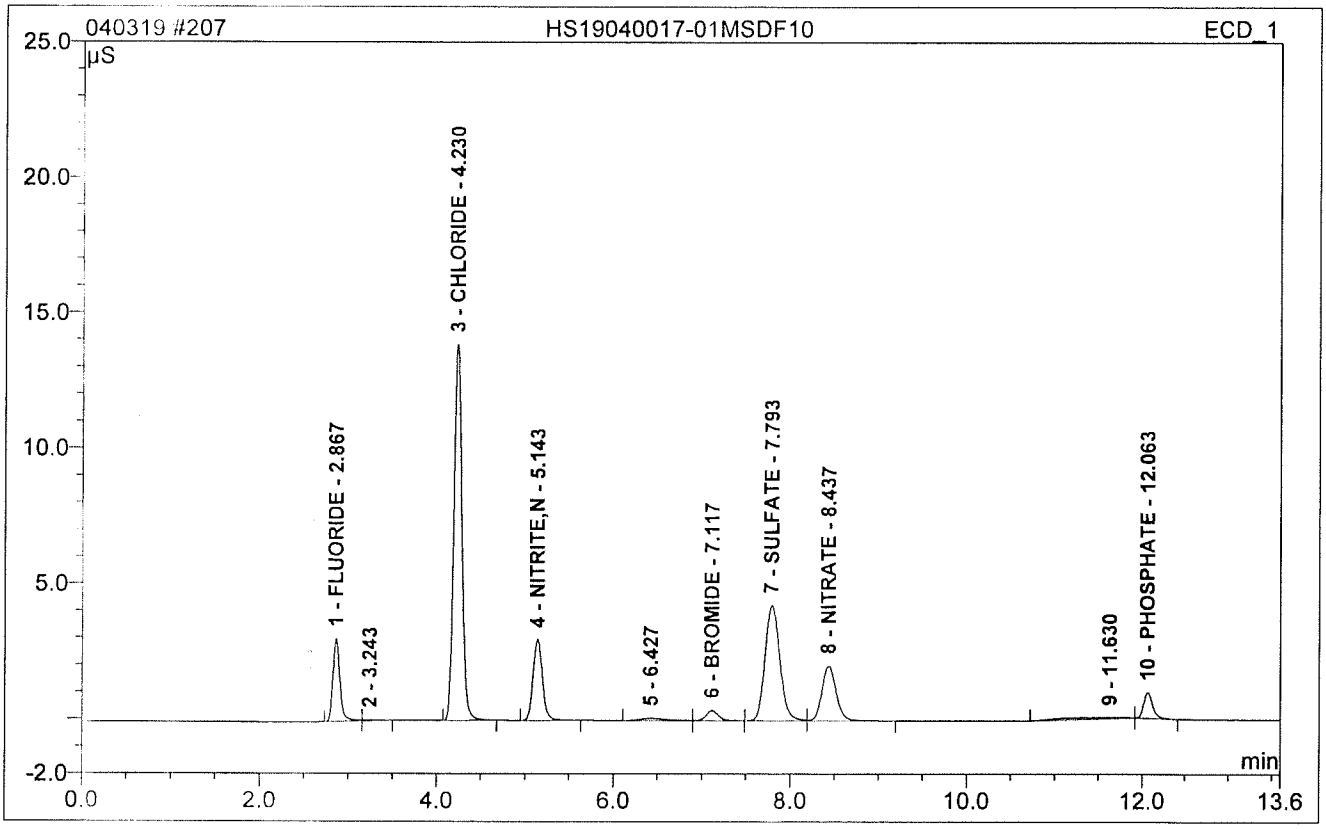
Sample Name:	**HS19040017-01DF10**	*Injection Volume:*	**10.0**
Vial Number:	**32**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**032119**	*Dilution Factor:*	**10.**
Recording Time:	**4/5/2019 15:23**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.86	FLUORIDE	0.047	0.004	0.45	0.724	10.
3	4.23	CHLORIDE	6.016	0.629	66.16	71.161	10.
5	7.12	BROMIDE	0.033	0.006	0.66	2.473	10.
6	7.81	SULFATE	1.089	0.207	21.73	33.537	10.
7	8.45	NITRATE	0.014	0.003	0.34	0.837	10.
9	12.07	PHOSPHATE	0.018	0.002	0.22	1.799	10.
Total:			7.215	0.852	89.56	110.532	

207 HS19040017-01MSDF10

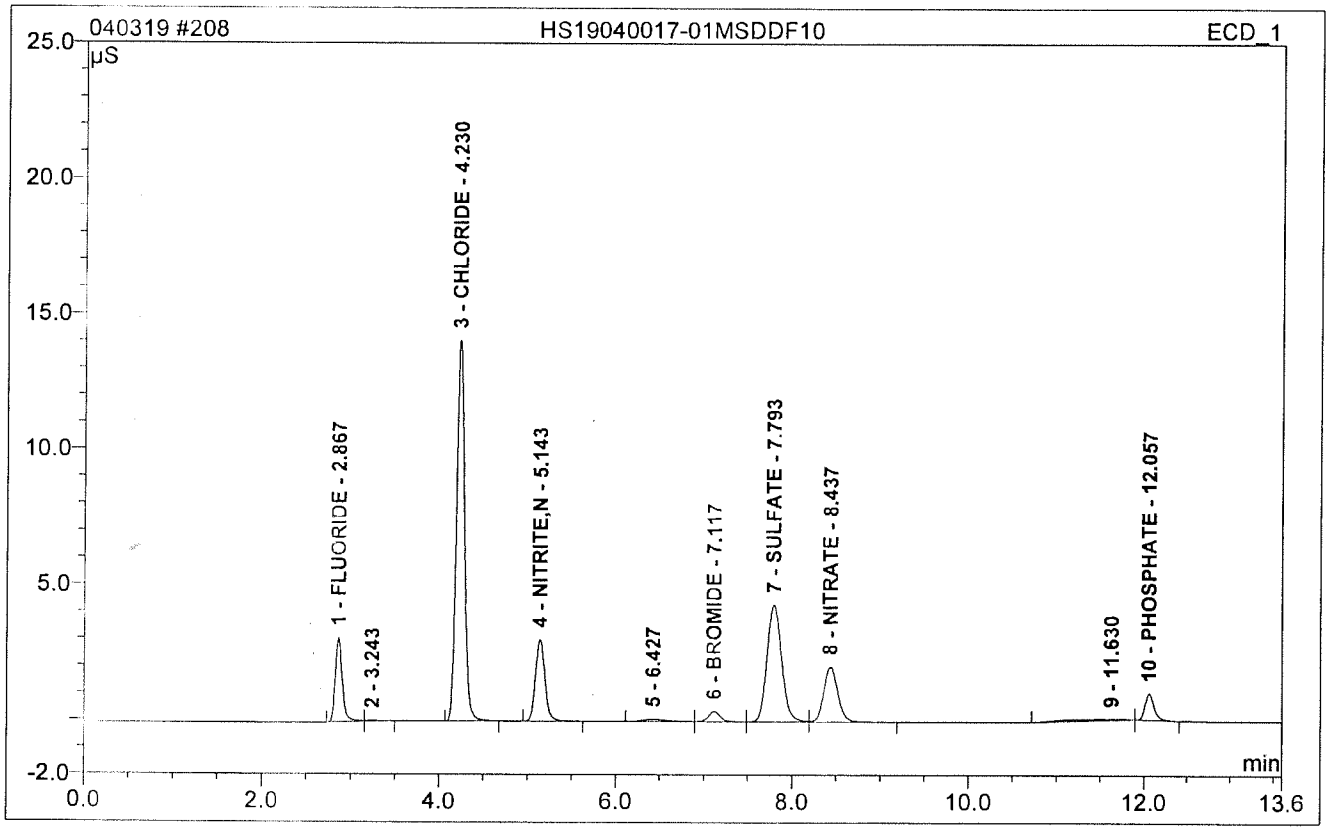
Sample Name:	**HS19040017-01MSDF10**	*Injection Volume:*	**10.0**
Vial Number:	**33**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**032119**	*Dilution Factor:*	**10.**
Recording Time:	**4/5/2019 15:38**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.87	FLUORIDE	3.058	0.280	7.78	20.456	10.
3	4.23	CHLORIDE	13.866	1.479	41.15	164.435	10.
4	5.14	NITRITE,N	2.987	0.371	10.31	19.748	10.
6	7.12	BROMIDE	0.375	0.060	1.66	18.550	10.
7	7.79	SULFATE	4.270	0.830	23.08	128.498	10.
8	8.44	NITRATE	2.022	0.376	10.46	17.515	10.
10	12.06	PHOSPHATE	0.959	0.119	3.30	16.451	10.
Total:			27.536	3.514	97.73	385.654	

208 HS19040017-01MSDDF10

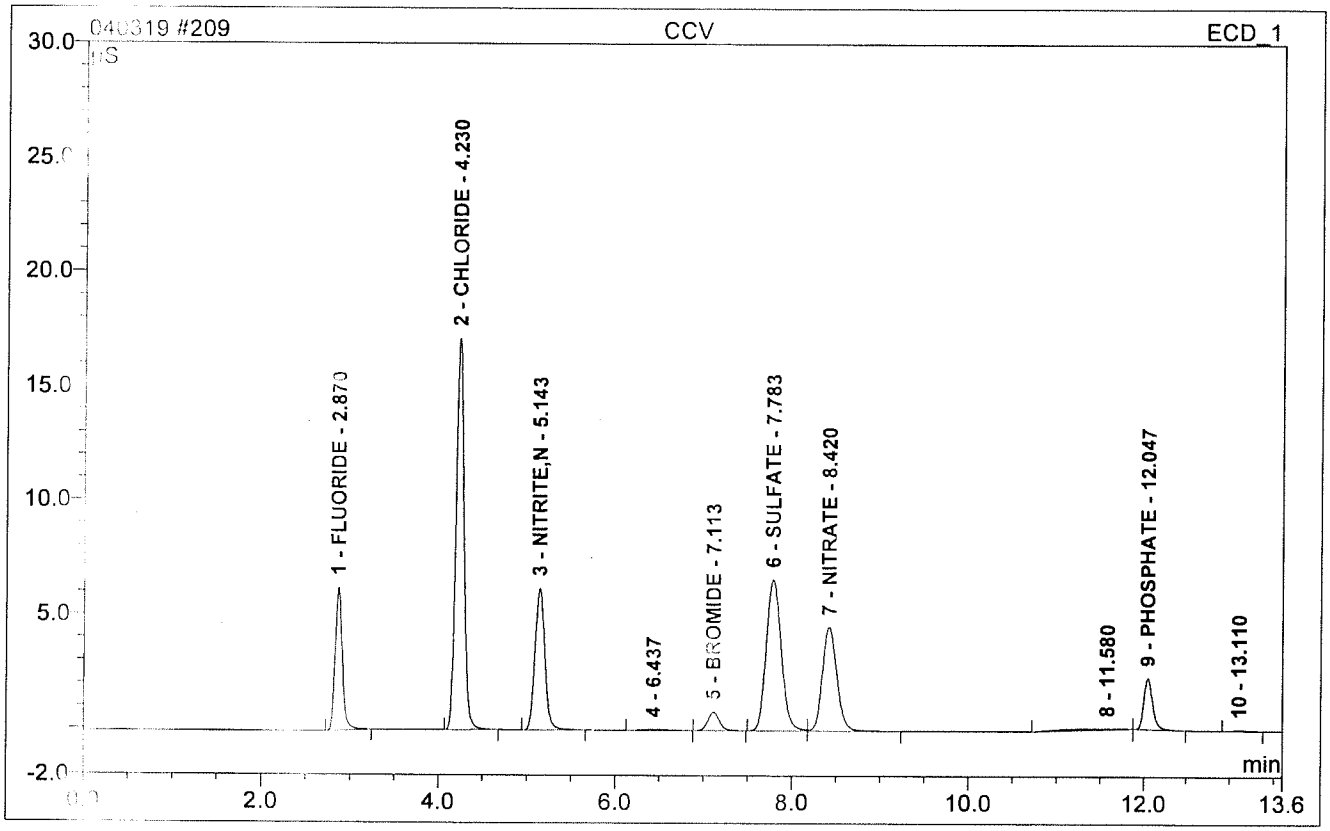
Sample Name:	**HS19040017-01MSDDF10**	*Injection Volume:*	**10.0**
Vial Number:	**34**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**032119**	*Dilution Factor:*	**10.**
Recording Time:	**4/5/2019 15:53**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.87	FLUORIDE	3.111	0.284	7.79	20.796	10.
3	4.23	CHLORIDE	14.064	1.501	41.09	166.764	10.
4	5.14	NITRITE,N	3.034	0.377	10.31	20.058	10.
6	7.12	BROMIDE	0.382	0.061	1.66	18.906	10.
7	7.79	SULFATE	4.344	0.843	23.10	130.561	10.
8	8.44	NITRATE	2.056	0.382	10.47	17.806	10.
10	12.06	PHOSPHATE	0.991	0.122	3.35	16.919	10.
Total:			27.982	3.571	97.78	391.811	

209 CCV

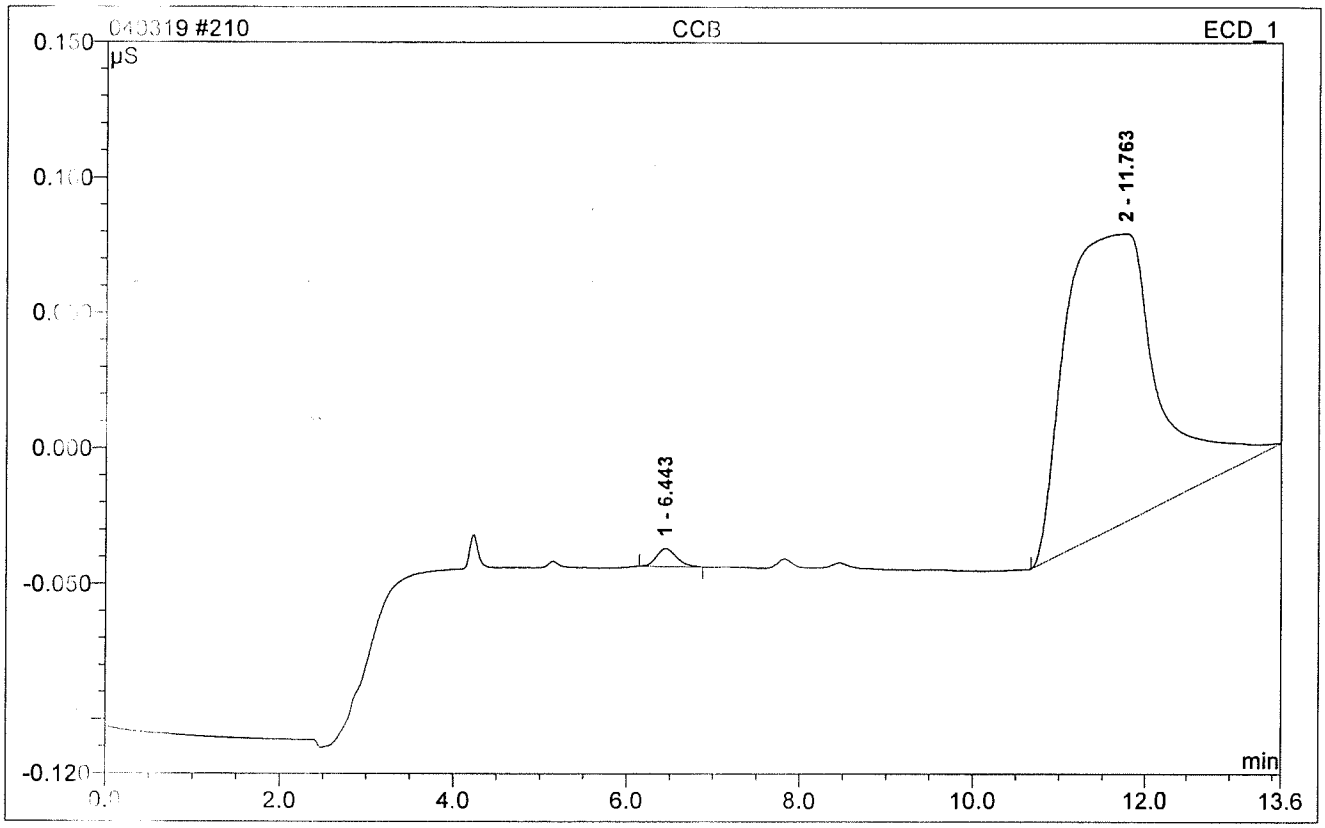
Sample Name:	CCV	*Injection Volume:*	**10.0**
Vial Number:	1	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	032119	*Dilution Factor:*	**1.**
Recording Time:	4/5/2019 **16:07**	*Sample Weight:*	**1.0000**
Run Time (min):	13.60	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.87	FLUORIDE	6.235	0.584	9.98	4.225	1.
2	4.23	CHLORIDE	17.119	1.830	31.27	20.290	1.
3	5.14	NITRITE,N	6.189	0.807	13.79	4.216	1.
5	7.11	BROMIDE	0.813	0.123	2.11	3.776	1.
6	7.78	SULFATE	6.608	1.301	22.24	20.032	1.
7	8.42	NITRATE	4.541	0.869	14.85	3.959	1.
9	12.05	PHOSPHATE	2.234	0.275	4.71	3.616	1.
Total:			43.740	5.789	98.94	60.113	

210 CCB

Sample Name:	CCB	*Injection Volume:*	**10.0**
Vial Number:	2	*Channel:*	**ECD_1**
Sample Type:	unknown	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	032119	*Dilution Factor:*	**1.**
Recording Time:	**4/5/2019 16:22**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
Total:			0.000	0.000	0.00	0.000	

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www.alsglobal.com

WorkOrder: HS19031026

LHAAP-58

Bhate Environmental Associates, Inc.

Marcia Olive
445 Union Blvd Ste 129
Lakewood CO 80228

11-Apr-2019

RIGHT SOLUTIONS | RIGHT PARTNER

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

April 11, 2019

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

Work Order: **HS19031026**

Laboratory Results for: **LHAAP-58**

Dear Marcia,

ALS Environmental received 7 sample(s) on Mar 20, 2019 for the analysis presented in the following report.

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

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

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

Sincerely,

Generated By: JUMOKE.LAWAL
RJ Modashia
Project Manager

ALS Houston, US Date: 11-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Work Order: HS19031026

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS19031026-01	35AWW11_031919	Groundwater		19-Mar-2019 08:15	20-Mar-2019 09:45	☐
HS19031026-02	35AWW24_031919	Groundwater		19-Mar-2019 09:15	20-Mar-2019 09:45	☐
HS19031026-03	35AWW19_031919	Groundwater		19-Mar-2019 10:10	20-Mar-2019 09:45	☐
HS19031026-04	LHSMW07_031919	Groundwater		19-Mar-2019 11:05	20-Mar-2019 09:45	☐
HS19031026-05	35AWW06_031919	Groundwater		19-Mar-2019 12:05	20-Mar-2019 09:45	☐
HS19031026-06	35AWW06_031919_a	Groundwater		19-Mar-2019 12:05	20-Mar-2019 09:45	☐
HS19031026-07	35AWW20_031919	Groundwater		19-Mar-2019 13:15	20-Mar-2019 09:45	☐

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 11-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Work Order: HS19031026

CASE NARRATIVE

Work Order Comments

- The analysis for VFA were subcontracted to ALS Environmental in Rochester, NY. Final report attached.

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 11-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW11_031919
Collection Date: 19-Mar-2019 08:15

ANALYTICAL REPORT
WorkOrder:HS19031026
Lab ID:HS19031026-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS	**Method:NA**							Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	11-Apr-2019 09:23

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 11-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW24_031919
Collection Date: 19-Mar-2019 09:15

ANALYTICAL REPORT
WorkOrder:HS19031026
Lab ID:HS19031026-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS	**Method:NA**							Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	11-Apr-2019 09:23

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 11-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW19_031919
Collection Date: 19-Mar-2019 10:10

ANALYTICAL REPORT
WorkOrder:HS19031026
Lab ID:HS19031026-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS	**Method:NA**							Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	11-Apr-2019 09:23

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 11-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: LHSMW07_031919
Collection Date: 19-Mar-2019 11:05

ANALYTICAL REPORT
WorkOrder:HS19031026
Lab ID:HS19031026-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS	**Method:NA**							Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	11-Apr-2019 09:23

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 11-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW06_031919
Collection Date: 19-Mar-2019 12:05

ANALYTICAL REPORT
WorkOrder:HS19031026
Lab ID:HS19031026-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS	**Method:NA**							Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	11-Apr-2019 09:23

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 11-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW06_031919_a
Collection Date: 19-Mar-2019 12:05

ANALYTICAL REPORT
WorkOrder:HS19031026
Lab ID:HS19031026-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS	**Method:NA**							Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	11-Apr-2019 09:23

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 11-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW20_031919
Collection Date: 19-Mar-2019 13:15

ANALYTICAL REPORT
WorkOrder:HS19031026
Lab ID:HS19031026-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS	**Method:NA**							Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	11-Apr-2019 09:23

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

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 11-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19031026

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID R336371	**Test Name :** SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS			**Matrix:** Groundwater		
HS19031026-01	35AWW11_031919	19 Mar 2019 08:15			11 Apr 2019 09:23	1
HS19031026-02	35AWW24_031919	19 Mar 2019 09:15			11 Apr 2019 09:23	1
HS19031026-03	35AWW19_031919	19 Mar 2019 10:10			11 Apr 2019 09:23	1
HS19031026-04	LHSMW07_031919	19 Mar 2019 11:05			11 Apr 2019 09:23	1
HS19031026-05	35AWW06_031919	19 Mar 2019 12:05			11 Apr 2019 09:23	1
HS19031026-06	35AWW06_031919_a	19 Mar 2019 12:05			11 Apr 2019 09:23	1
HS19031026-07	35AWW20_031919	19 Mar 2019 13:15			11 Apr 2019 09:23	1

RIGHT SOLUTIONS | RIGHT PARTNER

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: **HS19031026**

QUALIFIERS, ACRONYMS, UNITS

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

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

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CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Texas	T10470231-18-21	30-Apr-2019
North Dakota	R193 2018-2019	30-Apr-2019
Illinois	004438	29-Jun-2019
Louisiana	03087	30-Jun-2019
Dept of Defense	ANAB L2231	20-Dec-2021
Kentucky	123043 - 2018	30-Apr-2019
Kansas	E-10352 2018-2019	31-Jul-2019
Oklahoma	2018-156	31-Aug-2019
North Carolina	624-2019	31-Dec-2019
California	2919, 2018-2019	30-Apr-2019
Maryland	343, 2018-2019	30-Jun-2019
Arkansas	19-028-0	27-Mar-2020

ALS Houston, US Date: 11-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Work Order: HS19031026

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS19031026-01	35AWW11_031919	Login	3/20/2019 7:04:21 PM	CGG	WET213
HS19031026-01	35AWW11_031919	Login	3/20/2019 7:04:21 PM	CGG	VOA085
HS19031026-01	35AWW11_031919	Login	3/20/2019 7:04:21 PM	CGG	Sub
HS19031026-01	35AWW11_031919	Login	3/20/2019 7:04:21 PM	CGG	Sub
HS19031026-01	35AWW11_031919	Login	3/20/2019 7:04:21 PM	CGG	Sub
HS19031026-02	35AWW24_031919	Login	3/20/2019 7:04:21 PM	CGG	WET213
HS19031026-02	35AWW24_031919	Login	3/20/2019 7:04:21 PM	CGG	VOA085
HS19031026-02	35AWW24_031919	Login	3/20/2019 7:04:21 PM	CGG	Sub
HS19031026-02	35AWW24_031919	Login	3/20/2019 7:04:21 PM	CGG	Sub
HS19031026-02	35AWW24_031919	Login	3/20/2019 7:04:21 PM	CGG	Sub
HS19031026-03	35AWW19_031919	Login	3/20/2019 7:04:21 PM	CGG	WET213
HS19031026-03	35AWW19_031919	Login	3/20/2019 7:04:21 PM	CGG	VOA085
HS19031026-03	35AWW19_031919	Login	3/20/2019 7:04:21 PM	CGG	Sub
HS19031026-03	35AWW19_031919	Login	3/20/2019 7:04:21 PM	CGG	Sub
HS19031026-03	35AWW19_031919	Login	3/20/2019 7:04:21 PM	CGG	Sub
HS19031026-04	LHSMW07_031919	Login	3/20/2019 7:04:21 PM	CGG	WET213
HS19031026-04	LHSMW07_031919	Login	3/20/2019 7:04:21 PM	CGG	VOA085
HS19031026-04	LHSMW07_031919	Login	3/20/2019 7:04:21 PM	CGG	Sub
HS19031026-04	LHSMW07_031919	Login	3/20/2019 7:04:21 PM	CGG	Sub
HS19031026-04	LHSMW07_031919	Login	3/20/2019 7:04:21 PM	CGG	Sub
HS19031026-05	35AWW06_031919	Login	3/20/2019 7:04:21 PM	CGG	WET213
HS19031026-05	35AWW06_031919	Login	3/20/2019 7:04:21 PM	CGG	VOA085
HS19031026-05	35AWW06_031919	Login	3/20/2019 7:04:21 PM	CGG	Sub
HS19031026-05	35AWW06_031919	Login	3/20/2019 7:04:21 PM	CGG	Sub
HS19031026-05	35AWW06_031919	Login	3/20/2019 7:04:21 PM	CGG	Sub
HS19031026-06	35AWW06_031919_a	Login	3/20/2019 7:04:21 PM	CGG	WET213
HS19031026-06	35AWW06_031919_a	Login	3/20/2019 7:04:21 PM	CGG	VOA085
HS19031026-06	35AWW06_031919_a	Login	3/20/2019 7:04:21 PM	CGG	Sub
HS19031026-06	35AWW06_031919_a	Login	3/20/2019 7:04:21 PM	CGG	Sub
HS19031026-06	35AWW06_031919_a	Login	3/20/2019 7:04:21 PM	CGG	Sub
HS19031026-07	35AWW20_031919	Login	3/20/2019 7:04:21 PM	CGG	WET213
HS19031026-07	35AWW20_031919	Login	3/20/2019 7:04:21 PM	CGG	VOA085
HS19031026-07	35AWW20_031919	Login	3/20/2019 7:04:21 PM	CGG	Sub
HS19031026-07	35AWW20_031919	Login	3/20/2019 7:04:21 PM	CGG	Sub
HS19031026-07	35AWW20_031919	Login	3/20/2019 7:04:21 PM	CGG	Sub

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 11-Apr-19

Sample Receipt Checklist

Client Name: Bhate Environmental
Work Order: HS19031026
Date/Time Received: **20-Mar-2019 09:45**
Received by: **NDR**

Checklist completed by: *Raegen Giga* eSignature 20-Mar-2019 Date
Reviewed by: *Corey Grandits* eSignature 20-Mar-2019 Date

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

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Samplers name present on COC?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	

Temperature(s)/Thermometer(s):	0.8c uc/c	IR 11
Cooler(s)/Kit(s):	44697	
Date/Time sample(s) sent to storage:	03/20/2019 16:33	

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

pH adjusted by:

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

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bhate ENVIRONMENTAL CONSTRUCTION ENERGY

1608 13th Avenue South, Suite 300
Binningham Alabama 35205
Tel. 205-918-4000
Fax: 205-918-4050

Chain of Custody and Analytical Request

Page: _____ of _____

Project/Phase No: NWO1312.0150

COC Number(1): _____

LIMS Number: _____

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / Site 58

Client Name: _____

Collected by: Scott Beesinger

Sample Analysis Requested [3] | Quality Assurance Samples [5]

Field Sample ID (30 Characters Max)	ERP MS LOCID (15 Characters Max)	Date Collected (dd-mmm-yyyy)	Time Collected (Military) (hhmm)	Sample Depth (beginning - ending)	SA Code [2]	Sample Number [3]	Sample Matrix [4]	Number of containers	Volatile Fatty Acids											Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
35SAWW11_031919		19 MAR 2019	0815	-	N		WG	1	X														
35SAWW24_031919		19 MAR 2019	0915	-	N		WG	1	X														
35SAWW19_031919		19 MAR 2019	1010	-	N		WG	1	X														
LHSMW07_031919		19 MAR 2019	1105	-	N		WG	1	X														
35SAWW06_031919		19 MAR 2019	1205	-	N		WG	1	X														
35SAWW06_031919_FD		19 MAR 2019	1205	-	FD		WG	1	X														
35SAWW20_031919		19 MAR 2019	1315	-	N		WG	1	X														
35SAWW20_031919_MS		19 MAR 2019	1315	-	MS		WG		X														
35SAWW20_031919_MSD		19 MAR 2019	1315	-	MSD		WG		X														
				-																			
				-																			

COMMENTS: _____

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received By (Signed)	Date	Time
1.	3/19/19	1430	1.	3-2019	09.45
2.			2.		
3.			3.		

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: _____ Shipped _____ No: _____

Method of Shipment: _____

Fed _____ Ex _____ Airbill Number: _____

Analytical Lab: ALS 10450 Stancliff Rd. Suite 210 Houston, TX 77099 (281) 530-5656

ATTN: SONIA WEST Lab Recipient: _____ Delivery Date/Time: _____

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01)

2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-c) Sample, FD = Field Duplicate (-a) Samples, FR = Field Replicate (-b) Samples, EB = Equipment Blank (-d) Samples, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-e)

3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)

4.) Matrix Codes: GS = Soil Gas, WG = Groundwater, WS = Surface Water, SO = Soil, SE = Sediment, SL = Sludge, SS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blanks

5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each

6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 10109901 in the Equipn

R1902402 5

ALS Laboratory Group
LHAAP / Site 58

RIGHT SOLUTIONS | RIGHT PARTNER

00948865

April 11, 2019 Service Request No:R1902402

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

Laboratory Results for: HS19031026 LHAAP / Site 58

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory March 20, 2019
For your reference, these analyses have been assigned our service request number **R1902402.**

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and ALS Environmental is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 7472. You may also contact me via email at Janice.Jaeger@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Janice Jaeger
Project Manager

ADDRESS 1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
PHONE +1 585 288 5380 | FAX +1 585 288 8475
ALS Group USA, Corp.
dba ALS Environmental

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RQ1902678-09 - CCV Semivoa GC 130
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Narrative Documents

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

ALS Environmental

Client: ALS Environmental - US
Project: HS19031026 LHAAP / Site 58
Sample Matrix: Water

Service Request: R1902402
Date Received: 03/20/2019

CASE NARRATIVE

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

Sample Receipt:

Seven water samples were received for analysis at ALS laboratory on 03/20/2019. The samples were received in good condition and consistent with the accompanying chain of custody form. Unless otherwise noted, samples were stored in a refrigerator at 4° C upon receipt at the laboratory.

Semivoa GC:

Method Organic Acids, 03/25 + 29/2019: The lower control limit was exceeded for one or more analytes in the Continuing Calibration Verification (CCV). Since there were no detections of the analyte(s) in the associated field samples, the quantitation is not affected. The data quality was not significantly affected and no further corrective action was taken.

Method Organic Acids, 03/25/2019: The upper control limit was exceeded for one or more analytes in the Continuing Calibration Verification (CCV). The field samples analyzed in this sequence did not contain the analyte(s) in question above the Method Reporting Limit (MRL). Since the exceedance equates to a potential high bias, the data quality was not significantly affected and no further corrective action was taken.

Approved by _____ Date 04/11/2019

SAMPLE DETECTION SUMMARY

CLIENT ID: 35AWW11_031919			Lab ID: R1902402-001			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Acetic Acid	180		2.8	20	mg/L	Organic Acids
Propionic Acid	620		0.94	10	mg/L	Organic Acids

CLIENT ID: 35AWW06_031919			Lab ID: R1902402-005			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Acetic Acid	250		1.4	10	mg/L	Organic Acids
Butanoic Acid (Butyric Acid)	61		0.78	5.0	mg/L	Organic Acids
Propionic Acid	320		0.47	5.0	mg/L	Organic Acids

CLIENT ID: 35AWW06_031919_a			Lab ID: R1902402-006			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Acetic Acid	230		1.4	10	mg/L	Organic Acids
Butanoic Acid (Butyric Acid)	56		0.78	5.0	mg/L	Organic Acids
Propionic Acid	310		0.47	5.0	mg/L	Organic Acids

RIGHT SOLUTIONS | RIGHT PARTNER

Sample Receipt Information

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Client: ALS Environmental - US **Service Request:**R1902402
Project: HS19031026 LHAAP / Site 58

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
R1902402-001	35AWW11_031919	3/19/2019	0815
R1902402-002	35AWW24_031919	3/19/2019	0915
R1902402-003	35AWW19_031919	3/19/2019	1010
R1902402-004	LHSMW07_031919	3/19/2019	1105
R1902402-005	35AWW06_031919	3/19/2019	1205
R1902402-006	35AWW06_031919_a	3/19/2019	1205
R1902402-007	35AWW20_031919	3/19/2019	1315

bhate ENVIRONMENTAL CONSTRUCTION ENERGY

1608 13th Avenue South, Suite 300
Birmingham Alabama 35205
Tel: 205-918-4000
Fax: 205-918-4050

Chain of Custody and Analytical Request

Page: ____ of ____

Project/Phase No: NWO1312.0150

COC Number(1): ____

LIMS Number: ____

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / Site 58

Client Name:

Collected by: Scott Beesinger

Field Sample ID (30 Characters Max)	ERPIMS LOCID (15 Characters Max)	Date Collected (dd-mmm-yyyy)	Time Collected (Military) (hhmm)	Sample Depth (beginning - ending)	SA Code (2)	Sample Number (3)	Sample Matrix (4)	Number of containers	Volatile Fatty Acids										Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
								Sample Analysis Requested (5)											Quality Assurance Samples (6)			
35AWW11-031919	19	19 MAR2019	0815	-	N		WG	1	X													
35AWW24-031919		19 MAR2019	0915	-	N		WG	1	X													
35AWW19-031919		19 MAR2019	1010	-	N		WG	1	X													
LH.SMW07-031919		19 MAR2019	1105		N		WG	1	X													
35AWW06-031919		19 MAR2019	1205		N		WG	1	X													
35AWW06-031919-a		19 MAR2019	1205	-	FD		WG	1	X													
35AWW20-031919		19 MAR2019	1315	-	N		WG	1	X													
35AWW20-031919-MS		19 MAR2019	1315	-	MS		WG		X													
35AWW20-031919-MSD		19 MAR2019	1315	-	MSD		WG		X													
				-																		
				-																		

COMMENTS: ____

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received By (Signed)	Date	Time
1. Scott Beesinger	3/19/19	1430	1.	3-20-19	09:45
2.			2.		
3.			3.		

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: ____ Shipped ____ No.:

Method of Shipment: ____

Fed ____ Ex ____ Airbill ____ Number:

Analytical Lab: ALS 10450 Stancliff Rd. Suite 210 Houston, TX 77099 (281) 530-5656

ATTN: SONIA WEST Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01)

2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-c) Sample, FD = Field Duplicate (-a) Samples, FR = Field Replicate (-b) Samples, EB = Equipment Blank (-d) Samples, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-e)

3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)

: Codes: GS = Soil Gas, WG = Groundwater, WS = Surface Water, SO = Soil, SE = Sediment, SL = Sludge, SS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blanks

e Analysis Requested: Analytical method requested and number of containers provided for each.

y assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 10109901 in the Equipn

R1902402
ALS Laboratory Group
LHAAP / Site 58

5

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00948875

00948876

R1902402 5
ALS Laboratory Group
LHAAP / Site 68

Cooler Receipt and Preservation Check Form

Project/Client Bhate Folder Number .

Cooler received on 3-20-19 by: HE

COURIER: ALS UPS (FEDEX) VELOCITY CLIENT

1	Were **Custody seals** on outside of cooler?	(Y) N	5a	**Perchlorate** samples have required headspace?	Y N (NA)
2	**Custody papers** properly completed (ink, signed)?	(Y) N	5b	Did VOA vials, Alk,or Sulfide have sig* **bubbles**?	Y N (NA)
3	Did all bottles arrive in good **condition** (unbroken)?	Y (N)**	6	Where did the bottles originate?	(ALS/ROC) CLIENT
4	Circle: (**Wet Ice**) **Dry Ice** **Gel packs** present?	(Y) N	7	Soil VOA received as: Bulk Encore 5035set	(NA)

8. Temperature Readings Date: 3-20-19 Time: 10:14 ID: IR#7 (IR#10) From: (Temp Blank) Sample Bottle

Observed Temp (°C)	2.8						
Correction Factor (°C)	0						
Corrected Temp (°C)	2.8						
Temp from:Type of bottle	—						
Within 0-6°C?	(Y) N	Y N	Y N	Y N	Y N	Y N	Y N
If <0°C, were samples frozen?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed (described below) Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: R002 by HE on 3-20-19 at 10:16
5035 samples placed in storage location: _____ by _____ on _____ at _____

Cooler Breakdown/Preservation Check**: Date: 3/21/19 Time: 1026 by: @

9. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? (YES) NO
10. Did all bottle labels and tags agree with custody papers? (YES) NO
11. Were correct containers used for the tests indicated? (YES) NO
12. Were 5035 vials acceptable (no extra labels, not leaking)? YES NO (N/A)
13. Air Samples: Cassettes / Tubes Intact with MS? Canisters Pressurized Tedlar® Bags Inflated (N/A)

pH	Lot of test paper	Reagent	Preserved? Yes	Preserved? No	Lot Received	Exp	Sample ID Adjusted	Vol. Added	Lot Added	Final pH
≥12		NaOH								
≤2		HNO_3								
≤2		H_2SO_4								
<4		$NaHSO_4$								
5-9		For 608pest			No=Notify for 3day					
Residual Chlorine (-)		For CN, Phenol, 625, 608pest, 522			If +, contact PM to add $Na_2S_2O_3$ (625, 608, CN), ascorbic (phenol).					
		$Na_2S_2O_3$								
		ZnAcetate	-	-			**VOAs and 1664 Not to be tested before analysis. Otherwise, all bottles of all samples with chemical preservatives are checked (not just representatives).			
		HCl	**	**						

Bottle lot numbers: client coverd

Explain all Discrepancies/ Other Comments:

* 35AWW2D-031919 had a cracked cap. Sample is still intact, so the cap was replaced with a new one.

HE 3-20-19

CLRES	BULK
DO	FLDT
HPROD	HGFB
HTR	LL3541
PH	SUB
SO3	MARRS
ALS	REV

Labels secondary reviewed by: @

Secondary Review: [signature] 3/21/19 *significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

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ALS Group USA, Corp.
dba ALS Environmental

Internal Chain of Custody Report

Client: ALS Laboratory Group **Service Request:** R1902402
Project: HS19031026 LHAAP / Site 58

Bottle ID	Methods	Date	Time	Sample Location / User	Disposed On
R1902402-001.01					
	Organic Acids				
		3/21/2019	1028	SMO / GLAFORCE	
		3/21/2019	1028	R-002 / GLAFORCE	
		3/25/2019	1058	In Lab / BALLGEIER	
		3/25/2019	1146	R-002 / BALLGEIER	
R1902402-002.01					
	Organic Acids				
		3/21/2019	1028	SMO / GLAFORCE	
		3/21/2019	1028	R-002 / GLAFORCE	
		3/25/2019	1058	In Lab / BALLGEIER	
		3/25/2019	1146	R-002 / BALLGEIER	
R1902402-003.01					
	Organic Acids				
		3/21/2019	1028	SMO / GLAFORCE	
		3/21/2019	1028	R-002 / GLAFORCE	
		3/25/2019	1059	In Lab / BALLGEIER	
		3/25/2019	1146	R-002 / BALLGEIER	
R1902402-004.01					
	Organic Acids				
		3/21/2019	1028	SMO / GLAFORCE	
		3/21/2019	1028	R-002 / GLAFORCE	
		3/25/2019	1059	In Lab / BALLGEIER	
		3/25/2019	1146	R-002 / BALLGEIER	
R1902402-005.01					
	Organic Acids				
		3/21/2019	1028	SMO / GLAFORCE	
		3/21/2019	1028	R-002 / GLAFORCE	
		3/25/2019	1058	In Lab / BALLGEIER	
		3/25/2019	1146	R-002 / BALLGEIER	
R1902402-006.01					
	Organic Acids				
		3/21/2019	1028	SMO / GLAFORCE	
		3/21/2019	1028	R-002 / GLAFORCE	
		3/25/2019	1058	In Lab / BALLGEIER	
		3/25/2019	1146	R-002 / BALLGEIER	
R1902402-007.01					
	Organic Acids				
		3/21/2019	1028	SMO / GLAFORCE	
		3/21/2019	1028	R-002 / GLAFORCE	
		3/25/2019	1058	In Lab / BALLGEIER	

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ALS Group USA, Corp.
dba ALS Environmental

Internal Chain of Custody Report

Client: ALS Laboratory Group **Service Request:** R1902402
Project: HS19031026 LHAAP / Site 58

Bottle ID	Methods	Date	Time	Sample Location / User	Disposed On
	Organic Acids				
		3/25/2019	1146	R-002 / BALLGEIER	

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Miscellaneous Forms

ALS Environmental—Rochester Laboratory
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www.alsglobal.com

ALS Environmental

REPORT QUALIFIERS AND DEFINITIONS

U Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.

J Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).

B Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.

E Inorganics- Concentration is estimated due to the serial dilution was outside control limits.

E Organics- Concentration has exceeded the calibration range for that specific analysis.

D Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.

* Indicates that a quality control parameter has exceeded laboratory limits. Under the ñNotesò column of the Form I, this qualifier denotes analysis was performed out of Holding Time.

H Analysis was performed out of hold time for tests that have an ñimmediateò hold time criteria.

Spike was diluted out.

\+ Correlation coefficient for MSA is <0.995.

N Inorganics- Matrix spike recovery was outside laboratory limits.

N Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.

S Concentration has been determined using Method of Standard Additions (MSA).

W Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.

P Concentration >40% difference between the two GC columns.

C Confirmed by GC/MS

Q DoD reports: indicates a pesticide/Aroclor is not confirmed (Ó100% Difference between two GC columns).

X See Case Narrative for discussion.

MRL Method Reporting Limit. Also known as:
LOQ Limit of Quantitation (LOQ)
The lowest concentration at which the method analyte may be reliably quantified under the method conditions.

MDL Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier).

LOD Limit of Detection. A value at or above the MDL which has been verified to be detectable.

ND Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.

ACCREDITED IN ACCORDANCE WITH nelac

Rochester Lab ID # for State Certifications[1]

Connecticut ID # PH0556	Maine ID #NY0032	Pennsylvania ID# 68-786
Delaware Approved	New Hampshire ID # 2941	Rhode Island ID # 158
DoD ELAP #65817	New York ID # 10145	Virginia #460167
Florida ID # E87674	North Carolina #676	

[1] Analyses were performed according to our laboratoryôs NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the case narrative. Since not all analyte/method/matrix combinations are offered for state/NELAC accreditation, this report may contain results which are not accredited. For a specific list of accredited analytes, contact the laboratory or go to https://www.alsglobal.com/locations/americas/north-america/usa/new-york/rochester-environmental

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Acronyms

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

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ALS Group USA, Corp.
dba ALS Environmental

Analyst Summary report

Client: ALS Environmental - US
Project: HS19031026 LHAAP / Site 58/
Service Request: R1902402

Sample Name: 35AWW11_031919
Lab Code: R1902402-001
Sample Matrix: Water
Date Collected: 03/19/19
Date Received: 03/20/19

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		BALLGEIER

Sample Name: 35AWW24_031919
Lab Code: R1902402-002
Sample Matrix: Water
Date Collected: 03/19/19
Date Received: 03/20/19

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		BALLGEIER

Sample Name: 35AWW19_031919
Lab Code: R1902402-003
Sample Matrix: Water
Date Collected: 03/19/19
Date Received: 03/20/19

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		BALLGEIER

Sample Name: LHSMW07_031919
Lab Code: R1902402-004
Sample Matrix: Water
Date Collected: 03/19/19
Date Received: 03/20/19

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		BALLGEIER

Sample Name: 35AWW06_031919
Lab Code: R1902402-005
Sample Matrix: Water
Date Collected: 03/19/19
Date Received: 03/20/19

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		BALLGEIER

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ALS Group USA, Corp.
dba ALS Environmental

Analyst Summary report

Client: ALS Environmental - US
Project: HS19031026 LHAAP / Site 58/

Service Request: R1902402

Sample Name: 35AWW06_031919_a
Lab Code: R1902402-006
Sample Matrix: Water

Date Collected: 03/19/19
Date Received: 03/20/19

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		BALLGEIER

Sample Name: 35AWW20_031919
Lab Code: R1902402-007
Sample Matrix: Water

Date Collected: 03/19/19
Date Received: 03/20/19

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		BALLGEIER

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INORGANIC PREPARATION METHODS

The preparation methods associated with this report are found in these tables unless discussed in the case narrative.

Water/Liquid Matrix

Analytical Method	Preparation Method
200.7	200.2
200.8	200.2
6010C	3005A/3010A
6020A	ILM05.3
9014 Cyanide Reactivity	SW846 Ch7, 7.3.4.2
9034 Sulfide Reactivity	SW846 Ch7, 7.3.4.2
9034 Sulfide Acid Soluble	9030B
9056A Bomb (Halogens)	5050A
9066 Manual Distillation	9065
SM 4500-CN-E Residual Cyanide	SM 4500-CN-G
SM 4500-CN-E WAD Cyanide	SM 4500-CN-I

Solid/Soil/Non-Aqueous Matrix

Analytical Method	Preparation Method
6010C	3050B
6020A	3050B
6010C TCLP (1311) extract	3005A/3010A
6010 SPLP (1312) extract	3005A/3010A
7196A	3060A
7199	3060A
9056A Halogens/Halides	5050
300.0 Anions/ 350.1/ 353.2/ SM 2320B/ SM 5210B/ 9056A Anions	DI extraction

For analytical methods not listed, the preparation method is the same as the analytical method reference.

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Sample Results

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Semivolatile Organic Compounds by GC

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dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1902402
Project:	HS19031026 LHAAP / Site 58	**Date Collected:**	03/19/19 08:15
Sample Matrix:	Water	**Date Received:**	03/20/19 09:45
Sample Name:	35AWW11_031919	**Units:**	mg/L
Lab Code:	R1902402-001	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result		LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND	U	1.0	0.50	0.077	5	03/29/19 19:46	
Acetic Acid	**180**		20	10	2.8	5	03/29/19 19:46	
Butanoic Acid (Butyric Acid)	ND	U	10	5.0	1.6	5	03/29/19 19:46	
Lactic Acid	ND	U	10	5.0	0.67	5	03/29/19 19:46	
Propionic Acid	**620**		10	5.0	0.94	5	03/29/19 19:46	

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1902402
Project:	HS19031026 LHAAP / Site 58	**Date Collected:**	03/19/19 09:15
Sample Matrix:	Water	**Date Received:**	03/20/19 09:45
Sample Name:	35AWW24_031919	**Units:**	mg/L
Lab Code:	R1902402-002	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND U	0.20	0.10	0.016	1	03/25/19 17:25	
Acetic Acid	ND U	4.0	2.0	0.56	1	03/25/19 17:25	
Butanoic Acid (Butyric Acid)	ND U	2.0	1.0	0.32	1	03/25/19 17:25	
Lactic Acid	ND U	2.0	1.0	0.14	1	03/25/19 17:25	
Propionic Acid	ND U	2.0	1.0	0.19	1	03/25/19 17:25	

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1902402
Project:	HS19031026 LHAAP / Site 58	**Date Collected:**	03/19/19 10:10
Sample Matrix:	Water	**Date Received:**	03/20/19 09:45
Sample Name:	35AWW19_031919	**Units:**	mg/L
Lab Code:	R1902402-003	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND U	0.20	0.10	0.016	1	03/25/19 18:02	
Acetic Acid	ND U	4.0	2.0	0.56	1	03/25/19 18:02	
Butanoic Acid (Butyric Acid)	ND U	2.0	1.0	0.32	1	03/25/19 18:02	
Lactic Acid	ND U	2.0	1.0	0.14	1	03/25/19 18:02	
Propionic Acid	ND U	2.0	1.0	0.19	1	03/25/19 18:02	

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dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1902402
Project:	HS19031026 LHAAP / Site 58	**Date Collected:**	03/19/19 11:05
Sample Matrix:	Water	**Date Received:**	03/20/19 09:45
Sample Name:	LHSMW07_031919	**Units:**	mg/L
Lab Code:	R1902402-004	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND U	0.20	0.10	0.016	1	03/25/19 18:39	
Acetic Acid	ND U	4.0	2.0	0.56	1	03/25/19 18:39	
Butanoic Acid (Butyric Acid)	ND U	2.0	1.0	0.32	1	03/25/19 18:39	
Lactic Acid	ND U	2.0	1.0	0.14	1	03/25/19 18:39	
Propionic Acid	ND U	2.0	1.0	0.19	1	03/25/19 18:39	

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1902402
Project:	HS19031026 LHAAP / Site 58	**Date Collected:**	03/19/19 12:05
Sample Matrix:	Water	**Date Received:**	03/20/19 09:45
Sample Name:	35AWW06_031919	**Units:**	mg/L
Lab Code:	R1902402-005	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result		LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND	U	0.50	0.25	0.039	2.5	03/29/19 20:23	
Acetic Acid	**250**		10	5.0	1.4	2.5	03/29/19 20:23	
Butanoic Acid (Butyric Acid)	**61**		5.0	2.5	0.78	2.5	03/29/19 20:23	
Lactic Acid	ND	U	5.0	2.5	0.34	2.5	03/29/19 20:23	
Propionic Acid	**320**		5.0	2.5	0.47	2.5	03/29/19 20:23	

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1902402
Project:	HS19031026 LHAAP / Site 58	**Date Collected:**	03/19/19 12:05
Sample Matrix:	Water	**Date Received:**	03/20/19 09:45
Sample Name:	35AWW06_031919_a	**Units:**	mg/L
Lab Code:	R1902402-006	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result		LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND	U	0.50	0.25	0.039	2.5	03/29/19 21:00	
Acetic Acid	**230**		10	5.0	1.4	2.5	03/29/19 21:00	
Butanoic Acid (Butyric Acid)	**56**		5.0	2.5	0.78	2.5	03/29/19 21:00	
Lactic Acid	ND	U	5.0	2.5	0.34	2.5	03/29/19 21:00	
Propionic Acid	**310**		5.0	2.5	0.47	2.5	03/29/19 21:00	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1902402
Project:	HS19031026 LHAAP / Site 58	**Date Collected:**	03/19/19 13:15
Sample Matrix:	Water	**Date Received:**	03/20/19 09:45
Sample Name:	35AWW20_031919	**Units:**	mg/L
Lab Code:	R1902402-007	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND U	0.20	0.10	0.016	1	03/25/19 20:30	
Acetic Acid	ND U	4.0	2.0	0.56	1	03/25/19 20:30	
Butanoic Acid (Butyric Acid)	ND U	2.0	1.0	0.32	1	03/25/19 20:30	
Lactic Acid	ND U	2.0	1.0	0.14	1	03/25/19 20:30	
Propionic Acid	ND U	2.0	1.0	0.19	1	03/25/19 20:30	

QC Summary Forms

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
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Semivolatile Organic Compounds by GC

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	R1902402
Project:	HS19031026 LHAAP / Site 58	**Date Collected:**	03/19/19
Sample Matrix:	Water	**Date Received:**	03/20/19
		Date Analyzed:	03/25/19

Duplicate Matrix Spike Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Sample Name:	35AWW20_031919	**Units:**	mg/L
Lab Code:	R1902402-007	**Basis:**	NA
Analysis Method:	Organic Acids		

		Matrix Spike RQ1902678-11			Duplicate Matrix Spike RQ1902678-12					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	ND U	1.62	2.03	80	1.61	2.03	79	73-122	<1	30
Acetic Acid	ND U	18.7	19.9	94	18.7	19.9	94	80-130	<1	30
Butanoic Acid (Butyric Acid)	ND U	19.9	20.5	97	18.5	20.5	90	86-128	7	30
Lactic Acid	ND U	16.8	20.6	82	16.7	20.6	81	81-114	<1	30
Propionic Acid	ND U	25.1	20.1	125	25.6	20.1	127	63-153	2	30

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

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

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

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QA/QC Report

Client: ALS Environmental - US
Project: HS19031026 LHAAP / Site 58
Sample Matrix: Water

Service Request: R1902402
Date Analyzed: 03/29/19 17:55

Method Blank Summary

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Sample Name: Method Blank
Lab Code: RQ1902678-06

Instrument ID:R-HPLC-05
File ID:I:\ACQUDATA\hplc05\data\032819\A0002923.D\

Analysis Method: Organic Acids

Analysis Lot:630216

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	RQ1902678-02	I:\ACQUDATA\hplc05\data\032519\A0002908.D\	03/25/19 15:34
Duplicate Lab Control Sample	RQ1902678-03	I:\ACQUDATA\hplc05\data\032519\A0002909.D\	03/25/19 16:11
35AWW24_031919	R1902402-002	I:\ACQUDATA\hplc05\data\032519\A0002911.D\	03/25/19 17:25
35AWW19_031919	R1902402-003	I:\ACQUDATA\hplc05\data\032519\A0002912.D\	03/25/19 18:02
LHSMW07_031919	R1902402-004	I:\ACQUDATA\hplc05\data\032519\A0002913.D\	03/25/19 18:39
35AWW20_031919	R1902402-007	I:\ACQUDATA\hplc05\data\032519\A0002916.D\	03/25/19 20:30
35AWW20_031919MS	RQ1902678-11	I:\ACQUDATA\hplc05\data\032519\A0002918.D\	03/25/19 21:44
35AWW20_031919DMS	RQ1902678-12	I:\ACQUDATA\hplc05\data\032519\A0002919.D\	03/25/19 22:21
Lab Control Sample	RQ1902678-07	I:\ACQUDATA\hplc05\data\032819\A0002924.D\	03/29/19 18:32
Duplicate Lab Control Sample	RQ1902678-08	I:\ACQUDATA\hplc05\data\032819\A0002925.D\	03/29/19 19:09
35AWW11_031919	R1902402-001	I:\ACQUDATA\hplc05\data\032819\A0002926.D\	03/29/19 19:46
35AWW06_031919	R1902402-005	I:\ACQUDATA\hplc05\data\032819\A0002927.D\	03/29/19 20:23
35AWW06_031919_a	R1902402-006	I:\ACQUDATA\hplc05\data\032819\A0002928.D\	03/29/19 21:00

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1902402
Project:	HS19031026 LHAAP / Site 58	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	mg/L
Lab Code:	RQ1902678-01	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND U	0.20	0.10	0.016	1	03/25/19 14:57	
Acetic Acid	ND U	4.0	2.0	0.56	1	03/25/19 14:57	
Butanoic Acid (Butyric Acid)	ND U	2.0	1.0	0.32	1	03/25/19 14:57	
Lactic Acid	ND U	2.0	1.0	0.14	1	03/25/19 14:57	
Propionic Acid	ND U	2.0	1.0	0.19	1	03/25/19 14:57	

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1902402
Project:	HS19031026 LHAAP / Site 58	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	mg/L
Lab Code:	RQ1902678-06	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND U	0.20	0.10	0.016	1	03/29/19 17:55	
Acetic Acid	ND U	4.0	2.0	0.56	1	03/29/19 17:55	
Butanoic Acid (Butyric Acid)	ND U	2.0	1.0	0.32	1	03/29/19 17:55	
Lactic Acid	ND U	2.0	1.0	0.14	1	03/29/19 17:55	
Propionic Acid	ND U	2.0	1.0	0.19	1	03/29/19 17:55	

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QA/QC Report

Client: ALS Environmental - US
Project: HS19031026 LHAAP / Site 58
Sample Matrix: Water

Service Request: R1902402
Date Analyzed: 03/29/19 18:32

Lab Control Sample Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Sample Name: Lab Control Sample
Lab Code: RQ1902678-07

Instrument ID:R-HPLC-05
File ID:I:\ACQUDATA\hplc05\data\032819\A0002924.D\

Analysis Method: Organic Acids

Analysis Lot:630216

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Method Blank	RQ1902678-01	I:\ACQUDATA\hplc05\data\032519\A0002907.D\	03/25/19 14:57
Duplicate Lab Control Sample	RQ1902678-03	I:\ACQUDATA\hplc05\data\032519\A0002909.D\	03/25/19 16:11
35AWW24_031919	R1902402-002	I:\ACQUDATA\hplc05\data\032519\A0002911.D\	03/25/19 17:25
35AWW19_031919	R1902402-003	I:\ACQUDATA\hplc05\data\032519\A0002912.D\	03/25/19 18:02
LHSMW07_031919	R1902402-004	I:\ACQUDATA\hplc05\data\032519\A0002913.D\	03/25/19 18:39
35AWW20_031919	R1902402-007	I:\ACQUDATA\hplc05\data\032519\A0002916.D\	03/25/19 20:30
35AWW20_031919MS	RQ1902678-11	I:\ACQUDATA\hplc05\data\032519\A0002918.D\	03/25/19 21:44
35AWW20_031919DMS	RQ1902678-12	I:\ACQUDATA\hplc05\data\032519\A0002919.D\	03/25/19 22:21
Method Blank	RQ1902678-06	I:\ACQUDATA\hplc05\data\032819\A0002923.D\	03/29/19 17:55
Duplicate Lab Control Sample	RQ1902678-08	I:\ACQUDATA\hplc05\data\032819\A0002925.D\	03/29/19 19:09
35AWW11_031919	R1902402-001	I:\ACQUDATA\hplc05\data\032819\A0002926.D\	03/29/19 19:46
35AWW06_031919	R1902402-005	I:\ACQUDATA\hplc05\data\032819\A0002927.D\	03/29/19 20:23
35AWW06_031919_a	R1902402-006	I:\ACQUDATA\hplc05\data\032819\A0002928.D\	03/29/19 21:00

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QA/QC Report

Client: ALS Environmental - US
Project: HS19031026 LHAAP / Site 58
Sample Matrix: Water

Service Request: R1902402
Date Analyzed: 03/25/19

Duplicate Lab Control Sample Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Units:mg/L
Basis:NA

		Lab Control Sample RQ1902678-02			Duplicate Lab Control Sample RQ1902678-03					
Analyte Name	**Analytical Method**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	Organic Acids	1.79	2.03	88	1.80	2.03	89	73-122	<1	30
Acetic Acid	Organic Acids	19.7	19.9	99	19.8	19.9	100	80-130	<1	30
Butanoic Acid (Butyric Acid)	Organic Acids	20.5	20.5	100	20.4	20.5	99	86-128	<1	30
Lactic Acid	Organic Acids	18.5	20.6	89	18.4	20.6	89	81-114	<1	30
Propionic Acid	Organic Acids	28.2	20.1	140	28.2	20.1	140	63-153	<1	30

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QA/QC Report

Client: ALS Environmental - US
Project: HS19031026 LHAAP / Site 58
Sample Matrix: Water

Service Request: R1902402
Date Analyzed: 03/29/19

Duplicate Lab Control Sample Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Units:mg/L
Basis:NA

		Lab Control Sample			Duplicate Lab Control Sample					
		RQ1902678-07			RQ1902678-08					
Analyte Name	**Analytical Method**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	Organic Acids	1.79	2.03	88	1.80	2.03	89	73-122	<1	30
Acetic Acid	Organic Acids	19.6	19.9	99	19.7	19.9	99	80-130	<1	30
Butanoic Acid (Butyric Acid)	Organic Acids	20.1	20.5	98	20.5	20.5	100	86-128	2	30
Lactic Acid	Organic Acids	18.4	20.6	89	18.5	20.6	90	81-114	<1	30
Propionic Acid	Organic Acids	28.5	20.1	141	28.7	20.1	143	63-153	<1	30

Raw Data

ALS Environmental—Rochester Laboratory
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Semivolatile Organic Compounds by GC

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1902402
Project:	HS19031026 LHAAP / Site 58	**Date Collected:**	03/19/19 08:15
Sample Matrix:	Water	**Date Received:**	03/20/19 09:45
Sample Name:	35AWW11_031919	**Units:**	mg/L
Lab Code:	R1902402-001	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result		LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND	U	1.0	0.50	0.077	5	03/29/19 19:46	
Acetic Acid	**180**		20	10	2.8	5	03/29/19 19:46	
Butanoic Acid (Butyric Acid)	ND	U	10	5.0	1.6	5	03/29/19 19:46	
Lactic Acid	ND	U	10	5.0	0.67	5	03/29/19 19:46	
Propionic Acid	**620**		10	5.0	0.94	5	03/29/19 19:46	

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1902402
Project:	HS19031026 LHAAP / Site 58	**Date Collected:**	03/19/19 09:15
Sample Matrix:	Water	**Date Received:**	03/20/19 09:45
Sample Name:	35AWW24_031919	**Units:**	mg/L
Lab Code:	R1902402-002	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND U	0.20	0.10	0.016	1	03/25/19 17:25	
Acetic Acid	ND U	4.0	2.0	0.56	1	03/25/19 17:25	
Butanoic Acid (Butyric Acid)	ND U	2.0	1.0	0.32	1	03/25/19 17:25	
Lactic Acid	ND U	2.0	1.0	0.14	1	03/25/19 17:25	
Propionic Acid	ND U	2.0	1.0	0.19	1	03/25/19 17:25	

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1902402
Project:	HS19031026 LHAAP / Site 58	**Date Collected:**	03/19/19 10:10
Sample Matrix:	Water	**Date Received:**	03/20/19 09:45
Sample Name:	35AWW19_031919	**Units:**	mg/L
Lab Code:	R1902402-003	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND U	0.20	0.10	0.016	1	03/25/19 18:02	
Acetic Acid	ND U	4.0	2.0	0.56	1	03/25/19 18:02	
Butanoic Acid (Butyric Acid)	ND U	2.0	1.0	0.32	1	03/25/19 18:02	
Lactic Acid	ND U	2.0	1.0	0.14	1	03/25/19 18:02	
Propionic Acid	ND U	2.0	1.0	0.19	1	03/25/19 18:02	

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1902402
Project:	HS19031026 LHAAP / Site 58	**Date Collected:**	03/19/19 11:05
Sample Matrix:	Water	**Date Received:**	03/20/19 09:45
Sample Name:	LHSMW07_031919	**Units:**	mg/L
Lab Code:	R1902402-004	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND U	0.20	0.10	0.016	1	03/25/19 18:39	
Acetic Acid	ND U	4.0	2.0	0.56	1	03/25/19 18:39	
Butanoic Acid (Butyric Acid)	ND U	2.0	1.0	0.32	1	03/25/19 18:39	
Lactic Acid	ND U	2.0	1.0	0.14	1	03/25/19 18:39	
Propionic Acid	ND U	2.0	1.0	0.19	1	03/25/19 18:39	

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1902402
Project:	HS19031026 LHAAP / Site 58	**Date Collected:**	03/19/19 12:05
Sample Matrix:	Water	**Date Received:**	03/20/19 09:45
Sample Name:	35AWW06_031919	**Units:**	mg/L
Lab Code:	R1902402-005	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result		LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND	U	0.50	0.25	0.039	2.5	03/29/19 20:23	
Acetic Acid	**250**		10	5.0	1.4	2.5	03/29/19 20:23	
Butanoic Acid (Butyric Acid)	**61**		5.0	2.5	0.78	2.5	03/29/19 20:23	
Lactic Acid	ND	U	5.0	2.5	0.34	2.5	03/29/19 20:23	
Propionic Acid	**320**		5.0	2.5	0.47	2.5	03/29/19 20:23	

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1902402
Project:	HS19031026 LHAAP / Site 58	**Date Collected:**	03/19/19 12:05
Sample Matrix:	Water	**Date Received:**	03/20/19 09:45
Sample Name:	35AWW06_031919_a	**Units:**	mg/L
Lab Code:	R1902402-006	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result		LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND	U	0.50	0.25	0.039	2.5	03/29/19 21:00	
Acetic Acid	**230**		10	5.0	1.4	2.5	03/29/19 21:00	
Butanoic Acid (Butyric Acid)	**56**		5.0	2.5	0.78	2.5	03/29/19 21:00	
Lactic Acid	ND	U	5.0	2.5	0.34	2.5	03/29/19 21:00	
Propionic Acid	**310**		5.0	2.5	0.47	2.5	03/29/19 21:00	

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1902402
Project:	HS19031026 LHAAP / Site 58	**Date Collected:**	03/19/19 13:15
Sample Matrix:	Water	**Date Received:**	03/20/19 09:45
Sample Name:	35AWW20_031919	**Units:**	mg/L
Lab Code:	R1902402-007	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

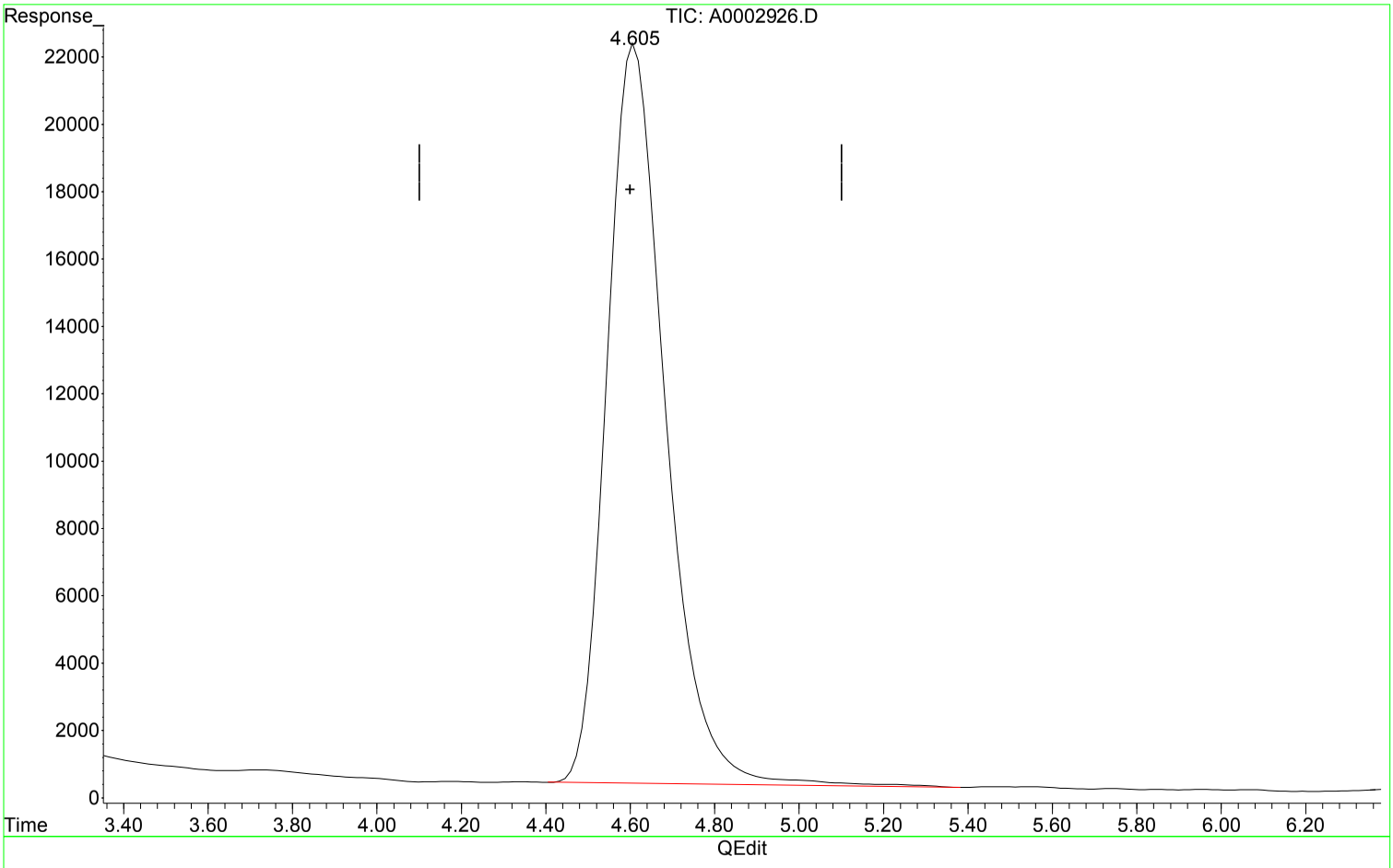
Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND U	0.20	0.10	0.016	1	03/25/19 20:30	
Acetic Acid	ND U	4.0	2.0	0.56	1	03/25/19 20:30	
Butanoic Acid (Butyric Acid)	ND U	2.0	1.0	0.32	1	03/25/19 20:30	
Lactic Acid	ND U	2.0	1.0	0.14	1	03/25/19 20:30	
Propionic Acid	ND U	2.0	1.0	0.19	1	03/25/19 20:30	

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\032819\
Data File : A0002926.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 17:48:27
Operator : b.allgeier
Sample : r1902402-001|5
Misc :
ALS Vial : 5 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Apr 01 09:31:22 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Mon Apr 01 09:25:48 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(4) Acetic Acid (T)

4.605min 36.281 ppm m

response 2117671

Manual Integration:

After

Poor integration.

04/01/19

Expected Retention Time

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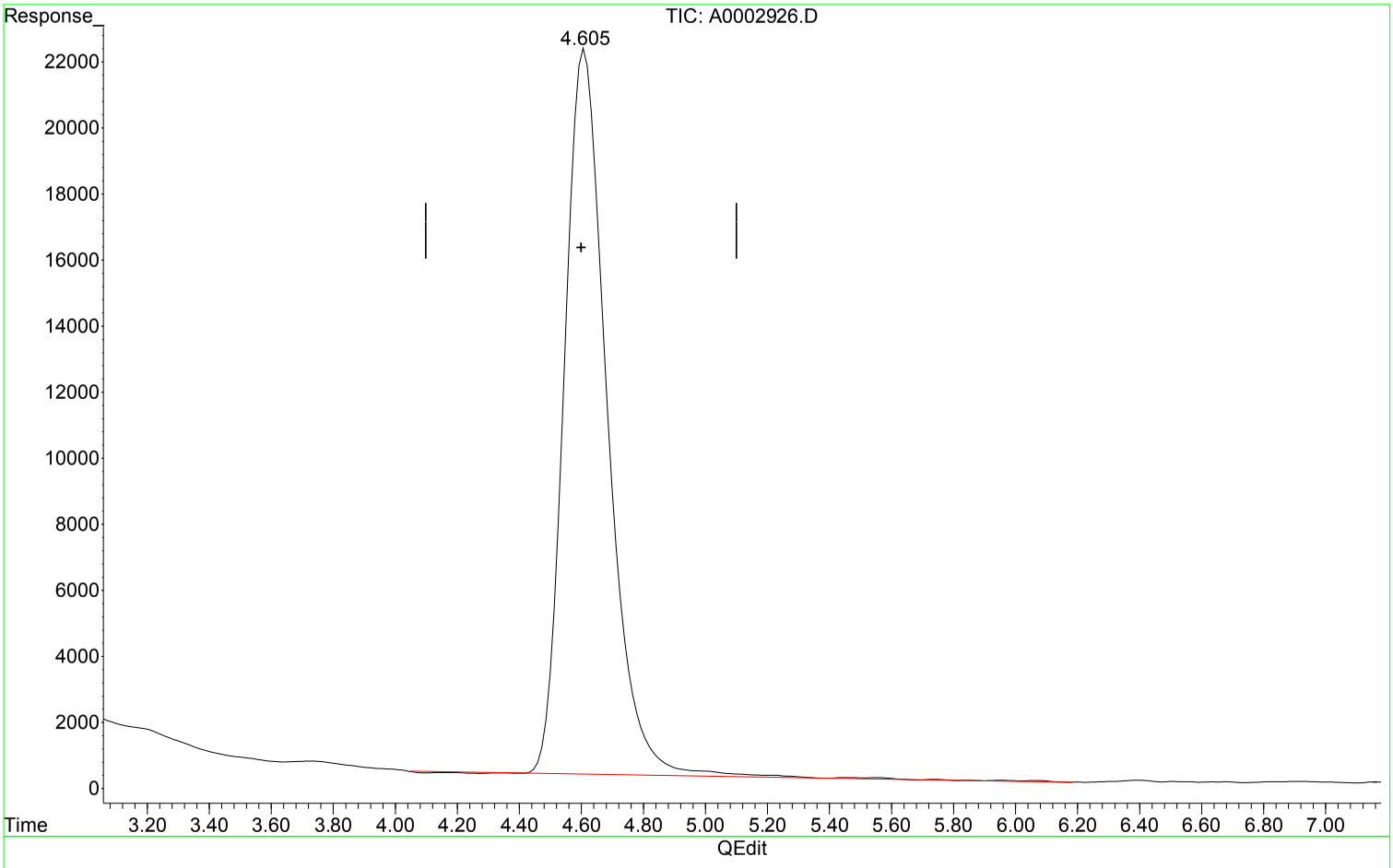
00948912

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\032819\
Data File : A0002926.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 17:48:27
Operator : b.allgeier
Sample : r1902402-001|5
Misc :
ALS Vial : 5 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Apr 01 09:31:22 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Mon Apr 01 09:25:48 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(4) Acetic Acid (T)

4.612min 36.301 ppm

response 2118853

Manual Integration:

Before

04/01/19

Expected Retention Time

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00948913

1st BA 04/03/19
2nd DM 04/04/19

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\032819\
Data File : A0002926.D
Signal(s) : dad1A.ch
Acq On : ~~30-Dec-2000, 17:48:27~~ 29-Mar-2019, 19:46:00
Operator : b.allgeier
Sample : r1902402-001|5
Misc :
ALS Vial : 5 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Apr 01 09:31:22 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Mon Apr 01 09:25:48 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1) t	Formic acid	0.000	0	N.D.	ppm	
2) T	Pyruvic acid	0.000	0	N.D.	ppm	
3) T	Lactic Acid	0.000	0	N.D.	ppm	
4) T	Acetic Acid	4.605	2117671	36.281	ppm	m
5) T	Propionic Acid	9.786	7108813	123.351	ppm	
6) T	Butyric Acid	0.000	0	N.D.	ppm	d

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

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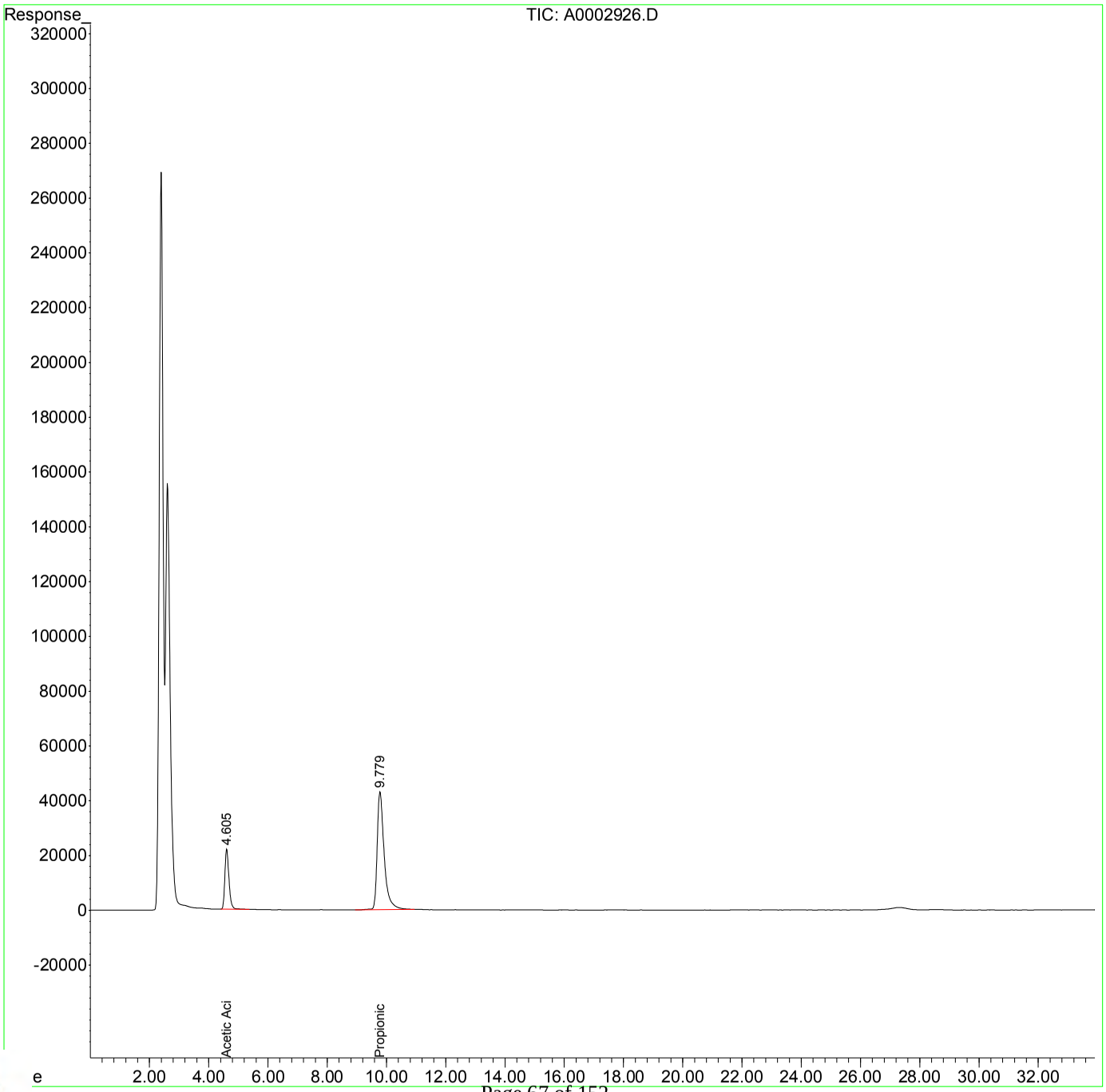
1st BA 04/03/19
2nd DM 04/04/19

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\032819\
Data File : A0002926.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 17:48:27
Operator : b.allgeier
Sample : r1902402-001|5
Misc :
ALS Vial : 5 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Apr 01 09:31:22 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Mon Apr 01 09:25:48 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



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00948915

1st BA 04/01/19
2nd DM 04/04/19

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\032519\
Data File : A0002911.D
Signal(s) : dad1A.ch
Acq On : 25-Mar-2019, 17:25:08
Operator : b.allgeier
Sample : r1902402-002
Misc :
ALS Vial : 6 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Mar 29 16:19:29 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Fri Mar 29 16:18:59 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1) t	Formic acid	0.000	0	N.D.	ppm	
2) T	Pyruvic acid	0.000	0	N.D.	ppm	
3) T	Lactic Acid	0.000	0	N.D.	ppm	d
4) T	Acetic Acid	0.000	0	N.D.	ppm	
5) T	Propionic Acid	0.000	0	N.D.	ppm	d
6) T	Butyric Acid	0.000	0	N.D.	ppm	

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

RIGHT SOLUTIONS | RIGHT PARTNER

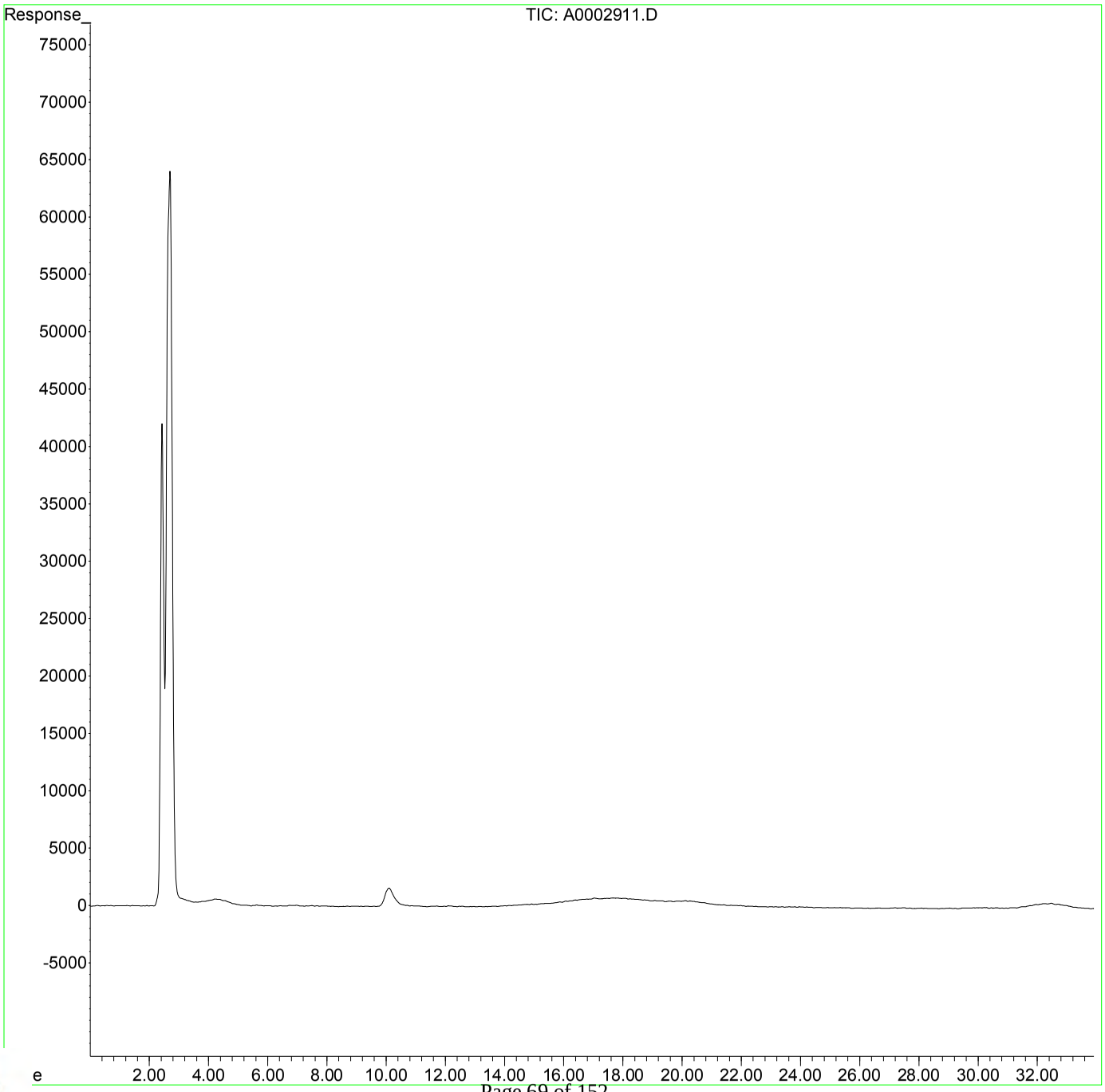
00948916

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\032519\
Data File : A0002911.D
Signal(s) : dad1A.ch
Acq On : 25-Mar-2019, 17:25:08
Operator : b.allgeier
Sample : r1902402-002
Misc :
ALS Vial : 6 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Mar 29 16:19:29 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Fri Mar 29 16:18:59 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



RIGHT SOLUTIONS | RIGHT PARTNER

00948917

1st BA 04/01/19
2nd DM 04/04/19

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\032519\
Data File : A0002912.D
Signal(s) : dad1A.ch
Acq On : 25-Mar-2019, 18:02:07
Operator : b.allgeier
Sample : r1902402-003
Misc :
ALS Vial : 7 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Mar 29 16:19:31 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Fri Mar 29 16:18:59 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1) t	Formic acid	0.000	0	N.D.	ppm	
2) T	Pyruvic acid	0.000	0	N.D.	ppm	
3) T	Lactic Acid	0.000	0	N.D.	ppm	
4) T	Acetic Acid	0.000	0	N.D.	ppm	
5) T	Propionic Acid	0.000	0	N.D.	ppm	d
6) T	Butyric Acid	0.000	0	N.D.	ppm	

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

00948918

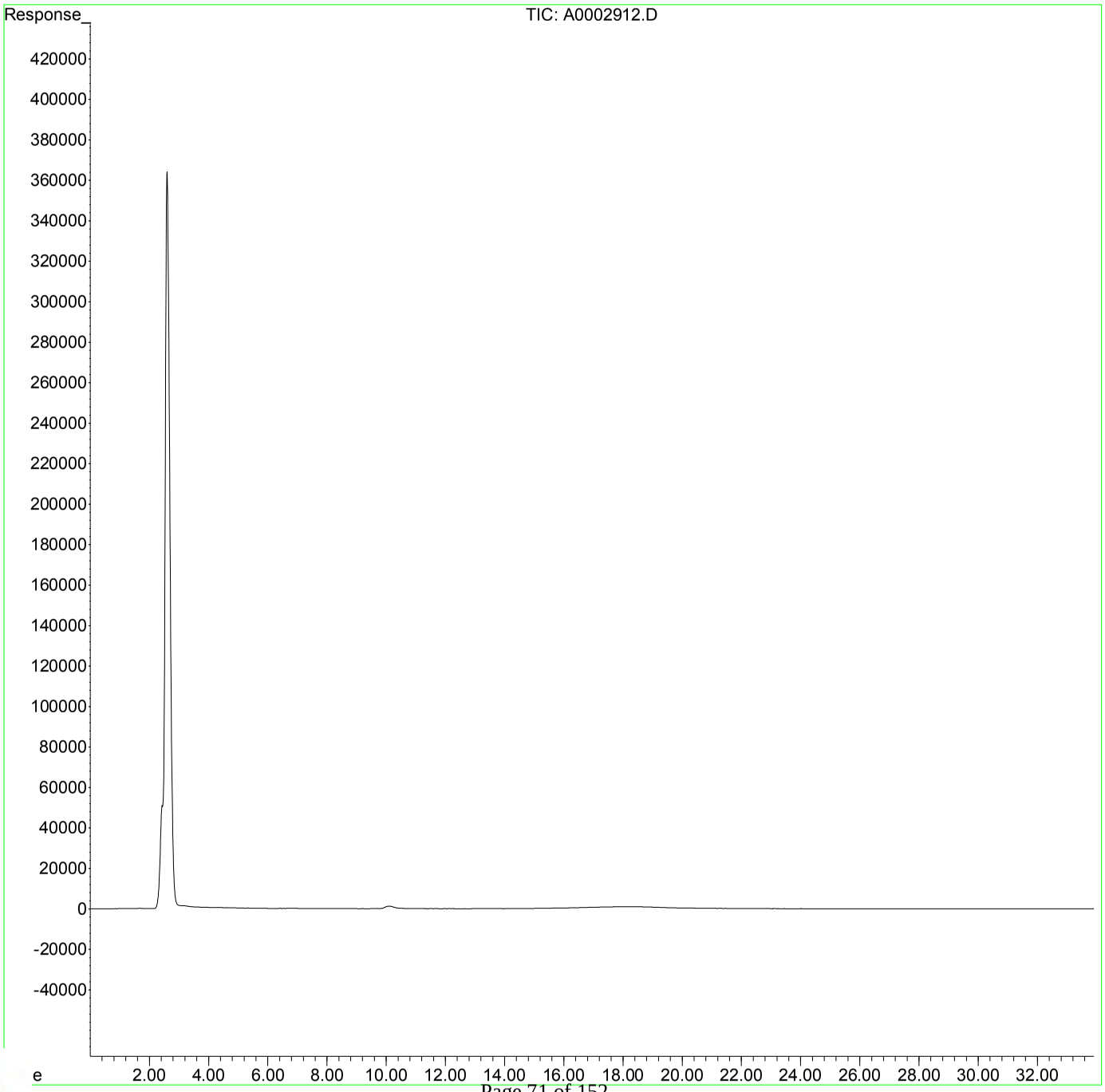
RIGHT SOLUTIONS | RIGHT PARTNER

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\032519\
Data File : A0002912.D
Signal(s) : dad1A.ch
Acq On : 25-Mar-2019, 18:02:07
Operator : b.allgeier
Sample : r1902402-003
Misc :
ALS Vial : 7 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Mar 29 16:19:31 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Fri Mar 29 16:18:59 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



RIGHT SOLUTIONS | RIGHT PARTNER

00948919

1st BA 04/01/19
2nd DM 04/04/19

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\032519\
Data File : A0002913.D
Signal(s) : dad1A.ch
Acq On : ~~30-Dec-2000, 17:48:41~~ 25-Mar-2019, 18:39:00
Operator : b.allgeier
Sample : r1902402-004
Misc :
ALS Vial : 8 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Mar 29 16:19:33 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Fri Mar 29 16:18:59 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1) t	Formic acid	0.000	0	N.D.	ppm	
2) T	Pyruvic acid	0.000	0	N.D.	ppm	d
3) T	Lactic Acid	0.000	0	N.D.	ppm	d
4) T	Acetic Acid	0.000	0	N.D.	ppm	
5) T	Propionic Acid	0.000	0	N.D.	ppm	d
6) T	Butyric Acid	0.000	0	N.D.	ppm	

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

RIGHT SOLUTIONS | RIGHT PARTNER

00948920

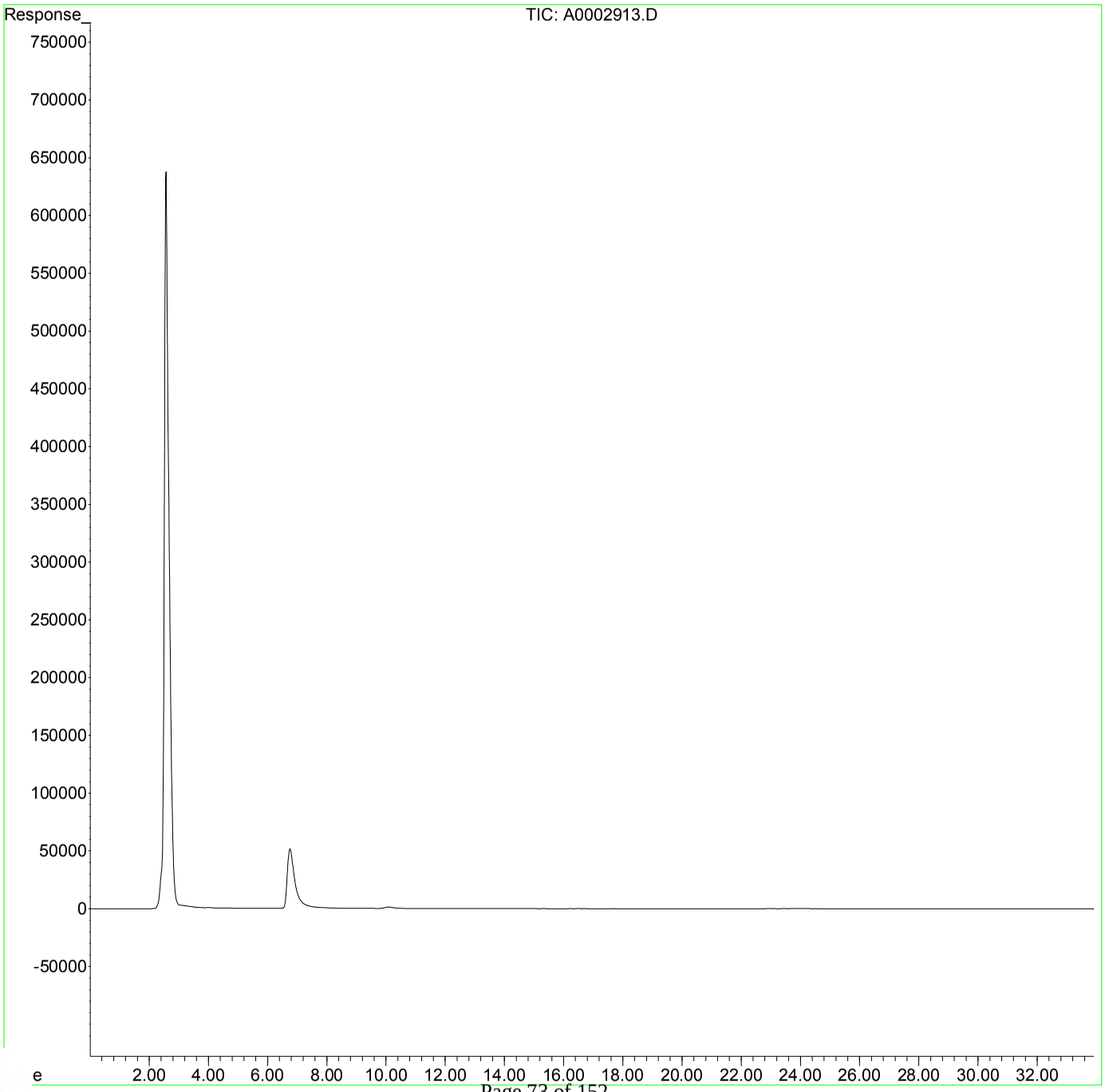
1st BA 04/01/19
2nd DM 04/04/19

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\032519\
Data File : A0002913.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 17:48:41
Operator : b.allgeier
Sample : r1902402-004
Misc :
ALS Vial : 8 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Mar 29 16:19:33 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Fri Mar 29 16:18:59 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



RIGHT SOLUTIONS | RIGHT PARTNER

00948921

1st BA 04/03/19
2nd DM 04/04/19

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\032819\
Data File : A0002927.D
Signal(s) : dad1A.ch
Acq On : 29-Mar-2019, 20:23:38
Operator : b.allgeier
Sample : r1902402-006|2.5
Misc :
ALS Vial : 6 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Apr 01 09:31:24 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Mon Apr 01 09:25:48 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1) t	Formic acid	0.000	0	N.D.	ppm
2) T	Pyruvic acid	0.000	0	N.D.	ppm
3) T	Lactic Acid	0.000	0	N.D.	ppm
4) T	Acetic Acid	4.606	5842331	100.094	ppm
5) T	Propionic Acid	9.785	7321773	127.046	ppm
6) T	Butyric Acid	26.828	1322640	24.445	ppm

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

RIGHT SOLUTIONS | RIGHT PARTNER

00948922

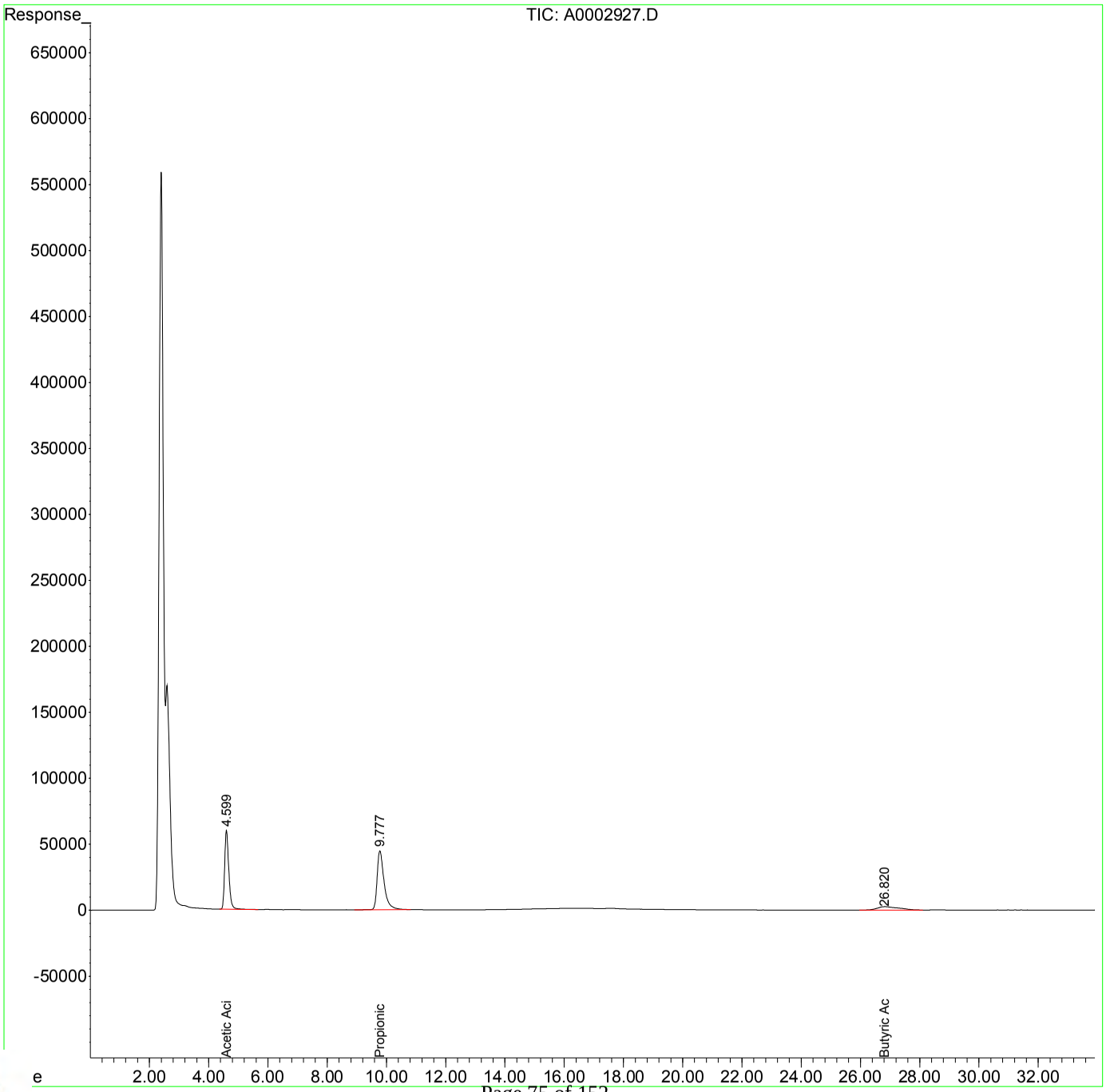
1st BA 04/03/19
2nd DM 04/04/19

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\032819\
Data File : A0002927.D
Signal(s) : dad1A.ch
Acq On : 29-Mar-2019, 20:23:38
Operator : b.allgeier
Sample : r1902402-006|2.5
Misc :
ALS Vial : 6 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Apr 01 09:31:24 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Mon Apr 01 09:25:48 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



RIGHT SOLUTIONS | RIGHT PARTNER

00948923

1st BA 04/03/19
2nd DM 04/04/19

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\032819\
Data File : A0002928.D
Signal(s) : dad1A.ch
Acq On : 29-Mar-2019, 21:00:34
Operator : b.allgeier
Sample : r1902402-007|2.5
Misc :
ALS Vial : 7 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Apr 01 09:31:26 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Mon Apr 01 09:25:48 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1) t	Formic acid	0.000	0	N.D.	ppm
2) T	Pyruvic acid	0.000	0	N.D.	ppm
3) T	Lactic Acid	0.000	0	N.D.	ppm
4) T	Acetic Acid	4.609	5479796	93.883	ppm
5) T	Propionic Acid	9.789	7121930	123.578	ppm
6) T	Butyric Acid	26.834	1216663	22.486	ppm

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

RIGHT SOLUTIONS | RIGHT PARTNER

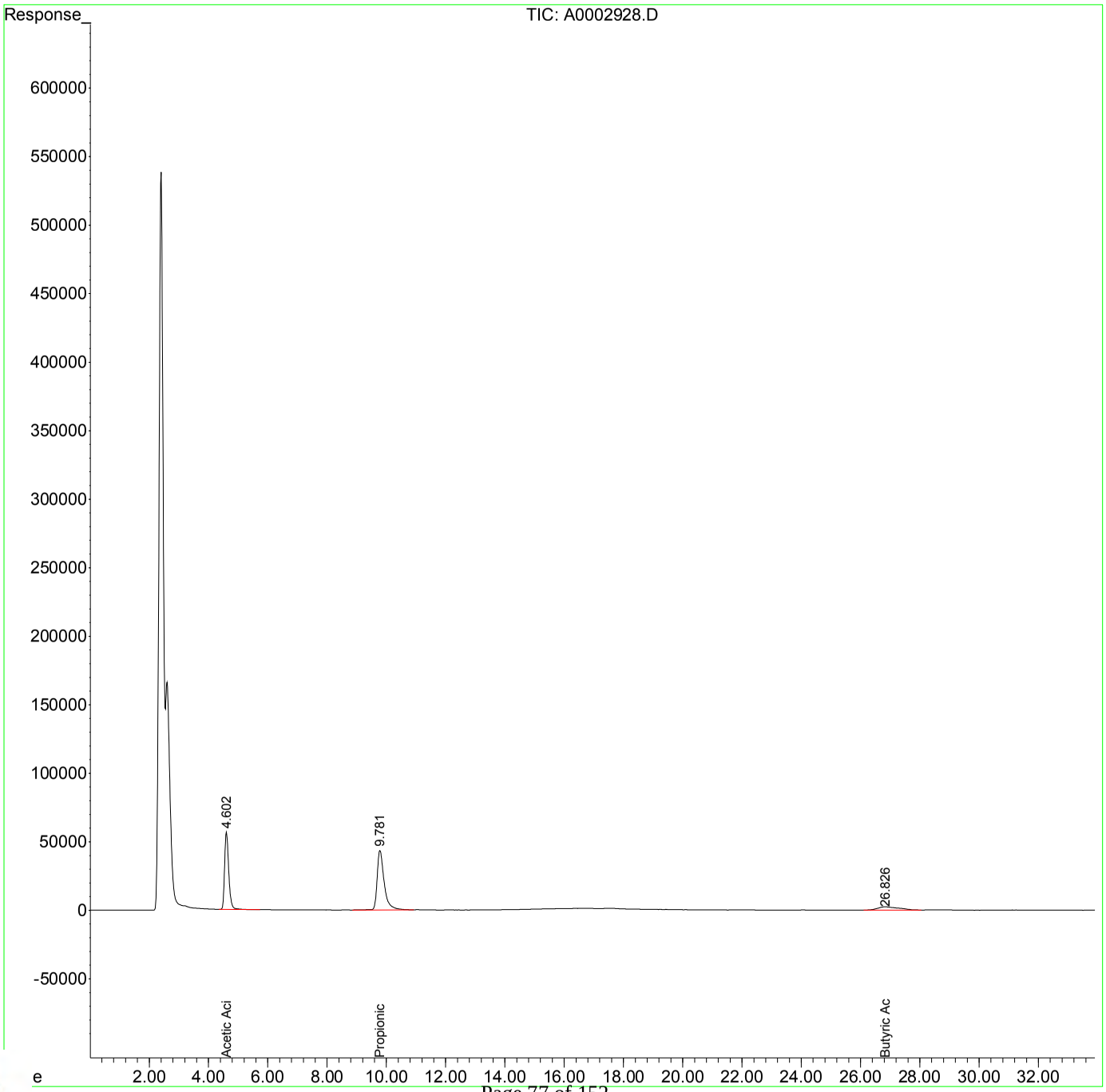
00948924

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\032819\
Data File : A0002928.D
Signal(s) : dad1A.ch
Acq On : 29-Mar-2019, 21:00:34
Operator : b.allgeier
Sample : r1902402-007|2.5
Misc :
ALS Vial : 7 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Apr 01 09:31:26 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Mon Apr 01 09:25:48 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



RIGHT SOLUTIONS | RIGHT PARTNER

00948925

1st BA 04/01/19
2nd DM 04/04/19

Data Path : I:\ACQUDATA\hplc05\data\032519\
Data File : A0002916.D
Signal(s) : dad1A.ch
Acq On : 25-Mar-2019, 20:30:15
Operator : b.allgeier
Sample : r1902402-007
Misc :
ALS Vial : 11 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Mar 29 16:19:39 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Fri Mar 29 16:18:59 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1) t	Formic acid	0.000	0	N.D.	ppm	
2) T	Pyruvic acid	0.000	0	N.D.	ppm	d
3) T	Lactic Acid	0.000	0	N.D.	ppm	d
4) T	Acetic Acid	0.000	0	N.D.	ppm	
5) T	Propionic Acid	0.000	0	N.D.	ppm	d
6) T	Butyric Acid	0.000	0	N.D.	ppm	

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

RIGHT SOLUTIONS | RIGHT PARTNER

00948926

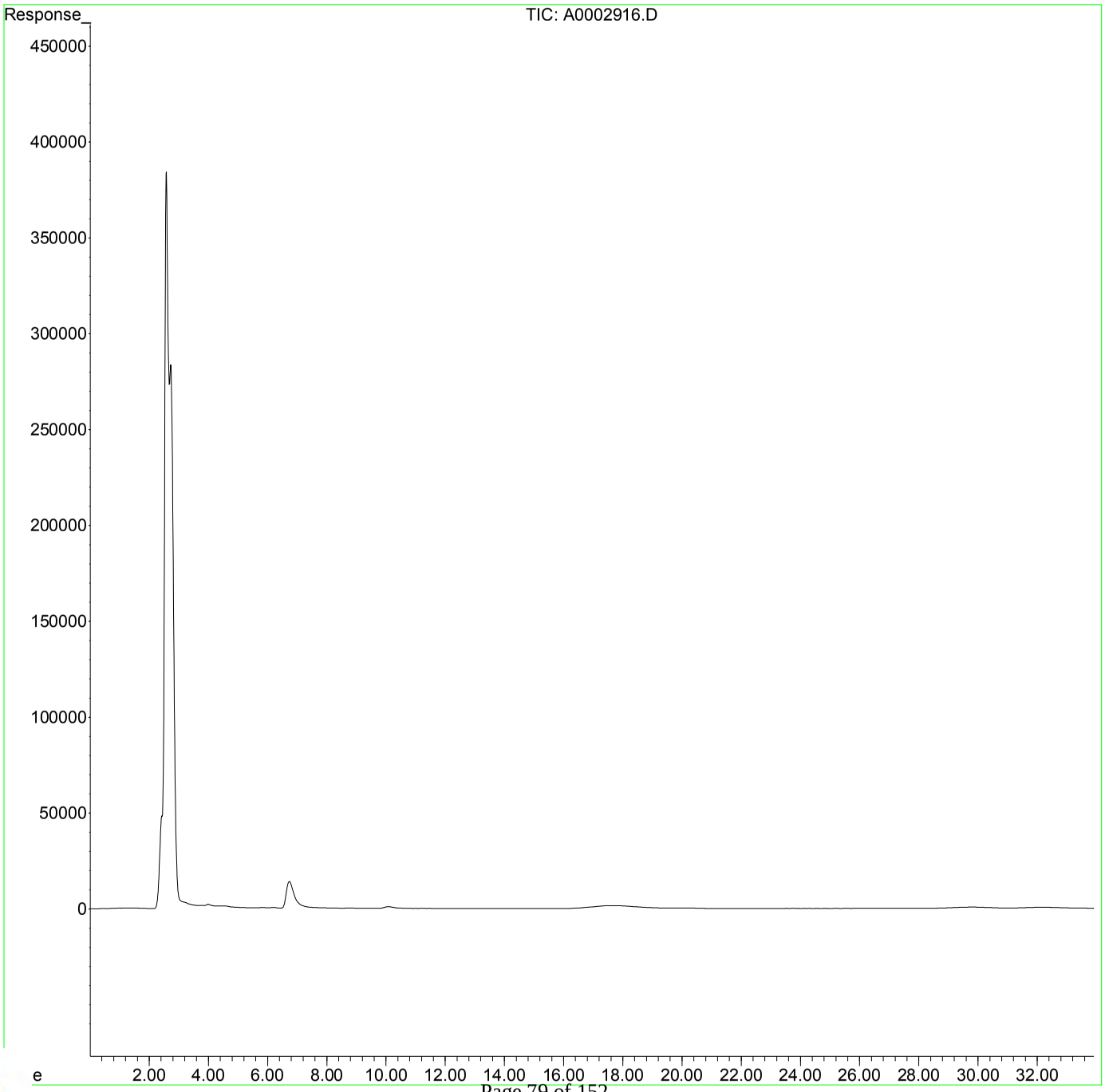
1st BA 04/01/19
2nd DM 04/04/19

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\032519\
Data File : A0002916.D
Signal(s) : dad1A.ch
Acq On : 25-Mar-2019, 20:30:15
Operator : b.allgeier
Sample : r1902402-007
Misc :
ALS Vial : 11 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Mar 29 16:19:39 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Fri Mar 29 16:18:59 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



RIGHT SOLUTIONS | RIGHT PARTNER

00948927

1st BA 04/01/19
2nd DM 04/04/19

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\032519\
Data File : A0002907.D
Signal(s) : dad1A.ch
Acq On : ~~30-Dec-2000, 17:47:52~~ 25-Mar-2019, 14:57:00
Operator : b.allgeier
Sample : met blk
Misc :
ALS Vial : 2 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Mar 29 16:19:21 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Fri Mar 29 16:18:59 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1) t	Formic acid	0.000	0	N.D.	ppm	
2) T	Pyruvic acid	0.000	0	N.D.	ppm	
3) T	Lactic Acid	0.000	0	N.D.	ppm	
4) T	Acetic Acid	0.000	0	N.D.	ppm	
5) T	Propionic Acid	0.000	0	N.D.	ppm	d
6) T	Butyric Acid	0.000	0	N.D.	ppm	

(f)=RT Delta > 1/2 Window (m)=manual int.

RIGHT SOLUTIONS | RIGHT PARTNER

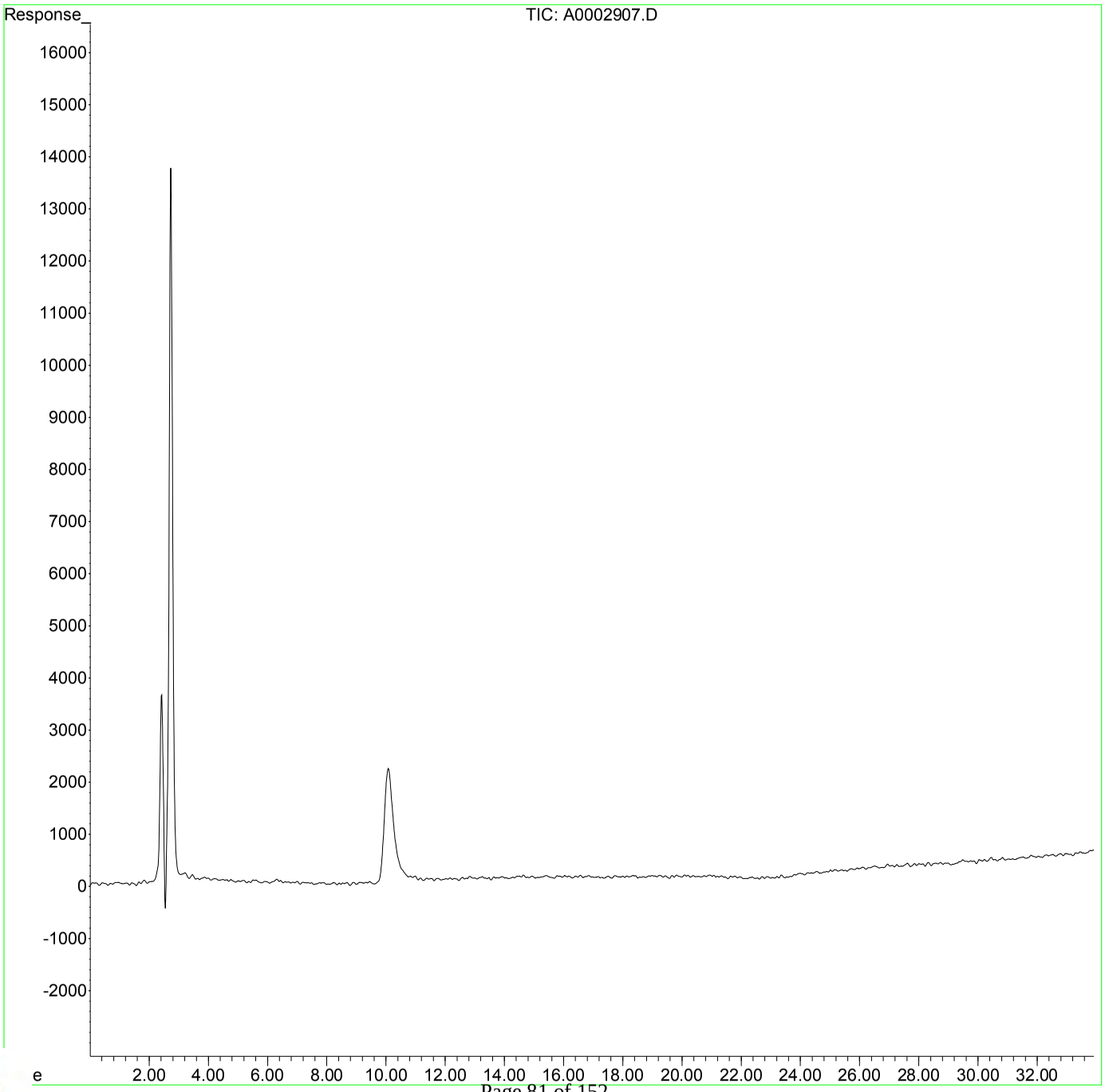
00948928

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\032519\
Data File : A0002907.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 17:47:52
Operator : b.allgeier
Sample : met blk
Misc :
ALS Vial : 2 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Mar 29 16:19:21 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Fri Mar 29 16:18:59 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



RIGHT SOLUTIONS | RIGHT PARTNER

00948929

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\032819\
Data File : A0002923.D
Signal(s) : dad1A.ch
Acq On : ~~30-Dec-2000, 09:48:28~~ 29-Mar-2019, 17:55:00
Operator : b.allgeier
Sample : met blk
Misc :
ALS Vial : 2 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Apr 01 09:31:16 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Mon Apr 01 09:25:48 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

Compound	R.T.	Response	Conc	Units	
Target Compounds					
1) t Formic acid	0.000	0	N.D.	ppm	
2) T Pyruvic acid	0.000	0	N.D.	ppm	
3) T Lactic Acid	0.000	0	N.D.	ppm	
4) T Acetic Acid	0.000	0	N.D.	ppm	
5) T Propionic Acid	0.000	0	N.D.	ppm	d
6) T Butyric Acid	0.000	0	N.D.	ppm	

(f)=RT Delta > 1/2 Window (m)=manual int.

RIGHT SOLUTIONS | RIGHT PARTNER

00948930

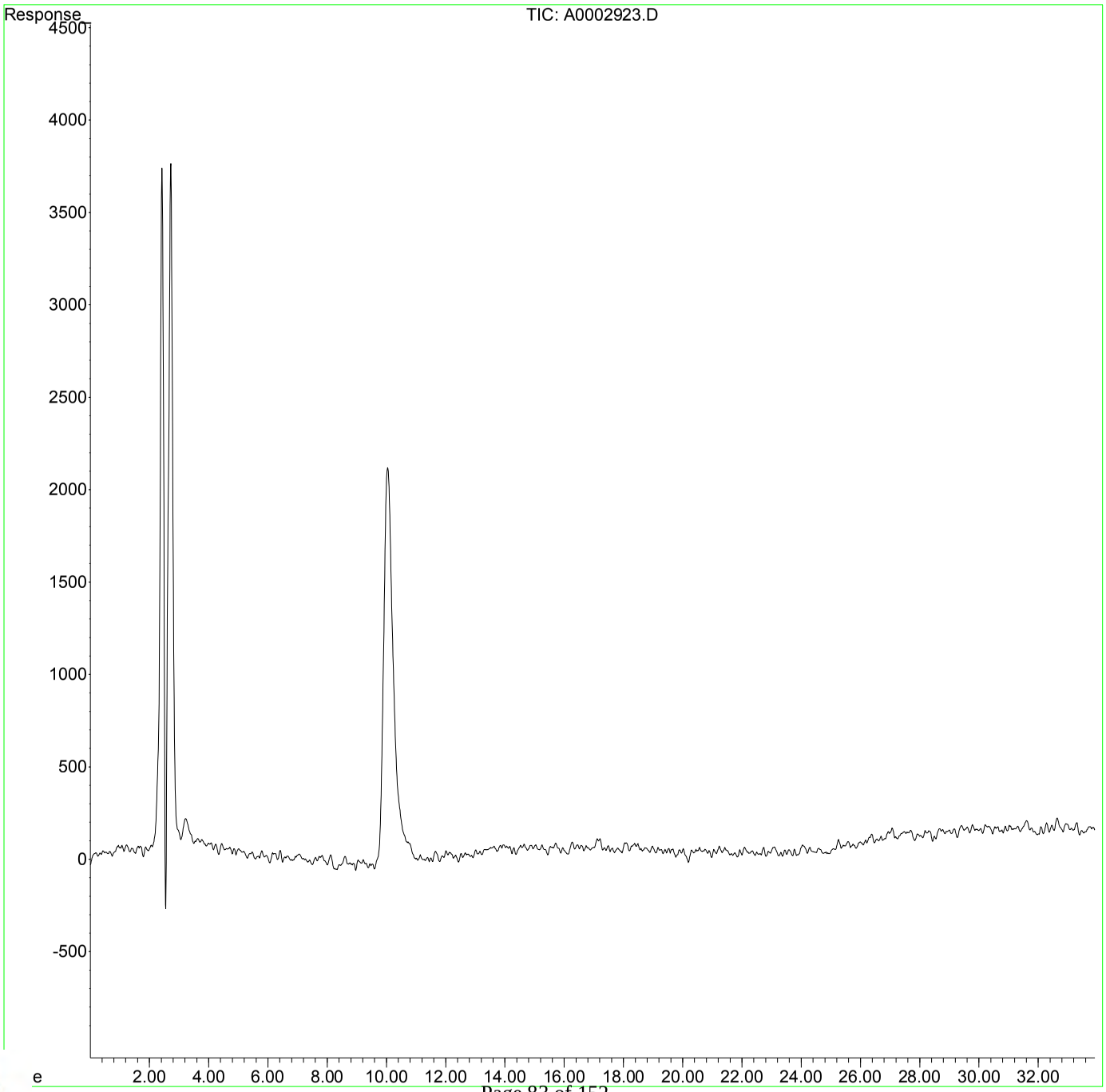
1st BA 04/03/19
2nd DM 04/04/19

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\032819\
Data File : A0002923.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 09:48:28
Operator : b.allgeier
Sample : met blk
Misc :
ALS Vial : 2 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Apr 01 09:31:16 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Mon Apr 01 09:25:48 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



RIGHT SOLUTIONS | RIGHT PARTNER

00948931

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\032519\
Data File : A0002908.D
Signal(s) : dad1A.ch
Acq On : 25-Mar-2019, 15:34:21
Operator : b.allgeier
Sample : lcs
Misc :
ALS Vial : 3 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Mar 29 16:19:23 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Fri Mar 29 16:18:59 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc Units
Target Compounds				
1) t	Formic acid	3.230	1867257	19.975 ppm
2) T	Pyruvic acid	3.806	1287952	1.791 ppm
3) T	Lactic Acid	4.256	1077319	18.460 ppm
4) T	Acetic Acid	4.626	1149378	19.692 ppm
5) T	Propionic Acid	9.925	1627613	28.242 ppm
6) T	Butyric Acid	27.148	1109005	20.497 ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

RIGHT SOLUTIONS | RIGHT PARTNER

00948932

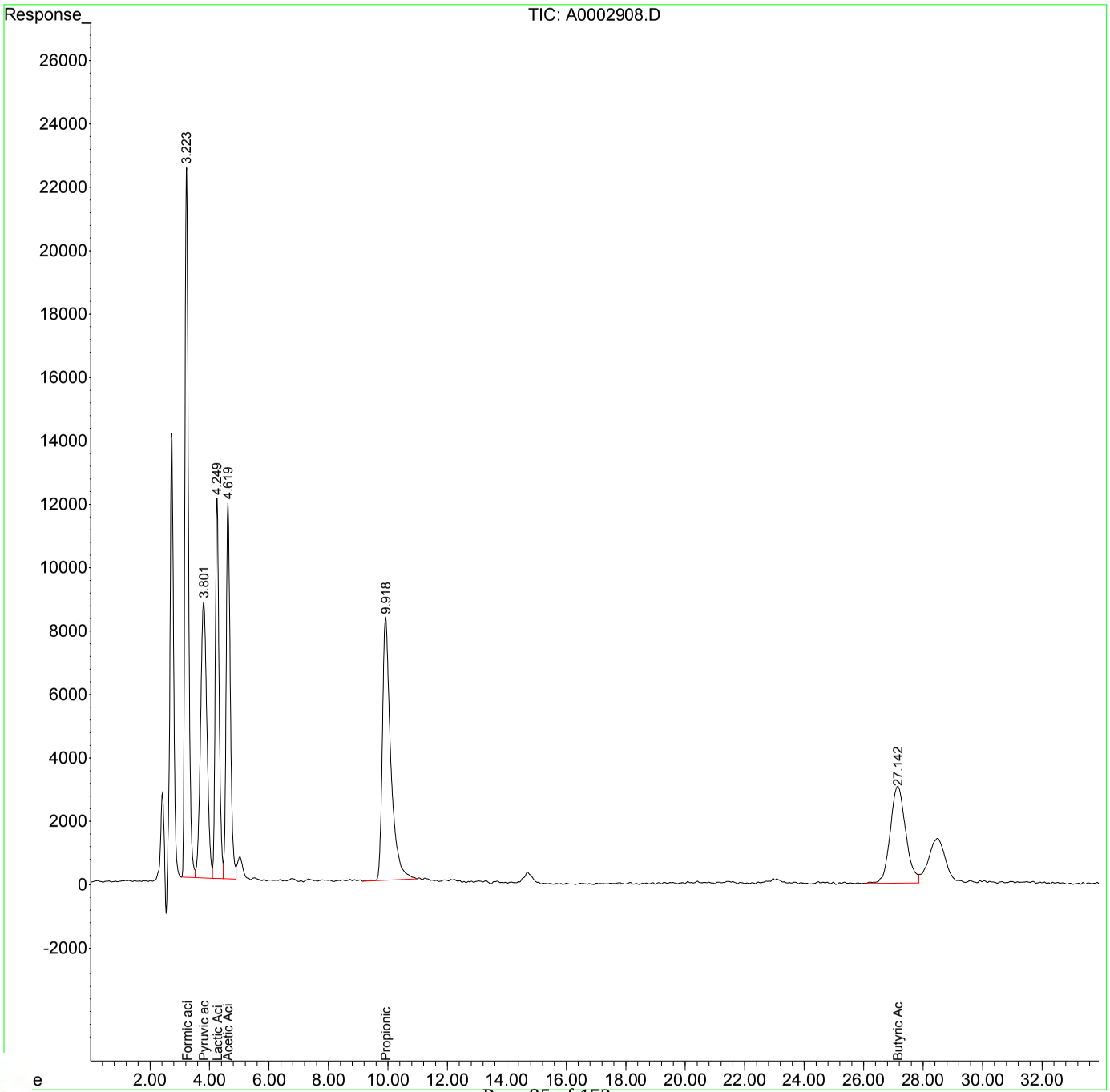
1st BA 04/01/19
2nd DM 04/04/19

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\032519\
Data File : A0002908.D
Signal(s) : dad1A.ch
Acq On : 25-Mar-2019, 15:34:21
Operator : b.allgeier
Sample : lcs
Misc :
ALS Vial : 3 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Mar 29 16:19:23 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Fri Mar 29 16:18:59 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



RIGHT SOLUTIONS | RIGHT PARTNER

00948933

1st BA 04/03/19
2nd DM 04/04/19

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\032819\
Data File : A0002924.D
Signal(s) : dad1A.ch
Acq On : 29-Mar-2019, 18:32:46
Operator : b.allgeier
Sample : lcs
Misc :
ALS Vial : 3 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Apr 01 09:31:18 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Mon Apr 01 09:25:48 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc Units
Target Compounds				
1) t	Formic acid	3.228	1867192	19.974 ppm
2) T	Pyruvic acid	3.796	1284907	1.787 ppm
3) T	Lactic Acid	4.242	1075683	18.432 ppm
4) T	Acetic Acid	4.611	1144691	19.611 ppm
5) T	Propionic Acid	9.842	1640957	28.474 ppm
6) T	Butyric Acid	26.795	1085735	20.067 ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

00948934

RIGHT SOLUTIONS | RIGHT PARTNER

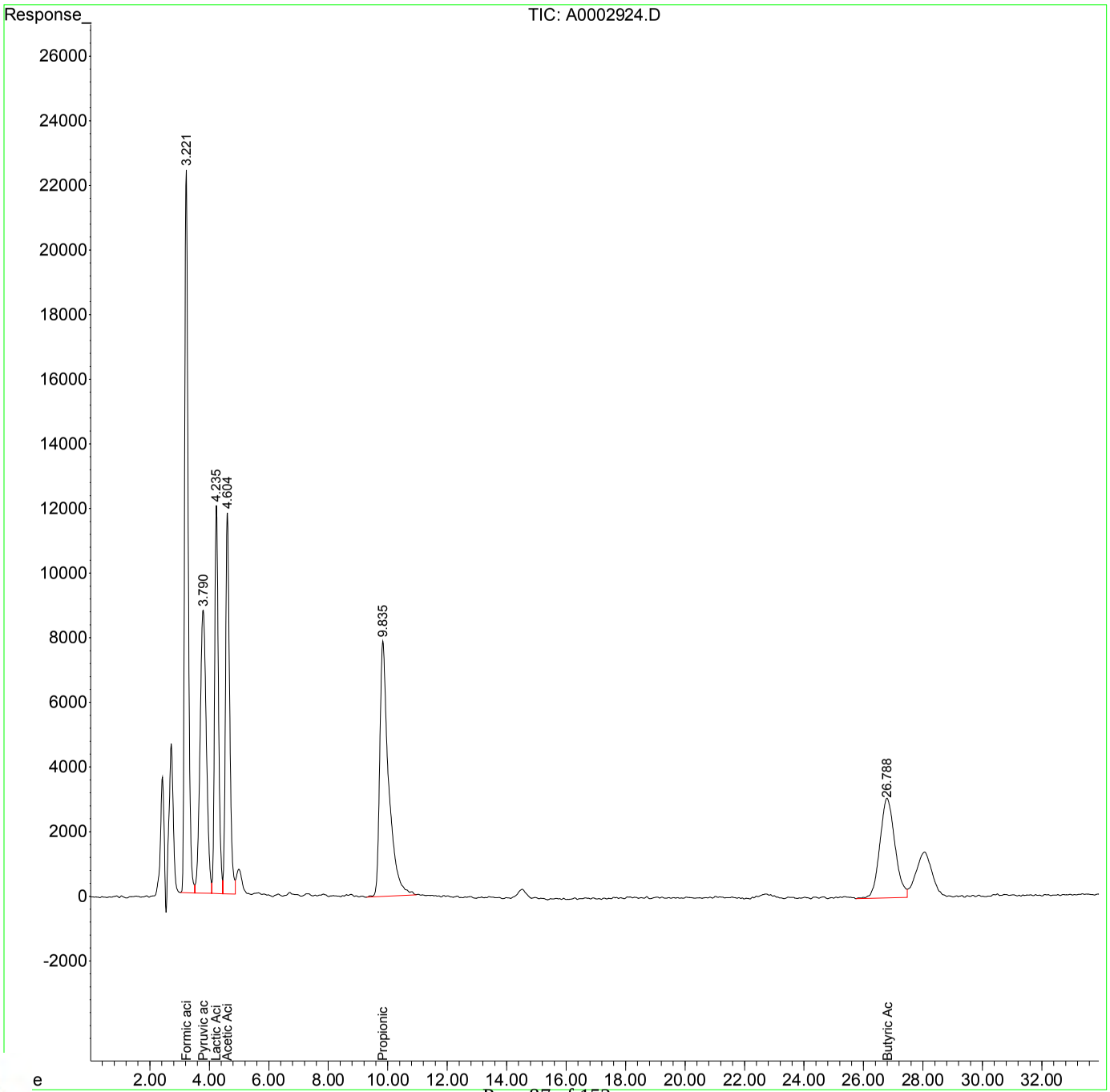
1st BA 04/03/19
2nd DM 04/04/19

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\032819\
Data File : A0002924.D
Signal(s) : dad1A.ch
Acq On : 29-Mar-2019, 18:32:46
Operator : b.allgeier
Sample : lcs
Misc :
ALS Vial : 3 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Apr 01 09:31:18 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Mon Apr 01 09:25:48 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



RIGHT SOLUTIONS | RIGHT PARTNER

00948935

1st BA 04/01/19
2nd DM 04/04/19

Data Path : I:\ACQUDATA\hplc05\data\032519\
Data File : A0002909.D
Signal(s) : dad1A.ch
Acq On : 25-Mar-2019, 16:11:22
Operator : b.allgeier
Sample : dlcs
Misc :
ALS Vial : 4 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Mar 29 16:19:25 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Fri Mar 29 16:18:59 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc Units
Target Compounds				
1) t	Formic acid	3.230	1864903	19.949 ppm
2) T	Pyruvic acid	3.806	1293223	1.798 ppm
3) T	Lactic Acid	4.257	1075279	18.425 ppm
4) T	Acetic Acid	4.629	1154311	19.776 ppm
5) T	Propionic Acid	9.936	1626551	28.224 ppm
6) T	Butyric Acid	27.159	1102382	20.374 ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

RIGHT SOLUTIONS | RIGHT PARTNER

00948936

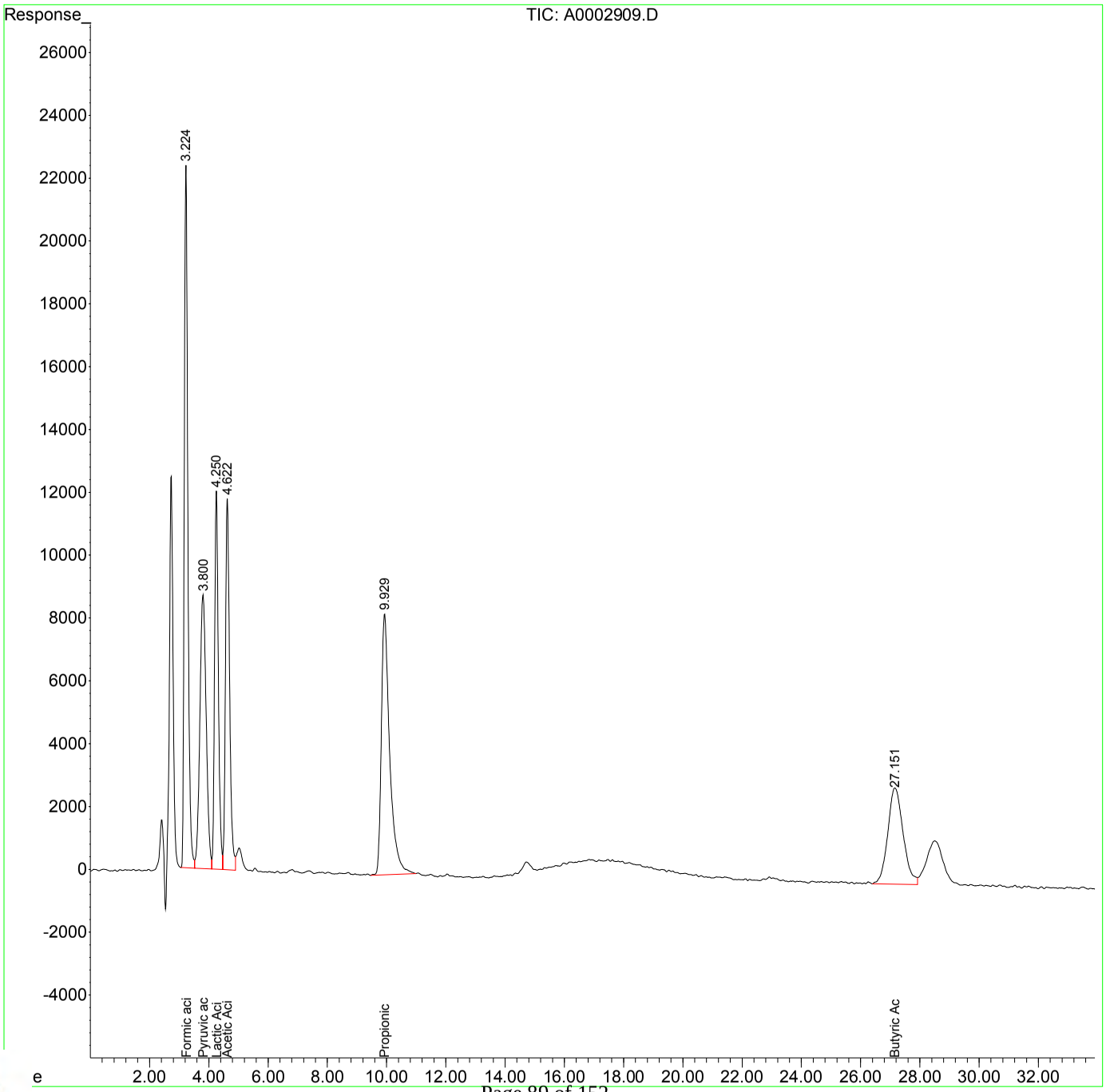
1st BA 04/01/19
2nd DM 04/04/19

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\032519\
Data File : A0002909.D
Signal(s) : dad1A.ch
Acq On : 25-Mar-2019, 16:11:22
Operator : b.allgeier
Sample : dlcs
Misc :
ALS Vial : 4 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Mar 29 16:19:25 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Fri Mar 29 16:18:59 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



RIGHT SOLUTIONS | RIGHT PARTNER

00948937

1st BA 04/03/19
2nd DM 04/04/19

Data Path : I:\ACQUDATA\hplc05\data\032819\
Data File : A0002925.D
Signal(s) : dad1A.ch
Acq On : 29-Mar-2019, 19:09:49
Operator : b.allgeier
Sample : dlcs
Misc :
ALS Vial : 4 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Apr 01 09:31:20 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Mon Apr 01 09:25:48 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc Units
Target Compounds				
1) t	Formic acid	3.229	1861954	19.918 ppm
2) T	Pyruvic acid	3.798	1291532	1.796 ppm
3) T	Lactic Acid	4.243	1080264	18.511 ppm
4) T	Acetic Acid	4.611	1150083	19.704 ppm
5) T	Propionic Acid	9.839	1655608	28.728 ppm
6) T	Butyric Acid	26.796	1108039	20.479 ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

RIGHT SOLUTIONS | RIGHT PARTNER

00948938

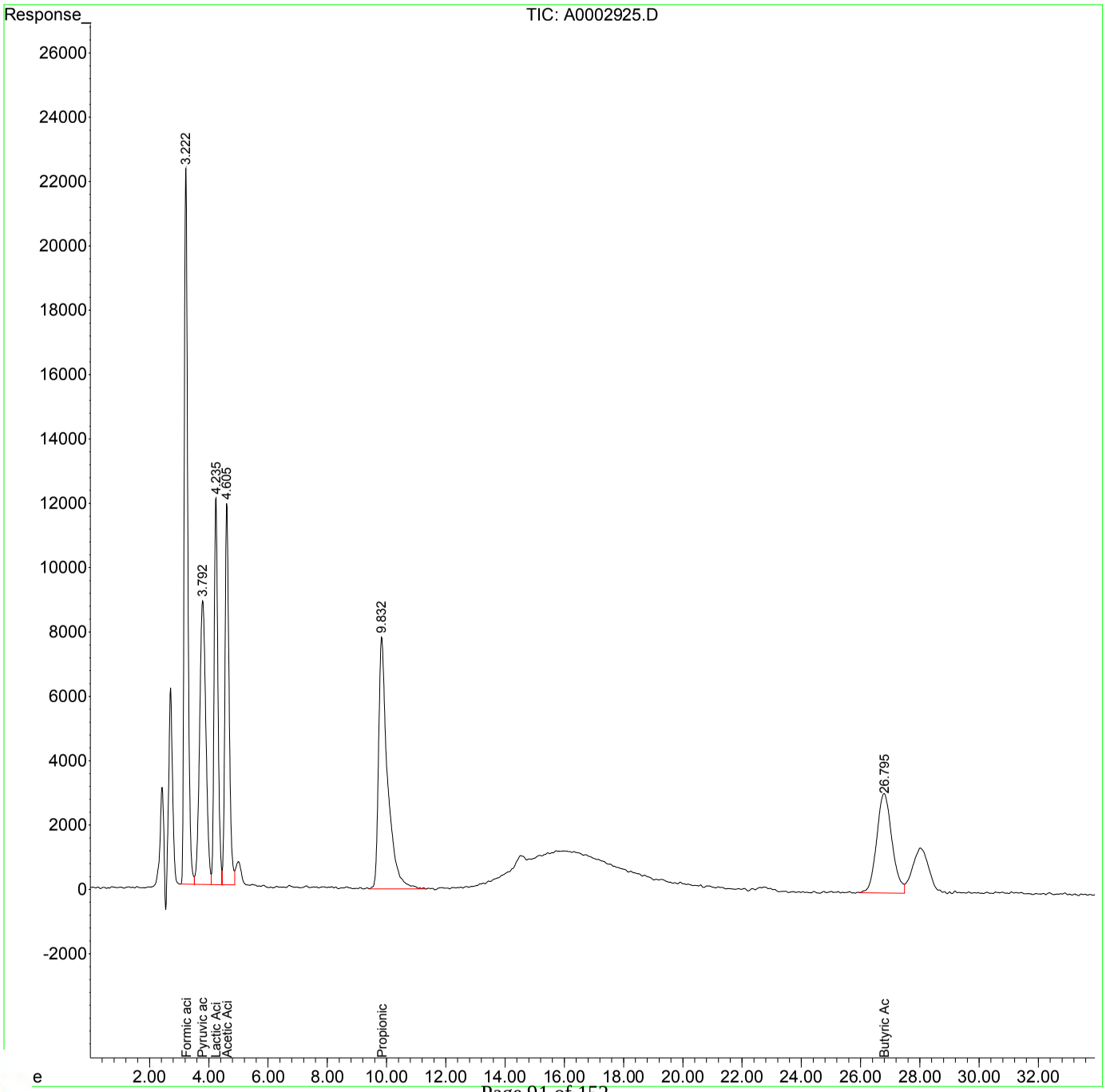
1st BA 04/03/19
2nd DM 04/04/19

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\032819\
Data File : A0002925.D
Signal(s) : dad1A.ch
Acq On : 29-Mar-2019, 19:09:49
Operator : b.allgeier
Sample : dlcs
Misc :
ALS Vial : 4 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Apr 01 09:31:20 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Mon Apr 01 09:25:48 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



RIGHT SOLUTIONS | RIGHT PARTNER

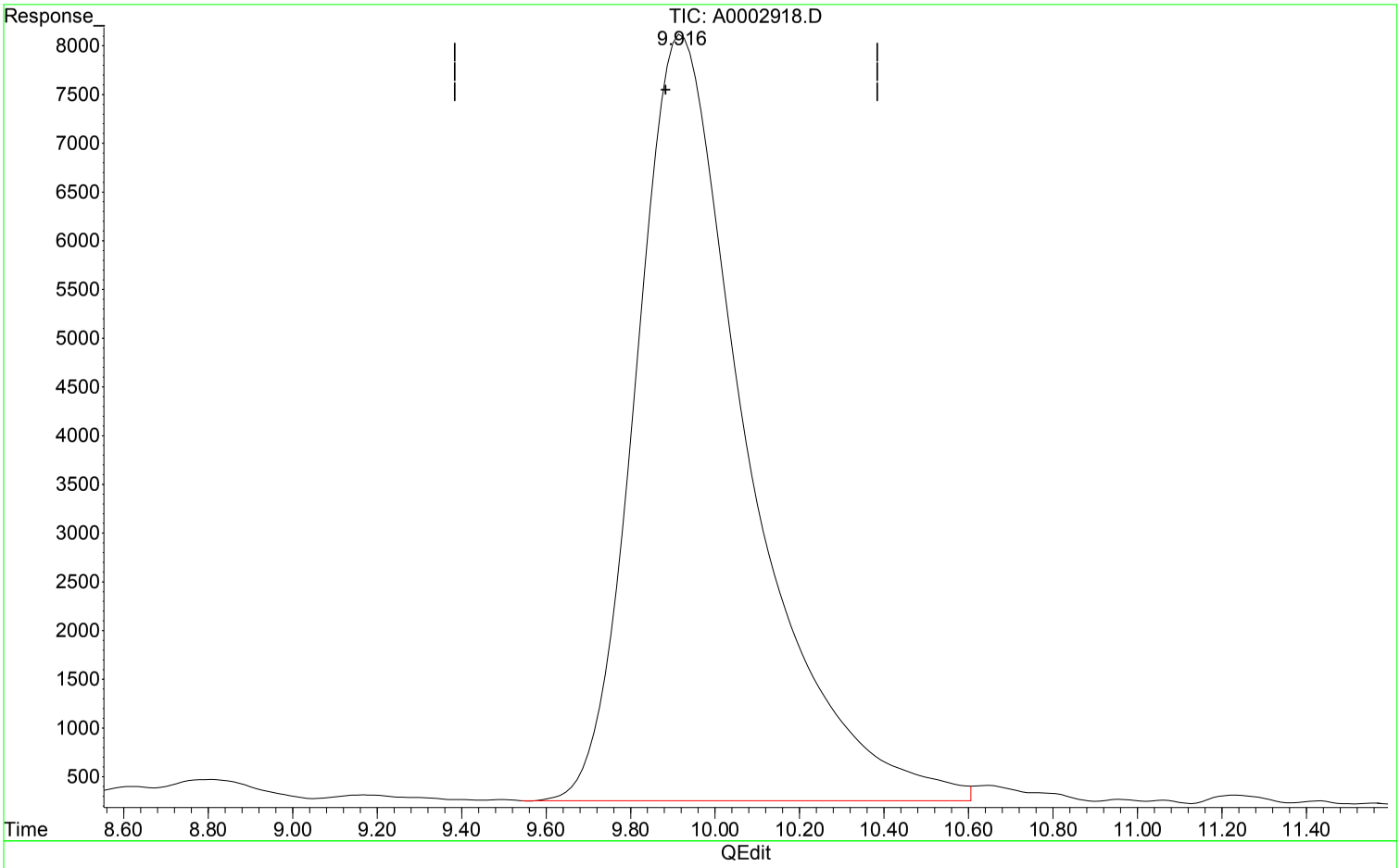
00948939

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\032519\
Data File : A0002918.D
Signal(s) : dad1A.ch
Acq On : 25-Mar-2019, 21:44:06
Operator : b.allgeier
Sample : r1902402-007 ms
Misc :
ALS Vial : 12 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Mar 29 16:19:43 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Fri Mar 29 16:18:59 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(5) Propionic Acid (T)

9.916min 25.147 ppm m

response 1449259

Manual Integration:

After

Poor integration.

03/29/19

Expected Retention Time

RIGHT SOLUTIONS | RIGHT PARTNER

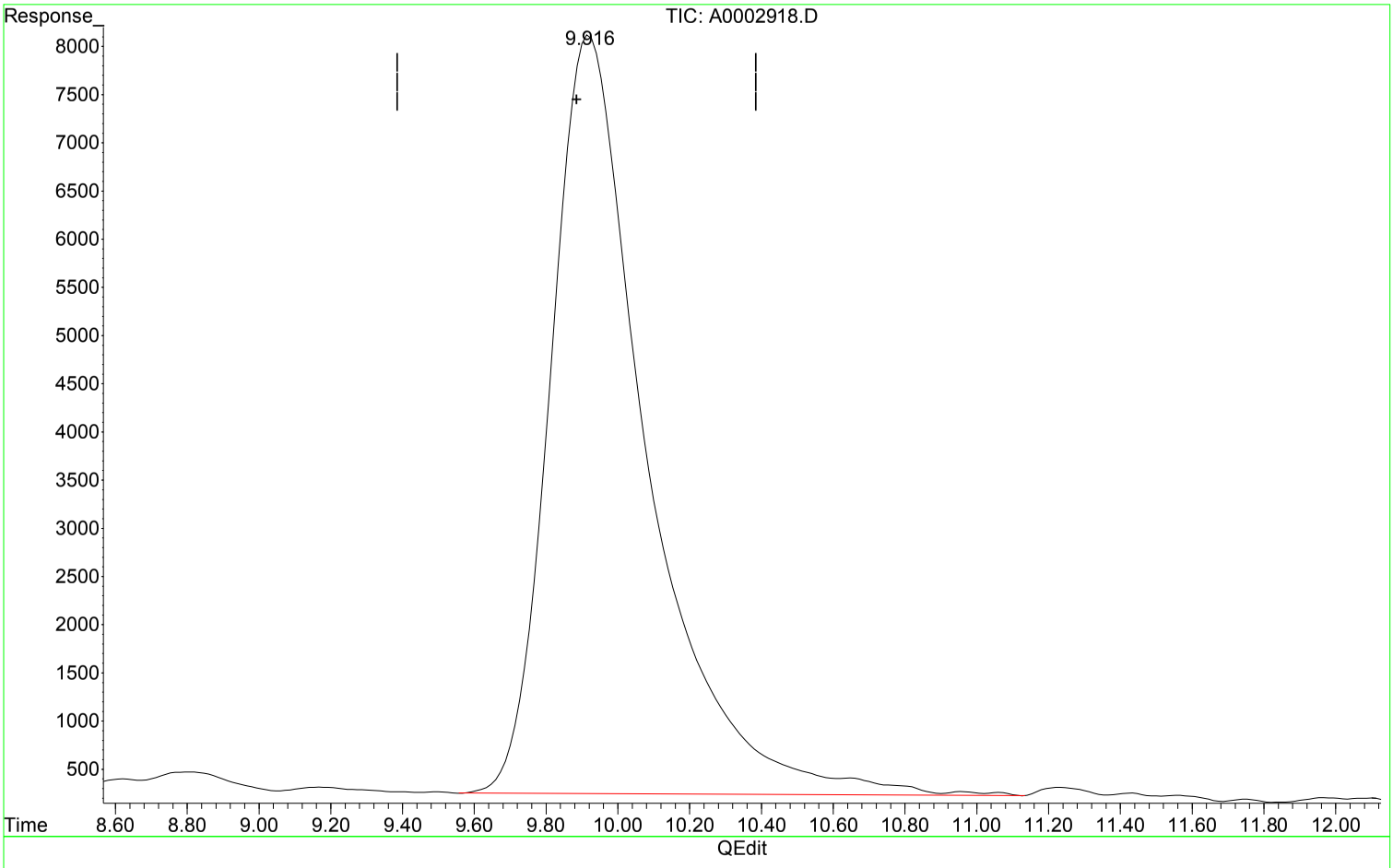
00948940

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\032519\
Data File : A0002918.D
Signal(s) : dad1A.ch
Acq On : 25-Mar-2019, 21:44:06
Operator : b.allgeier
Sample : r1902402-007 ms
Misc :
ALS Vial : 12 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Mar 29 16:19:43 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Fri Mar 29 16:18:59 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(5) Propionic Acid (T)

9.922min 25.651 ppm

response 1478290

Manual Integration:

Before

03/29/19

Expected Retention Time

RIGHT SOLUTIONS | RIGHT PARTNER

00948941

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\032519\
Data File : A0002918.D
Signal(s) : dad1A.ch
Acq On : 25-Mar-2019, 21:44:06
Operator : b.allgeier
Sample : r1902402-007 ms
Misc :
ALS Vial : 12 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Mar 29 16:19:43 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Fri Mar 29 16:18:59 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1) t	Formic acid	3.229	1742427	18.639	ppm	
2) T	Pyruvic acid	3.796	1165649	1.621	ppm	
3) T	Lactic Acid	4.255	982325	16.832	ppm	
4) T	Acetic Acid	4.627	1093515	18.735	ppm	
5) T	Propionic Acid	9.916	1449259	25.147	ppm	m
6) T	Butyric Acid	27.157	1075767	19.882	ppm	

(f)=RT Delta > 1/2 Window (m)=manual int.

RIGHT SOLUTIONS | RIGHT PARTNER

00948942

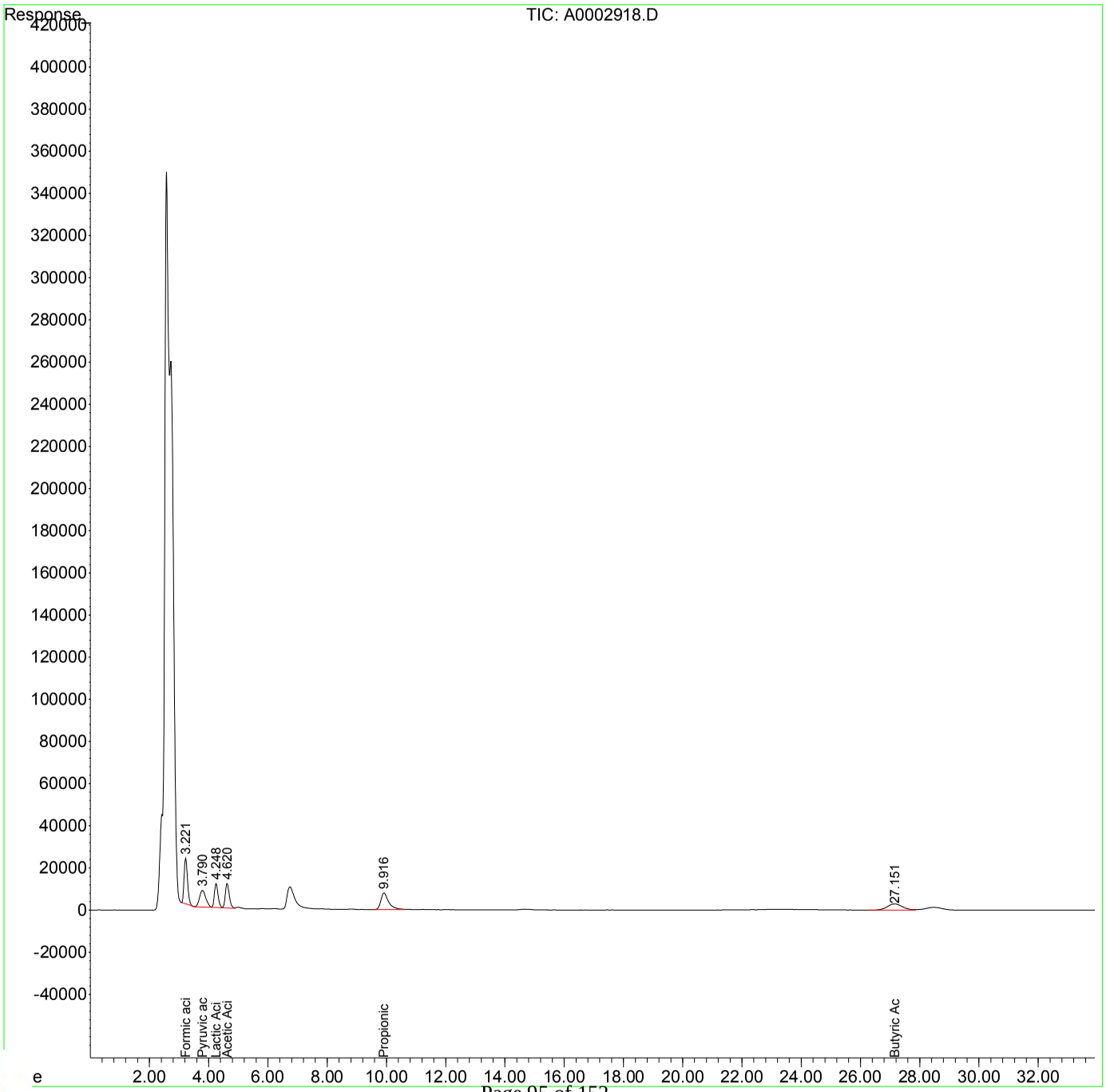
1st BA 04/01/19
2nd DM 04/04/19

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\032519\
Data File : A0002918.D
Signal(s) : dad1A.ch
Acq On : 25-Mar-2019, 21:44:06
Operator : b.allgeier
Sample : r1902402-007 ms
Misc :
ALS Vial : 12 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Mar 29 16:19:43 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Fri Mar 29 16:18:59 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



RIGHT SOLUTIONS | RIGHT PARTNER

00948943

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\032519\
Data File : A0002919.D
Signal(s) : dad1A.ch
Acq On : ~~30-Dec-2000, 01:28:30~~ 25-Mar-2019, 22:21:00
Operator : b.allgeier
Sample : r1902402-007 msd
Misc :
ALS Vial : 13 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Mar 29 16:19:45 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Fri Mar 29 16:18:59 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc Units
Target Compounds				
1) t	Formic acid	3.227	1714408	18.340 ppm
2) T	Pyruvic acid	3.794	1154343	1.605 ppm
3) T	Lactic Acid	4.254	973009	16.673 ppm
4) T	Acetic Acid	4.626	1088976	18.657 ppm
5) T	Propionic Acid	9.921	1474770	25.590 ppm
6) T	Butyric Acid	27.155	1000486	18.491 ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

RIGHT SOLUTIONS | RIGHT PARTNER

00948944

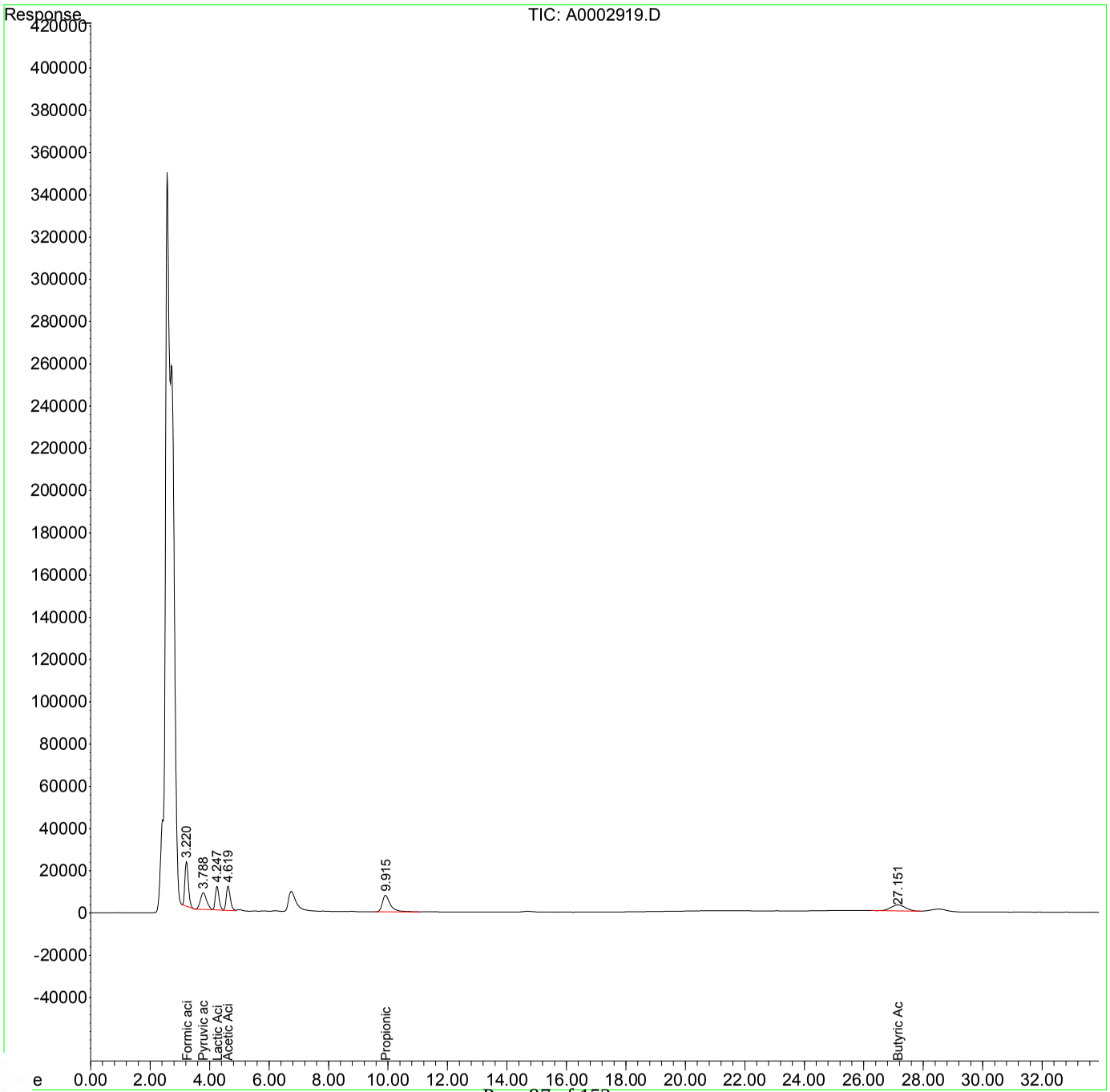
1st BA 04/01/19
2nd DM 04/04/19

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\032519\
Data File : A0002919.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 01:28:30
Operator : b.allgeier
Sample : r1902402-007 msd
Misc :
ALS Vial : 13 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Mar 29 16:19:45 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Fri Mar 29 16:18:59 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



RIGHT SOLUTIONS | RIGHT PARTNER

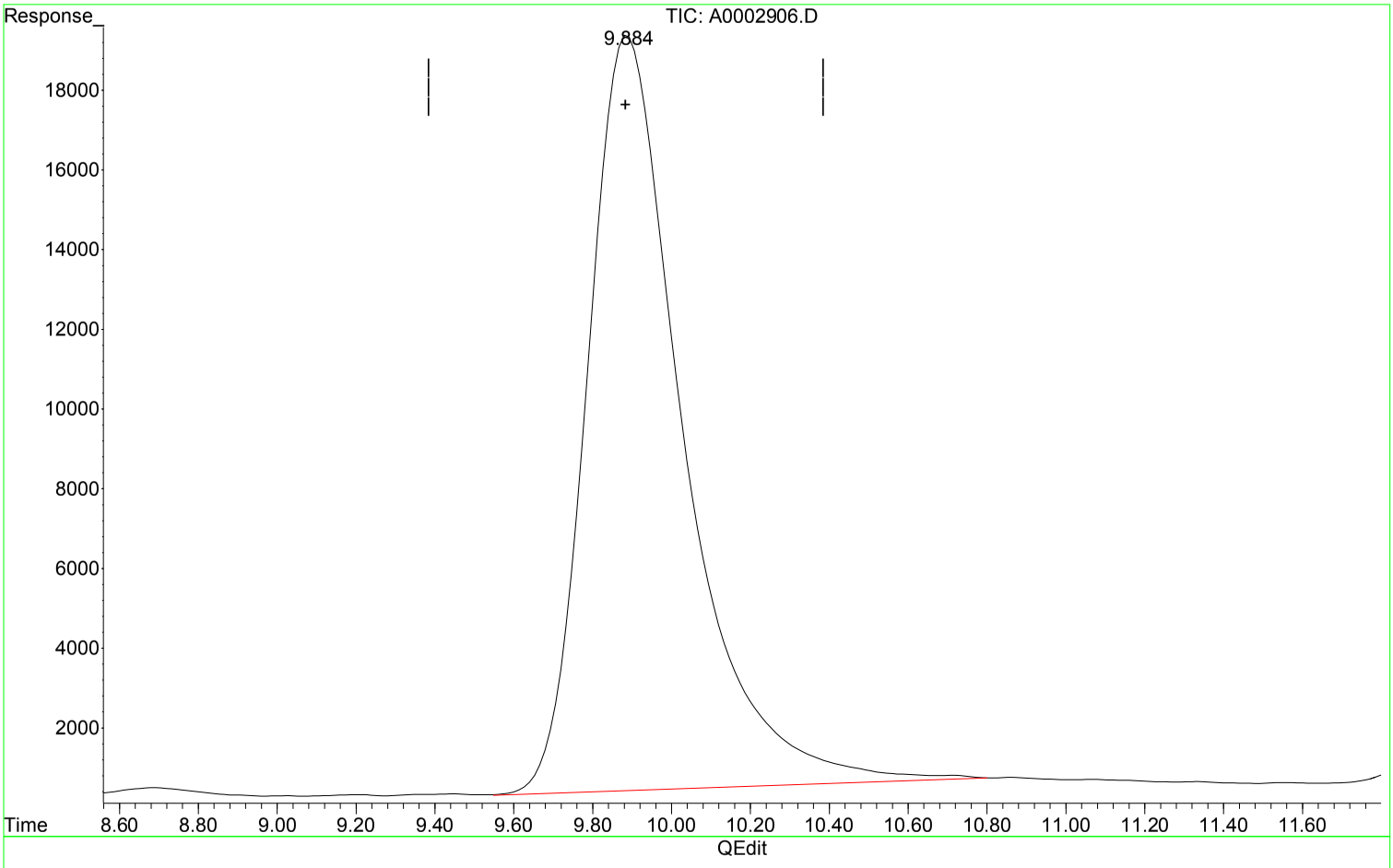
00948945

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\032519\
Data File : A0002906.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 17:47:58
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Mar 29 16:19:18 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Fri Mar 29 16:18:59 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(5) Propionic Acid (T)

9.884min 55.609 ppm m

response 3204779

Manual Integration:

After

Poor integration.

03/29/19

Expected Retention Time

RIGHT SOLUTIONS | RIGHT PARTNER

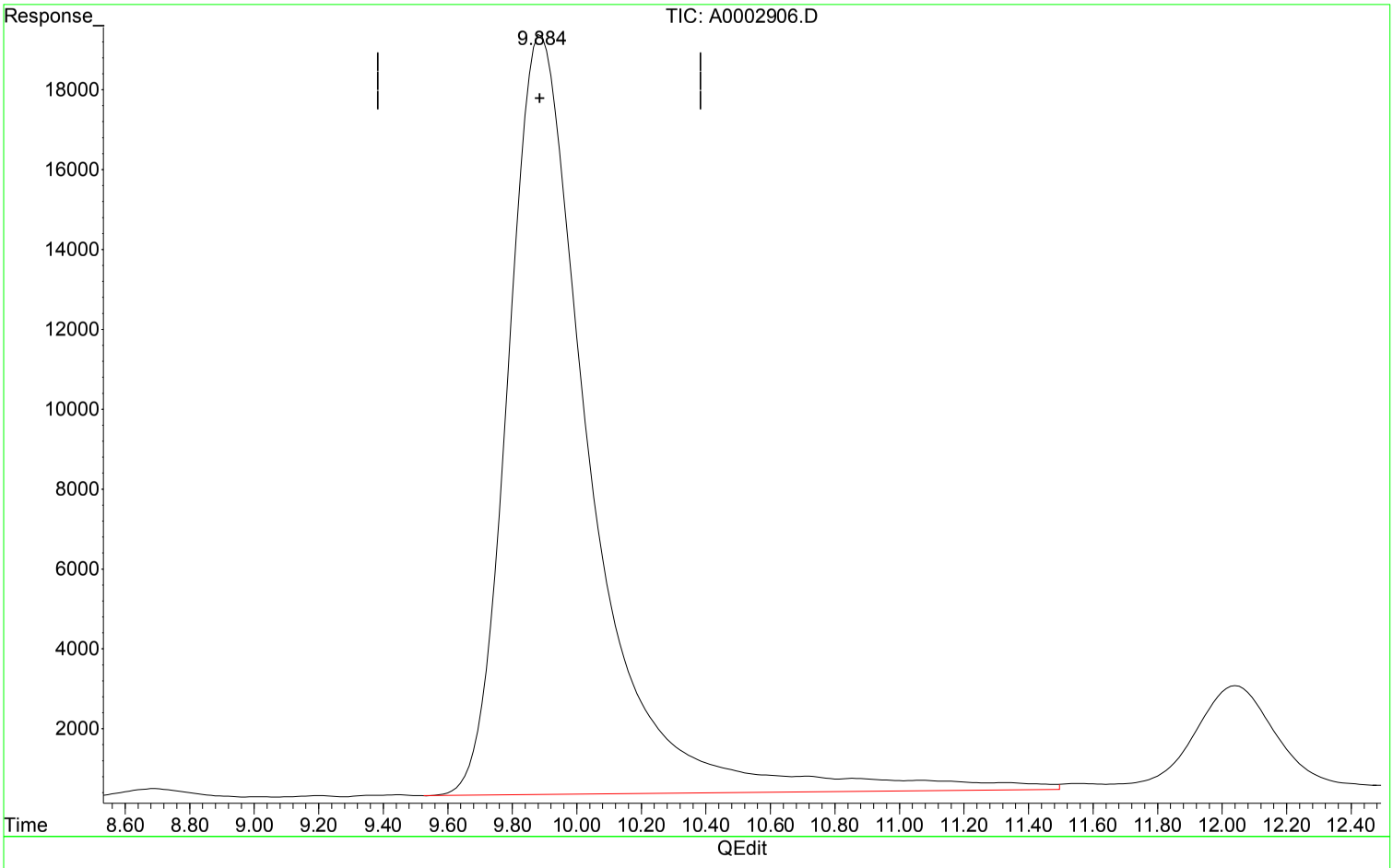
00948946

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\032519\
Data File : A0002906.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 17:47:58
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Mar 29 16:19:18 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Fri Mar 29 16:18:59 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(5) Propionic Acid (T)

9.891min 59.306 ppm

response 3417871

Manual Integration:

Before

03/29/19

Expected Retention Time

RIGHT SOLUTIONS | RIGHT PARTNER

00948947

1st BA 04/01/19
2nd DM 04/04/19

Evaluate Continuing Calibration Report

Data Path : I:\ACQUDATA\hplc05\data\032519\
Data File : A0002906.D
Signal(s) : dad1A.ch
Acq On : ~~30-Dec-2000, 17:47:58~~ 25-Mar-2019, 14:20:00
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Mar 29 16:19:18 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Fri Mar 29 16:18:59 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
1 t	Formic acid	93.481	96.052 E3	-2.8	102	0.00
2 T	Pyruvic acid	719.144	585.282 E3	18.6	82	0.01
3 T	Lactic Acid	58.359	51.865 E3	11.1	87	0.02
4 T	Acetic Acid	58.368	58.805 E3	-0.7	99	0.02
5 T	Propionic Acid	57.631	64.096 E3	-11.2	114	0.09
6 T	Butyric Acid	54.107	55.293 E3	-2.2	102	0.41

Evaluate Continuing Calibration Report - Not Founds

(#) = Out of Range SPCC's out = 0 CCC's out = 0

RIGHT SOLUTIONS | RIGHT PARTNER

00948948

1st BA 04/01/19
2nd DM 04/04/19

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\032519\
Data File : A0002906.D
Signal(s) : dad1A.ch
Acq On : ~~30-Dec-2000, 17:47:58~~ 25-Mar-2019, 14:20:00
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Mar 29 16:19:18 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Fri Mar 29 16:18:59 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1) t	Formic acid	3.229	4802608	51.375	ppm	
2) T	Pyruvic acid	3.804	2926411	4.069	ppm	
3) T	Lactic Acid	4.253	2593267	44.437	ppm	
4) T	Acetic Acid	4.621	2940275	50.374	ppm	
5) T	Propionic Acid	9.884	3204779	55.609	ppm	m
6) T	Butyric Acid	27.058	2764628	51.096	ppm	

(f)=RT Delta > 1/2 Window (m)=manual int.

RIGHT SOLUTIONS | RIGHT PARTNER

00948949

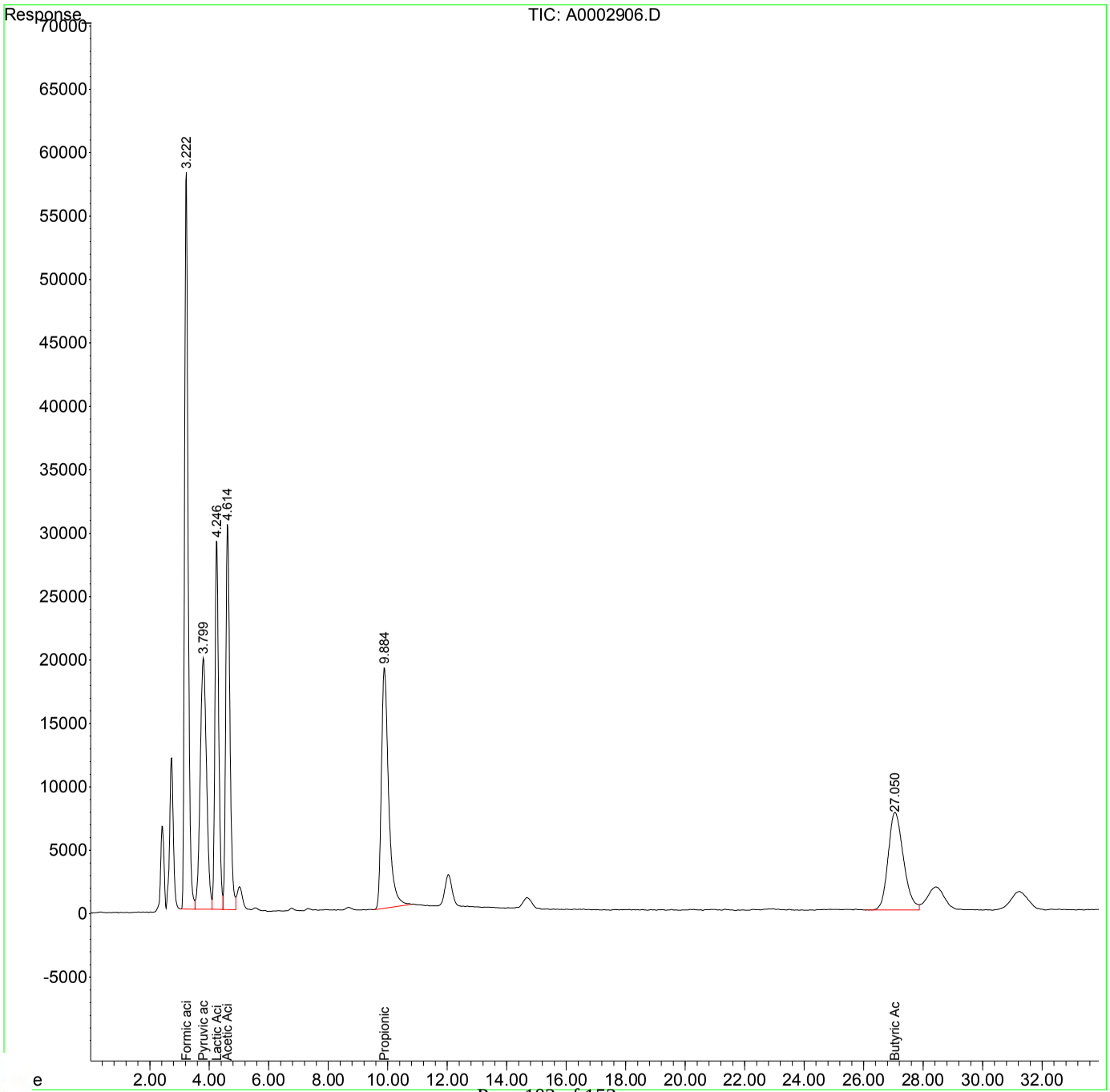
1st BA 04/01/19
2nd DM 04/04/19

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\032519\
Data File : A0002906.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 17:47:58
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Mar 29 16:19:18 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Fri Mar 29 16:18:59 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



RIGHT SOLUTIONS | RIGHT PARTNER

00948950

1st BA 04/01/19
2nd DM 04/04/19

Evaluate Continuing Calibration Report

Data Path : I:\ACQUDATA\hplc05\data\032519\
Data File : A0002917.D
Signal(s) : dad1A.ch
Acq On : 25-Mar-2019, 21:07:14
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Mar 29 16:26:55 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Fri Mar 29 16:18:59 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
1 t	Formic acid	93.481	95.891 E3	-2.6	102	0.00
2 T	Pyruvic acid	719.144	628.324 E3	12.6	89	0.01
3 T	Lactic Acid	58.359	54.952 E3	5.8	92	0.02
4 T	Acetic Acid	58.368	60.457 E3	-3.6	102	0.02
5 T	Propionic Acid	57.631	65.210 E3	-13.2	116	0.09
6 T	Butyric Acid	54.107	54.065 E3	0.1	99	0.35

Evaluate Continuing Calibration Report - Not Founds

(#) = Out of Range SPCC's out = 0 CCC's out = 0

RIGHT SOLUTIONS | RIGHT PARTNER

00948951

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\032519\
Data File : A0002917.D
Signal(s) : dad1A.ch
Acq On : 25-Mar-2019, 21:07:14
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Mar 29 16:26:55 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Fri Mar 29 16:18:59 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc Units
Target Compounds				
1) t	Formic acid	3.228	4794567	51.289 ppm
2) T	Pyruvic acid	3.804	3141618	4.369 ppm
3) T	Lactic Acid	4.251	2747597	47.081 ppm
4) T	Acetic Acid	4.620	3022874	51.790 ppm
5) T	Propionic Acid	9.883	3260475	56.575 ppm
6) T	Butyric Acid	26.994	2703236	49.961 ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

RIGHT SOLUTIONS | RIGHT PARTNER

00948952

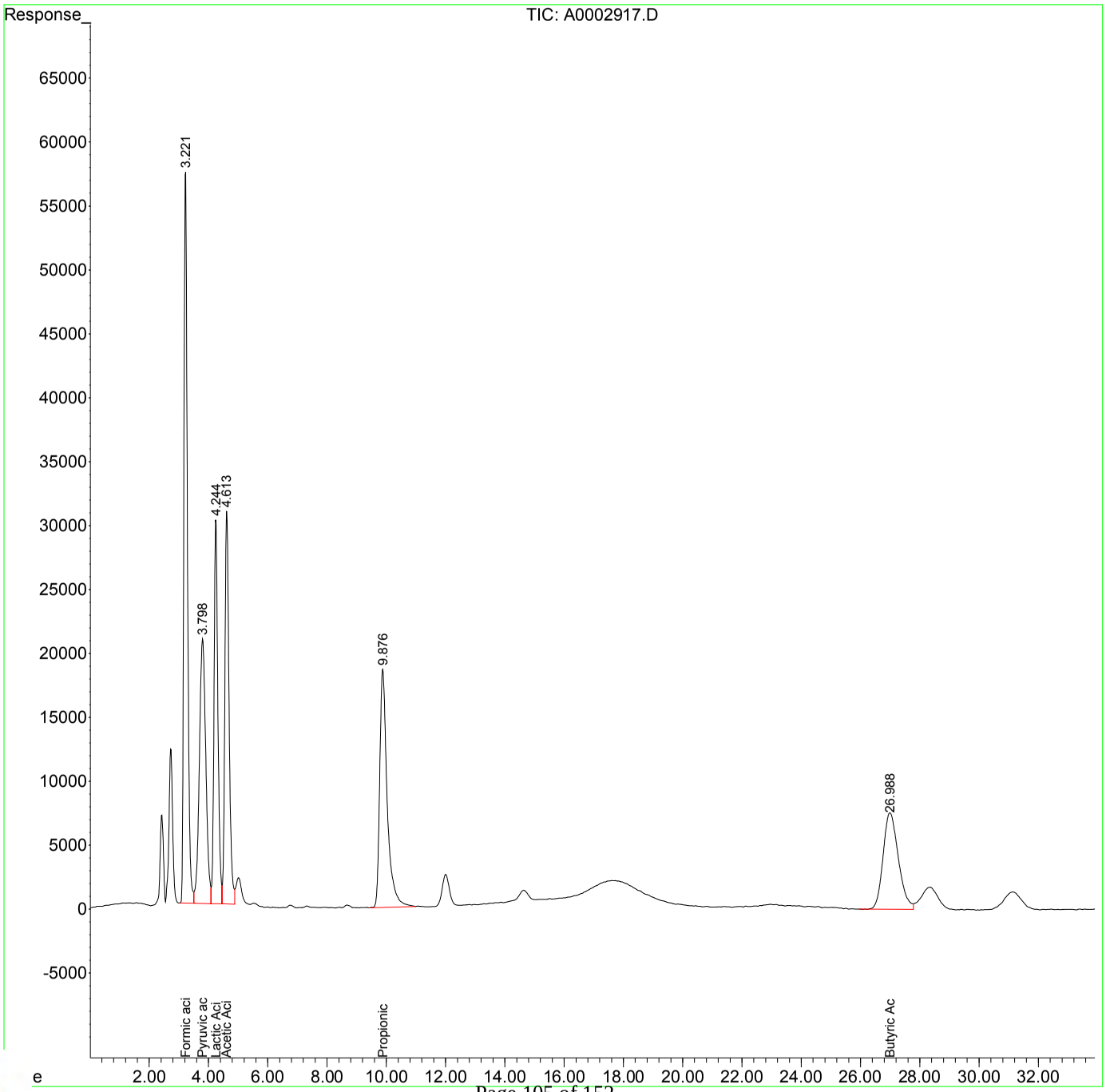
1st BA 04/01/19
2nd DM 04/04/19

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\032519\
Data File : A0002917.D
Signal(s) : dad1A.ch
Acq On : 25-Mar-2019, 21:07:14
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Mar 29 16:26:55 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Fri Mar 29 16:18:59 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



RIGHT SOLUTIONS | RIGHT PARTNER

00948953

Evaluate Continuing Calibration Report

Data Path : I:\ACQUDATA\hplc05\data\032819\
Data File : A0002922.D
Signal(s) : dad1A.ch
Acq On : 29-Mar-2019, 17:18:51
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Apr 01 09:31:14 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Mon Apr 01 09:25:48 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
1 t	Formic acid	93.481	96.630 E3	-3.4	103	0.00
2 T	Pyruvic acid	719.144	585.904 E3	18.5	83	0.00
3 T	Lactic Acid	58.359	52.367 E3	10.3	88	0.00
4 T	Acetic Acid	58.368	59.274 E3	-1.6	100	0.00
5 T	Propionic Acid	57.631	65.819 E3	-14.2	117	0.00
6 T	Butyric Acid	54.107	55.562 E3	-2.7	102	0.00

Evaluate Continuing Calibration Report - Not Founds

(#) = Out of Range SPCC's out = 0 CCC's out = 0

RIGHT SOLUTIONS | RIGHT PARTNER

00948954

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\032819\
Data File : A0002922.D
Signal(s) : dad1A.ch
Acq On : 29-Mar-2019, 17:18:51
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Apr 01 09:31:14 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Mon Apr 01 09:25:48 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc Units
Target Compounds				
1) t	Formic acid	3.224	4831518	51.684 ppm
2) T	Pyruvic acid	3.792	2929519	4.074 ppm
3) T	Lactic Acid	4.235	2618360	44.867 ppm
4) T	Acetic Acid	4.600	2963684	50.775 ppm
5) T	Propionic Acid	9.792	3290955	57.104 ppm
6) T	Butyric Acid	26.648	2778083	51.344 ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

RIGHT SOLUTIONS | RIGHT PARTNER

00948955

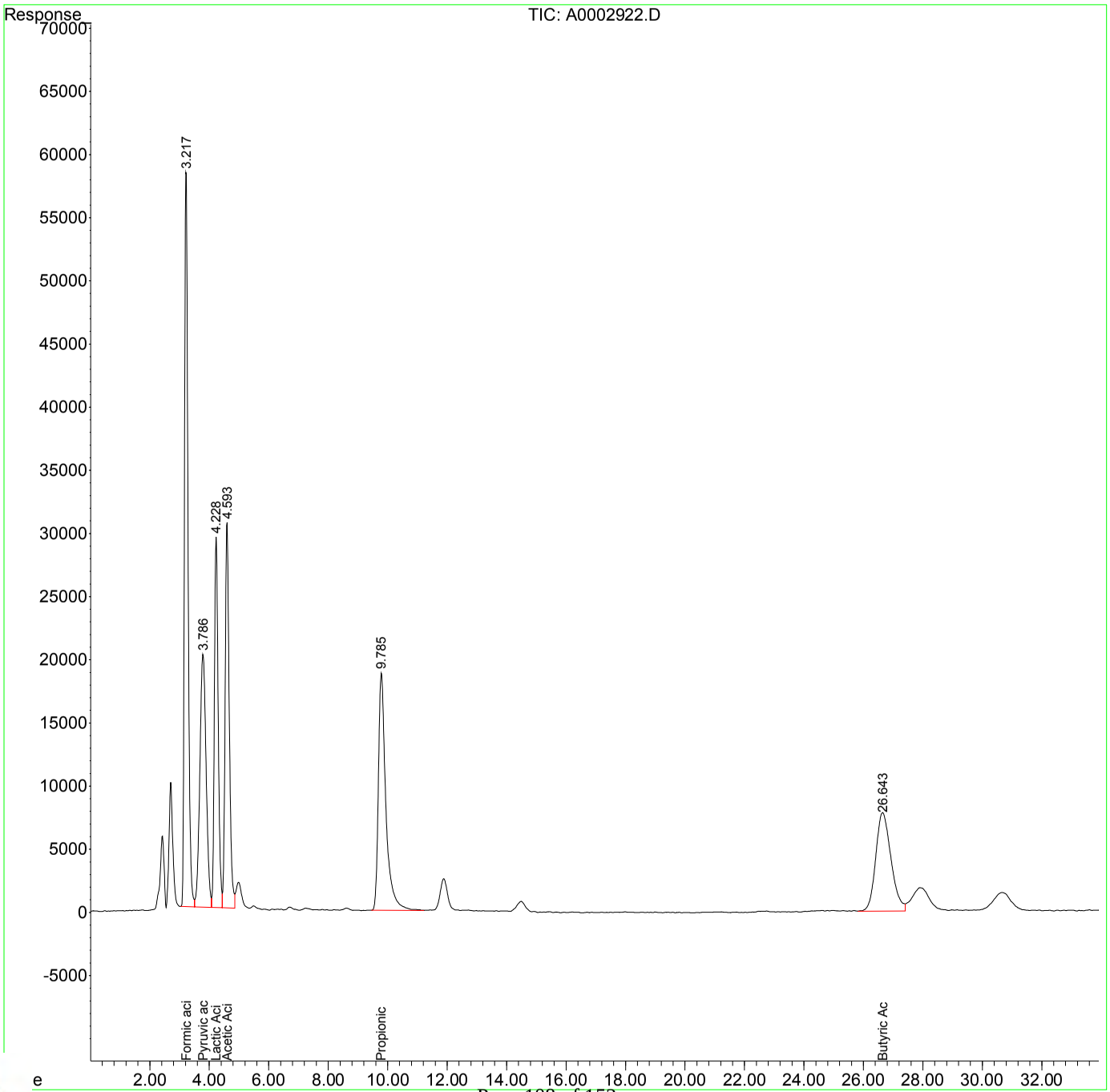
1st BA 04/03/19
2nd DM 04/04/19

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\032819\
Data File : A0002922.D
Signal(s) : dad1A.ch
Acq On : 29-Mar-2019, 17:18:51
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Apr 01 09:31:14 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Mon Apr 01 09:25:48 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



RIGHT SOLUTIONS | RIGHT PARTNER

00948956

Evaluate Continuing Calibration Report

Data Path : I:\ACQUDATA\hplc05\data\032819\
Data File : A0002929.D
Signal(s) : dad1A.ch
Acq On : 29-Mar-2019, 21:37:35
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Apr 01 09:31:28 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Mon Apr 01 09:25:48 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
1 t	Formic acid	93.481	95.809 E3	-2.5	102	0.00
2 T	Pyruvic acid	719.144	589.394 E3	18.0	83	0.00
3 T	Lactic Acid	58.359	52.470 E3	10.1	88	0.00
4 T	Acetic Acid	58.368	58.923 E3	-1.0	99	0.00
5 T	Propionic Acid	57.631	64.491 E3	-11.9	115	0.03
6 T	Butyric Acid	54.107	54.980 E3	-1.6	101	0.07

Evaluate Continuing Calibration Report - Not Founds

(#) = Out of Range SPCC's out = 0 CCC's out = 0

RIGHT SOLUTIONS | RIGHT PARTNER

00948957

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\032819\
Data File : A0002929.D
Signal(s) : dad1A.ch
Acq On : 29-Mar-2019, 21:37:35
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Apr 01 09:31:28 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Mon Apr 01 09:25:48 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc Units
Target Compounds				
1) t	Formic acid	3.227	4790468	51.245 ppm
2) T	Pyruvic acid	3.795	2946972	4.098 ppm
3) T	Lactic Acid	4.240	2623516	44.955 ppm
4) T	Acetic Acid	4.609	2946130	50.475 ppm
5) T	Propionic Acid	9.822	3224544	55.952 ppm
6) T	Butyric Acid	26.716	2749004	50.807 ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

RIGHT SOLUTIONS | RIGHT PARTNER

00948958

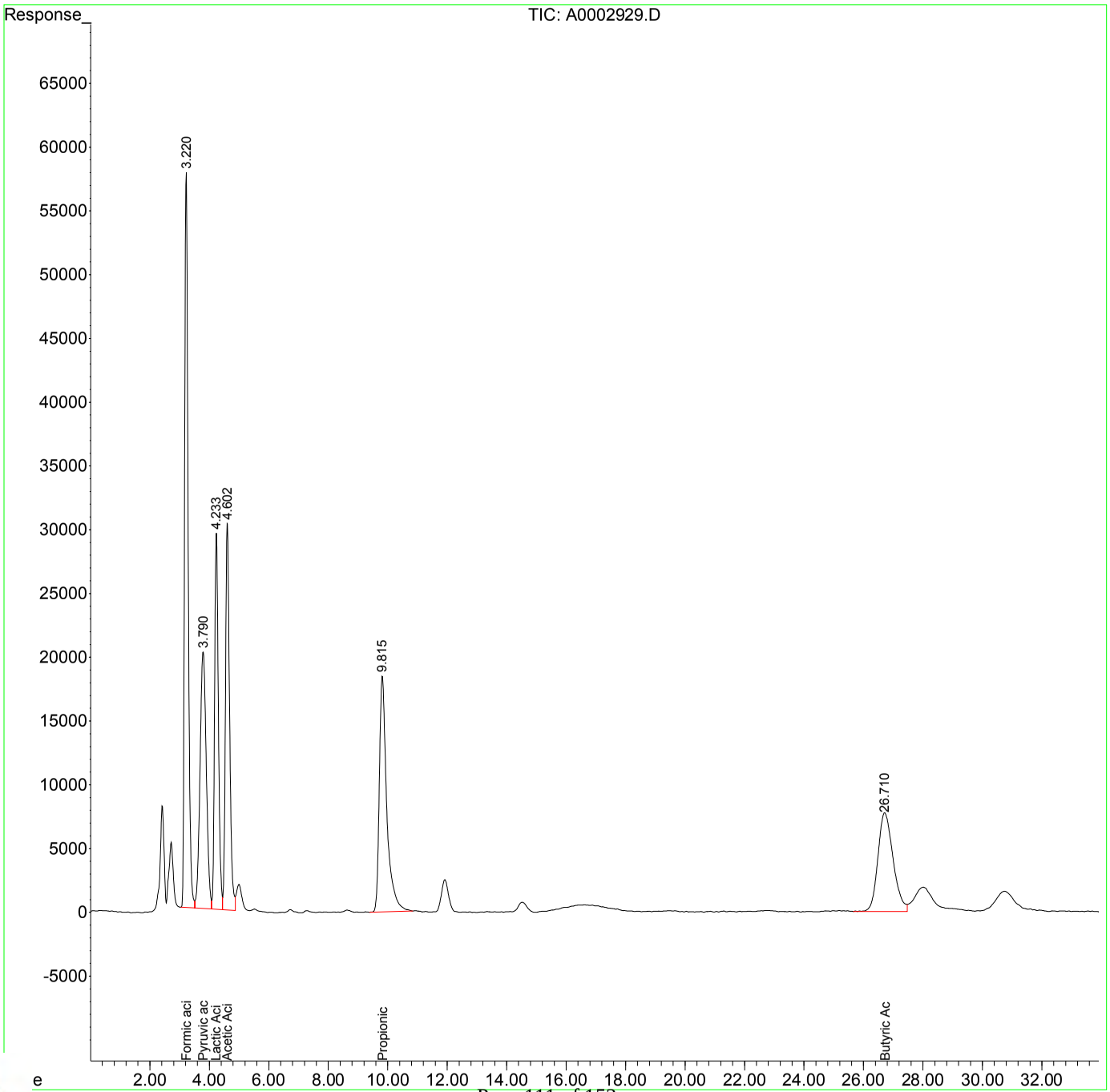
1st BA 04/03/19
2nd DM 04/04/19

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\032819\
Data File : A0002929.D
Signal(s) : dad1A.ch
Acq On : 29-Mar-2019, 21:37:35
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Apr 01 09:31:28 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Mon Apr 01 09:25:48 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



RIGHT SOLUTIONS | RIGHT PARTNER

00948959

1st BA 04/01/19
2nd DM 04/04/19

Evaluate Continuing Calibration Report

Data Path : I:\ACQUDATA\hplc05\data\032519\
Data File : A0002920.D
Signal(s) : dad1A.ch
Acq On : 25-Mar-2019, 22:57:56
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Mar 29 16:19:47 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Fri Mar 29 16:18:59 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
1 t	Formic acid	93.481	94.958 E3	-1.6	101	0.00
2 T	Pyruvic acid	719.144	594.517 E3	17.3	84	0.01
3 T	Lactic Acid	58.359	52.862 E3	9.4	89	0.02
4 T	Acetic Acid	58.368	59.220 E3	-1.5	100	0.03
5 T	Propionic Acid	57.631	66.913 E3	-16.1	119	0.12
6 T	Butyric Acid	54.107	54.219 E3	-0.2	100	0.46

Evaluate Continuing Calibration Report - Not Founds

(#) = Out of Range SPCC's out = 0 CCC's out = 0

RIGHT SOLUTIONS | RIGHT PARTNER

00948960

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\032519\
Data File : A0002920.D
Signal(s) : dad1A.ch
Acq On : 25-Mar-2019, 22:57:56
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Mar 29 16:19:47 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Fri Mar 29 16:18:59 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc Units
Target Compounds				
1) t	Formic acid	3.227	4747921	50.790 ppm
2) T	Pyruvic acid	3.802	2972586	4.134 ppm
3) T	Lactic Acid	4.253	2643083	45.290 ppm
4) T	Acetic Acid	4.625	2961006	50.730 ppm
5) T	Propionic Acid	9.916	3345639	58.053 ppm
6) T	Butyric Acid	27.107	2710968	50.104 ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

RIGHT SOLUTIONS | RIGHT PARTNER

00948961

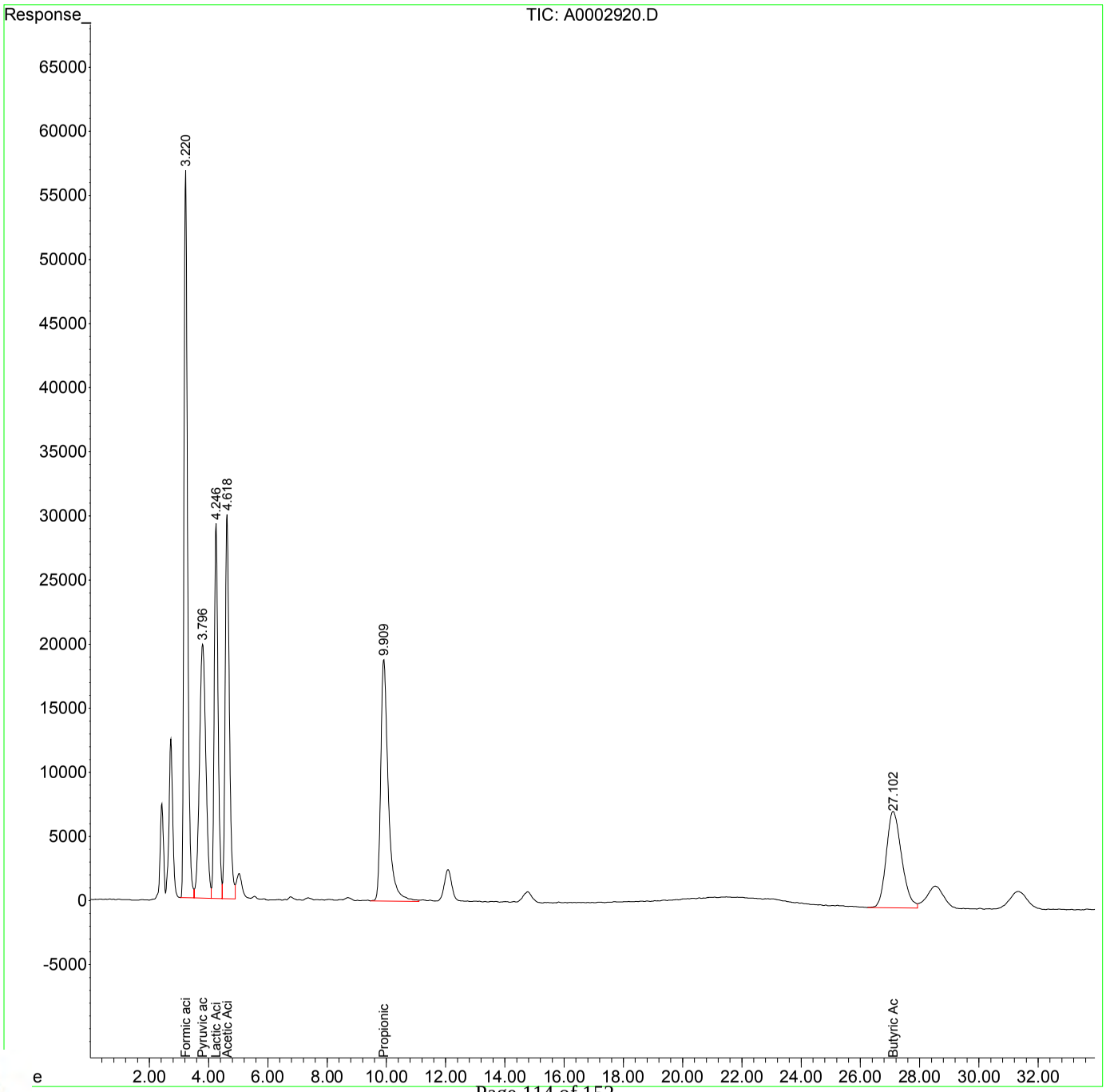
1st BA 04/01/19
2nd DM 04/04/19

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\032519\
Data File : A0002920.D
Signal(s) : dad1A.ch
Acq On : 25-Mar-2019, 22:57:56
Operator : b.allgeier
Sample : ccv
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Mar 29 16:19:47 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Fri Mar 29 16:18:59 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



RIGHT SOLUTIONS | RIGHT PARTNER

00948962

1st BA 01/02/19
2nd DM 01/03/19

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002707.D
Signal(s) : dad1A.ch
Acq On : ~~30-Dec-2000, 02:48:39~~ 31-Dec-2018, 14:50:00
Operator : b.allgeier
Sample : inst blk
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 09:12:20 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 09:10:23 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1) t	Formic acid	0.000	0	N.D.	ppm
2) T	Pyruvic acid	0.000	0	N.D.	ppm
3) T	Lactic Acid	0.000	0	N.D.	ppm
4) T	Acetic Acid	0.000	0	N.D.	ppm
5) T	Propionic Acid	0.000	0	N.D.	ppm
6) T	Butyric Acid	0.000	0	N.D.	ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

00948963

RIGHT SOLUTIONS | RIGHT PARTNER

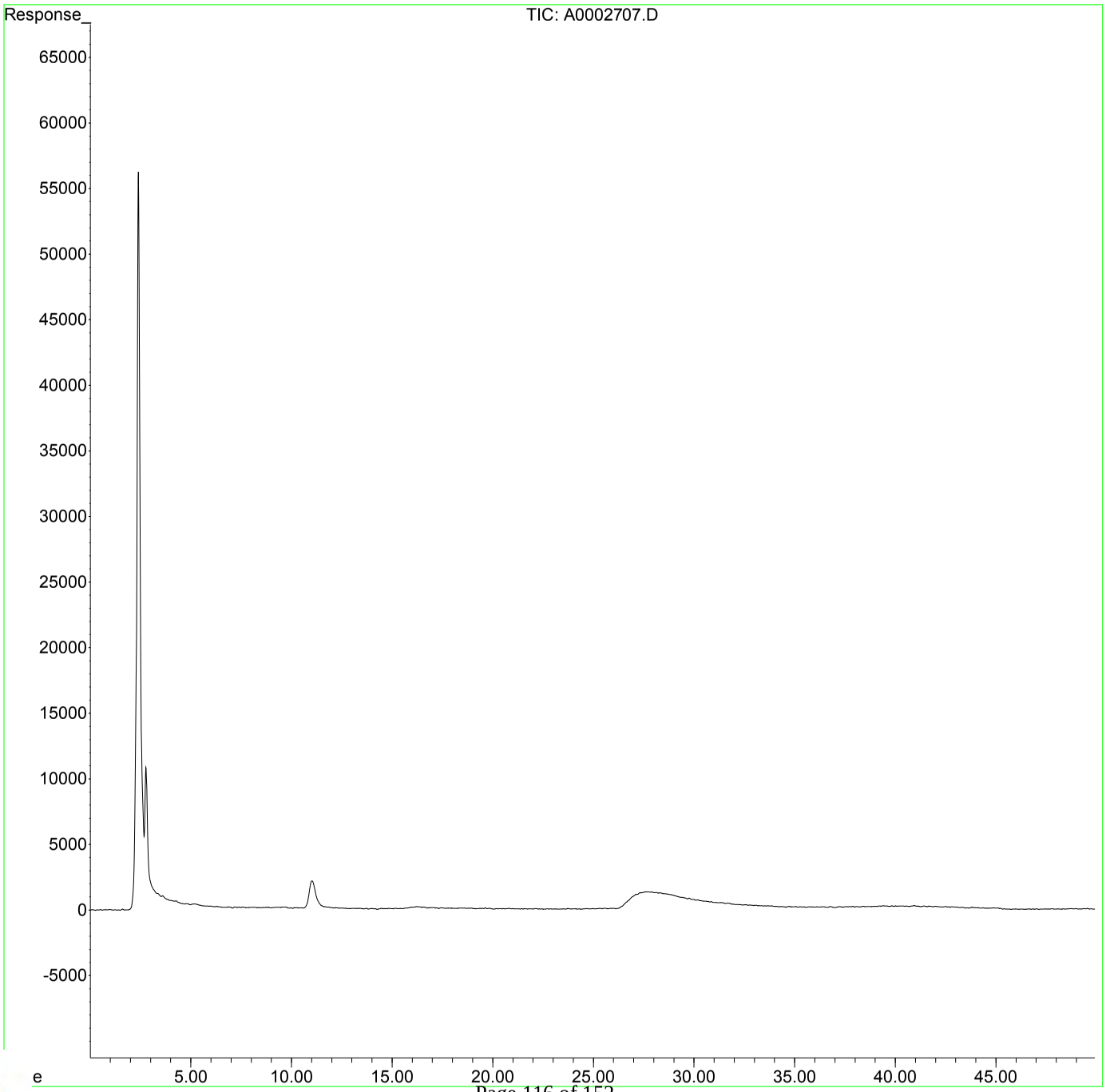
1st BA 01/02/19
2nd DM 01/03/19

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002707.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 02:48:39
Operator : b.allgeier
Sample : inst blk
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 09:12:20 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 09:10:23 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



RIGHT SOLUTIONS | RIGHT PARTNER

00948964

1st BA 01/02/19
2nd DM 01/03/19

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002716.D
Signal(s) : dad1A.ch
Acq On : ~~30-Dec-2000, 17:48:15~~ 31-Dec-2018, 22:30:00
Operator : b.allgeier
Sample : icv
Misc :
ALS Vial : 10 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 11:02:59 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 10:59:24 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc Units
Target Compounds				
1) t	Formic acid	3.398	1934896	20.698 ppm
2) T	Pyruvic acid	4.226	1365951	1.899 ppm
3) T	Lactic Acid	4.838	1167049	19.998 ppm
4) T	Acetic Acid	5.279	1158243	19.844 ppm
5) T	Propionic Acid	12.888	1107020	19.209 ppm
6) T	Butyric Acid	39.358f	1091009	20.164 ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

RIGHT SOLUTIONS | RIGHT PARTNER

00948965

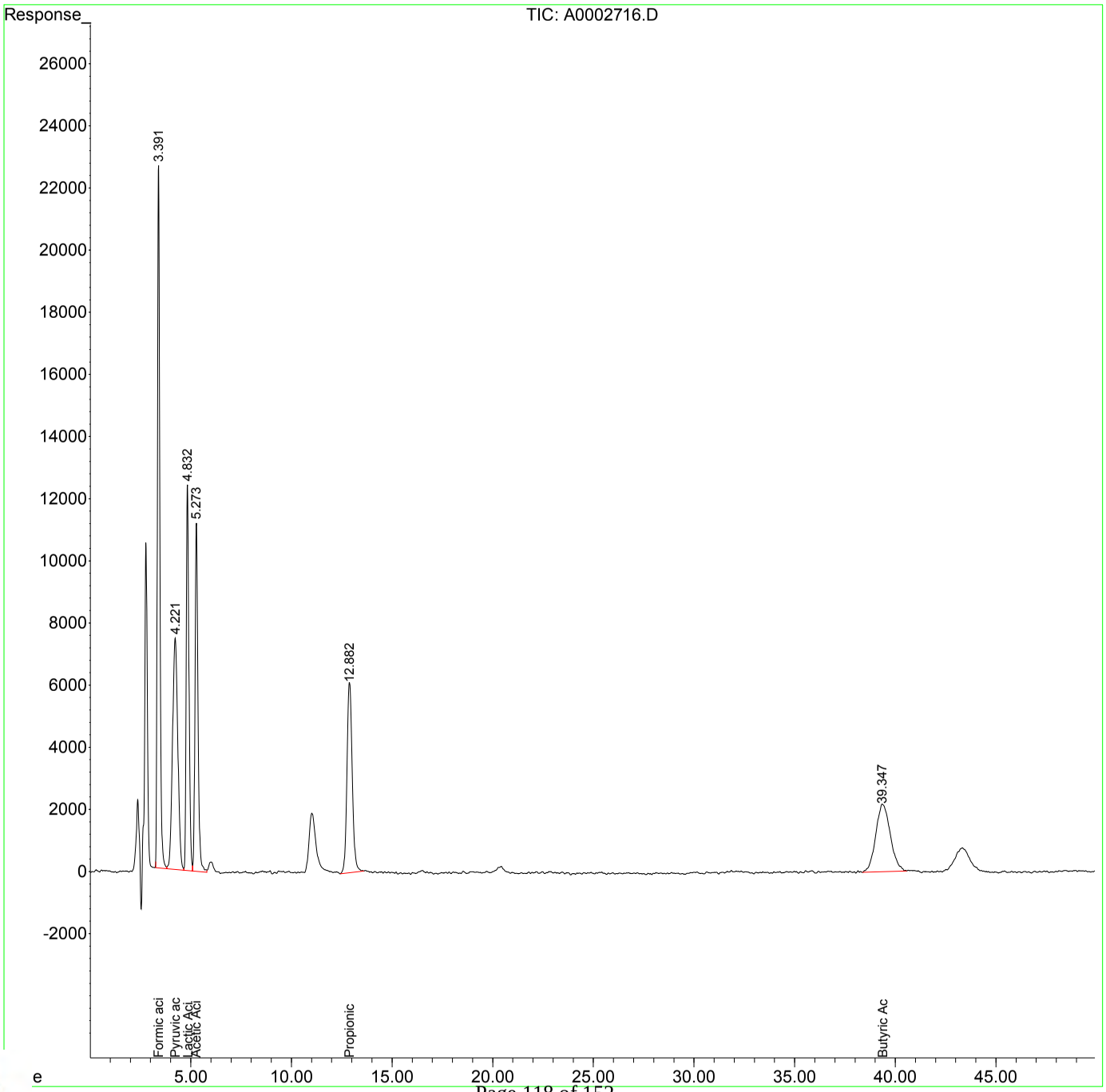
1st BA 01/02/19
2nd DM 01/03/19

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002716.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 17:48:15
Operator : b.allgeier
Sample : icv
Misc :
ALS Vial : 10 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 11:02:59 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 10:59:24 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



RIGHT SOLUTIONS | RIGHT PARTNER

00948966

Evaluate Continuing Calibration Report

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002716.D
Signal(s) : dad1A.ch
Acq On : ~~30-Dec-2000, 17:48:15~~ 31-Dec-2018, 22:10:00
Operator : b.allgeier
Sample : icv
Misc :
ALS Vial : 10 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 11:02:59 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 10:59:24 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
1 t	Formic acid	93.481	96.745 E3	-3.5	108	0.00
2 T	Pyruvic acid	719.144	682.975 E3	5.0	78	-0.01
3 T	Lactic Acid	58.359	58.352 E3	0.0	102	-0.02
4 T	Acetic Acid	58.368	57.912 E3	0.8	103	-0.02
5 T	Propionic Acid	57.631	55.351 E3	4.0	102	-0.10
6 T	Butyric Acid	54.107	54.550 E3	-0.8	104	-0.48

Evaluate Continuing Calibration Report - Not Founds

(#) = Out of Range SPCC's out = 0 CCC's out = 0

RIGHT SOLUTIONS | RIGHT PARTNER

00948967

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002715.D
Signal(s) : dad1A.ch
Acq On : 31-Dec-2018, 21:32:35
Operator : b.allgeier
Sample : 20.0-200.0ppm
Misc :
ALS Vial : 9 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 08:47:12 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 08:46:20 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1) t	Formic acid	3.397	18542283	192.461	ppm	
2) T	Pyruvic acid	4.224	13995370	30.899	ppm	
3) T	Lactic Acid	4.837	11731048	218.192	ppm	
4) T	Acetic Acid	5.276	11652587	196.936	ppm	
5) T	Propionic Acid	12.832	11159008	187.258	ppm	
6) T	Butyric Acid	39.047f	10770236	171.235	ppm	m

(f)=RT Delta > 1/2 Window (m)=manual int.

RIGHT SOLUTIONS | RIGHT PARTNER

00948968

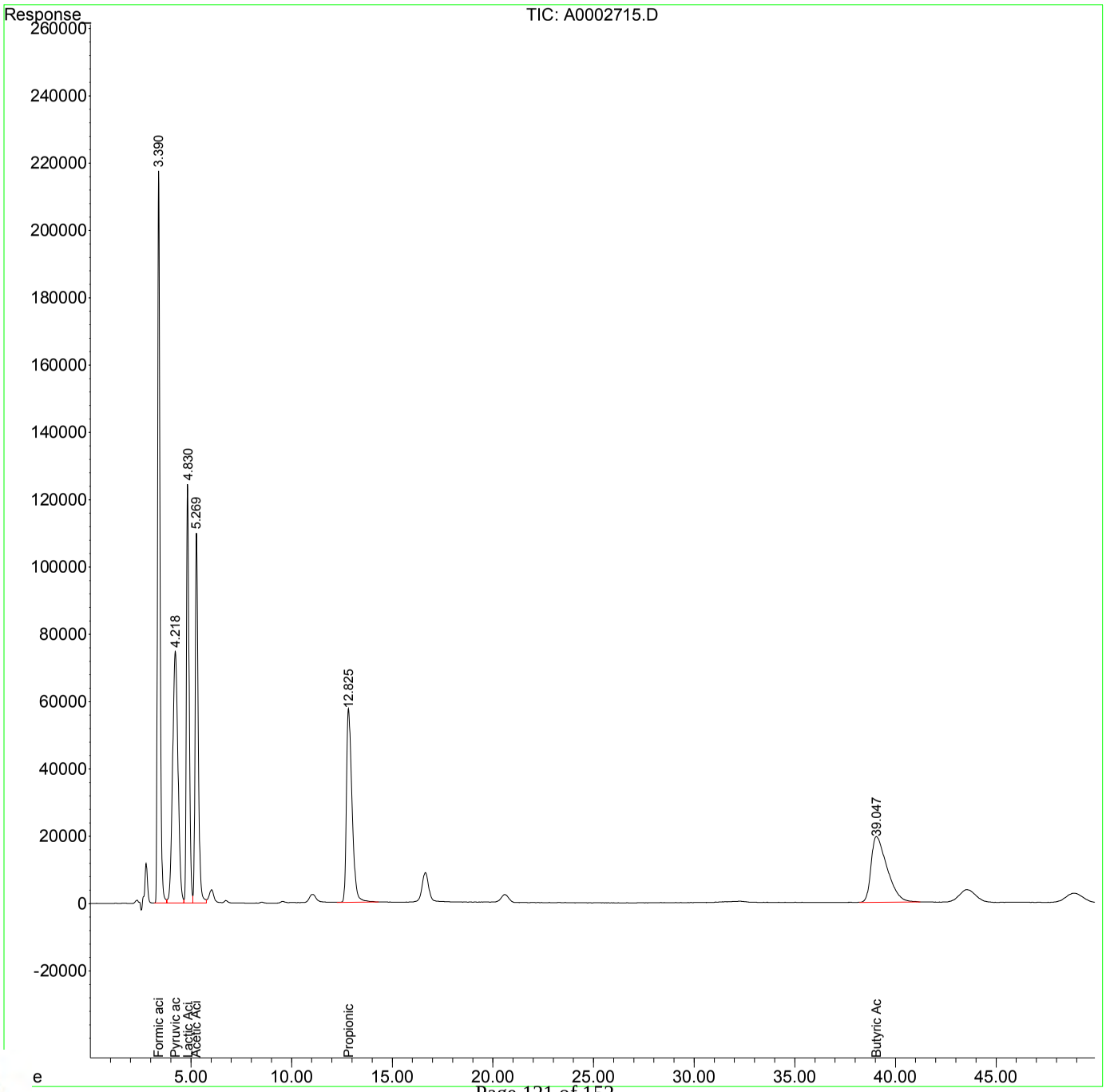
1st BA 01/02/19
2nd DM 01/03/19

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002715.D
Signal(s) : dad1A.ch
Acq On : 31-Dec-2018, 21:32:35
Operator : b.allgeier
Sample : 20.0-200.0ppm
Misc :
ALS Vial : 9 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 08:47:12 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 08:46:20 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



RIGHT SOLUTIONS | RIGHT PARTNER

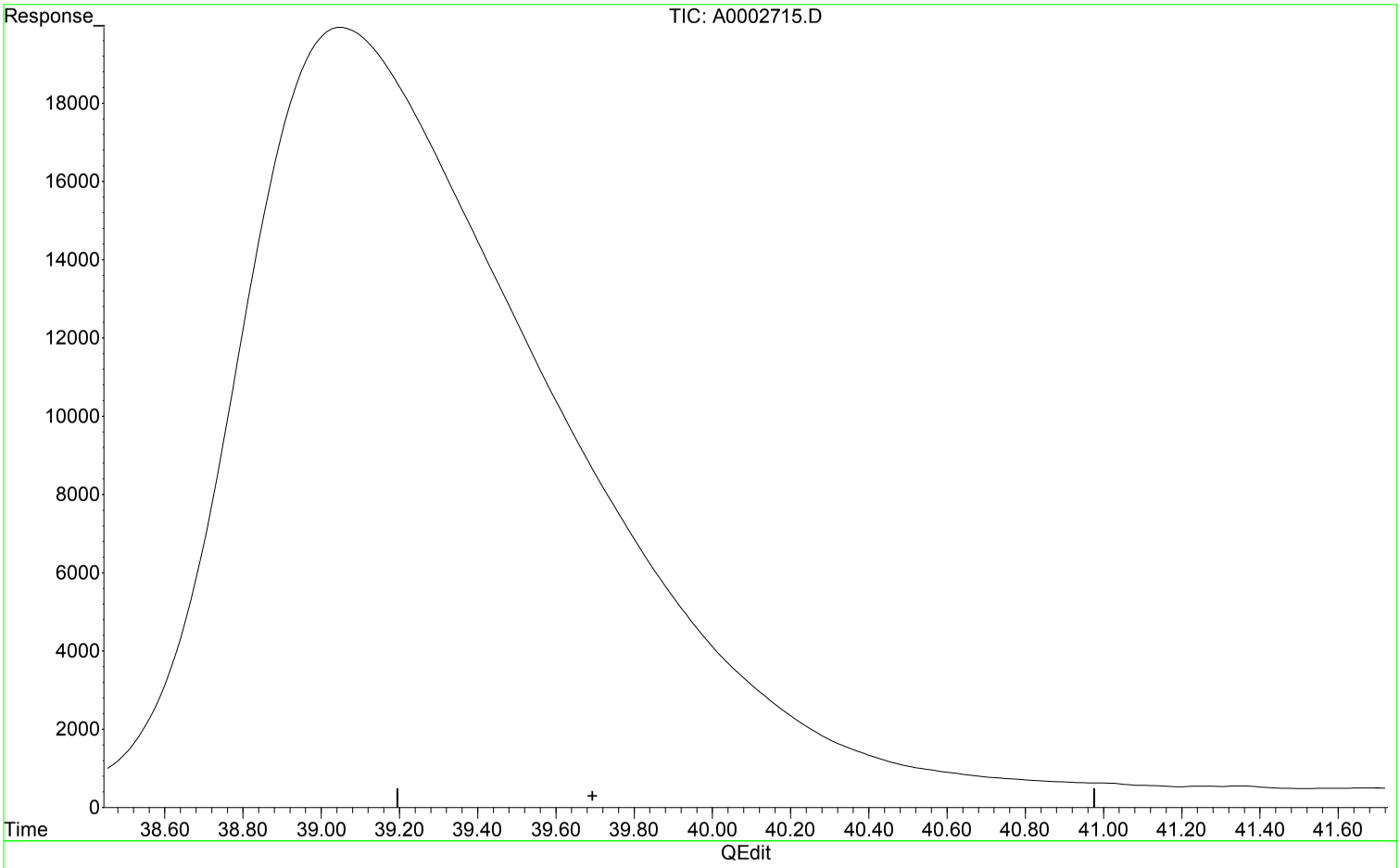
00948969

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002715.D
Signal(s) : dad1A.ch
Acq On : 31-Dec-2018, 21:32:35
Operator : b.allgeier
Sample : 20.0-200.0ppm
Misc :
ALS Vial : 9 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 08:47:12 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 08:46:20 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(6) Butyric Acid (T)

39.694min 0.000 ppm

response 0

Manual Integration:

Before

01/02/19

Expected Retention Time

RIGHT SOLUTIONS | RIGHT PARTNER

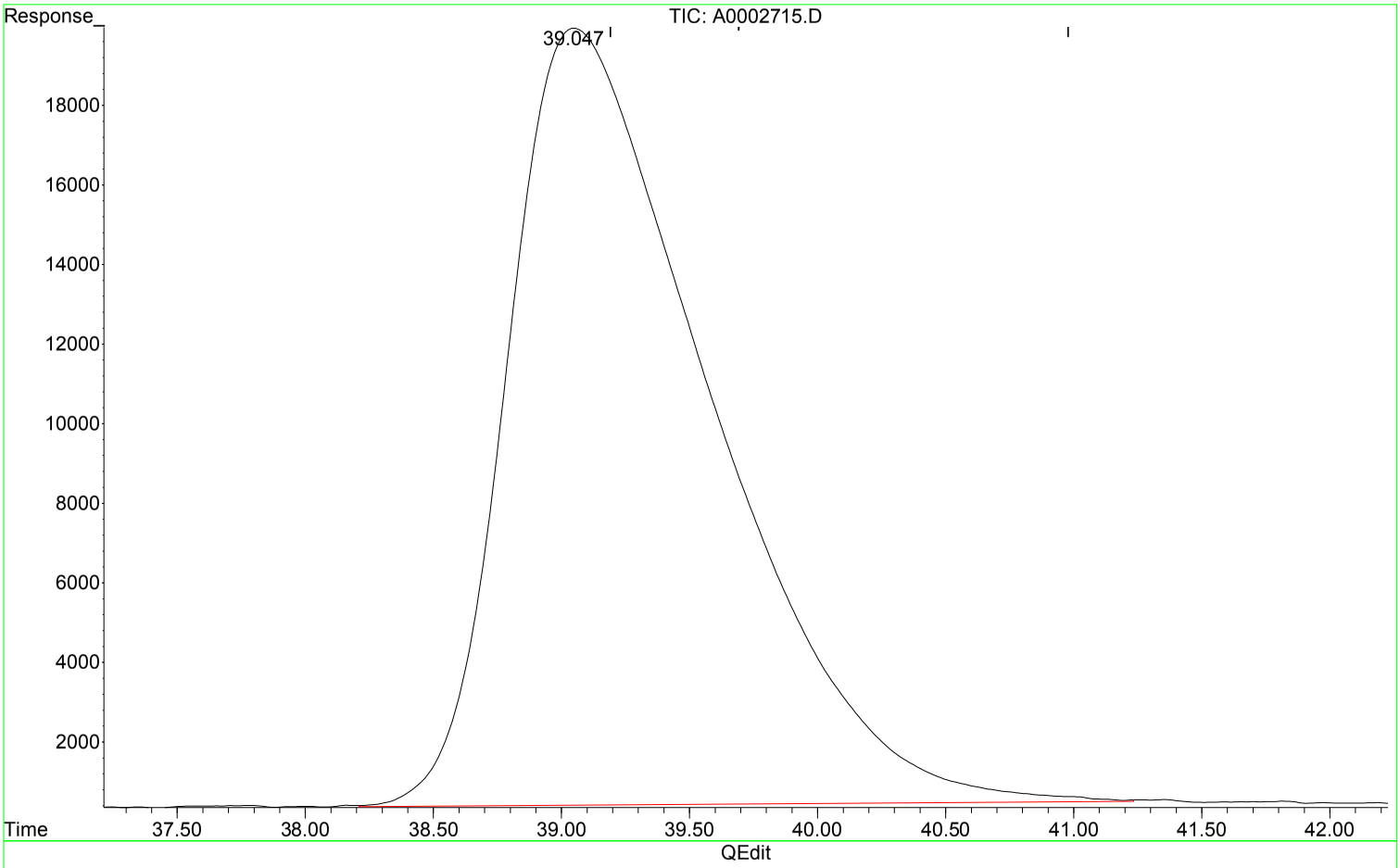
00948970

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002715.D
Signal(s) : dad1A.ch
Acq On : 31-Dec-2018, 21:32:35
Operator : b.allgeier
Sample : 20.0-200.0ppm
Misc :
ALS Vial : 9 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 08:47:12 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 08:46:20 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(6) Butyric Acid (T)

39.047min 171.235 ppm m

response 10770236

Manual Integration:

After

Poor integration.

01/02/19

Expected Retention Time

RIGHT SOLUTIONS | RIGHT PARTNER

00948971

1st BA 01/02/19
2nd DM 01/03/19

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002714.D
Signal(s) : dad1A.ch
Acq On : 31-Dec-2018, 20:39:38
Operator : b.allgeier
Sample : 10.0-100ppm
Misc :
ALS Vial : 8 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 08:47:10 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 08:46:20 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc Units
Target Compounds				
1) t	Formic acid	3.400	8940114	92.795 ppm
2) T	Pyruvic acid	4.229	6716680	14.829 ppm
3) T	Lactic Acid	4.846	5637916	104.862 ppm
4) T	Acetic Acid	5.288	5609234	94.799 ppm
5) T	Propionic Acid	12.910	5441721	91.317 ppm
6) T	Butyric Acid	39.406	5077730	80.730 ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

RIGHT SOLUTIONS | RIGHT PARTNER

00948972

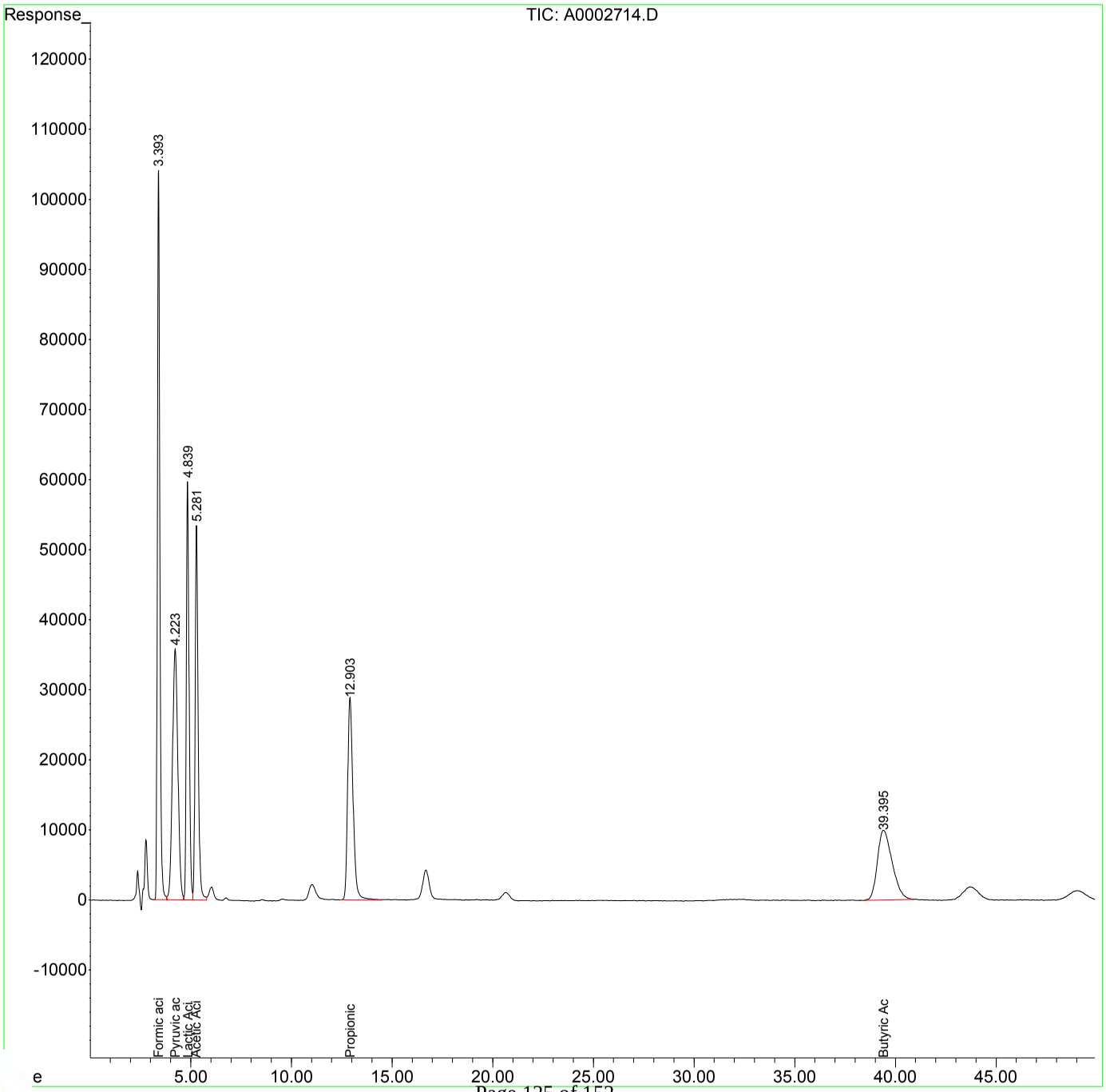
1st BA 01/02/19
2nd DM 01/03/19

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002714.D
Signal(s) : dad1A.ch
Acq On : 31-Dec-2018, 20:39:38
Operator : b.allgeier
Sample : 10.0-100ppm
Misc :
ALS Vial : 8 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 08:47:10 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 08:46:20 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



RIGHT SOLUTIONS | RIGHT PARTNER

00948973

1st BA 01/02/19
2nd DM 01/03/19

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002713.D
Signal(s) : dad1A.ch
Acq On : ~~30-Dec-2000, 17:48:15~~ 31-Dec-2018, 20:00:00
Operator : b.allgeier
Sample : 5.0-50.0ppm
Misc :
ALS Vial : 7 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 08:47:08 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 08:46:20 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc Units
Target Compounds				
1) t	Formic acid	3.402	4710470	48.893 ppm
2) T	Pyruvic acid	4.230	3547994	7.833 ppm
3) T	Lactic Acid	4.850	2977824	55.386 ppm
4) T	Acetic Acid	5.294	2962034	50.060 ppm
5) T	Propionic Acid	12.948	2812242	47.192 ppm
6) T	Butyric Acid	39.582	2721731	43.273 ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

RIGHT SOLUTIONS | RIGHT PARTNER

00948974

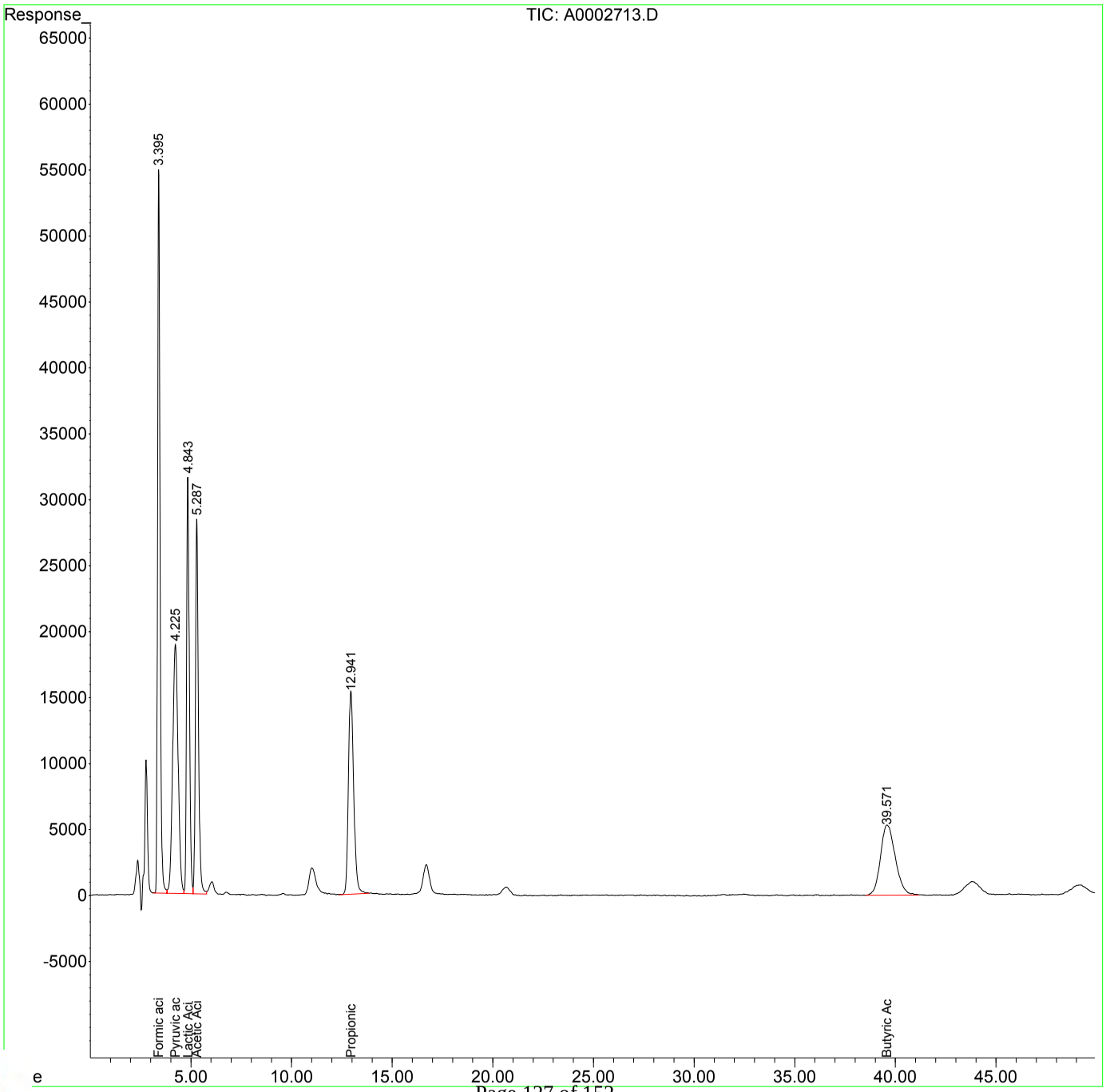
1st BA 01/02/19
2nd DM 01/03/19

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002713.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 17:48:15
Operator : b.allgeier
Sample : 5.0-50.0ppm
Misc :
ALS Vial : 7 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 08:47:08 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 08:46:20 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



RIGHT SOLUTIONS | RIGHT PARTNER

00948975

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002712.D
Signal(s) : dad1A.ch
Acq On : 31-Dec-2018, 18:53:38
Operator : b.allgeier
Sample : 2.0-20.0ppm
Misc :
ALS Vial : 6 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 08:47:06 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 08:46:20 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc Units
Target Compounds				
1) t	Formic acid	3.403	1786523	18.543 ppm
2) T	Pyruvic acid	4.232	1755185	3.875 ppm
3) T	Lactic Acid	4.853	1144308	21.284 ppm
4) T	Acetic Acid	5.297	1127857	19.061 ppm
5) T	Propionic Acid	12.969	1086476	18.232 ppm
6) T	Butyric Acid	39.708	1045002	16.614 ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

RIGHT SOLUTIONS | RIGHT PARTNER

00948976

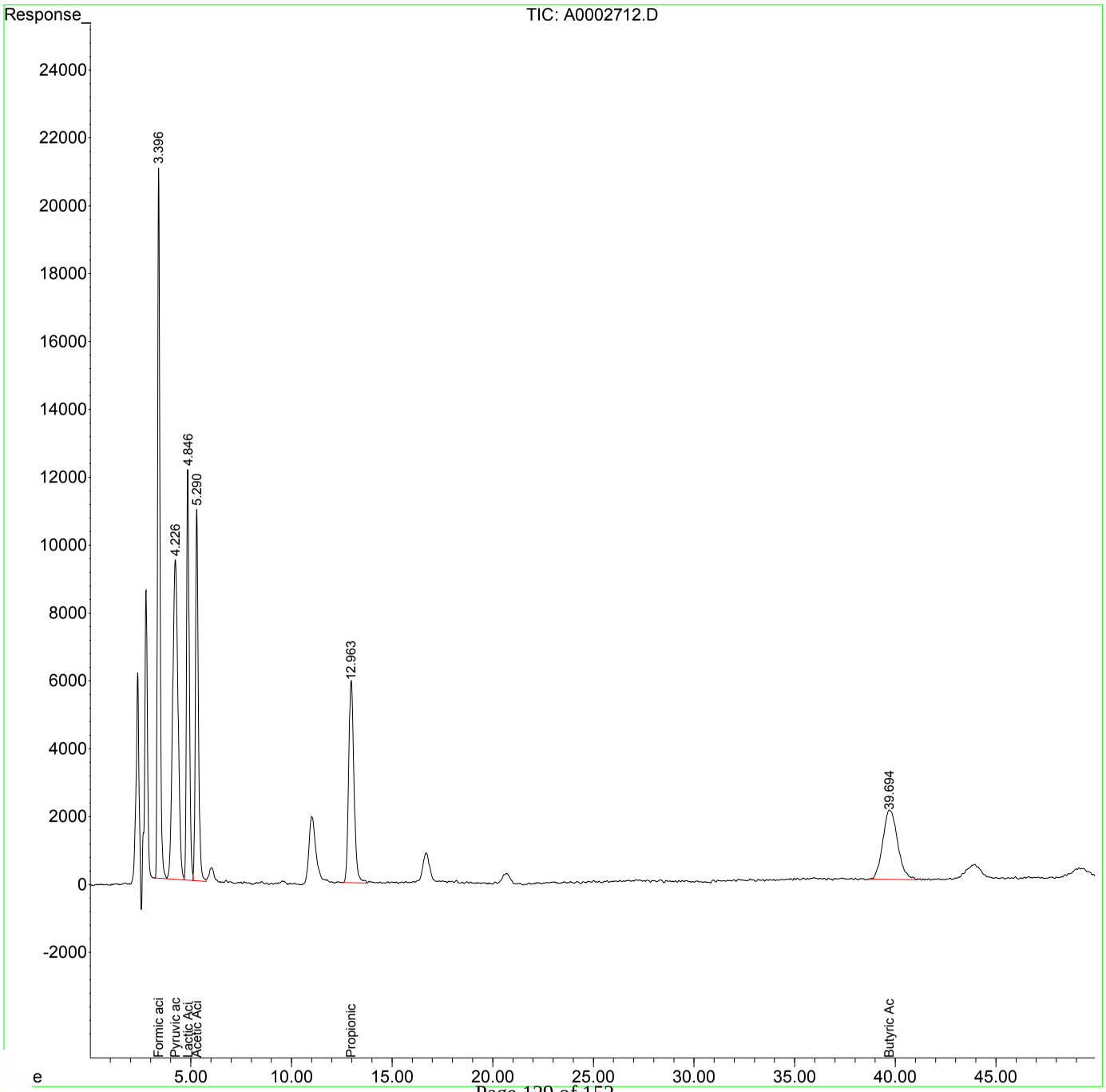
1st BA 01/02/19
2nd DM 01/03/19

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002712.D
Signal(s) : dad1A.ch
Acq On : 31-Dec-2018, 18:53:38
Operator : b.allgeier
Sample : 2.0-20.0ppm
Misc :
ALS Vial : 6 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 08:47:06 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 08:46:20 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



RIGHT SOLUTIONS | RIGHT PARTNER

00948977

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002711.D
Signal(s) : dad1A.ch
Acq On : 31-Dec-2018, 18:01:45
Operator : b.allgeier
Sample : 1.0-10.0ppm
Misc :
ALS Vial : 5 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 08:47:04 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 08:46:20 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc Units
Target Compounds				
1) t	Formic acid	3.403	911662	9.463 ppm
2) T	Pyruvic acid	4.232	665864	1.470 ppm
3) T	Lactic Acid	4.853	576118	10.716 ppm
4) T	Acetic Acid	5.297	564203	9.535 ppm
5) T	Propionic Acid	12.976	563301	9.453 ppm
6) T	Butyric Acid	39.812	552348	8.782 ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

RIGHT SOLUTIONS | RIGHT PARTNER

00948978

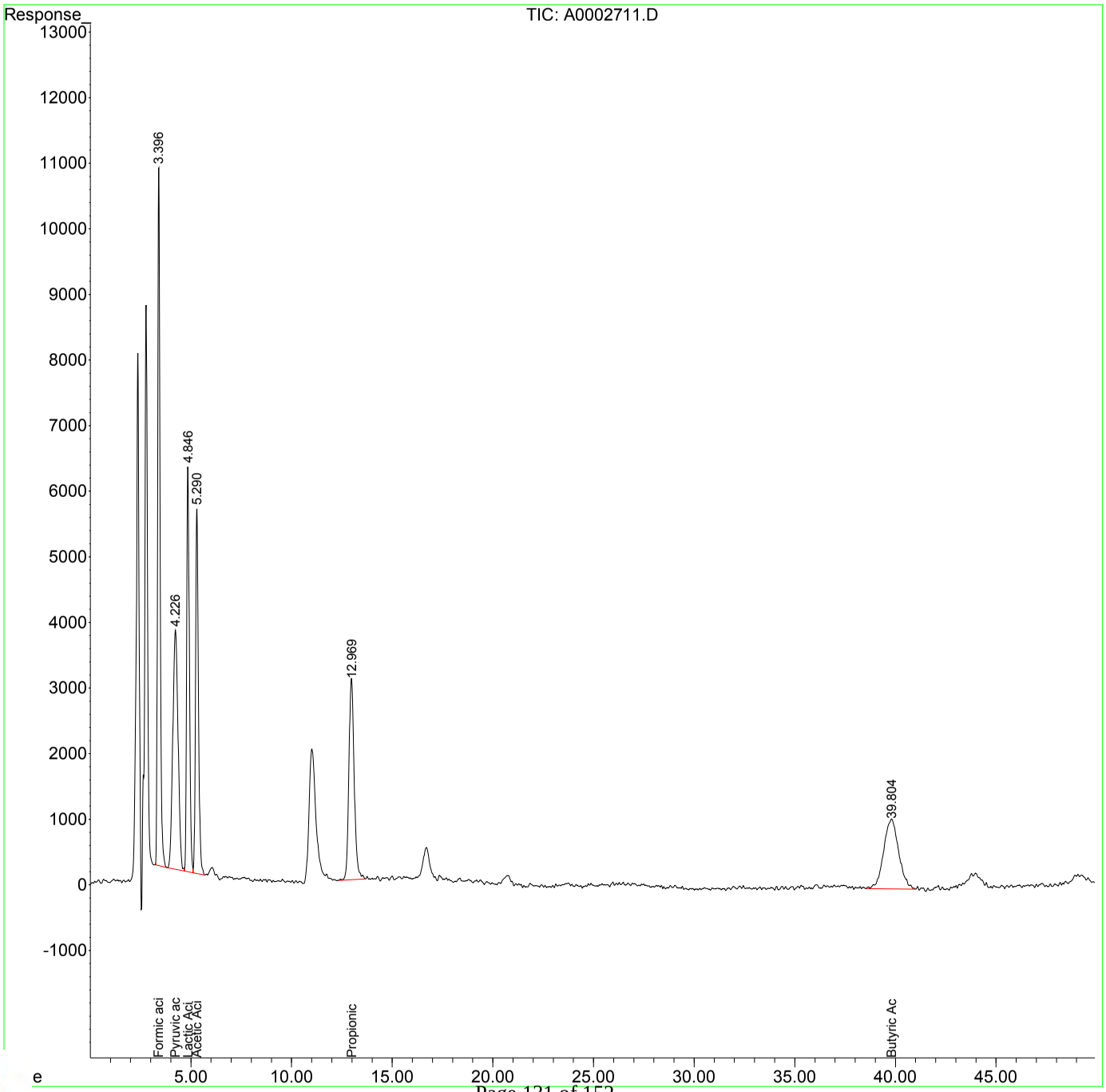
1st BA 01/02/19
2nd DM 01/03/19

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002711.D
Signal(s) : dad1A.ch
Acq On : 31-Dec-2018, 18:01:45
Operator : b.allgeier
Sample : 1.0-10.0ppm
Misc :
ALS Vial : 5 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 08:47:04 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 08:46:20 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



RIGHT SOLUTIONS | RIGHT PARTNER

00948979

1st BA 01/02/19
2nd DM 01/03/19

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002710.D
Signal(s) : dad1A.ch
Acq On : ~~30-Dec-2000, 00:06:30~~ 31-Dec-2018, 17:10:00
Operator : b.allgeier
Sample : 0.5-5.0ppm
Misc :
ALS Vial : 4 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 08:47:02 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 08:46:20 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc Units
Target Compounds				
1) t	Formic acid	3.404	461804	4.793 ppm
2) T	Pyruvic acid	4.234	335836	0.741 ppm
3) T	Lactic Acid	4.857	286723	5.333 ppm
4) T	Acetic Acid	5.302	284110	4.802 ppm
5) T	Propionic Acid	12.995	269655	4.525 ppm
6) T	Butyric Acid	39.832	255636	4.064 ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

00948980

RIGHT SOLUTIONS | RIGHT PARTNER

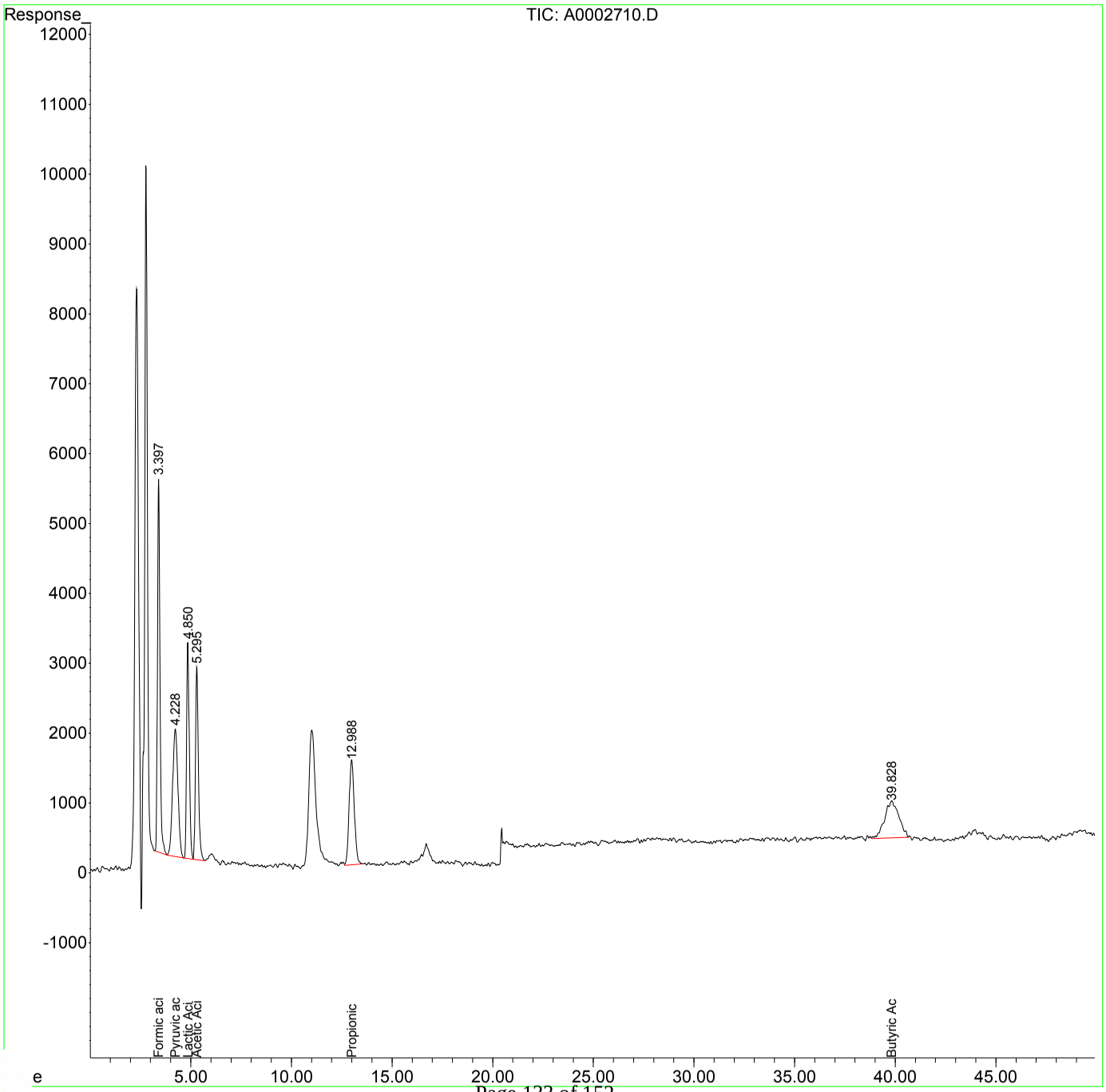
1st BA 01/02/19
2nd DM 01/03/19

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002710.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 00:06:30
Operator : b.allgeier
Sample : 0.5-5.0ppm
Misc :
ALS Vial : 4 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 08:47:02 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 08:46:20 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



RIGHT SOLUTIONS | RIGHT PARTNER

00948981

1st BA 01/02/19
2nd DM 01/03/19

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002709.D
Signal(s) : dad1A.ch
Acq On : ~~30-Dec-2000, 17:48:30~~ 31-Dec-2018, 16:20:00
Operator : b.allgeier
Sample : 0.2-2.0ppm
Misc :
ALS Vial : 3 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 10:50:03 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 10:49:45 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1) t	Formic acid	3.404	199692	2.136	ppm	
2) T	Pyruvic acid	4.237	147123	0.205	ppm	
3) T	Lactic Acid	4.856	117928	2.021	ppm	
4) T	Acetic Acid	5.300	123166	2.110	ppm	
5) T	Propionic Acid	12.984	126937	2.203	ppm	m
6) T	Butyric Acid	39.838f	122144	2.259	ppm	m

(f)=RT Delta > 1/2 Window (m)=manual int.

00948982

RIGHT SOLUTIONS | RIGHT PARTNER

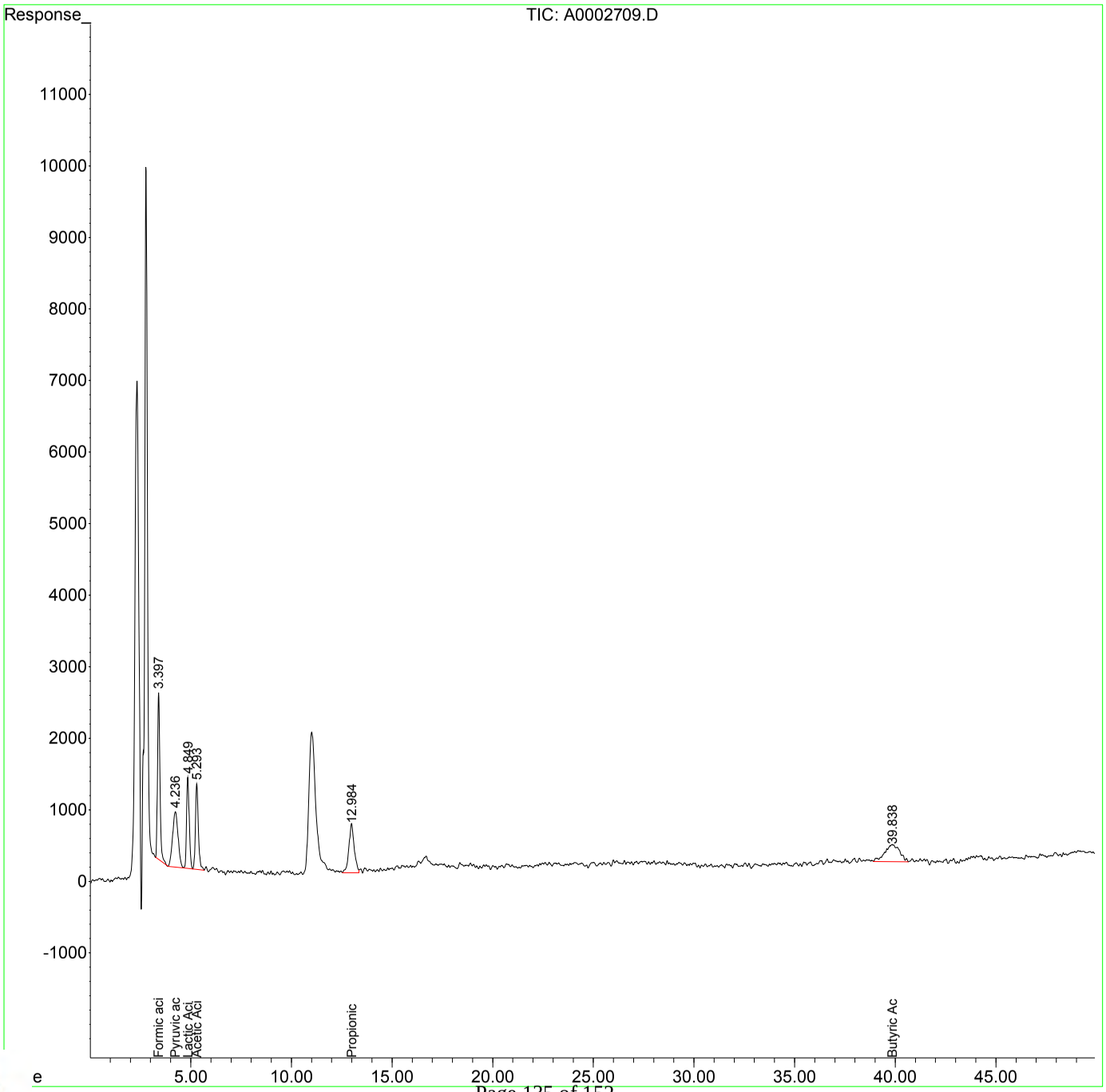
1st BA 01/02/19
2nd DM 01/03/19

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002709.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 17:48:30
Operator : b.allgeier
Sample : 0.2-2.0ppm
Misc :
ALS Vial : 3 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 10:50:03 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 10:49:45 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



RIGHT SOLUTIONS | RIGHT PARTNER

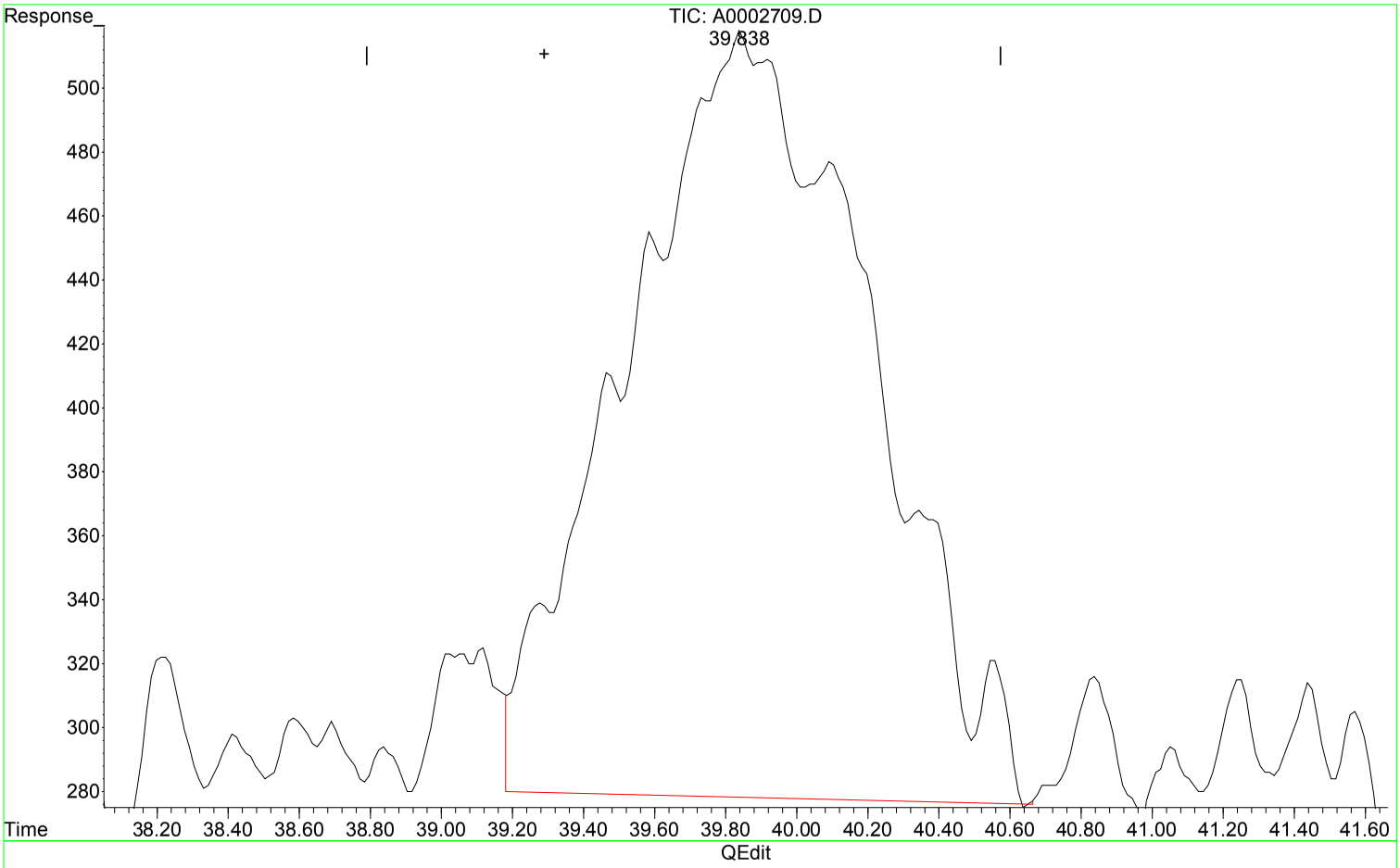
00948983

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002709.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 17:48:30
Operator : b.allgeier
Sample : 0.2-2.0ppm
Misc :
ALS Vial : 3 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 10:50:03 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 10:49:45 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(6) Butyric Acid (T)

39.845min 2.129 ppm

response 115110

Manual Integration:

Before

01/02/19

Expected Retention Time

RIGHT SOLUTIONS | RIGHT PARTNER

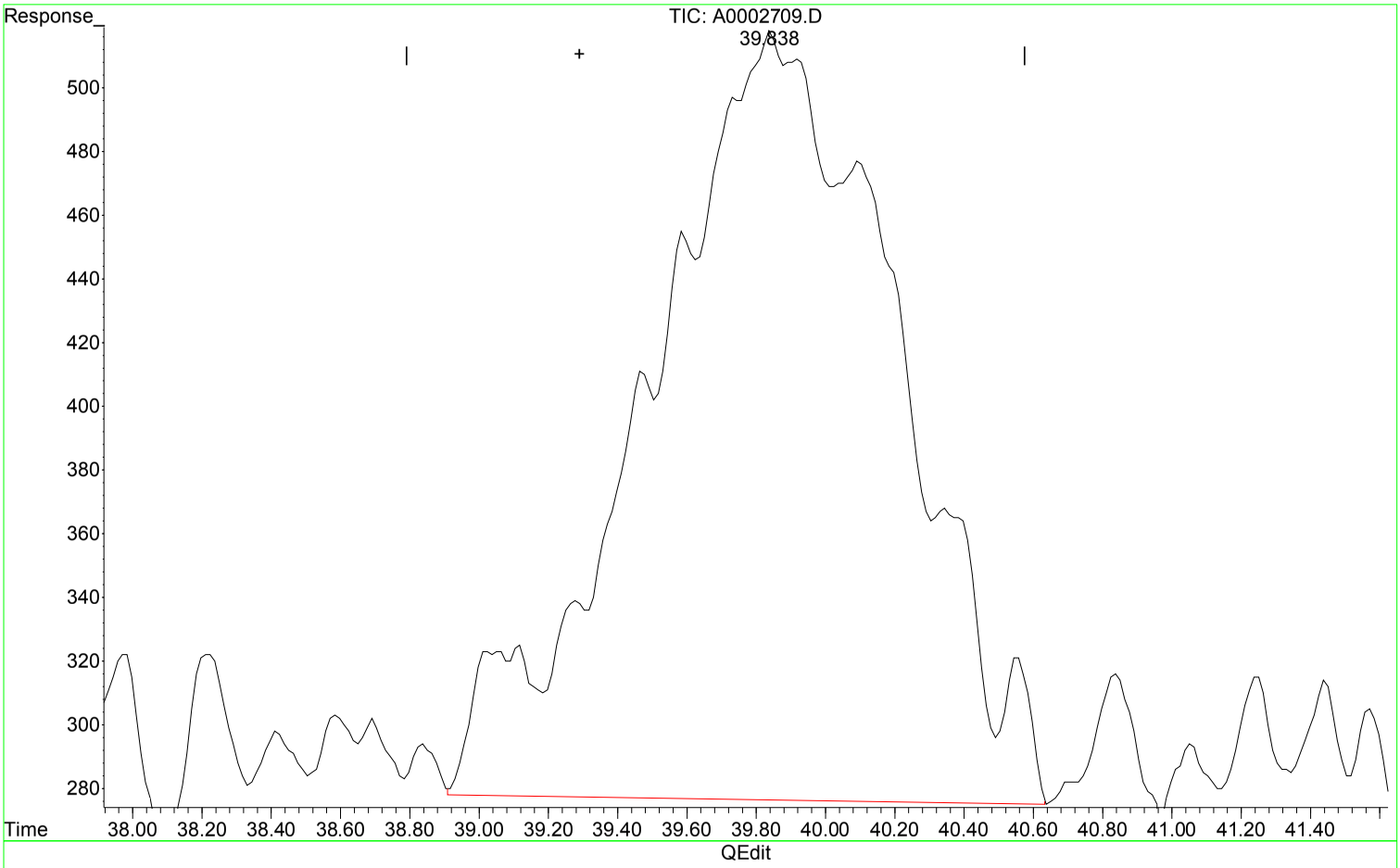
00948984

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002709.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 17:48:30
Operator : b.allgeier
Sample : 0.2-2.0ppm
Misc :
ALS Vial : 3 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 10:50:03 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 10:49:45 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(6) Butyric Acid (T)

39.838min 2.259 ppm m

response 122144

Manual Integration:

After

Poor integration.

01/02/19

Expected Retention Time

RIGHT SOLUTIONS | RIGHT PARTNER

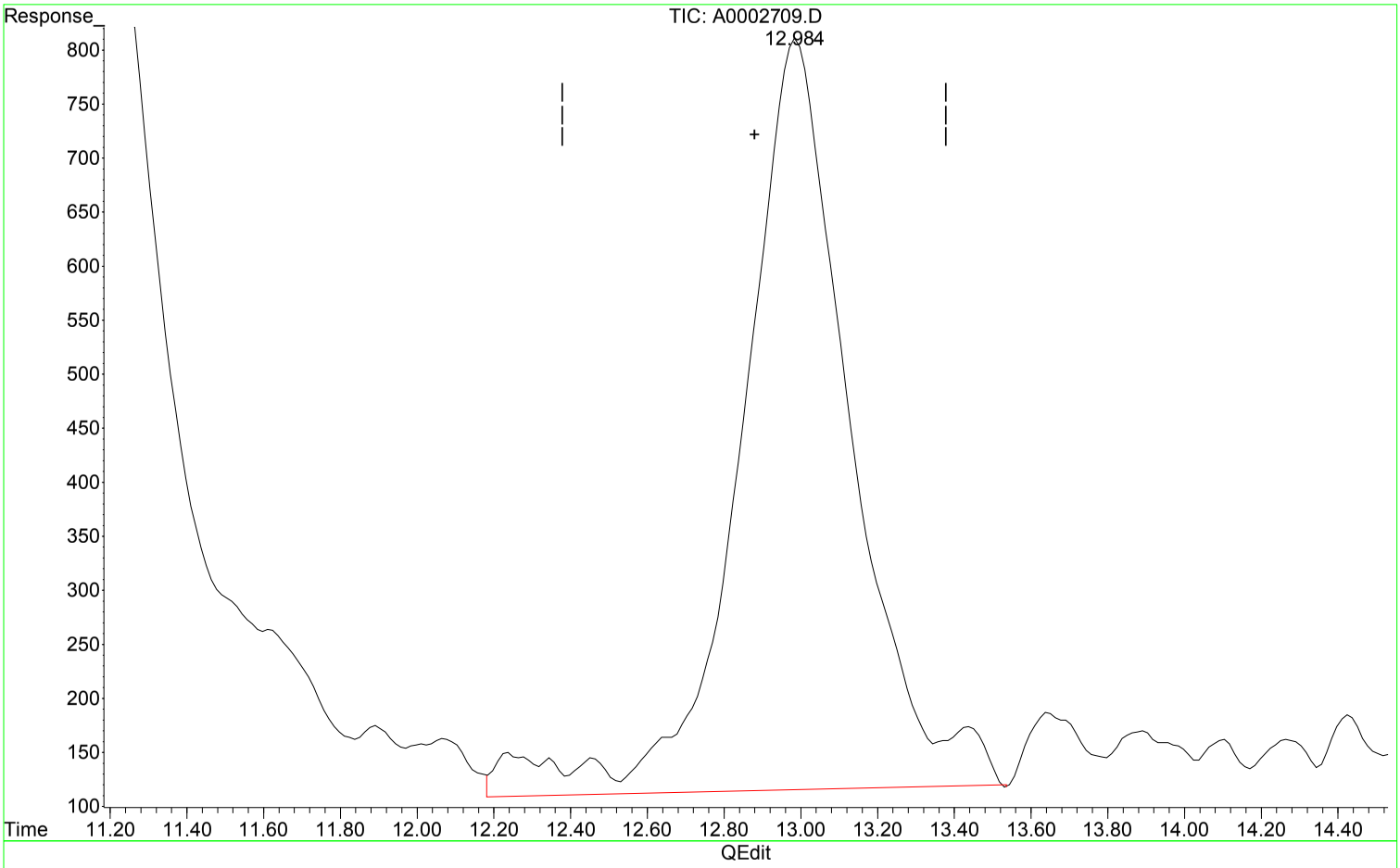
00948985

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002709.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 17:48:30
Operator : b.allgeier
Sample : 0.2-2.0ppm
Misc :
ALS Vial : 3 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 10:50:03 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 10:49:45 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(5) Propionic Acid (T)

12.989min 2.415 ppm

response 139170

Manual Integration:

Before

01/02/19

Expected Retention Time

RIGHT SOLUTIONS | RIGHT PARTNER

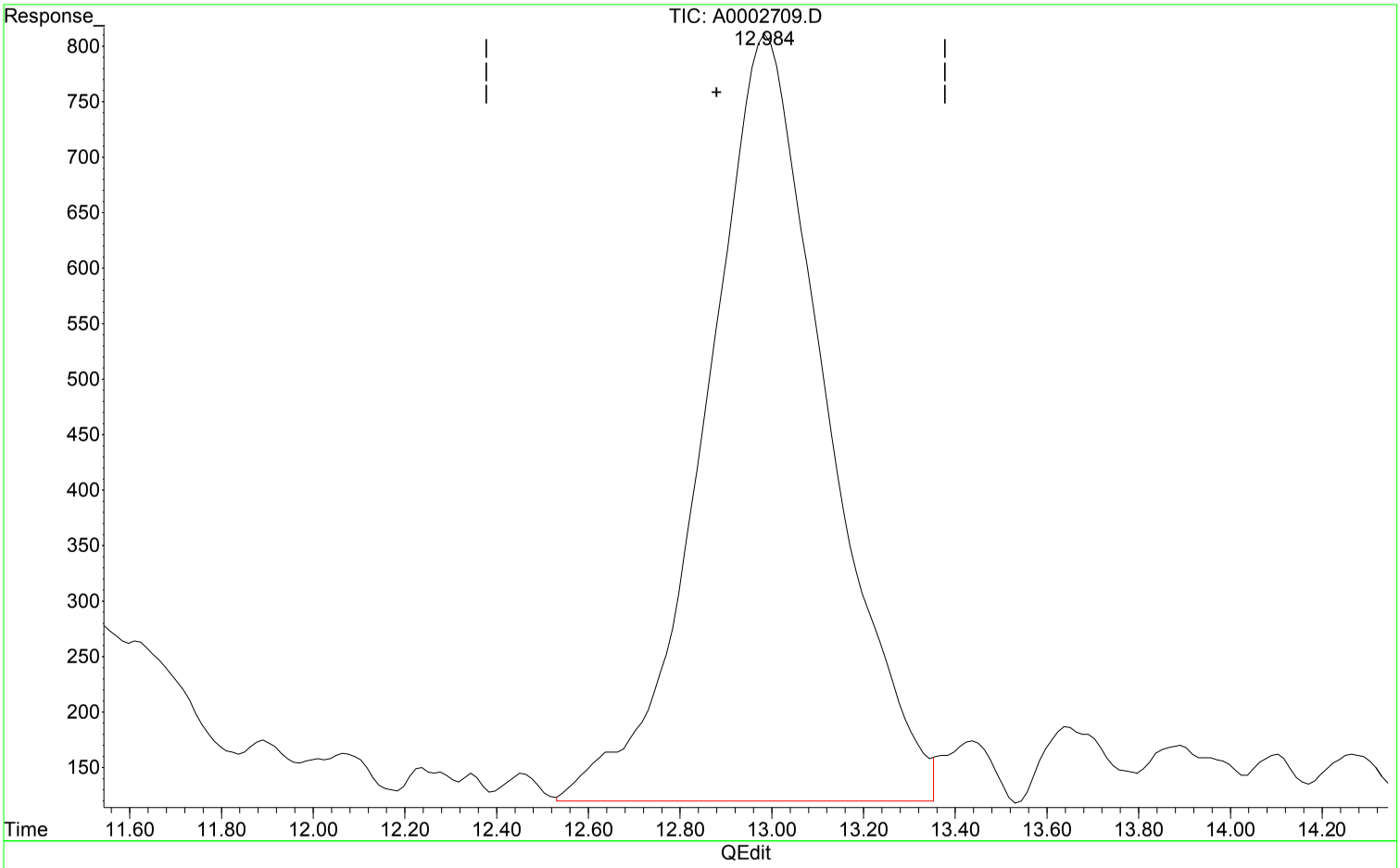
00948986

Quantitation Report (Qedit)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002709.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 17:48:30
Operator : b.allgeier
Sample : 0.2-2.0ppm
Misc :
ALS Vial : 3 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 10:50:03 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 10:49:45 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



(5) Propionic Acid (T)

12.984min 2.203 ppm m

response 126937

Manual Integration:

After

Poor integration.

01/02/19

Expected Retention Time

RIGHT SOLUTIONS | RIGHT PARTNER

00948987

1st BA 01/02/19
2nd DM 01/03/19

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002708.D
Signal(s) : dad1A.ch
Acq On : ~~30-Dec-2000, 00:48:34~~ 31-Dec-2018, 15:30:00
Operator : b.allgeier
Sample : 0.1-1.0ppm
Misc :
ALS Vial : 2 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 08:46:58 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 08:46:20 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210

	Compound	R.T.	Response	Conc Units
Target Compounds				
1) t	Formic acid	3.402	98829	1.026 ppm
2) T	Pyruvic acid	4.249	72137	0.159 ppm
3) T	Lactic Acid	4.853	61144	1.137 ppm
4) T	Acetic Acid	5.300	62133	1.050 ppm
5) T	Propionic Acid	13.007	66537	1.117 ppm
6) T	Butyric Acid	0.000	0	N.D. ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

00948988

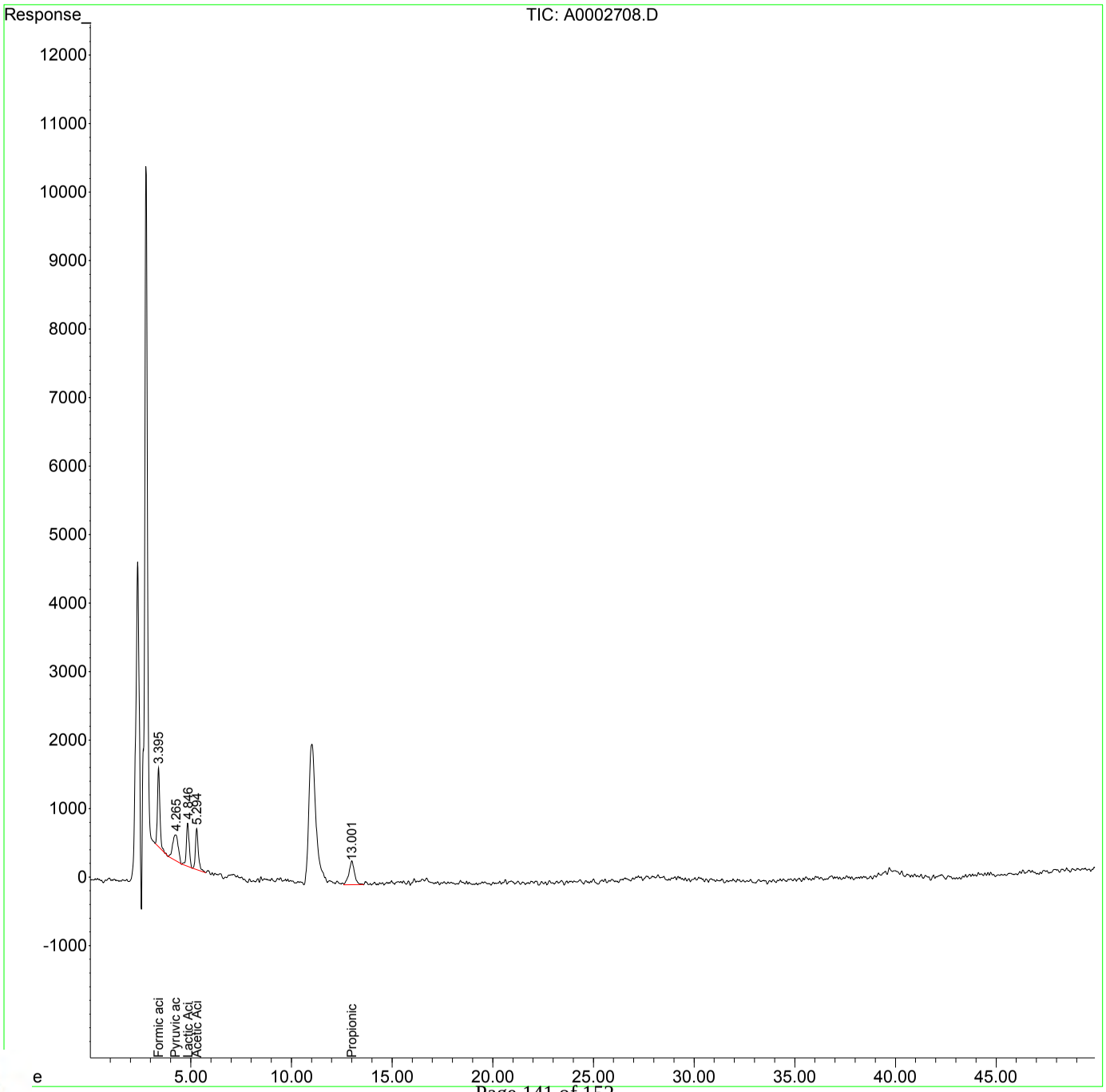
RIGHT SOLUTIONS | RIGHT PARTNER

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\hplc05\data\123118\
Data File : A0002708.D
Signal(s) : dad1A.ch
Acq On : 30-Dec-2000, 00:48:34
Operator : b.allgeier
Sample : 0.1-1.0ppm
Misc :
ALS Vial : 2 Sample Multiplier: 1

Integration File: MA1.E
Quant Time: Jan 02 08:46:58 2019
Quant Method : I:\ACQUDATA\hplc05\Methods\MA123118.M
Quant Title : organic acids
QLast Update : Wed Jan 02 08:46:20 2019
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 50.0ul
Signal Phase : synergi hydro rp
Signal Info : UV wave 210



RIGHT SOLUTIONS | RIGHT PARTNER

00948989

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS19031026 LHAAP / Site 58

Service Request: R1902402
Calibration Date: 12/31/2018

Initial Calibration Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Calibration ID: RC1900001
Instrument ID: R-HPLC-05

Signal ID: synergi hydro rp

#	Lab Code	Sample Name	File Location	Acquisition Date
01	RC1900001-01	0.1-1.0ppm	I:\ACQUDATA\hplc05\data\123118\A0002708.D	12/31/2018 15:30
02	RC1900001-02	0.2-2.0ppm	I:\ACQUDATA\hplc05\data\123118\A0002709.D	12/31/2018 16:20
03	RC1900001-03	0.5-5.0ppm	I:\ACQUDATA\hplc05\data\123118\A0002710.D	12/31/2018 17:10
04	RC1900001-04	1.0-10.0ppm	I:\ACQUDATA\hplc05\data\123118\A0002711.D	12/31/2018 18:01
05	RC1900001-05	2.0-20.0ppm	I:\ACQUDATA\hplc05\data\123118\A0002712.D	12/31/2018 18:53
06	RC1900001-06	5.0-50.0ppm	I:\ACQUDATA\hplc05\data\123118\A0002713.D	12/31/2018 20:00
07	RC1900001-07	10.0-100ppm	I:\ACQUDATA\hplc05\data\123118\A0002714.D	12/31/2018 20:39
08	RC1900001-08	20.0-200.0ppm	I:\ACQUDATA\hplc05\data\123118\A0002715.D	12/31/2018 21:32

Analyte

Acetic Acid

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	6.213E4	02	2.000	6.158E4	03	5.000	5.682E4	04	10.000	5.642E4
05	20.000	5.639E4	06	50.000	5.924E4	07	100.000	5.609E4	08	200.000	5.826E4

Butanoic Acid (Butyric Acid)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	2.000	6.107E4	03	5.000	5.113E4	04	10.000	5.523E4	05	20.000	5.225E4
06	50.000	5.443E4	07	100.000	5.078E4	08	200.000	5.385E4			

Lactic Acid

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	6.114E4	02	2.000	5.896E4	03	5.000	5.734E4	04	10.000	5.761E4
05	20.000	5.722E4	06	50.000	5.956E4	07	100.000	5.638E4	08	200.000	5.866E4

Propionic Acid

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	6.654E4	02	2.000	6.347E4	03	5.000	5.393E4	04	10.000	5.633E4
05	20.000	5.432E4	06	50.000	5.624E4	07	100.000	5.442E4	08	200.000	5.58E4

Pyruvic Acid

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.100	7.214E5	02	0.200	7.356E5	03	0.500	6.717E5	04	1.000	6.659E5
05	2.000	8.776E5	06	5.000	7.096E5	07	10.000	6.717E5	08	20.000	6.998E5

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS19031026 LHAAP / Site 58

Service Request: R1902402
Calibration Date: 12/31/2018

Initial Calibration Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Calibration ID: RC1900001
Instrument ID: R-HPLC-05

Signal ID: synergi hydro rp

		Calibration Evaluation				Calibration Evaluation	
Analyte Name	Compound Type	Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
Acetic Acid	TRG	Average RF	% RSD	4.1	≤	5.837E4	
Butanoic Acid (Butyric Acid)	TRG	Average RF	% RSD	6.5	≤	5.411E4	
Lactic Acid	TRG	Average RF	% RSD	2.6	≤	5.836E4	
Propionic Acid	TRG	Average RF	% RSD	8.2	≤	5.763E4	
Pyruvic Acid	TRG	Average RF	% RSD	9.6	≤	7.191E5	

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS19031026 LHAAP / Site 58

Service Request: R1902402
Calibration Date: 12/31/2018

Initial Calibration Verification Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Calibration ID: RC1900001
Instrument ID: R-HPLC-05

Signal ID: synergi hydro rp

#	Lab Code	Sample Name	File Location	Acquisition Date
09	RC1900001-09	icv	I:\ACQUDATA\hplc05\data\123118\A0002716.D	12/31/2018 22:10

Analyte Name	Expected	Result	Average RF	SSV RF	Rec.	Criteria	Curve Fit
Pyruvic Acid	2.00	1.90	7.191E5	6.83E5	95.0	85-115	Average RF
Acetic Acid	20.0	19.8	5.837E4	5.791E4	99.0	85-115	Average RF
Butanoic Acid (Butyric Acid)	20.0	20.2	5.411E4	5.455E4	101	85-115	Average RF
Lactic Acid	20.0	20.0	5.836E4	5.835E4	100	85-115	Average RF
Propionic Acid	20.0	19.2	5.763E4	5.535E4	96.0	85-115	Average RF

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS19031026 LHAAP / Site 58

Service Request: R1902402
Date Analyzed: 03/25/19 14:20

Continuing Calibration Verification (CCV) Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids
File ID: I:\ACQUDATA\hplc05\data\032519\A0002906.D\
Signal ID: synergi hydro rp

Calibration Date: 12/31/2018
Calibration ID: RC1900001
Analysis Lot: 630216
Units: mg/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Pyruvic Acid	4.95	4.07	7.191E5	5.908E5	-17.8*	NA	±15	Average RF
Acetic Acid	50.8	50.4	5.837E4	5.793E4	-0.8	NA	±15	Average RF
Butanoic Acid (Butyric Acid)	50.8	51.1	5.411E4	5.448E4	0.7	NA	±15	Average RF
Lactic Acid	49.2	44.4	5.836E4	5.272E4	-9.7	NA	±15	Average RF
Propionic Acid	49.6	55.6	5.763E4	6.459E4	12.1	NA	±15	Average RF

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS19031026 LHAAP / Site 58

Service Request: R1902402
Date Analyzed: 03/25/19 21:07

Continuing Calibration Verification (CCV) Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids
File ID: I:\ACQUDATA\hplc05\data\032519\A0002917.D\
Signal ID: synergi hydro rp

Calibration Date: 12/31/2018
Calibration ID: RC1900001
Analysis Lot: 630216
Units: mg/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Pyruvic Acid	4.95	4.37	7.191E5	6.343E5	-11.8	NA	±15	Average RF
Acetic Acid	50.8	51.8	5.837E4	5.955E4	2.0	NA	±15	Average RF
Butanoic Acid (Butyric Acid)	50.8	50.0	5.411E4	5.327E4	-1.6	NA	±15	Average RF
Lactic Acid	49.2	47.1	5.836E4	5.586E4	-4.3	NA	±15	Average RF
Propionic Acid	49.6	56.6	5.763E4	6.571E4	14.0	NA	±15	Average RF

ALS Group USA, Corp.
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QA/QC Report

Client: ALS Environmental - US
Project: HS19031026 LHAAP / Site 58

Service Request: R1902402
Date Analyzed: 03/29/19 17:18

Continuing Calibration Verification (CCV) Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids
File ID: I:\ACQUDATA\hplc05\data\032819\A0002922.D\
Signal ID: synergi hydro rp

Calibration Date: 12/31/2018
Calibration ID: RC1900001
Analysis Lot: 630216
Units: mg/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Pyruvic Acid	4.95	4.07	7.191E5	5.915E5	-17.8*	NA	±15	Average RF
Acetic Acid	50.8	50.8	5.837E4	5.839E4	0.0	NA	±15	Average RF
Butanoic Acid (Butyric Acid)	50.8	51.3	5.411E4	5.474E4	1.2	NA	±15	Average RF
Lactic Acid	49.2	44.9	5.836E4	5.323E4	-8.8	NA	±15	Average RF
Propionic Acid	49.6	57.1	5.763E4	6.632E4	15.1	NA	±15	Average RF

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS19031026 LHAAP / Site 58

Service Request: R1902402
Date Analyzed: 03/29/19 21:37

Continuing Calibration Verification (CCV) Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids
File ID: I:\ACQUDATA\hplc05\data\032819\A0002929.D\
Signal ID: synergi hydro rp

Calibration Date: 12/31/2018
Calibration ID: RC1900001
Analysis Lot: 630216
Units: mg/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Pyruvic Acid	4.95	4.10	7.191E5	5.95E5	-17.3*	NA	±15	Average RF
Acetic Acid	50.8	50.5	5.837E4	5.804E4	-0.6	NA	±15	Average RF
Butanoic Acid (Butyric Acid)	50.8	50.8	5.411E4	5.417E4	0.1	NA	±15	Average RF
Lactic Acid	49.2	45.0	5.836E4	5.333E4	-8.6	NA	±15	Average RF
Propionic Acid	49.6	56.0	5.763E4	6.498E4	12.8	NA	±15	Average RF

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS19031026 LHAAP / Site 58

Service Request: R1902402
Date Analyzed: 03/25/19 22:57

Continuing Calibration Verification (CCV) Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids
File ID: I:\ACQUDATA\hplc05\data\032519\A0002920.D\
Signal ID: synergi hydro rp

Calibration Date: 12/31/2018
Calibration ID: RC1900001
Analysis Lot: 630216
Units: mg/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Pyruvic Acid	4.95	4.13	7.191E5	6.002E5	-16.5*	NA	±15	Average RF
Acetic Acid	50.8	50.7	5.837E4	5.833E4	-0.1	NA	±15	Average RF
Butanoic Acid (Butyric Acid)	50.8	50.1	5.411E4	5.342E4	-1.3	NA	±15	Average RF
Lactic Acid	49.2	45.3	5.836E4	5.373E4	-7.9	NA	±15	Average RF
Propionic Acid	49.6	58.1	5.763E4	6.743E4	17.0*	NA	±15	Average RF

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US **Service Request:**R1902402
Project: HS19031026 LHAAP / Site 58

Analysis Run Log

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids **Analysis Lot:**630216
Instrument ID:R-HPLC-05

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
I:\ACQUDATA\hplc05\data\032519\A0002919.D\	35AWW20_031919 DMS	RQ1902678-12	12/30/2000	01:28:30	
I:\ACQUDATA\hplc05\data\032819\A0002923.D\	Method Blank	RQ1902678-06	12/30/2000	09:48:28	
I:\ACQUDATA\hplc05\data\032519\A0002907.D\	Method Blank	RQ1902678-01	12/30/2000	17:47:52	
I:\ACQUDATA\hplc05\data\032519\A0002906.D\	Continuing Calibration Verification	RQ1902678-04	12/30/2000	17:47:58	
I:\ACQUDATA\hplc05\data\032819\A0002926.D\	35AWW11_031919	R1902402-001	12/30/2000	17:48:27	
I:\ACQUDATA\hplc05\data\032519\A0002913.D\	LHSMW07_031919	R1902402-004	12/30/2000	17:48:41	
I:\ACQUDATA\hplc05\data\032519\A0002906.D\	Continuing Calibration Verification	RQ1902678-04	3/25/2019	14:20:00	
I:\ACQUDATA\hplc05\data\032519\A0002907.D\	Method Blank	RQ1902678-01	3/25/2019	14:57:00	
I:\ACQUDATA\hplc05\data\032519\A0002908.D\	Lab Control Sample	RQ1902678-02	3/25/2019	15:34:21	
I:\ACQUDATA\hplc05\data\032519\A0002909.D\	Duplicate Lab Control Sample	RQ1902678-03	3/25/2019	16:11:22	
I:\ACQUDATA\hplc05\data\032519\A0002911.D\	35AWW24_031919	R1902402-002	3/25/2019	17:25:08	
I:\ACQUDATA\hplc05\data\032519\A0002912.D\	35AWW19_031919	R1902402-003	3/25/2019	18:02:07	
I:\ACQUDATA\hplc05\data\032519\A0002913.D\	LHSMW07_031919	R1902402-004	3/25/2019	18:39:00	
I:\ACQUDATA\hplc05\data\032519\A0002916.D\	35AWW20_031919	R1902402-007	3/25/2019	20:30:15	
I:\ACQUDATA\hplc05\data\032519\A0002917.D\	Continuing Calibration Verification	RQ1902678-05	3/25/2019	21:07:14	
I:\ACQUDATA\hplc05\data\032519\A0002918.D\	35AWW20_031919 MS	RQ1902678-11	3/25/2019	21:44:06	
I:\ACQUDATA\hplc05\data\032519\A0002919.D\	35AWW20_031919 DMS	RQ1902678-12	3/25/2019	22:21:00	
I:\ACQUDATA\hplc05\data\032519\A0002920.D\	Continuing Calibration Verification	RQ1902678-13	3/25/2019	22:57:56	
I:\ACQUDATA\hplc05\data\032819\A0002922.D\	Continuing Calibration Verification	RQ1902678-09	3/29/2019	17:18:51	
I:\ACQUDATA\hplc05\data\032819\A0002923.D\	Method Blank	RQ1902678-06	3/29/2019	17:55:00	
I:\ACQUDATA\hplc05\data\032819\A0002924.D\	Lab Control Sample	RQ1902678-07	3/29/2019	18:32:46	
I:\ACQUDATA\hplc05\data\032819\A0002925.D\	Duplicate Lab Control Sample	RQ1902678-08	3/29/2019	19:09:49	
I:\ACQUDATA\hplc05\data\032819\A0002926.D\	35AWW11_031919	R1902402-001	3/29/2019	19:46:00	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US **Service Request:**R1902402
Project: HS19031026 LHAAP / Site 58

Analysis Run Log
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids **Analysis Lot:**630216
Instrument ID:R-HPLC-05

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
I:\ACQUDATA\hplc05\data\032819\A0002927.D\	35AWW06_031919	R1902402-005	3/29/2019	20:23:38	
I:\ACQUDATA\hplc05\data\032819\A0002928.D\	35AWW06_031919_a	R1902402-006	3/29/2019	21:00:34	
I:\ACQUDATA\hplc05\data\032819\A0002929.D\	Continuing Calibration Verification	RQ1902678-10	3/29/2019	21:37:35	

Analysis: 3/25/19 Analyst: BA Run Method: NEWMETA
Date: Organic Acids Instr. HPLC-05 Quant Method: MA123.18
LIMS Run#: 630216
Setup: Column: Synergi Hydro RP 150x4.6 Col.Temp: 35 Flow: 0.6 mL/min
Mobile Phase: 6.02kHz prep 0.1% ul Inj.: 50

Pos.	Sample	Diln.	Stds. ID	File#	OK?	Comments
	BLK			A002305	—	
	CCV	1000 µL/mL	197841	06	YC	
	MET BLK			07	Y	
	LCS	1000 µL/mL	197842	08	Y	
	DLCS	"	"	09	Y	
	R1902402-001			10	Y	RPT 1/5
	-002			11	Y	
	-003			12	Y	
	-004			13	Y	
	-005			14	Y	RPT 1/2.5
	-006			15	Y	RPT 1/2.5
	-007			16	Y	
	CCV	1000 µL/mL	197841	17	YC	
	-007MS	1000 µL/mL	197842	18	Y	
	-007MSD	"	"	19	Y	
	CCV	1000 µL/mL	197841	20	YC	

BA 3/25/19

All samples = _____mL + _____uL Combined IS/Surr.;
Primary: 197841 exp: 9/15/19 Secondary: 197842 exp: 9/15/19
Primary: _____ exp: Secondary: _____ exp:

Runlog HPLC05r1
1/10/13

RIGHT SOLUTIONS | RIGHT PARTNER

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887
www.alsglobal.com

WorkOrder: HS19041170

LHAAP-58

Bhate Environmental Associates, Inc.

Marcia Olive
445 Union Blvd Ste 129
Lakewood CO 80228

22-Apr-2019

RIGHT SOLUTIONS | RIGHT PARTNER

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887

April 22, 2019

Marcia Olive
Bhate Environmental Associates, Inc.
445 Union Blvd Ste 129
Lakewood, CO 80228

Work Order: **HS19041170**

Laboratory Results for: **LHAAP-58**

Dear Marcia,

ALS Environmental received 6 sample(s) on Mar 20, 2019 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: JUMOKE.LAWAL
RJ Modashia
Project Manager

ALS Houston, US Date: 22-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Work Order: HS19041170

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS19041170-01	35AWW11_031919	Groundwater		19-Mar-2019 08:15	20-Mar-2019 10:20	☐
HS19041170-02	35AWW24_031919	Groundwater		19-Mar-2019 09:15	20-Mar-2019 10:20	☐
HS19041170-03	35AWW19_031919	Groundwater		19-Mar-2019 10:10	20-Mar-2019 10:20	☐
HS19041170-04	LHSMW07_031919	Groundwater		19-Mar-2019 11:05	20-Mar-2019 10:20	☐
HS19041170-05	35AWW06_031919	Groundwater		19-Mar-2019 12:05	20-Mar-2019 10:20	☐
HS19041170-06	35AWW20_031919	Groundwater		19-Mar-2019 13:15	20-Mar-2019 10:20	☐

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ALS Houston, US Date: 22-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Work Order: HS19041170

CASE NARRATIVE

Work Order Comments

• The analysis for DHC and DHBI were subcontracted to Microbial insights in Knoxville, TN. Final report attached.

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ALS Houston, US Date: 22-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW11_031919
Collection Date: 19-Mar-2019 08:15

ANALYTICAL REPORT
WorkOrder:HS19041170
Lab ID:HS19041170-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - DHC/DHB	**Method:NA**							Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	19-Apr-2019 17:18

Note: See Qualifiers Page for a list of qualifiers and their explanation.

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 22-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW24_031919
Collection Date: 19-Mar-2019 09:15

ANALYTICAL REPORT
WorkOrder:HS19041170
Lab ID:HS19041170-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - DHC/DHB	**Method:NA**							Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	19-Apr-2019 17:18

Note: See Qualifiers Page for a list of qualifiers and their explanation.

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 22-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW19_031919
Collection Date: 19-Mar-2019 10:10

ANALYTICAL REPORT
WorkOrder:HS19041170
Lab ID:HS19041170-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - DHC/DHB	**Method:NA**							Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	19-Apr-2019 17:18

Note: See Qualifiers Page for a list of qualifiers and their explanation.

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 22-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: LHSMW07_031919
Collection Date: 19-Mar-2019 11:05

ANALYTICAL REPORT
WorkOrder:HS19041170
Lab ID:HS19041170-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - DHC/DHB	**Method:NA**							Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	19-Apr-2019 17:18

Note: See Qualifiers Page for a list of qualifiers and their explanation.

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 22-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW06_031919
Collection Date: 19-Mar-2019 12:05

ANALYTICAL REPORT
WorkOrder:HS19041170
Lab ID:HS19041170-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - DHC/DHB	**Method:NA**							Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	19-Apr-2019 17:18

Note: See Qualifiers Page for a list of qualifiers and their explanation.

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 22-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW20_031919
Collection Date: 19-Mar-2019 13:15

ANALYTICAL REPORT
WorkOrder:HS19041170
Lab ID:HS19041170-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - DHC/DHB	**Method:NA**							Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	19-Apr-2019 17:18

Note: See Qualifiers Page for a list of qualifiers and their explanation.

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 22-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19041170

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID R336966	**Test Name :** SUBCONTRACT ANALYSIS - DHC/DHB			**Matrix:** Groundwater		
HS19041170-01	35AWW11_031919	19 Mar 2019 08:15			19 Apr 2019 17:18	1
HS19041170-02	35AWW24_031919	19 Mar 2019 09:15			19 Apr 2019 17:18	1
HS19041170-03	35AWW19_031919	19 Mar 2019 10:10			19 Apr 2019 17:18	1
HS19041170-04	LHSMW07_031919	19 Mar 2019 11:05			19 Apr 2019 17:18	1
HS19041170-05	35AWW06_031919	19 Mar 2019 12:05			19 Apr 2019 17:18	1
HS19041170-06	35AWW20_031919	19 Mar 2019 13:15			19 Apr 2019 17:18	1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 22-Apr-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: **HS19041170**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

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CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Texas	T10470231-18-21	30-Apr-2019
North Dakota	R193 2018-2019	30-Apr-2019
Illinois	004438	29-Jun-2019
Louisiana	03087	30-Jun-2019
Dept of Defense	ANAB L2231	20-Dec-2021
Kentucky	123043 - 2018	30-Apr-2019
Kansas	E-10352 2018-2019	31-Jul-2019
Oklahoma	2018-156	31-Aug-2019
North Carolina	624-2019	31-Dec-2019
California	2919, 2018-2019	30-Apr-2019
Maryland	343, 2018-2019	30-Jun-2019
Arkansas	19-028-0	27-Mar-2020

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REPORT TO:
Name: MARCIA D LIVE
Company: BHATE ENVIRONMENTAL
Address:
email: molive@bhate.com
Phone:
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Project Name: LHAAP
Project No.: NWD1312.0150

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☐ More samples to follow
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Report Type: ☐ Standard (default) ☐ Microbial Insights Level III raw data(15% surcharge) ☐ Microbial Insights Level IV (25% surcharge) ☐ Comprehensive Interpretive(15%) ☐ Historical Interpretive (30%)
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Sample Information					Analyses					CENSUS: Please select the target organism/gene																								
MI ID (Laboratory Use Only)	Sample Name	Date Sampled	Time Sampled	Matrix	PLFA	DGGE+3ID	DGGE+5ID	QuantArray Chlor	QuantArray Petro	DHC (Dehalococcoides)	DHC Functional genes (bvc, tca, vcr)	DHB (Dehalobacter)	DSM (Desulfuromonas)	DSS (Desulfitobacterium)	EBAC (Total)	SRB (Sulfate Reducing Bacteria-APS)	MGN (Methanogens)	MOB (Methanotrophs)	SMMO	DNF (Denitrifiers-nirS and nirK)	AOB (ammonia oxidizing bacteria)	PM1 (MTBE aerobic)	BMO (Toluene Monooxygenase)	TDE3 (Toluene Monooxygenase)	PHE (Phenol Hydroxylase)	NAH (Naphthalene-aerobic)	BSSA (Toluene/Xylene-Anaerobic)	add. qPCR:	add. qPCR:	RNA Expression Option!*	Other:	Other:	Other:
052Qc 1	35AWW11-031919	3/19/19	0815							X		X																						
2	35AWW24-031919	3/19/19	0915							X		X																						
3	35AWW19-031919	3/19/19	1010							X		X																						
4	LHSMW07-031919	3/19/19	1105							X		X																						
5	35AWW06-031919	3/19/19	1205							X		X																						
6	35AWW20-031919	3/19/19	1315							X		X																						

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Fax:

Identifier: 052QC **Date Rec:** 03/20/2019 **Report Date:** 03/25/2019

Client Project #: NW01312.0150 **Client Project Name:** LHAAP-58

Purchase Order #:

Analysis Requested: CENSUS

Reviewed By:



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How to Use Estimated Percentile Ranks from the Microbial Insights Database

The MI Database and Client Portal

The Microbial Insights Database is the largest collection of field concentrations of key microorganisms and functional genes currently containing qPCR and QuantArray results for more than 32,000 unique groundwater, soil, and sediment samples from all 50 states and 33 countries worldwide. Driven by field samples, the database reflects the impacts of common contaminants, geochemical conditions, and site management practices on critical microbial populations.

With your report, you received a passcode enabling you to retrieve estimates of the percentile ranks of your results based on those compiled in the MI database at no additional charge. When accessing the database, you will be asked to provide background information about the sample (e.g. contaminant concentrations) to aid in understanding the links between environmental conditions and microbial populations. As with all client information provided to MI, site specific data will be treated as confidential.

Is that low, medium or high?

In practice, biodegradation depends not just on the presence but the actual concentrations of the contaminant degrading microorganisms. Simply put, qPCR and QuantArray results demonstrating high concentrations of target microorganisms or functional genes suggest in situ selection, enrichment and growth of those specific contaminant degraders and therefore a greater probability that monitored natural attenuation (MNA) or bioremediation will be successful.

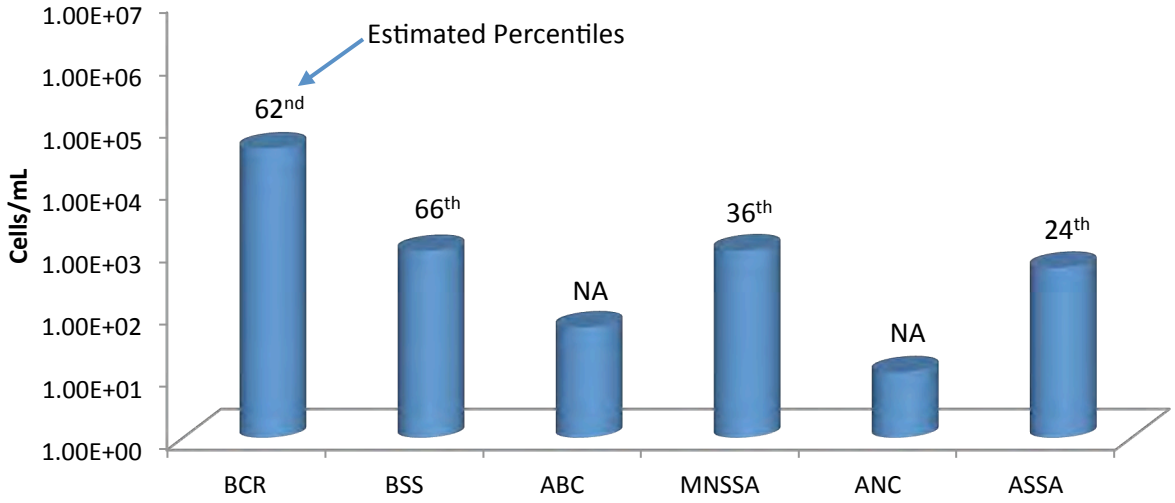
Is that a low, medium, or high concentration? The estimated percentile ranks retrieved from the MI Database answer that question by comparing your qPCR and QuantArray results to those of the literally thousands of other environmental samples submitted to MI for analysis over the last 20+ years.

Using the Estimated Percentile - Interpretation Examples

MNA Assessment – Petroleum Hydrocarbon Site:

Whenever possible, interpretation of qPCR and QuantArray results should include comparisons between samples obtained from background and impacted wells. The estimated percentile ranks however provide an additional avenue for comparison and evaluation of treatment options as shown below.

Figure 1: Microbial Populations - Anaerobic BTEX and PAHs



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Anaerobic BTEX and PAH Biodegradation (Figure 1):

- With moderate concentrations of functional genes involved in anaerobic BTEX metabolism detected, the QuantArray-Petro® results were encouraging in terms of evaluating biodegradation potential under existing site conditions.
- More specifically, benzylsuccinate synthase (BSS) was detected on the order of nearly 10^3 cells/mL indicating the presence of a substantial population (66th percentile) capable of anaerobic biodegradation of toluene and other alkyl substituted benzenes.
- Naphthyl-2-methylsuccinate synthase (MNSSA) and alkylsuccinate synthase (ASSA) genes were also detected indicating the potential for anaerobic biodegradation of 2-methylnaphthalene and normal alkanes.
- The concentration of MNSSA genes would be considered modest with an estimated percentile of 36th.
- While the percentile rank for MNSSA would be "below average", a number of additional factors should be considered.
    - First, anaerobic hydrocarbon degraders are less prevalent than aerobic BTEX degraders and overall detection frequencies for many genes involved in anaerobic hydrocarbon biodegradation are less than 50%.
    - Therefore, the detection of genes like BSS, MNSSA, ASSA, anaerobic benzene carboxylase (ABC), and anaerobic naphthalene carboxylase (ANC) even at low concentrations is certainly noteworthy and inherently "better than average".
    - The estimated percentiles for all assays are based only on samples where the concentration of the target gene was greater than the practical quantitation limit (PQL).
    - For less commonly detected targets like many of the genes involved in anaerobic hydrocarbon biodegradation this is an especially important consideration.
    - Excluding samples where a gene target is below the PQL ensured that the median concentrations of less commonly detected targets would not be unduly biased low by the fact that the gene is not detected in most samples.
- Anaerobic benzene carboxylase (ABC) and naphthalene carboxylase (ANC) genes were also detected indicating the presence of bacterial populations capable of anaerobic biodegradation of benzene and naphthalene.
- For newly identified genes like ABC and ANC, estimated percentile ranks are not yet available due to the limited number of field samples that have been analyzed to date.
- However, like MNSSA and other genes involved in anaerobic hydrocarbon biodegradation, ABC and ANC detection frequencies are relatively low so the detection of these genes even at low concentrations should be considered when evaluating biodegradation potential under existing site conditions.

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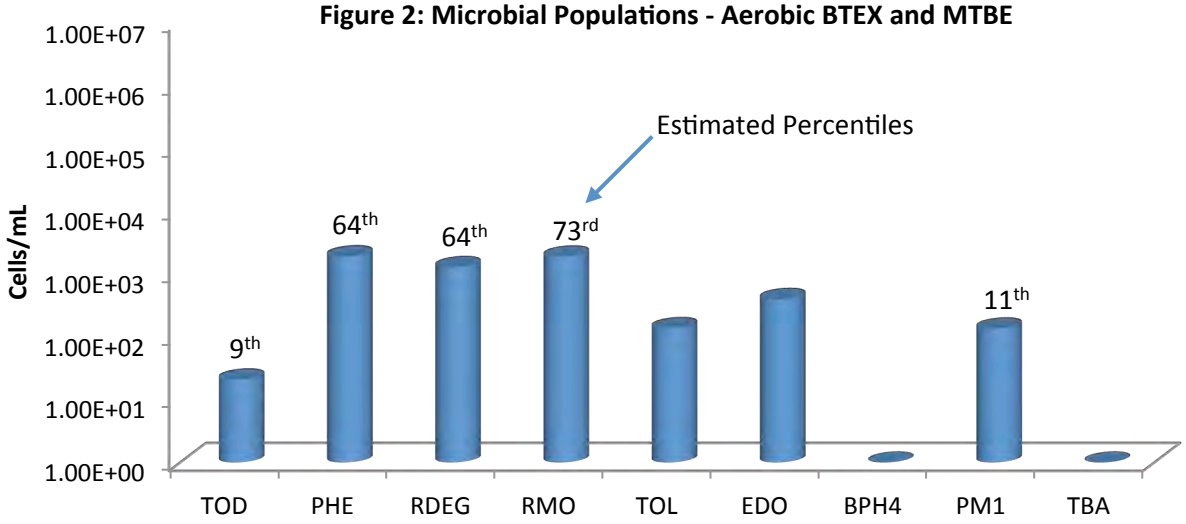
Figure 2: Microbial Populations - Aerobic BTEX and MTBE



Aerobic BTEX and MTBE Biodegradation (Figure 2):

- With growing evidence that aromatic oxygenases function at low dissolved oxygen concentrations, aerobic BTEX biodegradation pathways should also be evaluated when considering MNA.
- Again, the QuantArray-Petro results were encouraging – genes encoding the first step in multiple pathways for aerobic BTEX biodegradation were detected indicating the presence of a diverse population of aerobic BTEX degraders.
- However, aerobic BTEX degraders are often considered ubiquitous. Therefore answering the question "Is that low, medium or high?" becomes especially important when evaluating aerobic BTEX biodegradation at petroleum hydrocarbon sites.
- In this case, the estimated percentile ranks of the concentrations of toluene/benzene monooxygenase (RMO and RDEG) and phenol hydroxylase (PHE) genes ranged from the 64th to 73rd percentile.
- In other words, the concentrations of RMO, RDEG, and PHE detected in this groundwater sample were greater than the concentrations detected in 64% to 73% of all other groundwater samples where these genes were analyzed and detected above the PQL.
- Aerobic BTEX degraders are common in the environment, but in this sample concentrations of toluene/benzene monooxygenase genes could be viewed as "better than average" when compared to the MI Database.

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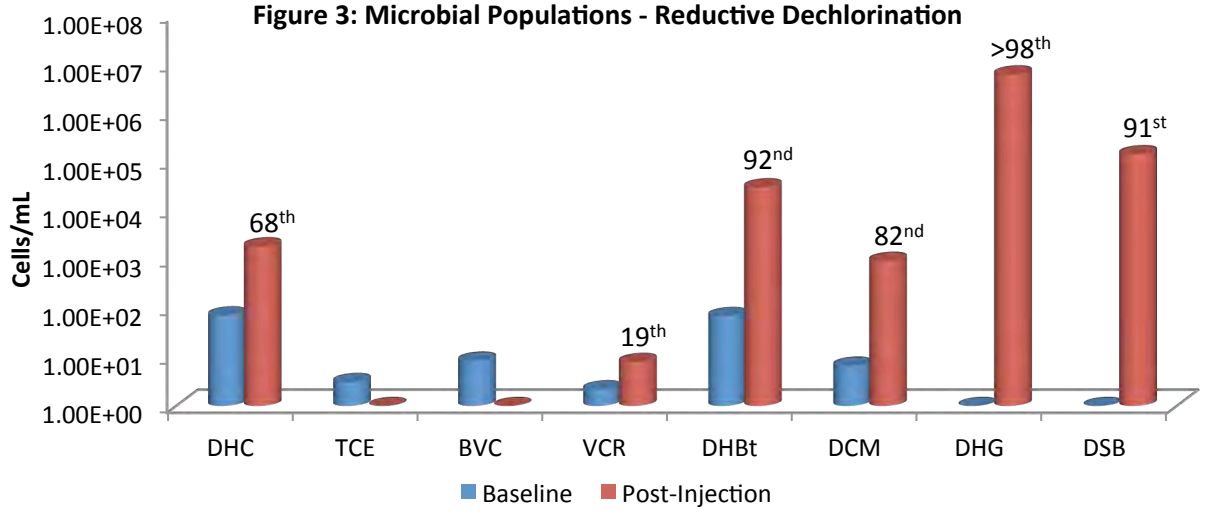
Biostimulation – Chlorinated Solvent Site:

Whenever possible, interpretation of qPCR and QuantArray results should include comparisons between baseline and post-injection monitoring events as shown below (Figure 3). The estimated percentile ranks however provide an additional avenue for comparison and evaluation of remedy performance.

Figure 3: Microbial Populations - Reductive Dechlorination



- During the baseline groundwater sampling event, *Dehalococcoides* and vinyl chloride reductase genes were detected indicating the potential for complete reductive dechlorination of PCE and TCE to ethene.
- However, the *Dehalococcoides* concentration was well below the 10^4 cells/mL recommended by Lu et al. (2006) for generally effective rates of reductive dechlorination.
- Based on qPCR results as well as traditional groundwater monitoring, biostimulation with electron donor addition was selected as the site management plan.
- By the first monitoring event after injection, populations of halorespiring bacteria had increased substantially in response to electron donor addition.
    - *Dehalobacter* populations increased by more than two orders of magnitude to post-injection concentrations greater than 10^4 cells/mL (92nd percentile).
    - *Dehalogenimonas* (10^6 cells/mL) and *Desulfitobacterium* (10^5 cells/mL) which had not been detected prior electron donor addition were present at concentrations greater than observed in over 90% of other groundwater samples where these halorespiring bacteria were detected.
- After injection, *Dehalococcoides* populations increased by more than an order of magnitude to a concentration of over 10^3 cells/mL (68th percentile) demonstrating growth of this key group of halorespiring bacteria.
- Despite a substantial increase and a "better than average" concentration, the *Dehalococcoides* population was still below the 10^4 cells/mL threshold and vinyl chloride reductase gene copies were low (19th percentile).
    - In terms of electron donors and acceptors, the metabolic capabilities of *Dehalococcoides* are rather specialized (hydrogen utilizing obligate halorespiring bacteria) so the median concentration is low. With a low median concentration across the database, a "better than average" *Dehalococcoides* concentration in a given sample may not exceed the 10^4 cells/mL threshold established for effective reductive dechlorination (Lu et al. 2006) and ethene production (Microbial Insights, unpublished data).

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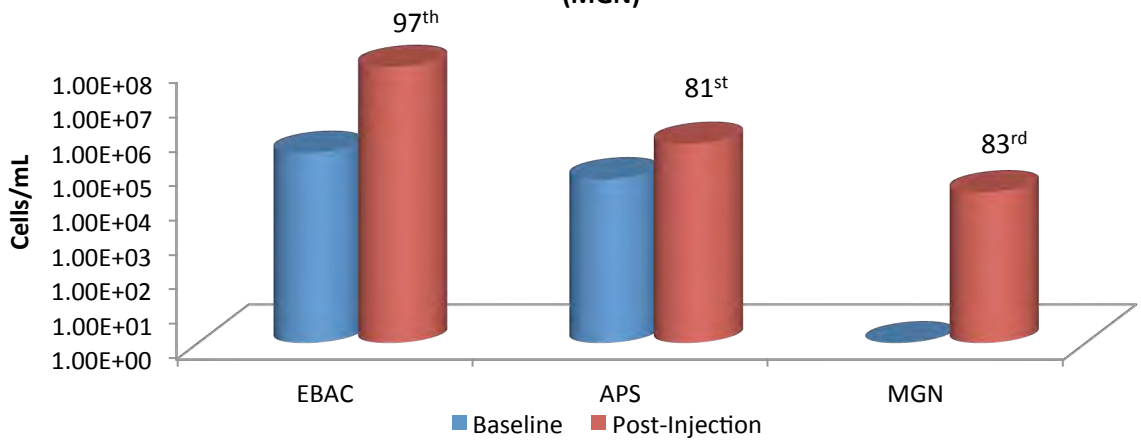
- In this case, the initial growth of *Dehalococcoides* was substantial but may have been somewhat hindered by competition with sulfate reducing bacteria (Figure 4 below).
    - The baseline population of sulfate reducing bacteria was moderate (10^4 cells/mL; 63rd percentile). Consistent with an observed decreased in dissolved sulfate concentrations, populations of sulfate reducing bacteria increased and were detected at a relatively high concentration (81st percentile) after electron donor addition.
    - After injection, methanogen populations also increased to a relatively high concentration (83rd percentile) suggesting generation of methanogenic conditions.
- With sulfate depletion and generation of highly anaerobic conditions more conducive to reductive dechlorination, *Dehalococcoides* populations may continue to increase and exceed the 10^4 *Dehalococcoides* cells/mL threshold in subsequent monitoring events.
- Overall, QuantArray analysis conclusively demonstrated that electron donor addition stimulated growth of halorespiring bacteria with the estimated percentiles retrieved from the MI Database providing the "low, medium or high" perspective to the observed changes in microbial populations.

Figure 4: Total Bacteria (EBAC), Sulfate Reducering Bacteria (APS) and Methanogens (MGN)



References

Lu, X., J.T. Wilson, and D.H. Kampbell. 2006. Relationship between *Dehalococcoides* DNA in ground water and rates of reductive dechlorination at field scale. *Water Research* 40 no. 16: 3131-3140.

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How to Retrieve and Use Estimated Percentile Ranks from the Microbial Insights Database

The MI Database

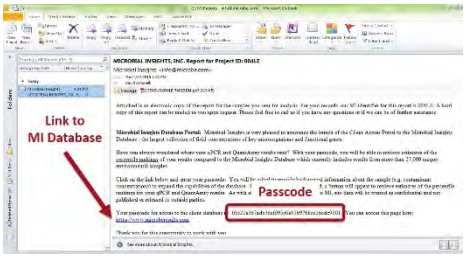
The Microbial Insights Database is the largest collection of field concentrations of key microorganisms and functional genes currently containing qPCR and QuantArray results for more than 40,000 unique groundwater, soil, and sediment samples from all 50 states and 33 countries worldwide.

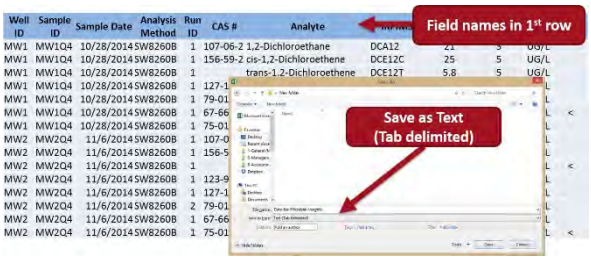
Is that low, medium or high?

In practice, biodegradation depends not just on the presence but the actual concentrations of the contaminant degrading microorganisms. The estimated percentile ranks retrieved from the MI Database answer the question "Is that low, medium or high?" by comparing your results to those of the literally thousands of other environmental samples submitted to MI for analysis over the last 20+ years.

Retrieving Estimated Percentile Ranks

With your report, you were emailed a passcode and link enabling you to login to the Client Portal. Just enter basic information about the sample (e.g. contaminant concentrations) to aid in understanding the links between environmental conditions and microbial populations and you can retrieve estimates of the percentile ranks of your results based on those compiled in the MI database at no additional charge.





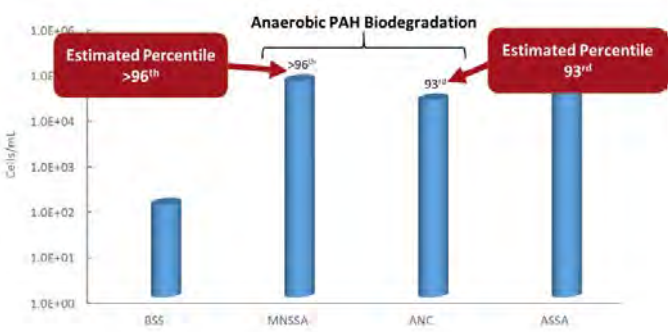
All site specific data will be treated as confidential and uploading is easy.

You can even upload chemical and geochemical data from EDDs. Just save as a Tab Delimited text file.

Example - Using Estimated Percentile for MNA Assessment at an MGP Site

CENSUS® qPCR was performed to quantify anaerobic naphthalene carboxylase (ANC) and naphthyl-2-methylsuccinate synthase (MNSSA) to assess anaerobic biodegradation of naphthalene and methyl-naphthalene under existing site conditions.

- Not only were ANC and MNSSA genes detected, but these functional genes responsible for anaerobic biodegradation of PAHs were present at concentrations "far better than average" based on the estimated percentile ranks.
- Demonstrating high concentrations of ANC and MNSSA gave an additional line of evidence indicating growth substantial populations of anaerobic PAH degraders and suggested a greater probability that monitored natural attenuation (MNA) will be successful.



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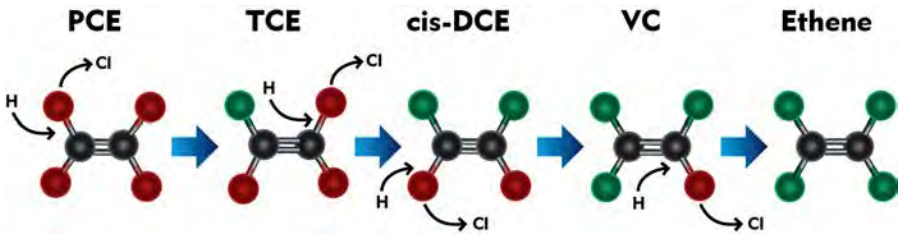
DHC Interpretation

Dehalococcoides 16S rRNA gene (qDHC)

Under anaerobic conditions, tetrachloroethene (PCE) and trichloroethene (TCE) can undergo sequential reductive dechlorination through the daughter products *cis*-dichloroethene (*cis*-DCE) and vinyl chloride to nontoxic ethene (1,2).



While a number of bacterial cultures capable of utilizing PCE and TCE as growth supporting electron acceptors have been isolated (3-7), *Dehalococcoides* spp. may be the most important because they are the only bacterial group that has been isolated to date which is capable of complete reductive dechlorination of PCE to ethene (8). In fact, the presence of *Dehalococcoides* spp. has been associated with complete dechlorination to ethene at sites across North America and Europe (9).

Status	*Dehalococcoides spp.*	Observation
	**≥ 10^4** (cells/mL)	Lu et al. proposed that a concentration of 1 x 10^4 DHC cells/mL could be used as a screening criterion to identify sites where reductive dechlorination will yield a generally useful biodegradation rate (10). Similarly, in an internal study conducted with nearly 1000 groundwater samples obtained from sites across the US, ethene production was observed in approximately 80% of samples in which CENSUS® qDHC results were greater than or equal to 10^4 DHC cells/mL.
	**10^1 to < 10^4** (cells/mL)	When vinyl chloride reductase genes (See DHC functional genes discussion below) are also detected, complete reductive dechlorination of PCE and TCE to ethene may still occur even with moderate DHC concentrations. When the DHC population is below the 10^4 cells/mL criterion proposed by Lu et al. (10), project managers should carefully consider other site-specific data to determine whether subsurface conditions may be limiting reductive dechlorination. For example, the addition of an electron donor may be able to stimulate DHC growth and enhance anaerobic bioremediation.
	**< 10^1** (cells/mL)	DHC concentrations are low suggesting that complete reductive dechlorination of PCE and TCE to ethene is unlikely to occur under existing conditions. Enhanced anaerobic bioremediation options (biostimulation or bioaugmentation) may need to be considered.

1

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DHC Functional Genes (*tce*A, *bvc*A, *vcr*A)

A "stall" where daughter products *cis*-DCE and vinyl chloride accumulate can occur at PCE- and TCE-impacted sites especially under MNA conditions. The accumulation of vinyl chloride, generally considered more carcinogenic than the parent compounds, is particularly problematic. Although elevated *Dehalococcoides* concentrations correspond to ethene production in numerous studies, the range of chlorinated ethenes metabolized and cometabolized varies among species and strains within the *Dehalococcoides* genus. For example, *Dehalococcoides ethenogenes* str. 195 metabolizes PCE, TCE, and *cis*-DCE and cometabolizes vinyl chloride (8) to produce ethene. Conversely, *Dehalococcoides* sp. CBDB1 utilizes PCE and TCE but does not cometabolize additional chloroethenes (11). Other *Dehalococcoides* strains, such as BAV1, GT and VS, are known to fully dechlorinate cis-DCE and VC to ethene (14,16,19). Quantification of reductive dehalogenase genes is used to more definitively confirm the potential for reductive dechlorination of TCE, cis-DCE, and vinyl chloride (12-15).

Functional Gene	Observation
TCE Reductase	
***tce*A gene**	The *tce*A gene encodes the enzyme responsible for reductive dechlorination of TCE to *cis*-DCE in some strains of *Dehalococcoides*. Absence of *tce*A does not preclude the potential for reductive dechlorination of TCE in the field since the *tce*A gene is not universally distributed among all DHC and is not present in other microorganisms capable of reductive dechlorination of TCE (e.g. *Dehalobacter*). Detection of the *tce*A gene provides an additional line of evidence indicating the potential for dechlorination of TCE.
Vinyl Chloride Reductase	
***bvc*A gene**	The *bvc*A gene encodes the vinyl chloride reductase enzyme responsible for reductive dechlorination of vinyl chloride to ethene by *Dehalococcoides* sp. str. BAV1 (16). Presence of *bvc*A gene indicates the potential for reductive dechlorination of VC to ethene. Absence of both *bvc*A and *vcr*A genes suggests VC may accumulate. An internal study with ~1,000 samples showed ethene production was observed in 80% of the samples that the DHC population was greater than or equal to 10^4 cells/mL. The *bvc*A gene was detected in over 50% of these samples. Van Der Zaan et al (17) noted that the bvcA gene was the only VC reductase gene detected at three of their sites. Alfred Spormann's laboratory at Stanford University (18) reported that the *bvc*A gene was the most abundant and active at the outflow of a PCE fed column study. This section of the column was in the DCE to VC stages of reductive dechlorination thus confirming the importance of the *bvc*A gene for complete reductive dechlorination.
***vcr*A gene**	The *vcr*A gene encodes the vinyl chloride reductase enzyme responsible for reductive dechlorination of *cis*-DCE and vinyl chloride by *Dehalococcoides* sp. strain VS (14). Presence of *vcr*A gene indicates the potential for reductive dechlorination of DCE and/or VC to ethene. Absence of both *bvc*A and *vcr*A genes suggest VC may accumulate. As with the *bvc*A gene, detection of the *vcr*A gene is associated with ethene production in internal studies (67%) and vinyl chloride reduction in independent studies (14, 17).

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DHC Interpretation

Reporting

Microbial Insights can provide a variety of data packages and reporting levels to suit the needs of any project. Data packages range from simple analytical reports with results only to more complex data packages that include a report narrative, analytical results, QC data, and supporting materials including all raw data and chain-of-custody documentation. The figure below shows our standard report and explains the way values are reported.

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CENSUS

Client: Company Name
Project: Your Project Name

MI Project Number: Unique Laboratory Identifier
Date Received: Date Samples Arrived

Sample Information

Client Sample ID:		Sample A	Sample B	Sample C
Sample Date:		00/00/0000	00/00/0000	00/00/0000
Units:		cells/mL	cells/mL	cells/mL
Analyst:		Intials	Intials	Intials
Dechlorinating Bacteria				
Dehalococcoides spp.	DHC	**1.84E+05**	**2.76E+02**	**2.28E+01 (J)**
Functional Genes				
tceA Reductase	TCE	**6.00E+01**	**3.23E+01**	<4.00E-01
bvcA Reductase	BVC	**1.17E+04**	**1.81E+01**	<4.00E-01
vcrA Reducatase	VCR	**8.42E+04**	**1.74E+02**	<4.00E-01

"J" value
Result is an estimated value. This data qualifier (flag) is used when the target gene is detected but at a concentration or abundance below the practical quantification limit (PQL).

Legend:
NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited
< = Result not detected

< value
The target gene was not detected at the limit of quantitation (LOQ) reported for that sample.

"I" value
QA Procedure indicated that the sample may have exhibited PCR inhibition. Although relatively rare, PCR inhibition can occur due to the presence of metals or humic acids at high concentrations in the sample.

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Quality Assurance

Microbial Insights' comprehensive Quality Assurance (QA) Program is the foundation of all laboratory analyses, ensuring that our clients receive high-quality analytical services that are timely, reliable, and meet their intended purpose in a cost effective manner. MI is committed to providing quality data that surpasses regulatory and industry standards, thus enabling the client to make well-informed decisions. MI maintains strict standard operating procedures and QA/QC measures throughout all of the analyses offered. The following Table details specific QA/QC procedures that are used for CENSUS.

QA/QC	Description
Date of Extraction	DNA and RNA extractions are performed the day the samples are received by MI to minimize the possibility of any changes to the microbial community prior to analysis.
Laboratory Method Blanks	An extraction blank (no sample added) is processed alongside each set of field samples from DNA extraction through CENSUS® analysis to ensure that cross contamination has not occurred. Although MI has never experienced this issue, the detection of the CENSUS® target (e.g. *Dehalococcoides*) in an extraction blank is direct evidence of cross contamination with a sample or contamination of a reagent and would invalidate the results. If this were to occur, MI would re-extract the sample. If not possible to re-extract, MI would contact the client immediately and notate it on the laboratory report.
Laboratory Control Samples (LCS)	A laboratory control sample (LCS) or positive control (target DNA) is included with each CENSUS® plate to confirm amplification and as a continuing calibration check.
Negative Controls	A negative control (no DNA) is included with each CENSUS plate to ensure that cross contamination has not occurred during amplification. As with the extraction blank, detection of CENSUS target (e.g. DHC) in a negative control is direct evidence of contamination and would invalidate the results. If this were to occur, MI would rerun the analysis.

References

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MICROBIAL INSIGHTS, INC.

10515 Research Dr., Knoxville, TN 37932
Tel. (865) 573-8188 Fax. (865) 573-8133

CENSUS

Client: **ALS Laboratory Group**
Project: LHAAP-58

MI Project Number: **052QC**
Date Received: 03/20/2019

Sample Information

Client Sample ID:		**35AWW11_031919**	**35AWW24_031919**	**35AWW19_031919**	**LHSMW07_031919**	**35AWW06_031919**
Sample Date:		03/19/2019	03/19/2019	03/19/2019	03/19/2019	03/19/2019
Units:		cells/mL	cells/mL	cells/mL	cells/mL	cells/mL
Analyst/Reviewer:		JS	JS	JS	JS	JS
Dechlorinating Bacteria						
Dehalococcoides	*DHC*	**2.31E+02**	<8.00E-01	<5.00E-01	**1.00E+04**	**1.23E+01**
tceA Reductase	TCE	<9.00E-01	<8.00E-01	<5.00E-01	<1.40E+00	<8.00E-01
BAV1 Vinyl Chloride Reductase	BVC	<9.00E-01	<8.00E-01	<5.00E-01	**2.50E+00**	<8.00E-01
Vinyl Chloride Reductase	VCR	**4.22E+01**	<8.00E-01	<5.00E-01	**4.84E+03**	**2.00E-01 (J)**
Dehalobacter spp.	*DHBt*	**8.18E+05**	<8.30E+00	**9.15E+01**	**6.14E+04**	**2.12E+04**

Legend:
NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited
< = Result not detected

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CENSUS

Client: **ALS Laboratory Group**
Project: LHAAP-58

MI Project Number: **052QC**
Date Received: 03/20/2019

Sample Information

Client Sample ID:	**35AWW20_031919**
Sample Date:	03/19/2019
Units:	cells/mL
Analyst/Reviewer:	JS

Dechlorinating Bacteria

Dehalococcoides	*DHC*	<1.50E+00
tceA Reductase	TCE	<1.50E+00
BAV1 Vinyl Chloride Reductase	BVC	<1.50E+00
Vinyl Chloride Reductase	VCR	<1.50E+00
Dehalobacter spp.	*DHBt*	**1.40E+04**

Legend:
NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited
< = Result not detected

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Quality Assurance/Quality Control Data

Samples Received **3/20/2019**

Component	Date Prepared	Date Analyzed	Arrival Temperature	Positive Control	Extraction Blank	Negative Control
BVC	03/20/2019	03/25/2019	1 °C	114%	non-detect	non-detect
TCE	03/20/2019	03/25/2019	1 °C	113%	non-detect	non-detect
VCR	03/20/2019	03/25/2019	1 °C	98%	non-detect	non-detect
DHBt	03/20/2019	03/25/2019	1 °C	113%	non-detect	non-detect
DHC	03/20/2019	03/25/2019	1 °C	118%	non-detect	non-detect

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REPORT TO:
Name: MARCIA DLIVE
Company: BHATE ENVIRONMENTAL
Address:
email: mdlive@bhate.com
Phone:
Fax:

INVOICE TO: (For Invoices paid by a third party it is imperative that all information be provided)
Name:
Company:
Address:
email:
Phone:
Fax:

microbialinsights
10515 Research Dr
Knoxville, TN 37932
865-573-8188
www.microbe.com

Project Manager: Kim Nemmers
Project Name: LHAAP
Project No.: NWD1312.0150

Purchase Order No.
Subcontract No.
MI Quote No.

Please Check One:
☐ More samples to follow
☐ No Additional Samples

Report Type: ☐ Standard (default) ☐ Microbial Insights Level III raw data(15% surcharge) ☐ Microbial Insights Level IV (25% surcharge) ☐ Comprehensive Interpretive(15%) ☐ Historical Interpretive (30%)
EDD type: ☐ Microbial Insights Standard (default) ☐ All other available EDDs (5% surcharge) Specify EDD Type:

Please contact us with any questions about the analyses or filling out the COC at (865) 573-8188 (9:00 am to 5:00 pm EST, M-F). After hours email: customerservice@microbe.com

Sample Information					Analyses					CENSUS: Please select the target organism/gene																							
MI ID (Laboratory Use Only)	Sample Name	Date Sampled	Time Sampled	Matrix	PLFA	DGGE+3ID	DGGE+5ID	QuantArray Chlor	QuantArray Petro	DHC (Dehalococcoides)	DHC Functional genes (bvc, tce, vcr)	DHBt (Dehalobacter)	DSM (Desulfuromonas)	DSB (Desulfitobacterium)	EBAC (Total)	SRB (Sulfate Reducing Bacteria-APS)	MGN (Methanogens)	MOB (Methanotrophs)	SMMO	DNF (Denitrifiers-nirS and nirK)	AOB (ammonia oxidizing bacteria)	PM1 (MTBE aerobic)	RMO (Toluene Monooxygenase)	RDEG (Toluene Monooxygenase)	PHE (Phenol Hydroxylase)	NAH (Napthalene-aerobic)	BSSA (Toluene/Xylene-Anaerobic)	add. qPCR:	add. qPCR:	RNA (Expression Option)*	Other:	Other:	Other:
052QC 1	35AWW11-031919	3/19/19	0815							X		X																					
2	35AWW24-031919	3/19/19	0915							X		X																					
3	35AWW19-031919	3/19/19	1010							X		X																					
4	LHSMW07-031919	3/19/19	1105							X		X																					
5	35AWW06-031919	3/19/19	1205							X		X																					
6	35AWW20-031919	3/19/19	1315							X		X																					

Relinquished by: [signature] 3/19/19 1430 Received by: [signature] Date 3/20/19 1020

It is vital that chain of custody is filled out correctly & that all relative information is provided.
Failure to provide sufficient and/or correct information regarding reporting, invoicing & analyses requested information may result in delays for which MI will not be liable.

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QUARTERLY CONTROL SUMMARY REPORT
LHAAP-58 JUNE 2019
SEMI-ANNUAL SAMPLING EVENT
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

July 2019

Prepared For:

Longhorn Army Ammunition Plant
Karnack, Texas

Under Contract To:

U.S. Army Corps of Engineers
Tulsa District
Tulsa, Oklahoma

Contract Number: W9128F-13-D-0012
Task Order Number: W912BV17F0150

Prepared By:

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1 INTRODUCTION

Bhate reviewed four data packages from ALS Environmental, Houston, Texas with the analyses for volatile fatty acids subcontracted to ALS Rochester, NY; total organic carbon subcontracted to ALS Kelso, WA; and the analyses of dissolved gases to ALS Simi Valley, CA. The dechlorinating bacteria analysis was subcontracted to Microbial Insights in Knoxville, TN. Groundwater samples were collected on June 3-10, 2019, from Site LHAAP-58 at the Longhorn Army Ammunition Plant (LHAAP), Karnack, Texas. Data were reviewed for conformance to the requirements of the following guidance documents: [United States Environmental Protection Agency] *USEPA Contract Laboratory Program* [CLP] *National Functional Guidelines for Superfund Organic Methods Data Review* (USEPA, January 2017); *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review* (USEPA, January 2017); and the *Final Basewide Uniform Federal Policy (UFP) – Quality Assurance Project Plan (QAPP) Longhorn Army Ammunition Plant* (Bhate, May 2018).

1.1 Intended Use of Data

The objective of sampling at LHAAP-58 in June 2019 was to complete a semi-annual sampling event.

Analyses performed include:

- RSK-175 – Dissolved Gases
- E415.1/SM5310C – Total Organic Carbon
- SW8260C – Volatile Organic Compounds (VOCs)
- SW9056A – Anions (chloride, nitrate, and sulfate)
- High Performance Liquid Chromatography (HPLC)-METACIDS – Volatile Fatty Acids (VFAs)
- CENSUS – Dechlorinating Bacteria (dehalococcoides [DHC]/dehalobacter [DHB])SW6020A - Arsenic

Table 1 lists the sample (ID) identification numbers and their associated laboratory package.

Table 2 lists qualified results with the qualification flag and reason code.

The following narrative is a brief synopsis of data that required qualification due to quality control discrepancies.

1.2 Preservation and Holding Times

Sample identification data were evaluated for agreement with the chain-of-custody (COC). All samples were received in appropriate containers, within the proper temperature range, in good condition, and within the required hold time.

1.3 Calibrations

All analytes reported must be present in the initial and continuing calibration. The calibrations must meet the acceptance criteria specified in Worksheet 24 (Analytical Instrument Calibration) of the QAPP. All results reported must be within the calibration range. Samples were diluted, if necessary, to bring analyte responses within the calibration range.

1.3.1 Continuing Calibration Verifications

The calibrations must meet the following criteria otherwise the compound is qualified J or UJ: The continuing calibration verification (CCV) criteria are 20 percent difference (%D) for VOCs and 50% for closing CCVs. Metals and general chemistry - 10%D; VFAs, dissolved gases, and TOC - 15%D.

All CCV recoveries were within control limits.

1.4 Blanks

If the analyte result for an associated sample was less than 5x (10x for common laboratory contaminants) the analyte concentration in the blank, that result was qualified "UB" and considered an artifact of blank contamination. Where the sample result for the affected analyte was non-detect or greater than 5x (10x) the amount in the blank, no qualifier was applied.

1.4.1 SW8260

Acetone and 2-butanone were detected in the trip blank associated with package HS19060185. Only samples 35AWW08_060419 and 35AWW10_060419_a reported detections of acetone < 10x the blank concentration. These were considered artifacts of blank contamination and flagged "UB".

1.5 Surrogates

Surrogates were evaluated using limits defined by each method in the project-specific QAPP Worksheet 28.

No surrogates were reported outside control limits.

1.6 Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD)

LCS/LCSD recoveries were evaluated using limits defined in the project-specific QAPP Worksheet 15.

1.6.1 SW8260

The LCS/LCSD recoveries for butyric acid were above control limits (140%/142%) in packages HS19060123 and HS19060185. Only samples 35AWW06_060419, 35AWW11_060319, and 35AWW23_060319 reported detections and were qualified as estimated, "J".

1.7 Matrix Spike (MS)/Matrix Spike Duplicate Sample (MSD)

MS/MSD recoveries were evaluated using limits defined in Worksheet 15 of the project-specific QAPP. When sample results were greater than 4x the spike amount, control limits were not applicable and require no qualification. Furthermore, if a MS/MSD analyses was performed on a batched (unrelated) sample no qualification was made to the sample data.

1.7.1 SW8260

The MS and/or MSD recoveries between multiple compounds in spike sample 35AWW01_061019 were outside control limits. Due to matrix effect, these compounds were flagged "J/UJ" (see Table 2). Also, spiked sample 35AWW19_060319 reported the MS recovery of carbon disulfide (62.4%) below control limits. This compound was flagged as estimated non-detect, "UJ".

1.8 Internal Standards

If the percent recovery (%R) for an internal standard in a sample is not within the limit, the associated sample is qualified for those analytes associated with the internal standard(s) outside of the limit.

Internal standards were within acceptance criteria for the associated compounds.

1.9 Field Precision

Precision is the measure of variability of individual sample measurements. Evaluation of field duplicates for precision was done using the relative percent difference (RPD). The RPD is defined as the difference between two duplicate samples divided by the mean and expressed as a percent. Field duplicate RPD limits were set at <30% for groundwater matrices and all compounds were within control limits.

1.9.1 Lab Precision

The laboratory RPD of sample 35AWW24_060319 was exceeded for total organic carbon. This compound was qualified as estimated, "J".

2.0 DATA USABILITY SUMMARY

The data are usable for the intended purposes of the project (see Table 3). The data quality objectives have been met for the project.

Table 1: Field Sample Identification and Laboratory Packages

Client Sample ID	Lab Package/ID	SM2320B	E365.3	E415.1/ SM5310C	SW6020A	SW8260C	HPLC-METACIDS	SW9056A	RSK-175	SM3500Fe	E376.1	CENSUS	Arsenic 6020A
03WW01_060419	HS19060185			X		X		X	X			X	X
35AWW01_061019	HS19060573					X							
35AWW05_061019	HS19060573					X							
35AWW06 _060419	HS19060185			X		X	X	X	X			X	
35AWW08 _060419	HS19060185			X		X	X	X	X			X	X
35AWW09 _060319	HS19060123			X		X	X	X	X			X	X
35AWW10 _060419	HS19060185			X		X	X	X	X			X	
35AWW10 _060419_a	HS19060185			X		X	X	X	X			X	
35AWW11_060319	HS19060123			X		X	X	X	X			X	
35AWW12_061019	HS19060573					X							
35AWW12_061019a	HS19060573					X							
35AWW13_060719	HS19060461					X							
35AWW14_060719	HS19060461					X							
35AWW15_060719	HS19060461					X							
35AWW16 _061019	HS19060573					X							
35AWW17 _061019	HS19060573					X							
35AWW18_060419	HS19060185					X							
35AWW19_060319	HS19060123			X		X	X	X	X			X	
35AWW20_060419	HS19060185			X		X	X	X	X			X	X
35AWW21_061019	HS19060573					X							
35AWW21_061019_a	HS19060573					X							
35AWW22_061019	HS19060573					X							
LHSMW06_060719	HS19060461					X							X
LHSMW07_060319	HS19060123			X		X	X	X	X			X	
35ASW03_060719	HS19060461					X							
35AWW23_060319	HS19060123			X		X	X	X	X			X	
35AWW24_060319	HS19060123			X		X	X	X	X			X	

Notes:
MW – Monitoring Well
SM – Standard Method
SW-846 - Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.
E – USEPA Method
HS - Houston

Table 2: Qualified Analytical Data

Client Sample ID Laboratory	Laboratory Package	Analyte Name	Result and Qualifier (µg/L)	Reason for Qualification
35AWW01_061019	HS19060573	1,1,2,2-Tetrachloroethane	< 0.50 UJ	MS <
		1,1-Dichloroethane	< 0.50 UJ	MS/MSD <
		1,1-Dichloroethene	< 0.50 UJ	MS/MSD <
		1,2,3-Trichloropropane	< 0.50 UJ	MS/MSD <
		1,2-Dichloropropane	< 0.50 UJ	MS/MSD <
		2-Butanone	< 1.0 UJ	MS <
		4-Methyl-2-pentanone	< 1.0 UJ	MS <
		Benzene	< 0.50 UJ	MS/MSD <
		Bromochloromethane	< 0.50 UJ	MS <
		Chloroethane	< 0.50 UJ	MS/MSD <
		Chloroform	< 0.50 UJ	MS/MSD <
		Chloromethane	< 0.50 UJ	MS/MSD <
		cis-1,2-Dichloroethene	< 0.50 UJ	MS/MSD <
		Methylene chloride	< 1.0 UJ	MS/MSD <
		trans-1,2-Dichloroethene	< 0.5 UJ	MS/MSD <
		Vinyl chloride	< 0.5 UJ	MS/MSD <
35AWW06_060419	HS19060185	Butyric acid	7.7 J mg/L	LCS/LCSD >

Client Sample ID Laboratory	Laboratory Package	Analyte Name	Result and Qualifier (µg/L)	Reason for Qualification
35AWW08_060419	HS19060185	Acetone	13 UB	TB
35AWW10_060410_a	HS19060185	Acetone	2.7 UB	TB
35AWW11_060319	HS19060123	Butyric acid	3.1 J mg/L	LCS/LCSD >
35AWW23_060319	HS19060123	Butyric acid	370 J mg/L	LCS/LCSD >
35AWW19_060319	HS19060123	Carbon Disulfide	< 1.0 UJ	MS <
35AWW24_060319	HS19060123	Total Organic Carbon	1.55 J mg/L	Lab dup RPD

Notes:
µg/L – micrograms per liter, mg/L – milligrams per liter
J – Estimated: The analyte was positively identified, the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
UJ – The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.
UB – considered an artifact of blank contamination
Lab dup RPD – the relative percent difference between sample and laboratory duplicate was outside control limits
MS/MSD < – Matrix spike/duplicate recoveries were below control limits
LCS/LCSD > – laboratory control sample/duplicate recoveries were above control limits
TB – trip blank contamination

Table 3: Completeness by Method

Method	No. of Rejected Results	% Completeness
E415.1/SM5310C	0	100
SW8260C	0	100
HPLC-METACIDS	0	100
SW9056A	0	100
RSK-175	0	100
CENSUS	0	100
SW6020A	0	100

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June 26, 2019

Marcia Olive
Bhate Environmental Associates, Inc.
445 Union Blvd Ste 129
Lakewood, CO 80228

Work Order: **HS19060123**

Laboratory Results for: **LHAAP-58**

Dear Marcia,

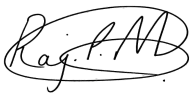
ALS Environmental received 7 sample(s) on Jun 04, 2019 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,



Generated By: JUMOKE.LAWAL
RJ Modashia
Project Manager

ALS Houston, US Date: 26-jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Work Order: HS19060123

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS19060123-01	35AWW19_060319	Groundwater		03-Jun-2019 08:05	04-Jun-2019 09:50	☐
HS19060123-02	LHSMW07_060319	Groundwater		03-Jun-2019 09:00	04-Jun-2019 09:50	☐
HS19060123-03	35AWW23_060319	Groundwater		03-Jun-2019 10:00	04-Jun-2019 09:50	☐
HS19060123-04	35AWW24_060319	Groundwater		03-Jun-2019 10:55	04-Jun-2019 09:50	☐
HS19060123-05	35AWW11_060319	Groundwater		03-Jun-2019 11:50	04-Jun-2019 09:50	☐
HS19060123-06	35AWW09_060319	Groundwater		03-Jun-2019 12:50	04-Jun-2019 09:50	☐
HS19060123-07	Trip Blank	Water	C&G-050119-168	03-Jun-2019 00:00	04-Jun-2019 09:50	☐

ALS Houston, US Date: 26-Jun-19

Client: Bhate Environmental Associates, Inc. **CASE NARRATIVE**
Project: LHAAP-58
Work Order: HS19060123

Work Order Comments

- The analysis for TOC was subcontracted to ALS Environmental in Kelso WA. Final report attached.
- The analysis for VFA was subcontracted to ALS Environmental in Rochester, NY. Final report attached.
- The analyses for MEE and CO2 were subcontracted to ALS Environmental in Simi Valley , CA. Final report attached.
- The analysis for DHC/DHB were subcontracted to Microbial Insights in Knoxville TN. Final report attached.

GCMS Volatiles by Method SW8260

Batch ID: R339998

Sample ID: 35AWW19_060319(HS19061223-01MS)

- MS recovered outside the control limit for Carbon Disulfide.

Metals by Method SW6020

Batch ID: 141628

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method SW9056

Batch ID: R339872

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

ALS Houston, US Date: 26-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW19_060319
Collection Date: 03-Jun-2019 08:05

ANALYTICAL REPORT
WorkOrder:HS19060123
Lab ID:HS19060123-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 14:57
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 14:57
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 14:57
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 14:57
1,1-Dichloroethane	**0.65**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	06-Jun-2019 14:57
1,1-Dichloroethene	**2.6**		**0.20**	**0.50**	**1.0**	**UG/L**	1	06-Jun-2019 14:57
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 14:57
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 14:57
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 14:57
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 14:57
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 14:57
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 14:57
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 14:57
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 14:57
1,2-Dichloroethane	**1.1**		**0.20**	**0.50**	**1.0**	**UG/L**	1	06-Jun-2019 14:57
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 14:57
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 14:57
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 14:57
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 14:57
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 14:57
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 14:57
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	06-Jun-2019 14:57
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 14:57
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	06-Jun-2019 14:57
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 14:57
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 14:57
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	06-Jun-2019 14:57
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	06-Jun-2019 14:57
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 14:57
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 14:57
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 14:57
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 14:57
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 14:57
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 14:57
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	06-Jun-2019 14:57
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 14:57
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 14:57
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 14:57
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 14:57

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 26-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW19_060319
Collection Date: 03-Jun-2019 08:05

ANALYTICAL REPORT
WorkOrder:HS19060123
Lab ID:HS19060123-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 14:57
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 14:57
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	06-Jun-2019 14:57
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 14:57
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 14:57
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 14:57
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 14:57
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	06-Jun-2019 14:57
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 14:57
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	06-Jun-2019 14:57
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	06-Jun-2019 14:57
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 14:57
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 14:57
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 14:57
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 14:57
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 14:57
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 14:57
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 14:57
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 14:57
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 14:57
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 14:57
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 14:57
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 14:57
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 14:57
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 14:57
Surr: 1,2-Dichloroethane-d4	*92.8*			**0**	*81-118*	*%REC*	*1*	*06-Jun-2019 14:57*
Surr: 4-Bromofluorobenzene	*106*			**0**	*85-114*	*%REC*	*1*	*06-Jun-2019 14:57*
Surr: Dibromofluoromethane	*94.8*			**0**	*80-119*	*%REC*	*1*	*06-Jun-2019 14:57*
Surr: Toluene-d8	*108*			**0**	*89-112*	*%REC*	*1*	*06-Jun-2019 14:57*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KMU
Chloride	**1,080**		**10.0**	**25.0**	**25.0**	**mg/L**	50	04-Jun-2019 15:16
Nitrogen, Nitrate (As N)	0.500	U	0.150	0.500	0.500	mg/L	5	04-Jun-2019 15:01
Sulfate	**966**		**10.0**	**25.0**	**25.0**	**mg/L**	50	04-Jun-2019 15:16
SUBCONTRACT ANALYSIS - DHC/DHB		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	12-Jun-2019 16:54
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	18-Jun-2019 12:52

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 26-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW19_060319
Collection Date: 03-Jun-2019 08:05

ANALYTICAL REPORT
WorkOrder:HS19060123
Lab ID:HS19060123-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	20-Jun-2019 09:25
SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	20-Jun-2019 10:19

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 26-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: LHSMW07_060319
Collection Date: 03-Jun-2019 09:00

ANALYTICAL REPORT
WorkOrder:HS19060123
Lab ID:HS19060123-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 15:22
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 15:22
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 15:22
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 15:22
1,1-Dichloroethane	**9.6**		**0.20**	**0.50**	**1.0**	**UG/L**	1	06-Jun-2019 15:22
1,1-Dichloroethene	**16**		**0.20**	**0.50**	**1.0**	**UG/L**	1	06-Jun-2019 15:22
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 15:22
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 15:22
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 15:22
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 15:22
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 15:22
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 15:22
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 15:22
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 15:22
1,2-Dichloroethane	**0.62**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	06-Jun-2019 15:22
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 15:22
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 15:22
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 15:22
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 15:22
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 15:22
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 15:22
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	06-Jun-2019 15:22
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 15:22
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	06-Jun-2019 15:22
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 15:22
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 15:22
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	06-Jun-2019 15:22
Acetone	**3.4**		**0.40**	**1.0**	**2.0**	**UG/L**	1	06-Jun-2019 15:22
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 15:22
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 15:22
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 15:22
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 15:22
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 15:22
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 15:22
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	06-Jun-2019 15:22
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 15:22
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 15:22
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 15:22
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 15:22

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 26-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: LHSMW07_060319
Collection Date: 03-Jun-2019 09:00

ANALYTICAL REPORT
WorkOrder:HS19060123
Lab ID:HS19060123-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 15:22
cis-1,2-Dichloroethene	**0.70**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	06-Jun-2019 15:22
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	06-Jun-2019 15:22
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 15:22
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 15:22
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 15:22
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 15:22
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	06-Jun-2019 15:22
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 15:22
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	06-Jun-2019 15:22
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	06-Jun-2019 15:22
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 15:22
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 15:22
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 15:22
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 15:22
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 15:22
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 15:22
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 15:22
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 15:22
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 15:22
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 15:22
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 15:22
Trichloroethene	**1.8**		**0.20**	**0.50**	**1.0**	**UG/L**	1	06-Jun-2019 15:22
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 15:22
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 15:22
Surr: 1,2-Dichloroethane-d4	*95.5*			**0**	*81-118*	*%REC*	*1*	*06-Jun-2019 15:22*
Surr: 4-Bromofluorobenzene	*103*			**0**	*85-114*	*%REC*	*1*	*06-Jun-2019 15:22*
Surr: Dibromofluoromethane	*96.4*			**0**	*80-119*	*%REC*	*1*	*06-Jun-2019 15:22*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*06-Jun-2019 15:22*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KMU
Chloride	**1,780**		**10.0**	**25.0**	**25.0**	**mg/L**	50	04-Jun-2019 16:29
Nitrogen, Nitrate (As N)	0.500	U	0.150	0.500	0.500	mg/L	5	04-Jun-2019 16:15
Sulfate	**2,470**		**10.0**	**25.0**	**25.0**	**mg/L**	50	04-Jun-2019 16:29
SUBCONTRACT ANALYSIS - DHC/DHB		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	12-Jun-2019 16:54
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	18-Jun-2019 12:52

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 26-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: LHSMW07_060319
Collection Date: 03-Jun-2019 09:00

ANALYTICAL REPORT
WorkOrder:HS19060123
Lab ID:HS19060123-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	20-Jun-2019 09:25
SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	20-Jun-2019 10:19

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 26-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW23_060319
Collection Date: 03-Jun-2019 10:00

ANALYTICAL REPORT
WorkOrder:HS19060123
Lab ID:HS19060123-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 15:46
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 15:46
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 15:46
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 15:46
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 15:46
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 15:46
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 15:46
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 15:46
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 15:46
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 15:46
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 15:46
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 15:46
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 15:46
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 15:46
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 15:46
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 15:46
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 15:46
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 15:46
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 15:46
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 15:46
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 15:46
2-Butanone	**220**		**0.50**	**1.0**	**2.0**	**UG/L**	1	06-Jun-2019 15:46
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 15:46
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	06-Jun-2019 15:46
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 15:46
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 15:46
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	06-Jun-2019 15:46
Acetone	**210**		**0.40**	**1.0**	**2.0**	**UG/L**	1	06-Jun-2019 15:46
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 15:46
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 15:46
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 15:46
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 15:46
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 15:46
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 15:46
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	06-Jun-2019 15:46
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 15:46
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 15:46
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 15:46
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 15:46

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 26-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW23_060319
Collection Date: 03-Jun-2019 10:00

ANALYTICAL REPORT
WorkOrder:HS19060123
Lab ID:HS19060123-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 15:46
cis-1,2-Dichloroethene	**4.3**		**0.20**	**0.50**	**1.0**	**UG/L**	1	06-Jun-2019 15:46
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	06-Jun-2019 15:46
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 15:46
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 15:46
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 15:46
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 15:46
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	06-Jun-2019 15:46
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 15:46
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	06-Jun-2019 15:46
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	06-Jun-2019 15:46
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 15:46
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 15:46
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 15:46
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 15:46
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 15:46
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 15:46
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 15:46
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 15:46
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 15:46
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 15:46
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 15:46
Trichloroethene	**1.8**		**0.20**	**0.50**	**1.0**	**UG/L**	1	06-Jun-2019 15:46
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 15:46
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 15:46
Surr: 1,2-Dichloroethane-d4	*93.1*			**0**	*81-118*	*%REC*	*1*	*06-Jun-2019 15:46*
Surr: 4-Bromofluorobenzene	*107*			**0**	*85-114*	*%REC*	*1*	*06-Jun-2019 15:46*
Surr: Dibromofluoromethane	*96.0*			**0**	*80-119*	*%REC*	*1*	*06-Jun-2019 15:46*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*1*	*06-Jun-2019 15:46*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KMU
Chloride	**732**		**10.0**	**25.0**	**25.0**	**mg/L**	50	04-Jun-2019 16:59
Nitrogen, Nitrate (As N)	0.500	U	0.150	0.500	0.500	mg/L	5	04-Jun-2019 16:44
Sulfate	**14.1**		**1.00**	**2.50**	**2.50**	**mg/L**	5	04-Jun-2019 16:44
SUBCONTRACT ANALYSIS - DHC/DHB		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	12-Jun-2019 16:54
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	18-Jun-2019 12:52

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 26-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW23_060319
Collection Date: 03-Jun-2019 10:00

ANALYTICAL REPORT
WorkOrder:HS19060123
Lab ID:HS19060123-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	20-Jun-2019 09:25
SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	20-Jun-2019 10:19

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 26-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW24_060319
Collection Date: 03-Jun-2019 10:55

ANALYTICAL REPORT
WorkOrder:HS19060123
Lab ID:HS19060123-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:10
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:10
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 16:10
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:10
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:10
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:10
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:10
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 16:10
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 16:10
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 16:10
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:10
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:10
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:10
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 16:10
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:10
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 16:10
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:10
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 16:10
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:10
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 16:10
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:10
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	06-Jun-2019 16:10
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:10
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	06-Jun-2019 16:10
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 16:10
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:10
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	06-Jun-2019 16:10
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	06-Jun-2019 16:10
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:10
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 16:10
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:10
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:10
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 16:10
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 16:10
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	06-Jun-2019 16:10
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 16:10
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:10
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:10
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:10

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 26-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW24_060319
Collection Date: 03-Jun-2019 10:55

ANALYTICAL REPORT
WorkOrder:HS19060123
Lab ID:HS19060123-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:10
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:10
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	06-Jun-2019 16:10
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:10
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:10
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:10
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:10
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	06-Jun-2019 16:10
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:10
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	06-Jun-2019 16:10
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	06-Jun-2019 16:10
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 16:10
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:10
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:10
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:10
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:10
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:10
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:10
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:10
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:10
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:10
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:10
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:10
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:10
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:10
Surr: 1,2-Dichloroethane-d4	*92.4*			**0**	*81-118*	*%REC*	*1*	*06-Jun-2019 16:10*
Surr: 4-Bromofluorobenzene	*102*			**0**	*85-114*	*%REC*	*1*	*06-Jun-2019 16:10*
Surr: Dibromofluoromethane	*94.8*			**0**	*80-119*	*%REC*	*1*	*06-Jun-2019 16:10*
Surr: Toluene-d8	*107*			**0**	*89-112*	*%REC*	*1*	*06-Jun-2019 16:10*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KMU
Chloride	**106**		**1.00**	**2.50**	**2.50**	**mg/L**	5	04-Jun-2019 17:28
Nitrogen, Nitrate (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	04-Jun-2019 17:13
Sulfate	**74.9**		**0.200**	**0.500**	**0.500**	**mg/L**	1	04-Jun-2019 17:13
SUBCONTRACT ANALYSIS - DHC/DHB		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	12-Jun-2019 16:54
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	18-Jun-2019 12:52

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 26-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW24_060319
Collection Date: 03-Jun-2019 10:55

ANALYTICAL REPORT
WorkOrder:HS19060123
Lab ID:HS19060123-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	20-Jun-2019 09:25
SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	20-Jun-2019 10:19

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 26-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW11_060319
Collection Date: 03-Jun-2019 11:50

ANALYTICAL REPORT
WorkOrder:HS19060123
Lab ID:HS19060123-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:34
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:34
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 16:34
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:34
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:34
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:34
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:34
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 16:34
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 16:34
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 16:34
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:34
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:34
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:34
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 16:34
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:34
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 16:34
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:34
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 16:34
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:34
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 16:34
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:34
2-Butanone	**70**		**0.50**	**1.0**	**2.0**	**UG/L**	1	06-Jun-2019 16:34
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:34
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	06-Jun-2019 16:34
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 16:34
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:34
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	06-Jun-2019 16:34
Acetone	**77**		**0.40**	**1.0**	**2.0**	**UG/L**	1	06-Jun-2019 16:34
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:34
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 16:34
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:34
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:34
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 16:34
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 16:34
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	06-Jun-2019 16:34
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 16:34
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:34
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:34
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:34

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 26-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW11_060319
Collection Date: 03-Jun-2019 11:50

ANALYTICAL REPORT
WorkOrder:HS19060123
Lab ID:HS19060123-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:34
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:34
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	06-Jun-2019 16:34
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:34
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:34
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:34
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:34
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	06-Jun-2019 16:34
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:34
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	06-Jun-2019 16:34
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	06-Jun-2019 16:34
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 16:34
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:34
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:34
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:34
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:34
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:34
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:34
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:34
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:34
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:34
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:34
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:34
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:34
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:34
Surr: 1,2-Dichloroethane-d4	*95.6*			**0**	*81-118*	*%REC*	*1*	*06-Jun-2019 16:34*
Surr: 4-Bromofluorobenzene	*102*			**0**	*85-114*	*%REC*	*1*	*06-Jun-2019 16:34*
Surr: Dibromofluoromethane	*97.1*			**0**	*80-119*	*%REC*	*1*	*06-Jun-2019 16:34*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*1*	*06-Jun-2019 16:34*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KMU
Chloride	**1,920**		**10.0**	**25.0**	**25.0**	**mg/L**	50	04-Jun-2019 17:57
Nitrogen, Nitrate (As N)	0.500	U	0.150	0.500	0.500	mg/L	5	04-Jun-2019 17:42
Sulfate	**210**		**1.00**	**2.50**	**2.50**	**mg/L**	5	04-Jun-2019 17:42
SUBCONTRACT ANALYSIS - DHC/DHB		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	12-Jun-2019 16:54
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	18-Jun-2019 12:52

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 26-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW11_060319
Collection Date: 03-Jun-2019 11:50

ANALYTICAL REPORT
WorkOrder:HS19060123
Lab ID:HS19060123-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	20-Jun-2019 09:25
SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	20-Jun-2019 10:19

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 26-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW09_060319
Collection Date: 03-Jun-2019 12:50

ANALYTICAL REPORT
WorkOrder:HS19060123
Lab ID:HS19060123-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:58
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:58
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 16:58
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:58
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:58
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:58
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:58
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 16:58
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 16:58
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 16:58
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:58
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:58
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:58
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 16:58
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:58
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 16:58
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:58
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 16:58
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:58
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 16:58
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:58
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	06-Jun-2019 16:58
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:58
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	06-Jun-2019 16:58
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 16:58
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:58
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	06-Jun-2019 16:58
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	06-Jun-2019 16:58
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:58
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 16:58
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:58
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:58
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 16:58
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 16:58
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	06-Jun-2019 16:58
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 16:58
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:58
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:58
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:58

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 26-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW09_060319
Collection Date: 03-Jun-2019 12:50

ANALYTICAL REPORT
WorkOrder:HS19060123
Lab ID:HS19060123-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:58
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:58
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	06-Jun-2019 16:58
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:58
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:58
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:58
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:58
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	06-Jun-2019 16:58
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:58
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	06-Jun-2019 16:58
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	06-Jun-2019 16:58
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 16:58
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:58
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:58
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:58
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:58
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:58
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:58
Tetrachloroethene	**130**		**0.30**	**0.50**	**1.0**	**UG/L**	1	06-Jun-2019 16:58
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:58
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:58
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:58
Trichloroethene	**38**		**0.20**	**0.50**	**1.0**	**UG/L**	1	06-Jun-2019 16:58
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 16:58
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 16:58
Surr: 1,2-Dichloroethane-d4	*93.3*			**0**	*81-118*	*%REC*	*1*	*06-Jun-2019 16:58*
Surr: 4-Bromofluorobenzene	*103*			**0**	*85-114*	*%REC*	*1*	*06-Jun-2019 16:58*
Surr: Dibromofluoromethane	*95.7*			**0**	*80-119*	*%REC*	*1*	*06-Jun-2019 16:58*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*1*	*06-Jun-2019 16:58*
ICP-MS METALS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 05-Jun-2019		Analyst: JHD
Arsenic	**0.00308**		**0.000400**	**0.000500**	**0.00200**	**mg/L**	1	05-Jun-2019 22:24
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KMU
Chloride	**1,340**		**10.0**	**25.0**	**25.0**	**mg/L**	50	05-Jun-2019 12:55
Nitrogen, Nitrate (As N)	0.500	U	0.150	0.500	0.500	mg/L	5	04-Jun-2019 18:46
Sulfate	**908**		**10.0**	**25.0**	**25.0**	**mg/L**	50	05-Jun-2019 12:55
SUBCONTRACT ANALYSIS - DHC/DHB		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	12-Jun-2019 16:54
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	18-Jun-2019 12:52

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 26-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW09_060319
Collection Date: 03-Jun-2019 12:50

ANALYTICAL REPORT
WorkOrder:HS19060123
Lab ID:HS19060123-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	20-Jun-2019 09:25
SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	20-Jun-2019 10:19

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 26-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: Trip Blank
Collection Date: 03-Jun-2019 00:00

ANALYTICAL REPORT
WorkOrder:HS19060123
Lab ID:HS19060123-07
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 13:21
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 13:21
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 13:21
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 13:21
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 13:21
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 13:21
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 13:21
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 13:21
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 13:21
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 13:21
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 13:21
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 13:21
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 13:21
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 13:21
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 13:21
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 13:21
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 13:21
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 13:21
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 13:21
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 13:21
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 13:21
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	06-Jun-2019 13:21
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 13:21
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	06-Jun-2019 13:21
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 13:21
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 13:21
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	06-Jun-2019 13:21
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	06-Jun-2019 13:21
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 13:21
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 13:21
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 13:21
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 13:21
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 13:21
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 13:21
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	06-Jun-2019 13:21
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 13:21
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 13:21
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 13:21
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 13:21

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 26-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: Trip Blank
Collection Date: 03-Jun-2019 00:00

ANALYTICAL REPORT
WorkOrder:HS19060123
Lab ID:HS19060123-07
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 13:21
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 13:21
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	06-Jun-2019 13:21
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 13:21
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 13:21
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 13:21
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 13:21
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	06-Jun-2019 13:21
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 13:21
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	06-Jun-2019 13:21
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	06-Jun-2019 13:21
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 13:21
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 13:21
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 13:21
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 13:21
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 13:21
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 13:21
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 13:21
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 13:21
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 13:21
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 13:21
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 13:21
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 13:21
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 13:21
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 13:21
Surr: 1,2-Dichloroethane-d4	*91.6*			**0**	*81-118*	*%REC*	*1*	*06-Jun-2019 13:21*
Surr: 4-Bromofluorobenzene	*108*			**0**	*85-114*	*%REC*	*1*	*06-Jun-2019 13:21*
Surr: Dibromofluoromethane	*94.2*			**0**	*80-119*	*%REC*	*1*	*06-Jun-2019 13:21*
Surr: Toluene-d8	*108*			**0**	*89-112*	*%REC*	*1*	*06-Jun-2019 13:21*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

WEIGHT LOG

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060123

Batch ID: 141628 **Method:** ICP-MS METALS BY SW6020A **Prep:** 3010A

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19060123-06	1	10	10 (mL)	1

ALS Houston, US Date: 26-jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060123

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID 141628	**Test Name :** ICP-MS METALS BY SW6020A			**Matrix:** Groundwater		
HS19060123-06	35AWW09_060319	03 Jun 2019 12:50		05 Jun 2019 14:21	05 Jun 2019 22:24	1
Batch ID R339872	**Test Name :** ANIONS BY SW9056A			**Matrix:** Groundwater		
HS19060123-01	35AWW19_060319	03 Jun 2019 08:05			04 Jun 2019 15:16	50
HS19060123-01	35AWW19_060319	03 Jun 2019 08:05			04 Jun 2019 15:01	5
HS19060123-02	LHSMW07_060319	03 Jun 2019 09:00			04 Jun 2019 16:29	50
HS19060123-02	LHSMW07_060319	03 Jun 2019 09:00			04 Jun 2019 16:15	5
HS19060123-03	35AWW23_060319	03 Jun 2019 10:00			04 Jun 2019 16:59	50
HS19060123-03	35AWW23_060319	03 Jun 2019 10:00			04 Jun 2019 16:44	5
HS19060123-04	35AWW24_060319	03 Jun 2019 10:55			04 Jun 2019 17:28	5
HS19060123-04	35AWW24_060319	03 Jun 2019 10:55			04 Jun 2019 17:13	1
HS19060123-05	35AWW11_060319	03 Jun 2019 11:50			04 Jun 2019 17:57	50
HS19060123-05	35AWW11_060319	03 Jun 2019 11:50			04 Jun 2019 17:42	5
HS19060123-06	35AWW09_060319	03 Jun 2019 12:50			05 Jun 2019 12:55	50
HS19060123-06	35AWW09_060319	03 Jun 2019 12:50			04 Jun 2019 18:46	5
Batch ID R339998	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C			**Matrix:** Water		
HS19060123-07	Trip Blank	03 Jun 2019 00:00			06 Jun 2019 13:21	1
Batch ID R339998	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C			**Matrix:** Groundwater		
HS19060123-01	35AWW19_060319	03 Jun 2019 08:05			06 Jun 2019 14:57	1
HS19060123-02	LHSMW07_060319	03 Jun 2019 09:00			06 Jun 2019 15:22	1
HS19060123-03	35AWW23_060319	03 Jun 2019 10:00			06 Jun 2019 15:46	1
HS19060123-04	35AWW24_060319	03 Jun 2019 10:55			06 Jun 2019 16:10	1
HS19060123-05	35AWW11_060319	03 Jun 2019 11:50			06 Jun 2019 16:34	1
HS19060123-06	35AWW09_060319	03 Jun 2019 12:50			06 Jun 2019 16:58	1
Batch ID R340363	**Test Name :** SUBCONTRACT ANALYSIS - DHC/DHB			**Matrix:** Groundwater		
HS19060123-01	35AWW19_060319	03 Jun 2019 08:05			12 Jun 2019 16:54	1
HS19060123-02	LHSMW07_060319	03 Jun 2019 09:00			12 Jun 2019 16:54	1
HS19060123-03	35AWW23_060319	03 Jun 2019 10:00			12 Jun 2019 16:54	1
HS19060123-04	35AWW24_060319	03 Jun 2019 10:55			12 Jun 2019 16:54	1
HS19060123-05	35AWW11_060319	03 Jun 2019 11:50			12 Jun 2019 16:54	1
HS19060123-06	35AWW09_060319	03 Jun 2019 12:50			12 Jun 2019 16:54	1
Batch ID R340701	**Test Name :** SUBCONTRACT ANALYSIS - RSK			**Matrix:** Groundwater		
HS19060123-01	35AWW19_060319	03 Jun 2019 08:05			18 Jun 2019 12:52	1
HS19060123-02	LHSMW07_060319	03 Jun 2019 09:00			18 Jun 2019 12:52	1
HS19060123-03	35AWW23_060319	03 Jun 2019 10:00			18 Jun 2019 12:52	1
HS19060123-04	35AWW24_060319	03 Jun 2019 10:55			18 Jun 2019 12:52	1
HS19060123-05	35AWW11_060319	03 Jun 2019 11:50			18 Jun 2019 12:52	1
HS19060123-06	35AWW09_060319	03 Jun 2019 12:50			18 Jun 2019 12:52	1

ALS Houston, US Date: 26-jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060123

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID R340872	**Test Name :** SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS				**Matrix:** Groundwater	
HS19060123-01	35AWW19_060319	03 Jun 2019 08:05			20 Jun 2019 10:19	1
HS19060123-02	LHSMW07_060319	03 Jun 2019 09:00			20 Jun 2019 10:19	1
HS19060123-03	35AWW23_060319	03 Jun 2019 10:00			20 Jun 2019 10:19	1
HS19060123-04	35AWW24_060319	03 Jun 2019 10:55			20 Jun 2019 10:19	1
HS19060123-05	35AWW11_060319	03 Jun 2019 11:50			20 Jun 2019 10:19	1
HS19060123-06	35AWW09_060319	03 Jun 2019 12:50			20 Jun 2019 10:19	1
Batch ID R341252	**Test Name :** SUBCONTRACT ANALYSIS - TOC ANALYSIS				**Matrix:** Groundwater	
HS19060123-01	35AWW19_060319	03 Jun 2019 08:05			20 Jun 2019 09:25	1
HS19060123-02	LHSMW07_060319	03 Jun 2019 09:00			20 Jun 2019 09:25	1
HS19060123-03	35AWW23_060319	03 Jun 2019 10:00			20 Jun 2019 09:25	1
HS19060123-04	35AWW24_060319	03 Jun 2019 10:55			20 Jun 2019 09:25	1
HS19060123-05	35AWW11_060319	03 Jun 2019 11:50			20 Jun 2019 09:25	1
HS19060123-06	35AWW09_060319	03 Jun 2019 12:50			20 Jun 2019 09:25	1

ALS Houston, US Date: 26-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060123

QC BATCH REPORT

Batch ID: 141628 (0) **Instrument: ICPMS06** **Method: ICP-MS METALS BY SW6020A**

MBLK Sample ID: **MBLK-141628** Units: **mg/L** Analysis Date: **05-Jun-2019 22:04**
Client ID: Run ID: **ICPMS06_339849** SeqNo: **5108740** PrepDate: **05-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.000500	0.00200								U

LCS Sample ID: **LCS-141628** Units: **mg/L** Analysis Date: **05-Jun-2019 22:05**
Client ID: Run ID: **ICPMS06_339849** SeqNo: **5108741** PrepDate: **05-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05387	0.00200	0.05	0	108	80 - 120				

LCSD Sample ID: **LCSD-141628** Units: **mg/L** Analysis Date: **05-Jun-2019 22:07**
Client ID: Run ID: **ICPMS06_339849** SeqNo: **5108742** PrepDate: **05-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05339	0.00200	0.05	0	107	80 - 120	0.05387	0.902	20	

MS Sample ID: **HS19060168-01MS** Units: **mg/L** Analysis Date: **05-Jun-2019 22:13**
Client ID: Run ID: **ICPMS06_339849** SeqNo: **5108745** PrepDate: **05-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05451	0.00200	0.05	0.000923	107	80 - 120				

MSD Sample ID: **HS19060168-01MSD** Units: **mg/L** Analysis Date: **05-Jun-2019 22:14**
Client ID: Run ID: **ICPMS06_339849** SeqNo: **5108746** PrepDate: **05-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05604	0.00200	0.05	0.000923	110	80 - 120	0.05451	2.76	20	

PDS Sample ID: **HS19060168-01PDS** Units: **mg/L** Analysis Date: **05-Jun-2019 22:16**
Client ID: Run ID: **ICPMS06_339849** SeqNo: **5108747** PrepDate: **05-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.1042	0.00200	0.1	0.000923	103	75 - 125				

ALS Houston, US Date: 26-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060123

QC BATCH REPORT

Batch ID: 141628 (0) **Instrument: ICPMS06** **Method: ICP-MS METALS BY SW6020A**

SD Sample ID: **HS19060168-01SD** Units: **mg/L** Analysis Date: **05-Jun-2019 22:11**
Client ID: Run ID: **ICPMS06_339849** SeqNo: **5108744** PrepDate: **05-Jun-2019** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Arsenic	0.002267	0.0100					0.000923	0	10	J

The following samples were analyzed in this batch: HS19060123-06

ALS Houston, US Date: 26-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060123

QC BATCH REPORT

Batch ID: R339998 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-190606** Units: **UG/L** Analysis Date: **06-Jun-2019 12:57**
Client ID: Run ID: **VOA6_339998** SeqNo: **5110994** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	0.50	1.0								U
1,1,1-Trichloroethane	0.50	1.0								U
1,1,2,2-Tetrachloroethane	0.50	1.0								U
1,1,2-Trichloroethane	0.50	1.0								U
1,1-Dichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,1-Dichloropropene	0.50	1.0								U
1,2,3-Trichlorobenzene	0.50	1.0								U
1,2,3-Trichloropropane	0.50	1.0								U
1,2,4-Trichlorobenzene	0.50	1.0								U
1,2,4-Trimethylbenzene	0.50	1.0								U
1,2-Dibromo-3-chloropropane	0.50	1.0								U
1,2-Dibromoethane	0.50	1.0								U
1,2-Dichlorobenzene	0.50	1.0								U
1,2-Dichloroethane	0.50	1.0								U
1,2-Dichloropropane	0.50	1.0								U
1,3,5-Trimethylbenzene	0.50	1.0								U
1,3-Dichlorobenzene	0.50	1.0								U
1,3-Dichloropropane	0.50	1.0								U
1,4-Dichlorobenzene	0.50	1.0								U
2,2-Dichloropropane	0.50	1.0								U
2-Butanone	1.0	2.0								U
2-Chlorotoluene	0.50	1.0								U
2-Hexanone	1.0	2.0								U
4-Chlorotoluene	0.50	1.0								U
4-Isopropyltoluene	0.50	1.0								U
4-Methyl-2-pentanone	1.0	2.0								U
Acetone	1.0	2.0								U
Benzene	0.50	1.0								U
Bromobenzene	0.50	1.0								U
Bromochloromethane	0.50	1.0								U
Bromodichloromethane	0.50	1.0								U
Bromoform	0.50	1.0								U
Bromomethane	0.50	1.0								U

ALS Houston, US Date: 26-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060123

QC BATCH REPORT

Batch ID: R339998 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-190606** Units: **UG/L** Analysis Date: **06-Jun-2019 12:57**
Client ID: Run ID: **VOA6_339998** SeqNo: **5110994** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	1.0	2.0								U
Carbon tetrachloride	0.50	1.0								U
Chlorobenzene	0.50	1.0								U
Chloroethane	0.50	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	0.50	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	0.50	1.0								U
Ethylbenzene	0.50	1.0								U
Hexachlorobutadiene	1.0	1.0								U
Isopropylbenzene	0.50	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	1.0	2.0								U
Naphthalene	0.50	1.0								U
n-Butylbenzene	0.50	1.0								U
n-Propylbenzene	0.50	1.0								U
o-Xylene	0.50	1.0								U
sec-Butylbenzene	0.50	1.0								U
Styrene	0.50	1.0								U
tert-Butylbenzene	0.50	1.0								U
Tetrachloroethene	0.50	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	0.50	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*45.27*	*1.0*	*50*	*0*	*90.5*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.82*	*1.0*	*50*	*0*	*102*	*85 - 114*				
Surr: Dibromofluoromethane	*46.66*	*1.0*	*50*	*0*	*93.3*	*80 - 119*				
Surr: Toluene-d8	*53.19*	*1.0*	*50*	*0*	*106*	*89 - 112*				

ALS Houston, US Date: 26-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060123

QC BATCH REPORT

Batch ID: R339998 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-190606** Units: **UG/L** Analysis Date: **06-Jun-2019 12:09**
Client ID: Run ID: **VOA6_339998** SeqNo: **5110993** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.6	1.0	20	0	98.0	78 - 124				
1,1,1-Trichloroethane	20.25	1.0	20	0	101	74 - 131				
1,1,2,2-Tetrachloroethane	18.44	1.0	20	0	92.2	71 - 121				
1,1,2-Trichloroethane	20.4	1.0	20	0	102	80 - 119				
1,1-Dichloroethane	19.43	1.0	20	0	97.2	77 - 125				
1,1-Dichloroethene	19.42	1.0	20	0	97.1	71 - 131				
1,1-Dichloropropene	19.63	1.0	20	0	98.1	78 - 125				
1,2,3-Trichlorobenzene	17.18	1.0	20	0	85.9	69 - 129				
1,2,3-Trichloropropane	17.93	1.0	20	0	89.6	73 - 122				
1,2,4-Trichlorobenzene	18.84	1.0	20	0	94.2	69 - 130				
1,2,4-Trimethylbenzene	19.91	1.0	20	0	99.6	76 - 124				
1,2-Dibromo-3-chloropropane	17.46	1.0	20	0	87.3	62 - 128				
1,2-Dibromoethane	19.86	1.0	20	0	99.3	77 - 121				
1,2-Dichlorobenzene	19.41	1.0	20	0	97.0	80 - 119				
1,2-Dichloroethane	20.31	1.0	20	0	102	73 - 128				
1,2-Dichloropropane	21.15	1.0	20	0	106	78 - 122				
1,3,5-Trimethylbenzene	19.82	1.0	20	0	99.1	75 - 124				
1,3-Dichlorobenzene	19.66	1.0	20	0	98.3	80 - 119				
1,3-Dichloropropane	21.39	1.0	20	0	107	80 - 119				
1,4-Dichlorobenzene	19.4	1.0	20	0	97.0	79 - 118				
2,2-Dichloropropane	19.78	1.0	20	0	98.9	60 - 139				
2-Butanone	42.76	2.0	40	0	107	56 - 143				
2-Chlorotoluene	19.33	1.0	20	0	96.6	79 - 122				
2-Hexanone	41.93	2.0	40	0	105	57 - 139				
4-Chlorotoluene	19.88	1.0	20	0	99.4	78 - 122				
4-Isopropyltoluene	20.23	1.0	20	0	101	77 - 127				
4-Methyl-2-pentanone	40	2.0	40	0	100.0	67 - 130				
Acetone	45.22	2.0	40	0	113	39 - 160				
Benzene	20.3	1.0	20	0	102	79 - 120				
Bromobenzene	18.84	1.0	20	0	94.2	80 - 120				
Bromochloromethane	20.35	1.0	20	0	102	78 - 123				
Bromodichloromethane	19.68	1.0	20	0	98.4	79 - 125				
Bromoform	18.77	1.0	20	0	93.8	66 - 130				
Bromomethane	22.57	1.0	20	0	113	53 - 141				

ALS Houston, US Date: 26-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060123

QC BATCH REPORT

Batch ID: R339998 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-190606** Units: **UG/L** Analysis Date: **06-Jun-2019 12:09**
Client ID: Run ID: **VOA6_339998** SeqNo: **5110993** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	46.05	2.0	40	0	115	64 - 133				
Carbon tetrachloride	19.1	1.0	20	0	95.5	72 - 136				
Chlorobenzene	19.54	1.0	20	0	97.7	82 - 118				
Chloroethane	19.4	1.0	20	0	97.0	60 - 138				
Chloroform	20.61	1.0	20	0	103	79 - 124				
Chloromethane	17.27	1.0	20	0	86.3	50 - 139				
cis-1,2-Dichloroethene	19.72	1.0	20	0	98.6	78 - 123				
cis-1,3-Dichloropropene	20.52	1.0	20	0	103	75 - 124				
Dibromochloromethane	19.92	1.0	20	0	99.6	74 - 126				
Dibromomethane	19.98	1.0	20	0	99.9	79 - 123				
Dichlorodifluoromethane	18.99	1.0	20	0	95.0	32 - 152				
Ethylbenzene	19.69	1.0	20	0	98.5	79 - 121				
Hexachlorobutadiene	21.04	1.0	20	0	105	66 - 134				
Isopropylbenzene	20.27	1.0	20	0	101	72 - 131				
m,p-Xylene	39.34	2.0	40	0	98.4	80 - 121				
Methylene chloride	20.93	2.0	20	0	105	74 - 124				
Naphthalene	16.9	1.0	20	0	84.5	61 - 128				
n-Butylbenzene	20.45	1.0	20	0	102	75 - 128				
n-Propylbenzene	19.65	1.0	20	0	98.2	76 - 126				
o-Xylene	19.83	1.0	20	0	99.2	78 - 122				
sec-Butylbenzene	20.1	1.0	20	0	101	77 - 126				
Styrene	20.15	1.0	20	0	101	78 - 123				
tert-Butylbenzene	19.68	1.0	20	0	98.4	78 - 124				
Tetrachloroethene	19.96	1.0	20	0	99.8	74 - 129				
Toluene	20.51	1.0	20	0	103	80 - 121				
trans-1,2-Dichloroethene	19.57	1.0	20	0	97.9	75 - 124				
trans-1,3-Dichloropropene	20.06	1.0	20	0	100	73 - 127				
Trichloroethene	19.8	1.0	20	0	99.0	79 - 123				
Trichlorofluoromethane	19.03	1.0	20	0	95.2	65 - 141				
Vinyl chloride	17.4	1.0	20	0	87.0	58 - 137				
Surr: 1,2-Dichloroethane-d4	*52.35*	*1.0*	*50*	*0*	*105*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*52.64*	*1.0*	*50*	*0*	*105*	*85 - 114*				
Surr: Dibromofluoromethane	*52.92*	*1.0*	*50*	*0*	*106*	*80 - 119*				
Surr: Toluene-d8	*50.05*	*1.0*	*50*	*0*	*100*	*89 - 112*				

ALS Houston, US Date: 26-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060123

QC BATCH REPORT

Batch ID: R339998 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS19060123-01MS** Units: **UG/L** Analysis Date: **06-Jun-2019 17:22**
Client ID: **35AWW19_060319** Run ID: **VOA6_339998** SeqNo: **5111005** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.23	1.0	20	0	96.2	78 - 124				
1,1,1-Trichloroethane	18.32	1.0	20	0	91.6	74 - 131				
1,1,2,2-Tetrachloroethane	20.07	1.0	20	0	100	71 - 121				
1,1,2-Trichloroethane	19.28	1.0	20	0	96.4	80 - 119				
1,1-Dichloroethane	18.26	1.0	20	0.6532	88.0	77 - 125				
1,1-Dichloroethene	20.79	1.0	20	2.626	90.8	71 - 131				
1,1-Dichloropropene	18.92	1.0	20	0	94.6	78 - 125				
1,2,3-Trichlorobenzene	19.87	1.0	20	0	99.3	69 - 129				
1,2,3-Trichloropropane	19.78	1.0	20	0	98.9	73 - 122				
1,2,4-Trichlorobenzene	20.91	1.0	20	0	105	69 - 130				
1,2,4-Trimethylbenzene	21.06	1.0	20	0	105	76 - 124				
1,2-Dibromo-3-chloropropane	18.9	1.0	20	0	94.5	62 - 128				
1,2-Dibromoethane	19	1.0	20	0	95.0	77 - 121				
1,2-Dichlorobenzene	19.7	1.0	20	0	98.5	80 - 119				
1,2-Dichloroethane	18.95	1.0	20	1.07	89.4	73 - 128				
1,2-Dichloropropane	19.37	1.0	20	0	96.9	78 - 122				
1,3,5-Trimethylbenzene	21.09	1.0	20	0	105	75 - 124				
1,3-Dichlorobenzene	20.09	1.0	20	0	100	80 - 119				
1,3-Dichloropropane	20.01	1.0	20	0	100	80 - 119				
1,4-Dichlorobenzene	19.95	1.0	20	0	99.7	79 - 118				
2,2-Dichloropropane	18.73	1.0	20	0	93.6	60 - 139				
2-Butanone	23.81	2.0	40	0	59.5	56 - 143				
2-Chlorotoluene	20.36	1.0	20	0	102	79 - 122				
2-Hexanone	28.12	2.0	40	0	70.3	57 - 139				
4-Chlorotoluene	20.2	1.0	20	0	101	78 - 122				
4-Isopropyltoluene	21.86	1.0	20	0	109	77 - 127				
4-Methyl-2-pentanone	27.78	2.0	40	0	69.4	67 - 130				
Acetone	23.63	2.0	40	0	59.1	39 - 160				
Benzene	18.3	1.0	20	0	91.5	79 - 120				
Bromobenzene	19.74	1.0	20	0	98.7	80 - 120				
Bromochloromethane	17.4	1.0	20	0	87.0	78 - 123				
Bromodichloromethane	17.55	1.0	20	0	87.7	79 - 125				
Bromoform	18.81	1.0	20	0	94.0	66 - 130				
Bromomethane	13.86	1.0	20	0	69.3	53 - 141				

ALS Houston, US Date: 26-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060123

QC BATCH REPORT

Batch ID: R339998 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS19060123-01MS** Units: **UG/L** Analysis Date: **06-Jun-2019 17:22**
Client ID: **35AWW19_060319** Run ID: **VOA6_339998** SeqNo: **5111005** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	24.97	2.0	40	0	62.4	64 - 133				S
Carbon tetrachloride	18.6	1.0	20	0	93.0	72 - 136				
Chlorobenzene	19.12	1.0	20	0	95.6	82 - 118				
Chloroethane	18.53	1.0	20	0	92.7	60 - 138				
Chloroform	17.48	1.0	20	0	87.4	79 - 124				
Chloromethane	15.15	1.0	20	0	75.8	50 - 139				
cis-1,2-Dichloroethene	17.54	1.0	20	0	87.7	78 - 123				
cis-1,3-Dichloropropene	18.2	1.0	20	0	91.0	75 - 124				
Dibromochloromethane	19.19	1.0	20	0	95.9	74 - 126				
Dibromomethane	18.09	1.0	20	0	90.4	79 - 123				
Dichlorodifluoromethane	16.95	1.0	20	0	84.8	32 - 152				
Ethylbenzene	19.96	1.0	20	0	99.8	79 - 121				
Hexachlorobutadiene	22.14	1.0	20	0	111	66 - 134				
Isopropylbenzene	21.05	1.0	20	0	105	72 - 131				
m,p-Xylene	39.46	2.0	40	0	98.7	80 - 121				
Methylene chloride	17.85	2.0	20	0	89.3	74 - 124				
Naphthalene	19.51	1.0	20	0	97.5	61 - 128				
n-Butylbenzene	21.99	1.0	20	0	110	75 - 128				
n-Propylbenzene	21.93	1.0	20	0	110	76 - 126				
o-Xylene	19.69	1.0	20	0	98.4	78 - 122				
sec-Butylbenzene	21.68	1.0	20	0	108	77 - 126				
Styrene	19.76	1.0	20	0	98.8	78 - 123				
tert-Butylbenzene	21.36	1.0	20	0	107	78 - 124				
Tetrachloroethene	21.49	1.0	20	0	107	74 - 129				
Toluene	19.87	1.0	20	0	99.4	80 - 121				
trans-1,2-Dichloroethene	17.94	1.0	20	0	89.7	75 - 124				
trans-1,3-Dichloropropene	17.84	1.0	20	0	89.2	73 - 127				
Trichloroethene	18.93	1.0	20	0	94.6	79 - 123				
Trichlorofluoromethane	18.45	1.0	20	0	92.2	65 - 141				
Vinyl chloride	16.29	1.0	20	0	81.5	58 - 137				
Surr: 1,2-Dichloroethane-d4	*46.56*	*1.0*	*50*	*0*	*93.1*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*53.01*	*1.0*	*50*	*0*	*106*	*85 - 114*				
Surr: Dibromofluoromethane	*48.12*	*1.0*	*50*	*0*	*96.2*	*80 - 119*				
Surr: Toluene-d8	*52.79*	*1.0*	*50*	*0*	*106*	*89 - 112*				

ALS Houston, US Date: 26-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060123

QC BATCH REPORT

Batch ID: R339998 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19060123-01MSD** Units: **UG/L** Analysis Date: **06-Jun-2019 17:46**
Client ID: **35AWW19_060319** Run ID: **VOA6_339998** SeqNo: **5111006** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.18	1.0	20	0	95.9	78 - 124	19.23	0.269	20	
1,1,1-Trichloroethane	17.98	1.0	20	0	89.9	74 - 131	18.32	1.89	20	
1,1,2,2-Tetrachloroethane	19.55	1.0	20	0	97.8	71 - 121	20.07	2.61	20	
1,1,2-Trichloroethane	19.48	1.0	20	0	97.4	80 - 119	19.28	1.07	20	
1,1-Dichloroethane	18.13	1.0	20	0.6532	87.4	77 - 125	18.26	0.715	20	
1,1-Dichloroethene	20.63	1.0	20	2.626	90.0	71 - 131	20.79	0.774	20	
1,1-Dichloropropene	18.82	1.0	20	0	94.1	78 - 125	18.92	0.492	20	
1,2,3-Trichlorobenzene	20.45	1.0	20	0	102	69 - 129	19.87	2.89	20	
1,2,3-Trichloropropane	18.73	1.0	20	0	93.7	73 - 122	19.78	5.48	20	
1,2,4-Trichlorobenzene	21.43	1.0	20	0	107	69 - 130	20.91	2.47	20	
1,2,4-Trimethylbenzene	20.23	1.0	20	0	101	76 - 124	21.06	4.02	20	
1,2-Dibromo-3-chloropropane	18.98	1.0	20	0	94.9	62 - 128	18.9	0.434	20	
1,2-Dibromoethane	19.16	1.0	20	0	95.8	77 - 121	19	0.856	20	
1,2-Dichlorobenzene	20.04	1.0	20	0	100	80 - 119	19.7	1.7	20	
1,2-Dichloroethane	19.18	1.0	20	1.07	90.5	73 - 128	18.95	1.22	20	
1,2-Dichloropropane	19.21	1.0	20	0	96.1	78 - 122	19.37	0.843	20	
1,3,5-Trimethylbenzene	20.82	1.0	20	0	104	75 - 124	21.09	1.28	20	
1,3-Dichlorobenzene	19.85	1.0	20	0	99.3	80 - 119	20.09	1.17	20	
1,3-Dichloropropane	19.84	1.0	20	0	99.2	80 - 119	20.01	0.838	20	
1,4-Dichlorobenzene	19.38	1.0	20	0	96.9	79 - 118	19.95	2.92	20	
2,2-Dichloropropane	17.93	1.0	20	0	89.6	60 - 139	18.73	4.38	20	
2-Butanone	23.77	2.0	40	0	59.4	56 - 143	23.81	0.164	20	
2-Chlorotoluene	19.2	1.0	20	0	96.0	79 - 122	20.36	5.91	20	
2-Hexanone	27.85	2.0	40	0	69.6	57 - 139	28.12	0.961	20	
4-Chlorotoluene	20.09	1.0	20	0	100	78 - 122	20.2	0.521	20	
4-Isopropyltoluene	21.3	1.0	20	0	106	77 - 127	21.86	2.64	20	
4-Methyl-2-pentanone	27.75	2.0	40	0	69.4	67 - 130	27.78	0.097	20	
Acetone	26.08	2.0	40	0	65.2	39 - 160	23.63	9.87	20	
Benzene	18.4	1.0	20	0	92.0	79 - 120	18.3	0.55	20	
Bromobenzene	19.31	1.0	20	0	96.6	80 - 120	19.74	2.21	20	
Bromochloromethane	17.07	1.0	20	0	85.3	78 - 123	17.4	1.95	20	
Bromodichloromethane	18.04	1.0	20	0	90.2	79 - 125	17.55	2.74	20	
Bromoform	18.98	1.0	20	0	94.9	66 - 130	18.81	0.91	20	
Bromomethane	14.73	1.0	20	0	73.7	53 - 141	13.86	6.06	20	

ALS Houston, US Date: 26-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060123

QC BATCH REPORT

Batch ID: R339998 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19060123-01MSD** Units: **UG/L** Analysis Date: **06-Jun-2019 17:46**
Client ID: **35AWW19_060319** Run ID: **VOA6_339998** SeqNo: **5111006** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Carbon disulfide	26.56	2.0	40	0	66.4	64 - 133	24.97	6.14	20	
Carbon tetrachloride	18.54	1.0	20	0	92.7	72 - 136	18.6	0.321	20	
Chlorobenzene	19.02	1.0	20	0	95.1	82 - 118	19.12	0.541	20	
Chloroethane	15.64	1.0	20	0	78.2	60 - 138	18.53	16.9	20	
Chloroform	17.45	1.0	20	0	87.2	79 - 124	17.48	0.195	20	
Chloromethane	14.56	1.0	20	0	72.8	50 - 139	15.15	4.02	20	
cis-1,2-Dichloroethene	17.39	1.0	20	0	87.0	78 - 123	17.54	0.879	20	
cis-1,3-Dichloropropene	18.41	1.0	20	0	92.0	75 - 124	18.2	1.14	20	
Dibromochloromethane	19.11	1.0	20	0	95.6	74 - 126	19.19	0.387	20	
Dibromomethane	18.02	1.0	20	0	90.1	79 - 123	18.09	0.394	20	
Dichlorodifluoromethane	16.45	1.0	20	0	82.2	32 - 152	16.95	3.02	20	
Ethylbenzene	19.33	1.0	20	0	96.6	79 - 121	19.96	3.23	20	
Hexachlorobutadiene	22.88	1.0	20	0	114	66 - 134	22.14	3.31	20	
Isopropylbenzene	21.25	1.0	20	0	106	72 - 131	21.05	0.955	20	
m,p-Xylene	38.53	2.0	40	0	96.3	80 - 121	39.46	2.39	20	
Methylene chloride	17.48	2.0	20	0	87.4	74 - 124	17.85	2.11	20	
Naphthalene	20.11	1.0	20	0	101	61 - 128	19.51	3.06	20	
n-Butylbenzene	22.68	1.0	20	0	113	75 - 128	21.99	3.11	20	
n-Propylbenzene	20.87	1.0	20	0	104	76 - 126	21.93	4.97	20	
o-Xylene	20.2	1.0	20	0	101	78 - 122	19.69	2.56	20	
sec-Butylbenzene	21.08	1.0	20	0	105	77 - 126	21.68	2.77	20	
Styrene	20.2	1.0	20	0	101	78 - 123	19.76	2.22	20	
tert-Butylbenzene	21.09	1.0	20	0	105	78 - 124	21.36	1.3	20	
Tetrachloroethene	20.81	1.0	20	0	104	74 - 129	21.49	3.2	20	
Toluene	19.76	1.0	20	0	98.8	80 - 121	19.87	0.565	20	
trans-1,2-Dichloroethene	17.51	1.0	20	0	87.5	75 - 124	17.94	2.45	20	
trans-1,3-Dichloropropene	18.41	1.0	20	0	92.1	73 - 127	17.84	3.14	20	
Trichloroethene	18.87	1.0	20	0	94.3	79 - 123	18.93	0.321	20	
Trichlorofluoromethane	18.14	1.0	20	0	90.7	65 - 141	18.45	1.7	20	
Vinyl chloride	15.81	1.0	20	0	79.0	58 - 137	16.29	3.03	20	
Surr: 1,2-Dichloroethane-d4	*46.22*	*1.0*	*50*	*0*	*92.4*	*81 - 118*	*46.56*	*0.735*	*20*	
Surr: 4-Bromofluorobenzene	*53.76*	*1.0*	*50*	*0*	*108*	*85 - 114*	*53.01*	*1.41*	*20*	
Surr: Dibromofluoromethane	*48.02*	*1.0*	*50*	*0*	*96.0*	*80 - 119*	*48.12*	*0.217*	*20*	
Surr: Toluene-d8	*52.32*	*1.0*	*50*	*0*	*105*	*89 - 112*	*52.79*	*0.907*	*20*	

ALS Houston, US Date: 26-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060123

QC BATCH REPORT

Batch ID: R339998 (0)	Instrument: VOA6	Method: VOLATILES ORGANICS BY METHOD 8260C

The following samples were analyzed in this batch:

HS19060123-01	HS19060123-02	HS19060123-03	HS19060123-04
HS19060123-05	HS19060123-06	HS19060123-07	

ALS Houston, US Date: 26-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060123

QC BATCH REPORT

Batch ID: R339872 (0) **Instrument: ICS2100** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **WBLKW1-060419** Units: **mg/L** Analysis Date: **04-Jun-2019 13:14**
Client ID: Run ID: **ICS2100_339872** SeqNo: **5108235** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	0.500	0.500								U
Nitrogen, Nitrate (As N)	0.100	0.100								U
Sulfate	0.500	0.500								U

LCS Sample ID: **WLCSW1-060419** Units: **mg/L** Analysis Date: **04-Jun-2019 13:31**
Client ID: Run ID: **ICS2100_339872** SeqNo: **5108236** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.44	0.500	20	0	97.2	80 - 120				
Nitrogen, Nitrate (As N)	3.796	0.100	4	0	94.9	80 - 120				
Sulfate	19.22	0.500	20	0	96.1	80 - 120				

LCSD Sample ID: **WLCSDW1-060419** Units: **mg/L** Analysis Date: **04-Jun-2019 13:45**
Client ID: Run ID: **ICS2100_339872** SeqNo: **5108237** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.07	0.500	20	0	95.4	80 - 120	19.44	1.91	20	
Nitrogen, Nitrate (As N)	3.72	0.100	4	0	93.0	80 - 120	3.796	2.02	20	
Sulfate	18.9	0.500	20	0	94.5	80 - 120	19.22	1.63	20	

MS Sample ID: **HS19060102-02MS** Units: **mg/L** Analysis Date: **04-Jun-2019 21:38**
Client ID: Run ID: **ICS2100_339872** SeqNo: **5108263** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	30.4	0.500	10	20.73	96.7	80 - 120				
Nitrogen, Nitrate (As N)	2.158	0.100	2	0.38	88.9	80 - 120				
Sulfate	29.94	0.500	10	20.18	97.6	80 - 120				

ALS Houston, US Date: 26-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060123

QC BATCH REPORT

Batch ID: R339872 (0) **Instrument: ICS2100** **Method: ANIONS BY SW9056A**

MS Sample ID: **HS19060098-01MS** Units: **mg/L** Analysis Date: **04-Jun-2019 19:56**
Client ID: Run ID: **ICS2100_339872** SeqNo: **5108256** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	35.21	0.500	10	25.63	95.7	80 - 120				
Nitrogen, Nitrate (As N)	2.127	0.100	2	0.318	90.4	80 - 120				
Sulfate	33.44	0.500	10	23.9	95.4	80 - 120				

MSD Sample ID: **HS19060102-02MSD** Units: **mg/L** Analysis Date: **04-Jun-2019 21:53**
Client ID: Run ID: **ICS2100_339872** SeqNo: **5108264** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	30.14	0.500	10	20.73	94.1	80 - 120	30.4	0.836	20	
Nitrogen, Nitrate (As N)	2.148	0.100	2	0.38	88.4	80 - 120	2.158	0.464	20	
Sulfate	29.82	0.500	10	20.18	96.4	80 - 120	29.94	0.415	20	

MSD Sample ID: **HS19060098-01MSD** Units: **mg/L** Analysis Date: **04-Jun-2019 20:11**
Client ID: Run ID: **ICS2100_339872** SeqNo: **5108257** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	35.09	0.500	10	25.63	94.6	80 - 120	35.21	0.327	20	
Nitrogen, Nitrate (As N)	2.126	0.100	2	0.318	90.4	80 - 120	2.127	0.047	20	
Sulfate	33.4	0.500	10	23.9	95.0	80 - 120	33.44	0.126	20	

The following samples were analyzed in this batch: HS19060123-01 HS19060123-02 HS19060123-03 HS19060123-04 HS19060123-05 HS19060123-06

ALS Houston, US Date: 26-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: **HS19060123**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

Unit Reported	Description
mg/L	Milligrams per Liter

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	19-028-0	27-Mar-2020
Dept of Defense	ANAB L2231	20-Dec-2021
Illinois	004438	29-Jun-2019
Kansas	E-10352 2018-2019	31-Jul-2019
Louisiana	03087	30-Jun-2019
Maryland	343, 2018-2019	30-Jun-2019
North Carolina	624-2019	31-Dec-2019
Oklahoma	2018-156	31-Aug-2019
Texas	TX104704231-19-23	30-Apr-2020

ALS Houston, US Date: 26-Jun-19

Sample Receipt Checklist

Client Name: Bhate Environmental
Work Order: HS19060123
Date/Time Received: **04-Jun-2019 09:50**
Received by: **NDR**

Checklist completed by: *Paresh M. Giga* eSignature 4-Jun-2019 Date
Reviewed by: *RJ Modashia* eSignature 4-Jun-2019 Date

Matrices: **Groundwater/Water**
Carrier name: **UPS**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs:None
Samplers name present on COC?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	

Temperature(s)/Thermometer(s):	1.2c U/C	IR11
Cooler(s)/Kit(s):	7183	
Date/Time sample(s) sent to storage:	6/4/19 12:30	

Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

bhate ENVIRONMENTAL ASSOCIATES INC.

1608 13th Avenue South, Suite 300
Birmingham Alabama 35205
Tel: 205-918-4000
Fax: 205-918-4050

Chain of Custody and Analytical Request

Page: _____ of _____

Project/Phase No: NWO1312.0150

COC Number(1): _____

LIMS Number: _____

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / Site 58

Client Name:

Collected by: Scott Beesinger

Field Sample ID (30 Characters Max)	ERPIMS LOCID (15 Characters Max)	Date Collected (dd-mmm-yyyy)	Time Collected (Military) (hhmm)	Sample Depth (beginning - ending)	SA Code (2)	Sample Number (3)	Sample Matrix (4)	Number of containers	VOC	MEE	TOC	Carbon Dioxide	Anions	ARSENIC				Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
35AWW19_060319		03 Jun 2019	0805	-	N		WG	10	X	X	X	X	X								
LHSMW07_060319		03 Jun 2019	0900	-	N		WG	10	X	X	X	X	X								
35AWW23_060319		03 Jun 2019	1000	-	N		WG	10	X	X	X	X	X								
35AWW24_060319		03 Jun 2019	1055		N		WG	10	X	X	X	X	X								
35AWW11_060319		03 Jun 2019	1150		N		WG	10	X	X	X	X	X								
35AWW09_060319		03 Jun 2019	1250	-	N		WG	11	X	X	X	X	X	X							
TRIP BLANK		03 Jun 2019		-	TB		WG	2	X												
				-																	
				-																	
				-																	
				-																	

Sample Analysis Requested (5) | Quality Assurance Samples (6)

HS19060123

Bhate Environmental Associates, Inc.
LHAAP-58

COMMENTS: _____

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1. Scott Beesinger	6/3/19	1500	1. NM	6.4.19	0945
2.			2.		
3.			3.		

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: _____ Shipped No.:

_____ Method of Shipment: _____

_____ Fed Ex _____ Airbill Number:

_____ Analytical Lab: ALS 10450 Stanciff Rd, Suite 210 Houston, TX 77099 (281) 530-5656

ATTN: SONJA WEST Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01)

2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-c) Sample, FD = Field Duplicate (-a) Samples, FR = Field Replicate (-b) Samples, EB = Equipment Blank (-d) Samples, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-e)

3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)

4.) Matrix Codes: GS = Soil Gas, WG = Groundwater, WS = Surface Water, SO = Soil, SE = Sediment, SL = Sludge, SS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blanks

5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each.

6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 10109901 in the Equipment Blank Lot Control

Tidal - site 1, 2
12 of 11
CHG

ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

7183

CUSTODY SEAL

Date: 6/3/19 Time: 1500
Name: Scott Bassingham
Company: BHATG

Seal Broken By:
Date: 06/04/19

7183 JUN 04 2019

UPS Next Day Air®
UPS Worldwide Express®
Shipping Document

WEIGHT	LTR	PAK	WEIGHT	DIMENSIONAL WEIGHT If Applicable	LARGE PACKAGE	SHIPPER RELEASE
	☐	☐			☐	☐

1
1

☐ EXPRESS (INT'L)
☐ DOCUMENTS ONLY

SATURDAY DELIVERY ☐

J462 791 962 4
J462 791 962 4

EXPRESS

SHIPMENT FROM

UPS ACCOUNT NO.

REFERENCE NUMBER

TELEPHONE

UPS Next Day Air® 1

J462 791 962 4
J462 791 962 4

DELIVERY

DELIVERY TO

TELEPHONE

Reference

TRACKING NUMBER

DATE OF SHIPMENT
/ /

010191120 8/14 RRD United Parcel Service, Louisville, KY

ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
Kelso, WA 98626
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www.alsglobal.com

June 19, 2019

Analytical Report for Service Request No: K1905198

RJ Modashia
ALS Laboratory Group
10450 Stancliff Road
Suite 210
Houston, TX 77099-4338

RE: HS19060123

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory June 05, 2019
For your reference, these analyses have been assigned our service request number **K1905198.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3350. You may also contact me via email at Kelley.Lovejoy@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Kelley Lovejoy

Kelley Lovejoy
Project Manager

RIGHT SOLUTIONS | RIGHT PARTNER

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Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjlabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water-	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

Case Narrative

ALS Environmental—Kelso Laboratory
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www.alsglobal.com

1317 South 13th Ave, Kelso, WA 98626 | 1-360-577-7222 | www.alsglobal.com

Client: ALS Environmental - US
Project: HS19060123
Sample Matrix: Ground Water

Service Request: K1905198
Date Received: 06/05/2019

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier level IV requested by the client.

Sample Receipt:

Six ground water samples were received for analysis at ALS Environmental on 06/05/2019. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

General Chemistry:

Method SM 5310 C, 06/10/2019: The Relative Percent Difference (RPD) criterion for the replicate analysis of Total Organic Carbon in sample 35AWW24_060319 was not applicable because the analyte concentration was not significantly greater than the Method Reporting Limit (MRL). Analytical values derived from measurements close to the detection limit are not subject to the same accuracy and precision criteria as results derived from measurements higher on the calibration range for the method.

Approved by Kelley Lovejoy Date 06/19/2019

Chain of Custody

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577- 7222 Fax (360)636-1 068
www.alsglobal.com

10450 Stancliff Rd, Ste 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887
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K1905198

Subcontract Chain of Custody

SAMPLING STATE: **Texas** **COC ID:** **11513**

SUBCONTRACT TO:

ALS Environmental Kelso
1317 S. 13th Avenue
Kelso, WA 98626

Phone: +1 360 501 3312

CUSTOMER INFORMATION:

Company:	ALS Houston
Contact:	RJ Modashia
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Email:	RJ.Modashia@alsglobal.com
Alternate Contact:	
Email:	

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS19060123
TSR:	Danielle Winnings

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS19060123-01**	**35AWW19_060319**	**Groundwater**	**03 Jun 2019 08:05**
	TOC Analysis for DOD Level IV/Excel EDD			18 Jun 2019
2.	**HS19060123-02**	**LHSMW07_060319**	**Groundwater**	**03 Jun 2019 09:00**
	TOC Analysis for DOD Level IV/Excel EDD			18 Jun 2019
3.	**HS19060123-03**	**35AWW23_060319**	**Groundwater**	**03 Jun 2019 10:00**
	TOC Analysis for DOD Level IV/Excel EDD			18 Jun 2019
4.	**HS19060123-04**	**35AWW24_060319**	**Groundwater**	**03 Jun 2019 10:55**
	TOC Analysis for DOD Level IV/Excel EDD			18 Jun 2019
5.	**HS19060123-05**	**35AWW11_060319**	**Groundwater**	**03 Jun 2019 11:50**
	TOC Analysis for DOD Level IV/Excel EDD			18 Jun 2019
6.	**HS19060123-06**	**35AWW09_060319**	**Groundwater**	**03 Jun 2019 12:50**
	TOC Analysis for DOD Level IV/Excel EDD			18 Jun 2019

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.

QC Level: DOD IV (DoD Data Package)

Subcontract Chain of Custody

SAMPLING STATE: Texas

COC ID: 11513

Relinquished By: _____ Date/Time: 6/4/19 1800.

Received By: B Morrow ALS Kelso Date/Time: 6/5/19 0955

Cooler ID(s): _____ Temperature(s): _____

00949092

PC KL

Cooler Receipt and Preservation Form

Client ALS-Houston Service Request K19 05198

Received: 6/5/19 Opened: 6/5/19 By: [illegible] Unloaded: 6/5/19 By: K

1. Samples were received via? *USPS* (*Fed Ex*) *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) (*Cooler*) *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA (Y) N If yes, how many and where? 2 Front
   If present, were custody seals intact? (Y) N If present, were they signed and dated? (Y) N

Raw Cooler Temp	Corrected Cooler Temp	Raw Temp Blank	Corrected Temp Blank	Corr. Factor	Thermometer ID	Cooler/COC ID NA	Tracking Number NA	Filed
1.7	1.7	1.6	1.6	0	381	11513	4809 7834 7176	

4. Packing material: *Inserts* *Baggies* (*Bubble Wrap*) *Gel Packs* (*Wet Ice*) *Dry Ice* *Sleeves* _____
5. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
6. Were samples received in good condition (temperature, unbroken)? *Indicate in the table below.* NA (Y) N
   If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*
7. Were all sample labels complete (i.e analysis, preservation, etc.)? NA (Y) N
8. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA (Y) N
9. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
10. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA (Y) N
11. Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N
12. Was C12/Res negative? (NA) Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, & Resolutions: _____

General Chemistry

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577- 7222 Fax (360)636-1 068
www.alsglobal.com

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	K1905198
Project:	HS19060123	**Date Collected:**	06/3/19
Sample Matrix:	Ground Water	**Date Received:**	06/5/19
Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Carbon, Total Organic

Sample Name	Lab Code	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
35AWW19_060319	K1905198-001	**1.88**	0.50	0.20	0.07	1	06/08/19 02:24	
LHSMW07_060319	K1905198-002	**4.13**	0.50	0.20	0.07	1	06/08/19 02:52	
35AWW23_060319	K1905198-003	**1360**	50	20	7	100	06/15/19 02:11	
35AWW24_060319	K1905198-004	**1.55**	0.50	0.20	0.07	1	06/10/19 23:13	
35AWW11_060319	K1905198-005	**94.6**	1.0	0.4	0.2	2	06/10/19 23:41	
35AWW09_060319	K1905198-006	**3.96**	0.50	0.20	0.07	1	06/15/19 03:07	
Method Blank	K1905198-MB1	ND U	0.50	0.20	0.07	1	06/08/19 00:59	
Method Blank	K1905198-MB2	ND U	0.50	0.20	0.07	1	06/11/19 04:24	
Method Blank	K1905198-MB3	ND U	0.50	0.20	0.07	1	06/14/19 18:41	
Method Blank	K1905198-MB4	ND U	0.50	0.20	0.07	1	06/15/19 07:21	

ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K1905198
Project	HS19060123	**Date Collected:**	06/03/19
Sample Matrix:	Ground Water	**Date Received:**	06/05/19
Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Replicate Sample Summary
Carbon, Total Organic

Sample Name:	Lab Code:	LOQ	LOD	MDL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
35AWW19_060319	K1905198-001DUP	0.50	0.20	0.07	1.88	1.80	1.84	4	10	06/08/19
LHSMW07_060319	K1905198-002DUP	0.50	0.20	0.07	4.13	3.89	4.01	6	10	06/08/19
35AWW23_060319	K1905198-003DUP	50	20	7	1360	1360	1360	<1	10	06/15/19
35AWW24_060319	K1905198-004DUP	0.50	0.20	0.07	1.55	1.28	1.41	19 *	10	06/10/19
35AWW11_060319	K1905198-005DUP	1.0	0.4	0.2	94.6	94.2	94.4	<1	10	06/10/19
35AWW09_060319	K1905198-006DUP	0.50	0.20	0.07	3.96	3.83	3.90	3	10	06/15/19

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K1905198
Project:	HS19060123	**Date Collected:**	06/03/19
Sample Matrix:	Ground Water	**Date Received:**	06/05/19
		Date Analyzed:	06/16/19
		Date Extracted:	NA

Matrix Spike Summary
Carbon, Total Organic

Sample Name:	35AWW09_060319	**Units:**	mg/L
Lab Code:	K1905198-006	**Basis:**	NA
Analysis Method:	SM 5310 C		
Prep Method:	None		

Matrix Spike
K1905198-006MS

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Carbon, Total Organic	3.96	25.6	25.0	86	83-117

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K1905198
Project:	HS19060123	**Date Analyzed:**	06/08/19
Sample Matrix:	Ground Water	**Date Extracted:**	NA

Lab Control Sample Summary
Carbon, Total Organic

Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	638450

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1905198-LCS1	25.1	25.0	100	83-117

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K1905198
Project:	HS19060123	**Date Analyzed:**	06/11/19
Sample Matrix:	Ground Water	**Date Extracted:**	NA

Lab Control Sample Summary
Carbon, Total Organic

Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	638810

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1905198-LCS2	25.4	25.0	101	83-117

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K1905198
Project:	HS19060123	**Date Analyzed:**	06/14/19
Sample Matrix:	Ground Water	**Date Extracted:**	NA

Lab Control Sample Summary
Carbon, Total Organic

Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	639522

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1905198-LCS3	25.4	25.0	102	83-117

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K1905198
Project:	HS19060123	**Date Analyzed:**	06/15/19
Sample Matrix:	Ground Water	**Date Extracted:**	NA

Lab Control Sample Summary
Carbon, Total Organic

Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	639523

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1905198-LCS4	25.4	25.0	102	83-117

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US **Service Request:** K1905198
Project: HS19060123

Continuing Calibration Verification (CCV) Summary

Carbon, Total Organic

Analysis Method: SM 5310 C **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	638450	KQ1907859-02	06/07/19 19:18	25.0	24.1	96	90-110
CCV2	638450	KQ1907859-03	06/08/19 00:29	25.0	23.8	95	90-110
CCV3	638450	KQ1907859-04	06/08/19 05:13	25.0	24.6	98	90-110
CCV4	638450	KQ1907859-05	06/08/19 10:23	25.0	24.3	97	90-110
CCV5	638810	KQ1908062-01	06/10/19 14:47	25.0	25.2	101	90-110
CCV6	638810	KQ1908062-02	06/10/19 22:43	25.0	27.5	110	90-110
CCV7	638810	KQ1908062-03	06/11/19 03:54	25.0	24.9	100	90-110
CCV8	638810	KQ1908062-04	06/11/19 08:37	25.0	24.9	99	90-110
CCV9	638810	KQ1908062-05	06/11/19 13:35	25.0	24.6	98	90-110
CCV10	639522	KQ1908379-01	06/14/19 18:11	25.0	24.9	100	90-110
CCV11	639522	KQ1908379-02	06/15/19 01:13	25.0	24.6	98	90-110
CCV12	639522	KQ1908379-03	06/15/19 06:51	25.0	25.5	102	90-110
CCV13	639522	KQ1908379-04	06/15/19 12:03	25.0	25.0	100	90-110
CCV14	639522	KQ1908379-05	06/15/19 17:01	25.0	24.9	100	90-110
CCV15	639523	KQ1908380-02	06/15/19 01:41	25.0	24.6	98	90-110
CCV16	639523	KQ1908380-03	06/15/19 06:51	25.0	25.5	102	90-110
CCV17	639523	KQ1908380-04	06/15/19 12:03	25.0	25.0	100	90-110
CCV18	639523	KQ1908380-05	06/15/19 17:01	25.0	24.9	100	90-110
CCV19	639523	KQ1908380-34	06/15/19 21:44	25.0	24.5	98	90-110
CCV20	639523	KQ1908380-35	06/16/19 02:55	25.0	24.5	98	90-110
CCV21	639523	KQ1908380-36	06/16/19 07:11	25.0	24.1	96	90-110
CCV22	639523	KQ1908380-37	06/16/19 11:00	25.0	25.1	100	90-110

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US **Service Request:**K1905198
Project: HS19060123

Continuing Calibration Blank (CCB) Summary
Carbon, Total Organic

Analysis Method: SM 5310 C **Units:**mg/L

	Analysis Lot	Lab Code	Date Analyzed	LOQ	LOD	MDL	Result	Q
CCB1	638450	KQ1907859-06	06/07/19 19:33	0.50	0.20	0.07	ND	U
CCB2	638450	KQ1907859-07	06/08/19 00:44	0.50	0.20	0.07	ND	U
CCB3	638450	KQ1907859-08	06/08/19 05:28	0.50	0.20	0.07	ND	U
CCB4	638450	KQ1907859-09	06/08/19 10:38	0.50	0.20	0.07	ND	U
CCB5	638810	KQ1908062-06	06/10/19 15:02	0.50	0.20	0.07	ND	U
CCB6	638810	KQ1908062-07	06/10/19 22:58	0.50	0.20	0.07	0.19	J
CCB7	638810	KQ1908062-08	06/11/19 04:09	0.50	0.20	0.07	ND	U
CCB8	638810	KQ1908062-09	06/11/19 08:52	0.50	0.20	0.07	ND	U
CCB9	638810	KQ1908062-10	06/11/19 13:50	0.50	0.20	0.07	ND	U
CCB10	639522	KQ1908379-06	06/14/19 18:26	0.50	0.20	0.07	ND	U
CCB11	639522	KQ1908379-07	06/15/19 01:56	0.50	0.20	0.07	ND	U
CCB12	639522	KQ1908379-08	06/15/19 07:06	0.50	0.20	0.07	ND	U
CCB13	639522	KQ1908379-09	06/15/19 12:18	0.50	0.20	0.07	ND	U
CCB14	639522	KQ1908379-10	06/15/19 17:15	0.50	0.20	0.07	ND	U
CCB15	639523	KQ1908380-06	06/15/19 01:56	0.50	0.20	0.07	ND	U
CCB16	639523	KQ1908380-07	06/15/19 07:06	0.50	0.20	0.07	ND	U
CCB17	639523	KQ1908380-08	06/15/19 12:18	0.50	0.20	0.07	ND	U
CCB18	639523	KQ1908380-09	06/15/19 17:15	0.50	0.20	0.07	ND	U
CCB19	639523	KQ1908380-32	06/15/19 21:59	0.50	0.20	0.07	ND	U
CCB20	639523	KQ1908380-33	06/16/19 03:09	0.50	0.20	0.07	ND	U
CCB21	639523	KQ1908380-38	06/16/19 07:26	0.50	0.20	0.07	ND	U
CCB22	639523	KQ1908380-39	06/16/19 11:14	0.50	0.20	0.07	ND	U

Raw Data

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
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General Chemistry

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Work Request # Original ( ) KP905113, 5116, 5184, 5185, 5124, 5173, 5198, 5217, 5084, 5114, 5128, 5215, 5217

Tier: IV IV IV IV IV I IV II II IV III I II

Date Analyzed: 6/6/19

Analyst: BCD/HLM

Analysis: TOC

TOC: 638448, 638449, 638450, 638451

Run #

DATA QUALITY REPORT
INORGANICS

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

1.	Is the method name and number correct and appropriate?	yes/no/NA
2.	Holding times met for all analyses and for all samples?	yes/no/NA
3.	Are calculations correct?	yes/no/NA
4.	Is the reporting basis correct? (Dry Weight)	yes/no/NA
5.	All quality control criteria met?	yes/no
6.	Is the calibration curve correlation coefficient ≥ 0.995?	yes/no/NA
7.	MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency?	yes/no/NA
8.	Are ICVs, CCVs, and CCBs all within acceptance limits?	yes/no/NA
9.	Are results for methods blanks all ND?	yes/no/NA
10.	Are all QC samples within acceptance criteria? (LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc.)	yes/no/NA
11.	Are all exceptions explained?	yes/no/NA
12.	Have all applicable service requests been reviewed?	yes/no/NA
13.	Are all samples labeled correctly?	yes/no/NA
14.	Have all instructions on the service request been followed? (e.g. Special MRLs, QC on a specific sample, Form V)	yes/no/NA
15.	Are detection limits and units reported correctly?	yes/no/NA
16.	Is the unused space on the benchsheet crossed out?	yes/no/NA
17.	Was analysis turned in by the due date? (n-2) (If not record SR#)	yes/no/NA

COMMENTS: KP905198-3/5 Sent for RA due to being above calibration
KP905114-6 sent for RA due to being over-diluted.
KP905198-4/6 Sent for RA due to carry over from last sample.
KP905116-3 reports a high % RSD, however this sample is less than 5x the MRL.

Final Approved by: [signature] Date: 06/13/19

DQREPORT

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 638448 **Method/Testcode:** 9060/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K1905113-003	Carbon, Total Organic	N/A		Ground Water	0.62 mg/L	10 mL	0.62 mg/L	1	0.07	0.50			6/6/19 18:39:00	N	IV
K1905113-004	Carbon, Total Organic	N/A		Ground Water	0.55 mg/L	10 mL	0.55 mg/L	1	0.07	0.50			6/6/19 19:35:00	N	IV
K1905113-005	Carbon, Total Organic	N/A		Ground Water	0.59 mg/L	10 mL	0.59 mg/L	1	0.07	0.50			6/6/19 20:30:00	N	IV
K1905113-006	Carbon, Total Organic	N/A		Ground Water	0.58 mg/L	10 mL	0.58 mg/L	1	0.07	0.50			6/6/19 21:26:00	N	IV
K1905113-007	Carbon, Total Organic	N/A		Ground Water	10.68 mg/L	10 mL	10.7 mg/L	1	0.07	0.50			6/6/19 22:22:00	N	IV
K1905113-008	Carbon, Total Organic	N/A		Ground Water	0.03 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/6/19 23:17:00	N	IV
K1905116-003	Carbon, Total Organic	N/A		Ground Water	0.25 mg/L	10 mL	0.25 mg/L J	1	0.07	0.50			6/7/19 00:13:00	N	IV
K1905116-004	Carbon, Total Organic	N/A		Ground Water	0.13 mg/L	10 mL	0.13 mg/L J	1	0.07	0.50			6/7/19 01:38:00	N	IV
K1905116-005	Carbon, Total Organic	N/A		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/7/19 02:34:00	N	IV
K1905116-006	Carbon, Total Organic	N/A		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/7/19 03:30:00	N	IV
K1905116-007	Carbon, Total Organic	N/A		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/7/19 04:25:00	N	IV
K1905116-008	Carbon, Total Organic	N/A		Ground Water	0.99 mg/L	10 mL	0.99 mg/L	1	0.07	0.50			6/7/19 05:21:00	N	IV
K1905184-001	Carbon, Total Organic	N/A		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/7/19 06:17:00	Y	IV
K1905184-003	Carbon, Total Organic	N/A		Ground Water	0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/7/19 08:22:00	N	IV
K1905184-004	Carbon, Total Organic	N/A		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/7/19 09:18:00	N	IV
KQ1907856-01	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/6/19 16:18:00	N	IV
KQ1907856-02	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/7/19 01:23:00	N	IV
KQ1907856-03	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/7/19 10:28:00	N	IV
KQ1907856-04	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/6/19 19:33:00	N	IV
KQ1907856-05	Carbon, Total Organic	CCV		Ground Water	24.88 mg/L	10 mL	24.9 mg/L	1					6/6/19 16:03:00	N	IV
KQ1907856-06	Carbon, Total Organic	CCV		Ground Water	24.49 mg/L	10 mL	24.5 mg/L	1					6/7/19 01:08:00	N	IV
KQ1907856-07	Carbon, Total Organic	CCV		Ground Water	24.31 mg/L	10 mL	24.3 mg/L	1					6/7/19 10:14:00	N	IV
KQ1907856-08	Carbon, Total Organic	CCV		Ground Water	24.06 mg/L	10 mL	24.1 mg/L	1					6/7/19 19:18:00	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

06/13/19

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 638448 **Method/Testcode:** 9060/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ1907856-09	Carbon, Total Organic	MB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/6/19 16:33:00	N	IV
KQ1907856-10	Carbon, Total Organic	LCS		Ground Water	25.52 mg/L	10 mL	25.5 mg/L	1	0.07	0.50	102		6/6/19 17:29:00	N	IV
KQ1907856-11	Carbon, Total Organic	MS	K1905184-001	Ground Water	26.39 mg/L	10 mL	26.4 mg/L	1	0.07	0.50	106		6/7/19 07:12:00	N	IV
KQ1907856-12	Carbon, Total Organic	MS	K1905184-001	Ground Water	26.38 mg/L	10 mL	26.4 mg/L	1	0.07	0.50	106		6/7/19 07:12:00	N	IV
KQ1907856-13	Carbon, Total Organic	MS	K1905184-001	Ground Water	26.46 mg/L	10 mL	26.5 mg/L	1	0.07	0.50	106		6/7/19 07:12:00	N	IV
KQ1907856-14	Carbon, Total Organic	MS	K1905184-001	Ground Water	26.15 mg/L	10 mL	26.1 mg/L	1	0.07	0.50	105		6/7/19 07:12:00	N	IV
KQ1907856-15	Carbon, Total Organic	MB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/6/19 16:33:00	N	IV
KQ1907856-16	Carbon, Total Organic	MB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/6/19 16:33:00	N	IV
KQ1907856-17	Carbon, Total Organic	MB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/6/19 16:33:00	N	IV
KQ1907856-18	Carbon, Total Organic	LCS		Ground Water	25.21 mg/L	10 mL	25.2 mg/L	1	0.07	0.50	101		6/6/19 17:29:00	N	IV
KQ1907856-19	Carbon, Total Organic	LCS		Ground Water	25.49 mg/L	10 mL	25.5 mg/L	1	0.07	0.50	102		6/6/19 17:29:00	N	IV
KQ1907856-20	Carbon, Total Organic	LCS		Ground Water	25.43 mg/L	10 mL	25.4 mg/L	1	0.07	0.50	102		6/6/19 17:29:00	N	IV
KQ1907856-21	Carbon, Total Organic	DUP	K1905113-003	Ground Water	0.56 mg/L	10 mL	0.56 mg/L	1	0.07	0.50		10	6/6/19 18:39:00	N	IV
KQ1907856-22	Carbon, Total Organic	TRP	K1905113-003	Ground Water	0.57 mg/L	10 mL	0.57 mg/L	1	0.07	0.50		6	6/6/19 18:39:00	N	IV
KQ1907856-23	Carbon, Total Organic	QUAD	K1905113-003	Ground Water	0.61 mg/L	10 mL	0.61 mg/L	1	0.07	0.50		5	6/6/19 18:39:00	N	IV
KQ1907856-24	Carbon, Total Organic	DUP	K1905113-004	Ground Water	0.55 mg/L	10 mL	0.55 mg/L	1	0.07	0.50		<1	6/6/19 19:35:00	N	IV
KQ1907856-25	Carbon, Total Organic	TRP	K1905113-004	Ground Water	0.54 mg/L	10 mL	0.54 mg/L	1	0.07	0.50		2	6/6/19 19:35:00	N	IV
KQ1907856-26	Carbon, Total Organic	QUAD	K1905113-004	Ground Water	0.53 mg/L	10 mL	0.53 mg/L	1	0.07	0.50		3	6/6/19 19:35:00	N	IV
KQ1907856-27	Carbon, Total Organic	DUP	K1905113-005	Ground Water	0.57 mg/L	10 mL	0.57 mg/L	1	0.07	0.50		3	6/6/19 20:30:00	N	IV
KQ1907856-28	Carbon, Total Organic	TRP	K1905113-005	Ground Water	0.57 mg/L	10 mL	0.57 mg/L	1	0.07	0.50		2	6/6/19 20:30:00	N	IV
KQ1907856-29	Carbon, Total Organic	QUAD	K1905113-005	Ground Water	0.53 mg/L	10 mL	0.53 mg/L	1	0.07	0.50		4	6/6/19 20:30:00	N	IV
KQ1907856-30	Carbon, Total Organic	DUP	K1905113-006	Ground Water	0.57 mg/L	10 mL	0.57 mg/L	1	0.07	0.50		2	6/6/19 21:26:00	N	IV
KQ1907856-31	Carbon, Total Organic	TRP	K1905113-006	Ground Water	0.59 mg/L	10 mL	0.59 mg/L	1	0.07	0.50		2	6/6/19 21:26:00	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 638448 **Method/Testcode:** 9060/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ1907856-32	Carbon, Total Organic	QUAD	K1905113-006	Ground Water	0.63 mg/L	10 mL	0.63 mg/L	1	0.07	0.50		4	6/6/19 21:26:00	N	IV
KQ1907856-33	Carbon, Total Organic	DUP	K1905113-007	Ground Water	10.63 mg/L	10 mL	10.6 mg/L	1	0.07	0.50		<1	6/6/19 22:22:00	N	IV
KQ1907856-34	Carbon, Total Organic	TRP	K1905113-007	Ground Water	10.68 mg/L	10 mL	10.7 mg/L	1	0.07	0.50		<1	6/6/19 22:22:00	N	IV
KQ1907856-35	Carbon, Total Organic	QUAD	K1905113-007	Ground Water	10.81 mg/L	10 mL	10.8 mg/L	1	0.07	0.50		<1	6/6/19 22:22:00	N	IV
KQ1907856-36	Carbon, Total Organic	DUP	K1905113-008	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/6/19 23:17:00	N	IV
KQ1907856-37	Carbon, Total Organic	TRP	K1905113-008	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/6/19 23:17:00	N	IV
KQ1907856-38	Carbon, Total Organic	QUAD	K1905113-008	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/6/19 23:17:00	N	IV
KQ1907856-39	Carbon, Total Organic	DUP	K1905116-003	Ground Water	0.32 mg/L	10 mL	0.32 mg/L J	1	0.07	0.50		23*	6/7/19 00:13:00	N	IV
KQ1907856-40	Carbon, Total Organic	TRP	K1905116-003	Ground Water	0.34 mg/L	10 mL	0.34 mg/L J	1	0.07	0.50		15	6/7/19 00:13:00	N	IV
KQ1907856-41	Carbon, Total Organic	QUAD	K1905116-003	Ground Water	0.28 mg/L	10 mL	0.28 mg/L J	1	0.07	0.50		13	6/7/19 00:13:00	N	IV
KQ1907856-42	Carbon, Total Organic	DUP	K1905116-004	Ground Water	0.14 mg/L	10 mL	0.14 mg/L J	1	0.07	0.50		<1	6/7/19 01:38:00	N	IV
KQ1907856-43	Carbon, Total Organic	TRP	K1905116-004	Ground Water	0.10 mg/L	10 mL	0.1 mg/L J	1	0.07	0.50		18	6/7/19 01:38:00	N	IV
KQ1907856-44	Carbon, Total Organic	QUAD	K1905116-004	Ground Water	0.10 mg/L	10 mL	0.10 mg/L J	1	0.07	0.50		18	6/7/19 01:38:00	N	IV
KQ1907856-45	Carbon, Total Organic	DUP	K1905116-005	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/7/19 02:34:00	N	IV
KQ1907856-46	Carbon, Total Organic	TRP	K1905116-005	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/7/19 02:34:00	N	IV
KQ1907856-47	Carbon, Total Organic	QUAD	K1905116-005	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/7/19 02:34:00	N	IV
KQ1907856-48	Carbon, Total Organic	DUP	K1905116-006	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/7/19 03:30:00	N	IV
KQ1907856-49	Carbon, Total Organic	TRP	K1905116-006	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/7/19 03:30:00	N	IV
KQ1907856-50	Carbon, Total Organic	QUAD	K1905116-006	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/7/19 03:30:00	N	IV
KQ1907856-51	Carbon, Total Organic	DUP	K1905116-007	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/7/19 04:25:00	N	IV
KQ1907856-52	Carbon, Total Organic	TRP	K1905116-007	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/7/19 04:25:00	N	IV
KQ1907856-53	Carbon, Total Organic	QUAD	K1905116-007	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/7/19 04:25:00	N	IV
KQ1907856-54	Carbon, Total Organic	DUP	K1905116-008	Ground Water	1.02 mg/L	10 mL	1.02 mg/L	1	0.07	0.50		3	6/7/19 05:21:00	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 638448 **Method/Testcode:** 9060/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ1907856-55	Carbon, Total Organic	TRP	K1905116-008	Ground Water	1.02 mg/L	10 mL	1.02 mg/L	1	0.07	0.50		2	6/7/19 05:21:00	N	IV
KQ1907856-56	Carbon, Total Organic	QUAD	K1905116-008	Ground Water	1.04 mg/L	10 mL	1.04 mg/L	1	0.07	0.50		2	6/7/19 05:21:00	N	IV
KQ1907856-57	Carbon, Total Organic	DUP	K1905184-001	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/7/19 06:17:00	N	IV
KQ1907856-58	Carbon, Total Organic	TRP	K1905184-001	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/7/19 06:17:00	N	IV
KQ1907856-59	Carbon, Total Organic	QUAD	K1905184-001	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/7/19 06:17:00	N	IV
KQ1907856-60	Carbon, Total Organic	DUP	K1905184-003	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/7/19 08:22:00	N	IV
KQ1907856-61	Carbon, Total Organic	TRP	K1905184-003	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/7/19 08:22:00	N	IV
KQ1907856-62	Carbon, Total Organic	QUAD	K1905184-003	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/7/19 08:22:00	N	IV
KQ1907856-63	Carbon, Total Organic	DUP	K1905184-004	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/7/19 09:18:00	N	IV
KQ1907856-64	Carbon, Total Organic	TRP	K1905184-004	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/7/19 09:18:00	N	IV
KQ1907856-65	Carbon, Total Organic	QUAD	K1905184-004	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/7/19 09:18:00	N	IV

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Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 638449 **Method/Testcode:** 9060/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K1905184-005	Carbon, Total Organic	N/A		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/7/19 12:34:00	N	IV
K1905184-006	Carbon, Total Organic	N/A		Ground Water	12.66 mg/L	10 mL	12.7 mg/L	1	0.07	0.50			6/7/19 13:30:00	N	IV
K1905185-001	Carbon, Total Organic	N/A		Ground Water	2.29 mg/L	10 mL	2.29 mg/L	1	0.07	0.50			6/7/19 14:26:00	Y	IV
K1905185-003	Carbon, Total Organic	N/A		Ground Water	0.11 mg/L	10 mL	0.11 mg/L J	1	0.07	0.50			6/7/19 16:31:00	N	IV
K1905185-004	Carbon, Total Organic	N/A		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/7/19 17:27:00	N	IV
K1905185-005	Carbon, Total Organic	N/A		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/7/19 18:23:00	N	IV
K1905185-006	Carbon, Total Organic	N/A		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/7/19 19:48:00	N	IV
KQ1907858-01	Carbon, Total Organic	MS	K1905185-001	Ground Water	28.16 mg/L	10 mL	28.2 mg/L	1	0.07	0.50	103		6/7/19 15:21:00	N	IV
KQ1907858-02	Carbon, Total Organic	MS	K1905185-001	Ground Water	28.17 mg/L	10 mL	28.2 mg/L	1	0.07	0.50	104		6/7/19 15:21:00	N	IV
KQ1907858-03	Carbon, Total Organic	MS	K1905185-001	Ground Water	28.28 mg/L	10 mL	28.3 mg/L	1	0.07	0.50	104		6/7/19 15:21:00	N	IV
KQ1907858-04	Carbon, Total Organic	MS	K1905185-001	Ground Water	28.33 mg/L	10 mL	28.3 mg/L	1	0.07	0.50	104		6/7/19 15:21:00	N	IV
KQ1907858-05	Carbon, Total Organic	DUP	K1905184-005	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/7/19 12:34:00	N	IV
KQ1907858-06	Carbon, Total Organic	TRP	K1905184-005	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/7/19 12:34:00	N	IV
KQ1907858-07	Carbon, Total Organic	QUAD	K1905184-005	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/7/19 12:34:00	N	IV
KQ1907858-08	Carbon, Total Organic	DUP	K1905184-006	Ground Water	12.88 mg/L	10 mL	12.9 mg/L	1	0.07	0.50		2	6/7/19 13:30:00	N	IV
KQ1907858-09	Carbon, Total Organic	TRP	K1905184-006	Ground Water	12.97 mg/L	10 mL	13.0 mg/L	1	0.07	0.50		1	6/7/19 13:30:00	N	IV
KQ1907858-10	Carbon, Total Organic	QUAD	K1905184-006	Ground Water	13.03 mg/L	10 mL	13.0 mg/L	1	0.07	0.50		1	6/7/19 13:30:00	N	IV
KQ1907858-11	Carbon, Total Organic	DUP	K1905185-001	Ground Water	2.16 mg/L	10 mL	2.16 mg/L	1	0.07	0.50		6	6/7/19 14:26:00	N	IV
KQ1907858-12	Carbon, Total Organic	TRP	K1905185-001	Ground Water	2.12 mg/L	10 mL	2.12 mg/L	1	0.07	0.50		4	6/7/19 14:26:00	N	IV
KQ1907858-13	Carbon, Total Organic	QUAD	K1905185-001	Ground Water	2.12 mg/L	10 mL	2.12 mg/L	1	0.07	0.50		4	6/7/19 14:26:00	N	IV
KQ1907858-14	Carbon, Total Organic	DUP	K1905185-003	Ground Water	0.10 mg/L	10 mL	0.1 mg/L J	1	0.07	0.50		9	6/7/19 16:31:00	N	IV
KQ1907858-15	Carbon, Total Organic	TRP	K1905185-003	Ground Water	0.08 mg/L	10 mL	0.08 mg/L J	1	0.07	0.50		13	6/7/19 16:31:00	N	IV
KQ1907858-16	Carbon, Total Organic	QUAD	K1905185-003	Ground Water	0.10 mg/L	10 mL	0.1 mg/L J	1	0.07	0.50		10	6/7/19 16:31:00	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

06/13/19

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 638449 **Method/Testcode:** 9060/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ1907858-17	Carbon, Total Organic	DUP	K1905185-004	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/7/19 17:27:00	N	IV
KQ1907858-18	Carbon, Total Organic	TRP	K1905185-004	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/7/19 17:27:00	N	IV
KQ1907858-19	Carbon, Total Organic	QUAD	K1905185-004	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/7/19 17:27:00	N	IV
KQ1907858-20	Carbon, Total Organic	DUP	K1905185-005	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/7/19 18:23:00	N	IV
KQ1907858-21	Carbon, Total Organic	TRP	K1905185-005	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/7/19 18:23:00	N	IV
KQ1907858-22	Carbon, Total Organic	QUAD	K1905185-005	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/7/19 18:23:00	N	IV
KQ1907858-23	Carbon, Total Organic	DUP	K1905185-006	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/7/19 19:48:00	N	IV
KQ1907858-24	Carbon, Total Organic	TRP	K1905185-006	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/7/19 19:48:00	N	IV
KQ1907858-25	Carbon, Total Organic	QUAD	K1905185-006	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/7/19 19:48:00	N	IV
KQ1907858-26	Carbon, Total Organic	CCV		Ground Water	24.31 mg/L	10 mL	24.3 mg/L	1					6/7/19 10:14:00	N	IV
KQ1907858-27	Carbon, Total Organic	CCV		Ground Water	24.06 mg/L	10 mL	24.1 mg/L	1					6/7/19 19:18:00	N	IV
KQ1907858-28	Carbon, Total Organic	CCV		Ground Water	23.82 mg/L	10 mL	23.8 mg/L	1					6/8/19 00:29:00	N	IV
KQ1907858-29	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/7/19 10:28:00	N	IV
KQ1907858-30	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/7/19 19:33:00	N	IV
KQ1907858-31	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/8/19 00:44:00	N	IV
KQ1907858-32	Carbon, Total Organic	MB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/7/19 10:43:00	N	IV
KQ1907858-33	Carbon, Total Organic	MB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/7/19 10:43:00	N	IV
KQ1907858-34	Carbon, Total Organic	MB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/7/19 10:43:00	N	IV
KQ1907858-35	Carbon, Total Organic	MB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/7/19 10:43:00	N	IV
KQ1907858-36	Carbon, Total Organic	LCS		Ground Water	25.18 mg/L	10 mL	25.2 mg/L	1	0.07	0.50	101		6/7/19 11:39:00	N	IV
KQ1907858-37	Carbon, Total Organic	LCS		Ground Water	25.18 mg/L	10 mL	25.2 mg/L	1	0.07	0.50	101		6/7/19 11:39:00	N	IV
KQ1907858-38	Carbon, Total Organic	LCS		Ground Water	25.03 mg/L	10 mL	25.0 mg/L	1	0.07	0.50	100		6/7/19 11:39:00	N	IV
KQ1907858-39	Carbon, Total Organic	LCS		Ground Water	25.10 mg/L	10 mL	25.1 mg/L	1	0.07	0.50	100		6/7/19 11:39:00	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 638450 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K1905124-001	Carbon, Total Organic	N/A		Surface Water	1.01 mg/L	10 mL	1.01 mg/L	1	0.07	0.50			6/7/19 23:32:00	Y	IV
K1905124-002	Carbon, Total Organic	N/A		Surface Water	1.20 mg/L	10 mL	1.20 mg/L	1	0.07	0.50			6/8/19 01:28:00	N	IV
K1905124-003	Carbon, Total Organic	N/A		Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/8/19 01:56:00	N	IV
K1905173-001	Carbon, Total Organic	N/A		Water	0.12 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/7/19 20:43:00	N	I
K1905173-002	Carbon, Total Organic	N/A		Water	0.16 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/7/19 21:11:00	N	I
K1905173-003	Carbon, Total Organic	N/A		Water	0.10 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/7/19 21:39:00	N	I
K1905173-004	Carbon, Total Organic	N/A		Water	3.12 mg/L	10 mL	3.12 mg/L	1	0.07	0.50			6/7/19 22:07:00	N	I
K1905173-005	Carbon, Total Organic	N/A		Water	11.08 mg/L	10 mL	111 mg/L	10	0.7	5.0			6/7/19 22:35:00	N	I
K1905198-001	Carbon, Total Organic	N/A		Ground Water	1.88 mg/L	10 mL	1.88 mg/L	1	0.07	0.50			6/8/19 02:24:00	N	IV
K1905198-002	Carbon, Total Organic	N/A		Ground Water	4.13 mg/L	10 mL	4.13 mg/L	1	0.07	0.50			6/8/19 02:52:00	N	IV
K1905198-003	Carbon, Total Organic	N/A		Ground Water	113.10 mg/L	10 mL	113 mg/L	1	0.07	0.50			6/8/19 03:21:00	N	IV
K1905198-004	Carbon, Total Organic	N/A		Ground Water	12.56 mg/L	10 mL	12.6 mg/L	1	0.07	0.50			6/8/19 03:49:00	N	IV
K1905198-005	Carbon, Total Organic	N/A		Ground Water	61.20 mg/L	10 mL	61.2 mg/L	1	0.07	0.50			6/8/19 04:17:00	N	IV
K1905198-006	Carbon, Total Organic	N/A		Ground Water	5.41 mg/L	10 mL	5.41 mg/L	1	0.07	0.50			6/8/19 04:45:00	N	IV
K1905217-001	Carbon, Total Organic	N/A		Water	2.42 mg/L	10 mL	2.42 mg/L	1	0.07	0.50			6/8/19 05:42:00	N	II
K1905217-002	Carbon, Total Organic	N/A		Water	1.34 mg/L	10 mL	1.34 mg/L	1	0.07	0.50			6/8/19 06:10:00	N	II
K1905217-003	Carbon, Total Organic	N/A		Water	1.89 mg/L	10 mL	1.89 mg/L	1	0.07	0.50			6/8/19 06:39:00	N	II
K1905217-004	Carbon, Total Organic	N/A		Water	1.51 mg/L	10 mL	1.51 mg/L	1	0.07	0.50			6/8/19 07:07:00	N	II
K1905217-005	Carbon, Total Organic	N/A		Water	1.50 mg/L	10 mL	1.50 mg/L	1	0.07	0.50			6/8/19 07:35:00	N	II
K1905217-006	Carbon, Total Organic	N/A		Water	1.42 mg/L	10 mL	1.42 mg/L	1	0.07	0.50			6/8/19 08:03:00	N	II
KQ1907859-01	Carbon, Total Organic	N/A		Water	1.01 mg/L	10 mL	1.01 mg/L	1	0.07	0.50			6/7/19 23:32:00	N	II
KQ1907859-02	Carbon, Total Organic	CCV		Water	24.06 mg/L	10 mL	24.1 mg/L	1					6/7/19 19:18:00	N	I
KQ1907859-02	Carbon, Total Organic	CCV		Water	24.06 mg/L	10 mL	24.1 mg/L	1					6/7/19 19:18:00	N	I
KQ1907859-03	Carbon, Total Organic	CCV		Water	23.82 mg/L	10 mL	23.8 mg/L	1					6/8/19 00:29:00	N	I
KQ1907859-03	Carbon, Total Organic	CCV		Water	23.82 mg/L	10 mL	23.8 mg/L	1					6/8/19 00:29:00	N	I
KQ1907859-04	Carbon, Total Organic	CCV		Water	24.59 mg/L	10 mL	24.6 mg/L	1					6/8/19 05:13:00	N	I
KQ1907859-04	Carbon, Total Organic	CCV		Water	24.59 mg/L	10 mL	24.6 mg/L	1					6/8/19 05:13:00	N	I
KQ1907859-05	Carbon, Total Organic	CCV		Water	24.26 mg/L	10 mL	24.3 mg/L	1					6/8/19 10:23:00	N	I
KQ1907859-05	Carbon, Total Organic	CCV		Water	24.26 mg/L	10 mL	24.3 mg/L	1					6/8/19 10:23:00	N	I
KQ1907859-06	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/7/19 19:33:00	N	I
KQ1907859-06	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/7/19 19:33:00	N	I

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Printed 6/12/19 13:45

Results Summary

06/13/19

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 638450 **Method/Testcode:** 415.1/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ1907859-07	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/8/19 00:44:00	N	I
KQ1907859-07	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/8/19 00:44:00	N	I
KQ1907859-08	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/8/19 05:28:00	N	I
KQ1907859-08	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/8/19 05:28:00	N	I
KQ1907859-09	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/8/19 10:38:00	N	I
KQ1907859-09	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/8/19 10:38:00	N	I
KQ1907859-13	Carbon, Total Organic	MB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/8/19 00:59:00	N	I
KQ1907859-13	Carbon, Total Organic	MB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/8/19 00:59:00	N	I
KQ1907859-14	Carbon, Total Organic	LCS		Water	25.09 mg/L	10 mL	25.1 mg/L	1	0.07	0.50	100		6/8/19 01:13:00	N	I
KQ1907859-14	Carbon, Total Organic	LCS		Water	25.09 mg/L	10 mL	25.1 mg/L	1	0.07	0.50	100		6/8/19 01:13:00	N	I
KQ1907859-18	Carbon, Total Organic	MS	K1905124-001	Surface Water	26.64 mg/L	10 mL	26.6 mg/L	1	0.07	0.50	102		6/8/19 00:00:00	N	IV
KQ1907859-19	Carbon, Total Organic	DUP	K1905173-001	Water	0.17 mg/L	10 mL	0.17 mg/L J	1	0.07	0.50		NC	6/7/19 20:43:00	N	I
KQ1907859-20	Carbon, Total Organic	DUP	K1905173-002	Water	0.21 mg/L	10 mL	0.21 mg/L J	1	0.07	0.50		NC	6/7/19 21:11:00	N	I
KQ1907859-21	Carbon, Total Organic	DUP	K1905173-003	Water	0.16 mg/L	10 mL	0.16 mg/L J	1	0.07	0.50		NC	6/7/19 21:39:00	N	I
KQ1907859-22	Carbon, Total Organic	DUP	K1905173-004	Water	3.14 mg/L	10 mL	3.14 mg/L	1	0.07	0.50		<1	6/7/19 22:07:00	N	I
KQ1907859-23	Carbon, Total Organic	DUP	K1905173-005	Water	11.07 mg/L	10 mL	111 mg/L	10	0.7	5.0		<1	6/7/19 22:35:00	N	I
KQ1907859-24	Carbon, Total Organic	DUP	K1905124-001	Surface Water	1.03 mg/L	10 mL	1.03 mg/L	1	0.07	0.50		1	6/7/19 23:32:00	N	IV
KQ1907859-25	Carbon, Total Organic	DUP	K1905124-002	Surface Water	1.11 mg/L	10 mL	1.11 mg/L	1	0.07	0.50		8	6/8/19 01:28:00	N	IV
KQ1907859-26	Carbon, Total Organic	DUP	K1905124-003	Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/8/19 01:56:00	N	IV
KQ1907859-27	Carbon, Total Organic	DUP	K1905198-001	Ground Water	1.80 mg/L	10 mL	1.80 mg/L	1	0.07	0.50		4	6/8/19 02:24:00	N	IV
KQ1907859-28	Carbon, Total Organic	DUP	K1905198-002	Ground Water	3.89 mg/L	10 mL	3.89 mg/L	1	0.07	0.50		6	6/8/19 02:52:00	N	IV
KQ1907859-29	Carbon, Total Organic	DUP	K1905198-003	Ground Water	107.79 mg/L	10 mL	108 mg/L	1	0.07	0.50		5	6/8/19 03:21:00	N	IV
KQ1907859-30	Carbon, Total Organic	DUP	K1905198-004	Ground Water	3.37 mg/L	10 mL	3.37 mg/L	1	0.07	0.50		115*	6/8/19 03:49:00	N	IV
KQ1907859-31	Carbon, Total Organic	DUP	K1905198-005	Ground Water	58.05 mg/L	10 mL	58.1 mg/L	1	0.07	0.50		5	6/8/19 04:17:00	N	IV
KQ1907859-32	Carbon, Total Organic	DUP	K1905198-006	Ground Water	4.69 mg/L	10 mL	4.69 mg/L	1	0.07	0.50		14*	6/8/19 04:45:00	N	IV
KQ1907859-33	Carbon, Total Organic	DUP	K1905217-001	Water	2.42 mg/L	10 mL	2.42 mg/L	1	0.07	0.50		<1	6/8/19 05:42:00	N	II
KQ1907859-34	Carbon, Total Organic	DUP	K1905217-002	Water	1.24 mg/L	10 mL	1.24 mg/L	1	0.07	0.50		7	6/8/19 06:10:00	N	II
KQ1907859-35	Carbon, Total Organic	DUP	K1905217-003	Water	1.88 mg/L	10 mL	1.88 mg/L	1	0.07	0.50		<1	6/8/19 06:39:00	N	II
KQ1907859-36	Carbon, Total Organic	DUP	K1905217-004	Water	1.50 mg/L	10 mL	1.50 mg/L	1	0.07	0.50		<1	6/8/19 07:07:00	N	II
KQ1907859-37	Carbon, Total Organic	DUP	K1905217-005	Water	1.48 mg/L	10 mL	1.48 mg/L	1	0.07	0.50		1	6/8/19 07:35:00	N	II
KQ1907859-38	Carbon, Total Organic	DUP	K1905217-006	Water	1.39 mg/L	10 mL	1.39 mg/L	1	0.07	0.50		2	6/8/19 08:03:00	N	II

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 638450 **Method/Testcode:** 415.1/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ1907859-39	Carbon, Total Organic	DUP	KQ1907859-01	Water	1.03 mg/L	10 mL	1.03 mg/L	1	0.07	0.50		1	6/7/19 23:32:00	N	II
KQ1907859-40	Carbon, Total Organic	MS	KQ1907859-01	Water	26.34 mg/L	10 mL	26.3 mg/L	1	0.07	0.50	101		6/8/19 00:00:00	N	II

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Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 638451 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K1905084-002	Carbon, Total Organic	N/A		Water	7.69 mg/L	10 mL	769 mg/L	100	7	50			6/8/19 09:27:00	N	II
K1905084-003	Carbon, Total Organic	N/A		Water	8.06 mg/L	10 mL	806 mg/L	100	7	50			6/8/19 09:55:00	N	II
K1905114-001	Carbon, Total Organic	N/A		Ground Water	28.61 mg/L	10 mL	28.6 mg/L	1	0.07	0.50			6/8/19 11:22:00	N	IV
K1905114-002	Carbon, Total Organic	N/A		Ground Water	22.42 mg/L	10 mL	22.4 mg/L	1	0.07	0.50			6/8/19 11:50:00	N	IV
K1905114-003	Carbon, Total Organic	N/A		Ground Water	6.15 mg/L	10 mL	615 mg/L	100	7	50			6/8/19 12:18:00	N	IV
K1905114-004	Carbon, Total Organic	N/A		Ground Water	22.43 mg/L	10 mL	22.4 mg/L	1	0.07	0.50			6/8/19 12:46:00	N	IV
K1905114-005	Carbon, Total Organic	N/A		Ground Water	20.61 mg/L	10 mL	20.6 mg/L	1	0.07	0.50			6/8/19 13:42:00	N	IV
K1905114-006	Carbon, Total Organic	N/A		Ground Water	0.26 mg/L	10 mL	26 mg/L J	100	7	50			6/8/19 14:11:00	N	IV
K1905128-001	Carbon, Total Organic	N/A		Surface Water	1.14 mg/L	10 mL	1.14 mg/L	1	0.07	0.50			6/8/19 14:39:00	N	III
K1905128-002	Carbon, Total Organic	N/A		Surface Water	1.04 mg/L	10 mL	1.04 mg/L	1	0.07	0.50			6/8/19 15:37:00	Y	III
K1905128-003	Carbon, Total Organic	N/A		Surface Water	1.15 mg/L	10 mL	1.15 mg/L	1	0.07	0.50			6/8/19 16:34:00	N	III
K1905128-004	Carbon, Total Organic	N/A		Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/8/19 17:02:00	N	III
K1905215-001	Carbon, Total Organic	N/A		Drinking Water	0.87 mg/L	10 mL	0.87 mg/L	1	0.07	0.50			6/8/19 17:30:00	N	I
K1905215-003	Carbon, Total Organic	N/A		Drinking Water	1.56 mg/L	10 mL	1.56 mg/L	1	0.07	0.50			6/8/19 17:58:00	N	I
K1905217-007	Carbon, Total Organic	N/A		Water	2.11 mg/L	10 mL	2.11 mg/L	1	0.07	0.50			6/8/19 08:31:00	N	II
K1905217-008	Carbon, Total Organic	N/A		Water	2.21 mg/L	10 mL	2.21 mg/L	1	0.07	0.50			6/8/19 08:59:00	N	II
KQ1907861-01	Carbon, Total Organic	CCV		Water	24.59 mg/L	10 mL	24.6 mg/L	1					6/8/19 05:13:00	N	II
KQ1907861-02	Carbon, Total Organic	CCV		Water	24.26 mg/L	10 mL	24.3 mg/L	1					6/8/19 10:23:00	N	II
KQ1907861-03	Carbon, Total Organic	CCV		Water	24.57 mg/L	10 mL	24.6 mg/L	1					6/8/19 15:07:00	N	II
KQ1907861-04	Carbon, Total Organic	CCV		Water	24.22 mg/L	10 mL	24.2 mg/L	1					6/8/19 18:26:00	N	II
KQ1907861-05	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/8/19 05:28:00	N	II
KQ1907861-06	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/8/19 10:38:00	N	II
KQ1907861-07	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/8/19 15:22:00	N	II
KQ1907861-08	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/8/19 18:41:00	N	II
KQ1907861-09	Carbon, Total Organic	MB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/8/19 10:52:00	N	II
KQ1907861-10	Carbon, Total Organic	LCS		Water	25.19 mg/L	10 mL	25.2 mg/L	1	0.07	0.50	101		6/8/19 11:07:00	N	II
KQ1907861-11	Carbon, Total Organic	MS	K1905128-002	Surface Water	26.91 mg/L	10 mL	26.9 mg/L	1	0.07	0.50	103		6/8/19 16:05:00	N	III
KQ1907861-12	Carbon, Total Organic	DUP	K1905217-007	Water	2.12 mg/L	10 mL	2.12 mg/L	1	0.07	0.50		<1	6/8/19 08:31:00	N	II
KQ1907861-13	Carbon, Total Organic	DUP	K1905217-008	Water	2.18 mg/L	10 mL	2.18 mg/L	1	0.07	0.50		2	6/8/19 08:59:00	N	II
KQ1907861-14	Carbon, Total Organic	DUP	K1905084-002	Water	7.76 mg/L	10 mL	776 mg/L	100	7	50		<1	6/8/19 09:27:00	N	II

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Printed 6/12/19 14:13

Results Summary

06/13/19

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 638451 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ1907861-15	Carbon, Total Organic	DUP	K1905084-003	Water	8.01 mg/L	10 mL	801 mg/L	100	7	50		<1	6/8/19 09:55:00	N	II
KQ1907861-16	Carbon, Total Organic	DUP	K1905114-001	Ground Water	28.83 mg/L	10 mL	28.8 mg/L	1	0.07	0.50		<1	6/8/19 11:22:00	N	IV
KQ1907861-17	Carbon, Total Organic	DUP	K1905114-002	Ground Water	22.66 mg/L	10 mL	22.7 mg/L	1	0.07	0.50		1	6/8/19 11:50:00	N	IV
KQ1907861-18	Carbon, Total Organic	DUP	K1905114-003	Ground Water	5.93 mg/L	10 mL	593 mg/L	100	7	50		4	6/8/19 12:18:00	N	IV
KQ1907861-19	Carbon, Total Organic	DUP	K1905114-004	Ground Water	22.81 mg/L	10 mL	22.8 mg/L	1	0.07	0.50		2	6/8/19 12:46:00	N	IV
KQ1907861-20	Carbon, Total Organic	DUP	K1905114-005	Ground Water	20.35 mg/L	10 mL	20.3 mg/L	1	0.07	0.50		1	6/8/19 13:42:00	N	IV
KQ1907861-21	Carbon, Total Organic	DUP	K1905114-006	Ground Water	0.05 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/8/19 14:11:00	N	IV
KQ1907861-22	Carbon, Total Organic	DUP	K1905128-001	Surface Water	1.10 mg/L	10 mL	1.10 mg/L	1	0.07	0.50		4	6/8/19 14:39:00	N	III
KQ1907861-23	Carbon, Total Organic	DUP	K1905128-002	Surface Water	1.03 mg/L	10 mL	1.03 mg/L	1	0.07	0.50		1	6/8/19 15:37:00	N	III
KQ1907861-24	Carbon, Total Organic	DUP	K1905128-003	Surface Water	1.11 mg/L	10 mL	1.11 mg/L	1	0.07	0.50		3	6/8/19 16:34:00	N	III
KQ1907861-25	Carbon, Total Organic	DUP	K1905128-004	Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/8/19 17:02:00	N	III
KQ1907861-26	Carbon, Total Organic	DUP	K1905215-001	Drinking Water	0.95 mg/L	10 mL	0.95 mg/L	1	0.07	0.50		8	6/8/19 17:30:00	N	I
KQ1907861-27	Carbon, Total Organic	DUP	K1905215-003	Drinking Water	1.61 mg/L	10 mL	1.61 mg/L	1	0.07	0.50		3	6/8/19 17:58:00	N	I

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
CBA	RB	1			0.0000	0	<0.5	
2	C] CCV 25 ppm [25 p	1	24.885	0.0000	24.8845	24.8845	24.9	6/6/2019
3	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/6/2019
4	MB1	1	0.000	0.0000	0.0000	0	<0.5	6/6/2019
5	MB1d	1	0.000	0.0000	0.0000	0	<0.5	6/6/2019
6	MB1t	1	0.000	0.0000	0.0000	0	<0.5	6/6/2019
7	MB1q	1	0.000	0.0000	0.0000	0	<0.5	6/6/2019
8	[TOC] LCS [24ppm]	1	25.521	0.0000	25.5209	25.5209	26	6/6/2019
9	[TOC] LCS [24ppm]c	1	25.213	0.0000	25.2132	25.2132	25.21	6/6/2019
10	[TOC] LCS [24ppm]t	1	25.485	0.0000	25.4853	25.4853	25.49	6/6/2019
11	[TOC] LCS [24ppm]c	1	25.429	0.0000	25.4286	25.4286	25.4	6/6/2019
12	K1905113-003	1	0.623	0.0000	0.6233	0.6233	0.62	6/6/2019
13	K1905113-003d	1	0.561	0.0000	0.5614	0.5614	0.56	6/6/2019
14	K1905113-003t	1	0.570	0.0000	0.5698	0.5698	0.57	6/6/2019
15	K1905113-003q	1	0.611	0.0000	0.6109	0.6109	0.6	6/6/2019
16	K1905113-004	1	0.551	0.0000	0.5511	0.5511	0.6	6/6/2019
17	K1905113-004d	1	0.555	0.0000	0.5549	0.5549	0.55	6/6/2019
18	K1905113-004t	1	0.535	0.0000	0.5351	0.5351	0.5	6/6/2019
19	K1905113-004q	1	0.525	0.0000	0.5252	0.5252	0.5	6/6/2019
20	K1905113-005	1	0.586	0.0000	0.5860	0.586	0.59	6/6/2019
21	K1905113-005d	1	0.567	0.0000	0.5673	0.5673	0.57	6/6/2019
22	K1905113-005t	1	0.574	0.0000	0.5741	0.5741	0.6	6/6/2019
23	K1905113-005q	1	0.528	0.0000	0.5275	0.5275	0.5	6/6/2019
24	K1905113-006	1	0.584	0.0000	0.5835	0.5835	0.58	6/6/2019
25	K1905113-006d	1	0.572	0.0000	0.5719	0.5719	0.57	6/6/2019

ICAL Date 10/20/16 ICAL ID#:11-GEN-05-51A

LCS =24.0 ppm APG 4013 Lot #010615 (REF# 11-GEN-05-50N)

CCV = 25.0 ppm (Ref.#11-GEN-05-52E)

Spike: 0.05 ml of 5000 ppm stock ----> 10.0 ml =25.0 ppm x Dilution Factor (Ref.# 11-GEN-05-51M)

		date time
Analyzed By: KD	Date Analyzed 6/6/19	
Reviewed By:	Date Reviewed 06/12/19	

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
26	K1905113-006t	1	0.592	0.0000	0.5919	0.5919	0.59	6/6/2019
27	K1905113-006q	1	0.627	0.0000	0.6271	0.6271	0.63	6/6/2019
28	K1905113-007	1	10.678	0.0000	10.6780	10.678	10.7	6/6/2019
29	K1905113-007d	1	10.626	0.0000	10.6259	10.6259	10.6	6/6/2019
30	K1905113-007t	1	10.685	0.0000	10.6847	10.6847	10.7	6/6/2019
31	K1905113-007q	1	10.815	0.0000	10.8148	10.8148	10.8	6/6/2019
32	K1905113-008	1	0.028	0.0000	0.0275	0.0275	<0.5	6/6/2019
33	K1905113-008d	1	0.000	0.0000	0.0000	0	<0.5	6/6/2019
34	K1905113-008t	1	0.000	0.0000	0.0000	0	<0.5	6/6/2019
35	K1905113-008q	1	0.000	0.0000	0.0000	0	<0.5	6/6/2019
36	K1905116-003	1	0.253	0.0000	0.2532	0.2532	<0.5	6/7/2019
37	K1905116-003d	1	0.319	0.0000	0.3188	0.3188	<0.5	6/7/2019
38	K1905116-003t	1	0.338	0.0000	0.3381	0.3381	<0.5	6/7/2019
39	K1905116-003q	1	0.281	0.0000	0.2811	0.2811	<0.5	6/7/2019
40	C] CCV 25 ppm [25 p	1	24.486	0.0000	24.4860	24.486	24.5	6/7/2019
41	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/7/2019
42	K1905116-004	1	0.135	0.0000	0.1346	0.1346	<0.5	6/7/2019
43	K1905116-004d	1	0.136	0.0000	0.1358	0.1358	<0.5	6/7/2019
44	K1905116-004t	1	0.097	0.0000	0.0966	0.0966	<0.5	6/7/2019
45	K1905116-004q	1	0.102	0.0000	0.1022	0.1022	<0.5	6/7/2019
46	K1905116-005	1	0.000	0.0000	0.0000	0	<0.5	6/7/2019
47	K1905116-005d	1	0.000	0.0000	0.0000	0	<0.5	6/7/2019
48	K1905116-005t	1	0.000	0.0000	0.0000	0	<0.5	6/7/2019
49	K1905116-005q	1	0.000	0.0000	0.0000	0	<0.5	6/7/2019
50	K1905116-006	1	0.000	0.0000	0.0000	0	<0.5	6/7/2019

Analyzed By: RR	Date Analyzed 6/6/19
Reviewed By:	Date Reviewed 06/13/19

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
51	K1905116-006d	1	0.000	0.0000	0.0000	0	<0.5	6/7/2019
52	K1905116-006t	1	0.000	0.0000	0.0000	0	<0.5	6/7/2019
53	K1905116-006q	1	0.000	0.0000	0.0000	0	<0.5	6/7/2019
54	K1905116-007	1	0.000	0.0000	0.0000	0	<0.5	6/7/2019
55	K1905116-007d	1	0.000	0.0000	0.0000	0	<0.5	6/7/2019
56	K1905116-007t	1	0.000	0.0000	0.0000	0	<0.5	6/7/2019
57	K1905116-007q	1	0.000	0.0000	0.0000	0	<0.5	6/7/2019
58	K1905116-008	1	0.991	0.0000	0.9912	0.9912	1.0	6/7/2019
59	K1905116-008d	1	1.025	0.0000	1.0248	1.0248	1.0	6/7/2019
60	K1905116-008t	1	1.023	0.0000	1.0231	1.0231	1.0	6/7/2019
61	K1905116-008q	1	1.041	0.0000	1.0410	1.041	1.0	6/7/2019
62	K1905184-001	1	0.000	0.0000	0.0000	0	<0.5	6/7/2019
63	K1905184-001d	1	0.000	0.0000	0.0000	0	<0.5	6/7/2019
64	K1905184-001t	1	0.000	0.0000	0.0000	0	<0.5	6/7/2019
65	K1905184-001q	1	0.000	0.0000	0.0000	0	<0.5	6/7/2019
66	K1905184-001ms	1	26.150	0.0000	26.1499	26.1499	26.1	6/7/2019
67	K1905184-001msd	1	26.463	0.0000	26.4634	26.4634	26.5	6/7/2019
68	K1905184-001	1	26.383	0.0000	26.3825	26.3825	26.4	6/7/2019
69	K1905184-001	1	26.388	0.0000	26.3878	26.3878	26.4	6/7/2019
70	K1905184-003	1	0.006	0.0000	0.0059	0.0059	<0.5	6/7/2019
71	K1905184-003d	1	0.000	0.0000	0.0000	0	<0.5	6/7/2019
72	K1905184-003t	1	0.000	0.0000	0.0000	0	<0.5	6/7/2019
73	K1905184-003q	1	0.000	0.0000	0.0000	0	<0.5	6/7/2019
74	K1905184-004	1	0.000	0.0000	0.0000	0	<0.5	6/7/2019
75	K1905184-004d	1	0.000	0.0000	0.0000	0	<0.5	6/7/2019

Analyzed By: [illegible]	Date Analyzed 6/6/19
Reviewed By: [illegible]	Date Reviewed 06/13/19

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
76	K1905184-004t	1	0.000	0.0000	0.0000	0	<0.5	6/7/2019
77	K1905184-004q	1	0.000	0.0000	0.0000	0	<0.5	6/7/2019
78	C] CCV 25 ppm [25 p	1	24.314	0.0000	24.3136	24.3136	24.3	6/7/2019
79	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/7/2019
80		1		0.0000	0.0000	0	<0.5	
81		1		0.0000	0.0000	0	<0.5	
82		1		0.0000	0.0000	0	<0.5	
83		1		0.0000	0.0000	0	<0.5	
84		1		0.0000	0.0000	0	<0.5	
85		1		0.0000	0.0000	0	<0.5	
86		1		0.0000	0.0000	0	<0.5	
87		1		0.0000	0.0000	0	<0.5	
88		1		0.0000	0.0000	0	<0.5	
89		1		0.0000	0.0000	0	<0.5	
90		1		0.0000	0.0000	0	<0.5	
91		1		0.0000	0.0000	0	<0.5	
92		1		0.0000	0.0000	0	<0.5	
93		1		0.0000	0.0000	0	<0.5	
94		1		0.0000	0.0000	0	<0.5	
95		1		0.0000	0.0000	0	<0.5	
96		1		0.0000	0.0000	0	<0.5	
97		1		0.0000	0.0000	0	<0.5	
98		1		0.0000	0.0000	0	<0.5	
99		1		0.0000	0.0000	0	<0.5	
100		1		0.0000	0.0000	0	<0.5	

Analyzed By: BCP	Date Analyzed 6/6/19
Reviewed By:	Date Reviewed 06/13/19

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
CBA	RB	1			0.0000	0	<0.5	
2	C] CCV 25 ppm [25 p	1	24.314	0.0000	24.3136	24.3136	24.3	6/7/2019
3	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/7/2019
4	MB2	1	0.000	0.0000	0.0000	0	<0.5	6/7/2019
5	MB2d	1	0.000	0.0000	0.0000	0	<0.5	6/7/2019
6	MB2t	1	0.000	0.0000	0.0000	0	<0.5	6/7/2019
7	MB2q	1	0.000	0.0000	0.0000	0	<0.5	6/7/2019
8	[TOC] LCS [24ppm]	1	25.181	0.0000	25.1813	25.1813	25	6/7/2019
9	[TOC] LCS [24ppm]d	1	25.183	0.0000	25.1831	25.1831	25.18	6/7/2019
10	[TOC] LCS [24ppm]t	1	25.030	0.0000	25.0303	25.0303	25.03	6/7/2019
11	[TOC] LCS [24ppm]q	1	25.101	0.0000	25.1014	25.1014	25.1	6/7/2019
12	K1905184-005	1	0.004	0.0000	0.0043	0.0043	<0.5	6/7/2019
13	K1905184-005d	1	0.000	0.0000	0.0000	0	<0.5	6/7/2019
14	K1905184-005t	1	0.000	0.0000	0.0000	0	<0.5	6/7/2019
15	K1905184-005q	1	0.000	0.0000	0.0000	0	<0.5	6/7/2019
16	K1905184-006	1	12.656	0.0000	12.6563	12.6563	12.7	6/7/2019
17	K1905184-006d	1	12.877	0.0000	12.8765	12.8765	12.88	6/7/2019
18	K1905184-006t	1	12.966	0.0000	12.9658	12.9658	13.0	6/7/2019
19	K1905184-006q	1	13.031	0.0000	13.0305	13.0305	13.0	6/7/2019
20	K1905185-001	1	2.292	0.0000	2.2916	2.2916	2.29	6/7/2019
21	K1905185-001d	1	2.165	0.0000	2.1646	2.1646	2.16	6/7/2019
22	K1905185-001t	1	2.118	0.0000	2.1180	2.118	2.1	6/7/2019
23	K1905185-001q	1	2.123	0.0000	2.1233	2.1233	2.1	6/7/2019
24	K1905185-001ms	1	28.333	0.0000	28.3329	28.3329	28.33	6/7/2019
25	K1905185-001msd	1	28.279	0.0000	28.2793	28.2793	28.28	6/7/2019

ICAL Date 10/20/16 ICAL ID#:11-GEN-05-51A

LCS =24.0 ppm APG 4013 Lot #010615 (REF# 11-GEN-05-50N)

CCV = 25.0 ppm (Ref.#11-GEN-05-52E)

Spike: 0.05 ml of 5000 ppm stock ----> 10.0 ml =25.0 ppm x Dilution Factor (Ref.# 11-GEN-05-51M)

		date time
Analyzed By: BCD	Date Analyzed	6/6/19
Reviewed By:	Date Reviewed	06/13/19

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
26	K1905185-001	1	28.170	0.0000	28.1704	28.1704	28.17	6/7/2019
27	K1905185-001	1	28.162	0.0000	28.1616	28.1616	28.16	6/7/2019
28	K1905185-003	1	0.108	0.0000	0.1083	0.1083	<0.5	6/7/2019
29	K1905185-003d	1	0.099	0.0000	0.0993	0.0993	<0.5	6/7/2019
30	K1905185-003t	1	0.084	0.0000	0.0837	0.0837	<0.5	6/7/2019
31	K1905185-003q	1	0.096	0.0000	0.0963	0.0963	<0.5	6/7/2019
32	K1905185-004	1	0.000	0.0000	0.0000	0	<0.5	6/7/2019
33	K1905185-004d	1	0.000	0.0000	0.0000	0	<0.5	6/7/2019
34	K1905185-004t	1	0.000	0.0000	0.0000	0	<0.5	6/7/2019
35	K1905185-004q	1	0.000	0.0000	0.0000	0	<0.5	6/7/2019
36	K1905185-005	1	0.000	0.0000	0.0000	0	<0.5	6/7/2019
37	K1905185-005d	1	0.000	0.0000	0.0000	0	<0.5	6/7/2019
38	K1905185-005t	1	0.000	0.0000	0.0000	0	<0.5	6/7/2019
39	K1905185-005q	1	0.000	0.0000	0.0000	0	<0.5	6/7/2019
40	C] CCV 25 ppm [25 p	1	24.064	0.0000	24.0635	24.0635	24.1	6/7/2019
41	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/7/2019
42	K1905185-006	1	0.000	0.0000	0.0000	0	<0.5	6/7/2019
43	K1905185-006d	1	0.000	0.0000	0.0000	0	<0.5	6/7/2019
44	K1905185-006t	1	0.000	0.0000	0.0000	0	<0.5	6/7/2019
45	K1905185-006q	1	0.000	0.0000	0.0000	0	<0.5	6/7/2019
46	C] CCV 25 ppm [25 p	1	23.819	0.0000	23.8186	23.8186	23.8	6/8/2019
47	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/8/2019
48		1		0.0000	0.0000	0	<0.5	
49		1		0.0000	0.0000	0	<0.5	
50		1		0.0000	0.0000	0	<0.5	

Analyzed By: RP	Date Analyzed 6/6/19
Reviewed By:	Date Reviewed 06/13/19

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
CBA	RB	1			0.0000	0	<0.5	
2	C] CCV 25 ppm [25 p	1	24.064	0.0000	24.0635	24.0635	24.1	6/7/2019
3	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/7/2019
4	K1905173-001	1	0.124	0.0000	0.1243	0.1243	<0.5	6/7/2019
5	K1905173-001d	1	0.173	0.0000	0.1727	0.1727	<0.5	6/7/2019
6	K1905173-002	1	0.162	0.0000	0.1616	0.1616	<0.5	6/7/2019
7	K1905173-002d	1	0.206	0.0000	0.2061	0.2061	<0.5	6/7/2019
8	K1905173-003	1	0.104	0.0000	0.1044	0.1044	<0.5	6/7/2019
9	K1905173-003d	1	0.163	0.0000	0.1625	0.1625	<0.5	6/7/2019
10	K1905173-004	1	3.125	0.0000	3.1247	3.1247	3.12	6/7/2019
11	K1905173-004d	1	3.144	0.0000	3.1442	3.1442	3.1	6/7/2019
12	K1905173-005	10	11.078	0.0000	11.0782	110.782	110.78	6/7/2019
13	K1905173-005d	10	11.068	0.0000	11.0680	110.68	110.68	6/7/2019
14	K1905124-001	1	1.013	0.0000	1.0130	1.013	1.01	6/7/2019
15	K1905124-001d	1	1.028	0.0000	1.0278	1.0278	1.0	6/7/2019
16	K1905124-001ms	1	26.636	0.0000	26.6355	26.6355	26.6	6/8/2019
17	C] CCV 25 ppm [25 p	1	23.819	0.0000	23.8186	23.8186	23.82	6/8/2019
18	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/8/2019
19	MB3	1	0.000	0.0000	0.0000	0	<0.5	6/8/2019
20	[TOC] LCS [25ppm]	1	25.088	0.0000	25.0878	25.0878	25.09	6/8/2019
21	K1905124-002	1	1.199	0.0000	1.1987	1.1987	1.20	6/8/2019
22	K1905124-002d	1	1.108	0.0000	1.1078	1.1078	1.1	6/8/2019
23	K1905124-003	1	0.000	0.0000	0.0000	0	<0.5	6/8/2019
24	K1905124-003d	1	0.000	0.0000	0.0000	0	<0.5	6/8/2019
25	K1905198-001	1	1.876	0.0000	1.8755	1.8755	1.88	6/8/2019

ICAL Date 10/20/16 ICAL ID#:11-GEN-05-51A

LCS =24.0 ppm APG 4013 Lot #010615 (REF# 11-GEN-05-50N)

CCV = 25.0 ppm (Ref.#11-GEN-05-52E)

Spike: 0.05 ml of 5000 ppm stock ----> 10.0 ml =25.0 ppm x Dilution Factor (Ref.# 11-GEN-05-51M)

		date time
Analyzed By:		Date Analyzed 6/6/19
Reviewed By:		Date Reviewed 06/13/19

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
26	K1905198-001d	1	1.801	0.0000	1.8014	1.8014	1.80	6/8/2019
27	K1905198-002	1	4.132	0.0000	4.1320	4.132	4.13	6/8/2019
28	K1905198-002d	1	3.890	0.0000	3.8903	3.8903	3.9	6/8/2019
29	K1905198-003	1	113.099	0.0000	113.0994	113.0994	113.1	6/8/2019
30	K1905198-003d	1	107.785	0.0000	107.7853	107.7853	107.8	6/8/2019
31	K1905198-004	1	12.558	0.0000	12.5577	12.5577	12.6	6/8/2019
32	K1905198-004d	1	3.371	0.0000	3.3714	3.3714	3.4	6/8/2019
33	K1905198-005	1	61.202	0.0000	61.2015	61.2015	61.2	6/8/2019
34	K1905198-005d	1	58.054	0.0000	58.0543	58.0543	58.1	6/8/2019
35	K1905198-006	1	5.412	0.0000	5.4119	5.4119	5.4	6/8/2019
36	K1905198-006d	1	4.693	0.0000	4.6927	4.6927	4.7	6/8/2019
37	C] CCV 25 ppm [25 p	1	24.590	0.0000	24.5900	24.59	24.6	6/8/2019
38	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/8/2019
39	K1905217-001	1	2.419	0.0000	2.4194	2.4194	2.4	6/8/2019
40	K1905217-001d	1	2.419	0.0000	2.4194	2.4194	2.4	6/8/2019
41	K1905217-002	1	1.336	0.0000	1.3362	1.3362	1.3	6/8/2019
42	K1905217-002d	1	1.244	0.0000	1.2437	1.2437	1.2	6/8/2019
43	K1905217-003	1	1.893	0.0000	1.8934	1.8934	1.9	6/8/2019
44	K1905217-003d	1	1.881	0.0000	1.8811	1.8811	1.9	6/8/2019
45	K1905217-004	1	1.506	0.0000	1.5062	1.5062	1.5	6/8/2019
46	K1905217-004d	1	1.498	0.0000	1.4981	1.4981	1.5	6/8/2019
47	K1905217-005	1	1.504	0.0000	1.5041	1.5041	1.5	6/8/2019
48	K1905217-005d	1	1.485	0.0000	1.4845	1.4845	1.5	6/8/2019
49	K1905217-006	1	1.416	0.0000	1.4156	1.4156	1.4	6/8/2019
50	K1905217-006d	1	1.393	0.0000	1.3929	1.3929	1.4	6/8/2019

Analyzed By:	BCP	Date Analyzed	6/6/19
Reviewed By:	[signature]	Date Reviewed	06/13/19

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
51	C] CCV 25 ppm [25 p	1	24.262	0.0000	24.2624	24.2624	24.26	6/8/2019
52	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/8/2019
53		1		0.0000	0.0000	0	<0.5	
54		1		0.0000	0.0000	0	<0.5	
55		1		0.0000	0.0000	0	<0.5	
56		1		0.0000	0.0000	0	<0.5	
57		1		0.0000	0.0000	0	<0.5	
58		1		0.0000	0.0000	0	<0.5	
59		1		0.0000	0.0000	0	<0.5	
60		1		0.0000	0.0000	0	<0.5	
61		1		0.0000	0.0000	0	<0.5	
62		1		0.0000	0.0000	0	<0.5	
63		1		0.0000	0.0000	0	<0.5	
64		1		0.0000	0.0000	0	<0.5	
65		1		0.0000	0.0000	0	<0.5	
66		1		0.0000	0.0000	0	<0.5	
67		1		0.0000	0.0000	0	<0.5	
68		1		0.0000	0.0000	0	<0.5	
69		1		0.0000	0.0000	0	<0.5	
70		1		0.0000	0.0000	0	<0.5	
71		1		0.0000	0.0000	0	<0.5	
72		1		0.0000	0.0000	0	<0.5	
73		1		0.0000	0.0000	0	<0.5	
74		1		0.0000	0.0000	0	<0.5	
75		1		0.0000	0.0000	0	<0.5	

Analyzed By:	BCN	Date Analyzed	6/6/19
Reviewed By:	[signature]	Date Reviewed	06/13/19

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
CBA	RB	1			0.0000	0	<0.5	
2	C] CCV 25 ppm [25 p	1	24.590	0.0000	24.5900	24.59	24.6	6/8/2019
3	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/8/2019
4	K1905217-007	1	2.110	0.0000	2.1095	2.1095	2.1	6/8/2019
5	K1905217-007d	1	2.119	0.0000	2.1186	2.1186	2.1	6/8/2019
6	K1905217-008	1	2.214	0.0000	2.2135	2.2135	2.21	6/8/2019
7	K1905217-008d	1	2.176	0.0000	2.1758	2.1758	2.2	6/8/2019
8	K1905084-002	100	7.689	0.0000	7.6889	768.89	769	6/8/2019
9	K1905084-002d	100	7.763	0.0000	7.7632	776.32	776.32	6/8/2019
10	K1905084-003	100	8.055	0.0000	8.0550	805.5	805.50	6/8/2019
11	K1905084-003d	100	8.007	0.0000	8.0068	800.68	800.7	6/8/2019
12	C] CCV 25 ppm [25 p	1	24.262	0.0000	24.2624	24.2624	24.26	6/8/2019
13	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/8/2019
14	MB4	1	0.000	0.0000	0.0000	0	<0.5	6/8/2019
15	[TOC] LCS [25ppm]	1	25.191	0.0000	25.1909	25.1909	25.2	6/8/2019
16	K1905114-001	1	28.615	0.0000	28.6149	28.6149	28.6	6/8/2019
17	K1905114-001d	1	28.828	0.0000	28.8277	28.8277	28.83	6/8/2019
18	K1905114-002	1	22.422	0.0000	22.4217	22.4217	22.4	6/8/2019
19	K1905114-002d	1	22.657	0.0000	22.6569	22.6569	22.7	6/8/2019
20	K1905114-003	100	6.149	0.0000	6.1488	614.88	614.88	6/8/2019
21	K1905114-003d	100	5.929	0.0000	5.9293	592.93	592.93	6/8/2019
22	K1905114-004	1	22.431	0.0000	22.4310	22.431	22.4	6/8/2019
23	K1905114-004d	1	22.814	0.0000	22.8143	22.8143	22.8	6/8/2019
24	K1905114-005	1	20.610	0.0000	20.6101	20.6101	20.61	6/8/2019
25	K1905114-005d	1	20.346	0.0000	20.3462	20.3462	20.35	6/8/2019

ICAL Date 10/20/16 ICAL ID#:11-GEN-05-51A

LCS =24.0 ppm APG 4013 Lot #010615 (REF# 11-GEN-05-50N)

CCV = 25.0 ppm (Ref.#11-GEN-05-52E)

Spike: 0.05 ml of 5000 ppm stock ----> 10.0 ml =25.0 ppm x Dilution Factor (Ref.# 11-GEN-05-51M)

		date	time
Analyzed By:		Date Analyzed	6/6/19
Reviewed By:		Date Reviewed	06/13/19

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
26	K1905114-006	100	0.263	0.0000	0.2634	26.34	26.34	6/8/2019
27	K1905114-006d	100	0.046	0.0000	0.0458	4.58	4.58	6/8/2019
28	K1905128-001	1	1.139	0.0000	1.1392	1.1392	1.1	6/8/2019
29	K1905128-001d	1	1.096	0.0000	1.0964	1.0964	1.1	6/8/2019
30	C] CCV 25 ppm [25 p	1	24.569	0.0000	24.5691	24.5691	24.6	6/8/2019
31	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/8/2019
32	K1905128-002	1	1.039	0.0000	1.0389	1.0389	1.0	6/8/2019
33	K1905128-002d	1	1.027	0.0000	1.0268	1.0268	1.0	6/8/2019
34	K1905128-002ms	1	26.910	0.0000	26.9096	26.9096	26.9	6/8/2019
35	K1905128-003	1	1.153	0.0000	1.1526	1.1526	1.2	6/8/2019
36	K1905128-003d	1	1.113	0.0000	1.1131	1.1131	1.1	6/8/2019
37	K1905128-004	1	0.000	0.0000	0.0000	0	<0.5	6/8/2019
38	K1905128-004d	1	0.000	0.0000	0.0000	0	<0.5	6/8/2019
39	K1905215-001	1	0.874	0.0000	0.8737	0.8737	0.9	6/8/2019
40	K1905215-001d	1	0.949	0.0000	0.9489	0.9489	0.9	6/8/2019
41	K1905215-003	1	1.564	0.0000	1.5635	1.5635	1.6	6/8/2019
42	K1905215-003d	1	1.605	0.0000	1.6053	1.6053	1.6	6/8/2019
43	C] CCV 25 ppm [25 p	1	24.217	0.0000	24.2167	24.2167	24.2	6/8/2019
44	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/8/2019
45		1		0.0000	0.0000	0	<0.5	
46		1		0.0000	0.0000	0	<0.5	
47		1		0.0000	0.0000	0	<0.5	
48		1		0.0000	0.0000	0	<0.5	
49		1		0.0000	0.0000	0	<0.5	
50		1		0.0000	0.0000	0	<0.5	

Analyzed By: KLP	Date Analyzed 6/8/19
Reviewed By:	Date Reviewed 06/13/19

TOC: 638448, 638449, 638450, 638451

Schedule: 06062019

Version: 7
Instrument: Fusion1
Last Saved by: Fusion1 (Fusion1)
Last Saved on: 2019/06/06 17:04 - Thursday

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
(Clean)	Clean	Clean		1	True	Ready
(Clean)	Clean	Clean		1	True	Ready
(Clean)	Clean	Clean		1	True	Ready
(Blank)	Blank	Reagent/Acid Blank		1	True	Ready
D	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
1	Sample	MB1	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
C	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
2	Sample	ICS	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
3	Sample	K1905113-003.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
4	Sample	K1905113-004.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
5	Sample	K1905113-005.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
6	Sample	K1905113-006.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
7	Sample	K1905113-007.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
8	Sample	K1905113-008.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
9	Sample	K1905116-003.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
10	Sample	K1905116-004.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
11	Sample	K1905116-005.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
12	Sample	K1905116-006.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
13	Sample	K1905116-007.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
14	Sample	K1905116-008.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
15	Sample	K1905184-001.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
16	Sample	K1905184-001.08 ms	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
17	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
18	Sample	K1905184-003.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
19	Sample	K1905184-004.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
20	Sample	MB2	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
C	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
21	Sample	K1905184-005.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
22	Sample	K1905184-006.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
23	Sample	K1905185-001.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
24	Sample	K1905185-001.08 ms	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
25	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
26	Sample	K1905185-003.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
27	Sample	K1905185-004.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
28	Sample	K1905185-005.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
29	Sample	K1905185-006.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
30	Sample	K1905173-001.09	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
31	Sample	K1905173-002.09	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
32	Sample	K1905173-003.09	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
33	Sample	K1905173-004.09	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
34	Sample	K1905173-005.09 10x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
35	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
36	Sample	K1905124-001.08	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
37	Sample	K1905124-001.08 ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
38	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready

6/13/19

Schedule: 06062019

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
39	Sample	MB3	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [25.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
40	Sample	K1905124-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
41	Sample	K1905124-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
42	Sample	K1905198-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
43	Sample	K1905198-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
44	Sample	K1905198-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
45	Sample	K1905198-004.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
46	Sample	K1905198-005.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
47	Sample	K1905198-006.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
48	Sample	K1905217-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
49	Sample	K1905217-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
50	Sample	K1905217-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
51	Sample	K1905217-004.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
52	Sample	K1905217-005.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
53	Sample	K1905217-006.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
54	Sample	K1905217-007.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
55	Sample	K1905217-008.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
56	Sample	K1905084-002.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
57	Sample	K1905084-003.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
58	Sample	MB4	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [25.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
59	Sample	K1905114-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
60	Sample	K1905114-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
61	Sample	K1905114-003.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
62	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
63	Sample	K1905114-004.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
64	Sample	K1905114-005.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
65	Sample	K1905114-006.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
66	Sample	K1905128-001.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
67	Sample	K1905128-002.11	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
68	Sample	K1905128-002.11 ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
69	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
70	Sample	K1905128-003.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
71	Sample	K1905128-004.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
72	Sample	K1905215-001.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
73	Sample	K1905215-003.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
					False	

Fusion Report - 06062019
Thursday, June 06, 2019 12:56 PM

(View - Reps, Unused Reps, Meta-Data, Signature, History)
Printed on 2019/06/10 09:28 - Monday

Report Summary Information

Company Location: Gen Chem Lab
Schedule Name: 06062019
Instrument Name: Fusion1
Report Version: 1 of 1
Report Creation by Operators (schedule version): Fusion1 (Fusion1) (v2), Fusion1 (Fusion1) (v3), Fusion1 (Fusion1) (v4), Fusion1 (Fusion1) (v5), Fusion1 (Fusion1) (v6), Fusion1 (Fusion1) (v7)
Comment:

Engine Version: 1.1.5.1
Firmware Version: 1.2.0696
Connection: RS232 COM1

06/13/19

Report Results

Sample Type: Clean — From Schedule Version 2

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2019/06/06 12:56

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	13.50	16.84	3.35	49.93	08:00
2	TC Clean	6.60	9.90	3.30	49.76	07:16
3	TC Clean	2.11	5.35	3.24	49.76	07:03
4	TC Clean	1.59	4.71	3.12	49.74	07:03

Sample Type: Clean — From Schedule Version 2

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2019/06/06 13:30

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	1.06	4.06	3.01	49.90	08:00
2	TC Clean	4.22	7.44	3.21	49.71	07:18

3	TC Clean	2.04	5.00	2.96	49.72	07:03
4	TC Clean	1.65	4.60	2.96	49.71	06:59

Sample Type: Clean — From Schedule Version 3

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2019/06/06 14:06

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	9.21	12.28	3.07	49.88	07:58
2	TC Clean	4.92	8.07	3.16	49.70	07:17
3	TC Clean	1.95	5.08	3.13	49.66	07:01
4	TC Clean	1.60	4.53	2.93	49.64	07:02

Sample Type: Blank (Creating v1264) — From Schedule Version 4

	Pos	Analysis Type	Sample ID	Start Time
◆	(blank)		Reagent/Acid Blank	2019/06/06 14:41

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	11.38	14.37	2.98	49.79	07:58
2	TC Clean	3.94	6.95	3.01	49.63	07:18
3	TC Clean	1.80	4.87	3.07	49.61	07:02
4	TC Clean	1.06	4.12	3.06	49.58	07:01
5	Reagent Blank	4.20	7.17	2.97	49.61	08:14
6	Acid Blank	1.21	4.29	3.08	49.71	08:02

Sample Type: Sample — From Schedule Version 5

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	D	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/06 15:49

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	8.54	11.45	2.91	49.74	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 6

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.8845 ppm (PASS)	0.0000 ppm	0%	2019/06/06 16:03

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.8845	248.8450	178.38	181.55	3.17	49.74	10:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 6

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/06/06 16:18

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	6.94	10.08	3.15	49.76	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample — From Schedule Version 6

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	1	TOC	MB1	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/06 16:33

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.99	9.11	3.12	49.75	10:26
2	TOC	0.0000	0.0000	5.86	9.05	3.20	49.79	10:26
3	TOC	0.0000	0.0000	5.74	8.70	2.96	49.72	10:26
4	TOC	0.0000	0.0000	5.94	8.84	2.90	49.73	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> LCS — From Schedule Version 7

			Concentration			Min / Max				

	Pos	BAT	(ppm)	Dil	Sample ID	(% dev)	Result	Std. Dev.	RSD	Start Time
◈	C	TOC	25.0000	1:1	[TOC] LCS [24.0 ppm]	0 / infinity (NA / NA)	25.4120 ppm (PASS)	0.1379 ppm	0.54%	2019/06/06 17:29

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	25.5209	255.2092	182.70	185.65	2.96	49.73	10:26
C	TOC	25.0 ppm	2	25.2132	252.1317	180.61	183.59	2.98	49.71	10:27
C	TOC	25.0 ppm	3	25.4853	254.8527	182.46	185.49	3.03	49.69	10:24
C	TOC	25.0 ppm	4	25.4286	254.2855	182.07	185.17	3.10	49.72	10:25

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	25 ppmC

Sample Type: Sample

From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	2	TOC	ICS	0.1722 ppm	0.0000 ppm	0.0000%	2019/06/06 18:24

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1722	1.7221	9.96	13.01	3.05	49.71	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	3	TOC	K1905113-003.08	0.5914 ppm	0.0303 ppm	5.1300%	2019/06/06 18:39

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.6233	6.2331	13.03	16.12	3.09	49.73	10:29
2	TOC	0.5614	5.6143	12.61	15.56	2.95	49.73	10:28
3	TOC	0.5698	5.6983	12.66	15.69	3.03	49.75	10:30
4	TOC	0.6109	6.1093	12.94	15.91	2.97	49.76	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	4	TOC	K1905113-004.08	0.5416 ppm	0.0139 ppm	2.5700%	2019/06/06 19:35

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5511	5.5112	12.54	15.79	3.25	49.78	10:26
2	TOC	0.5549	5.5495	12.56	15.69	3.12	49.81	10:31
3	TOC	0.5351	5.3506	12.43	15.58	3.15	49.84	10:27
4	TOC	0.5252	5.2519	12.36	15.53	3.17	49.84	10:23

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	5	TOC	K1905113-005.08	0.5638 ppm	0.0253 ppm	4.5000%	2019/06/06 20:30

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5860	5.8603	12.77	15.76	2.99	49.89	10:26
2	TOC	0.5673	5.6732	12.65	15.75	3.10	49.91	10:23
3	TOC	0.5741	5.7410	12.69	15.83	3.14	49.94	10:27
4	TOC	0.5275	5.2755	12.38	15.61	3.23	49.96	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	6	TOC	K1905113-006.08	0.5936 ppm	0.0238 ppm	4.0100%	2019/06/06 21:26

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5835	5.8353	12.76	15.80	3.04	49.96	10:31
2	TOC	0.5719	5.7189	12.68	15.79	3.12	49.98	10:27
3	TOC	0.5919	5.9193	12.81	15.84	3.03	49.99	10:28
4	TOC	0.6271	6.2714	13.05	16.09	3.04	50.00	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	7	TOC	K1905113-007.08	10.7008 ppm	0.0804 ppm	0.7500%	2019/06/06 22:22

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	10.6780	106.7805	81.28	84.28	3.01	50.02	10:29
2	TOC	10.6259	106.2590	80.92	83.98	3.06	50.06	10:26
3	TOC	10.6847	106.8468	81.32	84.20	2.88	50.09	10:30
4	TOC	10.8148	108.1476	82.21	85.24	3.04	50.11	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	8	TOC	K1905113-008.08	0.0069 ppm	0.0138 ppm	200.0000%	2019/06/06 23:17

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0275	0.2754	8.98	12.13	3.15	50.11	10:27
2	TOC	0.0000	0.0000	8.61	11.75	3.13	50.12	10:24

3	TOC	0.0000	0.0000	8.58	11.75	3.17	50.14	10:25
4	TOC	0.0000	0.0000	8.13	11.29	3.15	50.14	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	9	TOC	K1905116-003.08	0.2978 ppm	0.0380 ppm	12.7600%	2019/06/07 00:13

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.2532	2.5324	10.52	13.69	3.17	50.14	10:27
2	TOC	0.3188	3.1879	10.96	13.93	2.97	50.17	10:24
3	TOC	0.3381	3.3809	11.09	14.16	3.07	50.12	10:28
4	TOC	0.2811	2.8108	10.70	13.86	3.16	50.14	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.4860 ppm (PASS)	0.0000 ppm	0%	2019/06/07 01:08

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.4860	244.8600	175.67	178.84	3.16	50.09	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/06/07 01:23

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	6.37	9.57	3.20	50.15	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample

From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	10	TOC	K1905116-004.08	0.1173 ppm	0.0208 ppm	17.7300%	2019/06/07 01:38

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1346	1.3464	9.71	12.93	3.22	50.12	10:29
2	TOC	0.1358	1.3582	9.72	12.77	3.06	50.15	10:28
3	TOC	0.0966	0.9664	9.45	12.69	3.24	50.11	10:29
4	TOC	0.1022	1.0223	9.49	12.76	3.27	50.10	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	11	TOC	K1905116-005.08	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/07 02:34

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	8.46	11.61	3.15	50.17	10:30
2	TOC	0.0000	0.0000	8.38	11.63	3.24	50.11	10:28
3	TOC	0.0000	0.0000	8.57	11.78	3.21	50.14	10:28
4	TOC	0.0000	0.0000	8.58	11.75	3.16	50.13	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	12	TOC	K1905116-006.08	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/07 03:30

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	8.34	11.37	3.03	50.15	10:27
2	TOC	0.0000	0.0000	8.28	11.49	3.20	50.11	10:28
3	TOC	0.0000	0.0000	8.54	11.61	3.07	50.14	10:30
4	TOC	0.0000	0.0000	8.43	11.58	3.16	50.12	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	13	TOC	K1905116-007.08	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/07 04:25

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	8.42	11.69	3.27	50.11	10:26
2	TOC	0.0000	0.0000	8.63	11.79	3.15	50.11	10:29
3	TOC	0.0000	0.0000	8.38	11.60	3.22	50.11	10:30
4	TOC	0.0000	0.0000	8.45	11.56	3.11	50.13	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	14	TOC	K1905116-008.08	1.0200 ppm	0.0208 ppm	2.0400%	2019/06/07 05:21

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.9912	9.9116	15.52	18.69	3.16	50.16	10:29
2	TOC	1.0248	10.2475	15.75	18.87	3.12	50.10	10:25
3	TOC	1.0231	10.2313	15.74	18.79	3.05	50.11	10:27
4	TOC	1.0410	10.4096	15.86	18.96	3.09	50.14	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	15	TOC	K1905184-001.08	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/07 06:17

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	8.02	11.14	3.12	50.03	10:28
2	TOC	0.0000	0.0000	8.06	11.08	3.01	50.00	10:23
3	TOC	0.0000	0.0000	8.22	11.24	3.02	49.94	10:31
4	TOC	0.0000	0.0000	8.28	11.13	2.85	49.89	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	16	TOC	K1905184-001.08 ms	26.3459 ppm	0.1358 ppm	0.5200%	2019/06/07 07:12

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	26.1499	261.4990	186.30	189.47	3.17	49.86	10:30
2	TOC	26.4634	264.6340	188.43	191.47	3.04	49.85	10:27
3	TOC	26.3825	263.8252	187.88	190.77	2.89	49.82	10:25
4	TOC	26.3878	263.8782	187.92	190.96	3.05	49.80	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	17	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/07 08:08

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.83	9.76	2.92	49.78	10:28

Dilution	Blank Contribution	Method	Calibration

1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	18	TOC	K1905184-003.08	0.0015 ppm	0.0029 ppm	200.0000%	2019/06/07 08:22

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0059	0.0589	8.84	11.82	2.98	49.87	10:27
2	TOC	0.0000	0.0000	8.74	11.66	2.92	49.85	10:27
3	TOC	0.0000	0.0000	8.52	11.35	2.84	49.86	10:24
4	TOC	0.0000	0.0000	8.22	11.22	3.00	50.16	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	19	TOC	K1905184-004.08	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/07 09:18

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	8.25	11.10	2.86	50.70	10:26
2	TOC	0.0000	0.0000	8.30	11.30	3.01	50.88	10:29
3	TOC	0.0000	0.0000	8.02	11.16	3.14	50.70	10:24
4	TOC	0.0000	0.0000	7.95	11.00	3.05	50.48	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.3136 ppm (PASS)	0.0000 ppm	0%	2019/06/07 10:14

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.3136	243.1363	174.50	177.69	3.19	50.23	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0	0 / infinity	0.0000	0.0000	0%	2019/06/07 10:28

					ppm]	(NA / NA)	ppm (PASS)	ppm		

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	5.85	9.11	3.26	49.89	10:34

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample — From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	20	TOC	MB2	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/07 10:43

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.06	8.27	3.21	49.89	10:26
2	TOC	0.0000	0.0000	5.24	8.38	3.14	49.94	10:27
3	TOC	0.0000	0.0000	5.06	8.15	3.10	49.94	10:27
4	TOC	0.0000	0.0000	5.19	8.18	2.99	49.95	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> LCS — From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	C	TOC	25.0000	1:1	[TOC] LCS [24.0 ppm]	0 / infinity (NA / NA)	25.1240 ppm (PASS)	0.0732 ppm	0.29%	2019/06/07 11:39

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	25.1813	251.8135	180.39	183.52	3.12	49.96	10:30
C	TOC	25.0 ppm	2	25.1831	251.8312	180.40	183.56	3.15	49.94	10:24
C	TOC	25.0 ppm	3	25.0303	250.3035	179.37	182.38	3.02	49.96	10:27
C	TOC	25.0 ppm	4	25.1014	251.0136	179.85	182.92	3.07	49.96	10:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	25 ppmC

Sample Type: Sample — From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	21	TOC	K1905184-005.08	0.0011 ppm	0.0021 ppm	200.0000%	2019/06/07 12:34

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0043	0.0427	8.82	11.80	2.97	49.97	10:29
2	TOC	0.0000	0.0000	8.11	11.02	2.91	49.93	10:27
3	TOC	0.0000	0.0000	7.84	10.89	3.05	49.96	10:24
4	TOC	0.0000	0.0000	8.00	11.07	3.07	49.94	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	22	TOC	K1905184-006.08	12.8823 ppm	0.1633 ppm	1.2700%	2019/06/07 13:30

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	12.6563	126.5626	94.71	97.79	3.09	49.96	10:26
2	TOC	12.8765	128.7651	96.20	99.27	3.07	49.93	10:25
3	TOC	12.9658	129.6578	96.81	99.93	3.12	49.86	10:26
4	TOC	13.0305	130.3046	97.25	100.36	3.12	49.99	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	23	TOC	K1905185-001.08	2.1744 ppm	0.0809 ppm	3.7200%	2019/06/07 14:26

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.2916	22.9156	24.35	27.56	3.21	49.91	10:29
2	TOC	2.1646	21.6457	23.49	26.60	3.11	49.93	10:25
3	TOC	2.1180	21.1801	23.17	26.27	3.09	49.92	10:29
4	TOC	2.1233	21.2332	23.21	26.25	3.04	49.95	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	24	TOC	K1905185-001.08 ms	28.2360 ppm	0.0839 ppm	0.3000%	2019/06/07 15:21

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	28.3329	283.3289	201.12	204.28	3.17	49.96	10:26
2	TOC	28.2793	282.7926	200.75	203.86	3.11	49.97	10:29
3	TOC	28.1704	281.7039	200.02	203.28	3.27	49.96	10:23
4	TOC	28.1616	281.6155	199.96	203.23	3.28	49.95	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis	Sample ID	Result (ppmC)	Std. Dev.	RSD	Start Time

		Type			(ppmC)		
◈	25	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/07 16:17

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.58	9.88	3.31	49.94	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	26	TOC	K1905185-003.08	0.0969 ppm	0.0102 ppm	10.5000%	2019/06/07 16:31

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1083	1.0827	9.53	12.69	3.16	49.97	10:26
2	TOC	0.0993	0.9929	9.47	12.66	3.19	49.98	10:26
3	TOC	0.0837	0.8367	9.36	12.51	3.14	50.01	10:28
4	TOC	0.0963	0.9634	9.45	12.55	3.10	50.03	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	27	TOC	K1905185-004.08	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/07 17:27

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.20	10.37	3.17	50.05	10:27
2	TOC	0.0000	0.0000	7.72	10.75	3.03	50.06	10:28
3	TOC	0.0000	0.0000	7.58	10.48	2.91	50.08	10:28
4	TOC	0.0000	0.0000	7.59	10.52	2.93	50.07	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	28	TOC	K1905185-005.08	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/07 18:23

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.51	10.62	3.11	50.08	10:26
2	TOC	0.0000	0.0000	7.76	10.73	2.97	50.07	10:29
3	TOC	0.0000	0.0000	7.98	11.11	3.13	50.10	10:25
4	TOC	0.0000	0.0000	7.72	10.78	3.06	50.07	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm

From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.0635 ppm (PASS)	0.0000 ppm	0%	2019/06/07 19:18

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.0635	240.6349	172.80	175.89	3.09	50.12	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB

From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/06/07 19:33

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	5.72	8.76	3.04	50.14	10:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample

From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	29	TOC	K1905185-006.08	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/07 19:48

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.60	9.72	3.12	50.15	10:29
2	TOC	0.0000	0.0000	6.72	9.71	2.99	50.16	10:28
3	TOC	0.0000	0.0000	6.70	9.87	3.17	50.18	10:27
4	TOC	0.0000	0.0000	6.56	9.60	3.03	50.14	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	30	TOC	K1905173-001.09	0.1485 ppm	0.0342 ppm	23.0100%	2019/06/07 20:43

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time

1	TOC	0.1243	1.2433	9.64	12.67	3.03	50.20	10:27
2	TOC	0.1727	1.7265	9.97	13.00	3.03	50.08	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	31	TOC	K1905173-002.09	0.1838 ppm	0.0315 ppm	17.1100%	2019/06/07 21:11

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1616	1.6160	9.89	12.93	3.04	50.15	10:26
2	TOC	0.2061	2.0609	10.20	13.24	3.04	50.07	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	32	TOC	K1905173-003.09	0.1335 ppm	0.0410 ppm	30.7500%	2019/06/07 21:39

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1044	1.0444	9.51	12.58	3.07	50.13	10:28
2	TOC	0.1625	1.6249	9.90	12.83	2.93	50.18	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	33	TOC	K1905173-004.09	3.1344 ppm	0.0139 ppm	0.4400%	2019/06/07 22:07

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.1247	31.2465	30.01	33.17	3.17	50.15	10:27
2	TOC	3.1442	31.4425	30.14	33.22	3.08	50.19	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	34	TOC	K1905173-005.09 10x	11.0731 ppm	0.0072 ppm	0.0600%	2019/06/07 22:35

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	11.0782	110.7817	83.99	87.11	3.11	50.16	10:27
2	TOC	11.0680	110.6800	83.92	86.89	2.97	50.15	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	35	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/07 23:03

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.69	8.77	3.08	50.15	10:27
2	TOC	0.0000	0.0000	5.46	8.64	3.18	50.15	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	36	TOC	K1905124-001.08	1.0204 ppm	0.0105 ppm	1.0300%	2019/06/07 23:32

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.0130	10.1297	15.67	18.83	3.16	50.21	10:30
2	TOC	1.0278	10.2785	15.77	18.93	3.16	50.15	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	37	TOC	K1905124-001.08 ms	26.6355 ppm	0.0000 ppm	0.0000%	2019/06/08 00:00

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	26.6355	266.3547	189.60	192.74	3.15	50.18	10:33

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	38	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/08 00:14

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.88	9.03	3.15	50.16	10:33

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	23.8186 ppm (PASS)	0.0000 ppm	0%	2019/06/08 00:29

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	23.8186	238.1864	171.14	174.29	3.15	50.18	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/06/08 00:44

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	5.52	8.75	3.23	50.19	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample — From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	39	TOC	MB3	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/08 00:59

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	4.57	7.86	3.30	50.15	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> LCS — From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	C	TOC	25.0000	1:1	[TOC] LCS [25.0 ppm]	0 / infinity (NA / NA)	25.0878 ppm (PASS)	0.0000 ppm	0%	2019/06/08 01:13

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	25.0878	250.8780	179.76	182.86	3.10	50.17	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	25 ppmC

Sample Type: Sample

From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	40	TOC	K1905124-002.01	1.1533 ppm	0.0643 ppm	5.5700%	2019/06/08 01:28

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.1987	11.9874	16.93	20.18	3.25	50.16	10:27
2	TOC	1.1078	11.0784	16.32	19.49	3.17	50.16	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	41	TOC	K1905124-003.01	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/08 01:56

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.73	8.71	2.97	50.21	10:26
2	TOC	0.0000	0.0000	5.97	8.88	2.91	50.21	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	42	TOC	K1905198-001.01	1.8385 ppm	0.0524 ppm	2.8500%	2019/06/08 02:24

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.8755	18.7553	21.53	24.60	3.07	50.22	10:27
2	TOC	1.8014	18.0142	21.02	24.18	3.15	50.20	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	43	TOC	K1905198-002.01	4.0112 ppm	0.1709 ppm	4.2600%	2019/06/08 02:52

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.1320	41.3203	36.84	39.95	3.10	50.19	10:30
2	TOC	3.8903	38.9028	35.20	38.26	3.06	50.19	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	44	TOC	K1905198-003.01	110.4423 ppm	3.7577 ppm	3.4000%	2019/06/08 03:21

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	113.0994	1130.9939	776.51	779.48	2.98	50.18	10:30
2	TOC	107.7853	1077.8526	740.44	745.02	4.59	50.19	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	45	TOC	K1905198-004.01	7.9646 ppm	6.4957 ppm	81.5600%	2019/06/08 03:49

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	12.5577	125.5771	94.04	98.18	4.14	50.23	10:29
2	TOC	3.3714	33.7141	31.68	34.88	3.20	50.17	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	46	TOC	K1905198-005.01	59.6279 ppm	2.2254 ppm	3.7300%	2019/06/08 04:17

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	61.2015	612.0147	424.23	427.38	3.15	50.17	10:25
2	TOC	58.0543	580.5427	402.86	406.49	3.62	50.19	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	47	TOC	K1905198-006.01	5.0523 ppm	0.5086 ppm	10.0700%	2019/06/08 04:45

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	5.4119	54.1194	45.53	48.95	3.42	50.23	10:27
2	TOC	4.6927	46.9273	40.65	43.75	3.10	50.20	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.5900 ppm (PASS)	0.0000 ppm	0%	2019/06/08 05:13

Pos	Base Analysis	ID	Rep	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run

	Type		#							Time
B	TOC	25 ppm	1	24.5900	245.9001	176.38	179.64	3.26	50.15	10:28

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB

From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/06/08 05:28

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	7.80	11.01	3.21	50.19	10:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample

From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	48	TOC	K1905217-001.01	2.4194 ppm	0.0000 ppm	0.0000%	2019/06/08 05:42

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.4194	24.1943	25.22	28.33	3.11	50.22	10:30
2	TOC	2.4194	24.1943	25.22	28.38	3.16	50.21	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	49	TOC	K1905217-002.01	1.2899 ppm	0.0654 ppm	5.0700%	2019/06/08 06:10

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.3362	13.3619	17.87	20.90	3.03	50.15	10:27
2	TOC	1.2437	12.4367	17.24	20.54	3.31	50.21	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	50	TOC	K1905217-003.01	1.8872 ppm	0.0086 ppm	0.4600%	2019/06/08 06:39

Rep	Base			Adjusted		Baseline	Pressure	Run

#	Analysis Type	ppm	µg	(Abs)	NDIR (Abs)	(Abs)	(psig)	Time
1	TOC	1.8934	18.9335	21.65	24.84	3.19	50.20	10:28
2	TOC	1.8811	18.8112	21.56	24.71	3.15	50.21	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	51	TOC	K1905217-004.01	1.5021 ppm	0.0057 ppm	0.3800%	2019/06/08 07:07

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.5062	15.0619	19.02	22.05	3.03	50.15	10:28
2	TOC	1.4981	14.9809	18.96	22.14	3.17	50.15	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	52	TOC	K1905217-005.01	1.4943 ppm	0.0139 ppm	0.9300%	2019/06/08 07:35

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.5041	15.0413	19.01	22.17	3.16	50.15	10:30
2	TOC	1.4845	14.8454	18.87	21.95	3.08	50.17	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	53	TOC	K1905217-006.01	1.4042 ppm	0.0160 ppm	1.1400%	2019/06/08 08:03

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.4156	14.1559	18.40	21.57	3.16	50.12	10:26
2	TOC	1.3929	13.9291	18.25	21.41	3.16	50.15	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	54	TOC	K1905217-007.01	2.1140 ppm	0.0065 ppm	0.3100%	2019/06/08 08:31

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.1095	21.0947	23.12	26.15	3.03	50.17	10:28
2	TOC	2.1186	21.1860	23.18	26.30	3.12	50.14	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.2135	22.1348	23.82	27.11	3.29	50.07	10:31
2	TOC	2.1758	21.7576	23.56	26.67	3.10	50.11	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	56	TOC	K1905084-002.01 100x	7.7260 ppm	0.0525 ppm	0.6800%	2019/06/08 09:27

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	7.6889	76.8892	60.99	64.10	3.11	50.10	10:30
2	TOC	7.7632	77.6317	61.49	64.63	3.14	50.04	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	57	TOC	K1905084-003.01 100x	8.0309 ppm	0.0341 ppm	0.4200%	2019/06/08 09:55

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	8.0550	80.5501	63.47	66.68	3.20	50.14	10:26
2	TOC	8.0068	80.0684	63.15	66.30	3.15	50.08	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.2624 ppm (PASS)	0.0000 ppm	0%	2019/06/08 10:23

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.2624	242.6237	174.15	177.26	3.11	50.09	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/06/08 10:38

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	5.80	8.96	3.16	50.02	10:28

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample — From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	58	TOC	MB4	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/08 10:52

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	4.88	8.29	3.40	50.06	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> LCS — From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	C	TOC	25.0000	1:1	[TOC] LCS [25.0 ppm]	0 / infinity (NA / NA)	25.1909 ppm (PASS)	0.0000 ppm	0%	2019/06/08 11:07

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	25.1909	251.9093	180.46	183.48	3.02	50.01	10:28

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	25 ppmC

Sample Type: Sample — From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	59	TOC	K1905114-001.01	28.7213 ppm	0.1505 ppm	0.5200%	2019/06/08 11:22

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	28.6149	286.1486	203.03	205.92	2.89	49.97	10:29

2	TOC	28.8277	288.2774	204.48	207.54	3.06	50.02	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	60	TOC	K1905114-002.01	22.5393 ppm	0.1664 ppm	0.7400%	2019/06/08 11:50

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	22.4217	224.2167	160.99	164.06	3.06	50.07	10:30
2	TOC	22.6569	226.5694	162.59	165.67	3.08	49.98	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	61	TOC	K1905114-003.01 100x	6.0391 ppm	0.1552 ppm	2.5700%	2019/06/08 12:18

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	6.1488	61.4884	50.53	53.71	3.18	49.96	10:28
2	TOC	5.9293	59.2933	49.04	52.09	3.05	49.93	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	62	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/08 12:46

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.34	10.42	3.08	49.91	10:28
2	TOC	0.0000	0.0000	5.89	9.05	3.16	49.89	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	63	TOC	K1905114-004.01	22.6226 ppm	0.2711 ppm	1.2000%	2019/06/08 13:14

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	22.4310	224.3095	161.06	163.94	2.89	49.91	10:25
2	TOC	22.8143	228.1428	163.66	166.69	3.03	49.87	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time

◆	64	TOC	K1905114-005.01	20.4781 ppm	0.1866 ppm	0.9100%	2019/06/08 13:42

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	20.6101	206.1007	148.70	151.67	2.98	49.86	10:26
2	TOC	20.3462	203.4622	146.90	149.91	3.00	49.83	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	65	TOC	K1905114-006.01 100x	0.1546 ppm	0.1539 ppm	99.5200%	2019/06/08 14:11

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.2634	2.6340	10.58	13.78	3.19	49.77	10:28
2	TOC	0.0458	0.4581	9.11	12.15	3.05	49.92	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	66	TOC	K1905128-001.03	1.1178 ppm	0.0303 ppm	2.7100%	2019/06/08 14:39

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.1392	11.3922	16.53	19.75	3.22	49.86	10:27
2	TOC	1.0964	10.9635	16.24	19.33	3.09	49.87	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.5691 ppm (PASS)	0.0000 ppm	0%	2019/06/08 15:07

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.5691	245.6909	176.24	179.32	3.08	49.91	10:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 7

			Concentration			Min / Max				

	Pos	BAT	(ppm)	Dil	Sample ID	(% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/06/08 15:22

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	5.51	8.70	3.19	49.89	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample — From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	67	TOC	K1905128-002.11	1.0329 ppm	0.0085 ppm	0.8300%	2019/06/08 15:37

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.0389	10.3890	15.85	19.06	3.21	49.96	10:28
2	TOC	1.0268	10.2682	15.77	18.91	3.14	49.88	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	68	TOC	K1905128-002.11 ms	26.9096 ppm	0.0000 ppm	0.0000%	2019/06/08 16:05

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	26.9096	269.0963	191.46	194.63	3.17	49.93	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	69	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/08 16:19

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.10	9.20	3.09	49.83	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	70	TOC	K1905128-003.03	1.1329 ppm	0.0279 ppm	2.4600%	2019/06/08 16:34

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time

1	TOC	1.1526	11.5263	16.62	19.51	2.89	49.87	10:28
2	TOC	1.1131	11.1314	16.35	19.36	3.01	49.82	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	71	TOC	K1905128-004.03	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/08 17:02

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.75	8.71	2.97	49.84	10:30
2	TOC	0.0000	0.0000	5.92	8.95	3.03	49.95	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	72	TOC	K1905215-001.02	0.9113 ppm	0.0531 ppm	5.8300%	2019/06/08 17:30

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.8737	8.7375	14.73	17.86	3.13	49.85	10:27
2	TOC	0.9489	9.4888	15.24	18.23	2.99	49.96	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	73	TOC	K1905215-003.02	1.5844 ppm	0.0296 ppm	1.8700%	2019/06/08 17:58

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.5635	15.6350	19.41	22.42	3.01	49.87	10:25
2	TOC	1.6053	16.0534	19.69	22.69	3.00	49.78	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7960 (IC) (v1264)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.2167 ppm (PASS)	0.0000 ppm	0%	2019/06/08 18:26

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.2167	242.1670	173.84	176.81	2.97	49.84	10:29

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Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/06/08 18:41

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	5.44	8.54	3.11	49.81	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Meta Data Used in this Report

Blanks

Version	Reagent (Abs)	Acid (Abs)	DI IC (Abs)	DI TC (Abs)	DI TOC (Abs)	Save Time	Operator
v1263	1.2990	1.2790	0.0000	0.0000	0.0000	2019/06/04 12:44	Fusion1 (Fusion1)
v1264	1.3990	1.2110	0.0000	0.0000	0.0000	2019/06/06 15:32	Fusion1 (Fusion1)

Calibrations

Name: CAS_salt_010711 (TOC)

Version:	v30	Calibration curve formula:	TOC: y = 6.788x + 9.463
Ver Creation:	2019/03/05 17:42	r^2 value:	TOC: r^2 = 0.99963
Comment:			
Operator:	Fusion1 (Fusion1)		
Basic Analysis Type	TOC		

Basic Analysis Type: TOC

Sample ID	Y Raw Value	X Expected	Message	End Time
DI Water	7.8970	0.0000		2019/03/05 16:15
0.500 ppm	11.5280	0.5000		2019/03/05 16:29
1.0 ppm	14.9760	1.0000		2019/03/05 16:44

00949157

5.0 ppm	43.6500	5.0000		2019/03/05 16:58
10 ppm	79.6020	10.0000		2019/03/05 17:12
25 ppm	183.3580	25.0000		2019/03/05 17:26
50 ppm	346.3230	50.0000		2019/03/05 17:40

Methods

Name: CAS_salt_010711 (TOC)

Version: v4 Operator: Fusion1 (Fusion1)

Ver Creation: 2019/02/21 17:57

Comment:

Parameter	Value
SampleVolume	10.0 mL
Dilution	1:10
AcidVolume	0.5 ml
ReagentVolume	2.0 ml
UVReactorPrerinse	Off
UVReactorPrerinseVolume	5.0
NumberOfUVReactorPrerinses	1
ICSpargeTime	1.00 mins
DetectorSweepFlow	500 ml/min
PreSpargeTime	2.00 mins
SystemFlow	500 ml/min

Advanced Parameter	Value
NeedleRinseVolume	5.0 ml
VialPrimeVolume	2.0 ml
ICSamplePrimeVolume	2.0 ml
ICSpargeRinseVolume	12.0 ml
BaselineStabilizeTime	0.70 min
DetectorPressureFlow	150 ml/min
SyringeSpeedWaste	10
SyringeSpeedAcid	7
SyringeSpeedReagent	7
SyringeSpeedDIWater	7
NDIRPressurization	60 psig
SyringeSpeedSampleDispense	5
SyringeSpeedSampleAspirate	4
SyringeSpeedUVDispense	5
SyringeSpeedUVAspirate	5
SyringeSpeedICDispense	5
SyringeSpeedICAspirate	5
NDIRPressureStabilize	1.75 min
SampleMixing	Off
SampleMixingCycles	1
SampleMixingVolume	10.0
LowLevelFilterNDIR	Off

Acceptance / Approval

Electronic Signatures

Report Version	User Name	Acceptance	Reason	Date

00949158

Report History

Report History

Report Version	User Name	System Reason	User Reason	Date
1	Fusion1 (Fusion1)	Schedule completed	Schedule completed	2019/06/08 18:59

ALS Environmental

StarLIMS Run: 638448, 638449, 638450, 638451

Analysis: TOC/DOC

Method: 415.1, SM 5310 C, 9060, 9060A

CCV: 11-GEN-05-77K 50 ppm LCS: 11-GEN-05-77D 25.0 ppm

ICAL Date: 3/6/19

ICAL ID: 11-GEN-05-76H

ICS ID: 11-GEN-05-74A

ICS TV: 25.0 ppm ICS % R = 2

Spike ID: 11-GEN-05-77J 0.05 ml of 5000 ppm stock ---> 10.0 ml = 25.0 ppm x dilution factor

Sodium Persulfate: 11-GEN-05-78E

21 % H3PO4: 11-GEN-05-78D

Equipment ID: K-TOC-03

PIPETTE ID: 124276B, 129001F, N11314F, Marge

FILTER ID: FE1165 5/31/19

Analyzed By: BCD	Date Analyzed: 6/6/19
Reviewed By:	Date Reviewed: 06/13/19

5361, 5369
III I

Work Request # Original ( ) KP05246, 5084, 5126, 5198, 5258, 5259, 5298, 5338, 5126, 5262, 5277, 5278, 5279, 5305, 5360

Tier: IV II III IV IV IV I II III IV IV III III II IV

Date Analyzed: 6/10/19

Analyst: JBCD

Analysis: TOC

TOC: 638808, 638810, 638815, 638817

Run #

DATA QUALITY REPORT
INORGANICS

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

1.	Is the method name and number correct and appropriate?	(yes)/no/NA
2.	Holding times met for all analyses and for all samples?	(yes)/no/NA
3.	Are calculations correct?	(yes)/no/NA
4.	Is the reporting basis correct? (Dry Weight)	yes/no/(NA)
5.	All quality control criteria met?	(yes)/no
6.	Is the calibration curve correlation coefficient ≥ 0.995?	(yes)/no/NA
7.	MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency?	(yes)/no/NA
8.	Are ICVs, CCVs, and CCBs all within acceptance limits?	(yes)/no/NA
9.	Are results for methods blanks all ND?	(yes)/no/NA
10.	Are all QC samples within acceptance criteria? (LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc.)	yes/(no)/NA
11.	Are all exceptions explained?	(yes)/no/NA
12.	Have all applicable service requests been reviewed?	(yes)/no/NA
13.	Are all samples labeled correctly?	(yes)/no/NA
14.	Have all instructions on the service request been followed? (e.g. Special MRLs, QC on a specific sample, Form V)	(yes)/no/NA
15.	Are detection limits and units reported correctly?	(yes)/no/NA
16.	Is the unused space on the benchsheet crossed out?	(yes)/no/NA
17.	Was analysis turned in by the due date? (n-2) (If not record SR#)	yes/(no)/NA

COMMENTS: KP05258-6, 5198-3 Sent for RA (Needs dilution)
KP05259-1 sent for RA due to high RSD% from sample carry over.
KP05126-2, 5198-4, 5277-2, 5279-1 Report a high % RSD. However, these samples are less than 5x the MRL.

Final Approved by: [signature] Date: 06/14/19

DQREPORT

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 638808 **Method/Testcode:** 9060/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K1905246-001	Carbon, Total Organic	N/A		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/10/19 17:23:00	N	IV
K1905246-003	Carbon, Total Organic	N/A		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/10/19 18:18:00	N	IV
K1905246-004	Carbon, Total Organic	N/A		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/10/19 19:14:00	N	IV
K1905246-005	Carbon, Total Organic	N/A		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/10/19 21:20:00	N	IV
KQ1908058-01	Carbon, Total Organic	CCV		Ground Water	25.15 mg/L	10 mL	25.2 mg/L	1			101		6/10/19 14:47:00	N	IV
KQ1908058-02	Carbon, Total Organic	CCV		Ground Water	27.51 mg/L	10 mL	27.5 mg/L	1			110		6/10/19 22:43:00	N	IV
KQ1908058-03	Carbon, Total Organic	CCB		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/10/19 15:02:00	N	IV
KQ1908058-04	Carbon, Total Organic	CCB		Ground Water	0.19 mg/L	10 mL	0.19 mg/L J	1	0.07	0.50			6/10/19 22:58:00	N	IV
KQ1908058-05	Carbon, Total Organic	MB		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/10/19 15:16:00	N	IV
KQ1908058-06	Carbon, Total Organic	MB		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/10/19 15:16:00	N	IV
KQ1908058-07	Carbon, Total Organic	MB		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/10/19 15:16:00	N	IV
KQ1908058-08	Carbon, Total Organic	MB		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/10/19 15:16:00	N	IV
KQ1908058-09	Carbon, Total Organic	LCS		Ground Water	24.62 mg/L	10 mL	24.6 mg/L	1	0.07	0.50	98		6/10/19 16:12:00	N	IV
KQ1908058-10	Carbon, Total Organic	LCS		Ground Water	24.74 mg/L	10 mL	24.7 mg/L	1	0.07	0.50	99		6/10/19 16:12:00	N	IV
KQ1908058-11	Carbon, Total Organic	LCS		Ground Water	25.10 mg/L	10 mL	25.1 mg/L	1	0.07	0.50	100		6/10/19 16:12:00	N	IV
KQ1908058-12	Carbon, Total Organic	LCS		Ground Water	24.96 mg/L	10 mL	25.0 mg/L	1	0.07	0.50	100		6/10/19 16:12:00	N	IV
KQ1908058-13	Carbon, Total Organic	DUP	K1905246-001	Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/10/19 17:23:00	N	IV
KQ1908058-14	Carbon, Total Organic	TRP	K1905246-001	Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/10/19 17:23:00	N	IV
KQ1908058-15	Carbon, Total Organic	QUAD	K1905246-001	Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/10/19 17:23:00	N	IV
KQ1908058-16	Carbon, Total Organic	DUP	K1905246-003	Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/10/19 18:18:00	N	IV
KQ1908058-17	Carbon, Total Organic	TRP	K1905246-003	Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/10/19 18:18:00	N	IV
KQ1908058-18	Carbon, Total Organic	QUAD	K1905246-003	Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/10/19 18:18:00	N	IV
KQ1908058-19	Carbon, Total Organic	DUP	K1905246-004	Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/10/19 19:14:00	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

06/14/19

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 638808 **Method/Testcode:** 9060/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ1908058-20	Carbon, Total Organic	TRP	K1905246-004	Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/10/19 19:14:00	N	IV
KQ1908058-21	Carbon, Total Organic	QUAD	K1905246-004	Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/10/19 19:14:00	N	IV
KQ1908058-22	Carbon, Total Organic	MS	K1905246-004	Ground Water	25.43 mg/L	10 mL	25.4 mg/L	1	0.07	0.50	102		6/10/19 20:10:00	N	IV
KQ1908058-23	Carbon, Total Organic	DUP	K1905246-005	Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/10/19 21:20:00	N	IV
KQ1908058-24	Carbon, Total Organic	TRP	K1905246-005	Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/10/19 21:20:00	N	IV
KQ1908058-25	Carbon, Total Organic	QUAD	K1905246-005	Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/10/19 21:20:00	N	IV
KQ1908058-26	Carbon, Total Organic	MS	K1905246-004	Ground Water	25.58 mg/L	10 mL	25.6 mg/L	1	0.07	0.50	102		6/10/19 20:10:00	N	IV
KQ1908058-27	Carbon, Total Organic	MS	K1905246-004	Ground Water	25.72 mg/L	10 mL	25.7 mg/L	1	0.07	0.50	103		6/10/19 20:10:00	N	IV
KQ1908058-28	Carbon, Total Organic	MS	K1905246-004	Ground Water	25.75 mg/L	10 mL	25.8 mg/L	1	0.07	0.50	103		6/10/19 20:10:00	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 638810 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K1905084-004	Carbon, Total Organic	N/A		Water	7.86 mg/L	10 mL	786 mg/L	100	7	50			6/11/19 06:17:00	N	II
K1905084-005	Carbon, Total Organic	N/A		Water	6.52 mg/L	10 mL	652 mg/L	100	7	50			6/11/19 06:45:00	N	II
K1905126-001	Carbon, Total Organic	N/A		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/11/19 07:41:00	N	III
K1905126-002	Carbon, Total Organic	N/A		Ground Water	0.13 mg/L	10 mL	0.13 mg/L J	1	0.07	0.50			6/11/19 08:09:00	Y	III
K1905126-003	Carbon, Total Organic	N/A		Ground Water	0.27 mg/L	10 mL	0.27 mg/L J	1	0.07	0.50			6/11/19 09:36:00	N	III
K1905126-004	Carbon, Total Organic	N/A		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/11/19 10:04:00	N	III
K1905198-003	Carbon, Total Organic	N/A		Ground Water	-0.01 mg/L	10 mL	2.0 mg/L U	4	0.3	2.0			6/10/19 22:15:00	N	IV
K1905198-004	Carbon, Total Organic	N/A		Ground Water	1.55 mg/L	10 mL	1.55 mg/L	1	0.07	0.50			6/10/19 23:13:00	N	IV
K1905198-005	Carbon, Total Organic	N/A		Ground Water	47.30 mg/L	10 mL	94.6 mg/L	2	0.2	1.0			6/10/19 23:41:00	N	IV
K1905258-001	Carbon, Total Organic	N/A		Water	6.61 mg/L	10 mL	66.1 mg/L	10	0.7	5.0			6/11/19 00:37:00	N	IV
K1905258-002	Carbon, Total Organic	N/A		Water	30.64 mg/L	10 mL	306 mg/L	10	0.7	5.0			6/11/19 01:33:00	N	IV
K1905258-003	Carbon, Total Organic	N/A		Water	12.86 mg/L	10 mL	12.9 mg/L	1	0.07	0.50			6/11/19 02:30:00	N	IV
K1905258-004	Carbon, Total Organic	N/A		Water	4.69 mg/L	10 mL	4.69 mg/L	1	0.07	0.50			6/11/19 02:58:00	N	IV
K1905258-005	Carbon, Total Organic	N/A		Water	4.11 mg/L	10 mL	4.11 mg/L	1	0.07	0.50			6/11/19 03:26:00	N	IV
K1905258-006	Carbon, Total Organic	N/A		Water	63.63 mg/L	10 mL	318 mg/L	5	0.4	2.5			6/11/19 04:53:00	N	IV
K1905259-001	Carbon, Total Organic	N/A		Water	2.92 mg/L	10 mL	2.92 mg/L	1	0.07	0.50			6/11/19 05:21:00	N	IV
K1905298-001	Carbon, Total Organic	N/A		Drinking Water	0.12 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/11/19 07:13:00	N	I
K1905338-001	Carbon, Total Organic	N/A		Water	1.66 mg/L	10 mL	1.66 mg/L	1	0.07	0.50			6/11/19 05:49:00	N	II
KQ1908062-01	Carbon, Total Organic	CCV		Water	25.15 mg/L	10 mL	25.2 mg/L	1			101		6/10/19 14:47:00	N	IV
KQ1908062-02	Carbon, Total Organic	CCV		Water	27.51 mg/L	10 mL	27.5 mg/L	1			110		6/10/19 22:43:00	N	IV
KQ1908062-03	Carbon, Total Organic	CCV		Water	24.91 mg/L	10 mL	24.9 mg/L	1			100		6/11/19 03:54:00	N	IV
KQ1908062-04	Carbon, Total Organic	CCV		Water	24.86 mg/L	10 mL	24.9 mg/L	1			100		6/11/19 08:37:00	N	IV
KQ1908062-05	Carbon, Total Organic	CCV		Water	24.61 mg/L	10 mL	24.6 mg/L	1			98		6/11/19 13:35:00	N	IV
KQ1908062-06	Carbon, Total Organic	CCB		Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/10/19 15:02:00	N	IV
KQ1908062-07	Carbon, Total Organic	CCB		Water	0.19 mg/L	10 mL	0.19 mg/L J	1	0.07	0.50			6/10/19 22:58:00	N	IV
KQ1908062-08	Carbon, Total Organic	CCB		Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/11/19 04:09:00	N	IV
KQ1908062-09	Carbon, Total Organic	CCB		Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/11/19 08:52:00	N	IV
KQ1908062-10	Carbon, Total Organic	CCB		Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/11/19 13:50:00	N	IV
KQ1908062-11	Carbon, Total Organic	MB		Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/11/19 04:24:00	N	IV
KQ1908062-12	Carbon, Total Organic	LCS		Water	25.36 mg/L	10 mL	25.4 mg/L	1	0.07	0.50	101		6/11/19 04:38:00	N	IV
KQ1908062-13	Carbon, Total Organic	DUP	K1905258-001	Water	6.52 mg/L	10 mL	65.2 mg/L	10	0.7	5.0		1	6/11/19 00:37:00	N	IV
KQ1908062-14	Carbon, Total Organic	DUP	K1905258-002	Water	30.25 mg/L	10 mL	302 mg/L	10	0.7	5.0		1	6/11/19 01:33:00	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Printed 6/14/19 11:11

Results Summary

06/14/19

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 638810 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ1908062-15	Carbon, Total Organic	DUP	K1905258-003	Water	12.98 mg/L	10 mL	13.0 mg/L	1	0.07	0.50		<1	6/11/19 02:30:00	N	IV
KQ1908062-16	Carbon, Total Organic	DUP	K1905258-004	Water	4.50 mg/L	10 mL	4.50 mg/L	1	0.07	0.50		4	6/11/19 02:58:00	N	IV
KQ1908062-17	Carbon, Total Organic	DUP	K1905258-005	Water	4.16 mg/L	10 mL	4.16 mg/L	1	0.07	0.50		1	6/11/19 03:26:00	N	IV
KQ1908062-18	Carbon, Total Organic	DUP	K1905258-006	Water	63.10 mg/L	10 mL	316 mg/L	5	0.4	2.5		<1	6/11/19 04:53:00	N	IV
KQ1908062-19	Carbon, Total Organic	DUP	K1905259-001	Water	2.60 mg/L	10 mL	2.60 mg/L	1	0.07	0.50		12*	6/11/19 05:21:00	N	IV
KQ1908062-20	Carbon, Total Organic	DUP	K1905338-001	Water	1.64 mg/L	10 mL	1.64 mg/L	1	0.07	0.50		1	6/11/19 05:49:00	N	II
KQ1908062-21	Carbon, Total Organic	DUP	K1905084-004	Water	7.95 mg/L	10 mL	795 mg/L	100	7	50		1	6/11/19 06:17:00	N	II
KQ1908062-22	Carbon, Total Organic	DUP	K1905084-005	Water	6.46 mg/L	10 mL	646 mg/L	100	7	50		<1	6/11/19 06:45:00	N	II
KQ1908062-23	Carbon, Total Organic	DUP	K1905298-001	Drinking Water	0.05 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/11/19 07:13:00	N	I
KQ1908062-24	Carbon, Total Organic	DUP	K1905126-001	Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/11/19 07:41:00	N	III
KQ1908062-25	Carbon, Total Organic	DUP	K1905126-002	Ground Water	0.18 mg/L	10 mL	0.18 mg/L J	1	0.07	0.50		33*	6/11/19 08:09:00	N	III
KQ1908062-26	Carbon, Total Organic	DUP	K1905126-003	Ground Water	0.25 mg/L	10 mL	0.25 mg/L J	1	0.07	0.50		7	6/11/19 09:36:00	N	III
KQ1908062-27	Carbon, Total Organic	DUP	K1905126-004	Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/11/19 10:04:00	N	III
KQ1908062-28	Carbon, Total Organic	MS	K1905126-002	Ground Water	25.89 mg/L	10 mL	25.9 mg/L	1	0.07	0.50	103		6/11/19 09:07:00	N	III
KQ1908062-29	Carbon, Total Organic	DUP	K1905198-003	Ground Water	-0.01 mg/L	10 mL	2.0 mg/L U	4	0.3	2.0		NC	6/10/19 22:15:00	N	IV
KQ1908062-30	Carbon, Total Organic	DUP	K1905198-004	Ground Water	1.28 mg/L	10 mL	1.28 mg/L	1	0.07	0.50		19*	6/10/19 23:13:00	N	IV
KQ1908062-31	Carbon, Total Organic	DUP	K1905198-005	Ground Water	47.09 mg/L	10 mL	94.2 mg/L	2	0.2	1.0		<1	6/10/19 23:41:00	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 638815 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K1905126-005	Carbon, Total Organic	N/A		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/11/19 10:32:00	N	III
K1905126-006	Carbon, Total Organic	N/A		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/11/19 11:00:00	N	III
K1905126-007	Carbon, Total Organic	N/A		Ground Water	0.07 mg/L	10 mL	0.07 mg/L J	1	0.07	0.50			6/11/19 11:28:00	N	III
K1905126-008	Carbon, Total Organic	N/A		Ground Water	0.30 mg/L	10 mL	0.30 mg/L J	1	0.07	0.50			6/11/19 11:56:00	N	III
K1905126-009	Carbon, Total Organic	N/A		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/11/19 12:24:00	N	III
K1905262-001	Carbon, Total Organic	N/A		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/11/19 12:53:00	N	IV
K1905262-002	Carbon, Total Organic	N/A		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/11/19 14:19:00	N	IV
K1905277-001	Carbon, Total Organic	N/A		Ground Water	0.33 mg/L	10 mL	0.33 mg/L J	1	0.07	0.50			6/11/19 14:48:00	Y	IV
K1905277-002	Carbon, Total Organic	N/A		Ground Water	0.36 mg/L	10 mL	0.36 mg/L J	1	0.07	0.50			6/11/19 15:45:00	N	IV
K1905277-003	Carbon, Total Organic	N/A		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/11/19 16:13:00	N	IV
KQ1908063-01	Carbon, Total Organic	MS	K1905277-001	Ground Water	25.85 mg/L	10 mL	25.9 mg/L	1	0.07	0.50	102		6/11/19 15:16:00	N	IV
KQ1908063-02	Carbon, Total Organic	DUP	K1905277-001	Ground Water	0.30 mg/L	10 mL	0.30 mg/L J	1	0.07	0.50		9	6/11/19 14:48:00	N	IV
KQ1908063-03	Carbon, Total Organic	CCV		Ground Water	24.86 mg/L	10 mL	24.9 mg/L	1			100		6/11/19 08:37:00	N	III
KQ1908063-04	Carbon, Total Organic	CCV		Ground Water	24.61 mg/L	10 mL	24.6 mg/L	1			98		6/11/19 13:21:00	N	III
KQ1908063-05	Carbon, Total Organic	CCV		Ground Water	24.69 mg/L	10 mL	24.7 mg/L	1			99		6/11/19 17:24:00	N	III
KQ1908063-06	Carbon, Total Organic	CCB		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/11/19 08:52:00	N	III
KQ1908063-07	Carbon, Total Organic	CCB		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/11/19 13:35:00	N	III
KQ1908063-08	Carbon, Total Organic	CCB		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/11/19 17:39:00	N	III
KQ1908063-09	Carbon, Total Organic	MB		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/11/19 13:50:00	N	III
KQ1908063-10	Carbon, Total Organic	LCS		Ground Water	25.06 mg/L	10 mL	25.1 mg/L	1	0.07	0.50	100		6/11/19 14:05:00	N	III
KQ1908063-11	Carbon, Total Organic	DUP	K1905126-005	Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/11/19 10:32:00	N	III
KQ1908063-12	Carbon, Total Organic	DUP	K1905126-006	Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/11/19 11:00:00	N	III
KQ1908063-13	Carbon, Total Organic	DUP	K1905126-007	Ground Water	0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/11/19 11:28:00	N	III

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

06/14/19

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 638815 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ1908063-14	Carbon, Total Organic	DUP	K1905126-008	Ground Water	0.33 mg/L	10 mL	0.33 mg/L J	1	0.07	0.50		8	6/11/19 11:56:00	N	III
KQ1908063-15	Carbon, Total Organic	DUP	K1905126-009	Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/11/19 12:24:00	N	III
KQ1908063-16	Carbon, Total Organic	DUP	K1905262-001	Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/11/19 12:53:00	N	IV
KQ1908063-17	Carbon, Total Organic	DUP	K1905262-002	Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/11/19 14:19:00	N	IV
KQ1908063-18	Carbon, Total Organic	DUP	K1905277-002	Ground Water	0.32 mg/L	10 mL	0.32 mg/L J	1	0.07	0.50		12*	6/11/19 15:45:00	N	IV
KQ1908063-19	Carbon, Total Organic	DUP	K1905277-003	Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/11/19 16:13:00	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 638817 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K1905278-001	Carbon, Total Organic	N/A		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/11/19 16:41:00	Y	III
K1905278-002	Carbon, Total Organic	N/A		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/11/19 17:54:00	N	III
K1905278-003	Carbon, Total Organic	N/A		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/11/19 18:22:00	N	III
K1905279-001	Carbon, Total Organic	N/A		Ground Water	0.49 mg/L	10 mL	0.49 mg/L J	1	0.07	0.50			6/11/19 18:50:00	N	III
K1905305-001	Carbon, Total Organic	N/A		Water	5.67 mg/L	10 mL	5.67 mg/L	1	0.07	0.50			6/11/19 19:18:00	N	II
K1905360-001	Carbon, Total Organic	N/A		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/11/19 19:46:00	N	IV
K1905361-001	Carbon, Total Organic	N/A		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/11/19 20:14:00	N	III
K1905369-001	Carbon, Total Organic	N/A		Water	5.21 mg/L	10 mL	10.4 mg/L	2	0.2	1.0			6/11/19 20:42:00	N	I
K1905369-002	Carbon, Total Organic	N/A		Water	13.49 mg/L	10 mL	13.5 mg/L	1	0.07	0.50			6/11/19 21:10:00	N	I
K1905369-003	Carbon, Total Organic	N/A		Water	1.77 mg/L	10 mL	1.77 mg/L	1	0.07	0.50			6/11/19 21:38:00	N	I
K1905369-004	Carbon, Total Organic	N/A		Water	9.26 mg/L	10 mL	18.5 mg/L	2	0.2	1.0			6/11/19 22:06:00	N	I
K1905369-005	Carbon, Total Organic	N/A		Water	10.02 mg/L	10 mL	10.0 mg/L	1	0.07	0.50			6/11/19 23:33:00	N	I
K1905369-006	Carbon, Total Organic	N/A		Water	13.53 mg/L	10 mL	27.1 mg/L	2	0.2	1.0			6/12/19 00:01:00	N	I
K1905369-007	Carbon, Total Organic	N/A		Water	27.08 mg/L	10 mL	54.2 mg/L	2	0.2	1.0			6/12/19 00:29:00	N	I
K1905369-008	Carbon, Total Organic	N/A		Water	9.58 mg/L	10 mL	19.2 mg/L	2	0.2	1.0			6/12/19 00:58:00	N	I
K1905369-009	Carbon, Total Organic	N/A		Water	27.74 mg/L	10 mL	27.7 mg/L	1	0.07	0.50			6/12/19 01:26:00	N	I
KQ1908064-01	Carbon, Total Organic	CCV		Ground Water	24.61 mg/L	10 mL	24.6 mg/L	1			98		6/11/19 13:21:00	N	III
KQ1908064-02	Carbon, Total Organic	CCV		Ground Water	24.69 mg/L	10 mL	24.7 mg/L	1			99		6/11/19 17:24:00	N	III
KQ1908064-03	Carbon, Total Organic	CCV		Ground Water	24.59 mg/L	10 mL	24.6 mg/L	1			98		6/11/19 22:34:00	N	III
KQ1908064-04	Carbon, Total Organic	CCV		Ground Water	25.23 mg/L	10 mL	25.2 mg/L	1			101		6/12/19 01:54:00	N	III
KQ1908064-05	Carbon, Total Organic	CCB		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/11/19 13:35:00	N	III
KQ1908064-06	Carbon, Total Organic	CCB		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/11/19 17:39:00	N	III
KQ1908064-07	Carbon, Total Organic	CCB		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/11/19 22:49:00	N	III
KQ1908064-08	Carbon, Total Organic	CCB		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/12/19 02:08:00	N	III
KQ1908064-09	Carbon, Total Organic	MB		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/11/19 23:04:00	N	III
KQ1908064-10	Carbon, Total Organic	LCS		Ground Water	25.08 mg/L	10 mL	25.1 mg/L	1	0.07	0.50	100		6/11/19 23:18:00	N	III
KQ1908064-11	Carbon, Total Organic	DUP	K1905278-001	Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/11/19 16:41:00	N	III

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Printed 6/14/19 11:26

Results Summary

06/14/19

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 638817 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ1908064-12	Carbon, Total Organic	MS	K1905278-001	Ground Water	25.08 mg/L	10 mL	25.1 mg/L	1	0.07	0.50	100		6/11/19 17:10:00	N	III
KQ1908064-13	Carbon, Total Organic	DUP	K1905278-002	Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/11/19 17:54:00	N	III
KQ1908064-14	Carbon, Total Organic	DUP	K1905278-003	Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/11/19 18:22:00	N	III
KQ1908064-15	Carbon, Total Organic	DUP	K1905279-001	Ground Water	0.55 mg/L	10 mL	0.55 mg/L	1	0.07	0.50		11*	6/11/19 18:50:00	N	III
KQ1908064-16	Carbon, Total Organic	DUP	K1905305-001	Water	5.61 mg/L	10 mL	5.61 mg/L	1	0.07	0.50		1	6/11/19 19:18:00	N	II
KQ1908064-17	Carbon, Total Organic	DUP	K1905360-001	Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/11/19 19:46:00	N	III
KQ1908064-18	Carbon, Total Organic	DUP	K1905361-001	Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/11/19 20:14:00	N	III
KQ1908064-19	Carbon, Total Organic	DUP	K1905369-001	Water	5.20 mg/L	10 mL	10.4 mg/L	2	0.2	1.0		<1	6/11/19 20:42:00	N	I
KQ1908064-20	Carbon, Total Organic	DUP	K1905369-002	Water	13.23 mg/L	10 mL	13.2 mg/L	1	0.07	0.50		2	6/11/19 21:10:00	N	I
KQ1908064-21	Carbon, Total Organic	DUP	K1905369-003	Water	1.75 mg/L	10 mL	1.75 mg/L	1	0.07	0.50		1	6/11/19 21:38:00	N	I
KQ1908064-22	Carbon, Total Organic	DUP	K1905369-004	Water	9.13 mg/L	10 mL	18.3 mg/L	2	0.2	1.0		1	6/11/19 22:06:00	N	I
KQ1908064-23	Carbon, Total Organic	DUP	K1905369-005	Water	9.62 mg/L	10 mL	9.62 mg/L	1	0.07	0.50		4	6/11/19 23:33:00	N	I
KQ1908064-24	Carbon, Total Organic	DUP	K1905369-006	Water	13.51 mg/L	10 mL	27.0 mg/L	2	0.2	1.0		<1	6/12/19 00:01:00	N	I
KQ1908064-25	Carbon, Total Organic	DUP	K1905369-007	Water	26.81 mg/L	10 mL	53.6 mg/L	2	0.2	1.0		<1	6/12/19 00:29:00	N	I
KQ1908064-26	Carbon, Total Organic	DUP	K1905369-008	Water	9.35 mg/L	10 mL	18.7 mg/L	2	0.2	1.0		2	6/12/19 00:58:00	N	I
KQ1908064-27	Carbon, Total Organic	DUP	K1905369-009	Water	27.62 mg/L	10 mL	27.6 mg/L	1	0.07	0.50		<1	6/12/19 01:26:00	N	I

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

0.207	OBSERVATIONS 15	ABOVE
0.000	STD Deviation 0.05347	0
0.000	AVERAGE 0.01381	0
0.000	UCL 0.06728	0
0.000	LCL -0.03967	0
0.000		0
0.000		0
0.000	OBSERVATIONS 0	0
0.000	STD Deviation 0.00000	0
0.000	AVERAGE #DIV/0!	0
0.000	UCL #DIV/0!	0
0.000	LCL #DIV/0!	0
0.000		0
0.000		0
0.000	OBSERVATIONS 0	0
	STD Deviation 0.00000	0
	AVERAGE #DIV/0!	0
	UCL #DIV/0!	0
	LCL #DIV/0!	0
		0
		0
	OBSERVATIONS 0	0
	STD Deviation #DIV/0!	0
	AVERAGE #DIV/0!	0
		0
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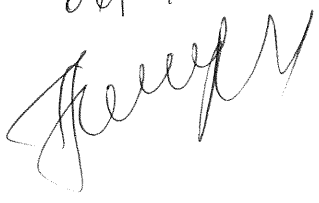
		0

06/14/19



ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
CBA	RB	1			0.0000	0	<0.5	
2	C] CCV 25 ppm [25 p	1	25.166	0.0138	25.1522	25.15219	25.2	6/10/2019
3	[TOC] CCB [0 ppm]	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/10/2019
4	MB1	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/10/2019
5	MB1d	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/10/2019
6	MB1t	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/10/2019
7	MB1q	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/10/2019
8	[TOC] LCS [24ppm]	1	24.636	0.0138	24.6226	24.62259	25	6/10/2019
9	[TOC] LCS [24ppm]d	1	24.757	0.0138	24.7428	24.74279	24.74	6/10/2019
10	[TOC] LCS [24ppm]t	1	25.110	0.0138	25.0962	25.09619	25.10	6/10/2019
11	[TOC] LCS [24ppm]q	1	24.975	0.0138	24.9613	24.96129	25.0	6/10/2019
12	K1905246-001	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/10/2019
13	K1905246-001d	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/10/2019
14	K1905246-001t	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/10/2019
15	K1905246-001q	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/10/2019
16	K1905246-003	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/10/2019
17	K1905246-003d	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/10/2019
18	K1905246-003t	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/10/2019
19	K1905246-003q	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/10/2019
20	K1905246-004	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/10/2019
21	K1905246-004d	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/10/2019
22	K1905246-004t	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/10/2019
23	K1905246-004q	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/10/2019
24	K1905246-004ms	1	25.447	0.0138	25.4335	25.43349	25.43	6/10/2019
25	K1905246-004msd	1	25.594	0.0138	25.5797	25.57969	25.58	6/10/2019

ICAL Date 10/20/16 ICAL ID#:11-GEN-05-51A

LCS =24.0 ppm APG 4013 Lot #010615 (REF# 11-GEN-05-50N)

CCV = 25.0 ppm (Ref.#11-GEN-05-52E)

Spike: 0.05 ml of 5000 ppm stock ----> 10.0 ml =25.0 ppm x Dilution Factor (Ref.# 11-GEN-05-51M)

	date	time
Analyzed By: KCP	Date Analyzed 6/10/19	
Reviewed By: [signature]	Date Reviewed 06/19/19	

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
26	K1905246-004	1	25.734	0.0138	25.7198	25.71979	25.72	6/10/2019
27	K1905246-004	1	25.764	0.0138	25.7504	25.75039	25.75	6/10/2019
28	K1905246-005	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/10/2019
29	K1905246-005d	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/10/2019
30	K1905246-005t	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/10/2019
31	K1905246-005q	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/10/2019
32	C] CCV 25 ppm [25 p	1	27.519	0.0138	27.5054	27.50539	27.5	6/10/2019
33	[TOC] CCB [0 ppm]	1	0.207	0.0138	0.1933	0.19329	<0.5	6/10/2019
34		1		0.0000	0.0000	0	<0.5	
35		1		0.0000	0.0000	0	<0.5	
36		1		0.0000	0.0000	0	<0.5	
37		1		0.0000	0.0000	0	<0.5	
38		1		0.0000	0.0000	0	<0.5	
39		1		0.0000	0.0000	0	<0.5	
40		1		0.0000	0.0000	0	<0.5	
41		1		0.0000	0.0000	0	<0.5	
42		1		0.0000	0.0000	0	<0.5	
43		1		0.0000	0.0000	0	<0.5	
44		1		0.0000	0.0000	0	<0.5	
45		1		0.0000	0.0000	0	<0.5	
46		1		0.0000	0.0000	0	<0.5	
47		1		0.0000	0.0000	0	<0.5	
48		1		0.0000	0.0000	0	<0.5	
49		1		0.0000	0.0000	0	<0.5	
50		1		0.0000	0.0000	0	<0.5	

Analyzed By: BLP	Date Analyzed 6/10/19
Reviewed By:	Date Reviewed 06/14/19

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
CBA	RB	1			0.0000	0	<0.5	
2	C] CCV 25 ppm [25 p	1	25.166	0.0138	25.1522	25.15219	25.2	6/10/2019
3	[TOC] CCB [0 ppm]	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/10/2019
4	K1905198-003	4	0.000	0.0138	-0.0138	-0.05524	<0.5	6/10/2019
5	K1905198-003d	4	0.000	0.0138	-0.0138	-0.05524	<0.5	6/10/2019
6	C] CCV 25 ppm [25 p	1	27.519	0.0138	27.5054	27.50539	27.51	6/10/2019
7	[TOC] CCB [0 ppm]	1	0.207	0.0138	0.1933	0.19329	<0.5	6/10/2019
8	K1905198-004	1	1.560	0.0138	1.5457	1.54569	2	6/10/2019
9	K1905198-004d	1	1.296	0.0138	1.2820	1.28199	1.28	6/10/2019
10	K1905198-005	2	47.316	0.0138	47.3022	94.60438	94.60	6/10/2019
11	K1905198-005d	2	47.104	0.0138	47.0906	94.18118	94.2	6/10/2019
12	K1905258-001	10	6.622	0.0138	6.6084	66.0839	66.08	6/11/2019
13	K1905258-001d	10	6.531	0.0138	6.5170	65.1699	65.17	6/11/2019
14	K1905258-002	10	30.649	0.0138	30.6355	306.3549	306.35	6/11/2019
15	K1905258-002d	10	30.260	0.0138	30.2457	302.4569	302.5	6/11/2019
16	K1905258-003	1	12.874	0.0138	12.8601	12.86009	12.9	6/11/2019
17	K1905258-003d	1	12.994	0.0138	12.9801	12.98009	12.98	6/11/2019
18	K1905258-004	1	4.703	0.0138	4.6889	4.68889	4.7	6/11/2019
19	K1905258-004d	1	4.518	0.0138	4.5042	4.50419	4.5	6/11/2019
20	K1905258-005	1	4.124	0.0138	4.1104	4.11039	4.11	6/11/2019
21	K1905258-005d	1	4.170	0.0138	4.1565	4.15649	4.16	6/11/2019
22	C] CCV 25 ppm [25 p	1	24.924	0.0138	24.9103	24.91029	24.9	6/11/2019
23	[TOC] CCB [0 ppm]	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
24	MB2	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
25	[TOC] LCS [24ppm]	1	25.379	0.0138	25.3648	25.36479	25.36	6/11/2019

ICAL Date 10/20/16 ICAL ID#:11-GEN-05-51A

LCS =24.0 ppm APG 4013 Lot #010615 (REF# 11-GEN-05-50N)

CCV = 25.0 ppm (Ref.#11-GEN-05-52E)

Spike: 0.05 ml of 5000 ppm stock ----> 10.0 ml =25.0 ppm x Dilution Factor (Ref.# 11-GEN-05-51M)

		date time
Analyzed By: BP	Date Analyzed	6/10/19
Reviewed By:	Date Reviewed	06/14/19

Revision 1, 2010 R:\WET\ANALYSES\TOC\TEMPLATE\TOCwaterLIMS

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
26	K1905258-006	5	63.641	0.0138	63.6273	318.13645	318.14	6/11/2019
27	K1905258-006d	5	63.117	0.0138	63.1030	315.51495	315.51	6/11/2019
28	K1905259-001	1	2.937	0.0138	2.9230	2.92299	2.9	6/11/2019
29	K1905259-001d	1	2.615	0.0138	2.6010	2.60099	2.6	6/11/2019
30	K1905338-001	1	1.671	0.0138	1.6567	1.65669	1.7	6/11/2019
31	K1905338-001d	1	1.650	0.0138	1.6360	1.63599	1.6	6/11/2019
32	K1905084-004	100	7.870	0.0138	7.8565	785.649	785.6	6/11/2019
33	K1905084-004d	100	7.963	0.0138	7.9490	794.899	794.9	6/11/2019
34	K1905084-005	100	6.537	0.0138	6.5231	652.309	652.3	6/11/2019
35	K1905084-005d	100	6.472	0.0138	6.4586	645.859	645.9	6/11/2019
36	K1905298-001	1	0.135	0.0138	0.1211	0.12109	<0.5	6/11/2019
37	K1905298-001d	1	0.067	0.0138	0.0532	0.05319	<0.5	6/11/2019
38	K1905126-001	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
39	K1905126-001d	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
40	K1905126-002	1	0.140	0.0138	0.1264	0.12639	<0.5	6/11/2019
41	K1905126-002d	1	0.190	0.0138	0.1762	0.17619	<0.5	6/11/2019
42	C] CCV 25 ppm [25 p	1	24.876	0.0138	24.8620	24.86199	24.9	6/11/2019
43	[TOC] CCB [0 ppm]	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
44	K1905126-002ms	1	25.907	0.0138	25.8933	25.89329	25.9	6/11/2019
45	K1905126-003	1	0.280	0.0138	0.2660	0.26599	<0.5	6/11/2019
46	K1905126-003d	1	0.262	0.0138	0.2481	0.24809	<0.5	6/11/2019
47	K1905126-004	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
48	K1905126-004d	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
49	C] CCV 25 ppm [25 p	1	24.628	0.0138	24.6141	24.61409	24.6	6/11/2019
50	[TOC] CCB [0 ppm]	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019

Analyzed By: BCD	Date Analyzed 6/19/19
Reviewed By:	Date Reviewed 06/18 14/19 TH

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
CBA	RB	1			0.0000	0	<0.5	
2	C] CCV 25 ppm [25 p	1	24.876	0.0138	24.8620	24.86199	24.9	6/11/2019
3	[TOC] CCB [0 ppm]	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
4	K1905126-005	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
5	K1905126-005d	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
6	K1905126-006	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
7	K1905126-006d	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
8	K1905126-007	1	0.085	0.0138	0.0711	0.07109	<0.5	6/11/2019
9	K1905126-007d	1	0.023	0.0138	0.0095	0.00949	<0.5	6/11/2019
10	K1905126-008	1	0.314	0.0138	0.3000	0.29999	<0.5	6/11/2019
11	K1905126-008d	1	0.339	0.0138	0.3252	0.32519	<0.5	6/11/2019
12	K1905126-009	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
13	K1905126-009d	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
14	K1905262-001	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
15	K1905262-001d	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
16	C] CCV 25 ppm [25 p	1	24.628	0.0138	24.6141	24.61409	24.6	6/11/2019
17	[TOC] CCB [0 ppm]	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
18	MB3	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
19	[TOC] LCS [25ppm]	1	25.069	0.0138	25.0556	25.05559	25.1	6/11/2019
20	K1905262-002	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
21	K1905262-002d	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
22	K1905277-001	1	0.344	0.0138	0.3302	0.33019	<0.5	6/11/2019
23	K1905277-001d	1	0.315	0.0138	0.3010	0.30099	<0.5	6/11/2019
24	K1905277-001ms	1	25.866	0.0138	25.8518	25.85179	25.85	6/11/2019
25	K1905277-002	1	0.375	0.0138	0.3611	0.36109	<0.5	6/11/2019

ICAL Date 10/20/16 ICAL ID#:11-GEN-05-51A

LCS =24.0 ppm APG 4013 Lot #010615 (REF# 11-GEN-05-50N)

CCV = 25.0 ppm (Ref.#11-GEN-05-52E)

Spike: 0.05 ml of 5000 ppm stock ----> 10.0 ml =25.0 ppm x Dilution Factor (Ref.# 11-GEN-05-51M)

		date time
Analyzed By: BLD	Date Analyzed	6/10/19
Reviewed By:	Date Reviewed	06/14/19

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
26	K1905277-002d	1	0.333	0.0138	0.3193	0.31929	<0.5	6/11/2019
27	K1905277-003	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
28	K1905277-003d	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
29	C] CCV 25 ppm [25 p	1	24.708	0.0138	24.6941	24.69409	24.7	6/11/2019
30	[TOC] CCB [0 ppm]	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
31		1		0.0000	0.0000	0	<0.5	
32		1		0.0000	0.0000	0	<0.5	
33		1		0.0000	0.0000	0	<0.5	
34		1		0.0000	0.0000	0	<0.5	
35		1		0.0000	0.0000	0	<0.5	
36		1		0.0000	0.0000	0	<0.5	
37		1		0.0000	0.0000	0	<0.5	
38		1		0.0000	0.0000	0	<0.5	
39		1		0.0000	0.0000	0	<0.5	
40		1		0.0000	0.0000	0	<0.5	
41		1		0.0000	0.0000	0	<0.5	
42		1		0.0000	0.0000	0	<0.5	
43		1		0.0000	0.0000	0	<0.5	
44		1		0.0000	0.0000	0	<0.5	
45		1		0.0000	0.0000	0	<0.5	
46		1		0.0000	0.0000	0	<0.5	
47		1		0.0000	0.0000	0	<0.5	
48		1		0.0000	0.0000	0	<0.5	
49		1		0.0000	0.0000	0	<0.5	
50		1		0.0000	0.0000	0	<0.5	

Analyzed By:	BD	Date Analyzed	6/10/19
Reviewed By:		Date Reviewed	6/14/19

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
CBA	RB	1			0.0000	0	<0.5	
2	C] CCV 25 ppm [25 p	1	24.628	0.0138	24.6141	24.61409	24.6	6/11/2019
3	[TOC] CCB [0 ppm]	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
4	K1905278-001	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
5	K1905278-001d	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
6	K1905278-001ms	1	25.097	0.0138	25.0836	25.08359	25.08	6/11/2019
7	C] CCV 25 ppm [25 p	1	24.708	0.0138	24.6941	24.69409	24.7	6/11/2019
8	[TOC] CCB [0 ppm]	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
9	K1905278-002	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
10	K1905278-002d	1	0.009	0.0138	-0.0050	-0.00501	<0.5	6/11/2019
11	K1905278-003	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
12	K1905278-003d	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
13	K1905279-001	1	0.506	0.0138	0.4918	0.49179	<0.5	6/11/2019
14	K1905279-001d	1	0.561	0.0138	0.5475	0.54749	0.55	6/11/2019
15	K1905305-001	1	5.683	0.0138	5.6692	5.66919	5.7	6/11/2019
16	K1905305-001d	1	5.625	0.0138	5.6109	5.61089	5.6	6/11/2019
17	K1905360-001	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
18	K1905360-001d	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
19	K1905361-001	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
20	K1905361-001d	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
21	K1905369-001	2	5.225	0.0138	5.2116	10.42318	10.42	6/11/2019
22	K1905369-001d	2	5.217	0.0138	5.2032	10.40638	10.4	6/11/2019
23	K1905369-002	1	13.506	0.0138	13.4921	13.49209	13.5	6/11/2019
24	K1905369-002d	1	13.245	0.0138	13.2307	13.23069	13.23	6/11/2019
25	K1905369-003	1	1.788	0.0138	1.7744	1.77439	1.77	6/11/2019

ICAL Date 10/20/16 ICAL ID#:11-GEN-05-51A

LCS =24.0 ppm APG 4013 Lot #010615 (REF# 11-GEN-05-50N)

CCV = 25.0 ppm (Ref.#11-GEN-05-52E)

Spike: 0.05 ml of 5000 ppm stock ----> 10.0 ml =25.0 ppm x Dilution Factor (Ref.# 11-GEN-05-51M)

		date	time
Analyzed By: BCB	Date Analyzed	6/10/19	
Reviewed By: [signature]	Date Reviewed	06/14/19	

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
26	K1905369-003d	1	1.767	0.0138	1.7527	1.75269	1.75	6/11/2019
27	K1905369-004	2	9.272	0.0138	9.2581	18.51618	18.52	6/11/2019
28	K1905369-004d	2	9.143	0.0138	9.1287	18.25738	18.3	6/11/2019
29	C] CCV 25 ppm [25 p	1	24.605	0.0138	24.5909	24.59089	24.6	6/11/2019
30	[TOC] CCB [0 ppm]	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
31	MB4	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
32	[TOC] LCS [25ppm]	1	25.095	0.0138	25.0808	25.08079	25.1	6/11/2019
33	K1905369-005	1	10.033	0.0138	10.0194	10.01939	10.0	6/11/2019
34	K1905369-005d	1	9.637	0.0138	9.6227	9.62269	9.6	6/11/2019
35	K1905369-006	2	13.541	0.0138	13.5276	27.05518	27.1	6/12/2019
36	K1905369-006d	2	13.525	0.0138	13.5114	27.02278	27.0	6/12/2019
37	K1905369-007	2	27.089	0.0138	27.0756	54.15118	54.2	6/12/2019
38	K1905369-007d	2	26.827	0.0138	26.8130	53.62598	53.6	6/12/2019
39	K1905369-008	2	9.595	0.0138	9.5814	19.16278	19.2	6/12/2019
40	K1905369-008d	2	9.361	0.0138	9.3469	18.69378	18.7	6/12/2019
41	K1905369-009	1	27.755	0.0138	27.7409	27.74089	27.7	6/12/2019
42	K1905369-009d	1	27.636	0.0138	27.6218	27.62179	27.6	6/12/2019
43	C] CCV 25 ppm [25 p	1	25.243	0.0138	25.2287	25.22869	25.2	6/12/2019
44	[TOC] CCB [0 ppm]	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/12/2019
45		1		0.0000	0.0000	0	<0.5	
46		1		0.0000	0.0000	0	<0.5	
47		1		0.0000	0.0000	0	<0.5	
48		1		0.0000	0.0000	0	<0.5	
49		1		0.0000	0.0000	0	<0.5	
50		1		0.0000	0.0000	0	<0.5	

Analyzed By: BCD	Date Analyzed 6/10/19
Reviewed By: [signature]	Date Reviewed 06/14/19

TOC: 638808, 638810, 638815, 638817

Schedule: 06102019

Version: 8
Instrument: Fusion1
Last Saved by: Fusion1 (Fusion1)
Last Saved on: 2019/06/10 14:58 - Monday

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
(Clean)	Clean	Clean		1	True	Ready
(Clean)	Clean	Clean		1	True	Ready
(Clean)	Clean	Clean		1	True	Ready
(Blank)	Blank	Reagent/Acid Blank		1	True	Ready
D	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
1	Sample	MB1	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
C	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
2	Sample	ICS	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
3	Sample	K1905246-001.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
4	Sample	K1905246-003.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
5	Sample	K1905246-004.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
6	Sample	K1905246-004.08 ms	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
7	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
8	Sample	K1905246-005.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
9	Sample	K1905198-003.01 4x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
10	Sample	K1905198-004.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
11	Sample	K1905198-005.01 2x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
12	Sample	K1905258-001.01 5x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
13	Sample	K1905258-001.01 10x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
14	Sample	K1905258-002.01 5x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
15	Sample	K1905258-002.01 10x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
16	Sample	K1905258-002.01 20x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
17	Sample	K1905258-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
18	Sample	K1905258-004.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
19	Sample	K1905258-005.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
20	Sample	MB2	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
21	Sample	K1905258-006.01 5x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
22	Sample	K1905259-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
23	Sample	K1905338-001.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
24	Sample	K1905084-004.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
25	Sample	K1905084-005.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
26	Sample	K1905298-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
27	Sample	K1905126-001.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
28	Sample	K1905126-002.10	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
29	Sample	K1905126-002.10 ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
30	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
31	Sample	K1905126-003.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
32	Sample	K1905126-004.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
33	Sample	K1905126-005.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
34	Sample	K1905126-006.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
35	Sample	K1905126-007.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
36	Sample	K1905126-008.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
37	Sample	K1905126-009.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
38	Sample	K1905262-001.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready

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Schedule: 06102019

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
39	Sample	MB3	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [25.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
40	Sample	K1905262-002.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
41	Sample	K1905277-001.07	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
42	Sample	K1905277-001.07 ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
43	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
44	Sample	K1905277-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
45	Sample	K1905277-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
46	Sample	K1905278-001.10	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
47	Sample	K1905278-001.10 ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
48	Sample	K1905278-002.04	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
49	Sample	K1905278-003.04	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
50	Sample	K1905279-001.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
51	Sample	K1905305-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
52	Sample	K1905360-001.04	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
53	Sample	K1905361-001.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
54	Sample	K1905369-001.02 2x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
55	Sample	K1905369-002.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
56	Sample	K1905369-003.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
57	Sample	K1905369-004.02 2x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
58	Sample	MB4	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [25.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
59	Sample	K1905369-005.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
60	Sample	K1905369-006.02 2x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
61	Sample	K1905369-007.02 2x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
62	Sample	K1905369-008.02 2x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
63	Sample	K1905369-009.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
					False	

Fusion Report - 06102019
Monday, June 10, 2019 11:35 AM

(View - Reps, Unused Reps, Meta-Data, Signature, History)
Printed on 2019/06/12 09:06 - Wednesday

Report Summary Information

Company Location: Gen Chem Lab
Schedule Name: 06102019
Instrument Name: Fusion1
Report Version: 1 of 1
Report Creation by Operators (schedule version): Fusion1 (Fusion1) (v2), Fusion1 (Fusion1) (v3), Fusion1 (Fusion1) (v4), Fusion1 (Fusion1) (v5), Fusion1 (Fusion1) (v6), Fusion1 (Fusion1) (v7), Fusion1 (Fusion1) (v8)
Comment:

Engine Version: 1.1.5.1
Firmware Version: 1.2.0696
Connection: RS232 COM1

06/14/19

Report Results

Sample Type: Clean — From Schedule Version 2

	Pos	Analysis Type	Sample ID	Start Time
◈	(clean)		Clean	2019/06/10 11:35

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	13.10	19.05	5.96	49.89	08:00
2	TC Clean	10.04	13.22	3.18	49.69	07:17
3	TC Clean	2.58	5.76	3.18	49.62	07:02
4	TC Clean	1.54	4.74	3.19	49.82	07:02

Sample Type: Clean — From Schedule Version 3

	Pos	Analysis Type	Sample ID	Start Time
◈	(clean)		Clean	2019/06/10 12:10

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	12.40	15.52	3.12	49.83	07:59

2	TC Clean	4.03	7.15	3.12	49.77	07:17
3	TC Clean	1.73	4.78	3.05	49.80	07:02
4	TC Clean	1.09	4.26	3.17	49.70	07:01

Sample Type: Clean — From Schedule Version 4

	Pos	Analysis Type	Sample ID	Start Time
◈	(clean)		Clean	2019/06/10 12:44

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	0.96	3.91	2.95	49.91	07:58
2	TC Clean	3.32	6.45	3.13	49.77	07:17
3	TC Clean	1.69	4.71	3.02	49.76	07:02
4	TC Clean	1.63	4.45	2.82	49.80	07:03

Sample Type: Blank (Creating v1265) — From Schedule Version 5

	Pos	Analysis Type	Sample ID	Start Time
◈	(blank)		Reagent/Acid Blank	2019/06/10 13:42

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	9.85	12.74	2.90	49.71	05:29
2	TC Clean	4.64	7.74	3.11	49.84	07:16
3	TC Clean	1.95	4.81	2.86	49.87	07:01
4	TC Clean	1.13	4.26	3.13	49.92	07:01
5	Reagent Blank	3.40	6.47	3.07	49.91	08:12
6	Acid Blank	1.23	4.37	3.15	49.64	05:26

Sample Type: Sample — From Schedule Version 6

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	D	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/10 14:29

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	8.17	11.31	3.15	50.09	10:33

Dilution **Blank Contribution** **Method** **Calibration**

1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	25.1660 ppm (PASS)	0.0000 ppm	0%	2019/06/10 14:47

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.1660	251.6603	180.29	183.46	3.17	50.15	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/06/10 15:02

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	6.10	9.37	3.28	50.13	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample — From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	1	TOC	MB1	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/10 15:16

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.40	8.57	3.16	50.26	10:29
2	TOC	0.0000	0.0000	5.08	8.36	3.28	50.19	10:25
3	TOC	0.0000	0.0000	5.33	8.40	3.07	50.22	10:30
4	TOC	0.0000	0.0000	5.16	8.35	3.19	50.30	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> LCS

From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	C	TOC	25.0000	1:1	[TOC] LCS [24.0 ppm]	0 / infinity (NA / NA)	24.8695 ppm (PASS)	0.2130 ppm	0.86%	2019/06/10 16:12

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	24.6364	246.3641	176.69	179.76	3.07	50.27	10:25
C	TOC	25.0 ppm	2	24.7566	247.5663	177.51	180.80	3.29	50.27	10:26
C	TOC	25.0 ppm	3	25.1100	251.1005	179.91	183.15	3.25	50.32	10:32
C	TOC	25.0 ppm	4	24.9751	249.7510	178.99	182.08	3.09	50.33	10:26

Completion State: Success - Criteria met.

Success Action: Do Nothing

Method: CAS_salt_010711 (v4)

Calibration: CAS_salt_010711 (v30)

STD Conc - Pos C: 25 ppmC

Sample Type: Sample

From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	2	TOC	ICS	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/10 17:08

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.78	10.84	3.05	50.31	10:29

Dilution: 1:10

Blank Contribution: (TC) 8.7430 (IC) (v1265)

Method: CAS_salt_010711 (v4)

Calibration: CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	3	TOC	K1905246-001.08	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/10 17:23

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.88	9.87	2.99	50.34	10:30
2	TOC	0.0000	0.0000	6.85	9.83	2.98	50.34	10:24
3	TOC	0.0000	0.0000	7.00	9.95	2.96	50.22	10:31
4	TOC	0.0000	0.0000	6.68	9.85	3.17	50.20	10:26

Dilution: 1:10

Blank Contribution: (TC) 8.7430 (IC) (v1265)

Method: CAS_salt_010711 (v4)

Calibration: CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	4	TOC	K1905246-003.08	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/10 18:18

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.81	10.84	3.03	50.19	10:25
2	TOC	0.0000	0.0000	7.77	11.00	3.23	50.18	10:30

3	TOC	0.0000	0.0000	7.38	10.64	3.26	50.24	10:27
4	TOC	0.0000	0.0000	7.53	10.65	3.12	50.25	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	5	TOC	K1905246-004.08	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/10 19:14

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.37	9.43	3.07	50.18	10:27
2	TOC	0.0000	0.0000	6.56	9.77	3.21	50.20	10:26
3	TOC	0.0000	0.0000	5.94	9.20	3.25	50.20	10:27
4	TOC	0.0000	0.0000	6.33	9.39	3.06	50.18	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	6	TOC	K1905246-004.08 ms	25.6346 ppm	0.1453 ppm	0.5700%	2019/06/10 20:10

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	25.4473	254.4733	181.48	184.54	3.06	50.12	10:27
2	TOC	25.5935	255.9347	182.47	185.60	3.13	50.10	10:29
3	TOC	25.7336	257.3357	183.42	186.56	3.14	50.14	10:27
4	TOC	25.7642	257.6421	183.63	186.71	3.08	50.06	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	7	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/10 21:05

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.17	9.16	2.99	50.09	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	8	TOC	K1905246-005.08	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/10 21:20

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.16	10.27	3.10	50.11	10:27
2	TOC	0.0000	0.0000	7.54	10.56	3.02	50.18	10:30
3	TOC	0.0000	0.0000	7.57	10.61	3.04	50.11	10:29

4	TOC	0.0000	0.0000	7.27	10.27	3.00	50.07	10:26

Dilution 1:10 | **Blank Contribution** (TC) 8.7430 (IC) (v1265) | **Method** CAS_salt_010711 (v4) | **Calibration** CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	9	TOC	K1905198-003.01 4x	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/10 22:15

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	-42248.80	-42245.72	3.08	50.08	10:28
2	TOC	0.0000	0.0000	-15736.81	-15732.85	3.96	50.00	10:29

Dilution 1:10 | **Blank Contribution** (TC) 8.7430 (IC) (v1265) | **Method** CAS_salt_010711 (v4) | **Calibration** CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	27.5192 ppm (PASS)	0.0000 ppm	0%	2019/06/10 22:43

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	27.5192	275.1917	196.26	200.18	3.92	50.00	10:33

Completion State Success - Criteria met. | **Success Action** Do Nothing | **Method** CAS_salt_010711 (v4) | **Calibration** CAS_salt_010711 (v30) | **STD Conc - Pos B** 50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.2071 ppm (PASS)	0.0000 ppm	0%	2019/06/10 22:58

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.2071	2.0706	10.87	14.15	3.28	50.01	10:33

Completion State Success - Criteria met. | **Success Action** Do Nothing | **Method** CAS_salt_010711 (v4) | **Calibration** CAS_salt_010711 (v30) | **STD Conc - Pos D** 0 ppmC

Sample Type: Sample — From Schedule Version 8

		Analysis			Std. Dev.		

	Pos	Type	Sample ID	Result (ppmC)	(ppmC)	RSD	Start Time
◈	10	TOC	K1905198-004.01	1.4277 ppm	0.1865 ppm	13.0600%	2019/06/10 23:13

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.5595	15.5952	19.33	22.57	3.24	50.12	10:29
2	TOC	1.2958	12.9582	17.54	20.47	2.93	50.01	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	11	TOC	K1905198-005.01 2x	47.2102 ppm	0.1496 ppm	0.3200%	2019/06/10 23:41

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	47.3160	473.1596	329.92	333.00	3.08	50.05	10:27
2	TOC	47.1044	471.0441	328.48	331.58	3.10	50.15	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	12	TOC	K1905258-001.01 5x	13.9756 ppm	0.3591 ppm	2.5700%	2019/06/11 00:09

NR, using other dilution BEP 6/14/19

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	14.2295	142.2949	105.33	108.53	3.20	50.02	10:28
2	TOC	13.7217	137.2168	101.88	105.03	3.15	50.09	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	13	TOC	K1905258-001.01 10x	6.5765 ppm	0.0646 ppm	0.9800%	2019/06/11 00:37

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	6.6222	66.2218	53.69	57.01	3.31	50.05	10:30
2	TOC	6.5308	65.3084	53.07	56.35	3.28	50.06	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	14	TOC	K1905258-002.01 5x	52.5986 ppm	0.3332 ppm	0.6300%	2019/06/11 01:05

NR: using other dilution BEP 6/14/19

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	52.3630	523.6300	364.18	367.44	3.26	50.11	10:29
2	TOC	52.8343	528.3428	367.38	370.92	3.54	50.05	10:27

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	15	TOC	K1905258-002.01 10x	30.4544 ppm	0.2756 ppm	0.9100%	2019/06/11 01:33

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	30.6493	306.4935	216.79	220.32	3.53	50.12	10:28
2	TOC	30.2595	302.5954	214.14	217.47	3.33	50.04	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	16	TOC	K1905258-002.01 20x	15.5532 ppm	0.1910 ppm	1.2300%	2019/06/11 02:02

NR using other dilution

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	15.6883	156.8826	115.23	118.48	3.25	49.98	10:32
2	TOC	15.4181	154.1807	113.40	116.42	3.02	50.07	10:30

BCD 6/13/19

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	17	TOC	K1905258-003.01	12.9339 ppm	0.0849 ppm	0.6600%	2019/06/11 02:30

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	12.8739	128.7385	96.13	99.19	3.06	49.97	10:32
2	TOC	12.9939	129.9392	96.94	100.08	3.13	49.93	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	18	TOC	K1905258-004.01	4.6104 ppm	0.1306 ppm	2.8300%	2019/06/11 02:58

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.7027	47.0275	40.66	43.80	3.13	49.99	10:32
2	TOC	4.5180	45.1801	39.41	42.59	3.17	49.89	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	19	TOC	K1905258-005.01	4.1473 ppm	0.0326 ppm	0.7900%	2019/06/11 03:26

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.1242	41.2422	36.74	39.97	3.24	49.96	10:27
2	TOC	4.1703	41.7033	37.05	40.04	2.99	49.88	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.9241 ppm (PASS)	0.0000 ppm	0%	2019/06/11 03:54

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.9241	249.2413	178.65	181.87	3.23	49.88	10:28

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/06/11 04:09

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	6.93	10.05	3.12	49.87	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample — From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	20	TOC	MB2	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/11 04:24

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.44	8.60	3.16	49.87	10:34

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC)	CAS_salt_010711	CAS_salt_010711

(v1265) (v4) (v30)

Sample Type: Check Standard --> LCS

From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	C	TOC	25.0000	1:1	[TOC] LCS [24.0 ppm]	0 / infinity (NA / NA)	25.3786 ppm (PASS)	0.0000 ppm	0%	2019/06/11 04:38

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	25.3786	253.7861	181.73	185.02	3.29	49.87	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	25 ppmC

Sample Type: Sample

From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	21	TOC	K1905258-006.01 5x	63.3789 ppm	0.3707 ppm	0.5800%	2019/06/11 04:53

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	63.6411	636.4109	440.73	443.84	3.10	49.87	10:29
2	TOC	63.1168	631.1678	437.18	440.33	3.16	49.86	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	22	TOC	K1905259-001.01	2.7758 ppm	0.2277 ppm	8.2000%	2019/06/11 05:21

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.9368	29.3682	28.68	31.83	3.15	49.89	10:28
2	TOC	2.6148	26.1478	26.49	29.47	2.97	49.91	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	23	TOC	K1905338-001.02	1.6601 ppm	0.0146 ppm	0.8800%	2019/06/11 05:49

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.6705	16.7046	20.08	23.26	3.17	49.90	10:29
2	TOC	1.6498	16.4983	19.94	23.11	3.17	49.90	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	24	TOC	K1905084-004.01 100x	7.9165 ppm	0.0654 ppm	0.8300%	2019/06/11 06:17

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	7.8703	78.7027	62.17	65.29	3.13	49.92	10:26
2	TOC	7.9628	79.6279	62.79	65.86	3.06	49.90	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	25	TOC	K1905084-005.01 100x	6.5046 ppm	0.0456 ppm	0.7000%	2019/06/11 06:45

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	6.5369	65.3688	53.12	56.34	3.23	49.91	10:29
2	TOC	6.4724	64.7235	52.68	55.85	3.17	49.89	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	26	TOC	K1905298-001.01	0.1010 ppm	0.0480 ppm	47.5600%	2019/06/11 07:13

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1349	1.3494	9.66	12.79	3.13	49.88	10:29
2	TOC	0.0670	0.6702	9.20	12.36	3.16	49.86	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	27	TOC	K1905126-001.02	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/11 07:41

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.52	10.68	3.17	49.88	10:26
2	TOC	0.0000	0.0000	7.37	10.62	3.25	49.79	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	28	TOC	K1905126-002.10	0.1651 ppm	0.0352 ppm	21.3200%	2019/06/11 08:09

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1402	1.4024	9.70	12.66	2.97	49.76	10:25
2	TOC	0.1900	1.9004	10.03	13.12	3.09	49.72	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.8758 ppm (PASS)	0.0000 ppm	0%	2019/06/11 08:37

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.8758	248.7581	178.32	181.28	2.96	49.78	10:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/06/11 08:52

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	5.34	8.50	3.16	49.80	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample — From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	29	TOC	K1905126-002.10 ms	25.9071 ppm	0.0000 ppm	0.0000%	2019/06/11 09:07

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	25.9071	259.0711	184.60	187.66	3.06	49.82	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC)	CAS_salt_010711	CAS_salt_010711

(v1265) (v4) (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◉	30	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/11 09:21

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.60	8.68	3.08	49.73	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◉	31	TOC	K1905126-003.02	0.2708 ppm	0.0126 ppm	4.6500%	2019/06/11 09:36

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.2798	2.7975	10.64	13.76	3.11	49.80	10:25
2	TOC	0.2619	2.6193	10.52	13.75	3.23	50.09	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◉	32	TOC	K1905126-004.02	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/11 10:04

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.77	9.83	3.06	50.02	10:27
2	TOC	0.0000	0.0000	6.91	10.04	3.13	50.08	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◉	33	TOC	K1905126-005.02	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/11 10:32

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.11	10.12	3.01	50.09	10:28
2	TOC	0.0000	0.0000	7.04	10.12	3.08	50.06	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◉	34	TOC	K1905126-006.02	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/11 11:00

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time

1	TOC	0.0000	0.0000	6.72	9.66	2.95	50.15	10:28
2	TOC	0.0000	0.0000	6.57	9.54	2.97	50.15	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	35	TOC	K1905126-007.02	0.0541 ppm	0.0435 ppm	80.5500%	2019/06/11 11:28

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0849	0.8485	9.32	12.30	2.99	50.12	10:26
2	TOC	0.0233	0.2327	8.90	11.94	3.04	50.12	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	36	TOC	K1905126-008.02	0.3264 ppm	0.0178 ppm	5.4600%	2019/06/11 11:56

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.3138	3.1379	10.87	13.83	2.96	50.14	10:27
2	TOC	0.3390	3.3898	11.04	13.97	2.93	50.14	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	37	TOC	K1905126-009.02	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/11 12:24

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.58	9.74	3.16	50.11	10:29
2	TOC	0.0000	0.0000	7.04	9.97	2.93	50.09	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	38	TOC	K1905262-001.02	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/11 12:53

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.96	9.96	3.00	50.07	10:28
2	TOC	0.0000	0.0000	7.17	10.25	3.08	50.19	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.6279 ppm (PASS)	0.0000 ppm	0%	2019/06/11 13:21

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.6279	246.2787	176.64	179.77	3.13	50.13	10:34

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/06/11 13:35

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	5.08	8.29	3.21	50.13	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample — From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	39	TOC	MB3	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/11 13:50

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	4.60	7.58	2.97	50.20	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> LCS — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	C	TOC	25.0000	1:1	[TOC] LCS [25.0 ppm]	0 / infinity (NA / NA)	25.0694 ppm (PASS)	0.0000 ppm	0%	2019/06/11 14:05

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	25.0694	250.6939	179.63	182.89	3.25	50.13	10:28

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	25 ppmC

Sample Type: Sample — From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	40	TOC	K1905262-002.02	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/11 14:19

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.44	10.67	3.23	50.15	10:28
2	TOC	0.0000	0.0000	6.64	9.86	3.22	50.26	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	41	TOC	K1905277-001.07	0.3294 ppm	0.0206 ppm	6.2600%	2019/06/11 14:48

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.3440	3.4399	11.08	14.27	3.19	50.25	10:27
2	TOC	0.3148	3.1482	10.88	14.02	3.14	50.23	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	42	TOC	K1905277-001.07 ms	25.8656 ppm	0.0000 ppm	0.0000%	2019/06/11 15:16

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	25.8656	258.6557	184.32	187.54	3.22	50.18	10:34

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	43	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/11 15:31

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.11	8.29	3.18	50.20	10:34

Dilution	Blank Contribution	Method	Calibration

1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	44	TOC	K1905277-002.01	0.3540 ppm	0.0296 ppm	8.3600%	2019/06/11 15:45

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.3749	3.7492	11.29	14.27	2.98	50.20	10:28
2	TOC	0.3331	3.3308	11.00	14.29	3.28	50.24	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	45	TOC	K1905277-003.01	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/11 16:13

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.55	8.75	3.20	50.22	10:28
2	TOC	0.0000	0.0000	5.35	8.66	3.30	50.24	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	46	TOC	K1905278-001.10	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/11 16:41

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.70	10.85	3.15	50.27	10:29
2	TOC	0.0000	0.0000	7.96	10.95	2.99	50.28	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	47	TOC	K1905278-001.10 ms	25.0974 ppm	0.0000 ppm	0.0000%	2019/06/11 17:10

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	25.0974	250.9744	179.10	182.07	2.97	50.26	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time

◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.7079 ppm (PASS)	0.0000 ppm	0%	2019/06/11 17:24

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.7079	247.0786	177.18	180.31	3.13	50.26	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/06/11 17:39

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	4.96	8.18	3.22	50.27	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample — From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	48	TOC	K1905278-002.04	0.0044 ppm	0.0062 ppm	141.4200%	2019/06/11 17:54

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	8.50	11.63	3.13	50.27	10:29
2	TOC	0.0088	0.0883	8.80	11.88	3.08	50.29	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	49	TOC	K1905278-003.04	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/11 18:22

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.59	8.67	3.08	50.30	10:28
2	TOC	0.0000	0.0000	5.15	8.27	3.12	50.23	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	50	TOC	K1905279-001.02	0.5334 ppm	0.0394 ppm	7.3800%	2019/06/11 18:50

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5056	5.0560	12.18	15.23	3.05	50.16	10:26
2	TOC	0.5613	5.6128	12.55	15.66	3.11	50.22	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	51	TOC	K1905305-001.01	5.6538 ppm	0.0413 ppm	0.7300%	2019/06/11 19:18

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	5.6830	56.8301	47.32	50.44	3.12	50.18	10:25
2	TOC	5.6247	56.2467	46.92	50.07	3.14	50.14	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	52	TOC	K1905360-001.04	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/11 19:46

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.84	10.08	3.23	50.17	10:27
2	TOC	0.0000	0.0000	7.02	10.14	3.12	50.21	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	53	TOC	K1905361-001.03	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/11 20:14

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.81	10.97	3.16	50.17	10:30
2	TOC	0.0000	0.0000	7.96	11.25	3.29	50.19	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	54	TOC	K1905369-001.02 2x	5.2212 ppm	0.0059 ppm	0.1100%	2019/06/11 20:42

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	5.2254	52.2544	44.21	47.40	3.19	50.19	10:27

2	TOC	5.2170	52.1704	44.16	47.37	3.21	50.23	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	55	TOC	K1905369-002.02	13.3752 ppm	0.1848 ppm	1.3800%	2019/06/11 21:10

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	13.5059	135.0586	100.42	103.57	3.15	50.19	10:26
2	TOC	13.2445	132.4451	98.65	101.86	3.22	50.16	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	56	TOC	K1905369-003.02	1.7773 ppm	0.0153 ppm	0.8600%	2019/06/11 21:38

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.7882	17.8817	20.88	24.25	3.37	50.24	10:26
2	TOC	1.7665	17.6651	20.73	23.96	3.22	50.16	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	57	TOC	K1905369-004.02 2x	9.2072 ppm	0.0915 ppm	0.9900%	2019/06/11 22:06

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	9.2719	92.7188	71.68	74.77	3.09	50.16	10:29
2	TOC	9.1425	91.4253	70.80	73.97	3.17	50.12	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.6047 ppm (PASS)	0.0000 ppm	0%	2019/06/11 22:34

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.6047	246.0474	176.48	179.71	3.24	50.04	10:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/06/11 22:49

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	5.11	8.22	3.11	50.05	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample — From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	58	TOC	MB4	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/11 23:04

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	4.45	7.48	3.03	50.06	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> LCS — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	C	TOC	25.0000	1:1	[TOC] LCS [25.0 ppm]	0 / infinity (NA / NA)	25.0946 ppm (PASS)	0.0000 ppm	0%	2019/06/11 23:18

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	25.0946	250.9458	179.80	182.94	3.14	49.93	10:28

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	25 ppmC

Sample Type: Sample — From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	59	TOC	K1905369-005.02	9.8349 ppm	0.2805 ppm	2.8500%	2019/06/11 23:33

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	10.0332	100.3323	76.85	79.77	2.92	49.96	10:28
2	TOC	9.6365	96.3650	74.16	77.34	3.19	49.86	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	60	TOC	K1905369-006.02 2x	13.5333 ppm	0.0115 ppm	0.0800%	2019/06/12 00:01

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	13.5414	135.4136	100.66	103.97	3.31	49.94	10:29
2	TOC	13.5252	135.2516	100.55	103.66	3.11	49.86	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	61	TOC	K1905369-007.02 2x	26.9581 ppm	0.1856 ppm	0.6900%	2019/06/12 00:29

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	27.0894	270.8936	192.62	195.65	3.03	49.97	10:31
2	TOC	26.8268	268.2683	190.84	193.78	2.94	49.88	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	62	TOC	K1905369-008.02 2x	9.4780 ppm	0.1658 ppm	1.7500%	2019/06/12 00:58

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	9.5952	95.9525	73.88	76.92	3.05	49.80	10:29
2	TOC	9.3607	93.6071	72.28	75.31	3.02	49.79	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	63	TOC	K1905369-009.02	27.6951 ppm	0.0842 ppm	0.3000%	2019/06/12 01:26

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	27.7547	277.5466	197.14	200.30	3.16	49.74	10:29

2	TOC	27.6356	276.3562	196.33	199.36	3.02	49.76	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	25.2425 ppm (PASS)	0.0000 ppm	0%	2019/06/12 01:54

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.2425	252.4249	180.81	183.95	3.14	49.75	10:34

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/06/12 02:08

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	6.01	8.98	2.97	49.73	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Meta Data Used in this Report

Blanks

Version	Reagent (Abs)	Acid (Abs)	DI IC (Abs)	DI TC (Abs)	DI TOC (Abs)	Save Time	Operator
v1264	1.3990	1.2110	0.0000	0.0000	0.0000	2019/06/06 15:32	Fusion1 (Fusion1)
v1265	1.1340	1.2260	0.0000	0.0000	0.0000	2019/06/10 14:28	Fusion1 (Fusion1)

Calibrations

Name: CAS_salt_010711 (TOC)

Version:	v30	Calibration curve formula:	TOC: y = 6.788x + 9.463
Ver Creation:	2019/03/05 17:42	r^2 value:	TOC: r^2 = 0.99963
Comment:			
Operator:	Fusion1 (Fusion1)		
Basic Analysis Type	TOC		

Basic Analysis Type: TOC

Sample ID	Y Raw Value	X Expected	Message	End Time
DI Water	7.8970	0.0000		2019/03/05 16:15
0.500 ppm	11.5280	0.5000		2019/03/05 16:29
1.0 ppm	14.9760	1.0000		2019/03/05 16:44
5.0 ppm	43.6500	5.0000		2019/03/05 16:58
10 ppm	79.6020	10.0000		2019/03/05 17:12
25 ppm	183.3580	25.0000		2019/03/05 17:26
50 ppm	346.3230	50.0000		2019/03/05 17:40

Methods

Name: CAS_salt_010711 (TOC)

Version:	v4	Operator:	Fusion1 (Fusion1)
Ver Creation:	2019/02/21 17:57		
Comment:			

Parameter	Value
SampleVolume	10.0 mL
Dilution	1:10
AcidVolume	0.5 ml
ReagentVolume	2.0 ml
UVReactorPrerinse	Off
UVReactorPrerinseVolume	5.0
NumberOfUVReactorPrerinses	1
ICSpargeTime	1.00 mins
DetectorSweepFlow	500 ml/min
PreSpargeTime	2.00 mins
SystemFlow	500 ml/min

Advanced Parameter	Value
NeedleRinseVolume	5.0 ml
VialPrimeVolume	2.0 ml
ICSamplePrimeVolume	2.0 ml
ICSpargeRinseVolume	12.0 ml
BaselineStabilizeTime	0.70 min
DetectorPressureFlow	150 ml/min
SyringeSpeedWaste	10
SyringeSpeedAcid	7
SyringeSpeedReagent	7
SyringeSpeedDIWater	7
NDIRPressurization	60 psig
SyringeSpeedSampleDispense	5
SyringeSpeedSampleAspirate	4
SyringeSpeedUVDispense	5
SyringeSpeedUVAspirate	5
SyringeSpeedICDispense	5
SyringeSpeedICAspirate	5
NDIRPressureStabilize	1.75 min
SampleMixing	Off

SampleMixingCycles	1
SampleMixingVolume	10.0
LowLevelFilterNDIR	Off

Acceptance / Approval

Electronic Signatures

Report Version	User Name	Acceptance	Reason	Date

Report History

Report History

Report Version	User Name	System Reason	User Reason	Date
1	Fusion1 (Fusion1)	Schedule completed	Schedule completed	2019/06/12 02:26

ALS Environmental

StarLIMS Run: 638808, 638810, 638815, 638817

Analysis: TOC/DOC

Method: 415.1, SM 5310 C, 9060, 9060A

CCV: 11-GEN-05-77K 50 ppm LCS: 11-GEN-05-77D 25.0 ppm

ICAL Date: 3/6/19

ICAL ID: 11-GEN-05-76H

ICS ID: 11-GEN-05-74A

ICS TV: 25.0 ppm ICS % R = 2

Spike ID: 11-GEN-05-77J 0.05 ml of 5000 ppm stock ---> 10.0 ml = 25.0 ppm x dilution factor

Sodium Persulfate: 11-GEN-05-78F

21 % H3PO4: 11-GEN-05-78G

Equipment ID: K-TOC-03

PIPETTE ID: 124276B, 129001F, N11314F, Marge

FILTER ID: FE1165

Analyzed By:	BD	Date Analyzed:	6/10/19
Reviewed By:	[signature]	Date Reviewed:	06/14/19

Work Request # (Original) KP905114-6, 5598, 5598, 5420, 5440, 5449, 5451, 5478, 5589, 5598, 5409, 5449, 5422, 5582, 5558, 5589, 5595, 5625, 5295, 5597
Tier: IV IV IV II II II II II IV I II I II II II
Date Analyzed: 6/16/19
Analyst: BCD/HLM
Analysis: TOC/DOC
Run # TOC: 639522, 639523, 639524 DOC: 639525

DATA QUALITY REPORT
INORGANICS

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

1.	Is the method name and number correct and appropriate?	yes/no/NA
2.	Holding times met for all analyses and for all samples?	yes/no/NA
3.	Are calculations correct?	yes/no/NA
4.	Is the reporting basis correct? (Dry Weight)	yes/no/NA
5.	All quality control criteria met?	yes/no
6.	Is the calibration curve correlation coefficient ≥ 0.995?	yes/no/NA
7.	MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency?	yes/no/NA
8.	Are ICVs, CCVs, and CCBs all within acceptance limits?	yes/no/NA
9.	Are results for methods blanks all ND?	yes/no/NA
10.	Are all QC samples within acceptance criteria? (LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc.)	yes/no/NA
11.	Are all exceptions explained?	yes/no/NA
12.	Have all applicable service requests been reviewed?	yes/no/NA
13.	Are all samples labeled correctly?	yes/no/NA
14.	Have all instructions on the service request been followed? (e.g. Special MRLs, QC on a specific sample, Form V)	yes/no/NA
15.	Are detection limits and units reported correctly?	yes/no/NA
16.	Is the unused space on the benchsheet crossed out?	yes/no/NA
17.	Was analysis turned in by the due date? (n-2) (If not record SR#)	yes/no/NA

COMMENTS: KP905420-1d, KP905598-2d sent for RA due to being overdiluted.
KP905597-1d, 5478-6 report a high %RSD, but these samples are less than 5x the MRL.
KP905114-6d reports a high %RSD due to non-homogenous, dirty sample.

Final Approved by: [signature] Date: 06/18/19

DQREPORT

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 639522 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K1905114-006	Carbon, Total Organic	N/A		Ground Water	5.41 mg/L	10 mL	54.1 mg/L	10	0.7	5.0			6/15/19 03:35:00	N	IV
K1905198-003	Carbon, Total Organic	N/A		Ground Water	13.60 mg/L	10 mL	1360 mg/L	100	7	50			6/15/19 02:11:00	N	IV
K1905258-006	Carbon, Total Organic	N/A		Water	3.31 mg/L	10 mL	331 mg/L	100	7	50			6/15/19 01:13:00	N	IV
K1905420-001	Carbon, Total Organic	N/A		Water	0.38 mg/L	10 mL	50 mg/L U	100	7	50			6/15/19 13:58:00	N	II
K1905440-001	Carbon, Total Organic	N/A		Water	21.35 mg/L	10 mL	21.3 mg/L	1	0.07	0.50			6/15/19 04:03:00	N	II
K1905440-002	Carbon, Total Organic	N/A		Water	21.51 mg/L	10 mL	21.5 mg/L	1	0.07	0.50			6/15/19 04:31:00	N	II
K1905440-003	Carbon, Total Organic	N/A		Water	20.63 mg/L	10 mL	20.6 mg/L	1	0.07	0.50			6/15/19 04:59:00	N	II
K1905440-004	Carbon, Total Organic	N/A		Water	20.85 mg/L	10 mL	20.8 mg/L	1	0.07	0.50			6/15/19 05:27:00	N	II
K1905449-001	Carbon, Total Organic	N/A		Water	1.54 mg/L	10 mL	1.54 mg/L	1	0.07	0.50			6/15/19 14:40:00	N	II
K1905451-001	Carbon, Total Organic	N/A		Water	6.46 mg/L	10 mL	646 mg/L	100	7	50			6/15/19 11:35:00	N	II
K1905451-002	Carbon, Total Organic	N/A		Water	5.83 mg/L	10 mL	583 mg/L	100	7	50			6/15/19 12:33:00	N	II
K1905478-001	Carbon, Total Organic	N/A		Ground Water	28.06 mg/L	10 mL	28.1 mg/L	1	0.07	0.50			6/15/19 05:55:00	N	II
K1905478-002	Carbon, Total Organic	N/A		Ground Water	9.82 mg/L	10 mL	9.82 mg/L	1	0.07	0.50			6/15/19 06:23:00	N	II
K1905478-003	Carbon, Total Organic	N/A		Ground Water	18.57 mg/L	10 mL	18.6 mg/L	1	0.07	0.50			6/15/19 07:50:00	N	II
K1905478-004	Carbon, Total Organic	N/A		Ground Water	9.86 mg/L	10 mL	9.86 mg/L	1	0.07	0.50			6/15/19 08:18:00	Y	II
K1905478-005	Carbon, Total Organic	N/A		Ground Water	7.89 mg/L	10 mL	7.89 mg/L	1	0.07	0.50			6/15/19 09:29:00	N	II
K1905478-006	Carbon, Total Organic	N/A		Ground Water	0.67 mg/L	10 mL	0.67 mg/L	1	0.07	0.50			6/15/19 10:11:00	N	II
K1905478-007	Carbon, Total Organic	N/A		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/15/19 10:59:00	N	II
K1905589-001	Carbon, Total Organic	N/A		Water	3.74 mg/L	10 mL	3.74 mg/L	1	0.07	0.50			6/15/19 13:01:00	N	II
K1905589-003	Carbon, Total Organic	N/A		Water	2.59 mg/L	10 mL	2.59 mg/L	1	0.07	0.50			6/15/19 13:30:00	N	II
KQ1908379-01	Carbon, Total Organic	CCV		Water	24.94 mg/L	10 mL	24.9 mg/L	1					6/14/19 18:11:00	N	IV
KQ1908379-02	Carbon, Total Organic	CCV		Water	24.59 mg/L	10 mL	24.6 mg/L	1					6/15/19 01:13:00	N	IV
KQ1908379-03	Carbon, Total Organic	CCV		Water	25.46 mg/L	10 mL	25.5 mg/L	1					6/15/19 06:51:00	N	IV
KQ1908379-04	Carbon, Total Organic	CCV		Water	24.96 mg/L	10 mL	25.0 mg/L	1					6/15/19 12:03:00	N	IV
KQ1908379-05	Carbon, Total Organic	CCV		Water	24.89 mg/L	10 mL	24.9 mg/L	1					6/15/19 17:01:00	N	IV
KQ1908379-06	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/14/19 18:26:00	N	IV
KQ1908379-07	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/15/19 01:56:00	N	IV
KQ1908379-08	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/15/19 07:06:00	N	IV
KQ1908379-09	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/15/19 12:18:00	N	IV
KQ1908379-10	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/15/19 17:15:00	N	IV
KQ1908379-11	Carbon, Total Organic	MB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/14/19 18:41:00	N	IV
KQ1908379-12	Carbon, Total Organic	LCS		Water	25.40 mg/L	10 mL	25.4 mg/L	1	0.07	0.50	102		6/14/19 19:37:00	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Printed 6/18/19 10:35

Results Summary

06/18/19

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 639522 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ1908379-13	Carbon, Total Organic	MS	K1905478-004	Ground Water	29.95 mg/L	10 mL	59.9 mg/L	2	0.2	1.0	100		6/15/19 08:46:00	N	II
KQ1908379-14	Carbon, Total Organic	DUP	K1905258-006	Water	3.33 mg/L	10 mL	333 mg/L	100	7	50		<1	6/15/19 01:13:00	N	IV
KQ1908379-15	Carbon, Total Organic	DUP	K1905198-003	Ground Water	13.59 mg/L	10 mL	1360 mg/L	100	7	50		<1	6/15/19 02:11:00	N	IV
KQ1908379-17	Carbon, Total Organic	DUP	K1905114-006	Ground Water	6.29 mg/L	10 mL	62.9 mg/L	10	0.7	5.0		15*	6/15/19 03:35:00	N	IV
KQ1908379-18	Carbon, Total Organic	DUP	K1905440-001	Water	21.00 mg/L	10 mL	21.0 mg/L	1	0.07	0.50		2	6/15/19 04:03:00	N	II
KQ1908379-19	Carbon, Total Organic	DUP	K1905440-002	Water	21.25 mg/L	10 mL	21.2 mg/L	1	0.07	0.50		1	6/15/19 04:31:00	N	II
KQ1908379-20	Carbon, Total Organic	DUP	K1905440-003	Water	20.93 mg/L	10 mL	20.9 mg/L	1	0.07	0.50		1	6/15/19 04:59:00	N	II
KQ1908379-21	Carbon, Total Organic	DUP	K1905440-004	Water	20.80 mg/L	10 mL	20.8 mg/L	1	0.07	0.50		<1	6/15/19 05:27:00	N	II
KQ1908379-22	Carbon, Total Organic	DUP	K1905478-001	Ground Water	28.39 mg/L	10 mL	28.4 mg/L	1	0.07	0.50		1	6/15/19 05:55:00	N	II
KQ1908379-23	Carbon, Total Organic	DUP	K1905478-002	Ground Water	9.35 mg/L	10 mL	9.35 mg/L	1	0.07	0.50		5	6/15/19 06:23:00	N	II
KQ1908379-24	Carbon, Total Organic	DUP	K1905478-003	Ground Water	18.70 mg/L	10 mL	18.7 mg/L	1	0.07	0.50		<1	6/15/19 07:50:00	N	II
KQ1908379-25	Carbon, Total Organic	DUP	K1905478-004	Ground Water	9.86 mg/L	10 mL	9.86 mg/L	1	0.07	0.50		<1	6/15/19 08:18:00	N	II
KQ1908379-26	Carbon, Total Organic	DUP	K1905478-005	Ground Water	7.97 mg/L	10 mL	7.97 mg/L	1	0.07	0.50		<1	6/15/19 09:29:00	N	II
KQ1908379-27	Carbon, Total Organic	DUP	K1905478-006	Ground Water	0.59 mg/L	10 mL	0.59 mg/L	1	0.07	0.50		12*	6/15/19 10:11:00	N	II
KQ1908379-28	Carbon, Total Organic	DUP	K1905478-007	Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/15/19 10:59:00	N	II
KQ1908379-29	Carbon, Total Organic	DUP	K1905451-001	Water	6.46 mg/L	10 mL	646 mg/L	100	7	50		<1	6/15/19 11:35:00	N	II
KQ1908379-30	Carbon, Total Organic	DUP	K1905451-002	Water	5.90 mg/L	10 mL	590 mg/L	100	7	50		1	6/15/19 12:33:00	N	II
KQ1908379-31	Carbon, Total Organic	DUP	K1905589-001	Water	3.64 mg/L	10 mL	3.64 mg/L	1	0.07	0.50		3	6/15/19 13:01:00	N	II
KQ1908379-32	Carbon, Total Organic	DUP	K1905589-003	Water	2.58 mg/L	10 mL	2.58 mg/L	1	0.07	0.50		<1	6/15/19 13:30:00	N	II
KQ1908379-33	Carbon, Total Organic	DUP	K1905420-001	Water	0.39 mg/L	10 mL	39 mg/L J	100	7	50		NC	6/15/19 13:58:00	N	II
KQ1908379-34	Carbon, Total Organic	DUP	K1905449-001	Water	1.47 mg/L	10 mL	1.47 mg/L	1	0.07	0.50		5	6/15/19 14:40:00	N	II

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 639523 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K1905198-006	Carbon, Total Organic	N/A		Ground Water	3.96 mg/L	10 mL	3.96 mg/L	1	0.07	0.50			6/15/19 03:07:00	N	IV
K1905409-001	Carbon, Total Organic	N/A		Reagent Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/15/19 20:48:00	N	I
K1905409-002	Carbon, Total Organic	N/A		Reagent Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/15/19 21:16:00	N	I
K1905449-002	Carbon, Total Organic	N/A		Water	0.56 mg/L	10 mL	0.56 mg/L	1	0.07	0.50			6/15/19 15:08:00	N	II
K1905477-001	Carbon, Total Organic	N/A		Water	1.72 mg/L	10 mL	1.72 mg/L	1	0.07	0.50			6/15/19 15:36:00	N	I
K1905477-002	Carbon, Total Organic	N/A		Water	19.94 mg/L	10 mL	19.9 mg/L	1	0.07	0.50			6/15/19 16:04:00	N	I
K1905477-003	Carbon, Total Organic	N/A		Water	2.68 mg/L	10 mL	2.68 mg/L	1	0.07	0.50			6/15/19 16:32:00	N	I
K1905477-004	Carbon, Total Organic	N/A		Water	1.23 mg/L	10 mL	1.23 mg/L	1	0.07	0.50			6/15/19 17:59:00	N	I
K1905482-001	Carbon, Total Organic	N/A		Water	0.40 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/15/19 18:27:00	N	II
K1905482-002	Carbon, Total Organic	N/A		Water	1.54 mg/L	10 mL	1.54 mg/L	1	0.07	0.50			6/15/19 18:56:00	N	II
K1905482-003	Carbon, Total Organic	N/A		Water	0.62 mg/L	10 mL	0.62 mg/L	1	0.07	0.50			6/15/19 19:24:00	N	II
K1905482-004	Carbon, Total Organic	N/A		Water	0.87 mg/L	10 mL	0.87 mg/L	1	0.07	0.50			6/15/19 19:52:00	N	II
K1905482-005	Carbon, Total Organic	N/A		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/15/19 20:20:00	N	II
K1905558-001	Carbon, Total Organic	N/A		Water	1.48 mg/L	10 mL	1.48 mg/L	1	0.07	0.50			6/15/19 22:14:00	N	II
K1905558-002	Carbon, Total Organic	N/A		Water	1.64 mg/L	10 mL	1.64 mg/L	1	0.07	0.50			6/15/19 22:42:00	N	II
K1905558-003	Carbon, Total Organic	N/A		Water	1.07 mg/L	10 mL	1.07 mg/L	1	0.07	0.50			6/15/19 23:10:00	N	II
K1905558-004	Carbon, Total Organic	N/A		Water	1.59 mg/L	10 mL	1.59 mg/L	1	0.07	0.50			6/15/19 23:38:00	N	II
K1905558-005	Carbon, Total Organic	N/A		Water	1.53 mg/L	10 mL	1.53 mg/L	1	0.07	0.50			6/16/19 00:06:00	N	II
K1905586-001	Carbon, Total Organic	N/A		Water	0.69 mg/L	10 mL	0.69 mg/L	1	0.07	0.50			6/16/19 00:34:00	N	II
K1905586-002	Carbon, Total Organic	N/A		Water	0.19 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/16/19 01:02:00	N	II
KQ1908380-01	Carbon, Total Organic	MS	K1905198-006	Ground Water	25.56 mg/L	10 mL	25.6 mg/L	1	0.07	0.50	86		6/16/19 10:45:00	N	IV
KQ1908380-02	Carbon, Total Organic	CCV		Ground Water	24.59 mg/L	10 mL	24.6 mg/L	1					6/15/19 01:41:00	N	IV
KQ1908380-03	Carbon, Total Organic	CCV		Ground Water	25.46 mg/L	10 mL	25.5 mg/L	1					6/15/19 06:51:00	N	IV
KQ1908380-04	Carbon, Total Organic	CCV		Ground Water	24.96 mg/L	10 mL	25.0 mg/L	1					6/15/19 12:03:00	N	IV
KQ1908380-05	Carbon, Total Organic	CCV		Ground Water	24.89 mg/L	10 mL	24.9 mg/L	1					6/15/19 17:01:00	N	IV
KQ1908380-06	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/15/19 01:56:00	N	IV
KQ1908380-07	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/15/19 07:06:00	N	IV
KQ1908380-08	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/15/19 12:18:00	N	IV
KQ1908380-09	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/15/19 17:15:00	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

06/18/19

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 639523 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ1908380-10	Carbon, Total Organic	MB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/15/19 07:21:00	N	IV
KQ1908380-11	Carbon, Total Organic	LCS		Ground Water	25.44 mg/L	10 mL	25.4 mg/L	1	0.07	0.50	102		6/15/19 07:35:00	N	IV
KQ1908380-12	Carbon, Total Organic	DUP	K1905198-006	Ground Water	3.83 mg/L	10 mL	3.83 mg/L	1	0.07	0.50		3	6/15/19 03:07:00	N	IV
KQ1908380-13	Carbon, Total Organic	DUP	K1905449-002	Water	0.53 mg/L	10 mL	0.53 mg/L	1	0.07	0.50		5	6/15/19 15:08:00	N	II
KQ1908380-14	Carbon, Total Organic	DUP	K1905477-001	Water	1.75 mg/L	10 mL	1.75 mg/L	1	0.07	0.50		2	6/15/19 15:36:00	N	I
KQ1908380-15	Carbon, Total Organic	DUP	K1905477-002	Water	19.70 mg/L	10 mL	19.7 mg/L	1	0.07	0.50		1	6/15/19 16:04:00	N	I
KQ1908380-16	Carbon, Total Organic	DUP	K1905477-003	Water	2.56 mg/L	10 mL	2.56 mg/L	1	0.07	0.50		5	6/15/19 16:32:00	N	I
KQ1908380-17	Carbon, Total Organic	DUP	K1905477-004	Water	1.13 mg/L	10 mL	1.13 mg/L	1	0.07	0.50		9	6/15/19 17:59:00	N	I
KQ1908380-18	Carbon, Total Organic	DUP	K1905482-001	Water	0.46 mg/L	10 mL	0.46 mg/L J	1	0.07	0.50		NC	6/15/19 18:27:00	N	II
KQ1908380-19	Carbon, Total Organic	DUP	K1905482-002	Water	1.52 mg/L	10 mL	1.52 mg/L	1	0.07	0.50		<1	6/15/19 18:56:00	N	II
KQ1908380-20	Carbon, Total Organic	DUP	K1905482-003	Water	0.63 mg/L	10 mL	0.63 mg/L	1	0.07	0.50		2	6/15/19 19:24:00	N	II
KQ1908380-21	Carbon, Total Organic	DUP	K1905482-004	Water	0.82 mg/L	10 mL	0.82 mg/L	1	0.07	0.50		6	6/15/19 19:52:00	N	II
KQ1908380-22	Carbon, Total Organic	DUP	K1905482-005	Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/15/19 20:20:00	N	II
KQ1908380-23	Carbon, Total Organic	DUP	K1905409-001	Reagent Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/15/19 20:48:00	N	I
KQ1908380-24	Carbon, Total Organic	DUP	K1905409-002	Reagent Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/15/19 21:16:00	N	I
KQ1908380-25	Carbon, Total Organic	DUP	K1905558-001	Water	1.41 mg/L	10 mL	1.41 mg/L	1	0.07	0.50		5	6/15/19 22:14:00	N	II
KQ1908380-26	Carbon, Total Organic	DUP	K1905558-002	Water	1.61 mg/L	10 mL	1.61 mg/L	1	0.07	0.50		2	6/15/19 22:42:00	N	II
KQ1908380-27	Carbon, Total Organic	DUP	K1905558-003	Water	1.06 mg/L	10 mL	1.06 mg/L	1	0.07	0.50		1	6/15/19 23:10:00	N	II
KQ1908380-28	Carbon, Total Organic	DUP	K1905558-004	Water	1.54 mg/L	10 mL	1.54 mg/L	1	0.07	0.50		3	6/15/19 23:38:00	N	II
KQ1908380-29	Carbon, Total Organic	DUP	K1905558-005	Water	1.48 mg/L	10 mL	1.48 mg/L	1	0.07	0.50		3	6/16/19 00:06:00	N	II
KQ1908380-30	Carbon, Total Organic	DUP	K1905586-001	Water	0.67 mg/L	10 mL	0.67 mg/L	1	0.07	0.50		4	6/16/19 00:34:00	N	II
KQ1908380-31	Carbon, Total Organic	DUP	K1905586-002	Water	0.16 mg/L	10 mL	0.16 mg/L J	1	0.07	0.50		NC	6/16/19 01:02:00	N	II
KQ1908380-32	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/15/19 21:59:00	N	IV
KQ1908380-33	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/16/19 03:09:00	N	IV
KQ1908380-34	Carbon, Total Organic	CCV		Ground Water	24.50 mg/L	10 mL	24.5 mg/L	1					6/15/19 21:44:00	N	IV
KQ1908380-35	Carbon, Total Organic	CCV		Ground Water	24.52 mg/L	10 mL	24.5 mg/L	1					6/16/19 02:55:00	N	IV
KQ1908380-36	Carbon, Total Organic	CCV		Ground Water	24.12 mg/L	10 mL	24.1 mg/L	1					6/16/19 07:11:00	N	IV
KQ1908380-37	Carbon, Total Organic	CCV		Ground Water	25.11 mg/L	10 mL	25.1 mg/L	1					6/16/19 11:00:00	N	IV
KQ1908380-38	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/16/19 07:26:00	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 639523 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ1908380-39	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/16/19 11:14:00	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 639524 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K1905259-001	Carbon, Total Organic	N/A		Water	2.21 mg/L	10 mL	2.21 mg/L	1	0.07	0.50			6/16/19 06:15:00	N	IV
K1905597-001	Carbon, Total Organic	N/A		Water	0.61 mg/L	10 mL	0.61 mg/L	1	0.07	0.50			6/16/19 01:30:00	N	IV
K1905597-002	Carbon, Total Organic	N/A		Water	2.79 mg/L	10 mL	11.2 mg/L	4	0.3	2.0			6/16/19 01:58:00	N	IV
K1905597-003	Carbon, Total Organic	N/A		Water	2.72 mg/L	10 mL	10.9 mg/L	4	0.3	2.0			6/16/19 02:27:00	N	IV
K1905597-004	Carbon, Total Organic	N/A		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/16/19 03:53:00	N	IV
K1905597-005	Carbon, Total Organic	N/A		Water	0.32 mg/L	10 mL	0.32 mg/L J	1	0.07	0.50			6/16/19 04:22:00	N	IV
K1905597-006	Carbon, Total Organic	N/A		Water	2.34 mg/L	10 mL	2.34 mg/L	1	0.07	0.50			6/16/19 04:50:00	Y	IV
K1905597-007	Carbon, Total Organic	N/A		Water	1.43 mg/L	10 mL	1.43 mg/L	1	0.07	0.50			6/16/19 05:47:00	N	IV
KQ1908381-01	Carbon, Total Organic	CCV		Water	24.50 mg/L	10 mL	24.5 mg/L	1					6/15/19 21:44:00	N	IV
KQ1908381-02	Carbon, Total Organic	CCV		Water	24.52 mg/L	10 mL	24.5 mg/L	1					6/16/19 02:55:00	N	IV
KQ1908381-03	Carbon, Total Organic	CCV		Water	24.12 mg/L	10 mL	24.1 mg/L	1					6/16/19 07:11:00	N	IV
KQ1908381-04	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/15/19 21:59:00	N	IV
KQ1908381-05	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/16/19 03:09:00	N	IV
KQ1908381-06	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/16/19 07:26:00	N	IV
KQ1908381-07	Carbon, Total Organic	MB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/15/19 17:30:00	N	IV
KQ1908381-08	Carbon, Total Organic	LCS		Water	25.11 mg/L	10 mL	25.1 mg/L	1	0.07	0.50	100		6/15/19 17:45:00	N	IV
KQ1908381-09	Carbon, Total Organic	MS	K1905597-006	Water	26.78 mg/L	10 mL	53.6 mg/L	2	0.2	1.0	102		6/16/19 05:18:00	N	IV
KQ1908381-10	Carbon, Total Organic	DUP	K1905597-001	Water	0.50 mg/L	10 mL	0.50 mg/L J	1	0.07	0.50		20*	6/16/19 01:30:00	N	IV
KQ1908381-11	Carbon, Total Organic	DUP	K1905597-002	Water	2.79 mg/L	10 mL	11.2 mg/L	4	0.3	2.0		<1	6/16/19 01:58:00	N	IV
KQ1908381-12	Carbon, Total Organic	DUP	K1905597-003	Water	2.70 mg/L	10 mL	10.8 mg/L	4	0.3	2.0		<1	6/16/19 02:27:00	N	IV
KQ1908381-13	Carbon, Total Organic	DUP	K1905597-004	Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/16/19 03:53:00	N	IV
KQ1908381-14	Carbon, Total Organic	DUP	K1905597-005	Water	0.30 mg/L	10 mL	0.30 mg/L J	1	0.07	0.50		8	6/16/19 04:22:00	N	IV
KQ1908381-15	Carbon, Total Organic	DUP	K1905597-006	Water	2.37 mg/L	10 mL	2.37 mg/L	1	0.07	0.50		1	6/16/19 04:50:00	N	IV
KQ1908381-16	Carbon, Total Organic	DUP	K1905597-007	Water	1.41 mg/L	10 mL	1.41 mg/L	1	0.07	0.50		2	6/16/19 05:47:00	N	IV
KQ1908381-17	Carbon, Total Organic	DUP	K1905259-001	Water	2.25 mg/L	10 mL	2.25 mg/L	1	0.07	0.50		2	6/16/19 06:15:00	N	IV

06/18/19

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 639525 **Method/Testcode:** SM 5310 C/TOC D

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K1905589-002	Carbon, Dissolved Organic (DOC)	N/A		Water	3.12 mg/L	10 mL	3.12 mg/L	1	0.07	0.50			6/16/19 06:43:00	N	II
K1905589-004	Carbon, Dissolved Organic (DOC)	N/A		Water	2.29 mg/L	10 mL	2.29 mg/L	1	0.07	0.50			6/16/19 07:41:00	N	II
K1905595-001	Carbon, Dissolved Organic (DOC)	N/A		Water	0.57 mg/L	10 mL	0.57 mg/L	1	0.07	0.50			6/16/19 09:49:00	N	I
K1905595-002	Carbon, Dissolved Organic (DOC)	N/A		Water	0.00 mg/L	10 mL	50 mg/L U	100	7	50			6/16/19 10:17:00	N	I
K1905625-001	Carbon, Dissolved Organic (DOC)	N/A		Effluent	1.22 mg/L	10 mL	1.22 mg/L	1	0.07	0.50			6/16/19 08:09:00	N	II
K1905625-002	Carbon, Dissolved Organic (DOC)	N/A		Effluent	1.21 mg/L	10 mL	1.21 mg/L	1	0.07	0.50			6/16/19 09:06:00	N	II
KQ1908382-01	Carbon, Dissolved Organic (DOC)	CCV		Water	24.52 mg/L	10 mL	24.5 mg/L	1					6/16/19 02:55:00	N	II
KQ1908382-02	Carbon, Dissolved Organic (DOC)	CCV		Water	24.12 mg/L	10 mL	24.1 mg/L	1					6/16/19 07:11:00	N	II
KQ1908382-03	Carbon, Dissolved Organic (DOC)	CCV		Water	25.11 mg/L	10 mL	25.1 mg/L	1					6/16/19 11:00:00	N	II
KQ1908382-04	Carbon, Dissolved Organic (DOC)	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/16/19 03:09:00	N	II
KQ1908382-05	Carbon, Dissolved Organic (DOC)	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/16/19 07:26:00	N	II
KQ1908382-06	Carbon, Dissolved Organic (DOC)	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/16/19 11:14:00	N	II
KQ1908382-07	Carbon, Dissolved Organic (DOC)	MB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/16/19 03:24:00	N	II
KQ1908382-08	Carbon, Dissolved Organic (DOC)	LCS		Water	25.10 mg/L	10 mL	25.1 mg/L	1	0.07	0.50	100		6/16/19 03:39:00	N	II
KQ1908382-09	Carbon, Dissolved Organic (DOC)	MS	K1905625-001	Effluent	26.86 mg/L	10 mL	26.9 mg/L	1	0.07	0.50	103		6/16/19 08:37:00	N	II
KQ1908382-10	Carbon, Dissolved Organic (DOC)	DUP	K1905589-002	Water	3.13 mg/L	10 mL	3.13 mg/L	1	0.07	0.50		<1	6/16/19 06:43:00	N	II
KQ1908382-11	Carbon, Dissolved Organic (DOC)	DUP	K1905589-004	Water	2.30 mg/L	10 mL	2.30 mg/L	1	0.07	0.50		<1	6/16/19 07:41:00	N	II
KQ1908382-12	Carbon, Dissolved Organic (DOC)	DUP	K1905625-001	Effluent	1.28 mg/L	10 mL	1.28 mg/L	1	0.07	0.50		5	6/16/19 08:09:00	N	II
KQ1908382-13	Carbon, Dissolved Organic (DOC)	DUP	K1905625-002	Effluent	1.21 mg/L	10 mL	1.21 mg/L	1	0.07	0.50		<1	6/16/19 09:06:00	N	II
KQ1908382-14	Carbon, Dissolved Organic (DOC)	DUP	K1905595-001	Water	0.58 mg/L	10 mL	0.58 mg/L	1	0.07	0.50		2	6/16/19 09:49:00	N	I
KQ1908382-15	Carbon, Dissolved Organic (DOC)	DUP	K1905595-002	Water	0.00 mg/L	10 mL	50 mg/L U	100	7	50		NC	6/16/19 10:17:00	N	I

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
CBA	RB	1			0.0000	0	<0.5	
2	C] CCV 25 ppm [25 p	1	24.937	0.0000	24.9374	24.9374	24.9	6/14/2019
3	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/14/2019
4	MB1	1	0.000	0.0000	0.0000	0	<0.5	6/14/2019
5	[TOC] LCS [24ppm]	1	25.401	0.0000	25.4009	25.4009	25.4	6/14/2019
6	K1905258-006	100	3.314	0.0000	3.3140	331.4	331.40	6/15/2019
7	K1905258-006d	100	3.327	0.0000	3.3271	332.71	332.7	6/15/2019
8	C] CCV 25 ppm [25 p	1	24.590	0.0000	24.5900	24.59	25	6/15/2019
9	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
10	K1905198-003	100	13.598	0.0000	13.5984	1359.84	1359.84	6/15/2019
11	K1905198-003d	100	13.590	0.0000	13.5897	1358.97	1359.0	6/15/2019
12	K1905114-006	10	5.412	0.0000	5.4117	54.117	54.12	6/15/2019
13	K1905114-006d	10	6.290	0.0000	6.2895	62.895	62.90	6/15/2019
14	K1905440-001	1	21.348	0.0000	21.3480	21.348	21.35	6/15/2019
15	K1905440-001d	1	21.002	0.0000	21.0020	21.002	21.0	6/15/2019
16	K1905440-002	1	21.512	0.0000	21.5121	21.5121	21.5	6/15/2019
17	K1905440-002d	1	21.247	0.0000	21.2469	21.2469	21.25	6/15/2019
18	K1905440-003	1	20.626	0.0000	20.6264	20.6264	20.6	6/15/2019
19	K1905440-003d	1	20.933	0.0000	20.9333	20.9333	20.9	6/15/2019
20	K1905440-004	1	20.849	0.0000	20.8493	20.8493	20.85	6/15/2019
21	K1905440-004d	1	20.795	0.0000	20.7951	20.7951	20.80	6/15/2019
22	K1905478-001	1	28.056	0.0000	28.0558	28.0558	28.1	6/15/2019
23	K1905478-001d	1	28.385	0.0000	28.3853	28.3853	28.4	6/15/2019
24	K1905478-002	1	9.821	0.0000	9.8214	9.8214	9.82	6/15/2019
25	K1905478-002d	1	9.348	0.0000	9.3476	9.3476	9.35	6/15/2019

ICAL Date 10/20/16 ICAL ID#:11-GEN-05-51A

LCS =24.0 ppm APG 4013 Lot #010615 (REF# 11-GEN-05-50N)

CCV = 25.0 ppm (Ref.#11-GEN-05-52E)

Spike: 0.05 ml of 5000 ppm stock ----> 10.0 ml =25.0 ppm x Dilution Factor (Ref.# 11-GEN-05-51M)

date time

Analyzed By: BCD	Date Analyzed 6/16/19
Reviewed By: [signature]	Date Reviewed 06/18/19

Revision 1, 2010 R:\WET\ANALYSES\TOC\TEMPLATE\TOCwaterLIMS

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
26	C] CCV 25 ppm [25 p	1	25.464	0.0000	25.4635	25.4635	25.46	6/15/2019
27	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
28	K1905478-003	1	18.571	0.0000	18.5707	18.5707	18.6	6/15/2019
29	K1905478-003d	1	18.705	0.0000	18.7046	18.7046	18.7	6/15/2019
30	K1905478-004	1	9.865	0.0000	9.8646	9.8646	9.9	6/15/2019
31	K1905478-004d	1	9.856	0.0000	9.8560	9.856	9.9	6/15/2019
32	K1905478-004ms	2	29.953	0.0000	29.9530	59.906	59.9	6/15/2019
33	K1905478-005	1	7.894	0.0000	7.8940	7.894	7.9	6/15/2019
34	K1905478-005d	1	7.970	0.0000	7.9703	7.9703	8.0	6/15/2019
35	K1905478-006	1	0.673	0.0000	0.6731	0.6731	0.7	6/15/2019
36	K1905478-006d	1	0.595	0.0000	0.5947	0.5947	0.6	6/15/2019
37	K1905478-007	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
38	K1905478-007d	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
39	K1905451-001	100	6.462	0.0000	6.4621	646.21	646.2	6/15/2019
40	K1905451-001d	100	6.461	0.0000	6.4610	646.1	646.1	6/15/2019
41	C] CCV 25 ppm [25 p	1	24.963	0.0000	24.9627	24.9627	25.0	6/15/2019
42	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
43	K1905451-002	100	5.830	0.0000	5.8303	583.03	583.0	6/15/2019
44	K1905451-002d	100	5.902	0.0000	5.9022	590.22	590.2	6/15/2019
45	K1905589-001	1	3.741	0.0000	3.7412	3.7412	3.7	6/15/2019
46	K1905589-001d	1	3.637	0.0000	3.6370	3.637	3.6	6/15/2019
47	K1905589-003	1	2.586	0.0000	2.5861	2.5861	2.6	6/15/2019
48	K1905589-003d	1	2.583	0.0000	2.5834	2.5834	2.6	6/15/2019
49	K1905420-001	100	0.378	0.0000	0.3783	37.83	37.8	6/15/2019
50	K1905420-001d	100	0.387	0.0000	0.3867	38.67	38.7	6/15/2019

Analyzed By:	BCD	Date Analyzed	6/16/19
Reviewed By:		Date Reviewed	06/18/19

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
51	K1905449-001	1	1.539	0.0000	1.5389	1.5389	1.54	6/15/2019
52	K1905449-001d	1	1.469	0.0000	1.4688	1.4688	1.5	6/15/2019
53	C] CCV 25 ppm [25 p	1	24.894	0.0000	24.8939	24.8939	24.9	6/15/2019
54	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
55		1		0.0000	0.0000	0	<0.5	
56		1		0.0000	0.0000	0	<0.5	
57		1		0.0000	0.0000	0	<0.5	
58		1		0.0000	0.0000	0	<0.5	
59		1		0.0000	0.0000	0	<0.5	
60		1		0.0000	0.0000	0	<0.5	
61		1		0.0000	0.0000	0	<0.5	
62		1		0.0000	0.0000	0	<0.5	
63		1		0.0000	0.0000	0	<0.5	
64		1		0.0000	0.0000	0	<0.5	
65		1		0.0000	0.0000	0	<0.5	
66		1		0.0000	0.0000	0	<0.5	
67		1		0.0000	0.0000	0	<0.5	
68		1		0.0000	0.0000	0	<0.5	
69		1		0.0000	0.0000	0	<0.5	
70		1		0.0000	0.0000	0	<0.5	
71		1		0.0000	0.0000	0	<0.5	
72		1		0.0000	0.0000	0	<0.5	
73		1		0.0000	0.0000	0	<0.5	
74		1		0.0000	0.0000	0	<0.5	
75		1		0.0000	0.0000	0	<0.5	

Analyzed By: BLD	Date Analyzed 6/16/19
Reviewed By:	Date Reviewed

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
CBA	RB	1			0.0000	0	<0.5	
2	C] CCV 25 ppm [25 p	1	24.590	0.0000	24.5900	24.59	24.6	6/15/2019
3	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
4	K1905198-006	1	3.957	0.0000	3.9572	3.9572	4.0	6/15/2019
5	K1905198-006d	1	3.834	0.0000	3.8337	3.8337	3.8	6/15/2019
6	C] CCV 25 ppm [25 p	1	25.464	0.0000	25.4635	25.4635	25.46	6/15/2019
7	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
8	MB2	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
9	[TOC] LCS [24ppm]	1	25.436	0.0000	25.4355	25.4355	25.44	6/15/2019
10	C] CCV 25 ppm [25 p	1	24.963	0.0000	24.9627	24.9627	24.96	6/15/2019
11	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
12	K1905449-002	1	0.558	0.0000	0.5581	0.5581	0.56	6/15/2019
13	K1905449-002d	1	0.529	0.0000	0.5290	0.529	0.53	6/15/2019
14	K1905477-001	1	1.722	0.0000	1.7217	1.7217	1.72	6/15/2019
15	K1905477-001d	1	1.754	0.0000	1.7538	1.7538	1.8	6/15/2019
16	K1905477-002	1	19.942	0.0000	19.9421	19.9421	19.9	6/15/2019
17	K1905477-002d	1	19.696	0.0000	19.6957	19.6957	19.70	6/15/2019
18	K1905477-003	1	2.685	0.0000	2.6845	2.6845	2.7	6/15/2019
19	K1905477-003d	1	2.556	0.0000	2.5556	2.5556	2.6	6/15/2019
20	C] CCV 25 ppm [25 p	1	24.894	0.0000	24.8939	24.8939	24.89	6/15/2019
21	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
22	K1905477-004	1	1.231	0.0000	1.2310	1.231	1.2	6/15/2019
23	K1905477-004d	1	1.126	0.0000	1.1263	1.1263	1.1	6/15/2019
24	K1905482-001	1	0.404	0.0000	0.4040	0.404	<0.5	6/15/2019
25	K1905482-001d	1	0.464	0.0000	0.4636	0.4636	<0.5	6/15/2019

ICAL Date 10/20/16 ICAL ID#:11-GEN-05-51A

LCS =24.0 ppm APG 4013 Lot #010615 (REF# 11-GEN-05-50N)

CCV = 25.0 ppm (Ref.#11-GEN-05-52E)

Spike: 0.05 ml of 5000 ppm stock ----> 10.0 ml =25.0 ppm x Dilution Factor (Ref.# 11-GEN-05-51M)

		date	time
Analyzed By:	BCD	Date Analyzed	6/16/19
Reviewed By:	[signature]	Date Reviewed	06/18/19

Revision 1, 2010 R:\WET\ANALYSES\TOC\TEMPLATE\TOCwaterLIMS

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
26	K1905482-002	1	1.537	0.0000	1.5366	1.5366	1.54	6/15/2019
27	K1905482-002d	1	1.522	0.0000	1.5215	1.5215	1.52	6/15/2019
28	K1905482-003	1	0.620	0.0000	0.6196	0.6196	0.6	6/15/2019
29	K1905482-003d	1	0.632	0.0000	0.6317	0.6317	0.6	6/15/2019
30	K1905482-004	1	0.870	0.0000	0.8701	0.8701	0.9	6/15/2019
31	K1905482-004d	1	0.818	0.0000	0.8181	0.8181	0.8	6/15/2019
32	K1905482-005	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
33	K1905482-005d	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
34	K1905409-001	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
35	K1905409-001d	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
36	K1905409-002	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
37	K1905409-002d	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
38	C] CCV 25 ppm [25 p	1	24.499	0.0000	24.4988	24.4988	24.5	6/15/2019
39	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
40	K1905558-001	1	1.482	0.0000	1.4823	1.4823	1.5	6/15/2019
41	K1905558-001d	1	1.412	0.0000	1.4121	1.4121	1.4	6/15/2019
42	K1905558-002	1	1.642	0.0000	1.6423	1.6423	1.6	6/15/2019
43	K1905558-002d	1	1.608	0.0000	1.6080	1.608	1.6	6/15/2019
44	K1905558-003	1	1.073	0.0000	1.0728	1.0728	1.1	6/15/2019
45	K1905558-003d	1	1.061	0.0000	1.0610	1.061	1.1	6/15/2019
46	K1905558-004	1	1.588	0.0000	1.5881	1.5881	1.6	6/15/2019
47	K1905558-004d	1	1.543	0.0000	1.5426	1.5426	1.5	6/15/2019
48	K1905558-005	1	1.526	0.0000	1.5259	1.5259	1.5	6/16/2019
49	K1905558-005d	1	1.484	0.0000	1.4841	1.4841	1.5	6/16/2019
50	K1905586-001	1	0.693	0.0000	0.6929	0.6929	0.7	6/16/2019

Analyzed By: KCP	Date Analyzed 6/16/19
Reviewed By: [signature]	Date Reviewed 06/18/19

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
51	K1905586-001d	1	0.666	0.0000	0.6657	0.6657	0.67	6/16/2019
52	K1905586-002	1	0.189	0.0000	0.1892	0.1892	<0.5	6/16/2019
53	K1905586-002d	1	0.160	0.0000	0.1601	0.1601	<0.5	6/16/2019
54	C] CCV 25 ppm [25 p	1	24.518	0.0000	24.5184	24.5184	24.5	6/16/2019
55	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/16/2019
56	C] CCV 25 ppm [25 p	1	24.117	0.0000	24.1171	24.1171	24.1	6/16/2019
57	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/16/2019
58	K1905198-006ms	1	25.561	0.0000	25.5611	25.5611	25.6	6/16/2019
59	C] CCV 25 ppm [25 p	1	25.111	0.0000	25.1105	25.1105	25.1	6/16/2019
60	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/16/2019
61		1		0.0000	0.0000	0	<0.5	
62		1		0.0000	0.0000	0	<0.5	
63		1		0.0000	0.0000	0	<0.5	
64		1		0.0000	0.0000	0	<0.5	
65		1		0.0000	0.0000	0	<0.5	
66		1		0.0000	0.0000	0	<0.5	
67		1		0.0000	0.0000	0	<0.5	
68		1		0.0000	0.0000	0	<0.5	
69		1		0.0000	0.0000	0	<0.5	
70		1		0.0000	0.0000	0	<0.5	
71		1		0.0000	0.0000	0	<0.5	
72		1		0.0000	0.0000	0	<0.5	
73		1		0.0000	0.0000	0	<0.5	
74		1		0.0000	0.0000	0	<0.5	
75		1		0.0000	0.0000	0	<0.5	

Analyzed By:	BCD	Date Analyzed	6/16/19
Reviewed By:		Date Reviewed	06/18/19

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
CBA	RB	1			0.0000	0	<0.5	
2	MB3	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
3	[TOC] LCS [25ppm]	1	25.114	0.0000	25.1136	25.1136	25.1	6/15/2019
4	C] CCV 25 ppm [25 p	1	24.499	0.0000	24.4988	24.4988	24.5	6/15/2019
5	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
6	K1905597-001	1	0.607	0.0000	0.6073	0.6073	0.61	6/16/2019
7	K1905597-001d	1	0.496	0.0000	0.4957	0.4957	<0.5	6/16/2019
8	K1905597-002	4	2.794	0.0000	2.7938	11.1752	11	6/16/2019
9	K1905597-002d	4	2.791	0.0000	2.7914	11.1656	11.17	6/16/2019
10	K1905597-003	4	2.724	0.0000	2.7238	10.8952	10.90	6/16/2019
11	K1905597-003d	4	2.704	0.0000	2.7035	10.814	10.8	6/16/2019
12	C] CCV 25 ppm [25 p	1	24.518	0.0000	24.5184	24.5184	24.52	6/16/2019
13	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/16/2019
14	K1905597-004	1	0.000	0.0000	0.0000	0	<0.5	6/16/2019
15	K1905597-004d	1	0.000	0.0000	0.0000	0	<0.5	6/16/2019
16	K1905597-005	1	0.325	0.0000	0.3247	0.3247	<0.5	6/16/2019
17	K1905597-005d	1	0.301	0.0000	0.3007	0.3007	<0.5	6/16/2019
18	K1905597-006	1	2.345	0.0000	2.3445	2.3445	2.3	6/16/2019
19	K1905597-006d	1	2.369	0.0000	2.3694	2.3694	2.4	6/16/2019
20	K1905597-006ms	2	26.784	0.0000	26.7837	53.5674	53.57	6/16/2019
21	K1905597-007	1	1.434	0.0000	1.4339	1.4339	1.43	6/16/2019
22	K1905597-007d	1	1.412	0.0000	1.4118	1.4118	1.4	6/16/2019
23	K1905259-001	1	2.214	0.0000	2.2135	2.2135	2.2	6/16/2019
24	K1905259-001d	1	2.252	0.0000	2.2524	2.2524	2.25	6/16/2019
25	C] CCV 25 ppm [25 p	1	24.117	0.0000	24.1171	24.1171	24.12	6/16/2019

ICAL Date 10/20/16 ICAL ID#:11-GEN-05-51A

LCS =24.0 ppm APG 4013 Lot #010615 (REF# 11-GEN-05-50N)

CCV = 25.0 ppm (Ref.#11-GEN-05-52E)

Spike: 0.05 ml of 5000 ppm stock ----> 10.0 ml =25.0 ppm x Dilution Factor (Ref.# 11-GEN-05-51M)

		date time
Analyzed By: KP	Date Analyzed	6/16/19
Reviewed By:	Date Reviewed	06/18/19

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
26	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/16/2019
27		1		0.0000	0.0000	0	<0.5	
28		1		0.0000	0.0000	0	<0.5	
29		1		0.0000	0.0000	0	<0.5	
30		1		0.0000	0.0000	0	<0.5	
31		1		0.0000	0.0000	0	<0.5	
32		1		0.0000	0.0000	0	<0.5	
33		1		0.0000	0.0000	0	<0.5	
34		1		0.0000	0.0000	0	<0.5	
35		1		0.0000	0.0000	0	<0.5	
36		1		0.0000	0.0000	0	<0.5	
37		1		0.0000	0.0000	0	<0.5	
38		1		0.0000	0.0000	0	<0.5	
39		1		0.0000	0.0000	0	<0.5	
40		1		0.0000	0.0000	0	<0.5	
41		1		0.0000	0.0000	0	<0.5	
42		1		0.0000	0.0000	0	<0.5	
43		1		0.0000	0.0000	0	<0.5	
44		1		0.0000	0.0000	0	<0.5	
45		1		0.0000	0.0000	0	<0.5	
46		1		0.0000	0.0000	0	<0.5	
47		1		0.0000	0.0000	0	<0.5	
48		1		0.0000	0.0000	0	<0.5	
49		1		0.0000	0.0000	0	<0.5	
50		1		0.0000	0.0000	0	<0.5	

Analyzed By: RP	Date Analyzed 6/16/19
Reviewed By: [signature]	Date Reviewed 06/18/19

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
CBA	RB	1			0.0000	0	<0.5	
2	C] CCV 25 ppm [25 p	1	24.518	0.0000	24.5184	24.5184	24.5	6/16/2019
3	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/16/2019
4	MB4	1	0.000	0.0000	0.0000	0	<0.5	6/16/2019
5	[TOC] LCS [25ppm]	1	25.100	0.0000	25.1000	25.1	25.1	6/16/2019
6	K1905589-002	1	3.123	0.0000	3.1233	3.1233	3.12	6/16/2019
7	K1905589-002d	1	3.128	0.0000	3.1282	3.1282	3.1	6/16/2019
8	C] CCV 25 ppm [25 p	1	24.117	0.0000	24.1171	24.1171	24	6/16/2019
9	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/16/2019
10	K1905589-004	1	2.294	0.0000	2.2935	2.2935	2.29	6/16/2019
11	K1905589-004d	1	2.303	0.0000	2.3031	2.3031	2.3	6/16/2019
12	K1905625-001	1	1.221	0.0000	1.2211	1.2211	1.22	6/16/2019
13	K1905625-001d	1	1.285	0.0000	1.2848	1.2848	1.28	6/16/2019
14	K1905625-001ms	1	26.865	0.0000	26.8649	26.8649	26.86	6/16/2019
15	K1905625-002	1	1.214	0.0000	1.2136	1.2136	1.2	6/16/2019
16	K1905625-002d	1	1.207	0.0000	1.2073	1.2073	1.2	6/16/2019
17	K1905595-001	1	0.568	0.0000	0.5675	0.5675	0.57	6/16/2019
18	K1905595-001d	1	0.578	0.0000	0.5782	0.5782	0.6	6/16/2019
19	K1905595-002 100X	100	0.000	0.0000	0.0000	0	<0.5	6/16/2019
20	K1905595-002 100Xd	100	0.000	0.0000	0.0000	0	<0.5	6/16/2019
21	C] CCV 25 ppm [25 p	1	25.111	0.0000	25.1105	25.1105	25.11	6/16/2019
22	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/16/2019
23		1		0.0000	0.0000	0	<0.5	
24		1		0.0000	0.0000	0	<0.5	
25		1		0.0000	0.0000	0	<0.5	

ICAL Date 10/20/16 ICAL ID#:11-GEN-05-51A

LCS =24.0 ppm APG 4013 Lot #010615 (REF# 11-GEN-05-50N)

CCV = 25.0 ppm (Ref.#11-GEN-05-52E)

Spike: 0.05 ml of 5000 ppm stock ----> 10.0 ml =25.0 ppm x Dilution Factor (Ref.# 11-GEN-05-51M)

		date	time
Analyzed By: KP	Date Analyzed	6/16/19	
Reviewed By: [signature]	Date Reviewed	06/18/19	

Revision 1, 2010 R:\WET\ANALYSES\TOC\TEMPLATE\TOCwaterLIMS

TOC: 639522, 639523, 639524,
DOC: 639525

Schedule: 06142019

Version: 8
Instrument: Fusion1
Last Saved by: Fusion1 (Fusion1)
Last Saved on: 2019/06/15 16:20 - Saturday

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
(Clean)	Clean	Clean		1	True	Ready
(Clean)	Clean	Clean		1	True	Ready
(Clean)	Clean	Clean		1	True	Ready
(Blank)	Blank	Reagent/Acid Blank		1	True	Ready
D	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
1	Sample	MB1	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
C	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
2	Sample	ICS	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
3	Sample	K1905436-001.01	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
4	Sample	K1905436-001.01 ms	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
5	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
6	Sample	K1905436-002.01 100x	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
7	Sample	K1905436-003.01 100x	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
8	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
9	Sample	K1905258-006.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
10	Sample	K1905198-003.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
11	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
12	Sample	K1905198-006.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
13	Sample	K1905114-006.01 10x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
14	Sample	K1905440-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
15	Sample	K1905440-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
16	Sample	K1905440-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
17	Sample	K1905440-004.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
18	Sample	K1905478-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
19	Sample	K1905478-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
20	Sample	MB2	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
21	Sample	K1905478-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
22	Sample	K1905478-004.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
23	Sample	K1905478-004.01 ms 2x	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
24	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
25	Sample	K1905478-005.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
26	Sample	K1905478-006.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
27	Sample	K1905478-007.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
28	Sample	K1905451-001.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
29	Sample	K1905451-002.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
30	Sample	K1905589-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
31	Sample	K1905589-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
32	Sample	K1905420-001.02 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
33	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
34	Sample	K1905449-001.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
35	Sample	K1905449-002.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
36	Sample	K1905477-001.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
37	Sample	K1905477-002.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
38	Sample	K1905477-003.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready

NR
NR

06/18/19

Schedule: 06142019

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
39	Sample	MB3	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [25.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
40	Sample	K1905477-004.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
41	Sample	K1905482-001.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
42	Sample	K1905482-002.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
43	Sample	K1905482-003.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
44	Sample	K1905482-004.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
45	Sample	K1905482-005.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
46	Sample	K1905409-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
47	Sample	K1905409-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
48	Sample	K1905558-001.14	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
49	Sample	K1905558-002.14	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
50	Sample	K1905558-003.14	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
51	Sample	K1905558-004.14	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
52	Sample	K1905558-005.14	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
53	Sample	K1905586-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
54	Sample	K1905586-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
55	Sample	K1905597-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
56	Sample	K1905597-002.01 4x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
57	Sample	K1905597-003.01 4x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
58	Sample	MB4	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [25.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
59	Sample	K1905597-004.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
60	Sample	K1905597-005.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
61	Sample	K1905597-006.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
62	Sample	K1905597-006.01 ms 2x	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
63	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
64	Sample	K1905597-007.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
65	Sample	K1905259-001.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
66	Sample	K1905589-002.02 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
67	Sample	K1905589-004.02 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
68	Sample	K1905625-001.03 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
69	Sample	K1905625-001.03 ms doc	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
70	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
71	Sample	K1905625-002.03 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
72	Sample	FB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
73	Sample	K1905595-001.03 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
74	Sample	K1905595-002.03 100x doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
75	Sample	K1905198-006.01 ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
					False	

00949225

Fusion Report - 06142019
Friday, June 14, 2019 03:25 PM

(View - Reps, Unused Reps, Meta-Data, Signature, History)
Printed on 2019/06/18 08:56 - Tuesday

Report Summary Information

Company Location:	Gen Chem Lab		
Schedule Name:	06142019	Engine Version:	1.1.5.1
Instrument Name:	Fusion1	Firmware Version:	1.2.0696
Report Version:	1 of 1	Connection:	RS232 COM1
Report Creation by Operators (schedule version):	Fusion1 (Fusion1) (v2) Fusion1 (Fusion1) (v3) Fusion1 (Fusion1) (v4) Fusion1 (Fusion1) (v5) Fusion1 (Fusion1) (v6) Fusion1 (Fusion1) (v7) Fusion1 (Fusion1) (v8)		
Comment:			

Report Results

06/18/19

Sample Type: Clean — From Schedule Version 2

	Pos	Analysis Type	Sample ID	Start Time
◈	(clean)		Clean	2019/06/14 15:25

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	13.34	18.06	4.72	49.88	07:58
2	TC Clean	14.48	17.60	3.12	49.67	07:18
3	TC Clean	3.52	6.54	3.02	49.90	07:04
4	TC Clean	2.44	5.68	3.24	49.76	07:02

Sample Type: Clean — From Schedule Version 3

	Pos	Analysis Type	Sample ID	Start Time
◈	(clean)		Clean	2019/06/14 16:04

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	12.04	15.23	3.18	49.96	07:59

2	TC Clean	5.88	9.04	3.16	49.75	07:16
3	TC Clean	2.16	5.37	3.21	49.79	07:02
4	TC Clean	1.43	4.65	3.22	49.90	07:02

Sample Type: Clean — From Schedule Version 3

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2019/06/14 16:39

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	1.06	4.16	3.09	49.78	05:26
2	TC Clean	4.34	7.40	3.05	49.94	07:19
3	TC Clean	2.36	5.45	3.10	49.86	07:02
4	TC Clean	1.88	4.87	2.98	49.79	07:00

Sample Type: Blank (Creating v1266) — From Schedule Version 3

	Pos	Analysis Type	Sample ID	Start Time
◆	(blank)		Reagent/Acid Blank	2019/06/14 17:10

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	1.16	4.21	3.05	49.68	05:25
2	TC Clean	4.58	7.72	3.15	49.84	07:16
3	TC Clean	2.49	5.59	3.10	49.83	07:00
4	TC Clean	1.81	4.95	3.14	49.94	07:01
5	Reagent Blank	6.66	9.83	3.17	49.86	08:11
6	Acid Blank	1.49	4.73	3.24	49.69	05:29

Sample Type: Sample — From Schedule Version 3

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	D	TOC	RB	0.3200 ppm	0.0000 ppm	0.0000%	2019/06/14 17:57

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.3200	3.1998	11.13	14.35	3.22	50.07	10:29

Dilution **Blank Contribution** **Method** **Calibration**

1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◉	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.9374 ppm (PASS)	0.0000 ppm	0%	2019/06/14 18:11

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.9374	249.3739	178.74	181.86	3.12	50.09	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◉	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/06/14 18:26

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	7.93	11.23	3.30	50.20	10:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample — From Schedule Version 3

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◉	1	TOC	MB1	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/14 18:41

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.04	10.20	3.16	50.08	10:28
2	TOC	0.0000	0.0000	7.38	10.54	3.17	49.99	10:29
3	TOC	0.0000	0.0000	7.03	10.13	3.09	49.96	10:27
4	TOC	0.0000	0.0000	7.13	10.13	3.00	49.92	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

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Sample Type: Check Standard --> LCS From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	C	TOC	25.0000	1:1	[TOC] LCS [24.0 ppm]	0 / infinity (NA / NA)	25.4375 ppm (PASS)	0.1009 ppm	0.40%	2019/06/14 19:37

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	25.4009	254.0086	181.88	184.97	3.09	49.87	10:27
C	TOC	25.0 ppm	2	25.5837	255.8368	183.12	186.21	3.08	49.84	10:25
C	TOC	25.0 ppm	3	25.4128	254.1279	181.96	185.20	3.24	49.89	10:27
C	TOC	25.0 ppm	4	25.3525	253.5254	181.55	184.86	3.30	49.81	10:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	25 ppmC

Sample Type: Sample From Schedule Version 3

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	2	TOC	ICS	0.2434 ppm	0.0000 ppm	0.0000%	2019/06/14 20:33

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.2434	2.4338	10.61	13.81	3.20	49.81	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

NR no room

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	3	TOC	K1905436-001.01	0.7283 ppm	0.0388 ppm	5.3200%	2019/06/14 20:48

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.7857	7.8566	14.29	17.55	3.25	49.80	10:27
2	TOC	0.7089	7.0891	13.77	17.02	3.25	49.80	10:30
3	TOC	0.7017	7.0169	13.72	16.97	3.25	49.80	10:28
4	TOC	0.7169	7.1686	13.83	16.98	3.15	49.83	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

NR no room

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	4	TOC	K1905436-001.01 ms	27.4897 ppm	0.0961 ppm	0.3500%	2019/06/14 21:44

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	27.5876	275.8760	196.22	199.32	3.10	49.83	10:28
2	TOC	27.3697	273.6972	194.74	198.12	3.38	49.84	10:28

3	TOC	27.5424	275.4238	195.92	199.07	3.15	49.85	10:30
4	TOC	27.4591	274.5914	195.35	198.50	3.14	49.87	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	5	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/14 22:39

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.54	10.78	3.24	49.89	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	6	TOC	K1905436-002.01 100x	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/14 22:54

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	8.04	11.07	3.02	49.89	10:31
2	TOC	0.0000	0.0000	7.57	10.75	3.19	49.89	10:27
3	TOC	0.0000	0.0000	7.71	10.95	3.24	49.91	10:27
4	TOC	0.0000	0.0000	7.76	10.87	3.11	49.94	10:27

Per 6/18/19 K1905436 NC

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	7	TOC	K1905436-003.01 100x	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/14 23:49

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.52	10.65	3.13	49.96	10:24
2	TOC	0.0000	0.0000	7.59	10.61	3.02	49.96	10:24
3	TOC	0.0000	0.0000	7.36	10.42	3.05	49.95	10:31
4	TOC	0.0000	0.0000	7.66	10.79	3.12	49.97	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	8	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/15 00:45

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.48	9.62	3.14	49.96	10:29
2	TOC	0.0000	0.0000	6.84	9.91	3.07	49.98	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	9	TOC	K1905258-006.01 100x	3.3205 ppm	0.0093 ppm	0.2800%	2019/06/15 01:13

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.3140	33.1397	31.46	34.50	3.05	49.99	10:28
2	TOC	3.3271	33.2708	31.54	34.86	3.31	50.00	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.5900 ppm (PASS)	0.0000 ppm	0%	2019/06/15 01:41

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.5900	245.9001	176.38	179.52	3.14	50.01	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/06/15 01:56

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	7.08	10.33	3.25	50.01	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample — From Schedule Version 3

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time

◈	10	TOC	K1905198-003.01 100x	13.5940 ppm	0.0061 ppm	0.0500%	2019/06/15 02:11

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	13.5984	135.9838	101.26	104.50	3.24	49.97	10:27
2	TOC	13.5897	135.8969	101.21	104.44	3.23	49.98	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	11	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/15 02:39

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.99	10.12	3.13	49.99	10:30
2	TOC	0.0000	0.0000	6.59	9.86	3.27	50.00	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	12	TOC	K1905198-006.01	3.8954 ppm	0.0873 ppm	2.2400%	2019/06/15 03:07

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.9572	39.5717	35.82	39.04	3.22	50.00	10:29
2	TOC	3.8337	38.3371	34.98	38.07	3.09	50.02	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	13	TOC	K1905114-006.01 10x	5.8506 ppm	0.6208 ppm	10.6100%	2019/06/15 03:35

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	5.4117	54.1166	45.69	49.02	3.32	50.01	10:31
2	TOC	6.2895	62.8954	51.65	54.78	3.12	50.01	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	14	TOC	K1905440-001.01	21.1750 ppm	0.2447 ppm	1.1600%	2019/06/15 04:03

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	21.3480	213.4801	153.87	157.12	3.25	50.03	10:28
2	TOC	21.0020	210.0196	151.52	154.86	3.34	50.02	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	15	TOC	K1905440-002.01	21.3795 ppm	0.1875 ppm	0.8800%	2019/06/15 04:31

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	21.5121	215.1212	154.98	158.24	3.25	50.02	10:26
2	TOC	21.2469	212.4695	153.18	156.37	3.19	50.02	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	16	TOC	K1905440-003.01	20.7799 ppm	0.2170 ppm	1.0400%	2019/06/15 04:59

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	20.6264	206.2644	148.97	152.17	3.19	50.04	10:26
2	TOC	20.9333	209.3330	151.05	154.23	3.17	50.04	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	17	TOC	K1905440-004.01	20.8222 ppm	0.0383 ppm	0.1800%	2019/06/15 05:27

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	20.8493	208.4933	150.48	153.72	3.23	50.03	10:28
2	TOC	20.7951	207.9512	150.12	153.41	3.29	50.04	10:23

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	18	TOC	K1905478-001.01	28.2206 ppm	0.2330 ppm	0.8300%	2019/06/15 05:55

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	28.0558	280.5579	199.40	202.57	3.17	50.01	10:27
2	TOC	28.3853	283.8534	201.64	204.78	3.14	50.03	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	19	TOC	K1905478-002.01	9.5845 ppm	0.3350 ppm	3.5000%	2019/06/15 06:23

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	9.8214	98.2139	75.63	78.90	3.28	50.03	10:31
2	TOC	9.3476	93.4761	72.41	75.52	3.11	50.02	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	25.4635 ppm (PASS)	0.0000 ppm	0%	2019/06/15 06:51

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.4635	254.6347	182.31	185.62	3.32	50.02	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/06/15 07:06

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	8.42	11.67	3.25	50.01	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample — From Schedule Version 3

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	20	TOC	MB2	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/15 07:21

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.06	10.22	3.16	50.01	10:36

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC)	CAS_salt_010711	CAS_salt_010711

(v1266) (v4) (v30)

Sample Type: Check Standard --> LCS From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	C	TOC	25.0000	1:1	[TOC] LCS [24.0 ppm]	0 / infinity (NA / NA)	25.4355 ppm (PASS)	0.0000 ppm	0%	2019/06/15 07:35

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	25.4355	254.3548	182.12	185.25	3.13	50.02	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	25 ppmC

Sample Type: Sample From Schedule Version 3

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	21	TOC	K1905478-003.01	18.6377 ppm	0.0947 ppm	0.5100%	2019/06/15 07:50

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	18.5707	185.7073	135.02	138.21	3.19	50.04	10:30
2	TOC	18.7046	187.0465	135.93	139.24	3.32	50.00	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	22	TOC	K1905478-004.01	9.8603 ppm	0.0060 ppm	0.0600%	2019/06/15 08:18

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	9.8646	98.6456	75.92	79.15	3.23	50.00	10:27
2	TOC	9.8560	98.5601	75.86	79.06	3.19	49.99	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	23	TOC	K1905478-004.01 ms 2x	29.9530 ppm	0.0000 ppm	0.0000%	2019/06/15 08:46

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	29.9530	299.5298	212.28	215.36	3.08	50.01	10:31

Dilution	Blank Contribution	Method	Calibration

1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	24	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/15 09:01

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.77	11.03	3.26	49.99	10:28
2	TOC	0.0000	0.0000	6.82	10.06	3.24	49.98	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Sample — From Schedule Version 4

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	25	TOC	K1905478-005.01	7.9322 ppm	0.0540 ppm	0.6800%	2019/06/15 09:29

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	7.8940	78.9400	62.54	65.71	3.16	49.95	10:31
2	TOC	7.9703	79.7032	63.06	66.27	3.21	49.94	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Sample — From Schedule Version 5

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	26	TOC	K1905478-006.01	0.6339 ppm	0.0554 ppm	8.7400%	2019/06/15 10:11

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.6731	6.7311	13.53	16.69	3.16	49.87	10:27
2	TOC	0.5947	5.9474	13.00	16.22	3.22	49.86	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Sample — From Schedule Version 6

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	27	TOC	K1905478-007.01	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/15 10:59

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time

1	TOC	0.0000	0.0000	7.39	10.50	3.11	49.81	10:29
2	TOC	0.0000	0.0000	7.27	10.48	3.21	49.79	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Sample — From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	28	TOC	K1905451-001.01 100x	6.4615 ppm	0.0007 ppm	0.0100%	2019/06/15 11:35

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	6.4621	64.6205	52.82	55.88	3.05	49.78	10:28
2	TOC	6.4610	64.6102	52.82	55.95	3.14	49.76	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.9627 ppm (PASS)	0.0000 ppm	0%	2019/06/15 12:03

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.9627	249.6273	178.91	182.18	3.27	49.76	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/06/15 12:18

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	7.39	10.62	3.23	49.80	10:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample

From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	29	TOC	K1905451-002.01 100x	5.8663 ppm	0.0508 ppm	0.8700%	2019/06/15 12:33

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	5.8303	58.3034	48.54	51.75	3.21	49.80	10:30
2	TOC	5.9022	59.0224	49.02	52.16	3.13	49.81	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	30	TOC	K1905589-001.01	3.6891 ppm	0.0736 ppm	2.0000%	2019/06/15 13:01

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.7412	37.4120	34.35	37.49	3.13	49.77	10:27
2	TOC	3.6370	36.3704	33.65	36.75	3.10	49.81	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	31	TOC	K1905589-003.01	2.5847 ppm	0.0019 ppm	0.0700%	2019/06/15 13:30

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.5861	25.8606	26.51	29.58	3.06	49.93	10:26
2	TOC	2.5834	25.8341	26.50	29.65	3.15	49.88	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	32	TOC	K1905420-001.02 100x	0.3825 ppm	0.0059 ppm	1.5500%	2019/06/15 13:58

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.3783	3.7832	11.53	14.74	3.21	49.85	10:31
2	TOC	0.3867	3.8672	11.58	14.76	3.18	49.89	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	33	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/15 14:26

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.91	9.10	3.19	50.00	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	34	TOC	K1905449-001.02	1.5038 ppm	0.0496 ppm	3.3000%	2019/06/15 14:40

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.5389	15.3891	19.41	22.54	3.14	49.92	10:26
2	TOC	1.4688	14.6879	18.93	22.03	3.10	49.91	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	35	TOC	K1905449-002.02	0.5435 ppm	0.0205 ppm	3.7800%	2019/06/15 15:08

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5581	5.5805	12.75	15.85	3.10	49.96	10:28
2	TOC	0.5290	5.2903	12.55	15.63	3.08	49.95	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	36	TOC	K1905477-001.02	1.7378 ppm	0.0227 ppm	1.3100%	2019/06/15 15:36

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.7217	17.2173	20.65	23.75	3.10	49.91	10:25
2	TOC	1.7538	17.5385	20.86	23.98	3.11	50.02	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	37	TOC	K1905477-002.02	19.8189 ppm	0.1743 ppm	0.8800%	2019/06/15 16:04

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	19.9421	199.4213	144.33	147.57	3.25	49.94	10:29
2	TOC	19.6957	196.9567	142.65	145.86	3.21	50.03	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Sample — From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	38	TOC	K1905477-003.02	2.6200 ppm	0.0911 ppm	3.4800%	2019/06/15 16:32

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.6845	26.8447	27.18	30.31	3.13	49.99	10:30
2	TOC	2.5556	25.5557	26.31	29.38	3.08	50.03	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.8939 ppm (PASS)	0.0000 ppm	0%	2019/06/15 17:01

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.8939	248.9393	178.44	181.45	3.01	50.04	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/06/15 17:15

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	6.72	9.73	3.01	50.03	10:34

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample — From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	39	TOC	MB3	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/15 17:30

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.76	8.85	3.09	50.09	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> LCS

From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	C	TOC	25.0000	1:1	[TOC] LCS [25.0 ppm]	0 / infinity (NA / NA)	25.1136 ppm (PASS)	0.0000 ppm	0%	2019/06/15 17:45

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	25.1136	251.1358	179.93	183.18	3.24	50.06	10:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	25 ppmC

Sample Type: Sample

From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	40	TOC	K1905477-004.02	1.1786 ppm	0.0741 ppm	6.2800%	2019/06/15 17:59

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.2310	12.3101	17.32	20.63	3.31	49.99	10:27
2	TOC	1.1263	11.2627	16.60	19.84	3.24	50.03	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	41	TOC	K1905482-001.02	0.4338 ppm	0.0422 ppm	9.7300%	2019/06/15 18:27

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.4040	4.0396	11.70	15.00	3.30	50.06	10:28
2	TOC	0.4636	4.6362	12.11	15.22	3.11	49.96	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	42	TOC	K1905482-002.02	1.5290 ppm	0.0106 ppm	0.6900%	2019/06/15 18:56

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.5366	15.3655	19.39	22.43	3.04	49.99	10:27
2	TOC	1.5215	15.2153	19.29	22.48	3.19	50.05	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	43	TOC	K1905482-003.02	0.6257 ppm	0.0085 ppm	1.3700%	2019/06/15 19:24

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.6196	6.1963	13.17	16.27	3.10	49.95	10:29
2	TOC	0.6317	6.3171	13.25	16.32	3.07	50.04	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	44	TOC	K1905482-004.02	0.8441 ppm	0.0368 ppm	4.3600%	2019/06/15 19:52

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.8701	8.7008	14.87	17.98	3.11	49.92	10:25
2	TOC	0.8181	8.1807	14.51	17.78	3.27	49.86	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	45	TOC	K1905482-005.02	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/15 20:20

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.83	9.01	3.18	49.83	10:31
2	TOC	0.0000	0.0000	6.27	9.49	3.21	49.80	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	46	TOC	K1905409-001.01	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/15 20:48

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.61	8.78	3.17	49.79	10:29
2	TOC	0.0000	0.0000	5.86	8.91	3.05	49.77	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC)	CAS_salt_010711	CAS_salt_010711

(v1266) (v4) (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	47	TOC	K1905409-002.01	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/15 21:16

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.33	8.57	3.25	49.78	10:30
2	TOC	0.0000	0.0000	5.75	9.02	3.27	49.77	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.4988 ppm (PASS)	0.0000 ppm	0%	2019/06/15 21:44

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.4988	244.9882	175.76	178.90	3.14	49.76	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/06/15 21:59

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	6.20	9.37	3.17	49.80	10:34

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	48	TOC	K1905558-001.14	1.4472 ppm	0.0497 ppm	3.4300%	2019/06/15 22:14

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.4823	14.8234	19.02	22.22	3.20	49.82	10:28
2	TOC	1.4121	14.1207	18.54	21.65	3.11	49.81	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	49	TOC	K1905558-002.14	1.6252 ppm	0.0243 ppm	1.4900%	2019/06/15 22:42

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.6423	16.4233	20.11	23.32	3.21	49.84	10:29
2	TOC	1.6080	16.0800	19.88	23.13	3.26	49.85	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	50	TOC	K1905558-003.14	1.0669 ppm	0.0083 ppm	0.7800%	2019/06/15 23:10

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.0728	10.7279	16.24	19.41	3.17	49.88	10:27
2	TOC	1.0610	10.6100	16.16	19.31	3.15	49.89	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	51	TOC	K1905558-004.14	1.5654 ppm	0.0322 ppm	2.0600%	2019/06/15 23:38

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.5881	15.8811	19.74	22.67	2.93	49.90	10:30
2	TOC	1.5426	15.4259	19.43	22.58	3.15	49.90	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	52	TOC	K1905558-005.14	1.5050 ppm	0.0296 ppm	1.9700%	2019/06/16 00:06

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.5259	15.2595	19.32	22.36	3.05	49.93	10:29
2	TOC	1.4841	14.8411	19.03	22.23	3.20	49.94	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC)	CAS_salt_010711	CAS_salt_010711

(v1266) (v4) (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	53	TOC	K1905586-001.01	0.6793 ppm	0.0192 ppm	2.8200%	2019/06/16 00:34

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.6929	6.9285	13.66	16.86	3.20	49.93	10:30
2	TOC	0.6657	6.6574	13.48	16.66	3.18	49.89	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	54	TOC	K1905586-002.01	0.1747 ppm	0.0205 ppm	11.7500%	2019/06/16 01:02

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1892	1.8916	10.24	13.54	3.30	49.89	10:28
2	TOC	0.1601	1.6014	10.05	13.18	3.13	49.89	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	55	TOC	K1905597-001.01	0.5515 ppm	0.0789 ppm	14.3000%	2019/06/16 01:30

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.6073	6.0726	13.08	16.24	3.16	49.89	10:28
2	TOC	0.4957	4.9574	12.32	15.62	3.29	49.89	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	56	TOC	K1905597-002.01 4x	2.7926 ppm	0.0017 ppm	0.0600%	2019/06/16 01:58

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.7938	27.9378	27.92	31.16	3.24	49.92	10:28
2	TOC	2.7914	27.9142	27.91	31.03	3.12	49.92	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	57	TOC	K1905597-003.01 4x	2.7136 ppm	0.0144 ppm	0.5300%	2019/06/16 02:27

Rep	Base	ppm	µg	Adjusted	NDIR (Abs)	Baseline	Pressure	Run

#	Analysis Type			(Abs)		(Abs)	(psig)	Time
1	TOC	2.7238	27.2380	27.45	30.52	3.08	49.91	10:29
2	TOC	2.7035	27.0347	27.31	30.44	3.13	49.91	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.5184 ppm (PASS)	0.0000 ppm	0%	2019/06/16 02:55

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.5184	245.1841	175.89	178.91	3.01	49.91	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/06/16 03:09

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	5.87	9.03	3.16	49.90	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample — From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	58	TOC	MB4	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/16 03:24

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.10	8.27	3.17	49.91	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> LCS

From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	C	TOC	25.0000	1:1	[TOC] LCS [25.0 ppm]	0 / infinity (NA / NA)	25.1000 ppm (PASS)	0.0000 ppm	0%	2019/06/16 03:39

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	25.1000	251.0003	179.84	182.99	3.15	49.93	10:34

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	25 ppmC

Sample Type: Sample

From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	59	TOC	K1905597-004.01	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/16 03:53

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	8.74	11.82	3.08	49.93	10:32
2	TOC	0.0000	0.0000	7.73	10.91	3.18	49.95	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	60	TOC	K1905597-005.01	0.3127 ppm	0.0170 ppm	5.4300%	2019/06/16 04:22

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.3247	3.2470	11.16	14.33	3.17	49.96	10:27
2	TOC	0.3007	3.0068	11.00	14.19	3.18	49.96	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	61	TOC	K1905597-006.01	2.3569 ppm	0.0176 ppm	0.7500%	2019/06/16 04:50

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.3445	23.4446	24.87	27.92	3.05	49.98	10:25
2	TOC	2.3694	23.6935	25.04	28.05	3.01	49.98	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	62	TOC	K1905597-006.01 ms 2x	26.7837 ppm	0.0000 ppm	0.0000%	2019/06/16 05:18

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	26.7837	267.8368	190.77	193.77	3.00	49.99	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	63	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/16 05:32

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.96	9.15	3.19	49.99	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	64	TOC	K1905597-007.01	1.4228 ppm	0.0156 ppm	1.1000%	2019/06/16 05:47

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.4339	14.3387	18.69	21.73	3.04	50.01	10:29
2	TOC	1.4118	14.1177	18.54	21.56	3.02	50.02	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	65	TOC	K1905259-001.02	2.2329 ppm	0.0275 ppm	1.2300%	2019/06/16 06:15

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.2135	22.1349	23.99	27.17	3.18	50.02	10:28
2	TOC	2.2524	22.5238	24.25	27.32	3.08	50.04	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	66	TOC	K1905589-002.02 doc	3.1258 ppm	0.0034 ppm	0.1100%	2019/06/16 06:43

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.1233	31.2334	30.16	33.36	3.20	50.06	10:28
2	TOC	3.1282	31.2820	30.19	33.30	3.10	50.06	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.1171 ppm (PASS)	0.0000 ppm	0%	2019/06/16 07:11

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.1171	241.1711	173.17	176.46	3.30	50.07	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/06/16 07:26

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	5.56	8.74	3.18	50.07	10:35

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample — From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	67	TOC	K1905589-004.02 doc	2.2983 ppm	0.0068 ppm	0.2900%	2019/06/16 07:41

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.2935	22.9348	24.53	27.49	2.96	50.06	10:30
2	TOC	2.3031	23.0306	24.59	27.60	3.01	50.06	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time

◈	68	TOC	K1905625-001.03 doc	1.2530 ppm	0.0450 ppm	3.5900%	2019/06/16 08:09

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.2211	12.2114	17.25	20.44	3.19	50.03	10:26
2	TOC	1.2848	12.8478	17.68	20.58	2.90	50.04	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	69	TOC	K1905625-001.03 ms doc	26.8649 ppm	0.0000 ppm	0.0000%	2019/06/16 08:37

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	26.8649	268.6485	191.32	194.50	3.18	50.03	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	70	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/16 08:52

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.07	9.21	3.14	50.02	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	71	TOC	K1905625-002.03 doc	1.2105 ppm	0.0045 ppm	0.3700%	2019/06/16 09:06

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.2136	12.1363	17.20	20.50	3.30	50.02	10:32
2	TOC	1.2073	12.0729	17.16	20.43	3.28	50.00	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	72	TOC	FB	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/16 09:34

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.63	8.73	3.10	50.00	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	73	TOC	K1905595-001.03 doc	0.5729 ppm	0.0076 ppm	1.3300%	2019/06/16 09:49

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5675	5.6748	12.81	15.96	3.15	49.99	10:30
2	TOC	0.5782	5.7824	12.89	16.02	3.14	50.02	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	74	TOC	K1905595-002.03 100x doc	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/16 10:17

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.91	10.07	3.16	49.97	10:28
2	TOC	0.0000	0.0000	6.95	10.10	3.15	49.95	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	75	TOC	K1905198-006.01 ms	25.5611 ppm	0.0000 ppm	0.0000%	2019/06/16 10:45

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	25.5611	255.6107	182.47	185.58	3.12	49.91	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	25.1105 ppm (PASS)	0.0000 ppm	0%	2019/06/16 11:00

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.1105	251.1049	179.91	183.10	3.19	49.89	10:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 8

00949251

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/06/16 11:14

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	5.98	9.18	3.20	49.85	10:34

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Meta Data Used in this Report

Blanks

Version	Reagent (Abs)	Acid (Abs)	DI IC (Abs)	DI TC (Abs)	DI TOC (Abs)	Save Time	Operator
v1265	1.1340	1.2260	0.0000	0.0000	0.0000	2019/06/10 14:28	Fusion1 (Fusion1)
v1266	2.2187	1.4940	0.0000	0.0000	0.0000	2019/06/14 17:57	Fusion1 (Fusion1)

Calibrations

Name: CAS_salt_010711 (TOC)

Version:	v30	Calibration curve formula:	TOC: y = 6.788x + 9.463
Ver Creation:	2019/03/05 17:42	r^2 value:	TOC: r^2 = 0.99963
Comment:			
Operator:	Fusion1 (Fusion1)		
Basic Analysis Type	TOC		

Basic Analysis Type: TOC

Sample ID	Y Raw Value	X Expected	Message	End Time
DI Water	7.8970	0.0000		2019/03/05 16:15
0.500 ppm	11.5280	0.5000		2019/03/05 16:29
1.0 ppm	14.9760	1.0000		2019/03/05 16:44
5.0 ppm	43.6500	5.0000		2019/03/05 16:58
10 ppm	79.6020	10.0000		2019/03/05 17:12
25 ppm	183.3580	25.0000		2019/03/05 17:26
50 ppm	346.3230	50.0000		2019/03/05 17:40

Methods

00949252

Name: CAS_salt_010711 (TOC)

Version: v4 Operator: Fusion1 (Fusion1)
Ver Creation: 2019/02/21 17:57
Comment:

Parameter	Value
SampleVolume	10.0 mL
Dilution	1:10
AcidVolume	0.5 ml
ReagentVolume	2.0 ml
UVReactorPrerinse	Off
UVReactorPrerinseVolume	5.0
NumberOfUVReactorPrerinses	1
ICSpargeTime	1.00 mins
DetectorSweepFlow	500 ml/min
PreSpargeTime	2.00 mins
SystemFlow	500 ml/min

Advanced Parameter	Value
NeedleRinseVolume	5.0 ml
VialPrimeVolume	2.0 ml
ICSamplePrimeVolume	2.0 ml
ICSpargeRinseVolume	12.0 ml
BaselineStabilizeTime	0.70 min
DetectorPressureFlow	150 ml/min
SyringeSpeedWaste	10
SyringeSpeedAcid	7
SyringeSpeedReagent	7
SyringeSpeedDIWater	7
NDIRPressurization	60 psig
SyringeSpeedSampleDispense	5
SyringeSpeedSampleAspirate	4
SyringeSpeedUVDispense	5
SyringeSpeedUVAspirate	5
SyringeSpeedICDispense	5
SyringeSpeedICAspirate	5
NDIRPressureStabilize	1.75 min
SampleMixing	Off
SampleMixingCycles	1
SampleMixingVolume	10.0
LowLevelFilterNDIR	Off

Acceptance / Approval

Electronic Signatures

Report Version	User Name	Acceptance	Reason	Date

Report History

Report History

Report Version	User Name	System Reason	User Reason	Date

00949253

1	Fusion1 (Fusion1)	Schedule completed	Schedule completed	2019/06/16 11:32

ALS Environmental

StarLIMS Run: 639522, 639523, 639524, 639525

Analysis: TOC/DOC

Method: 415.1, SM 5310 C, 9060, 9060A

CCV: 11-GEN-05-77K 50 ppm LCS: 11-GEN-05-77D 25.0 ppm

ICAL Date: 3/6/19

ICAL ID: 11-GEN-05-76H

ICS ID: 11-GEN-05-74A

ICS TV: 25.0 ppm ICS % R = 2

Spike ID: 11-GEN-05-77J 0.05 ml of 5000 ppm stock ---> 10.0 ml = 25.0 ppm x dilution factor

Sodium Persulfate: 11-GEN-05-78I

21 % H3PO4: 11-GEN-05-78H

Equipment ID: K-TOC-03

PIPETTE ID: 124276B, 129001F, N11314F, Marge

FILTER ID: FE1165 6/15/19

Analyzed By:	BCD / HLM	Date Analyzed:	6/16/19
Reviewed By:		Date Reviewed:	06/18/19

Work Request # (Original) KP905114-6, 5198, 5298, 5420, 5440, 5449, 5451, 5478, 5589, 5198, 5409, 5441, 5422, 5482, 5558, 5589, 5595, 5625, 5295, 5597

Tier: IV IV IV II II II II II II IV I II I II II II

Date Analyzed: 6/16/19

Analyst: BCD/HLM

Analysis: TOC/DOC

TOC: 639522, 639523, 639524

Run # DOC: 639525

DATA QUALITY REPORT
INORGANICS

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

1.	Is the method name and number correct and appropriate?	yes/no/NA
2.	Holding times met for all analyses and for all samples?	yes/no/NA
3.	Are calculations correct?	yes/no/NA
4.	Is the reporting basis correct? (Dry Weight)	yes/no/NA
5.	All quality control criteria met?	yes/no
6.	Is the calibration curve correlation coefficient ≥ 0.995?	yes/no/NA
7.	MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency?	yes/no/NA
8.	Are ICVs, CCVs, and CCBs all within acceptance limits?	yes/no/NA
9.	Are results for methods blanks all ND?	yes/no/NA
10.	Are all QC samples within acceptance criteria? (LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc.)	yes/no/NA
11.	Are all exceptions explained?	yes/no/NA
12.	Have all applicable service requests been reviewed?	yes/no/NA
13.	Are all samples labeled correctly?	yes/no/NA
14.	Have all instructions on the service request been followed? (e.g. Special MRLs, QC on a specific sample, Form V)	yes/no/NA
15.	Are detection limits and units reported correctly?	yes/no/NA
16.	Is the unused space on the benchsheet crossed out?	yes/no/NA
17.	Was analysis turned in by the due date? (n-2) (If not record SR#)	yes/no/NA

COMMENTS: KP905420-1d, KP905598-2-2d sent for RA due to being overdiluted. KP905597-1d, 5478-6 report a high %RSD, but these samples are less than 5x the MRL.
KP905114-6/6d reports a high %RSD due to non-homogenous, dirty sample.

Final Approved by: [signature] Date: 06/18/19

DQREPORT

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 639522 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K1905114-006	Carbon, Total Organic	N/A		Ground Water	5.41 mg/L	10 mL	54.1 mg/L	10	0.7	5.0			6/15/19 03:35:00	N	IV
K1905198-003	Carbon, Total Organic	N/A		Ground Water	13.60 mg/L	10 mL	1360 mg/L	100	7	50			6/15/19 02:11:00	N	IV
K1905258-006	Carbon, Total Organic	N/A		Water	3.31 mg/L	10 mL	331 mg/L	100	7	50			6/15/19 01:13:00	N	IV
K1905420-001	Carbon, Total Organic	N/A		Water	0.38 mg/L	10 mL	50 mg/L U	100	7	50			6/15/19 13:58:00	N	II
K1905440-001	Carbon, Total Organic	N/A		Water	21.35 mg/L	10 mL	21.3 mg/L	1	0.07	0.50			6/15/19 04:03:00	N	II
K1905440-002	Carbon, Total Organic	N/A		Water	21.51 mg/L	10 mL	21.5 mg/L	1	0.07	0.50			6/15/19 04:31:00	N	II
K1905440-003	Carbon, Total Organic	N/A		Water	20.63 mg/L	10 mL	20.6 mg/L	1	0.07	0.50			6/15/19 04:59:00	N	II
K1905440-004	Carbon, Total Organic	N/A		Water	20.85 mg/L	10 mL	20.8 mg/L	1	0.07	0.50			6/15/19 05:27:00	N	II
K1905449-001	Carbon, Total Organic	N/A		Water	1.54 mg/L	10 mL	1.54 mg/L	1	0.07	0.50			6/15/19 14:40:00	N	II
K1905451-001	Carbon, Total Organic	N/A		Water	6.46 mg/L	10 mL	646 mg/L	100	7	50			6/15/19 11:35:00	N	II
K1905451-002	Carbon, Total Organic	N/A		Water	5.83 mg/L	10 mL	583 mg/L	100	7	50			6/15/19 12:33:00	N	II
K1905478-001	Carbon, Total Organic	N/A		Ground Water	28.06 mg/L	10 mL	28.1 mg/L	1	0.07	0.50			6/15/19 05:55:00	N	II
K1905478-002	Carbon, Total Organic	N/A		Ground Water	9.82 mg/L	10 mL	9.82 mg/L	1	0.07	0.50			6/15/19 06:23:00	N	II
K1905478-003	Carbon, Total Organic	N/A		Ground Water	18.57 mg/L	10 mL	18.6 mg/L	1	0.07	0.50			6/15/19 07:50:00	N	II
K1905478-004	Carbon, Total Organic	N/A		Ground Water	9.86 mg/L	10 mL	9.86 mg/L	1	0.07	0.50			6/15/19 08:18:00	Y	II
K1905478-005	Carbon, Total Organic	N/A		Ground Water	7.89 mg/L	10 mL	7.89 mg/L	1	0.07	0.50			6/15/19 09:29:00	N	II
K1905478-006	Carbon, Total Organic	N/A		Ground Water	0.67 mg/L	10 mL	0.67 mg/L	1	0.07	0.50			6/15/19 10:11:00	N	II
K1905478-007	Carbon, Total Organic	N/A		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/15/19 10:59:00	N	II
K1905589-001	Carbon, Total Organic	N/A		Water	3.74 mg/L	10 mL	3.74 mg/L	1	0.07	0.50			6/15/19 13:01:00	N	II
K1905589-003	Carbon, Total Organic	N/A		Water	2.59 mg/L	10 mL	2.59 mg/L	1	0.07	0.50			6/15/19 13:30:00	N	II
KQ1908379-01	Carbon, Total Organic	CCV		Water	24.94 mg/L	10 mL	24.9 mg/L	1					6/14/19 18:11:00	N	IV
KQ1908379-02	Carbon, Total Organic	CCV		Water	24.59 mg/L	10 mL	24.6 mg/L	1					6/15/19 01:13:00	N	IV
KQ1908379-03	Carbon, Total Organic	CCV		Water	25.46 mg/L	10 mL	25.5 mg/L	1					6/15/19 06:51:00	N	IV
KQ1908379-04	Carbon, Total Organic	CCV		Water	24.96 mg/L	10 mL	25.0 mg/L	1					6/15/19 12:03:00	N	IV
KQ1908379-05	Carbon, Total Organic	CCV		Water	24.89 mg/L	10 mL	24.9 mg/L	1					6/15/19 17:01:00	N	IV
KQ1908379-06	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/14/19 18:26:00	N	IV
KQ1908379-07	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/15/19 01:56:00	N	IV
KQ1908379-08	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/15/19 07:06:00	N	IV
KQ1908379-09	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/15/19 12:18:00	N	IV
KQ1908379-10	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/15/19 17:15:00	N	IV
KQ1908379-11	Carbon, Total Organic	MB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/14/19 18:41:00	N	IV
KQ1908379-12	Carbon, Total Organic	LCS		Water	25.40 mg/L	10 mL	25.4 mg/L	1	0.07	0.50	102		6/14/19 19:37:00	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Printed 6/18/19 10:35

Results Summary

06/18/19

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 639522 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ1908379-13	Carbon, Total Organic	MS	K1905478-004	Ground Water	29.95 mg/L	10 mL	59.9 mg/L	2	0.2	1.0	100		6/15/19 08:46:00	N	II
KQ1908379-14	Carbon, Total Organic	DUP	K1905258-006	Water	3.33 mg/L	10 mL	333 mg/L	100	7	50		<1	6/15/19 01:13:00	N	IV
KQ1908379-15	Carbon, Total Organic	DUP	K1905198-003	Ground Water	13.59 mg/L	10 mL	1360 mg/L	100	7	50		<1	6/15/19 02:11:00	N	IV
KQ1908379-17	Carbon, Total Organic	DUP	K1905114-006	Ground Water	6.29 mg/L	10 mL	62.9 mg/L	10	0.7	5.0		15*	6/15/19 03:35:00	N	IV
KQ1908379-18	Carbon, Total Organic	DUP	K1905440-001	Water	21.00 mg/L	10 mL	21.0 mg/L	1	0.07	0.50		2	6/15/19 04:03:00	N	II
KQ1908379-19	Carbon, Total Organic	DUP	K1905440-002	Water	21.25 mg/L	10 mL	21.2 mg/L	1	0.07	0.50		1	6/15/19 04:31:00	N	II
KQ1908379-20	Carbon, Total Organic	DUP	K1905440-003	Water	20.93 mg/L	10 mL	20.9 mg/L	1	0.07	0.50		1	6/15/19 04:59:00	N	II
KQ1908379-21	Carbon, Total Organic	DUP	K1905440-004	Water	20.80 mg/L	10 mL	20.8 mg/L	1	0.07	0.50		<1	6/15/19 05:27:00	N	II
KQ1908379-22	Carbon, Total Organic	DUP	K1905478-001	Ground Water	28.39 mg/L	10 mL	28.4 mg/L	1	0.07	0.50		1	6/15/19 05:55:00	N	II
KQ1908379-23	Carbon, Total Organic	DUP	K1905478-002	Ground Water	9.35 mg/L	10 mL	9.35 mg/L	1	0.07	0.50		5	6/15/19 06:23:00	N	II
KQ1908379-24	Carbon, Total Organic	DUP	K1905478-003	Ground Water	18.70 mg/L	10 mL	18.7 mg/L	1	0.07	0.50		<1	6/15/19 07:50:00	N	II
KQ1908379-25	Carbon, Total Organic	DUP	K1905478-004	Ground Water	9.86 mg/L	10 mL	9.86 mg/L	1	0.07	0.50		<1	6/15/19 08:18:00	N	II
KQ1908379-26	Carbon, Total Organic	DUP	K1905478-005	Ground Water	7.97 mg/L	10 mL	7.97 mg/L	1	0.07	0.50		<1	6/15/19 09:29:00	N	II
KQ1908379-27	Carbon, Total Organic	DUP	K1905478-006	Ground Water	0.59 mg/L	10 mL	0.59 mg/L	1	0.07	0.50		12*	6/15/19 10:11:00	N	II
KQ1908379-28	Carbon, Total Organic	DUP	K1905478-007	Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/15/19 10:59:00	N	II
KQ1908379-29	Carbon, Total Organic	DUP	K1905451-001	Water	6.46 mg/L	10 mL	646 mg/L	100	7	50		<1	6/15/19 11:35:00	N	II
KQ1908379-30	Carbon, Total Organic	DUP	K1905451-002	Water	5.90 mg/L	10 mL	590 mg/L	100	7	50		1	6/15/19 12:33:00	N	II
KQ1908379-31	Carbon, Total Organic	DUP	K1905589-001	Water	3.64 mg/L	10 mL	3.64 mg/L	1	0.07	0.50		3	6/15/19 13:01:00	N	II
KQ1908379-32	Carbon, Total Organic	DUP	K1905589-003	Water	2.58 mg/L	10 mL	2.58 mg/L	1	0.07	0.50		<1	6/15/19 13:30:00	N	II
KQ1908379-33	Carbon, Total Organic	DUP	K1905420-001	Water	0.39 mg/L	10 mL	39 mg/L J	100	7	50		NC	6/15/19 13:58:00	N	II
KQ1908379-34	Carbon, Total Organic	DUP	K1905449-001	Water	1.47 mg/L	10 mL	1.47 mg/L	1	0.07	0.50		5	6/15/19 14:40:00	N	II

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 639523 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K1905198-006	Carbon, Total Organic	N/A		Ground Water	3.96 mg/L	10 mL	3.96 mg/L	1	0.07	0.50			6/15/19 03:07:00	N	IV
K1905409-001	Carbon, Total Organic	N/A		Reagent Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/15/19 20:48:00	N	I
K1905409-002	Carbon, Total Organic	N/A		Reagent Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/15/19 21:16:00	N	I
K1905449-002	Carbon, Total Organic	N/A		Water	0.56 mg/L	10 mL	0.56 mg/L	1	0.07	0.50			6/15/19 15:08:00	N	II
K1905477-001	Carbon, Total Organic	N/A		Water	1.72 mg/L	10 mL	1.72 mg/L	1	0.07	0.50			6/15/19 15:36:00	N	I
K1905477-002	Carbon, Total Organic	N/A		Water	19.94 mg/L	10 mL	19.9 mg/L	1	0.07	0.50			6/15/19 16:04:00	N	I
K1905477-003	Carbon, Total Organic	N/A		Water	2.68 mg/L	10 mL	2.68 mg/L	1	0.07	0.50			6/15/19 16:32:00	N	I
K1905477-004	Carbon, Total Organic	N/A		Water	1.23 mg/L	10 mL	1.23 mg/L	1	0.07	0.50			6/15/19 17:59:00	N	I
K1905482-001	Carbon, Total Organic	N/A		Water	0.40 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/15/19 18:27:00	N	II
K1905482-002	Carbon, Total Organic	N/A		Water	1.54 mg/L	10 mL	1.54 mg/L	1	0.07	0.50			6/15/19 18:56:00	N	II
K1905482-003	Carbon, Total Organic	N/A		Water	0.62 mg/L	10 mL	0.62 mg/L	1	0.07	0.50			6/15/19 19:24:00	N	II
K1905482-004	Carbon, Total Organic	N/A		Water	0.87 mg/L	10 mL	0.87 mg/L	1	0.07	0.50			6/15/19 19:52:00	N	II
K1905482-005	Carbon, Total Organic	N/A		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/15/19 20:20:00	N	II
K1905558-001	Carbon, Total Organic	N/A		Water	1.48 mg/L	10 mL	1.48 mg/L	1	0.07	0.50			6/15/19 22:14:00	N	II
K1905558-002	Carbon, Total Organic	N/A		Water	1.64 mg/L	10 mL	1.64 mg/L	1	0.07	0.50			6/15/19 22:42:00	N	II
K1905558-003	Carbon, Total Organic	N/A		Water	1.07 mg/L	10 mL	1.07 mg/L	1	0.07	0.50			6/15/19 23:10:00	N	II
K1905558-004	Carbon, Total Organic	N/A		Water	1.59 mg/L	10 mL	1.59 mg/L	1	0.07	0.50			6/15/19 23:38:00	N	II
K1905558-005	Carbon, Total Organic	N/A		Water	1.53 mg/L	10 mL	1.53 mg/L	1	0.07	0.50			6/16/19 00:06:00	N	II
K1905586-001	Carbon, Total Organic	N/A		Water	0.69 mg/L	10 mL	0.69 mg/L	1	0.07	0.50			6/16/19 00:34:00	N	II
K1905586-002	Carbon, Total Organic	N/A		Water	0.19 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/16/19 01:02:00	N	II
KQ1908380-01	Carbon, Total Organic	MS	K1905198-006	Ground Water	25.56 mg/L	10 mL	25.6 mg/L	1	0.07	0.50	86		6/16/19 10:45:00	N	IV
KQ1908380-02	Carbon, Total Organic	CCV		Ground Water	24.59 mg/L	10 mL	24.6 mg/L	1					6/15/19 01:41:00	N	IV
KQ1908380-03	Carbon, Total Organic	CCV		Ground Water	25.46 mg/L	10 mL	25.5 mg/L	1					6/15/19 06:51:00	N	IV
KQ1908380-04	Carbon, Total Organic	CCV		Ground Water	24.96 mg/L	10 mL	25.0 mg/L	1					6/15/19 12:03:00	N	IV
KQ1908380-05	Carbon, Total Organic	CCV		Ground Water	24.89 mg/L	10 mL	24.9 mg/L	1					6/15/19 17:01:00	N	IV
KQ1908380-06	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/15/19 01:56:00	N	IV
KQ1908380-07	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/15/19 07:06:00	N	IV
KQ1908380-08	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/15/19 12:18:00	N	IV
KQ1908380-09	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/15/19 17:15:00	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

06/18/19

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 639523 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ1908380-10	Carbon, Total Organic	MB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/15/19 07:21:00	N	IV
KQ1908380-11	Carbon, Total Organic	LCS		Ground Water	25.44 mg/L	10 mL	25.4 mg/L	1	0.07	0.50	102		6/15/19 07:35:00	N	IV
KQ1908380-12	Carbon, Total Organic	DUP	K1905198-006	Ground Water	3.83 mg/L	10 mL	3.83 mg/L	1	0.07	0.50		3	6/15/19 03:07:00	N	IV
KQ1908380-13	Carbon, Total Organic	DUP	K1905449-002	Water	0.53 mg/L	10 mL	0.53 mg/L	1	0.07	0.50		5	6/15/19 15:08:00	N	II
KQ1908380-14	Carbon, Total Organic	DUP	K1905477-001	Water	1.75 mg/L	10 mL	1.75 mg/L	1	0.07	0.50		2	6/15/19 15:36:00	N	I
KQ1908380-15	Carbon, Total Organic	DUP	K1905477-002	Water	19.70 mg/L	10 mL	19.7 mg/L	1	0.07	0.50		1	6/15/19 16:04:00	N	I
KQ1908380-16	Carbon, Total Organic	DUP	K1905477-003	Water	2.56 mg/L	10 mL	2.56 mg/L	1	0.07	0.50		5	6/15/19 16:32:00	N	I
KQ1908380-17	Carbon, Total Organic	DUP	K1905477-004	Water	1.13 mg/L	10 mL	1.13 mg/L	1	0.07	0.50		9	6/15/19 17:59:00	N	I
KQ1908380-18	Carbon, Total Organic	DUP	K1905482-001	Water	0.46 mg/L	10 mL	0.46 mg/L J	1	0.07	0.50		NC	6/15/19 18:27:00	N	II
KQ1908380-19	Carbon, Total Organic	DUP	K1905482-002	Water	1.52 mg/L	10 mL	1.52 mg/L	1	0.07	0.50		<1	6/15/19 18:56:00	N	II
KQ1908380-20	Carbon, Total Organic	DUP	K1905482-003	Water	0.63 mg/L	10 mL	0.63 mg/L	1	0.07	0.50		2	6/15/19 19:24:00	N	II
KQ1908380-21	Carbon, Total Organic	DUP	K1905482-004	Water	0.82 mg/L	10 mL	0.82 mg/L	1	0.07	0.50		6	6/15/19 19:52:00	N	II
KQ1908380-22	Carbon, Total Organic	DUP	K1905482-005	Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/15/19 20:20:00	N	II
KQ1908380-23	Carbon, Total Organic	DUP	K1905409-001	Reagent Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/15/19 20:48:00	N	I
KQ1908380-24	Carbon, Total Organic	DUP	K1905409-002	Reagent Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/15/19 21:16:00	N	I
KQ1908380-25	Carbon, Total Organic	DUP	K1905558-001	Water	1.41 mg/L	10 mL	1.41 mg/L	1	0.07	0.50		5	6/15/19 22:14:00	N	II
KQ1908380-26	Carbon, Total Organic	DUP	K1905558-002	Water	1.61 mg/L	10 mL	1.61 mg/L	1	0.07	0.50		2	6/15/19 22:42:00	N	II
KQ1908380-27	Carbon, Total Organic	DUP	K1905558-003	Water	1.06 mg/L	10 mL	1.06 mg/L	1	0.07	0.50		1	6/15/19 23:10:00	N	II
KQ1908380-28	Carbon, Total Organic	DUP	K1905558-004	Water	1.54 mg/L	10 mL	1.54 mg/L	1	0.07	0.50		3	6/15/19 23:38:00	N	II
KQ1908380-29	Carbon, Total Organic	DUP	K1905558-005	Water	1.48 mg/L	10 mL	1.48 mg/L	1	0.07	0.50		3	6/16/19 00:06:00	N	II
KQ1908380-30	Carbon, Total Organic	DUP	K1905586-001	Water	0.67 mg/L	10 mL	0.67 mg/L	1	0.07	0.50		4	6/16/19 00:34:00	N	II
KQ1908380-31	Carbon, Total Organic	DUP	K1905586-002	Water	0.16 mg/L	10 mL	0.16 mg/L J	1	0.07	0.50		NC	6/16/19 01:02:00	N	II
KQ1908380-32	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/15/19 21:59:00	N	IV
KQ1908380-33	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/16/19 03:09:00	N	IV
KQ1908380-34	Carbon, Total Organic	CCV		Ground Water	24.50 mg/L	10 mL	24.5 mg/L	1					6/15/19 21:44:00	N	IV
KQ1908380-35	Carbon, Total Organic	CCV		Ground Water	24.52 mg/L	10 mL	24.5 mg/L	1					6/16/19 02:55:00	N	IV
KQ1908380-36	Carbon, Total Organic	CCV		Ground Water	24.12 mg/L	10 mL	24.1 mg/L	1					6/16/19 07:11:00	N	IV
KQ1908380-37	Carbon, Total Organic	CCV		Ground Water	25.11 mg/L	10 mL	25.1 mg/L	1					6/16/19 11:00:00	N	IV
KQ1908380-38	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/16/19 07:26:00	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 639523 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ1908380-39	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/16/19 11:14:00	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 639524 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K1905259-001	Carbon, Total Organic	N/A		Water	2.21 mg/L	10 mL	2.21 mg/L	1	0.07	0.50			6/16/19 06:15:00	N	IV
K1905597-001	Carbon, Total Organic	N/A		Water	0.61 mg/L	10 mL	0.61 mg/L	1	0.07	0.50			6/16/19 01:30:00	N	IV
K1905597-002	Carbon, Total Organic	N/A		Water	2.79 mg/L	10 mL	11.2 mg/L	4	0.3	2.0			6/16/19 01:58:00	N	IV
K1905597-003	Carbon, Total Organic	N/A		Water	2.72 mg/L	10 mL	10.9 mg/L	4	0.3	2.0			6/16/19 02:27:00	N	IV
K1905597-004	Carbon, Total Organic	N/A		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/16/19 03:53:00	N	IV
K1905597-005	Carbon, Total Organic	N/A		Water	0.32 mg/L	10 mL	0.32 mg/L J	1	0.07	0.50			6/16/19 04:22:00	N	IV
K1905597-006	Carbon, Total Organic	N/A		Water	2.34 mg/L	10 mL	2.34 mg/L	1	0.07	0.50			6/16/19 04:50:00	Y	IV
K1905597-007	Carbon, Total Organic	N/A		Water	1.43 mg/L	10 mL	1.43 mg/L	1	0.07	0.50			6/16/19 05:47:00	N	IV
KQ1908381-01	Carbon, Total Organic	CCV		Water	24.50 mg/L	10 mL	24.5 mg/L	1					6/15/19 21:44:00	N	IV
KQ1908381-02	Carbon, Total Organic	CCV		Water	24.52 mg/L	10 mL	24.5 mg/L	1					6/16/19 02:55:00	N	IV
KQ1908381-03	Carbon, Total Organic	CCV		Water	24.12 mg/L	10 mL	24.1 mg/L	1					6/16/19 07:11:00	N	IV
KQ1908381-04	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/15/19 21:59:00	N	IV
KQ1908381-05	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/16/19 03:09:00	N	IV
KQ1908381-06	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/16/19 07:26:00	N	IV
KQ1908381-07	Carbon, Total Organic	MB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/15/19 17:30:00	N	IV
KQ1908381-08	Carbon, Total Organic	LCS		Water	25.11 mg/L	10 mL	25.1 mg/L	1	0.07	0.50	100		6/15/19 17:45:00	N	IV
KQ1908381-09	Carbon, Total Organic	MS	K1905597-006	Water	26.78 mg/L	10 mL	53.6 mg/L	2	0.2	1.0	102		6/16/19 05:18:00	N	IV
KQ1908381-10	Carbon, Total Organic	DUP	K1905597-001	Water	0.50 mg/L	10 mL	0.50 mg/L J	1	0.07	0.50		20*	6/16/19 01:30:00	N	IV
KQ1908381-11	Carbon, Total Organic	DUP	K1905597-002	Water	2.79 mg/L	10 mL	11.2 mg/L	4	0.3	2.0		<1	6/16/19 01:58:00	N	IV
KQ1908381-12	Carbon, Total Organic	DUP	K1905597-003	Water	2.70 mg/L	10 mL	10.8 mg/L	4	0.3	2.0		<1	6/16/19 02:27:00	N	IV
KQ1908381-13	Carbon, Total Organic	DUP	K1905597-004	Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/16/19 03:53:00	N	IV
KQ1908381-14	Carbon, Total Organic	DUP	K1905597-005	Water	0.30 mg/L	10 mL	0.30 mg/L J	1	0.07	0.50		8	6/16/19 04:22:00	N	IV
KQ1908381-15	Carbon, Total Organic	DUP	K1905597-006	Water	2.37 mg/L	10 mL	2.37 mg/L	1	0.07	0.50		1	6/16/19 04:50:00	N	IV
KQ1908381-16	Carbon, Total Organic	DUP	K1905597-007	Water	1.41 mg/L	10 mL	1.41 mg/L	1	0.07	0.50		2	6/16/19 05:47:00	N	IV
KQ1908381-17	Carbon, Total Organic	DUP	K1905259-001	Water	2.25 mg/L	10 mL	2.25 mg/L	1	0.07	0.50		2	6/16/19 06:15:00	N	IV

06/18/19

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Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 639525 **Method/Testcode:** SM 5310 C/TOC D

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K1905589-002	Carbon, Dissolved Organic (DOC)	N/A		Water	3.12 mg/L	10 mL	3.12 mg/L	1	0.07	0.50			6/16/19 06:43:00	N	II
K1905589-004	Carbon, Dissolved Organic (DOC)	N/A		Water	2.29 mg/L	10 mL	2.29 mg/L	1	0.07	0.50			6/16/19 07:41:00	N	II
K1905595-001	Carbon, Dissolved Organic (DOC)	N/A		Water	0.57 mg/L	10 mL	0.57 mg/L	1	0.07	0.50			6/16/19 09:49:00	N	I
K1905595-002	Carbon, Dissolved Organic (DOC)	N/A		Water	0.00 mg/L	10 mL	50 mg/L U	100	7	50			6/16/19 10:17:00	N	I
K1905625-001	Carbon, Dissolved Organic (DOC)	N/A		Effluent	1.22 mg/L	10 mL	1.22 mg/L	1	0.07	0.50			6/16/19 08:09:00	N	II
K1905625-002	Carbon, Dissolved Organic (DOC)	N/A		Effluent	1.21 mg/L	10 mL	1.21 mg/L	1	0.07	0.50			6/16/19 09:06:00	N	II
KQ1908382-01	Carbon, Dissolved Organic (DOC)	CCV		Water	24.52 mg/L	10 mL	24.5 mg/L	1					6/16/19 02:55:00	N	II
KQ1908382-02	Carbon, Dissolved Organic (DOC)	CCV		Water	24.12 mg/L	10 mL	24.1 mg/L	1					6/16/19 07:11:00	N	II
KQ1908382-03	Carbon, Dissolved Organic (DOC)	CCV		Water	25.11 mg/L	10 mL	25.1 mg/L	1					6/16/19 11:00:00	N	II
KQ1908382-04	Carbon, Dissolved Organic (DOC)	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/16/19 03:09:00	N	II
KQ1908382-05	Carbon, Dissolved Organic (DOC)	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/16/19 07:26:00	N	II
KQ1908382-06	Carbon, Dissolved Organic (DOC)	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/16/19 11:14:00	N	II
KQ1908382-07	Carbon, Dissolved Organic (DOC)	MB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/16/19 03:24:00	N	II
KQ1908382-08	Carbon, Dissolved Organic (DOC)	LCS		Water	25.10 mg/L	10 mL	25.1 mg/L	1	0.07	0.50	100		6/16/19 03:39:00	N	II
KQ1908382-09	Carbon, Dissolved Organic (DOC)	MS	K1905625-001	Effluent	26.86 mg/L	10 mL	26.9 mg/L	1	0.07	0.50	103		6/16/19 08:37:00	N	II
KQ1908382-10	Carbon, Dissolved Organic (DOC)	DUP	K1905589-002	Water	3.13 mg/L	10 mL	3.13 mg/L	1	0.07	0.50		<1	6/16/19 06:43:00	N	II
KQ1908382-11	Carbon, Dissolved Organic (DOC)	DUP	K1905589-004	Water	2.30 mg/L	10 mL	2.30 mg/L	1	0.07	0.50		<1	6/16/19 07:41:00	N	II
KQ1908382-12	Carbon, Dissolved Organic (DOC)	DUP	K1905625-001	Effluent	1.28 mg/L	10 mL	1.28 mg/L	1	0.07	0.50		5	6/16/19 08:09:00	N	II
KQ1908382-13	Carbon, Dissolved Organic (DOC)	DUP	K1905625-002	Effluent	1.21 mg/L	10 mL	1.21 mg/L	1	0.07	0.50		<1	6/16/19 09:06:00	N	II
KQ1908382-14	Carbon, Dissolved Organic (DOC)	DUP	K1905595-001	Water	0.58 mg/L	10 mL	0.58 mg/L	1	0.07	0.50		2	6/16/19 09:49:00	N	I
KQ1908382-15	Carbon, Dissolved Organic (DOC)	DUP	K1905595-002	Water	0.00 mg/L	10 mL	50 mg/L U	100	7	50		NC	6/16/19 10:17:00	N	I

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
CBA	RB	1			0.0000	0	<0.5	
2	C] CCV 25 ppm [25 p	1	24.937	0.0000	24.9374	24.9374	24.9	6/14/2019
3	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/14/2019
4	MB1	1	0.000	0.0000	0.0000	0	<0.5	6/14/2019
5	[TOC] LCS [24ppm]	1	25.401	0.0000	25.4009	25.4009	25.4	6/14/2019
6	K1905258-006	100	3.314	0.0000	3.3140	331.4	331.40	6/15/2019
7	K1905258-006d	100	3.327	0.0000	3.3271	332.71	332.7	6/15/2019
8	C] CCV 25 ppm [25 p	1	24.590	0.0000	24.5900	24.59	25	6/15/2019
9	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
10	K1905198-003	100	13.598	0.0000	13.5984	1359.84	1359.84	6/15/2019
11	K1905198-003d	100	13.590	0.0000	13.5897	1358.97	1359.0	6/15/2019
12	K1905114-006	10	5.412	0.0000	5.4117	54.117	54.12	6/15/2019
13	K1905114-006d	10	6.290	0.0000	6.2895	62.895	62.90	6/15/2019
14	K1905440-001	1	21.348	0.0000	21.3480	21.348	21.35	6/15/2019
15	K1905440-001d	1	21.002	0.0000	21.0020	21.002	21.0	6/15/2019
16	K1905440-002	1	21.512	0.0000	21.5121	21.5121	21.5	6/15/2019
17	K1905440-002d	1	21.247	0.0000	21.2469	21.2469	21.25	6/15/2019
18	K1905440-003	1	20.626	0.0000	20.6264	20.6264	20.6	6/15/2019
19	K1905440-003d	1	20.933	0.0000	20.9333	20.9333	20.9	6/15/2019
20	K1905440-004	1	20.849	0.0000	20.8493	20.8493	20.85	6/15/2019
21	K1905440-004d	1	20.795	0.0000	20.7951	20.7951	20.80	6/15/2019
22	K1905478-001	1	28.056	0.0000	28.0558	28.0558	28.1	6/15/2019
23	K1905478-001d	1	28.385	0.0000	28.3853	28.3853	28.4	6/15/2019
24	K1905478-002	1	9.821	0.0000	9.8214	9.8214	9.82	6/15/2019
25	K1905478-002d	1	9.348	0.0000	9.3476	9.3476	9.35	6/15/2019

ICAL Date 10/20/16 ICAL ID#:11-GEN-05-51A

LCS =24.0 ppm APG 4013 Lot #010615 (REF# 11-GEN-05-50N)

CCV = 25.0 ppm (Ref.#11-GEN-05-52E)

Spike: 0.05 ml of 5000 ppm stock ----> 10.0 ml =25.0 ppm x Dilution Factor (Ref.# 11-GEN-05-51M)

date time

Analyzed By: BCD	Date Analyzed 6/16/19
Reviewed By: [signature]	Date Reviewed 06/18/19

Revision 1, 2010 R:\WET\ANALYSES\TOC\TEMPLATE\TOCwaterLIMS

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
26	C] CCV 25 ppm [25 p	1	25.464	0.0000	25.4635	25.4635	25.46	6/15/2019
27	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
28	K1905478-003	1	18.571	0.0000	18.5707	18.5707	18.6	6/15/2019
29	K1905478-003d	1	18.705	0.0000	18.7046	18.7046	18.7	6/15/2019
30	K1905478-004	1	9.865	0.0000	9.8646	9.8646	9.9	6/15/2019
31	K1905478-004d	1	9.856	0.0000	9.8560	9.856	9.9	6/15/2019
32	K1905478-004ms	2	29.953	0.0000	29.9530	59.906	59.9	6/15/2019
33	K1905478-005	1	7.894	0.0000	7.8940	7.894	7.9	6/15/2019
34	K1905478-005d	1	7.970	0.0000	7.9703	7.9703	8.0	6/15/2019
35	K1905478-006	1	0.673	0.0000	0.6731	0.6731	0.7	6/15/2019
36	K1905478-006d	1	0.595	0.0000	0.5947	0.5947	0.6	6/15/2019
37	K1905478-007	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
38	K1905478-007d	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
39	K1905451-001	100	6.462	0.0000	6.4621	646.21	646.2	6/15/2019
40	K1905451-001d	100	6.461	0.0000	6.4610	646.1	646.1	6/15/2019
41	C] CCV 25 ppm [25 p	1	24.963	0.0000	24.9627	24.9627	25.0	6/15/2019
42	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
43	K1905451-002	100	5.830	0.0000	5.8303	583.03	583.0	6/15/2019
44	K1905451-002d	100	5.902	0.0000	5.9022	590.22	590.2	6/15/2019
45	K1905589-001	1	3.741	0.0000	3.7412	3.7412	3.7	6/15/2019
46	K1905589-001d	1	3.637	0.0000	3.6370	3.637	3.6	6/15/2019
47	K1905589-003	1	2.586	0.0000	2.5861	2.5861	2.6	6/15/2019
48	K1905589-003d	1	2.583	0.0000	2.5834	2.5834	2.6	6/15/2019
49	K1905420-001	100	0.378	0.0000	0.3783	37.83	37.8	6/15/2019
50	K1905420-001d	100	0.387	0.0000	0.3867	38.67	38.7	6/15/2019

Analyzed By:	BCD	Date Analyzed	6/16/19
Reviewed By:	[signature]	Date Reviewed	06/18/19

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
51	K1905449-001	1	1.539	0.0000	1.5389	1.5389	1.54	6/15/2019
52	K1905449-001d	1	1.469	0.0000	1.4688	1.4688	1.5	6/15/2019
53	C] CCV 25 ppm [25 p	1	24.894	0.0000	24.8939	24.8939	24.9	6/15/2019
54	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
55		1		0.0000	0.0000	0	<0.5	
56		1		0.0000	0.0000	0	<0.5	
57		1		0.0000	0.0000	0	<0.5	
58		1		0.0000	0.0000	0	<0.5	
59		1		0.0000	0.0000	0	<0.5	
60		1		0.0000	0.0000	0	<0.5	
61		1		0.0000	0.0000	0	<0.5	
62		1		0.0000	0.0000	0	<0.5	
63		1		0.0000	0.0000	0	<0.5	
64		1		0.0000	0.0000	0	<0.5	
65		1		0.0000	0.0000	0	<0.5	
66		1		0.0000	0.0000	0	<0.5	
67		1		0.0000	0.0000	0	<0.5	
68		1		0.0000	0.0000	0	<0.5	
69		1		0.0000	0.0000	0	<0.5	
70		1		0.0000	0.0000	0	<0.5	
71		1		0.0000	0.0000	0	<0.5	
72		1		0.0000	0.0000	0	<0.5	
73		1		0.0000	0.0000	0	<0.5	
74		1		0.0000	0.0000	0	<0.5	
75		1		0.0000	0.0000	0	<0.5	

Analyzed By: BLD	Date Analyzed 6/16/19
Reviewed By:	Date Reviewed

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
CBA	RB	1			0.0000	0	<0.5	
2	C] CCV 25 ppm [25 p	1	24.590	0.0000	24.5900	24.59	24.6	6/15/2019
3	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
4	K1905198-006	1	3.957	0.0000	3.9572	3.9572	4.0	6/15/2019
5	K1905198-006d	1	3.834	0.0000	3.8337	3.8337	3.8	6/15/2019
6	C] CCV 25 ppm [25 p	1	25.464	0.0000	25.4635	25.4635	25.46	6/15/2019
7	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
8	MB2	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
9	[TOC] LCS [24ppm]	1	25.436	0.0000	25.4355	25.4355	25.44	6/15/2019
10	C] CCV 25 ppm [25 p	1	24.963	0.0000	24.9627	24.9627	24.96	6/15/2019
11	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
12	K1905449-002	1	0.558	0.0000	0.5581	0.5581	0.56	6/15/2019
13	K1905449-002d	1	0.529	0.0000	0.5290	0.529	0.53	6/15/2019
14	K1905477-001	1	1.722	0.0000	1.7217	1.7217	1.72	6/15/2019
15	K1905477-001d	1	1.754	0.0000	1.7538	1.7538	1.8	6/15/2019
16	K1905477-002	1	19.942	0.0000	19.9421	19.9421	19.9	6/15/2019
17	K1905477-002d	1	19.696	0.0000	19.6957	19.6957	19.70	6/15/2019
18	K1905477-003	1	2.685	0.0000	2.6845	2.6845	2.7	6/15/2019
19	K1905477-003d	1	2.556	0.0000	2.5556	2.5556	2.6	6/15/2019
20	C] CCV 25 ppm [25 p	1	24.894	0.0000	24.8939	24.8939	24.89	6/15/2019
21	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
22	K1905477-004	1	1.231	0.0000	1.2310	1.231	1.2	6/15/2019
23	K1905477-004d	1	1.126	0.0000	1.1263	1.1263	1.1	6/15/2019
24	K1905482-001	1	0.404	0.0000	0.4040	0.404	<0.5	6/15/2019
25	K1905482-001d	1	0.464	0.0000	0.4636	0.4636	<0.5	6/15/2019

ICAL Date 10/20/16 ICAL ID#:11-GEN-05-51A

LCS =24.0 ppm APG 4013 Lot #010615 (REF# 11-GEN-05-50N)

CCV = 25.0 ppm (Ref.#11-GEN-05-52E)

Spike: 0.05 ml of 5000 ppm stock ----> 10.0 ml =25.0 ppm x Dilution Factor (Ref.# 11-GEN-05-51M)

		date	time
Analyzed By:	[illegible]	Date Analyzed	6/16/19
Reviewed By:	[signature]	Date Reviewed	06/18/19

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
26	K1905482-002	1	1.537	0.0000	1.5366	1.5366	1.54	6/15/2019
27	K1905482-002d	1	1.522	0.0000	1.5215	1.5215	1.52	6/15/2019
28	K1905482-003	1	0.620	0.0000	0.6196	0.6196	0.6	6/15/2019
29	K1905482-003d	1	0.632	0.0000	0.6317	0.6317	0.6	6/15/2019
30	K1905482-004	1	0.870	0.0000	0.8701	0.8701	0.9	6/15/2019
31	K1905482-004d	1	0.818	0.0000	0.8181	0.8181	0.8	6/15/2019
32	K1905482-005	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
33	K1905482-005d	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
34	K1905409-001	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
35	K1905409-001d	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
36	K1905409-002	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
37	K1905409-002d	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
38	C] CCV 25 ppm [25 p	1	24.499	0.0000	24.4988	24.4988	24.5	6/15/2019
39	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
40	K1905558-001	1	1.482	0.0000	1.4823	1.4823	1.5	6/15/2019
41	K1905558-001d	1	1.412	0.0000	1.4121	1.4121	1.4	6/15/2019
42	K1905558-002	1	1.642	0.0000	1.6423	1.6423	1.6	6/15/2019
43	K1905558-002d	1	1.608	0.0000	1.6080	1.608	1.6	6/15/2019
44	K1905558-003	1	1.073	0.0000	1.0728	1.0728	1.1	6/15/2019
45	K1905558-003d	1	1.061	0.0000	1.0610	1.061	1.1	6/15/2019
46	K1905558-004	1	1.588	0.0000	1.5881	1.5881	1.6	6/15/2019
47	K1905558-004d	1	1.543	0.0000	1.5426	1.5426	1.5	6/15/2019
48	K1905558-005	1	1.526	0.0000	1.5259	1.5259	1.5	6/16/2019
49	K1905558-005d	1	1.484	0.0000	1.4841	1.4841	1.5	6/16/2019
50	K1905586-001	1	0.693	0.0000	0.6929	0.6929	0.7	6/16/2019

Analyzed By: KCP	Date Analyzed 6/16/19
Reviewed By: [signature]	Date Reviewed 06/18/19

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
51	K1905586-001d	1	0.666	0.0000	0.6657	0.6657	0.67	6/16/2019
52	K1905586-002	1	0.189	0.0000	0.1892	0.1892	<0.5	6/16/2019
53	K1905586-002d	1	0.160	0.0000	0.1601	0.1601	<0.5	6/16/2019
54	C] CCV 25 ppm [25 p	1	24.518	0.0000	24.5184	24.5184	24.5	6/16/2019
55	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/16/2019
56	C] CCV 25 ppm [25 p	1	24.117	0.0000	24.1171	24.1171	24.1	6/16/2019
57	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/16/2019
58	K1905198-006ms	1	25.561	0.0000	25.5611	25.5611	25.6	6/16/2019
59	C] CCV 25 ppm [25 p	1	25.111	0.0000	25.1105	25.1105	25.1	6/16/2019
60	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/16/2019
61		1		0.0000	0.0000	0	<0.5	
62		1		0.0000	0.0000	0	<0.5	
63		1		0.0000	0.0000	0	<0.5	
64		1		0.0000	0.0000	0	<0.5	
65		1		0.0000	0.0000	0	<0.5	
66		1		0.0000	0.0000	0	<0.5	
67		1		0.0000	0.0000	0	<0.5	
68		1		0.0000	0.0000	0	<0.5	
69		1		0.0000	0.0000	0	<0.5	
70		1		0.0000	0.0000	0	<0.5	
71		1		0.0000	0.0000	0	<0.5	
72		1		0.0000	0.0000	0	<0.5	
73		1		0.0000	0.0000	0	<0.5	
74		1		0.0000	0.0000	0	<0.5	
75		1		0.0000	0.0000	0	<0.5	

Analyzed By:	BCD	Date Analyzed	6/16/19
Reviewed By:		Date Reviewed	06/18/19

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
CBA	RB	1			0.0000	0	<0.5	
2	MB3	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
3	[TOC] LCS [25ppm]	1	25.114	0.0000	25.1136	25.1136	25.1	6/15/2019
4	C] CCV 25 ppm [25 p	1	24.499	0.0000	24.4988	24.4988	24.5	6/15/2019
5	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
6	K1905597-001	1	0.607	0.0000	0.6073	0.6073	0.61	6/16/2019
7	K1905597-001d	1	0.496	0.0000	0.4957	0.4957	<0.5	6/16/2019
8	K1905597-002	4	2.794	0.0000	2.7938	11.1752	11	6/16/2019
9	K1905597-002d	4	2.791	0.0000	2.7914	11.1656	11.17	6/16/2019
10	K1905597-003	4	2.724	0.0000	2.7238	10.8952	10.90	6/16/2019
11	K1905597-003d	4	2.704	0.0000	2.7035	10.814	10.8	6/16/2019
12	C] CCV 25 ppm [25 p	1	24.518	0.0000	24.5184	24.5184	24.52	6/16/2019
13	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/16/2019
14	K1905597-004	1	0.000	0.0000	0.0000	0	<0.5	6/16/2019
15	K1905597-004d	1	0.000	0.0000	0.0000	0	<0.5	6/16/2019
16	K1905597-005	1	0.325	0.0000	0.3247	0.3247	<0.5	6/16/2019
17	K1905597-005d	1	0.301	0.0000	0.3007	0.3007	<0.5	6/16/2019
18	K1905597-006	1	2.345	0.0000	2.3445	2.3445	2.3	6/16/2019
19	K1905597-006d	1	2.369	0.0000	2.3694	2.3694	2.4	6/16/2019
20	K1905597-006ms	2	26.784	0.0000	26.7837	53.5674	53.57	6/16/2019
21	K1905597-007	1	1.434	0.0000	1.4339	1.4339	1.43	6/16/2019
22	K1905597-007d	1	1.412	0.0000	1.4118	1.4118	1.4	6/16/2019
23	K1905259-001	1	2.214	0.0000	2.2135	2.2135	2.2	6/16/2019
24	K1905259-001d	1	2.252	0.0000	2.2524	2.2524	2.25	6/16/2019
25	C] CCV 25 ppm [25 p	1	24.117	0.0000	24.1171	24.1171	24.12	6/16/2019

ICAL Date 10/20/16 ICAL ID#:11-GEN-05-51A

LCS =24.0 ppm APG 4013 Lot #010615 (REF# 11-GEN-05-50N)

CCV = 25.0 ppm (Ref.#11-GEN-05-52E)

Spike: 0.05 ml of 5000 ppm stock ----> 10.0 ml =25.0 ppm x Dilution Factor (Ref.# 11-GEN-05-51M)

		date time
Analyzed By: KCP	Date Analyzed	6/16/19
Reviewed By:	Date Reviewed	06/18/19

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
26	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/16/2019
27		1		0.0000	0.0000	0	<0.5	
28		1		0.0000	0.0000	0	<0.5	
29		1		0.0000	0.0000	0	<0.5	
30		1		0.0000	0.0000	0	<0.5	
31		1		0.0000	0.0000	0	<0.5	
32		1		0.0000	0.0000	0	<0.5	
33		1		0.0000	0.0000	0	<0.5	
34		1		0.0000	0.0000	0	<0.5	
35		1		0.0000	0.0000	0	<0.5	
36		1		0.0000	0.0000	0	<0.5	
37		1		0.0000	0.0000	0	<0.5	
38		1		0.0000	0.0000	0	<0.5	
39		1		0.0000	0.0000	0	<0.5	
40		1		0.0000	0.0000	0	<0.5	
41		1		0.0000	0.0000	0	<0.5	
42		1		0.0000	0.0000	0	<0.5	
43		1		0.0000	0.0000	0	<0.5	
44		1		0.0000	0.0000	0	<0.5	
45		1		0.0000	0.0000	0	<0.5	
46		1		0.0000	0.0000	0	<0.5	
47		1		0.0000	0.0000	0	<0.5	
48		1		0.0000	0.0000	0	<0.5	
49		1		0.0000	0.0000	0	<0.5	
50		1		0.0000	0.0000	0	<0.5	

Analyzed By: RP	Date Analyzed 6/16/19
Reviewed By: [signature]	Date Reviewed 06/18/19

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
CBA	RB	1			0.0000	0	<0.5	
2	C] CCV 25 ppm [25 p	1	24.518	0.0000	24.5184	24.5184	24.5	6/16/2019
3	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/16/2019
4	MB4	1	0.000	0.0000	0.0000	0	<0.5	6/16/2019
5	[TOC] LCS [25ppm]	1	25.100	0.0000	25.1000	25.1	25.1	6/16/2019
6	K1905589-002	1	3.123	0.0000	3.1233	3.1233	3.12	6/16/2019
7	K1905589-002d	1	3.128	0.0000	3.1282	3.1282	3.1	6/16/2019
8	C] CCV 25 ppm [25 p	1	24.117	0.0000	24.1171	24.1171	24	6/16/2019
9	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/16/2019
10	K1905589-004	1	2.294	0.0000	2.2935	2.2935	2.29	6/16/2019
11	K1905589-004d	1	2.303	0.0000	2.3031	2.3031	2.3	6/16/2019
12	K1905625-001	1	1.221	0.0000	1.2211	1.2211	1.22	6/16/2019
13	K1905625-001d	1	1.285	0.0000	1.2848	1.2848	1.28	6/16/2019
14	K1905625-001ms	1	26.865	0.0000	26.8649	26.8649	26.86	6/16/2019
15	K1905625-002	1	1.214	0.0000	1.2136	1.2136	1.2	6/16/2019
16	K1905625-002d	1	1.207	0.0000	1.2073	1.2073	1.2	6/16/2019
17	K1905595-001	1	0.568	0.0000	0.5675	0.5675	0.57	6/16/2019
18	K1905595-001d	1	0.578	0.0000	0.5782	0.5782	0.6	6/16/2019
19	K1905595-002 100X	100	0.000	0.0000	0.0000	0	<0.5	6/16/2019
20	K1905595-002 100Xd	100	0.000	0.0000	0.0000	0	<0.5	6/16/2019
21	C] CCV 25 ppm [25 p	1	25.111	0.0000	25.1105	25.1105	25.11	6/16/2019
22	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/16/2019
23		1		0.0000	0.0000	0	<0.5	
24		1		0.0000	0.0000	0	<0.5	
25		1		0.0000	0.0000	0	<0.5	

ICAL Date 10/20/16 ICAL ID#:11-GEN-05-51A

LCS =24.0 ppm APG 4013 Lot #010615 (REF# 11-GEN-05-50N)

CCV = 25.0 ppm (Ref.#11-GEN-05-52E)

Spike: 0.05 ml of 5000 ppm stock ----> 10.0 ml =25.0 ppm x Dilution Factor (Ref.# 11-GEN-05-51M)

		date	time
Analyzed By: KP	Date Analyzed	6/16/19	
Reviewed By: [signature]	Date Reviewed	06/18/19	

Revision 1, 2010 R:\WET\ANALYSES\TOC\TEMPLATE\TOCwaterLIMS

TOC: 639522, 639523, 639524,
DOC: 639525

Schedule: 06142019

Version: 8
Instrument: Fusion1
Last Saved by: Fusion1 (Fusion1)
Last Saved on: 2019/06/15 16:20 - Saturday

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
(Clean)	Clean	Clean		1	True	Ready
(Clean)	Clean	Clean		1	True	Ready
(Clean)	Clean	Clean		1	True	Ready
(Blank)	Blank	Reagent/Acid Blank		1	True	Ready
D	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
1	Sample	MB1	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
C	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
2	Sample	ICS	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
3	Sample	K1905436-001.01	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
4	Sample	K1905436-001.01 ms	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
5	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
6	Sample	K1905436-002.01 100x	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
7	Sample	K1905436-003.01 100x	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
8	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
9	Sample	K1905258-006.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
10	Sample	K1905198-003.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
11	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
12	Sample	K1905198-006.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
13	Sample	K1905114-006.01 10x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
14	Sample	K1905440-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
15	Sample	K1905440-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
16	Sample	K1905440-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
17	Sample	K1905440-004.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
18	Sample	K1905478-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
19	Sample	K1905478-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
20	Sample	MB2	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
21	Sample	K1905478-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
22	Sample	K1905478-004.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
23	Sample	K1905478-004.01 ms 2x	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
24	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
25	Sample	K1905478-005.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
26	Sample	K1905478-006.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
27	Sample	K1905478-007.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
28	Sample	K1905451-001.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
29	Sample	K1905451-002.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
30	Sample	K1905589-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
31	Sample	K1905589-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
32	Sample	K1905420-001.02 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
33	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
34	Sample	K1905449-001.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
35	Sample	K1905449-002.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
36	Sample	K1905477-001.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
37	Sample	K1905477-002.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
38	Sample	K1905477-003.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready

NR
NR

06/18/19

Schedule: 06142019

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
39	Sample	MB3	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [25.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
40	Sample	K1905477-004.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
41	Sample	K1905482-001.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
42	Sample	K1905482-002.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
43	Sample	K1905482-003.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
44	Sample	K1905482-004.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
45	Sample	K1905482-005.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
46	Sample	K1905409-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
47	Sample	K1905409-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
48	Sample	K1905558-001.14	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
49	Sample	K1905558-002.14	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
50	Sample	K1905558-003.14	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
51	Sample	K1905558-004.14	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
52	Sample	K1905558-005.14	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
53	Sample	K1905586-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
54	Sample	K1905586-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
55	Sample	K1905597-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
56	Sample	K1905597-002.01 4x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
57	Sample	K1905597-003.01 4x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
58	Sample	MB4	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [25.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
59	Sample	K1905597-004.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
60	Sample	K1905597-005.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
61	Sample	K1905597-006.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
62	Sample	K1905597-006.01 ms 2x	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
63	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
64	Sample	K1905597-007.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
65	Sample	K1905259-001.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
66	Sample	K1905589-002.02 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
67	Sample	K1905589-004.02 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
68	Sample	K1905625-001.03 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
69	Sample	K1905625-001.03 ms doc	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
70	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
71	Sample	K1905625-002.03 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
72	Sample	FB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
73	Sample	K1905595-001.03 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
74	Sample	K1905595-002.03 100x doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
75	Sample	K1905198-006.01 ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
					False	

00949274

Fusion Report - 06142019
Friday, June 14, 2019 03:25 PM

(View - Reps, Unused Reps, Meta-Data, Signature, History)
Printed on 2019/06/18 08:56 - Tuesday

Report Summary Information

Company Location:	Gen Chem Lab		
Schedule Name:	06142019	Engine Version:	1.1.5.1
Instrument Name:	Fusion1	Firmware Version:	1.2.0696
Report Version:	1 of 1	Connection:	RS232 COM1
Report Creation by Operators (schedule version):	Fusion1 (Fusion1) (v2) Fusion1 (Fusion1) (v3) Fusion1 (Fusion1) (v4) Fusion1 (Fusion1) (v5) Fusion1 (Fusion1) (v6) Fusion1 (Fusion1) (v7) Fusion1 (Fusion1) (v8)		
Comment:			

Report Results

06/18/19

Sample Type: Clean — From Schedule Version 2

	Pos	Analysis Type	Sample ID	Start Time
◈	(clean)		Clean	2019/06/14 15:25

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	13.34	18.06	4.72	49.88	07:58
2	TC Clean	14.48	17.60	3.12	49.67	07:18
3	TC Clean	3.52	6.54	3.02	49.90	07:04
4	TC Clean	2.44	5.68	3.24	49.76	07:02

Sample Type: Clean — From Schedule Version 3

	Pos	Analysis Type	Sample ID	Start Time
◈	(clean)		Clean	2019/06/14 16:04

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	12.04	15.23	3.18	49.96	07:59

2	TC Clean	5.88	9.04	3.16	49.75	07:16
3	TC Clean	2.16	5.37	3.21	49.79	07:02
4	TC Clean	1.43	4.65	3.22	49.90	07:02

Sample Type: Clean — From Schedule Version 3

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2019/06/14 16:39

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	1.06	4.16	3.09	49.78	05:26
2	TC Clean	4.34	7.40	3.05	49.94	07:19
3	TC Clean	2.36	5.45	3.10	49.86	07:02
4	TC Clean	1.88	4.87	2.98	49.79	07:00

Sample Type: Blank (Creating v1266) — From Schedule Version 3

	Pos	Analysis Type	Sample ID	Start Time
◆	(blank)		Reagent/Acid Blank	2019/06/14 17:10

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	1.16	4.21	3.05	49.68	05:25
2	TC Clean	4.58	7.72	3.15	49.84	07:16
3	TC Clean	2.49	5.59	3.10	49.83	07:00
4	TC Clean	1.81	4.95	3.14	49.94	07:01
5	Reagent Blank	6.66	9.83	3.17	49.86	08:11
6	Acid Blank	1.49	4.73	3.24	49.69	05:29

Sample Type: Sample — From Schedule Version 3

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	D	TOC	RB	0.3200 ppm	0.0000 ppm	0.0000%	2019/06/14 17:57

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.3200	3.1998	11.13	14.35	3.22	50.07	10:29

Dilution **Blank Contribution** **Method** **Calibration**

1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◉	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.9374 ppm (PASS)	0.0000 ppm	0%	2019/06/14 18:11

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.9374	249.3739	178.74	181.86	3.12	50.09	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◉	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/06/14 18:26

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	7.93	11.23	3.30	50.20	10:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample — From Schedule Version 3

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◉	1	TOC	MB1	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/14 18:41

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.04	10.20	3.16	50.08	10:28
2	TOC	0.0000	0.0000	7.38	10.54	3.17	49.99	10:29
3	TOC	0.0000	0.0000	7.03	10.13	3.09	49.96	10:27
4	TOC	0.0000	0.0000	7.13	10.13	3.00	49.92	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

00949277

Sample Type: Check Standard --> LCS From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	C	TOC	25.0000	1:1	[TOC] LCS [24.0 ppm]	0 / infinity (NA / NA)	25.4375 ppm (PASS)	0.1009 ppm	0.40%	2019/06/14 19:37

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	25.4009	254.0086	181.88	184.97	3.09	49.87	10:27
C	TOC	25.0 ppm	2	25.5837	255.8368	183.12	186.21	3.08	49.84	10:25
C	TOC	25.0 ppm	3	25.4128	254.1279	181.96	185.20	3.24	49.89	10:27
C	TOC	25.0 ppm	4	25.3525	253.5254	181.55	184.86	3.30	49.81	10:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	25 ppmC

Sample Type: Sample From Schedule Version 3

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	2	TOC	ICS	0.2434 ppm	0.0000 ppm	0.0000%	2019/06/14 20:33

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.2434	2.4338	10.61	13.81	3.20	49.81	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

NR no room

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	3	TOC	K1905436-001.01	0.7283 ppm	0.0388 ppm	5.3200%	2019/06/14 20:48

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.7857	7.8566	14.29	17.55	3.25	49.80	10:27
2	TOC	0.7089	7.0891	13.77	17.02	3.25	49.80	10:30
3	TOC	0.7017	7.0169	13.72	16.97	3.25	49.80	10:28
4	TOC	0.7169	7.1686	13.83	16.98	3.15	49.83	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

NR no room

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	4	TOC	K1905436-001.01 ms	27.4897 ppm	0.0961 ppm	0.3500%	2019/06/14 21:44

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	27.5876	275.8760	196.22	199.32	3.10	49.83	10:28
2	TOC	27.3697	273.6972	194.74	198.12	3.38	49.84	10:28

3	TOC	27.5424	275.4238	195.92	199.07	3.15	49.85	10:30
4	TOC	27.4591	274.5914	195.35	198.50	3.14	49.87	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	5	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/14 22:39

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.54	10.78	3.24	49.89	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	6	TOC	K1905436-002.01 100x	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/14 22:54

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	8.04	11.07	3.02	49.89	10:31
2	TOC	0.0000	0.0000	7.57	10.75	3.19	49.89	10:27
3	TOC	0.0000	0.0000	7.71	10.95	3.24	49.91	10:27
4	TOC	0.0000	0.0000	7.76	10.87	3.11	49.94	10:27

Per 6/18/19 9K5436 NC

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	7	TOC	K1905436-003.01 100x	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/14 23:49

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.52	10.65	3.13	49.96	10:24
2	TOC	0.0000	0.0000	7.59	10.61	3.02	49.96	10:24
3	TOC	0.0000	0.0000	7.36	10.42	3.05	49.95	10:31
4	TOC	0.0000	0.0000	7.66	10.79	3.12	49.97	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	8	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/15 00:45

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.48	9.62	3.14	49.96	10:29
2	TOC	0.0000	0.0000	6.84	9.91	3.07	49.98	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	9	TOC	K1905258-006.01 100x	3.3205 ppm	0.0093 ppm	0.2800%	2019/06/15 01:13

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.3140	33.1397	31.46	34.50	3.05	49.99	10:28
2	TOC	3.3271	33.2708	31.54	34.86	3.31	50.00	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.5900 ppm (PASS)	0.0000 ppm	0%	2019/06/15 01:41

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.5900	245.9001	176.38	179.52	3.14	50.01	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/06/15 01:56

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	7.08	10.33	3.25	50.01	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample — From Schedule Version 3

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time

◈	10	TOC	K1905198-003.01 100x	13.5940 ppm	0.0061 ppm	0.0500%	2019/06/15 02:11

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	13.5984	135.9838	101.26	104.50	3.24	49.97	10:27
2	TOC	13.5897	135.8969	101.21	104.44	3.23	49.98	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	11	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/15 02:39

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.99	10.12	3.13	49.99	10:30
2	TOC	0.0000	0.0000	6.59	9.86	3.27	50.00	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	12	TOC	K1905198-006.01	3.8954 ppm	0.0873 ppm	2.2400%	2019/06/15 03:07

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.9572	39.5717	35.82	39.04	3.22	50.00	10:29
2	TOC	3.8337	38.3371	34.98	38.07	3.09	50.02	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	13	TOC	K1905114-006.01 10x	5.8506 ppm	0.6208 ppm	10.6100%	2019/06/15 03:35

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	5.4117	54.1166	45.69	49.02	3.32	50.01	10:31
2	TOC	6.2895	62.8954	51.65	54.78	3.12	50.01	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	14	TOC	K1905440-001.01	21.1750 ppm	0.2447 ppm	1.1600%	2019/06/15 04:03

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	21.3480	213.4801	153.87	157.12	3.25	50.03	10:28
2	TOC	21.0020	210.0196	151.52	154.86	3.34	50.02	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	15	TOC	K1905440-002.01	21.3795 ppm	0.1875 ppm	0.8800%	2019/06/15 04:31

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	21.5121	215.1212	154.98	158.24	3.25	50.02	10:26
2	TOC	21.2469	212.4695	153.18	156.37	3.19	50.02	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	16	TOC	K1905440-003.01	20.7799 ppm	0.2170 ppm	1.0400%	2019/06/15 04:59

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	20.6264	206.2644	148.97	152.17	3.19	50.04	10:26
2	TOC	20.9333	209.3330	151.05	154.23	3.17	50.04	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	17	TOC	K1905440-004.01	20.8222 ppm	0.0383 ppm	0.1800%	2019/06/15 05:27

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	20.8493	208.4933	150.48	153.72	3.23	50.03	10:28
2	TOC	20.7951	207.9512	150.12	153.41	3.29	50.04	10:23

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	18	TOC	K1905478-001.01	28.2206 ppm	0.2330 ppm	0.8300%	2019/06/15 05:55

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	28.0558	280.5579	199.40	202.57	3.17	50.01	10:27
2	TOC	28.3853	283.8534	201.64	204.78	3.14	50.03	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	19	TOC	K1905478-002.01	9.5845 ppm	0.3350 ppm	3.5000%	2019/06/15 06:23

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	9.8214	98.2139	75.63	78.90	3.28	50.03	10:31
2	TOC	9.3476	93.4761	72.41	75.52	3.11	50.02	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	25.4635 ppm (PASS)	0.0000 ppm	0%	2019/06/15 06:51

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.4635	254.6347	182.31	185.62	3.32	50.02	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/06/15 07:06

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	8.42	11.67	3.25	50.01	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample — From Schedule Version 3

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	20	TOC	MB2	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/15 07:21

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.06	10.22	3.16	50.01	10:36

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC)	CAS_salt_010711	CAS_salt_010711

(v1266) (v4) (v30)

Sample Type: Check Standard --> LCS From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	C	TOC	25.0000	1:1	[TOC] LCS [24.0 ppm]	0 / infinity (NA / NA)	25.4355 ppm (PASS)	0.0000 ppm	0%	2019/06/15 07:35

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	25.4355	254.3548	182.12	185.25	3.13	50.02	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	25 ppmC

Sample Type: Sample From Schedule Version 3

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	21	TOC	K1905478-003.01	18.6377 ppm	0.0947 ppm	0.5100%	2019/06/15 07:50

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	18.5707	185.7073	135.02	138.21	3.19	50.04	10:30
2	TOC	18.7046	187.0465	135.93	139.24	3.32	50.00	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	22	TOC	K1905478-004.01	9.8603 ppm	0.0060 ppm	0.0600%	2019/06/15 08:18

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	9.8646	98.6456	75.92	79.15	3.23	50.00	10:27
2	TOC	9.8560	98.5601	75.86	79.06	3.19	49.99	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	23	TOC	K1905478-004.01 ms 2x	29.9530 ppm	0.0000 ppm	0.0000%	2019/06/15 08:46

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	29.9530	299.5298	212.28	215.36	3.08	50.01	10:31

Dilution	Blank Contribution	Method	Calibration

1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	24	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/15 09:01

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.77	11.03	3.26	49.99	10:28
2	TOC	0.0000	0.0000	6.82	10.06	3.24	49.98	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Sample — From Schedule Version 4

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	25	TOC	K1905478-005.01	7.9322 ppm	0.0540 ppm	0.6800%	2019/06/15 09:29

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	7.8940	78.9400	62.54	65.71	3.16	49.95	10:31
2	TOC	7.9703	79.7032	63.06	66.27	3.21	49.94	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Sample — From Schedule Version 5

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	26	TOC	K1905478-006.01	0.6339 ppm	0.0554 ppm	8.7400%	2019/06/15 10:11

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.6731	6.7311	13.53	16.69	3.16	49.87	10:27
2	TOC	0.5947	5.9474	13.00	16.22	3.22	49.86	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Sample — From Schedule Version 6

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	27	TOC	K1905478-007.01	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/15 10:59

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time

1	TOC	0.0000	0.0000	7.39	10.50	3.11	49.81	10:29
2	TOC	0.0000	0.0000	7.27	10.48	3.21	49.79	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Sample — From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	28	TOC	K1905451-001.01 100x	6.4615 ppm	0.0007 ppm	0.0100%	2019/06/15 11:35

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	6.4621	64.6205	52.82	55.88	3.05	49.78	10:28
2	TOC	6.4610	64.6102	52.82	55.95	3.14	49.76	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.9627 ppm (PASS)	0.0000 ppm	0%	2019/06/15 12:03

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.9627	249.6273	178.91	182.18	3.27	49.76	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/06/15 12:18

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	7.39	10.62	3.23	49.80	10:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample

From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	29	TOC	K1905451-002.01 100x	5.8663 ppm	0.0508 ppm	0.8700%	2019/06/15 12:33

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	5.8303	58.3034	48.54	51.75	3.21	49.80	10:30
2	TOC	5.9022	59.0224	49.02	52.16	3.13	49.81	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	30	TOC	K1905589-001.01	3.6891 ppm	0.0736 ppm	2.0000%	2019/06/15 13:01

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.7412	37.4120	34.35	37.49	3.13	49.77	10:27
2	TOC	3.6370	36.3704	33.65	36.75	3.10	49.81	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	31	TOC	K1905589-003.01	2.5847 ppm	0.0019 ppm	0.0700%	2019/06/15 13:30

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.5861	25.8606	26.51	29.58	3.06	49.93	10:26
2	TOC	2.5834	25.8341	26.50	29.65	3.15	49.88	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	32	TOC	K1905420-001.02 100x	0.3825 ppm	0.0059 ppm	1.5500%	2019/06/15 13:58

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.3783	3.7832	11.53	14.74	3.21	49.85	10:31
2	TOC	0.3867	3.8672	11.58	14.76	3.18	49.89	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	33	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/15 14:26

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.91	9.10	3.19	50.00	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	34	TOC	K1905449-001.02	1.5038 ppm	0.0496 ppm	3.3000%	2019/06/15 14:40

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.5389	15.3891	19.41	22.54	3.14	49.92	10:26
2	TOC	1.4688	14.6879	18.93	22.03	3.10	49.91	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	35	TOC	K1905449-002.02	0.5435 ppm	0.0205 ppm	3.7800%	2019/06/15 15:08

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5581	5.5805	12.75	15.85	3.10	49.96	10:28
2	TOC	0.5290	5.2903	12.55	15.63	3.08	49.95	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	36	TOC	K1905477-001.02	1.7378 ppm	0.0227 ppm	1.3100%	2019/06/15 15:36

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.7217	17.2173	20.65	23.75	3.10	49.91	10:25
2	TOC	1.7538	17.5385	20.86	23.98	3.11	50.02	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	37	TOC	K1905477-002.02	19.8189 ppm	0.1743 ppm	0.8800%	2019/06/15 16:04

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	19.9421	199.4213	144.33	147.57	3.25	49.94	10:29
2	TOC	19.6957	196.9567	142.65	145.86	3.21	50.03	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Sample — From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	38	TOC	K1905477-003.02	2.6200 ppm	0.0911 ppm	3.4800%	2019/06/15 16:32

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.6845	26.8447	27.18	30.31	3.13	49.99	10:30
2	TOC	2.5556	25.5557	26.31	29.38	3.08	50.03	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.8939 ppm (PASS)	0.0000 ppm	0%	2019/06/15 17:01

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.8939	248.9393	178.44	181.45	3.01	50.04	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/06/15 17:15

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	6.72	9.73	3.01	50.03	10:34

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample — From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	39	TOC	MB3	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/15 17:30

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.76	8.85	3.09	50.09	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> LCS

From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	C	TOC	25.0000	1:1	[TOC] LCS [25.0 ppm]	0 / infinity (NA / NA)	25.1136 ppm (PASS)	0.0000 ppm	0%	2019/06/15 17:45

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	25.1136	251.1358	179.93	183.18	3.24	50.06	10:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	25 ppmC

Sample Type: Sample

From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	40	TOC	K1905477-004.02	1.1786 ppm	0.0741 ppm	6.2800%	2019/06/15 17:59

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.2310	12.3101	17.32	20.63	3.31	49.99	10:27
2	TOC	1.1263	11.2627	16.60	19.84	3.24	50.03	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	41	TOC	K1905482-001.02	0.4338 ppm	0.0422 ppm	9.7300%	2019/06/15 18:27

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.4040	4.0396	11.70	15.00	3.30	50.06	10:28
2	TOC	0.4636	4.6362	12.11	15.22	3.11	49.96	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	42	TOC	K1905482-002.02	1.5290 ppm	0.0106 ppm	0.6900%	2019/06/15 18:56

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.5366	15.3655	19.39	22.43	3.04	49.99	10:27
2	TOC	1.5215	15.2153	19.29	22.48	3.19	50.05	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	43	TOC	K1905482-003.02	0.6257 ppm	0.0085 ppm	1.3700%	2019/06/15 19:24

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.6196	6.1963	13.17	16.27	3.10	49.95	10:29
2	TOC	0.6317	6.3171	13.25	16.32	3.07	50.04	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	44	TOC	K1905482-004.02	0.8441 ppm	0.0368 ppm	4.3600%	2019/06/15 19:52

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.8701	8.7008	14.87	17.98	3.11	49.92	10:25
2	TOC	0.8181	8.1807	14.51	17.78	3.27	49.86	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	45	TOC	K1905482-005.02	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/15 20:20

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.83	9.01	3.18	49.83	10:31
2	TOC	0.0000	0.0000	6.27	9.49	3.21	49.80	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	46	TOC	K1905409-001.01	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/15 20:48

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.61	8.78	3.17	49.79	10:29
2	TOC	0.0000	0.0000	5.86	8.91	3.05	49.77	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC)	CAS_salt_010711	CAS_salt_010711

(v1266) (v4) (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	47	TOC	K1905409-002.01	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/15 21:16

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.33	8.57	3.25	49.78	10:30
2	TOC	0.0000	0.0000	5.75	9.02	3.27	49.77	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.4988 ppm (PASS)	0.0000 ppm	0%	2019/06/15 21:44

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.4988	244.9882	175.76	178.90	3.14	49.76	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/06/15 21:59

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	6.20	9.37	3.17	49.80	10:34

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	48	TOC	K1905558-001.14	1.4472 ppm	0.0497 ppm	3.4300%	2019/06/15 22:14

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.4823	14.8234	19.02	22.22	3.20	49.82	10:28
2	TOC	1.4121	14.1207	18.54	21.65	3.11	49.81	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	49	TOC	K1905558-002.14	1.6252 ppm	0.0243 ppm	1.4900%	2019/06/15 22:42

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.6423	16.4233	20.11	23.32	3.21	49.84	10:29
2	TOC	1.6080	16.0800	19.88	23.13	3.26	49.85	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	50	TOC	K1905558-003.14	1.0669 ppm	0.0083 ppm	0.7800%	2019/06/15 23:10

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.0728	10.7279	16.24	19.41	3.17	49.88	10:27
2	TOC	1.0610	10.6100	16.16	19.31	3.15	49.89	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	51	TOC	K1905558-004.14	1.5654 ppm	0.0322 ppm	2.0600%	2019/06/15 23:38

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.5881	15.8811	19.74	22.67	2.93	49.90	10:30
2	TOC	1.5426	15.4259	19.43	22.58	3.15	49.90	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	52	TOC	K1905558-005.14	1.5050 ppm	0.0296 ppm	1.9700%	2019/06/16 00:06

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.5259	15.2595	19.32	22.36	3.05	49.93	10:29
2	TOC	1.4841	14.8411	19.03	22.23	3.20	49.94	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC)	CAS_salt_010711	CAS_salt_010711

(v1266) (v4) (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	53	TOC	K1905586-001.01	0.6793 ppm	0.0192 ppm	2.8200%	2019/06/16 00:34

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.6929	6.9285	13.66	16.86	3.20	49.93	10:30
2	TOC	0.6657	6.6574	13.48	16.66	3.18	49.89	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	54	TOC	K1905586-002.01	0.1747 ppm	0.0205 ppm	11.7500%	2019/06/16 01:02

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1892	1.8916	10.24	13.54	3.30	49.89	10:28
2	TOC	0.1601	1.6014	10.05	13.18	3.13	49.89	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	55	TOC	K1905597-001.01	0.5515 ppm	0.0789 ppm	14.3000%	2019/06/16 01:30

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.6073	6.0726	13.08	16.24	3.16	49.89	10:28
2	TOC	0.4957	4.9574	12.32	15.62	3.29	49.89	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	56	TOC	K1905597-002.01 4x	2.7926 ppm	0.0017 ppm	0.0600%	2019/06/16 01:58

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.7938	27.9378	27.92	31.16	3.24	49.92	10:28
2	TOC	2.7914	27.9142	27.91	31.03	3.12	49.92	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	57	TOC	K1905597-003.01 4x	2.7136 ppm	0.0144 ppm	0.5300%	2019/06/16 02:27

Rep	Base	ppm	µg	Adjusted	NDIR (Abs)	Baseline	Pressure	Run

#	Analysis Type			(Abs)		(Abs)	(psig)	Time
1	TOC	2.7238	27.2380	27.45	30.52	3.08	49.91	10:29
2	TOC	2.7035	27.0347	27.31	30.44	3.13	49.91	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.5184 ppm (PASS)	0.0000 ppm	0%	2019/06/16 02:55

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.5184	245.1841	175.89	178.91	3.01	49.91	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/06/16 03:09

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	5.87	9.03	3.16	49.90	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample — From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	58	TOC	MB4	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/16 03:24

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.10	8.27	3.17	49.91	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> LCS

From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	C	TOC	25.0000	1:1	[TOC] LCS [25.0 ppm]	0 / infinity (NA / NA)	25.1000 ppm (PASS)	0.0000 ppm	0%	2019/06/16 03:39

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	25.1000	251.0003	179.84	182.99	3.15	49.93	10:34

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	25 ppmC

Sample Type: Sample

From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	59	TOC	K1905597-004.01	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/16 03:53

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	8.74	11.82	3.08	49.93	10:32
2	TOC	0.0000	0.0000	7.73	10.91	3.18	49.95	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	60	TOC	K1905597-005.01	0.3127 ppm	0.0170 ppm	5.4300%	2019/06/16 04:22

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.3247	3.2470	11.16	14.33	3.17	49.96	10:27
2	TOC	0.3007	3.0068	11.00	14.19	3.18	49.96	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	61	TOC	K1905597-006.01	2.3569 ppm	0.0176 ppm	0.7500%	2019/06/16 04:50

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.3445	23.4446	24.87	27.92	3.05	49.98	10:25
2	TOC	2.3694	23.6935	25.04	28.05	3.01	49.98	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	62	TOC	K1905597-006.01 ms 2x	26.7837 ppm	0.0000 ppm	0.0000%	2019/06/16 05:18

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	26.7837	267.8368	190.77	193.77	3.00	49.99	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	63	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/16 05:32

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.96	9.15	3.19	49.99	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	64	TOC	K1905597-007.01	1.4228 ppm	0.0156 ppm	1.1000%	2019/06/16 05:47

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.4339	14.3387	18.69	21.73	3.04	50.01	10:29
2	TOC	1.4118	14.1177	18.54	21.56	3.02	50.02	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	65	TOC	K1905259-001.02	2.2329 ppm	0.0275 ppm	1.2300%	2019/06/16 06:15

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.2135	22.1349	23.99	27.17	3.18	50.02	10:28
2	TOC	2.2524	22.5238	24.25	27.32	3.08	50.04	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	66	TOC	K1905589-002.02 doc	3.1258 ppm	0.0034 ppm	0.1100%	2019/06/16 06:43

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.1233	31.2334	30.16	33.36	3.20	50.06	10:28
2	TOC	3.1282	31.2820	30.19	33.30	3.10	50.06	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.1171 ppm (PASS)	0.0000 ppm	0%	2019/06/16 07:11

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.1171	241.1711	173.17	176.46	3.30	50.07	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/06/16 07:26

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	5.56	8.74	3.18	50.07	10:35

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample — From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	67	TOC	K1905589-004.02 doc	2.2983 ppm	0.0068 ppm	0.2900%	2019/06/16 07:41

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.2935	22.9348	24.53	27.49	2.96	50.06	10:30
2	TOC	2.3031	23.0306	24.59	27.60	3.01	50.06	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time

◈ 68	TOC	K1905625-001.03 doc	1.2530 ppm	0.0450 ppm	3.5900%	2019/06/16 08:09

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.2211	12.2114	17.25	20.44	3.19	50.03	10:26
2	TOC	1.2848	12.8478	17.68	20.58	2.90	50.04	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	69	TOC	K1905625-001.03 ms doc	26.8649 ppm	0.0000 ppm	0.0000%	2019/06/16 08:37

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	26.8649	268.6485	191.32	194.50	3.18	50.03	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	70	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/16 08:52

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.07	9.21	3.14	50.02	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	71	TOC	K1905625-002.03 doc	1.2105 ppm	0.0045 ppm	0.3700%	2019/06/16 09:06

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.2136	12.1363	17.20	20.50	3.30	50.02	10:32
2	TOC	1.2073	12.0729	17.16	20.43	3.28	50.00	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	72	TOC	FB	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/16 09:34

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.63	8.73	3.10	50.00	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	73	TOC	K1905595-001.03 doc	0.5729 ppm	0.0076 ppm	1.3300%	2019/06/16 09:49

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5675	5.6748	12.81	15.96	3.15	49.99	10:30
2	TOC	0.5782	5.7824	12.89	16.02	3.14	50.02	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	74	TOC	K1905595-002.03 100x doc	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/16 10:17

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.91	10.07	3.16	49.97	10:28
2	TOC	0.0000	0.0000	6.95	10.10	3.15	49.95	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	75	TOC	K1905198-006.01 ms	25.5611 ppm	0.0000 ppm	0.0000%	2019/06/16 10:45

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	25.5611	255.6107	182.47	185.58	3.12	49.91	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	25.1105 ppm (PASS)	0.0000 ppm	0%	2019/06/16 11:00

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.1105	251.1049	179.91	183.10	3.19	49.89	10:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 8

00949300

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/06/16 11:14

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	5.98	9.18	3.20	49.85	10:34

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Meta Data Used in this Report

Blanks

Version	Reagent (Abs)	Acid (Abs)	DI IC (Abs)	DI TC (Abs)	DI TOC (Abs)	Save Time	Operator
v1265	1.1340	1.2260	0.0000	0.0000	0.0000	2019/06/10 14:28	Fusion1 (Fusion1)
v1266	2.2187	1.4940	0.0000	0.0000	0.0000	2019/06/14 17:57	Fusion1 (Fusion1)

Calibrations

Name: CAS_salt_010711 (TOC)

Version:	v30	Calibration curve formula:	TOC: y = 6.788x + 9.463
Ver Creation:	2019/03/05 17:42	r^2 value:	TOC: r^2 = 0.99963
Comment:			
Operator:	Fusion1 (Fusion1)		
Basic Analysis Type	TOC		

Basic Analysis Type: TOC

Sample ID	Y Raw Value	X Expected	Message	End Time
DI Water	7.8970	0.0000		2019/03/05 16:15
0.500 ppm	11.5280	0.5000		2019/03/05 16:29
1.0 ppm	14.9760	1.0000		2019/03/05 16:44
5.0 ppm	43.6500	5.0000		2019/03/05 16:58
10 ppm	79.6020	10.0000		2019/03/05 17:12
25 ppm	183.3580	25.0000		2019/03/05 17:26
50 ppm	346.3230	50.0000		2019/03/05 17:40

Methods

00949301

Name: CAS_salt_010711 (TOC)

Version: v4 Operator: Fusion1 (Fusion1)
Ver Creation: 2019/02/21 17:57
Comment:

Parameter	Value
SampleVolume	10.0 mL
Dilution	1:10
AcidVolume	0.5 ml
ReagentVolume	2.0 ml
UVReactorPrerinse	Off
UVReactorPrerinseVolume	5.0
NumberOfUVReactorPrerinses	1
ICSpargeTime	1.00 mins
DetectorSweepFlow	500 ml/min
PreSpargeTime	2.00 mins
SystemFlow	500 ml/min

Advanced Parameter	Value
NeedleRinseVolume	5.0 ml
VialPrimeVolume	2.0 ml
ICSamplePrimeVolume	2.0 ml
ICSpargeRinseVolume	12.0 ml
BaselineStabilizeTime	0.70 min
DetectorPressureFlow	150 ml/min
SyringeSpeedWaste	10
SyringeSpeedAcid	7
SyringeSpeedReagent	7
SyringeSpeedDIWater	7
NDIRPressurization	60 psig
SyringeSpeedSampleDispense	5
SyringeSpeedSampleAspirate	4
SyringeSpeedUVDispense	5
SyringeSpeedUVAspirate	5
SyringeSpeedICDispense	5
SyringeSpeedICAspirate	5
NDIRPressureStabilize	1.75 min
SampleMixing	Off
SampleMixingCycles	1
SampleMixingVolume	10.0
LowLevelFilterNDIR	Off

Acceptance / Approval

Electronic Signatures

Report Version	User Name	Acceptance	Reason	Date

Report History

Report History

Report Version	User Name	System Reason	User Reason	Date

00949302

1	Fusion1 (Fusion1)	Schedule completed	Schedule completed	2019/06/16 11:32

ALS Environmental

StarLIMS Run: 639522, 639523, 639524, 639525

Analysis: TOC/DOC

Method: 415.1, SM 5310 C, 9060, 9060A

CCV: 11-GEN-05-77K 50 ppm LCS: 11-GEN-05-77D 25.0 ppm

ICAL Date: 3/6/19

ICAL ID: 11-GEN-05-76H

ICS ID: 11-GEN-05-74A

ICS TV: 25.0 ppm ICS % R = 2

Spike ID: 11-GEN-05-77J 0.05 ml of 5000 ppm stock ---> 10.0 ml = 25.0 ppm x dilution factor

Sodium Persulfate: 11-GEN-05-78I

21 % H3PO4: 11-GEN-05-78H

Equipment ID: K-TOC-03

PIPETTE ID: 124276B, 129001F, N11314F, Marge

FILTER ID: FE1165 6/15/19

Analyzed By:	BCD / HLM	Date Analyzed:	6/16/19
Reviewed By:		Date Reviewed:	06/18/19

June 19, 2019 Service Request No:R1905051

RJ Modashia
ALS Laboratory Group
10450 Stancliff Road
Suite 210
Houston, TX 77099-4338

Laboratory Results for: LHAAP / Site 58

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory June 05, 2019
For your reference, these analyses have been assigned our service request number **R1905051.**

All testing was performed according to our laboratory's quality assurance program and met the requirements of the TNI standards except as noted in the case narrative report. Any testing not included in the lab's accreditation is identified on a Non-Certified Analytes report. All results are intended to be considered in their entirety. ALS Environmental is not responsible for use of less than the complete report. Results apply only to the individual samples submitted to the lab for analysis, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s), and represented by Laboratory Control Sample control limits. Any events, such as QC failures or Holding Time exceedances, which may add to the uncertainty are explained in the report narrative or are flagged with qualifiers. The flags are explained in the Report Qualifiers and Definitions page of this report.

Please contact me if you have any questions. My extension is 7472. You may also contact me via email at Janice.Jaeger@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Janice Jaeger
Project Manager

CC: Joni Blankfield

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Narrative Documents

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ALS Environmental

Client: ALS Environmental - US
Project: LHAAP / Site 58
Sample Matrix: Water

Service Request: R1905051
Date Received: 06/05/2019

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier II level requested by the client.

Sample Receipt:

Six water samples were received for analysis at ALS Environmental on 06/05/2019. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

Semivoa GC:

Method Organic Acids, 06/06/2019: The upper control limit was exceeded for one or more analytes in the Continuing Calibration Verification (CCV). The field samples analyzed in this sequence did not contain the analyte(s) in question above the Method Reporting Limit (MRL). Since the exceedance equates to a potential high bias, the data quality was not significantly affected and no further corrective action was taken.

Method Organic Acids, 06/06/2019: The upper control criterion was exceeded for one or more analytes in the Laboratory Control Sample (LCS). There were no detections of the analyte(s) in the associated field samples. The error associated with elevated recovery equates to a high bias. The sample data is not significantly affected. No further corrective action was appropriate.

Approved by _____ Date 06/19/2019

SAMPLE DETECTION SUMMARY

CLIENT ID: 35AWW23_060319			Lab ID: R1905051-003			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Acetic Acid	430			10	mg/L	Organic Acids
Butanoic Acid (Butyric Acid)	370			20	mg/L	Organic Acids
Propionic Acid	1000			10	mg/L	Organic Acids

CLIENT ID: 35AWW11_060319			Lab ID: R1905051-005			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Acetic Acid	110			1.0	mg/L	Organic Acids
Butanoic Acid (Butyric Acid)	3.1			2.0	mg/L	Organic Acids
Propionic Acid	170			1.0	mg/L	Organic Acids

Sample Receipt Information

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Client: ALS Environmental - US **Service Request:**R1905051
Project: LHAAP / Site 58

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
R1905051-001	35AWW19_060319	6/3/2019	0805
R1905051-002	LHSMW07_060319	6/3/2019	0900
R1905051-003	35AWW23_060319	6/3/2019	1000
R1905051-004	35AWW24_060319	6/3/2019	1055
R1905051-005	35AWW11_060319	6/3/2019	1150
R1905051-006	35AWW09_060319	6/3/2019	1250

00949310

bhate ENVIRONMENTAL CONSTRUCTION ENERGY

1608 13th Avenue South, Suite 300
Birmingham Alabama 35205
Tel: 205-918-4000
Fax: 205-918-4050

Chain of Custody and Analytical Request

Page: ____ of ____

Project/Phase No: NWO1312.0150

COC Number(1): ____

LIMS Number: ____

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / Site 58

Client Name:

Collected by: Scott Beesinger

Field Sample ID (30 Characters Max)	ERPIMS LOCID (15 Characters Max)	Date Collected (dd-mmm-yyyy)	Time Collected (Military) (hhmm)	Sample Depth (beginning - ending)	SA Code (2)	Sample Number (3)	Sample Matrix (4)	Sample Analysis Requested (5): Number of containers	Volatile Fatty Acids	Quality Assurance Samples (6): Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
35AMW19_060319		03 Jun 2019	0805	-	N		WG	1	X				
35LHSMW07_060319		03 Jun 2019	0900	-	N		WG	1	X				
35AMW23_060319		03 Jun 2019	1000	-	N		WG	1	X				
35AMW24_060319		03 Jun 2019	1055		N		WG	1	X				
35AMW11_060819		08 Jun 2019	1150		N		WG	1	X				
35AMW09_060819		08 Jun 2019	1250	-	N		WG	1	X				
				-									
				-									
				-									
				-									
				-									

COMMENTS: ____

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1. Scott Beesinger	6/3/19	1500	1.	6/5/19	0950
2.			2.		
3.			3.		

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: ____ Shipped ____ No.:

Method of Shipment: ____

Fed Ex ____ Airbill Number: ____

Analytical Lab: ALS 10450 Stancliff Rd. Suite 210 Houston, TX 77099 (281) 530-5656

ATTN: SONIA WEST Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01)

2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-c) Sample, FD = Field Duplicate (-a) Samples, FR = Field Replicate (-b) Samples, EB = Equipment Blank (-d) Samples, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-e)

3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)

4.) Matrix Codes: GS = Soil Gas, WG = Groundwater, WS = Surface Water, SO = Soil, SE = Sediment, SL = Sludge, SS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blanks

5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each.

6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 10109901 in the Equipment B

R1905051 5
ALS Laboratory Group
LHAAP / Site 58

Cooler Receipt and Preservation Check Form

R1905051 5
ALS Laboratory Group
LHAAP / Site 68

Project/Client Rhety Folder Number

Cooler received on 6/5/19 by: @

COURIER: ALS (UPS) FEDEX VELOCITY CLIENT

1	Were **Custody seals** on outside of cooler?	(Y) N	5a	**Perchlorate** samples have required headspace?	Y N (NA)
2	**Custody papers** properly completed (ink, signed)?	(Y) N	5b	Did VOA vials, Alk,or Sulfide have sig* **bubbles**?	Y N (NA)
3	Did all bottles arrive in good **condition** (unbroken)?	(Y) N	6	Where did the bottles originate?	(ALS/ROC) ~~CLIENT~~
4	Circle: (Wet Ice) **Dry Ice Gel packs** present?	(Y) N	7	Soil VOA received as: Bulk Encore 5035set	(NA)

8. Temperature Readings Date: 6/5/19 Time: 1020 ID: IR#7 (IR#10) From: ~~Temp Blank~~ Sample Bottle

Observed Temp (°C)	2.6						
Correction Factor (°C)	–						
Corrected Temp (°C)	2.6						
Temp from:Type of bottle	–						
Within 0-6°C?	(Y) N	Y N	Y N	Y N	Y N	Y N	Y N
If <0°C, were samples frozen?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed (described below) Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: R002 by @ on 6/5/19 at 1025
5035 samples placed in storage location: _____ by _____ on _____ at _____

Cooler Breakdown/Preservation Check**: Date: 6/5/19 Time: 1950 by: DW

9. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? (YES) NO
10. Did all bottle labels and tags agree with custody papers? (YES) NO
11. Were correct containers used for the tests indicated? (YES) NO
12. Were 5035 vials acceptable (no extra labels, not leaking)? YES NO (NA)
13. Air Samples: Cassettes / Tubes Intact with MS? Canisters Pressurized Tedlar® Bags Inflated (NA)

pH	Lot of test paper	Reagent	Preserved? Yes	Preserved? No	Lot Received	Exp	Sample ID Adjusted	Vol. Added	Lot Added	Final pH
≥12		NaOH								
≤2		HNO_3								
≤2		H_2SO_4								
<4		$NaHSO_4$								
5-9		For 608pest			No=Notify for 3day					
Residual Chlorine (-)		For CN, Phenol, 625, 608pest, 522			If +, contact PM to add $Na_2S_2O_3$ (625, 608, CN), ascorbic (phenol).					
		$Na_2S_2O_3$								
		ZnAcetate	-	-			**VOAs and 1664 Not to be tested before analysis. Otherwise, all bottles of all samples with chemical preservatives are checked (not just representatives).			
		HCl	**	**						

Bottle lot numbers: 040849-13AC

Explain all Discrepancies/ Other Comments:

CLRES	BULK
DO	FLDT
HPROD	HGFB
HTR	LL3541
PH	SUB
SO3	MARRS
ALS	REV

Labels secondary reviewed by: dh

PC Secondary Review: MMS 6/7/19

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

Miscellaneous Forms

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Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

ALS Environmental

REPORT QUALIFIERS AND DEFINITIONS

U Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.

J Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).

B Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.

E Inorganics- Concentration is estimated due to the serial dilution was outside control limits.

E Organics- Concentration has exceeded the calibration range for that specific analysis.

D Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.

* Indicates that a quality control parameter has exceeded laboratory limits. Under the ñNotesò column of the Form I, this qualifier denotes analysis was performed out of Holding Time.

H Analysis was performed out of hold time for tests that have an ñimmediateò hold time criteria.

Spike was diluted out.

\+ Correlation coefficient for MSA is <0.995.

N Inorganics- Matrix spike recovery was outside laboratory limits.

N Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.

S Concentration has been determined using Method of Standard Additions (MSA).

W Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.

P Concentration >40% difference between the two GC columns.

C Confirmed by GC/MS

Q DoD reports: indicates a pesticide/Aroclor is not confirmed (Ó100% Difference between two GC columns).

X See Case Narrative for discussion.

MRL Method Reporting Limit. Also known as:
LOQ Limit of Quantitation (LOQ)
The lowest concentration at which the method analyte may be reliably quantified under the method conditions.

MDL Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier).

LOD Limit of Detection. A value at or above the MDL which has been verified to be detectable.

ND Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.

ACCREDITED IN ACCORDANCE WITH nelac

Rochester Lab ID # for State Certifications[1]

Connecticut ID # PH0556	Maine ID #NY0032	Pennsylvania ID# 68-786
Delaware Approved	New Hampshire ID # 2941	Rhode Island ID # 158
DoD ELAP #65817	New York ID # 10145	Virginia #460167
Florida ID # E87674	North Carolina #676	

[1] Analyses were performed according to our laboratoryôs NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the case narrative. Since not all analyte/method/matrix combinations are offered for state/NELAC accreditation, this report may contain results which are not accredited. For a specific list of accredited analytes, contact the laboratory or go to https://www.alsglobal.com/locations/americas/north-america/usa/new-york/rochester-environmental

ALS Laboratory Group

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

ALS Group USA, Corp.
dba ALS Environmental

Analyst Summary report

Client: ALS Environmental - US
Project: LHAAP / Site 58/
Service Request: R1905051

Sample Name: 35AWW19_060319
Lab Code: R1905051-001
Sample Matrix: Water
Date Collected: 06/3/19
Date Received: 06/5/19

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		BALLGEIER

Sample Name: LHSMW07_060319
Lab Code: R1905051-002
Sample Matrix: Water
Date Collected: 06/3/19
Date Received: 06/5/19

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		BALLGEIER

Sample Name: 35AWW23_060319
Lab Code: R1905051-003
Sample Matrix: Water
Date Collected: 06/3/19
Date Received: 06/5/19

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		BALLGEIER

Sample Name: 35AWW24_060319
Lab Code: R1905051-004
Sample Matrix: Water
Date Collected: 06/3/19
Date Received: 06/5/19

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		BALLGEIER

Sample Name: 35AWW11_060319
Lab Code: R1905051-005
Sample Matrix: Water
Date Collected: 06/3/19
Date Received: 06/5/19

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		BALLGEIER

ALS Group USA, Corp.
dba ALS Environmental

Analyst Summary report

Client:	ALS Environmental - US	**Service Request:**	R1905051
Project:	LHAAP / Site 58/		

Sample Name:	35AWW09_060319	**Date Collected:**	06/3/19
Lab Code:	R1905051-006	**Date Received:**	06/5/19
Sample Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		BALLGEIER

Water/Liquid Matrix

Analytical Method	Preparation Method
200.7	200.2
200.8	200.2
6010C	3005A/3010A
6020A	ILM05.3
9014 Cyanide Reactivity	SW846 Ch7, 7.3.4.2
9034 Sulfide Reactivity	SW846 Ch7, 7.3.4.2
9034 Sulfide Acid Soluble	9030B
9056A Bomb (Halogens)	5050A
9066 Manual Distillation	9065
SM 4500-CN-E Residual Cyanide	SM 4500-CN-G
SM 4500-CN-E WAD Cyanide	SM 4500-CN-I

Solid/Soil/Non-Aqueous Matrix

Analytical Method	Preparation Method
6010C	3050B
6020A	3050B
6010C TCLP (1311) extract	3005A/3010A
6010 SPLP (1312) extract	3005A/3010A
7196A	3060A
7199	3060A
9056A Halogens/Halides	5050
300.0 Anions/ 350.1/ 353.2/ SM 2320B/ SM 5210B/ 9056A Anions	DI extraction

For analytical methods not listed, the preparation method is the same as the analytical method reference.

Sample Results

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Semivolatile Organic Compounds by GC

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1905051
Project:	LHAAP / Site 58	**Date Collected:**	06/03/19 08:05
Sample Matrix:	Water	**Date Received:**	06/05/19 09:50
Sample Name:	35AWW19_060319	**Units:**	mg/L
Lab Code:	R1905051-001	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result	MRL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND U	0.50	1	06/06/19 16:40	
Acetic Acid	ND U	1.0	1	06/06/19 16:40	
Butanoic Acid (Butyric Acid)	ND U	2.0	1	06/06/19 16:40	
Lactic Acid	ND U	1.0	1	06/06/19 16:40	
Propionic Acid	ND U	1.0	1	06/06/19 16:40	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1905051
Project:	LHAAP / Site 58	**Date Collected:**	06/03/19 09:00
Sample Matrix:	Water	**Date Received:**	06/05/19 09:50
Sample Name:	LHSMW07_060319	**Units:**	mg/L
Lab Code:	R1905051-002	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result	MRL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND U	0.50	1	06/06/19 17:17	
Acetic Acid	ND U	1.0	1	06/06/19 17:17	
Butanoic Acid (Butyric Acid)	ND U	2.0	1	06/06/19 17:17	
Lactic Acid	ND U	1.0	1	06/06/19 17:17	
Propionic Acid	ND U	1.0	1	06/06/19 17:17	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1905051
Project:	LHAAP / Site 58	**Date Collected:**	06/03/19 10:00
Sample Matrix:	Water	**Date Received:**	06/05/19 09:50
Sample Name:	35AWW23_060319	**Units:**	mg/L
Lab Code:	R1905051-003	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result		MRL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND	U	5.0	10	06/18/19 18:43	
Acetic Acid	**430**		10	10	06/18/19 18:43	
Butanoic Acid (Butyric Acid)	**370**		20	10	06/18/19 18:43	
Lactic Acid	ND	U	10	10	06/18/19 18:43	
Propionic Acid	**1000**		10	10	06/18/19 18:43	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1905051
Project:	LHAAP / Site 58	**Date Collected:**	06/03/19 10:55
Sample Matrix:	Water	**Date Received:**	06/05/19 09:50
Sample Name:	35AWW24_060319	**Units:**	mg/L
Lab Code:	R1905051-004	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result	MRL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND U	0.50	1	06/06/19 18:41	
Acetic Acid	ND U	1.0	1	06/06/19 18:41	
Butanoic Acid (Butyric Acid)	ND U	2.0	1	06/06/19 18:41	
Lactic Acid	ND U	1.0	1	06/06/19 18:41	
Propionic Acid	ND U	1.0	1	06/06/19 18:41	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1905051
Project:	LHAAP / Site 58	**Date Collected:**	06/03/19 11:50
Sample Matrix:	Water	**Date Received:**	06/05/19 09:50
Sample Name:	35AWW11_060319	**Units:**	mg/L
Lab Code:	R1905051-005	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result		MRL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND	U	0.50	1	06/18/19 19:47	
Acetic Acid	**110**		1.0	1	06/18/19 19:47	
Butanoic Acid (Butyric Acid)	**3.1**		2.0	1	06/18/19 19:47	
Lactic Acid	ND	U	1.0	1	06/18/19 19:47	
Propionic Acid	**170**		1.0	1	06/18/19 19:47	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1905051
Project:	LHAAP / Site 58	**Date Collected:**	06/03/19 12:50
Sample Matrix:	Water	**Date Received:**	06/05/19 09:50
Sample Name:	35AWW09_060319	**Units:**	mg/L
Lab Code:	R1905051-006	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result	MRL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND U	0.50	1	06/06/19 19:45	
Acetic Acid	ND U	1.0	1	06/06/19 19:45	
Butanoic Acid (Butyric Acid)	ND U	2.0	1	06/06/19 19:45	
Lactic Acid	ND U	1.0	1	06/06/19 19:45	
Propionic Acid	ND U	1.0	1	06/06/19 19:45	

QC Summary Forms

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Semivolatile Organic Compounds by GC

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ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1905051
Project:	LHAAP / Site 58	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	mg/L
Lab Code:	RQ1905551-01	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result	MRL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND U	0.50	1	06/06/19 14:48	
Acetic Acid	ND U	1.0	1	06/06/19 14:48	
Butanoic Acid (Butyric Acid)	ND U	2.0	1	06/06/19 14:48	
Lactic Acid	ND U	1.0	1	06/06/19 14:48	
Propionic Acid	ND U	1.0	1	06/06/19 14:48	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1905051
Project:	LHAAP / Site 58	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	mg/L
Lab Code:	RQ1906068-01	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result	MRL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND U	0.50	1	06/18/19 14:32	
Acetic Acid	ND U	1.0	1	06/18/19 14:32	
Butanoic Acid (Butyric Acid)	ND U	2.0	1	06/18/19 14:32	
Lactic Acid	ND U	1.0	1	06/18/19 14:32	
Propionic Acid	ND U	1.0	1	06/18/19 14:32	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: LHAAP / Site 58
Sample Matrix: Water

Service Request: R1905051
Date Analyzed: 06/06/19

Duplicate Lab Control Sample Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Units:mg/L
Basis:NA

		Lab Control Sample			Duplicate Lab Control Sample					
		RQ1905551-02			RQ1905551-03					
Analyte Name	**Analytical Method**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	Organic Acids	1.95	2.03	96	1.87	2.03	92	73-122	4	30
Acetic Acid	Organic Acids	18.6	19.9	93	18.4	19.9	93	80-130	<1	30
Butanoic Acid (Butyric Acid)	Organic Acids	28.8	20.5	140 *	29.1	20.5	142 *	86-128	1	30
Lactic Acid	Organic Acids	19.6	20.6	95	18.8	20.6	91	75-125	4	30
Propionic Acid	Organic Acids	19.8	20.1	98	19.1	20.1	95	63-153	4	30

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: LHAAP / Site 58
Sample Matrix: Water

Service Request: R1905051
Date Analyzed: 06/18/19

Duplicate Lab Control Sample Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Units:mg/L
Basis:NA

		Lab Control Sample			Duplicate Lab Control Sample					
		RQ1906068-02			RQ1906068-03					
Analyte Name	**Analytical Method**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	Organic Acids	1.97	2.03	97	1.92	2.03	95	73-122	2	30
Acetic Acid	Organic Acids	19.7	19.9	99	19.6	19.9	99	80-130	<1	30
Butanoic Acid (Butyric Acid)	Organic Acids	20.9	20.5	102	19.8	20.5	97	86-128	5	30
Lactic Acid	Organic Acids	21.3	20.6	103	21.0	20.6	102	75-125	2	30
Propionic Acid	Organic Acids	19.4	20.1	96	19.8	20.1	99	63-153	2	30

LABORATORY REPORT

June 18, 2019

RJ Modashia
ALS Laboratory Group
10450 Stancliff Road Suite 210
Houston, TX 77099-4338

RE: HS19060123

Dear RJ:

Enclosed are the results of the samples submitted to our laboratory on June 5, 2019. For your reference, these analyses have been assigned our service request number P1903217.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

By Hayden Akers at 10:28, June 18, 2019

Hayden Akers
Project Manager

Client: ALS Laboratory Group Service Request No: P1903217
Project: HS19060123

CASE NARRATIVE

The samples were received intact under chain of custody on June 5, 2019 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Carbon Dioxide Analysis

The samples were analyzed for carbon dioxide using a gas chromatograph equipped with a thermal conductivity detector (TCD). A known amount of liquid was displaced by injecting 8.0 milliliters of helium creating a headspace in the sample vial. Each sample vial was agitated using a sonic disrupter for fifteen minutes and then allowed to equilibrate for at least four hours. A volume of the headspace was withdrawn using a gas-tight syringe and analyzed using a manual injection technique. The amount of dissolved gases (carbon dioxide) in the original sample was calculated using Henry's Law. This method was performed with guidance from RSK 175 as described in laboratory SOP VOA-DISGAS. This analyte is included on the laboratory's NELAP and DoD-ELAP scope of accreditation.

Methane, Ethene and Ethane Analysis

The samples were also analyzed for methane, ethene and ethane using a gas chromatograph equipped with a flame ionization detector (FID). A known amount of liquid was displaced by injecting 8.0 milliliters of helium creating a headspace in the sample vial. Each sample vial was agitated using a sonic disrupter for fifteen minutes and then allowed to equilibrate for at least two hours. A volume of the headspace was withdrawn using a gas-tight syringe and analyzed using a manual injection technique. The amount of dissolved gases (methane, ethene and ethane) in the original sample was calculated using Henry's Law. This method was performed with guidance from RSK 175. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the laboratory's NELAP or DoD-ELAP accreditation.

Manual integrations were performed on the following sample(s) and analyte(s). Refer to the raw data for additional information.

Sample Identification(s)	Analyte(s)
P1903217-002	Ethane

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Alaska DEC	http://dec.alaska.gov/eh/lab.aspx	17-019
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/page/la-lab-accreditation	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml	2018027
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1521096
New Jersey DEP (NELAP)	http://www.nj.gov/dep/enforcement/oqa.html	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-006
Pennsylvania DEP	http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html	T104704413-18-9
Utah DOH (NELAP)	http://health.utah.gov/lab/lab_cert_env	CA016272018-9
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: ALS Laboratory Group
Project ID: HS19060123
Service Request: P1903217

Date Received: 6/5/2019
Time Received: 09:30

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	RSK 175 - CO2	RSK 175 - Gases
35AWW19_060319	P1903217-001	Water	6/3/2019	08:05	X	X
LHSMW07_060319	P1903217-002	Water	6/3/2019	09:00	X	X
35AWW23_060319	P1903217-003	Water	6/3/2019	10:00	X	X
35AWW24_060319	P1903217-004	Water	6/3/2019	10:55	X	X
35AWW11_060319	P1903217-005	Water	6/3/2019	11:50	X	X
35AWW09_060319	P1903217-006	Water	6/3/2019	12:50	X	X

P1903217

10450 Stancliff Rd, Ste 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887
www.alsglobal.com

Subcontract Chain of Custody

SAMPLING STATE: **Texas** **COC ID:** **11514**

SUBCONTRACT TO:

ALS Environmental
2655 Park Center Drive, Suite A
Simi Valley, CA 93065 **Phone:** +1 805 526 7161

CUSTOMER INFORMATION:

Company: ALS Houston
Contact: RJ Modashia
Address: 10450 Stancliff Rd, Ste 210
Phone: +1 281 530 5656
Email: RJ.Modashia@alsglobal.com
Alternate Contact:
Email:

INVOICE INFORMATION:

Company: ALS Houston
Contact: Accounts Payable
Address: 10450 Stancliff Rd, Ste 210
Phone: +1 281 530 5656
Reference: HS19060123
TSR: Danielle Winnings

	LAB SAMPLE ID / ANALYSIS REQUESTED	CLIENT SAMPLE ID	MATRIX	COLLECT DATE / DUE DATE
1.	**HS19060123-01**	**35AWW19_060319**	**Groundwater**	**03 Jun 2019 08:05**
	MEE plus CO2 Sub to ALS SimiValley			18 Jun 2019
2.	**HS19060123-02**	**LHSMW07_060319**	**Groundwater**	**03 Jun 2019 09:00**
	MEE plus CO2 Sub to ALS SimiValley			18 Jun 2019
3.	**HS19060123-03**	**35AWW23_060319**	**Groundwater**	**03 Jun 2019 10:00**
	MEE plus CO2 Sub to ALS SimiValley			18 Jun 2019
4.	**HS19060123-04**	**35AWW24_060319**	**Groundwater**	**03 Jun 2019 10:55**
	MEE plus CO2 Sub to ALS SimiValley			18 Jun 2019
5.	**HS19060123-05**	**35AWW11_060319**	**Groundwater**	**03 Jun 2019 11:50**
	MEE plus CO2 Sub to ALS SimiValley			18 Jun 2019
6.	**HS19060123-06**	**35AWW09_060319**	**Groundwater**	**03 Jun 2019 12:50**
	MEE plus CO2 Sub to ALS SimiValley			18 Jun 2019

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.

QC Level: DOD IV (DoD Data Package)

P1903217

Subcontract Chain of Custody

SAMPLING STATE: **Texas**

COC ID: **11514**

Relinquished By: _____ Date/Time: 6/4/19. 8:00.

Received By: _____ Date/Time: 6/5/19 0930

Cooler ID(s): _____ Temperature(s): 2°C CUT ICE

ALS Environmental
Sample Acceptance Check Form

Client: ALS Laboratory Group Work order: P1903217

Project: HS19060123

Sample(s) received on: 6/5/19 Date opened: 6/5/19 by: ADAVID

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Did **sample containers** arrive in good condition?	☒	☐	☐
3	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
4	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
5	Was **sample volume** received adequate for analysis?	☒	☐	☐
6	Are samples within specified holding times?	☒	☐	☐
7	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☒	☐	☐
	Cooler Temperature: 2° C Blank Temperature: ° C Thermometer ID T-111 Wet Ic			
8	Were **custody seals** on outside of cooler/Box/Container?	☒	☐	☐
	Location of seal(s)? Cooler Lid Sealing Lid?	☒	☐	☐
	Were signature and date included?	☒	☐	☐
	Were seals intact?	☒	☐	☐
9	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☒	☐	☐
	Is there a client indication that the submitted samples are **pH** preserved?	☒	☐	☐
	Were **VOA vials** checked for presence/absence of air bubbles?	☒	☐	☐
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☒	☐	☐
10	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
11	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1903217-001.01	40mL VOA NP		6		A	wh 6/12/19
P1903217-001.02	40mL VOA NP				A	
P1903217-001.04	40ml VOA HCL		1		A	wh 6/11/19
P1903217-001.05	40ml VOA HCL				A	
P1903217-002.01	40mL VOA NP		6		A	wh 6/12/19
P1903217-002.02	40mL VOA NP				A	
P1903217-002.04	40ml VOA HCL		1		A	wh 6/11/19
P1903217-002.05	40ml VOA HCL				A	
P1903217-003.01	40mL VOA NP		6		A	wh 6/12/19
P1903217-003.02	40mL VOA NP				A	
P1903217-003.04	40ml VOA HCL		1		A	wh 6/11/19
P1903217-003.05	40ml VOA HCL				A	
P1903217-004.01	40mL VOA NP		7		A	wh 6/12/19
P1903217-004.02	40mL VOA NP				A	
P1903217-004.04	40ml VOA HCL		1		A	wh 6/11/19

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS Environmental
Sample Acceptance Check Form

Client: ALS Laboratory Group Work order: P1903217

Project: HS19060123

Sample(s) received on: 6/5/19 Date opened: 6/5/19 by: ADAVID

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1903217-004.05	40ml VOA HCL				A	
P1903217-005.01	40mL VOA NP		7		A	wh 6/12/19
P1903217-005.02	40mL VOA NP				A	
P1903217-005.04	40ml VOA HCL		1		A	wh 6/11/19
P1903217-005.05	40ml VOA HCL				A	
P1903217-006.01	40mL VOA NP		7		A	wh 6/12/19
P1903217-006.02	40mL VOA NP				A	
P1903217-006.04	40ml VOA HCL		1		A	wh 6/11/19
P1903217-006.05	40ml VOA HCL				A	

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Project ID: **HS19060123** ALS Project ID: P1903217

Carbon Dioxide

Test Code: RSK 175
Instrument ID: HP5890A/GC10/TCD
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date(s) Collected: 6/3/19
Date Received: 6/5/19
Date Analyzed: 6/12/19

Client Sample ID	ALS Sample ID	Injection Volume ml(s)	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
35AWW19_060319	P1903217-001	0.050	**560,000**	2,000	1,700	740	
LHSMW07_060319	P1903217-002	0.050	**660,000**	2,000	1,700	740	
35AWW23_060319	P1903217-003	0.050	**750,000**	2,000	1,700	740	
35AWW24_060319	P1903217-004	0.050	**530,000**	2,000	1,700	740	
35AWW11_060319	P1903217-005	0.050	**750,000**	2,000	1,700	740	
35AWW09_060319	P1903217-006	0.050	**620,000**	2,000	1,700	740	
Method Control Sample	P190612-MB	0.10	860	1,000	860	370	**U**

The Method Control Sample is laboratory water carried through the entire analytical process.
U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **ALS Laboratory Group**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P1903217
Client Project ID: **HS19060123** ALS Sample ID: P190612-DLCS

Test Code: RSK 175 Date Collected: NA
Instrument ID: HP5890A/GC10/TCD Date Received: NA
Analyst: Wade Henton Date Analyzed: 6/12/19
Matrix: Water Volume(s) Analyzed: NA ml(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS ug/L	Result$_1$ LCS ug/L	Result$_1$ DLCS ug/L	% Recovery LCS	% Recovery DLCS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
124-38-9	Carbon Dioxide	22,900	18,900	19,800	**83**	**86**	80-122	4	12	

$_1$ = The concentration shown includes a subtraction of the Method Control Sample value, even if the result is less than the MRL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **35AWW19_060319**
Client Project ID: **HS19060123**

ALS Project ID: P1903217
ALS Sample ID: P1903217-001

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 6/3/19
Date Received: 6/5/19
Date Analyzed: 6/11/19
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**1.4**	1.3	1.0	0.51	
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **LHSMW07_060319** ALS Project ID: P1903217
Client Project ID: **HS19060123** ALS Sample ID: P1903217-002

Test Code: RSK 175 Date Collected: 6/3/19
Instrument ID: HP5890A/GC10/FID Date Received: 6/5/19
Analyst: Wade Henton Date Analyzed: 6/11/19
Matrix: Water Volume(s) Analyzed: 0.10 ml(s)
Test Notes:

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**78**	1.3	1.0	0.51	
74-85-1	Ethene	**3.9**	1.0	0.55	0.24	
74-84-0	Ethane	**0.20**	0.60	0.47	0.16	**J**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **35AWW23_060319**
Client Project ID: **HS19060123**

ALS Project ID: P1903217
ALS Sample ID: P1903217-003

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 6/3/19
Date Received: 6/5/19
Date Analyzed: 6/11/19
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**1,300**	1.3	1.0	0.51	
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **35AWW24_060319**
Client Project ID: **HS19060123**

ALS Project ID: P1903217
ALS Sample ID: P1903217-004

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 6/3/19
Date Received: 6/5/19
Date Analyzed: 6/11/19
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**4.2**	1.3	1.0	0.51	
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **35AWW11_060319**
Client Project ID: **HS19060123**

ALS Project ID: P1903217
ALS Sample ID: P1903217-005

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 6/3/19
Date Received: 6/5/19
Date Analyzed: 6/11/19
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**590**	1.3	1.0	0.51	
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **35AWW09_060319**
Client Project ID: **HS19060123**

ALS Project ID: P1903217
ALS Sample ID: P1903217-006

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 6/3/19
Date Received: 6/5/19
Date Analyzed: 6/11/19
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**2.3**	1.3	1.0	0.51	
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **Method Control Sample**
Client Project ID: **HS19060123**

ALS Project ID: P1903217
ALS Sample ID: P190611-MB

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 6/11/19
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	1.0	1.3	1.0	0.51	**U**
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

The Method Control Sample is laboratory water carried through the entire analytical process.
U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **ALS Laboratory Group**
Client Sample ID: **Duplicate Lab Control Sample**
Client Project ID: **HS19060123**

ALS Project ID: P1903217
ALS Sample ID: P190611-LCS
P190611-DLCS

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 6/11/19
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Spike Amount LCS / DLCS µg/L	Result$_1$ LCS µg/L	Result$_1$ DLCS µg/L	% Recovery LCS	% Recovery DLCS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
74-82-8	Methane	2.52	2.45	2.54	**97**	**101**	73-125	4	26	
74-85-1	Ethene	4.40	4.78	5.02	**109**	**114**	72-133	4	11	
74-84-0	Ethane	4.72	4.46	4.75	**94**	**101**	74-131	7	10	

$_1$ = The concentration shown includes a subtraction of the Method Control Sample value, even if the result is less than the MRL.

Data Path : J:\GC10\DATA\RSK_TCD\2019_06\12\
Data File : 06121907.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Jun-2019, 12:06:35
Operator : WH
Sample : p1903217-001 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 12:42:15 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

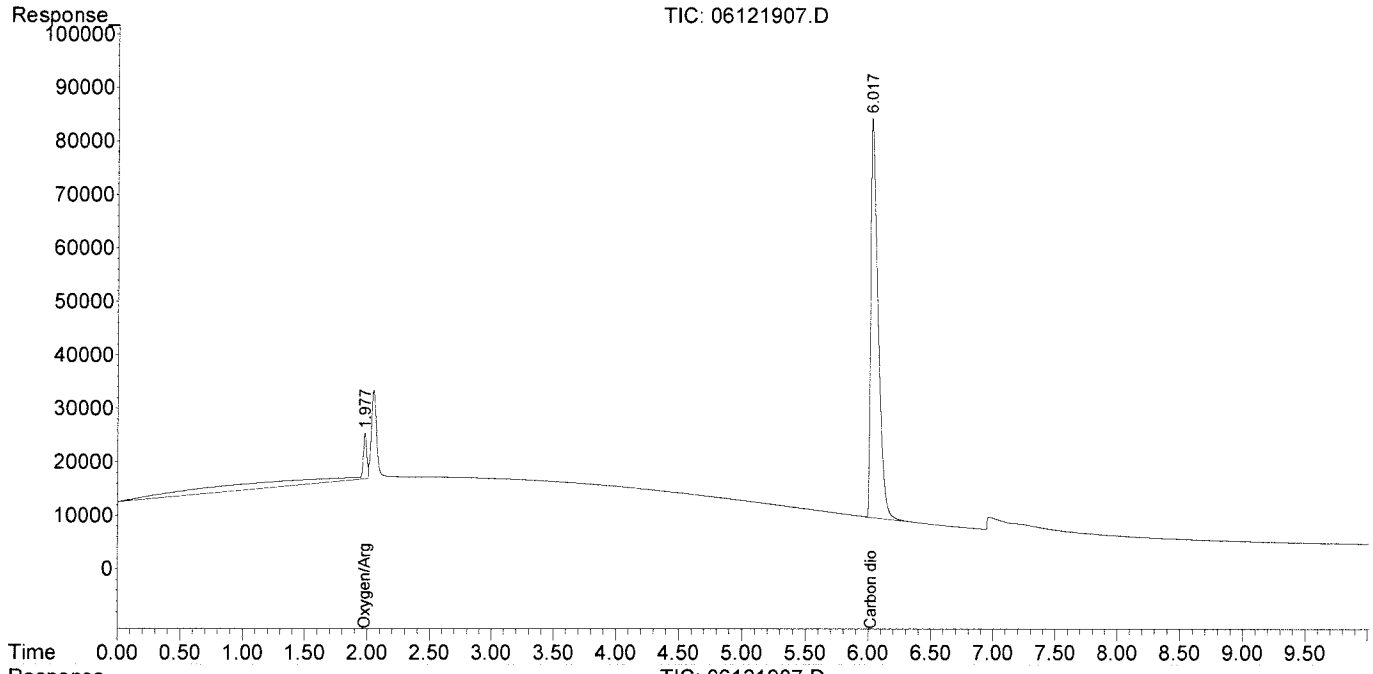
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.978f	1091697	0.229	ppm
2)	Carbon monoxide	1.978f	1091697	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.018	3026756	12894.672	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

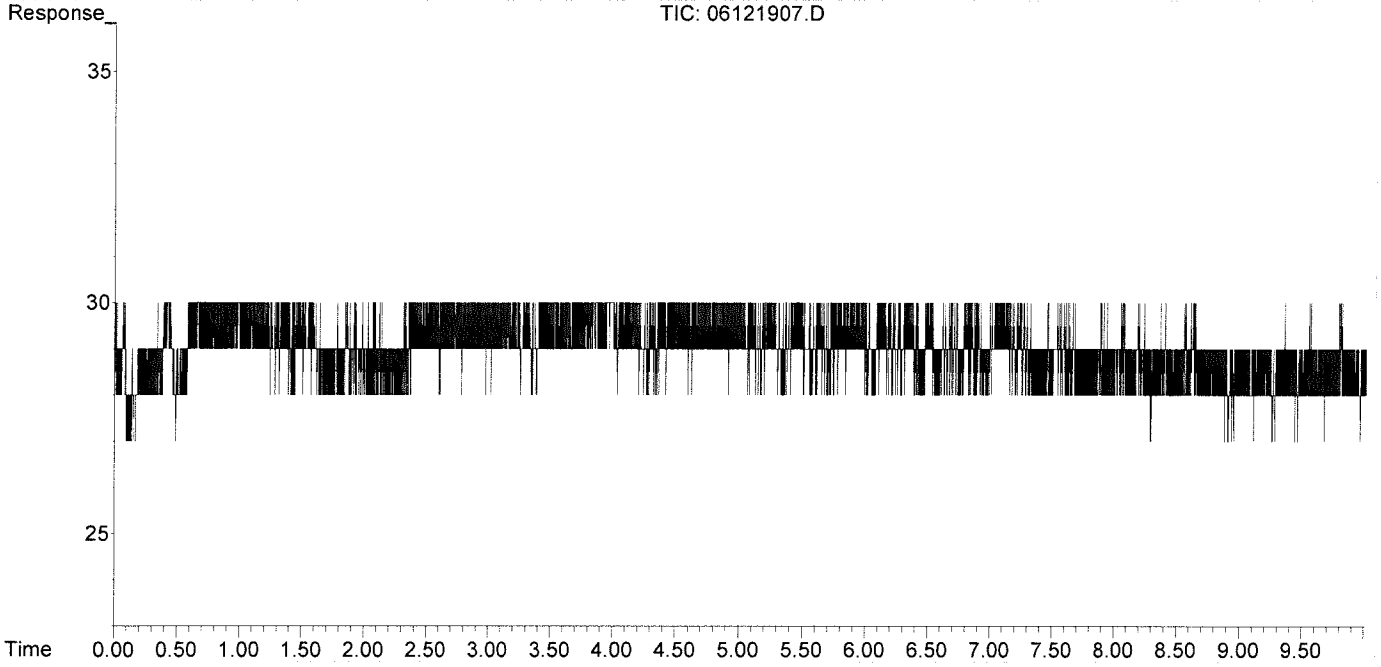
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2019_06\12\
Data File : 06121907.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Jun-2019, 12:06:35
Operator : WH
Sample : p1903217-001 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 12:42:15 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : J:\GC10\DATA\RSK_TCD\2019_06\12\
Data File : 06121908.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Jun-2019, 12:43:12
Operator : WH
Sample : P1903217-002 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 13 17:26:11 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

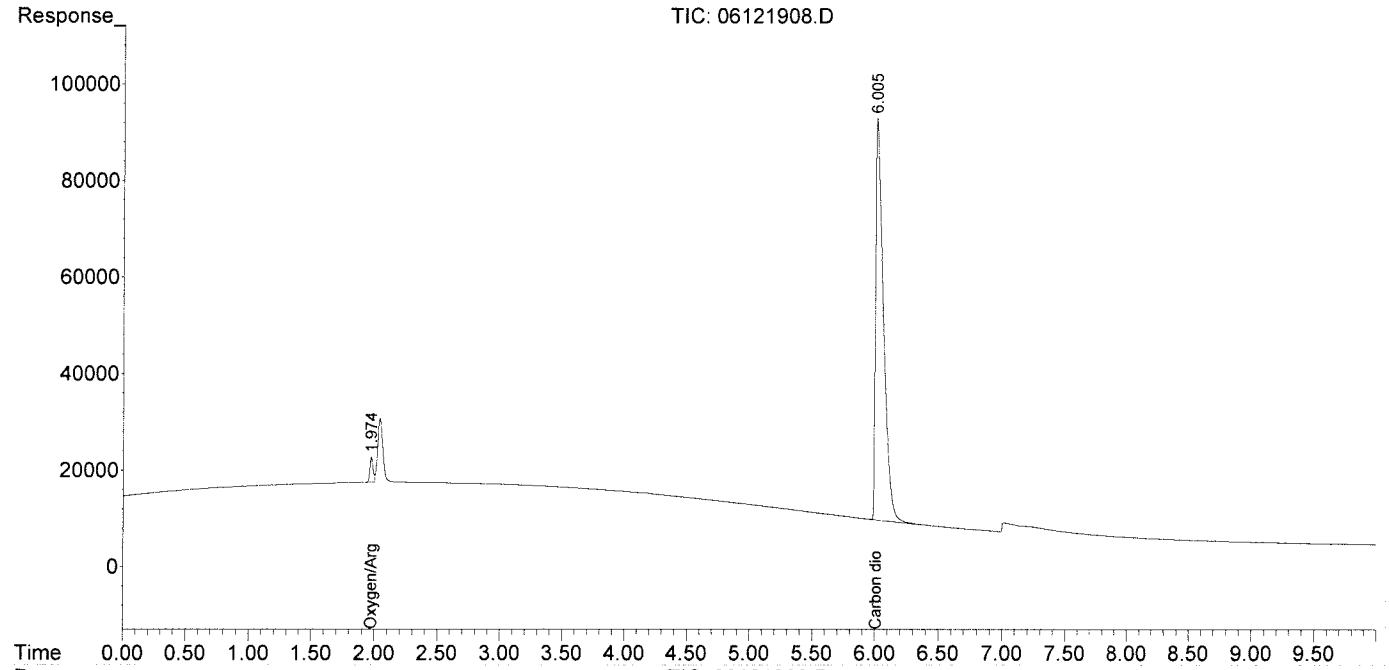
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.974f	93754	0.020	ppm
2)	Carbon monoxide	1.974f	93754	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.006	3549328	15120.947	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

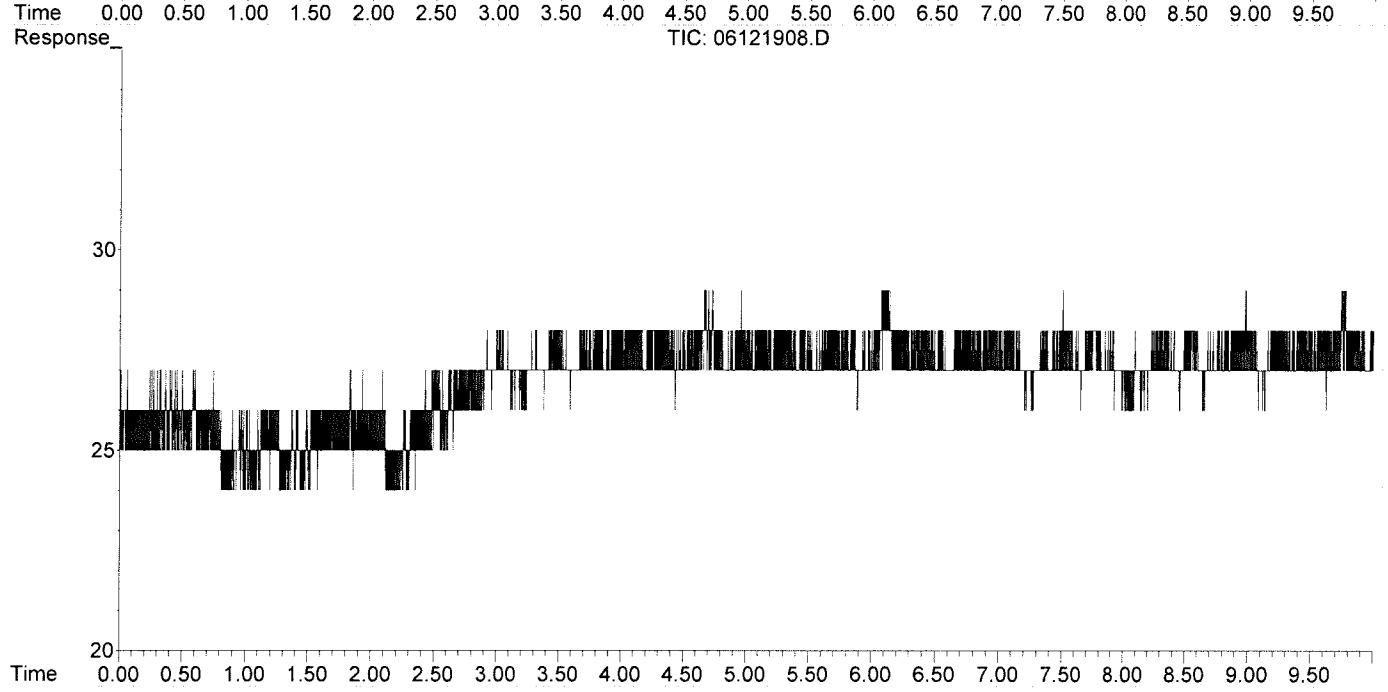
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2019_06\12\
Data File : 06121908.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Jun-2019, 12:43:12
Operator : WH
Sample : P1903217-002 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 13 17:26:11 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : J:\GC10\DATA\RSK_TCD\2019_06\12\
Data File : 06121909.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Jun-2019, 12:56:55
Operator : WH
Sample : P1903217-003 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 14:28:18 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

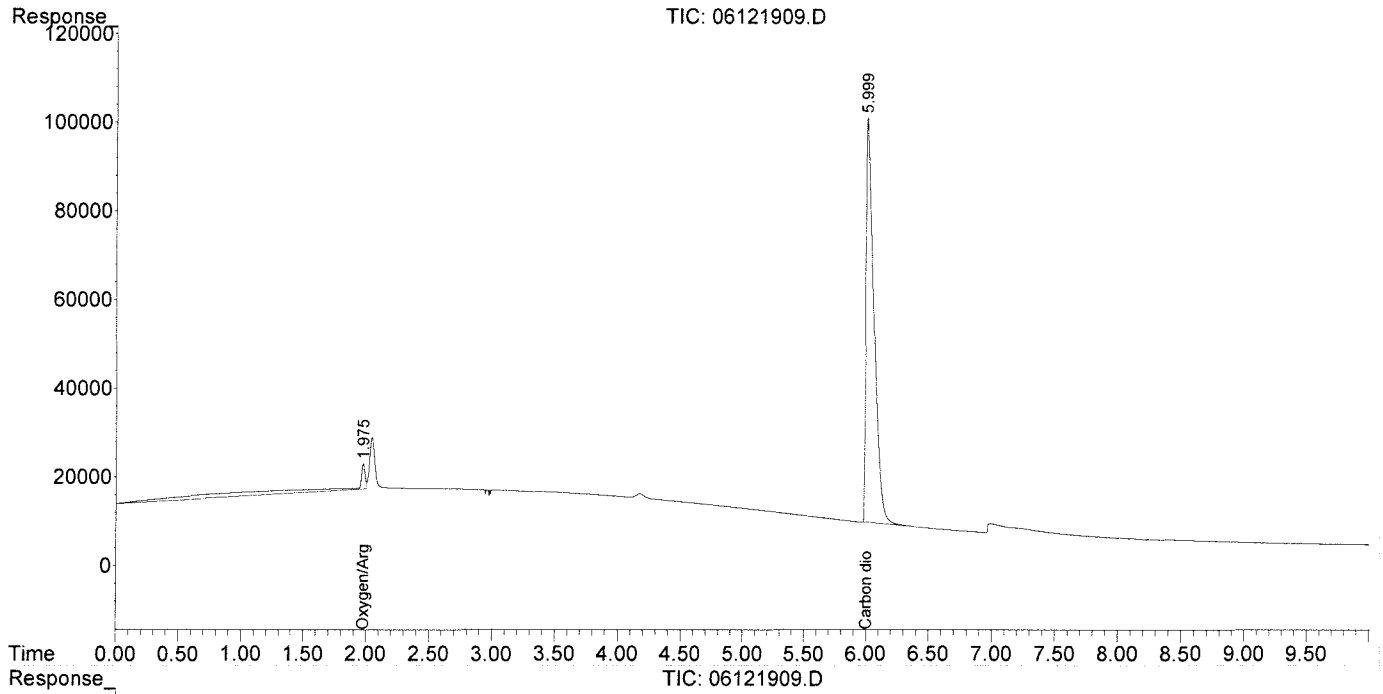
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.976f	814888	0.171	ppm
2)	Carbon monoxide	1.976f	814888	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.000	4007872	17074.451	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

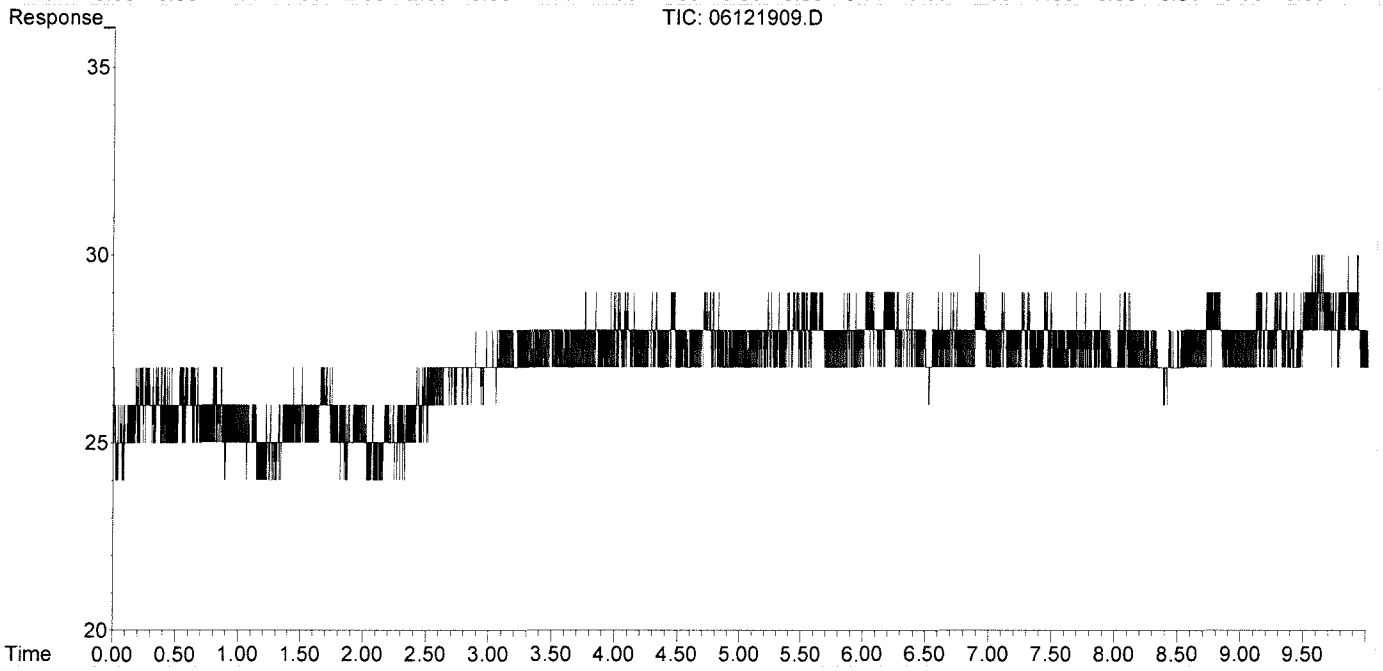
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2019_06\12\
Data File : 06121909.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Jun-2019, 12:56:55
Operator : WH
Sample : P1903217-003 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 14:28:18 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : J:\GC10\DATA\RSK_TCD\2019_06\12\
Data File : 06121910.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Jun-2019, 13:25:12
Operator : WH
Sample : P1903217-004 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 13 17:26:45 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

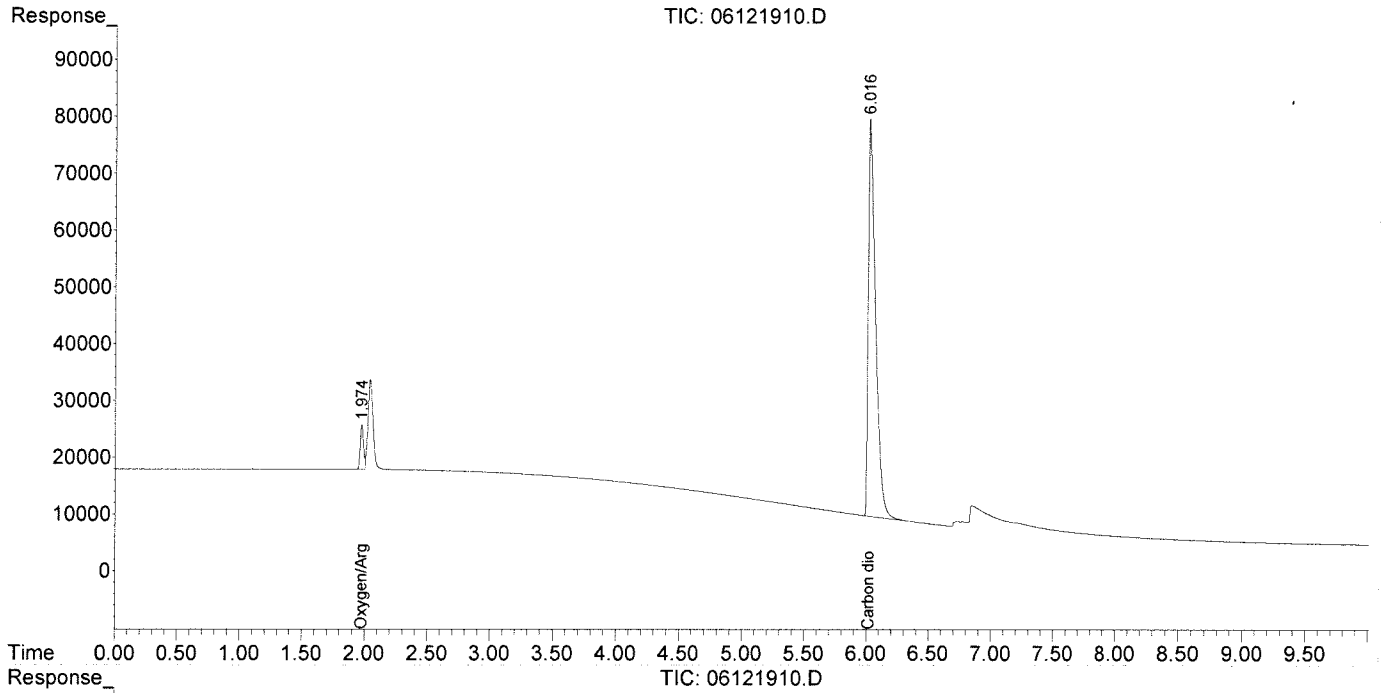
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.975f	140902	0.030	ppm
2)	Carbon monoxide	1.975f	140902	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.016	2831438	12062.573	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

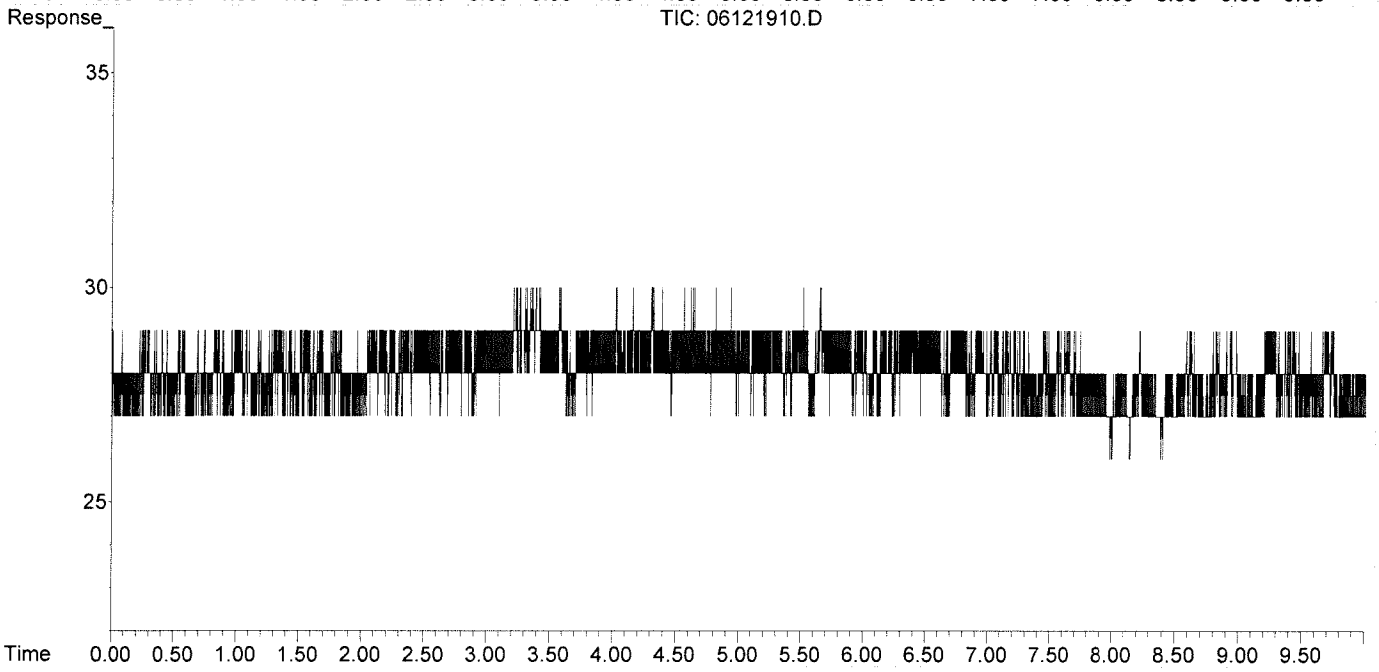
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2019_06\12\
Data File : 06121910.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Jun-2019, 13:25:12
Operator : WH
Sample : P1903217-004 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 13 17:26:45 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : J:\GC10\DATA\RSK_TCD\2019_06\12\
Data File : 06121911.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Jun-2019, 13:41:54
Operator : WH
Sample : P1903217-005 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 14:28:32 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

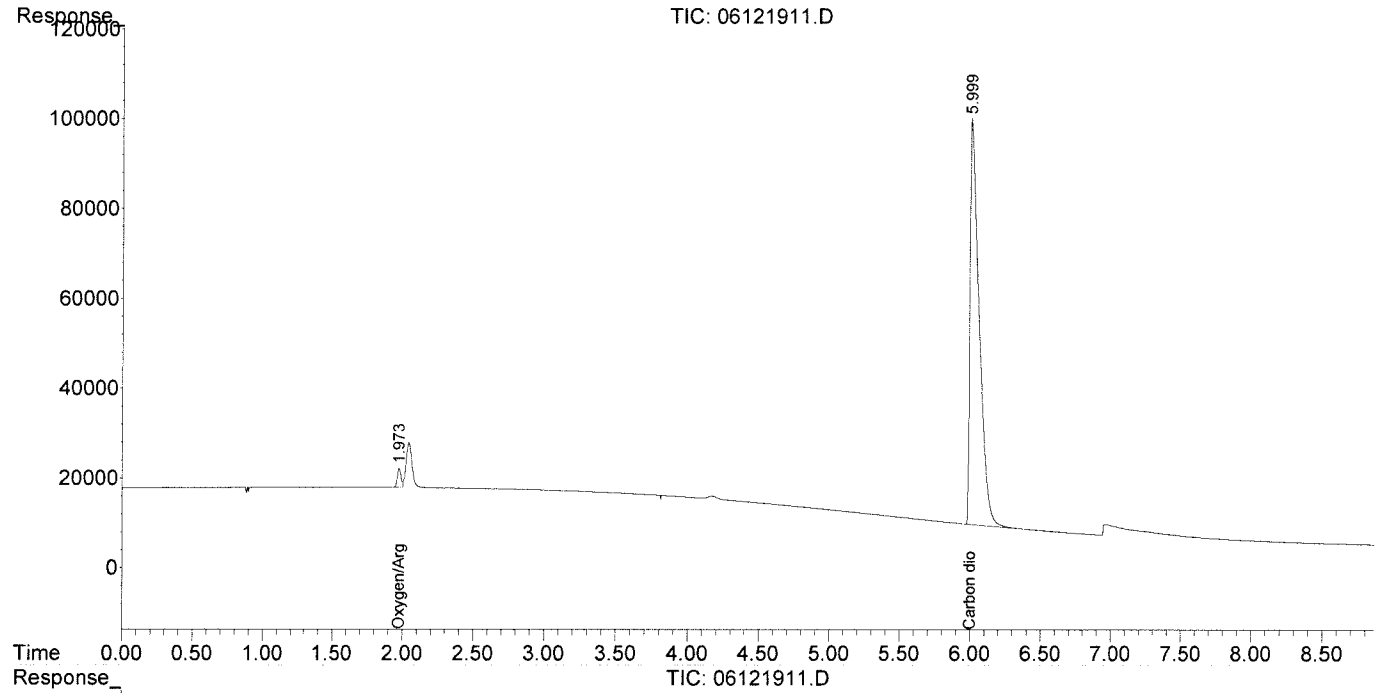
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.974f	78795	0.017	ppm
2)	Carbon monoxide	1.974f	78795	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.001	4022595	17137.173	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

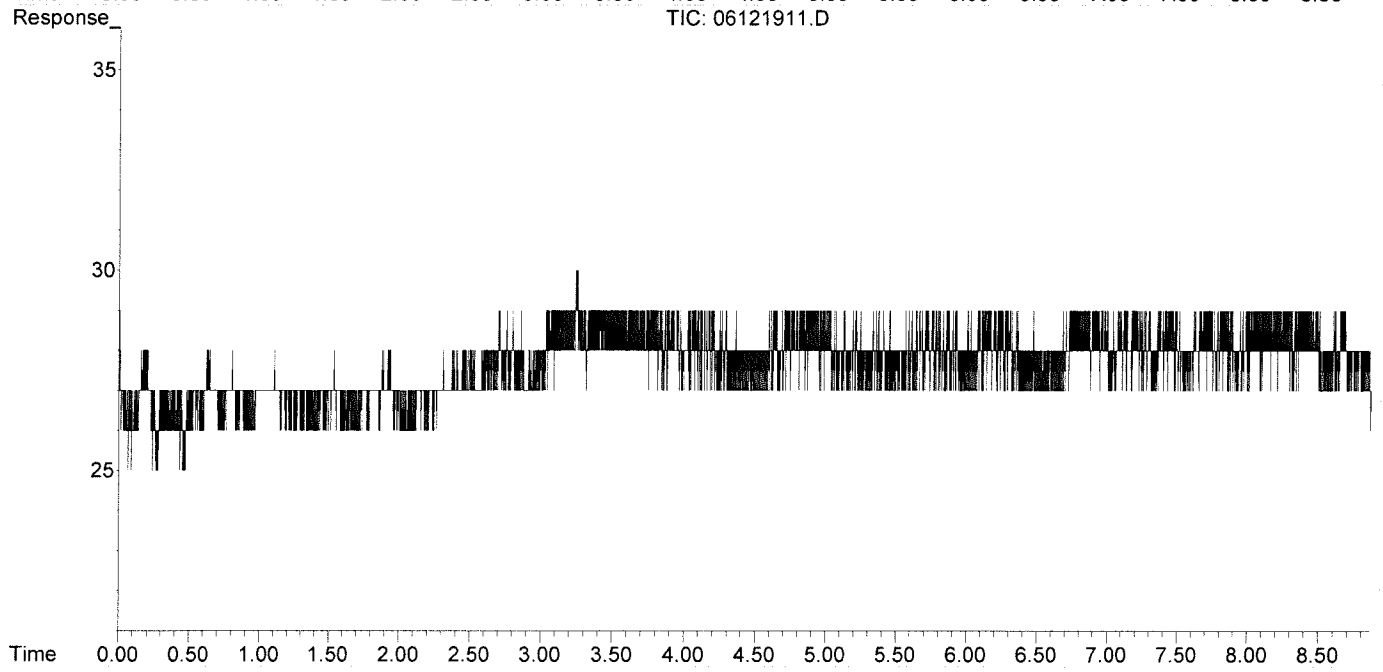
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2019_06\12\
Data File : 06121911.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Jun-2019, 13:41:54
Operator : WH
Sample : P1903217-005 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 14:28:32 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : J:\GC10\DATA\RSK_TCD\2019_06\12\
Data File : 06121912.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Jun-2019, 13:53:26
Operator : WH
Sample : P1903217-006 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 13 17:27:35 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

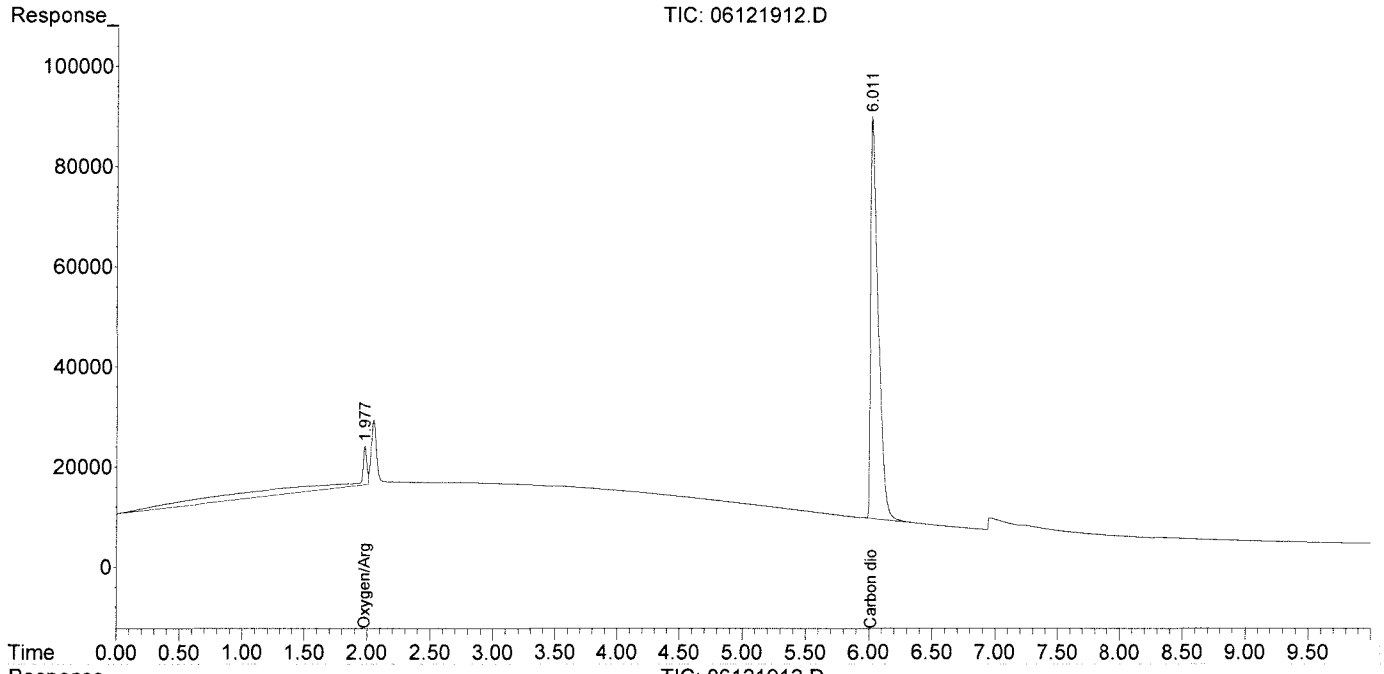
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.977f	1216152	0.256	ppm
2)	Carbon monoxide	1.977f	1216152	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.012	3337173	14217.121	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

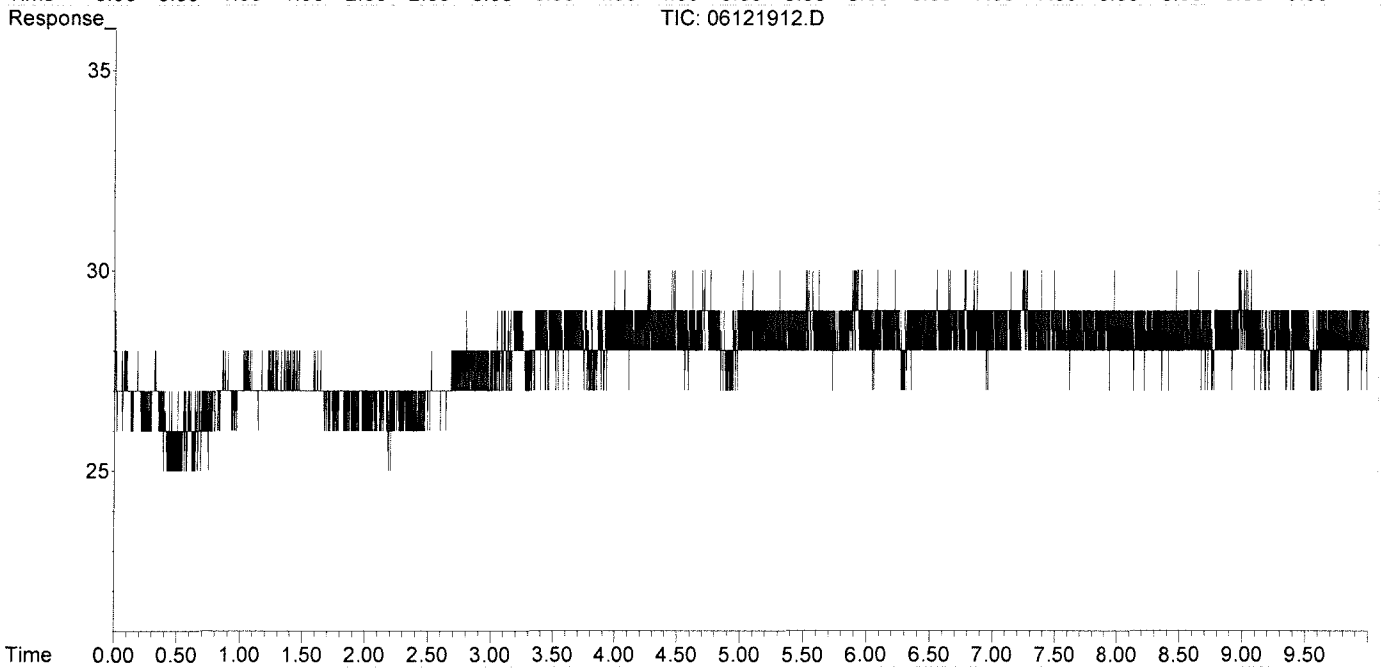
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2019_06\12\
Data File : 06121912.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Jun-2019, 13:53:26
Operator : WH
Sample : P1903217-006 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 13 17:27:35 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : J:\GC10\DATA\RSK_TCD\2019_06\12\
Data File : 06121903.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Jun-2019, 10:46:05
Operator : WH
Sample : MCS 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 13 15:35:35 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

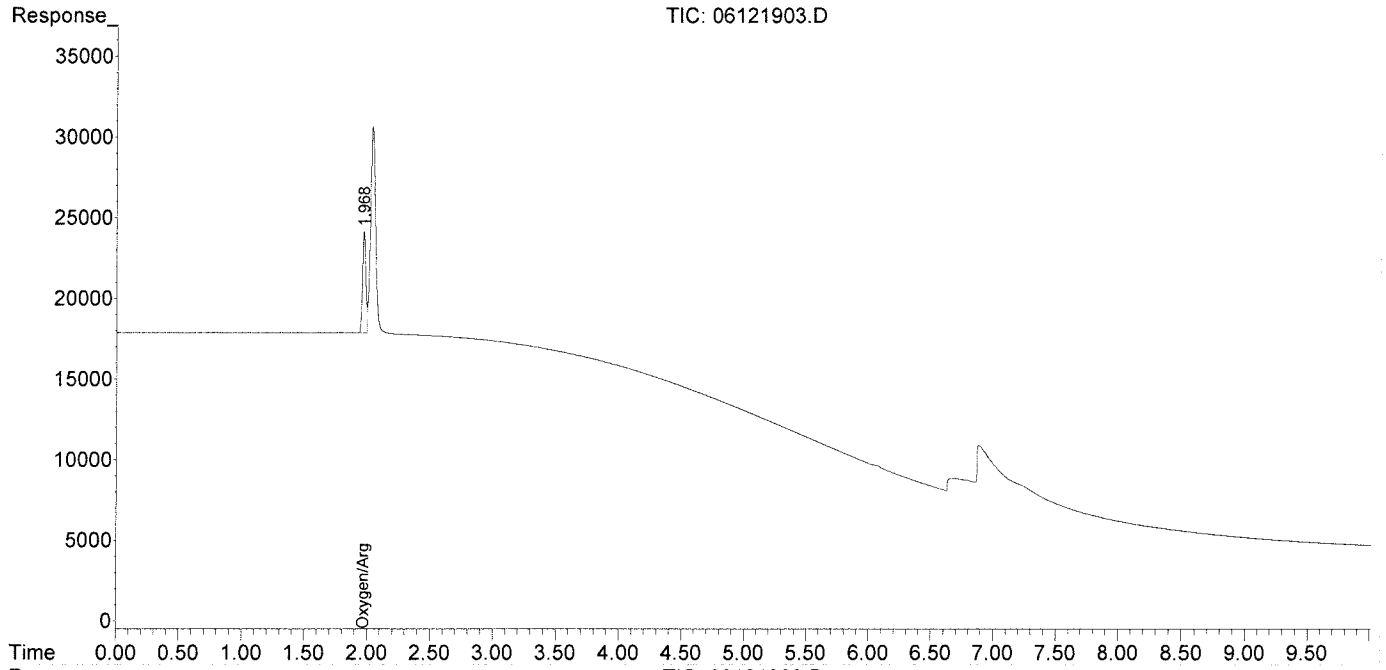
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.968f	114576	0.024	ppm
2)	Carbon monoxide	1.968f	114576	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

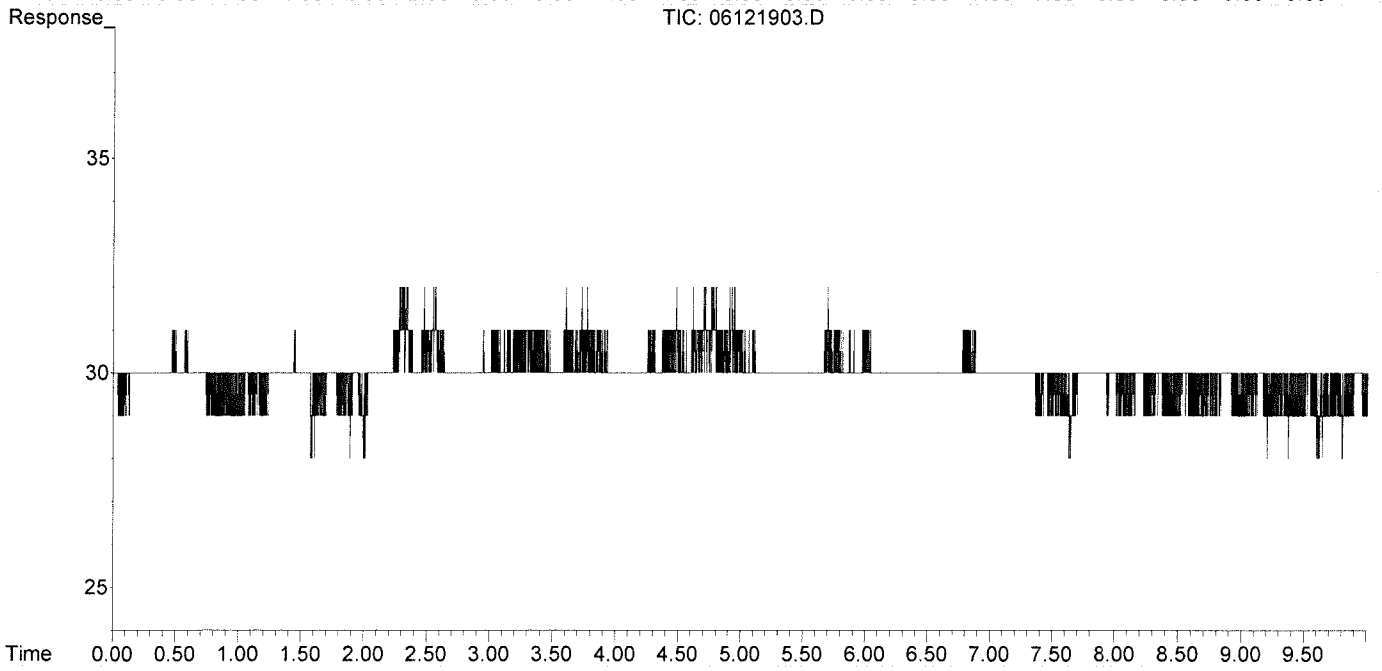
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2019_06\12\
Data File : 06121903.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Jun-2019, 10:46:05
Operator : WH
Sample : MCS 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 13 15:35:35 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : J:\GC10\DATA\RSK_TCD\2019_06\12\
Data File : 06121904.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Jun-2019, 11:05:17
Operator : WH
Sample : LCS TCD 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 11:24:58 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

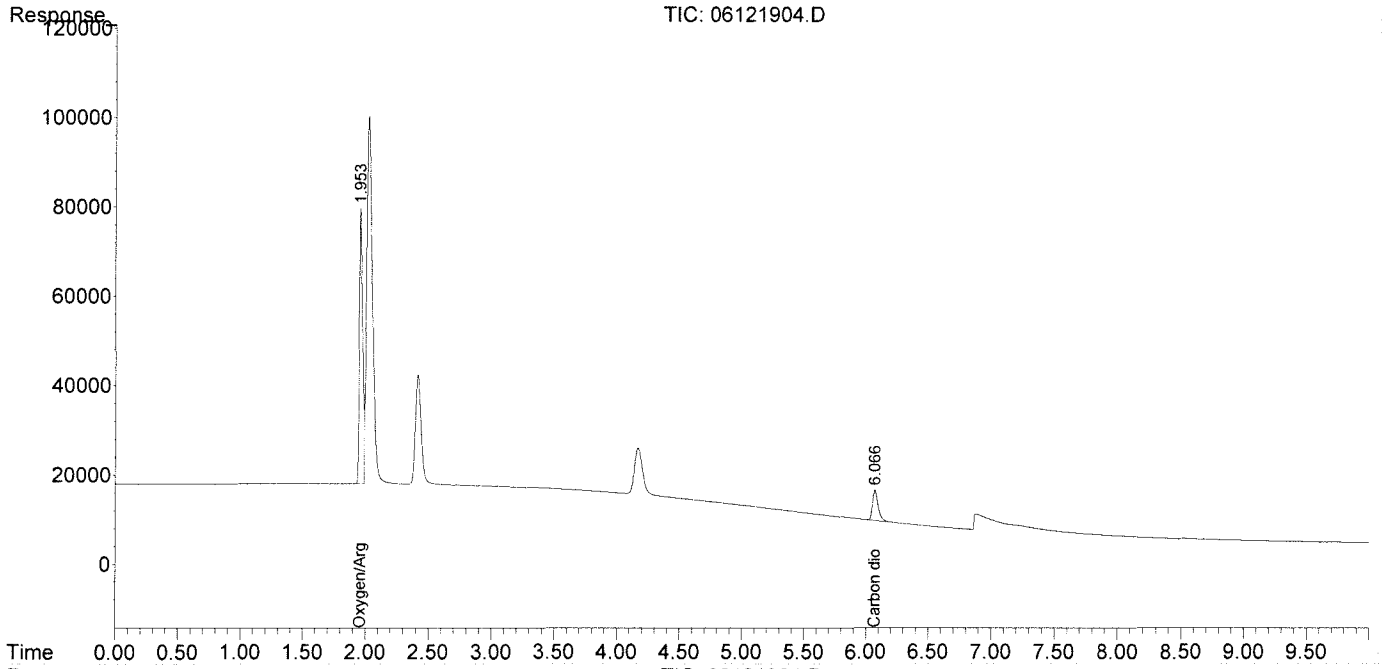
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.953f	1099974	0.231	ppm
2)	Carbon monoxide	1.953f	1099974	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.067	203531	867.089	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

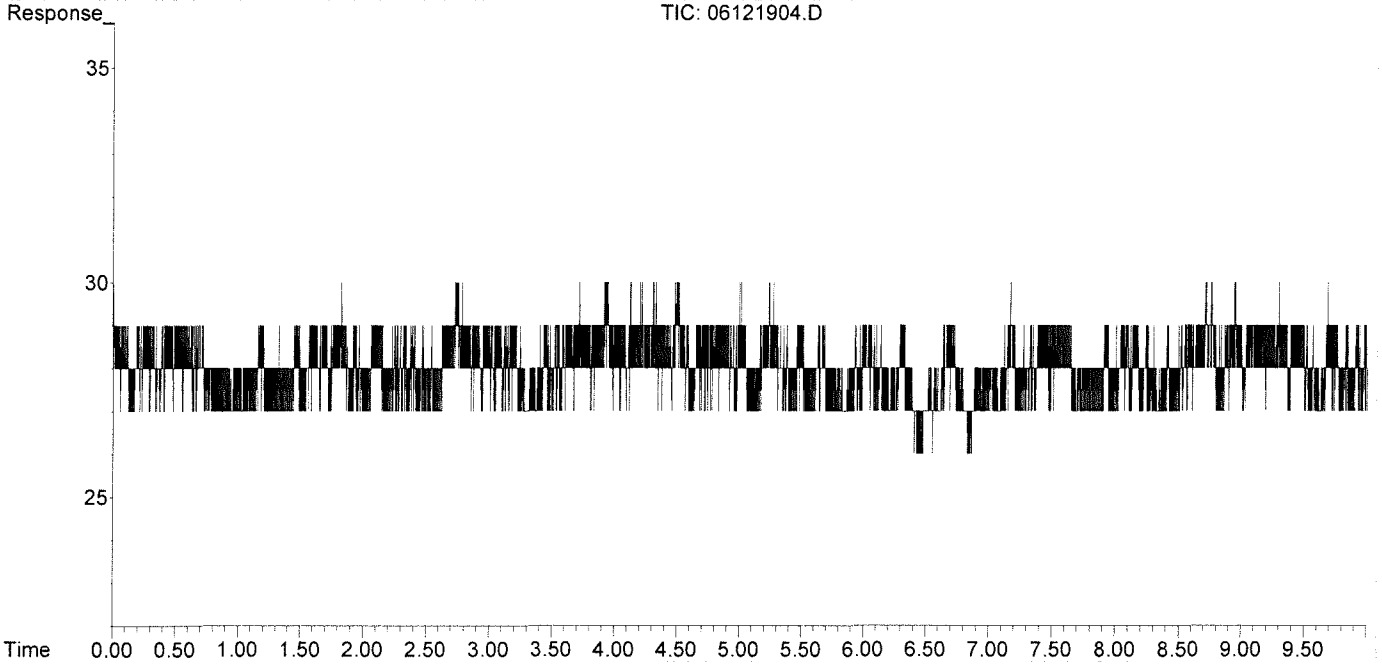
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2019_06\12\
Data File : 06121904.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Jun-2019, 11:05:17
Operator : WH
Sample : LCS TCD 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 11:24:58 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : J:\GC10\DATA\RSK_TCD\2019_06\12\
Data File : 06121905.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Jun-2019, 11:28:50
Operator : WH
Sample : LCSD TCD 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 11:50:44 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

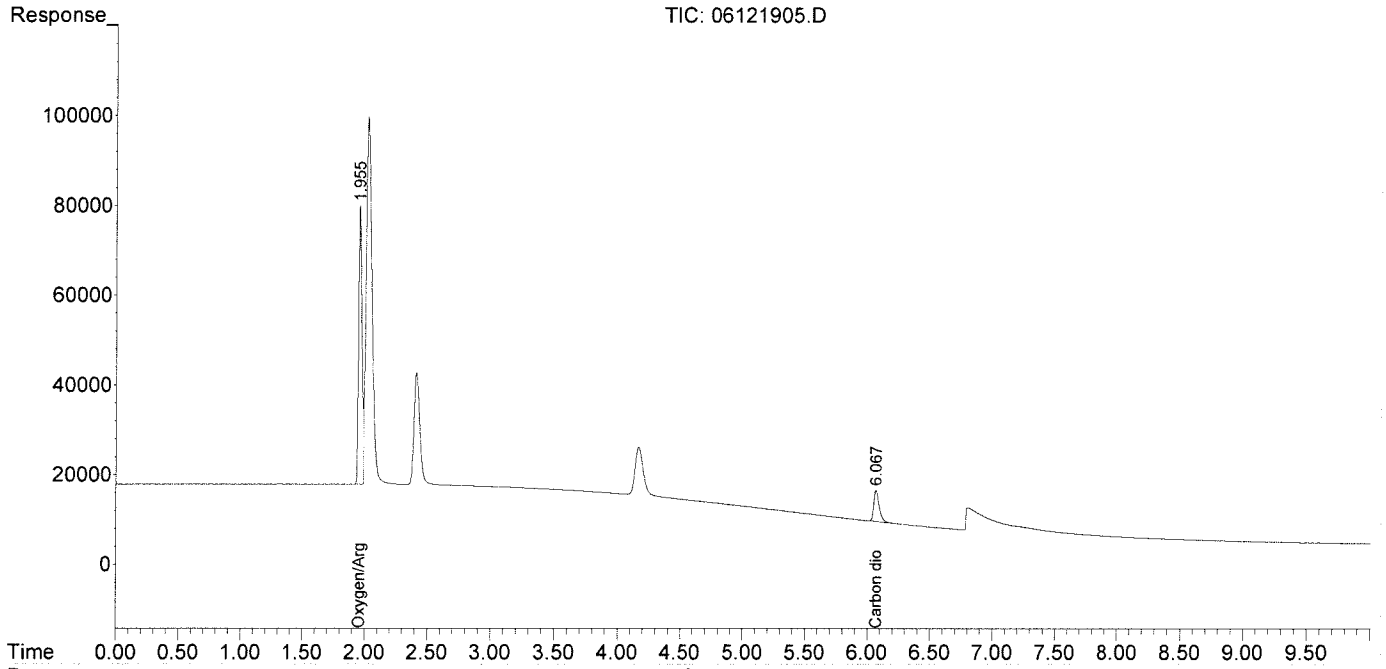
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.955f	1110401	0.233	ppm
2)	Carbon monoxide	1.955f	1110401	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.067	212864	906.849	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

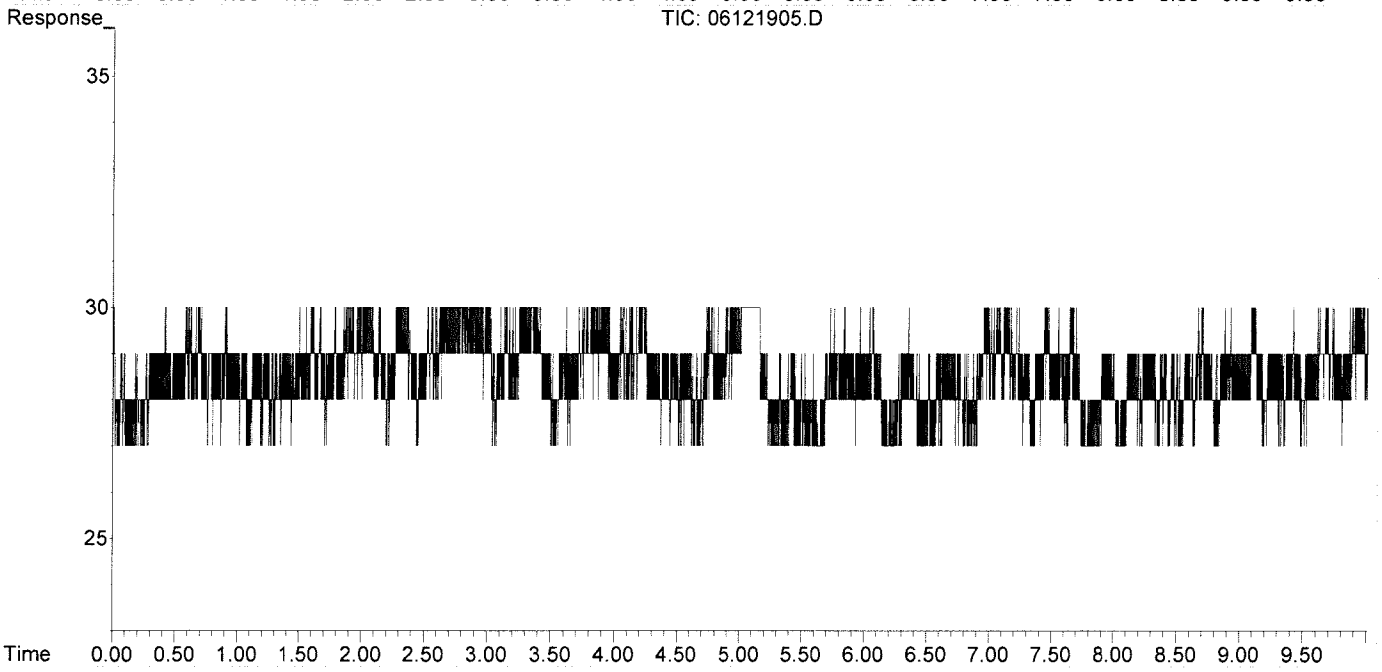
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2019_06\12\
Data File : 06121905.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Jun-2019, 11:28:50
Operator : WH
Sample : LCSD TCD 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 11:50:44 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Response Factor Report HP5890

Method Path : I:\GC10\METHODS\
Method File : RS082817_CO2.M
Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
Last Update : Tue Aug 29 16:13:13 2017
Response Via : Initial Calibration

Calibration Files
1 =08291715.D 2 =08291716.D 3 =08291717.D
4 =08291719.D 5 =08291720.D 6 =08291721.D

	Compound	1	2	3	4	5	6	Avg		%RSD
1)	Oxygen/Argon	4.760						4.760	E6	0.00
2)	Carbon monoxide	2.775		1.066	0.043	0.033	0.027	0.657	E6	170.12
3)	Methane (TCD)							9.457		0.00
4)	Carbon dioxide	2.717	2.193	2.338	2.272	2.265	2.298	2.347	E2	7.99

Signal #2 Calibration Files
1 =08291715.D 2 =08291716.D 3 =08291717.D
4 =08291719.D 5 =08291720.D 6 =08291721.D

	Compound	1	2	3	4	5	6	Avg		%RSD
6)	Methane (FID)	1.253	1.160	1.005	0.927	0.848	0.848	0.945	E4	15.85
7)	Ethylene	1.677	1.605	1.900	1.749	1.597	1.579	1.684	E4	7.30
8)	Ethane	1.769	1.631	1.866	1.767	1.639	1.667	1.723	E4	5.40
9)	Propylene	2.402	2.309	2.767	2.551	2.331	2.333	2.449	E4	7.32
10)	Propane	2.906	2.737	2.817	2.639	2.410	2.420	2.655	E4	7.75
11)	Isobutylene							0.000		-1.00
12)	Isobutane							0.000		-1.00
13)	n-Butane							0.000		-1.00

(#) = Out of Range ### Number of calibration levels exceeded format ###

RS082817_CO2.M Wed Aug 30 13:24:19 2017

dit Compounds -- Compound #4 -- Carbon dioxide

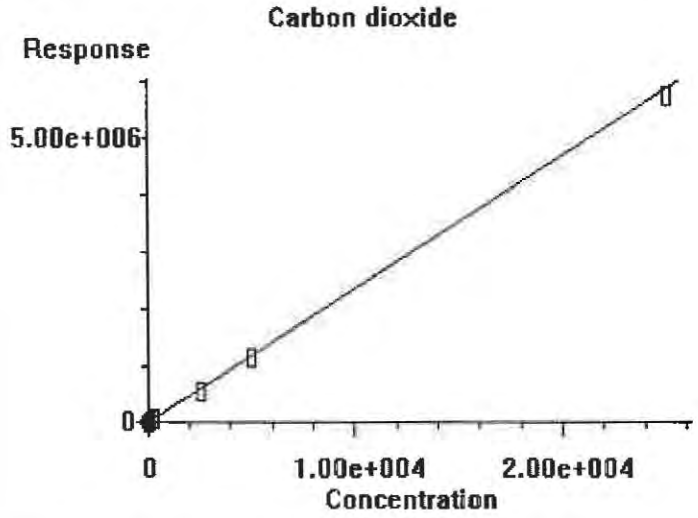
Search by: Ret Time | Name | Index — Find Compound

- Compound Database
- External Standard Compoun
  - Oxygen/Argon
  - Carbon monoxide
  - Methane (TCD)
  - Carbon dioxide
  - Signal #2
  - Methane (FID)
  - Ethylene
  - Ethane
  - Propylene
  - Propane
  - Isobutylene
  - Isobutane
  - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	25.000000	6793.665186
2	100.000000	21932.418000
3	250.000000	58460.642510
4	2500.000000	568043.388750
5	5000.000000	1132363.215937
6	25000.000000	5744294.891563
7	25000.000000	
8	25000.000000	
9	2000.000000	
10	30000.000000	

Lvl ID	Concentration	Response



0.000e+000	Quadratic term
2.347e+002	Linear term
0.000e+000	Constant term
7.987%	RF Rel Std Dev

OK | Cancel | Help | Print Calibration Curve | Copy Calibration Curve

Calibration Status Report HP5890

Method Path : I:\GC10\METHODS\
Method File : RS082817_CO2.M
Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
Last Update : Tue Aug 29 16:13:13 2017
Response Via : Initial Calibration

#	ID	Conc	ISTD Conc	Path\File
1	1	0	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291715.D
2	2	0	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291716.D
3	3	3	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291717.D
4	4	10	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291719.D
5	5	25	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291720.D
6	6	125	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291721.D
7	7	5000	0	J:\GC10\DATA\RSK_FID\2017_08\24\08241708.D
8	8	25000	0	J:\GC10\DATA\RSK_FID\2017_08\24\08241709.D
9	9	2000	0	J:\GC10\DATA\RSK_FID\2017_08\24\08241710.D
10	10	30000	0	J:\GC10\DATA\RSK_FID\2017_08\24\08241711.D

#	ID	Update Time	Quant Time	Acquisition Time
1	1	Aug 29 14:21 2017	Aug 29 14:20 2017	29-Aug-2017, 14:07
2	2	Aug 29 14:52 2017	Aug 29 14:51 2017	29-Aug-2017, 14:22
3	3	Aug 29 15:04 2017	Aug 29 15:04 2017	29-Aug-2017, 14:53
4	4	Aug 29 15:36 2017	Aug 29 15:36 2017	29-Aug-2017, 15:23
5	5	Aug 29 15:57 2017	Aug 29 15:57 2017	29-Aug-2017, 15:44
6	6	Aug 29 16:13 2017	Aug 29 16:13 2017	29-Aug-2017, 16:00
7	7	Aug 25 09:05 2017	Aug 24 16:00 2017	24-Aug-2017, 15:44
8	8	Aug 25 09:06 2017	Aug 24 16:13 2017	24-Aug-2017, 16:02
9	9	Aug 25 09:06 2017	Aug 24 16:31 2017	24-Aug-2017, 16:16
10	10	Aug 25 09:07 2017	Aug 24 16:42 2017	24-Aug-2017, 16:33

RS082817_CO2.M Wed Aug 30 13:24:30 2017

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:07
Operator : MC
Sample : 25ppm s32-08291701 0.25ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:20:06 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

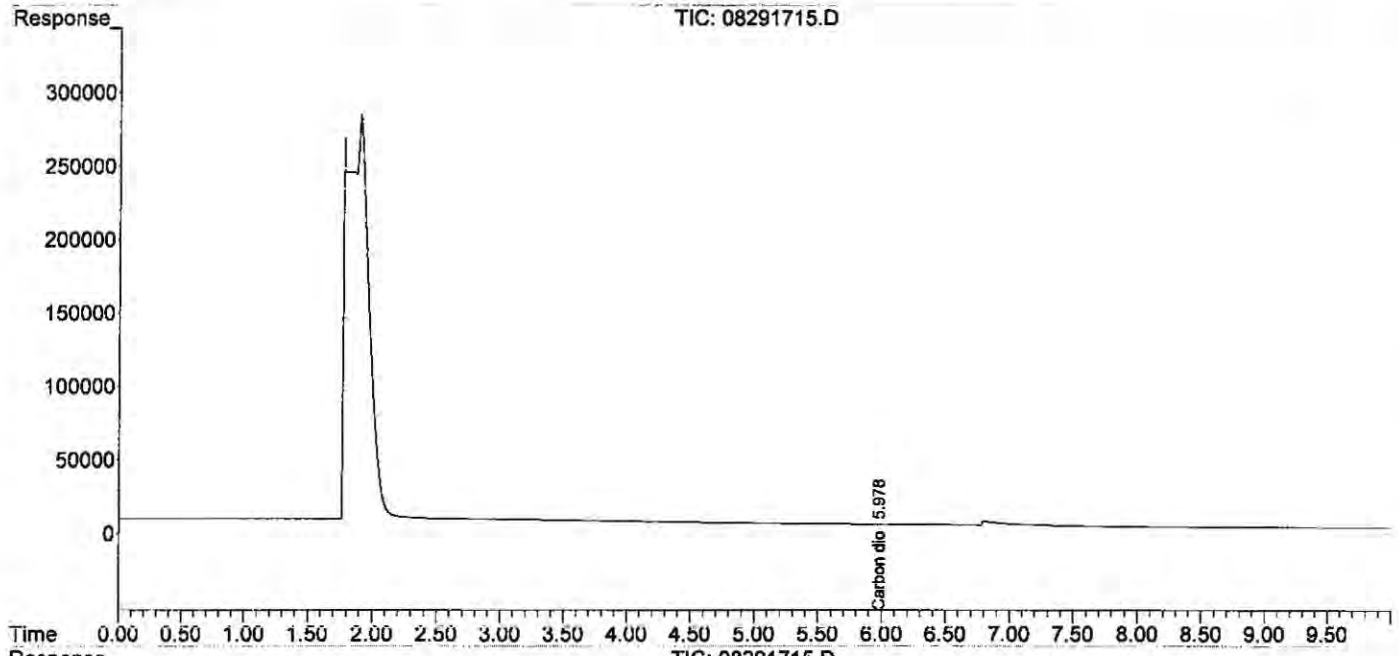
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.776	277465	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	5.978	6794	27.870	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

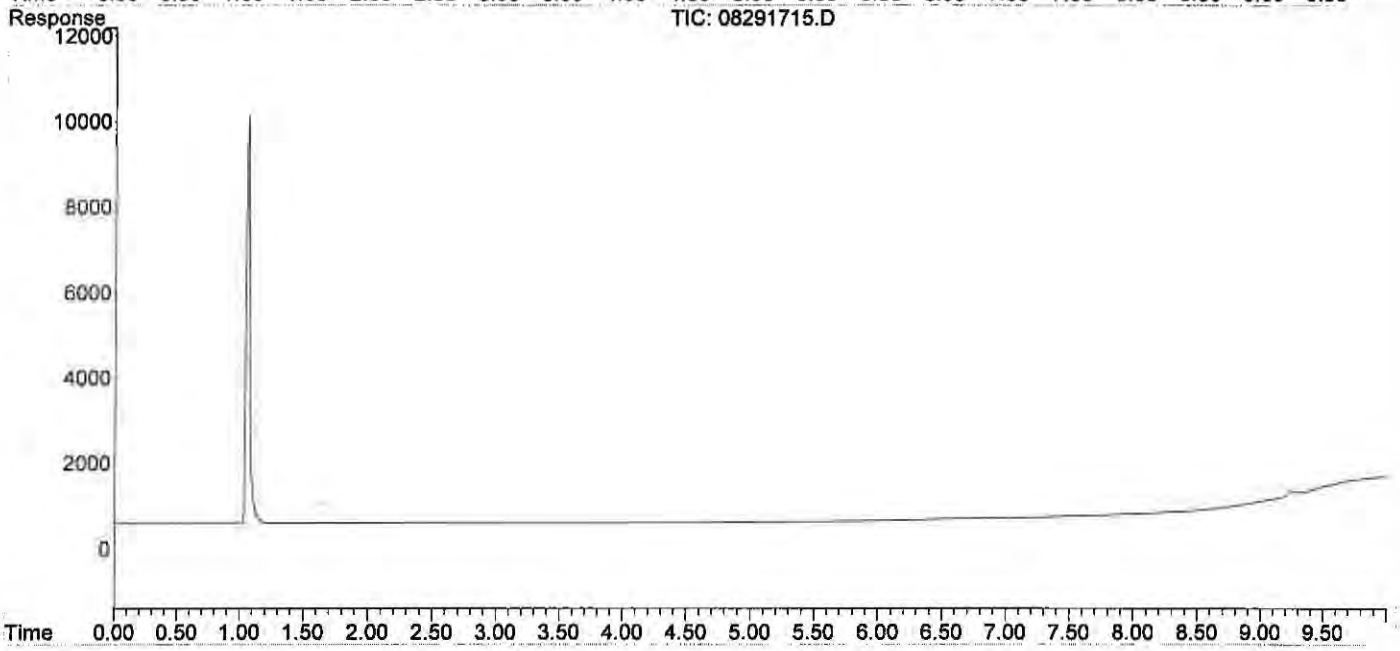
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:07
Operator : MC
Sample : 25ppm s32-08291701 0.25ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:20:06 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



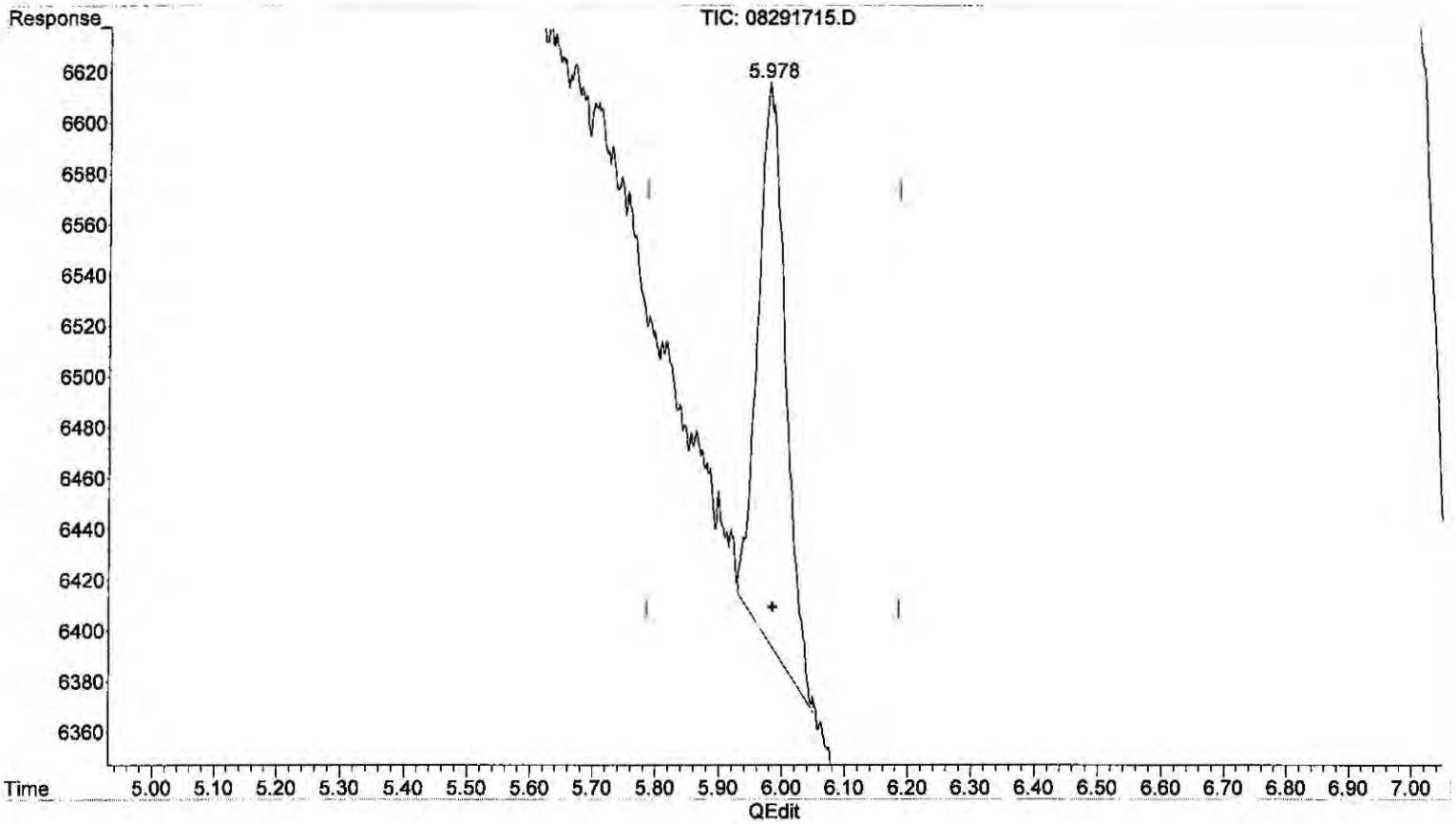


Quantitation Report (Qedit)

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:07
Operator : MC
Sample : 25ppm s32-08291701 0.25ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:20:06 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide
5.978min 27.870 ppm m
response 6794

(+) = Expected Retention Time

RS082817_CO2.M Wed Aug 30 13:17:47 2017

Page: 1

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291716.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:22
Operator : MC
Sample : 100ppm s32-08291702 0.2ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:51:38 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:21:08 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.790	-598962	N.D.	ppm	
2)	Carbon monoxide	0.000	0	N.D.	ppm	d
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	5.978	21932	87.858	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

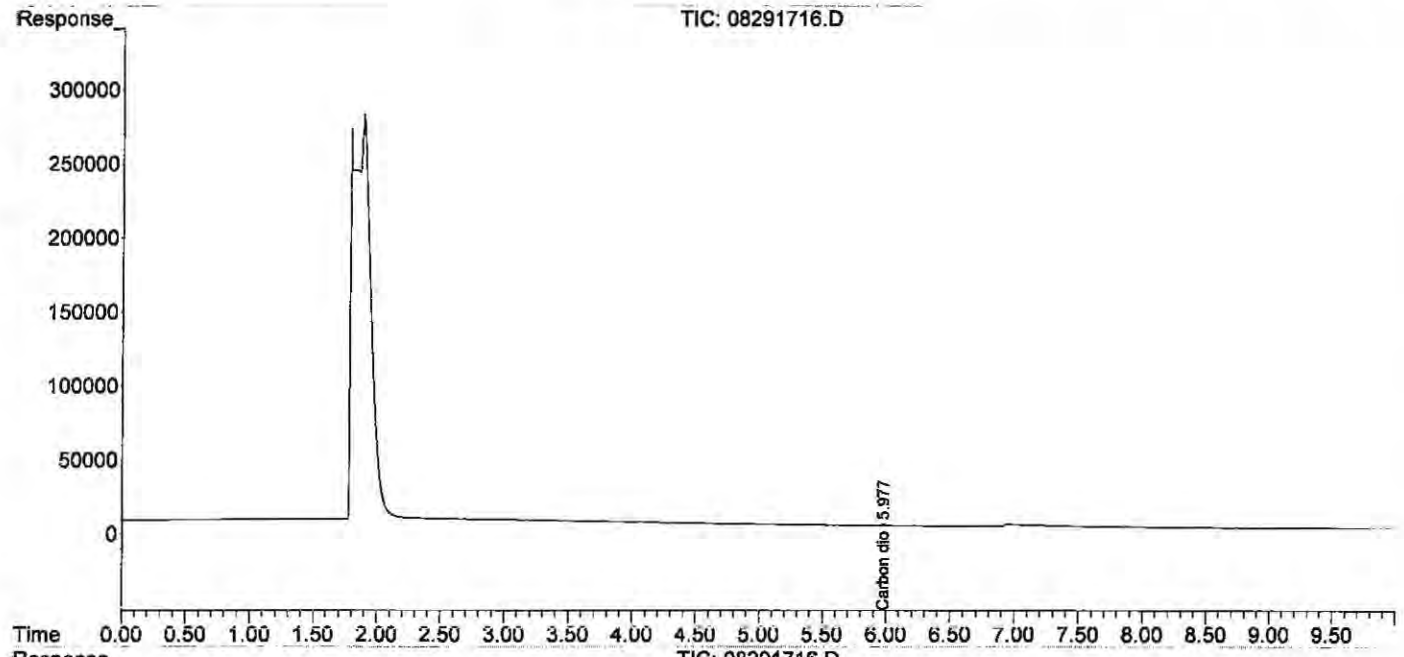
(f)=RT Delta > 1/2 Window (m)=manual int.

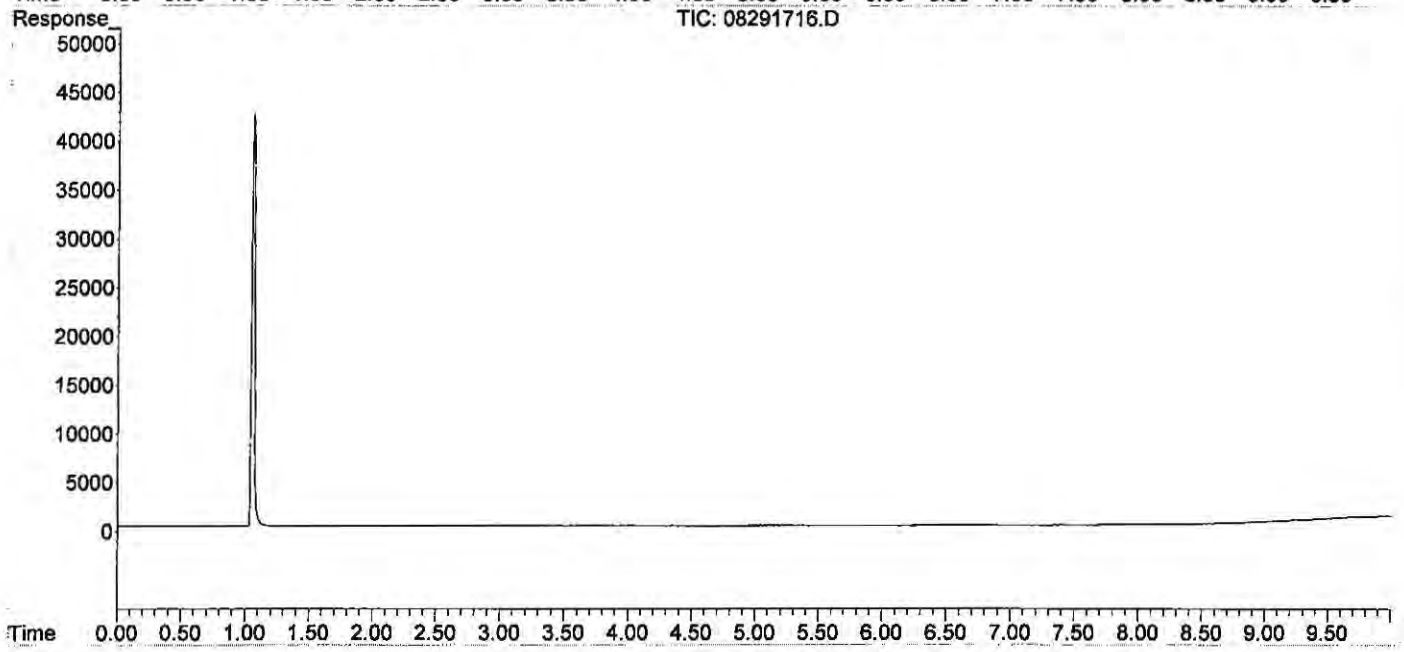
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291716.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:22
Operator : MC
Sample : 100ppm s32-08291702 0.2ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:51:38 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:21:08 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291717.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:53
Operator : MC
Sample : 250ppm s32-08291702 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:03:42 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:52:06 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

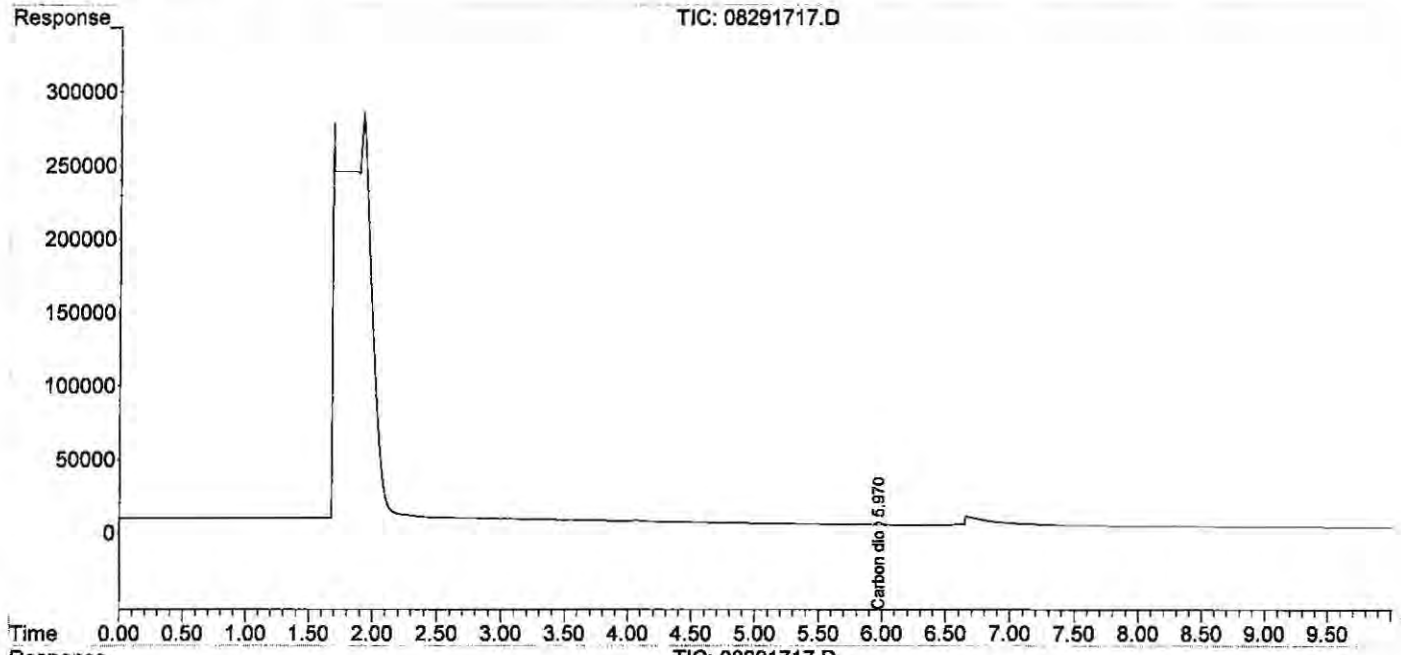
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.920f	-30716454	N.D.	ppm	
2)	Carbon monoxide	0.000	0	N.D.	ppm	d
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	5.970	58461	240.204	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

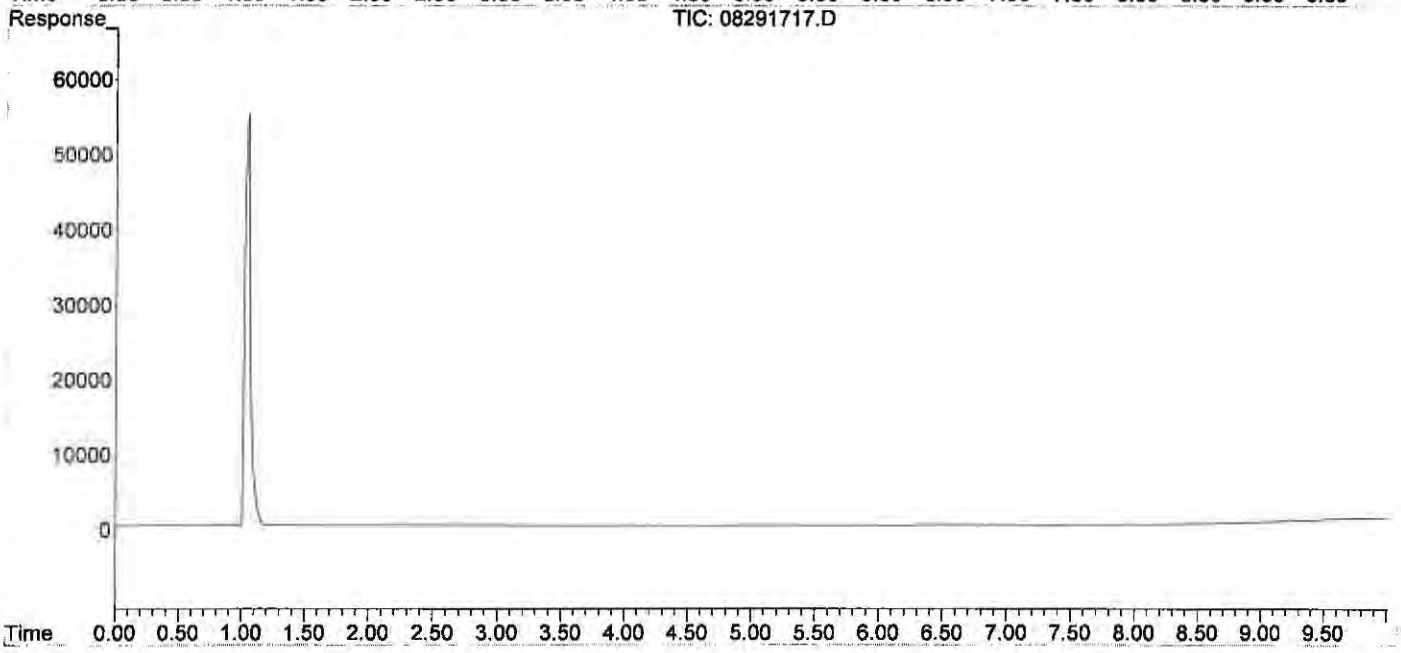
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291717.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:53
Operator : MC
Sample : 250ppm s32-08291702 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:03:42 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:52:06 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



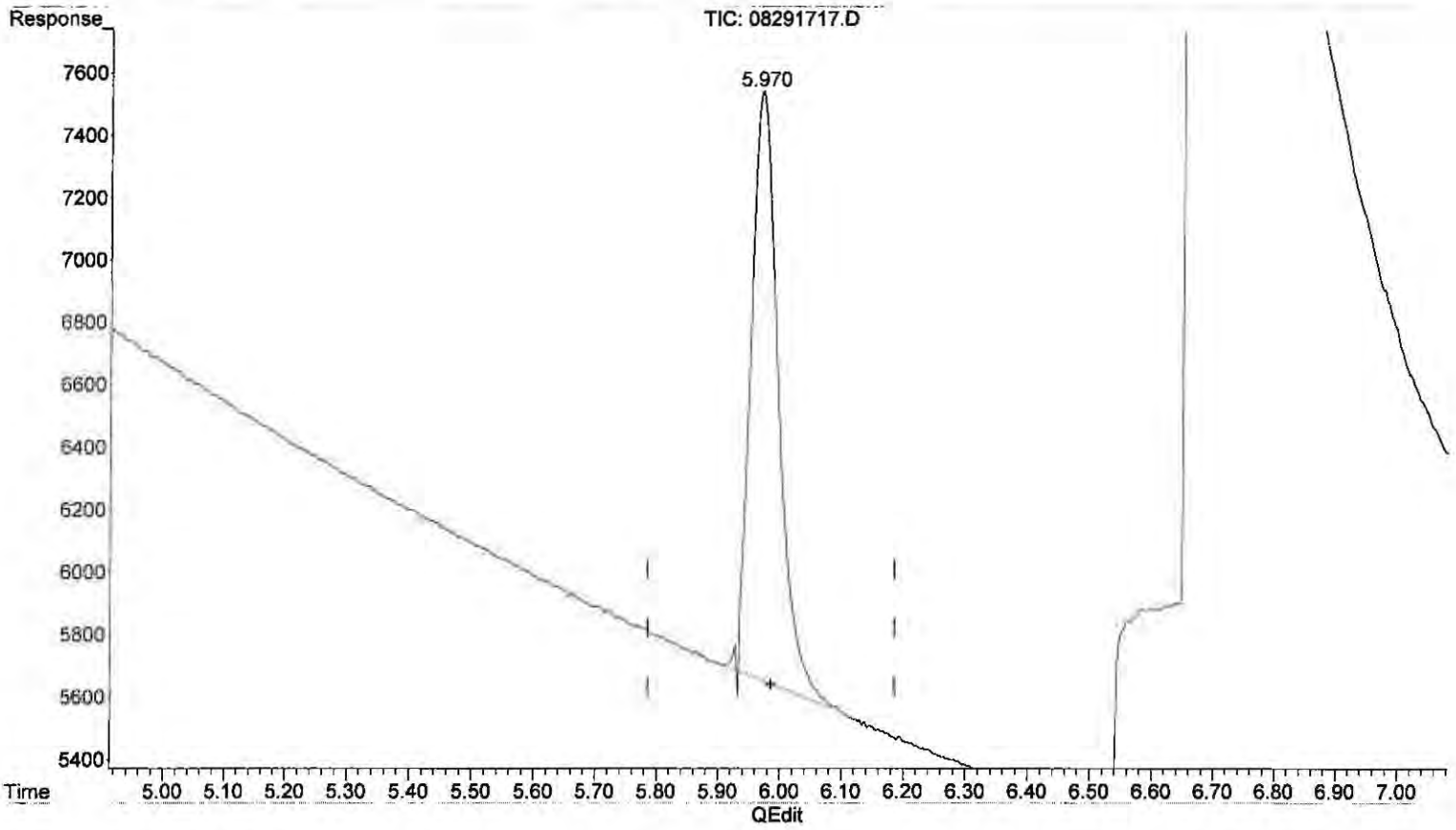


Quantitation Report (Qedit)

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291717.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:53
Operator : MC
Sample : 250ppm s32-08291702 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:03:42 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:52:06 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

5.970min 240.204 ppm m

response 58461

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291719.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 15:23
Operator : MC
Sample : 2500ppm s32-08231701 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:35:50 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:04:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

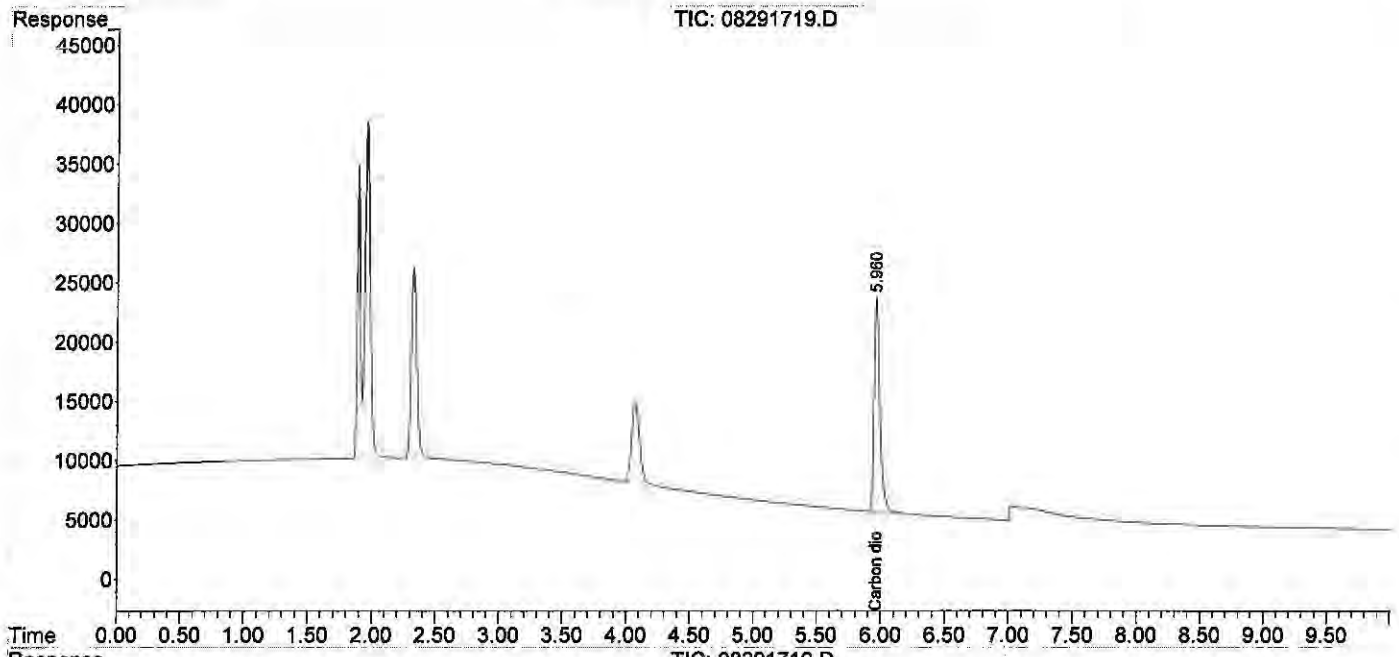
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.891	425113	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	5.962	568043	2369.673	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

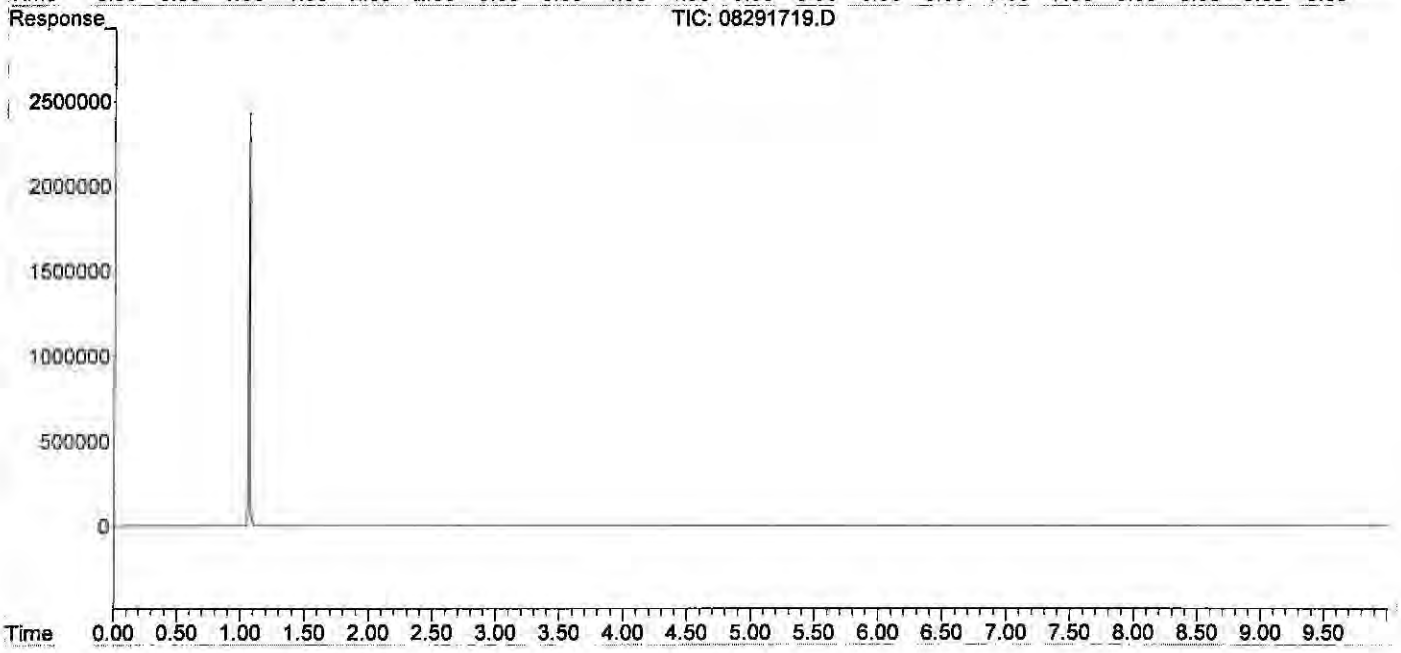
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291719.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 15:23
Operator : MC
Sample : 2500ppm s32-08231701 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:35:50 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:04:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291720.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 15:44
Operator : MC
Sample : 5000ppm s32-08231701 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:57:17 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:36:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

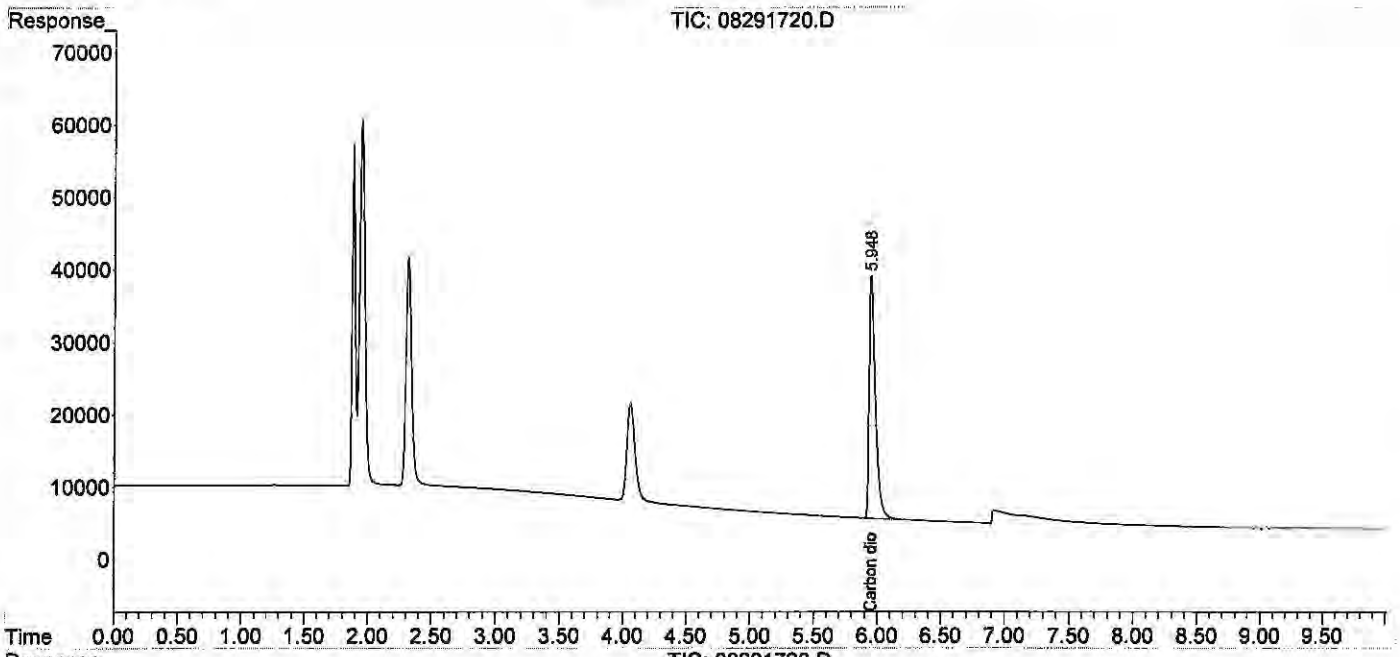
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.880	819221	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	5.948	1132363	4753.126	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

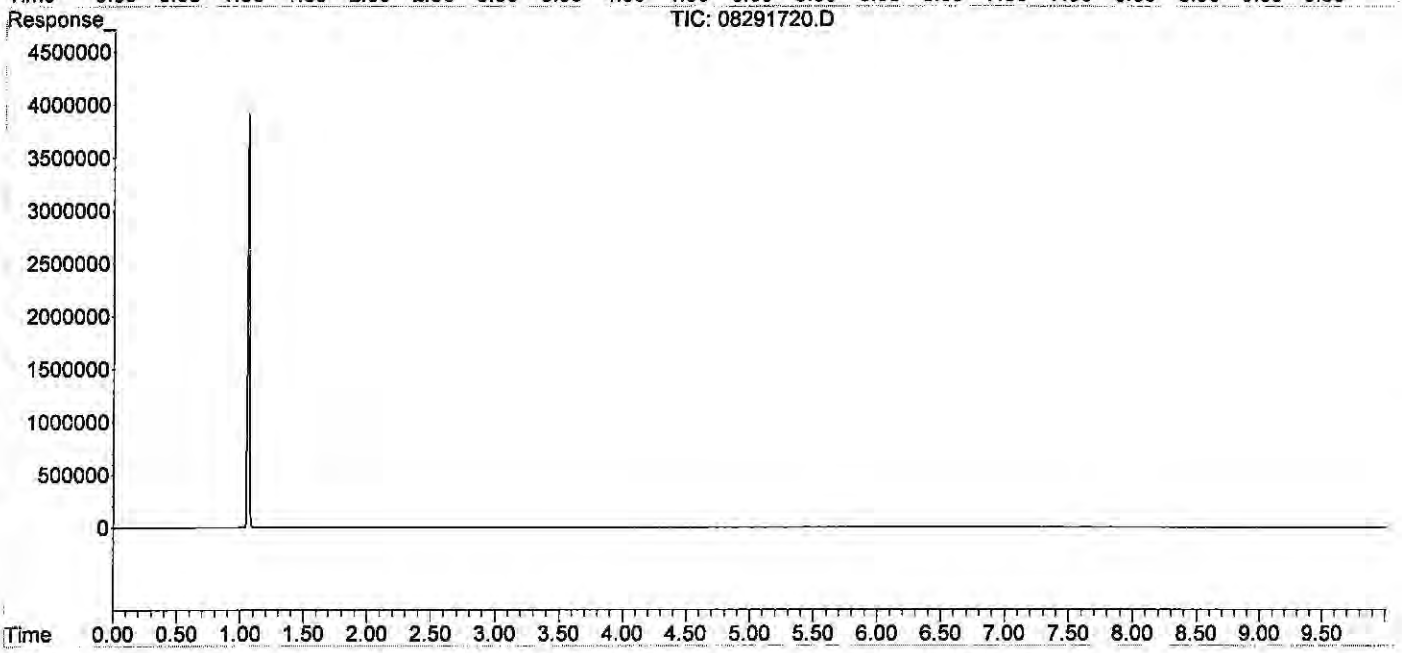
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291720.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 15:44
Operator : MC
Sample : 5000ppm s32-08231701 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:57:17 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:36:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291721.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 16:00
Operator : MC
Sample : 25000ppm s32-08231701 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 16:12:53 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:57:37 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.827	3325463	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	5.879f	5744295	24443.288	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

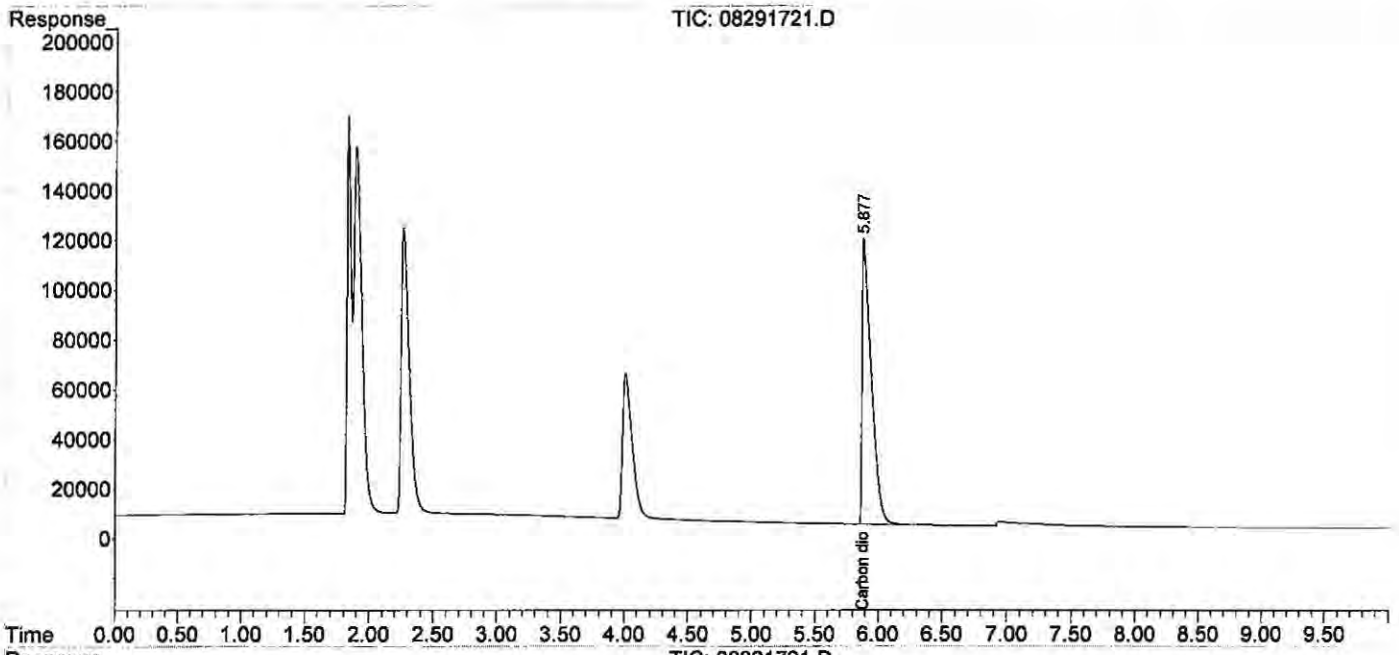
(f)=RT Delta > 1/2 Window (m)=manual int.

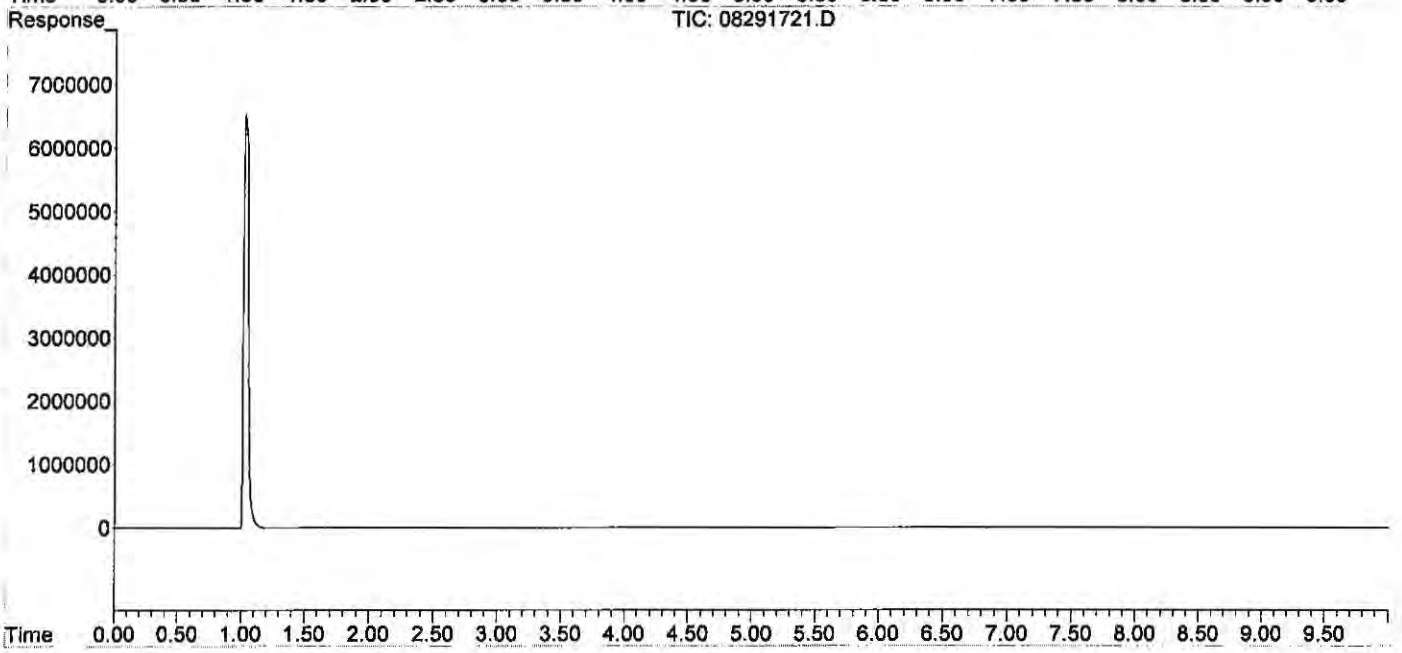
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291721.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 16:00
Operator : MC
Sample : 25000ppm s32-08231701 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 16:12:53 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:57:37 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291723.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 16:35
Operator : MC
Sample : icv s30-07071701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 16:54:07 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.886	536422	0.113	ppm	actual %D
2)	Carbon monoxide	1.886	536422	N.D.	ppm	
3)	Methane (TCD)	4.059f	626500	66244.710	ppm	
4)	Carbon dioxide	5.947	1163775	4957.948	ppm	5000 99.16
6)	Methane (FID)	1.062	37290742	3947.023	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

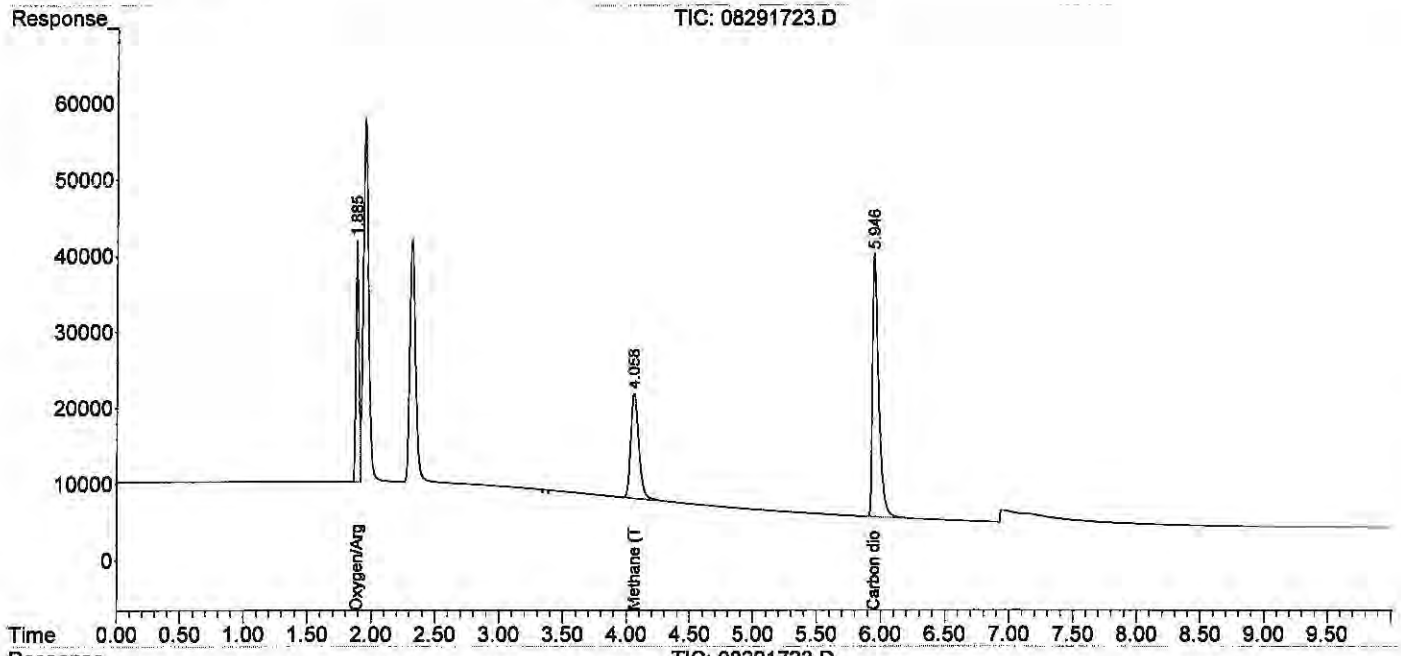
(f)=RT Delta > 1/2 Window (m)=manual int.

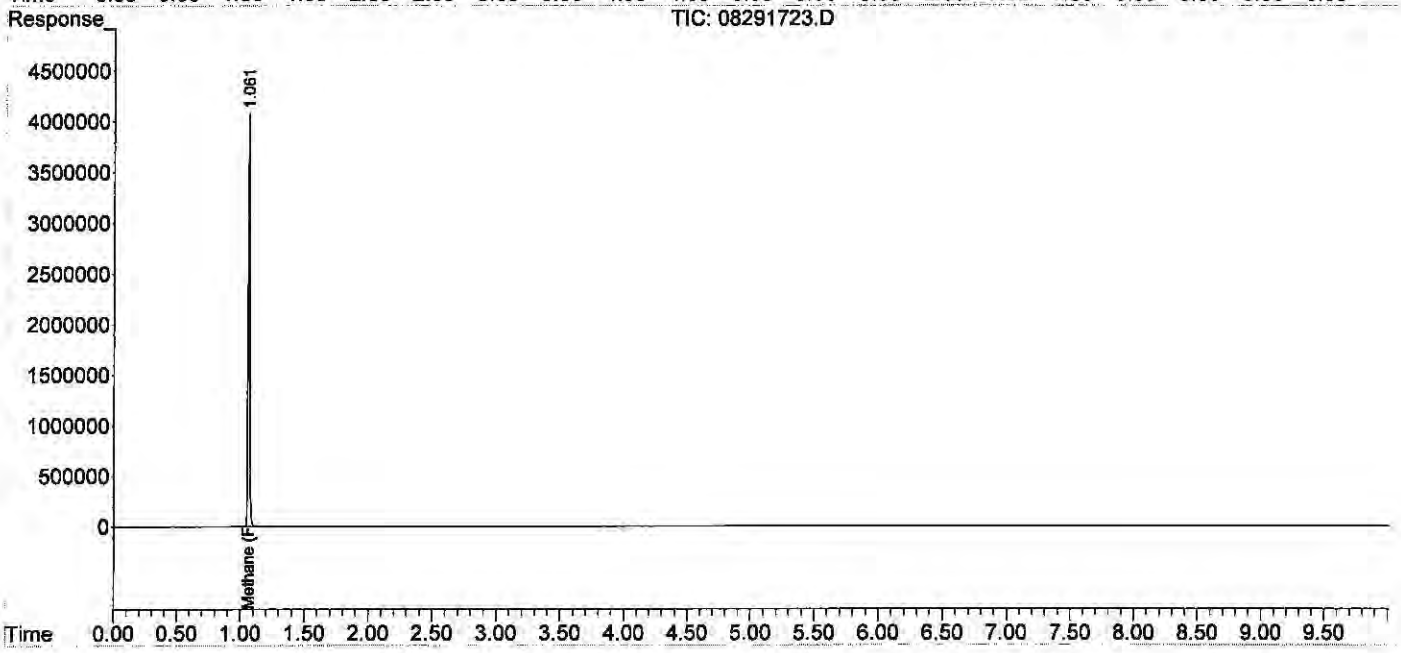
W 9/4/17

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291723.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 16:35
Operator : MC
Sample : icv s30-07071701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 16:54:07 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





ALS Environmental

Method : RSK175 Headspace Method for Dissolved Hydrocarbon in Water by FID/TCD
Client : ALS Laboratory Group | Analyst : WH | Instrument : GC#10
Service Request: P1903217 | Date Analysis : 06/12/19 | Detector : FID#10, TCD#10
Sample Vol. (ml) : 32.00 ml | Head Space Vol.(ml) : 8.00 ml | Gas Constant : 24.05684 (20°C)

HEAD SPACE RESULT (ppm)

Sample ID	Inj. Vol.	Carbon Dioxide
std s32-04251903	0.100	4632.707
ACTUAL		5000.00
%Difference		7.3%
MCS 0.1ml	0.100	0.000
rb 0.1ml	0.100	0.000
LCS TCD 0.1ml	0.100	867.089
LCSD TCD 0.1ml	0.100	906.849
P1903217-001 50ul	0.050	12894.67
P1903217-002 50ul	0.050	15120.95
P1903217-003 50ul	0.050	17074.45
P1903217-004 50ul	0.050	12062.57
P1903217-005 50ul	0.050	17137.17
P1903217-006 50ul	0.050	14217.12

FINAL HEAD SPACE RESULT (ppm)

	Carbon Dioxide
WWt.	44.10
HENRY'S CONSTANT	1.42E+03
RL	100.00
MCS 0.1ml	0.000
LCS TCD 0.1ml	8670.890
LCSD TCD 0.1ml	9068.490
P1903217-001 50ul	257893.44
P1903217-002 50ul	302418.94
P1903217-003 50ul	341489.02
P1903217-004 50ul	241251.46
P1903217-005 50ul	342743.46
P1903217-006 50ul	284342.42

std s32-04251903	4523.296
ACTUAL	5000.00
%Difference	9.5%

00949387

Data Path : J:\GC10\DATA\RSK_TCD\2019_06\12\
Data File : 06121901.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Jun-2019, 09:58:44
Operator : WH
Sample : std s32-04251903
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 10:13:32 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

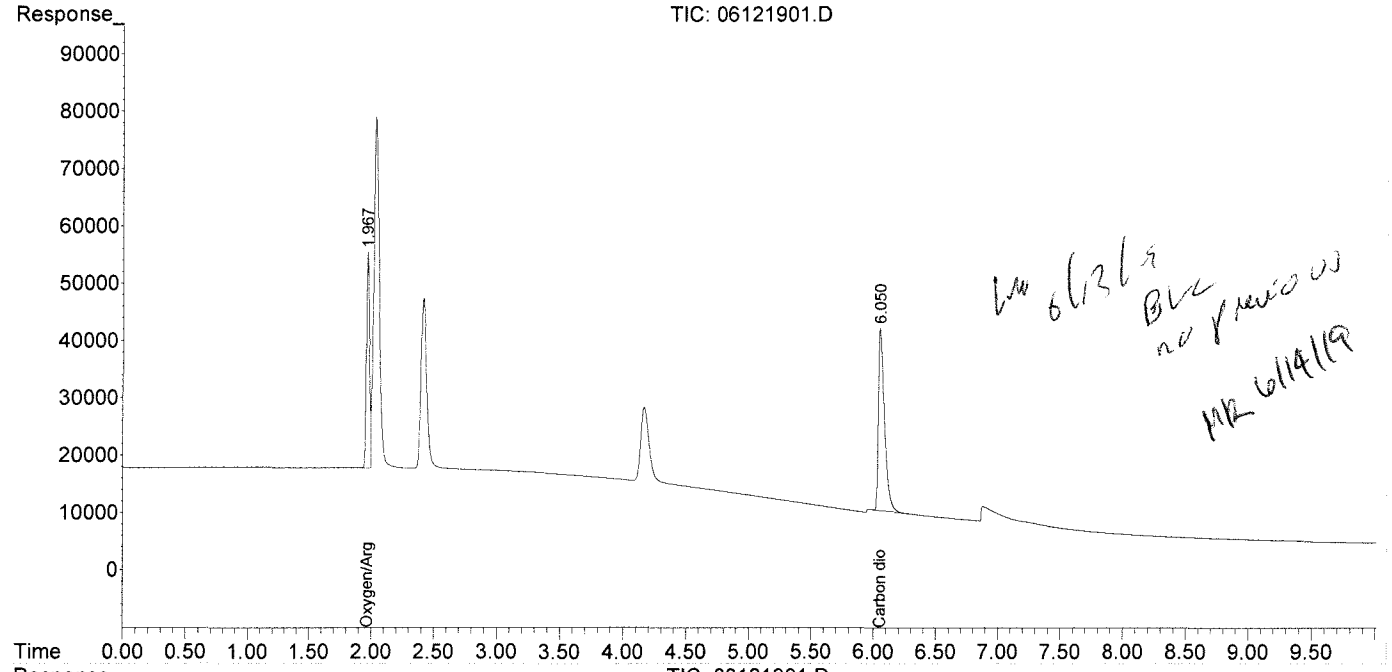
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.968f	652151	0.137	ppm	
2)	Carbon monoxide	1.968f	652151	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	6.050	1087432	4632.707	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

(f)=RT Delta > 1/2 Window (m)=manual int.

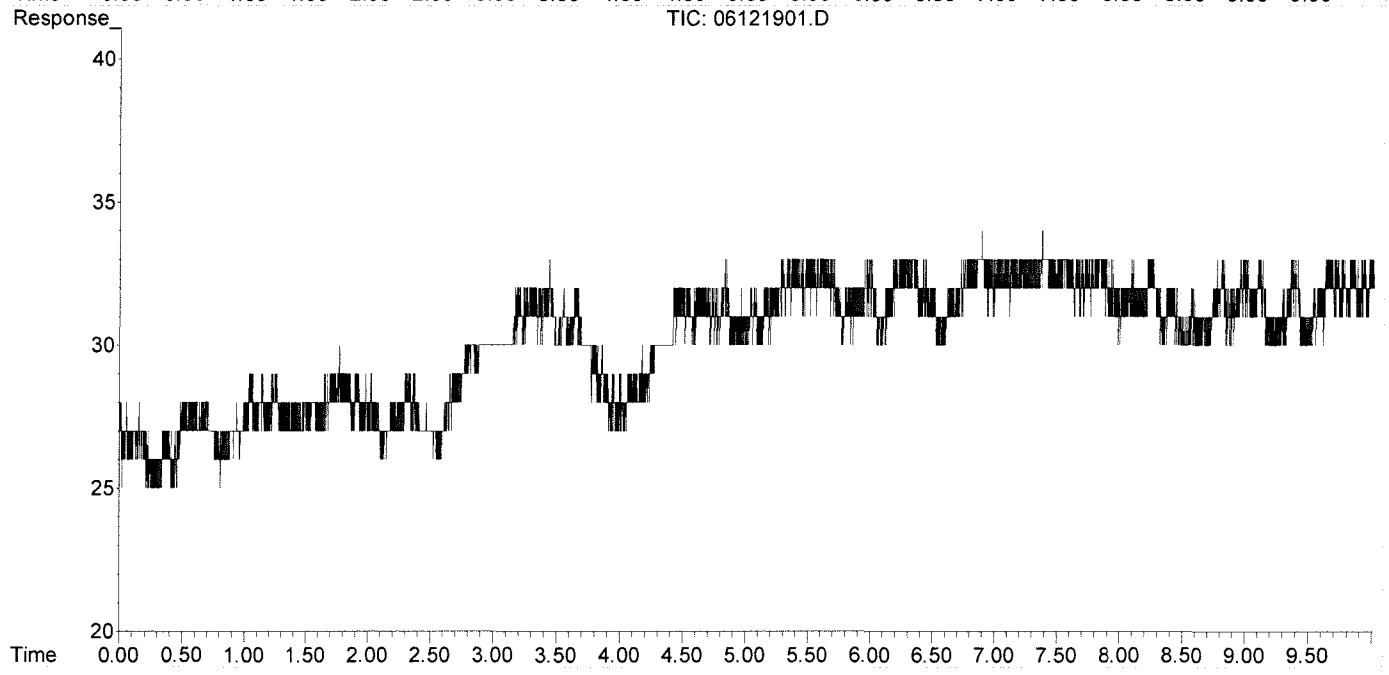
Data Path : J:\GC10\DATA\RSK_TCD\2019_06\12\
Data File : 06121901.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Jun-2019, 09:58:44
Operator : WH
Sample : std s32-04251903
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 10:13:32 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



LW 6/13/19 BLK no problems MR 6/14/19



Data Path : J:\GC10\DATA\RSK_TCD\2019_06\12\
Data File : 06121913.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Jun-2019, 14:29:39
Operator : WH
Sample : std s32-04251903
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 14:43:04 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

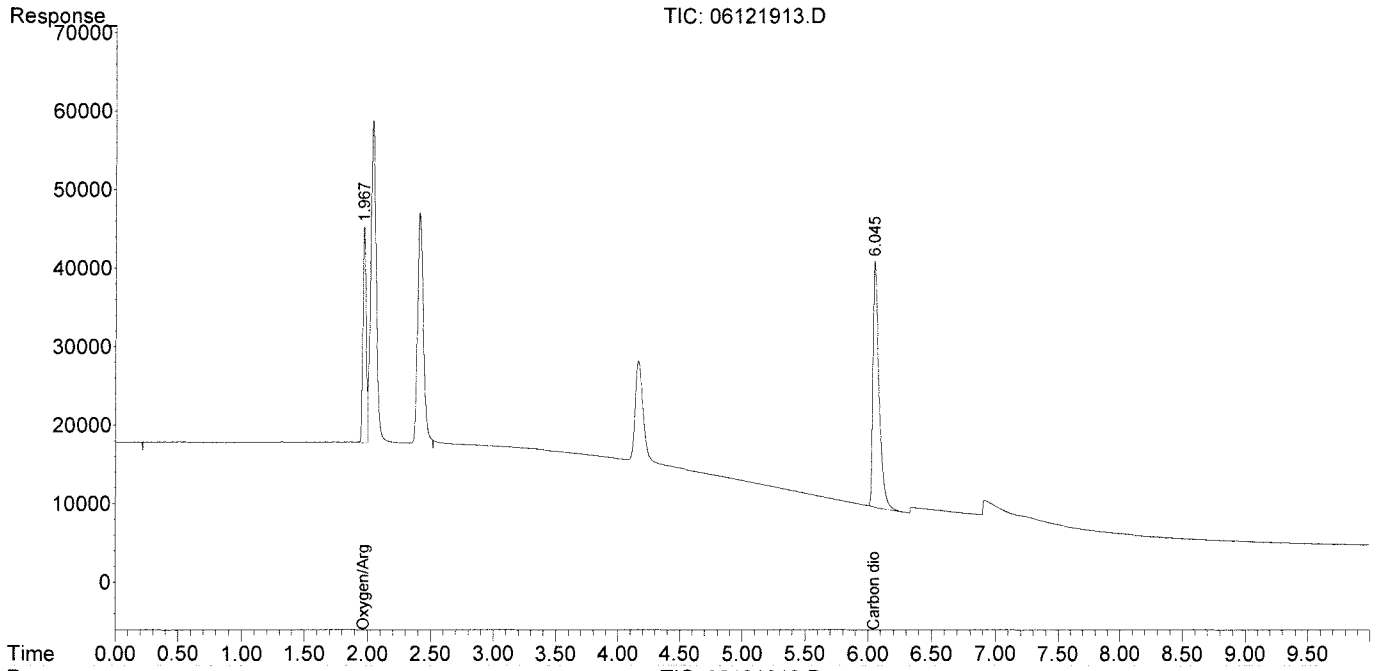
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.968f	491243	0.103	ppm
2)	Carbon monoxide	1.968f	491243	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.046	1061750	4523.296	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

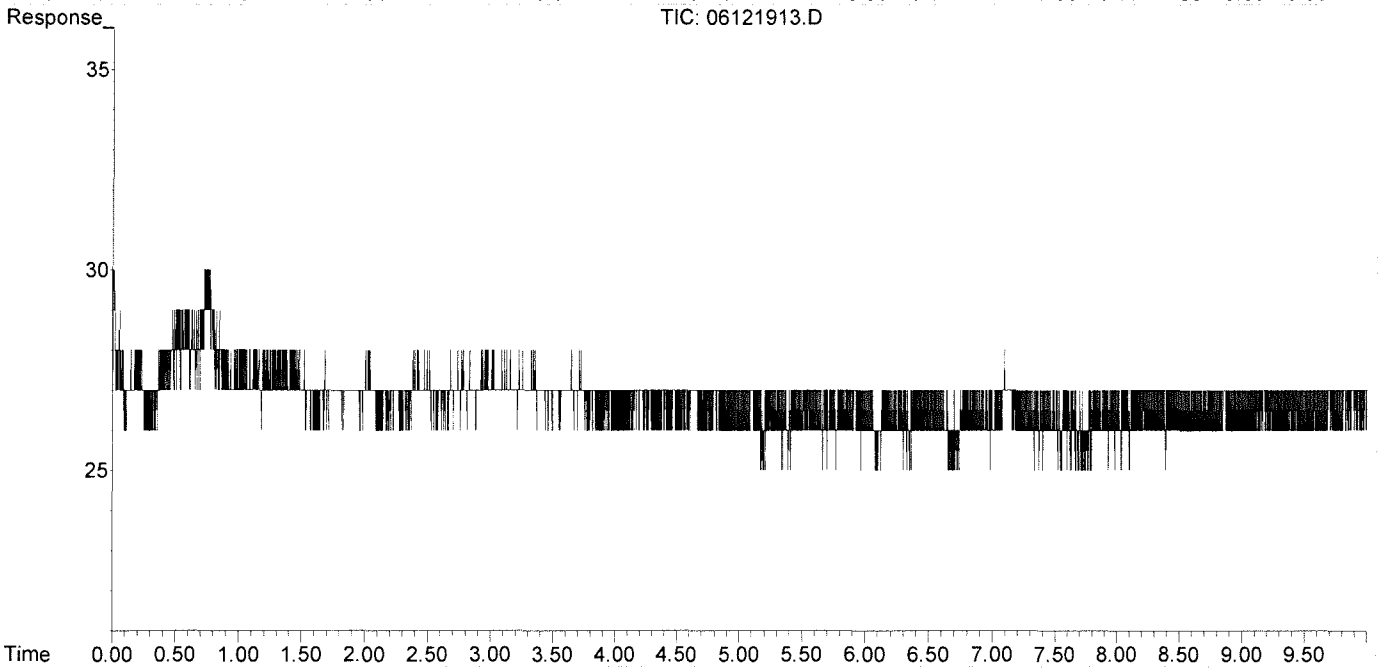
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2019_06\12\
Data File : 06121913.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Jun-2019, 14:29:39
Operator : WH
Sample : std s32-04251903
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 14:43:04 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Injection Log

Directory: I:\GC10\DATA\RSK_FID\2017_08\29\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Acquisition Method	Comments
1	29-Aug-17, 07:58:00	08291701.D	std s30-06161601		MC	RSKBOTH.M	Pass
2	29-Aug-17, 08:11:02	08291702.D	mb 0.5ml		MC	RSKBOTH.M	Pass
3	29-Aug-17, 08:24:13	08291703.D	4089-001 0.5ml		MC	RSKBOTH.M	
4	29-Aug-17, 08:39:29	08291704.D	4089-002 0.5ml		MC	RSKBOTH.M	
5	29-Aug-17, 08:53:38	08291705.D	4089-003 0.5ml		MC	RSKBOTH.M	
6	29-Aug-17, 09:33:52	08291706.D	4089-004 0.5ml		MC	RSKBOTH.M	
7	29-Aug-17, 09:50:51	08291707.D	4089-005 0.5ml		MC	RSKBOTH.M	
8	29-Aug-17, 10:07:54	08291708.D	4089-006 0.5ml		MC	RSKBOTH.M	
9	29-Aug-17, 10:42:34	08291709.D	4089-007 0.5ml		MC	RSKBOTH.M	
10	29-Aug-17, 11:06:01	08291710.D	4089-008 0.5ml		MC	RSKBOTH.M	
11	29-Aug-17, 11:23:53	08291711.D	4089-009 0.5ml		MC	RSKBOTH.M	
12	29-Aug-17, 11:37:17	08291712.D	lcs s30-05241604		MC	RSKBOTH.M	Pass
13	29-Aug-17, 11:50:31	08291713.D	lcs s30-05241604		MC	RSKBOTH.M	Pass
14	29-Aug-17, 12:29:45	08291714.D	std s30-06161601		MC	RSKBOTH.M	Pass
15	29-Aug-17, 14:07:01	08291715.D	25ppm s32-08291701 0.25ml		MC	RSKBOTH.M	Curve
16	29-Aug-17, 14:22:12	08291716.D	100ppm s32-08291702 0.2ml		MC	RSKBOTH.M	Curve
17	29-Aug-17, 14:53:00	08291717.D	250ppm s32-08291702 0.5ml		MC	RSKBOTH.M	Curve
18	29-Aug-17, 15:07:43	08291718.D	mls inject		MC	RSKBOTH.M	
19	29-Aug-17, 15:23:21	08291719.D	2500ppm s32-08231701 50ul		MC	RSKBOTH.M	Curve
20	29-Aug-17, 15:44:54	08291720.D	5000ppm s32-08231701 0.1ml		MC	RSKBOTH.M	Curve
21	29-Aug-17, 16:00:09	08291721.D	25000ppm s32-08231701 0.5ml		MC	RSKBOTH.M	Curve
22	29-Aug-17, 16:15:43	08291722.D	mb 0.1ml		MC	RSKBOTH.M	Pass
23	29-Aug-17, 16:35:37	08291723.D	lcv s30-07071701		MC	RSKBOTH.M	Pass

Injection Log

Directory: I:\GC10\DATA\RSK_TCD\2019_06\12\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Acquisition Method	Comments
1	12-Jun-19, 09:58:44	06121901.D	std s32-04251903		WH	RSKBOTH.M	pass
2	12-Jun-19, 10:15:08	06121902.D	rb 0.1ml		WH	RSKBOTH.M	pass
3	12-Jun-19, 10:46:05	06121903.D	MCS 0.1ml		WH	RSKBOTH.M	pass
4	12-Jun-19, 11:05:17	06121904.D	LCS TCD 0.1ml		WH	RSKBOTH.M	pass
5	12-Jun-19, 11:28:50	06121905.D	LCSD TCD 0.1ml		WH	RSKBOTH.M	pass
6	12-Jun-19, 11:53:54	06121906.D	p1903217-001 0.1ml		WH	RSKBOTH.M	
7	12-Jun-19, 12:06:35	06121907.D	P1903217-001 50ul		WH	RSKBOTH.M	
8	12-Jun-19, 12:43:12	06121908.D	P1903217-002 50ul		WH	RSKBOTH.M	
9	12-Jun-19, 12:56:55	06121909.D	P1903217-003 50ul		WH	RSKBOTH.M	
10	12-Jun-19, 13:25:12	06121910.D	P1903217-004 50ul		WH	RSKBOTH.M	
11	12-Jun-19, 13:41:54	06121911.D	P1903217-005 50ul		WH	RSKBOTH.M	
12	12-Jun-19, 13:53:26	06121912.D	P1903217-006 50ul		WH	RSKBOTH.M	
13	12-Jun-19, 14:29:39	06121913.D	std s32-04251903		WH	RSKBOTH.M	pass
14	12-Jun-19, 14:44:58	06121914.D	xP1903244-001 50u		WH	RSKBOTH.M	
15	12-Jun-19, 14:58:42	06121915.D	P1903244-001 50ul		WH	RSKBOTH.M	
16	12-Jun-19, 15:17:41	06121916.D	P1903244-002 50ul		WH	RSKBOTH.M	
17	12-Jun-19, 15:31:33	06121917.D	xP1903244-003 50u		WH	RSKBOTH.M	
18	12-Jun-19, 15:47:49	06121918.D	P1903244-004 50ul		WH	RSKBOTH.M	
19	12-Jun-19, 16:08:34	06121919.D	P1903244-005 50ul		WH	RSKBOTH.M	
20	12-Jun-19, 16:32:46	06121920.D	P1903244-006 50ul		WH	RSKBOTH.M	
21	12-Jun-19, 16:48:17	06121921.D	P1903244-003 50ul		WH	RSKBOTH.M	
22	12-Jun-19, 17:06:26	06121922.D	std s32-04251903		WH	RSKBOTH.M	pass

Data Path : J:\GC10\DATA\RSK_FID\2019_06\11\
Data File : 06111913.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 11-Jun-2019, 14:48:57
Operator : WH
Sample : P1903217-001 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 12:19:10 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

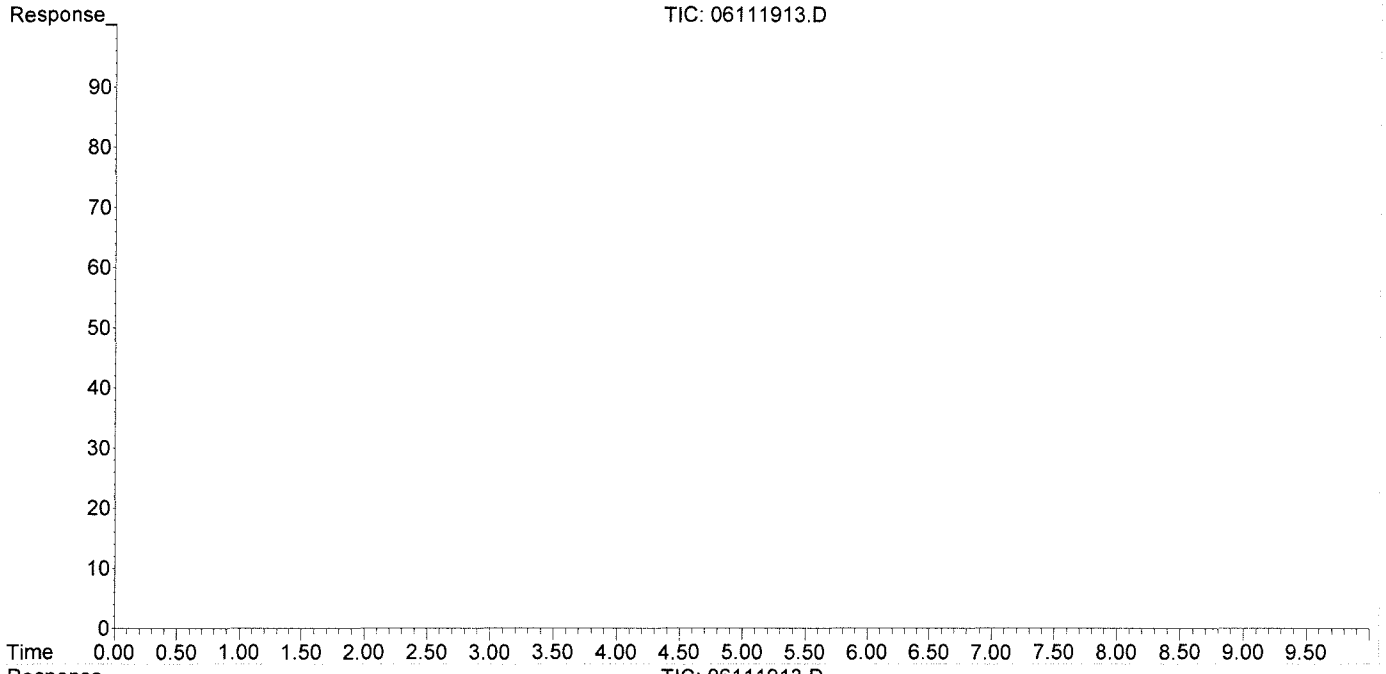
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.109	6568	0.724	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

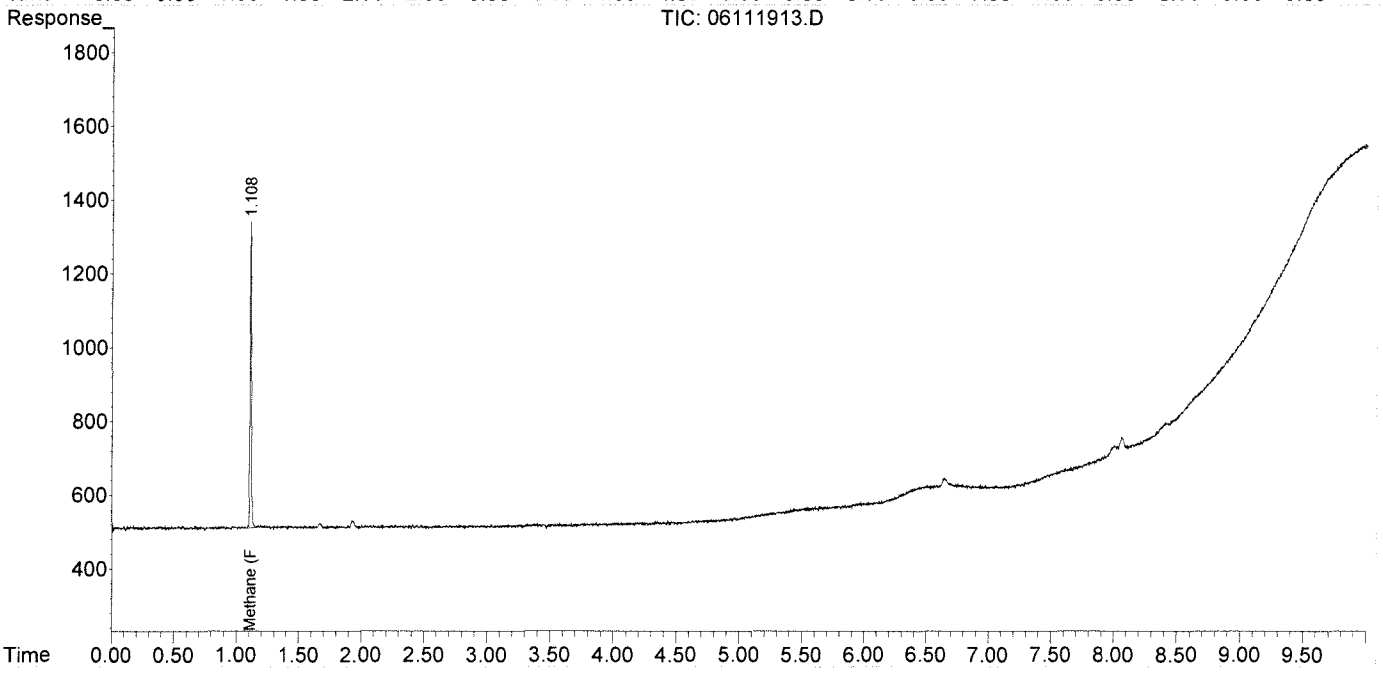
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_06\11\
Data File : 06111913.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 11-Jun-2019, 14:48:57
Operator : WH
Sample : P1903217-001 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 12:19:10 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : J:\GC10\DATA\RSK_FID\2019_06\11\
Data File : 06111914.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 11-Jun-2019, 15:13:17
Operator : WH
Sample : P1903217-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 12:19:13 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

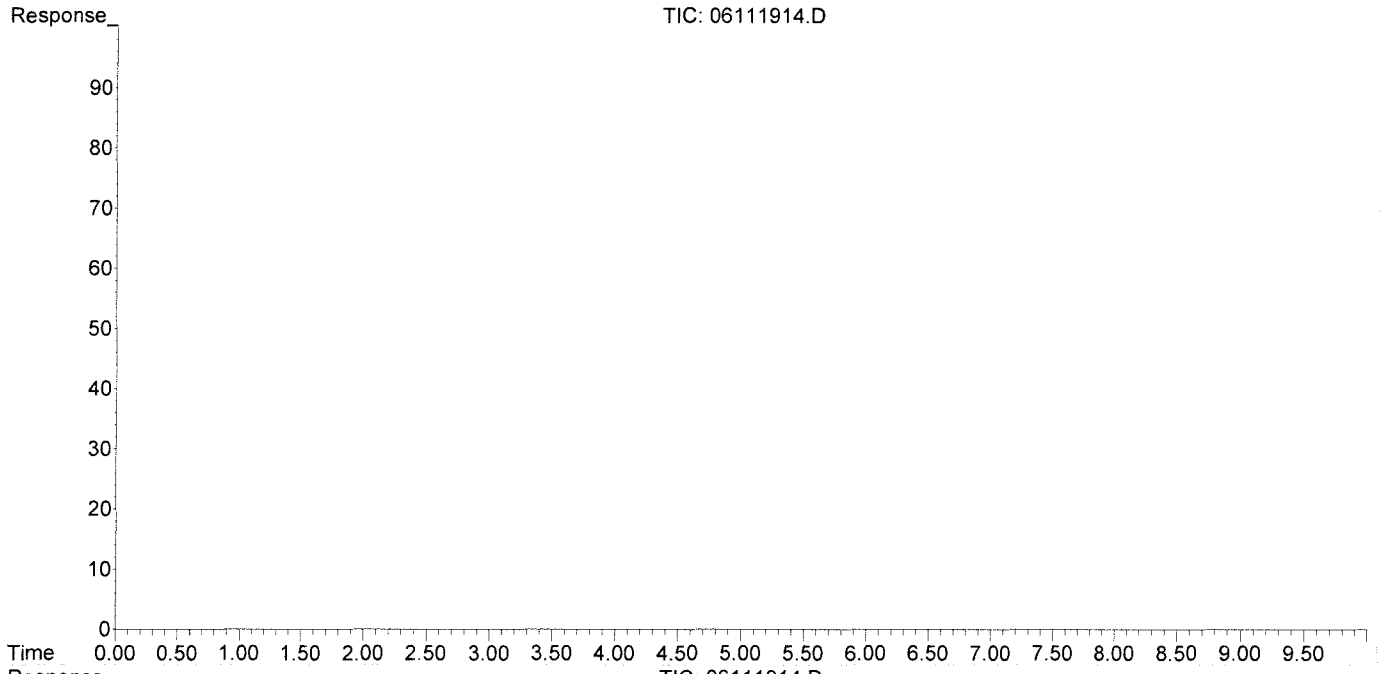
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	
2)	Carbon monoxide	0.000	0	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.109	371941	41.005	ppm	
7)	Ethylene	1.667	14664	0.876	ppm	
8)	Ethane	1.930	904	0.053	ppm	m
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	6.646f	26227	0.985	ppm	
13)	n-Butane	6.646f	26227	0.985	ppm	

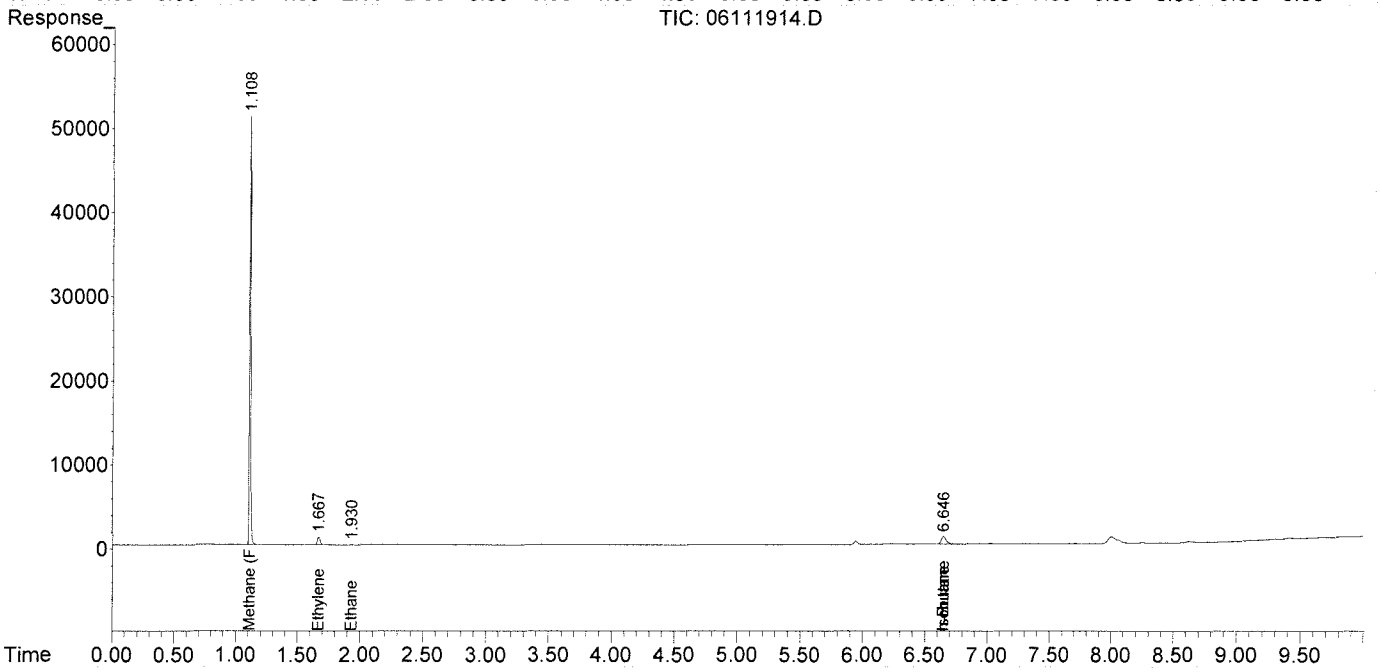
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_06\11\
Data File : 06111914.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 11-Jun-2019, 15:13:17
Operator : WH
Sample : P1903217-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 12:19:13 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

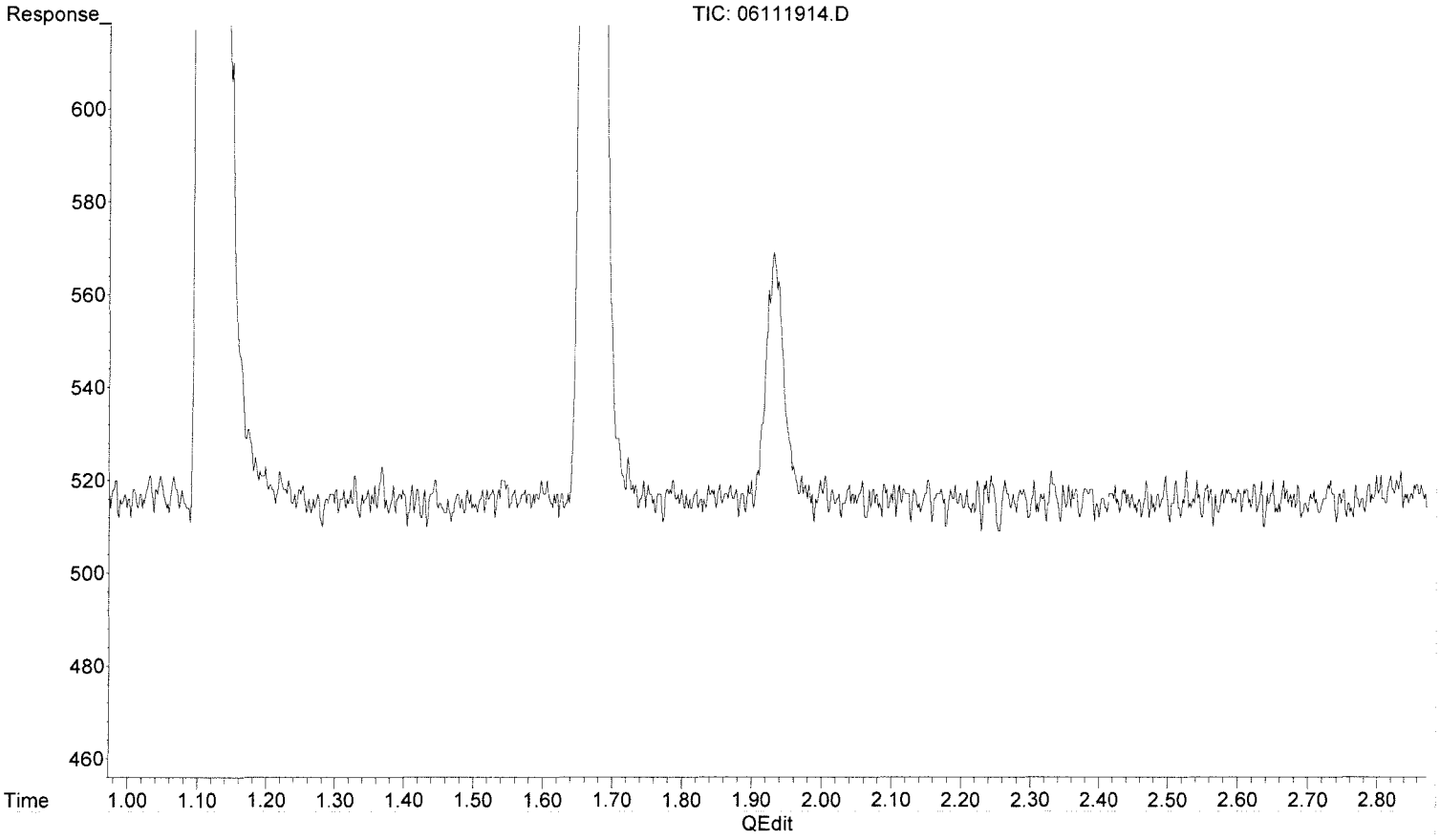




Data Path : J:\GC10\DATA\RSK_FID\2019_06\11\
Data File : 06111914.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 11-Jun-2019, 15:13:17
Operator : WH
Sample : P1903217-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 12:19:13 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(8) Ethane

1.923min 0.000 ppm

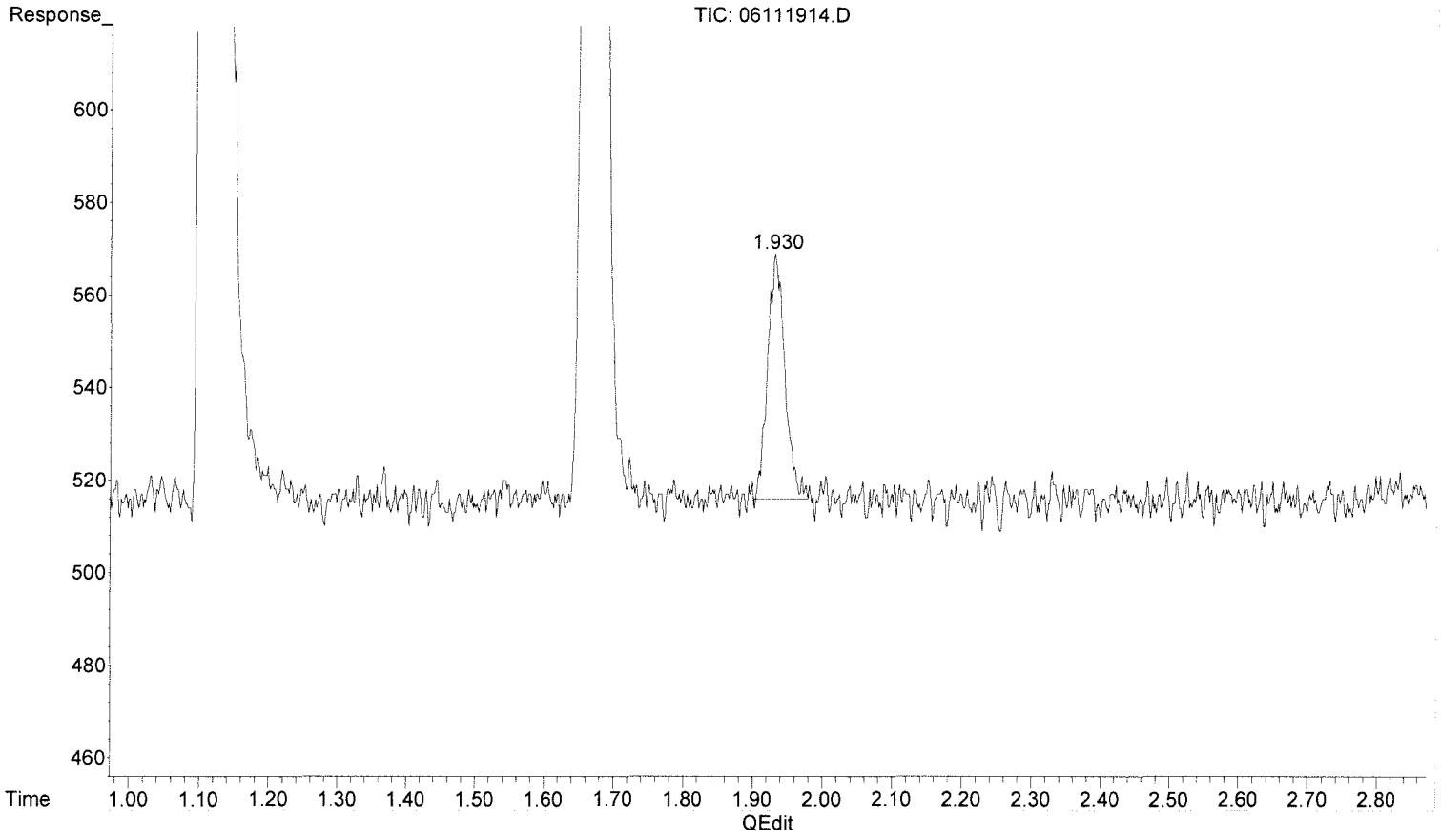
response 0

(+) = Expected Retention Time

Data Path : J:\GC10\DATA\RSK_FID\2019_06\11\
Data File : 06111914.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 11-Jun-2019, 15:13:17
Operator : WH
Sample : P1903217-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 12:19:13 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(8) Ethane

1.930min 0.053 ppm m

response 904

MP 6/12/19

MP 6/12/19

(+) = Expected Retention Time

Data Path : J:\GC10\DATA\RSK_FID\2019_06\11\
Data File : 06111915.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 11-Jun-2019, 15:38:23
Operator : WH
Sample : P1903217-003 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 12:19:17 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

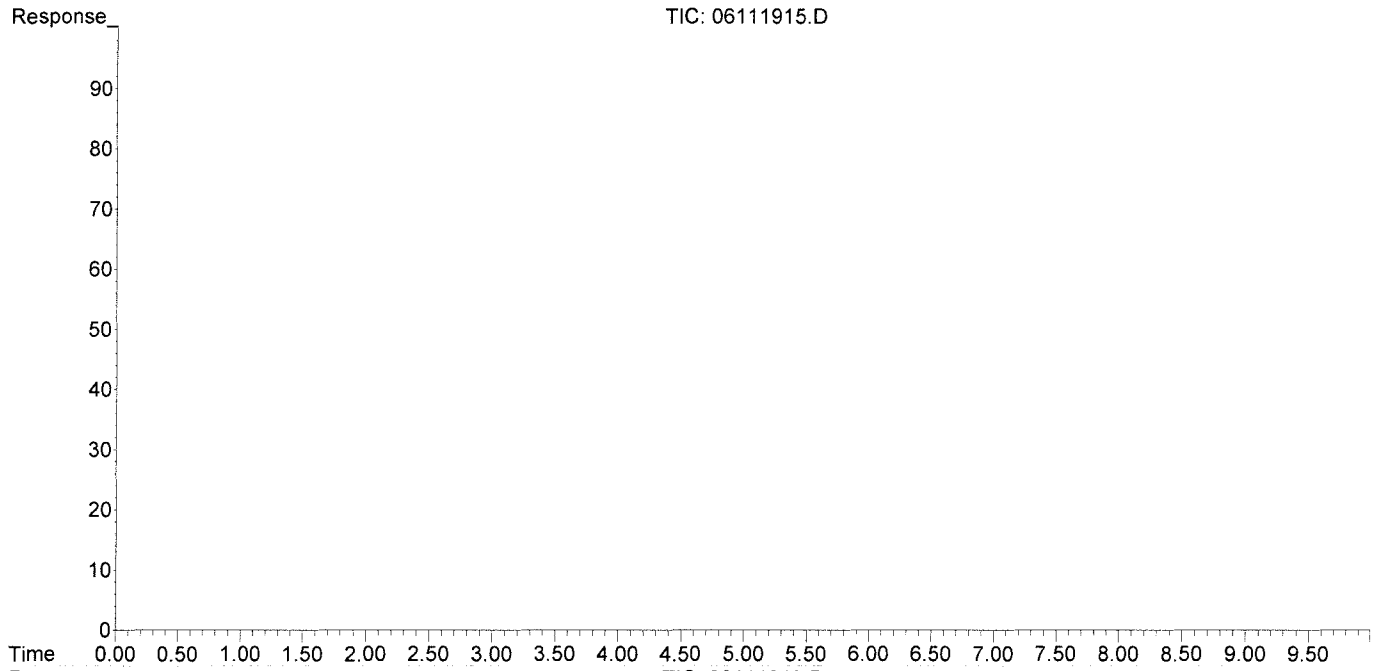
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.105	6195188	682.993	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

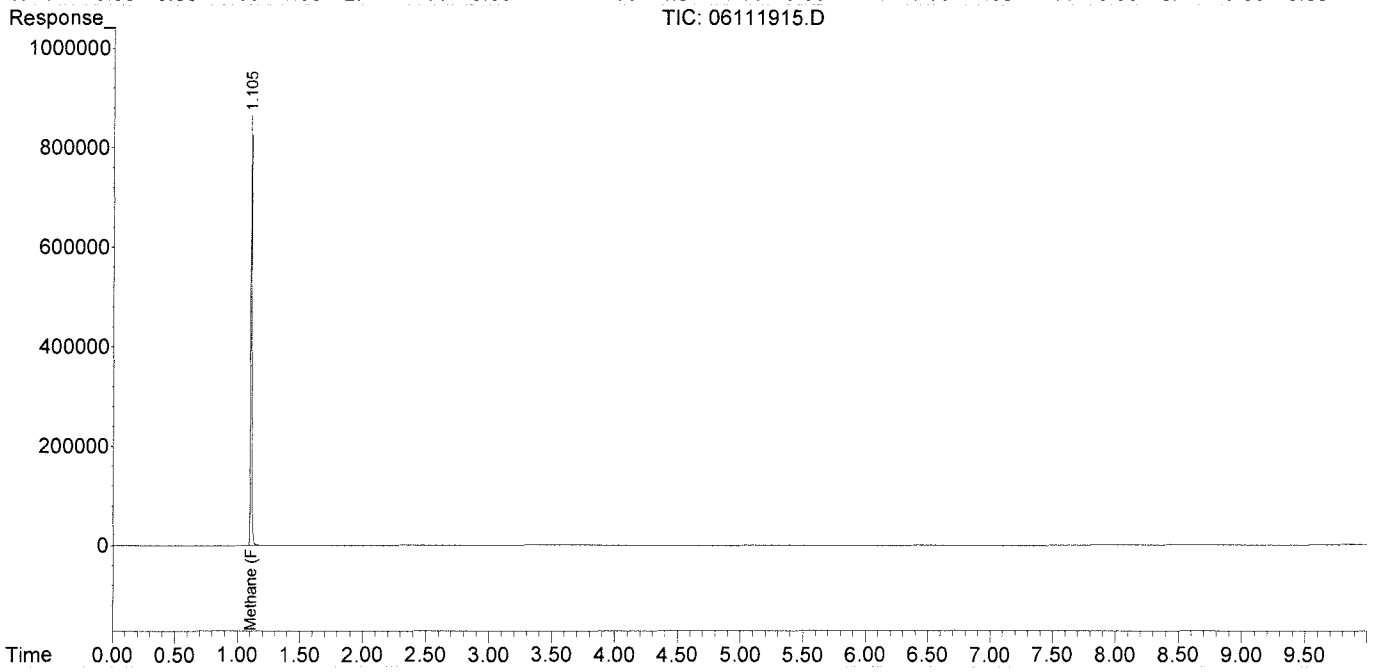
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_06\11\
Data File : 06111915.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 11-Jun-2019, 15:38:23
Operator : WH
Sample : P1903217-003 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 12:19:17 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : J:\GC10\DATA\RSK_FID\2019_06\11\
Data File : 06111916.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 11-Jun-2019, 15:51:45
Operator : WH
Sample : P1903217-004 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 12:19:21 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

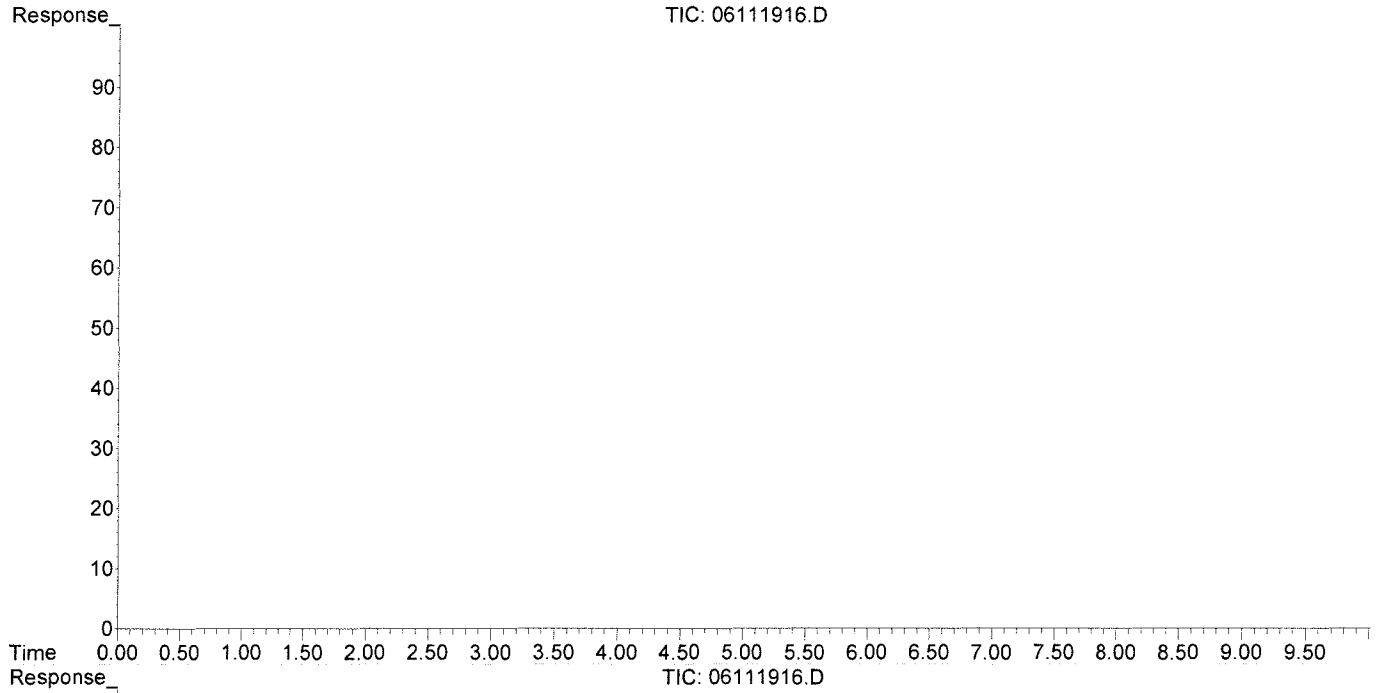
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.109	20247	2.232	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

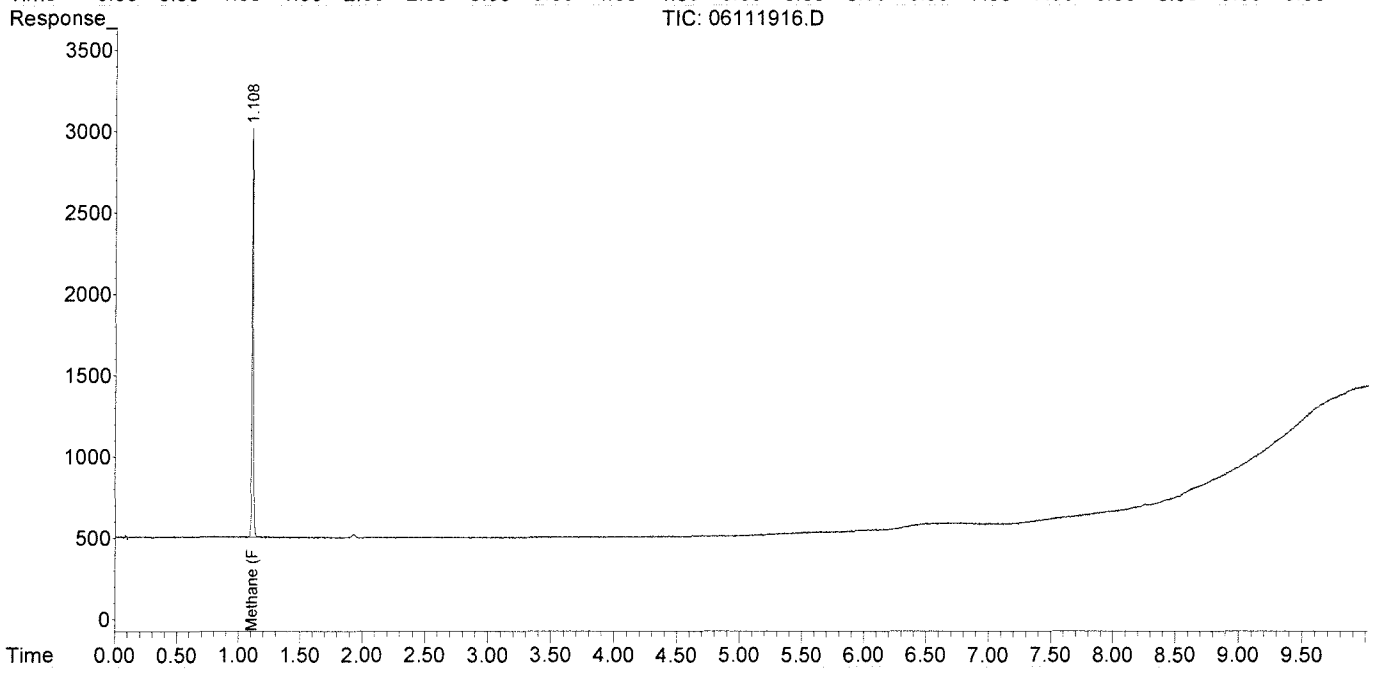
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_06\11\
Data File : 06111916.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 11-Jun-2019, 15:51:45
Operator : WH
Sample : P1903217-004 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 12:19:21 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : J:\GC10\DATA\RSK_FID\2019_06\11\
Data File : 06111917.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 11-Jun-2019, 16:14:33
Operator : WH
Sample : P1903217-005 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 12:19:25 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

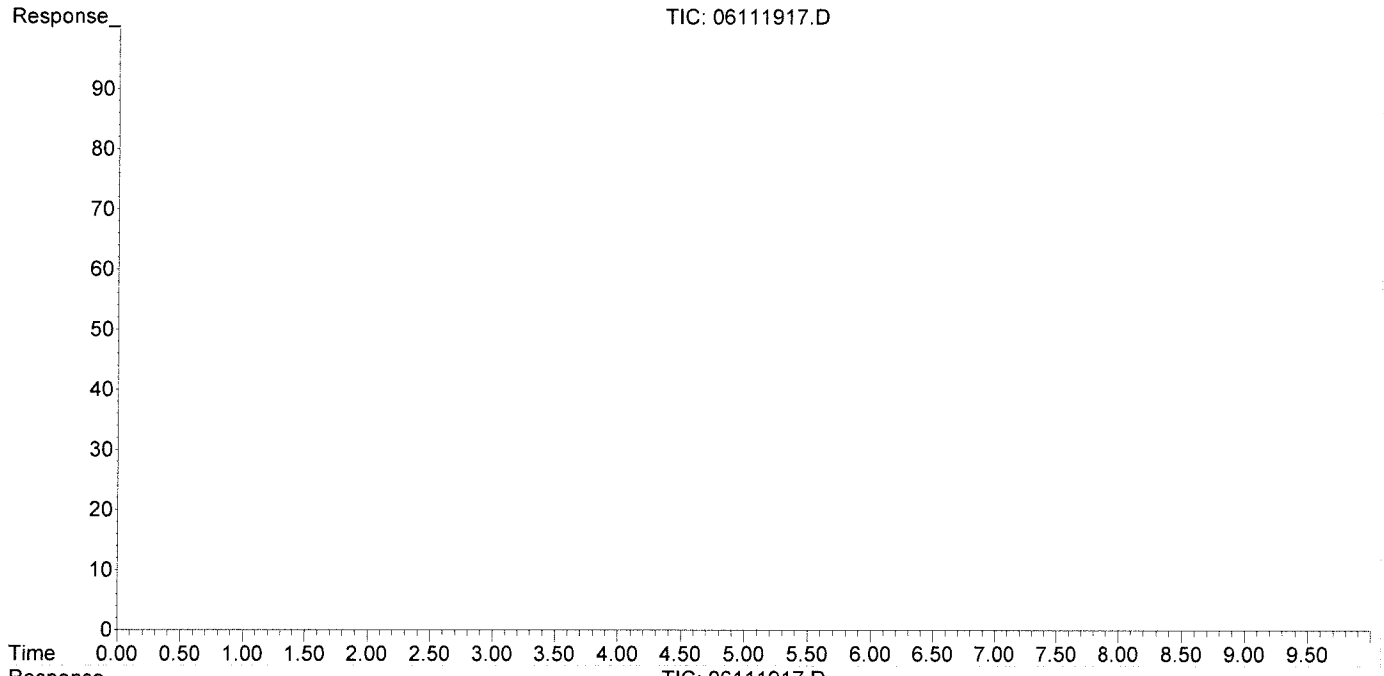
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.109	2788839	307.458	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

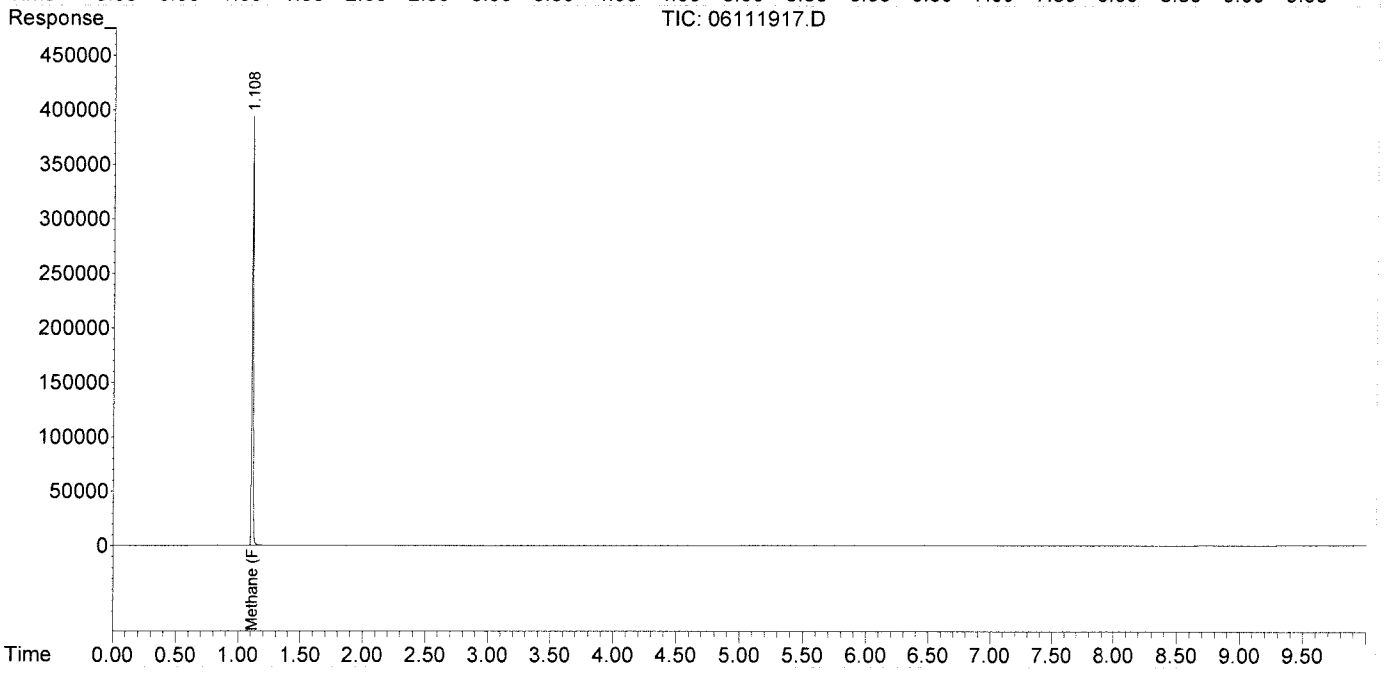
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_06\11\
Data File : 06111917.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 11-Jun-2019, 16:14:33
Operator : WH
Sample : P1903217-005 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 12:19:25 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : J:\GC10\DATA\RSK_FID\2019_06\11\
Data File : 06111918.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 11-Jun-2019, 16:36:27
Operator : WH
Sample : P1903217-006 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 12:19:29 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

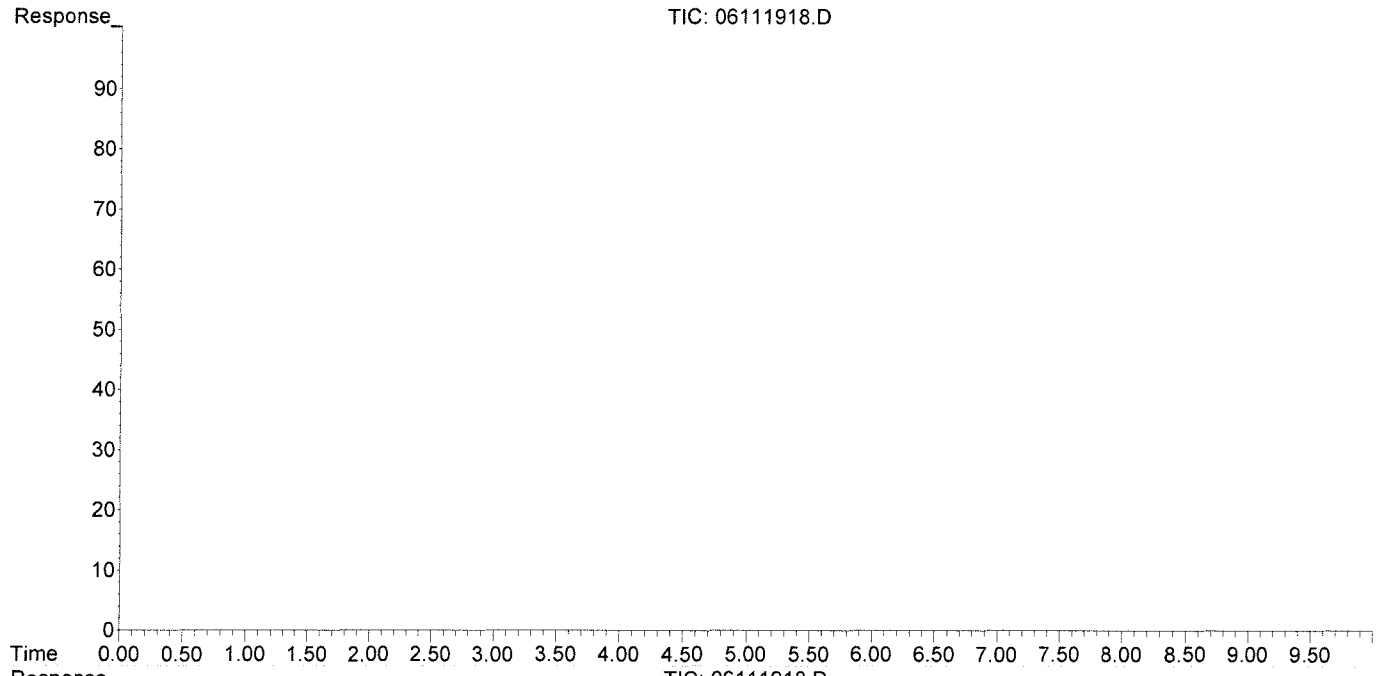
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.109	11174	1.232	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

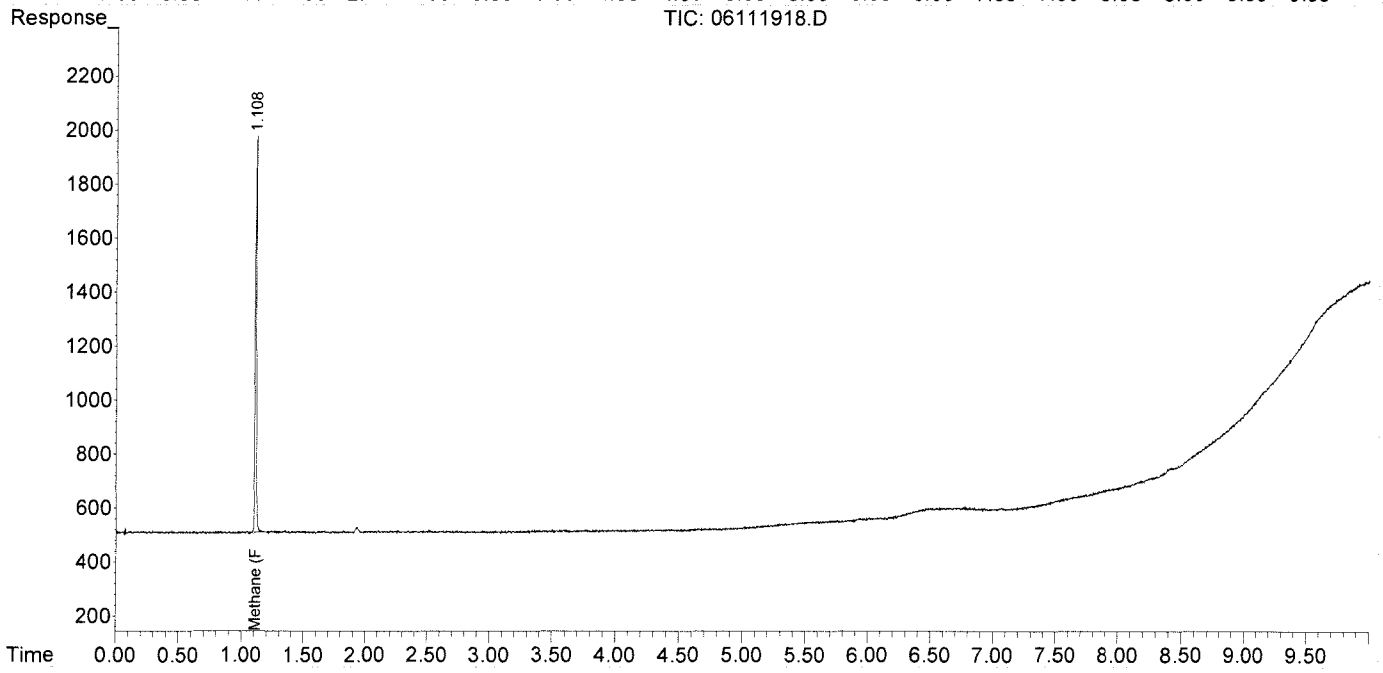
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_06\11\
Data File : 06111918.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 11-Jun-2019, 16:36:27
Operator : WH
Sample : P1903217-006 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 12:19:29 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : J:\GC10\DATA\RSK_FID\2019_06\11\
Data File : 06111903.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 11-Jun-2019, 11:04:29
Operator : WH
Sample : MCS 0.1ML
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 11:36:53 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

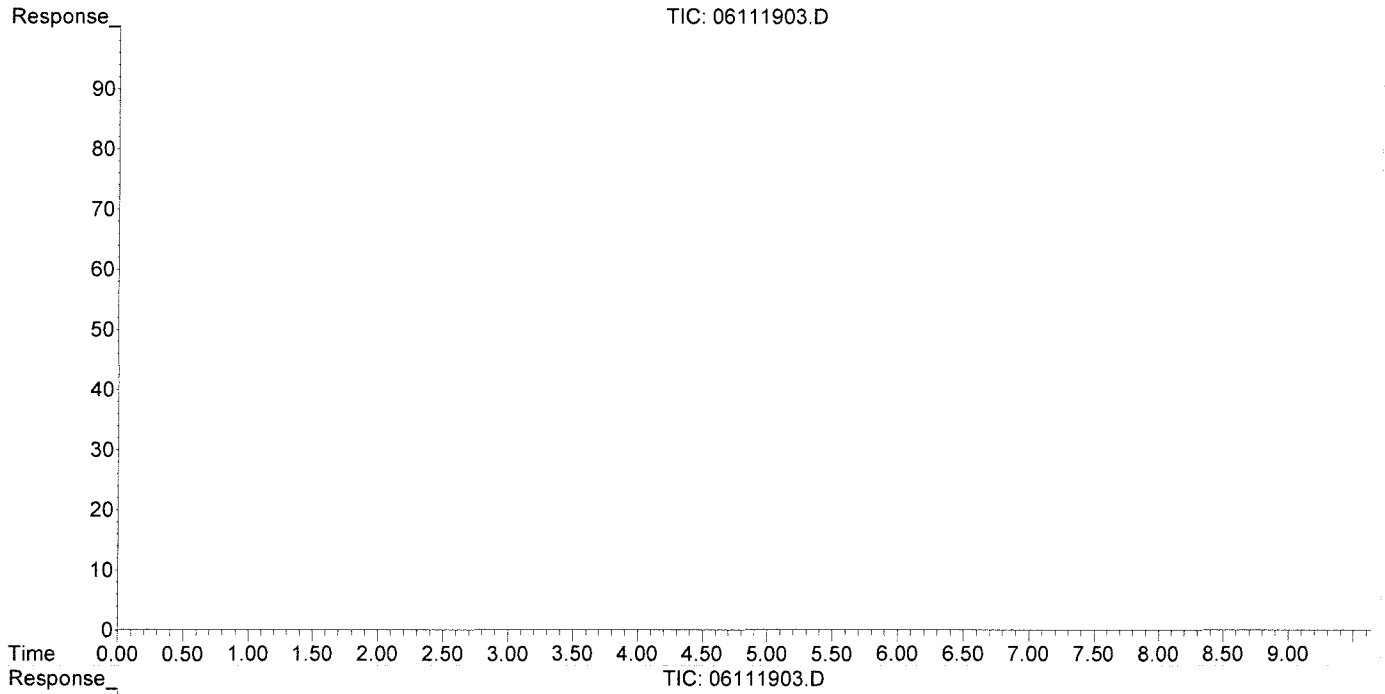
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

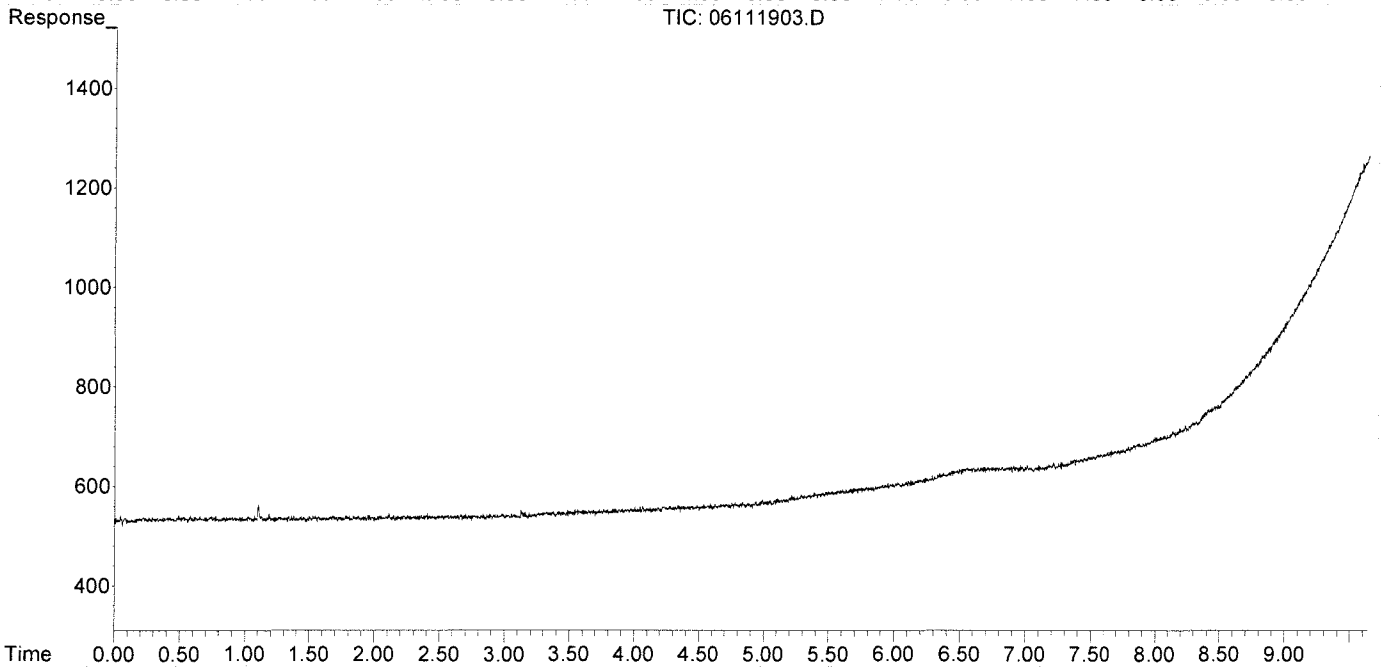
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_06\11\
Data File : 06111903.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 11-Jun-2019, 11:04:29
Operator : WH
Sample : MCS 0.1ML
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 11:36:53 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : J:\GC10\DATA\RSK_FID\2019_06\11\
Data File : 06111910.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 11-Jun-2019, 13:33:06
Operator : WH
Sample : lcs fid 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 11 13:42:21 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

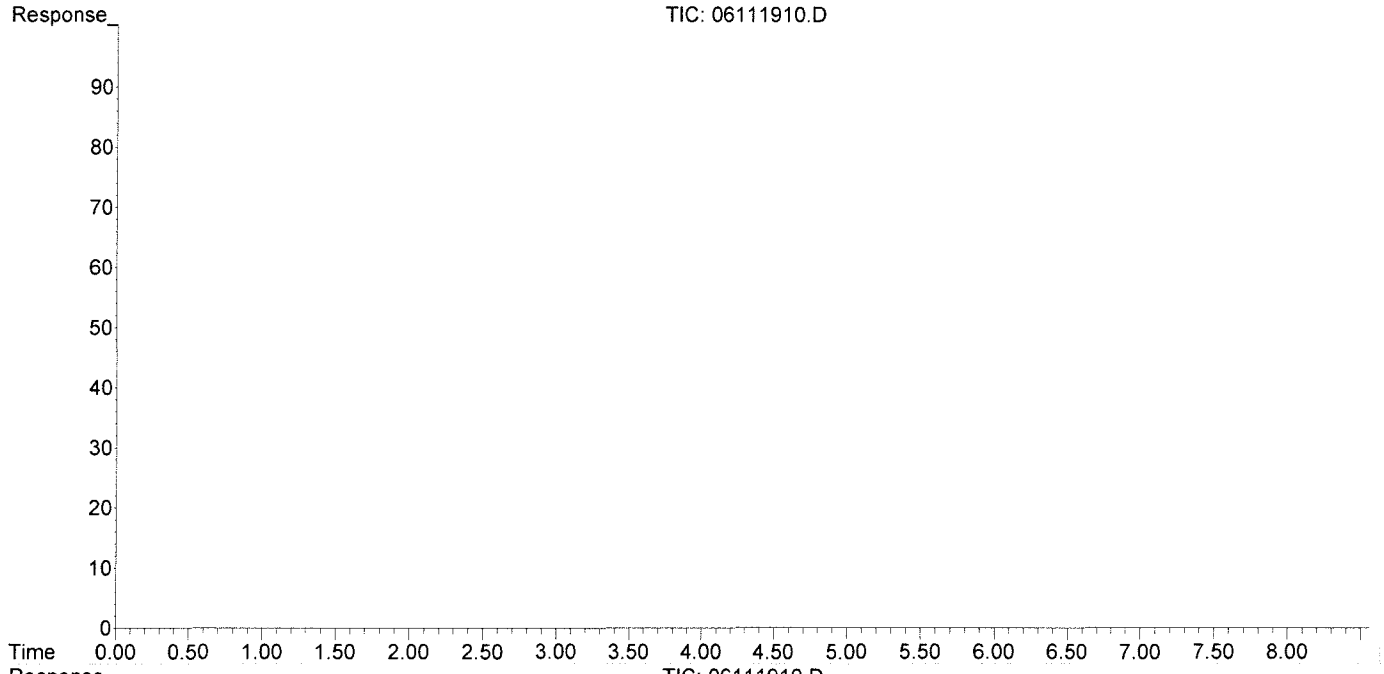
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.107	11662	1.286	ppm
7)	Ethylene	1.667	18008	1.076	ppm
8)	Ethane	1.928	20085	1.185	ppm
9)	Propylene	4.306	25142	1.073	ppm
10)	Propane	4.429	30346	1.220	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.646	39080	1.468	ppm
13)	n-Butane	6.646	39080	1.468	ppm

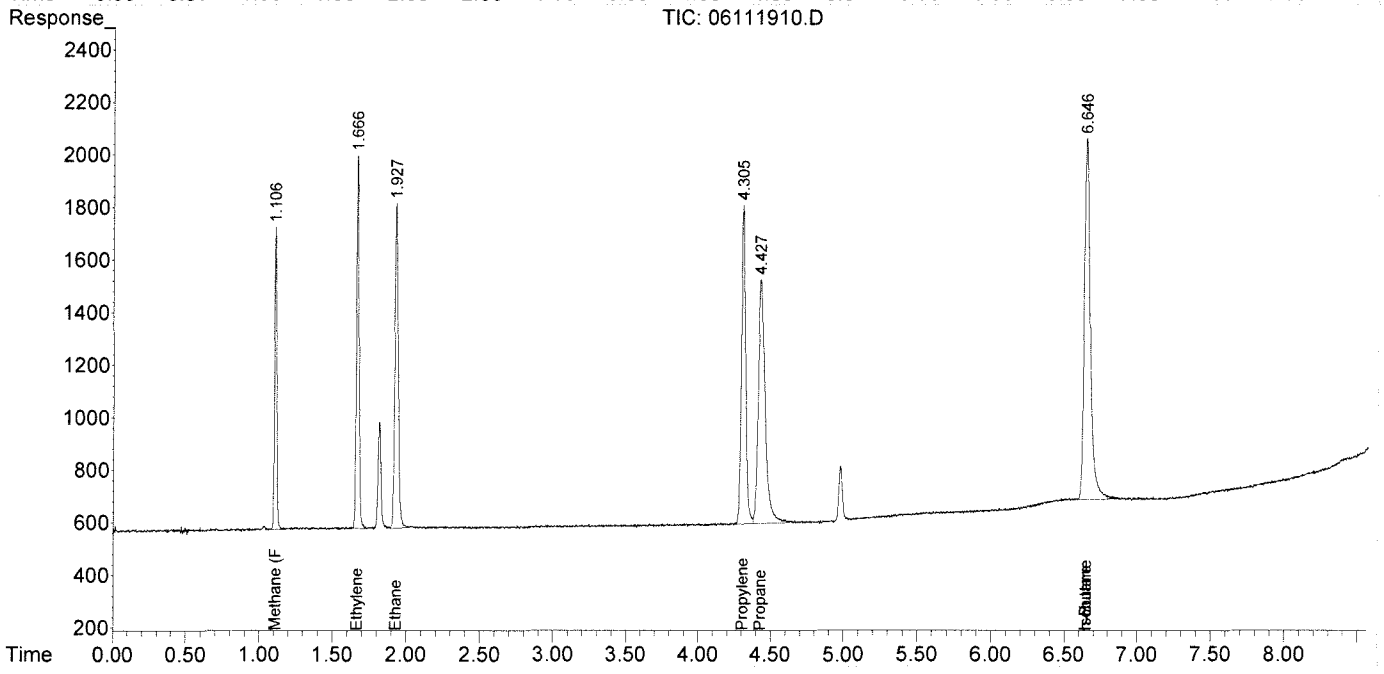
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_06\11\
Data File : 06111910.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 11-Jun-2019, 13:33:06
Operator : WH
Sample : lcs fid 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 11 13:42:21 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : J:\GC10\DATA\RSK_FID\2019_06\11\
Data File : 06111911.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 11-Jun-2019, 13:54:43
Operator : WH
Sample : lcsd fid 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 11 14:11:34 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

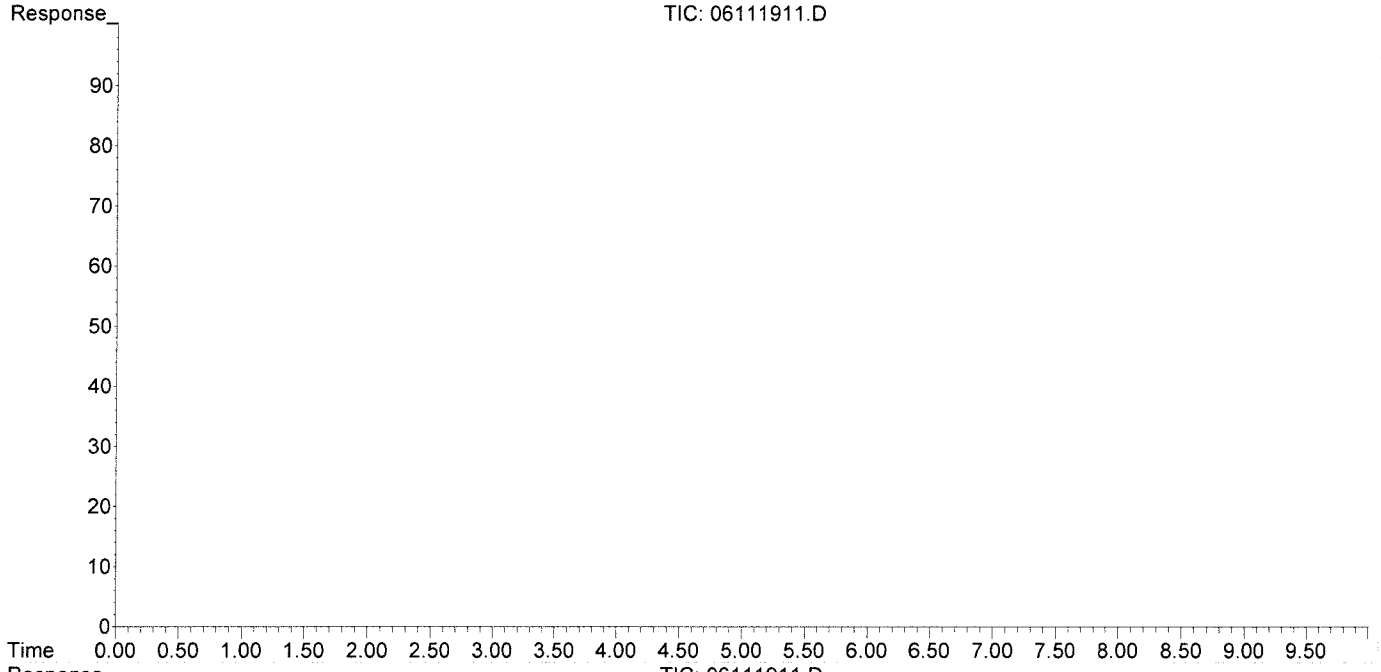
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.108	12106	1.335	ppm
7)	Ethylene	1.668	18922	1.131	ppm
8)	Ethane	1.929	21403	1.263	ppm
9)	Propylene	4.306	26661	1.138	ppm
10)	Propane	4.429	32816	1.319	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.645f	43079	1.618	ppm
13)	n-Butane	6.645f	43079	1.618	ppm

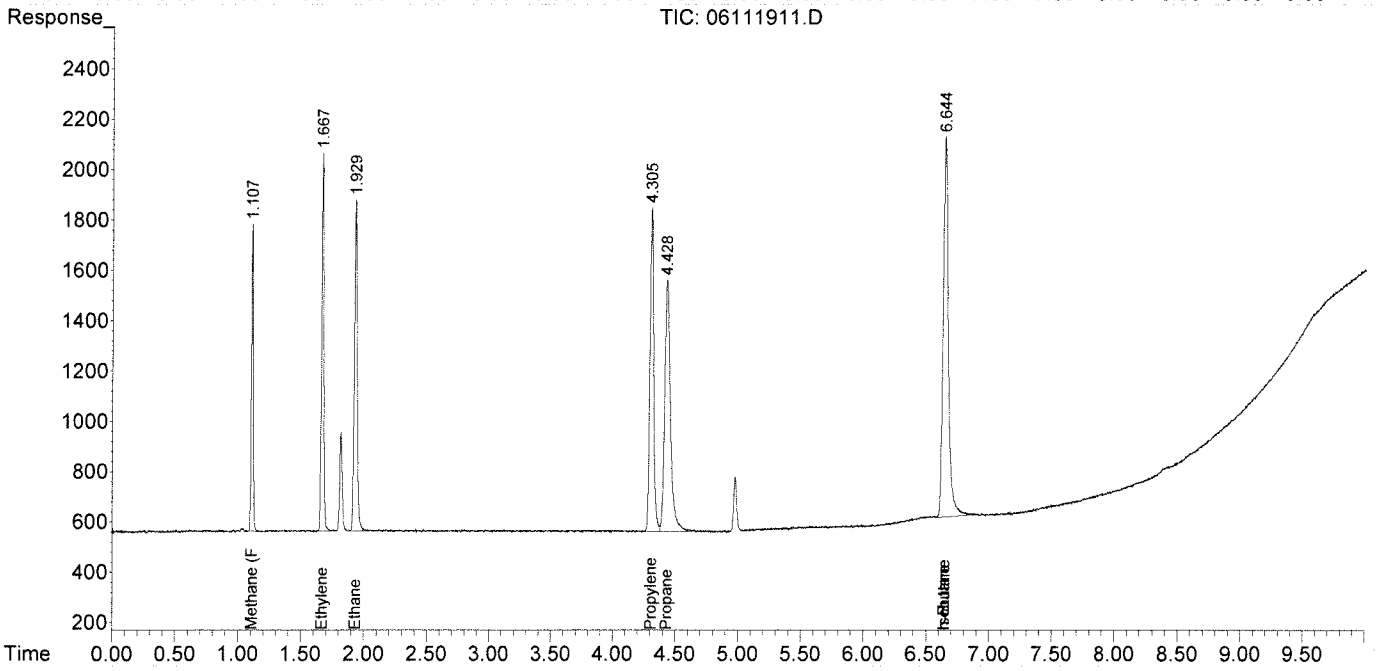
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_06\11\
Data File : 06111911.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 11-Jun-2019, 13:54:43
Operator : WH
Sample : lcsd fid 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 11 14:11:34 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Response Factor Report HP5890

Method Path : J:\GC10\METHODS\
Method File : RS091217_R.M
Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
Last Update : Wed Sep 13 11:14:47 2017
Response Via : Initial Calibration

Calibration Files
1 =09121702.D 2 =09121703.D 3 =09121704.D
4 =09121705.D 5 =09121706.D 6 =09121707.D

	Compound	1	2	3	4	5	6	Avg		%RSD
1)	Oxygen/Argon	3.739		1.014			0.001	0.793	E6	189.17
2)	Carbon monoxide	3.739		1.014			0.001	0.594	E6	221.92
3)	Methane (TCD)						2.161	0.951	E2	106.37
4)	Carbon dioxide	2.365	2.569	2.558	2.361	2.459	2.314	2.438	E2	4.44

Signal #2 Calibration Files
1 =09121702.D 2 =09121703.D 3 =09121704.D
4 =09121705.D 5 =09121706.D 6 =09121707.D

	Compound	1	2	3	4	5	6	Avg		%RSD
6)	Methane (FID)		1.180	0.975	0.908	0.870	0.868	0.907	E4	11.66
7)	Ethylene	1.736	1.638	1.780	1.720	1.628	1.670	1.673	E4	3.90
8)	Ethane	1.781	1.676	1.784	1.730	1.692	1.675	1.695	E4	3.83
9)	Propylene	2.505	2.296	2.592	2.480	2.346	2.252	2.343	E4	6.56
10)	Propane	2.439	2.283	2.645	2.555	2.433	2.522	2.488	E4	4.20
11)	Isobutylene							0.652	E1	138.46
12)	Isobutane	6.058	4.793	2.214	1.553	1.353		2.662	E4	86.17
13)	n-Butane	6.058	4.793	2.214	1.553	1.353		2.662	E4	86.17

(#) = Out of Range ### Number of calibration levels exceeded format ###

RS091217_R.M Wed Sep 13 15:11:48 2017

Edit Compounds -- Compound #6 -- Methane (FID)

Search by: Ret Time | Name | Index | Find Compound

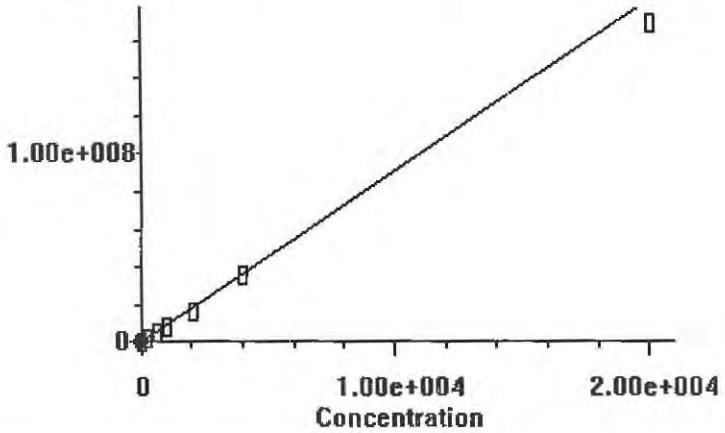
- Compound Database
- External Standard Compoun
  - Oxygen/Argon
  - Carbon monoxide
  - Methane (TCD)
  - Carbon dioxide
  - Signal #2
  - Methane (FID)
  - Ethylene
  - Ethane
  - Propylene
  - Propane
  - Isobutylene
  - Isobutane
  - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	
2	0.302000	3564.400000
3	1.510000	14725.268625
4	4.530000	41128.575000
5	10.570000	91966.784531
6	200.000000	1735997.497500
7	600.000000	5189848.900000
8	1000.000000	8598533.570000
9	2000.000000	16098209.390000
10	4000.000000	35776839.311362
11	20000.000000	169009160.49199

Methane (FID)

Response



0.000e+000	Quadratic term
9.071e+003	Linear term
0.000e+000	Constant term
11.657%	RF Rel Std Dev

OK | Cancel | Help | Print Calibration Curve | Copy Calibration Curve

Edit Compounds -- Compound #7 -- Ethylene

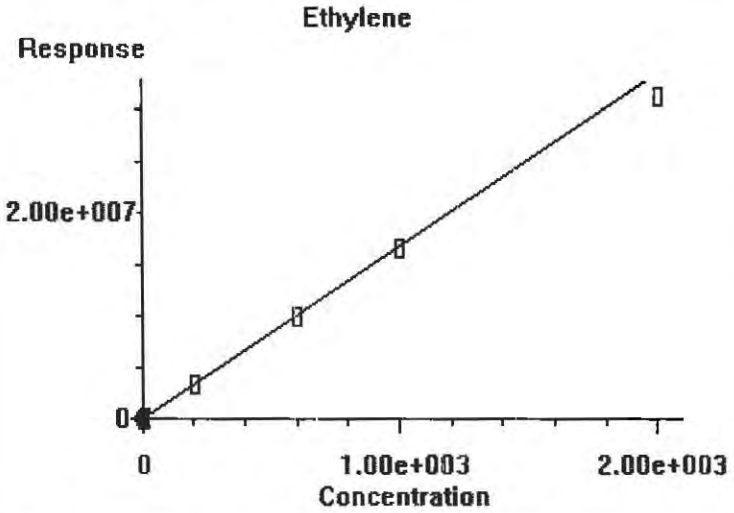
Search by: Ret Time | Name | Index | Find Compound

- Compound Database
- External Standard Compoun
  - Oxygen/Argon
  - Carbon monoxide
  - Methane (TCD)
  - Carbon dioxide
  - Signal #2
  - Methane (FID)
  - Ethylene
  - Ethane
  - Propylene
  - Propane
  - Isobutylene
  - Isobutane
  - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	2621.970000
2	0.302000	4946.731301
3	1.510000	26884.746847
4	4.530000	77902.721497
5	10.570000	172085.529560
6	200.000000	3339702.313219
7	600.000000	10007758.776971
8	1000.000000	16608503.805988
9	2000.000000	31192443.898600
10	4000.000000	

Lvl ID	Concentration	Response
11	20000.000000	



0.000e+000	Quadratic term
1.673e+004	Linear term
0.000e+000	Constant term
3.897%	RF Rel Std Dev

OK | Cancel | Help | Print Calibration Curve | Copy Calibration Curve

Edit Compounds -- Compound #8 -- Ethane

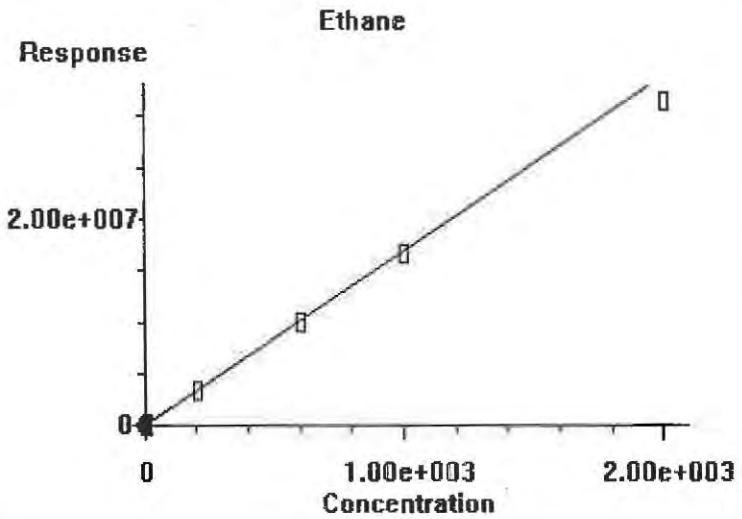
Search by: Ret Time | Name | Index — Find Compound

- Compound Database
- External Standard Compoun
  - Oxygen/Argon
  - Carbon monoxide
  - Methane (TCD)
  - Carbon dioxide
  - Signal #2
  - Methane (FID)
  - Ethylene
  - Ethane
  - Propylene
  - Propane
  - Isobutylene
  - Isobutane
  - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

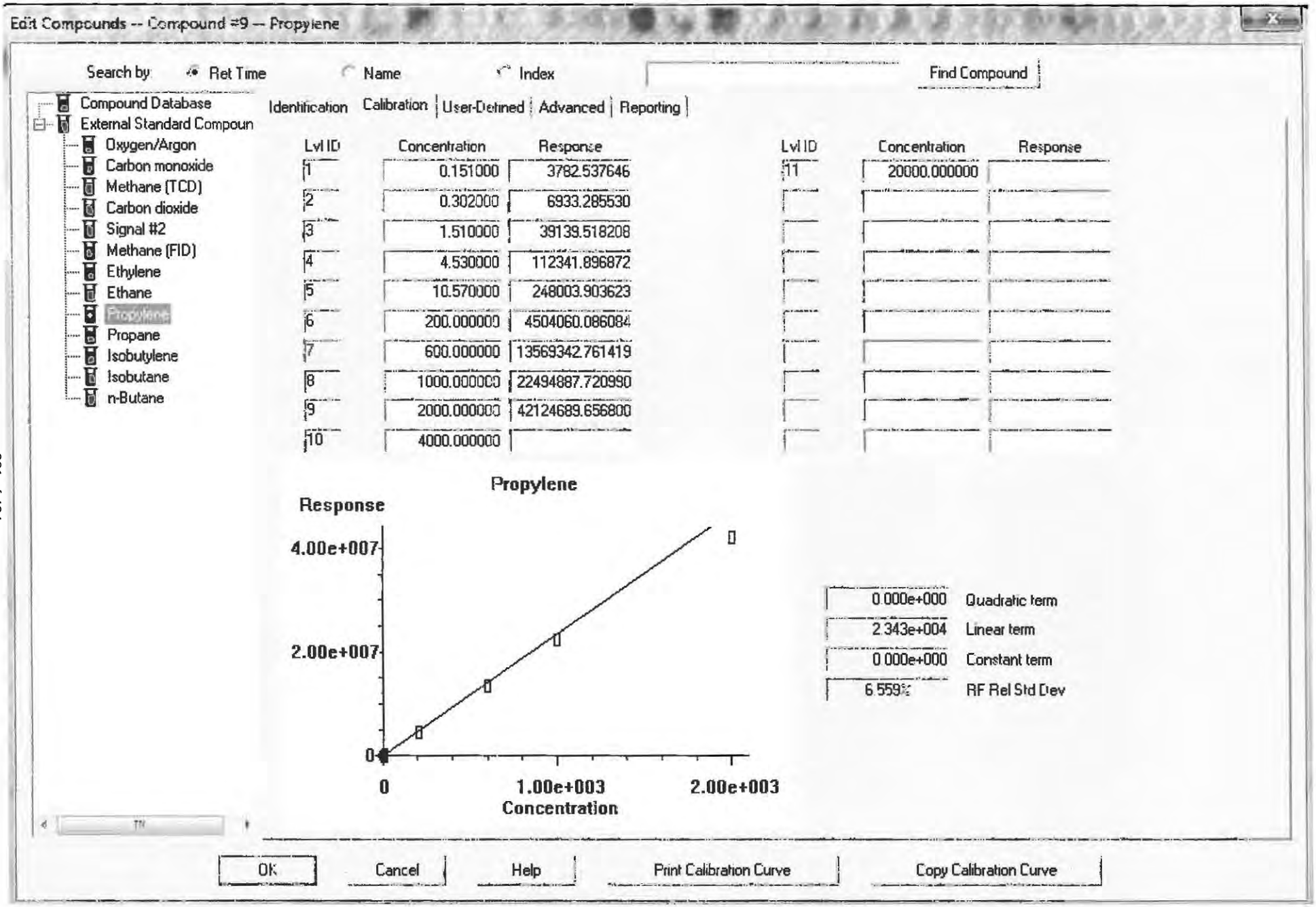
Lvl ID	Concentration	Response
1	0.151000	2689.928008
2	0.302000	5060.331943
3	1.510000	26943.667500
4	4.530000	78353.525045
5	10.570000	178840.731148
6	200.000000	3350442.319129
7	600.000000	10048964.218029
8	1000.000000	16703164.879012
9	2000.000000	31424217.938900
10	4000.000000	

Lvl ID	Concentration	Response
11	20000.000000	



0.000e+000	Quadratic term
1.695e+004	Linear term
0.000e+000	Constant term
3.831%	RF Rel Std Dev

OK | Cancel | Help | Print Calibration Curve | Copy Calibration Curve


Edit Compounds -- Compound #9 -- Propylene
Search by: Ret Time Name Index
Find Compound
Compound Database
External Standard Compoun
Oxygen/Argon
Carbon monoxide
Methane (TCD)
Carbon dioxide
Signal #2
Methane (FID)
Ethylene
Ethane
Propylene
Propane
Isobutylene
Isobutane
n-Butane
Identification Calibration User-Defined Advanced Reporting
Lvl ID Concentration Response
1 0.151000 3782.537646
2 0.302000 6933.285530
3 1.510000 39139.518208
4 4.530000 112341.896872
5 10.570000 248003.903623
6 200.000000 4504060.086084
7 600.000000 13569342.761419
8 1000.000000 22494887.720990
9 2000.000000 42124689.656800
10 4000.000000
Lvl ID Concentration Response
11 20000.000000
Propylene
Response
4.00e+007
2.00e+007
0
0
1.00e+003
2.00e+003
Concentration
0.000e+000 Quadratic term
2.343e+004 Linear term
0.000e+000 Constant term
6.559% RF Rel Std Dev
OK
Cancel
Help
Print Calibration Curve
Copy Calibration Curve

00949418

Edit Compounds -- Compound #10 -- Propane

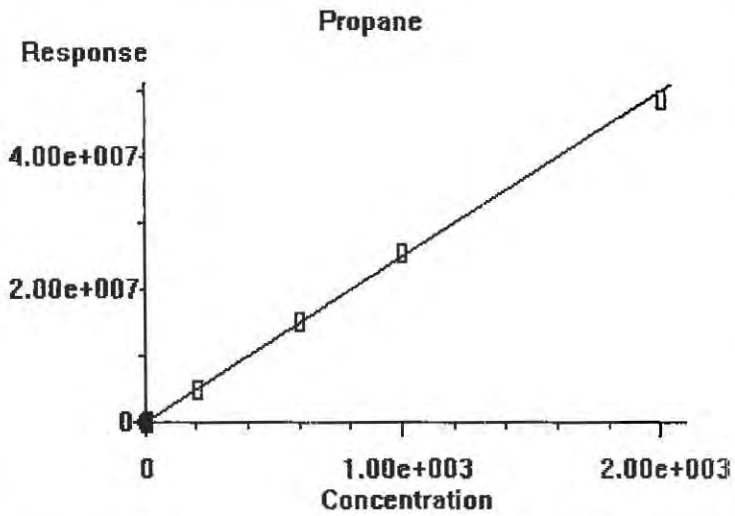
Search by: Ret Time | Name | Index — Find Compound

- Compound Database
- External Standard Compoun
  - Oxygen/Argon
  - Carbon monoxide
  - Methane (TCD)
  - Carbon dioxide
  - Signal #2
  - Methane (FID)
  - Ethylene
  - Ethane
  - Propylene
  - Propane
  - Isobutylene
  - Isobutane
  - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	3682.897354
2	0.302000	6894.237803
3	1.510000	39934.166792
4	4.530000	115723.428128
5	10.570000	257124.432806
6	200.000000	5043035.663916
7	600.000000	15251325.797404
8	1000.000000	25459410.657938
9	2000.000000	48583085.287451
10	4000.000000	

Lvl ID	Concentration	Response
11	20000.000000	



0.000e+000	Quadratic term
2.488e+004	Linear term
0.000e+000	Constant term
4.200%	RF Rel Std Dev

OK | Cancel | Help | Print Calibration Curve | Copy Calibration Curve

Calibration Status Report HP5890

Method Path : J:\GC10\METHODS\
Method File : RS091217_R.M
Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
Last Update : Wed Sep 13 11:14:47 2017
Response Via : Initial Calibration

#	ID	Conc	ISTD Conc	Path\File
1	1	0	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121702.D
2	2	0	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121703.D
3	3	3	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121704.D
4	4	10	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121705.D
5	5	25	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121706.D
6	6	125	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121707.D
7	7	5000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121708.D
8	8	25000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121709.D
9	9	2000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121710.D
10	10	30000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121711.D
11	11	20000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121712.D

#	ID	Update Time	Quant Time	Acquisition Time
1	1	Sep 13 11:04 2017	Sep 12 15:03 2017	12-Sep-2017, 10:52
2	2	Sep 13 11:05 2017	Sep 13 11:05 2017	12-Sep-2017, 11:05
3	3	Sep 13 11:06 2017	Sep 13 11:05 2017	12-Sep-2017, 11:45
4	4	Sep 13 11:09 2017	Sep 13 11:06 2017	12-Sep-2017, 12:09
5	5	Sep 13 11:09 2017	Sep 13 11:09 2017	12-Sep-2017, 12:30
6	6	Sep 13 11:10 2017	Sep 13 11:10 2017	12-Sep-2017, 12:47
7	7	Sep 13 11:11 2017	Sep 13 11:10 2017	12-Sep-2017, 13:00
8	8	Sep 13 11:12 2017	Sep 13 11:11 2017	12-Sep-2017, 13:47
9	9	Sep 13 11:12 2017	Sep 13 11:12 2017	12-Sep-2017, 14:07
10	10	Sep 13 11:14 2017	Sep 13 11:13 2017	12-Sep-2017, 14:48
11	11	Sep 13 11:14 2017	Sep 13 11:14 2017	12-Sep-2017, 15:21

RS091217_R.M Wed Sep 13 15:11:22 2017

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121702.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 10:52
Operator : MC
Sample : 0.151ppm 0.250ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 12 11:03:15 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.767	373920	0.128	ppm	
2)	Carbon monoxide	1.767	373920	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	1.595	2622	0.156	ppm	
8)	Ethane	1.848	2690	0.156	ppm	
9)	Propylene	4.222	3783	0.154	ppm	
10)	Propane	4.348	3683	0.139	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	6.582f	6058	NoCal	ppm	
13)	n-Butane	6.582f	6058	NoCal	ppm	

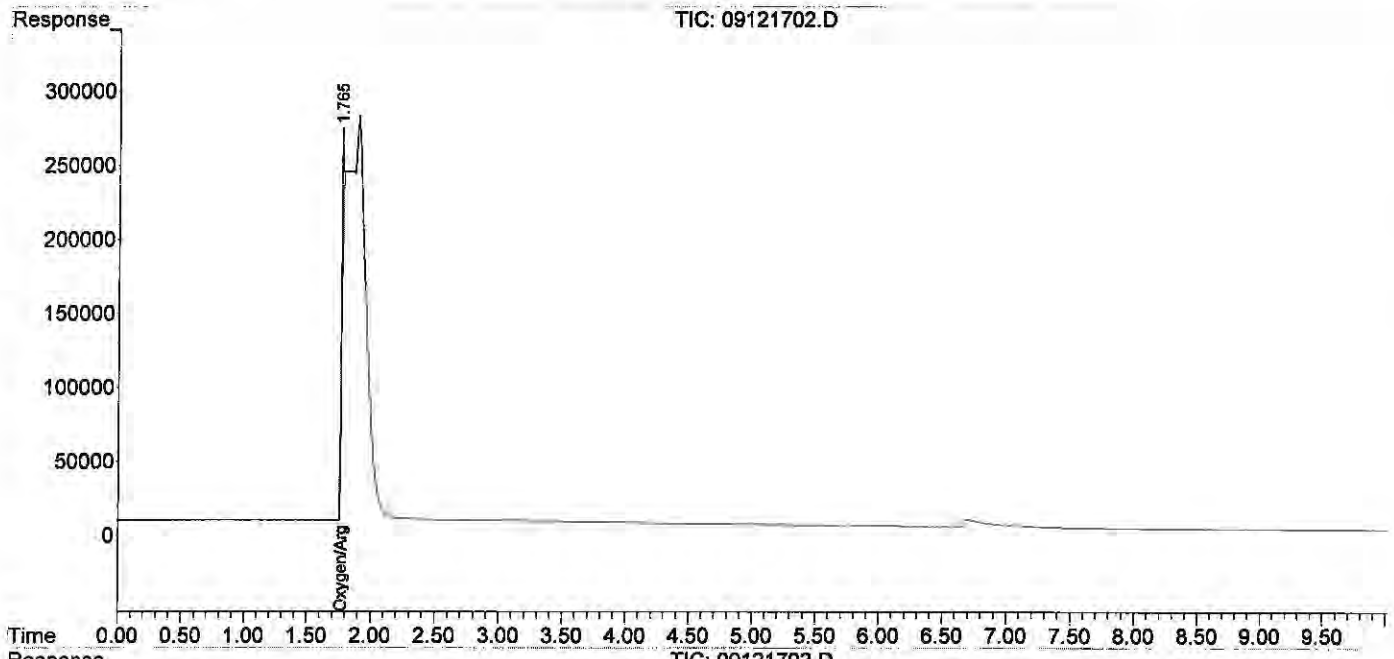
(f)=RT Delta > 1/2 Window (m)=manual int.

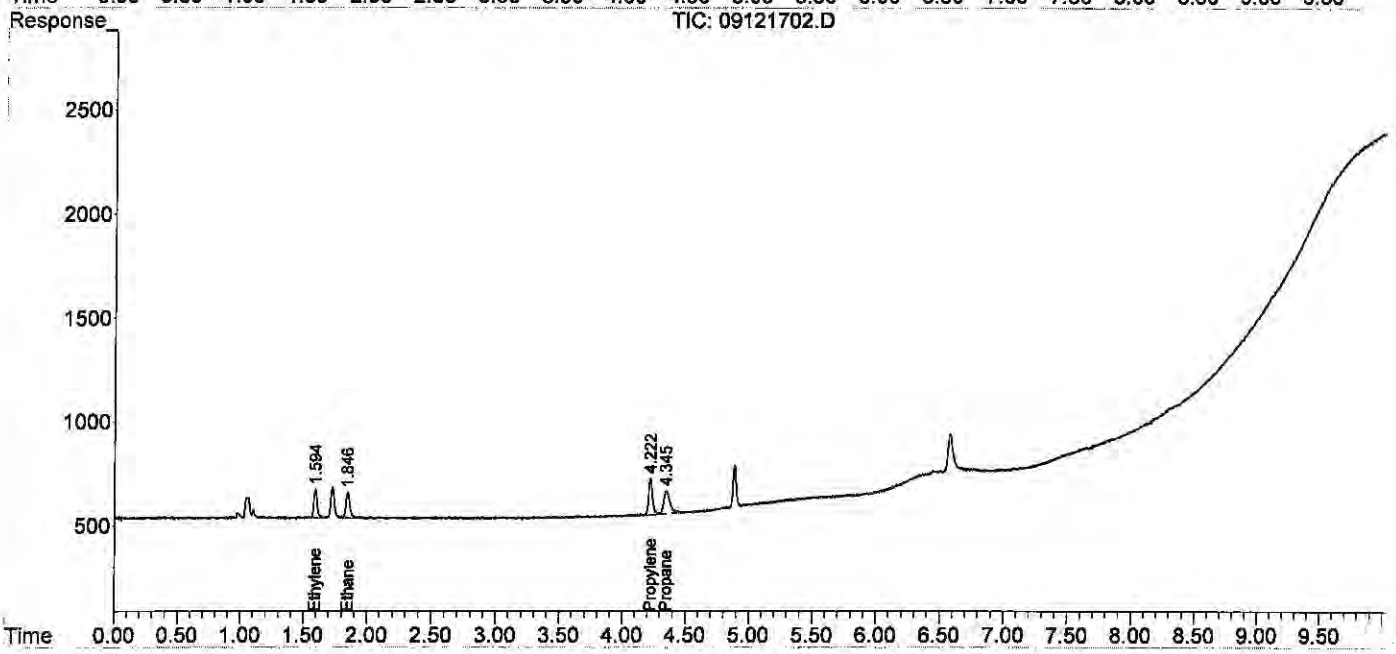
9/13/17

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121702.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 10:52
Operator : MC
Sample : 0.151ppm 0.250ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 12 11:03:15 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121703.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:05
Operator : MC
Sample : 0.302ppm 0.5ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:03 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.913f	-25181981	N.D.	ppm	
2)	Carbon monoxide	1.913f	-25181981	1.089	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.049	3564	0.391	ppm	m
7)	Ethylene	1.577	4947	0.292	ppm	
8)	Ethane	1.828	5060	0.293	ppm	
9)	Propylene	4.207	6933	0.281	ppm	
10)	Propane	4.337	6894	0.268	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	6.579f	9587	0.158	ppm	
13)	n-Butane	6.579f	9587	0.158	ppm	

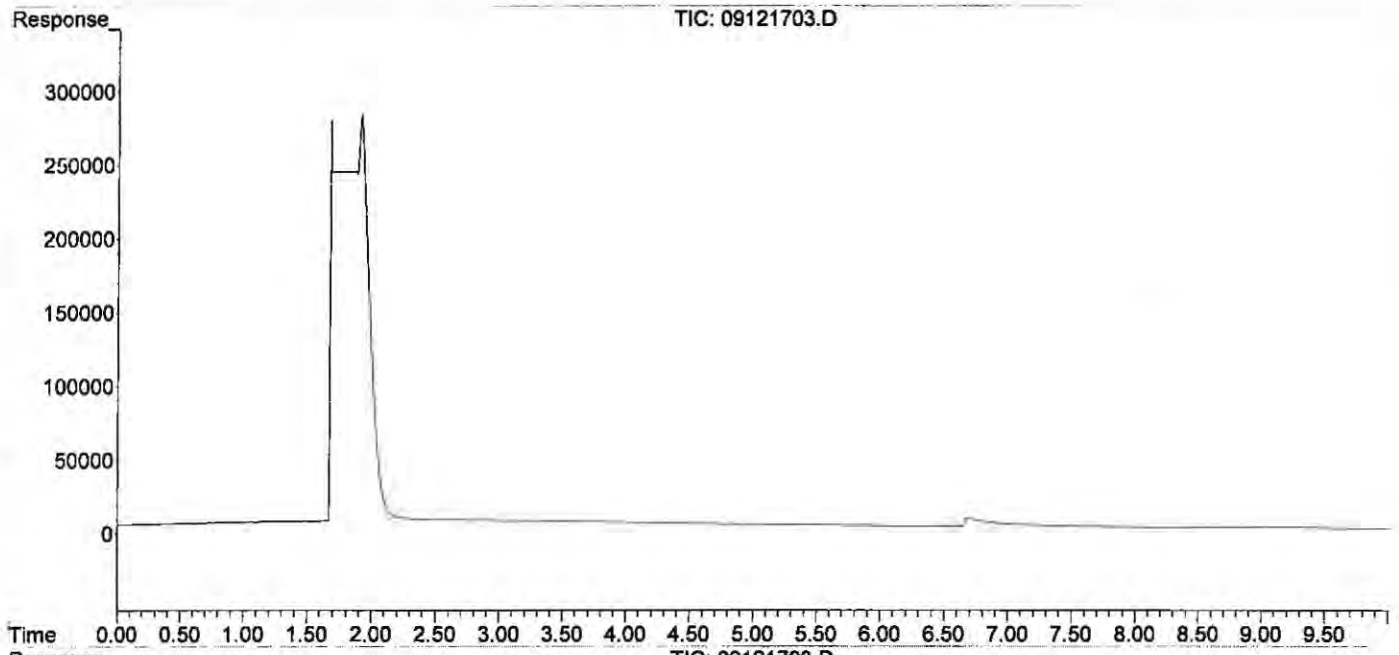
(f)=RT Delta > 1/2 Window (m)=manual int.

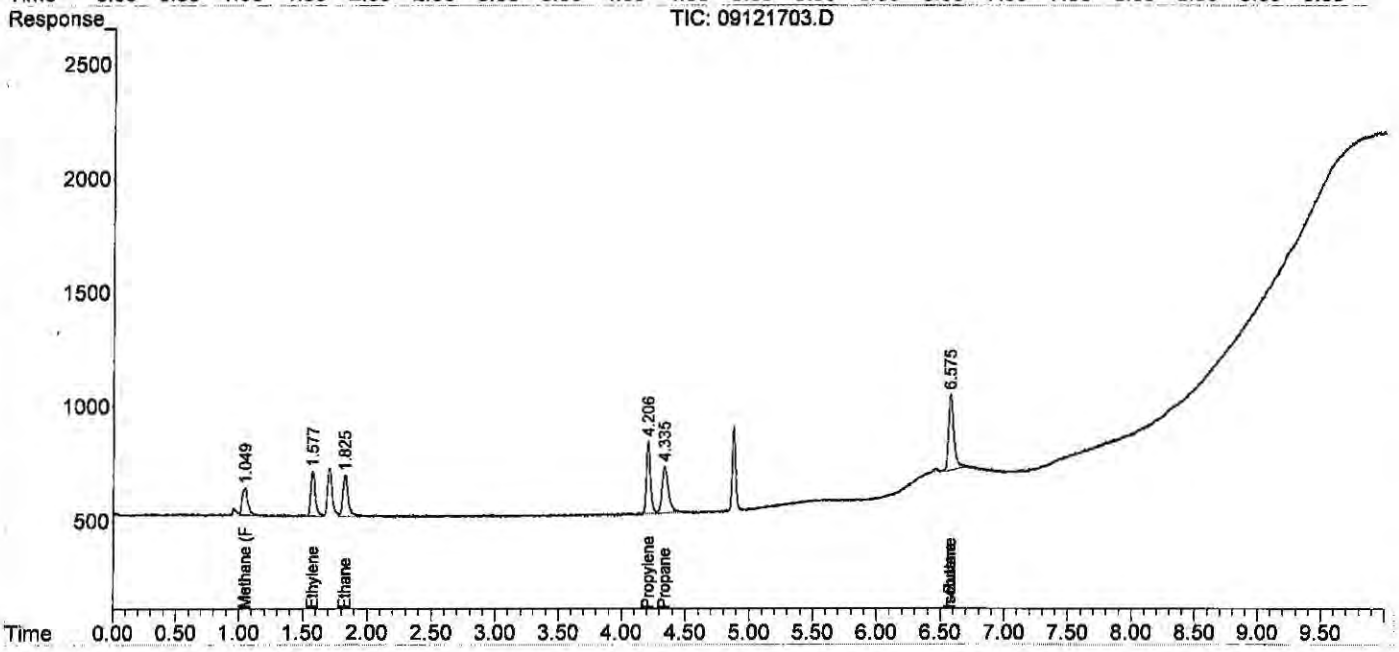
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121703.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:05
Operator : MC
Sample : 0.302ppm 0.5ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:03 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



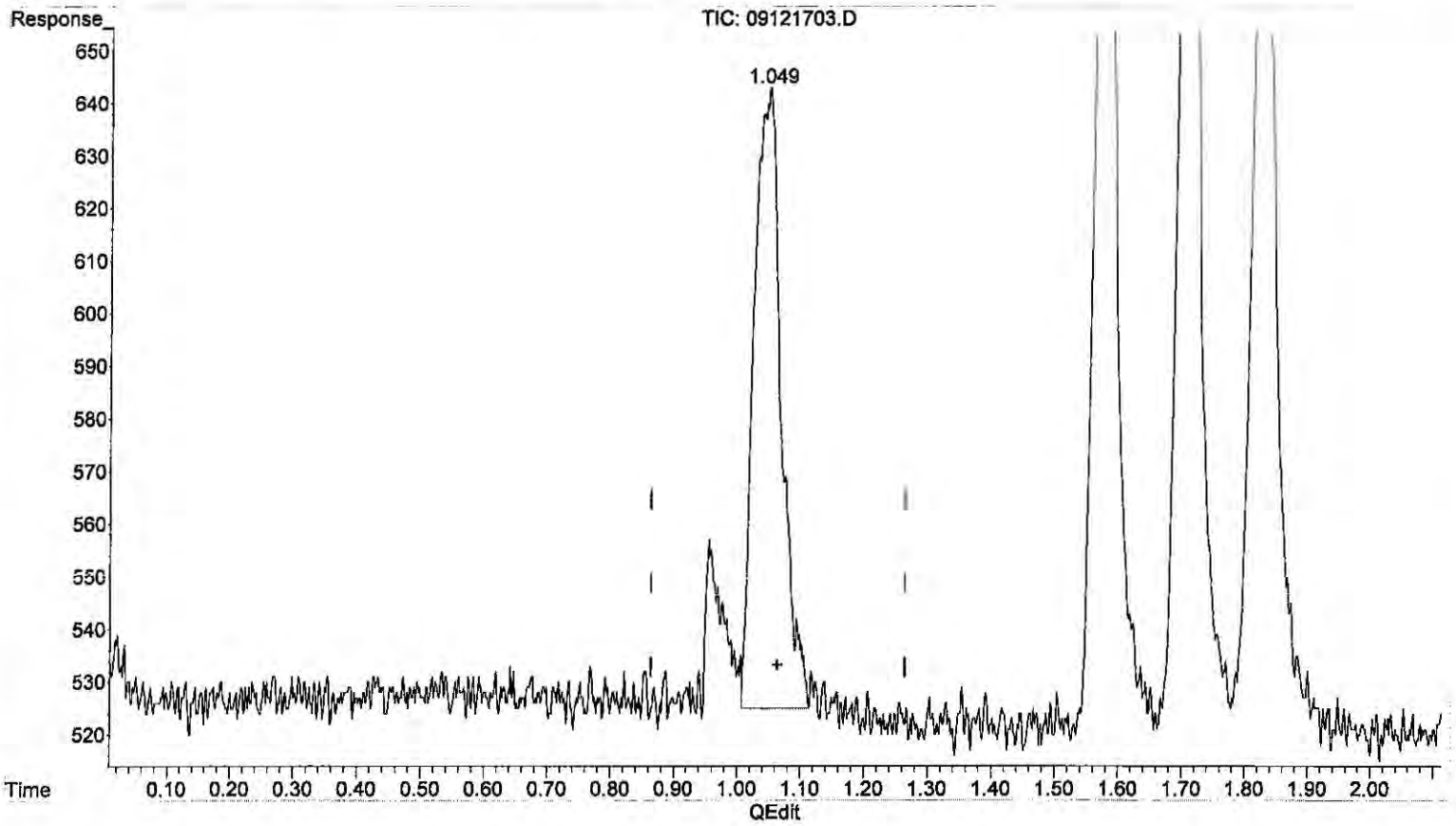


Quantitation Report (Qedit)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121703.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:05
Operator : MC
Sample : 0.302ppm 0.5ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:03 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(6) Methane (FID)

1.049min 0.391 ppm m

response 3564

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121704.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:45
Operator : MC
Sample : 1.51ppm 0.1ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:55 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

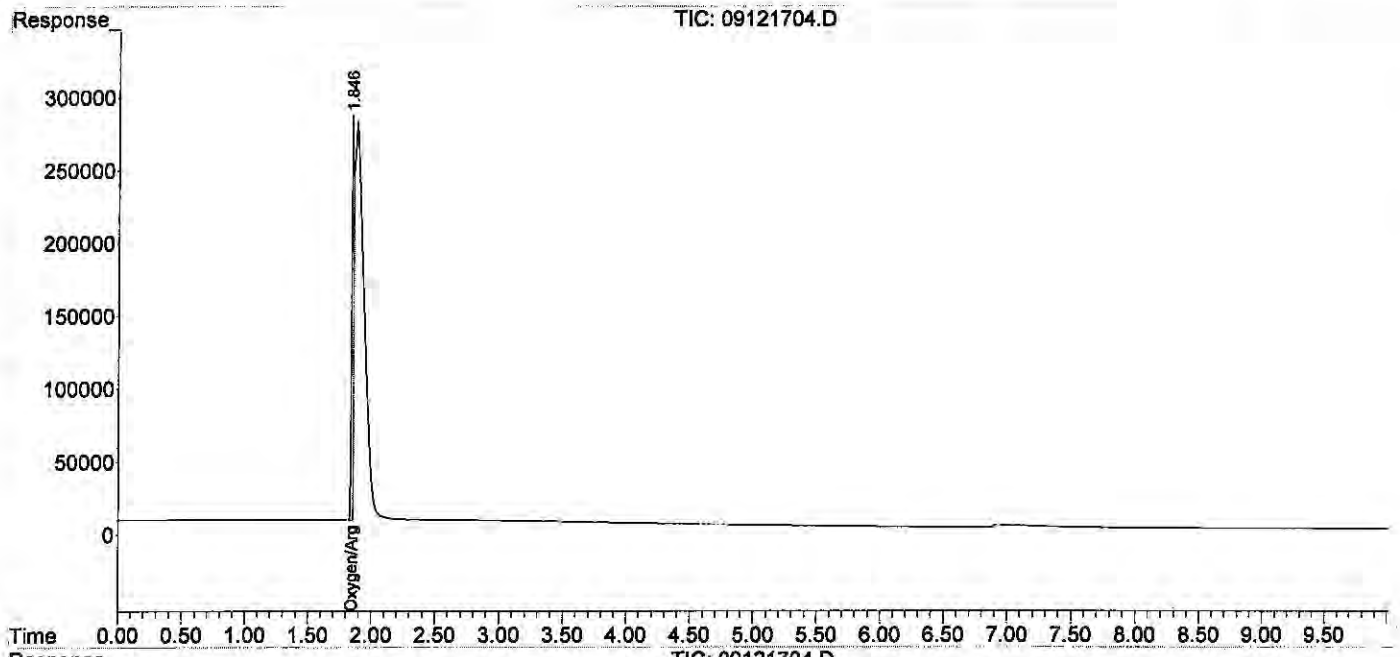
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.847	2536230	1.056	ppm
2)	Carbon monoxide	1.847	2536230	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.064	14725	1.613	ppm
7)	Ethylene	1.598	26885	1.582	ppm
8)	Ethane	1.851	26944	1.555	ppm
9)	Propylene	4.220	39140	1.589	ppm
10)	Propane	4.349	39934	1.596	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.578f	55348	1.020	ppm
13)	n-Butane	6.578f	55348	1.020	ppm

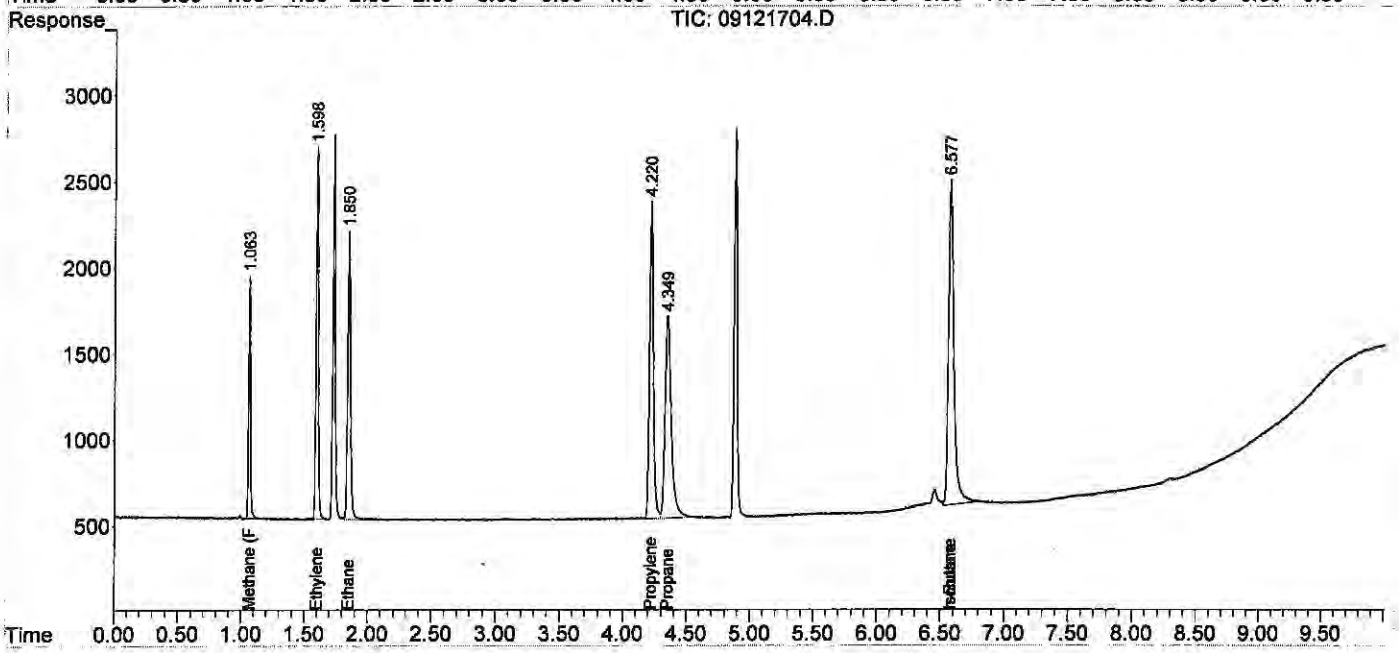
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121704.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:45
Operator : MC
Sample : 1.51ppm 0.1ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:55 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121705.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:09
Operator : MC
Sample : 4.53ppm 0.3ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:06:32 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

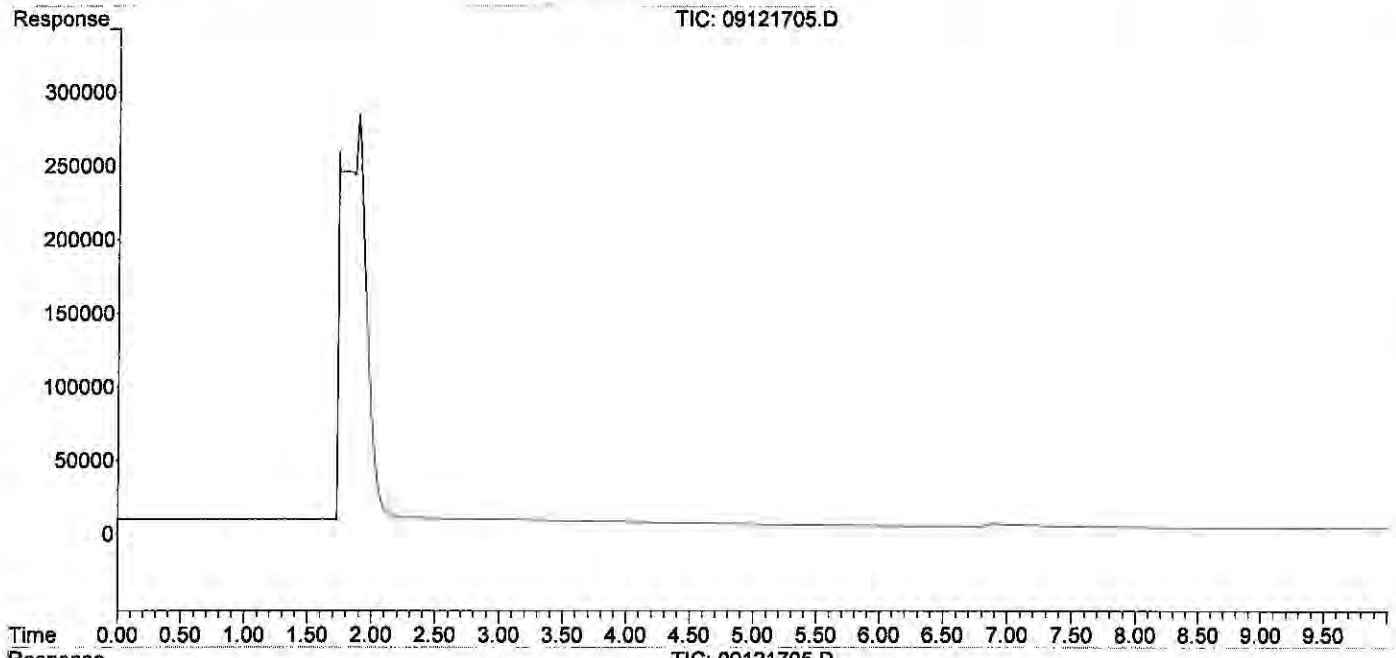
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.738	-331216	N.D.	ppm
2)	Carbon monoxide	1.738	-331216	0.019	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.052	41129	4.522	ppm
7)	Ethylene	1.586	77903	4.637	ppm
8)	Ethane	1.838	78354	4.558	ppm
9)	Propylene	4.218	112342	4.614	ppm
10)	Propane	4.347	115723	4.680	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.580f	155256	3.565	ppm
13)	n-Butane	6.580f	155256	3.565	ppm

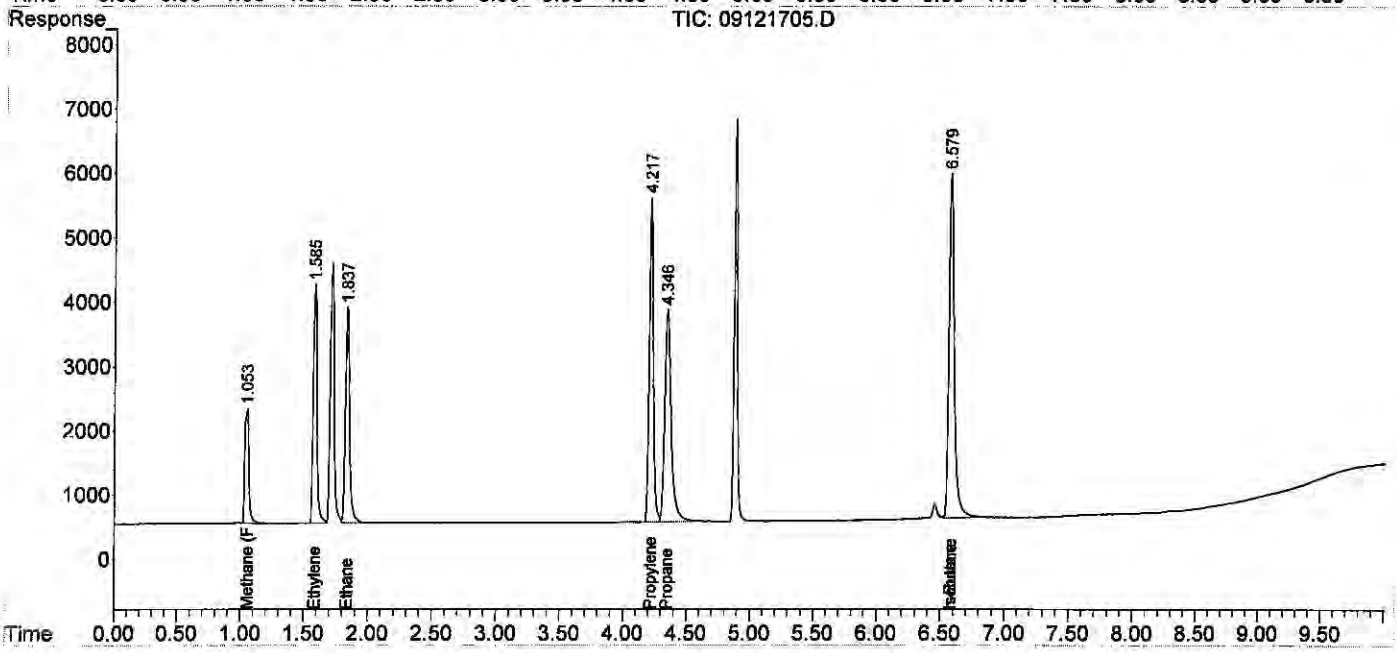
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121705.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:09
Operator : MC
Sample : 4.53ppm 0.3ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:06:32 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121706.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:30
Operator : MC
Sample : 10.57ppm 0.7ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:24 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.929f	-31871242	N.D.	ppm
2)	Carbon monoxide	1.929f	-31871242	1.818	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.025	91967	10.135	ppm
7)	Ethylene	1.568	172086	10.273	ppm
8)	Ethane	1.822	178841	10.441	ppm
9)	Propylene	4.214	248004	10.236	ppm
10)	Propane	4.344	257124	10.458	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.578f	338181	9.254	ppm
13)	n-Butane	6.578f	338181	9.254	ppm

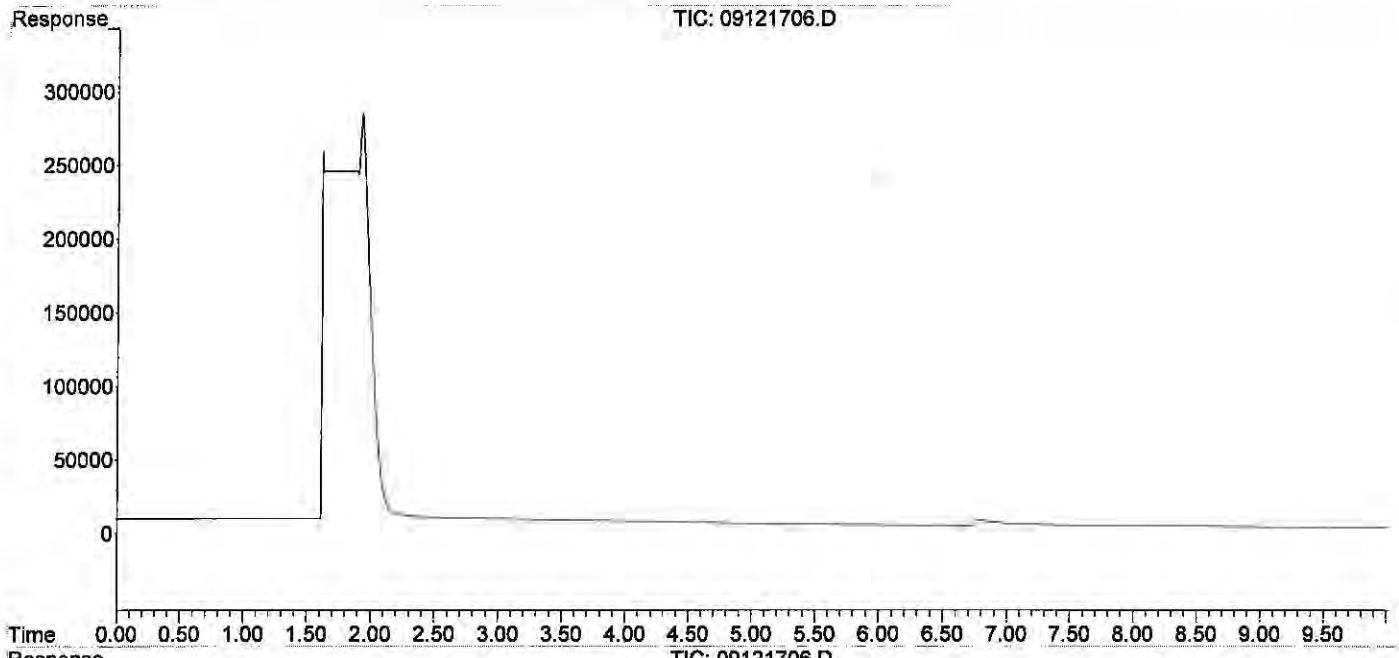
(f)=RT Delta > 1/2 Window (m)=manual int.

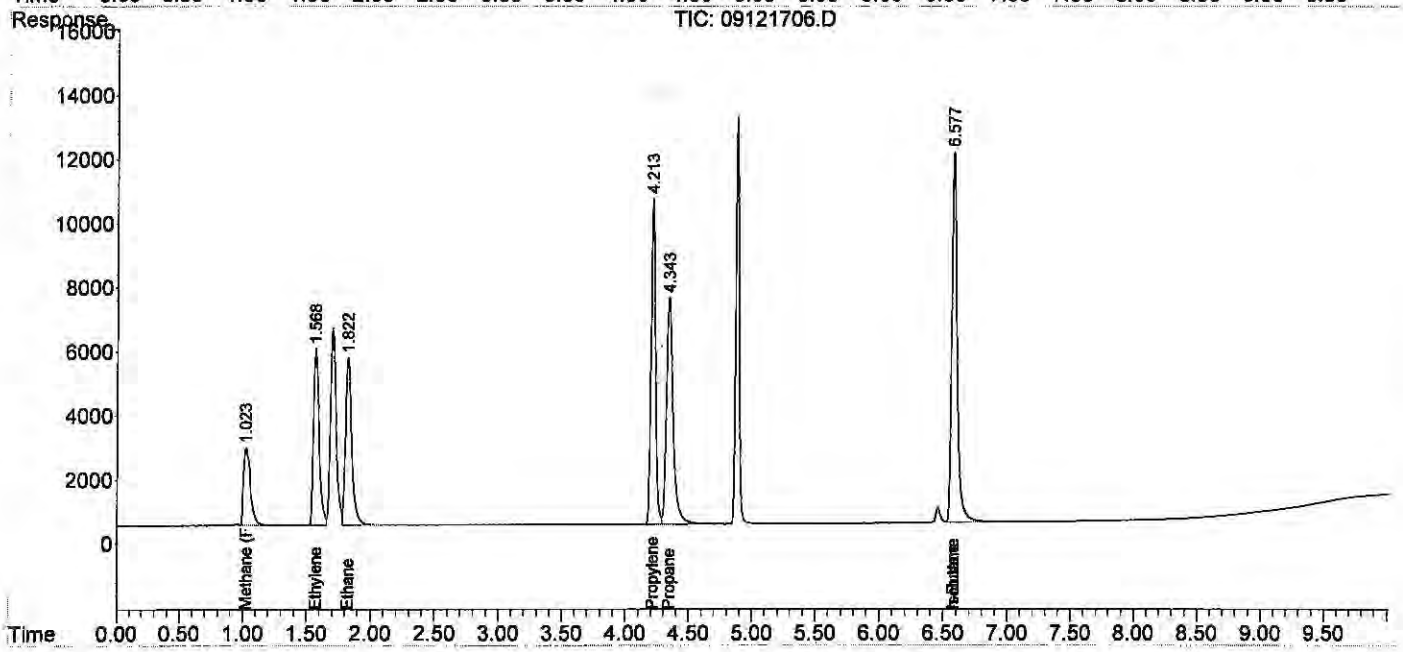
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121706.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:30
Operator : MC
Sample : 10.57ppm 0.7ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:24 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121707.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:47
Operator : MC
Sample : 200ppm 0.1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:59 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.897	155286	0.065	ppm
2)	Carbon monoxide	1.897	155286	N.D.	ppm
3)	Methane (TCD)	4.079f	27015	2856.472	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.063	1735997	190.792	ppm
7)	Ethylene	1.597	3339702	198.758	ppm
8)	Ethane	1.849	3350442	194.597	ppm
9)	Propylene	4.201	4504060	185.706	ppm
10)	Propane	4.333	5043036	204.809	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

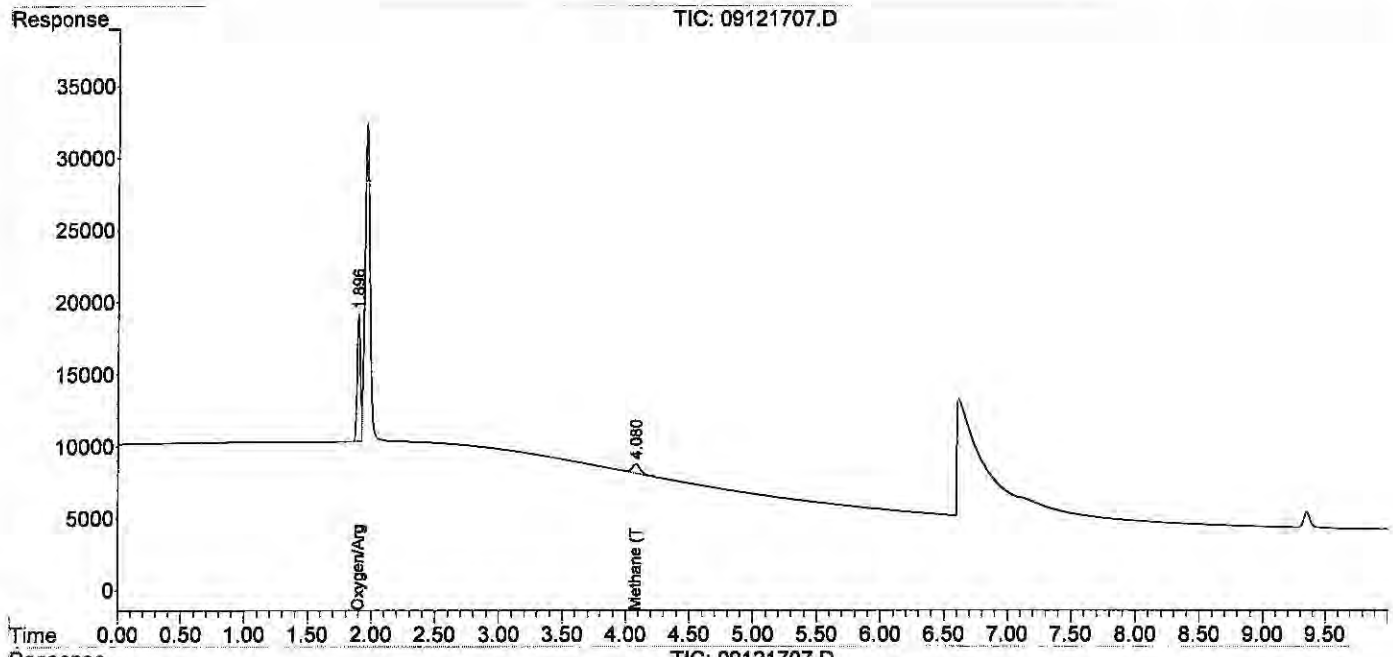
(f)=RT Delta > 1/2 Window (m)=manual int.

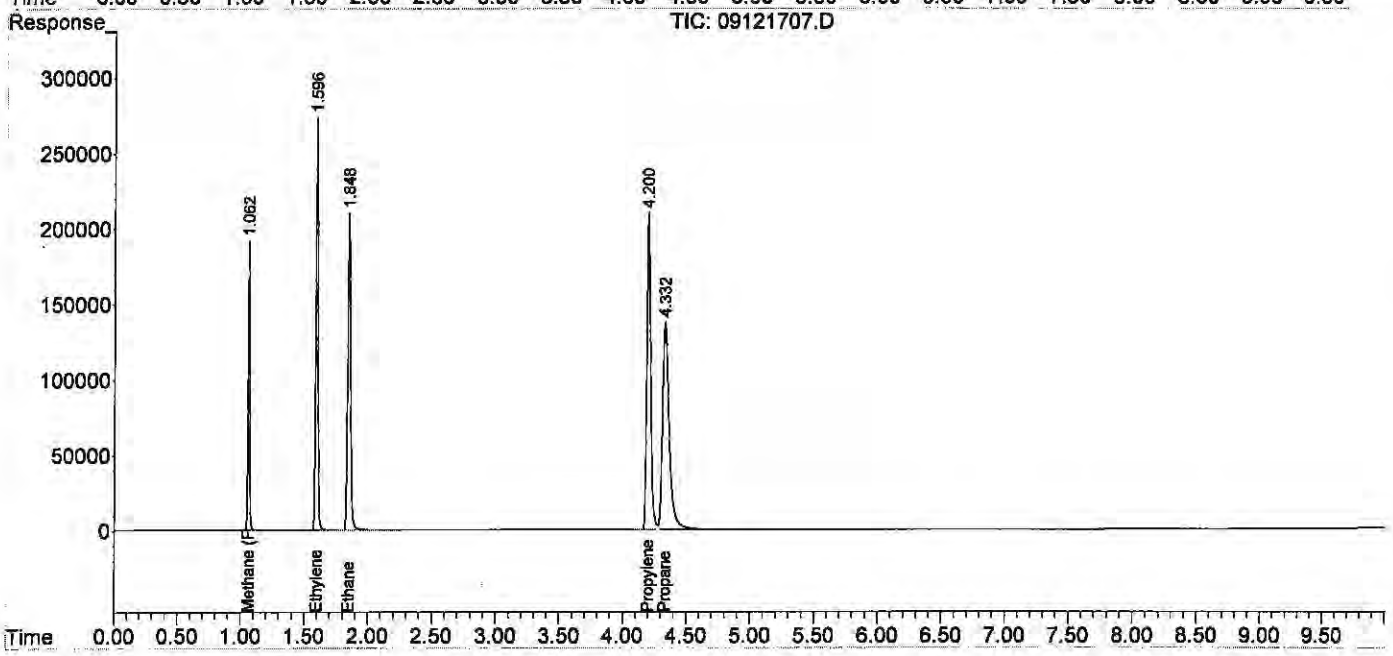
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121707.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:47
Operator : MC
Sample : 200ppm 0.1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:59 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121708.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:00
Operator : MC
Sample : 600ppm 0.3ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:10:57 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:10:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.884	196022	0.124	ppm
2)	Carbon monoxide	1.884	196022	N.D.	ppm
3)	Methane (TCD)	4.070f	88282	782.730	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.044	5189849	539.759	ppm
7)	Ethylene	1.573	10007759	590.286	ppm
8)	Ethane	1.822	10048964	583.213	ppm
9)	Propylene	4.160	13569343	562.612	ppm
10)	Propane	4.300	15251326	615.171	ppm
11)	Isobutylene	6.143	9815	NoCal	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

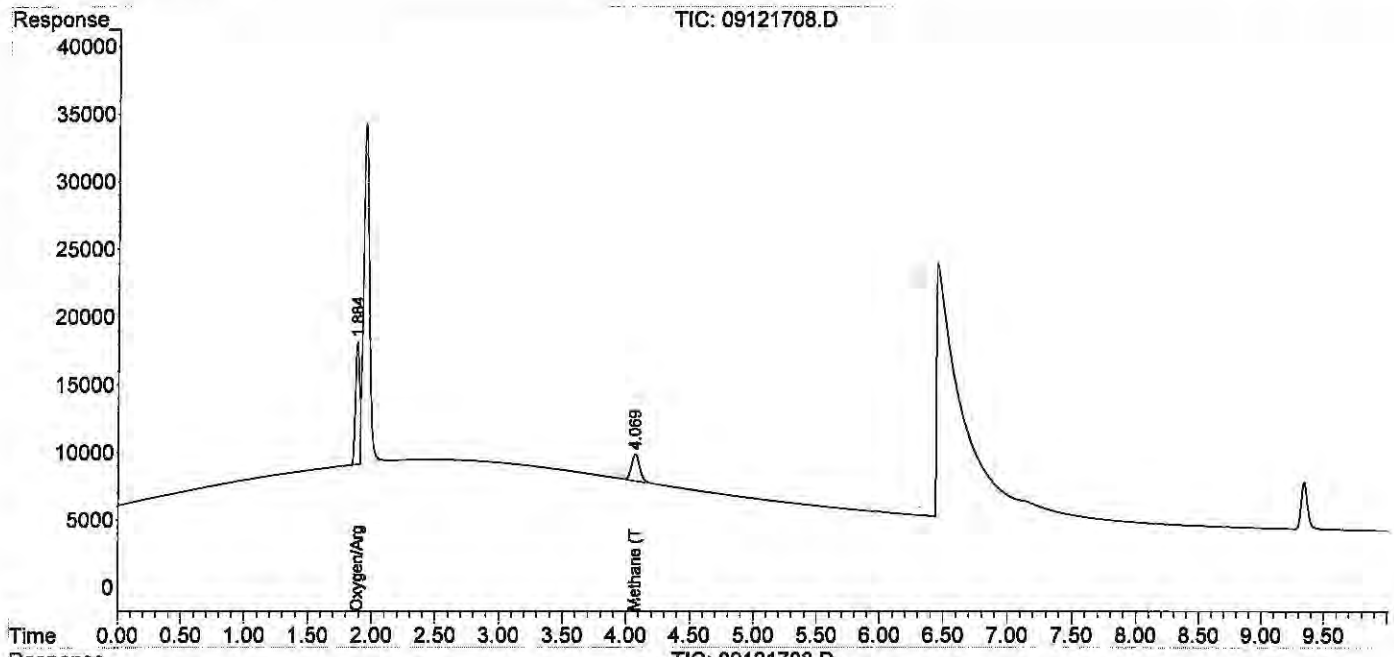
(f)=RT Delta > 1/2 Window (m)=manual int.

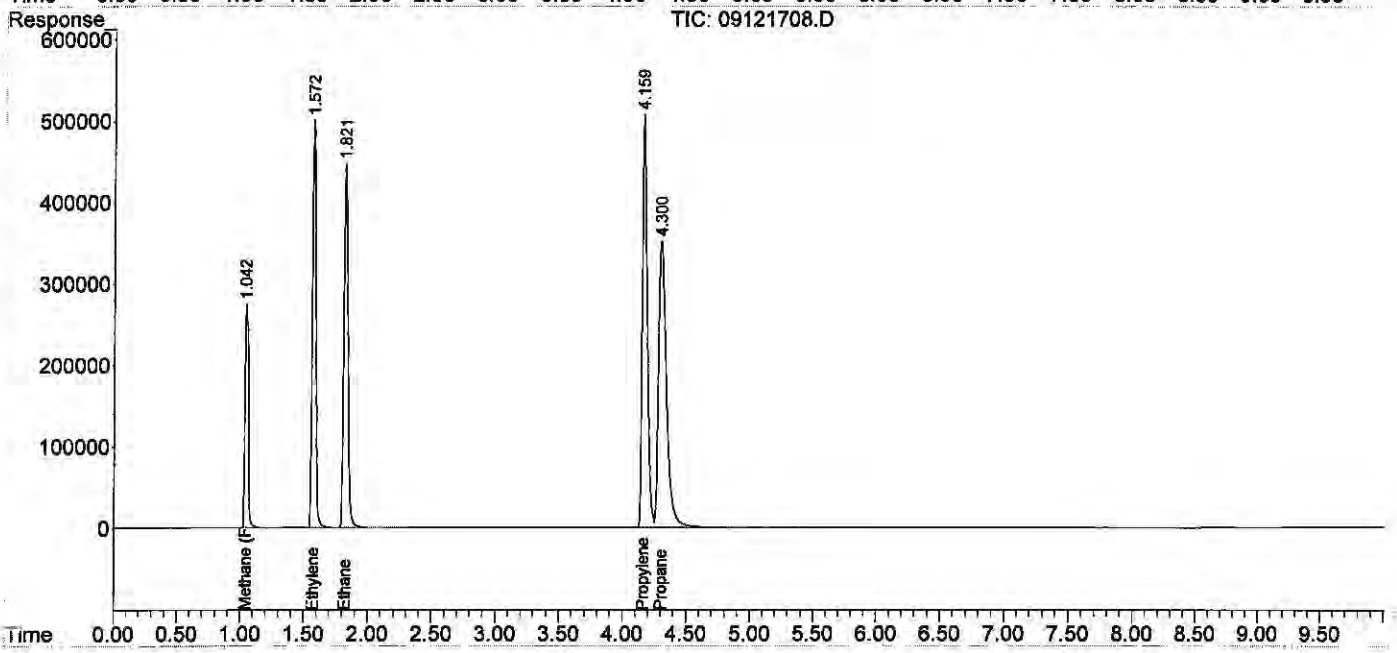
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121708.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:00
Operator : MC
Sample : 600ppm 0.3ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:10:57 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:10:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121709.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:47
Operator : MC
Sample : 1000ppm 0.5ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:11:46 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:11:38 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.879	192611	0.162	ppm
2)	Carbon monoxide	1.879	192611	N.D.	ppm
3)	Methane (TCD)	4.070f	145492	1244.729	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.039	8598534	945.644	ppm
7)	Ethylene	1.576	16608504	981.887	ppm
8)	Ethane	1.827	16709165	973.644	ppm
9)	Propylene	4.161	22494888	941.060	ppm
10)	Propane	4.298	25459411	1023.223	ppm
11)	Isobutylene	6.138	16970	8645.243	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

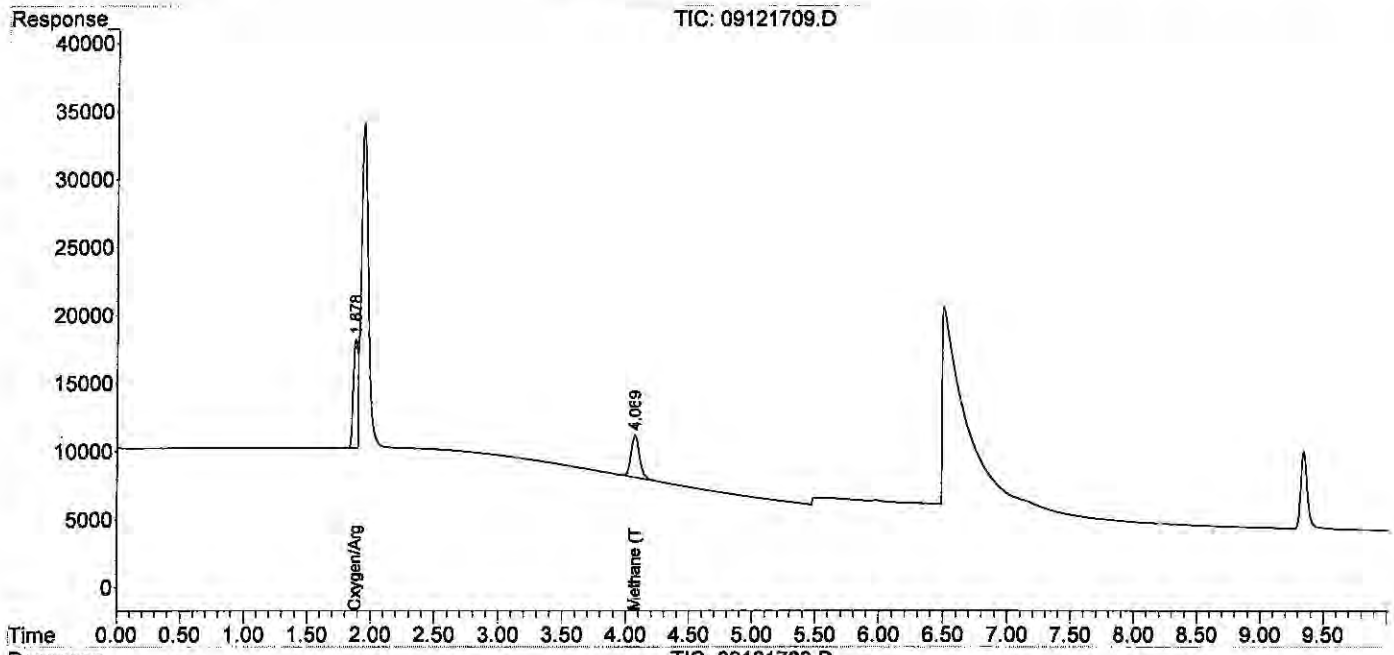
(f)=RT Delta > 1/2 Window (m)=manual int.

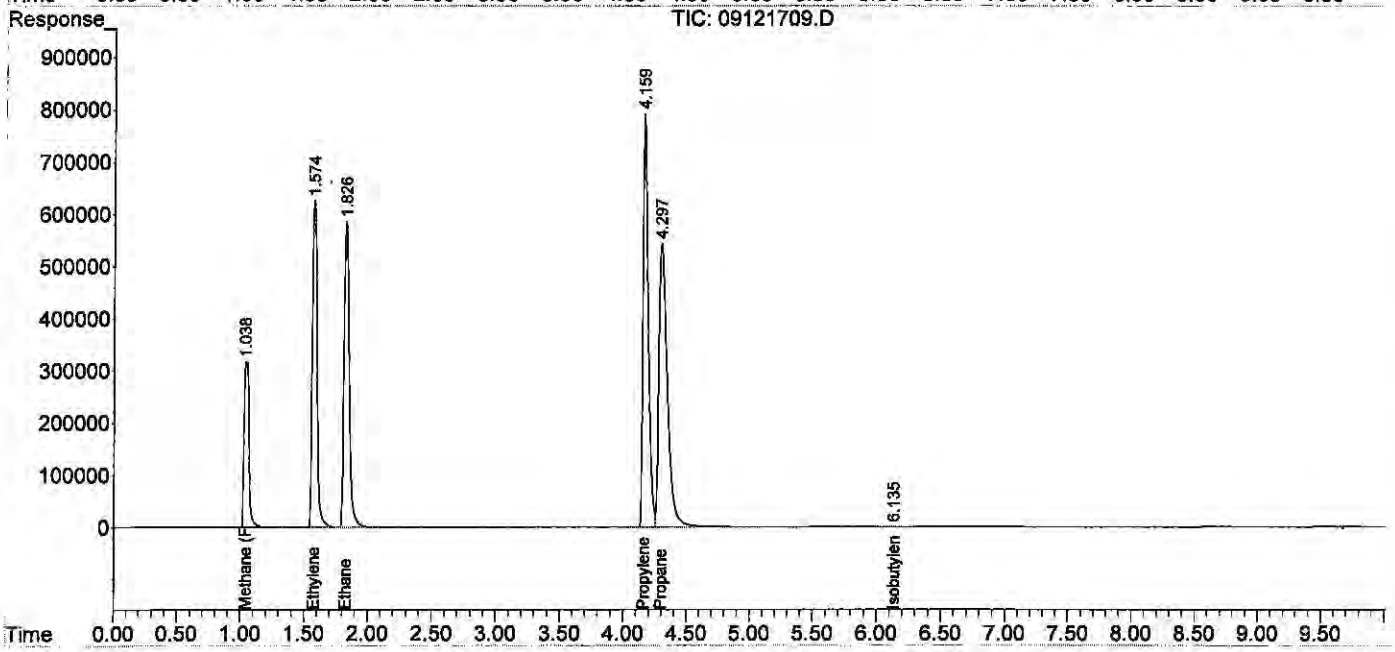
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121709.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:47
Operator : MC
Sample : 1000ppm 0.5ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:11:46 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:11:38 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121710.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:07
Operator : MC
Sample : 2000ppm 1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:12:33 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:12:25 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

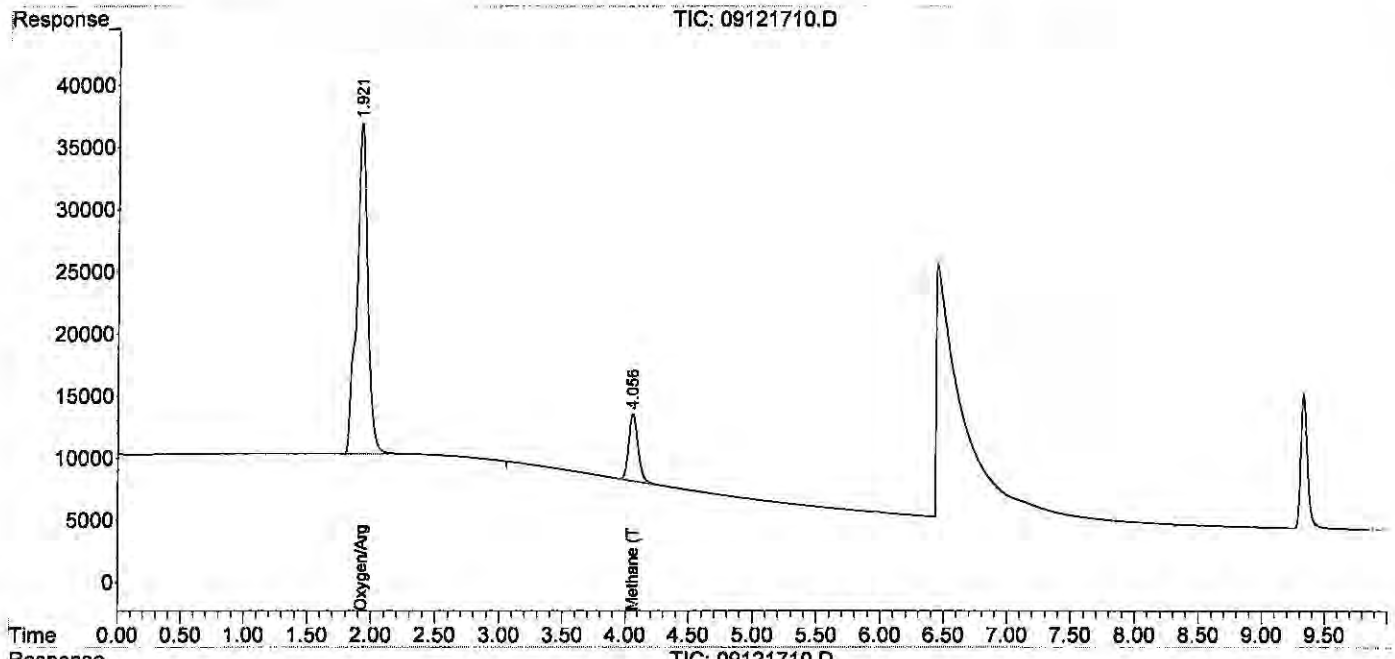
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.922f	1578147	1.659	ppm	
2)	Carbon monoxide	1.922f	1578147	N.D.	ppm	
3)	Methane (TCD)	4.057f	281651	3526.607	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.016	16098209	1763.622	ppm	
7)	Ethylene	1.552	31192444	1848.268	ppm	
8)	Ethane	1.801	31424218	1837.143	ppm	
9)	Propylene	4.129	42124690	1775.341	ppm	m
10)	Propane	4.269	48583085	1946.921	ppm	
11)	Isobutylene	6.136	33832	25613.603	ppm	
12)	Isobutane	6.576f	3845	0.120	ppm	
13)	n-Butane	6.576f	3845	0.120	ppm	

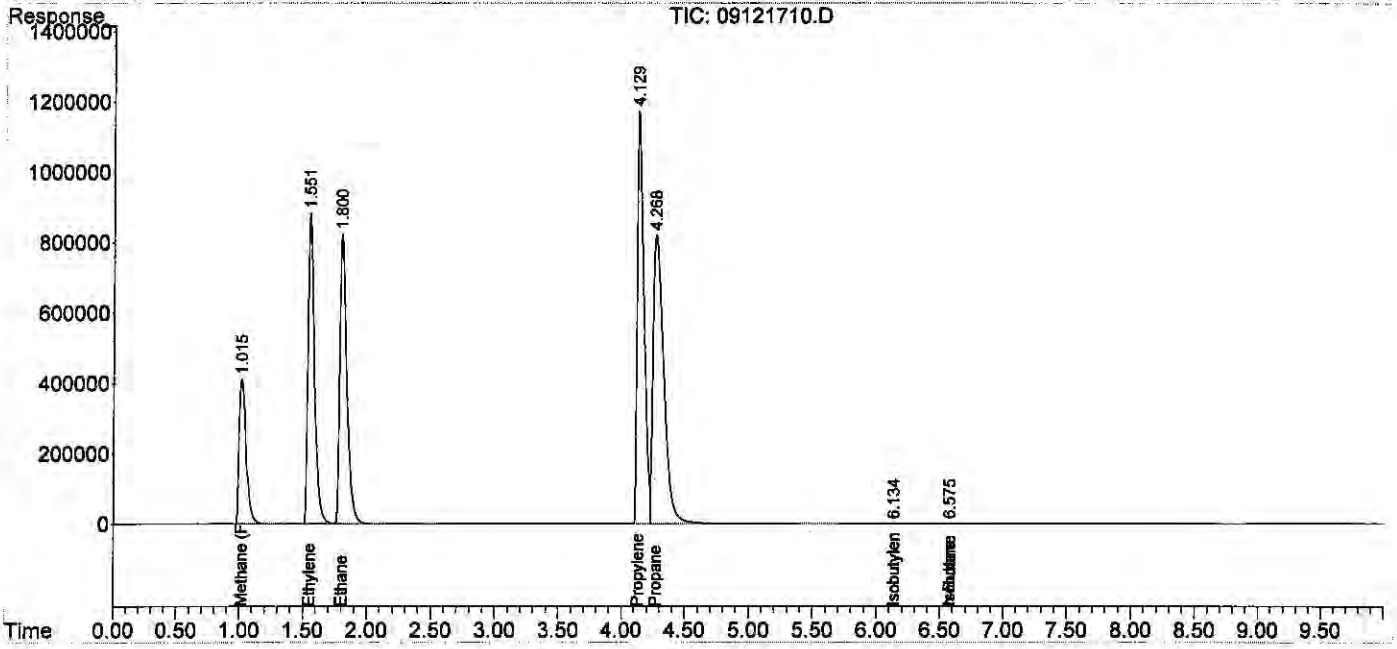
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121710.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:07
Operator : MC
Sample : 2000ppm 1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:12:33 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:12:25 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



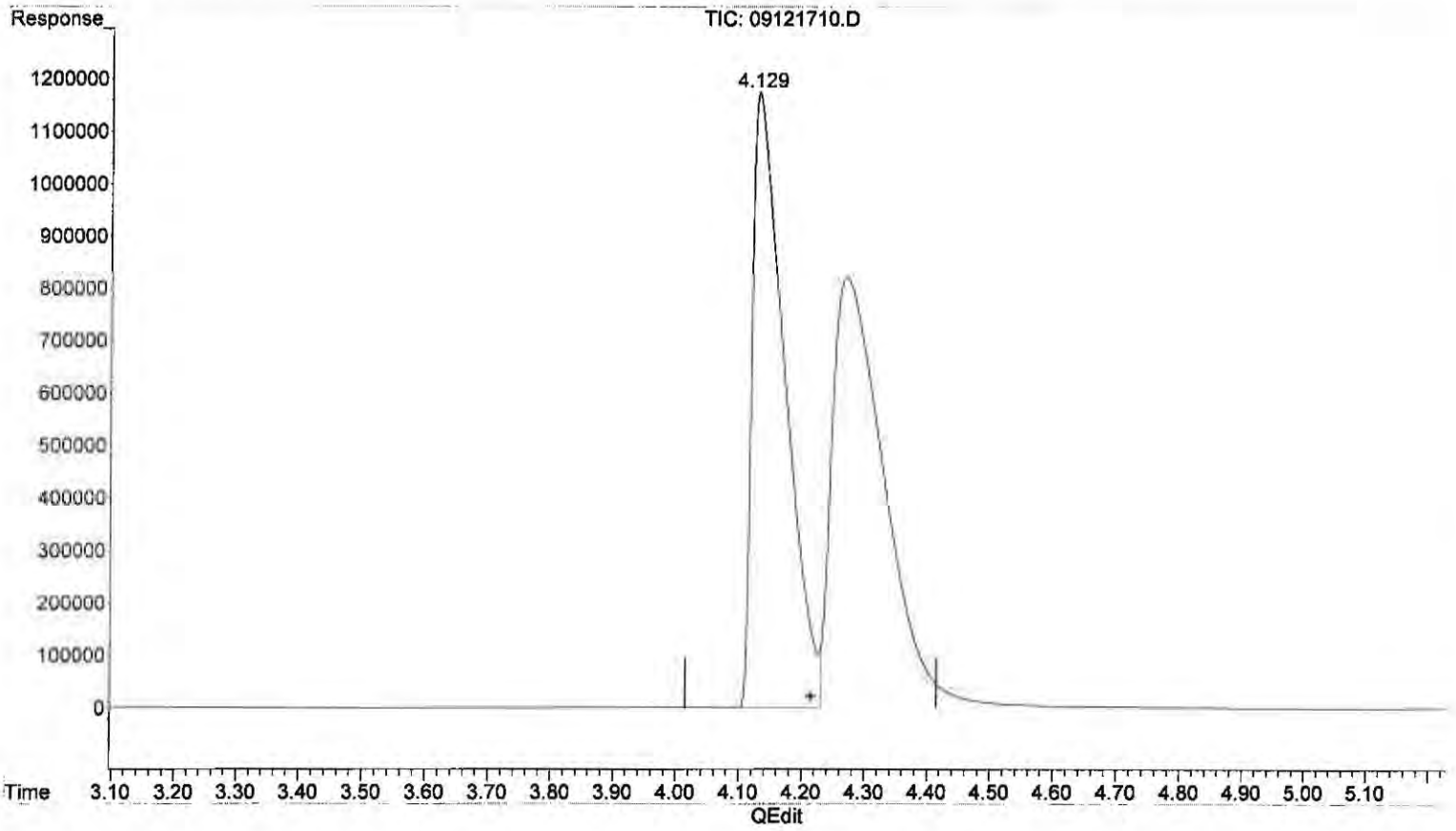


Quantitation Report (Qedit)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121710.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:07
Operator : MC
Sample : 2000ppm 1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:12:33 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:12:25 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase :
Signal #1 Info :
Signal #2 Phase:
Signal #2 Info :



(9) Propylene
4.129min 1775.341 ppm m
response 42124690

(+) = Expected Retention Time
RS091217_R.M Wed Sep 13 15:08:03 2017

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121711.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:48
Operator : MC
Sample : 4000ppm 0.1ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:13:37 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

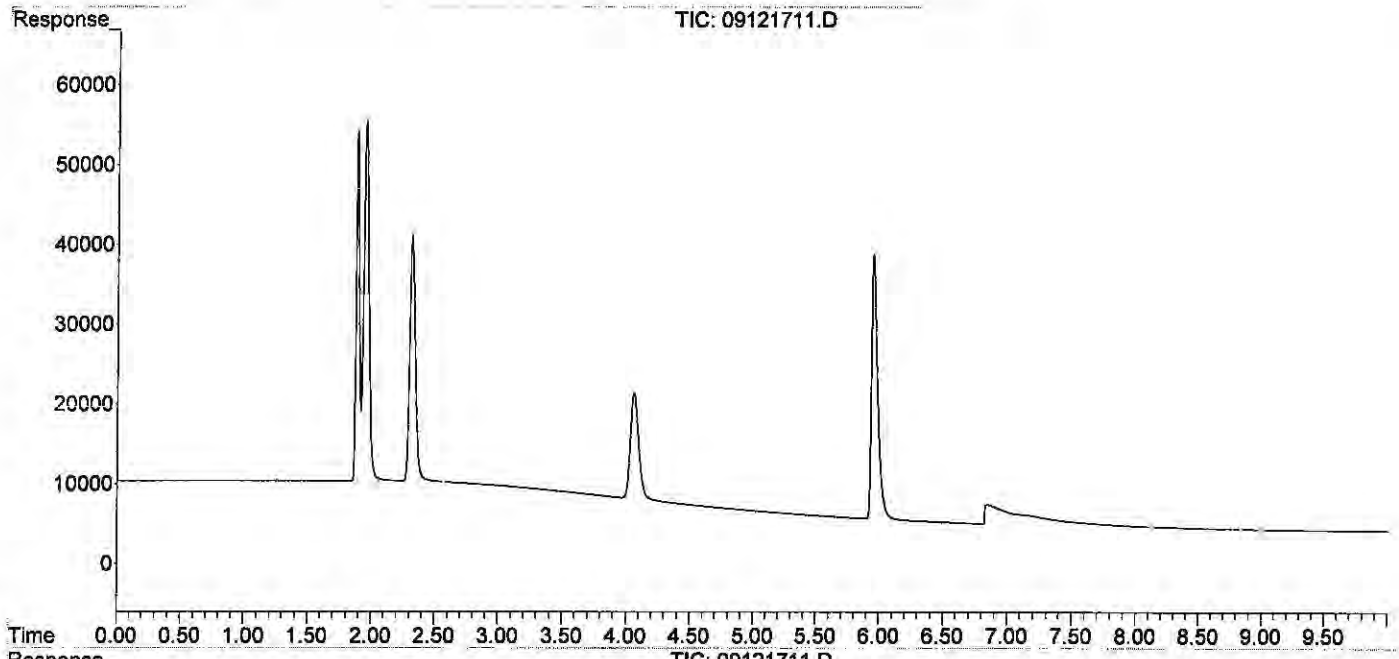
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	0.000	0	N.D.	ppm	d
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	0.000	0	N.D.	ppm	d
6)	Methane (FID)	1.059	35776839	3925.122	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

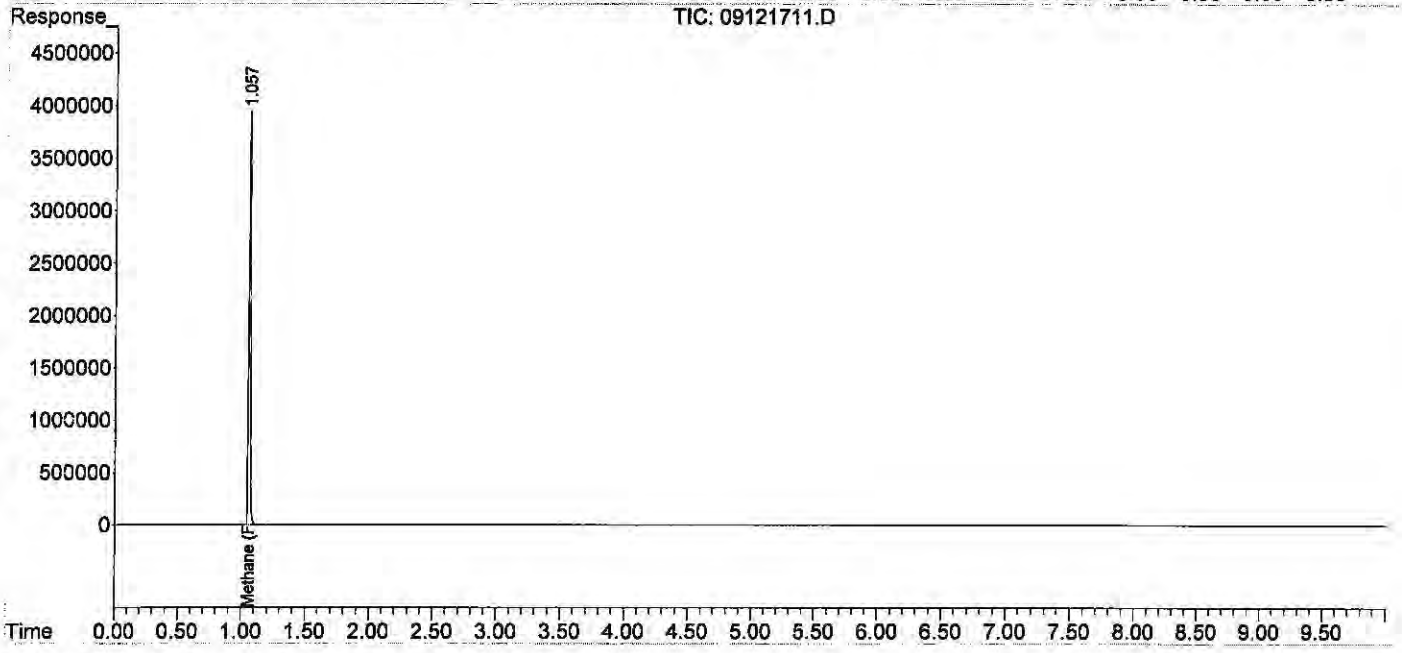
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121711.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:48
Operator : MC
Sample : 4000ppm 0.1ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:13:37 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase :
Signal #1 Info :
Signal #2 Phase:
Signal #2 Info :





Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121712.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 15:21
Operator : MC
Sample : 20000ppm 0.5ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:14:17 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.836	3190788	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	0.000	0	N.D.	ppm	d
6)	Methane (FID)	1.034	169009160	18492.064	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

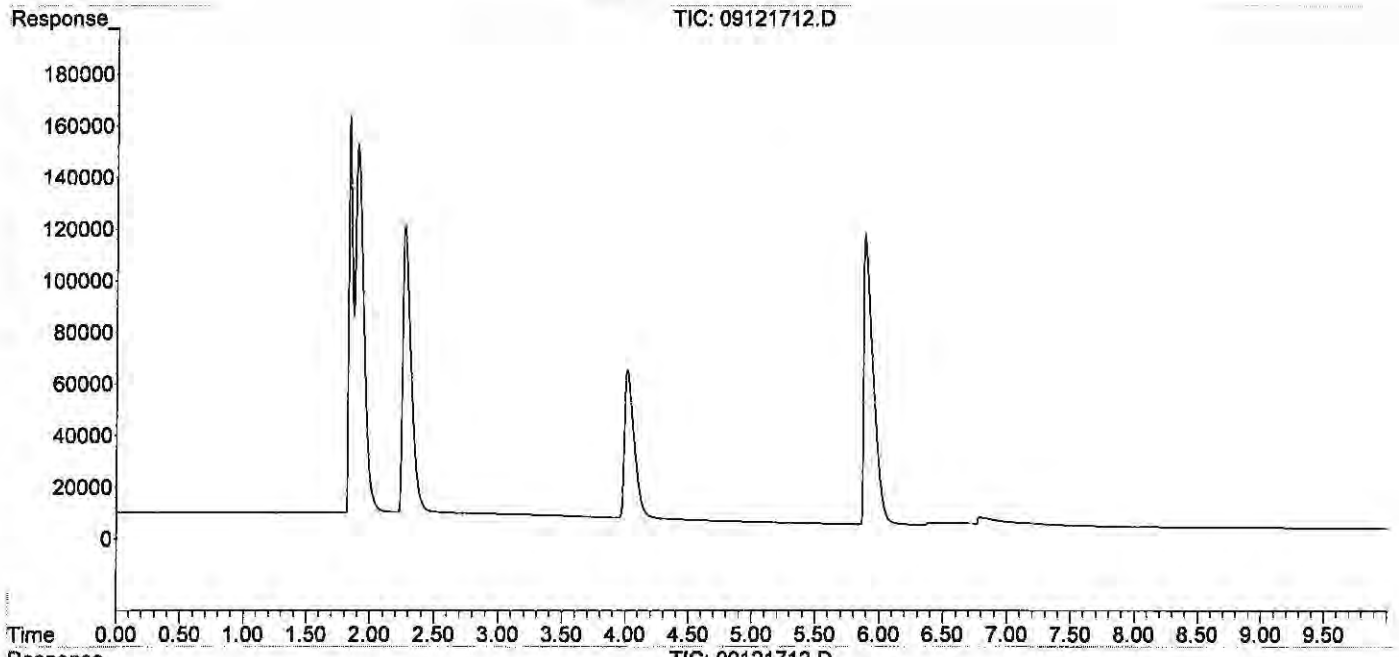
(f)=RT Delta > 1/2 Window (m)=manual int.

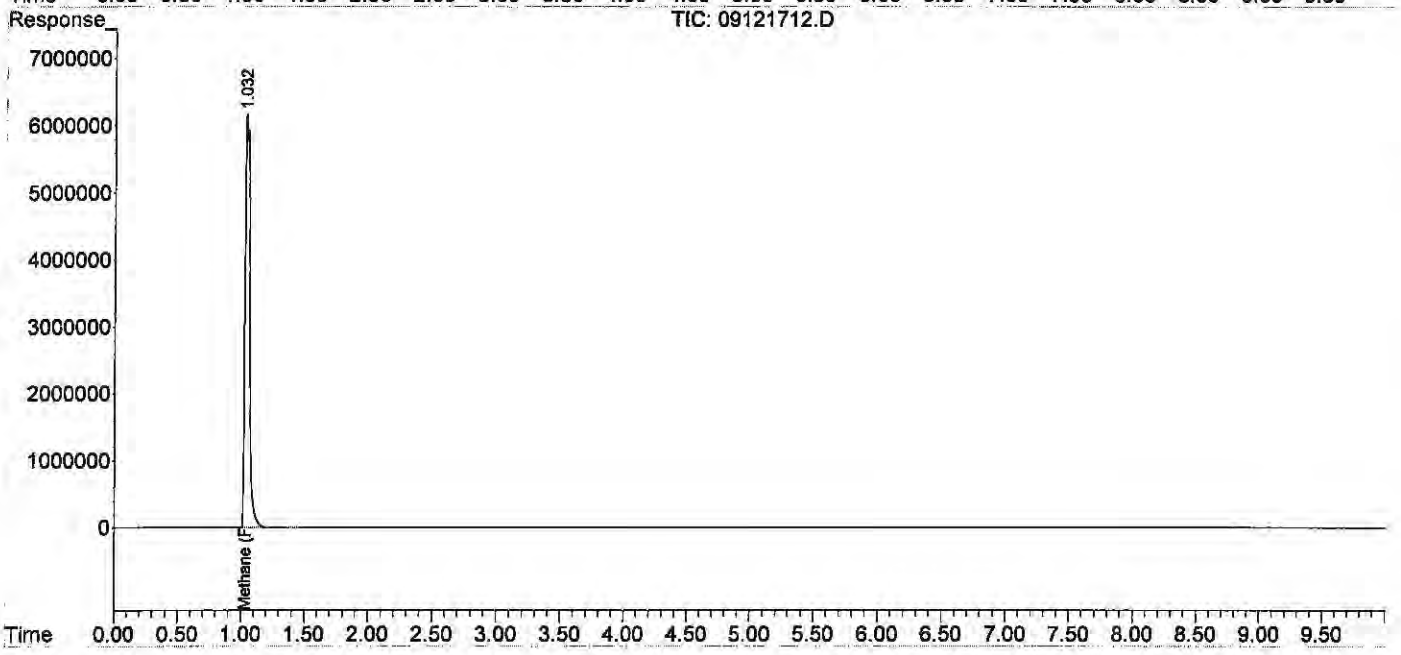
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121712.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 15:21
Operator : MC
Sample : 20000ppm 0.5ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:14:17 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 16:15
Operator : MC
Sample : icv s30-05241604
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:15:11 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.843	2922459	3.687	ppm	
2)	Carbon monoxide	1.843	2922459	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	actual %D
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.063	13748	1.516	ppm	1.50 101.1
7)	Ethylene	1.598	24153	1.443	ppm	1.50 96.2
8)	Ethane	1.850	24488	1.445	ppm	1.50 96.3
9)	Propylene	4.221	36004	1.537	ppm	1.50 102.5
10)	Propane	4.350	37738	1.517	ppm	1.51 100.5
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	6.579f	48019	1.804	ppm	9/14/2
13)	n-Butane	6.579f	48019	1.804	ppm	

(f)=RT Delta > 1/2 Window (m)=manual int.

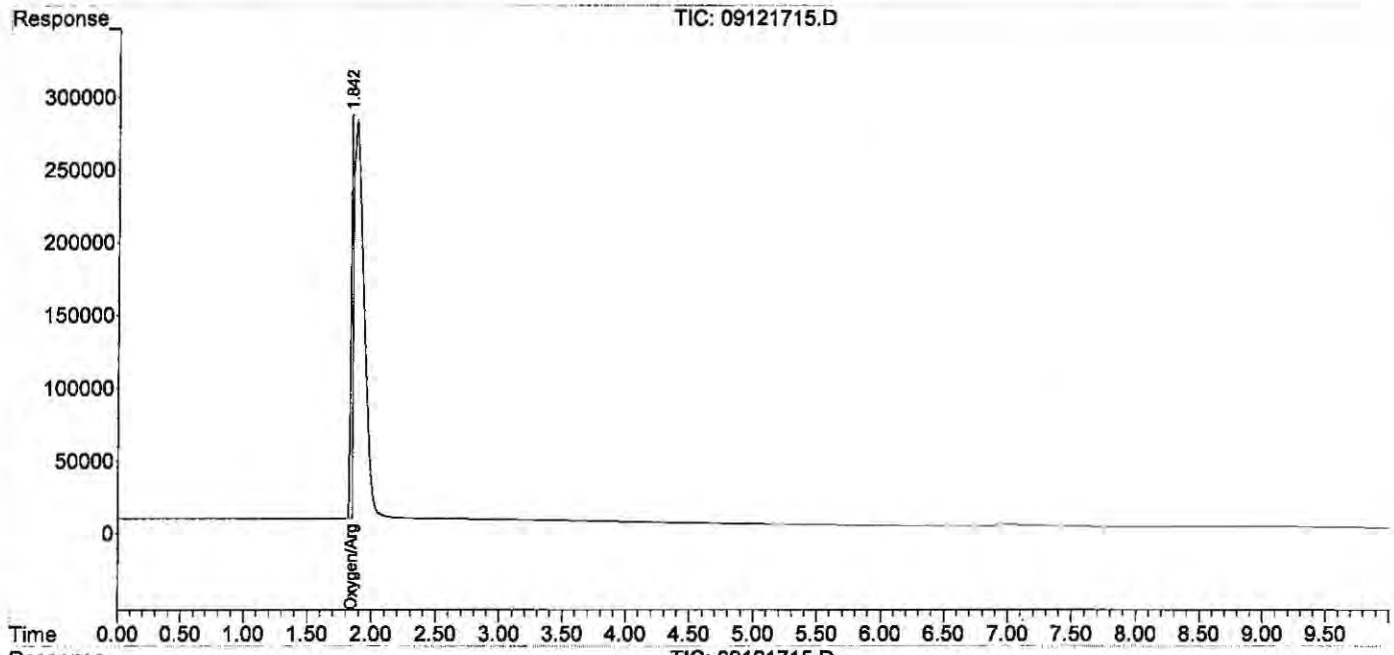
9/14/2017

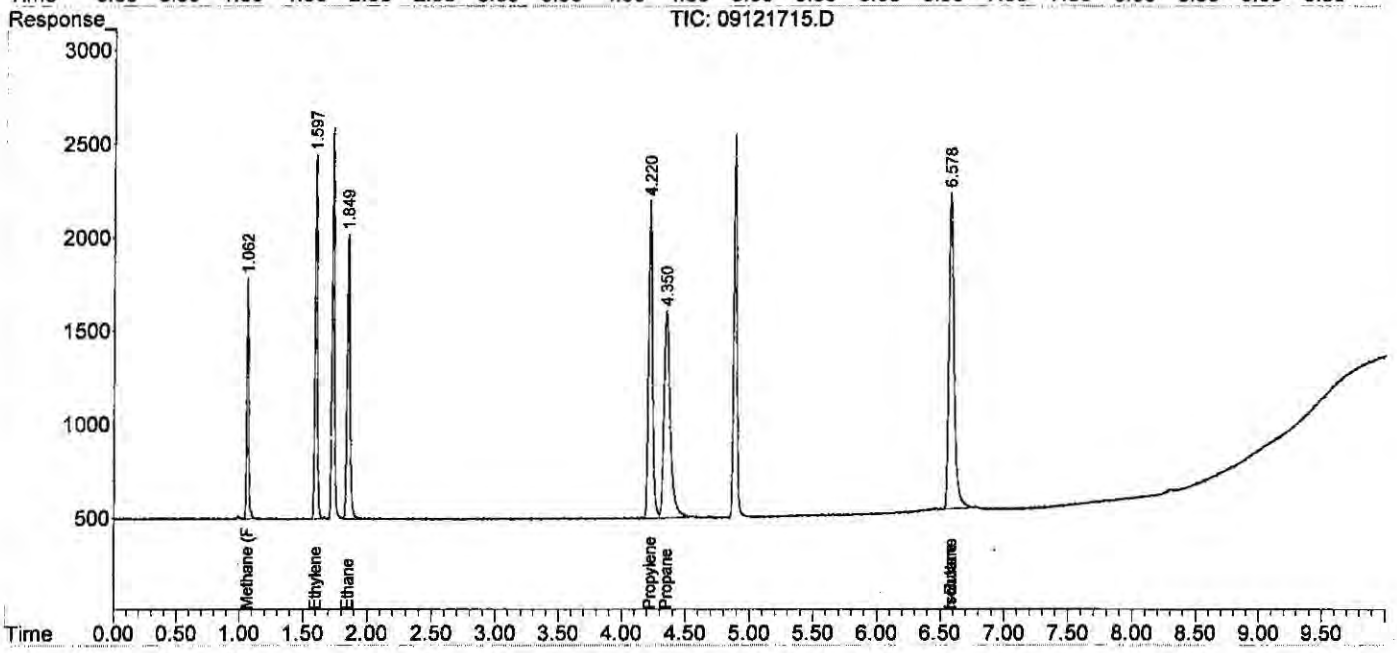
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 16:15
Operator : MC
Sample : icv s30-05241604
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:15:11 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





ALS Environmental

Method : RSK175 Headspace Method for Dissolved Hydrocarbon in Water by FID/TCD
Client : ALS Laboratory Group
Service Request: P1903217
Sample Vol. (ml) : 32.00 ml
Analyst : WH
Date Analysis : 06/11/19
Head Space Vol.(ml) : 8.00 ml
Instrument : GC#10
Detector : FID#10, TCD#10
Gas Constant : 24.05684 (20°C)

HEAD SPACE RESULT (ppm)

Sample ID	Inj. Vol.	Methane	Ethylene	Ethane
std s32-05221901	0.100	92.320	98.364	97.463
ACTUAL		101.50	100.90	101.40
%Difference		9.0%	2.5%	3.9%
MCS 0.1ML	0.100	0.000	0.000	0.000
RB 0.1ML	0.100	0.040	0.000	0.000
lcs fid 0.1ml	0.100	1.286	1.076	1.185
lcsd fid 0.1ml	0.100	1.335	1.131	1.263
P1903217-001 0.1ml	0.100	0.724	0.000	0.000
P1903217-002 0.1ml	0.100	41.005	0.876	0.053
P1903217-003 0.1ml	0.100	682.993	0.000	0.000
P1903217-004 0.1ml	0.100	2.232	0.000	0.000
P1903217-005 0.1ml	0.100	307.458	0.000	0.000
P1903217-006 0.1ml	0.100	1.232	0.000	0.000

FINAL HEAD SPACE RESULT (ppm)

	Methane	Ethylene	Ethane
WWt.	16.04	28.05	30.07
HENRY'S CONSTANT	3.76E+04	1.02E+04	2.63E+04
RL	1.30	1.00	0.60
MCS 0.1ML	0.000	0.000	0.000
lcs fid 0.1ml	12.860	10.760	11.850
lcsd fid 0.1ml	13.350	11.310	12.630
P1903217-001 0.1ml	7.240	0.000	0.000
P1903217-002 0.1ml	410.050	8.760	0.530
P1903217-003 0.1ml	6829.930	0.000	0.000
P1903217-004 0.1ml	22.320	0.000	0.000
P1903217-005 0.1ml	3074.580	0.000	0.000
P1903217-006 0.1ml	12.320	0.000	0.000

STD s32-05221901	96.349	102.731	101.981
ACTUAL	101.50	100.90	101.40
%Difference	5.1%	1.8%	0.6%

00949447

Data Path : J:\GC10\DATA\RSK_FID\2019_06\11\
Data File : 06111901.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 11-Jun-2019, 10:13:41
Operator : WH
Sample : std s32-05221901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 11 10:36:39 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

6/12/19

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

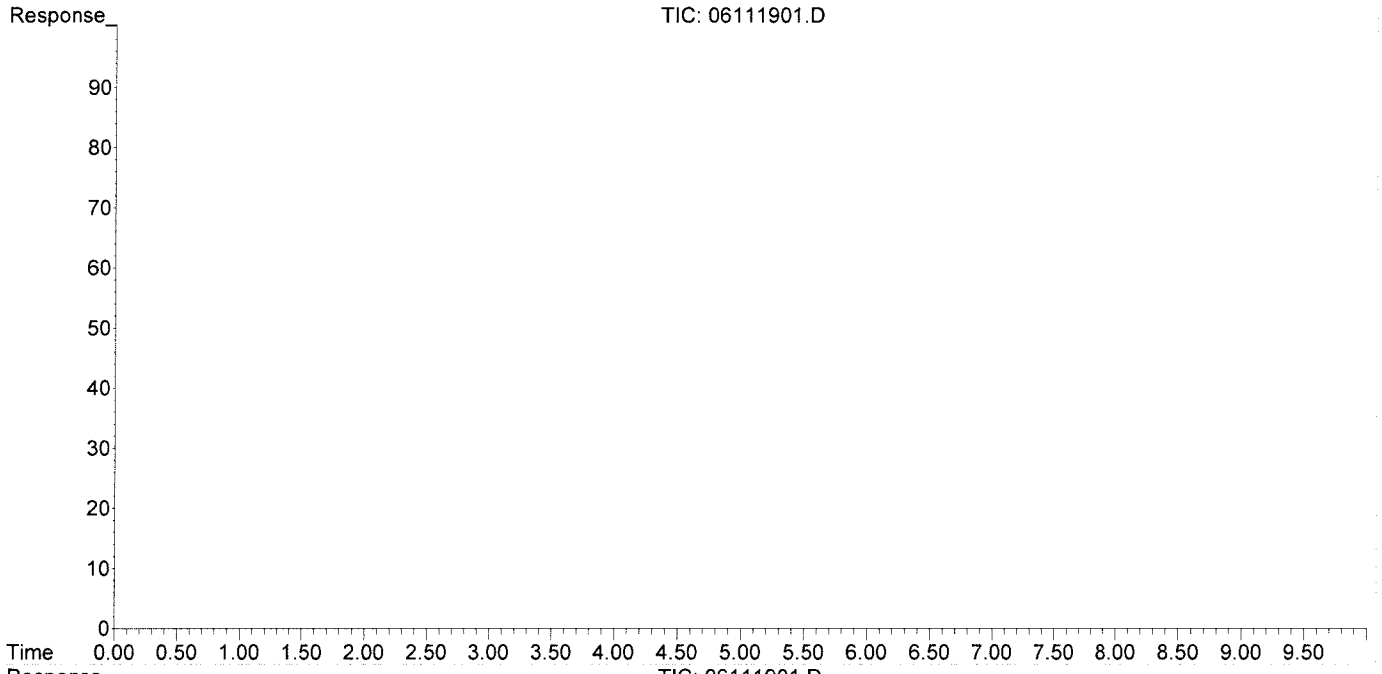
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.110	837405	92.320	ppm
7)	Ethylene	1.670	1646050	98.364	ppm
8)	Ethane	1.930	1652017	97.463	ppm
9)	Propylene	4.301	2419054	103.239	ppm
10)	Propane	4.426	2475195	99.484	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

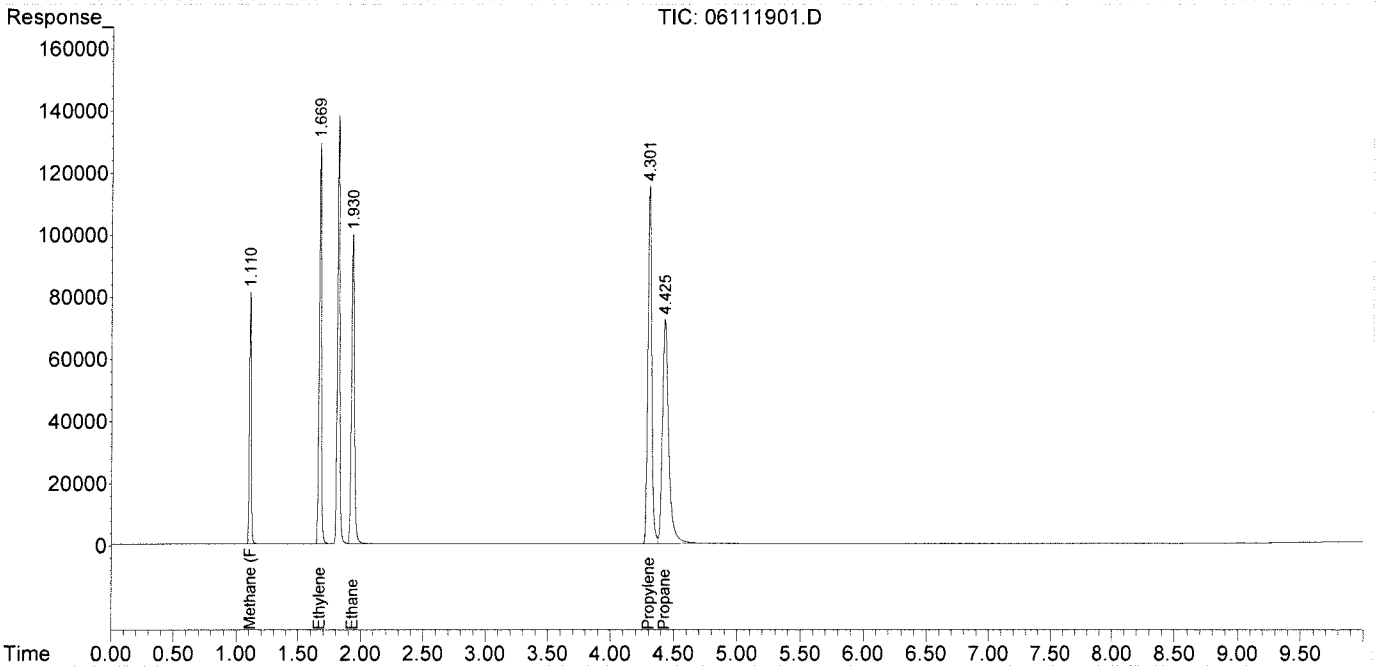
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_06\11\
Data File : 06111901.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 11-Jun-2019, 10:13:41
Operator : WH
Sample : std s32-05221901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 11 10:36:39 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : J:\GC10\DATA\RSK_FID\2019_06\11\
Data File : 06111912.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 11-Jun-2019, 14:21:07
Operator : WH
Sample : STD s32-05221901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 11 14:46:26 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

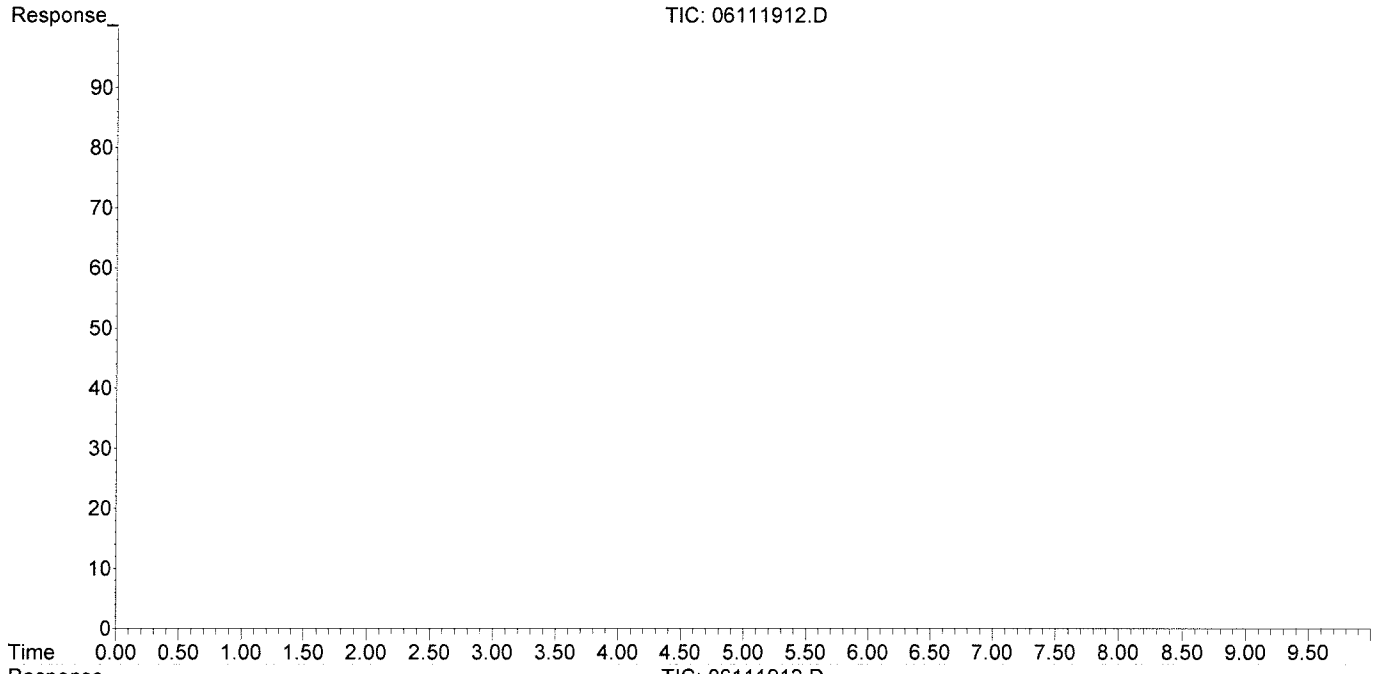
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.109	863192	95.163	ppm
7)	Ethylene	1.668	1695976	101.347	ppm
8)	Ethane	1.929	1703569	100.504	ppm
9)	Propylene	4.300	2497345	106.581	ppm
10)	Propane	4.424	2559918	102.890	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

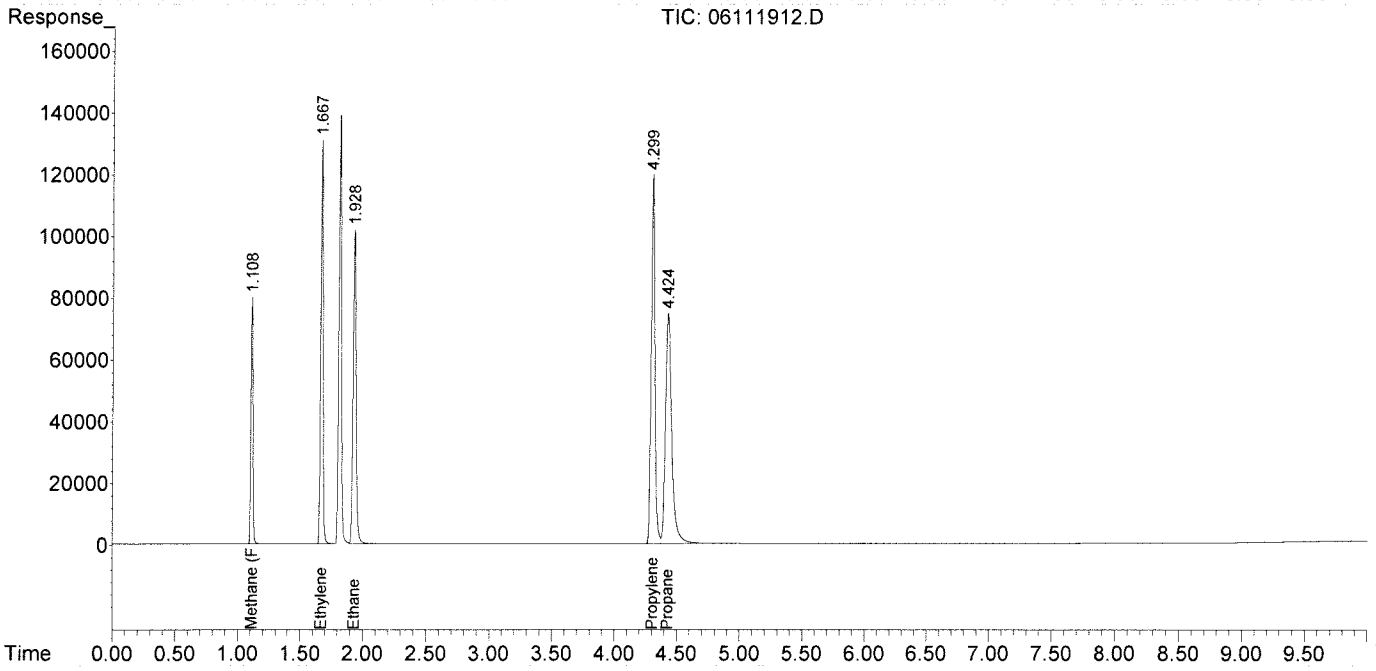
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_06\11\
Data File : 06111912.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 11-Jun-2019, 14:21:07
Operator : WH
Sample : STD s32-05221901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 11 14:46:26 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : J:\GC10\DATA\RSK_FID\2019_06\11\
Data File : 06111919.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 11-Jun-2019, 17:01:32
Operator : WH
Sample : STD s32-05221901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 11 17:15:09 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

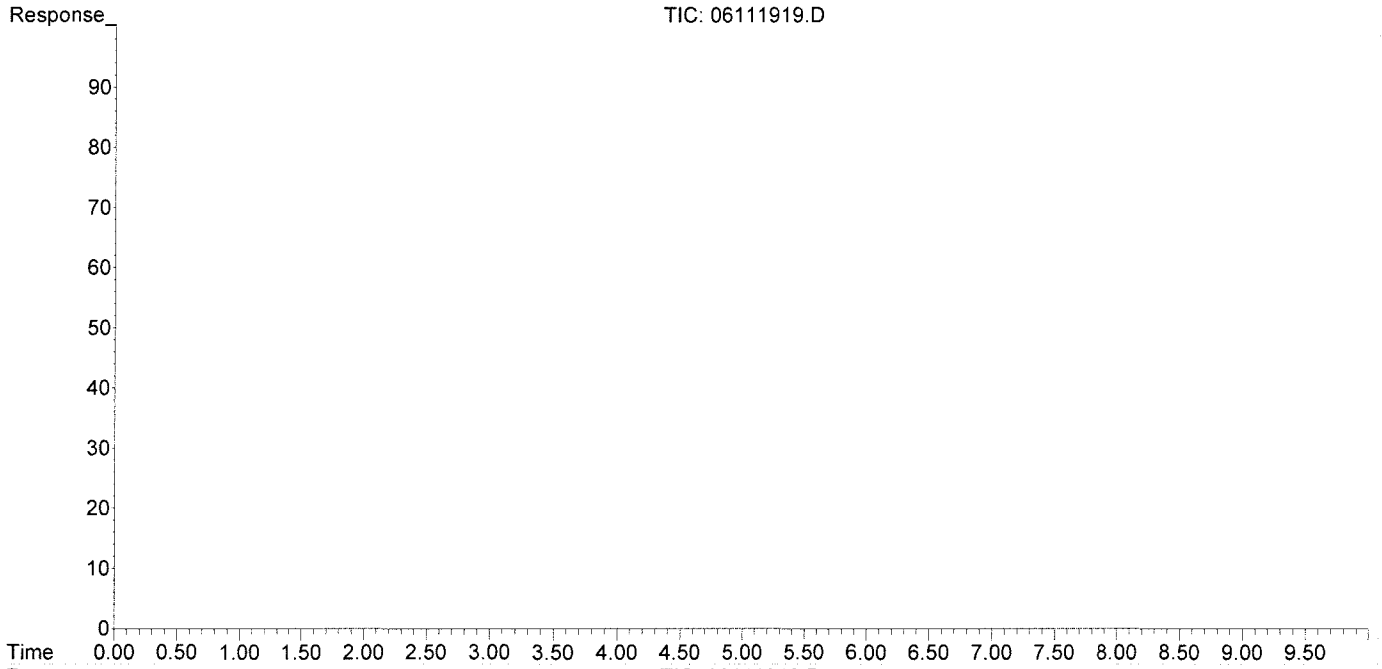
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.109	873947	96.349	ppm
7)	Ethylene	1.668	1719133	102.731	ppm
8)	Ethane	1.929	1728604	101.981	ppm
9)	Propylene	4.301	2531881	108.054	ppm
10)	Propane	4.425	2597688	104.408	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

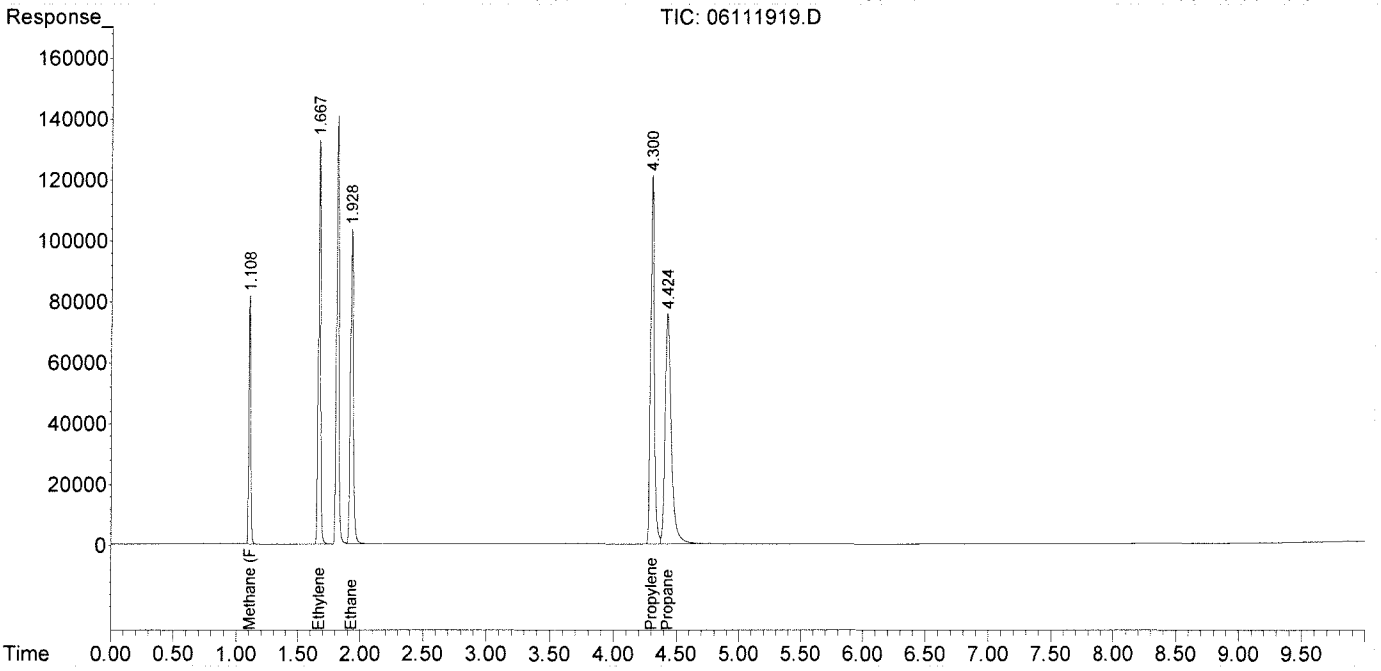
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_06\11\
Data File : 06111919.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 11-Jun-2019, 17:01:32
Operator : WH
Sample : STD s32-05221901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 11 17:15:09 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Injection Log

Directory: I:\GC10\DATA\RSK_FID\2017_09\12\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Acquisition Method	Comments
1	12-Sep-17, 08:38:08	09121701.D	test		MC	RSKBOTH.M	
2	12-Sep-17, 10:52:40	09121702.D	0.151ppm 0.250ml s32-09121702		MC	RSKBOTH.M	Curve
3	12-Sep-17, 11:05:49	09121703.D	0.302ppm 0.5ml s32-09121702		MC	RSKBOTH.M	Curve
4	12-Sep-17, 11:45:34	09121704.D	1.51ppm 0.1ml s32-09051701		MC	RSKBOTH.M	Curve
5	12-Sep-17, 12:09:33	09121705.D	4.53ppm 0.3ml s32-09051701		MC	RSKBOTH.M	Curve
6	12-Sep-17, 12:30:23	09121706.D	10.57ppm 0.7ml s32-09051701		MC	RSKBOTH.M	Curve
7	12-Sep-17, 12:47:18	09121707.D	200ppm 0.1ml s32-09121701		MC	RSKBOTH.M	Curve
8	12-Sep-17, 13:00:22	09121708.D	600ppm 0.3ml s32-09121701		MC	RSKBOTH.M	Curve
9	12-Sep-17, 13:47:48	09121709.D	1000ppm 0.5ml s32-09121701		MC	RSKBOTH.M	Curve
10	12-Sep-17, 14:07:58	09121710.D	2000ppm 1ml s32-09121701		MC	RSKBOTH.M	Curve
11	12-Sep-17, 14:48:48	09121711.D	4000ppm 0.1ml s32-08231701		MC	RSKBOTH.M	Curve
12	12-Sep-17, 15:21:51	09121712.D	20000ppm 0.5ml s32-08231701		MC	RSKBOTH.M	Curve
13	12-Sep-17, 15:38:59	09121713.D	mb 0.5ml		MC	RSKBOTH.M	Pass
14	12-Sep-17, 15:55:35	09121714.D	mb 0.1ml		MC	RSKBOTH.M	Pass
15	12-Sep-17, 16:15:26	09121715.D	icv s30-05241604		MC	RSKBOTH.M	Pass

Injection Log

Directory: I:\GC10\DATA\RSK_FID\2019_06\11\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Acquisition Method	Comments
1	11-Jun-19, 10:13:41	06111901.D	std s32-05221901		WH	RSKBOTH.M	pass
2	11-Jun-19, 10:38:02	06111902.D	RB 0.1ML		WH	RSKBOTH.M	pass
3	11-Jun-19, 11:04:29	06111903.D	MCS 0.1ML		WH	RSKBOTH.M	pass
4	11-Jun-19, 11:25:19	06111904.D	P1903244-001 0.1ml		WH	RSKBOTH.M	
5	11-Jun-19, 11:46:28	06111905.D	P1903244-002 0.1ml		WH	RSKBOTH.M	
6	11-Jun-19, 12:04:41	06111906.D	P1903244-003 0.1ml		WH	RSKBOTH.M	
7	11-Jun-19, 12:21:51	06111907.D	P1903244-004 0.1ml		WH	RSKBOTH.M	
8	11-Jun-19, 12:48:27	06111908.D	P1903244-005 0.1ml		WH	RSKBOTH.M	
9	11-Jun-19, 13:06:16	06111909.D	P1903244-006 0.1ml		WH	RSKBOTH.M	
10	11-Jun-19, 13:33:06	06111910.D	lcs fid 0.1ml		WH	RSKBOTH.M	pass
11	11-Jun-19, 13:54:43	06111911.D	lcsd fid 0.1ml		WH	RSKBOTH.M	pass
12	11-Jun-19, 14:21:07	06111912.D	STD s32-05221901		WH	RSKBOTH.M	pass
13	11-Jun-19, 14:48:57	06111913.D	P1903217-001 0.1ml		WH	RSKBOTH.M	
14	11-Jun-19, 15:13:17	06111914.D	P1903217-002 0.1ml		WH	RSKBOTH.M	
15	11-Jun-19, 15:38:23	06111915.D	P1903217-003 0.1ml		WH	RSKBOTH.M	
16	11-Jun-19, 15:51:45	06111916.D	P1903217-004 0.1ml		WH	RSKBOTH.M	
17	11-Jun-19, 16:14:33	06111917.D	P1903217-005 0.1ml		WH	RSKBOTH.M	
18	11-Jun-19, 16:36:27	06111918.D	P1903217-006 0.1ml		WH	RSKBOTH.M	
19	11-Jun-19, 17:01:32	06111919.D	STD s32-05221901		WH	RSKBOTH.M	pass

REPORT TO:

Name: MARCIA OLIVA
Company: BHATE ENVIRONMENTAL
Address: 445 UNION BLVD. STE. 129
LAKEWOOD, CO. 80228
email: molive@bhate.com
Phone: 720-463-3905
Fax:

Project Manager: Kim Nemmers
Project Name: LHAAP-58
Project No.: NW01312.0150

INVOICE TO: (For Invoices paid by a third party it is imperative that all information be provided)

Name:
Company:
Address:
email:
Phone:
Fax:

Purchase Order No.
Subcontract No.
MI Quote No.

microbialinsights
10515 Research Dr
Knoxville, TN 37932
865-573-8188
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Please Check One:
☒ More samples to follow
☐ No Additional Samples

Report Type: ☐ Standard (default) ☐ Microbial Insights Level III raw data(15% surcharge) ☐ Microbial Insights Level IV (25% surcharge) ☐ Comprehensive Interpretive(15%) ☐ Historical Interpretive (30%)

EDD type: ☐ Microbial Insights Standard (default) ☐ All other available EDDs (5% surcharge) Specify EDD Type:

Please contact us with any questions about the analyses or filling out the COC at (865) 573-8188 (9:00 am to 5:00 pm EST, M-F). After hours email: customerservice@microbe.com

Sample Information					Analyses					CENSUS: Please select the target organism/gene																						
MI ID (Laboratory Use Only)	Sample Name	Date Sampled	Time Sampled	Matrix	PLFA	DGGE+3ID	DGGE+5ID	QuantArray Chlor	QuantArray Petro	DHC (Dehalococcoides)	DHC Functional genes (bvc, tce, vcr)	DHBt (Dehalobacter)	DSM (Desulfuromonas)	DSB (Desulfitobacterium)	EBAC (Total)	SRB (Sulfate Reducing Bacteria-APS)	MGN (Methanogens)	MOB (Methanotrophs)	SMMO	DNF (Denitrifiers-nirS and nirK)	AOB (ammonia oxidizing bacteria)	PM1 (MTBE aerobic)	RMO (Toluene Monooxygenase)	RDEG (Toluene Monooxygenase)	PHE (Phenol Hydroxylase)	NAH (Naphalene-aerobic)	BSSA (Toluene/Xylene-Anaerobic)	add. qPCR:	add. qPCR:	RNA Expression Option)*	Other:	Other:	Other:
012QF1	35AMW19_060319	6/3/19	0805	WG						X		X																				
2	LHSMW07_060319	6/3/19	0900	WG						X		X																				
3	35AMW23_060319	6/3/19	1000	WG						X		X																				
4	35AMW24_060319	6/3/19	1055	WG						X		X																				
5	35AMW11_060319	6/3/19	1150	WG						X		X																				
6	35AMW09_060319	6/3/19	1250	WG						X		X																				

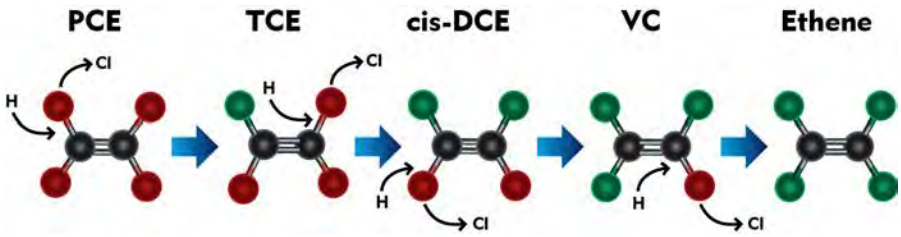
Relinquished by: [signature] 6/3/19 1500 Received by: Shona Corbin Date 6-5-19

It is vital that chain of custody is filled out correctly & that all relative information is provided.
Failure to provide sufficient and/or correct information regarding reporting, invoicing & analyses requested information may result in delays for which MI will not be liable.

DHC Interpretation

Dehalococcoides 16S rRNA gene (qDHC)

Under anaerobic conditions, tetrachloroethene (PCE) and trichloroethene (TCE) can undergo sequential reductive dechlorination through the daughter products *cis*-dichloroethene (*cis*-DCE) and vinyl chloride to nontoxic ethene (1,2).



While a number of bacterial cultures capable of utilizing PCE and TCE as growth supporting electron acceptors have been isolated (3-7), *Dehalococcoides* spp. may be the most important because they are the only bacterial group that has been isolated to date which is capable of complete reductive dechlorination of PCE to ethene (8). In fact, the presence of *Dehalococcoides* spp. has been associated with complete dechlorination to ethene at sites across North America and Europe (9).

Status	*Dehalococcoides spp.*	Observation
	**≥ 10^4** (cells/mL)	Lu et al. proposed that a concentration of 1 x 10^4 DHC cells/mL could be used as a screening criterion to identify sites where reductive dechlorination will yield a generally useful biodegradation rate (10). Similarly, in an internal study conducted with nearly 1000 groundwater samples obtained from sites across the US, ethene production was observed in approximately 80% of samples in which CENSUS® qDHC results were greater than or equal to 10^4 DHC cells/mL.
	**10^1 to < 10^4** (cells/mL)	When vinyl chloride reductase genes (See DHC functional genes discussion below) are also detected, complete reductive dechlorination of PCE and TCE to ethene may still occur even with moderate DHC concentrations. When the DHC population is below the 10^4 cells/mL criterion proposed by Lu et al. (10), project managers should carefully consider other site-specific data to determine whether subsurface conditions may be limiting reductive dechlorination. For example, the addition of an electron donor may be able to stimulate DHC growth and enhance anaerobic bioremediation.
	**< 10^1** (cells/mL)	DHC concentrations are low suggesting that complete reductive dechlorination of PCE and TCE to ethene is unlikely to occur under existing conditions. Enhanced anaerobic bioremediation options (biostimulation or bioaugmentation) may need to be considered.

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DHC Interpretation

DHC Functional Genes (*tce*A, *bvc*A, *vcr*A)

A "stall" where daughter products *cis*-DCE and vinyl chloride accumulate can occur at PCE- and TCE-impacted sites especially under MNA conditions. The accumulation of vinyl chloride, generally considered more carcinogenic than the parent compounds, is particularly problematic. Although elevated *Dehalococcoides* concentrations correspond to ethene production in numerous studies, the range of chlorinated ethenes metabolized and cometabolized varies among species and strains within the *Dehalococcoides* genus. For example, *Dehalococcoides ethenogenes* str. 195 metabolizes PCE, TCE, and *cis*-DCE and cometabolizes vinyl chloride (8) to produce ethene. Conversely, *Dehalococcoides* sp. CBDB1 utilizes PCE and TCE but does not cometabolize additional chloroethenes (11). Other *Dehalococcoides* strains, such as BAV1, GT and VS, are known to fully dechlorinate cis-DCE and VC to ethene (14,16,19). Quantification of reductive dehalogenase genes is used to more definitively confirm the potential for reductive dechlorination of TCE, cis-DCE, and vinyl chloride (12-15).

Functional Gene	Observation
TCE Reductase	
***tce*A gene**	The *tce*A gene encodes the enzyme responsible for reductive dechlorination of TCE to *cis*-DCE in some strains of *Dehalococcoides*. Absence of *tce*A does not preclude the potential for reductive dechlorination of TCE in the field since the *tce*A gene is not universally distributed among all DHC and is not present in other microorganisms capable of reductive dechlorination of TCE (e.g. *Dehalobacter*). Detection of the *tce*A gene provides an additional line of evidence indicating the potential for dechlorination of TCE.
Vinyl Chloride Reductase	
***bvc*A gene**	The *bvc*A gene encodes the vinyl chloride reductase enzyme responsible for reductive dechlorination of vinyl chloride to ethene by *Dehalococcoides* sp. str. BAV1 (16). Presence of *bvc*A gene indicates the potential for reductive dechlorination of VC to ethene. Absence of both *bvc*A and *vcr*A genes suggests VC may accumulate. An internal study with ~1,000 samples showed ethene production was observed in 80% of the samples that the DHC population was greater than or equal to 10^4 cells/mL. The *bvc*A gene was detected in over 50% of these samples. Van Der Zaan et al (17) noted that the bvcA gene was the only VC reductase gene detected at three of their sites. Alfred Spormann's laboratory at Stanford University (18) reported that the *bvc*A gene was the most abundant and active at the outflow of a PCE fed column study. This section of the column was in the DCE to VC stages of reductive dechlorination thus confirming the importance of the *bvc*A gene for complete reductive dechlorination.
***vcr*A gene**	The *vcr*A gene encodes the vinyl chloride reductase enzyme responsible for reductive dechlorination of *cis*-DCE and vinyl chloride by *Dehalococcoides* sp. strain VS (14). Presence of *vcr*A gene indicates the potential for reductive dechlorination of DCE and/or VC to ethene. Absence of both *bvc*A and *vcr*A genes suggest VC may accumulate. As with the *bvc*A gene, detection of the *vcr*A gene is associated with ethene production in internal studies (67%) and vinyl chloride reduction in independent studies (14, 17).

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DHC Interpretation

Reporting

Microbial Insights can provide a variety of data packages and reporting levels to suit the needs of any project. Data packages range from simple analytical reports with results only to more complex data packages that include a report narrative, analytical results, QC data, and supporting materials including all raw data and chain-of-custody documentation. The figure below shows our standard report and explains the way values are reported.

Microbial Insights, Inc.

2340 Stock Creek Blvd. Rockford, TN 37853-3044
Tel. (865) 573-8188 Fax. (865) 573-8133

CENSUS

Client: Company Name
Project: Your Project Name

MI Project Number: Unique Laboratory Identifier
Date Received: Date Samples Arrived

Sample Information

Client Sample ID:		Sample A	Sample B	Sample C
Sample Date:		00/00/0000	00/00/0000	00/00/0000
Units:		cells/mL	cells/mL	cells/mL
Analyst:		Intials	Intials	Intials
Dechlorinating Bacteria				
Dehalococcoides spp.	DHC	**1.84E+05**	**2.76E+02**	**2.28E+01 (J)**
Functional Genes				
tceA Reductase	TCE	**6.00E+01**	**3.23E+01**	<4.00E-01
bvcA Reductase	BVC	**1.17E+04**	**1.81E+01**	<4.00E-01
vcrA Reducatase	VCR	**8.42E+04**	**1.74E+02**	<4.00E-01

Legend:
NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited
< = Result not detected

"J" value
Result is an estimated value. This data qualifier (flag) is used when the target gene is detected but at a concentration or abundance below the practical quantification limit (PQL).

< value
The target gene was not detected at the limit of quantitation (LOQ) reported for that sample.

"I" value
QA Procedure indicated that the sample may have exhibited PCR inhibition. Although relatively rare, PCR inhibition can occur due to the presence of metals or humic acids at high concentrations in the sample.

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Quality Assurance

Microbial Insights' comprehensive Quality Assurance (QA) Program is the foundation of all laboratory analyses, ensuring that our clients receive high-quality analytical services that are timely, reliable, and meet their intended purpose in a cost effective manner. MI is committed to providing quality data that surpasses regulatory and industry standards, thus enabling the client to make well-informed decisions. MI maintains strict standard operating procedures and QA/QC measures throughout all of the analyses offered. The following Table details specific QA/QC procedures that are used for CENSUS.

QA/QC	Description
Date of Extraction	DNA and RNA extractions are performed the day the samples are received by MI to minimize the possibility of any changes to the microbial community prior to analysis.
Laboratory Method Blanks	An extraction blank (no sample added) is processed alongside each set of field samples from DNA extraction through CENSUS® analysis to ensure that cross contamination has not occurred. Although MI has never experienced this issue, the detection of the CENSUS® target (e.g. *Dehalococcoides*) in an extraction blank is direct evidence of cross contamination with a sample or contamination of a reagent and would invalidate the results. If this were to occur, MI would re-extract the sample. If not possible to re-extract, MI would contact the client immediately and notate it on the laboratory report.
Laboratory Control Samples (LCS)	A laboratory control sample (LCS) or positive control (target DNA) is included with each CENSUS® plate to confirm amplification and as a continuing calibration check.
Negative Controls	A negative control (no DNA) is included with each CENSUS plate to ensure that cross contamination has not occurred during amplification. As with the extraction blank, detection of CENSUS target (e.g. DHC) in a negative control is direct evidence of contamination and would invalidate the results. If this were to occur, MI would rerun the analysis.

References

1. Freedman, D. L. and J. M. Gossett. 1989. Biological reductive dechlorination of tetrachloroethylene and trichloroethylene to ethylene under methanogenic conditions. Applied and Environmental Microbiology 55(9): 2144-2151.

2. DiStefano, T. D., J.M. Gossett, and S.H. Zinder. 1991. Reductive dechlorination of high concentrations of tetrachlorethene to ethene by an anaerobic enrichment culture in the absence of methanogenesis. Applied and Environmental Microbiology 57(8): 2287-2292.

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How to Retrieve and Use Estimated Percentile Ranks from the Microbial Insights Database

The MI Database

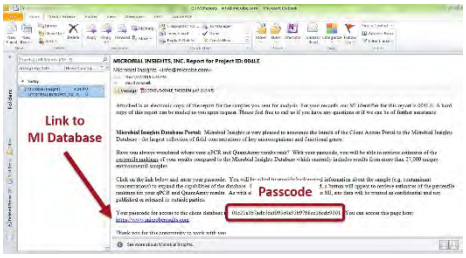
The Microbial Insights Database is the largest collection of field concentrations of key microorganisms and functional genes currently containing qPCR and QuantArray results for more than 40,000 unique groundwater, soil, and sediment samples from all 50 states and 33 countries worldwide.

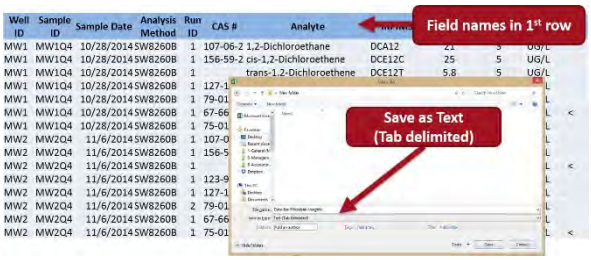
Is that low, medium or high?

In practice, biodegradation depends not just on the presence but the actual concentrations of the contaminant degrading microorganisms. The estimated percentile ranks retrieved from the MI Database answer the question "Is that low, medium or high?" by comparing your results to those of the literally thousands of other environmental samples submitted to MI for analysis over the last 20+ years.

Retrieving Estimated Percentile Ranks

With your report, you were emailed a passcode and link enabling you to login to the Client Portal. Just enter basic information about the sample (e.g. contaminant concentrations) to aid in understanding the links between environmental conditions and microbial populations and you can retrieve estimates of the percentile ranks of your results based on those compiled in the MI database at no additional charge.





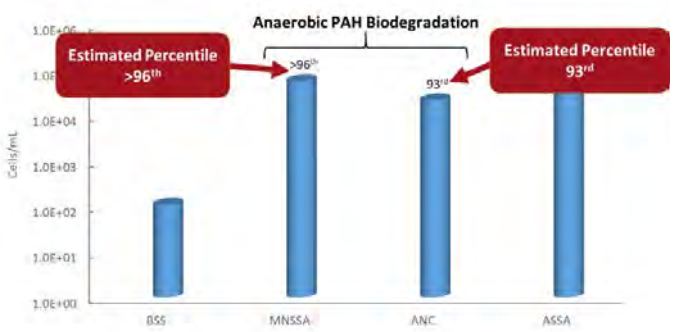
All site specific data will be treated as confidential and uploading is easy.

You can even upload chemical and geochemical data from EDDs. Just save as a Tab Delimited text file.

Example - Using Estimated Percentile for MNA Assessment at an MGP Site

CENSUS® qPCR was performed to quantify anaerobic naphthalene carboxylase (ANC) and naphthyl-2-methylsuccinate synthase (MNSSA) to assess anaerobic biodegradation of naphthalene and methyl-naphthalene under existing site conditions.

- Not only were ANC and MNSSA genes detected, but these functional genes responsible for anaerobic biodegradation of PAHs were present at concentrations "far better than average" based on the estimated percentile ranks.
- Demonstrating high concentrations of ANC and MNSSA gave an additional line of evidence indicating growth substantial populations of anaerobic PAH degraders and suggested a greater probability that monitored natural attenuation (MNA) will be successful.



How to Use Estimated Percentile Ranks from the Microbial Insights Database

The MI Database and Client Portal

The Microbial Insights Database is the largest collection of field concentrations of key microorganisms and functional genes currently containing qPCR and QuantArray results for more than 32,000 unique groundwater, soil, and sediment samples from all 50 states and 33 countries worldwide. Driven by field samples, the database reflects the impacts of common contaminants, geochemical conditions, and site management practices on critical microbial populations.

With your report, you received a passcode enabling you to retrieve estimates of the percentile ranks of your results based on those compiled in the MI database at no additional charge. When accessing the database, you will be asked to provide background information about the sample (e.g. contaminant concentrations) to aid in understanding the links between environmental conditions and microbial populations. As with all client information provided to MI, site specific data will be treated as confidential.

Is that low, medium or high?

In practice, biodegradation depends not just on the presence but the actual concentrations of the contaminant degrading microorganisms. Simply put, qPCR and QuantArray results demonstrating high concentrations of target microorganisms or functional genes suggest in situ selection, enrichment and growth of those specific contaminant degraders and therefore a greater probability that monitored natural attenuation (MNA) or bioremediation will be successful.

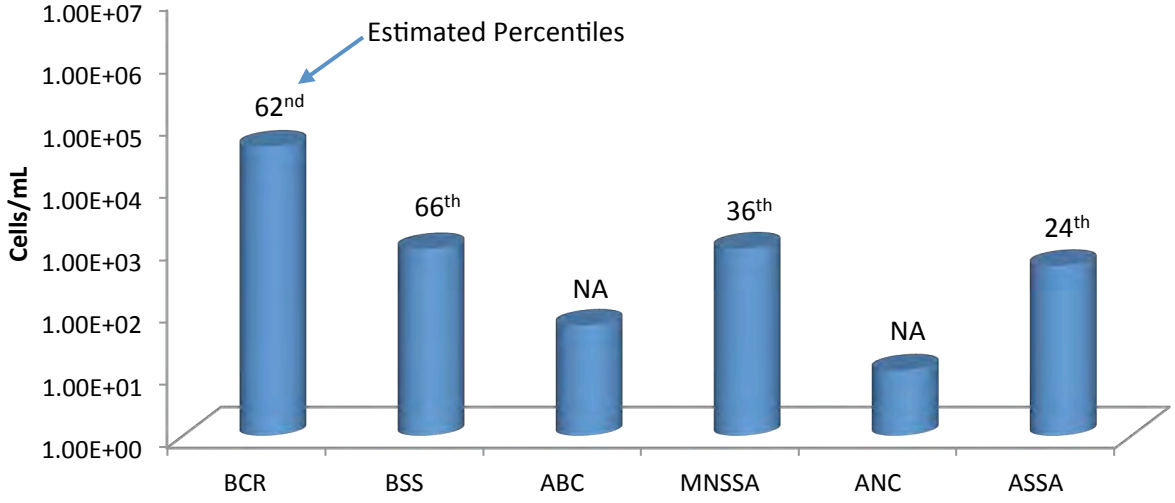
Is that a low, medium, or high concentration? The estimated percentile ranks retrieved from the MI Database answer that question by comparing your qPCR and QuantArray results to those of the literally thousands of other environmental samples submitted to MI for analysis over the last 20+ years.

Using the Estimated Percentile - Interpretation Examples

MNA Assessment – Petroleum Hydrocarbon Site:

Whenever possible, interpretation of qPCR and QuantArray results should include comparisons between samples obtained from background and impacted wells. The estimated percentile ranks however provide an additional avenue for comparison and evaluation of treatment options as shown below.

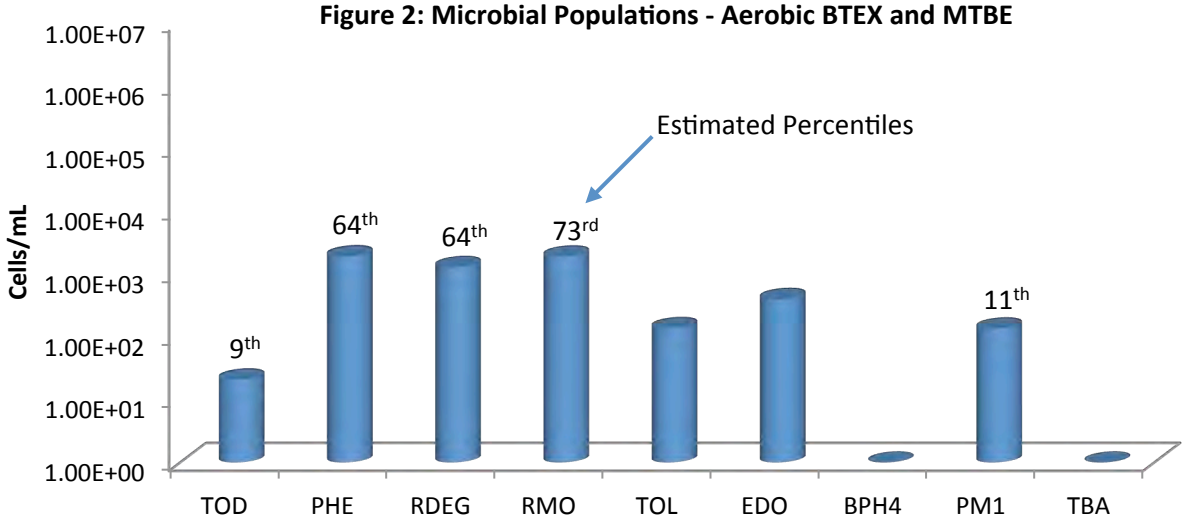
Figure 1: Microbial Populations - Anaerobic BTEX and PAHs



Anaerobic BTEX and PAH Biodegradation (Figure 1):

- With moderate concentrations of functional genes involved in anaerobic BTEX metabolism detected, the QuantArray-Petro® results were encouraging in terms of evaluating biodegradation potential under existing site conditions.
- More specifically, benzylsuccinate synthase (BSS) was detected on the order of nearly 10^3 cells/mL indicating the presence of a substantial population (66th percentile) capable of anaerobic biodegradation of toluene and other alkyl substituted benzenes.
- Naphthyl-2-methylsuccinate synthase (MNSSA) and alkylsuccinate synthase (ASSA) genes were also detected indicating the potential for anaerobic biodegradation of 2-methylnaphthalene and normal alkanes.
- The concentration of MNSSA genes would be considered modest with an estimated percentile of 36th.
- While the percentile rank for MNSSA would be "below average", a number of additional factors should be considered.
    - First, anaerobic hydrocarbon degraders are less prevalent than aerobic BTEX degraders and overall detection frequencies for many genes involved in anaerobic hydrocarbon biodegradation are less than 50%.
    - Therefore, the detection of genes like BSS, MNSSA, ASSA, anaerobic benzene carboxylase (ABC), and anaerobic naphthalene carboxylase (ANC) even at low concentrations is certainly noteworthy and inherently "better than average".
    - The estimated percentiles for all assays are based only on samples where the concentration of the target gene was greater than the practical quantitation limit (PQL).
    - For less commonly detected targets like many of the genes involved in anaerobic hydrocarbon biodegradation this is an especially important consideration.
    - Excluding samples where a gene target is below the PQL ensured that the median concentrations of less commonly detected targets would not be unduly biased low by the fact that the gene is not detected in most samples.
- Anaerobic benzene carboxylase (ABC) and naphthalene carboxylase (ANC) genes were also detected indicating the presence of bacterial populations capable of anaerobic biodegradation of benzene and naphthalene.
- For newly identified genes like ABC and ANC, estimated percentile ranks are not yet available due to the limited number of field samples that have been analyzed to date.
- However, like MNSSA and other genes involved in anaerobic hydrocarbon biodegradation, ABC and ANC detection frequencies are relatively low so the detection of these genes even at low concentrations should be considered when evaluating biodegradation potential under existing site conditions.

Figure 2: Microbial Populations - Aerobic BTEX and MTBE



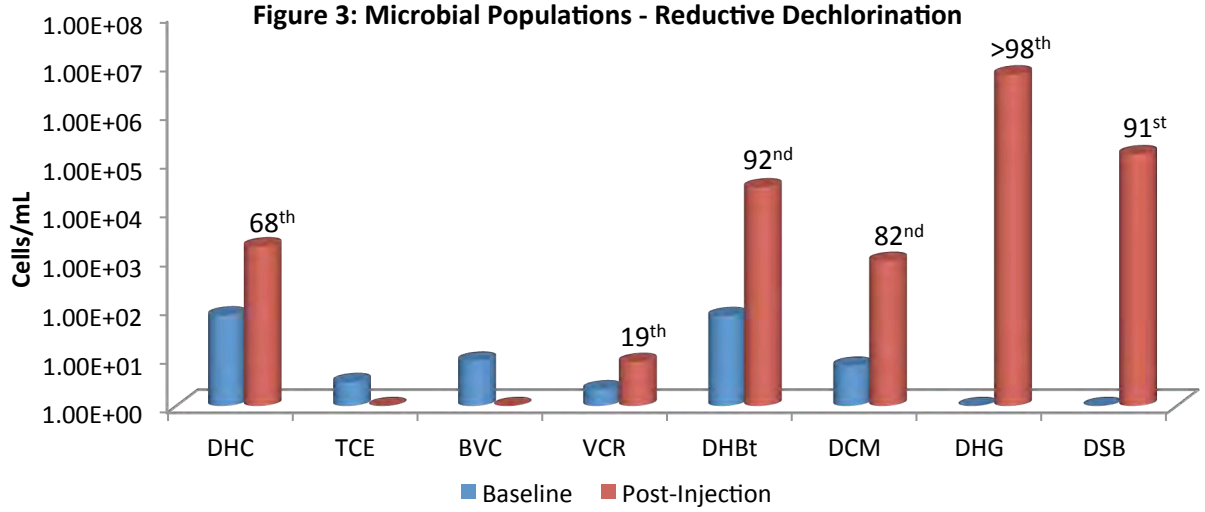
Aerobic BTEX and MTBE Biodegradation (Figure 2):

- With growing evidence that aromatic oxygenases function at low dissolved oxygen concentrations, aerobic BTEX biodegradation pathways should also be evaluated when considering MNA.
- Again, the QuantArray-Petro results were encouraging – genes encoding the first step in multiple pathways for aerobic BTEX biodegradation were detected indicating the presence of a diverse population of aerobic BTEX degraders.
- However, aerobic BTEX degraders are often considered ubiquitous. Therefore answering the question "Is that low, medium or high?" becomes especially important when evaluating aerobic BTEX biodegradation at petroleum hydrocarbon sites.
- In this case, the estimated percentile ranks of the concentrations of toluene/benzene monooxygenase (RMO and RDEG) and phenol hydroxylase (PHE) genes ranged from the 64th to 73rd percentile.
- In other words, the concentrations of RMO, RDEG, and PHE detected in this groundwater sample were greater than the concentrations detected in 64% to 73% of all other groundwater samples where these genes were analyzed and detected above the PQL.
- Aerobic BTEX degraders are common in the environment, but in this sample concentrations of toluene/benzene monooxygenase genes could be viewed as "better than average" when compared to the MI Database.

Biostimulation – Chlorinated Solvent Site:

Whenever possible, interpretation of qPCR and QuantArray results should include comparisons between baseline and post-injection monitoring events as shown below (Figure 3). The estimated percentile ranks however provide an additional avenue for comparison and evaluation of remedy performance.

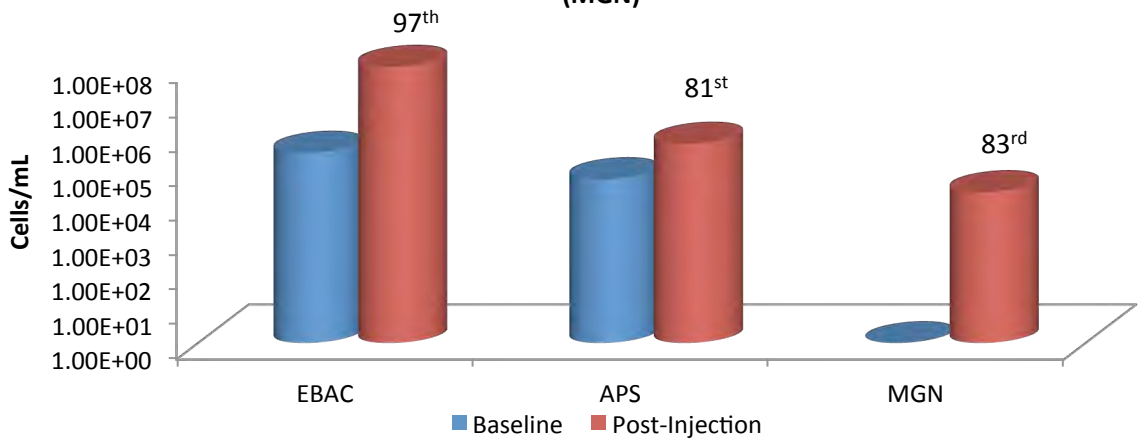
Figure 3: Microbial Populations - Reductive Dechlorination



- During the baseline groundwater sampling event, *Dehalococcoides* and vinyl chloride reductase genes were detected indicating the potential for complete reductive dechlorination of PCE and TCE to ethene.
- However, the *Dehalococcoides* concentration was well below the 10^4 cells/mL recommended by Lu et al. (2006) for generally effective rates of reductive dechlorination.
- Based on qPCR results as well as traditional groundwater monitoring, biostimulation with electron donor addition was selected as the site management plan.
- By the first monitoring event after injection, populations of halorespiring bacteria had increased substantially in response to electron donor addition.
    - *Dehalobacter* populations increased by more than two orders of magnitude to post-injection concentrations greater than 10^4 cells/mL (92nd percentile).
    - *Dehalogenimonas* (10^6 cells/mL) and *Desulfitobacterium* (10^5 cells/mL) which had not been detected prior electron donor addition were present at concentrations greater than observed in over 90% of other groundwater samples where these halorespiring bacteria were detected.
- After injection, *Dehalococcoides* populations increased by more than an order of magnitude to a concentration of over 10^3 cells/mL (68th percentile) demonstrating growth of this key group of halorespiring bacteria.
- Despite a substantial increase and a "better than average" concentration, the *Dehalococcoides* population was still below the 10^4 cells/mL threshold and vinyl chloride reductase gene copies were low (19th percentile).
    - In terms of electron donors and acceptors, the metabolic capabilities of *Dehalococcoides* are rather specialized (hydrogen utilizing obligate halorespiring bacteria) so the median concentration is low. With a low median concentration across the database, a "better than average" *Dehalococcoides* concentration in a given sample may not exceed the 10^4 cells/mL threshold established for effective reductive dechlorination (Lu et al. 2006) and ethene production (Microbial Insights, unpublished data).

- In this case, the initial growth of *Dehalococcoides* was substantial but may have been somewhat hindered by competition with sulfate reducing bacteria (Figure 4 below).
    - The baseline population of sulfate reducing bacteria was moderate (10^4 cells/mL; 63rd percentile). Consistent with an observed decreased in dissolved sulfate concentrations, populations of sulfate reducing bacteria increased and were detected at a relatively high concentration (81st percentile) after electron donor addition.
    - After injection, methanogen populations also increased to a relatively high concentration (83rd percentile) suggesting generation of methanogenic conditions.
- With sulfate depletion and generation of highly anaerobic conditions more conducive to reductive dechlorination, *Dehalococcoides* populations may continue to increase and exceed the 10^4 *Dehalococcoides* cells/mL threshold in subsequent monitoring events.
- Overall, QuantArray analysis conclusively demonstrated that electron donor addition stimulated growth of halorespiring bacteria with the estimated percentiles retrieved from the MI Database providing the "low, medium or high" perspective to the observed changes in microbial populations.

Figure 4: Total Bacteria (EBAC), Sulfate Reducering Bacteria (APS) and Methanogens (MGN)



References

Lu, X., J.T. Wilson, and D.H. Kampbell. 2006. Relationship between *Dehalococcoides* DNA in ground water and rates of reductive dechlorination at field scale. *Water Research* 40 no. 16: 3131-3140.

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Client: RJ Modashia
ALS Laboratory Group
10450 Stancliff Rd
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Phone: 281-575-2279

Fax:

Identifier: 012QF **Date Rec:** 06/05/2019 **Report Date:** 06/12/2019

Client Project #: NW01312.0150 **Client Project Name:** LHAAP-58

Purchase Order #:

Analysis Requested: CENSUS

Reviewed By:



NOTICE: This report is intended only for the addressee shown above and may contain confidential or privileged information. If the recipient of this material is not the intended recipient or if you have received this in error, please notify Microbial Insights, Inc. immediately. The data and other information in this report represent only the sample(s) analyzed and are rendered upon condition that it is not to be reproduced without approval from Microbial Insights, Inc. Thank you for your cooperation.

MICROBIAL INSIGHTS, INC.

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CENSUS

Client: **ALS Laboratory Group**
Project: LHAAP-58

MI Project Number: **012QF**
Date Received: 06/05/2019

Sample Information

Client Sample ID:		**35AWW19_060319**	**LHSMW07_060319**	**35AWW23_060319**	**35AWW24_060319**	**35AWW11_060319**
Sample Date:		06/03/2019	06/03/2019	06/03/2019	06/03/2019	06/03/2019
Units:		cells/mL	cells/mL	cells/mL	cells/mL	cells/mL
Analyst/Reviewer:		HT	HT	HT	HT	HT
Dechlorinating Bacteria						
Dehalococcoides	*DHC*	**3.30E+00**	**7.58E+03**	**6.52E+02**	**9.00E-01**	**2.10E+03**
tceA Reductase	TCE	<5.00E-01	<1.00E+00	<3.80E+00	<5.00E-01	<5.00E-01
BAV1 Vinyl Chloride Reductase	BVC	<5.00E-01	<1.00E+00	**2.50E+00 (J)**	<5.00E-01	<5.00E-01
Vinyl Chloride Reductase	VCR	**1.00E-01 (J)**	**1.62E+03**	**7.27E+01**	<5.00E-01	**1.74E+02**
Dehalobacter spp.	*DHBt*	**6.27E+04**	<9.50E+00	<3.85E+01	**2.47E+01**	**2.57E+06**

Legend:
NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited
< = Result not detected

MICROBIAL INSIGHTS, INC.

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CENSUS

Client: **ALS Laboratory Group**
Project: LHAAP-58

MI Project Number: **012QF**
Date Received: 06/05/2019

Sample Information

Client Sample ID:	**35AWW09_060319**
Sample Date:	06/03/2019
Units:	cells/mL
Analyst/Reviewer:	HT

Dechlorinating Bacteria

Dehalococcoides	*DHC*	**5.80E+00**
tceA Reductase	TCE	<7.00E-01
BAV1 Vinyl Chloride Reductase	BVC	<7.00E-01
Vinyl Chloride Reductase	VCR	<7.00E-01
Dehalobacter spp.	*DHBt*	**7.33E+01**

Legend:
NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited
< = Result not detected

Quality Assurance/Quality Control Data

Samples Received **6/5/2019**

Component	Date Prepared	Date Analyzed	Arrival Temperature	Positive Control	Extraction Blank	Negative Control
BVC	06/05/2019	06/12/2019	5 °C	105%	non-detect	non-detect
TCE	06/05/2019	06/12/2019	5 °C	104%	non-detect	non-detect
VCR	06/05/2019	06/12/2019	5 °C	101%	non-detect	non-detect
DHBt	06/05/2019	06/12/2019	5 °C	110%	non-detect	non-detect
DHC	06/05/2019	06/12/2019	5 °C	100%	non-detect	non-detect

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June 27, 2019

Marcia Olive
Bhate Environmental Associates, Inc.
445 Union Blvd Ste 129
Lakewood, CO 80228

Work Order: **HS19060185**

Laboratory Results for: **LHAAP-58**

Dear Marcia,

ALS Environmental received 8 sample(s) on Jun 05, 2019 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: JUMOKE.LAWAL
RJ Modashia
Project Manager

ALS Houston, US Date: 27-jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Work Order: HS19060185

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS19060185-01	03WW01_060419	Groundwater		04-Jun-2019 07:45	05-Jun-2019 09:00	☐
HS19060185-02	34AWW08_060419	Groundwater		04-Jun-2019 08:20	05-Jun-2019 09:00	☐
HS19060185-03	35AWW20_060419	Groundwater		04-Jun-2019 09:25	05-Jun-2019 09:00	☐
HS19060185-04	35AWW10_060419	Groundwater		04-Jun-2019 10:30	05-Jun-2019 09:00	☐
HS19060185-05	35AWW10_060419_a	Groundwater		04-Jun-2019 10:30	05-Jun-2019 09:00	☐
HS19060185-06	35AWW06_060419	Groundwater		04-Jun-2019 11:35	05-Jun-2019 09:00	☐
HS19060185-07	35AWW18_060419	Groundwater		04-Jun-2019 12:20	05-Jun-2019 09:00	☐
HS19060185-08	Trip Blank	Water		04-Jun-2019 00:00	05-Jun-2019 09:00	☐

ALS Houston, US Date: 27-Jun-19

Client: Bhate Environmental Associates, Inc. **CASE NARRATIVE**
Project: LHAAP-58
Work Order: HS19060185

Work Order Comments

- The analysis for TOC was subcontracted to ALS Environmental in Kelso WA. Final report attached.
- The analyses for MEE and CO2 were subcontracted to ALS Environmental in Simi Valley , CA. Final report attached.
- The analysis for VFA was subcontracted to ALS Environmental in Rochester, NY. Final report attached.
- The analysis for DHC/DHB were subcontracted to Microbial Insights in Knoxville TN. Final report attached.

GCMS Volatiles by Method SW8260

Batch ID: R339998

Sample ID: 03WW01_060419 (HS19060185-01)

- Lowest practical dilution for sample HS19060185-01. Samples are foamy.

Sample ID: 34AWW08_060419 (HS19060185-02)

- Lowest practical dilution for sample HS19060185-02. Samples are foamy.

Sample ID: 35AWW20_060419 (HS19060185-03)

- Lowest practical dilution for sample HS19060185-03. Samples are foamy.

Sample ID: HS19060123-01MS

- MS and MSD are for an unrelated sample

Metals by Method SW6020

Batch ID: 141628

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method SW9056

Batch ID: R339937

Sample ID: 03WW01_060419 (HS19060185-01)

- The reporting limit is elevated due to dilution for high concentrations of non-target analytes. (Nitrogen, Nitrate (As N))

Sample ID: 34AWW08_060419 (HS19060185-02)

- The reporting limit is elevated due to dilution for high concentrations of non-target analytes. (Nitrogen, Nitrate (As N),Sulfate)

Sample ID: HS19060180-01MS

- MS and MSD are for an unrelated sample (Sulfate)

ALS Houston, US Date: 27-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 03WW01_060419
Collection Date: 04-Jun-2019 07:45

ANALYTICAL REPORT
WorkOrder:HS19060185
Lab ID:HS19060185-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 18:58
1,1,1-Trichloroethane	2.5	U	1.0	2.5	5.0	UG/L	5	06-Jun-2019 18:58
1,1,2,2-Tetrachloroethane	2.5	U	2.5	2.5	5.0	UG/L	5	06-Jun-2019 18:58
1,1,2-Trichloroethane	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 18:58
1,1-Dichloroethane	2.5	U	1.0	2.5	5.0	UG/L	5	06-Jun-2019 18:58
1,1-Dichloroethene	2.5	U	1.0	2.5	5.0	UG/L	5	06-Jun-2019 18:58
1,1-Dichloropropene	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 18:58
1,2,3-Trichlorobenzene	2.5	U	2.0	2.5	5.0	UG/L	5	06-Jun-2019 18:58
1,2,3-Trichloropropane	2.5	U	2.5	2.5	5.0	UG/L	5	06-Jun-2019 18:58
1,2,4-Trichlorobenzene	2.5	U	2.5	2.5	5.0	UG/L	5	06-Jun-2019 18:58
1,2,4-Trimethylbenzene	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 18:58
1,2-Dibromo-3-chloropropane	2.5	U	1.0	2.5	5.0	UG/L	5	06-Jun-2019 18:58
1,2-Dibromoethane	2.5	U	1.0	2.5	5.0	UG/L	5	06-Jun-2019 18:58
1,2-Dichlorobenzene	2.5	U	2.5	2.5	5.0	UG/L	5	06-Jun-2019 18:58
1,2-Dichloroethane	2.5	U	1.0	2.5	5.0	UG/L	5	06-Jun-2019 18:58
1,2-Dichloropropane	2.5	U	2.5	2.5	5.0	UG/L	5	06-Jun-2019 18:58
1,3,5-Trimethylbenzene	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 18:58
1,3-Dichlorobenzene	2.5	U	2.0	2.5	5.0	UG/L	5	06-Jun-2019 18:58
1,3-Dichloropropane	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 18:58
1,4-Dichlorobenzene	2.5	U	2.0	2.5	5.0	UG/L	5	06-Jun-2019 18:58
2,2-Dichloropropane	2.5	U	1.0	2.5	5.0	UG/L	5	06-Jun-2019 18:58
2-Butanone	5.0	U	2.5	5.0	10	UG/L	5	06-Jun-2019 18:58
2-Chlorotoluene	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 18:58
2-Hexanone	5.0	U	5.0	5.0	10	UG/L	5	06-Jun-2019 18:58
4-Chlorotoluene	2.5	U	2.0	2.5	5.0	UG/L	5	06-Jun-2019 18:58
4-Isopropyltoluene	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 18:58
4-Methyl-2-pentanone	5.0	U	3.5	5.0	10	UG/L	5	06-Jun-2019 18:58
Acetone	5.0	U	2.0	5.0	10	UG/L	5	06-Jun-2019 18:58
Benzene	2.5	U	1.0	2.5	5.0	UG/L	5	06-Jun-2019 18:58
Bromobenzene	2.5	U	2.0	2.5	5.0	UG/L	5	06-Jun-2019 18:58
Bromochloromethane	2.5	U	1.0	2.5	5.0	UG/L	5	06-Jun-2019 18:58
Bromodichloromethane	2.5	U	1.0	2.5	5.0	UG/L	5	06-Jun-2019 18:58
Bromoform	2.5	U	2.0	2.5	5.0	UG/L	5	06-Jun-2019 18:58
Bromomethane	2.5	U	2.0	2.5	5.0	UG/L	5	06-Jun-2019 18:58
Carbon disulfide	5.0	U	3.0	5.0	10	UG/L	5	06-Jun-2019 18:58
Carbon tetrachloride	2.5	U	2.5	2.5	5.0	UG/L	5	06-Jun-2019 18:58
Chlorobenzene	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 18:58
Chloroethane	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 18:58
Chloroform	2.5	U	1.0	2.5	5.0	UG/L	5	06-Jun-2019 18:58

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 03WW01_060419
Collection Date: 04-Jun-2019 07:45

ANALYTICAL REPORT
WorkOrder:HS19060185
Lab ID:HS19060185-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	2.5	U	1.0	2.5	5.0	UG/L	5	06-Jun-2019 18:58
cis-1,2-Dichloroethene	**41**		**1.0**	**2.5**	**5.0**	**UG/L**	5	06-Jun-2019 18:58
cis-1,3-Dichloropropene	2.5	U	0.50	2.5	5.0	UG/L	5	06-Jun-2019 18:58
Dibromochloromethane	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 18:58
Dibromomethane	2.5	U	1.0	2.5	5.0	UG/L	5	06-Jun-2019 18:58
Dichlorodifluoromethane	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 18:58
Ethylbenzene	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 18:58
Hexachlorobutadiene	5.0	U	5.0	5.0	5.0	UG/L	5	06-Jun-2019 18:58
Isopropylbenzene	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 18:58
m,p-Xylene	5.0	U	2.5	5.0	10	UG/L	5	06-Jun-2019 18:58
Methylene chloride	5.0	U	2.0	5.0	10	UG/L	5	06-Jun-2019 18:58
n-Butylbenzene	2.5	U	2.0	2.5	5.0	UG/L	5	06-Jun-2019 18:58
n-Propylbenzene	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 18:58
Naphthalene	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 18:58
o-Xylene	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 18:58
sec-Butylbenzene	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 18:58
Styrene	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 18:58
tert-Butylbenzene	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 18:58
Tetrachloroethene	**3.2**	J	**1.5**	**2.5**	**5.0**	**UG/L**	5	06-Jun-2019 18:58
Toluene	2.5	U	1.0	2.5	5.0	UG/L	5	06-Jun-2019 18:58
trans-1,2-Dichloroethene	2.5	U	1.0	2.5	5.0	UG/L	5	06-Jun-2019 18:58
trans-1,3-Dichloropropene	2.5	U	1.0	2.5	5.0	UG/L	5	06-Jun-2019 18:58
Trichloroethene	**2.9**	J	**1.0**	**2.5**	**5.0**	**UG/L**	5	06-Jun-2019 18:58
Trichlorofluoromethane	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 18:58
Vinyl chloride	**11**		**1.0**	**2.5**	**5.0**	**UG/L**	5	06-Jun-2019 18:58
Surr: 1,2-Dichloroethane-d4	*96.3*			**0**	*81-118*	*%REC*	*5*	*06-Jun-2019 18:58*
Surr: 4-Bromofluorobenzene	*98.7*			**0**	*85-114*	*%REC*	*5*	*06-Jun-2019 18:58*
Surr: Dibromofluoromethane	*93.5*			**0**	*80-119*	*%REC*	*5*	*06-Jun-2019 18:58*
Surr: Toluene-d8	*108*			**0**	*89-112*	*%REC*	*5*	*06-Jun-2019 18:58*
ICP-MS METALS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 05-Jun-2019		Analyst: JHD
Arsenic	**0.0133**		**0.000400**	**0.000500**	**0.00200**	**mg/L**	1	05-Jun-2019 22:38
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KMU
Chloride	**809**		**10.0**	**25.0**	**25.0**	**mg/L**	50	06-Jun-2019 01:46
Nitrogen, Nitrate (As N)	**0.196**	J	**0.150**	**0.500**	**0.500**	**mg/L**	5	06-Jun-2019 01:28
Sulfate	**239**		**1.00**	**2.50**	**2.50**	**mg/L**	5	06-Jun-2019 01:28
SUBCONTRACT ANALYSIS - DHC/DHB		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	12-Jun-2019 16:54

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 03WW01_060419
Collection Date: 04-Jun-2019 07:45

ANALYTICAL REPORT
WorkOrder:HS19060185
Lab ID:HS19060185-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	17-Jun-2019 15:01
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	**See Attched**		**0**	**0**	**0**	**NA**	1	27-Jun-2019 12:27

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 34AWW08_060419
Collection Date: 04-Jun-2019 08:20

ANALYTICAL REPORT
WorkOrder:HS19060185
Lab ID:HS19060185-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 19:22
1,1,1-Trichloroethane	2.5	U	1.0	2.5	5.0	UG/L	5	06-Jun-2019 19:22
1,1,2,2-Tetrachloroethane	2.5	U	2.5	2.5	5.0	UG/L	5	06-Jun-2019 19:22
1,1,2-Trichloroethane	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 19:22
1,1-Dichloroethane	2.5	U	1.0	2.5	5.0	UG/L	5	06-Jun-2019 19:22
1,1-Dichloroethene	2.5	U	1.0	2.5	5.0	UG/L	5	06-Jun-2019 19:22
1,1-Dichloropropene	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 19:22
1,2,3-Trichlorobenzene	2.5	U	2.0	2.5	5.0	UG/L	5	06-Jun-2019 19:22
1,2,3-Trichloropropane	2.5	U	2.5	2.5	5.0	UG/L	5	06-Jun-2019 19:22
1,2,4-Trichlorobenzene	2.5	U	2.5	2.5	5.0	UG/L	5	06-Jun-2019 19:22
1,2,4-Trimethylbenzene	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 19:22
1,2-Dibromo-3-chloropropane	2.5	U	1.0	2.5	5.0	UG/L	5	06-Jun-2019 19:22
1,2-Dibromoethane	2.5	U	1.0	2.5	5.0	UG/L	5	06-Jun-2019 19:22
1,2-Dichlorobenzene	2.5	U	2.5	2.5	5.0	UG/L	5	06-Jun-2019 19:22
1,2-Dichloroethane	2.5	U	1.0	2.5	5.0	UG/L	5	06-Jun-2019 19:22
1,2-Dichloropropane	2.5	U	2.5	2.5	5.0	UG/L	5	06-Jun-2019 19:22
1,3,5-Trimethylbenzene	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 19:22
1,3-Dichlorobenzene	2.5	U	2.0	2.5	5.0	UG/L	5	06-Jun-2019 19:22
1,3-Dichloropropane	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 19:22
1,4-Dichlorobenzene	2.5	U	2.0	2.5	5.0	UG/L	5	06-Jun-2019 19:22
2,2-Dichloropropane	2.5	U	1.0	2.5	5.0	UG/L	5	06-Jun-2019 19:22
2-Butanone	5.0	U	2.5	5.0	10	UG/L	5	06-Jun-2019 19:22
2-Chlorotoluene	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 19:22
2-Hexanone	5.0	U	5.0	5.0	10	UG/L	5	06-Jun-2019 19:22
4-Chlorotoluene	2.5	U	2.0	2.5	5.0	UG/L	5	06-Jun-2019 19:22
4-Isopropyltoluene	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 19:22
4-Methyl-2-pentanone	5.0	U	3.5	5.0	10	UG/L	5	06-Jun-2019 19:22
Acetone	**13**		**2.0**	**5.0**	**10**	**UG/L**	5	06-Jun-2019 19:22
Benzene	2.5	U	1.0	2.5	5.0	UG/L	5	06-Jun-2019 19:22
Bromobenzene	2.5	U	2.0	2.5	5.0	UG/L	5	06-Jun-2019 19:22
Bromochloromethane	2.5	U	1.0	2.5	5.0	UG/L	5	06-Jun-2019 19:22
Bromodichloromethane	2.5	U	1.0	2.5	5.0	UG/L	5	06-Jun-2019 19:22
Bromoform	2.5	U	2.0	2.5	5.0	UG/L	5	06-Jun-2019 19:22
Bromomethane	2.5	U	2.0	2.5	5.0	UG/L	5	06-Jun-2019 19:22
Carbon disulfide	5.0	U	3.0	5.0	10	UG/L	5	06-Jun-2019 19:22
Carbon tetrachloride	2.5	U	2.5	2.5	5.0	UG/L	5	06-Jun-2019 19:22
Chlorobenzene	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 19:22
Chloroethane	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 19:22
Chloroform	2.5	U	1.0	2.5	5.0	UG/L	5	06-Jun-2019 19:22

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 34AWW08_060419
Collection Date: 04-Jun-2019 08:20

ANALYTICAL REPORT
WorkOrder:HS19060185
Lab ID:HS19060185-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	2.5	U	1.0	2.5	5.0	UG/L	5	06-Jun-2019 19:22
cis-1,2-Dichloroethene	2.5	U	1.0	2.5	5.0	UG/L	5	06-Jun-2019 19:22
cis-1,3-Dichloropropene	2.5	U	0.50	2.5	5.0	UG/L	5	06-Jun-2019 19:22
Dibromochloromethane	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 19:22
Dibromomethane	2.5	U	1.0	2.5	5.0	UG/L	5	06-Jun-2019 19:22
Dichlorodifluoromethane	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 19:22
Ethylbenzene	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 19:22
Hexachlorobutadiene	5.0	U	5.0	5.0	5.0	UG/L	5	06-Jun-2019 19:22
Isopropylbenzene	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 19:22
m,p-Xylene	5.0	U	2.5	5.0	10	UG/L	5	06-Jun-2019 19:22
Methylene chloride	5.0	U	2.0	5.0	10	UG/L	5	06-Jun-2019 19:22
n-Butylbenzene	2.5	U	2.0	2.5	5.0	UG/L	5	06-Jun-2019 19:22
n-Propylbenzene	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 19:22
Naphthalene	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 19:22
o-Xylene	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 19:22
sec-Butylbenzene	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 19:22
Styrene	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 19:22
tert-Butylbenzene	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 19:22
Tetrachloroethene	**4.8**	J	**1.5**	**2.5**	**5.0**	**UG/L**	5	06-Jun-2019 19:22
Toluene	2.5	U	1.0	2.5	5.0	UG/L	5	06-Jun-2019 19:22
trans-1,2-Dichloroethene	2.5	U	1.0	2.5	5.0	UG/L	5	06-Jun-2019 19:22
trans-1,3-Dichloropropene	2.5	U	1.0	2.5	5.0	UG/L	5	06-Jun-2019 19:22
Trichloroethene	**13**		**1.0**	**2.5**	**5.0**	**UG/L**	5	06-Jun-2019 19:22
Trichlorofluoromethane	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 19:22
Vinyl chloride	2.5	U	1.0	2.5	5.0	UG/L	5	06-Jun-2019 19:22
Surr: 1,2-Dichloroethane-d4	*91.3*			**0**	*81-118*	*%REC*	*5*	*06-Jun-2019 19:22*
Surr: 4-Bromofluorobenzene	*105*			**0**	*85-114*	*%REC*	*5*	*06-Jun-2019 19:22*
Surr: Dibromofluoromethane	*94.7*			**0**	*80-119*	*%REC*	*5*	*06-Jun-2019 19:22*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*5*	*06-Jun-2019 19:22*
ICP-MS METALS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 05-Jun-2019		Analyst: JHD
Arsenic	**0.116**		**0.000400**	**0.000500**	**0.00200**	**mg/L**	1	05-Jun-2019 22:44
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KMU
Chloride	**2,510**		**20.0**	**50.0**	**50.0**	**mg/L**	100	06-Jun-2019 02:21
Nitrogen, Nitrate (As N)	**0.219**	J	**0.150**	**0.500**	**0.500**	**mg/L**	5	06-Jun-2019 02:04
Sulfate	**1.42**	J	**1.00**	**2.50**	**2.50**	**mg/L**	5	06-Jun-2019 02:04
SUBCONTRACT ANALYSIS - DHC/DHB		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	12-Jun-2019 16:54

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 34AWW08_060419
Collection Date: 04-Jun-2019 08:20

ANALYTICAL REPORT
WorkOrder:HS19060185
Lab ID:HS19060185-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	17-Jun-2019 15:01
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	**See Attched**		**0**	**0**	**0**	**NA**	1	27-Jun-2019 12:27
SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	20-Jun-2019 10:19

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW20_060419
Collection Date: 04-Jun-2019 09:25

ANALYTICAL REPORT
WorkOrder:HS19060185
Lab ID:HS19060185-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 21:22
1,1,1-Trichloroethane	2.5	U	1.0	2.5	5.0	UG/L	5	06-Jun-2019 21:22
1,1,2,2-Tetrachloroethane	2.5	U	2.5	2.5	5.0	UG/L	5	06-Jun-2019 21:22
1,1,2-Trichloroethane	**45**		**1.5**	**2.5**	**5.0**	**UG/L**	5	06-Jun-2019 21:22
1,1-Dichloroethane	**270**		**1.0**	**2.5**	**5.0**	**UG/L**	5	06-Jun-2019 21:22
1,1-Dichloroethene	**1,800**		**5.0**	**12**	**25**	**UG/L**	25	06-Jun-2019 21:46
1,1-Dichloropropene	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 21:22
1,2,3-Trichlorobenzene	2.5	U	2.0	2.5	5.0	UG/L	5	06-Jun-2019 21:22
1,2,3-Trichloropropane	2.5	U	2.5	2.5	5.0	UG/L	5	06-Jun-2019 21:22
1,2,4-Trichlorobenzene	2.5	U	2.5	2.5	5.0	UG/L	5	06-Jun-2019 21:22
1,2,4-Trimethylbenzene	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 21:22
1,2-Dibromo-3-chloropropane	2.5	U	1.0	2.5	5.0	UG/L	5	06-Jun-2019 21:22
1,2-Dibromoethane	2.5	U	1.0	2.5	5.0	UG/L	5	06-Jun-2019 21:22
1,2-Dichlorobenzene	**13**		**2.5**	**2.5**	**5.0**	**UG/L**	5	06-Jun-2019 21:22
1,2-Dichloroethane	**21**		**1.0**	**2.5**	**5.0**	**UG/L**	5	06-Jun-2019 21:22
1,2-Dichloropropane	2.5	U	2.5	2.5	5.0	UG/L	5	06-Jun-2019 21:22
1,3,5-Trimethylbenzene	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 21:22
1,3-Dichlorobenzene	2.5	U	2.0	2.5	5.0	UG/L	5	06-Jun-2019 21:22
1,3-Dichloropropane	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 21:22
1,4-Dichlorobenzene	2.5	U	2.0	2.5	5.0	UG/L	5	06-Jun-2019 21:22
2,2-Dichloropropane	2.5	U	1.0	2.5	5.0	UG/L	5	06-Jun-2019 21:22
2-Butanone	5.0	U	2.5	5.0	10	UG/L	5	06-Jun-2019 21:22
2-Chlorotoluene	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 21:22
2-Hexanone	5.0	U	5.0	5.0	10	UG/L	5	06-Jun-2019 21:22
4-Chlorotoluene	2.5	U	2.0	2.5	5.0	UG/L	5	06-Jun-2019 21:22
4-Isopropyltoluene	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 21:22
4-Methyl-2-pentanone	5.0	U	3.5	5.0	10	UG/L	5	06-Jun-2019 21:22
Acetone	5.0	U	2.0	5.0	10	UG/L	5	06-Jun-2019 21:22
Benzene	**4.4**	J	**1.0**	**2.5**	**5.0**	**UG/L**	5	06-Jun-2019 21:22
Bromobenzene	2.5	U	2.0	2.5	5.0	UG/L	5	06-Jun-2019 21:22
Bromochloromethane	2.5	U	1.0	2.5	5.0	UG/L	5	06-Jun-2019 21:22
Bromodichloromethane	2.5	U	1.0	2.5	5.0	UG/L	5	06-Jun-2019 21:22
Bromoform	2.5	U	2.0	2.5	5.0	UG/L	5	06-Jun-2019 21:22
Bromomethane	2.5	U	2.0	2.5	5.0	UG/L	5	06-Jun-2019 21:22
Carbon disulfide	5.0	U	3.0	5.0	10	UG/L	5	06-Jun-2019 21:22
Carbon tetrachloride	2.5	U	2.5	2.5	5.0	UG/L	5	06-Jun-2019 21:22
Chlorobenzene	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 21:22
Chloroethane	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 21:22
Chloroform	2.5	U	1.0	2.5	5.0	UG/L	5	06-Jun-2019 21:22

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW20_060419
Collection Date: 04-Jun-2019 09:25

ANALYTICAL REPORT
WorkOrder:HS19060185
Lab ID:HS19060185-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	2.5	U	1.0	2.5	5.0	UG/L	5	06-Jun-2019 21:22
cis-1,2-Dichloroethene	**79**		**1.0**	**2.5**	**5.0**	**UG/L**	5	06-Jun-2019 21:22
cis-1,3-Dichloropropene	2.5	U	0.50	2.5	5.0	UG/L	5	06-Jun-2019 21:22
Dibromochloromethane	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 21:22
Dibromomethane	2.5	U	1.0	2.5	5.0	UG/L	5	06-Jun-2019 21:22
Dichlorodifluoromethane	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 21:22
Ethylbenzene	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 21:22
Hexachlorobutadiene	5.0	U	5.0	5.0	5.0	UG/L	5	06-Jun-2019 21:22
Isopropylbenzene	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 21:22
m,p-Xylene	5.0	U	2.5	5.0	10	UG/L	5	06-Jun-2019 21:22
Methylene chloride	5.0	U	2.0	5.0	10	UG/L	5	06-Jun-2019 21:22
n-Butylbenzene	2.5	U	2.0	2.5	5.0	UG/L	5	06-Jun-2019 21:22
n-Propylbenzene	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 21:22
Naphthalene	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 21:22
o-Xylene	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 21:22
sec-Butylbenzene	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 21:22
Styrene	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 21:22
tert-Butylbenzene	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 21:22
Tetrachloroethene	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 21:22
Toluene	2.5	U	1.0	2.5	5.0	UG/L	5	06-Jun-2019 21:22
trans-1,2-Dichloroethene	**13**		**1.0**	**2.5**	**5.0**	**UG/L**	5	06-Jun-2019 21:22
trans-1,3-Dichloropropene	2.5	U	1.0	2.5	5.0	UG/L	5	06-Jun-2019 21:22
Trichloroethene	**230**		**1.0**	**2.5**	**5.0**	**UG/L**	5	06-Jun-2019 21:22
Trichlorofluoromethane	2.5	U	1.5	2.5	5.0	UG/L	5	06-Jun-2019 21:22
Vinyl chloride	**140**		**1.0**	**2.5**	**5.0**	**UG/L**	5	06-Jun-2019 21:22
Surr: 1,2-Dichloroethane-d4	*93.4*			**0**	*81-118*	*%REC*	*5*	*06-Jun-2019 21:22*
Surr: 1,2-Dichloroethane-d4	*92.9*			**0**	*81-118*	*%REC*	*25*	*06-Jun-2019 21:46*
Surr: 4-Bromofluorobenzene	*103*			**0**	*85-114*	*%REC*	*5*	*06-Jun-2019 21:22*
Surr: 4-Bromofluorobenzene	*101*			**0**	*85-114*	*%REC*	*25*	*06-Jun-2019 21:46*
Surr: Dibromofluoromethane	*94.5*			**0**	*80-119*	*%REC*	*5*	*06-Jun-2019 21:22*
Surr: Dibromofluoromethane	*95.3*			**0**	*80-119*	*%REC*	*25*	*06-Jun-2019 21:46*
Surr: Toluene-d8	*100*			**0**	*89-112*	*%REC*	*5*	*06-Jun-2019 21:22*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*25*	*06-Jun-2019 21:46*
ICP-MS METALS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 05-Jun-2019		Analyst: JHD
Arsenic	**0.00194**	J	**0.000400**	**0.000500**	**0.00200**	**mg/L**	1	05-Jun-2019 22:46
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KMU
Chloride	**1,180**		**20.0**	**50.0**	**50.0**	**mg/L**	100	06-Jun-2019 02:56
Nitrogen, Nitrate (As N)	**0.194**	J	**0.150**	**0.500**	**0.500**	**mg/L**	5	06-Jun-2019 02:39
Sulfate	**1,240**		**20.0**	**50.0**	**50.0**	**mg/L**	100	06-Jun-2019 02:56

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW20_060419
Collection Date: 04-Jun-2019 09:25

ANALYTICAL REPORT
WorkOrder:HS19060185
Lab ID:HS19060185-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - DHC/DHB		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	12-Jun-2019 16:54
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	17-Jun-2019 15:01
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	**See Attched**		**0**	**0**	**0**	**NA**	1	27-Jun-2019 12:27
SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	20-Jun-2019 10:19

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW10_060419
Collection Date: 04-Jun-2019 10:30

ANALYTICAL REPORT
WorkOrder:HS19060185
Lab ID:HS19060185-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 19:46
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 19:46
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 19:46
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 19:46
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 19:46
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 19:46
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 19:46
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 19:46
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 19:46
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 19:46
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 19:46
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 19:46
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 19:46
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 19:46
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 19:46
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 19:46
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 19:46
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 19:46
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 19:46
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 19:46
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 19:46
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	06-Jun-2019 19:46
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 19:46
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	06-Jun-2019 19:46
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 19:46
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 19:46
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	06-Jun-2019 19:46
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	06-Jun-2019 19:46
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 19:46
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 19:46
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 19:46
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 19:46
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 19:46
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 19:46
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	06-Jun-2019 19:46
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 19:46
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 19:46
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 19:46
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 19:46

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW10_060419
Collection Date: 04-Jun-2019 10:30

ANALYTICAL REPORT
WorkOrder:HS19060185
Lab ID:HS19060185-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 19:46
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 19:46
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	06-Jun-2019 19:46
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 19:46
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 19:46
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 19:46
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 19:46
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	06-Jun-2019 19:46
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 19:46
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	06-Jun-2019 19:46
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	06-Jun-2019 19:46
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 19:46
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 19:46
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 19:46
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 19:46
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 19:46
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 19:46
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 19:46
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 19:46
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 19:46
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 19:46
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 19:46
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 19:46
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 19:46
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 19:46
Surr: 1,2-Dichloroethane-d4	*92.1*			**0**	*81-118*	*%REC*	*1*	*06-Jun-2019 19:46*
Surr: 4-Bromofluorobenzene	*107*			**0**	*85-114*	*%REC*	*1*	*06-Jun-2019 19:46*
Surr: Dibromofluoromethane	*94.6*			**0**	*80-119*	*%REC*	*1*	*06-Jun-2019 19:46*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*1*	*06-Jun-2019 19:46*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KMU
Chloride	**6.59**		**0.200**	**0.500**	**0.500**	**mg/L**	1	06-Jun-2019 03:14
Nitrogen, Nitrate (As N)	**0.0497**	J	**0.0300**	**0.100**	**0.100**	**mg/L**	1	06-Jun-2019 03:14
Sulfate	**68.4**		**0.200**	**0.500**	**0.500**	**mg/L**	1	06-Jun-2019 03:14
SUBCONTRACT ANALYSIS - DHC/DHB		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	12-Jun-2019 16:54
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	17-Jun-2019 15:01

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW10_060419
Collection Date: 04-Jun-2019 10:30

ANALYTICAL REPORT
WorkOrder:HS19060185
Lab ID:HS19060185-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	**See Attched**		**0**	**0**	**0**	**NA**	1	27-Jun-2019 12:27
SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	20-Jun-2019 10:19

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW10_060419_a
Collection Date: 04-Jun-2019 10:30

ANALYTICAL REPORT
WorkOrder:HS19060185
Lab ID:HS19060185-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:10
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:10
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 20:10
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:10
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:10
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:10
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:10
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 20:10
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 20:10
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 20:10
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:10
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:10
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:10
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 20:10
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:10
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 20:10
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:10
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 20:10
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:10
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 20:10
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:10
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	06-Jun-2019 20:10
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:10
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	06-Jun-2019 20:10
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 20:10
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:10
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	06-Jun-2019 20:10
Acetone	**2.7**		**0.40**	**1.0**	**2.0**	**UG/L**	1	06-Jun-2019 20:10
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:10
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 20:10
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:10
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:10
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 20:10
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 20:10
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	06-Jun-2019 20:10
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 20:10
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:10
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:10
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:10

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW10_060419_a
Collection Date: 04-Jun-2019 10:30

ANALYTICAL REPORT
WorkOrder:HS19060185
Lab ID:HS19060185-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:10
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:10
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	06-Jun-2019 20:10
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:10
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:10
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:10
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:10
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	06-Jun-2019 20:10
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:10
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	06-Jun-2019 20:10
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	06-Jun-2019 20:10
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 20:10
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:10
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:10
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:10
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:10
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:10
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:10
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:10
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:10
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:10
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:10
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:10
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:10
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:10
Surr: 1,2-Dichloroethane-d4	*92.9*			**0**	*81-118*	*%REC*	*1*	*06-Jun-2019 20:10*
Surr: 4-Bromofluorobenzene	*102*			**0**	*85-114*	*%REC*	*1*	*06-Jun-2019 20:10*
Surr: Dibromofluoromethane	*95.4*			**0**	*80-119*	*%REC*	*1*	*06-Jun-2019 20:10*
Surr: Toluene-d8	*99.6*			**0**	*89-112*	*%REC*	*1*	*06-Jun-2019 20:10*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KMU
Chloride	**6.56**		**0.200**	**0.500**	**0.500**	**mg/L**	1	06-Jun-2019 04:07
Nitrogen, Nitrate (As N)	**0.0480**	J	**0.0300**	**0.100**	**0.100**	**mg/L**	1	06-Jun-2019 04:07
Sulfate	**68.2**		**0.200**	**0.500**	**0.500**	**mg/L**	1	06-Jun-2019 04:07
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	17-Jun-2019 15:01
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	**See Attched**		**0**	**0**	**0**	**NA**	1	27-Jun-2019 12:27

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW10_060419_a
Collection Date: 04-Jun-2019 10:30

ANALYTICAL REPORT
WorkOrder:HS19060185
Lab ID:HS19060185-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS	**Method:NA**							Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	20-Jun-2019 10:19

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW06_060419
Collection Date: 04-Jun-2019 11:35

ANALYTICAL REPORT
WorkOrder:HS19060185
Lab ID:HS19060185-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:34
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:34
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 20:34
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:34
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:34
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:34
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:34
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 20:34
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 20:34
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 20:34
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:34
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:34
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:34
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 20:34
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:34
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 20:34
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:34
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 20:34
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:34
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 20:34
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:34
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	06-Jun-2019 20:34
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:34
2-Hexanone	**1.8**	J	**1.0**	**1.0**	**2.0**	**UG/L**	1	06-Jun-2019 20:34
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 20:34
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:34
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	06-Jun-2019 20:34
Acetone	**220**		**0.40**	**1.0**	**2.0**	**UG/L**	1	06-Jun-2019 20:34
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:34
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 20:34
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:34
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:34
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 20:34
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 20:34
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	06-Jun-2019 20:34
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 20:34
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:34
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:34
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:34

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW06_060419
Collection Date: 04-Jun-2019 11:35

ANALYTICAL REPORT
WorkOrder:HS19060185
Lab ID:HS19060185-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:34
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:34
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	06-Jun-2019 20:34
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:34
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:34
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:34
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:34
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	06-Jun-2019 20:34
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:34
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	06-Jun-2019 20:34
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	06-Jun-2019 20:34
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 20:34
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:34
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:34
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:34
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:34
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:34
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:34
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:34
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:34
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:34
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:34
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:34
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:34
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:34
Surr: 1,2-Dichloroethane-d4	*93.2*			**0**	*81-118*	*%REC*	*1*	*06-Jun-2019 20:34*
Surr: 4-Bromofluorobenzene	*106*			**0**	*85-114*	*%REC*	*1*	*06-Jun-2019 20:34*
Surr: Dibromofluoromethane	*95.6*			**0**	*80-119*	*%REC*	*1*	*06-Jun-2019 20:34*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*1*	*06-Jun-2019 20:34*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KMU
Chloride	**964**		**10.0**	**25.0**	**25.0**	**mg/L**	50	06-Jun-2019 05:00
Nitrogen, Nitrate (As N)	**0.180**	J	**0.150**	**0.500**	**0.500**	**mg/L**	5	06-Jun-2019 04:42
Sulfate	**2.08**	J	**1.00**	**2.50**	**2.50**	**mg/L**	5	06-Jun-2019 04:42
SUBCONTRACT ANALYSIS - DHC/DHB		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	12-Jun-2019 16:54
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	17-Jun-2019 15:01

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW06_060419
Collection Date: 04-Jun-2019 11:35

ANALYTICAL REPORT
WorkOrder:HS19060185
Lab ID:HS19060185-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	**See Attched**		**0**	**0**	**0**	**NA**	1	27-Jun-2019 12:27
SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	20-Jun-2019 10:19

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW18_060419
Collection Date: 04-Jun-2019 12:20

ANALYTICAL REPORT
WorkOrder:HS19060185
Lab ID:HS19060185-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:58
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:58
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 20:58
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:58
1,1-Dichloroethane	**0.76**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	06-Jun-2019 20:58
1,1-Dichloroethene	**3.5**		**0.20**	**0.50**	**1.0**	**UG/L**	1	06-Jun-2019 20:58
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:58
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 20:58
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 20:58
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 20:58
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:58
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:58
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:58
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 20:58
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:58
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 20:58
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:58
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 20:58
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:58
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 20:58
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:58
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	06-Jun-2019 20:58
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:58
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	06-Jun-2019 20:58
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 20:58
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:58
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	06-Jun-2019 20:58
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	06-Jun-2019 20:58
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:58
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 20:58
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:58
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:58
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 20:58
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 20:58
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	06-Jun-2019 20:58
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 20:58
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:58
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:58
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:58

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW18_060419
Collection Date: 04-Jun-2019 12:20

ANALYTICAL REPORT
WorkOrder:HS19060185
Lab ID:HS19060185-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:58
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:58
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	06-Jun-2019 20:58
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:58
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:58
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:58
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:58
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	06-Jun-2019 20:58
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:58
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	06-Jun-2019 20:58
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	06-Jun-2019 20:58
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 20:58
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:58
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:58
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:58
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:58
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:58
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:58
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:58
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:58
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:58
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:58
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:58
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 20:58
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 20:58
Surr: 1,2-Dichloroethane-d4	*95.5*			**0**	*81-118*	*%REC*	*1*	*06-Jun-2019 20:58*
Surr: 4-Bromofluorobenzene	*106*			**0**	*85-114*	*%REC*	*1*	*06-Jun-2019 20:58*
Surr: Dibromofluoromethane	*96.4*			**0**	*80-119*	*%REC*	*1*	*06-Jun-2019 20:58*
Surr: Toluene-d8	*109*			**0**	*89-112*	*%REC*	*1*	*06-Jun-2019 20:58*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: Trip Blank
Collection Date: 04-Jun-2019 00:00

ANALYTICAL REPORT
WorkOrder:HS19060185
Lab ID:HS19060185-08
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 14:09
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 14:09
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 14:09
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 14:09
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 14:09
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 14:09
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 14:09
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 14:09
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 14:09
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 14:09
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 14:09
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 14:09
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 14:09
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 14:09
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 14:09
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 14:09
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 14:09
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 14:09
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 14:09
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 14:09
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 14:09
2-Butanone	**1.4**	J	**0.50**	**1.0**	**2.0**	**UG/L**	1	06-Jun-2019 14:09
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 14:09
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	06-Jun-2019 14:09
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 14:09
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 14:09
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	06-Jun-2019 14:09
Acetone	**20**		**0.40**	**1.0**	**2.0**	**UG/L**	1	06-Jun-2019 14:09
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 14:09
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 14:09
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 14:09
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 14:09
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 14:09
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 14:09
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	06-Jun-2019 14:09
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	06-Jun-2019 14:09
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 14:09
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 14:09
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 14:09

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: Trip Blank
Collection Date: 04-Jun-2019 00:00

ANALYTICAL REPORT
WorkOrder:HS19060185
Lab ID:HS19060185-08
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 14:09
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 14:09
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	06-Jun-2019 14:09
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 14:09
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 14:09
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 14:09
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 14:09
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	06-Jun-2019 14:09
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 14:09
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	06-Jun-2019 14:09
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	06-Jun-2019 14:09
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	06-Jun-2019 14:09
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 14:09
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 14:09
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 14:09
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 14:09
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 14:09
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 14:09
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 14:09
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 14:09
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 14:09
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 14:09
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 14:09
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	06-Jun-2019 14:09
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	06-Jun-2019 14:09
Surr: 1,2-Dichloroethane-d4	*91.8*			**0**	*81-118*	*%REC*	*1*	*06-Jun-2019 14:09*
Surr: 4-Bromofluorobenzene	*105*			**0**	*85-114*	*%REC*	*1*	*06-Jun-2019 14:09*
Surr: Dibromofluoromethane	*93.8*			**0**	*80-119*	*%REC*	*1*	*06-Jun-2019 14:09*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*1*	*06-Jun-2019 14:09*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

WEIGHT LOG

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060185

Batch ID: 141628 **Method:** ICP-MS METALS BY SW6020A **Prep:** 3010A

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19060185-01	1	10	10 (mL)	1
HS19060185-02	1	10	10 (mL)	1
HS19060185-03	1	10	10 (mL)	1

ALS Houston, US Date: 27-jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060185

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID 141628	**Test Name :** ICP-MS METALS BY SW6020A			**Matrix:** Groundwater		
HS19060185-01	03WW01_060419	04 Jun 2019 07:45		05 Jun 2019 14:21	05 Jun 2019 22:38	1
HS19060185-02	34AWW08_060419	04 Jun 2019 08:20		05 Jun 2019 14:21	05 Jun 2019 22:44	1
HS19060185-03	35AWW20_060419	04 Jun 2019 09:25		05 Jun 2019 14:21	05 Jun 2019 22:46	1
Batch ID R339937	**Test Name :** ANIONS BY SW9056A			**Matrix:** Groundwater		
HS19060185-01	03WW01_060419	04 Jun 2019 07:45			06 Jun 2019 01:46	50
HS19060185-01	03WW01_060419	04 Jun 2019 07:45			06 Jun 2019 01:28	5
HS19060185-02	34AWW08_060419	04 Jun 2019 08:20			06 Jun 2019 02:21	100
HS19060185-02	34AWW08_060419	04 Jun 2019 08:20			06 Jun 2019 02:04	5
HS19060185-03	35AWW20_060419	04 Jun 2019 09:25			06 Jun 2019 02:56	100
HS19060185-03	35AWW20_060419	04 Jun 2019 09:25			06 Jun 2019 02:39	5
HS19060185-04	35AWW10_060419	04 Jun 2019 10:30			06 Jun 2019 03:14	1
HS19060185-05	35AWW10_060419_a	04 Jun 2019 10:30			06 Jun 2019 04:07	1
HS19060185-06	35AWW06_060419	04 Jun 2019 11:35			06 Jun 2019 05:00	50
HS19060185-06	35AWW06_060419	04 Jun 2019 11:35			06 Jun 2019 04:42	5
Batch ID R339998	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C			**Matrix:** Water		
HS19060185-08	Trip Blank	04 Jun 2019 00:00			06 Jun 2019 14:09	1
Batch ID R339998	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C			**Matrix:** Groundwater		
HS19060185-01	03WW01_060419	04 Jun 2019 07:45			06 Jun 2019 18:58	5
HS19060185-02	34AWW08_060419	04 Jun 2019 08:20			06 Jun 2019 19:22	5
HS19060185-03	35AWW20_060419	04 Jun 2019 09:25			06 Jun 2019 21:46	25
HS19060185-03	35AWW20_060419	04 Jun 2019 09:25			06 Jun 2019 21:22	5
HS19060185-04	35AWW10_060419	04 Jun 2019 10:30			06 Jun 2019 19:46	1
HS19060185-05	35AWW10_060419_a	04 Jun 2019 10:30			06 Jun 2019 20:10	1
HS19060185-06	35AWW06_060419	04 Jun 2019 11:35			06 Jun 2019 20:34	1
HS19060185-07	35AWW18_060419	04 Jun 2019 12:20			06 Jun 2019 20:58	1
Batch ID R340363	**Test Name :** SUBCONTRACT ANALYSIS - DHC/DHB			**Matrix:** Groundwater		
HS19060185-01	03WW01_060419	04 Jun 2019 07:45			12 Jun 2019 16:54	1
HS19060185-02	34AWW08_060419	04 Jun 2019 08:20			12 Jun 2019 16:54	1
HS19060185-03	35AWW20_060419	04 Jun 2019 09:25			12 Jun 2019 16:54	1
HS19060185-04	35AWW10_060419	04 Jun 2019 10:30			12 Jun 2019 16:54	1
HS19060185-06	35AWW06_060419	04 Jun 2019 11:35			12 Jun 2019 16:54	1

ALS Houston, US Date: 27-jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060185

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID R340642	**Test Name :** SUBCONTRACT ANALYSIS - RSK				**Matrix:** Groundwater	
HS19060185-01	03WW01_060419	04 Jun 2019 07:45			17 Jun 2019 15:01	1
HS19060185-02	34AWW08_060419	04 Jun 2019 08:20			17 Jun 2019 15:01	1
HS19060185-03	35AWW20_060419	04 Jun 2019 09:25			17 Jun 2019 15:01	1
HS19060185-04	35AWW10_060419	04 Jun 2019 10:30			17 Jun 2019 15:01	1
HS19060185-05	35AWW10_060419_a	04 Jun 2019 10:30			17 Jun 2019 15:01	1
HS19060185-06	35AWW06_060419	04 Jun 2019 11:35			17 Jun 2019 15:01	1
Batch ID R340872	**Test Name :** SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS				**Matrix:** Groundwater	
HS19060185-02	34AWW08_060419	04 Jun 2019 08:20			20 Jun 2019 10:19	1
HS19060185-03	35AWW20_060419	04 Jun 2019 09:25			20 Jun 2019 10:19	1
HS19060185-04	35AWW10_060419	04 Jun 2019 10:30			20 Jun 2019 10:19	1
HS19060185-05	35AWW10_060419_a	04 Jun 2019 10:30			20 Jun 2019 10:19	1
HS19060185-06	35AWW06_060419	04 Jun 2019 11:35			20 Jun 2019 10:19	1
Batch ID R341377	**Test Name :** SUBCONTRACT ANALYSIS - TOC ANALYSIS				**Matrix:** Groundwater	
HS19060185-01	03WW01_060419	04 Jun 2019 07:45			27 Jun 2019 12:27	1
HS19060185-02	34AWW08_060419	04 Jun 2019 08:20			27 Jun 2019 12:27	1
HS19060185-03	35AWW20_060419	04 Jun 2019 09:25			27 Jun 2019 12:27	1
HS19060185-04	35AWW10_060419	04 Jun 2019 10:30			27 Jun 2019 12:27	1
HS19060185-05	35AWW10_060419_a	04 Jun 2019 10:30			27 Jun 2019 12:27	1
HS19060185-06	35AWW06_060419	04 Jun 2019 11:35			27 Jun 2019 12:27	1

ALS Houston, US Date: 27-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060185

QC BATCH REPORT

Batch ID: 141628 (0) **Instrument: ICPMS06** **Method: ICP-MS METALS BY SW6020A**

MBLK Sample ID: **MBLK-141628** Units: **mg/L** Analysis Date: **05-Jun-2019 22:04**
Client ID: Run ID: **ICPMS06_339849** SeqNo: **5108740** PrepDate: **05-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.000500	0.00200								U

LCS Sample ID: **LCS-141628** Units: **mg/L** Analysis Date: **05-Jun-2019 22:05**
Client ID: Run ID: **ICPMS06_339849** SeqNo: **5108741** PrepDate: **05-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05387	0.00200	0.05	0	108	80 - 120				

LCSD Sample ID: **LCSD-141628** Units: **mg/L** Analysis Date: **05-Jun-2019 22:07**
Client ID: Run ID: **ICPMS06_339849** SeqNo: **5108742** PrepDate: **05-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05339	0.00200	0.05	0	107	80 - 120	0.05387	0.902	20	

MS Sample ID: **HS19060168-01MS** Units: **mg/L** Analysis Date: **05-Jun-2019 22:13**
Client ID: Run ID: **ICPMS06_339849** SeqNo: **5108745** PrepDate: **05-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05451	0.00200	0.05	0.000923	107	80 - 120				

MSD Sample ID: **HS19060168-01MSD** Units: **mg/L** Analysis Date: **05-Jun-2019 22:14**
Client ID: Run ID: **ICPMS06_339849** SeqNo: **5108746** PrepDate: **05-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05604	0.00200	0.05	0.000923	110	80 - 120	0.05451	2.76	20	

PDS Sample ID: **HS19060168-01PDS** Units: **mg/L** Analysis Date: **05-Jun-2019 22:16**
Client ID: Run ID: **ICPMS06_339849** SeqNo: **5108747** PrepDate: **05-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.1042	0.00200	0.1	0.000923	103	75 - 125				

ALS Houston, US Date: 27-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060185

QC BATCH REPORT

Batch ID: 141628 (0) **Instrument: ICPMS06** **Method: ICP-MS METALS BY SW6020A**

SD Sample ID: **HS19060168-01SD** Units: **mg/L** Analysis Date: **05-Jun-2019 22:11**
Client ID: Run ID: **ICPMS06_339849** SeqNo: **5108744** PrepDate: **05-Jun-2019** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Arsenic	0.002267	0.0100					0.000923	0	10	J

The following samples were analyzed in this batch: HS19060185-01 HS19060185-02 HS19060185-03

ALS Houston, US Date: 27-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060185

QC BATCH REPORT

Batch ID: R339998 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-190606** Units: **UG/L** Analysis Date: **06-Jun-2019 12:57**
Client ID: Run ID: **VOA6_339998** SeqNo: **5110994** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	0.50	1.0								U
1,1,1-Trichloroethane	0.50	1.0								U
1,1,2,2-Tetrachloroethane	0.50	1.0								U
1,1,2-Trichloroethane	0.50	1.0								U
1,1-Dichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,1-Dichloropropene	0.50	1.0								U
1,2,3-Trichlorobenzene	0.50	1.0								U
1,2,3-Trichloropropane	0.50	1.0								U
1,2,4-Trichlorobenzene	0.50	1.0								U
1,2,4-Trimethylbenzene	0.50	1.0								U
1,2-Dibromo-3-chloropropane	0.50	1.0								U
1,2-Dibromoethane	0.50	1.0								U
1,2-Dichlorobenzene	0.50	1.0								U
1,2-Dichloroethane	0.50	1.0								U
1,2-Dichloropropane	0.50	1.0								U
1,3,5-Trimethylbenzene	0.50	1.0								U
1,3-Dichlorobenzene	0.50	1.0								U
1,3-Dichloropropane	0.50	1.0								U
1,4-Dichlorobenzene	0.50	1.0								U
2,2-Dichloropropane	0.50	1.0								U
2-Butanone	1.0	2.0								U
2-Chlorotoluene	0.50	1.0								U
2-Hexanone	1.0	2.0								U
4-Chlorotoluene	0.50	1.0								U
4-Isopropyltoluene	0.50	1.0								U
4-Methyl-2-pentanone	1.0	2.0								U
Acetone	1.0	2.0								U
Benzene	0.50	1.0								U
Bromobenzene	0.50	1.0								U
Bromochloromethane	0.50	1.0								U
Bromodichloromethane	0.50	1.0								U
Bromoform	0.50	1.0								U
Bromomethane	0.50	1.0								U

ALS Houston, US Date: 27-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060185

QC BATCH REPORT

Batch ID: R339998 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-190606** Units: **UG/L** Analysis Date: **06-Jun-2019 12:57**
Client ID: Run ID: **VOA6_339998** SeqNo: **5110994** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	1.0	2.0								U
Carbon tetrachloride	0.50	1.0								U
Chlorobenzene	0.50	1.0								U
Chloroethane	0.50	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	0.50	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	0.50	1.0								U
Ethylbenzene	0.50	1.0								U
Hexachlorobutadiene	1.0	1.0								U
Isopropylbenzene	0.50	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	1.0	2.0								U
Naphthalene	0.50	1.0								U
n-Butylbenzene	0.50	1.0								U
n-Propylbenzene	0.50	1.0								U
o-Xylene	0.50	1.0								U
sec-Butylbenzene	0.50	1.0								U
Styrene	0.50	1.0								U
tert-Butylbenzene	0.50	1.0								U
Tetrachloroethene	0.50	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	0.50	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*45.27*	*1.0*	*50*	*0*	*90.5*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.82*	*1.0*	*50*	*0*	*102*	*85 - 114*				
Surr: Dibromofluoromethane	*46.66*	*1.0*	*50*	*0*	*93.3*	*80 - 119*				
Surr: Toluene-d8	*53.19*	*1.0*	*50*	*0*	*106*	*89 - 112*				

ALS Houston, US Date: 27-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060185

QC BATCH REPORT

Batch ID: R339998 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-190606** Units: **UG/L** Analysis Date: **06-Jun-2019 12:09**
Client ID: Run ID: **VOA6_339998** SeqNo: **5110993** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.6	1.0	20	0	98.0	78 - 124				
1,1,1-Trichloroethane	20.25	1.0	20	0	101	74 - 131				
1,1,2,2-Tetrachloroethane	18.44	1.0	20	0	92.2	71 - 121				
1,1,2-Trichloroethane	20.4	1.0	20	0	102	80 - 119				
1,1-Dichloroethane	19.43	1.0	20	0	97.2	77 - 125				
1,1-Dichloroethene	19.42	1.0	20	0	97.1	71 - 131				
1,1-Dichloropropene	19.63	1.0	20	0	98.1	78 - 125				
1,2,3-Trichlorobenzene	17.18	1.0	20	0	85.9	69 - 129				
1,2,3-Trichloropropane	17.93	1.0	20	0	89.6	73 - 122				
1,2,4-Trichlorobenzene	18.84	1.0	20	0	94.2	69 - 130				
1,2,4-Trimethylbenzene	19.91	1.0	20	0	99.6	76 - 124				
1,2-Dibromo-3-chloropropane	17.46	1.0	20	0	87.3	62 - 128				
1,2-Dibromoethane	19.86	1.0	20	0	99.3	77 - 121				
1,2-Dichlorobenzene	19.41	1.0	20	0	97.0	80 - 119				
1,2-Dichloroethane	20.31	1.0	20	0	102	73 - 128				
1,2-Dichloropropane	21.15	1.0	20	0	106	78 - 122				
1,3,5-Trimethylbenzene	19.82	1.0	20	0	99.1	75 - 124				
1,3-Dichlorobenzene	19.66	1.0	20	0	98.3	80 - 119				
1,3-Dichloropropane	21.39	1.0	20	0	107	80 - 119				
1,4-Dichlorobenzene	19.4	1.0	20	0	97.0	79 - 118				
2,2-Dichloropropane	19.78	1.0	20	0	98.9	60 - 139				
2-Butanone	42.76	2.0	40	0	107	56 - 143				
2-Chlorotoluene	19.33	1.0	20	0	96.6	79 - 122				
2-Hexanone	41.93	2.0	40	0	105	57 - 139				
4-Chlorotoluene	19.88	1.0	20	0	99.4	78 - 122				
4-Isopropyltoluene	20.23	1.0	20	0	101	77 - 127				
4-Methyl-2-pentanone	40	2.0	40	0	100.0	67 - 130				
Acetone	45.22	2.0	40	0	113	39 - 160				
Benzene	20.3	1.0	20	0	102	79 - 120				
Bromobenzene	18.84	1.0	20	0	94.2	80 - 120				
Bromochloromethane	20.35	1.0	20	0	102	78 - 123				
Bromodichloromethane	19.68	1.0	20	0	98.4	79 - 125				
Bromoform	18.77	1.0	20	0	93.8	66 - 130				
Bromomethane	22.57	1.0	20	0	113	53 - 141				

ALS Houston, US Date: 27-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060185

QC BATCH REPORT

Batch ID: R339998 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-190606** Units: **UG/L** Analysis Date: **06-Jun-2019 12:09**
Client ID: Run ID: **VOA6_339998** SeqNo: **5110993** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	46.05	2.0	40	0	115	64 - 133				
Carbon tetrachloride	19.1	1.0	20	0	95.5	72 - 136				
Chlorobenzene	19.54	1.0	20	0	97.7	82 - 118				
Chloroethane	19.4	1.0	20	0	97.0	60 - 138				
Chloroform	20.61	1.0	20	0	103	79 - 124				
Chloromethane	17.27	1.0	20	0	86.3	50 - 139				
cis-1,2-Dichloroethene	19.72	1.0	20	0	98.6	78 - 123				
cis-1,3-Dichloropropene	20.52	1.0	20	0	103	75 - 124				
Dibromochloromethane	19.92	1.0	20	0	99.6	74 - 126				
Dibromomethane	19.98	1.0	20	0	99.9	79 - 123				
Dichlorodifluoromethane	18.99	1.0	20	0	95.0	32 - 152				
Ethylbenzene	19.69	1.0	20	0	98.5	79 - 121				
Hexachlorobutadiene	21.04	1.0	20	0	105	66 - 134				
Isopropylbenzene	20.27	1.0	20	0	101	72 - 131				
m,p-Xylene	39.34	2.0	40	0	98.4	80 - 121				
Methylene chloride	20.93	2.0	20	0	105	74 - 124				
Naphthalene	16.9	1.0	20	0	84.5	61 - 128				
n-Butylbenzene	20.45	1.0	20	0	102	75 - 128				
n-Propylbenzene	19.65	1.0	20	0	98.2	76 - 126				
o-Xylene	19.83	1.0	20	0	99.2	78 - 122				
sec-Butylbenzene	20.1	1.0	20	0	101	77 - 126				
Styrene	20.15	1.0	20	0	101	78 - 123				
tert-Butylbenzene	19.68	1.0	20	0	98.4	78 - 124				
Tetrachloroethene	19.96	1.0	20	0	99.8	74 - 129				
Toluene	20.51	1.0	20	0	103	80 - 121				
trans-1,2-Dichloroethene	19.57	1.0	20	0	97.9	75 - 124				
trans-1,3-Dichloropropene	20.06	1.0	20	0	100	73 - 127				
Trichloroethene	19.8	1.0	20	0	99.0	79 - 123				
Trichlorofluoromethane	19.03	1.0	20	0	95.2	65 - 141				
Vinyl chloride	17.4	1.0	20	0	87.0	58 - 137				
Surr: 1,2-Dichloroethane-d4	*52.35*	*1.0*	*50*	*0*	*105*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*52.64*	*1.0*	*50*	*0*	*105*	*85 - 114*				
Surr: Dibromofluoromethane	*52.92*	*1.0*	*50*	*0*	*106*	*80 - 119*				
Surr: Toluene-d8	*50.05*	*1.0*	*50*	*0*	*100*	*89 - 112*				

ALS Houston, US Date: 27-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060185

QC BATCH REPORT

Batch ID: R339998 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS19060123-01MS** Units: **UG/L** Analysis Date: **06-Jun-2019 17:22**
Client ID: Run ID: **VOA6_339998** SeqNo: **5111005** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.23	1.0	20	0	96.2	78 - 124				
1,1,1-Trichloroethane	18.32	1.0	20	0	91.6	74 - 131				
1,1,2,2-Tetrachloroethane	20.07	1.0	20	0	100	71 - 121				
1,1,2-Trichloroethane	19.28	1.0	20	0	96.4	80 - 119				
1,1-Dichloroethane	18.26	1.0	20	0.6532	88.0	77 - 125				
1,1-Dichloroethene	20.79	1.0	20	2.626	90.8	71 - 131				
1,1-Dichloropropene	18.92	1.0	20	0	94.6	78 - 125				
1,2,3-Trichlorobenzene	19.87	1.0	20	0	99.3	69 - 129				
1,2,3-Trichloropropane	19.78	1.0	20	0	98.9	73 - 122				
1,2,4-Trichlorobenzene	20.91	1.0	20	0	105	69 - 130				
1,2,4-Trimethylbenzene	21.06	1.0	20	0	105	76 - 124				
1,2-Dibromo-3-chloropropane	18.9	1.0	20	0	94.5	62 - 128				
1,2-Dibromoethane	19	1.0	20	0	95.0	77 - 121				
1,2-Dichlorobenzene	19.7	1.0	20	0	98.5	80 - 119				
1,2-Dichloroethane	18.95	1.0	20	1.07	89.4	73 - 128				
1,2-Dichloropropane	19.37	1.0	20	0	96.9	78 - 122				
1,3,5-Trimethylbenzene	21.09	1.0	20	0	105	75 - 124				
1,3-Dichlorobenzene	20.09	1.0	20	0	100	80 - 119				
1,3-Dichloropropane	20.01	1.0	20	0	100	80 - 119				
1,4-Dichlorobenzene	19.95	1.0	20	0	99.7	79 - 118				
2,2-Dichloropropane	18.73	1.0	20	0	93.6	60 - 139				
2-Butanone	23.81	2.0	40	0	59.5	56 - 143				
2-Chlorotoluene	20.36	1.0	20	0	102	79 - 122				
2-Hexanone	28.12	2.0	40	0	70.3	57 - 139				
4-Chlorotoluene	20.2	1.0	20	0	101	78 - 122				
4-Isopropyltoluene	21.86	1.0	20	0	109	77 - 127				
4-Methyl-2-pentanone	27.78	2.0	40	0	69.4	67 - 130				
Acetone	23.63	2.0	40	0	59.1	39 - 160				
Benzene	18.3	1.0	20	0	91.5	79 - 120				
Bromobenzene	19.74	1.0	20	0	98.7	80 - 120				
Bromochloromethane	17.4	1.0	20	0	87.0	78 - 123				
Bromodichloromethane	17.55	1.0	20	0	87.7	79 - 125				
Bromoform	18.81	1.0	20	0	94.0	66 - 130				
Bromomethane	13.86	1.0	20	0	69.3	53 - 141				

ALS Houston, US Date: 27-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060185

QC BATCH REPORT

Batch ID: R339998 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS19060123-01MS** Units: **UG/L** Analysis Date: **06-Jun-2019 17:22**
Client ID: Run ID: **VOA6_339998** SeqNo: **5111005** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	24.97	2.0	40	0	62.4	64 - 133				S
Carbon tetrachloride	18.6	1.0	20	0	93.0	72 - 136				
Chlorobenzene	19.12	1.0	20	0	95.6	82 - 118				
Chloroethane	18.53	1.0	20	0	92.7	60 - 138				
Chloroform	17.48	1.0	20	0	87.4	79 - 124				
Chloromethane	15.15	1.0	20	0	75.8	50 - 139				
cis-1,2-Dichloroethene	17.54	1.0	20	0	87.7	78 - 123				
cis-1,3-Dichloropropene	18.2	1.0	20	0	91.0	75 - 124				
Dibromochloromethane	19.19	1.0	20	0	95.9	74 - 126				
Dibromomethane	18.09	1.0	20	0	90.4	79 - 123				
Dichlorodifluoromethane	16.95	1.0	20	0	84.8	32 - 152				
Ethylbenzene	19.96	1.0	20	0	99.8	79 - 121				
Hexachlorobutadiene	22.14	1.0	20	0	111	66 - 134				
Isopropylbenzene	21.05	1.0	20	0	105	72 - 131				
m,p-Xylene	39.46	2.0	40	0	98.7	80 - 121				
Methylene chloride	17.85	2.0	20	0	89.3	74 - 124				
Naphthalene	19.51	1.0	20	0	97.5	61 - 128				
n-Butylbenzene	21.99	1.0	20	0	110	75 - 128				
n-Propylbenzene	21.93	1.0	20	0	110	76 - 126				
o-Xylene	19.69	1.0	20	0	98.4	78 - 122				
sec-Butylbenzene	21.68	1.0	20	0	108	77 - 126				
Styrene	19.76	1.0	20	0	98.8	78 - 123				
tert-Butylbenzene	21.36	1.0	20	0	107	78 - 124				
Tetrachloroethene	21.49	1.0	20	0	107	74 - 129				
Toluene	19.87	1.0	20	0	99.4	80 - 121				
trans-1,2-Dichloroethene	17.94	1.0	20	0	89.7	75 - 124				
trans-1,3-Dichloropropene	17.84	1.0	20	0	89.2	73 - 127				
Trichloroethene	18.93	1.0	20	0	94.6	79 - 123				
Trichlorofluoromethane	18.45	1.0	20	0	92.2	65 - 141				
Vinyl chloride	16.29	1.0	20	0	81.5	58 - 137				
Surr: 1,2-Dichloroethane-d4	*46.56*	*1.0*	*50*	*0*	*93.1*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*53.01*	*1.0*	*50*	*0*	*106*	*85 - 114*				
Surr: Dibromofluoromethane	*48.12*	*1.0*	*50*	*0*	*96.2*	*80 - 119*				
Surr: Toluene-d8	*52.79*	*1.0*	*50*	*0*	*106*	*89 - 112*				

ALS Houston, US Date: 27-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060185

QC BATCH REPORT

Batch ID: R339998 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19060123-01MSD** Units: **UG/L** Analysis Date: **06-Jun-2019 17:46**
Client ID: Run ID: **VOA6_339998** SeqNo: **5111006** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.18	1.0	20	0	95.9	78 - 124	19.23	0.269	20	
1,1,1-Trichloroethane	17.98	1.0	20	0	89.9	74 - 131	18.32	1.89	20	
1,1,2,2-Tetrachloroethane	19.55	1.0	20	0	97.8	71 - 121	20.07	2.61	20	
1,1,2-Trichloroethane	19.48	1.0	20	0	97.4	80 - 119	19.28	1.07	20	
1,1-Dichloroethane	18.13	1.0	20	0.6532	87.4	77 - 125	18.26	0.715	20	
1,1-Dichloroethene	20.63	1.0	20	2.626	90.0	71 - 131	20.79	0.774	20	
1,1-Dichloropropene	18.82	1.0	20	0	94.1	78 - 125	18.92	0.492	20	
1,2,3-Trichlorobenzene	20.45	1.0	20	0	102	69 - 129	19.87	2.89	20	
1,2,3-Trichloropropane	18.73	1.0	20	0	93.7	73 - 122	19.78	5.48	20	
1,2,4-Trichlorobenzene	21.43	1.0	20	0	107	69 - 130	20.91	2.47	20	
1,2,4-Trimethylbenzene	20.23	1.0	20	0	101	76 - 124	21.06	4.02	20	
1,2-Dibromo-3-chloropropane	18.98	1.0	20	0	94.9	62 - 128	18.9	0.434	20	
1,2-Dibromoethane	19.16	1.0	20	0	95.8	77 - 121	19	0.856	20	
1,2-Dichlorobenzene	20.04	1.0	20	0	100	80 - 119	19.7	1.7	20	
1,2-Dichloroethane	19.18	1.0	20	1.07	90.5	73 - 128	18.95	1.22	20	
1,2-Dichloropropane	19.21	1.0	20	0	96.1	78 - 122	19.37	0.843	20	
1,3,5-Trimethylbenzene	20.82	1.0	20	0	104	75 - 124	21.09	1.28	20	
1,3-Dichlorobenzene	19.85	1.0	20	0	99.3	80 - 119	20.09	1.17	20	
1,3-Dichloropropane	19.84	1.0	20	0	99.2	80 - 119	20.01	0.838	20	
1,4-Dichlorobenzene	19.38	1.0	20	0	96.9	79 - 118	19.95	2.92	20	
2,2-Dichloropropane	17.93	1.0	20	0	89.6	60 - 139	18.73	4.38	20	
2-Butanone	23.77	2.0	40	0	59.4	56 - 143	23.81	0.164	20	
2-Chlorotoluene	19.2	1.0	20	0	96.0	79 - 122	20.36	5.91	20	
2-Hexanone	27.85	2.0	40	0	69.6	57 - 139	28.12	0.961	20	
4-Chlorotoluene	20.09	1.0	20	0	100	78 - 122	20.2	0.521	20	
4-Isopropyltoluene	21.3	1.0	20	0	106	77 - 127	21.86	2.64	20	
4-Methyl-2-pentanone	27.75	2.0	40	0	69.4	67 - 130	27.78	0.097	20	
Acetone	26.08	2.0	40	0	65.2	39 - 160	23.63	9.87	20	
Benzene	18.4	1.0	20	0	92.0	79 - 120	18.3	0.55	20	
Bromobenzene	19.31	1.0	20	0	96.6	80 - 120	19.74	2.21	20	
Bromochloromethane	17.07	1.0	20	0	85.3	78 - 123	17.4	1.95	20	
Bromodichloromethane	18.04	1.0	20	0	90.2	79 - 125	17.55	2.74	20	
Bromoform	18.98	1.0	20	0	94.9	66 - 130	18.81	0.91	20	
Bromomethane	14.73	1.0	20	0	73.7	53 - 141	13.86	6.06	20	

ALS Houston, US Date: 27-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060185

QC BATCH REPORT

Batch ID: R339998 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MSD Sample ID: **HS19060123-01MSD** Units: **UG/L** Analysis Date: **06-Jun-2019 17:46**
Client ID: Run ID: **VOA6_339998** SeqNo: **5111006** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Carbon disulfide	26.56	2.0	40	0	66.4	64 - 133	24.97	6.14	20	
Carbon tetrachloride	18.54	1.0	20	0	92.7	72 - 136	18.6	0.321	20	
Chlorobenzene	19.02	1.0	20	0	95.1	82 - 118	19.12	0.541	20	
Chloroethane	15.64	1.0	20	0	78.2	60 - 138	18.53	16.9	20	
Chloroform	17.45	1.0	20	0	87.2	79 - 124	17.48	0.195	20	
Chloromethane	14.56	1.0	20	0	72.8	50 - 139	15.15	4.02	20	
cis-1,2-Dichloroethene	17.39	1.0	20	0	87.0	78 - 123	17.54	0.879	20	
cis-1,3-Dichloropropene	18.41	1.0	20	0	92.0	75 - 124	18.2	1.14	20	
Dibromochloromethane	19.11	1.0	20	0	95.6	74 - 126	19.19	0.387	20	
Dibromomethane	18.02	1.0	20	0	90.1	79 - 123	18.09	0.394	20	
Dichlorodifluoromethane	16.45	1.0	20	0	82.2	32 - 152	16.95	3.02	20	
Ethylbenzene	19.33	1.0	20	0	96.6	79 - 121	19.96	3.23	20	
Hexachlorobutadiene	22.88	1.0	20	0	114	66 - 134	22.14	3.31	20	
Isopropylbenzene	21.25	1.0	20	0	106	72 - 131	21.05	0.955	20	
m,p-Xylene	38.53	2.0	40	0	96.3	80 - 121	39.46	2.39	20	
Methylene chloride	17.48	2.0	20	0	87.4	74 - 124	17.85	2.11	20	
Naphthalene	20.11	1.0	20	0	101	61 - 128	19.51	3.06	20	
n-Butylbenzene	22.68	1.0	20	0	113	75 - 128	21.99	3.11	20	
n-Propylbenzene	20.87	1.0	20	0	104	76 - 126	21.93	4.97	20	
o-Xylene	20.2	1.0	20	0	101	78 - 122	19.69	2.56	20	
sec-Butylbenzene	21.08	1.0	20	0	105	77 - 126	21.68	2.77	20	
Styrene	20.2	1.0	20	0	101	78 - 123	19.76	2.22	20	
tert-Butylbenzene	21.09	1.0	20	0	105	78 - 124	21.36	1.3	20	
Tetrachloroethene	20.81	1.0	20	0	104	74 - 129	21.49	3.2	20	
Toluene	19.76	1.0	20	0	98.8	80 - 121	19.87	0.565	20	
trans-1,2-Dichloroethene	17.51	1.0	20	0	87.5	75 - 124	17.94	2.45	20	
trans-1,3-Dichloropropene	18.41	1.0	20	0	92.1	73 - 127	17.84	3.14	20	
Trichloroethene	18.87	1.0	20	0	94.3	79 - 123	18.93	0.321	20	
Trichlorofluoromethane	18.14	1.0	20	0	90.7	65 - 141	18.45	1.7	20	
Vinyl chloride	15.81	1.0	20	0	79.0	58 - 137	16.29	3.03	20	
Surr: 1,2-Dichloroethane-d4	*46.22*	*1.0*	*50*	*0*	*92.4*	*81 - 118*	*46.56*	*0.735*	*20*	
Surr: 4-Bromofluorobenzene	*53.76*	*1.0*	*50*	*0*	*108*	*85 - 114*	*53.01*	*1.41*	*20*	
Surr: Dibromofluoromethane	*48.02*	*1.0*	*50*	*0*	*96.0*	*80 - 119*	*48.12*	*0.217*	*20*	
Surr: Toluene-d8	*52.32*	*1.0*	*50*	*0*	*105*	*89 - 112*	*52.79*	*0.907*	*20*	

ALS Houston, US Date: 27-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060185

QC BATCH REPORT

Batch ID: R339998 (0)	Instrument: VOA6	Method: VOLATILES ORGANICS BY METHOD 8260C

The following samples were analyzed in this batch:

HS19060185-01	HS19060185-02	HS19060185-03	HS19060185-04
HS19060185-05	HS19060185-06	HS19060185-07	HS19060185-08

ALS Houston, US Date: 27-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060185

QC BATCH REPORT

Batch ID: R339937 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **WBLKW2-060519** Units: **mg/L** Analysis Date: **06-Jun-2019 00:36**
Client ID: Run ID: **ICS-Integrion_339937** SeqNo: **5109571** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	0.500	0.500								U
Nitrogen, Nitrate (As N)	0.100	0.100								U
Sulfate	0.500	0.500								U

LCS Sample ID: **WLCSW2-060519** Units: **mg/L** Analysis Date: **06-Jun-2019 00:53**
Client ID: Run ID: **ICS-Integrion_339937** SeqNo: **5109572** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.44	0.500	20	0	97.2	80 - 120				
Nitrogen, Nitrate (As N)	3.853	0.100	4	0	96.3	80 - 120				
Sulfate	19.55	0.500	20	0	97.8	80 - 120				

LCSD Sample ID: **WLCSDW2-060519** Units: **mg/L** Analysis Date: **06-Jun-2019 01:11**
Client ID: Run ID: **ICS-Integrion_339937** SeqNo: **5109573** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.44	0.500	20	0	97.2	80 - 120	19.44	0	20	
Nitrogen, Nitrate (As N)	3.861	0.100	4	0	96.5	80 - 120	3.853	0.192	20	
Sulfate	19.68	0.500	20	0	98.4	80 - 120	19.55	0.666	20	

MS Sample ID: **HS19060180-01MS** Units: **mg/L** Analysis Date: **06-Jun-2019 05:35**
Client ID: Run ID: **ICS-Integrion_339937** SeqNo: **5109588** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	31.43	0.500	10	22.01	94.2	80 - 120				
Nitrogen, Nitrate (As N)	4.26	0.100	2	2.354	95.3	80 - 120				
Sulfate	305.5	0.500	10	299	65.2	80 - 120				SEO

ALS Houston, US Date: 27-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060185

QC BATCH REPORT

Batch ID: R339937 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MSD Sample ID: **HS19060180-01MSD** Units: **mg/L** Analysis Date: **06-Jun-2019 05:53**
Client ID: Run ID: **ICS-Integrion_339937** SeqNo: **5109589** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	31.19	0.500	10	22.01	91.8	80 - 120	31.43	0.767	20	
Nitrogen, Nitrate (As N)	4.231	0.100	2	2.354	93.8	80 - 120	4.26	0.681	20	
Sulfate	303.5	0.500	10	299	45.7	80 - 120	305.5	0.639	20	SEO

The following samples were analyzed in this batch: HS19060185-01 HS19060185-02 HS19060185-03 HS19060185-04 HS19060185-05 HS19060185-06

ALS Houston, US Date: 27-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: **HS19060185**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

Unit Reported	Description
mg/L	Milligrams per Liter

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	19-028-0	27-Mar-2020
Dept of Defense	ANAB L2231	20-Dec-2021
Illinois	004438	29-Jun-2019
Kansas	E-10352 2018-2019	31-Jul-2019
Louisiana	03087	30-Jun-2019
Maryland	343, 2018-2019	30-Jun-2019
North Carolina	624-2019	31-Dec-2019
Oklahoma	2018-156	31-Aug-2019
Texas	TX104704231-19-23	30-Apr-2020

ALS Houston, US Date: 27-jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Work Order: HS19060185

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS19060185-01	03WW01_060419	Login	05/06/2019 12:47:07	NDR	WET267
HS19060185-01	03WW01_060419	Login	05/06/2019 12:47:07	NDR	VOA102
HS19060185-01	03WW01_060419	Login	05/06/2019 12:47:07	NDR	Sub
HS19060185-01	03WW01_060419	Login	05/06/2019 12:47:07	NDR	Sub
HS19060185-02	34AWW08_060419	Login	05/06/2019 12:47:07	NDR	WET267
HS19060185-02	34AWW08_060419	Login	05/06/2019 12:47:07	NDR	VOA102
HS19060185-02	34AWW08_060419	Login	05/06/2019 12:47:07	NDR	Sub
HS19060185-02	34AWW08_060419	Login	05/06/2019 12:47:07	NDR	Sub
HS19060185-03	35AWW20_060419	Login	05/06/2019 12:47:07	NDR	WET267
HS19060185-03	35AWW20_060419	Login	05/06/2019 12:47:07	NDR	VOA102
HS19060185-03	35AWW20_060419	Login	05/06/2019 12:47:07	NDR	Sub
HS19060185-03	35AWW20_060419	Login	05/06/2019 12:47:07	NDR	Sub
HS19060185-04	35AWW10_060419	Login	05/06/2019 12:47:07	NDR	WET267
HS19060185-04	35AWW10_060419	Login	05/06/2019 12:47:07	NDR	VOA102
HS19060185-04	35AWW10_060419	Login	05/06/2019 12:47:07	NDR	Sub
HS19060185-04	35AWW10_060419	Login	05/06/2019 12:47:07	NDR	Sub
HS19060185-05	35AWW10_060419_a	Login	05/06/2019 12:47:07	NDR	WET267
HS19060185-05	35AWW10_060419_a	Login	05/06/2019 12:47:07	NDR	VOA102
HS19060185-05	35AWW10_060419_a	Login	05/06/2019 12:47:07	NDR	Sub
HS19060185-05	35AWW10_060419_a	Login	05/06/2019 12:47:07	NDR	Sub
HS19060185-06	35AWW06_060419	Login	05/06/2019 12:47:07	NDR	MET084
HS19060185-06	35AWW06_060419	Login	05/06/2019 12:47:07	NDR	WET267
HS19060185-06	35AWW06_060419	Login	05/06/2019 12:47:07	NDR	VOA102
HS19060185-06	35AWW06_060419	Login	05/06/2019 12:47:07	NDR	Sub
HS19060185-06	35AWW06_060419	Login	05/06/2019 12:47:07	NDR	Sub

ALS Houston, US Date: 27-Jun-19

Sample Receipt Checklist

Client Name: Bhate Environmental
Work Order: HS19060185
Date/Time Received: **05-Jun-2019 09:00**
Received by: **RPG**

Checklist completed by: *Nilesh D. Ranchod* eSignature 5-Jun-2019 Date
Reviewed by: *RJ Modashia* eSignature 5-Jun-2019 Date

Matrices: **Groundwater/Water**
Carrier name: **FedEx Priority Overnight**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs:None
Samplers name present on COC?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	

Temperature(s)/Thermometer(s):	2.4c U/C	IR25
Cooler(s)/Kit(s):	44877	
Date/Time sample(s) sent to storage:	6/5/19 14:00	

Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☑	N/A ☐
pH adjusted?	Yes ☑	No ☐	N/A ☐
pH adjusted by:	Nilesh D. Ranchod		

Login Notes:
SX # 03WW0_060419 & 35AWW08_060419
Metal pH>2(7).Preserved with 0.5mil HNO3
on 06/05/19 @ 12:35pm
Lot #309117005 By Nilesh
After preserved pH (1)
SX # 35AWW20_060419
Metal pH>2(4).Preserved with 0.5mil HNO3
on 06/05/19 @ 12:35pm
Lot #309117005 By Nilesh

Client Contacted: Date Contacted: Person Contacted:
Contacted By: Regarding:
Comments:
Corrective Action:

bhate

1608 13th Avenue South, Suite 300
Birmingham Alabama 35205
Tel: 205-918-4000
Fax: 205-918-4050

Chain of Custody and Analytical Request

Page: ____ of ____

Project/Phase No: NWO1312.0150

COC Number(1): ____

LIMS Number: ____

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / Site 58

Client Name:

Collected by: Scott Beesinger

Field Sample ID (30 Characters Max)	ERPIMS LOCID (15 Characters Max)	Date Collected (dd-mmm-yyyy)	Time Collected (Military) (hhmm)	Sample Depth (beginning - ending)	SA Code (2)	Sample Number (3)	Sample Matrix (4)	Number of containers	VOC	MEE	TOC	Carbon Dioxide	Anions	ARSENIC					Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
								Sample Analysis Requested (5)											Quality Assurance Samples (6)			
03WWD1_060419		04 JUN 2019	0745	-	N		WG	11	X	X	X	X	X	X								
35AWW08_060419		04 JUN 2019	0820	-	N		WG	11	X	X	X	X	X	X								
35AWW20_060419		04 JUN 2019	0925	-	N		WG	11	X	X	X	X	X	X								
35AWW10_060419		04 JUN 2019	1030		N		WG	10	X	X	X	X	X									
35AWW10_060419_a		04 JUN 2019	1030		FD		WG	10	X	X	X	X	X									
35AWW06_060419		04 JUN 2019	1135	-	N		WG	10	X	X	X	X	X									
35AWW18_060419		04 JUN 2019	1220	-	N		WG	3	X													
TRIP BLANK		04 JUN 2019		-	TB		W	2	X													
				-																		
				-																		
				-																		

COMMENTS: ____

Bhate Environmental Associates, Inc.
LHAAP/ Site 58
HS19060185

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1. Scott Beesinger	6/4/19	1400	1. R Cisco	6/5/19	0900
2.			2.		
3.			3.		

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: Fedex Shipped 4601 7534 2910 No.:

Method of Shipment: Priority Overnight

Fed Ex Airbill Number:

M23 HS Analytical Lab: ALS 10450 Stanciff Rd. Suite 210 Houston, TX 77099 (281) 530-5656

ATTN: SONIA WEST Lab Recipient: Delivery Date/Time: 6/5/19 0900

cooler temp. 2.4c
ice # 25
cfo

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01)

2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-c) Sample, FD = Field Duplicate (-a) Samples, FR = Field Replicate (-b) Samples, EB = Equipment Blank (-d) Samples, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-e)

3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)

4.) Matrix Codes: GS = Soil Gas, WG = Groundwater, WS = Surface Water, SO = Soil, SE = Sediment, SL = Sludge, SS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blanks

5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each.

6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 10109901 in the Equipment Blank Lot Control

CUSTODY SEAL
Seal Broken By:
Date:
Time:
Name:
Company:
ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel: +1 281 530 5656
Fax: +1 281 530 5887
Date:
Name:
Company:
FedEx
4809 7834 2910
WED - 05 JUN 10:30A
PRIORITY OVERNIGHT
77099

ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
Kelso, WA 98626
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www.alsglobal.com

June 19, 2019

Analytical Report for Service Request No: K1905258

RJ Modashia
ALS Laboratory Group
10450 Stancliff Road
Suite 210
Houston, TX 77099-4338

RE: HS19060185

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory June 06, 2019
For your reference, these analyses have been assigned our service request number **K1905258.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3350. You may also contact me via email at Kelley.Lovejoy@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Kelley Lovejoy

Kelley Lovejoy
Project Manager

RIGHT SOLUTIONS | RIGHT PARTNER

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Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjlabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water-	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

Case Narrative

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1317 South 13th Ave, Kelso, WA 98626 | 1-360-577-7222 | www.alsglobal.com

Client: ALS Environmental - US
Project: HS19060185
Sample Matrix: Water

Service Request: K1905258
Date Received: 06/06/2019

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier level IV requested by the client.

Sample Receipt:

Six water samples were received for analysis at ALS Environmental on 06/06/2019. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

General Chemistry:

No significant anomalies were noted with this analysis.

Approved by Kelley Lovejoy Date 06/19/2019

Chain of Custody

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K1905258

10450 Stancliff Rd, Ste 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887
www.alsglobal.com

Subcontract Chain of Custody

SAMPLING STATE: **Texas** **COC ID:** **11526**

SUBCONTRACT TO:

ALS Environmental Kelso
1317 S. 13th Avenue
Kelso, WA 98626

Phone: +1 360 501 3312

CUSTOMER INFORMATION:

Company:	ALS Houston
Contact:	RJ Modashia
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Email:	RJ.Modashia@alsglobal.com
Alternate Contact:	Jumoke M. Lawal
Email:	jumoke.lawal@alsglobal.com

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS19060185
TSR:	Danielle Winnings

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS19060185-01**	**03WW01_060419**	**Groundwater**	**04 Jun 2019 07:45**
	TOC Analysis for DOD Level IV/Excel EDD			13 Jun 2019
2.	**HS19060185-02**	**34AWW08_060419**	**Groundwater**	**04 Jun 2019 08:20**
	TOC Analysis for DOD Level IV/Excel EDD			13 Jun 2019
3.	**HS19060185-03**	**35AWW20_060419**	**Groundwater**	**04 Jun 2019 09:25**
	TOC Analysis for DOD Level IV/Excel EDD			13 Jun 2019
4.	**HS19060185-04**	**35AWW10_060419**	**Groundwater**	**04 Jun 2019 10:30**
	TOC Analysis for DOD Level IV/Excel EDD			13 Jun 2019
5.	**HS19060185-05**	**35AWW10_060419_a**	**Groundwater**	**04 Jun 2019 10:30**
	TOC Analysis for DOD Level IV/Excel EDD			13 Jun 2019
6.	**HS19060185-06**	**35AWW06_060419**	**Groundwater**	**04 Jun 2019 11:35**
	TOC Analysis for DOD Level IV/Excel EDD			13 Jun 2019

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.

QC Level: DOD IV (DoD Data Package)

Subcontract Chain of Custody

SAMPLING STATE: **Texas** **COC ID:** **11526**

Relinquished By: _____ Date/Time: 6/5/19 1800.

Received By: KMonroe ALS KLSO Date/Time: 6/6/19 0940

Cooler ID(s): _____ Temperature(s): _____

00949529

PC KL

Cooler Receipt and Preservation Form

Client ALS - Houston Service Request *K19* 05258

Received: 6/6/19 Opened: 6/6/19 By: AM Unloaded: 6/6/19 By: KL

1. Samples were received via? *USPS* (*Fed Ex*) *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) (*Cooler*) *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA (Y) N If yes, how many and where? 2-Front
   If present, were custody seals intact? (Y) N If present, were they signed and dated? (Y) N

Raw Cooler Temp	Corrected Cooler Temp	Raw Temp Blank	Corrected Temp Blank	Corr. Factor	Thermometer ID	Cooler/COC ID NA	Tracking Number NA	Filed
0.2	0.2	2.4	2.4	0	381	11526	480978347636	

4. Packing material: *Inserts* (*Baggies*) *Bubble Wrap* *Gel Packs* (*Wet Ice*) *Dry Ice* *Sleeves* _____
5. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
6. Were samples received in good condition (temperature, unbroken)? *Indicate in the table below.* NA (Y) N
   If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*
7. Were all sample labels complete (i.e analysis, preservation, etc.)? NA (Y) N
8. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA (Y) N
9. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
10. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA (Y) N
11. Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N
12. Was C12/Res negative? (NA) Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, & Resolutions: _____

General Chemistry

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ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	K1905258
Project:	HS19060185	**Date Collected:**	06/4/19
Sample Matrix:	Water	**Date Received:**	06/6/19
Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Carbon, Total Organic

Sample Name	Lab Code	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
03WW01_060419	K1905258-001	**66.1**	5.0	2.0	0.7	10	06/11/19 00:37	
34AWW08_060419	K1905258-002	**306**	5.0	2.0	0.7	10	06/11/19 01:33	
35AWW20_060419	K1905258-003	**12.9**	0.50	0.20	0.07	1	06/11/19 02:30	
35AWW10_060419	K1905258-004	**4.69**	0.50	0.20	0.07	1	06/11/19 02:58	
35AWW10_060419_a	K1905258-005	**4.11**	0.50	0.20	0.07	1	06/11/19 03:26	
35AWW06_060419	K1905258-006	**331**	50	20	7	100	06/15/19 01:13	
Method Blank	K1905258-MB1	ND U	0.50	0.20	0.07	1	06/11/19 04:24	
Method Blank	K1905258-MB2	ND U	0.50	0.20	0.07	1	06/14/19 18:41	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K1905258
Project	HS19060185	**Date Collected:**	06/04/19
Sample Matrix:	Water	**Date Received:**	06/06/19
Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Replicate Sample Summary
Carbon, Total Organic

Sample Name:	Lab Code:	LOQ	LOD	MDL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
03WW01_060419	K1905258-001DUP	5.0	2.0	0.7	66.1	65.2	65.6	1	10	06/11/19
34AWW08_060419	K1905258-002DUP	5.0	2.0	0.7	306	302	304	1	10	06/11/19
35AWW20_060419	K1905258-003DUP	0.50	0.20	0.07	12.9	13.0	12.9	<1	10	06/11/19
35AWW10_060419	K1905258-004DUP	0.50	0.20	0.07	4.69	4.50	4.60	4	10	06/11/19
35AWW10_060419_a	K1905258-005DUP	0.50	0.20	0.07	4.11	4.16	4.13	1	10	06/11/19
35AWW06_060419	K1905258-006DUP	50	20	7	331	333	332	<1	10	06/15/19

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K1905258
Project:	HS19060185	**Date Analyzed:**	06/11/19
Sample Matrix:	Water	**Date Extracted:**	NA

Lab Control Sample Summary
Carbon, Total Organic

Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	638810

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1905258-LCS1	25.4	25.0	101	83-117

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K1905258
Project:	HS19060185	**Date Analyzed:**	06/14/19
Sample Matrix:	Water	**Date Extracted:**	NA

Lab Control Sample Summary
Carbon, Total Organic

Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	639522

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1905258-LCS2	25.4	25.0	102	83-117

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US **Service Request:** K1905258
Project: HS19060185

Continuing Calibration Verification (CCV) Summary

Carbon, Total Organic

Analysis Method: SM 5310 C **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	638810	KQ1908062-01	06/10/19 14:47	25.0	25.2	101	90-110
CCV2	638810	KQ1908062-02	06/10/19 22:43	25.0	27.5	110	90-110
CCV3	638810	KQ1908062-03	06/11/19 03:54	25.0	24.9	100	90-110
CCV4	638810	KQ1908062-04	06/11/19 08:37	25.0	24.9	99	90-110
CCV5	638810	KQ1908062-05	06/11/19 13:35	25.0	24.6	98	90-110
CCV6	639522	KQ1908379-01	06/14/19 18:11	25.0	24.9	100	90-110
CCV7	639522	KQ1908379-02	06/15/19 01:13	25.0	24.6	98	90-110
CCV8	639522	KQ1908379-03	06/15/19 06:51	25.0	25.5	102	90-110
CCV9	639522	KQ1908379-04	06/15/19 12:03	25.0	25.0	100	90-110
CCV10	639522	KQ1908379-05	06/15/19 17:01	25.0	24.9	100	90-110

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US **Service Request:**K1905258
Project: HS19060185

Continuing Calibration Blank (CCB) Summary
Carbon, Total Organic

Analysis Method: SM 5310 C **Units:**mg/L

	Analysis Lot	Lab Code	Date Analyzed	LOQ	LOD	MDL	Result	Q
CCB1	638810	KQ1908062-06	06/10/19 15:02	0.50	0.20	0.07	ND	U
CCB2	638810	KQ1908062-07	06/10/19 22:58	0.50	0.20	0.07	0.19	J
CCB3	638810	KQ1908062-08	06/11/19 04:09	0.50	0.20	0.07	ND	U
CCB4	638810	KQ1908062-09	06/11/19 08:52	0.50	0.20	0.07	ND	U
CCB5	638810	KQ1908062-10	06/11/19 13:50	0.50	0.20	0.07	ND	U
CCB6	639522	KQ1908379-06	06/14/19 18:26	0.50	0.20	0.07	ND	U
CCB7	639522	KQ1908379-07	06/15/19 01:56	0.50	0.20	0.07	ND	U
CCB8	639522	KQ1908379-08	06/15/19 07:06	0.50	0.20	0.07	ND	U
CCB9	639522	KQ1908379-09	06/15/19 12:18	0.50	0.20	0.07	ND	U
CCB10	639522	KQ1908379-10	06/15/19 17:15	0.50	0.20	0.07	ND	U

Raw Data

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5361, 5369
III I

Work Request # Original ( ) KA05246, 5084, 5126, 5198, 5258, 5259, 5248, 5339, 5126, 5262, 5277, 5278, 5279, 5305, 5360

Tier: IV II III IV IV IV I II III IV IV III III II IV

Date Analyzed: 6/10/19

Analyst: JBCD

Run # TOC: 638808, 638810, 638815, 638817

Analysis: TOC

DATA QUALITY REPORT
INORGANICS

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

1.	Is the method name and number correct and appropriate?	(yes)/no/NA
2.	Holding times met for all analyses and for all samples?	(yes)/no/NA
3.	Are calculations correct?	(yes)/no/NA
4.	Is the reporting basis correct? (Dry Weight)	yes/no/(NA)
5.	All quality control criteria met?	(yes)/no
6.	Is the calibration curve correlation coefficient ≥ 0.995?	(yes)/no/NA
7.	MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency?	(yes)/no/NA
8.	Are ICVs, CCVs, and CCBs all within acceptance limits?	(yes)/no/NA
9.	Are results for methods blanks all ND?	(yes)/no/NA
10.	Are all QC samples within acceptance criteria? (LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc.)	yes/(no)/NA
11.	Are all exceptions explained?	(yes)/no/NA
12.	Have all applicable service requests been reviewed?	(yes)/no/NA
13.	Are all samples labeled correctly?	(yes)/no/NA
14.	Have all instructions on the service request been followed? (e.g. Special MRLs, QC on a specific sample, Form V)	(yes)/no/NA
15.	Are detection limits and units reported correctly?	(yes)/no/NA
16.	Is the unused space on the benchsheet crossed out?	(yes)/no/NA
17.	Was analysis turned in by the due date? (n-2) (If not record SR#)	yes/(no)/NA

COMMENTS: KA05258-6, 5198-3 Sent for RA (Needs dilution)
KA05259-1 sent for RA due to high RSD% from sample carry over.
KA05126-2, 5198-4, 5277-2, 5279-1 Report a high % RSD. However, these samples are less than 5x the MRL.

Final Approved by: [signature] Date: 06/14/19

DQREPORT

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 638808 **Method/Testcode:** 9060/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K1905246-001	Carbon, Total Organic	N/A		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/10/19 17:23:00	N	IV
K1905246-003	Carbon, Total Organic	N/A		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/10/19 18:18:00	N	IV
K1905246-004	Carbon, Total Organic	N/A		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/10/19 19:14:00	N	IV
K1905246-005	Carbon, Total Organic	N/A		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/10/19 21:20:00	N	IV
KQ1908058-01	Carbon, Total Organic	CCV		Ground Water	25.15 mg/L	10 mL	25.2 mg/L	1			101		6/10/19 14:47:00	N	IV
KQ1908058-02	Carbon, Total Organic	CCV		Ground Water	27.51 mg/L	10 mL	27.5 mg/L	1			110		6/10/19 22:43:00	N	IV
KQ1908058-03	Carbon, Total Organic	CCB		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/10/19 15:02:00	N	IV
KQ1908058-04	Carbon, Total Organic	CCB		Ground Water	0.19 mg/L	10 mL	0.19 mg/L J	1	0.07	0.50			6/10/19 22:58:00	N	IV
KQ1908058-05	Carbon, Total Organic	MB		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/10/19 15:16:00	N	IV
KQ1908058-06	Carbon, Total Organic	MB		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/10/19 15:16:00	N	IV
KQ1908058-07	Carbon, Total Organic	MB		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/10/19 15:16:00	N	IV
KQ1908058-08	Carbon, Total Organic	MB		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/10/19 15:16:00	N	IV
KQ1908058-09	Carbon, Total Organic	LCS		Ground Water	24.62 mg/L	10 mL	24.6 mg/L	1	0.07	0.50	98		6/10/19 16:12:00	N	IV
KQ1908058-10	Carbon, Total Organic	LCS		Ground Water	24.74 mg/L	10 mL	24.7 mg/L	1	0.07	0.50	99		6/10/19 16:12:00	N	IV
KQ1908058-11	Carbon, Total Organic	LCS		Ground Water	25.10 mg/L	10 mL	25.1 mg/L	1	0.07	0.50	100		6/10/19 16:12:00	N	IV
KQ1908058-12	Carbon, Total Organic	LCS		Ground Water	24.96 mg/L	10 mL	25.0 mg/L	1	0.07	0.50	100		6/10/19 16:12:00	N	IV
KQ1908058-13	Carbon, Total Organic	DUP	K1905246-001	Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/10/19 17:23:00	N	IV
KQ1908058-14	Carbon, Total Organic	TRP	K1905246-001	Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/10/19 17:23:00	N	IV
KQ1908058-15	Carbon, Total Organic	QUAD	K1905246-001	Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/10/19 17:23:00	N	IV
KQ1908058-16	Carbon, Total Organic	DUP	K1905246-003	Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/10/19 18:18:00	N	IV
KQ1908058-17	Carbon, Total Organic	TRP	K1905246-003	Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/10/19 18:18:00	N	IV
KQ1908058-18	Carbon, Total Organic	QUAD	K1905246-003	Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/10/19 18:18:00	N	IV
KQ1908058-19	Carbon, Total Organic	DUP	K1905246-004	Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/10/19 19:14:00	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

06/14/19

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 638808 **Method/Testcode:** 9060/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ1908058-20	Carbon, Total Organic	TRP	K1905246-004	Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/10/19 19:14:00	N	IV
KQ1908058-21	Carbon, Total Organic	QUAD	K1905246-004	Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/10/19 19:14:00	N	IV
KQ1908058-22	Carbon, Total Organic	MS	K1905246-004	Ground Water	25.43 mg/L	10 mL	25.4 mg/L	1	0.07	0.50	102		6/10/19 20:10:00	N	IV
KQ1908058-23	Carbon, Total Organic	DUP	K1905246-005	Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/10/19 21:20:00	N	IV
KQ1908058-24	Carbon, Total Organic	TRP	K1905246-005	Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/10/19 21:20:00	N	IV
KQ1908058-25	Carbon, Total Organic	QUAD	K1905246-005	Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/10/19 21:20:00	N	IV
KQ1908058-26	Carbon, Total Organic	MS	K1905246-004	Ground Water	25.58 mg/L	10 mL	25.6 mg/L	1	0.07	0.50	102		6/10/19 20:10:00	N	IV
KQ1908058-27	Carbon, Total Organic	MS	K1905246-004	Ground Water	25.72 mg/L	10 mL	25.7 mg/L	1	0.07	0.50	103		6/10/19 20:10:00	N	IV
KQ1908058-28	Carbon, Total Organic	MS	K1905246-004	Ground Water	25.75 mg/L	10 mL	25.8 mg/L	1	0.07	0.50	103		6/10/19 20:10:00	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 638810 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K1905084-004	Carbon, Total Organic	N/A		Water	7.86 mg/L	10 mL	786 mg/L	100	7	50			6/11/19 06:17:00	N	II
K1905084-005	Carbon, Total Organic	N/A		Water	6.52 mg/L	10 mL	652 mg/L	100	7	50			6/11/19 06:45:00	N	II
K1905126-001	Carbon, Total Organic	N/A		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/11/19 07:41:00	N	III
K1905126-002	Carbon, Total Organic	N/A		Ground Water	0.13 mg/L	10 mL	0.13 mg/L J	1	0.07	0.50			6/11/19 08:09:00	Y	III
K1905126-003	Carbon, Total Organic	N/A		Ground Water	0.27 mg/L	10 mL	0.27 mg/L J	1	0.07	0.50			6/11/19 09:36:00	N	III
K1905126-004	Carbon, Total Organic	N/A		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/11/19 10:04:00	N	III
K1905198-003	Carbon, Total Organic	N/A		Ground Water	-0.01 mg/L	10 mL	2.0 mg/L U	4	0.3	2.0			6/10/19 22:15:00	N	IV
K1905198-004	Carbon, Total Organic	N/A		Ground Water	1.55 mg/L	10 mL	1.55 mg/L	1	0.07	0.50			6/10/19 23:13:00	N	IV
K1905198-005	Carbon, Total Organic	N/A		Ground Water	47.30 mg/L	10 mL	94.6 mg/L	2	0.2	1.0			6/10/19 23:41:00	N	IV
K1905258-001	Carbon, Total Organic	N/A		Water	6.61 mg/L	10 mL	66.1 mg/L	10	0.7	5.0			6/11/19 00:37:00	N	IV
K1905258-002	Carbon, Total Organic	N/A		Water	30.64 mg/L	10 mL	306 mg/L	10	0.7	5.0			6/11/19 01:33:00	N	IV
K1905258-003	Carbon, Total Organic	N/A		Water	12.86 mg/L	10 mL	12.9 mg/L	1	0.07	0.50			6/11/19 02:30:00	N	IV
K1905258-004	Carbon, Total Organic	N/A		Water	4.69 mg/L	10 mL	4.69 mg/L	1	0.07	0.50			6/11/19 02:58:00	N	IV
K1905258-005	Carbon, Total Organic	N/A		Water	4.11 mg/L	10 mL	4.11 mg/L	1	0.07	0.50			6/11/19 03:26:00	N	IV
K1905258-006	Carbon, Total Organic	N/A		Water	63.63 mg/L	10 mL	318 mg/L	5	0.4	2.5			6/11/19 04:53:00	N	IV
K1905259-001	Carbon, Total Organic	N/A		Water	2.92 mg/L	10 mL	2.92 mg/L	1	0.07	0.50			6/11/19 05:21:00	N	IV
K1905298-001	Carbon, Total Organic	N/A		Drinking Water	0.12 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/11/19 07:13:00	N	I
K1905338-001	Carbon, Total Organic	N/A		Water	1.66 mg/L	10 mL	1.66 mg/L	1	0.07	0.50			6/11/19 05:49:00	N	II
KQ1908062-01	Carbon, Total Organic	CCV		Water	25.15 mg/L	10 mL	25.2 mg/L	1			101		6/10/19 14:47:00	N	IV
KQ1908062-02	Carbon, Total Organic	CCV		Water	27.51 mg/L	10 mL	27.5 mg/L	1			110		6/10/19 22:43:00	N	IV
KQ1908062-03	Carbon, Total Organic	CCV		Water	24.91 mg/L	10 mL	24.9 mg/L	1			100		6/11/19 03:54:00	N	IV
KQ1908062-04	Carbon, Total Organic	CCV		Water	24.86 mg/L	10 mL	24.9 mg/L	1			100		6/11/19 08:37:00	N	IV
KQ1908062-05	Carbon, Total Organic	CCV		Water	24.61 mg/L	10 mL	24.6 mg/L	1			98		6/11/19 13:35:00	N	IV
KQ1908062-06	Carbon, Total Organic	CCB		Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/10/19 15:02:00	N	IV
KQ1908062-07	Carbon, Total Organic	CCB		Water	0.19 mg/L	10 mL	0.19 mg/L J	1	0.07	0.50			6/10/19 22:58:00	N	IV
KQ1908062-08	Carbon, Total Organic	CCB		Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/11/19 04:09:00	N	IV
KQ1908062-09	Carbon, Total Organic	CCB		Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/11/19 08:52:00	N	IV
KQ1908062-10	Carbon, Total Organic	CCB		Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/11/19 13:50:00	N	IV
KQ1908062-11	Carbon, Total Organic	MB		Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/11/19 04:24:00	N	IV
KQ1908062-12	Carbon, Total Organic	LCS		Water	25.36 mg/L	10 mL	25.4 mg/L	1	0.07	0.50	101		6/11/19 04:38:00	N	IV
KQ1908062-13	Carbon, Total Organic	DUP	K1905258-001	Water	6.52 mg/L	10 mL	65.2 mg/L	10	0.7	5.0		1	6/11/19 00:37:00	N	IV
KQ1908062-14	Carbon, Total Organic	DUP	K1905258-002	Water	30.25 mg/L	10 mL	302 mg/L	10	0.7	5.0		1	6/11/19 01:33:00	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

06/14/19

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 638810 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ1908062-15	Carbon, Total Organic	DUP	K1905258-003	Water	12.98 mg/L	10 mL	13.0 mg/L	1	0.07	0.50		<1	6/11/19 02:30:00	N	IV
KQ1908062-16	Carbon, Total Organic	DUP	K1905258-004	Water	4.50 mg/L	10 mL	4.50 mg/L	1	0.07	0.50		4	6/11/19 02:58:00	N	IV
KQ1908062-17	Carbon, Total Organic	DUP	K1905258-005	Water	4.16 mg/L	10 mL	4.16 mg/L	1	0.07	0.50		1	6/11/19 03:26:00	N	IV
KQ1908062-18	Carbon, Total Organic	DUP	K1905258-006	Water	63.10 mg/L	10 mL	316 mg/L	5	0.4	2.5		<1	6/11/19 04:53:00	N	IV
KQ1908062-19	Carbon, Total Organic	DUP	K1905259-001	Water	2.60 mg/L	10 mL	2.60 mg/L	1	0.07	0.50		12*	6/11/19 05:21:00	N	IV
KQ1908062-20	Carbon, Total Organic	DUP	K1905338-001	Water	1.64 mg/L	10 mL	1.64 mg/L	1	0.07	0.50		1	6/11/19 05:49:00	N	II
KQ1908062-21	Carbon, Total Organic	DUP	K1905084-004	Water	7.95 mg/L	10 mL	795 mg/L	100	7	50		1	6/11/19 06:17:00	N	II
KQ1908062-22	Carbon, Total Organic	DUP	K1905084-005	Water	6.46 mg/L	10 mL	646 mg/L	100	7	50		<1	6/11/19 06:45:00	N	II
KQ1908062-23	Carbon, Total Organic	DUP	K1905298-001	Drinking Water	0.05 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/11/19 07:13:00	N	I
KQ1908062-24	Carbon, Total Organic	DUP	K1905126-001	Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/11/19 07:41:00	N	III
KQ1908062-25	Carbon, Total Organic	DUP	K1905126-002	Ground Water	0.18 mg/L	10 mL	0.18 mg/L J	1	0.07	0.50		33*	6/11/19 08:09:00	N	III
KQ1908062-26	Carbon, Total Organic	DUP	K1905126-003	Ground Water	0.25 mg/L	10 mL	0.25 mg/L J	1	0.07	0.50		7	6/11/19 09:36:00	N	III
KQ1908062-27	Carbon, Total Organic	DUP	K1905126-004	Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/11/19 10:04:00	N	III
KQ1908062-28	Carbon, Total Organic	MS	K1905126-002	Ground Water	25.89 mg/L	10 mL	25.9 mg/L	1	0.07	0.50	103		6/11/19 09:07:00	N	III
KQ1908062-29	Carbon, Total Organic	DUP	K1905198-003	Ground Water	-0.01 mg/L	10 mL	2.0 mg/L U	4	0.3	2.0		NC	6/10/19 22:15:00	N	IV
KQ1908062-30	Carbon, Total Organic	DUP	K1905198-004	Ground Water	1.28 mg/L	10 mL	1.28 mg/L	1	0.07	0.50		19*	6/10/19 23:13:00	N	IV
KQ1908062-31	Carbon, Total Organic	DUP	K1905198-005	Ground Water	47.09 mg/L	10 mL	94.2 mg/L	2	0.2	1.0		<1	6/10/19 23:41:00	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 638815 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K1905126-005	Carbon, Total Organic	N/A		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/11/19 10:32:00	N	III
K1905126-006	Carbon, Total Organic	N/A		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/11/19 11:00:00	N	III
K1905126-007	Carbon, Total Organic	N/A		Ground Water	0.07 mg/L	10 mL	0.07 mg/L J	1	0.07	0.50			6/11/19 11:28:00	N	III
K1905126-008	Carbon, Total Organic	N/A		Ground Water	0.30 mg/L	10 mL	0.30 mg/L J	1	0.07	0.50			6/11/19 11:56:00	N	III
K1905126-009	Carbon, Total Organic	N/A		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/11/19 12:24:00	N	III
K1905262-001	Carbon, Total Organic	N/A		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/11/19 12:53:00	N	IV
K1905262-002	Carbon, Total Organic	N/A		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/11/19 14:19:00	N	IV
K1905277-001	Carbon, Total Organic	N/A		Ground Water	0.33 mg/L	10 mL	0.33 mg/L J	1	0.07	0.50			6/11/19 14:48:00	Y	IV
K1905277-002	Carbon, Total Organic	N/A		Ground Water	0.36 mg/L	10 mL	0.36 mg/L J	1	0.07	0.50			6/11/19 15:45:00	N	IV
K1905277-003	Carbon, Total Organic	N/A		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/11/19 16:13:00	N	IV
KQ1908063-01	Carbon, Total Organic	MS	K1905277-001	Ground Water	25.85 mg/L	10 mL	25.9 mg/L	1	0.07	0.50	102		6/11/19 15:16:00	N	IV
KQ1908063-02	Carbon, Total Organic	DUP	K1905277-001	Ground Water	0.30 mg/L	10 mL	0.30 mg/L J	1	0.07	0.50		9	6/11/19 14:48:00	N	IV
KQ1908063-03	Carbon, Total Organic	CCV		Ground Water	24.86 mg/L	10 mL	24.9 mg/L	1			100		6/11/19 08:37:00	N	III
KQ1908063-04	Carbon, Total Organic	CCV		Ground Water	24.61 mg/L	10 mL	24.6 mg/L	1			98		6/11/19 13:21:00	N	III
KQ1908063-05	Carbon, Total Organic	CCV		Ground Water	24.69 mg/L	10 mL	24.7 mg/L	1			99		6/11/19 17:24:00	N	III
KQ1908063-06	Carbon, Total Organic	CCB		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/11/19 08:52:00	N	III
KQ1908063-07	Carbon, Total Organic	CCB		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/11/19 13:35:00	N	III
KQ1908063-08	Carbon, Total Organic	CCB		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/11/19 17:39:00	N	III
KQ1908063-09	Carbon, Total Organic	MB		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/11/19 13:50:00	N	III
KQ1908063-10	Carbon, Total Organic	LCS		Ground Water	25.06 mg/L	10 mL	25.1 mg/L	1	0.07	0.50	100		6/11/19 14:05:00	N	III
KQ1908063-11	Carbon, Total Organic	DUP	K1905126-005	Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/11/19 10:32:00	N	III
KQ1908063-12	Carbon, Total Organic	DUP	K1905126-006	Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/11/19 11:00:00	N	III
KQ1908063-13	Carbon, Total Organic	DUP	K1905126-007	Ground Water	0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/11/19 11:28:00	N	III

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

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Results Summary

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 638815 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ1908063-14	Carbon, Total Organic	DUP	K1905126-008	Ground Water	0.33 mg/L	10 mL	0.33 mg/L J	1	0.07	0.50		8	6/11/19 11:56:00	N	III
KQ1908063-15	Carbon, Total Organic	DUP	K1905126-009	Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/11/19 12:24:00	N	III
KQ1908063-16	Carbon, Total Organic	DUP	K1905262-001	Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/11/19 12:53:00	N	IV
KQ1908063-17	Carbon, Total Organic	DUP	K1905262-002	Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/11/19 14:19:00	N	IV
KQ1908063-18	Carbon, Total Organic	DUP	K1905277-002	Ground Water	0.32 mg/L	10 mL	0.32 mg/L J	1	0.07	0.50		12*	6/11/19 15:45:00	N	IV
KQ1908063-19	Carbon, Total Organic	DUP	K1905277-003	Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/11/19 16:13:00	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 638817 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K1905278-001	Carbon, Total Organic	N/A		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/11/19 16:41:00	Y	III
K1905278-002	Carbon, Total Organic	N/A		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/11/19 17:54:00	N	III
K1905278-003	Carbon, Total Organic	N/A		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/11/19 18:22:00	N	III
K1905279-001	Carbon, Total Organic	N/A		Ground Water	0.49 mg/L	10 mL	0.49 mg/L J	1	0.07	0.50			6/11/19 18:50:00	N	III
K1905305-001	Carbon, Total Organic	N/A		Water	5.67 mg/L	10 mL	5.67 mg/L	1	0.07	0.50			6/11/19 19:18:00	N	II
K1905360-001	Carbon, Total Organic	N/A		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/11/19 19:46:00	N	IV
K1905361-001	Carbon, Total Organic	N/A		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/11/19 20:14:00	N	III
K1905369-001	Carbon, Total Organic	N/A		Water	5.21 mg/L	10 mL	10.4 mg/L	2	0.2	1.0			6/11/19 20:42:00	N	I
K1905369-002	Carbon, Total Organic	N/A		Water	13.49 mg/L	10 mL	13.5 mg/L	1	0.07	0.50			6/11/19 21:10:00	N	I
K1905369-003	Carbon, Total Organic	N/A		Water	1.77 mg/L	10 mL	1.77 mg/L	1	0.07	0.50			6/11/19 21:38:00	N	I
K1905369-004	Carbon, Total Organic	N/A		Water	9.26 mg/L	10 mL	18.5 mg/L	2	0.2	1.0			6/11/19 22:06:00	N	I
K1905369-005	Carbon, Total Organic	N/A		Water	10.02 mg/L	10 mL	10.0 mg/L	1	0.07	0.50			6/11/19 23:33:00	N	I
K1905369-006	Carbon, Total Organic	N/A		Water	13.53 mg/L	10 mL	27.1 mg/L	2	0.2	1.0			6/12/19 00:01:00	N	I
K1905369-007	Carbon, Total Organic	N/A		Water	27.08 mg/L	10 mL	54.2 mg/L	2	0.2	1.0			6/12/19 00:29:00	N	I
K1905369-008	Carbon, Total Organic	N/A		Water	9.58 mg/L	10 mL	19.2 mg/L	2	0.2	1.0			6/12/19 00:58:00	N	I
K1905369-009	Carbon, Total Organic	N/A		Water	27.74 mg/L	10 mL	27.7 mg/L	1	0.07	0.50			6/12/19 01:26:00	N	I
KQ1908064-01	Carbon, Total Organic	CCV		Ground Water	24.61 mg/L	10 mL	24.6 mg/L	1			98		6/11/19 13:21:00	N	III
KQ1908064-02	Carbon, Total Organic	CCV		Ground Water	24.69 mg/L	10 mL	24.7 mg/L	1			99		6/11/19 17:24:00	N	III
KQ1908064-03	Carbon, Total Organic	CCV		Ground Water	24.59 mg/L	10 mL	24.6 mg/L	1			98		6/11/19 22:34:00	N	III
KQ1908064-04	Carbon, Total Organic	CCV		Ground Water	25.23 mg/L	10 mL	25.2 mg/L	1			101		6/12/19 01:54:00	N	III
KQ1908064-05	Carbon, Total Organic	CCB		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/11/19 13:35:00	N	III
KQ1908064-06	Carbon, Total Organic	CCB		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/11/19 17:39:00	N	III
KQ1908064-07	Carbon, Total Organic	CCB		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/11/19 22:49:00	N	III
KQ1908064-08	Carbon, Total Organic	CCB		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/12/19 02:08:00	N	III
KQ1908064-09	Carbon, Total Organic	MB		Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/11/19 23:04:00	N	III
KQ1908064-10	Carbon, Total Organic	LCS		Ground Water	25.08 mg/L	10 mL	25.1 mg/L	1	0.07	0.50	100		6/11/19 23:18:00	N	III
KQ1908064-11	Carbon, Total Organic	DUP	K1905278-001	Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/11/19 16:41:00	N	III

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 638817 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ1908064-12	Carbon, Total Organic	MS	K1905278-001	Ground Water	25.08 mg/L	10 mL	25.1 mg/L	1	0.07	0.50	100		6/11/19 17:10:00	N	III
KQ1908064-13	Carbon, Total Organic	DUP	K1905278-002	Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/11/19 17:54:00	N	III
KQ1908064-14	Carbon, Total Organic	DUP	K1905278-003	Ground Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/11/19 18:22:00	N	III
KQ1908064-15	Carbon, Total Organic	DUP	K1905279-001	Ground Water	0.55 mg/L	10 mL	0.55 mg/L	1	0.07	0.50		11*	6/11/19 18:50:00	N	III
KQ1908064-16	Carbon, Total Organic	DUP	K1905305-001	Water	5.61 mg/L	10 mL	5.61 mg/L	1	0.07	0.50		1	6/11/19 19:18:00	N	II
KQ1908064-17	Carbon, Total Organic	DUP	K1905360-001	Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/11/19 19:46:00	N	III
KQ1908064-18	Carbon, Total Organic	DUP	K1905361-001	Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/11/19 20:14:00	N	III
KQ1908064-19	Carbon, Total Organic	DUP	K1905369-001	Water	5.20 mg/L	10 mL	10.4 mg/L	2	0.2	1.0		<1	6/11/19 20:42:00	N	I
KQ1908064-20	Carbon, Total Organic	DUP	K1905369-002	Water	13.23 mg/L	10 mL	13.2 mg/L	1	0.07	0.50		2	6/11/19 21:10:00	N	I
KQ1908064-21	Carbon, Total Organic	DUP	K1905369-003	Water	1.75 mg/L	10 mL	1.75 mg/L	1	0.07	0.50		1	6/11/19 21:38:00	N	I
KQ1908064-22	Carbon, Total Organic	DUP	K1905369-004	Water	9.13 mg/L	10 mL	18.3 mg/L	2	0.2	1.0		1	6/11/19 22:06:00	N	I
KQ1908064-23	Carbon, Total Organic	DUP	K1905369-005	Water	9.62 mg/L	10 mL	9.62 mg/L	1	0.07	0.50		4	6/11/19 23:33:00	N	I
KQ1908064-24	Carbon, Total Organic	DUP	K1905369-006	Water	13.51 mg/L	10 mL	27.0 mg/L	2	0.2	1.0		<1	6/12/19 00:01:00	N	I
KQ1908064-25	Carbon, Total Organic	DUP	K1905369-007	Water	26.81 mg/L	10 mL	53.6 mg/L	2	0.2	1.0		<1	6/12/19 00:29:00	N	I
KQ1908064-26	Carbon, Total Organic	DUP	K1905369-008	Water	9.35 mg/L	10 mL	18.7 mg/L	2	0.2	1.0		2	6/12/19 00:58:00	N	I
KQ1908064-27	Carbon, Total Organic	DUP	K1905369-009	Water	27.62 mg/L	10 mL	27.6 mg/L	1	0.07	0.50		<1	6/12/19 01:26:00	N	I

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

0.207	OBSERVATIONS 15	ABOVE
0.000	STD Deviation 0.05347	0
0.000	AVERAGE 0.01381	0
0.000	UCL 0.06728	0
0.000	LCL -0.03967	0
0.000		0
0.000		0
0.000	OBSERVATIONS 0	0
0.000	STD Deviation 0.00000	0
0.000	AVERAGE #DIV/0!	0
0.000	UCL #DIV/0!	0
0.000	LCL #DIV/0!	0
0.000		0
0.000		0
0.000	OBSERVATIONS 0	0
	STD Deviation 0.00000	0
	AVERAGE #DIV/0!	0
	UCL #DIV/0!	0
	LCL #DIV/0!	0
		0
		0
	OBSERVATIONS 0	0
	STD Deviation #DIV/0!	0
	AVERAGE #DIV/0!	0
		0
		0
		0
		0
		0

06/14/19

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
CBA	RB	1			0.0000	0	<0.5	
2	C] CCV 25 ppm [25 p	1	25.166	0.0138	25.1522	25.15219	25.2	6/10/2019
3	[TOC] CCB [0 ppm]	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/10/2019
4	MB1	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/10/2019
5	MB1d	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/10/2019
6	MB1t	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/10/2019
7	MB1q	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/10/2019
8	[TOC] LCS [24ppm]	1	24.636	0.0138	24.6226	24.62259	25	6/10/2019
9	[TOC] LCS [24ppm]d	1	24.757	0.0138	24.7428	24.74279	24.74	6/10/2019
10	[TOC] LCS [24ppm]t	1	25.110	0.0138	25.0962	25.09619	25.10	6/10/2019
11	[TOC] LCS [24ppm]q	1	24.975	0.0138	24.9613	24.96129	25.0	6/10/2019
12	K1905246-001	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/10/2019
13	K1905246-001d	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/10/2019
14	K1905246-001t	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/10/2019
15	K1905246-001q	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/10/2019
16	K1905246-003	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/10/2019
17	K1905246-003d	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/10/2019
18	K1905246-003t	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/10/2019
19	K1905246-003q	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/10/2019
20	K1905246-004	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/10/2019
21	K1905246-004d	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/10/2019
22	K1905246-004t	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/10/2019
23	K1905246-004q	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/10/2019
24	K1905246-004ms	1	25.447	0.0138	25.4335	25.43349	25.43	6/10/2019
25	K1905246-004msd	1	25.594	0.0138	25.5797	25.57969	25.58	6/10/2019

ICAL Date 10/20/16 ICAL ID#:11-GEN-05-51A

LCS =24.0 ppm APG 4013 Lot #010615 (REF# 11-GEN-05-50N)

CCV = 25.0 ppm (Ref.#11-GEN-05-52E)

Spike: 0.05 ml of 5000 ppm stock ----> 10.0 ml =25.0 ppm x Dilution Factor (Ref.# 11-GEN-05-51M)

	date	time
Analyzed By: KCP	Date Analyzed 6/10/19	
Reviewed By: [signature]	Date Reviewed 06/19/19	

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
26	K1905246-004	1	25.734	0.0138	25.7198	25.71979	25.72	6/10/2019
27	K1905246-004	1	25.764	0.0138	25.7504	25.75039	25.75	6/10/2019
28	K1905246-005	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/10/2019
29	K1905246-005d	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/10/2019
30	K1905246-005t	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/10/2019
31	K1905246-005q	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/10/2019
32	C] CCV 25 ppm [25 p	1	27.519	0.0138	27.5054	27.50539	27.5	6/10/2019
33	[TOC] CCB [0 ppm]	1	0.207	0.0138	0.1933	0.19329	<0.5	6/10/2019
34		1		0.0000	0.0000	0	<0.5	
35		1		0.0000	0.0000	0	<0.5	
36		1		0.0000	0.0000	0	<0.5	
37		1		0.0000	0.0000	0	<0.5	
38		1		0.0000	0.0000	0	<0.5	
39		1		0.0000	0.0000	0	<0.5	
40		1		0.0000	0.0000	0	<0.5	
41		1		0.0000	0.0000	0	<0.5	
42		1		0.0000	0.0000	0	<0.5	
43		1		0.0000	0.0000	0	<0.5	
44		1		0.0000	0.0000	0	<0.5	
45		1		0.0000	0.0000	0	<0.5	
46		1		0.0000	0.0000	0	<0.5	
47		1		0.0000	0.0000	0	<0.5	
48		1		0.0000	0.0000	0	<0.5	
49		1		0.0000	0.0000	0	<0.5	
50		1		0.0000	0.0000	0	<0.5	

Analyzed By: BLP	Date Analyzed 6/10/19
Reviewed By:	Date Reviewed 06/14/19

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
CBA	RB	1			0.0000	0	<0.5	
2	C] CCV 25 ppm [25 p	1	25.166	0.0138	25.1522	25.15219	25.2	6/10/2019
3	[TOC] CCB [0 ppm]	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/10/2019
4	K1905198-003	4	0.000	0.0138	-0.0138	-0.05524	<0.5	6/10/2019
5	K1905198-003d	4	0.000	0.0138	-0.0138	-0.05524	<0.5	6/10/2019
6	C] CCV 25 ppm [25 p	1	27.519	0.0138	27.5054	27.50539	27.51	6/10/2019
7	[TOC] CCB [0 ppm]	1	0.207	0.0138	0.1933	0.19329	<0.5	6/10/2019
8	K1905198-004	1	1.560	0.0138	1.5457	1.54569	2	6/10/2019
9	K1905198-004d	1	1.296	0.0138	1.2820	1.28199	1.28	6/10/2019
10	K1905198-005	2	47.316	0.0138	47.3022	94.60438	94.60	6/10/2019
11	K1905198-005d	2	47.104	0.0138	47.0906	94.18118	94.2	6/10/2019
12	K1905258-001	10	6.622	0.0138	6.6084	66.0839	66.08	6/11/2019
13	K1905258-001d	10	6.531	0.0138	6.5170	65.1699	65.17	6/11/2019
14	K1905258-002	10	30.649	0.0138	30.6355	306.3549	306.35	6/11/2019
15	K1905258-002d	10	30.260	0.0138	30.2457	302.4569	302.5	6/11/2019
16	K1905258-003	1	12.874	0.0138	12.8601	12.86009	12.9	6/11/2019
17	K1905258-003d	1	12.994	0.0138	12.9801	12.98009	12.98	6/11/2019
18	K1905258-004	1	4.703	0.0138	4.6889	4.68889	4.7	6/11/2019
19	K1905258-004d	1	4.518	0.0138	4.5042	4.50419	4.5	6/11/2019
20	K1905258-005	1	4.124	0.0138	4.1104	4.11039	4.11	6/11/2019
21	K1905258-005d	1	4.170	0.0138	4.1565	4.15649	4.16	6/11/2019
22	C] CCV 25 ppm [25 p	1	24.924	0.0138	24.9103	24.91029	24.9	6/11/2019
23	[TOC] CCB [0 ppm]	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
24	MB2	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
25	[TOC] LCS [24ppm]	1	25.379	0.0138	25.3648	25.36479	25.36	6/11/2019

ICAL Date 10/20/16 ICAL ID#:11-GEN-05-51A

LCS =24.0 ppm APG 4013 Lot #010615 (REF# 11-GEN-05-50N)

CCV = 25.0 ppm (Ref.#11-GEN-05-52E)

Spike: 0.05 ml of 5000 ppm stock ----> 10.0 ml =25.0 ppm x Dilution Factor (Ref.# 11-GEN-05-51M)

		date time
Analyzed By: BP	Date Analyzed	6/10/19
Reviewed By:	Date Reviewed	06/14/19

Revision 1, 2010 R:\WET\ANALYSES\TOC\TEMPLATE\TOCwaterLIMS

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
26	K1905258-006	5	63.641	0.0138	63.6273	318.13645	318.14	6/11/2019
27	K1905258-006d	5	63.117	0.0138	63.1030	315.51495	315.51	6/11/2019
28	K1905259-001	1	2.937	0.0138	2.9230	2.92299	2.9	6/11/2019
29	K1905259-001d	1	2.615	0.0138	2.6010	2.60099	2.6	6/11/2019
30	K1905338-001	1	1.671	0.0138	1.6567	1.65669	1.7	6/11/2019
31	K1905338-001d	1	1.650	0.0138	1.6360	1.63599	1.6	6/11/2019
32	K1905084-004	100	7.870	0.0138	7.8565	785.649	785.6	6/11/2019
33	K1905084-004d	100	7.963	0.0138	7.9490	794.899	794.9	6/11/2019
34	K1905084-005	100	6.537	0.0138	6.5231	652.309	652.3	6/11/2019
35	K1905084-005d	100	6.472	0.0138	6.4586	645.859	645.9	6/11/2019
36	K1905298-001	1	0.135	0.0138	0.1211	0.12109	<0.5	6/11/2019
37	K1905298-001d	1	0.067	0.0138	0.0532	0.05319	<0.5	6/11/2019
38	K1905126-001	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
39	K1905126-001d	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
40	K1905126-002	1	0.140	0.0138	0.1264	0.12639	<0.5	6/11/2019
41	K1905126-002d	1	0.190	0.0138	0.1762	0.17619	<0.5	6/11/2019
42	C] CCV 25 ppm [25 p	1	24.876	0.0138	24.8620	24.86199	24.9	6/11/2019
43	[TOC] CCB [0 ppm]	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
44	K1905126-002ms	1	25.907	0.0138	25.8933	25.89329	25.9	6/11/2019
45	K1905126-003	1	0.280	0.0138	0.2660	0.26599	<0.5	6/11/2019
46	K1905126-003d	1	0.262	0.0138	0.2481	0.24809	<0.5	6/11/2019
47	K1905126-004	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
48	K1905126-004d	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
49	C] CCV 25 ppm [25 p	1	24.628	0.0138	24.6141	24.61409	24.6	6/11/2019
50	[TOC] CCB [0 ppm]	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019

Analyzed By: BCD	Date Analyzed 6/19/19
Reviewed By:	Date Reviewed 06/18 14/19 TH

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
CBA	RB	1			0.0000	0	<0.5	
2	C] CCV 25 ppm [25 p	1	24.876	0.0138	24.8620	24.86199	24.9	6/11/2019
3	[TOC] CCB [0 ppm]	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
4	K1905126-005	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
5	K1905126-005d	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
6	K1905126-006	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
7	K1905126-006d	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
8	K1905126-007	1	0.085	0.0138	0.0711	0.07109	<0.5	6/11/2019
9	K1905126-007d	1	0.023	0.0138	0.0095	0.00949	<0.5	6/11/2019
10	K1905126-008	1	0.314	0.0138	0.3000	0.29999	<0.5	6/11/2019
11	K1905126-008d	1	0.339	0.0138	0.3252	0.32519	<0.5	6/11/2019
12	K1905126-009	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
13	K1905126-009d	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
14	K1905262-001	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
15	K1905262-001d	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
16	C] CCV 25 ppm [25 p	1	24.628	0.0138	24.6141	24.61409	24.6	6/11/2019
17	[TOC] CCB [0 ppm]	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
18	MB3	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
19	[TOC] LCS [25ppm]	1	25.069	0.0138	25.0556	25.05559	25.1	6/11/2019
20	K1905262-002	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
21	K1905262-002d	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
22	K1905277-001	1	0.344	0.0138	0.3302	0.33019	<0.5	6/11/2019
23	K1905277-001d	1	0.315	0.0138	0.3010	0.30099	<0.5	6/11/2019
24	K1905277-001ms	1	25.866	0.0138	25.8518	25.85179	25.85	6/11/2019
25	K1905277-002	1	0.375	0.0138	0.3611	0.36109	<0.5	6/11/2019

ICAL Date 10/20/16 ICAL ID#:11-GEN-05-51A

LCS =24.0 ppm APG 4013 Lot #010615 (REF# 11-GEN-05-50N)

CCV = 25.0 ppm (Ref.#11-GEN-05-52E)

Spike: 0.05 ml of 5000 ppm stock ----> 10.0 ml =25.0 ppm x Dilution Factor (Ref.# 11-GEN-05-51M)

		date	time
Analyzed By: BLD		Date Analyzed 6/10/19	
Reviewed By:		Date Reviewed 06/14/19	

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
26	K1905277-002d	1	0.333	0.0138	0.3193	0.31929	<0.5	6/11/2019
27	K1905277-003	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
28	K1905277-003d	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
29	C] CCV 25 ppm [25 p	1	24.708	0.0138	24.6941	24.69409	24.7	6/11/2019
30	[TOC] CCB [0 ppm]	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
31		1		0.0000	0.0000	0	<0.5	
32		1		0.0000	0.0000	0	<0.5	
33		1		0.0000	0.0000	0	<0.5	
34		1		0.0000	0.0000	0	<0.5	
35		1		0.0000	0.0000	0	<0.5	
36		1		0.0000	0.0000	0	<0.5	
37		1		0.0000	0.0000	0	<0.5	
38		1		0.0000	0.0000	0	<0.5	
39		1		0.0000	0.0000	0	<0.5	
40		1		0.0000	0.0000	0	<0.5	
41		1		0.0000	0.0000	0	<0.5	
42		1		0.0000	0.0000	0	<0.5	
43		1		0.0000	0.0000	0	<0.5	
44		1		0.0000	0.0000	0	<0.5	
45		1		0.0000	0.0000	0	<0.5	
46		1		0.0000	0.0000	0	<0.5	
47		1		0.0000	0.0000	0	<0.5	
48		1		0.0000	0.0000	0	<0.5	
49		1		0.0000	0.0000	0	<0.5	
50		1		0.0000	0.0000	0	<0.5	

Analyzed By:	BD	Date Analyzed	6/10/19
Reviewed By:		Date Reviewed	6/14/19

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
CBA	RB	1			0.0000	0	<0.5	
2	C] CCV 25 ppm [25 p	1	24.628	0.0138	24.6141	24.61409	24.6	6/11/2019
3	[TOC] CCB [0 ppm]	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
4	K1905278-001	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
5	K1905278-001d	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
6	K1905278-001ms	1	25.097	0.0138	25.0836	25.08359	25.08	6/11/2019
7	C] CCV 25 ppm [25 p	1	24.708	0.0138	24.6941	24.69409	24.7	6/11/2019
8	[TOC] CCB [0 ppm]	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
9	K1905278-002	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
10	K1905278-002d	1	0.009	0.0138	-0.0050	-0.00501	<0.5	6/11/2019
11	K1905278-003	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
12	K1905278-003d	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
13	K1905279-001	1	0.506	0.0138	0.4918	0.49179	<0.5	6/11/2019
14	K1905279-001d	1	0.561	0.0138	0.5475	0.54749	0.55	6/11/2019
15	K1905305-001	1	5.683	0.0138	5.6692	5.66919	5.7	6/11/2019
16	K1905305-001d	1	5.625	0.0138	5.6109	5.61089	5.6	6/11/2019
17	K1905360-001	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
18	K1905360-001d	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
19	K1905361-001	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
20	K1905361-001d	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
21	K1905369-001	2	5.225	0.0138	5.2116	10.42318	10.42	6/11/2019
22	K1905369-001d	2	5.217	0.0138	5.2032	10.40638	10.4	6/11/2019
23	K1905369-002	1	13.506	0.0138	13.4921	13.49209	13.5	6/11/2019
24	K1905369-002d	1	13.245	0.0138	13.2307	13.23069	13.23	6/11/2019
25	K1905369-003	1	1.788	0.0138	1.7744	1.77439	1.77	6/11/2019

ICAL Date 10/20/16 ICAL ID#:11-GEN-05-51A

LCS =24.0 ppm APG 4013 Lot #010615 (REF# 11-GEN-05-50N)

CCV = 25.0 ppm (Ref.#11-GEN-05-52E)

Spike: 0.05 ml of 5000 ppm stock ----> 10.0 ml =25.0 ppm x Dilution Factor (Ref.# 11-GEN-05-51M)

		date	time
Analyzed By: BCB	Date Analyzed	6/10/19	
Reviewed By: [signature]	Date Reviewed	06/14/19	

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
26	K1905369-003d	1	1.767	0.0138	1.7527	1.75269	1.75	6/11/2019
27	K1905369-004	2	9.272	0.0138	9.2581	18.51618	18.52	6/11/2019
28	K1905369-004d	2	9.143	0.0138	9.1287	18.25738	18.3	6/11/2019
29	C] CCV 25 ppm [25 p	1	24.605	0.0138	24.5909	24.59089	24.6	6/11/2019
30	[TOC] CCB [0 ppm]	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
31	MB4	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/11/2019
32	[TOC] LCS [25ppm]	1	25.095	0.0138	25.0808	25.08079	25.1	6/11/2019
33	K1905369-005	1	10.033	0.0138	10.0194	10.01939	10.0	6/11/2019
34	K1905369-005d	1	9.637	0.0138	9.6227	9.62269	9.6	6/11/2019
35	K1905369-006	2	13.541	0.0138	13.5276	27.05518	27.1	6/12/2019
36	K1905369-006d	2	13.525	0.0138	13.5114	27.02278	27.0	6/12/2019
37	K1905369-007	2	27.089	0.0138	27.0756	54.15118	54.2	6/12/2019
38	K1905369-007d	2	26.827	0.0138	26.8130	53.62598	53.6	6/12/2019
39	K1905369-008	2	9.595	0.0138	9.5814	19.16278	19.2	6/12/2019
40	K1905369-008d	2	9.361	0.0138	9.3469	18.69378	18.7	6/12/2019
41	K1905369-009	1	27.755	0.0138	27.7409	27.74089	27.7	6/12/2019
42	K1905369-009d	1	27.636	0.0138	27.6218	27.62179	27.6	6/12/2019
43	C] CCV 25 ppm [25 p	1	25.243	0.0138	25.2287	25.22869	25.2	6/12/2019
44	[TOC] CCB [0 ppm]	1	0.000	0.0138	-0.0138	-0.01381	<0.5	6/12/2019
45		1		0.0000	0.0000	0	<0.5	
46		1		0.0000	0.0000	0	<0.5	
47		1		0.0000	0.0000	0	<0.5	
48		1		0.0000	0.0000	0	<0.5	
49		1		0.0000	0.0000	0	<0.5	
50		1		0.0000	0.0000	0	<0.5	

Analyzed By: BCD	Date Analyzed 6/10/19
Reviewed By: [signature]	Date Reviewed 06/14/19

TOC: 638808, 638810, 638815, 638817

Schedule: 06102019

Version: 8
Instrument: Fusion1
Last Saved by: Fusion1 (Fusion1)
Last Saved on: 2019/06/10 14:58 - Monday

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
(Clean)	Clean	Clean		1	True	Ready
(Clean)	Clean	Clean		1	True	Ready
(Clean)	Clean	Clean		1	True	Ready
(Blank)	Blank	Reagent/Acid Blank		1	True	Ready
D	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
1	Sample	MB1	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
C	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
2	Sample	ICS	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
3	Sample	K1905246-001.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
4	Sample	K1905246-003.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
5	Sample	K1905246-004.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
6	Sample	K1905246-004.08 ms	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
7	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
8	Sample	K1905246-005.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
9	Sample	K1905198-003.01 4x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
10	Sample	K1905198-004.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
11	Sample	K1905198-005.01 2x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
12	Sample	K1905258-001.01 5x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
13	Sample	K1905258-001.01 10x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
14	Sample	K1905258-002.01 5x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
15	Sample	K1905258-002.01 10x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
16	Sample	K1905258-002.01 20x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
17	Sample	K1905258-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
18	Sample	K1905258-004.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
19	Sample	K1905258-005.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
20	Sample	MB2	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
21	Sample	K1905258-006.01 5x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
22	Sample	K1905259-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
23	Sample	K1905338-001.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
24	Sample	K1905084-004.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
25	Sample	K1905084-005.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
26	Sample	K1905298-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
27	Sample	K1905126-001.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
28	Sample	K1905126-002.10	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
29	Sample	K1905126-002.10 ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
30	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
31	Sample	K1905126-003.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
32	Sample	K1905126-004.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
33	Sample	K1905126-005.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
34	Sample	K1905126-006.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
35	Sample	K1905126-007.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
36	Sample	K1905126-008.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
37	Sample	K1905126-009.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
38	Sample	K1905262-001.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready

06/14/19

Schedule: 06102019

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
39	Sample	MB3	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [25.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
40	Sample	K1905262-002.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
41	Sample	K1905277-001.07	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
42	Sample	K1905277-001.07 ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
43	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
44	Sample	K1905277-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
45	Sample	K1905277-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
46	Sample	K1905278-001.10	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
47	Sample	K1905278-001.10 ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
48	Sample	K1905278-002.04	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
49	Sample	K1905278-003.04	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
50	Sample	K1905279-001.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
51	Sample	K1905305-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
52	Sample	K1905360-001.04	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
53	Sample	K1905361-001.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
54	Sample	K1905369-001.02 2x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
55	Sample	K1905369-002.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
56	Sample	K1905369-003.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
57	Sample	K1905369-004.02 2x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
58	Sample	MB4	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [25.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
59	Sample	K1905369-005.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
60	Sample	K1905369-006.02 2x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
61	Sample	K1905369-007.02 2x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
62	Sample	K1905369-008.02 2x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
63	Sample	K1905369-009.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
					False	

Fusion Report - 06102019
Monday, June 10, 2019 11:35 AM

(View - Reps, Unused Reps, Meta-Data, Signature, History)
Printed on 2019/06/12 09:06 - Wednesday

Report Summary Information

Company Location:	Gen Chem Lab
Schedule Name:	06102019
Instrument Name:	Fusion1
Report Version:	1 of 1
Report Creation by Operators (schedule version):	Fusion1 (Fusion1) (v2) Fusion1 (Fusion1) (v3) Fusion1 (Fusion1) (v4) Fusion1 (Fusion1) (v5) Fusion1 (Fusion1) (v6) Fusion1 (Fusion1) (v7) Fusion1 (Fusion1) (v8)
Comment:	

Engine Version:	1.1.5.1
Firmware Version:	1.2.0696
Connection:	RS232 COM1

06/14/19

Report Results

Sample Type: Clean — From Schedule Version 2

	Pos	Analysis Type	Sample ID	Start Time
◈	(clean)		Clean	2019/06/10 11:35

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	13.10	19.05	5.96	49.89	08:00
2	TC Clean	10.04	13.22	3.18	49.69	07:17
3	TC Clean	2.58	5.76	3.18	49.62	07:02
4	TC Clean	1.54	4.74	3.19	49.82	07:02

Sample Type: Clean — From Schedule Version 3

	Pos	Analysis Type	Sample ID	Start Time
◈	(clean)		Clean	2019/06/10 12:10

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	12.40	15.52	3.12	49.83	07:59

2	TC Clean	4.03	7.15	3.12	49.77	07:17
3	TC Clean	1.73	4.78	3.05	49.80	07:02
4	TC Clean	1.09	4.26	3.17	49.70	07:01

Sample Type: Clean — From Schedule Version 4

	Pos	Analysis Type	Sample ID	Start Time
◈	(clean)		Clean	2019/06/10 12:44

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	0.96	3.91	2.95	49.91	07:58
2	TC Clean	3.32	6.45	3.13	49.77	07:17
3	TC Clean	1.69	4.71	3.02	49.76	07:02
4	TC Clean	1.63	4.45	2.82	49.80	07:03

Sample Type: Blank (Creating v1265) — From Schedule Version 5

	Pos	Analysis Type	Sample ID	Start Time
◈	(blank)		Reagent/Acid Blank	2019/06/10 13:42

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	9.85	12.74	2.90	49.71	05:29
2	TC Clean	4.64	7.74	3.11	49.84	07:16
3	TC Clean	1.95	4.81	2.86	49.87	07:01
4	TC Clean	1.13	4.26	3.13	49.92	07:01
5	Reagent Blank	3.40	6.47	3.07	49.91	08:12
6	Acid Blank	1.23	4.37	3.15	49.64	05:26

Sample Type: Sample — From Schedule Version 6

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	D	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/10 14:29

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	8.17	11.31	3.15	50.09	10:33

Dilution **Blank Contribution** **Method** **Calibration**

1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	25.1660 ppm (PASS)	0.0000 ppm	0%	2019/06/10 14:47

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.1660	251.6603	180.29	183.46	3.17	50.15	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/06/10 15:02

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	6.10	9.37	3.28	50.13	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample — From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	1	TOC	MB1	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/10 15:16

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.40	8.57	3.16	50.26	10:29
2	TOC	0.0000	0.0000	5.08	8.36	3.28	50.19	10:25
3	TOC	0.0000	0.0000	5.33	8.40	3.07	50.22	10:30
4	TOC	0.0000	0.0000	5.16	8.35	3.19	50.30	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> LCS

From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	C	TOC	25.0000	1:1	[TOC] LCS [24.0 ppm]	0 / infinity (NA / NA)	24.8695 ppm (PASS)	0.2130 ppm	0.86%	2019/06/10 16:12

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	24.6364	246.3641	176.69	179.76	3.07	50.27	10:25
C	TOC	25.0 ppm	2	24.7566	247.5663	177.51	180.80	3.29	50.27	10:26
C	TOC	25.0 ppm	3	25.1100	251.1005	179.91	183.15	3.25	50.32	10:32
C	TOC	25.0 ppm	4	24.9751	249.7510	178.99	182.08	3.09	50.33	10:26

Completion State: Success - Criteria met.

Success Action: Do Nothing

Method: CAS_salt_010711 (v4)

Calibration: CAS_salt_010711 (v30)

STD Conc - Pos C: 25 ppmC

Sample Type: Sample

From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	2	TOC	ICS	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/10 17:08

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.78	10.84	3.05	50.31	10:29

Dilution: 1:10

Blank Contribution: (TC) 8.7430 (IC) (v1265)

Method: CAS_salt_010711 (v4)

Calibration: CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	3	TOC	K1905246-001.08	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/10 17:23

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.88	9.87	2.99	50.34	10:30
2	TOC	0.0000	0.0000	6.85	9.83	2.98	50.34	10:24
3	TOC	0.0000	0.0000	7.00	9.95	2.96	50.22	10:31
4	TOC	0.0000	0.0000	6.68	9.85	3.17	50.20	10:26

Dilution: 1:10

Blank Contribution: (TC) 8.7430 (IC) (v1265)

Method: CAS_salt_010711 (v4)

Calibration: CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	4	TOC	K1905246-003.08	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/10 18:18

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.81	10.84	3.03	50.19	10:25
2	TOC	0.0000	0.0000	7.77	11.00	3.23	50.18	10:30

3	TOC	0.0000	0.0000	7.38	10.64	3.26	50.24	10:27
4	TOC	0.0000	0.0000	7.53	10.65	3.12	50.25	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	5	TOC	K1905246-004.08	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/10 19:14

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.37	9.43	3.07	50.18	10:27
2	TOC	0.0000	0.0000	6.56	9.77	3.21	50.20	10:26
3	TOC	0.0000	0.0000	5.94	9.20	3.25	50.20	10:27
4	TOC	0.0000	0.0000	6.33	9.39	3.06	50.18	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	6	TOC	K1905246-004.08 ms	25.6346 ppm	0.1453 ppm	0.5700%	2019/06/10 20:10

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	25.4473	254.4733	181.48	184.54	3.06	50.12	10:27
2	TOC	25.5935	255.9347	182.47	185.60	3.13	50.10	10:29
3	TOC	25.7336	257.3357	183.42	186.56	3.14	50.14	10:27
4	TOC	25.7642	257.6421	183.63	186.71	3.08	50.06	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	7	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/10 21:05

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.17	9.16	2.99	50.09	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	8	TOC	K1905246-005.08	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/10 21:20

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.16	10.27	3.10	50.11	10:27
2	TOC	0.0000	0.0000	7.54	10.56	3.02	50.18	10:30
3	TOC	0.0000	0.0000	7.57	10.61	3.04	50.11	10:29

4	TOC	0.0000	0.0000	7.27	10.27	3.00	50.07	10:26

Dilution 1:10 | **Blank Contribution** (TC) 8.7430 (IC) (v1265) | **Method** CAS_salt_010711 (v4) | **Calibration** CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	9	TOC	K1905198-003.01 4x	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/10 22:15

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	-42248.80	-42245.72	3.08	50.08	10:28
2	TOC	0.0000	0.0000	-15736.81	-15732.85	3.96	50.00	10:29

Dilution 1:10 | **Blank Contribution** (TC) 8.7430 (IC) (v1265) | **Method** CAS_salt_010711 (v4) | **Calibration** CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	27.5192 ppm (PASS)	0.0000 ppm	0%	2019/06/10 22:43

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	27.5192	275.1917	196.26	200.18	3.92	50.00	10:33

Completion State Success - Criteria met. | **Success Action** Do Nothing | **Method** CAS_salt_010711 (v4) | **Calibration** CAS_salt_010711 (v30) | **STD Conc - Pos B** 50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.2071 ppm (PASS)	0.0000 ppm	0%	2019/06/10 22:58

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.2071	2.0706	10.87	14.15	3.28	50.01	10:33

Completion State Success - Criteria met. | **Success Action** Do Nothing | **Method** CAS_salt_010711 (v4) | **Calibration** CAS_salt_010711 (v30) | **STD Conc - Pos D** 0 ppmC

Sample Type: Sample — From Schedule Version 8

		Analysis			Std. Dev.		

	Pos	Type	Sample ID	Result (ppmC)	(ppmC)	RSD	Start Time
◈	10	TOC	K1905198-004.01	1.4277 ppm	0.1865 ppm	13.0600%	2019/06/10 23:13

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.5595	15.5952	19.33	22.57	3.24	50.12	10:29
2	TOC	1.2958	12.9582	17.54	20.47	2.93	50.01	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	11	TOC	K1905198-005.01 2x	47.2102 ppm	0.1496 ppm	0.3200%	2019/06/10 23:41

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	47.3160	473.1596	329.92	333.00	3.08	50.05	10:27
2	TOC	47.1044	471.0441	328.48	331.58	3.10	50.15	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	12	TOC	K1905258-001.01 5x	13.9756 ppm	0.3591 ppm	2.5700%	2019/06/11 00:09

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	14.2295	142.2949	105.33	108.53	3.20	50.02	10:28
2	TOC	13.7217	137.2168	101.88	105.03	3.15	50.09	10:25

NR, using other dilution BEP 6/14/19

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	13	TOC	K1905258-001.01 10x	6.5765 ppm	0.0646 ppm	0.9800%	2019/06/11 00:37

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	6.6222	66.2218	53.69	57.01	3.31	50.05	10:30
2	TOC	6.5308	65.3084	53.07	56.35	3.28	50.06	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	14	TOC	K1905258-002.01 5x	52.5986 ppm	0.3332 ppm	0.6300%	2019/06/11 01:05

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	52.3630	523.6300	364.18	367.44	3.26	50.11	10:29
2	TOC	52.8343	528.3428	367.38	370.92	3.54	50.05	10:27

NR, using other dilution BEP 6/14/19

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	15	TOC	K1905258-002.01 10x	30.4544 ppm	0.2756 ppm	0.9100%	2019/06/11 01:33

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	30.6493	306.4935	216.79	220.32	3.53	50.12	10:28
2	TOC	30.2595	302.5954	214.14	217.47	3.33	50.04	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	16	TOC	K1905258-002.01 20x	15.5532 ppm	0.1910 ppm	1.2300%	2019/06/11 02:02

NR using other dilution

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	15.6883	156.8826	115.23	118.48	3.25	49.98	10:32
2	TOC	15.4181	154.1807	113.40	116.42	3.02	50.07	10:30

BCD 6/13/19

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	17	TOC	K1905258-003.01	12.9339 ppm	0.0849 ppm	0.6600%	2019/06/11 02:30

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	12.8739	128.7385	96.13	99.19	3.06	49.97	10:32
2	TOC	12.9939	129.9392	96.94	100.08	3.13	49.93	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	18	TOC	K1905258-004.01	4.6104 ppm	0.1306 ppm	2.8300%	2019/06/11 02:58

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.7027	47.0275	40.66	43.80	3.13	49.99	10:32
2	TOC	4.5180	45.1801	39.41	42.59	3.17	49.89	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	19	TOC	K1905258-005.01	4.1473 ppm	0.0326 ppm	0.7900%	2019/06/11 03:26

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.1242	41.2422	36.74	39.97	3.24	49.96	10:27
2	TOC	4.1703	41.7033	37.05	40.04	2.99	49.88	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.9241 ppm (PASS)	0.0000 ppm	0%	2019/06/11 03:54

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.9241	249.2413	178.65	181.87	3.23	49.88	10:28

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/06/11 04:09

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	6.93	10.05	3.12	49.87	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample — From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	20	TOC	MB2	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/11 04:24

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.44	8.60	3.16	49.87	10:34

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC)	CAS_salt_010711	CAS_salt_010711

(v1265) (v4) (v30)

Sample Type: Check Standard --> LCS

From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	C	TOC	25.0000	1:1	[TOC] LCS [24.0 ppm]	0 / infinity (NA / NA)	25.3786 ppm (PASS)	0.0000 ppm	0%	2019/06/11 04:38

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	25.3786	253.7861	181.73	185.02	3.29	49.87	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	25 ppmC

Sample Type: Sample

From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	21	TOC	K1905258-006.01 5x	63.3789 ppm	0.3707 ppm	0.5800%	2019/06/11 04:53

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	63.6411	636.4109	440.73	443.84	3.10	49.87	10:29
2	TOC	63.1168	631.1678	437.18	440.33	3.16	49.86	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	22	TOC	K1905259-001.01	2.7758 ppm	0.2277 ppm	8.2000%	2019/06/11 05:21

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.9368	29.3682	28.68	31.83	3.15	49.89	10:28
2	TOC	2.6148	26.1478	26.49	29.47	2.97	49.91	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	23	TOC	K1905338-001.02	1.6601 ppm	0.0146 ppm	0.8800%	2019/06/11 05:49

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.6705	16.7046	20.08	23.26	3.17	49.90	10:29
2	TOC	1.6498	16.4983	19.94	23.11	3.17	49.90	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	24	TOC	K1905084-004.01 100x	7.9165 ppm	0.0654 ppm	0.8300%	2019/06/11 06:17

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	7.8703	78.7027	62.17	65.29	3.13	49.92	10:26
2	TOC	7.9628	79.6279	62.79	65.86	3.06	49.90	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	25	TOC	K1905084-005.01 100x	6.5046 ppm	0.0456 ppm	0.7000%	2019/06/11 06:45

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	6.5369	65.3688	53.12	56.34	3.23	49.91	10:29
2	TOC	6.4724	64.7235	52.68	55.85	3.17	49.89	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	26	TOC	K1905298-001.01	0.1010 ppm	0.0480 ppm	47.5600%	2019/06/11 07:13

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1349	1.3494	9.66	12.79	3.13	49.88	10:29
2	TOC	0.0670	0.6702	9.20	12.36	3.16	49.86	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	27	TOC	K1905126-001.02	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/11 07:41

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.52	10.68	3.17	49.88	10:26
2	TOC	0.0000	0.0000	7.37	10.62	3.25	49.79	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	28	TOC	K1905126-002.10	0.1651 ppm	0.0352 ppm	21.3200%	2019/06/11 08:09

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1402	1.4024	9.70	12.66	2.97	49.76	10:25
2	TOC	0.1900	1.9004	10.03	13.12	3.09	49.72	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.8758 ppm (PASS)	0.0000 ppm	0%	2019/06/11 08:37

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.8758	248.7581	178.32	181.28	2.96	49.78	10:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/06/11 08:52

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	5.34	8.50	3.16	49.80	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample — From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	29	TOC	K1905126-002.10 ms	25.9071 ppm	0.0000 ppm	0.0000%	2019/06/11 09:07

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	25.9071	259.0711	184.60	187.66	3.06	49.82	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC)	CAS_salt_010711	CAS_salt_010711

(v1265) (v4) (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◉	30	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/11 09:21

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.60	8.68	3.08	49.73	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◉	31	TOC	K1905126-003.02	0.2708 ppm	0.0126 ppm	4.6500%	2019/06/11 09:36

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.2798	2.7975	10.64	13.76	3.11	49.80	10:25
2	TOC	0.2619	2.6193	10.52	13.75	3.23	50.09	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◉	32	TOC	K1905126-004.02	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/11 10:04

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.77	9.83	3.06	50.02	10:27
2	TOC	0.0000	0.0000	6.91	10.04	3.13	50.08	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◉	33	TOC	K1905126-005.02	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/11 10:32

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.11	10.12	3.01	50.09	10:28
2	TOC	0.0000	0.0000	7.04	10.12	3.08	50.06	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◉	34	TOC	K1905126-006.02	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/11 11:00

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time

1	TOC	0.0000	0.0000	6.72	9.66	2.95	50.15	10:28
2	TOC	0.0000	0.0000	6.57	9.54	2.97	50.15	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	35	TOC	K1905126-007.02	0.0541 ppm	0.0435 ppm	80.5500%	2019/06/11 11:28

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0849	0.8485	9.32	12.30	2.99	50.12	10:26
2	TOC	0.0233	0.2327	8.90	11.94	3.04	50.12	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	36	TOC	K1905126-008.02	0.3264 ppm	0.0178 ppm	5.4600%	2019/06/11 11:56

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.3138	3.1379	10.87	13.83	2.96	50.14	10:27
2	TOC	0.3390	3.3898	11.04	13.97	2.93	50.14	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	37	TOC	K1905126-009.02	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/11 12:24

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.58	9.74	3.16	50.11	10:29
2	TOC	0.0000	0.0000	7.04	9.97	2.93	50.09	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	38	TOC	K1905262-001.02	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/11 12:53

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.96	9.96	3.00	50.07	10:28
2	TOC	0.0000	0.0000	7.17	10.25	3.08	50.19	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.6279 ppm (PASS)	0.0000 ppm	0%	2019/06/11 13:21

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.6279	246.2787	176.64	179.77	3.13	50.13	10:34

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/06/11 13:35

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	5.08	8.29	3.21	50.13	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample — From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	39	TOC	MB3	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/11 13:50

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	4.60	7.58	2.97	50.20	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> LCS — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	C	TOC	25.0000	1:1	[TOC] LCS [25.0 ppm]	0 / infinity (NA / NA)	25.0694 ppm (PASS)	0.0000 ppm	0%	2019/06/11 14:05

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	25.0694	250.6939	179.63	182.89	3.25	50.13	10:28

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	25 ppmC

Sample Type: Sample From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	40	TOC	K1905262-002.02	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/11 14:19

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.44	10.67	3.23	50.15	10:28
2	TOC	0.0000	0.0000	6.64	9.86	3.22	50.26	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	41	TOC	K1905277-001.07	0.3294 ppm	0.0206 ppm	6.2600%	2019/06/11 14:48

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.3440	3.4399	11.08	14.27	3.19	50.25	10:27
2	TOC	0.3148	3.1482	10.88	14.02	3.14	50.23	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	42	TOC	K1905277-001.07 ms	25.8656 ppm	0.0000 ppm	0.0000%	2019/06/11 15:16

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	25.8656	258.6557	184.32	187.54	3.22	50.18	10:34

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	43	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/11 15:31

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.11	8.29	3.18	50.20	10:34

Dilution	Blank Contribution	Method	Calibration

1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	44	TOC	K1905277-002.01	0.3540 ppm	0.0296 ppm	8.3600%	2019/06/11 15:45

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.3749	3.7492	11.29	14.27	2.98	50.20	10:28
2	TOC	0.3331	3.3308	11.00	14.29	3.28	50.24	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	45	TOC	K1905277-003.01	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/11 16:13

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.55	8.75	3.20	50.22	10:28
2	TOC	0.0000	0.0000	5.35	8.66	3.30	50.24	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	46	TOC	K1905278-001.10	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/11 16:41

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.70	10.85	3.15	50.27	10:29
2	TOC	0.0000	0.0000	7.96	10.95	2.99	50.28	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	47	TOC	K1905278-001.10 ms	25.0974 ppm	0.0000 ppm	0.0000%	2019/06/11 17:10

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	25.0974	250.9744	179.10	182.07	2.97	50.26	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time

◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.7079 ppm (PASS)	0.0000 ppm	0%	2019/06/11 17:24

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.7079	247.0786	177.18	180.31	3.13	50.26	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/06/11 17:39

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	4.96	8.18	3.22	50.27	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample — From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	48	TOC	K1905278-002.04	0.0044 ppm	0.0062 ppm	141.4200%	2019/06/11 17:54

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	8.50	11.63	3.13	50.27	10:29
2	TOC	0.0088	0.0883	8.80	11.88	3.08	50.29	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	49	TOC	K1905278-003.04	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/11 18:22

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.59	8.67	3.08	50.30	10:28
2	TOC	0.0000	0.0000	5.15	8.27	3.12	50.23	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	50	TOC	K1905279-001.02	0.5334 ppm	0.0394 ppm	7.3800%	2019/06/11 18:50

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5056	5.0560	12.18	15.23	3.05	50.16	10:26
2	TOC	0.5613	5.6128	12.55	15.66	3.11	50.22	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	51	TOC	K1905305-001.01	5.6538 ppm	0.0413 ppm	0.7300%	2019/06/11 19:18

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	5.6830	56.8301	47.32	50.44	3.12	50.18	10:25
2	TOC	5.6247	56.2467	46.92	50.07	3.14	50.14	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	52	TOC	K1905360-001.04	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/11 19:46

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.84	10.08	3.23	50.17	10:27
2	TOC	0.0000	0.0000	7.02	10.14	3.12	50.21	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	53	TOC	K1905361-001.03	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/11 20:14

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.81	10.97	3.16	50.17	10:30
2	TOC	0.0000	0.0000	7.96	11.25	3.29	50.19	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	54	TOC	K1905369-001.02 2x	5.2212 ppm	0.0059 ppm	0.1100%	2019/06/11 20:42

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	5.2254	52.2544	44.21	47.40	3.19	50.19	10:27

2	TOC	5.2170	52.1704	44.16	47.37	3.21	50.23	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	55	TOC	K1905369-002.02	13.3752 ppm	0.1848 ppm	1.3800%	2019/06/11 21:10

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	13.5059	135.0586	100.42	103.57	3.15	50.19	10:26
2	TOC	13.2445	132.4451	98.65	101.86	3.22	50.16	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	56	TOC	K1905369-003.02	1.7773 ppm	0.0153 ppm	0.8600%	2019/06/11 21:38

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.7882	17.8817	20.88	24.25	3.37	50.24	10:26
2	TOC	1.7665	17.6651	20.73	23.96	3.22	50.16	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	57	TOC	K1905369-004.02 2x	9.2072 ppm	0.0915 ppm	0.9900%	2019/06/11 22:06

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	9.2719	92.7188	71.68	74.77	3.09	50.16	10:29
2	TOC	9.1425	91.4253	70.80	73.97	3.17	50.12	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.6047 ppm (PASS)	0.0000 ppm	0%	2019/06/11 22:34

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.6047	246.0474	176.48	179.71	3.24	50.04	10:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/06/11 22:49

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	5.11	8.22	3.11	50.05	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample — From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	58	TOC	MB4	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/11 23:04

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	4.45	7.48	3.03	50.06	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> LCS — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	C	TOC	25.0000	1:1	[TOC] LCS [25.0 ppm]	0 / infinity (NA / NA)	25.0946 ppm (PASS)	0.0000 ppm	0%	2019/06/11 23:18

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	25.0946	250.9458	179.80	182.94	3.14	49.93	10:28

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	25 ppmC

Sample Type: Sample — From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	59	TOC	K1905369-005.02	9.8349 ppm	0.2805 ppm	2.8500%	2019/06/11 23:33

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	10.0332	100.3323	76.85	79.77	2.92	49.96	10:28
2	TOC	9.6365	96.3650	74.16	77.34	3.19	49.86	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	60	TOC	K1905369-006.02 2x	13.5333 ppm	0.0115 ppm	0.0800%	2019/06/12 00:01

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	13.5414	135.4136	100.66	103.97	3.31	49.94	10:29
2	TOC	13.5252	135.2516	100.55	103.66	3.11	49.86	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	61	TOC	K1905369-007.02 2x	26.9581 ppm	0.1856 ppm	0.6900%	2019/06/12 00:29

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	27.0894	270.8936	192.62	195.65	3.03	49.97	10:31
2	TOC	26.8268	268.2683	190.84	193.78	2.94	49.88	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	62	TOC	K1905369-008.02 2x	9.4780 ppm	0.1658 ppm	1.7500%	2019/06/12 00:58

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	9.5952	95.9525	73.88	76.92	3.05	49.80	10:29
2	TOC	9.3607	93.6071	72.28	75.31	3.02	49.79	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	63	TOC	K1905369-009.02	27.6951 ppm	0.0842 ppm	0.3000%	2019/06/12 01:26

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	27.7547	277.5466	197.14	200.30	3.16	49.74	10:29

2	TOC	27.6356	276.3562	196.33	199.36	3.02	49.76	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7430 (IC) (v1265)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	25.2425 ppm (PASS)	0.0000 ppm	0%	2019/06/12 01:54

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.2425	252.4249	180.81	183.95	3.14	49.75	10:34

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/06/12 02:08

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	6.01	8.98	2.97	49.73	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Meta Data Used in this Report

Blanks

Version	Reagent (Abs)	Acid (Abs)	DI IC (Abs)	DI TC (Abs)	DI TOC (Abs)	Save Time	Operator
v1264	1.3990	1.2110	0.0000	0.0000	0.0000	2019/06/06 15:32	Fusion1 (Fusion1)
v1265	1.1340	1.2260	0.0000	0.0000	0.0000	2019/06/10 14:28	Fusion1 (Fusion1)

Calibrations

Name: CAS_salt_010711 (TOC)

Version:	v30	Calibration curve formula:	TOC: y = 6.788x + 9.463
Ver Creation:	2019/03/05 17:42	r^2 value:	TOC: r^2 = 0.99963
Comment:			
Operator:	Fusion1 (Fusion1)		
Basic Analysis Type	TOC		

Basic Analysis Type: TOC

Sample ID	Y Raw Value	X Expected	Message	End Time
DI Water	7.8970	0.0000		2019/03/05 16:15
0.500 ppm	11.5280	0.5000		2019/03/05 16:29
1.0 ppm	14.9760	1.0000		2019/03/05 16:44
5.0 ppm	43.6500	5.0000		2019/03/05 16:58
10 ppm	79.6020	10.0000		2019/03/05 17:12
25 ppm	183.3580	25.0000		2019/03/05 17:26
50 ppm	346.3230	50.0000		2019/03/05 17:40

Methods

Name: CAS_salt_010711 (TOC)

Version:	v4	Operator:	Fusion1 (Fusion1)
Ver Creation:	2019/02/21 17:57		
Comment:			

Parameter	Value
SampleVolume	10.0 mL
Dilution	1:10
AcidVolume	0.5 ml
ReagentVolume	2.0 ml
UVReactorPrerinse	Off
UVReactorPrerinseVolume	5.0
NumberOfUVReactorPrerinses	1
ICSpargeTime	1.00 mins
DetectorSweepFlow	500 ml/min
PreSpargeTime	2.00 mins
SystemFlow	500 ml/min

Advanced Parameter	Value
NeedleRinseVolume	5.0 ml
VialPrimeVolume	2.0 ml
ICSamplePrimeVolume	2.0 ml
ICSpargeRinseVolume	12.0 ml
BaselineStabilizeTime	0.70 min
DetectorPressureFlow	150 ml/min
SyringeSpeedWaste	10
SyringeSpeedAcid	7
SyringeSpeedReagent	7
SyringeSpeedDIWater	7
NDIRPressurization	60 psig
SyringeSpeedSampleDispense	5
SyringeSpeedSampleAspirate	4
SyringeSpeedUVDispense	5
SyringeSpeedUVAspirate	5
SyringeSpeedICDispense	5
SyringeSpeedICAspirate	5
NDIRPressureStabilize	1.75 min
SampleMixing	Off

SampleMixingCycles	1
SampleMixingVolume	10.0
LowLevelFilterNDIR	Off

Acceptance / Approval

Electronic Signatures

Report Version	User Name	Acceptance	Reason	Date

Report History

Report History

Report Version	User Name	System Reason	User Reason	Date
1	Fusion1 (Fusion1)	Schedule completed	Schedule completed	2019/06/12 02:26

ALS Environmental

StarLIMS Run: 638808, 638810, 638815, 638817

Analysis: TOC/DOC

Method: 415.1, SM 5310 C, 9060, 9060A

CCV: 11-GEN-05-77K 50 ppm LCS: 11-GEN-05-77D 25.0 ppm

ICAL Date: 3/6/19

ICAL ID: 11-GEN-05-76H

ICS ID: 11-GEN-05-74A

ICS TV: 25.0 ppm ICS % R = 2

Spike ID: 11-GEN-05-77J 0.05 ml of 5000 ppm stock ---> 10.0 ml = 25.0 ppm x dilution factor

Sodium Persulfate: 11-GEN-05-78F

21 % H3PO4: 11-GEN-05-78G

Equipment ID: K-TOC-03

PIPETTE ID: 124276B, 129001F, N11314F, Marge

FILTER ID: FE1165

Analyzed By: BD	Date Analyzed: 6/10/19
Reviewed By:	Date Reviewed: 06/14/19

Work Request # Original (_____) KP1905114-6,5198,5298,5420,5440,5449,5451,5478,5589,5198,5409,5449,5422,5482,5558,5589,5595,5625,5295,5597
Tier: IV IV IV II II II II II II IV I II I II II II

Date Analyzed: 6/16/19

Analyst: BCD/HLM

Analysis: TOC/DOC

TOC: 639522, 639523, 639524

Run # DOC: 639525

DATA QUALITY REPORT
INORGANICS

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

1.	Is the method name and number correct and appropriate?	yes/no/NA
2.	Holding times met for all analyses and for all samples?	yes/no/NA
3.	Are calculations correct?	yes/no/NA
4.	Is the reporting basis correct? (Dry Weight)	yes/no/NA
5.	All quality control criteria met?	yes/no
6.	Is the calibration curve correlation coefficient ≥ 0.995?	yes/no/NA
7.	MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency?	yes/no/NA
8.	Are ICVs, CCVs, and CCBs all within acceptance limits?	yes/no/NA
9.	Are results for methods blanks all ND?	yes/no/NA
10.	Are all QC samples within acceptance criteria? (LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc.)	yes/no/NA
11.	Are all exceptions explained?	yes/no/NA
12.	Have all applicable service requests been reviewed?	yes/no/NA
13.	Are all samples labeled correctly?	yes/no/NA
14.	Have all instructions on the service request been followed? (e.g. Special MRLs, QC on a specific sample, Form V)	yes/no/NA
15.	Are detection limits and units reported correctly?	yes/no/NA
16.	Is the unused space on the benchsheet crossed out?	yes/no/NA
17.	Was analysis turned in by the due date? (n-2) (If not record SR#)	yes/no/NA

COMMENTS: KP1905420-1/1d, KP1905585-2/2d Sent for RA due to being overdiluted.
KP1905597-1/1d, 5478-6 report a high %RSD, but these samples are less than 5x the MRL.
KP1905114-6/6d repots a high %RSD due to non-homogenous, dirty sample.

Final Approved by: _____ Date: 06/18/19

DQREPORT

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 639522 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K1905114-006	Carbon, Total Organic	N/A		Ground Water	5.41 mg/L	10 mL	54.1 mg/L	10	0.7	5.0			6/15/19 03:35:00	N	IV
K1905198-003	Carbon, Total Organic	N/A		Ground Water	13.60 mg/L	10 mL	1360 mg/L	100	7	50			6/15/19 02:11:00	N	IV
K1905258-006	Carbon, Total Organic	N/A		Water	3.31 mg/L	10 mL	331 mg/L	100	7	50			6/15/19 01:13:00	N	IV
K1905420-001	Carbon, Total Organic	N/A		Water	0.38 mg/L	10 mL	50 mg/L U	100	7	50			6/15/19 13:58:00	N	II
K1905440-001	Carbon, Total Organic	N/A		Water	21.35 mg/L	10 mL	21.3 mg/L	1	0.07	0.50			6/15/19 04:03:00	N	II
K1905440-002	Carbon, Total Organic	N/A		Water	21.51 mg/L	10 mL	21.5 mg/L	1	0.07	0.50			6/15/19 04:31:00	N	II
K1905440-003	Carbon, Total Organic	N/A		Water	20.63 mg/L	10 mL	20.6 mg/L	1	0.07	0.50			6/15/19 04:59:00	N	II
K1905440-004	Carbon, Total Organic	N/A		Water	20.85 mg/L	10 mL	20.8 mg/L	1	0.07	0.50			6/15/19 05:27:00	N	II
K1905449-001	Carbon, Total Organic	N/A		Water	1.54 mg/L	10 mL	1.54 mg/L	1	0.07	0.50			6/15/19 14:40:00	N	II
K1905451-001	Carbon, Total Organic	N/A		Water	6.46 mg/L	10 mL	646 mg/L	100	7	50			6/15/19 11:35:00	N	II
K1905451-002	Carbon, Total Organic	N/A		Water	5.83 mg/L	10 mL	583 mg/L	100	7	50			6/15/19 12:33:00	N	II
K1905478-001	Carbon, Total Organic	N/A		Ground Water	28.06 mg/L	10 mL	28.1 mg/L	1	0.07	0.50			6/15/19 05:55:00	N	II
K1905478-002	Carbon, Total Organic	N/A		Ground Water	9.82 mg/L	10 mL	9.82 mg/L	1	0.07	0.50			6/15/19 06:23:00	N	II
K1905478-003	Carbon, Total Organic	N/A		Ground Water	18.57 mg/L	10 mL	18.6 mg/L	1	0.07	0.50			6/15/19 07:50:00	N	II
K1905478-004	Carbon, Total Organic	N/A		Ground Water	9.86 mg/L	10 mL	9.86 mg/L	1	0.07	0.50			6/15/19 08:18:00	Y	II
K1905478-005	Carbon, Total Organic	N/A		Ground Water	7.89 mg/L	10 mL	7.89 mg/L	1	0.07	0.50			6/15/19 09:29:00	N	II
K1905478-006	Carbon, Total Organic	N/A		Ground Water	0.67 mg/L	10 mL	0.67 mg/L	1	0.07	0.50			6/15/19 10:11:00	N	II
K1905478-007	Carbon, Total Organic	N/A		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/15/19 10:59:00	N	II
K1905589-001	Carbon, Total Organic	N/A		Water	3.74 mg/L	10 mL	3.74 mg/L	1	0.07	0.50			6/15/19 13:01:00	N	II
K1905589-003	Carbon, Total Organic	N/A		Water	2.59 mg/L	10 mL	2.59 mg/L	1	0.07	0.50			6/15/19 13:30:00	N	II
KQ1908379-01	Carbon, Total Organic	CCV		Water	24.94 mg/L	10 mL	24.9 mg/L	1					6/14/19 18:11:00	N	IV
KQ1908379-02	Carbon, Total Organic	CCV		Water	24.59 mg/L	10 mL	24.6 mg/L	1					6/15/19 01:13:00	N	IV
KQ1908379-03	Carbon, Total Organic	CCV		Water	25.46 mg/L	10 mL	25.5 mg/L	1					6/15/19 06:51:00	N	IV
KQ1908379-04	Carbon, Total Organic	CCV		Water	24.96 mg/L	10 mL	25.0 mg/L	1					6/15/19 12:03:00	N	IV
KQ1908379-05	Carbon, Total Organic	CCV		Water	24.89 mg/L	10 mL	24.9 mg/L	1					6/15/19 17:01:00	N	IV
KQ1908379-06	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/14/19 18:26:00	N	IV
KQ1908379-07	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/15/19 01:56:00	N	IV
KQ1908379-08	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/15/19 07:06:00	N	IV
KQ1908379-09	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/15/19 12:18:00	N	IV
KQ1908379-10	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/15/19 17:15:00	N	IV
KQ1908379-11	Carbon, Total Organic	MB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/14/19 18:41:00	N	IV
KQ1908379-12	Carbon, Total Organic	LCS		Water	25.40 mg/L	10 mL	25.4 mg/L	1	0.07	0.50	102		6/14/19 19:37:00	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

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06/18/19

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 639522 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ1908379-13	Carbon, Total Organic	MS	K1905478-004	Ground Water	29.95 mg/L	10 mL	59.9 mg/L	2	0.2	1.0	100		6/15/19 08:46:00	N	II
KQ1908379-14	Carbon, Total Organic	DUP	K1905258-006	Water	3.33 mg/L	10 mL	333 mg/L	100	7	50		<1	6/15/19 01:13:00	N	IV
KQ1908379-15	Carbon, Total Organic	DUP	K1905198-003	Ground Water	13.59 mg/L	10 mL	1360 mg/L	100	7	50		<1	6/15/19 02:11:00	N	IV
KQ1908379-17	Carbon, Total Organic	DUP	K1905114-006	Ground Water	6.29 mg/L	10 mL	62.9 mg/L	10	0.7	5.0		15*	6/15/19 03:35:00	N	IV
KQ1908379-18	Carbon, Total Organic	DUP	K1905440-001	Water	21.00 mg/L	10 mL	21.0 mg/L	1	0.07	0.50		2	6/15/19 04:03:00	N	II
KQ1908379-19	Carbon, Total Organic	DUP	K1905440-002	Water	21.25 mg/L	10 mL	21.2 mg/L	1	0.07	0.50		1	6/15/19 04:31:00	N	II
KQ1908379-20	Carbon, Total Organic	DUP	K1905440-003	Water	20.93 mg/L	10 mL	20.9 mg/L	1	0.07	0.50		1	6/15/19 04:59:00	N	II
KQ1908379-21	Carbon, Total Organic	DUP	K1905440-004	Water	20.80 mg/L	10 mL	20.8 mg/L	1	0.07	0.50		<1	6/15/19 05:27:00	N	II
KQ1908379-22	Carbon, Total Organic	DUP	K1905478-001	Ground Water	28.39 mg/L	10 mL	28.4 mg/L	1	0.07	0.50		1	6/15/19 05:55:00	N	II
KQ1908379-23	Carbon, Total Organic	DUP	K1905478-002	Ground Water	9.35 mg/L	10 mL	9.35 mg/L	1	0.07	0.50		5	6/15/19 06:23:00	N	II
KQ1908379-24	Carbon, Total Organic	DUP	K1905478-003	Ground Water	18.70 mg/L	10 mL	18.7 mg/L	1	0.07	0.50		<1	6/15/19 07:50:00	N	II
KQ1908379-25	Carbon, Total Organic	DUP	K1905478-004	Ground Water	9.86 mg/L	10 mL	9.86 mg/L	1	0.07	0.50		<1	6/15/19 08:18:00	N	II
KQ1908379-26	Carbon, Total Organic	DUP	K1905478-005	Ground Water	7.97 mg/L	10 mL	7.97 mg/L	1	0.07	0.50		<1	6/15/19 09:29:00	N	II
KQ1908379-27	Carbon, Total Organic	DUP	K1905478-006	Ground Water	0.59 mg/L	10 mL	0.59 mg/L	1	0.07	0.50		12*	6/15/19 10:11:00	N	II
KQ1908379-28	Carbon, Total Organic	DUP	K1905478-007	Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/15/19 10:59:00	N	II
KQ1908379-29	Carbon, Total Organic	DUP	K1905451-001	Water	6.46 mg/L	10 mL	646 mg/L	100	7	50		<1	6/15/19 11:35:00	N	II
KQ1908379-30	Carbon, Total Organic	DUP	K1905451-002	Water	5.90 mg/L	10 mL	590 mg/L	100	7	50		1	6/15/19 12:33:00	N	II
KQ1908379-31	Carbon, Total Organic	DUP	K1905589-001	Water	3.64 mg/L	10 mL	3.64 mg/L	1	0.07	0.50		3	6/15/19 13:01:00	N	II
KQ1908379-32	Carbon, Total Organic	DUP	K1905589-003	Water	2.58 mg/L	10 mL	2.58 mg/L	1	0.07	0.50		<1	6/15/19 13:30:00	N	II
KQ1908379-33	Carbon, Total Organic	DUP	K1905420-001	Water	0.39 mg/L	10 mL	39 mg/L J	100	7	50		NC	6/15/19 13:58:00	N	II
KQ1908379-34	Carbon, Total Organic	DUP	K1905449-001	Water	1.47 mg/L	10 mL	1.47 mg/L	1	0.07	0.50		5	6/15/19 14:40:00	N	II

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 639523 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K1905198-006	Carbon, Total Organic	N/A		Ground Water	3.96 mg/L	10 mL	3.96 mg/L	1	0.07	0.50			6/15/19 03:07:00	N	IV
K1905409-001	Carbon, Total Organic	N/A		Reagent Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/15/19 20:48:00	N	I
K1905409-002	Carbon, Total Organic	N/A		Reagent Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/15/19 21:16:00	N	I
K1905449-002	Carbon, Total Organic	N/A		Water	0.56 mg/L	10 mL	0.56 mg/L	1	0.07	0.50			6/15/19 15:08:00	N	II
K1905477-001	Carbon, Total Organic	N/A		Water	1.72 mg/L	10 mL	1.72 mg/L	1	0.07	0.50			6/15/19 15:36:00	N	I
K1905477-002	Carbon, Total Organic	N/A		Water	19.94 mg/L	10 mL	19.9 mg/L	1	0.07	0.50			6/15/19 16:04:00	N	I
K1905477-003	Carbon, Total Organic	N/A		Water	2.68 mg/L	10 mL	2.68 mg/L	1	0.07	0.50			6/15/19 16:32:00	N	I
K1905477-004	Carbon, Total Organic	N/A		Water	1.23 mg/L	10 mL	1.23 mg/L	1	0.07	0.50			6/15/19 17:59:00	N	I
K1905482-001	Carbon, Total Organic	N/A		Water	0.40 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/15/19 18:27:00	N	II
K1905482-002	Carbon, Total Organic	N/A		Water	1.54 mg/L	10 mL	1.54 mg/L	1	0.07	0.50			6/15/19 18:56:00	N	II
K1905482-003	Carbon, Total Organic	N/A		Water	0.62 mg/L	10 mL	0.62 mg/L	1	0.07	0.50			6/15/19 19:24:00	N	II
K1905482-004	Carbon, Total Organic	N/A		Water	0.87 mg/L	10 mL	0.87 mg/L	1	0.07	0.50			6/15/19 19:52:00	N	II
K1905482-005	Carbon, Total Organic	N/A		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/15/19 20:20:00	N	II
K1905558-001	Carbon, Total Organic	N/A		Water	1.48 mg/L	10 mL	1.48 mg/L	1	0.07	0.50			6/15/19 22:14:00	N	II
K1905558-002	Carbon, Total Organic	N/A		Water	1.64 mg/L	10 mL	1.64 mg/L	1	0.07	0.50			6/15/19 22:42:00	N	II
K1905558-003	Carbon, Total Organic	N/A		Water	1.07 mg/L	10 mL	1.07 mg/L	1	0.07	0.50			6/15/19 23:10:00	N	II
K1905558-004	Carbon, Total Organic	N/A		Water	1.59 mg/L	10 mL	1.59 mg/L	1	0.07	0.50			6/15/19 23:38:00	N	II
K1905558-005	Carbon, Total Organic	N/A		Water	1.53 mg/L	10 mL	1.53 mg/L	1	0.07	0.50			6/16/19 00:06:00	N	II
K1905586-001	Carbon, Total Organic	N/A		Water	0.69 mg/L	10 mL	0.69 mg/L	1	0.07	0.50			6/16/19 00:34:00	N	II
K1905586-002	Carbon, Total Organic	N/A		Water	0.19 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/16/19 01:02:00	N	II
KQ1908380-01	Carbon, Total Organic	MS	K1905198-006	Ground Water	25.56 mg/L	10 mL	25.6 mg/L	1	0.07	0.50	86		6/16/19 10:45:00	N	IV
KQ1908380-02	Carbon, Total Organic	CCV		Ground Water	24.59 mg/L	10 mL	24.6 mg/L	1					6/15/19 01:41:00	N	IV
KQ1908380-03	Carbon, Total Organic	CCV		Ground Water	25.46 mg/L	10 mL	25.5 mg/L	1					6/15/19 06:51:00	N	IV
KQ1908380-04	Carbon, Total Organic	CCV		Ground Water	24.96 mg/L	10 mL	25.0 mg/L	1					6/15/19 12:03:00	N	IV
KQ1908380-05	Carbon, Total Organic	CCV		Ground Water	24.89 mg/L	10 mL	24.9 mg/L	1					6/15/19 17:01:00	N	IV
KQ1908380-06	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/15/19 01:56:00	N	IV
KQ1908380-07	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/15/19 07:06:00	N	IV
KQ1908380-08	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/15/19 12:18:00	N	IV
KQ1908380-09	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/15/19 17:15:00	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

06/18/19

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 639523 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ1908380-10	Carbon, Total Organic	MB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/15/19 07:21:00	N	IV
KQ1908380-11	Carbon, Total Organic	LCS		Ground Water	25.44 mg/L	10 mL	25.4 mg/L	1	0.07	0.50	102		6/15/19 07:35:00	N	IV
KQ1908380-12	Carbon, Total Organic	DUP	K1905198-006	Ground Water	3.83 mg/L	10 mL	3.83 mg/L	1	0.07	0.50		3	6/15/19 03:07:00	N	IV
KQ1908380-13	Carbon, Total Organic	DUP	K1905449-002	Water	0.53 mg/L	10 mL	0.53 mg/L	1	0.07	0.50		5	6/15/19 15:08:00	N	II
KQ1908380-14	Carbon, Total Organic	DUP	K1905477-001	Water	1.75 mg/L	10 mL	1.75 mg/L	1	0.07	0.50		2	6/15/19 15:36:00	N	I
KQ1908380-15	Carbon, Total Organic	DUP	K1905477-002	Water	19.70 mg/L	10 mL	19.7 mg/L	1	0.07	0.50		1	6/15/19 16:04:00	N	I
KQ1908380-16	Carbon, Total Organic	DUP	K1905477-003	Water	2.56 mg/L	10 mL	2.56 mg/L	1	0.07	0.50		5	6/15/19 16:32:00	N	I
KQ1908380-17	Carbon, Total Organic	DUP	K1905477-004	Water	1.13 mg/L	10 mL	1.13 mg/L	1	0.07	0.50		9	6/15/19 17:59:00	N	I
KQ1908380-18	Carbon, Total Organic	DUP	K1905482-001	Water	0.46 mg/L	10 mL	0.46 mg/L J	1	0.07	0.50		NC	6/15/19 18:27:00	N	II
KQ1908380-19	Carbon, Total Organic	DUP	K1905482-002	Water	1.52 mg/L	10 mL	1.52 mg/L	1	0.07	0.50		<1	6/15/19 18:56:00	N	II
KQ1908380-20	Carbon, Total Organic	DUP	K1905482-003	Water	0.63 mg/L	10 mL	0.63 mg/L	1	0.07	0.50		2	6/15/19 19:24:00	N	II
KQ1908380-21	Carbon, Total Organic	DUP	K1905482-004	Water	0.82 mg/L	10 mL	0.82 mg/L	1	0.07	0.50		6	6/15/19 19:52:00	N	II
KQ1908380-22	Carbon, Total Organic	DUP	K1905482-005	Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/15/19 20:20:00	N	II
KQ1908380-23	Carbon, Total Organic	DUP	K1905409-001	Reagent Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/15/19 20:48:00	N	I
KQ1908380-24	Carbon, Total Organic	DUP	K1905409-002	Reagent Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/15/19 21:16:00	N	I
KQ1908380-25	Carbon, Total Organic	DUP	K1905558-001	Water	1.41 mg/L	10 mL	1.41 mg/L	1	0.07	0.50		5	6/15/19 22:14:00	N	II
KQ1908380-26	Carbon, Total Organic	DUP	K1905558-002	Water	1.61 mg/L	10 mL	1.61 mg/L	1	0.07	0.50		2	6/15/19 22:42:00	N	II
KQ1908380-27	Carbon, Total Organic	DUP	K1905558-003	Water	1.06 mg/L	10 mL	1.06 mg/L	1	0.07	0.50		1	6/15/19 23:10:00	N	II
KQ1908380-28	Carbon, Total Organic	DUP	K1905558-004	Water	1.54 mg/L	10 mL	1.54 mg/L	1	0.07	0.50		3	6/15/19 23:38:00	N	II
KQ1908380-29	Carbon, Total Organic	DUP	K1905558-005	Water	1.48 mg/L	10 mL	1.48 mg/L	1	0.07	0.50		3	6/16/19 00:06:00	N	II
KQ1908380-30	Carbon, Total Organic	DUP	K1905586-001	Water	0.67 mg/L	10 mL	0.67 mg/L	1	0.07	0.50		4	6/16/19 00:34:00	N	II
KQ1908380-31	Carbon, Total Organic	DUP	K1905586-002	Water	0.16 mg/L	10 mL	0.16 mg/L J	1	0.07	0.50		NC	6/16/19 01:02:00	N	II
KQ1908380-32	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/15/19 21:59:00	N	IV
KQ1908380-33	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/16/19 03:09:00	N	IV
KQ1908380-34	Carbon, Total Organic	CCV		Ground Water	24.50 mg/L	10 mL	24.5 mg/L	1					6/15/19 21:44:00	N	IV
KQ1908380-35	Carbon, Total Organic	CCV		Ground Water	24.52 mg/L	10 mL	24.5 mg/L	1					6/16/19 02:55:00	N	IV
KQ1908380-36	Carbon, Total Organic	CCV		Ground Water	24.12 mg/L	10 mL	24.1 mg/L	1					6/16/19 07:11:00	N	IV
KQ1908380-37	Carbon, Total Organic	CCV		Ground Water	25.11 mg/L	10 mL	25.1 mg/L	1					6/16/19 11:00:00	N	IV
KQ1908380-38	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/16/19 07:26:00	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 639523 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ1908380-39	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/16/19 11:14:00	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 639524 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K1905259-001	Carbon, Total Organic	N/A		Water	2.21 mg/L	10 mL	2.21 mg/L	1	0.07	0.50			6/16/19 06:15:00	N	IV
K1905597-001	Carbon, Total Organic	N/A		Water	0.61 mg/L	10 mL	0.61 mg/L	1	0.07	0.50			6/16/19 01:30:00	N	IV
K1905597-002	Carbon, Total Organic	N/A		Water	2.79 mg/L	10 mL	11.2 mg/L	4	0.3	2.0			6/16/19 01:58:00	N	IV
K1905597-003	Carbon, Total Organic	N/A		Water	2.72 mg/L	10 mL	10.9 mg/L	4	0.3	2.0			6/16/19 02:27:00	N	IV
K1905597-004	Carbon, Total Organic	N/A		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/16/19 03:53:00	N	IV
K1905597-005	Carbon, Total Organic	N/A		Water	0.32 mg/L	10 mL	0.32 mg/L J	1	0.07	0.50			6/16/19 04:22:00	N	IV
K1905597-006	Carbon, Total Organic	N/A		Water	2.34 mg/L	10 mL	2.34 mg/L	1	0.07	0.50			6/16/19 04:50:00	Y	IV
K1905597-007	Carbon, Total Organic	N/A		Water	1.43 mg/L	10 mL	1.43 mg/L	1	0.07	0.50			6/16/19 05:47:00	N	IV
KQ1908381-01	Carbon, Total Organic	CCV		Water	24.50 mg/L	10 mL	24.5 mg/L	1					6/15/19 21:44:00	N	IV
KQ1908381-02	Carbon, Total Organic	CCV		Water	24.52 mg/L	10 mL	24.5 mg/L	1					6/16/19 02:55:00	N	IV
KQ1908381-03	Carbon, Total Organic	CCV		Water	24.12 mg/L	10 mL	24.1 mg/L	1					6/16/19 07:11:00	N	IV
KQ1908381-04	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/15/19 21:59:00	N	IV
KQ1908381-05	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/16/19 03:09:00	N	IV
KQ1908381-06	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/16/19 07:26:00	N	IV
KQ1908381-07	Carbon, Total Organic	MB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/15/19 17:30:00	N	IV
KQ1908381-08	Carbon, Total Organic	LCS		Water	25.11 mg/L	10 mL	25.1 mg/L	1	0.07	0.50	100		6/15/19 17:45:00	N	IV
KQ1908381-09	Carbon, Total Organic	MS	K1905597-006	Water	26.78 mg/L	10 mL	53.6 mg/L	2	0.2	1.0	102		6/16/19 05:18:00	N	IV
KQ1908381-10	Carbon, Total Organic	DUP	K1905597-001	Water	0.50 mg/L	10 mL	0.50 mg/L J	1	0.07	0.50		20*	6/16/19 01:30:00	N	IV
KQ1908381-11	Carbon, Total Organic	DUP	K1905597-002	Water	2.79 mg/L	10 mL	11.2 mg/L	4	0.3	2.0		<1	6/16/19 01:58:00	N	IV
KQ1908381-12	Carbon, Total Organic	DUP	K1905597-003	Water	2.70 mg/L	10 mL	10.8 mg/L	4	0.3	2.0		<1	6/16/19 02:27:00	N	IV
KQ1908381-13	Carbon, Total Organic	DUP	K1905597-004	Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	6/16/19 03:53:00	N	IV
KQ1908381-14	Carbon, Total Organic	DUP	K1905597-005	Water	0.30 mg/L	10 mL	0.30 mg/L J	1	0.07	0.50		8	6/16/19 04:22:00	N	IV
KQ1908381-15	Carbon, Total Organic	DUP	K1905597-006	Water	2.37 mg/L	10 mL	2.37 mg/L	1	0.07	0.50		1	6/16/19 04:50:00	N	IV
KQ1908381-16	Carbon, Total Organic	DUP	K1905597-007	Water	1.41 mg/L	10 mL	1.41 mg/L	1	0.07	0.50		2	6/16/19 05:47:00	N	IV
KQ1908381-17	Carbon, Total Organic	DUP	K1905259-001	Water	2.25 mg/L	10 mL	2.25 mg/L	1	0.07	0.50		2	6/16/19 06:15:00	N	IV

06/18/19

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 639525 **Method/Testcode:** SM 5310 C/TOC D

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K1905589-002	Carbon, Dissolved Organic (DOC)	N/A		Water	3.12 mg/L	10 mL	3.12 mg/L	1	0.07	0.50			6/16/19 06:43:00	N	II
K1905589-004	Carbon, Dissolved Organic (DOC)	N/A		Water	2.29 mg/L	10 mL	2.29 mg/L	1	0.07	0.50			6/16/19 07:41:00	N	II
K1905595-001	Carbon, Dissolved Organic (DOC)	N/A		Water	0.57 mg/L	10 mL	0.57 mg/L	1	0.07	0.50			6/16/19 09:49:00	N	I
K1905595-002	Carbon, Dissolved Organic (DOC)	N/A		Water	0.00 mg/L	10 mL	50 mg/L U	100	7	50			6/16/19 10:17:00	N	I
K1905625-001	Carbon, Dissolved Organic (DOC)	N/A		Effluent	1.22 mg/L	10 mL	1.22 mg/L	1	0.07	0.50			6/16/19 08:09:00	N	II
K1905625-002	Carbon, Dissolved Organic (DOC)	N/A		Effluent	1.21 mg/L	10 mL	1.21 mg/L	1	0.07	0.50			6/16/19 09:06:00	N	II
KQ1908382-01	Carbon, Dissolved Organic (DOC)	CCV		Water	24.52 mg/L	10 mL	24.5 mg/L	1					6/16/19 02:55:00	N	II
KQ1908382-02	Carbon, Dissolved Organic (DOC)	CCV		Water	24.12 mg/L	10 mL	24.1 mg/L	1					6/16/19 07:11:00	N	II
KQ1908382-03	Carbon, Dissolved Organic (DOC)	CCV		Water	25.11 mg/L	10 mL	25.1 mg/L	1					6/16/19 11:00:00	N	II
KQ1908382-04	Carbon, Dissolved Organic (DOC)	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/16/19 03:09:00	N	II
KQ1908382-05	Carbon, Dissolved Organic (DOC)	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/16/19 07:26:00	N	II
KQ1908382-06	Carbon, Dissolved Organic (DOC)	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/16/19 11:14:00	N	II
KQ1908382-07	Carbon, Dissolved Organic (DOC)	MB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			6/16/19 03:24:00	N	II
KQ1908382-08	Carbon, Dissolved Organic (DOC)	LCS		Water	25.10 mg/L	10 mL	25.1 mg/L	1	0.07	0.50	100		6/16/19 03:39:00	N	II
KQ1908382-09	Carbon, Dissolved Organic (DOC)	MS	K1905625-001	Effluent	26.86 mg/L	10 mL	26.9 mg/L	1	0.07	0.50	103		6/16/19 08:37:00	N	II
KQ1908382-10	Carbon, Dissolved Organic (DOC)	DUP	K1905589-002	Water	3.13 mg/L	10 mL	3.13 mg/L	1	0.07	0.50		<1	6/16/19 06:43:00	N	II
KQ1908382-11	Carbon, Dissolved Organic (DOC)	DUP	K1905589-004	Water	2.30 mg/L	10 mL	2.30 mg/L	1	0.07	0.50		<1	6/16/19 07:41:00	N	II
KQ1908382-12	Carbon, Dissolved Organic (DOC)	DUP	K1905625-001	Effluent	1.28 mg/L	10 mL	1.28 mg/L	1	0.07	0.50		5	6/16/19 08:09:00	N	II
KQ1908382-13	Carbon, Dissolved Organic (DOC)	DUP	K1905625-002	Effluent	1.21 mg/L	10 mL	1.21 mg/L	1	0.07	0.50		<1	6/16/19 09:06:00	N	II
KQ1908382-14	Carbon, Dissolved Organic (DOC)	DUP	K1905595-001	Water	0.58 mg/L	10 mL	0.58 mg/L	1	0.07	0.50		2	6/16/19 09:49:00	N	I
KQ1908382-15	Carbon, Dissolved Organic (DOC)	DUP	K1905595-002	Water	0.00 mg/L	10 mL	50 mg/L U	100	7	50		NC	6/16/19 10:17:00	N	I

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
CBA	RB	1			0.0000	0	<0.5	
2	C] CCV 25 ppm [25 p	1	24.937	0.0000	24.9374	24.9374	24.9	6/14/2019
3	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/14/2019
4	MB1	1	0.000	0.0000	0.0000	0	<0.5	6/14/2019
5	[TOC] LCS [24ppm]	1	25.401	0.0000	25.4009	25.4009	25.4	6/14/2019
6	K1905258-006	100	3.314	0.0000	3.3140	331.4	331.40	6/15/2019
7	K1905258-006d	100	3.327	0.0000	3.3271	332.71	332.7	6/15/2019
8	C] CCV 25 ppm [25 p	1	24.590	0.0000	24.5900	24.59	25	6/15/2019
9	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
10	K1905198-003	100	13.598	0.0000	13.5984	1359.84	1359.84	6/15/2019
11	K1905198-003d	100	13.590	0.0000	13.5897	1358.97	1359.0	6/15/2019
12	K1905114-006	10	5.412	0.0000	5.4117	54.117	54.12	6/15/2019
13	K1905114-006d	10	6.290	0.0000	6.2895	62.895	62.90	6/15/2019
14	K1905440-001	1	21.348	0.0000	21.3480	21.348	21.35	6/15/2019
15	K1905440-001d	1	21.002	0.0000	21.0020	21.002	21.0	6/15/2019
16	K1905440-002	1	21.512	0.0000	21.5121	21.5121	21.5	6/15/2019
17	K1905440-002d	1	21.247	0.0000	21.2469	21.2469	21.25	6/15/2019
18	K1905440-003	1	20.626	0.0000	20.6264	20.6264	20.6	6/15/2019
19	K1905440-003d	1	20.933	0.0000	20.9333	20.9333	20.9	6/15/2019
20	K1905440-004	1	20.849	0.0000	20.8493	20.8493	20.85	6/15/2019
21	K1905440-004d	1	20.795	0.0000	20.7951	20.7951	20.80	6/15/2019
22	K1905478-001	1	28.056	0.0000	28.0558	28.0558	28.1	6/15/2019
23	K1905478-001d	1	28.385	0.0000	28.3853	28.3853	28.4	6/15/2019
24	K1905478-002	1	9.821	0.0000	9.8214	9.8214	9.82	6/15/2019
25	K1905478-002d	1	9.348	0.0000	9.3476	9.3476	9.35	6/15/2019

ICAL Date 10/20/16 ICAL ID#:11-GEN-05-51A

LCS =24.0 ppm APG 4013 Lot #010615 (REF# 11-GEN-05-50N)

CCV = 25.0 ppm (Ref.#11-GEN-05-52E)

Spike: 0.05 ml of 5000 ppm stock ----> 10.0 ml =25.0 ppm x Dilution Factor (Ref.# 11-GEN-05-51M)

		date	time
Analyzed By:		Date Analyzed	6/16/19
Reviewed By:		Date Reviewed	06/18/19

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
26	C] CCV 25 ppm [25 p	1	25.464	0.0000	25.4635	25.4635	25.46	6/15/2019
27	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
28	K1905478-003	1	18.571	0.0000	18.5707	18.5707	18.6	6/15/2019
29	K1905478-003d	1	18.705	0.0000	18.7046	18.7046	18.7	6/15/2019
30	K1905478-004	1	9.865	0.0000	9.8646	9.8646	9.9	6/15/2019
31	K1905478-004d	1	9.856	0.0000	9.8560	9.856	9.9	6/15/2019
32	K1905478-004ms	2	29.953	0.0000	29.9530	59.906	59.9	6/15/2019
33	K1905478-005	1	7.894	0.0000	7.8940	7.894	7.9	6/15/2019
34	K1905478-005d	1	7.970	0.0000	7.9703	7.9703	8.0	6/15/2019
35	K1905478-006	1	0.673	0.0000	0.6731	0.6731	0.7	6/15/2019
36	K1905478-006d	1	0.595	0.0000	0.5947	0.5947	0.6	6/15/2019
37	K1905478-007	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
38	K1905478-007d	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
39	K1905451-001	100	6.462	0.0000	6.4621	646.21	646.2	6/15/2019
40	K1905451-001d	100	6.461	0.0000	6.4610	646.1	646.1	6/15/2019
41	C] CCV 25 ppm [25 p	1	24.963	0.0000	24.9627	24.9627	25.0	6/15/2019
42	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
43	K1905451-002	100	5.830	0.0000	5.8303	583.03	583.0	6/15/2019
44	K1905451-002d	100	5.902	0.0000	5.9022	590.22	590.2	6/15/2019
45	K1905589-001	1	3.741	0.0000	3.7412	3.7412	3.7	6/15/2019
46	K1905589-001d	1	3.637	0.0000	3.6370	3.637	3.6	6/15/2019
47	K1905589-003	1	2.586	0.0000	2.5861	2.5861	2.6	6/15/2019
48	K1905589-003d	1	2.583	0.0000	2.5834	2.5834	2.6	6/15/2019
49	K1905420-001	100	0.378	0.0000	0.3783	37.83	37.8	6/15/2019
50	K1905420-001d	100	0.387	0.0000	0.3867	38.67	38.7	6/15/2019

Analyzed By:	BCD	Date Analyzed	6/16/19
Reviewed By:		Date Reviewed	06/18/19

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
51	K1905449-001	1	1.539	0.0000	1.5389	1.5389	1.54	6/15/2019
52	K1905449-001d	1	1.469	0.0000	1.4688	1.4688	1.5	6/15/2019
53	C] CCV 25 ppm [25 p	1	24.894	0.0000	24.8939	24.8939	24.9	6/15/2019
54	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
55		1		0.0000	0.0000	0	<0.5	
56		1		0.0000	0.0000	0	<0.5	
57		1		0.0000	0.0000	0	<0.5	
58		1		0.0000	0.0000	0	<0.5	
59		1		0.0000	0.0000	0	<0.5	
60		1		0.0000	0.0000	0	<0.5	
61		1		0.0000	0.0000	0	<0.5	
62		1		0.0000	0.0000	0	<0.5	
63		1		0.0000	0.0000	0	<0.5	
64		1		0.0000	0.0000	0	<0.5	
65		1		0.0000	0.0000	0	<0.5	
66		1		0.0000	0.0000	0	<0.5	
67		1		0.0000	0.0000	0	<0.5	
68		1		0.0000	0.0000	0	<0.5	
69		1		0.0000	0.0000	0	<0.5	
70		1		0.0000	0.0000	0	<0.5	
71		1		0.0000	0.0000	0	<0.5	
72		1		0.0000	0.0000	0	<0.5	
73		1		0.0000	0.0000	0	<0.5	
74		1		0.0000	0.0000	0	<0.5	
75		1		0.0000	0.0000	0	<0.5	

Analyzed By: BLD	Date Analyzed 6/16/19
Reviewed By:	Date Reviewed

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
CBA	RB	1			0.0000	0	<0.5	
2	C] CCV 25 ppm [25 p	1	24.590	0.0000	24.5900	24.59	24.6	6/15/2019
3	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
4	K1905198-006	1	3.957	0.0000	3.9572	3.9572	4.0	6/15/2019
5	K1905198-006d	1	3.834	0.0000	3.8337	3.8337	3.8	6/15/2019
6	C] CCV 25 ppm [25 p	1	25.464	0.0000	25.4635	25.4635	25.46	6/15/2019
7	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
8	MB2	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
9	[TOC] LCS [24ppm]	1	25.436	0.0000	25.4355	25.4355	25.44	6/15/2019
10	C] CCV 25 ppm [25 p	1	24.963	0.0000	24.9627	24.9627	24.96	6/15/2019
11	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
12	K1905449-002	1	0.558	0.0000	0.5581	0.5581	0.56	6/15/2019
13	K1905449-002d	1	0.529	0.0000	0.5290	0.529	0.53	6/15/2019
14	K1905477-001	1	1.722	0.0000	1.7217	1.7217	1.72	6/15/2019
15	K1905477-001d	1	1.754	0.0000	1.7538	1.7538	1.8	6/15/2019
16	K1905477-002	1	19.942	0.0000	19.9421	19.9421	19.9	6/15/2019
17	K1905477-002d	1	19.696	0.0000	19.6957	19.6957	19.70	6/15/2019
18	K1905477-003	1	2.685	0.0000	2.6845	2.6845	2.7	6/15/2019
19	K1905477-003d	1	2.556	0.0000	2.5556	2.5556	2.6	6/15/2019
20	C] CCV 25 ppm [25 p	1	24.894	0.0000	24.8939	24.8939	24.89	6/15/2019
21	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
22	K1905477-004	1	1.231	0.0000	1.2310	1.231	1.2	6/15/2019
23	K1905477-004d	1	1.126	0.0000	1.1263	1.1263	1.1	6/15/2019
24	K1905482-001	1	0.404	0.0000	0.4040	0.404	<0.5	6/15/2019
25	K1905482-001d	1	0.464	0.0000	0.4636	0.4636	<0.5	6/15/2019

ICAL Date 10/20/16 ICAL ID#:11-GEN-05-51A

LCS =24.0 ppm APG 4013 Lot #010615 (REF# 11-GEN-05-50N)

CCV = 25.0 ppm (Ref.#11-GEN-05-52E)

Spike: 0.05 ml of 5000 ppm stock ----> 10.0 ml =25.0 ppm x Dilution Factor (Ref.# 11-GEN-05-51M)

		date	time
Analyzed By:	BCD	Date Analyzed	6/16/19
Reviewed By:	[signature]	Date Reviewed	06/18/19

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
26	K1905482-002	1	1.537	0.0000	1.5366	1.5366	1.54	6/15/2019
27	K1905482-002d	1	1.522	0.0000	1.5215	1.5215	1.52	6/15/2019
28	K1905482-003	1	0.620	0.0000	0.6196	0.6196	0.6	6/15/2019
29	K1905482-003d	1	0.632	0.0000	0.6317	0.6317	0.6	6/15/2019
30	K1905482-004	1	0.870	0.0000	0.8701	0.8701	0.9	6/15/2019
31	K1905482-004d	1	0.818	0.0000	0.8181	0.8181	0.8	6/15/2019
32	K1905482-005	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
33	K1905482-005d	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
34	K1905409-001	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
35	K1905409-001d	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
36	K1905409-002	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
37	K1905409-002d	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
38	C] CCV 25 ppm [25 p	1	24.499	0.0000	24.4988	24.4988	24.5	6/15/2019
39	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
40	K1905558-001	1	1.482	0.0000	1.4823	1.4823	1.5	6/15/2019
41	K1905558-001d	1	1.412	0.0000	1.4121	1.4121	1.4	6/15/2019
42	K1905558-002	1	1.642	0.0000	1.6423	1.6423	1.6	6/15/2019
43	K1905558-002d	1	1.608	0.0000	1.6080	1.608	1.6	6/15/2019
44	K1905558-003	1	1.073	0.0000	1.0728	1.0728	1.1	6/15/2019
45	K1905558-003d	1	1.061	0.0000	1.0610	1.061	1.1	6/15/2019
46	K1905558-004	1	1.588	0.0000	1.5881	1.5881	1.6	6/15/2019
47	K1905558-004d	1	1.543	0.0000	1.5426	1.5426	1.5	6/15/2019
48	K1905558-005	1	1.526	0.0000	1.5259	1.5259	1.5	6/16/2019
49	K1905558-005d	1	1.484	0.0000	1.4841	1.4841	1.5	6/16/2019
50	K1905586-001	1	0.693	0.0000	0.6929	0.6929	0.7	6/16/2019

Analyzed By: KCP	Date Analyzed 6/16/19
Reviewed By: [signature]	Date Reviewed 06/18/19

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
51	K1905586-001d	1	0.666	0.0000	0.6657	0.6657	0.67	6/16/2019
52	K1905586-002	1	0.189	0.0000	0.1892	0.1892	<0.5	6/16/2019
53	K1905586-002d	1	0.160	0.0000	0.1601	0.1601	<0.5	6/16/2019
54	C] CCV 25 ppm [25 p	1	24.518	0.0000	24.5184	24.5184	24.5	6/16/2019
55	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/16/2019
56	C] CCV 25 ppm [25 p	1	24.117	0.0000	24.1171	24.1171	24.1	6/16/2019
57	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/16/2019
58	K1905198-006ms	1	25.561	0.0000	25.5611	25.5611	25.6	6/16/2019
59	C] CCV 25 ppm [25 p	1	25.111	0.0000	25.1105	25.1105	25.1	6/16/2019
60	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/16/2019
61		1		0.0000	0.0000	0	<0.5	
62		1		0.0000	0.0000	0	<0.5	
63		1		0.0000	0.0000	0	<0.5	
64		1		0.0000	0.0000	0	<0.5	
65		1		0.0000	0.0000	0	<0.5	
66		1		0.0000	0.0000	0	<0.5	
67		1		0.0000	0.0000	0	<0.5	
68		1		0.0000	0.0000	0	<0.5	
69		1		0.0000	0.0000	0	<0.5	
70		1		0.0000	0.0000	0	<0.5	
71		1		0.0000	0.0000	0	<0.5	
72		1		0.0000	0.0000	0	<0.5	
73		1		0.0000	0.0000	0	<0.5	
74		1		0.0000	0.0000	0	<0.5	
75		1		0.0000	0.0000	0	<0.5	

Analyzed By:	BCD	Date Analyzed	6/16/19
Reviewed By:	[signature]	Date Reviewed	06/18/19

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
CBA	RB	1			0.0000	0	<0.5	
2	MB3	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
3	[TOC] LCS [25ppm]	1	25.114	0.0000	25.1136	25.1136	25.1	6/15/2019
4	C] CCV 25 ppm [25 p	1	24.499	0.0000	24.4988	24.4988	24.5	6/15/2019
5	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/15/2019
6	K1905597-001	1	0.607	0.0000	0.6073	0.6073	0.61	6/16/2019
7	K1905597-001d	1	0.496	0.0000	0.4957	0.4957	<0.5	6/16/2019
8	K1905597-002	4	2.794	0.0000	2.7938	11.1752	11	6/16/2019
9	K1905597-002d	4	2.791	0.0000	2.7914	11.1656	11.17	6/16/2019
10	K1905597-003	4	2.724	0.0000	2.7238	10.8952	10.90	6/16/2019
11	K1905597-003d	4	2.704	0.0000	2.7035	10.814	10.8	6/16/2019
12	C] CCV 25 ppm [25 p	1	24.518	0.0000	24.5184	24.5184	24.52	6/16/2019
13	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/16/2019
14	K1905597-004	1	0.000	0.0000	0.0000	0	<0.5	6/16/2019
15	K1905597-004d	1	0.000	0.0000	0.0000	0	<0.5	6/16/2019
16	K1905597-005	1	0.325	0.0000	0.3247	0.3247	<0.5	6/16/2019
17	K1905597-005d	1	0.301	0.0000	0.3007	0.3007	<0.5	6/16/2019
18	K1905597-006	1	2.345	0.0000	2.3445	2.3445	2.3	6/16/2019
19	K1905597-006d	1	2.369	0.0000	2.3694	2.3694	2.4	6/16/2019
20	K1905597-006ms	2	26.784	0.0000	26.7837	53.5674	53.57	6/16/2019
21	K1905597-007	1	1.434	0.0000	1.4339	1.4339	1.43	6/16/2019
22	K1905597-007d	1	1.412	0.0000	1.4118	1.4118	1.4	6/16/2019
23	K1905259-001	1	2.214	0.0000	2.2135	2.2135	2.2	6/16/2019
24	K1905259-001d	1	2.252	0.0000	2.2524	2.2524	2.25	6/16/2019
25	C] CCV 25 ppm [25 p	1	24.117	0.0000	24.1171	24.1171	24.12	6/16/2019

ICAL Date 10/20/16 ICAL ID#:11-GEN-05-51A

LCS =24.0 ppm APG 4013 Lot #010615 (REF# 11-GEN-05-50N)

CCV = 25.0 ppm (Ref.#11-GEN-05-52E)

Spike: 0.05 ml of 5000 ppm stock ----> 10.0 ml =25.0 ppm x Dilution Factor (Ref.# 11-GEN-05-51M)

		date time
Analyzed By: KCP	Date Analyzed	6/16/19
Reviewed By:	Date Reviewed	06/18/19

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
26	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/16/2019
27		1		0.0000	0.0000	0	<0.5	
28		1		0.0000	0.0000	0	<0.5	
29		1		0.0000	0.0000	0	<0.5	
30		1		0.0000	0.0000	0	<0.5	
31		1		0.0000	0.0000	0	<0.5	
32		1		0.0000	0.0000	0	<0.5	
33		1		0.0000	0.0000	0	<0.5	
34		1		0.0000	0.0000	0	<0.5	
35		1		0.0000	0.0000	0	<0.5	
36		1		0.0000	0.0000	0	<0.5	
37		1		0.0000	0.0000	0	<0.5	
38		1		0.0000	0.0000	0	<0.5	
39		1		0.0000	0.0000	0	<0.5	
40		1		0.0000	0.0000	0	<0.5	
41		1		0.0000	0.0000	0	<0.5	
42		1		0.0000	0.0000	0	<0.5	
43		1		0.0000	0.0000	0	<0.5	
44		1		0.0000	0.0000	0	<0.5	
45		1		0.0000	0.0000	0	<0.5	
46		1		0.0000	0.0000	0	<0.5	
47		1		0.0000	0.0000	0	<0.5	
48		1		0.0000	0.0000	0	<0.5	
49		1		0.0000	0.0000	0	<0.5	
50		1		0.0000	0.0000	0	<0.5	

Analyzed By: RP	Date Analyzed 6/16/19
Reviewed By: [signature]	Date Reviewed 06/18/19

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
CBA	RB	1			0.0000	0	<0.5	
2	C] CCV 25 ppm [25 p	1	24.518	0.0000	24.5184	24.5184	24.5	6/16/2019
3	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/16/2019
4	MB4	1	0.000	0.0000	0.0000	0	<0.5	6/16/2019
5	[TOC] LCS [25ppm]	1	25.100	0.0000	25.1000	25.1	25.1	6/16/2019
6	K1905589-002	1	3.123	0.0000	3.1233	3.1233	3.12	6/16/2019
7	K1905589-002d	1	3.128	0.0000	3.1282	3.1282	3.1	6/16/2019
8	C] CCV 25 ppm [25 p	1	24.117	0.0000	24.1171	24.1171	24	6/16/2019
9	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/16/2019
10	K1905589-004	1	2.294	0.0000	2.2935	2.2935	2.29	6/16/2019
11	K1905589-004d	1	2.303	0.0000	2.3031	2.3031	2.3	6/16/2019
12	K1905625-001	1	1.221	0.0000	1.2211	1.2211	1.22	6/16/2019
13	K1905625-001d	1	1.285	0.0000	1.2848	1.2848	1.28	6/16/2019
14	K1905625-001ms	1	26.865	0.0000	26.8649	26.8649	26.86	6/16/2019
15	K1905625-002	1	1.214	0.0000	1.2136	1.2136	1.2	6/16/2019
16	K1905625-002d	1	1.207	0.0000	1.2073	1.2073	1.2	6/16/2019
17	K1905595-001	1	0.568	0.0000	0.5675	0.5675	0.57	6/16/2019
18	K1905595-001d	1	0.578	0.0000	0.5782	0.5782	0.6	6/16/2019
19	K1905595-002 100X	100	0.000	0.0000	0.0000	0	<0.5	6/16/2019
20	K1905595-002 100Xd	100	0.000	0.0000	0.0000	0	<0.5	6/16/2019
21	C] CCV 25 ppm [25 p	1	25.111	0.0000	25.1105	25.1105	25.11	6/16/2019
22	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	6/16/2019
23		1		0.0000	0.0000	0	<0.5	
24		1		0.0000	0.0000	0	<0.5	
25		1		0.0000	0.0000	0	<0.5	

ICAL Date 10/20/16 ICAL ID#:11-GEN-05-51A

LCS =24.0 ppm APG 4013 Lot #010615 (REF# 11-GEN-05-50N)

CCV = 25.0 ppm (Ref.#11-GEN-05-52E)

Spike: 0.05 ml of 5000 ppm stock ----> 10.0 ml =25.0 ppm x Dilution Factor (Ref.# 11-GEN-05-51M)

		date	time
Analyzed By: KP	Date Analyzed	6/16/19	
Reviewed By: [signature]	Date Reviewed	06/18/19	

Revision 1, 2010 R:\WET\ANALYSES\TOC\TEMPLATE\TOCwaterLIMS

TOC: 639522, 639523, 639524,
DOC: 639525

Schedule: 06142019

Version: 8
Instrument: Fusion1
Last Saved by: Fusion1 (Fusion1)
Last Saved on: 2019/06/15 16:20 - Saturday

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
(Clean)	Clean	Clean		1	True	Ready
(Clean)	Clean	Clean		1	True	Ready
(Clean)	Clean	Clean		1	True	Ready
(Blank)	Blank	Reagent/Acid Blank		1	True	Ready
D	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
1	Sample	MB1	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
C	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
2	Sample	ICS	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
3	Sample	K1905436-001.01	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
4	Sample	K1905436-001.01 ms	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
5	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
6	Sample	K1905436-002.01 100x	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
7	Sample	K1905436-003.01 100x	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
8	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
9	Sample	K1905258-006.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
10	Sample	K1905198-003.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
11	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
12	Sample	K1905198-006.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
13	Sample	K1905114-006.01 10x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
14	Sample	K1905440-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
15	Sample	K1905440-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
16	Sample	K1905440-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
17	Sample	K1905440-004.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
18	Sample	K1905478-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
19	Sample	K1905478-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
20	Sample	MB2	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
21	Sample	K1905478-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
22	Sample	K1905478-004.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
23	Sample	K1905478-004.01 ms 2x	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
24	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
25	Sample	K1905478-005.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
26	Sample	K1905478-006.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
27	Sample	K1905478-007.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
28	Sample	K1905451-001.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
29	Sample	K1905451-002.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
30	Sample	K1905589-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
31	Sample	K1905589-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
32	Sample	K1905420-001.02 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
33	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
34	Sample	K1905449-001.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
35	Sample	K1905449-002.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
36	Sample	K1905477-001.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
37	Sample	K1905477-002.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
38	Sample	K1905477-003.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready

NR
NR

06/18/19

Schedule: 06142019

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
39	Sample	MB3	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [25.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
40	Sample	K1905477-004.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
41	Sample	K1905482-001.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
42	Sample	K1905482-002.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
43	Sample	K1905482-003.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
44	Sample	K1905482-004.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
45	Sample	K1905482-005.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
46	Sample	K1905409-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
47	Sample	K1905409-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
48	Sample	K1905558-001.14	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
49	Sample	K1905558-002.14	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
50	Sample	K1905558-003.14	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
51	Sample	K1905558-004.14	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
52	Sample	K1905558-005.14	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
53	Sample	K1905586-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
54	Sample	K1905586-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
55	Sample	K1905597-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
56	Sample	K1905597-002.01 4x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
57	Sample	K1905597-003.01 4x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
58	Sample	MB4	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [25.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
59	Sample	K1905597-004.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
60	Sample	K1905597-005.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
61	Sample	K1905597-006.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
62	Sample	K1905597-006.01 ms 2x	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
63	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
64	Sample	K1905597-007.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
65	Sample	K1905259-001.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
66	Sample	K1905589-002.02 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
67	Sample	K1905589-004.02 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
68	Sample	K1905625-001.03 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
69	Sample	K1905625-001.03 ms doc	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
70	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
71	Sample	K1905625-002.03 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
72	Sample	FB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
73	Sample	K1905595-001.03 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
74	Sample	K1905595-002.03 100x doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
75	Sample	K1905198-006.01 ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
					False	

00949604

Fusion Report - 06142019
Friday, June 14, 2019 03:25 PM

(View - Reps, Unused Reps, Meta-Data, Signature, History)
Printed on 2019/06/18 08:56 - Tuesday

Report Summary Information

Company Location:	Gen Chem Lab		
Schedule Name:	06142019	Engine Version:	1.1.5.1
Instrument Name:	Fusion1	Firmware Version:	1.2.0696
Report Version:	1 of 1	Connection:	RS232 COM1
Report Creation by Operators (schedule version):	Fusion1 (Fusion1) (v2) Fusion1 (Fusion1) (v3) Fusion1 (Fusion1) (v4) Fusion1 (Fusion1) (v5) Fusion1 (Fusion1) (v6) Fusion1 (Fusion1) (v7) Fusion1 (Fusion1) (v8)		
Comment:			

Report Results

06/18/19

Sample Type: Clean — From Schedule Version 2

	Pos	Analysis Type	Sample ID	Start Time
◈	(clean)		Clean	2019/06/14 15:25

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	13.34	18.06	4.72	49.88	07:58
2	TC Clean	14.48	17.60	3.12	49.67	07:18
3	TC Clean	3.52	6.54	3.02	49.90	07:04
4	TC Clean	2.44	5.68	3.24	49.76	07:02

Sample Type: Clean — From Schedule Version 3

	Pos	Analysis Type	Sample ID	Start Time
◈	(clean)		Clean	2019/06/14 16:04

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	12.04	15.23	3.18	49.96	07:59

2	TC Clean	5.88	9.04	3.16	49.75	07:16
3	TC Clean	2.16	5.37	3.21	49.79	07:02
4	TC Clean	1.43	4.65	3.22	49.90	07:02

Sample Type: Clean — From Schedule Version 3

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2019/06/14 16:39

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	1.06	4.16	3.09	49.78	05:26
2	TC Clean	4.34	7.40	3.05	49.94	07:19
3	TC Clean	2.36	5.45	3.10	49.86	07:02
4	TC Clean	1.88	4.87	2.98	49.79	07:00

Sample Type: Blank (Creating v1266) — From Schedule Version 3

	Pos	Analysis Type	Sample ID	Start Time
◆	(blank)		Reagent/Acid Blank	2019/06/14 17:10

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	1.16	4.21	3.05	49.68	05:25
2	TC Clean	4.58	7.72	3.15	49.84	07:16
3	TC Clean	2.49	5.59	3.10	49.83	07:00
4	TC Clean	1.81	4.95	3.14	49.94	07:01
5	Reagent Blank	6.66	9.83	3.17	49.86	08:11
6	Acid Blank	1.49	4.73	3.24	49.69	05:29

Sample Type: Sample — From Schedule Version 3

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	D	TOC	RB	0.3200 ppm	0.0000 ppm	0.0000%	2019/06/14 17:57

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.3200	3.1998	11.13	14.35	3.22	50.07	10:29

Dilution **Blank Contribution** **Method** **Calibration**

1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◉	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.9374 ppm (PASS)	0.0000 ppm	0%	2019/06/14 18:11

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.9374	249.3739	178.74	181.86	3.12	50.09	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◉	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/06/14 18:26

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	7.93	11.23	3.30	50.20	10:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample — From Schedule Version 3

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◉	1	TOC	MB1	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/14 18:41

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.04	10.20	3.16	50.08	10:28
2	TOC	0.0000	0.0000	7.38	10.54	3.17	49.99	10:29
3	TOC	0.0000	0.0000	7.03	10.13	3.09	49.96	10:27
4	TOC	0.0000	0.0000	7.13	10.13	3.00	49.92	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

00949607

Sample Type: Check Standard --> LCS From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	C	TOC	25.0000	1:1	[TOC] LCS [24.0 ppm]	0 / infinity (NA / NA)	25.4375 ppm (PASS)	0.1009 ppm	0.40%	2019/06/14 19:37

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	25.4009	254.0086	181.88	184.97	3.09	49.87	10:27
C	TOC	25.0 ppm	2	25.5837	255.8368	183.12	186.21	3.08	49.84	10:25
C	TOC	25.0 ppm	3	25.4128	254.1279	181.96	185.20	3.24	49.89	10:27
C	TOC	25.0 ppm	4	25.3525	253.5254	181.55	184.86	3.30	49.81	10:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	25 ppmC

Sample Type: Sample From Schedule Version 3

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	2	TOC	ICS	0.2434 ppm	0.0000 ppm	0.0000%	2019/06/14 20:33

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.2434	2.4338	10.61	13.81	3.20	49.81	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

NR no room

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	3	TOC	K1905436-001.01	0.7283 ppm	0.0388 ppm	5.3200%	2019/06/14 20:48

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.7857	7.8566	14.29	17.55	3.25	49.80	10:27
2	TOC	0.7089	7.0891	13.77	17.02	3.25	49.80	10:30
3	TOC	0.7017	7.0169	13.72	16.97	3.25	49.80	10:28
4	TOC	0.7169	7.1686	13.83	16.98	3.15	49.83	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

NR no room

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	4	TOC	K1905436-001.01 ms	27.4897 ppm	0.0961 ppm	0.3500%	2019/06/14 21:44

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	27.5876	275.8760	196.22	199.32	3.10	49.83	10:28
2	TOC	27.3697	273.6972	194.74	198.12	3.38	49.84	10:28

3	TOC	27.5424	275.4238	195.92	199.07	3.15	49.85	10:30
4	TOC	27.4591	274.5914	195.35	198.50	3.14	49.87	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	5	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/14 22:39

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.54	10.78	3.24	49.89	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	6	TOC	K1905436-002.01 100x	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/14 22:54

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	8.04	11.07	3.02	49.89	10:31
2	TOC	0.0000	0.0000	7.57	10.75	3.19	49.89	10:27
3	TOC	0.0000	0.0000	7.71	10.95	3.24	49.91	10:27
4	TOC	0.0000	0.0000	7.76	10.87	3.11	49.94	10:27

Per 6/18/19 K5436 NC

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	7	TOC	K1905436-003.01 100x	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/14 23:49

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.52	10.65	3.13	49.96	10:24
2	TOC	0.0000	0.0000	7.59	10.61	3.02	49.96	10:24
3	TOC	0.0000	0.0000	7.36	10.42	3.05	49.95	10:31
4	TOC	0.0000	0.0000	7.66	10.79	3.12	49.97	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	8	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/15 00:45

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.48	9.62	3.14	49.96	10:29
2	TOC	0.0000	0.0000	6.84	9.91	3.07	49.98	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	9	TOC	K1905258-006.01 100x	3.3205 ppm	0.0093 ppm	0.2800%	2019/06/15 01:13

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.3140	33.1397	31.46	34.50	3.05	49.99	10:28
2	TOC	3.3271	33.2708	31.54	34.86	3.31	50.00	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.5900 ppm (PASS)	0.0000 ppm	0%	2019/06/15 01:41

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.5900	245.9001	176.38	179.52	3.14	50.01	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/06/15 01:56

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	7.08	10.33	3.25	50.01	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample — From Schedule Version 3

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time

◈	10	TOC	K1905198-003.01 100x	13.5940 ppm	0.0061 ppm	0.0500%	2019/06/15 02:11

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	13.5984	135.9838	101.26	104.50	3.24	49.97	10:27
2	TOC	13.5897	135.8969	101.21	104.44	3.23	49.98	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	11	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/15 02:39

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.99	10.12	3.13	49.99	10:30
2	TOC	0.0000	0.0000	6.59	9.86	3.27	50.00	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	12	TOC	K1905198-006.01	3.8954 ppm	0.0873 ppm	2.2400%	2019/06/15 03:07

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.9572	39.5717	35.82	39.04	3.22	50.00	10:29
2	TOC	3.8337	38.3371	34.98	38.07	3.09	50.02	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	13	TOC	K1905114-006.01 10x	5.8506 ppm	0.6208 ppm	10.6100%	2019/06/15 03:35

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	5.4117	54.1166	45.69	49.02	3.32	50.01	10:31
2	TOC	6.2895	62.8954	51.65	54.78	3.12	50.01	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	14	TOC	K1905440-001.01	21.1750 ppm	0.2447 ppm	1.1600%	2019/06/15 04:03

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	21.3480	213.4801	153.87	157.12	3.25	50.03	10:28
2	TOC	21.0020	210.0196	151.52	154.86	3.34	50.02	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	15	TOC	K1905440-002.01	21.3795 ppm	0.1875 ppm	0.8800%	2019/06/15 04:31

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	21.5121	215.1212	154.98	158.24	3.25	50.02	10:26
2	TOC	21.2469	212.4695	153.18	156.37	3.19	50.02	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	16	TOC	K1905440-003.01	20.7799 ppm	0.2170 ppm	1.0400%	2019/06/15 04:59

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	20.6264	206.2644	148.97	152.17	3.19	50.04	10:26
2	TOC	20.9333	209.3330	151.05	154.23	3.17	50.04	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	17	TOC	K1905440-004.01	20.8222 ppm	0.0383 ppm	0.1800%	2019/06/15 05:27

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	20.8493	208.4933	150.48	153.72	3.23	50.03	10:28
2	TOC	20.7951	207.9512	150.12	153.41	3.29	50.04	10:23

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	18	TOC	K1905478-001.01	28.2206 ppm	0.2330 ppm	0.8300%	2019/06/15 05:55

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	28.0558	280.5579	199.40	202.57	3.17	50.01	10:27
2	TOC	28.3853	283.8534	201.64	204.78	3.14	50.03	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	19	TOC	K1905478-002.01	9.5845 ppm	0.3350 ppm	3.5000%	2019/06/15 06:23

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	9.8214	98.2139	75.63	78.90	3.28	50.03	10:31
2	TOC	9.3476	93.4761	72.41	75.52	3.11	50.02	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	25.4635 ppm (PASS)	0.0000 ppm	0%	2019/06/15 06:51

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.4635	254.6347	182.31	185.62	3.32	50.02	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/06/15 07:06

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	8.42	11.67	3.25	50.01	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample — From Schedule Version 3

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	20	TOC	MB2	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/15 07:21

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.06	10.22	3.16	50.01	10:36

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC)	CAS_salt_010711	CAS_salt_010711

(v1266) (v4) (v30)

Sample Type: Check Standard --> LCS — From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	C	TOC	25.0000	1:1	[TOC] LCS [24.0 ppm]	0 / infinity (NA / NA)	25.4355 ppm (PASS)	0.0000 ppm	0%	2019/06/15 07:35

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	25.4355	254.3548	182.12	185.25	3.13	50.02	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	25 ppmC

Sample Type: Sample — From Schedule Version 3

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	21	TOC	K1905478-003.01	18.6377 ppm	0.0947 ppm	0.5100%	2019/06/15 07:50

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	18.5707	185.7073	135.02	138.21	3.19	50.04	10:30
2	TOC	18.7046	187.0465	135.93	139.24	3.32	50.00	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	22	TOC	K1905478-004.01	9.8603 ppm	0.0060 ppm	0.0600%	2019/06/15 08:18

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	9.8646	98.6456	75.92	79.15	3.23	50.00	10:27
2	TOC	9.8560	98.5601	75.86	79.06	3.19	49.99	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	23	TOC	K1905478-004.01 ms 2x	29.9530 ppm	0.0000 ppm	0.0000%	2019/06/15 08:46

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	29.9530	299.5298	212.28	215.36	3.08	50.01	10:31

Dilution	Blank Contribution	Method	Calibration

1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	24	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/15 09:01

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.77	11.03	3.26	49.99	10:28
2	TOC	0.0000	0.0000	6.82	10.06	3.24	49.98	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Sample — From Schedule Version 4

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	25	TOC	K1905478-005.01	7.9322 ppm	0.0540 ppm	0.6800%	2019/06/15 09:29

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	7.8940	78.9400	62.54	65.71	3.16	49.95	10:31
2	TOC	7.9703	79.7032	63.06	66.27	3.21	49.94	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Sample — From Schedule Version 5

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	26	TOC	K1905478-006.01	0.6339 ppm	0.0554 ppm	8.7400%	2019/06/15 10:11

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.6731	6.7311	13.53	16.69	3.16	49.87	10:27
2	TOC	0.5947	5.9474	13.00	16.22	3.22	49.86	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Sample — From Schedule Version 6

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	27	TOC	K1905478-007.01	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/15 10:59

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time

1	TOC	0.0000	0.0000	7.39	10.50	3.11	49.81	10:29
2	TOC	0.0000	0.0000	7.27	10.48	3.21	49.79	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Sample — From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	28	TOC	K1905451-001.01 100x	6.4615 ppm	0.0007 ppm	0.0100%	2019/06/15 11:35

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	6.4621	64.6205	52.82	55.88	3.05	49.78	10:28
2	TOC	6.4610	64.6102	52.82	55.95	3.14	49.76	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.9627 ppm (PASS)	0.0000 ppm	0%	2019/06/15 12:03

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.9627	249.6273	178.91	182.18	3.27	49.76	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/06/15 12:18

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	7.39	10.62	3.23	49.80	10:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample

From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	29	TOC	K1905451-002.01 100x	5.8663 ppm	0.0508 ppm	0.8700%	2019/06/15 12:33

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	5.8303	58.3034	48.54	51.75	3.21	49.80	10:30
2	TOC	5.9022	59.0224	49.02	52.16	3.13	49.81	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	30	TOC	K1905589-001.01	3.6891 ppm	0.0736 ppm	2.0000%	2019/06/15 13:01

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.7412	37.4120	34.35	37.49	3.13	49.77	10:27
2	TOC	3.6370	36.3704	33.65	36.75	3.10	49.81	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	31	TOC	K1905589-003.01	2.5847 ppm	0.0019 ppm	0.0700%	2019/06/15 13:30

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.5861	25.8606	26.51	29.58	3.06	49.93	10:26
2	TOC	2.5834	25.8341	26.50	29.65	3.15	49.88	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	32	TOC	K1905420-001.02 100x	0.3825 ppm	0.0059 ppm	1.5500%	2019/06/15 13:58

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.3783	3.7832	11.53	14.74	3.21	49.85	10:31
2	TOC	0.3867	3.8672	11.58	14.76	3.18	49.89	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	33	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/15 14:26

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.91	9.10	3.19	50.00	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	34	TOC	K1905449-001.02	1.5038 ppm	0.0496 ppm	3.3000%	2019/06/15 14:40

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.5389	15.3891	19.41	22.54	3.14	49.92	10:26
2	TOC	1.4688	14.6879	18.93	22.03	3.10	49.91	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	35	TOC	K1905449-002.02	0.5435 ppm	0.0205 ppm	3.7800%	2019/06/15 15:08

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5581	5.5805	12.75	15.85	3.10	49.96	10:28
2	TOC	0.5290	5.2903	12.55	15.63	3.08	49.95	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	36	TOC	K1905477-001.02	1.7378 ppm	0.0227 ppm	1.3100%	2019/06/15 15:36

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.7217	17.2173	20.65	23.75	3.10	49.91	10:25
2	TOC	1.7538	17.5385	20.86	23.98	3.11	50.02	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	37	TOC	K1905477-002.02	19.8189 ppm	0.1743 ppm	0.8800%	2019/06/15 16:04

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	19.9421	199.4213	144.33	147.57	3.25	49.94	10:29
2	TOC	19.6957	196.9567	142.65	145.86	3.21	50.03	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Sample — From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	38	TOC	K1905477-003.02	2.6200 ppm	0.0911 ppm	3.4800%	2019/06/15 16:32

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.6845	26.8447	27.18	30.31	3.13	49.99	10:30
2	TOC	2.5556	25.5557	26.31	29.38	3.08	50.03	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.8939 ppm (PASS)	0.0000 ppm	0%	2019/06/15 17:01

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.8939	248.9393	178.44	181.45	3.01	50.04	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/06/15 17:15

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	6.72	9.73	3.01	50.03	10:34

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample — From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	39	TOC	MB3	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/15 17:30

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.76	8.85	3.09	50.09	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> LCS

From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	C	TOC	25.0000	1:1	[TOC] LCS [25.0 ppm]	0 / infinity (NA / NA)	25.1136 ppm (PASS)	0.0000 ppm	0%	2019/06/15 17:45

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	25.1136	251.1358	179.93	183.18	3.24	50.06	10:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	25 ppmC

Sample Type: Sample

From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	40	TOC	K1905477-004.02	1.1786 ppm	0.0741 ppm	6.2800%	2019/06/15 17:59

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.2310	12.3101	17.32	20.63	3.31	49.99	10:27
2	TOC	1.1263	11.2627	16.60	19.84	3.24	50.03	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	41	TOC	K1905482-001.02	0.4338 ppm	0.0422 ppm	9.7300%	2019/06/15 18:27

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.4040	4.0396	11.70	15.00	3.30	50.06	10:28
2	TOC	0.4636	4.6362	12.11	15.22	3.11	49.96	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	42	TOC	K1905482-002.02	1.5290 ppm	0.0106 ppm	0.6900%	2019/06/15 18:56

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.5366	15.3655	19.39	22.43	3.04	49.99	10:27
2	TOC	1.5215	15.2153	19.29	22.48	3.19	50.05	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	43	TOC	K1905482-003.02	0.6257 ppm	0.0085 ppm	1.3700%	2019/06/15 19:24

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.6196	6.1963	13.17	16.27	3.10	49.95	10:29
2	TOC	0.6317	6.3171	13.25	16.32	3.07	50.04	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	44	TOC	K1905482-004.02	0.8441 ppm	0.0368 ppm	4.3600%	2019/06/15 19:52

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.8701	8.7008	14.87	17.98	3.11	49.92	10:25
2	TOC	0.8181	8.1807	14.51	17.78	3.27	49.86	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	45	TOC	K1905482-005.02	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/15 20:20

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.83	9.01	3.18	49.83	10:31
2	TOC	0.0000	0.0000	6.27	9.49	3.21	49.80	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	46	TOC	K1905409-001.01	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/15 20:48

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.61	8.78	3.17	49.79	10:29
2	TOC	0.0000	0.0000	5.86	8.91	3.05	49.77	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC)	CAS_salt_010711	CAS_salt_010711

(v1266) (v4) (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	47	TOC	K1905409-002.01	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/15 21:16

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.33	8.57	3.25	49.78	10:30
2	TOC	0.0000	0.0000	5.75	9.02	3.27	49.77	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.4988 ppm (PASS)	0.0000 ppm	0%	2019/06/15 21:44

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.4988	244.9882	175.76	178.90	3.14	49.76	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/06/15 21:59

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	6.20	9.37	3.17	49.80	10:34

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	48	TOC	K1905558-001.14	1.4472 ppm	0.0497 ppm	3.4300%	2019/06/15 22:14

00949622

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.4823	14.8234	19.02	22.22	3.20	49.82	10:28
2	TOC	1.4121	14.1207	18.54	21.65	3.11	49.81	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	49	TOC	K1905558-002.14	1.6252 ppm	0.0243 ppm	1.4900%	2019/06/15 22:42

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.6423	16.4233	20.11	23.32	3.21	49.84	10:29
2	TOC	1.6080	16.0800	19.88	23.13	3.26	49.85	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	50	TOC	K1905558-003.14	1.0669 ppm	0.0083 ppm	0.7800%	2019/06/15 23:10

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.0728	10.7279	16.24	19.41	3.17	49.88	10:27
2	TOC	1.0610	10.6100	16.16	19.31	3.15	49.89	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	51	TOC	K1905558-004.14	1.5654 ppm	0.0322 ppm	2.0600%	2019/06/15 23:38

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.5881	15.8811	19.74	22.67	2.93	49.90	10:30
2	TOC	1.5426	15.4259	19.43	22.58	3.15	49.90	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	52	TOC	K1905558-005.14	1.5050 ppm	0.0296 ppm	1.9700%	2019/06/16 00:06

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.5259	15.2595	19.32	22.36	3.05	49.93	10:29
2	TOC	1.4841	14.8411	19.03	22.23	3.20	49.94	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC)	CAS_salt_010711	CAS_salt_010711

(v1266) (v4) (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	53	TOC	K1905586-001.01	0.6793 ppm	0.0192 ppm	2.8200%	2019/06/16 00:34

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.6929	6.9285	13.66	16.86	3.20	49.93	10:30
2	TOC	0.6657	6.6574	13.48	16.66	3.18	49.89	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	54	TOC	K1905586-002.01	0.1747 ppm	0.0205 ppm	11.7500%	2019/06/16 01:02

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1892	1.8916	10.24	13.54	3.30	49.89	10:28
2	TOC	0.1601	1.6014	10.05	13.18	3.13	49.89	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	55	TOC	K1905597-001.01	0.5515 ppm	0.0789 ppm	14.3000%	2019/06/16 01:30

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.6073	6.0726	13.08	16.24	3.16	49.89	10:28
2	TOC	0.4957	4.9574	12.32	15.62	3.29	49.89	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	56	TOC	K1905597-002.01 4x	2.7926 ppm	0.0017 ppm	0.0600%	2019/06/16 01:58

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.7938	27.9378	27.92	31.16	3.24	49.92	10:28
2	TOC	2.7914	27.9142	27.91	31.03	3.12	49.92	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	57	TOC	K1905597-003.01 4x	2.7136 ppm	0.0144 ppm	0.5300%	2019/06/16 02:27

Rep	Base	ppm	µg	Adjusted	NDIR (Abs)	Baseline	Pressure	Run

#	Analysis Type			(Abs)		(Abs)	(psig)	Time
1	TOC	2.7238	27.2380	27.45	30.52	3.08	49.91	10:29
2	TOC	2.7035	27.0347	27.31	30.44	3.13	49.91	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.5184 ppm (PASS)	0.0000 ppm	0%	2019/06/16 02:55

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.5184	245.1841	175.89	178.91	3.01	49.91	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/06/16 03:09

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	5.87	9.03	3.16	49.90	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample — From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	58	TOC	MB4	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/16 03:24

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.10	8.27	3.17	49.91	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> LCS

From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	C	TOC	25.0000	1:1	[TOC] LCS [25.0 ppm]	0 / infinity (NA / NA)	25.1000 ppm (PASS)	0.0000 ppm	0%	2019/06/16 03:39

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	25.1000	251.0003	179.84	182.99	3.15	49.93	10:34

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	25 ppmC

Sample Type: Sample

From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	59	TOC	K1905597-004.01	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/16 03:53

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	8.74	11.82	3.08	49.93	10:32
2	TOC	0.0000	0.0000	7.73	10.91	3.18	49.95	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	60	TOC	K1905597-005.01	0.3127 ppm	0.0170 ppm	5.4300%	2019/06/16 04:22

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.3247	3.2470	11.16	14.33	3.17	49.96	10:27
2	TOC	0.3007	3.0068	11.00	14.19	3.18	49.96	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	61	TOC	K1905597-006.01	2.3569 ppm	0.0176 ppm	0.7500%	2019/06/16 04:50

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.3445	23.4446	24.87	27.92	3.05	49.98	10:25
2	TOC	2.3694	23.6935	25.04	28.05	3.01	49.98	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	62	TOC	K1905597-006.01 ms 2x	26.7837 ppm	0.0000 ppm	0.0000%	2019/06/16 05:18

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	26.7837	267.8368	190.77	193.77	3.00	49.99	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	63	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/16 05:32

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.96	9.15	3.19	49.99	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	64	TOC	K1905597-007.01	1.4228 ppm	0.0156 ppm	1.1000%	2019/06/16 05:47

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.4339	14.3387	18.69	21.73	3.04	50.01	10:29
2	TOC	1.4118	14.1177	18.54	21.56	3.02	50.02	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	65	TOC	K1905259-001.02	2.2329 ppm	0.0275 ppm	1.2300%	2019/06/16 06:15

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.2135	22.1349	23.99	27.17	3.18	50.02	10:28
2	TOC	2.2524	22.5238	24.25	27.32	3.08	50.04	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	66	TOC	K1905589-002.02 doc	3.1258 ppm	0.0034 ppm	0.1100%	2019/06/16 06:43

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.1233	31.2334	30.16	33.36	3.20	50.06	10:28
2	TOC	3.1282	31.2820	30.19	33.30	3.10	50.06	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.1171 ppm (PASS)	0.0000 ppm	0%	2019/06/16 07:11

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.1171	241.1711	173.17	176.46	3.30	50.07	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/06/16 07:26

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	5.56	8.74	3.18	50.07	10:35

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample — From Schedule Version 8

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	67	TOC	K1905589-004.02 doc	2.2983 ppm	0.0068 ppm	0.2900%	2019/06/16 07:41

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.2935	22.9348	24.53	27.49	2.96	50.06	10:30
2	TOC	2.3031	23.0306	24.59	27.60	3.01	50.06	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time

◈ 68	TOC	K1905625-001.03 doc	1.2530 ppm	0.0450 ppm	3.5900%	2019/06/16 08:09

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.2211	12.2114	17.25	20.44	3.19	50.03	10:26
2	TOC	1.2848	12.8478	17.68	20.58	2.90	50.04	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	69	TOC	K1905625-001.03 ms doc	26.8649 ppm	0.0000 ppm	0.0000%	2019/06/16 08:37

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	26.8649	268.6485	191.32	194.50	3.18	50.03	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	70	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/16 08:52

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.07	9.21	3.14	50.02	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	71	TOC	K1905625-002.03 doc	1.2105 ppm	0.0045 ppm	0.3700%	2019/06/16 09:06

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.2136	12.1363	17.20	20.50	3.30	50.02	10:32
2	TOC	1.2073	12.0729	17.16	20.43	3.28	50.00	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	72	TOC	FB	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/16 09:34

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.63	8.73	3.10	50.00	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	73	TOC	K1905595-001.03 doc	0.5729 ppm	0.0076 ppm	1.3300%	2019/06/16 09:49

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5675	5.6748	12.81	15.96	3.15	49.99	10:30
2	TOC	0.5782	5.7824	12.89	16.02	3.14	50.02	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	74	TOC	K1905595-002.03 100x doc	0.0000 ppm	0.0000 ppm	0.0000%	2019/06/16 10:17

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.91	10.07	3.16	49.97	10:28
2	TOC	0.0000	0.0000	6.95	10.10	3.15	49.95	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	75	TOC	K1905198-006.01 ms	25.5611 ppm	0.0000 ppm	0.0000%	2019/06/16 10:45

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	25.5611	255.6107	182.47	185.58	3.12	49.91	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.9600 (IC) (v1266)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 8

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	25.1105 ppm (PASS)	0.0000 ppm	0%	2019/06/16 11:00

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.1105	251.1049	179.91	183.10	3.19	49.89	10:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 8

00949630

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/06/16 11:14

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	5.98	9.18	3.20	49.85	10:34

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Meta Data Used in this Report

Blanks

Version	Reagent (Abs)	Acid (Abs)	DI IC (Abs)	DI TC (Abs)	DI TOC (Abs)	Save Time	Operator
v1265	1.1340	1.2260	0.0000	0.0000	0.0000	2019/06/10 14:28	Fusion1 (Fusion1)
v1266	2.2187	1.4940	0.0000	0.0000	0.0000	2019/06/14 17:57	Fusion1 (Fusion1)

Calibrations

Name: CAS_salt_010711 (TOC)

Version:	v30	Calibration curve formula:	TOC: y = 6.788x + 9.463
Ver Creation:	2019/03/05 17:42	r^2 value:	TOC: r^2 = 0.99963
Comment:			
Operator:	Fusion1 (Fusion1)		
Basic Analysis Type	TOC		

Basic Analysis Type: TOC

Sample ID	Y Raw Value	X Expected	Message	End Time
DI Water	7.8970	0.0000		2019/03/05 16:15
0.500 ppm	11.5280	0.5000		2019/03/05 16:29
1.0 ppm	14.9760	1.0000		2019/03/05 16:44
5.0 ppm	43.6500	5.0000		2019/03/05 16:58
10 ppm	79.6020	10.0000		2019/03/05 17:12
25 ppm	183.3580	25.0000		2019/03/05 17:26
50 ppm	346.3230	50.0000		2019/03/05 17:40

Methods

00949631

Name: CAS_salt_010711 (TOC)

Version: v4 Operator: Fusion1 (Fusion1)
Ver Creation: 2019/02/21 17:57
Comment:

Parameter	Value
SampleVolume	10.0 mL
Dilution	1:10
AcidVolume	0.5 ml
ReagentVolume	2.0 ml
UVReactorPrerinse	Off
UVReactorPrerinseVolume	5.0
NumberOfUVReactorPrerinses	1
ICSpargeTime	1.00 mins
DetectorSweepFlow	500 ml/min
PreSpargeTime	2.00 mins
SystemFlow	500 ml/min

Advanced Parameter	Value
NeedleRinseVolume	5.0 ml
VialPrimeVolume	2.0 ml
ICSamplePrimeVolume	2.0 ml
ICSpargeRinseVolume	12.0 ml
BaselineStabilizeTime	0.70 min
DetectorPressureFlow	150 ml/min
SyringeSpeedWaste	10
SyringeSpeedAcid	7
SyringeSpeedReagent	7
SyringeSpeedDIWater	7
NDIRPressurization	60 psig
SyringeSpeedSampleDispense	5
SyringeSpeedSampleAspirate	4
SyringeSpeedUVDispense	5
SyringeSpeedUVAspirate	5
SyringeSpeedICDispense	5
SyringeSpeedICAspirate	5
NDIRPressureStabilize	1.75 min
SampleMixing	Off
SampleMixingCycles	1
SampleMixingVolume	10.0
LowLevelFilterNDIR	Off

Acceptance / Approval

Electronic Signatures

Report Version	User Name	Acceptance	Reason	Date

Report History

Report History

Report Version	User Name	System Reason	User Reason	Date

00949632

1	Fusion1 (Fusion1)	Schedule completed	Schedule completed	2019/06/16 11:32

ALS Environmental

StarLIMS Run: 639522, 639523, 639524, 639525

Analysis: TOC/DOC

Method: 415.1, SM 5310 C, 9060, 9060A

CCV: 11-GEN-05-77K 50 ppm LCS: 11-GEN-05-77D 25.0 ppm

ICAL Date: 3/6/19

ICAL ID: 11-GEN-05-76H

ICS ID: 11-GEN-05-74A

ICS TV: 25.0 ppm ICS % R = 2

Spike ID: 11-GEN-05-77J 0.05 ml of 5000 ppm stock ---> 10.0 ml = 25.0 ppm x dilution factor

Sodium Persulfate: 11-GEN-05-78I

21 % H3PO4: 11-GEN-05-78H

Equipment ID: K-TOC-03

PIPETTE ID: 124276B, 129001F, N11314F, Marge

FILTER ID: FE1165 6/15/19

Analyzed By:	BCD / HLM	Date Analyzed:	6/16/19
Reviewed By:		Date Reviewed:	06/18/19

June 19, 2019 Service Request No:R1905052

RJ Modashia
ALS Laboratory Group
10450 Stancliff Road
Suite 210
Houston, TX 77099-4338

Laboratory Results for: LHAAP / Site 58

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory June 05, 2019
For your reference, these analyses have been assigned our service request number **R1905052.**

All testing was performed according to our laboratory's quality assurance program and met the requirements of the TNI standards except as noted in the case narrative report. Any testing not included in the lab's accreditation is identified on a Non-Certified Analytes report. All results are intended to be considered in their entirety. ALS Environmental is not responsible for use of less than the complete report. Results apply only to the individual samples submitted to the lab for analysis, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s), and represented by Laboratory Control Sample control limits. Any events, such as QC failures or Holding Time exceedances, which may add to the uncertainty are explained in the report narrative or are flagged with qualifiers. The flags are explained in the Report Qualifiers and Definitions page of this report.

Please contact me if you have any questions. My extension is 7472. You may also contact me via email at Janice.Jaeger@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Janice Jaeger
Project Manager

CC: Joni Blankfield

ADDRESS 1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
PHONE +1 585 288 5380 | FAX +1 585 288 8475
ALS Group USA, Corp.
dba ALS Environmental

Narrative Documents

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1565 Jefferson Rd, Building 300, Rochester, NY 14623 | 585-288-5380 | www.alsglobal.com

Client: ALS Environmental - US
Project: LHAAP / Site 58
Sample Matrix: Water

Service Request: R1905052
Date Received: 06/05/2019

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier II level requested by the client.

Sample Receipt:

Five water samples were received for analysis at ALS Environmental on 06/05/2019. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

Semivoa GC:

Method Organic Acids, 06/06/2019: The upper control limit was exceeded for one or more analytes in the Continuing Calibration Verification (CCV). The field samples analyzed in this sequence did not contain the analyte(s) in question above the Method Reporting Limit (MRL). Since the exceedance equates to a potential high bias, the data quality was not significantly affected and no further corrective action was taken.

Method Organic Acids, 06/06/2019: The upper control criterion was exceeded for one or more analytes in the Laboratory Control Sample (LCS). There were no detections of the analyte(s) in the associated field samples. The error associated with elevated recovery equates to a high bias. The sample data is not significantly affected. No further corrective action was appropriate.

Approved by _____ Date 06/19/2019

SAMPLE DETECTION SUMMARY

CLIENT ID: 35AWW08_060419			Lab ID: R1905052-001			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Acetic Acid	20			1.0	mg/L	Organic Acids
Lactic Acid	12			1.0	mg/L	Organic Acids

CLIENT ID: 35AWW06_060419			Lab ID: R1905052-005			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Acetic Acid	120			2.5	mg/L	Organic Acids
Butanoic Acid (Butyric Acid)	7.7			5.0	mg/L	Organic Acids
Propionic Acid	380			2.5	mg/L	Organic Acids

Sample Receipt Information

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Client: ALS Environmental - US **Service Request:**R1905052
Project: LHAAP / Site 58

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
R1905052-001	35AWW08_060419	6/4/2019	0820
R1905052-002	35AWW20_060419	6/4/2019	0925
R1905052-003	35AWW10_060419	6/4/2019	1030
R1905052-004	35AWW10_060419_a	6/4/2019	1030
R1905052-005	35AWW06_060419	6/4/2019	1135

bhate ENVIRONMENTAL CONSTRUCTION ENERGY

1608 13th Avenue South, Suite 300
Birmingham Alabama 35205
Tel: 205-918-4000
Fax: 205-918-4050

Chain of Custody and Analytical Request

Page: _____ of _____

Project/Phase No: NWO1312.0150

COC Number(1): _____

LIMS Number: _____

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / Site 58

Client Name:

Collected by: Scott Beesinger

Sample Analysis Requested (5) | Quality Assurance Samples (6)

Field Sample ID (30 Characters Max)	ERPIMS LOCID (15 Characters Max)	Date Collected (dd-mmm-yyyy)	Time Collected (Military) (hhmm)	Sample Depth (beginning - ending)	SA Code (2)	Sample Number (3)	Sample Matrix (4)	Number of containers	Volatile Fatty Acids	Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
~~03AWW01_060419~~		~~04 JUN 2019~~	~~0745~~	-	~~N~~		~~WG~~	~~1~~	~~X~~	Rec'd broken 6/5/19			
35AWW08_060419		04 JUN 2019	0820	-	N		WG	1	X				
35AWW20_060419		04 JUN 2019	0925	-	N		WG	1	X				
35AWW10_060419		04 JUN 2019	1030		N		WG	1	X				
35AWW10_060419_a		04 JUN 2019	1030		FD		WG	1	X				
35AWW06_060419		04 JUN 2019	1135	-	N		WG	1	X				
				-									
				-									
				-									
				-									
				-									

COMMENTS: _____

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1. Scott Beesinger	6/4/19	1400	1. [signature]	6/5/19	0900
2.			2.		
3.			3.		

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: _____ Shipped No.:

_____ Method of Shipment: _____

_____ Fed Ex _____ Airbill Number:

_____ Analytical Lab: ALS 10450 Stancliff Rd. Suite 210 Houston, TX 77099 (281) 530-5656

ATTN: SONIA WEST Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01)

2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-c) Sample, FD = Field Duplicate (-a) Samples, FR = Field Replicate (-b) Samples, EB = Equipment Blank (-d) Samples, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-e)

3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)

4.) Matrix Codes: GS = Soil Gas, WG = Groundwater, WS = Surface Water, SO = Soil, SE = Sediment, SL = Sludge, SS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blanks

5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each.

6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 10109901 in the Equipment I

R1905052 5
ALS Laboratory Group
LHAAP / Site 58

Cooler Receipt and Preservation Check Form

R1905052 5
ALS Laboratory Group
LHAAP / Site 68

Project/Client Battle Folder Number

Cooler received on 6/5/19 by: [illegible]

COURIER: ALS UPS FEDEX VELOCITY CLIENT

1	Were **Custody seals** on outside of cooler?	(Y) N	5a	**Perchlorate** samples have required headspace?	Y N (NA)
2	**Custody papers** properly completed (ink, signed)?	(Y) N	5b	Did VOA vials, Alk,or Sulfide have sig* **bubbles**?	Y N (NA)
3	Did all bottles arrive in good **condition** (unbroken)?	Y (N)	6	Where did the bottles originate?	(ALS/ROC) CLIENT
4	Circle: (Wet Ice) **Dry Ice Gel packs** present?	(Y) N	7	Soil VOA received as: Bulk Encore 5035set	(NA)

8. Temperature Readings Date: 6/5/19 Time: 0948 ID: IR#7 (IR#10) From: Temp Blank (Sample Bottle)

Observed Temp (°C)	4.5						
Correction Factor (°C)	–						
Corrected Temp (°C)	4.5						
Temp from:Type of bottle	–						
Within 0-6°C?	(Y) N	Y N	Y N	Y N	Y N	Y N	Y N
If <0°C, were samples frozen?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed (described below) Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: R-002 by (RD) on 6/5/19 at 0951
5035 samples placed in storage location: _____ by _____ on _____ at _____

Cooler Breakdown/Preservation Check**: Date: 6/5/19 Time: 1950 by: [illegible]

9. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? (YES) NO
10. Did all bottle labels and tags agree with custody papers? (YES) NO
11. Were correct containers used for the tests indicated? (YES) NO
12. Were 5035 vials acceptable (no extra labels, not leaking)? YES NO (N/A)
13. Air Samples: Cassettes / Tubes Intact with MS? Canisters Pressurized Tedlar® Bags Inflated (N/A)

pH	Lot of test paper	Reagent	Preserved? Yes	Preserved? No	Lot Received	Exp	Sample ID Adjusted	Vol. Added	Lot Added	Final pH
≥12		NaOH								
≤2		HNO_3								
≤2		H_2SO_4								
<4		$NaHSO_4$								
5-9		For 608pest			No=Notify for 3day					
Residual Chlorine (-)		For CN, Phenol, 625, 608pest, 522			If +, contact PM to add $Na_2S_2O_3$ (625, 608, CN), ascorbic (phenol).					
		$Na_2S_2O_3$								
		ZnAcetate	-	-			**VOAs and 1664 Not to be tested before analysis. Otherwise, all bottles of all samples with chemical preservatives are checked (not just representatives).			
		HCl	**	**						

Bottle lot numbers: 040819-1B4C

Explain all Discrepancies/ Other Comments:

Rec'd: 03WX01_060419- Broken

CLRES	BULK
DO	FLDT
HPROD	HGFB
HTR	LL3541
PH	SUB
SO3	MARRS
ALS	REV

Labels secondary reviewed by: [illegible]
PC Secondary Review: [illegible] 6/7/19 *significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

Miscellaneous Forms

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

ALS Environmental

REPORT QUALIFIERS AND DEFINITIONS

U Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.

J Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).

B Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.

E Inorganics- Concentration is estimated due to the serial dilution was outside control limits.

E Organics- Concentration has exceeded the calibration range for that specific analysis.

D Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.

* Indicates that a quality control parameter has exceeded laboratory limits. Under the ñNotesò column of the Form I, this qualifier denotes analysis was performed out of Holding Time.

H Analysis was performed out of hold time for tests that have an ñimmediateò hold time criteria.

Spike was diluted out.

\+ Correlation coefficient for MSA is <0.995.

N Inorganics- Matrix spike recovery was outside laboratory limits.

N Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.

S Concentration has been determined using Method of Standard Additions (MSA).

W Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.

P Concentration >40% difference between the two GC columns.

C Confirmed by GC/MS

Q DoD reports: indicates a pesticide/Aroclor is not confirmed (Ó100% Difference between two GC columns).

X See Case Narrative for discussion.

MRL Method Reporting Limit. Also known as:
LOQ Limit of Quantitation (LOQ)
The lowest concentration at which the method analyte may be reliably quantified under the method conditions.

MDL Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier).

LOD Limit of Detection. A value at or above the MDL which has been verified to be detectable.

ND Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.

ACCREDITED IN ACCORDANCE WITH nelac

Rochester Lab ID # for State Certifications[1]

Connecticut ID # PH0556	Maine ID #NY0032	Pennsylvania ID# 68-786
Delaware Approved	New Hampshire ID # 2941	Rhode Island ID # 158
DoD ELAP #65817	New York ID # 10145	Virginia #460167
Florida ID # E87674	North Carolina #676	

[1] Analyses were performed according to our laboratoryôs NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the case narrative. Since not all analyte/method/matrix combinations are offered for state/NELAC accreditation, this report may contain results which are not accredited. For a specific list of accredited analytes, contact the laboratory or go to https://www.alsglobal.com/locations/americas/north-america/usa/new-york/rochester-environmental

ALS Laboratory Group

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

ALS Group USA, Corp.
dba ALS Environmental

Analyst Summary report

Client: ALS Environmental - US
Project: LHAAP / Site 58/
Service Request: R1905052

Sample Name: 35AWW08_060419
Lab Code: R1905052-001
Sample Matrix: Water
Date Collected: 06/4/19
Date Received: 06/5/19

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		BALLGEIER

Sample Name: 35AWW20_060419
Lab Code: R1905052-002
Sample Matrix: Water
Date Collected: 06/4/19
Date Received: 06/5/19

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		BALLGEIER

Sample Name: 35AWW10_060419
Lab Code: R1905052-003
Sample Matrix: Water
Date Collected: 06/4/19
Date Received: 06/5/19

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		BALLGEIER

Sample Name: 35AWW10_060419_a
Lab Code: R1905052-004
Sample Matrix: Water
Date Collected: 06/4/19
Date Received: 06/5/19

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		BALLGEIER

Sample Name: 35AWW06_060419
Lab Code: R1905052-005
Sample Matrix: Water
Date Collected: 06/4/19
Date Received: 06/5/19

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		BALLGEIER

Water/Liquid Matrix

Analytical Method	Preparation Method
200.7	200.2
200.8	200.2
6010C	3005A/3010A
6020A	ILM05.3
9014 Cyanide Reactivity	SW846 Ch7, 7.3.4.2
9034 Sulfide Reactivity	SW846 Ch7, 7.3.4.2
9034 Sulfide Acid Soluble	9030B
9056A Bomb (Halogens)	5050A
9066 Manual Distillation	9065
SM 4500-CN-E Residual Cyanide	SM 4500-CN-G
SM 4500-CN-E WAD Cyanide	SM 4500-CN-I

Solid/Soil/Non-Aqueous Matrix

Analytical Method	Preparation Method
6010C	3050B
6020A	3050B
6010C TCLP (1311) extract	3005A/3010A
6010 SPLP (1312) extract	3005A/3010A
7196A	3060A
7199	3060A
9056A Halogens/Halides	5050
300.0 Anions/ 350.1/ 353.2/ SM 2320B/ SM 5210B/ 9056A Anions	DI extraction

For analytical methods not listed, the preparation method is the same as the analytical method reference.

Sample Results

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Semivolatile Organic Compounds by GC

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1905052
Project:	LHAAP / Site 58	**Date Collected:**	06/04/19 08:20
Sample Matrix:	Water	**Date Received:**	06/05/19 09:00
Sample Name:	35AWW08_060419	**Units:**	mg/L
Lab Code:	R1905052-001	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result		MRL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND	U	0.50	1	06/06/19 20:22	
Acetic Acid	**20**		1.0	1	06/06/19 20:22	
Butanoic Acid (Butyric Acid)	ND	U	2.0	1	06/06/19 20:22	
Lactic Acid	**12**		1.0	1	06/06/19 20:22	
Propionic Acid	ND	U	1.0	1	06/06/19 20:22	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1905052
Project:	LHAAP / Site 58	**Date Collected:**	06/04/19 09:25
Sample Matrix:	Water	**Date Received:**	06/05/19 09:00
Sample Name:	35AWW20_060419	**Units:**	mg/L
Lab Code:	R1905052-002	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result	MRL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND U	0.50	1	06/06/19 21:36	
Acetic Acid	ND U	1.0	1	06/06/19 21:36	
Butanoic Acid (Butyric Acid)	ND U	2.0	1	06/06/19 21:36	
Lactic Acid	ND U	1.0	1	06/06/19 21:36	
Propionic Acid	ND U	1.0	1	06/06/19 21:36	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1905052
Project:	LHAAP / Site 58	**Date Collected:**	06/04/19 10:30
Sample Matrix:	Water	**Date Received:**	06/05/19 09:00
Sample Name:	35AWW10_060419	**Units:**	mg/L
Lab Code:	R1905052-003	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result	MRL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND U	0.50	1	06/06/19 22:13	
Acetic Acid	ND U	1.0	1	06/06/19 22:13	
Butanoic Acid (Butyric Acid)	ND U	2.0	1	06/06/19 22:13	
Lactic Acid	ND U	1.0	1	06/06/19 22:13	
Propionic Acid	ND U	1.0	1	06/06/19 22:13	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1905052
Project:	LHAAP / Site 58	**Date Collected:**	06/04/19 10:30
Sample Matrix:	Water	**Date Received:**	06/05/19 09:00
Sample Name:	35AWW10_060419_a	**Units:**	mg/L
Lab Code:	R1905052-004	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result	MRL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND U	0.50	1	06/06/19 22:13	
Acetic Acid	ND U	1.0	1	06/06/19 22:13	
Butanoic Acid (Butyric Acid)	ND U	2.0	1	06/06/19 22:13	
Lactic Acid	ND U	1.0	1	06/06/19 22:13	
Propionic Acid	ND U	1.0	1	06/06/19 22:13	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1905052
Project:	LHAAP / Site 58	**Date Collected:**	06/04/19 11:35
Sample Matrix:	Water	**Date Received:**	06/05/19 09:00
Sample Name:	35AWW06_060419	**Units:**	mg/L
Lab Code:	R1905052-005	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result		MRL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND	U	1.3	2.5	06/18/19 20:51	
Acetic Acid	**120**		2.5	2.5	06/18/19 20:51	
Butanoic Acid (Butyric Acid)	**7.7**		5.0	2.5	06/18/19 20:51	
Lactic Acid	ND	U	2.5	2.5	06/18/19 20:51	
Propionic Acid	**380**		2.5	2.5	06/18/19 20:51	

QC Summary Forms

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Semivolatile Organic Compounds by GC

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1905052
Project:	LHAAP / Site 58	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	mg/L
Lab Code:	RQ1905551-01	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result	MRL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND U	0.50	1	06/06/19 14:48	
Acetic Acid	ND U	1.0	1	06/06/19 14:48	
Butanoic Acid (Butyric Acid)	ND U	2.0	1	06/06/19 14:48	
Lactic Acid	ND U	1.0	1	06/06/19 14:48	
Propionic Acid	ND U	1.0	1	06/06/19 14:48	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1905052
Project:	LHAAP / Site 58	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	mg/L
Lab Code:	RQ1906068-01	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result	MRL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND U	0.50	1	06/18/19 14:32	
Acetic Acid	ND U	1.0	1	06/18/19 14:32	
Butanoic Acid (Butyric Acid)	ND U	2.0	1	06/18/19 14:32	
Lactic Acid	ND U	1.0	1	06/18/19 14:32	
Propionic Acid	ND U	1.0	1	06/18/19 14:32	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: LHAAP / Site 58
Sample Matrix: Water

Service Request: R1905052
Date Analyzed: 06/06/19

Duplicate Lab Control Sample Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Units:mg/L
Basis:NA

		Lab Control Sample			Duplicate Lab Control Sample					
		RQ1905551-02			RQ1905551-03					
Analyte Name	**Analytical Method**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	Organic Acids	1.95	2.03	96	1.87	2.03	92	73-122	4	30
Acetic Acid	Organic Acids	18.6	19.9	93	18.4	19.9	93	80-130	<1	30
Butanoic Acid (Butyric Acid)	Organic Acids	28.8	20.5	140 *	29.1	20.5	142 *	86-128	1	30
Lactic Acid	Organic Acids	19.6	20.6	95	18.8	20.6	91	75-125	4	30
Propionic Acid	Organic Acids	19.8	20.1	98	19.1	20.1	95	63-153	4	30

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: LHAAP / Site 58
Sample Matrix: Water

Service Request: R1905052
Date Analyzed: 06/18/19

Duplicate Lab Control Sample Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Units:mg/L
Basis:NA

		Lab Control Sample RQ1906068-02			Duplicate Lab Control Sample RQ1906068-03					
Analyte Name	**Analytical Method**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	Organic Acids	1.97	2.03	97	1.92	2.03	95	73-122	2	30
Acetic Acid	Organic Acids	19.7	19.9	99	19.6	19.9	99	80-130	<1	30
Butanoic Acid (Butyric Acid)	Organic Acids	20.9	20.5	102	19.8	20.5	97	86-128	5	30
Lactic Acid	Organic Acids	21.3	20.6	103	21.0	20.6	102	75-125	2	30
Propionic Acid	Organic Acids	19.4	20.1	96	19.8	20.1	99	63-153	2	30

LABORATORY REPORT

June 17, 2019

RJ Modashia
ALS Laboratory Group
10450 Stancliff Road Suite 210
Houston, TX 77099-4338

RE: HS19060185

Dear RJ:

Enclosed are the results of the samples submitted to our laboratory on June 6, 2019. For your reference, these analyses have been assigned our service request number P1903244.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

By Hayden Akers at 12:18, June 17, 2019

Hayden Akers
Project Manager

Client: ALS Laboratory Group Service Request No: P1903244
Project: HS19060185

CASE NARRATIVE

The samples were received intact under chain of custody on June 6, 2019 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Carbon Dioxide Analysis

The samples were analyzed for carbon dioxide using a gas chromatograph equipped with a thermal conductivity detector (TCD). A known amount of liquid was displaced by injecting 8.0 milliliters of helium creating a headspace in the sample vial. Each sample vial was agitated using a sonic disrupter for fifteen minutes and then allowed to equilibrate for at least four hours. A volume of the headspace was withdrawn using a gas-tight syringe and analyzed using a manual injection technique. The amount of dissolved gases (carbon dioxide) in the original sample was calculated using Henry's Law. This method was performed with guidance from RSK 175 as described in laboratory SOP VOA-DISGAS. This analyte is included on the laboratory's NELAP and DoD-ELAP scope of accreditation.

Methane, Ethene and Ethane Analysis

The samples were also analyzed for methane, ethene and ethane using a gas chromatograph equipped with a flame ionization detector (FID). A known amount of liquid was displaced by injecting 8.0 milliliters of helium creating a headspace in the sample vial. Each sample vial was agitated using a sonic disrupter for fifteen minutes and then allowed to equilibrate for at least two hours. A volume of the headspace was withdrawn using a gas-tight syringe and analyzed using a manual injection technique. The amount of dissolved gases (methane, ethene and ethane) in the original sample was calculated using Henry's Law. This method was performed with guidance from RSK 175. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the laboratory's NELAP or DoD-ELAP accreditation.

Manual integrations were performed on the following sample(s) and analyte(s). Refer to the raw data for additional information.

Sample Identification(s)	Analyte(s)
P1903244-003	Ethane

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Alaska DEC	http://dec.alaska.gov/eh/lab.aspx	17-019
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/page/la-lab-accreditation	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml	2018027
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1521096
New Jersey DEP (NELAP)	http://www.nj.gov/dep/enforcement/oqa.html	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-006
Pennsylvania DEP	http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html	T104704413-18-9
Utah DOH (NELAP)	http://health.utah.gov/lab/lab_cert_env	CA016272018-9
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: ALS Laboratory Group
Project ID: HS19060185
Service Request: P1903244

Date Received: 6/6/2019
Time Received: 09:30

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	RSK 175 - CO2	RSK 175 - Gases
03WW01_060419	P1903244-001	Water	6/4/2019	07:45	X	X
34AWW08_060419	P1903244-002	Water	6/4/2019	08:20	X	X
35AWW20_060419	P1903244-003	Water	6/4/2019	09:25	X	X
35AWW10_060419	P1903244-004	Water	6/4/2019	10:30	X	X
35AWW10_060419_a	P1903244-005	Water	6/4/2019	10:30	X	X
35AWW06_060419	P1903244-006	Water	6/4/2019	11:35	X	X

P1903244

10450 Stancliff Rd, Ste 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887
www.alsglobal.com

Subcontract Chain of Custody

SAMPLING STATE: **Texas** **COC ID:** **11527**

SUBCONTRACT TO:

ALS Environmental
2655 Park Center Drive, Suite A
Simi Valley, CA 93065 **Phone:** +1 805 526 7161

CUSTOMER INFORMATION:

Company:	ALS Houston
Contact:	RJ Modashia
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Email:	RJ.Modashia@alsglobal.com
Alternate Contact:	Jumoke M. Lawal
Email:	jumoke.lawal@alsglobal.com

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS19060185
TSR:	Danielle Winnings

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS19060185-01**	**03WW01_060419**	**Groundwater**	**04 Jun 2019 07:45**
	MEE plus CO2 Sub to ALS SimiValley			13 Jun 2019
2.	**HS19060185-02**	**34AWW08_060419**	**Groundwater**	**04 Jun 2019 08:20**
	MEE plus CO2 Sub to ALS SimiValley			13 Jun 2019
3.	**HS19060185-03**	**35AWW20_060419**	**Groundwater**	**04 Jun 2019 09:25**
	MEE plus CO2 Sub to ALS SimiValley			13 Jun 2019
4.	**HS19060185-04**	**35AWW10_060419**	**Groundwater**	**04 Jun 2019 10:30**
	MEE plus CO2 Sub to ALS SimiValley			13 Jun 2019
5.	**HS19060185-05**	**35AWW10_060419_a**	**Groundwater**	**04 Jun 2019 10:30**
	MEE plus CO2 Sub to ALS SimiValley			13 Jun 2019
6.	**HS19060185-06**	**35AWW06_060419**	**Groundwater**	**04 Jun 2019 11:35**
	MEE plus CO2 Sub to ALS SimiValley			13 Jun 2019

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.

QC Level: DOD IV (DoD Data Package)

P1903244

Subcontract Chain of Custody

SAMPLING STATE: **Texas**

COC ID: **11527**

Relinquished By:

Date/Time:

Received By:

Date/Time: 04/6/19 0930

Cooler ID(s):

Temperature(s): 2°

ALS Environmental
Sample Acceptance Check Form

Client: ALS Laboratory Group Work order: P1903244

Project: HS19060185

Sample(s) received on: 6/6/19 Date opened: 6/6/19 by: ADAVID

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Did **sample containers** arrive in good condition?	☒	☐	☐
3	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
4	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
5	Was **sample volume** received adequate for analysis?	☒	☐	☐
6	Are samples within specified holding times?	☒	☐	☐
7	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☒	☐	☐
	Cooler Temperature: 2° C Blank Temperature: ° C Thermometer ID T-111 Wet Ic			
8	Were **custody seals** on outside of cooler/Box/Container?	☒	☐	☐
	Location of seal(s)? Cooler lid. Sealing Lid?	☒	☐	☐
	Were signature and date included?	☒	☐	☐
	Were seals intact?	☒	☐	☐
9	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☒	☐	☐
	Is there a client indication that the submitted samples are **pH** preserved?	☒	☐	☐
	Were **VOA vials** checked for presence/absence of air bubbles?	☒	☐	☐
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☒	☐
10	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
11	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1903244-001.01	40mL VOA NP		7		A	wh 6/12/19
P1903244-001.02	40mL VOA NP				A	
P1903244-001.04	40ml VOA HCL		1		A	wh 6/11/19
P1903244-001.05	40ml VOA HCL				A	
P1903244-002.01	40mL VOA NP		7		A	wh 6/12/19
P1903244-002.02	40mL VOA NP				A	
P1903244-002.04	40ml VOA HCL		1		A	wh 6/11/19
P1903244-002.05	40ml VOA HCL				A	
P1903244-003.01	40mL VOA NP		7		A	wh 6/12/19
P1903244-003.02	40mL VOA NP				A	
P1903244-003.04	40ml VOA HCL		1		A	wh 6/11/19
P1903244-003.05	40ml VOA HCL				A	
P1903244-004.01	40mL VOA NP		6		A	wh 6/12/19
P1903244-004.02	40mL VOA NP				A	
P1903244-004.04	40ml VOA HCL		1		A	wh 6/11/19

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS Environmental
Sample Acceptance Check Form

Client: ALS Laboratory Group Work order: P1903244

Project: HS19060185

Sample(s) received on: 6/6/19 Date opened: 6/6/19 by: ADAVID

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1903244-004.05	40ml VOA HCL				A	
P1903244-005.01	40mL VOA NP		6		A	wh 6/12/19
P1903244-005.02	40mL VOA NP				A	
P1903244-005.04	40ml VOA HCL		1		A	wh 6/11/19
P1903244-005.05	40ml VOA HCL				A	
P1903244-006.01	40mL VOA NP		7		A	wh 6/12/19
P1903244-006.02	40mL VOA NP				A	
P1903244-006.04	40ml VOA HCL		1		A	wh 6/11/19
P1903244-006.05	40ml VOA HCL				A	

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Project ID: **HS19060185** ALS Project ID: P1903244

Carbon Dioxide

Test Code: RSK 175
Instrument ID: HP5890A/GC10/TCD Date(s) Collected: 6/4/19
Analyst: Wade Henton Date Received: 6/6/19
Matrix: Water Date Analyzed: 6/12/19
Test Notes:

Client Sample ID	ALS Sample ID	Injection Volume ml(s)	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
03WW01_060419	P1903244-001	0.050	**520,000**	2,000	1,700	740	
34AWW08_060419	P1903244-002	0.050	**260,000**	2,000	1,700	740	
35AWW20_060419	P1903244-003	0.050	**730,000**	2,000	1,700	740	
35AWW10_060419	P1903244-004	0.050	**670,000**	2,000	1,700	740	
35AWW10_060419_a	P1903244-005	0.050	**620,000**	2,000	1,700	740	
35AWW06_060419	P1903244-006	0.050	**750,000**	2,000	1,700	740	
Method Control Sample	P190612-MB	0.10	860	1,000	860	370	**U**

The Method Control Sample is laboratory water carried through the entire analytical process.
U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **ALS Laboratory Group**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P1903244
Client Project ID: **HS19060185** ALS Sample ID: P190612-DLCS

Test Code: RSK 175 Date Collected: NA
Instrument ID: HP5890A/GC10/TCD Date Received: NA
Analyst: Wade Henton Date Analyzed: 6/12/19
Matrix: Water Volume(s) Analyzed: NA ml(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS ug/L	Result[1] LCS ug/L	Result[1] DLCS ug/L	% Recovery LCS	% Recovery DLCS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
124-38-9	Carbon Dioxide	22,900	18,900	19,800	**83**	**86**	80-122	4	12	

[1] = The concentration shown includes a subtraction of the Method Control Sample value, even if the result is less than the MRL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **03WW01_060419**
Client Project ID: **HS19060185**

ALS Project ID: P1903244
ALS Sample ID: P1903244-001

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 6/4/19
Date Received: 6/6/19
Date Analyzed: 6/11/19
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**2,900**	1.3	1.0	0.51	
74-85-1	Ethene	**1.6**	1.0	0.55	0.24	
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **34AWW08_060419**
Client Project ID: **HS19060185**

ALS Project ID: P1903244
ALS Sample ID: P1903244-002

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 6/4/19
Date Received: 6/6/19
Date Analyzed: 6/11/19
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**3,000**	1.3	1.0	0.51	
74-85-1	Ethene	**4.1**	1.0	0.55	0.24	
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **35AWW20_060419**
Client Project ID: **HS19060185**

ALS Project ID: P1903244
ALS Sample ID: P1903244-003

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 6/4/19
Date Received: 6/6/19
Date Analyzed: 6/11/19
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**920**	1.3	1.0	0.51	
74-85-1	Ethene	**1.3**	1.0	0.55	0.24	
74-84-0	Ethane	**0.19**	0.60	0.47	0.16	**J**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **35AWW10_060419**
Client Project ID: **HS19060185**

ALS Project ID: P1903244
ALS Sample ID: P1903244-004

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 6/4/19
Date Received: 6/6/19
Date Analyzed: 6/11/19
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	1.0	1.3	1.0	0.51	**U**
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **35AWW10_060419_a**
Client Project ID: **HS19060185**

ALS Project ID: P1903244
ALS Sample ID: P1903244-005

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 6/4/19
Date Received: 6/6/19
Date Analyzed: 6/11/19
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	1.0	1.3	1.0	0.51	**U**
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **35AWW06_060419**
Client Project ID: **HS19060185**

ALS Project ID: P1903244
ALS Sample ID: P1903244-006

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 6/4/19
Date Received: 6/6/19
Date Analyzed: 6/11/19
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**1,500**	1.3	1.0	0.51	
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **Method Control Sample** ALS Project ID: P1903244
Client Project ID: **HS19060185** ALS Sample ID: P190611-MB

Test Code: RSK 175 Date Collected: NA
Instrument ID: HP5890A/GC10/FID Date Received: NA
Analyst: Wade Henton Date Analyzed: 6/11/19
Matrix: Water Volume(s) Analyzed: 0.10 ml(s)
Test Notes:

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	1.0	1.3	1.0	0.51	**U**
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

The Method Control Sample is laboratory water carried through the entire analytical process.
U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **ALS Laboratory Group**
Client Sample ID: **Duplicate Lab Control Sample**
Client Project ID: **HS19060185**

ALS Project ID: P1903244
ALS Sample ID: P190611-LCS
P190611-DLCS

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 6/11/19
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Spike Amount LCS / DLCS µg/L	Result$_1$ LCS µg/L	Result$_1$ DLCS µg/L	% Recovery LCS	% Recovery DLCS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
74-82-8	Methane	2.52	2.45	2.54	**97**	**101**	73-125	4	26	
74-85-1	Ethene	4.40	4.78	5.02	**109**	**114**	72-133	4	11	
74-84-0	Ethane	4.72	4.46	4.75	**94**	**101**	74-131	7	10	

$_1$ = The concentration shown includes a subtraction of the Method Control Sample value, even if the result is less than the MRL.

Data Path : J:\GC10\DATA\RSK_TCD\2019_06\12\
Data File : 06121915.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Jun-2019, 14:58:42
Operator : WH
Sample : P1903244-001 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 13 15:36:47 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

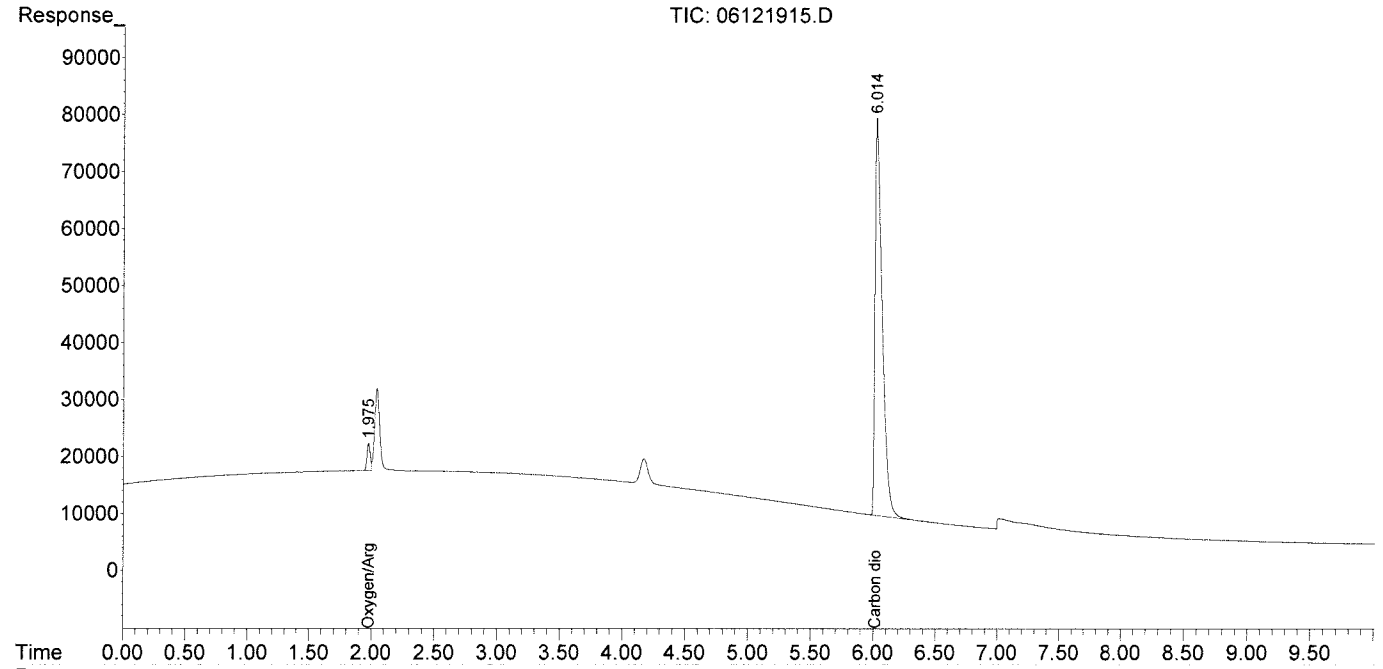
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.975f	86211	0.018	ppm
2)	Carbon monoxide	1.975f	86211	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.015	2772063	11809.622	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

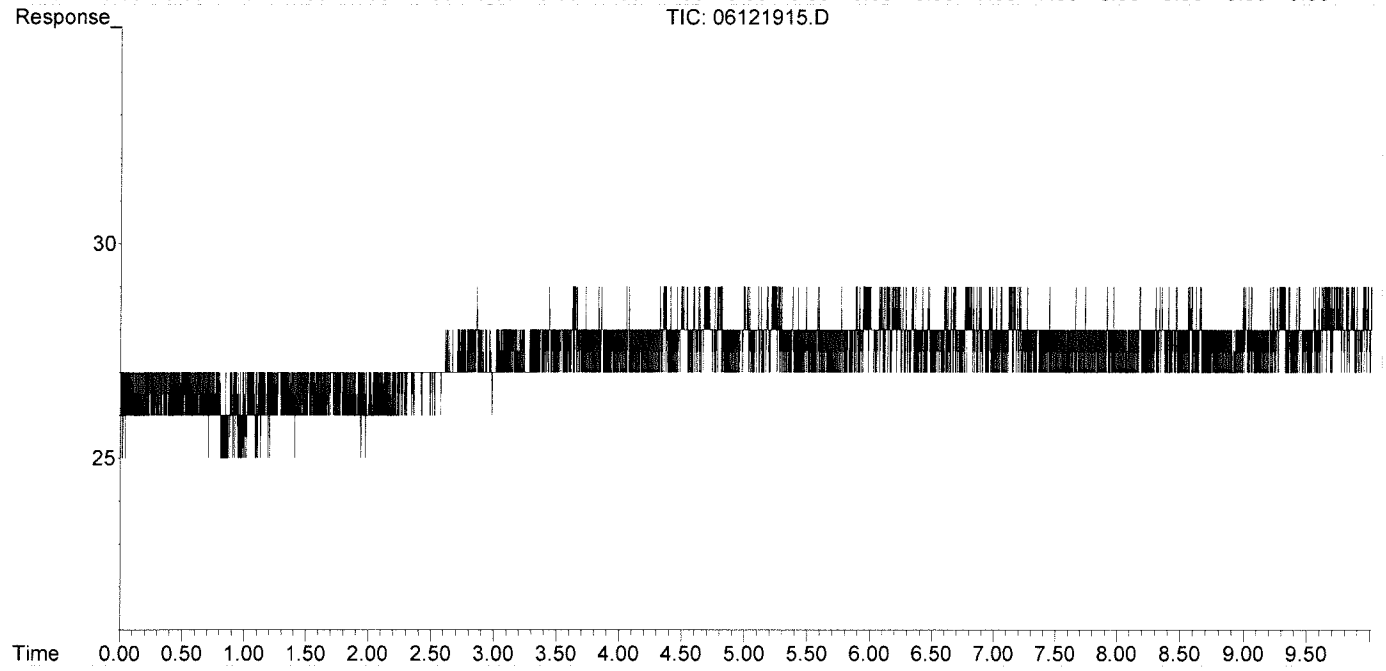
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2019_06\12\
Data File : 06121915.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Jun-2019, 14:58:42
Operator : WH
Sample : P1903244-001 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 13 15:36:47 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : J:\GC10\DATA\RSK_TCD\2019_06\12\
Data File : 06121916.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Jun-2019, 15:17:41
Operator : WH
Sample : P1903244-002 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 13 15:37:07 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

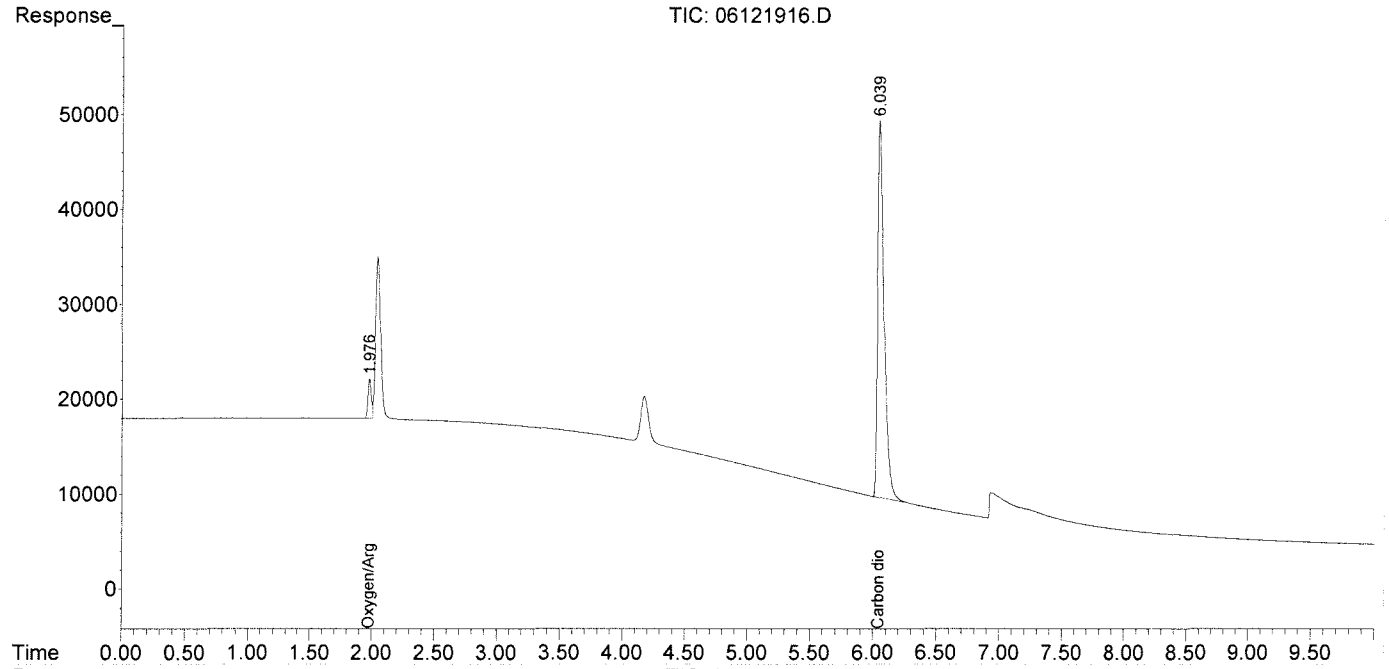
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.977f	74667	0.016	ppm
2)	Carbon monoxide	1.977f	74667	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.040	1379094	5875.256	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

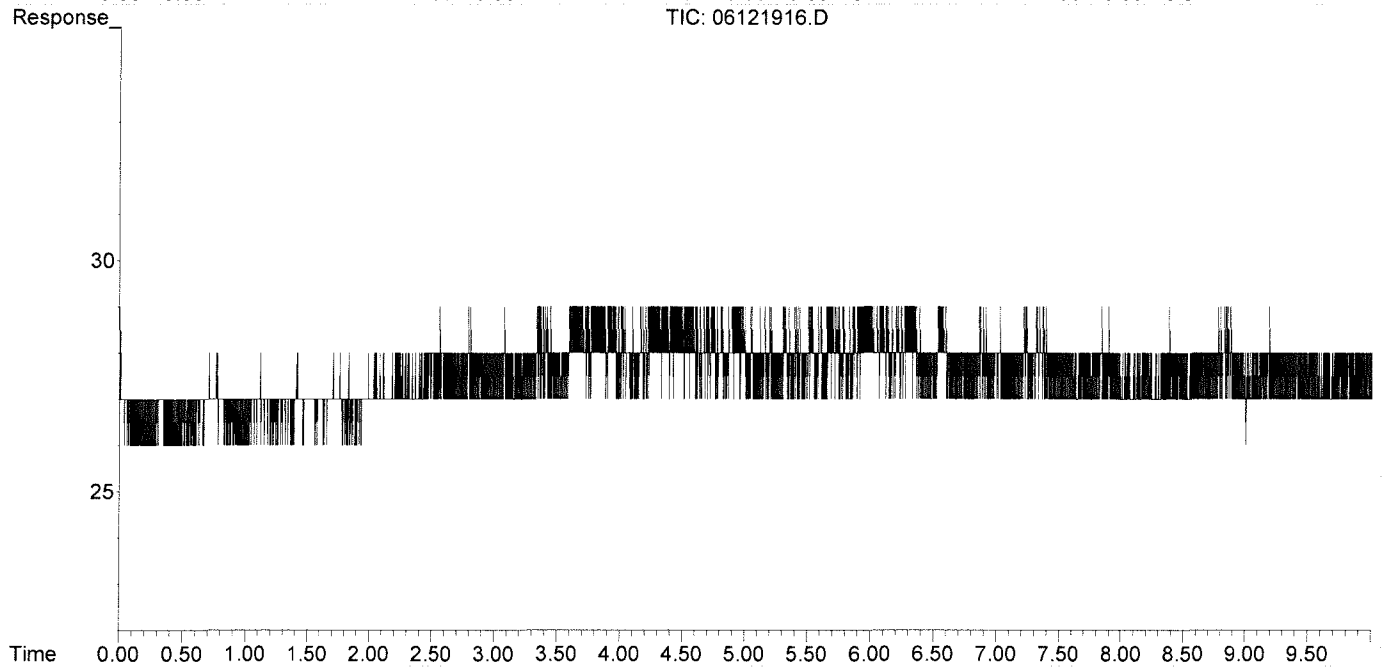
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2019_06\12\
Data File : 06121916.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Jun-2019, 15:17:41
Operator : WH
Sample : P1903244-002 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 13 15:37:07 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : J:\GC10\DATA\RSK_TCD\2019_06\12\
Data File : 06121921.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Jun-2019, 16:48:17
Operator : WH
Sample : P1903244-003 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 17:02:10 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

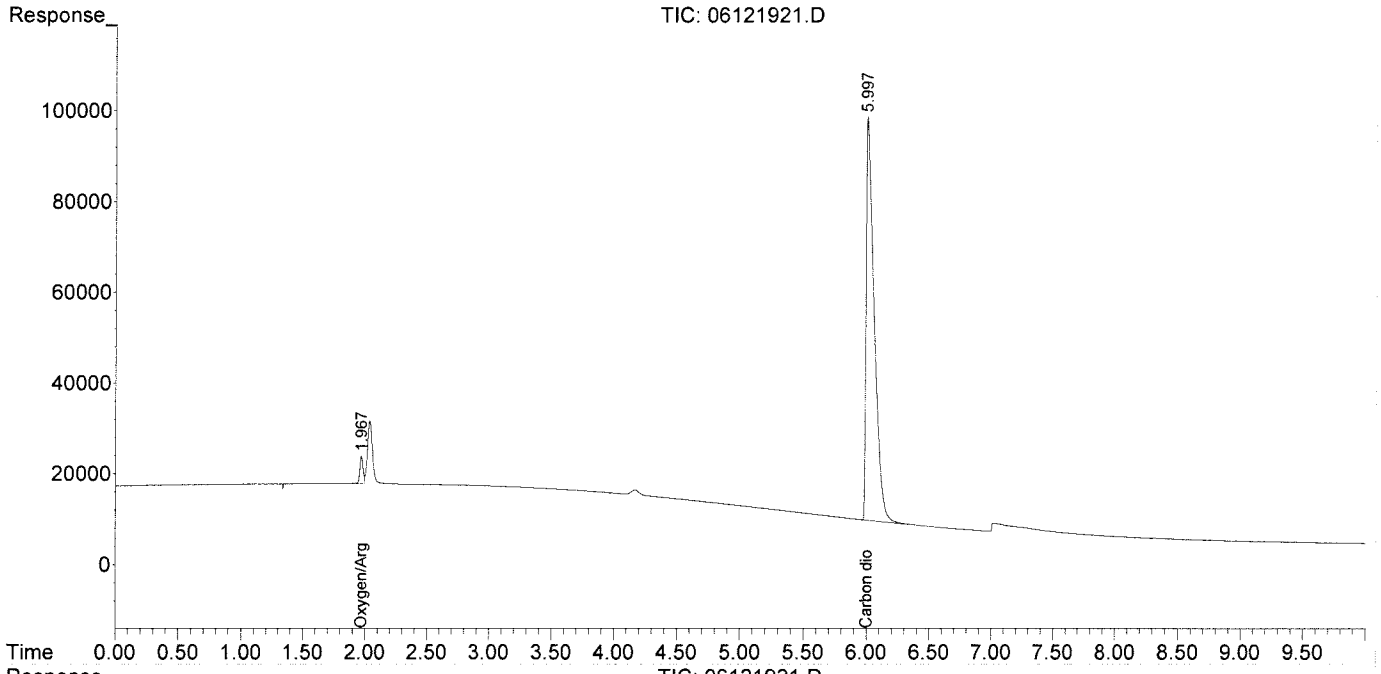
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.968f	109177	0.023	ppm
2)	Carbon monoxide	1.968f	109177	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	5.999	3923111	16713.350	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

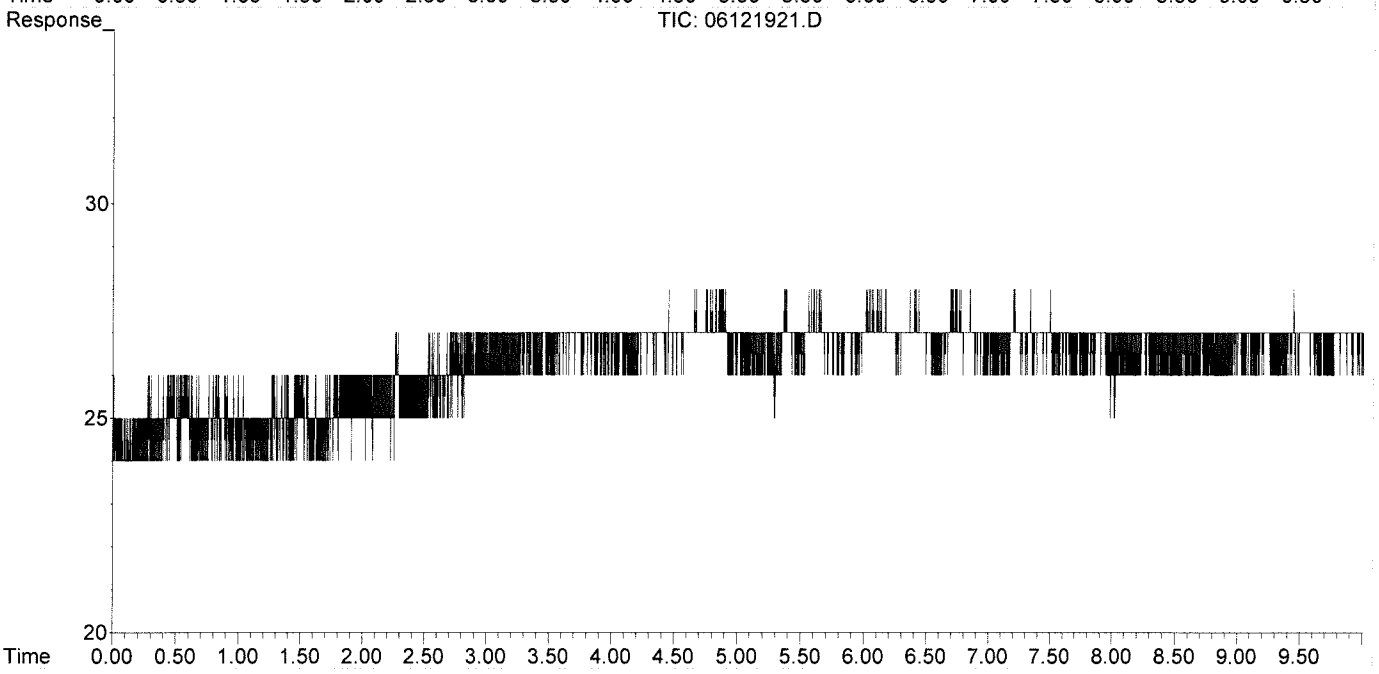
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2019_06\12\
Data File : 06121921.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Jun-2019, 16:48:17
Operator : WH
Sample : P1903244-003 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 17:02:10 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : J:\GC10\DATA\RSK_TCD\2019_06\12\
Data File : 06121918.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Jun-2019, 15:47:49
Operator : WH
Sample : P1903244-004 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 16:31:28 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

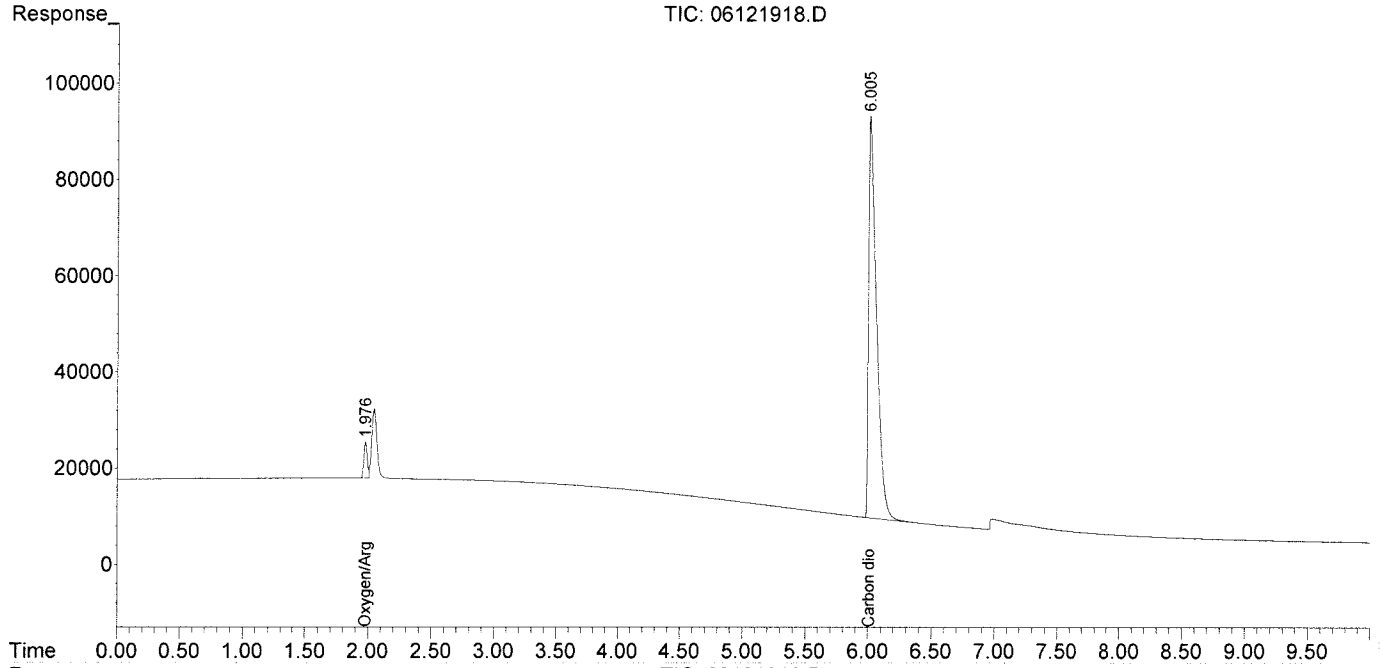
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.977f	136416	0.029	ppm
2)	Carbon monoxide	1.977f	136416	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.006	3587930	15285.401	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

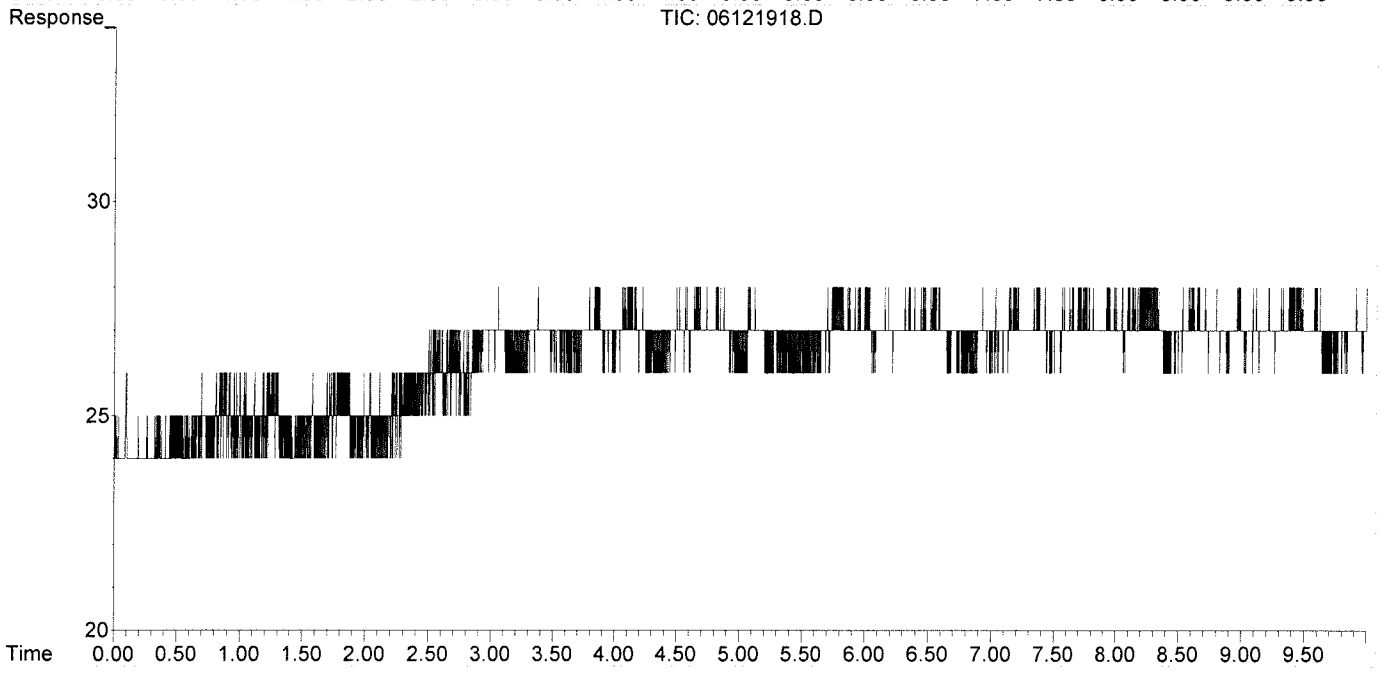
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2019_06\12\
Data File : 06121918.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Jun-2019, 15:47:49
Operator : WH
Sample : P1903244-004 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 16:31:28 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : J:\GC10\DATA\RSK_TCD\2019_06\12\
Data File : 06121919.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Jun-2019, 16:08:34
Operator : WH
Sample : P1903244-005 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 13 15:37:56 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

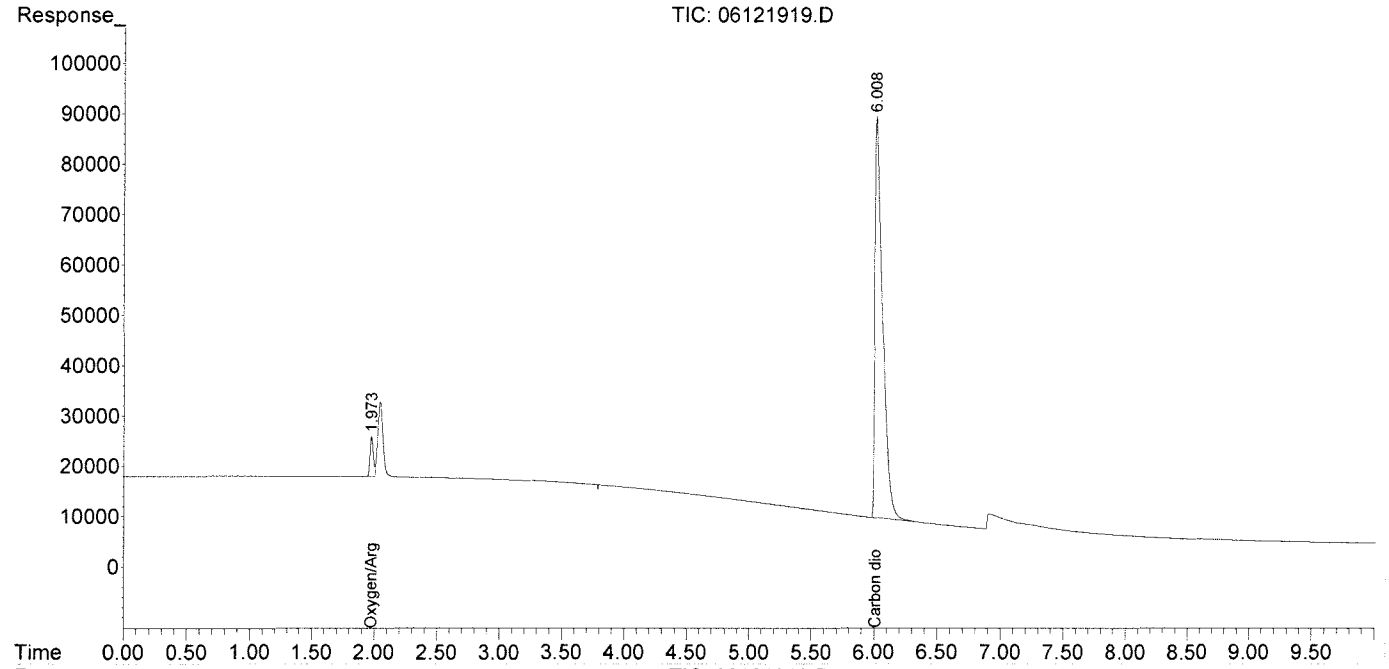
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.974f	142711	0.030	ppm
2)	Carbon monoxide	1.974f	142711	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.008	3360520	14316.582	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

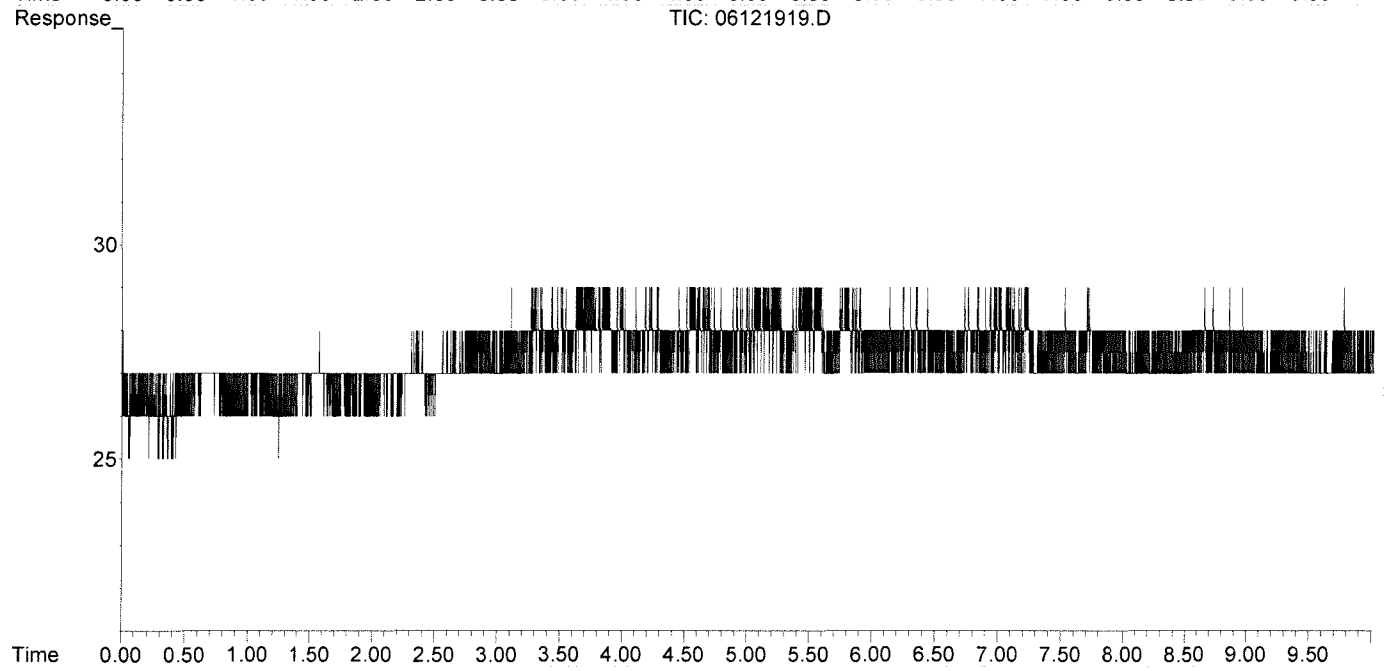
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2019_06\12\
Data File : 06121919.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Jun-2019, 16:08:34
Operator : WH
Sample : P1903244-005 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 13 15:37:56 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : J:\GC10\DATA\RSK_TCD\2019_06\12\
Data File : 06121920.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Jun-2019, 16:32:46
Operator : WH
Sample : P1903244-006 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 16:56:33 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

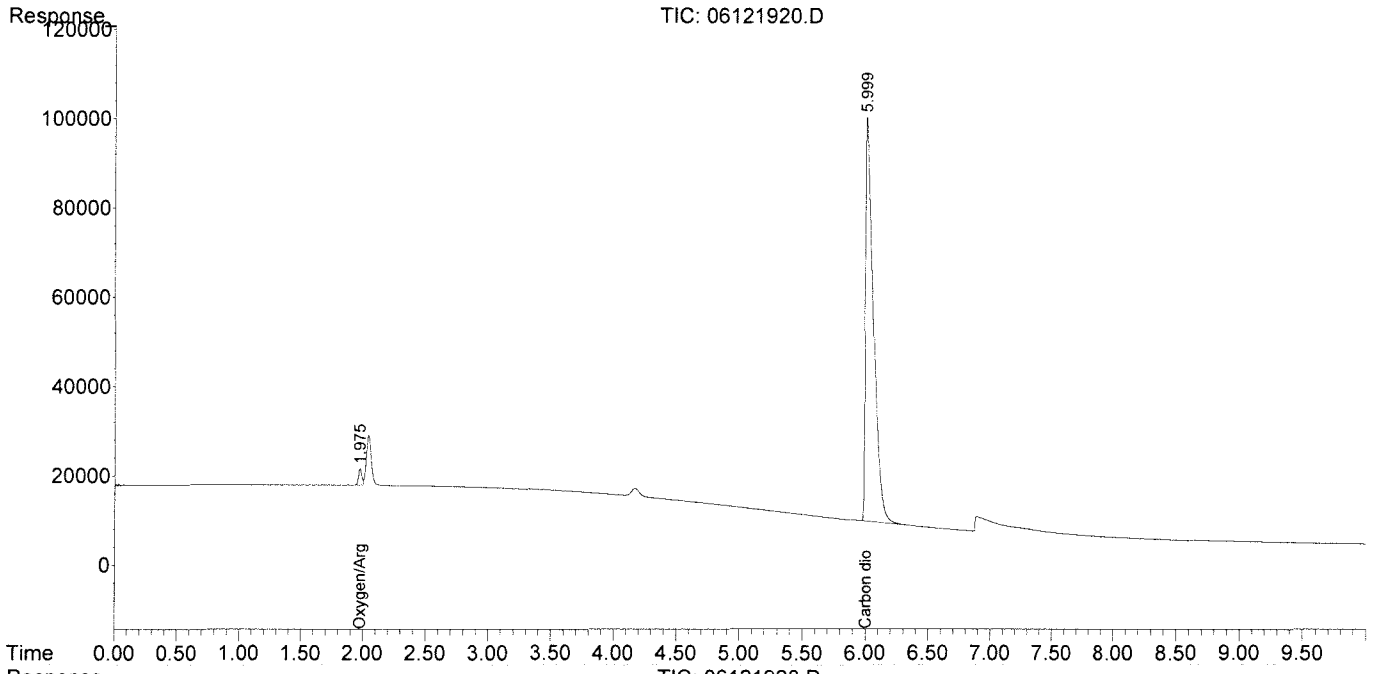
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.975f	67146	0.014	ppm
2)	Carbon monoxide	1.975f	67146	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.001	4038996	17207.045	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

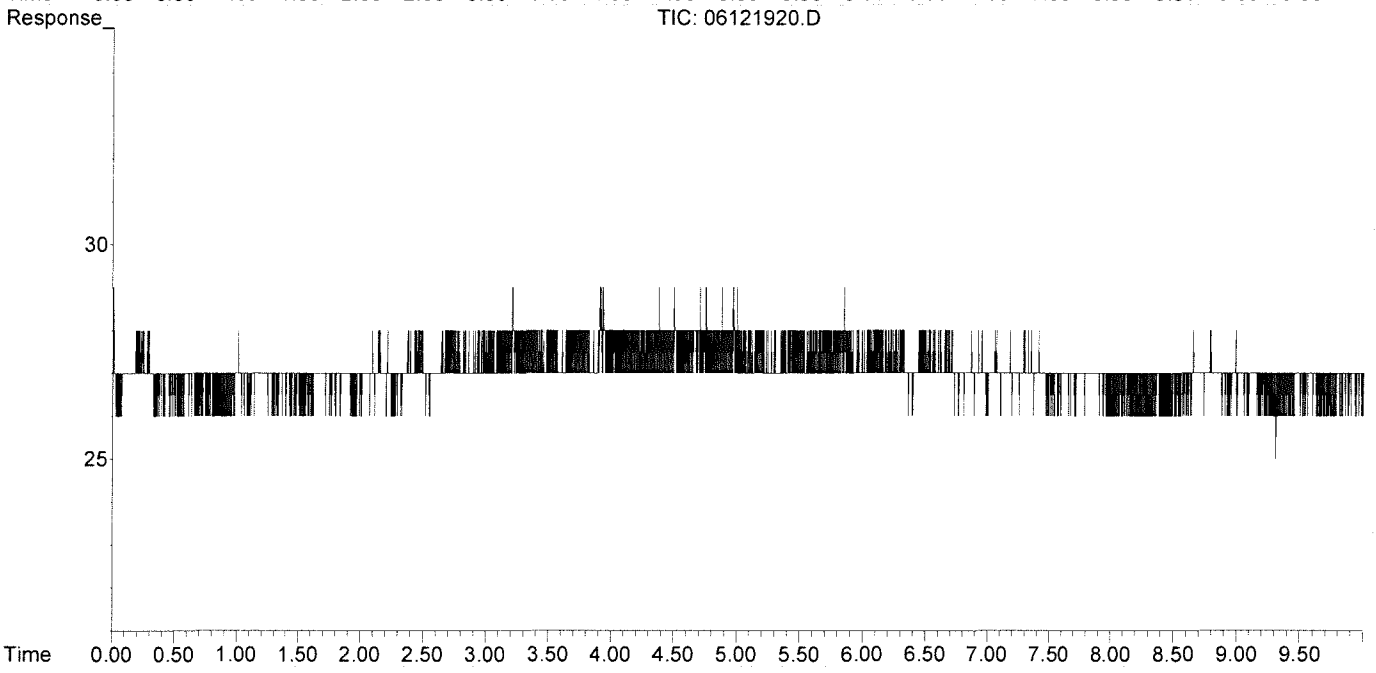
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2019_06\12\
Data File : 06121920.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Jun-2019, 16:32:46
Operator : WH
Sample : P1903244-006 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 16:56:33 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : J:\GC10\DATA\RSK_TCD\2019_06\12\
Data File : 06121903.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Jun-2019, 10:46:05
Operator : WH
Sample : MCS 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 13 15:35:35 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

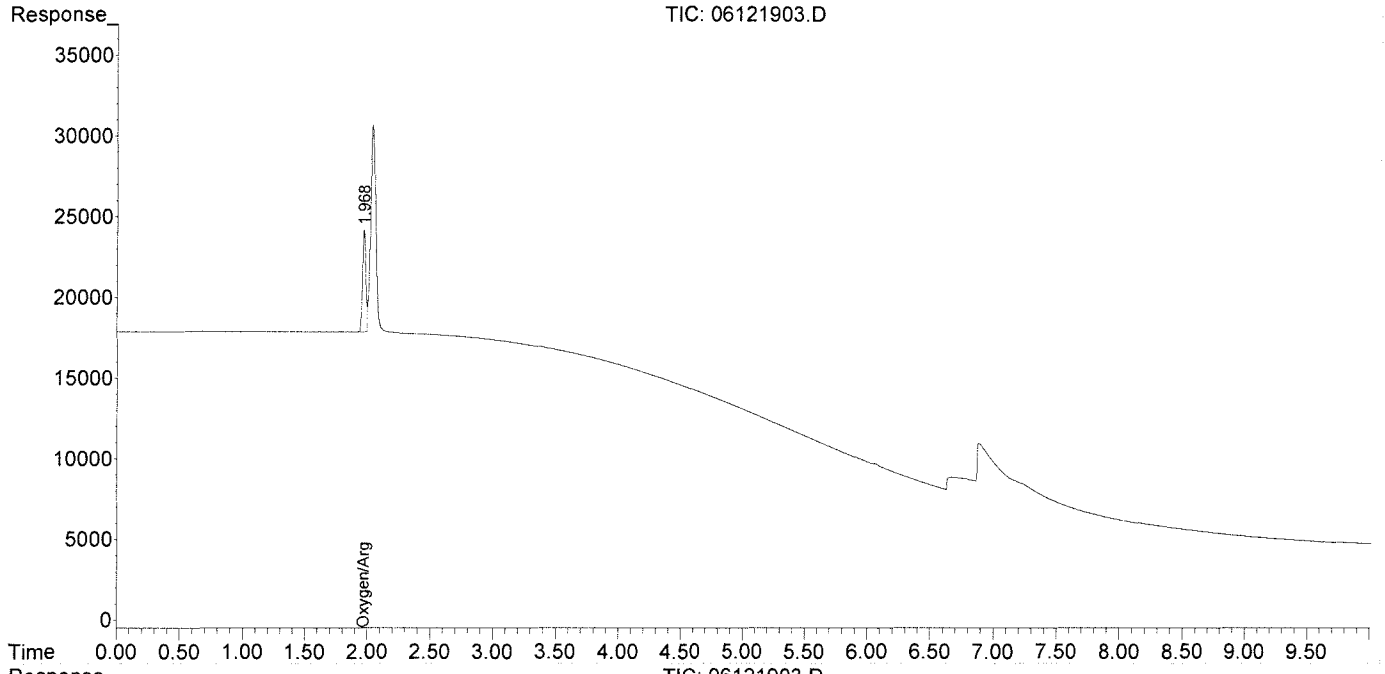
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.968f	114576	0.024	ppm
2)	Carbon monoxide	1.968f	114576	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

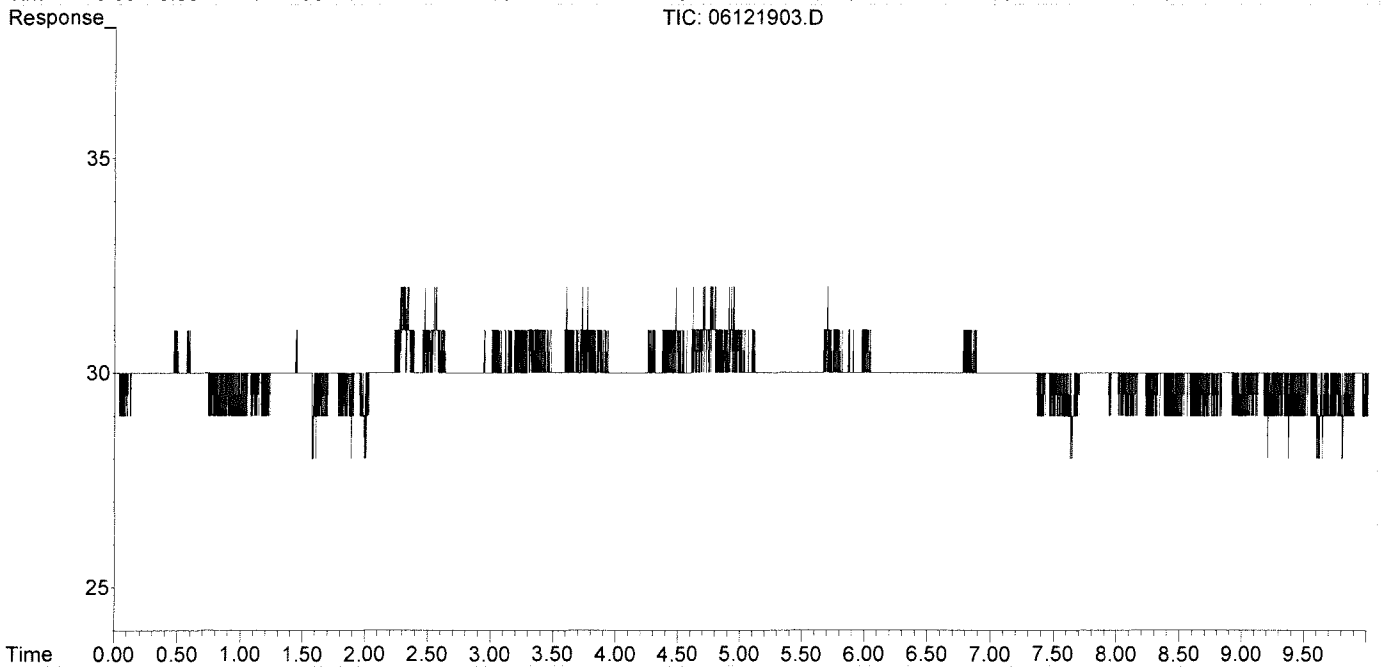
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2019_06\12\
Data File : 06121903.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Jun-2019, 10:46:05
Operator : WH
Sample : MCS 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 13 15:35:35 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : J:\GC10\DATA\RSK_TCD\2019_06\12\
Data File : 06121904.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Jun-2019, 11:05:17
Operator : WH
Sample : LCS TCD 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 11:24:58 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

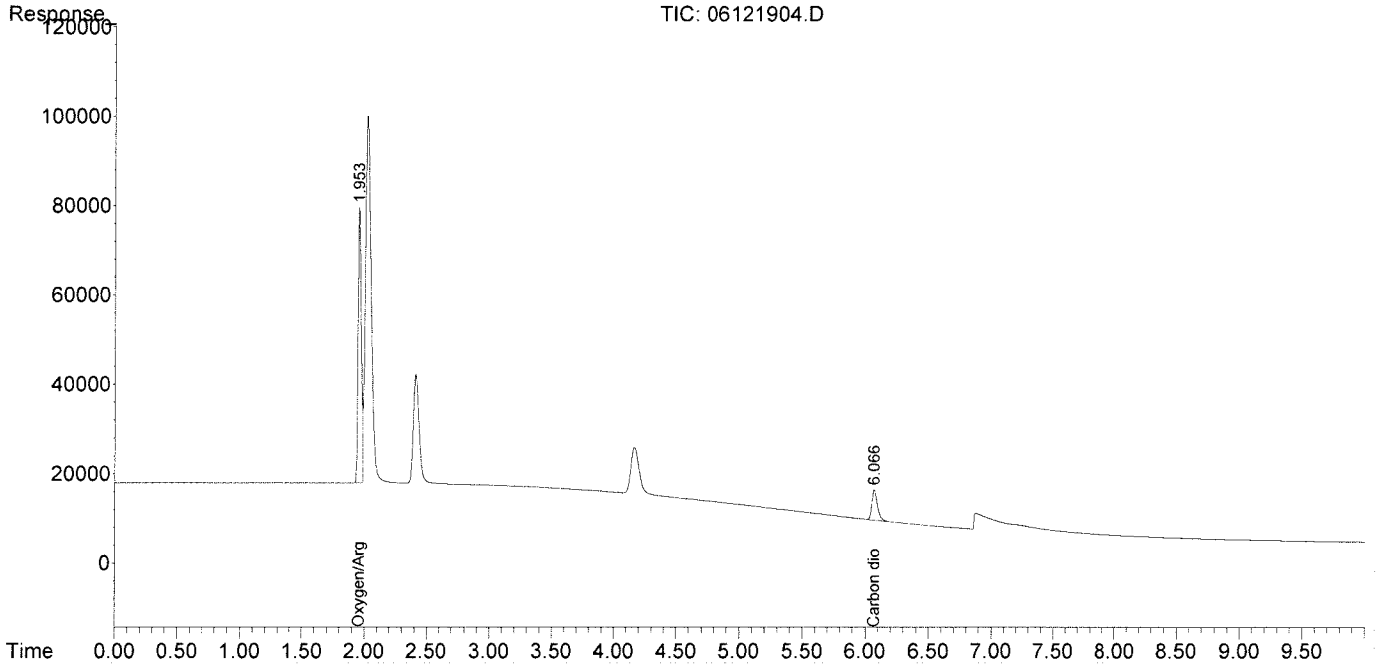
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.953f	1099974	0.231	ppm
2)	Carbon monoxide	1.953f	1099974	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.067	203531	867.089	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

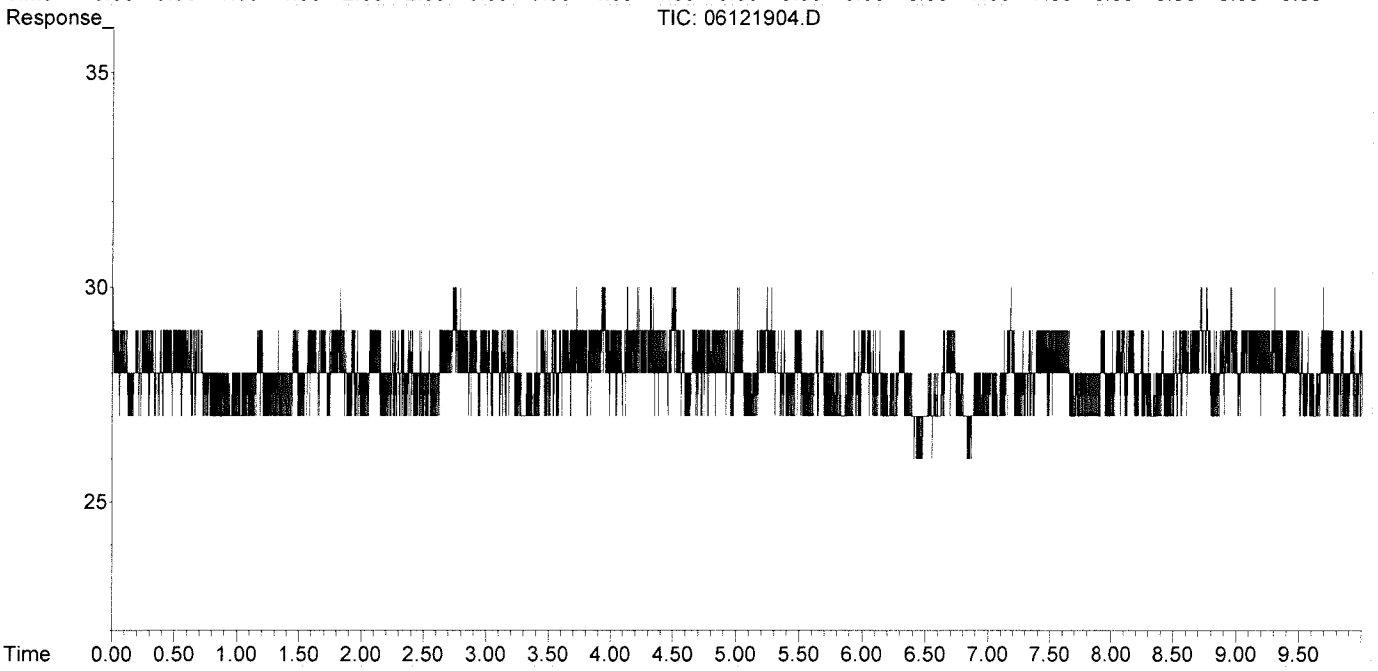
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2019_06\12\
Data File : 06121904.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Jun-2019, 11:05:17
Operator : WH
Sample : LCS TCD 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 11:24:58 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : J:\GC10\DATA\RSK_TCD\2019_06\12\
Data File : 06121905.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Jun-2019, 11:28:50
Operator : WH
Sample : LCSD TCD 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 11:50:44 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

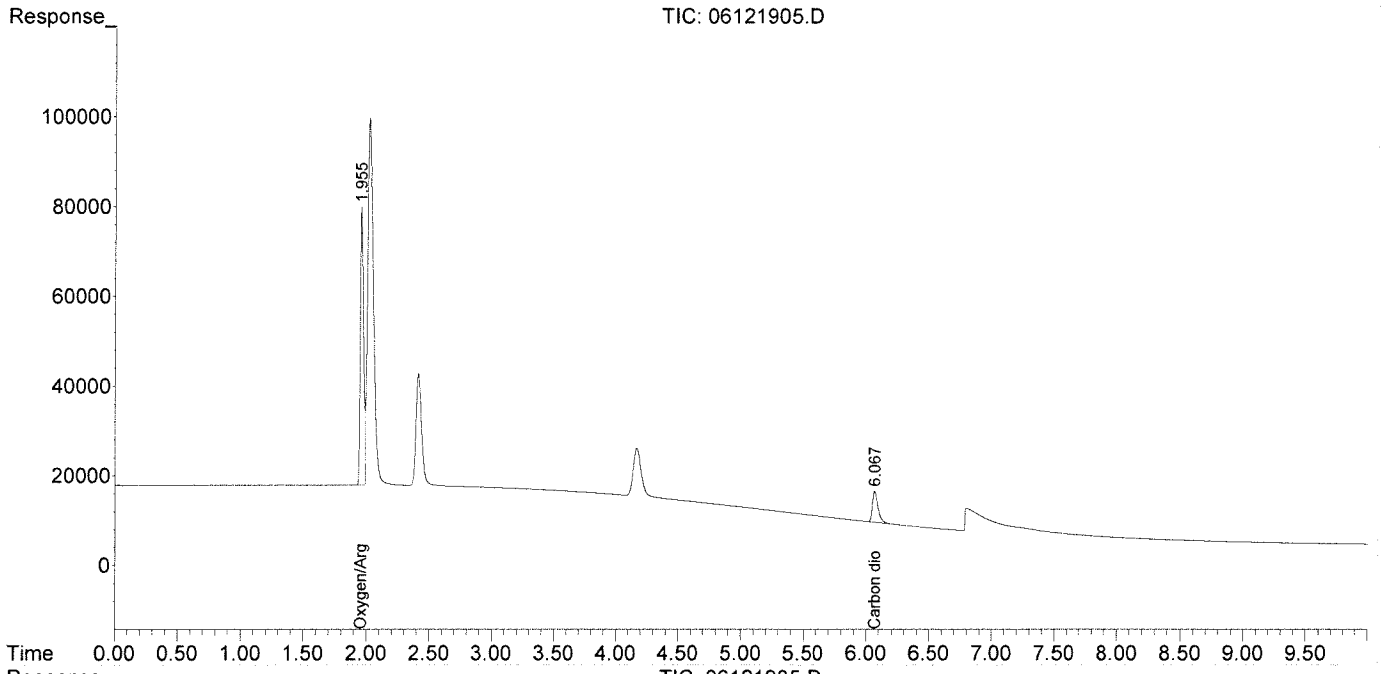
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.955f	1110401	0.233	ppm
2)	Carbon monoxide	1.955f	1110401	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.067	212864	906.849	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

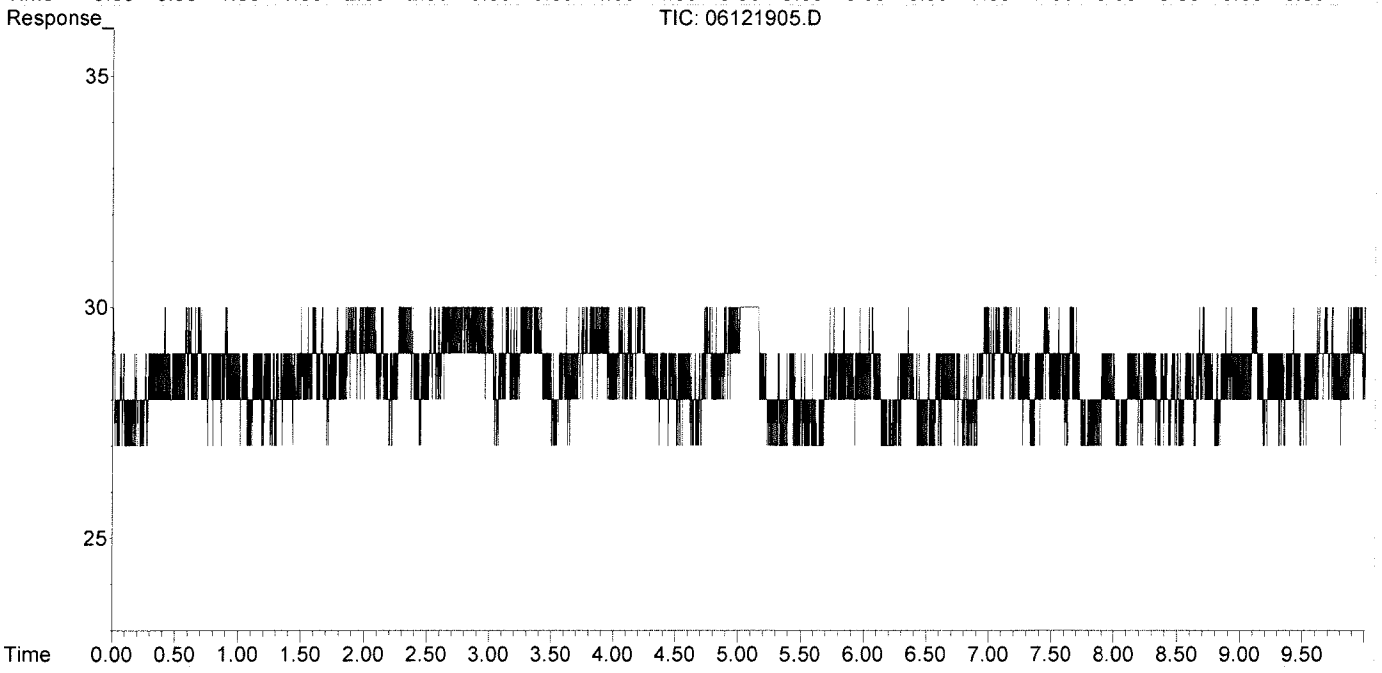
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2019_06\12\
Data File : 06121905.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Jun-2019, 11:28:50
Operator : WH
Sample : LCSD TCD 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 11:50:44 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Response Factor Report HP5890

Method Path : I:\GC10\METHODS\
Method File : RS082817_CO2.M
Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
Last Update : Tue Aug 29 16:13:13 2017
Response Via : Initial Calibration

Calibration Files
1 =08291715.D 2 =08291716.D 3 =08291717.D
4 =08291719.D 5 =08291720.D 6 =08291721.D

	Compound	1	2	3	4	5	6	Avg		%RSD
1)	Oxygen/Argon	4.760						4.760	E6	0.00
2)	Carbon monoxide	2.775		1.066	0.043	0.033	0.027	0.657	E6	170.12
3)	Methane (TCD)							9.457		0.00
4)	Carbon dioxide	2.717	2.193	2.338	2.272	2.265	2.298	2.347	E2	7.99

Signal #2 Calibration Files
1 =08291715.D 2 =08291716.D 3 =08291717.D
4 =08291719.D 5 =08291720.D 6 =08291721.D

	Compound	1	2	3	4	5	6	Avg		%RSD
6)	Methane (FID)	1.253	1.160	1.005	0.927	0.848	0.848	0.945	E4	15.85
7)	Ethylene	1.677	1.605	1.900	1.749	1.597	1.579	1.684	E4	7.30
8)	Ethane	1.769	1.631	1.866	1.767	1.639	1.667	1.723	E4	5.40
9)	Propylene	2.402	2.309	2.767	2.551	2.331	2.333	2.449	E4	7.32
10)	Propane	2.906	2.737	2.817	2.639	2.410	2.420	2.655	E4	7.75
11)	Isobutylene							0.000		-1.00
12)	Isobutane							0.000		-1.00
13)	n-Butane							0.000		-1.00

(#) = Out of Range ### Number of calibration levels exceeded format ###

RS082817_CO2.M Wed Aug 30 13:24:19 2017

dit Compounds -- Compound #4 -- Carbon dioxide

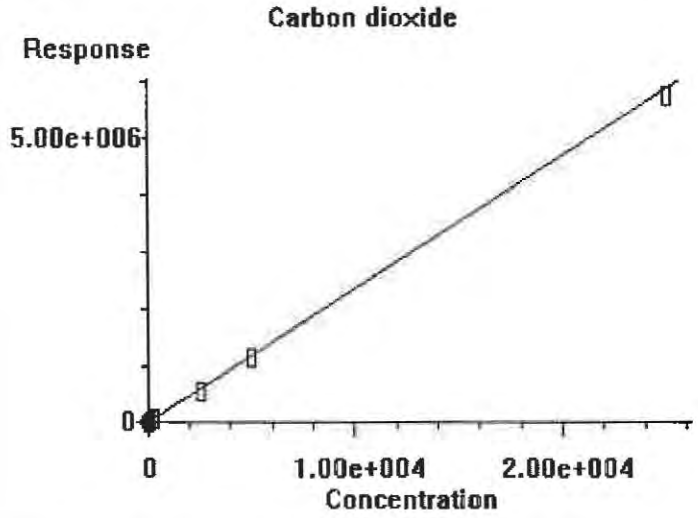
Search by: Ret Time | Name | Index | Find Compound

- Compound Database
- External Standard Compoun
  - Oxygen/Argon
  - Carbon monoxide
  - Methane (TCD)
  - Carbon dioxide
  - Signal #2
  - Methane (FID)
  - Ethylene
  - Ethane
  - Propylene
  - Propane
  - Isobutylene
  - Isobutane
  - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	25.000000	6793.665186
2	100.000000	21932.418000
3	250.000000	58460.642510
4	2500.000000	568043.388750
5	5000.000000	1132363.215937
6	25000.000000	5744294.891563
7	25000.000000	
8	25000.000000	
9	2000.000000	
10	30000.000000	

Lvl ID	Concentration	Response



0.000e+000	Quadratic term
2.347e+002	Linear term
0.000e+000	Constant term
7.987%	RF Rel Std Dev

OK | Cancel | Help | Print Calibration Curve | Copy Calibration Curve

Calibration Status Report HP5890

Method Path : I:\GC10\METHODS\
Method File : RS082817_CO2.M
Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
Last Update : Tue Aug 29 16:13:13 2017
Response Via : Initial Calibration

#	ID	Conc	ISTD Conc	Path\File
1	1	0	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291715.D
2	2	0	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291716.D
3	3	3	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291717.D
4	4	10	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291719.D
5	5	25	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291720.D
6	6	125	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291721.D
7	7	5000	0	J:\GC10\DATA\RSK_FID\2017_08\24\08241708.D
8	8	25000	0	J:\GC10\DATA\RSK_FID\2017_08\24\08241709.D
9	9	2000	0	J:\GC10\DATA\RSK_FID\2017_08\24\08241710.D
10	10	30000	0	J:\GC10\DATA\RSK_FID\2017_08\24\08241711.D

#	ID	Update Time	Quant Time	Acquisition Time
1	1	Aug 29 14:21 2017	Aug 29 14:20 2017	29-Aug-2017, 14:07
2	2	Aug 29 14:52 2017	Aug 29 14:51 2017	29-Aug-2017, 14:22
3	3	Aug 29 15:04 2017	Aug 29 15:04 2017	29-Aug-2017, 14:53
4	4	Aug 29 15:36 2017	Aug 29 15:36 2017	29-Aug-2017, 15:23
5	5	Aug 29 15:57 2017	Aug 29 15:57 2017	29-Aug-2017, 15:44
6	6	Aug 29 16:13 2017	Aug 29 16:13 2017	29-Aug-2017, 16:00
7	7	Aug 25 09:05 2017	Aug 24 16:00 2017	24-Aug-2017, 15:44
8	8	Aug 25 09:06 2017	Aug 24 16:13 2017	24-Aug-2017, 16:02
9	9	Aug 25 09:06 2017	Aug 24 16:31 2017	24-Aug-2017, 16:16
10	10	Aug 25 09:07 2017	Aug 24 16:42 2017	24-Aug-2017, 16:33

RS082817_CO2.M Wed Aug 30 13:24:30 2017

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:07
Operator : MC
Sample : 25ppm s32-08291701 0.25ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:20:06 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.776	277465	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	5.978	6794	27.870	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

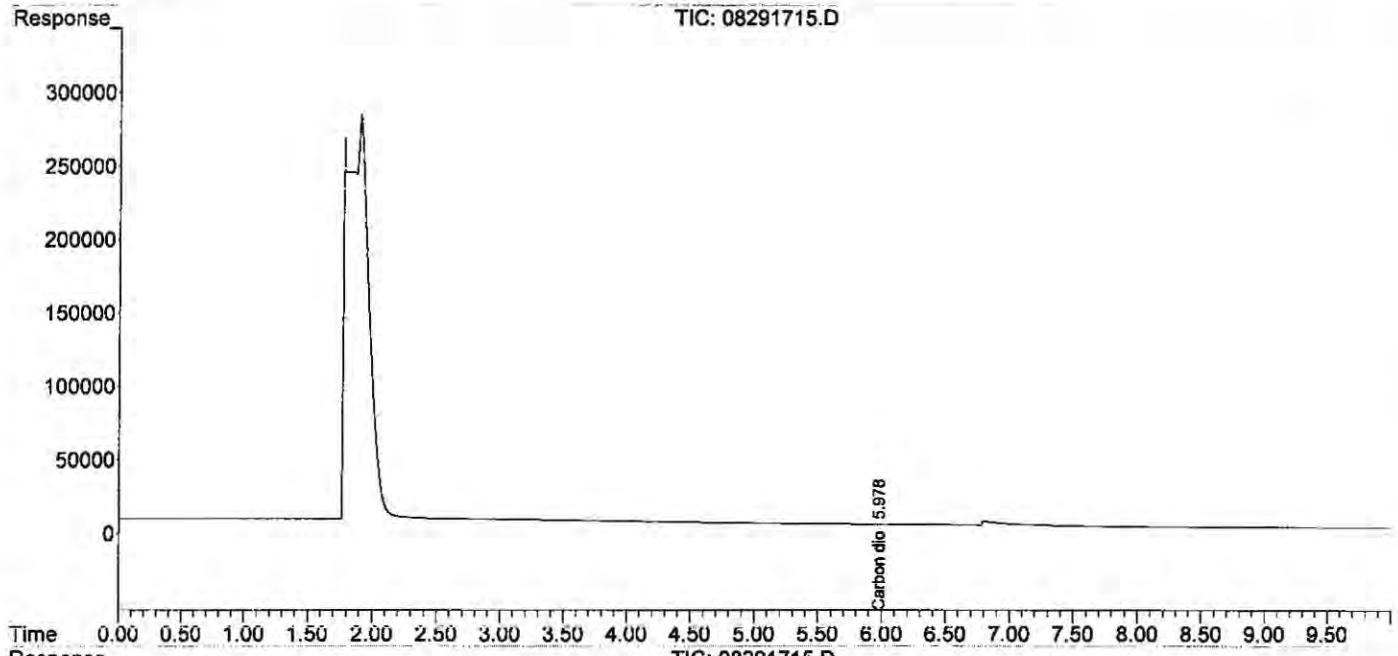
(f)=RT Delta > 1/2 Window (m)=manual int.

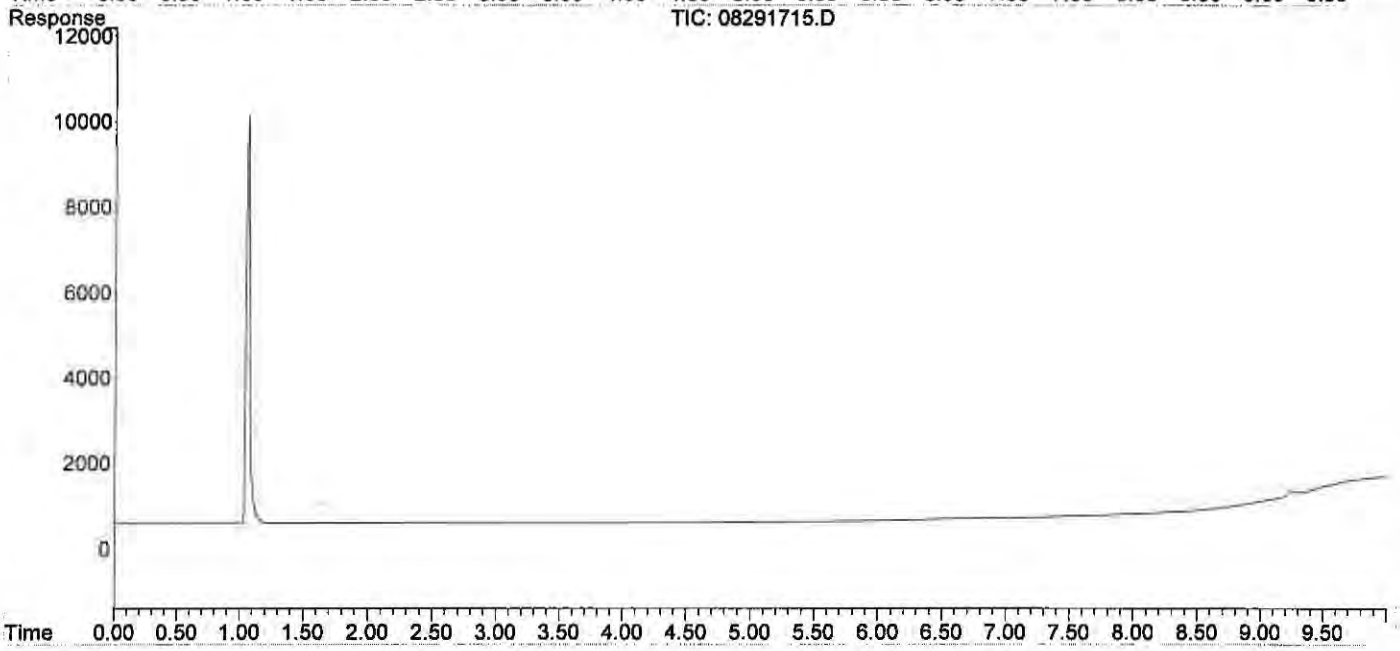
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:07
Operator : MC
Sample : 25ppm s32-08291701 0.25ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:20:06 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



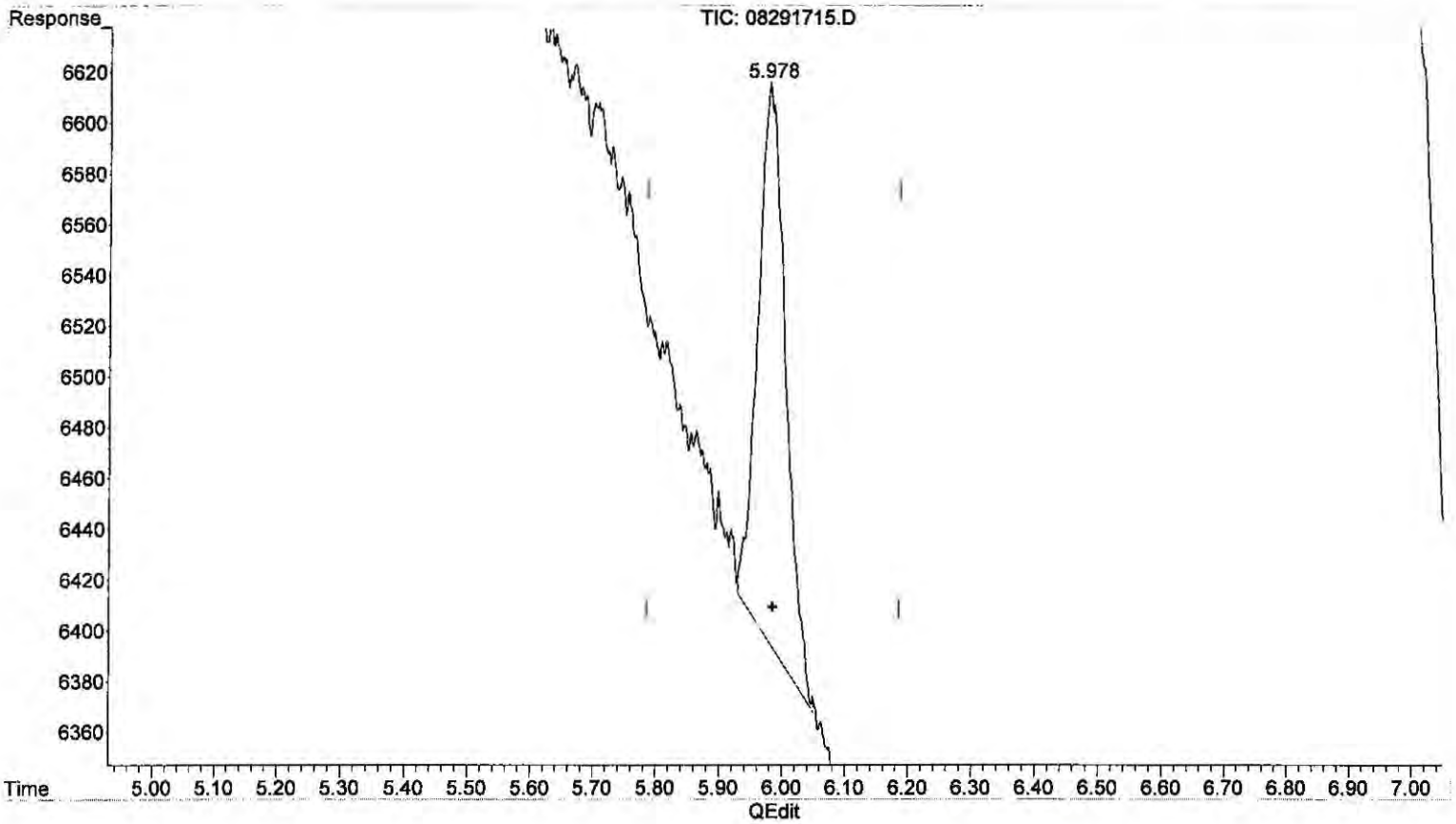


Quantitation Report (Qedit)

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:07
Operator : MC
Sample : 25ppm s32-08291701 0.25ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:20:06 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide
5.978min 27.870 ppm m
response 6794

(+) = Expected Retention Time

RS082817_CO2.M Wed Aug 30 13:17:47 2017

Page: 1

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291716.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:22
Operator : MC
Sample : 100ppm s32-08291702 0.2ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:51:38 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:21:08 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

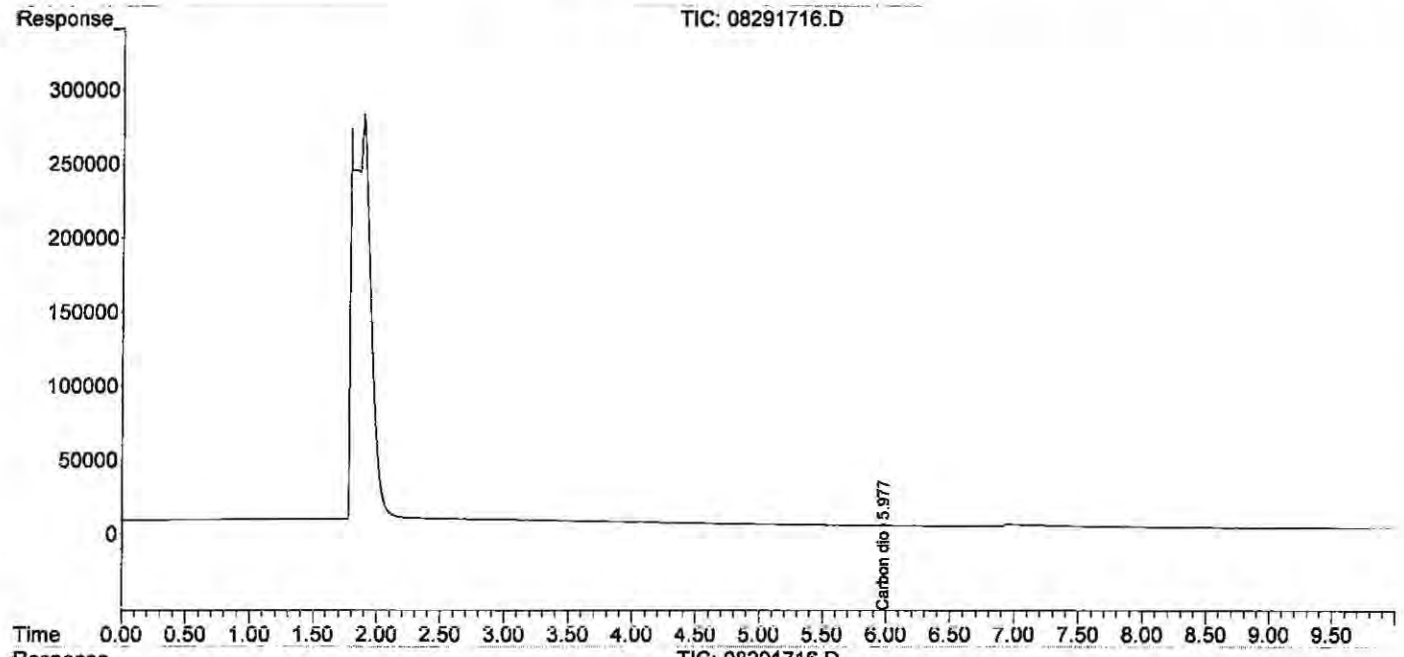
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.790	-598962	N.D.	ppm	
2)	Carbon monoxide	0.000	0	N.D.	ppm	d
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	5.978	21932	87.858	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

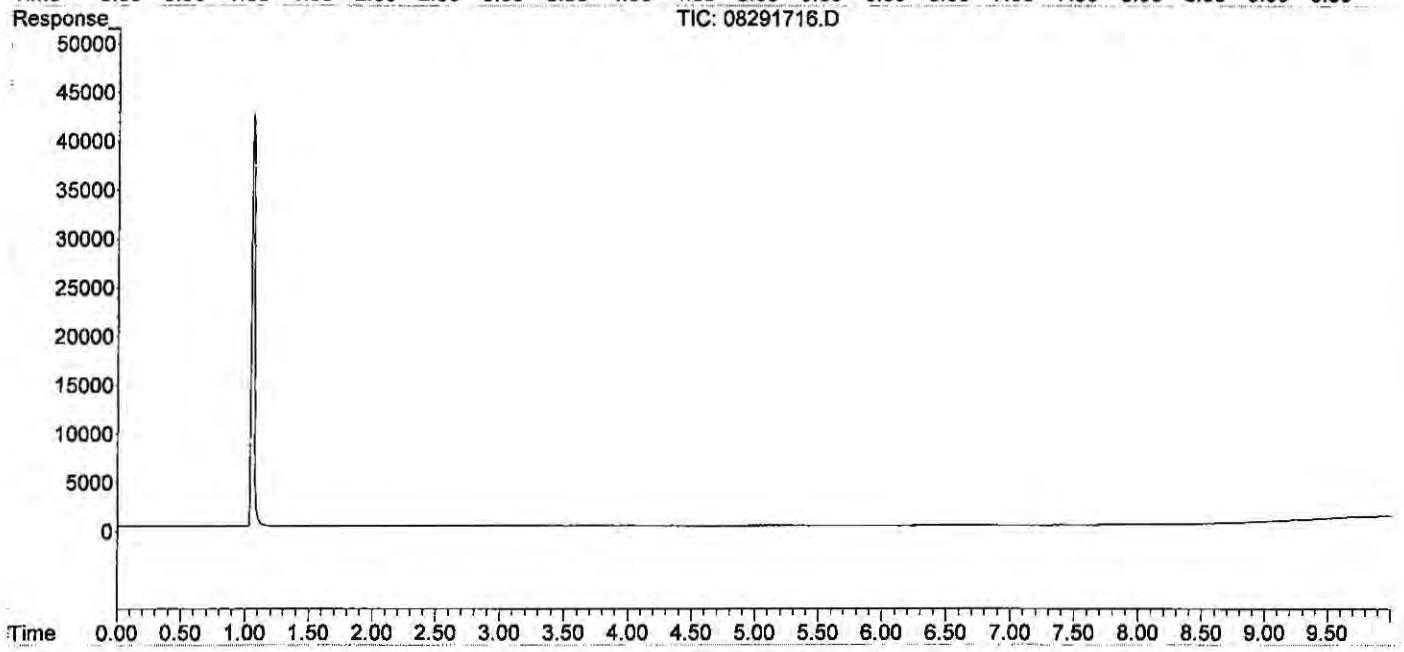
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291716.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:22
Operator : MC
Sample : 100ppm s32-08291702 0.2ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:51:38 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:21:08 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291717.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:53
Operator : MC
Sample : 250ppm s32-08291702 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:03:42 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:52:06 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

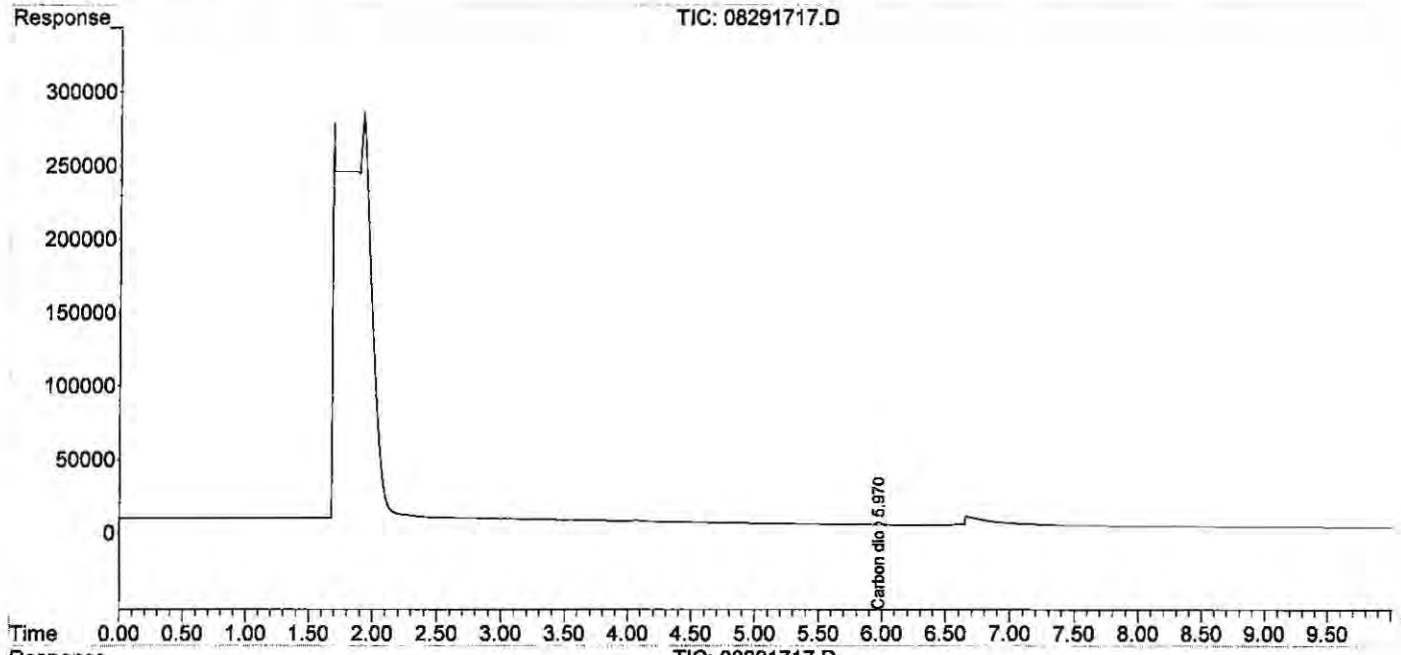
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.920f	-30716454	N.D.	ppm	
2)	Carbon monoxide	0.000	0	N.D.	ppm	d
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	5.970	58461	240.204	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

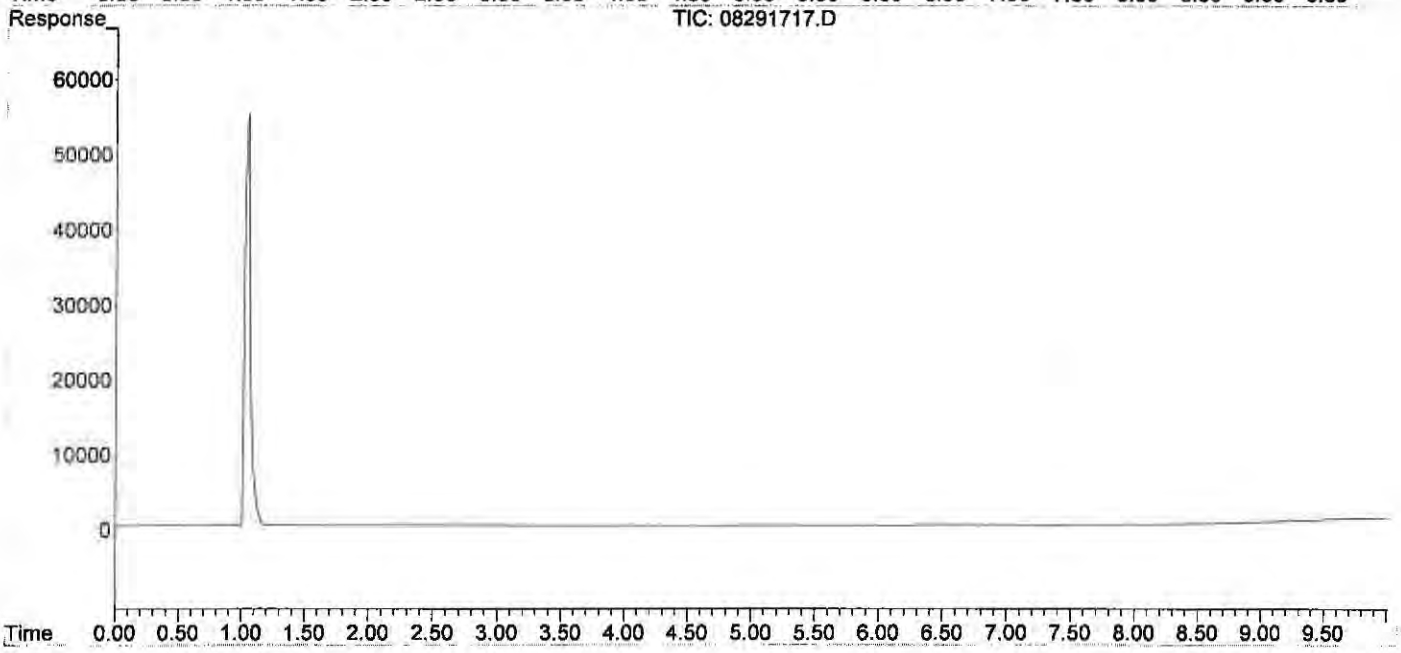
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291717.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:53
Operator : MC
Sample : 250ppm s32-08291702 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:03:42 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:52:06 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



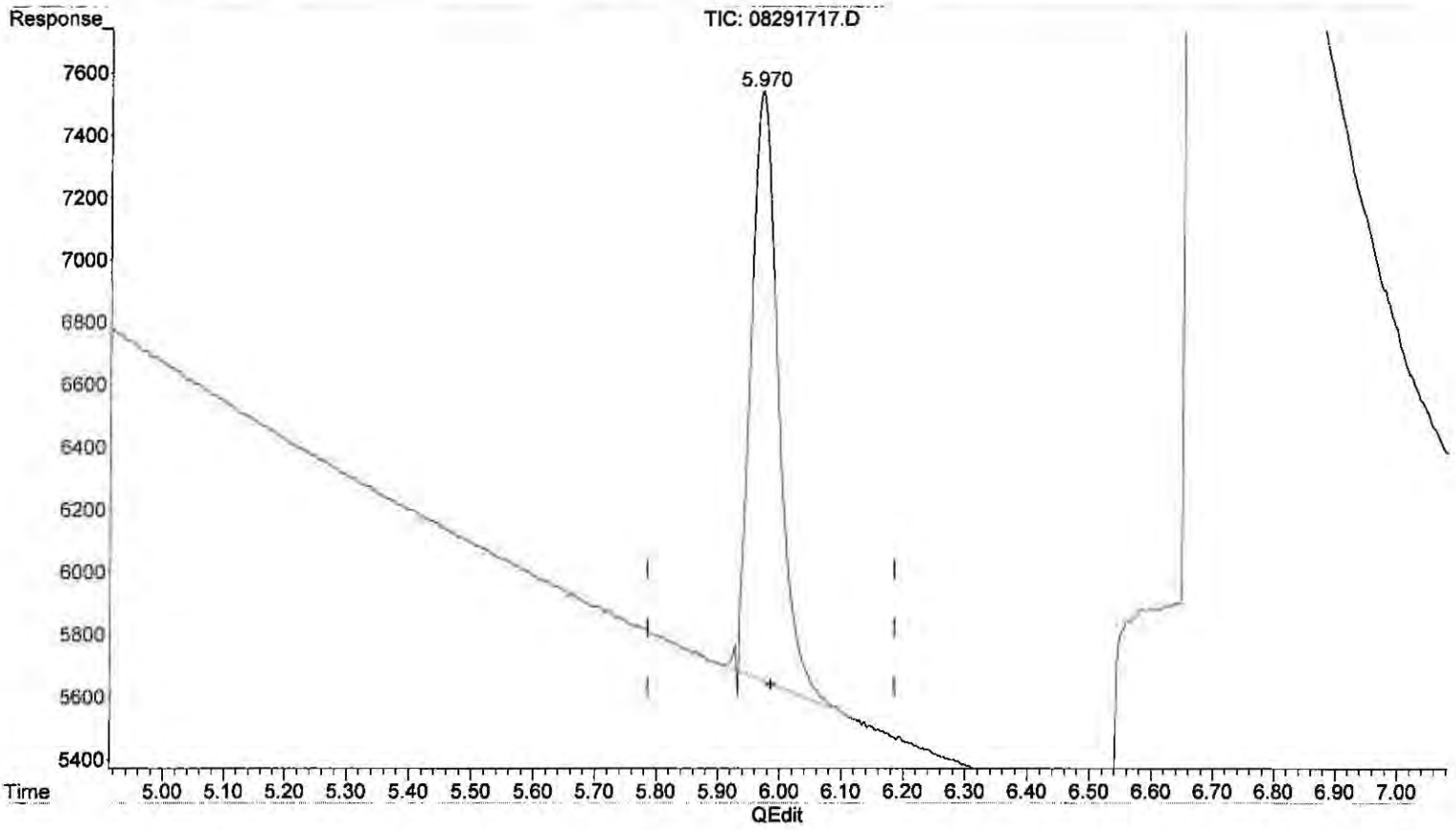


Quantitation Report (Qedit)

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291717.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:53
Operator : MC
Sample : 250ppm s32-08291702 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:03:42 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:52:06 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase :
Signal #1 Info :
Signal #2 Phase:
Signal #2 Info :



(4) Carbon dioxide
5.970min 240.204 ppm m
response 58461

(+) = Expected Retention Time
RS082817_CO2.M Wed Aug 30 13:19:20 2017

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291719.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 15:23
Operator : MC
Sample : 2500ppm s32-08231701 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:35:50 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:04:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.891	425113	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	5.962	568043	2369.673	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

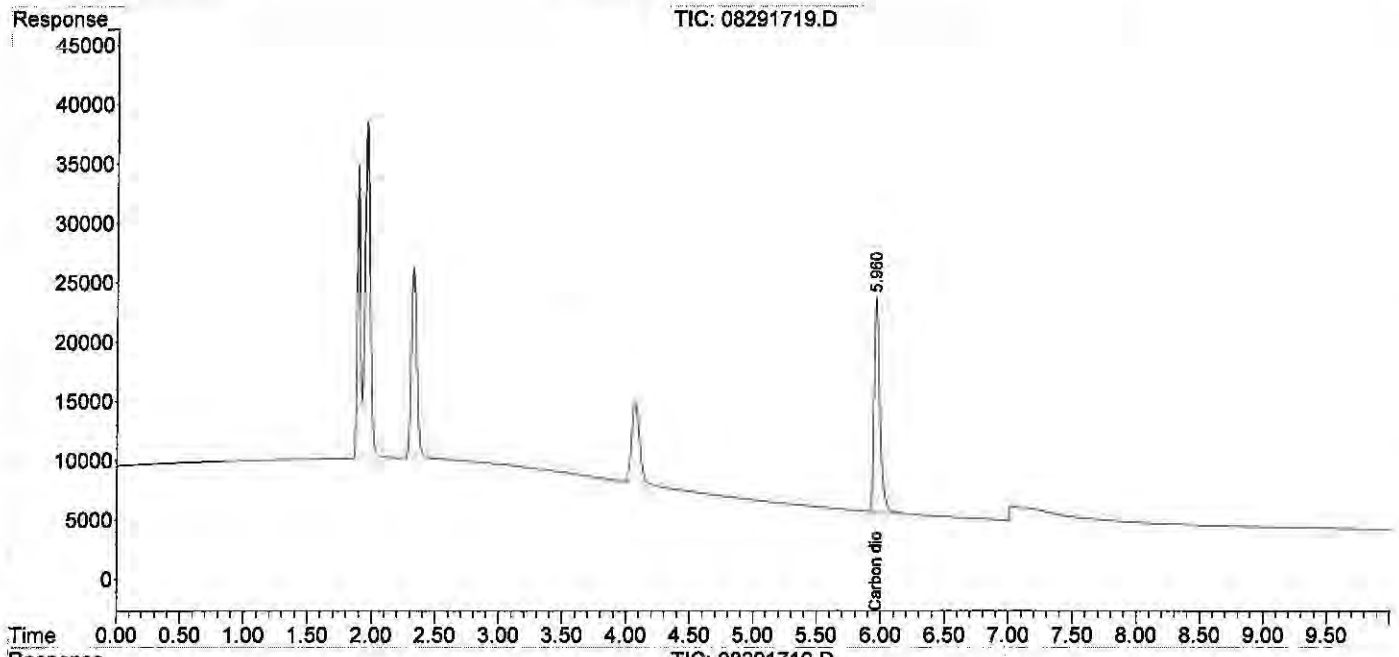
(f)=RT Delta > 1/2 Window (m)=manual int.

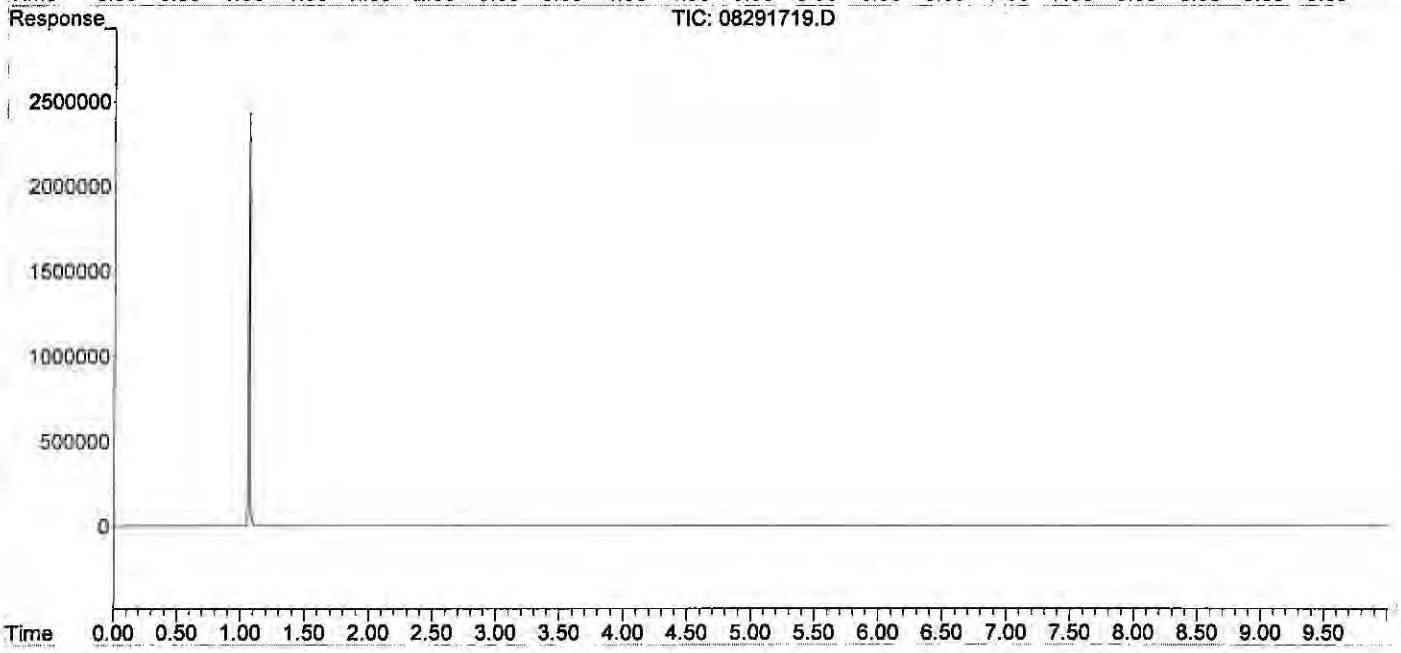
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291719.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 15:23
Operator : MC
Sample : 2500ppm s32-08231701 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:35:50 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:04:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291720.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 15:44
Operator : MC
Sample : 5000ppm s32-08231701 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:57:17 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:36:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

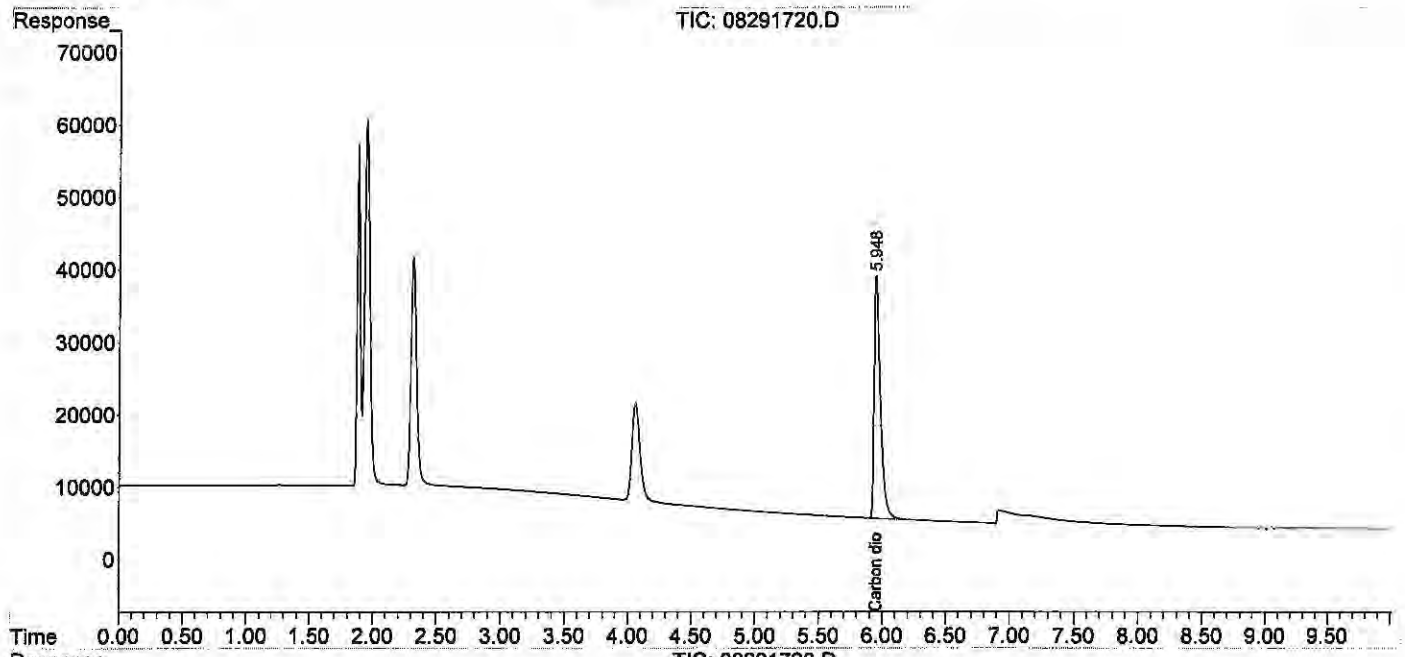
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.880	819221	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	5.948	1132363	4753.126	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

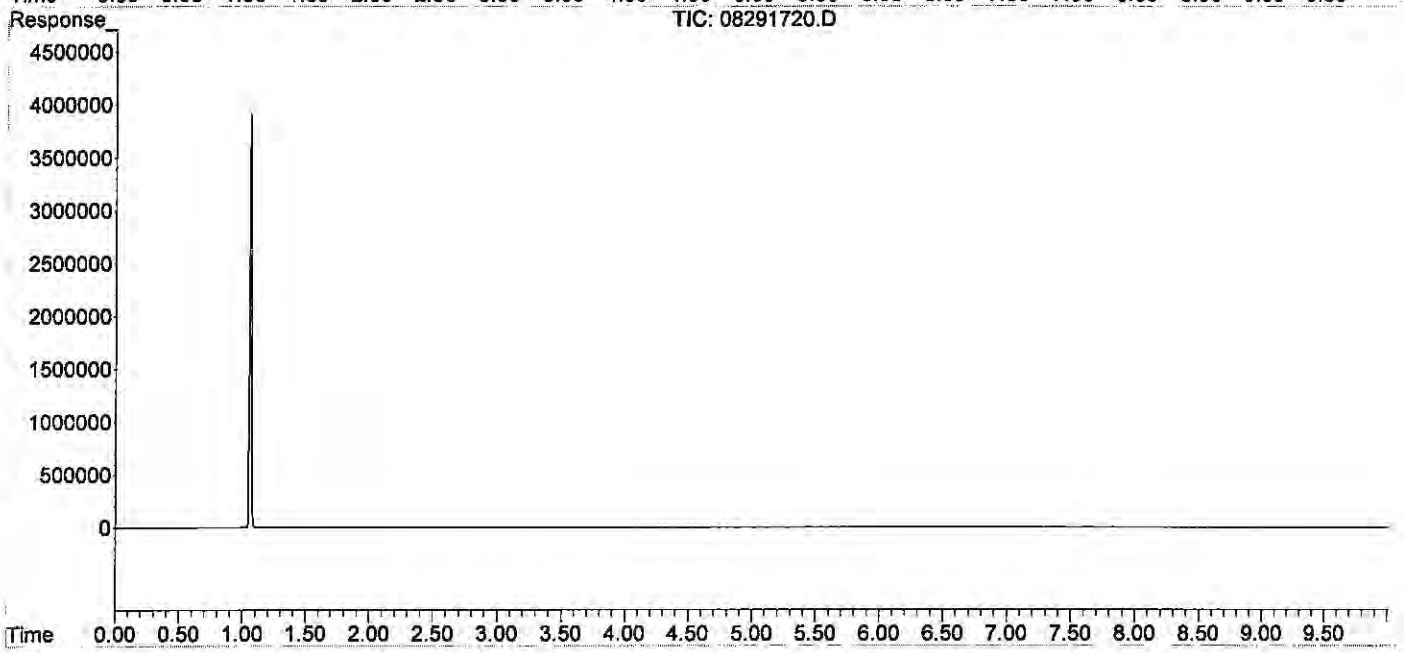
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291720.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 15:44
Operator : MC
Sample : 5000ppm s32-08231701 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:57:17 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:36:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291721.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 16:00
Operator : MC
Sample : 25000ppm s32-08231701 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 16:12:53 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:57:37 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.827	3325463	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	5.879f	5744295	24443.288	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

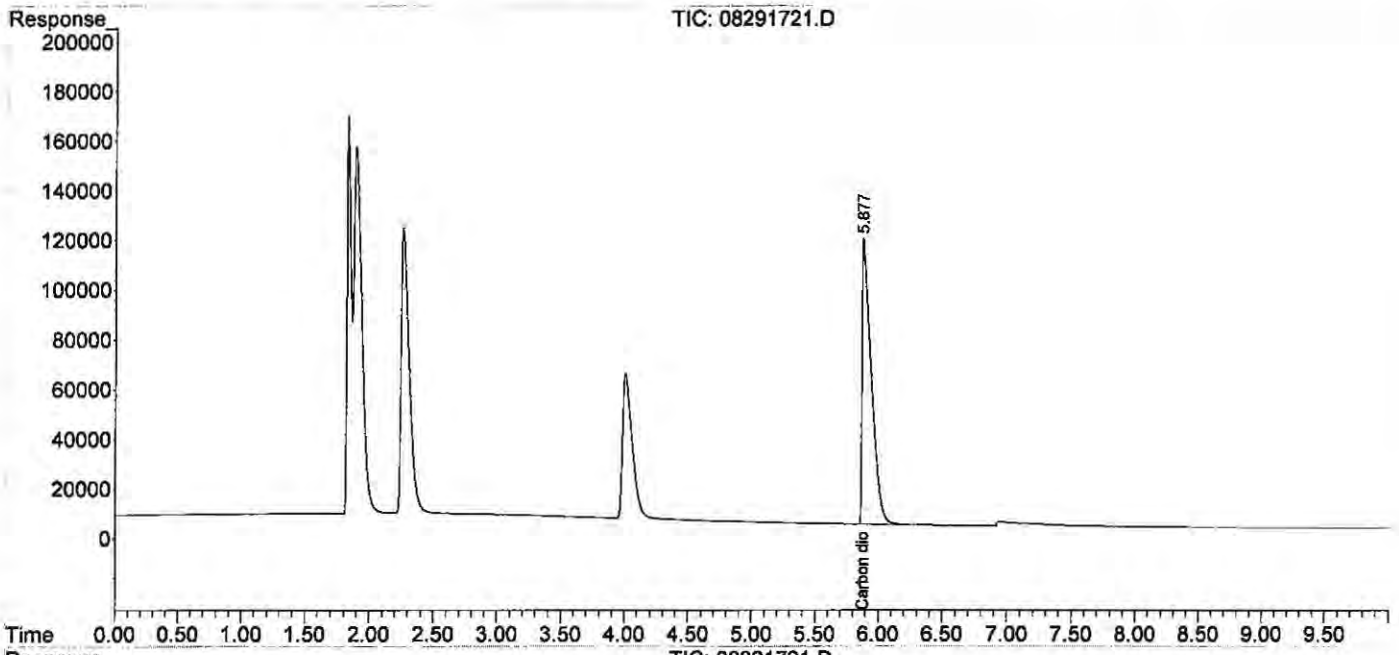
(f)=RT Delta > 1/2 Window (m)=manual int.

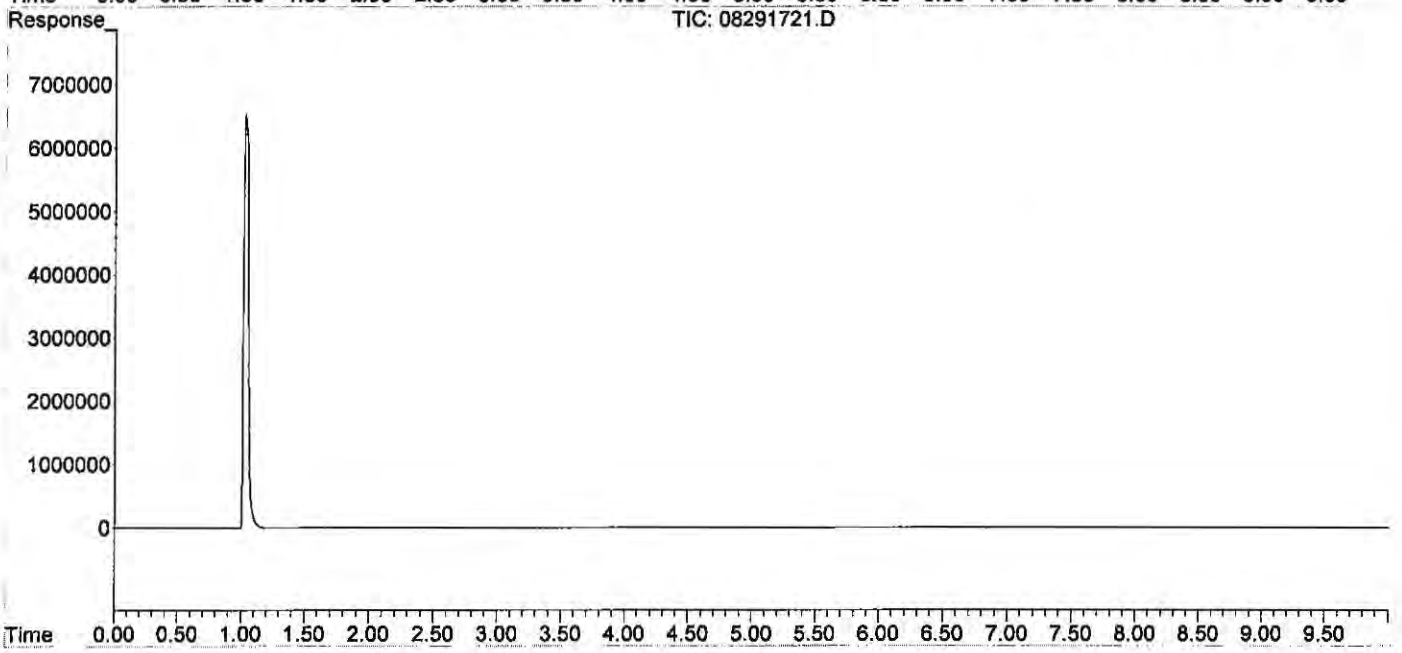
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291721.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 16:00
Operator : MC
Sample : 25000ppm s32-08231701 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 16:12:53 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:57:37 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291723.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 16:35
Operator : MC
Sample : icv s30-07071701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 16:54:07 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.886	536422	0.113	ppm	actual %D
2)	Carbon monoxide	1.886	536422	N.D.	ppm	
3)	Methane (TCD)	4.059f	626500	66244.710	ppm	
4)	Carbon dioxide	5.947	1163775	4957.948	ppm	5000 99.16
6)	Methane (FID)	1.062	37290742	3947.023	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

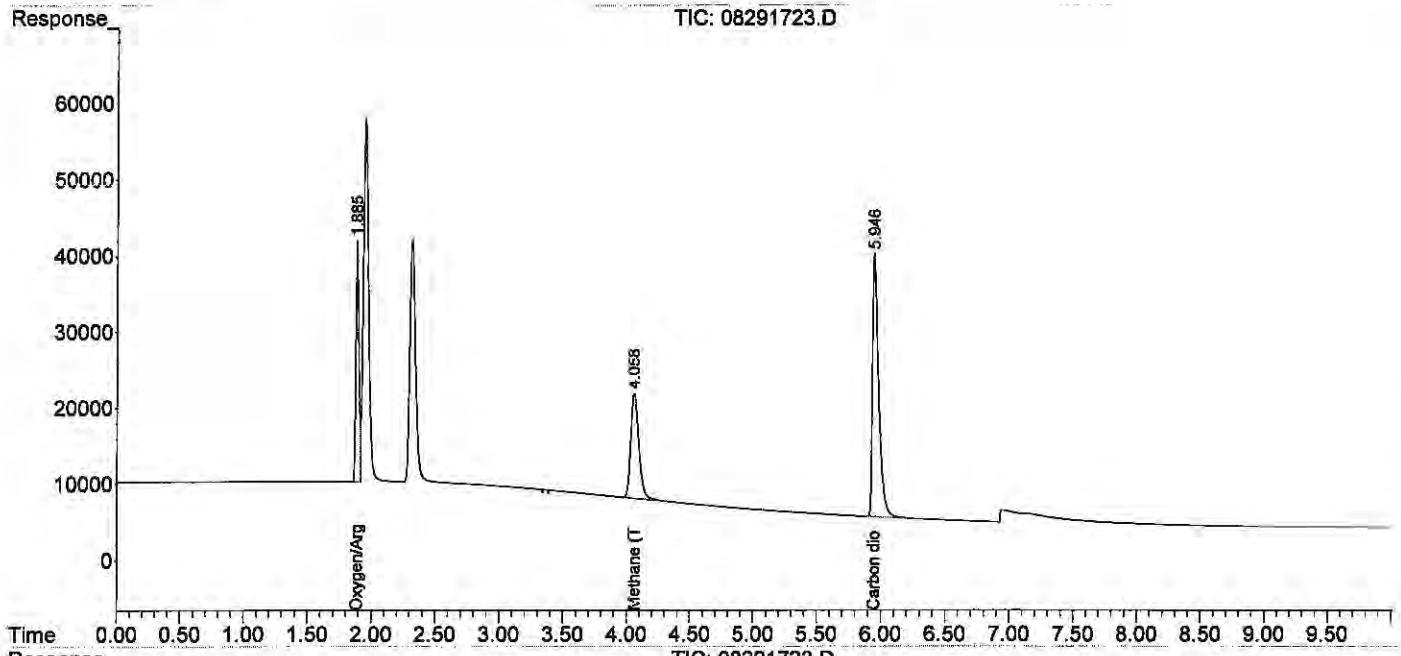
(f)=RT Delta > 1/2 Window (m)=manual int.

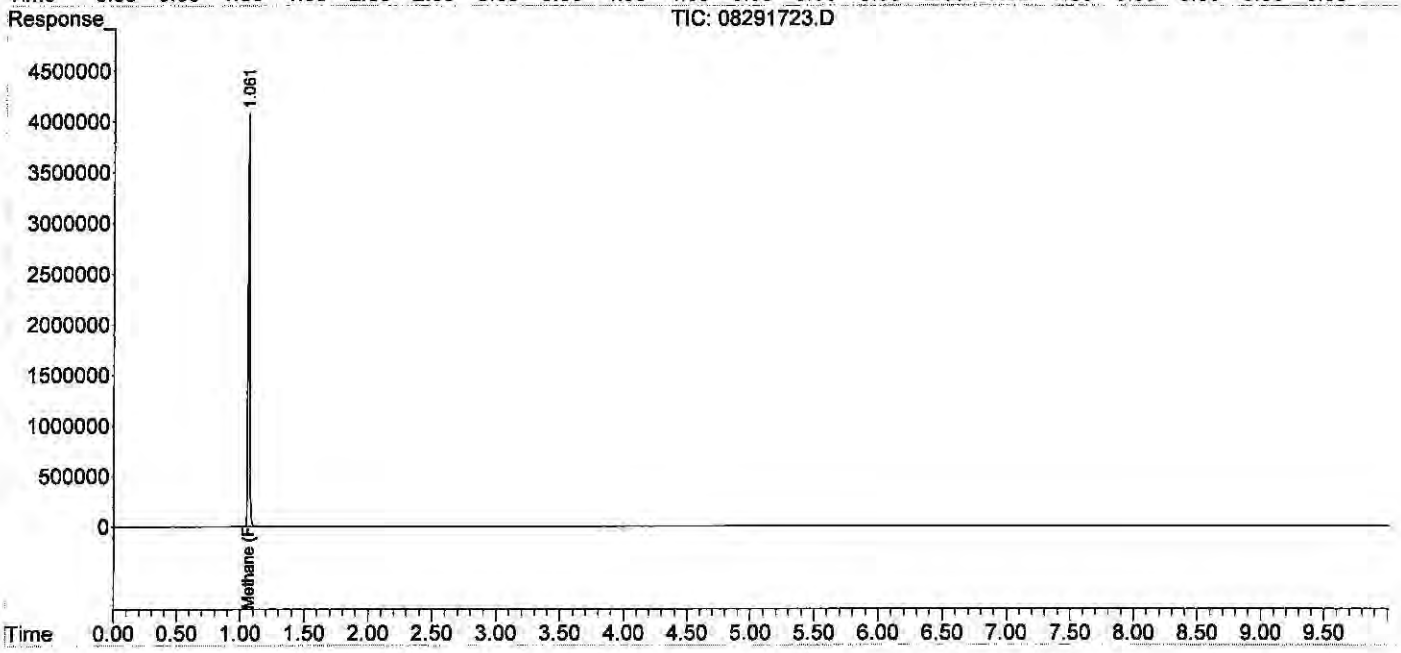
W 9/4/17

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291723.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 16:35
Operator : MC
Sample : icv s30-07071701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 16:54:07 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





ALS Environmental

Method : RSK175 Headspace Method for Dissolved Hydrocarbon in Water by FID/TCD
Client : ALS Laboratory Group | Analyst : WH | Instrument : GC#10
Service Request: P1903244 | Date Analysis : 06/12/19 | Detector : FID#10, TCD#10
Sample Vol. (ml) : 32.00 ml | Head Space Vol.(ml) : 8.00 ml | Gas Constant : 24.05684 (20°C)

HEAD SPACE RESULT (ppm)

Sample ID	Inj. Vol.	Carbon Dioxide
std s32-04251903	0.100	4632.707
ACTUAL		5000.00
%Difference		7.3%
MCS 0.1ml	0.100	0.000
rb 0.1ml	0.100	0.000
LCS TCD 0.1ml	0.100	867.089
LCSD TCD 0.1ml	0.100	906.849
P1903244-001 50ul	0.050	11809.62
P1903244-002 50ul	0.050	5875.26
P1903244-003 50ul	0.050	16713.35
P1903244-004 50ul	0.050	15285.40
P1903244-005 50ul	0.050	14316.58
P1903244-006 50ul	0.050	17207.05

FINAL HEAD SPACE RESULT (ppm)

	Carbon Dioxide
WWt.	44.10
HENRY'S CONSTANT	1.42E+03
RL	100.00
MCS 0.1ml	0.000
LCS TCD 0.1ml	8670.890
LCSD TCD 0.1ml	9068.490
P1903244-001 50ul	236192.44
P1903244-002 50ul	117505.12
P1903244-003 50ul	334267.00
P1903244-004 50ul	305708.02
P1903244-005 50ul	286331.64
P1903244-006 50ul	344140.90

std s32-04251903	4698.013
ACTUAL	5000.00
%Difference	6.0%

Data Path : J:\GC10\DATA\RSK_TCD\2019_06\12\
Data File : 06121901.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Jun-2019, 09:58:44
Operator : WH
Sample : std s32-04251903
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 10:13:32 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

6/13/19

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

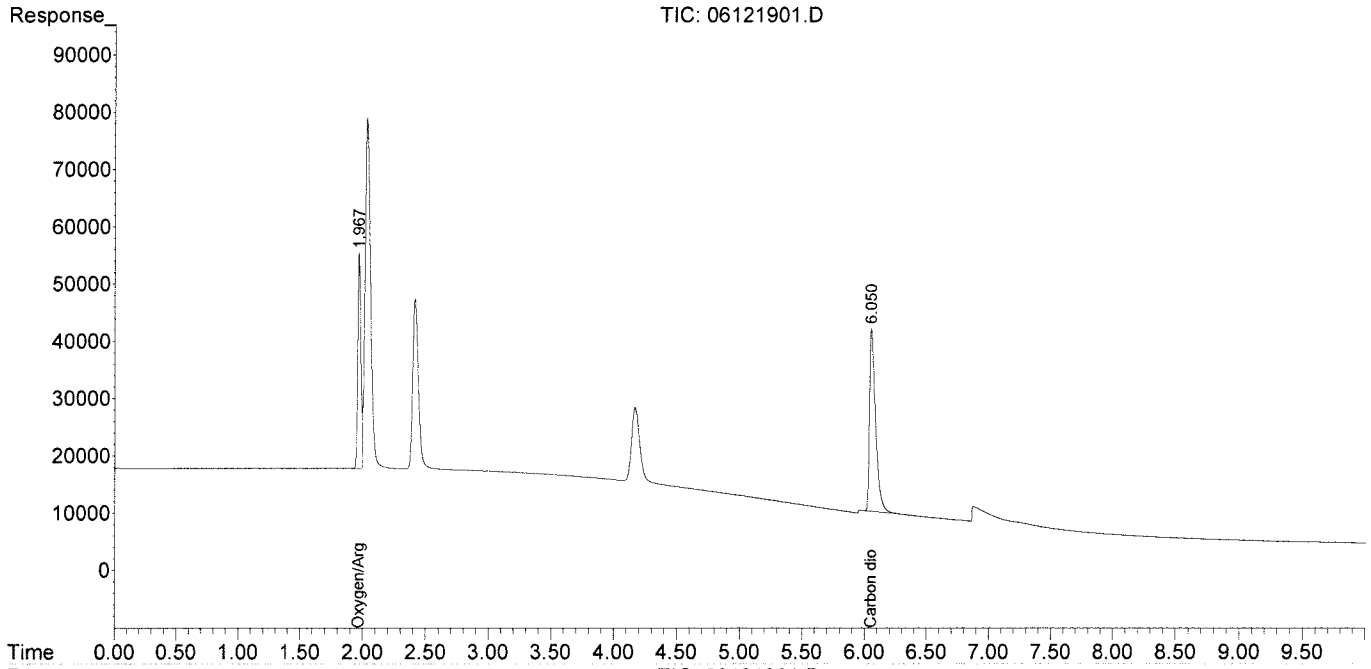
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.968f	652151	0.137	ppm	
2)	Carbon monoxide	1.968f	652151	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	6.050	1087432	4632.707	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

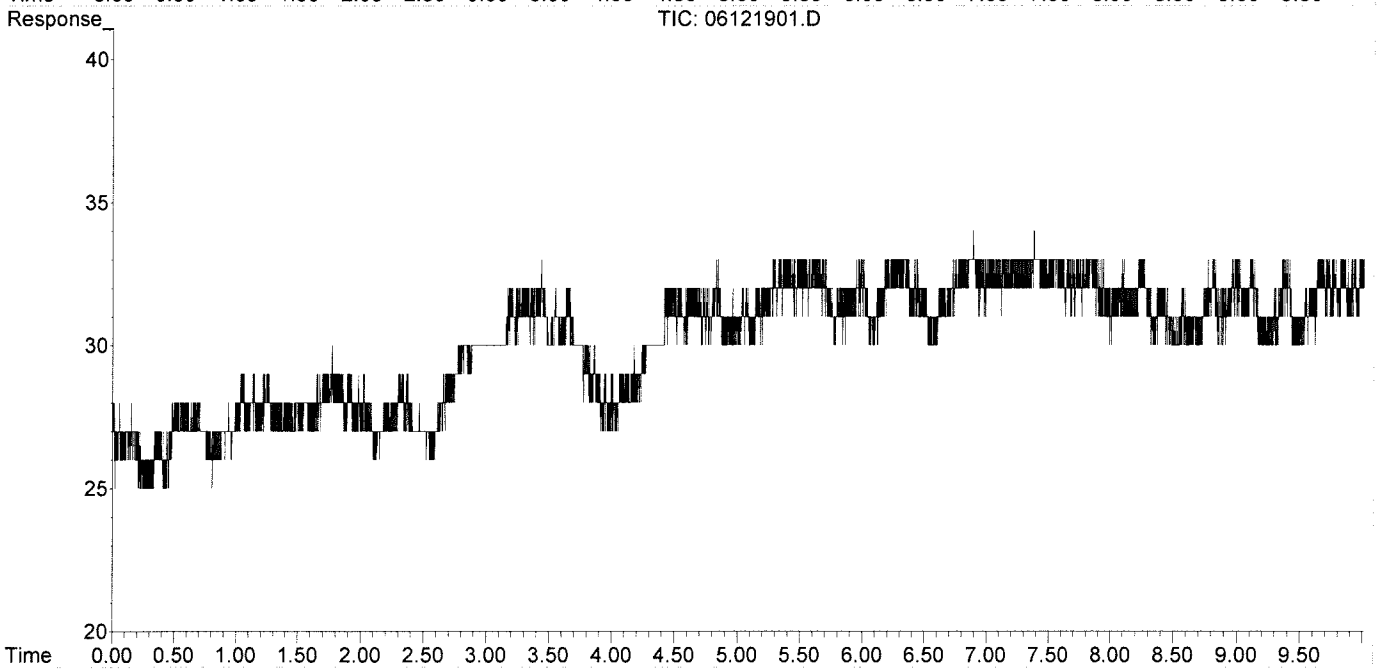
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2019_06\12\
Data File : 06121901.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Jun-2019, 09:58:44
Operator : WH
Sample : std s32-04251903
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 10:13:32 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

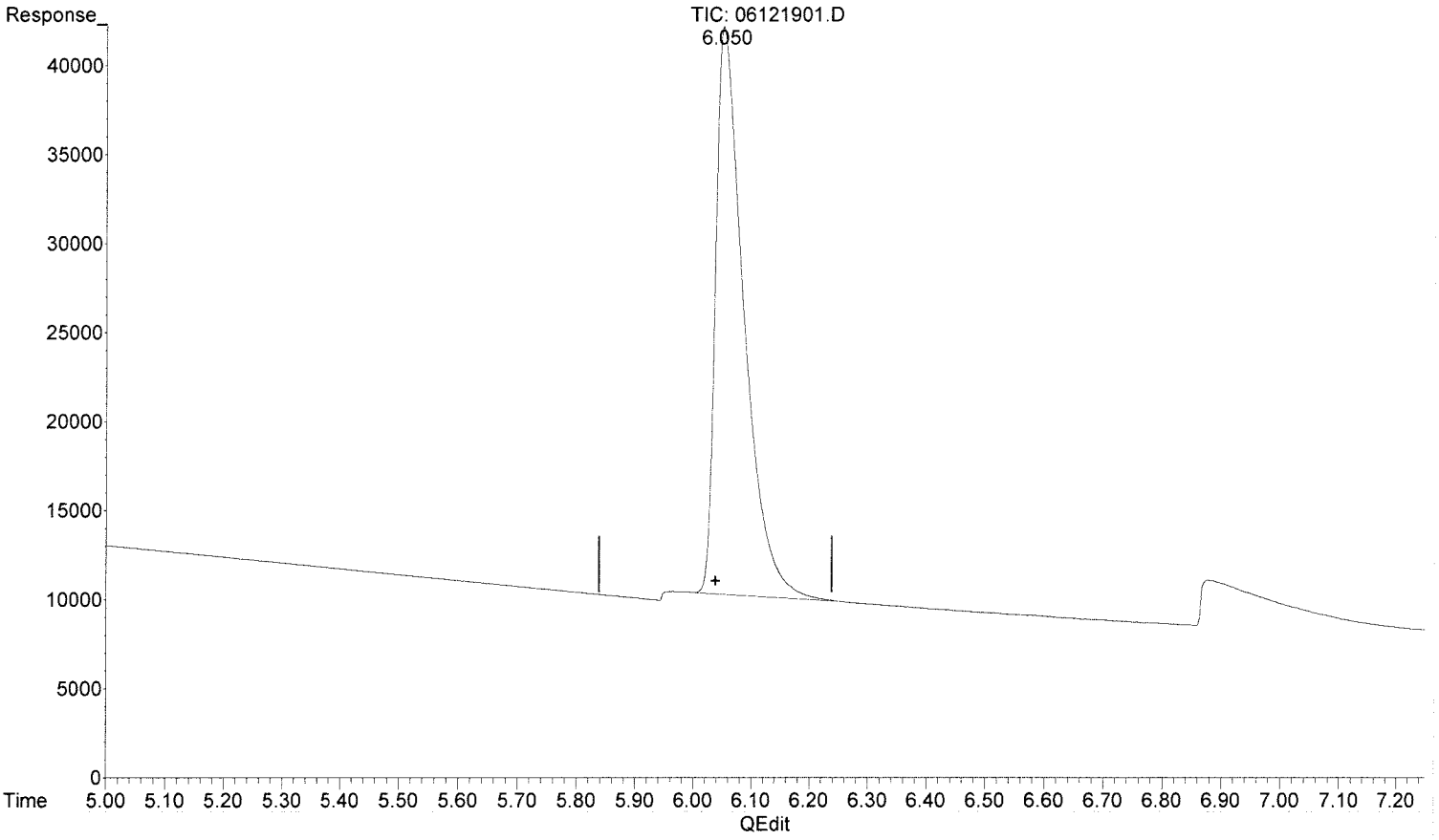




Data Path : J:\GC10\DATA\RSK_TCD\2019_06\12\
Data File : 06121901.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Jun-2019, 09:58:44
Operator : WH
Sample : std s32-04251903
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 10:13:32 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

6.050min 4632.707 ppm m

response 1087432

MR 6/13/19

LM 6/13/19
BLC
no previous

(+) = Expected Retention Time

Data Path : J:\GC10\DATA\RSK_TCD\2019_06\12\
Data File : 06121913.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Jun-2019, 14:29:39
Operator : WH
Sample : std s32-04251903
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 14:43:04 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

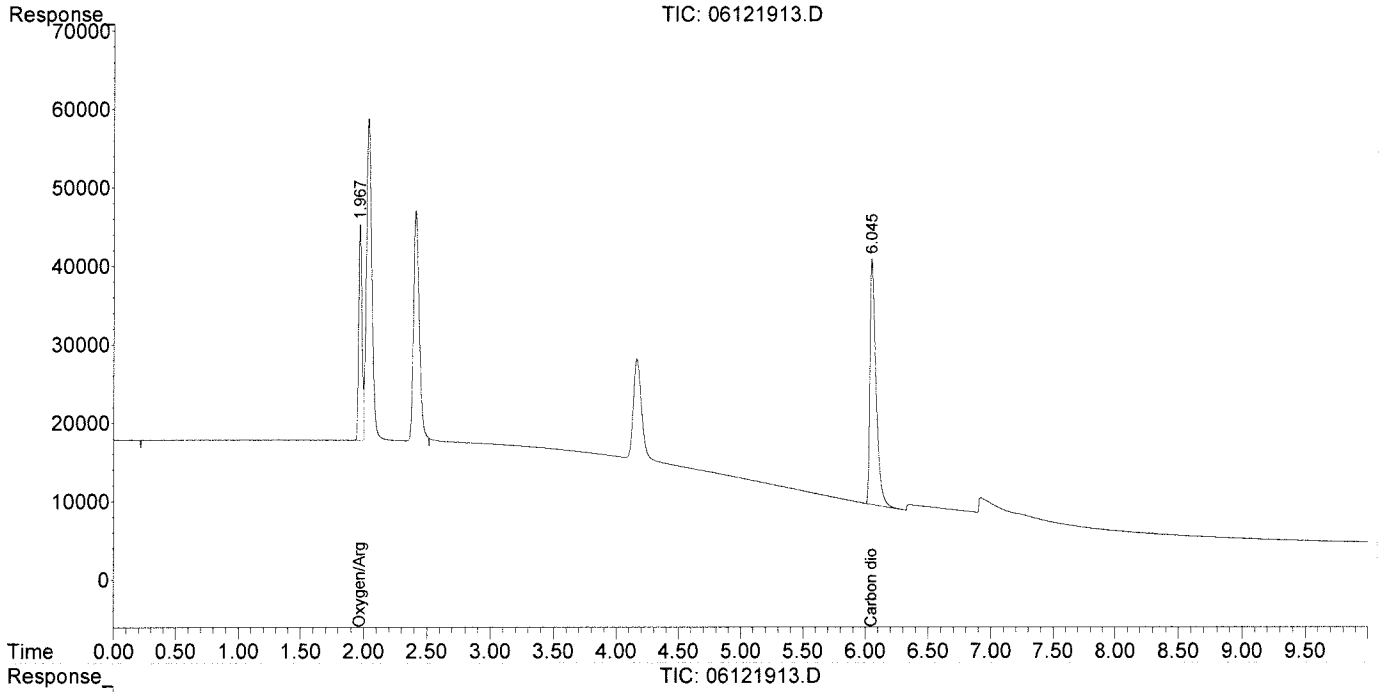
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.968f	491243	0.103	ppm
2)	Carbon monoxide	1.968f	491243	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.046	1061750	4523.296	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

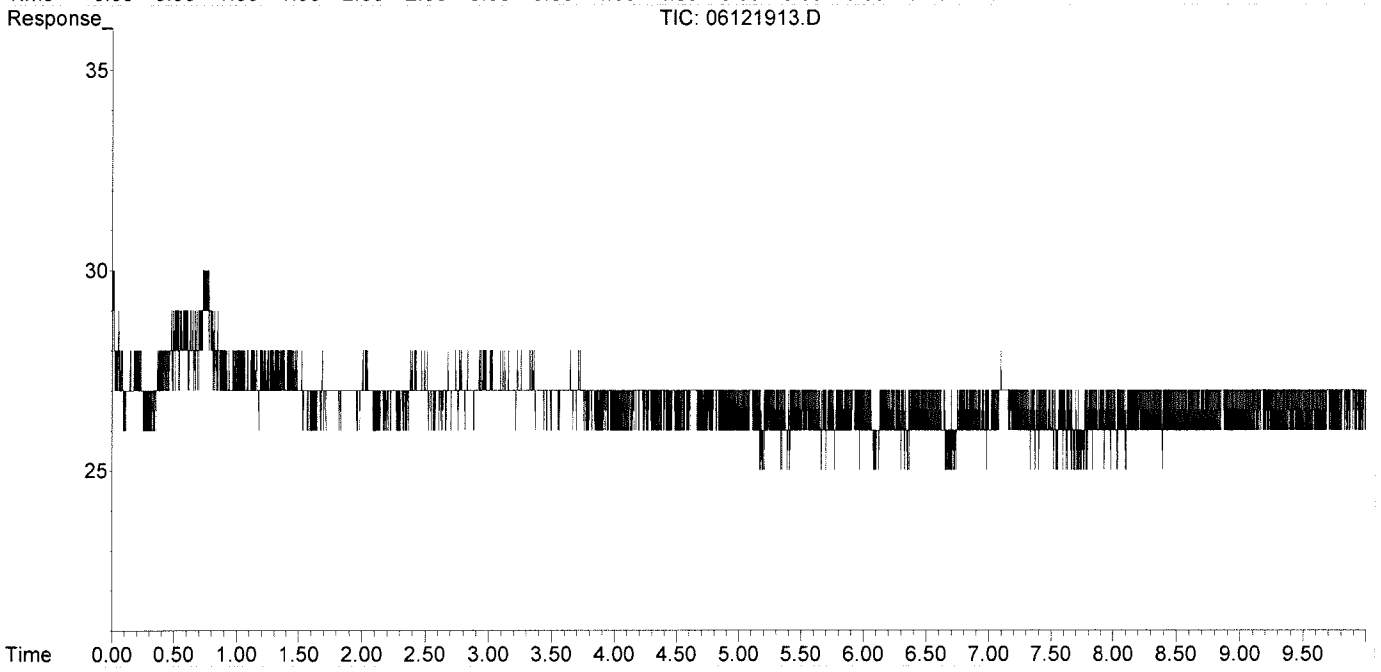
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2019_06\12\
Data File : 06121913.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Jun-2019, 14:29:39
Operator : WH
Sample : std s32-04251903
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 14:43:04 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : J:\GC10\DATA\RSK_TCD\2019_06\12\
Data File : 06121922.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Jun-2019, 17:06:26
Operator : WH
Sample : std s32-04251903
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 17:21:55 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

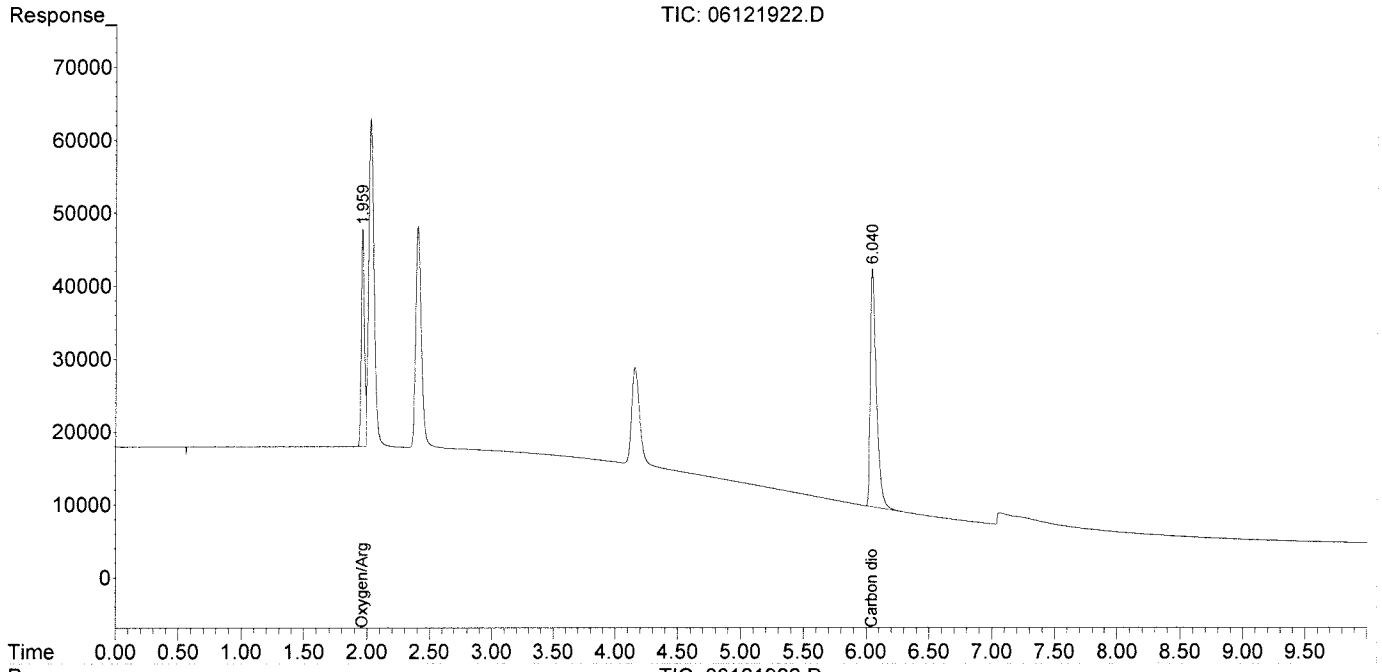
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.960f	527620	0.111	ppm
2)	Carbon monoxide	1.960f	527620	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.041	1102761	4698.013	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

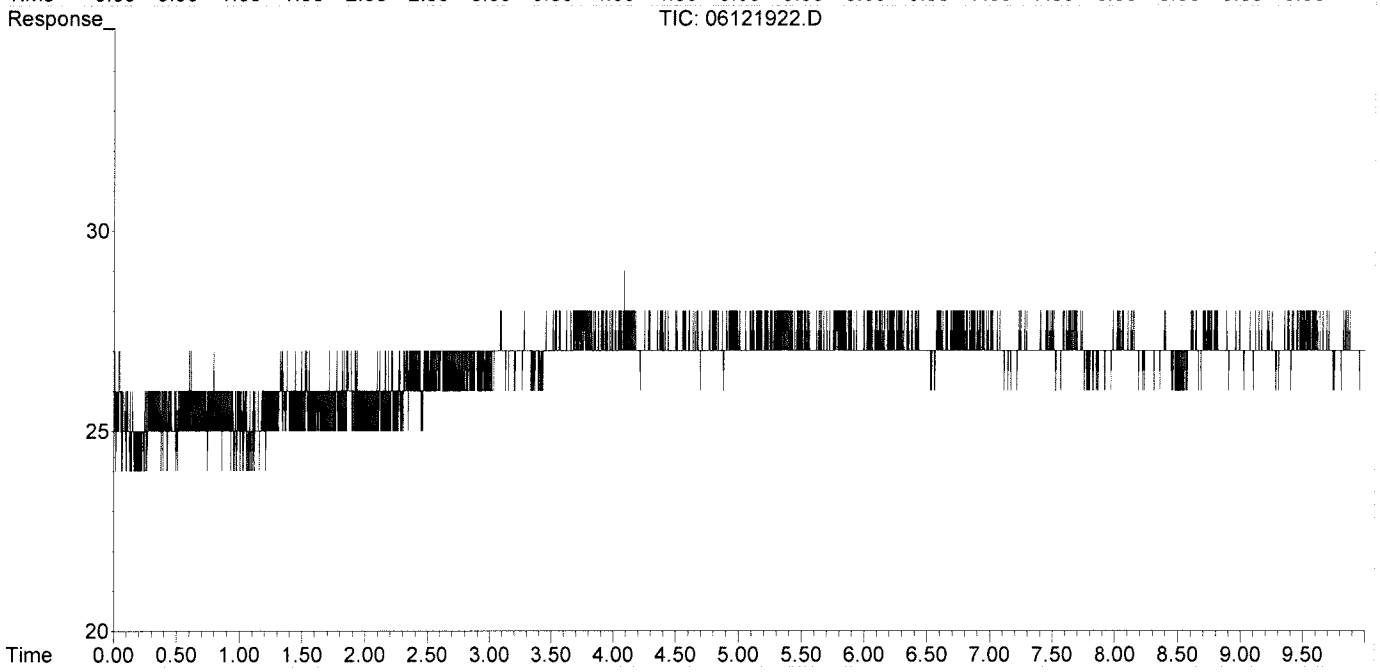
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2019_06\12\
Data File : 06121922.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Jun-2019, 17:06:26
Operator : WH
Sample : std s32-04251903
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 17:21:55 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Injection Log

Directory: I:\GC10\DATA\RSK_FID\2017_08\29\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Acquisition Method	Comments
1	29-Aug-17, 07:58:00	08291701.D	std s30-06161601		MC	RSKBOTH.M	Pass
2	29-Aug-17, 08:11:02	08291702.D	mb 0.5ml		MC	RSKBOTH.M	Pass
3	29-Aug-17, 08:24:13	08291703.D	4089-001 0.5ml		MC	RSKBOTH.M	
4	29-Aug-17, 08:39:29	08291704.D	4089-002 0.5ml		MC	RSKBOTH.M	
5	29-Aug-17, 08:53:38	08291705.D	4089-003 0.5ml		MC	RSKBOTH.M	
6	29-Aug-17, 09:33:52	08291706.D	4089-004 0.5ml		MC	RSKBOTH.M	
7	29-Aug-17, 09:50:51	08291707.D	4089-005 0.5ml		MC	RSKBOTH.M	
8	29-Aug-17, 10:07:54	08291708.D	4089-006 0.5ml		MC	RSKBOTH.M	
9	29-Aug-17, 10:42:34	08291709.D	4089-007 0.5ml		MC	RSKBOTH.M	
10	29-Aug-17, 11:06:01	08291710.D	4089-008 0.5ml		MC	RSKBOTH.M	
11	29-Aug-17, 11:23:53	08291711.D	4089-009 0.5ml		MC	RSKBOTH.M	
12	29-Aug-17, 11:37:17	08291712.D	lcs s30-05241604		MC	RSKBOTH.M	Pass
13	29-Aug-17, 11:50:31	08291713.D	lcs s30-05241604		MC	RSKBOTH.M	Pass
14	29-Aug-17, 12:29:45	08291714.D	std s30-06161601		MC	RSKBOTH.M	Pass
15	29-Aug-17, 14:07:01	08291715.D	25ppm s32-08291701 0.25ml		MC	RSKBOTH.M	Curve
16	29-Aug-17, 14:22:12	08291716.D	100ppm s32-08291702 0.2ml		MC	RSKBOTH.M	Curve
17	29-Aug-17, 14:53:00	08291717.D	250ppm s32-08291702 0.5ml		MC	RSKBOTH.M	Curve
18	29-Aug-17, 15:07:43	08291718.D	mls inject		MC	RSKBOTH.M	
19	29-Aug-17, 15:23:21	08291719.D	2500ppm s32-08231701 50ul		MC	RSKBOTH.M	Curve
20	29-Aug-17, 15:44:54	08291720.D	5000ppm s32-08231701 0.1ml		MC	RSKBOTH.M	Curve
21	29-Aug-17, 16:00:09	08291721.D	25000ppm s32-08231701 0.5ml		MC	RSKBOTH.M	Curve
22	29-Aug-17, 16:15:43	08291722.D	mb 0.1ml		MC	RSKBOTH.M	Pass
23	29-Aug-17, 16:35:37	08291723.D	lcv s30-07071701		MC	RSKBOTH.M	Pass

Injection Log

Directory: I:\GC10\DATA\RSK_TCD\2019_06\12\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Acquisition Method	Comments
1	12-Jun-19, 09:58:44	06121901.D	std s32-04251903		WH	RSKBOTH.M	pass
2	12-Jun-19, 10:15:08	06121902.D	rb 0.1ml		WH	RSKBOTH.M	pass
3	12-Jun-19, 10:46:05	06121903.D	MCS 0.1ml		WH	RSKBOTH.M	pass
4	12-Jun-19, 11:05:17	06121904.D	LCS TCD 0.1ml		WH	RSKBOTH.M	pass
5	12-Jun-19, 11:28:50	06121905.D	LCSD TCD 0.1ml		WH	RSKBOTH.M	pass
6	12-Jun-19, 11:53:54	06121906.D	p1903217-001 0.1ml		WH	RSKBOTH.M	
7	12-Jun-19, 12:06:35	06121907.D	P1903217-001 50ul		WH	RSKBOTH.M	
8	12-Jun-19, 12:43:12	06121908.D	P1903217-002 50ul		WH	RSKBOTH.M	
9	12-Jun-19, 12:56:55	06121909.D	P1903217-003 50ul		WH	RSKBOTH.M	
10	12-Jun-19, 13:25:12	06121910.D	P1903217-004 50ul		WH	RSKBOTH.M	
11	12-Jun-19, 13:41:54	06121911.D	P1903217-005 50ul		WH	RSKBOTH.M	
12	12-Jun-19, 13:53:26	06121912.D	P1903217-006 50ul		WH	RSKBOTH.M	
13	12-Jun-19, 14:29:39	06121913.D	std s32-04251903		WH	RSKBOTH.M	pass
14	12-Jun-19, 14:44:58	06121914.D	xP1903244-001 50u		WH	RSKBOTH.M	
15	12-Jun-19, 14:58:42	06121915.D	P1903244-001 50ul		WH	RSKBOTH.M	
16	12-Jun-19, 15:17:41	06121916.D	P1903244-002 50ul		WH	RSKBOTH.M	
17	12-Jun-19, 15:31:33	06121917.D	xP1903244-003 50u		WH	RSKBOTH.M	
18	12-Jun-19, 15:47:49	06121918.D	P1903244-004 50ul		WH	RSKBOTH.M	
19	12-Jun-19, 16:08:34	06121919.D	P1903244-005 50ul		WH	RSKBOTH.M	
20	12-Jun-19, 16:32:46	06121920.D	P1903244-006 50ul		WH	RSKBOTH.M	
21	12-Jun-19, 16:48:17	06121921.D	P1903244-003 50ul		WH	RSKBOTH.M	
22	12-Jun-19, 17:06:26	06121922.D	std s32-04251903		WH	RSKBOTH.M	pass

Data Path : J:\GC10\DATA\RSK_FID\2019_06\11\
Data File : 06111904.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 11-Jun-2019, 11:25:19
Operator : WH
Sample : P1903244-001 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 11:41:12 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

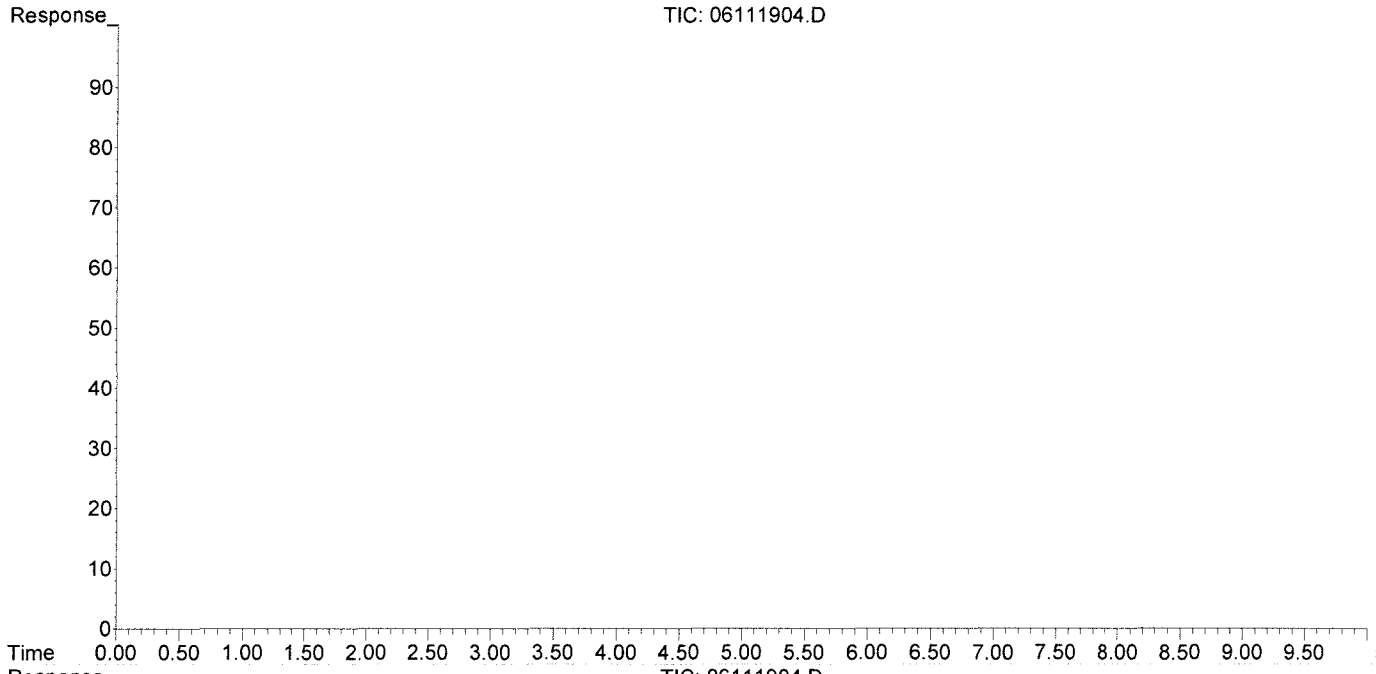
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.104	13993487	1542.723	ppm
7)	Ethylene	1.665	6178	0.369	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

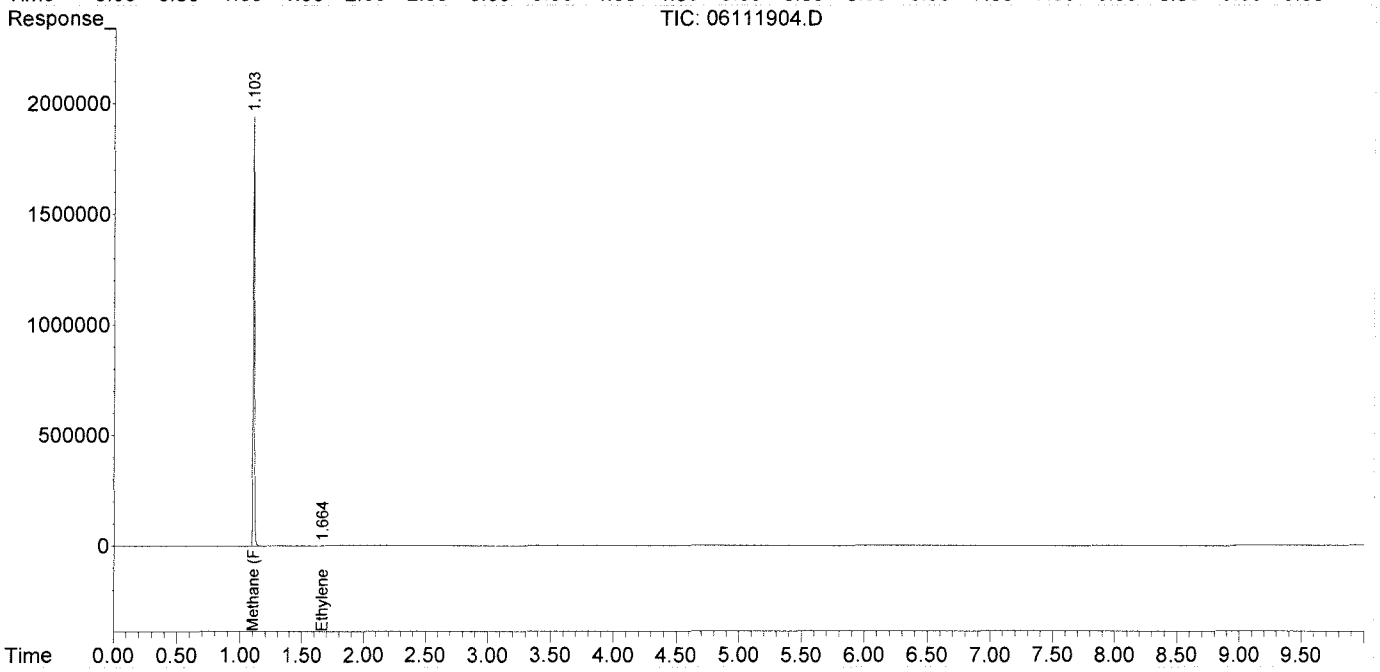
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_06\11\
Data File : 06111904.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 11-Jun-2019, 11:25:19
Operator : WH
Sample : P1903244-001 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 11:41:12 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : J:\GC10\DATA\RSK_FID\2019_06\11\
Data File : 06111905.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 11-Jun-2019, 11:46:28
Operator : WH
Sample : P1903244-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 11:41:15 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

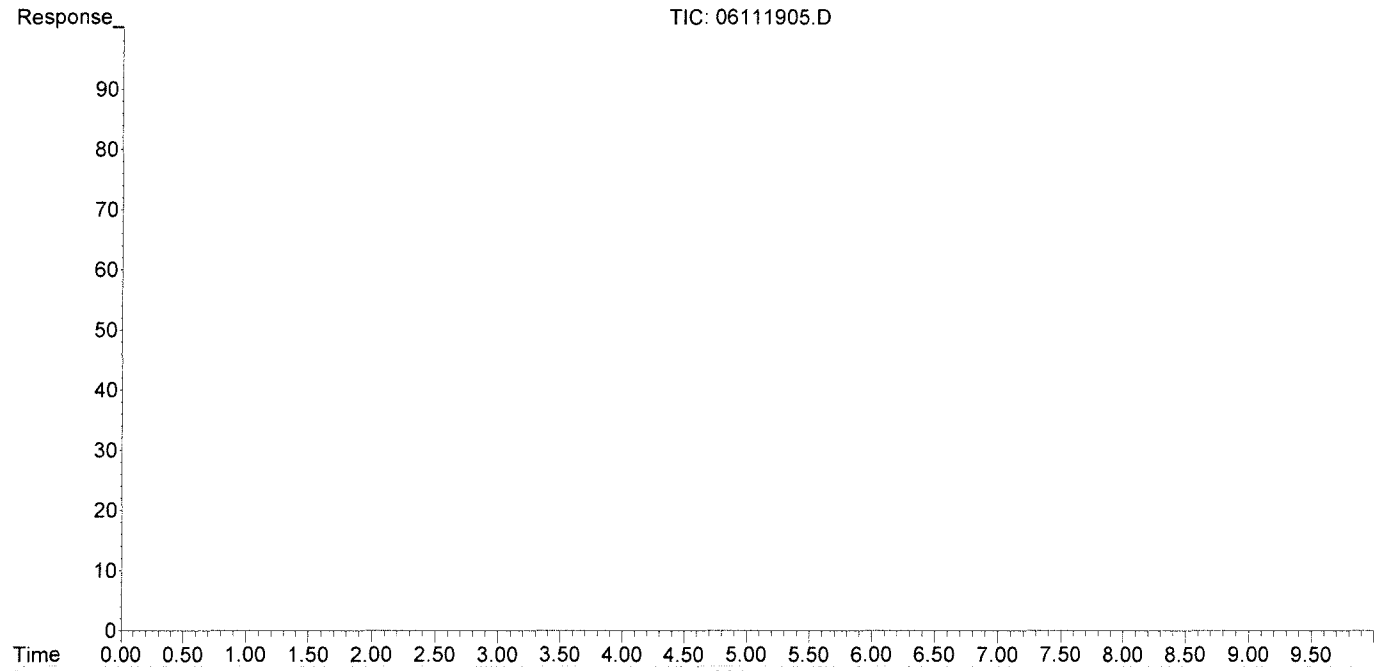
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.108	14203644	1565.892	ppm
7)	Ethylene	1.668	15448	0.923	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

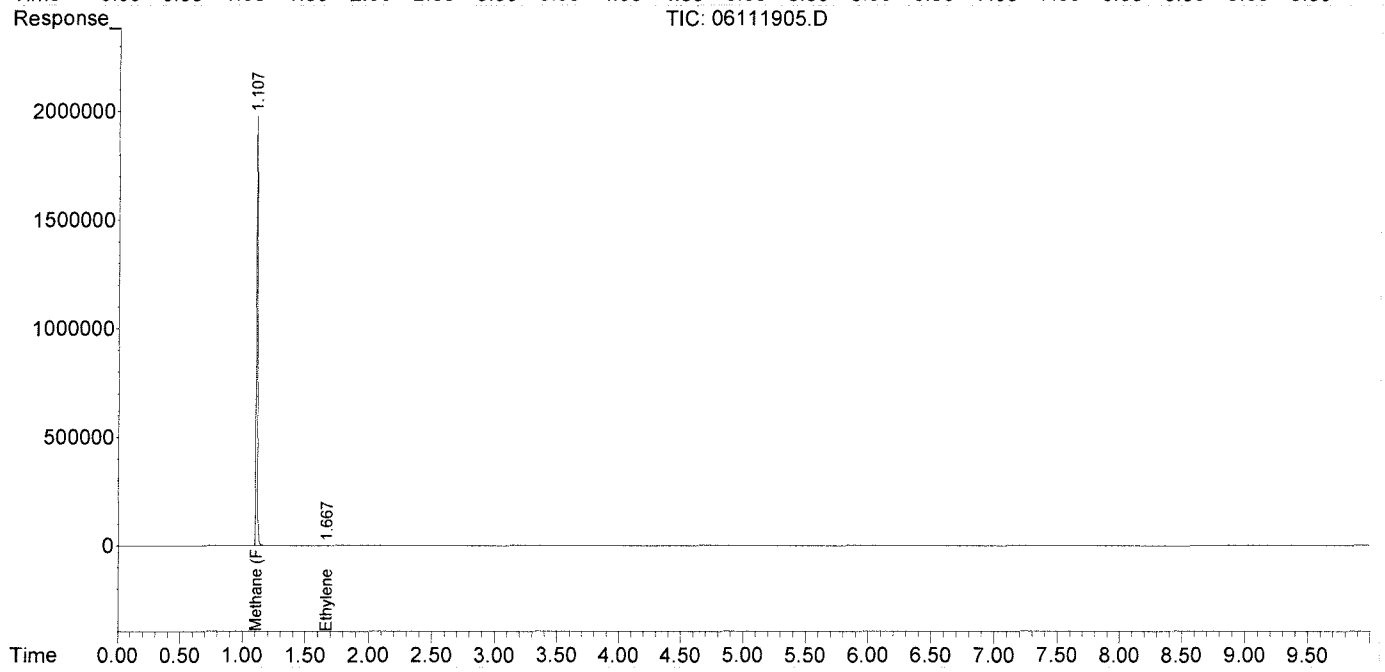
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_06\11\
Data File : 06111905.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 11-Jun-2019, 11:46:28
Operator : WH
Sample : P1903244-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 11:41:15 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : J:\GC10\DATA\RSK_FID\2019_06\11\
Data File : 06111906.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 11-Jun-2019, 12:04:41
Operator : WH
Sample : P1903244-003 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 11:41:20 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

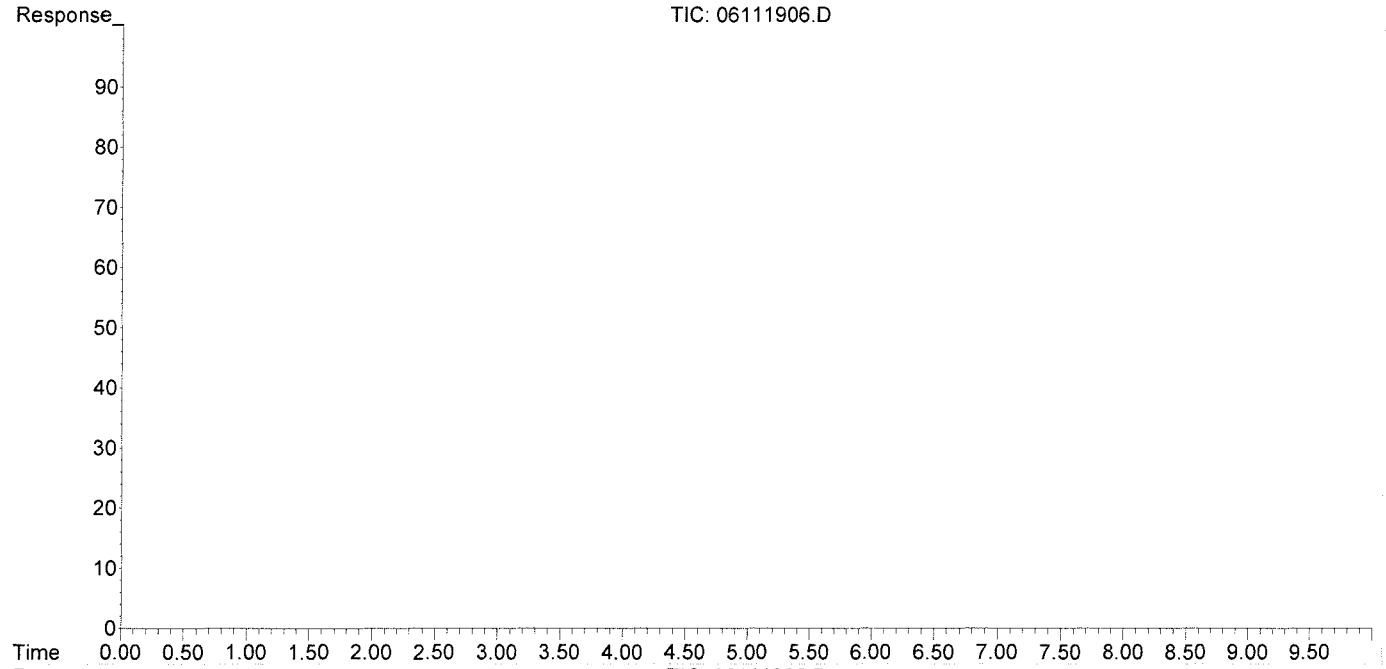
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	
2)	Carbon monoxide	0.000	0	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.110	4387586	483.713	ppm	
7)	Ethylene	1.671	4932	0.295	ppm	
8)	Ethane	1.932	868	0.051	ppm	m
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	6.650	12137	0.456	ppm	
13)	n-Butane	6.650	12137	0.456	ppm	

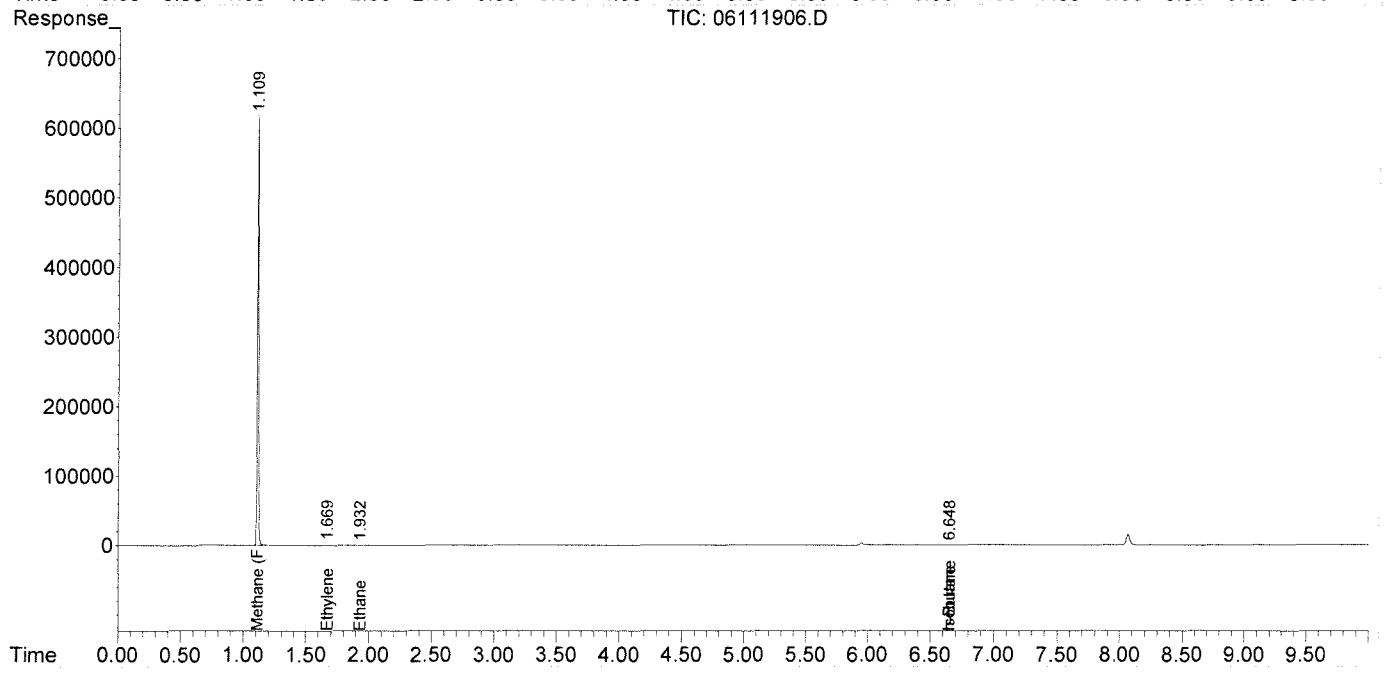
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_06\11\
Data File : 06111906.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 11-Jun-2019, 12:04:41
Operator : WH
Sample : P1903244-003 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 11:41:20 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

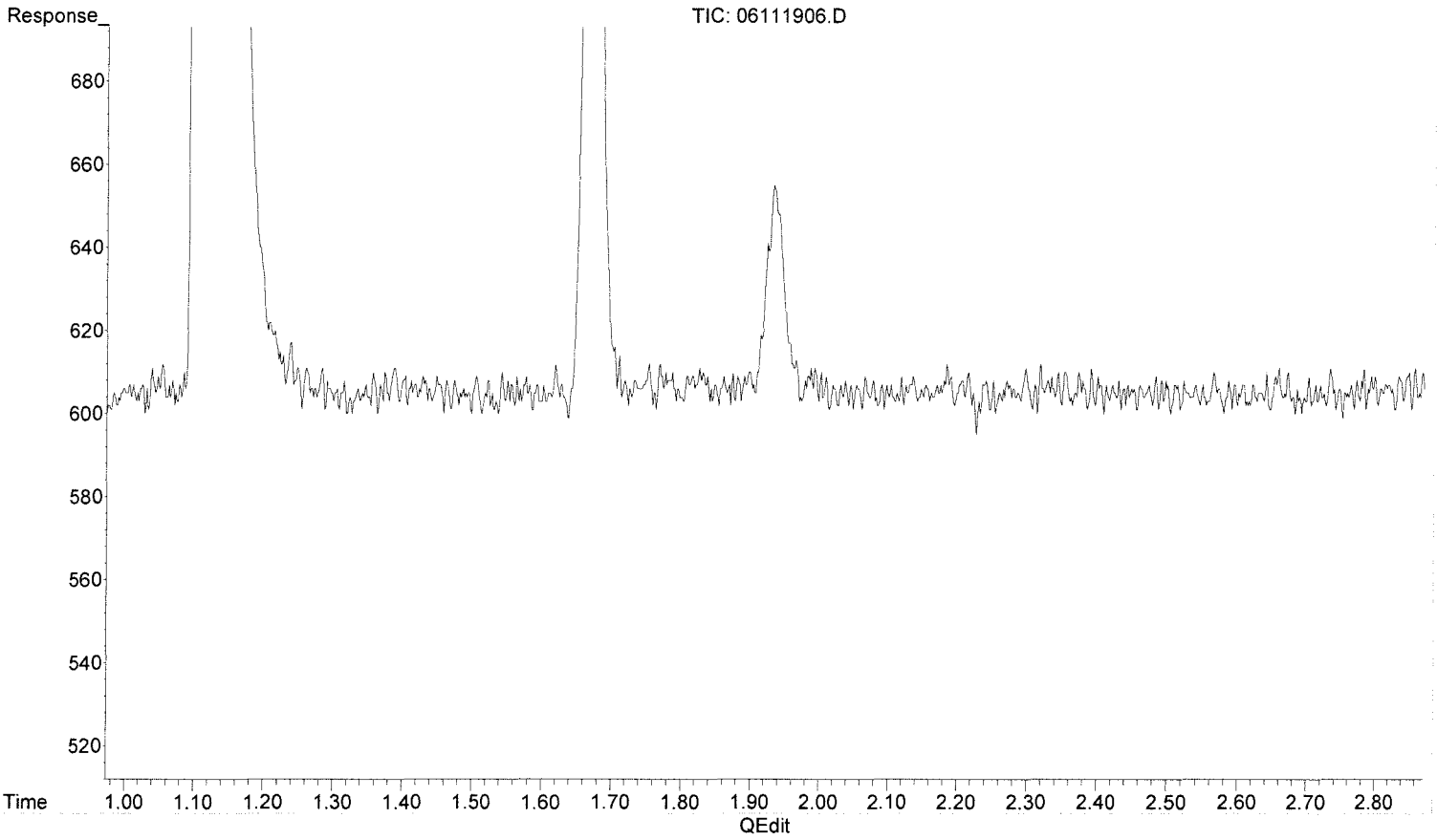




Data Path : J:\GC10\DATA\RSK_FID\2019_06\11\
Data File : 06111906.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 11-Jun-2019, 12:04:41
Operator : WH
Sample : P1903244-003 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 11:41:20 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(8) Ethane

1.923min 0.000 ppm

response 0

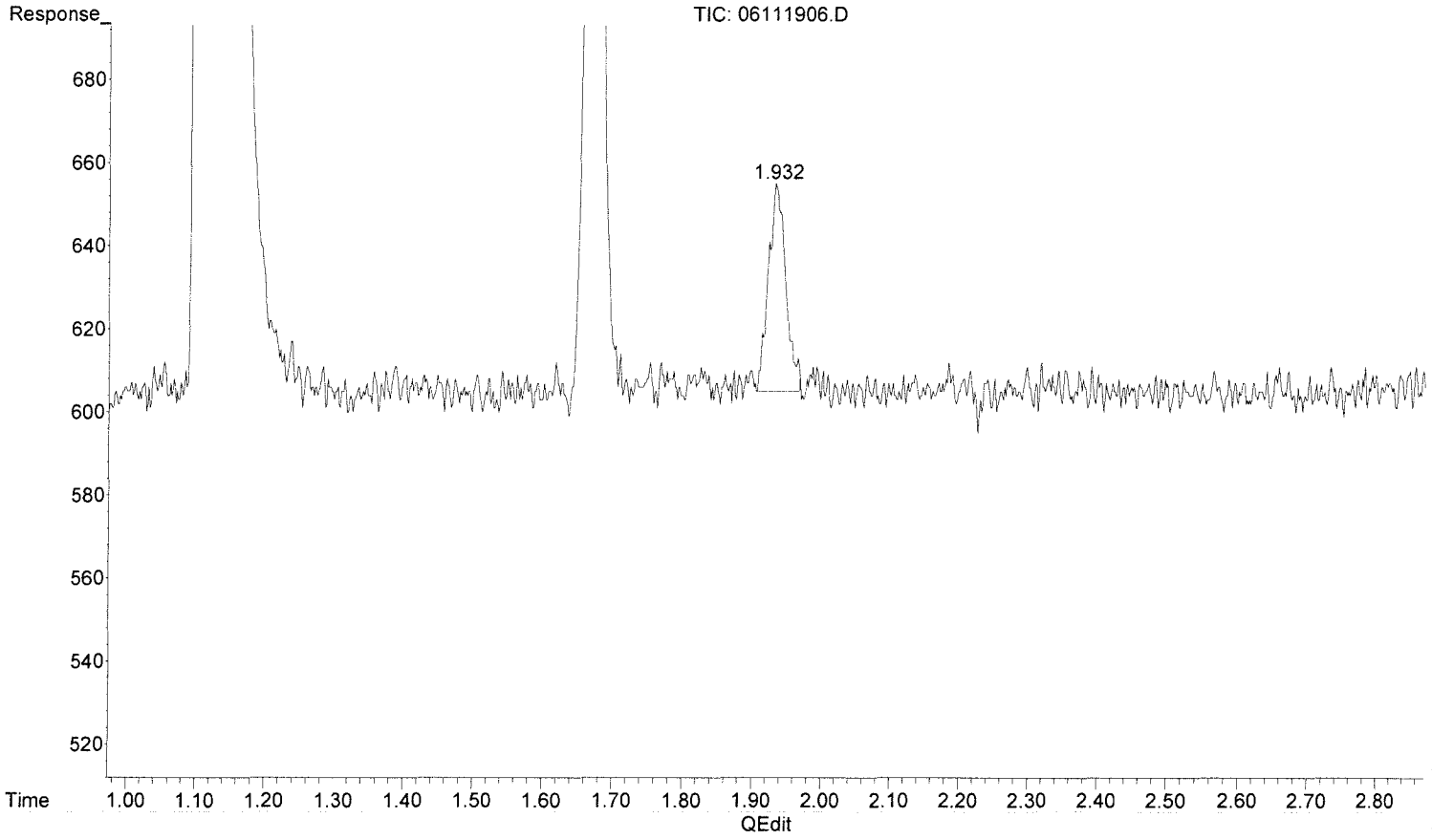
(+) = Expected Retention Time

00949732

Data Path : J:\GC10\DATA\RSK_FID\2019_06\11\
Data File : 06111906.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 11-Jun-2019, 12:04:41
Operator : WH
Sample : P1903244-003 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 11:41:20 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(8) Ethane

1.932min 0.051 ppm m

response 868

MK 6/12/19

6/26/19 MK

(+) = Expected Retention Time

Data Path : J:\GC10\DATA\RSK_FID\2019_06\11\
Data File : 06111907.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 11-Jun-2019, 12:21:51
Operator : WH
Sample : P1903244-004 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 11:41:24 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

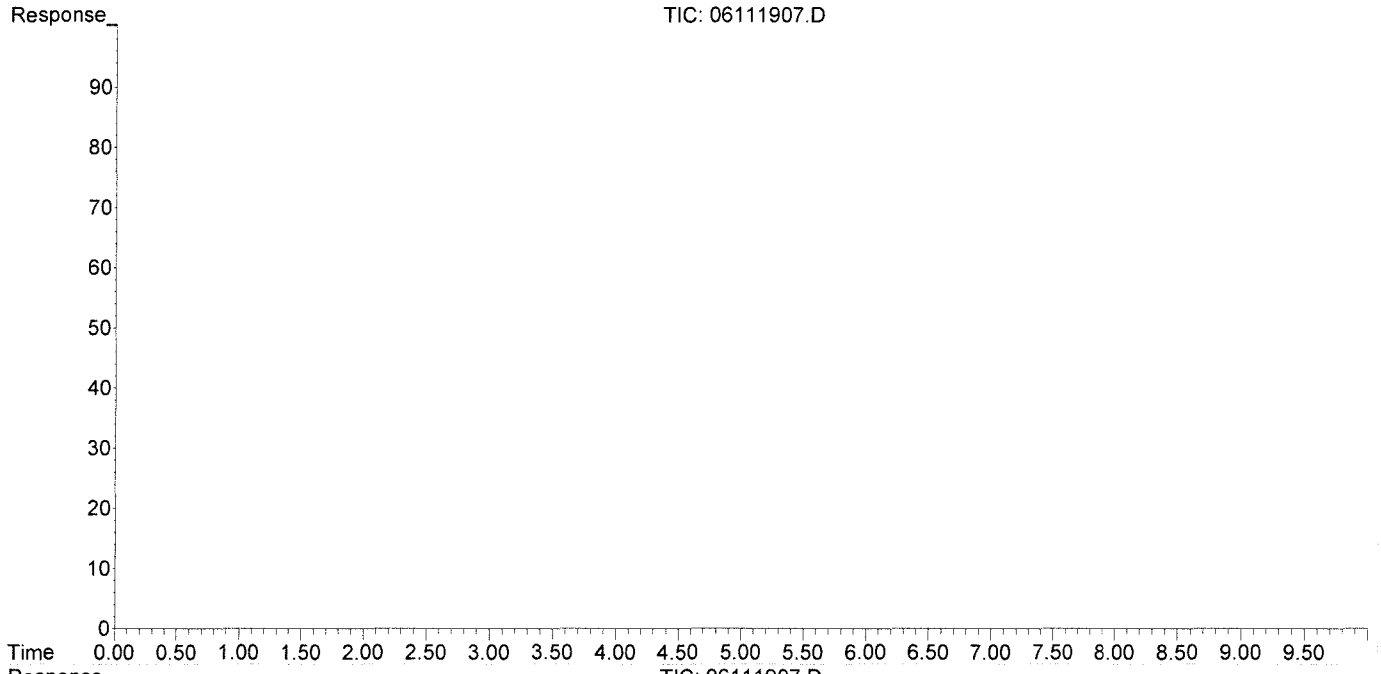
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	
2)	Carbon monoxide	0.000	0	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.109	578	0.064	ppm	m
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

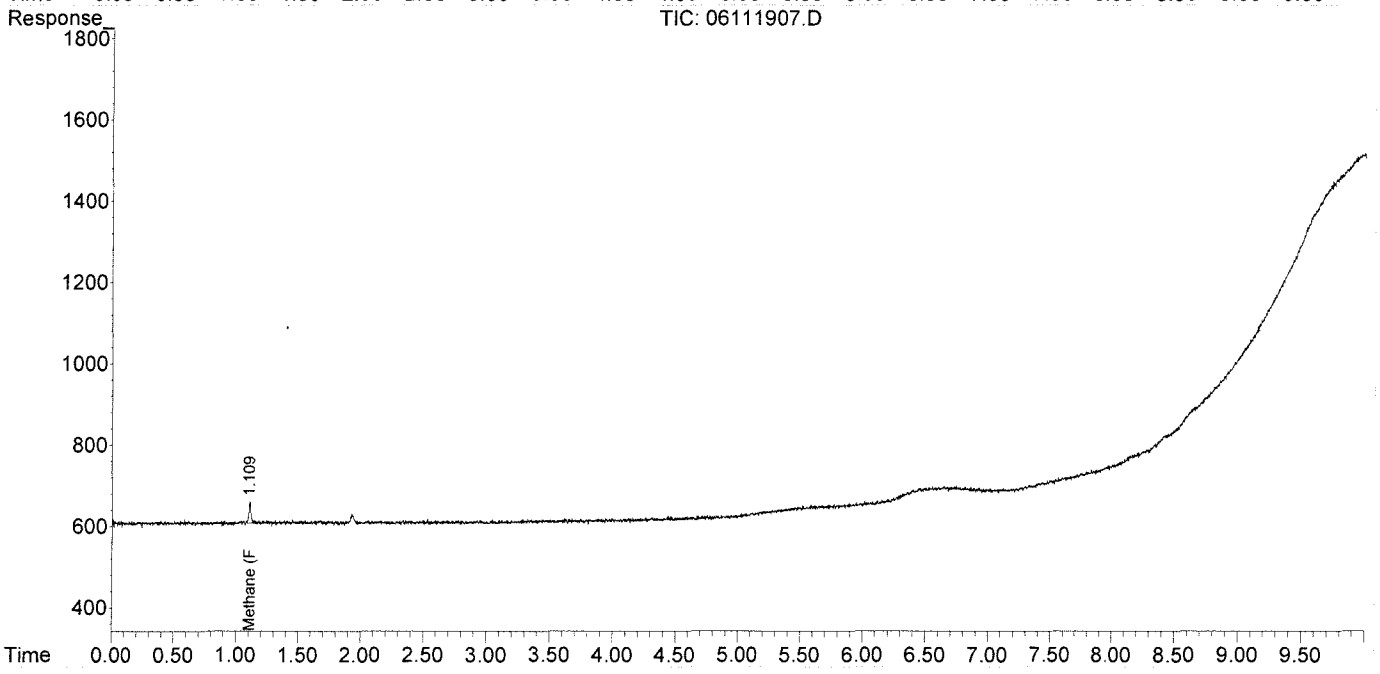
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_06\11\
Data File : 06111907.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 11-Jun-2019, 12:21:51
Operator : WH
Sample : P1903244-004 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 11:41:24 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

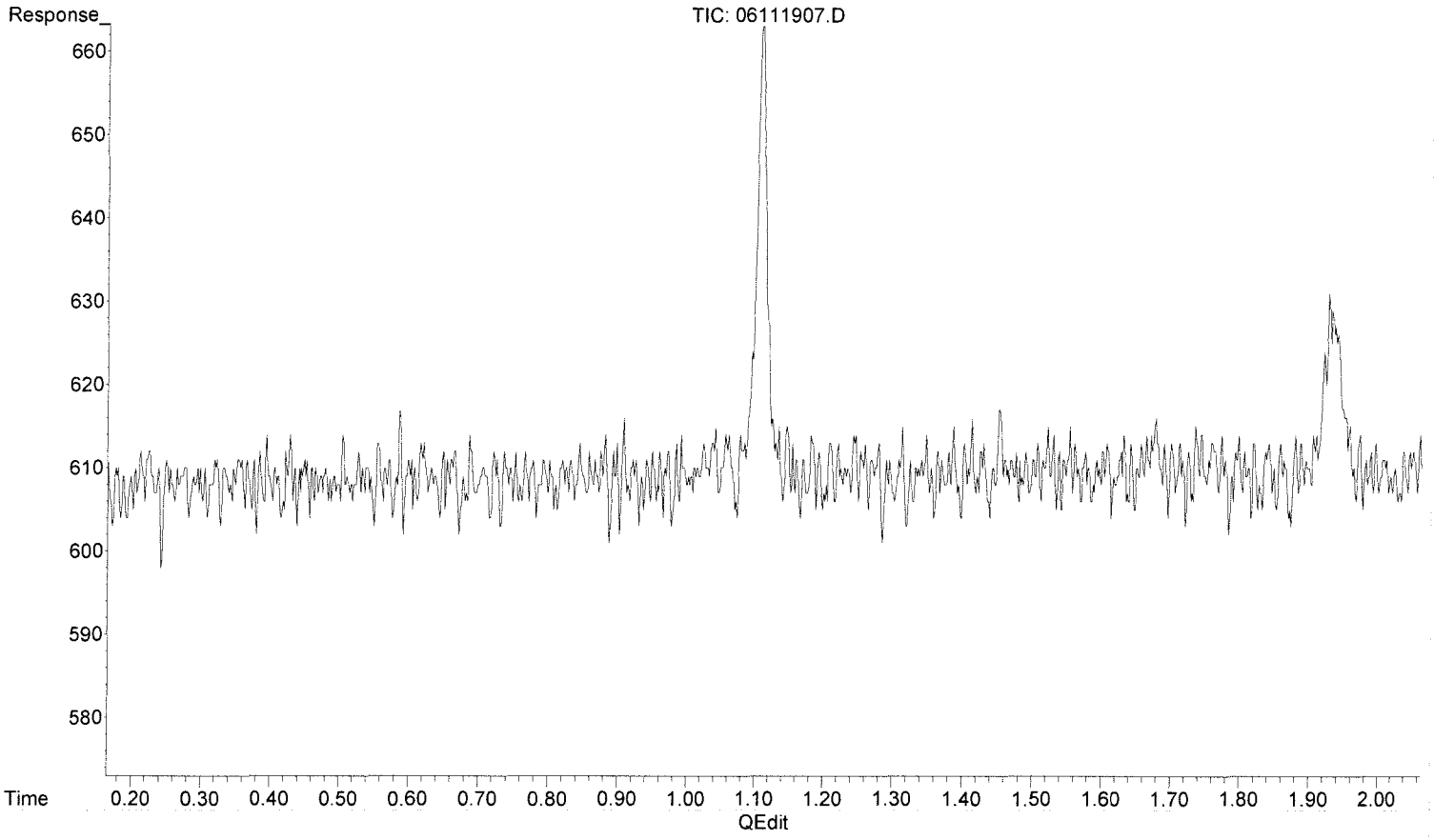




Data Path : J:\GC10\DATA\RSK_FID\2019_06\11\
Data File : 06111907.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 11-Jun-2019, 12:21:51
Operator : WH
Sample : P1903244-004 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 11:41:24 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(6) Methane (FID)

1.115min 0.000 ppm

response 0

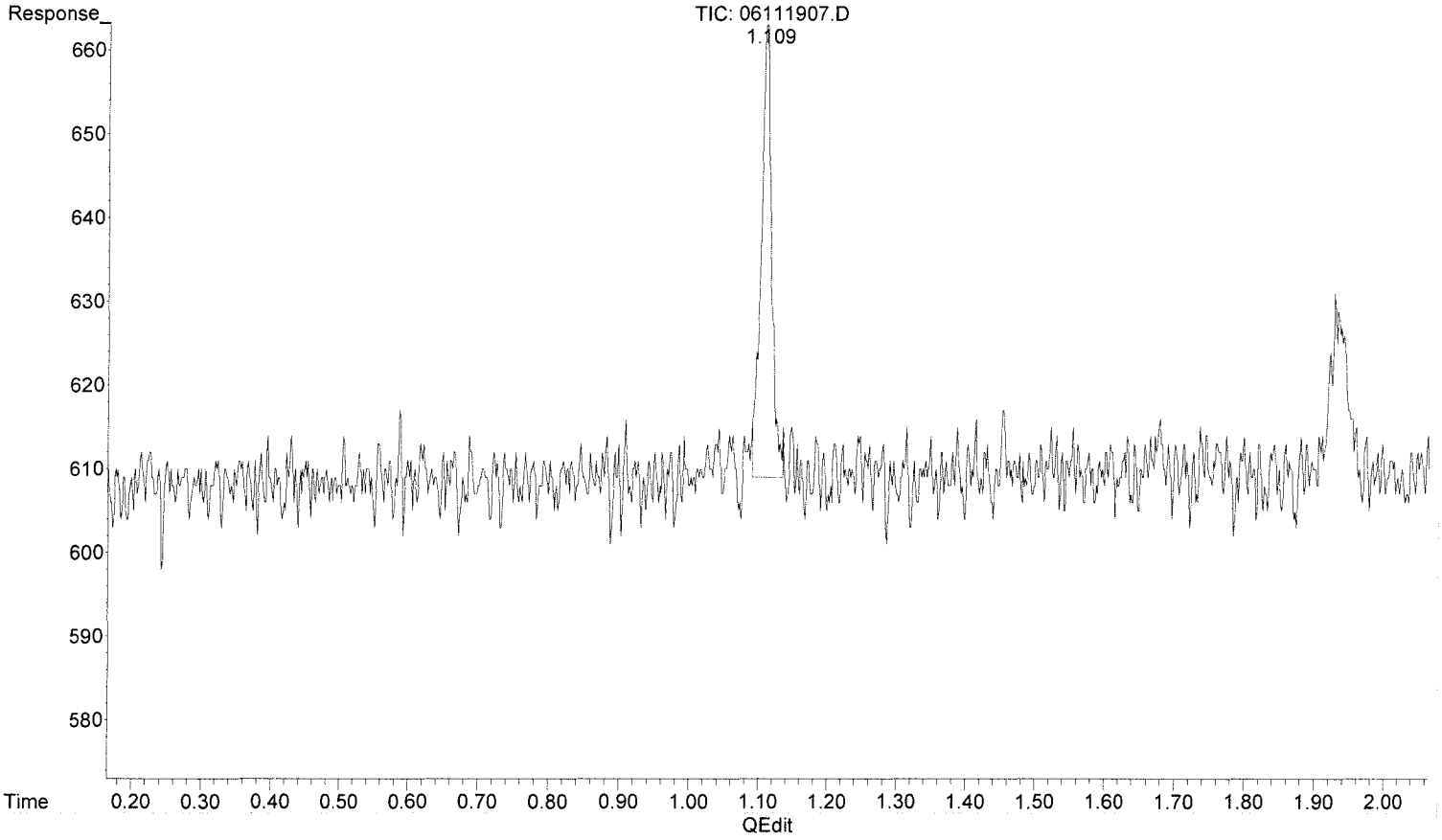
(+) = Expected Retention Time

00949736

Data Path : J:\GC10\DATA\RSK_FID\2019_06\11\
Data File : 06111907.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 11-Jun-2019, 12:21:51
Operator : WH
Sample : P1903244-004 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 11:41:24 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(6) Methane (FID)

1.109min 0.064 ppm m

response 578

MF 6/12/19

6/12/19

(+) = Expected Retention Time

Data Path : J:\GC10\DATA\RSK_FID\2019_06\11\
Data File : 06111908.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 11-Jun-2019, 12:48:27
Operator : WH
Sample : P1903244-005 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 11:41:28 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

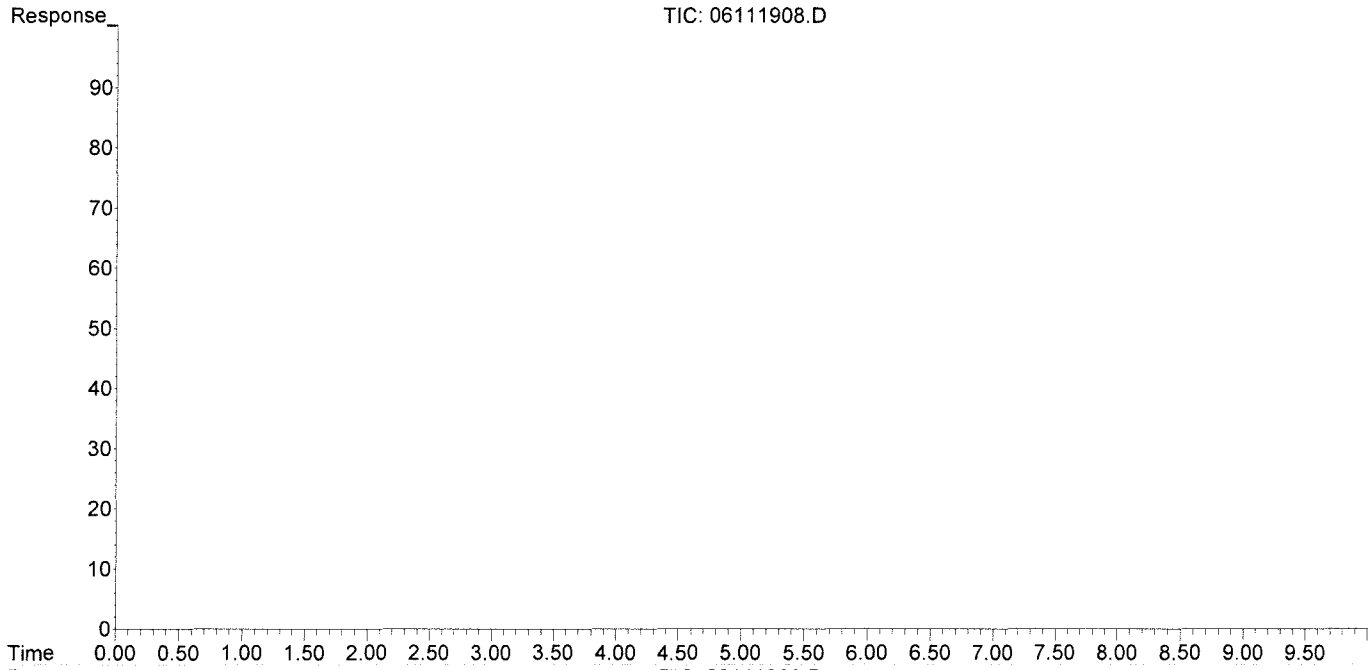
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	
2)	Carbon monoxide	0.000	0	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.110	484	0.053	ppm	m
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

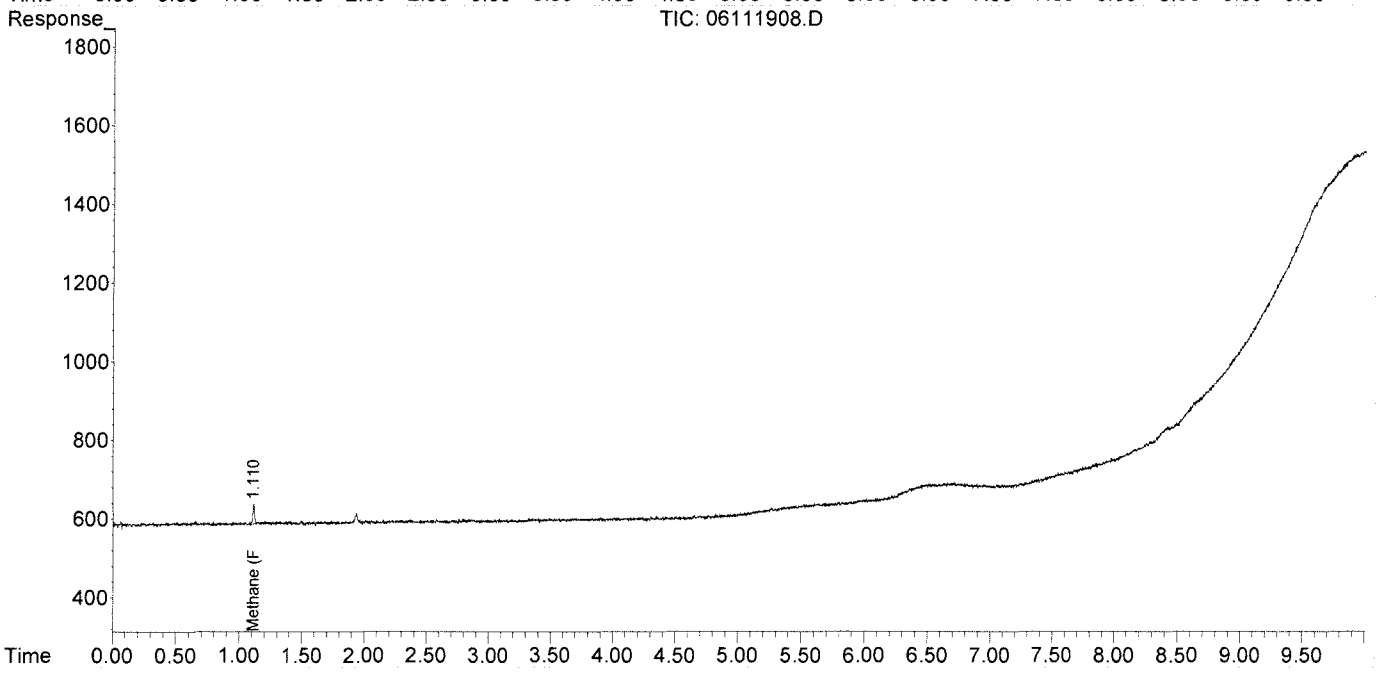
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_06\11\
Data File : 06111908.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 11-Jun-2019, 12:48:27
Operator : WH
Sample : P1903244-005 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 11:41:28 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

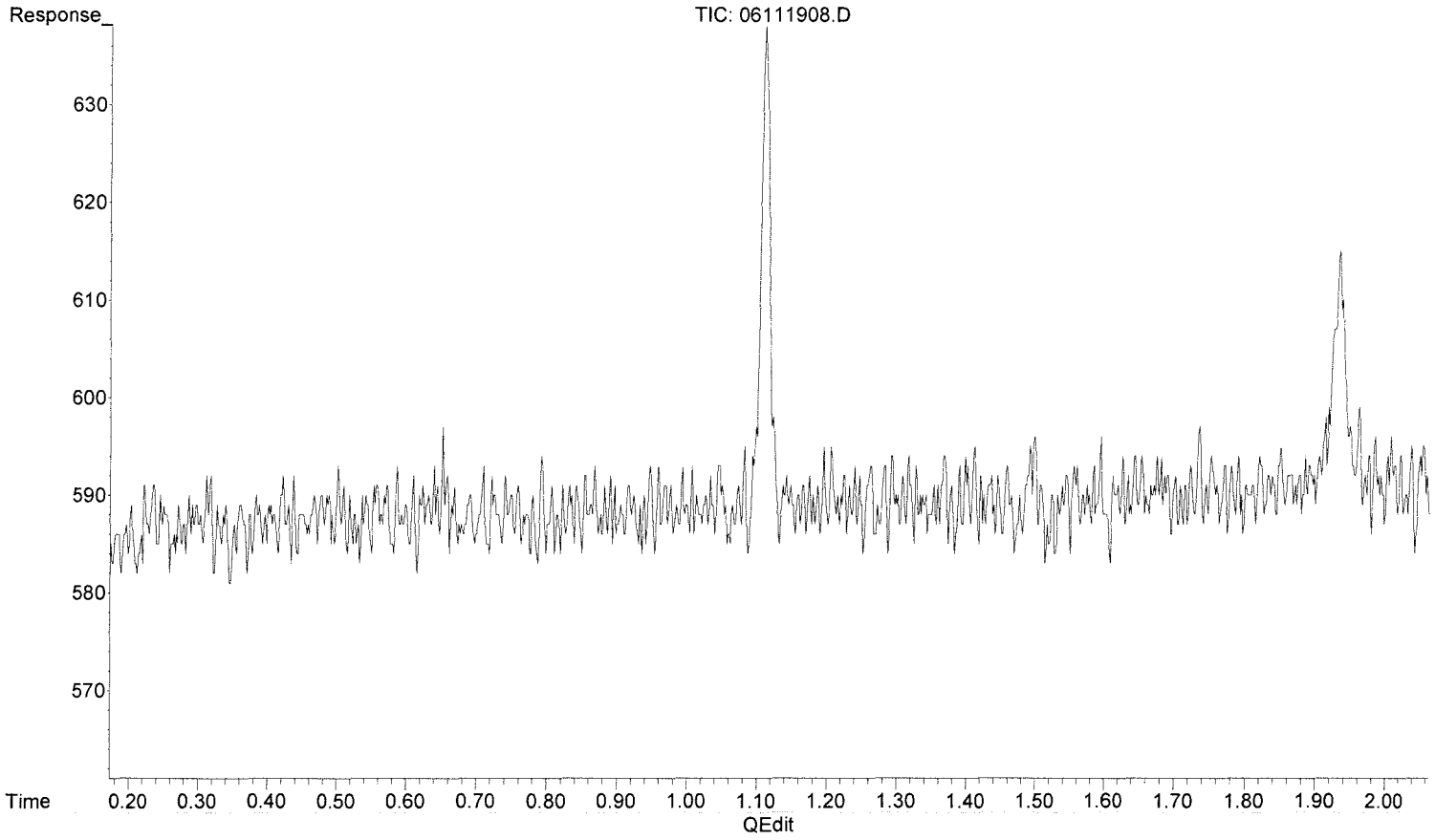




Data Path : J:\GC10\DATA\RSK_FID\2019_06\11\
Data File : 06111908.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 11-Jun-2019, 12:48:27
Operator : WH
Sample : P1903244-005 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 11:41:28 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(6) Methane (FID)

1.115min 0.000 ppm

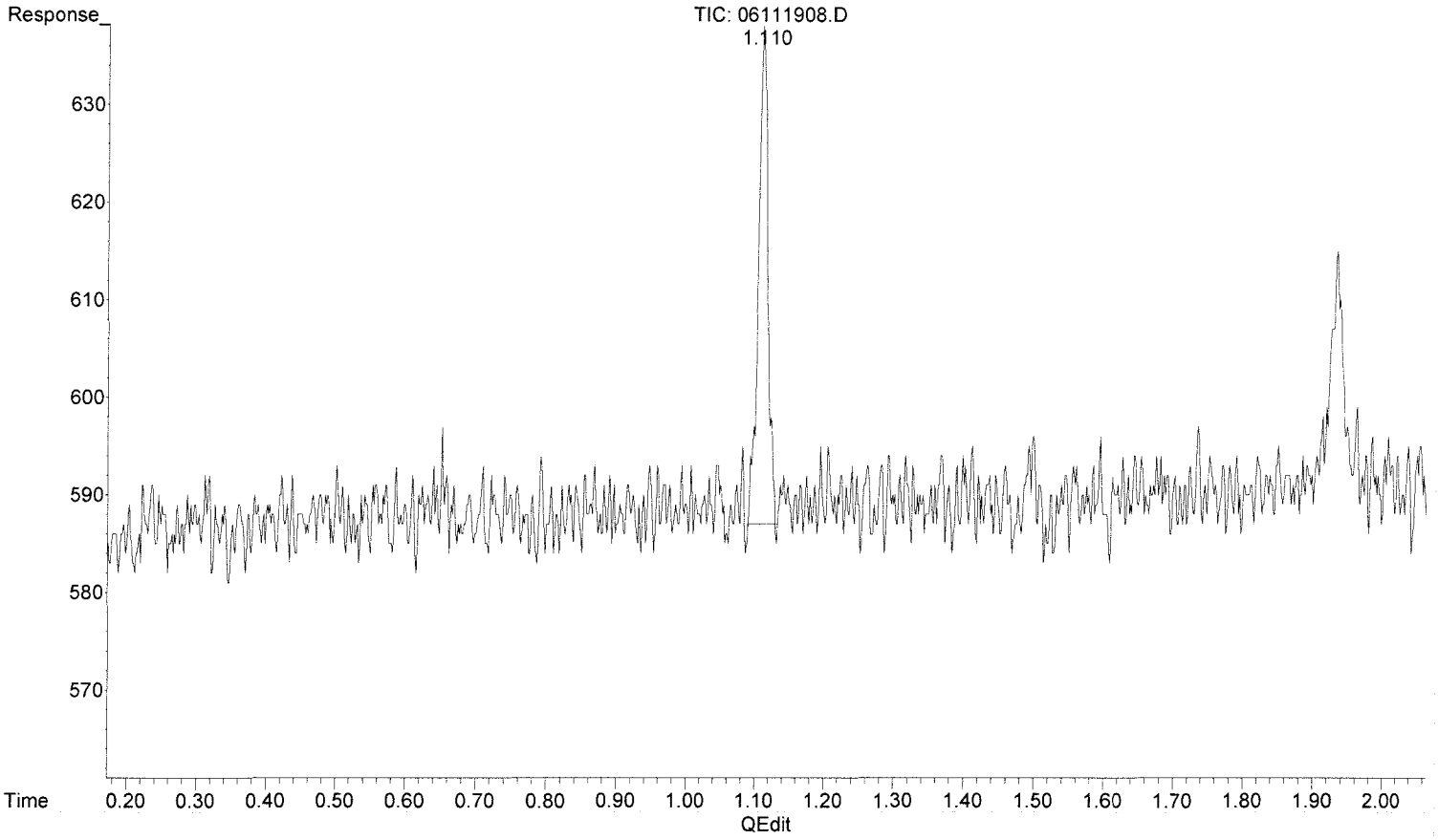
response 0

(+) = Expected Retention Time

Data Path : J:\GC10\DATA\RSK_FID\2019_06\11\
Data File : 06111908.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 11-Jun-2019, 12:48:27
Operator : WH
Sample : P1903244-005 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 11:41:28 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(6) Methane (FID)

1.110min 0.053 ppm m

response 484

MR 6/12/19

6/12/19 MR

(+) = Expected Retention Time

Data Path : J:\GC10\DATA\RSK_FID\2019_06\11\
Data File : 06111909.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 11-Jun-2019, 13:06:16
Operator : WH
Sample : P1903244-006 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 11:41:32 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

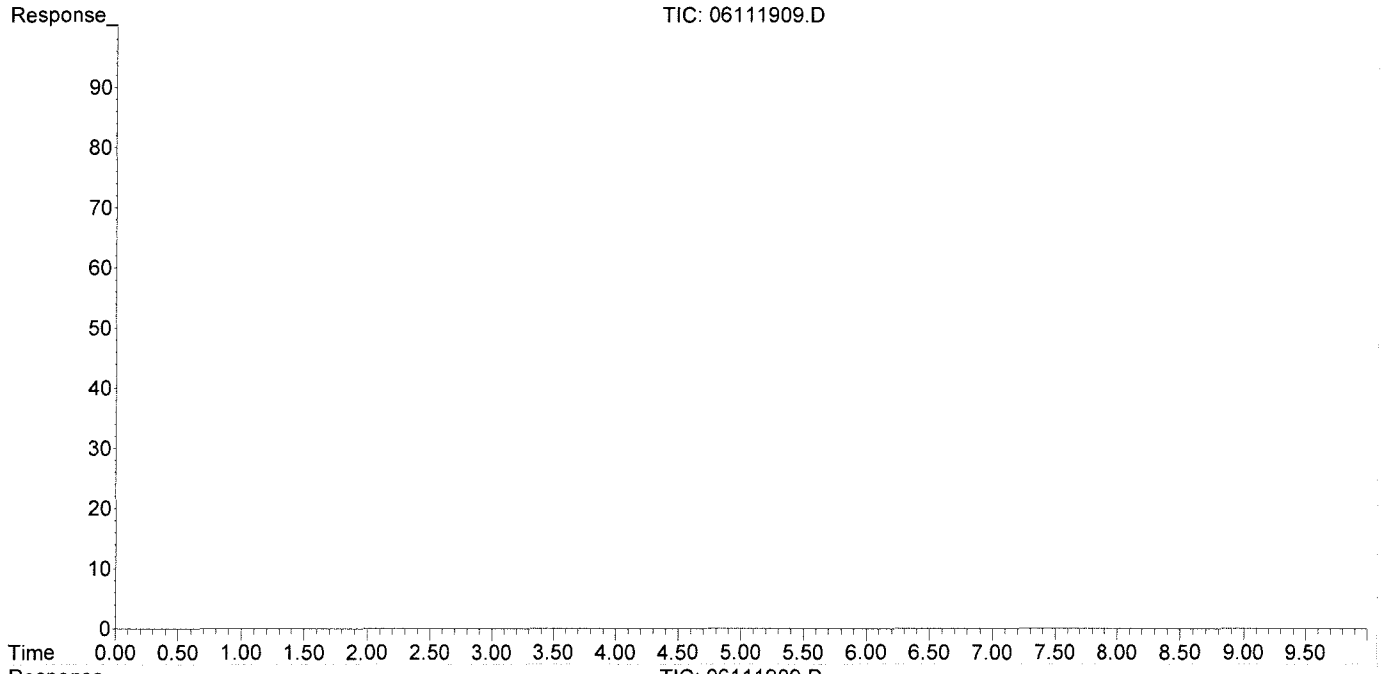
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.105	6992613	770.906	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

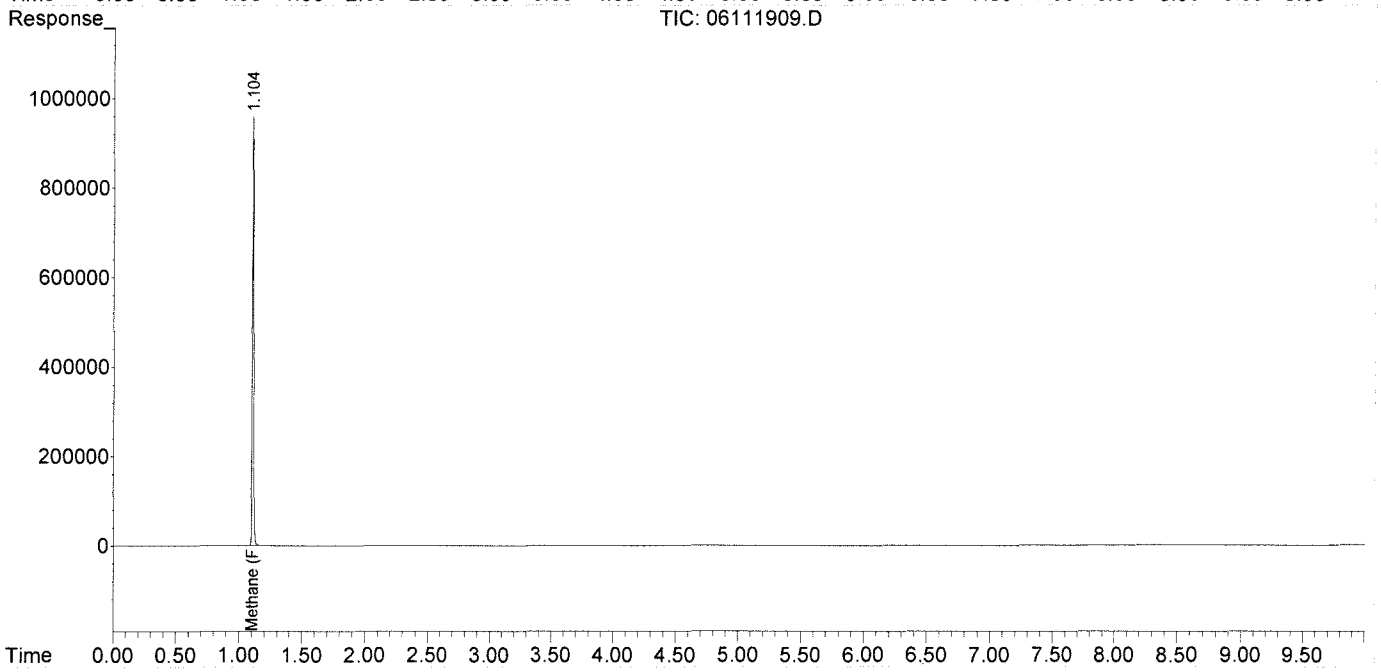
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_06\11\
Data File : 06111909.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 11-Jun-2019, 13:06:16
Operator : WH
Sample : P1903244-006 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 11:41:32 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : J:\GC10\DATA\RSK_FID\2019_06\11\
Data File : 06111903.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 11-Jun-2019, 11:04:29
Operator : WH
Sample : MCS 0.1ML
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 11:36:53 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

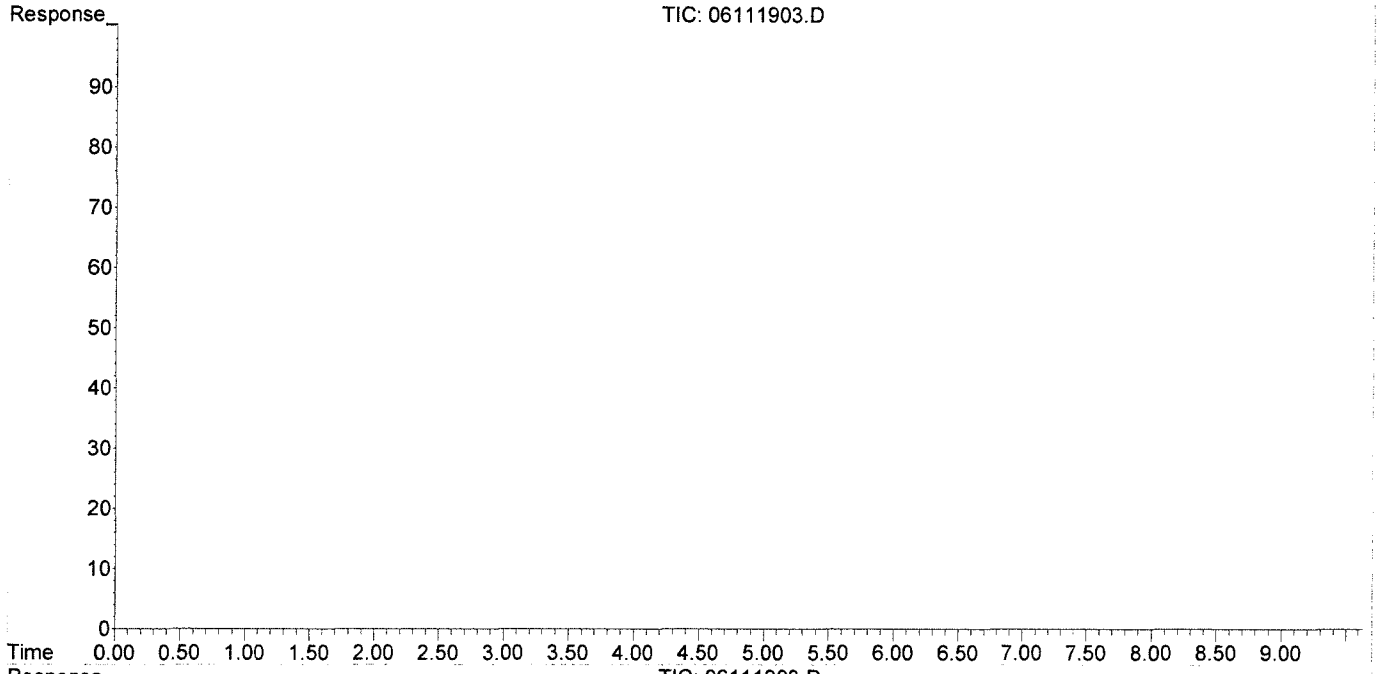
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

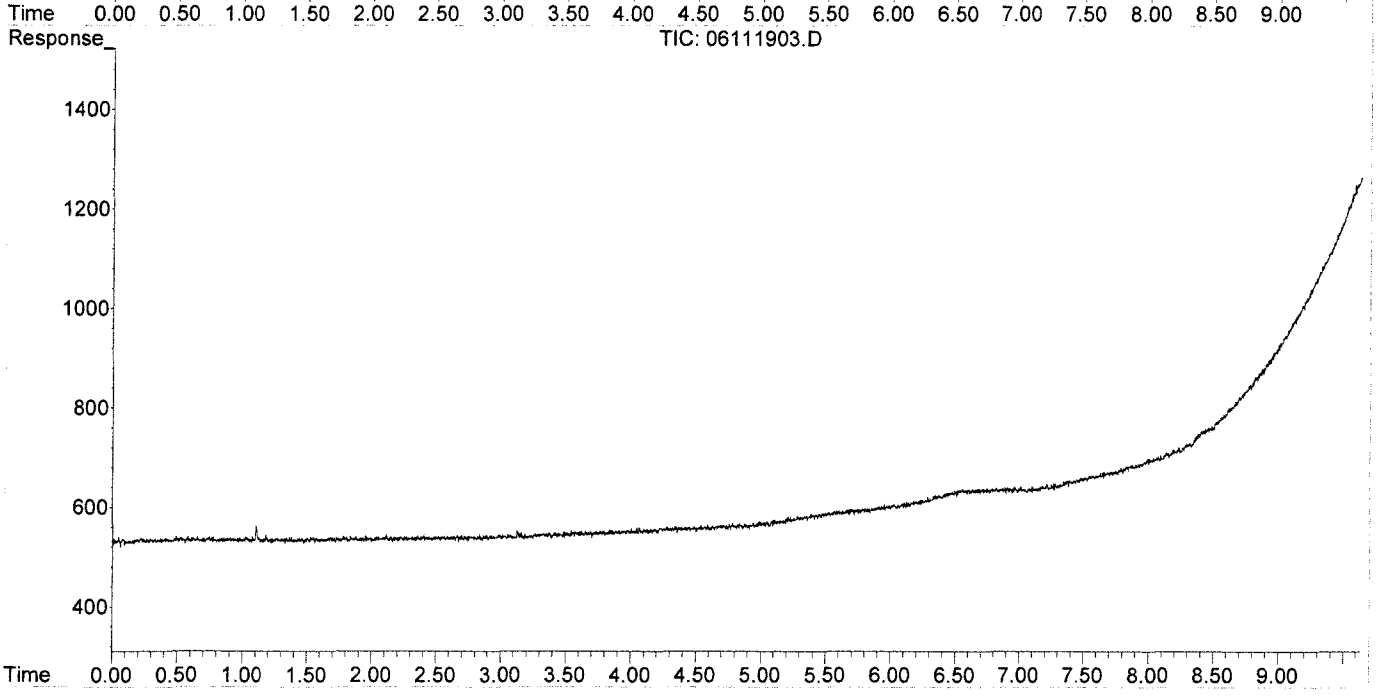
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_06\11\
Data File : 06111903.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 11-Jun-2019, 11:04:29
Operator : WH
Sample : MCS 0.1ML
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 12 11:36:53 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : J:\GC10\DATA\RSK_FID\2019_06\11\
Data File : 06111910.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 11-Jun-2019, 13:33:06
Operator : WH
Sample : lcs fid 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 11 13:42:21 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

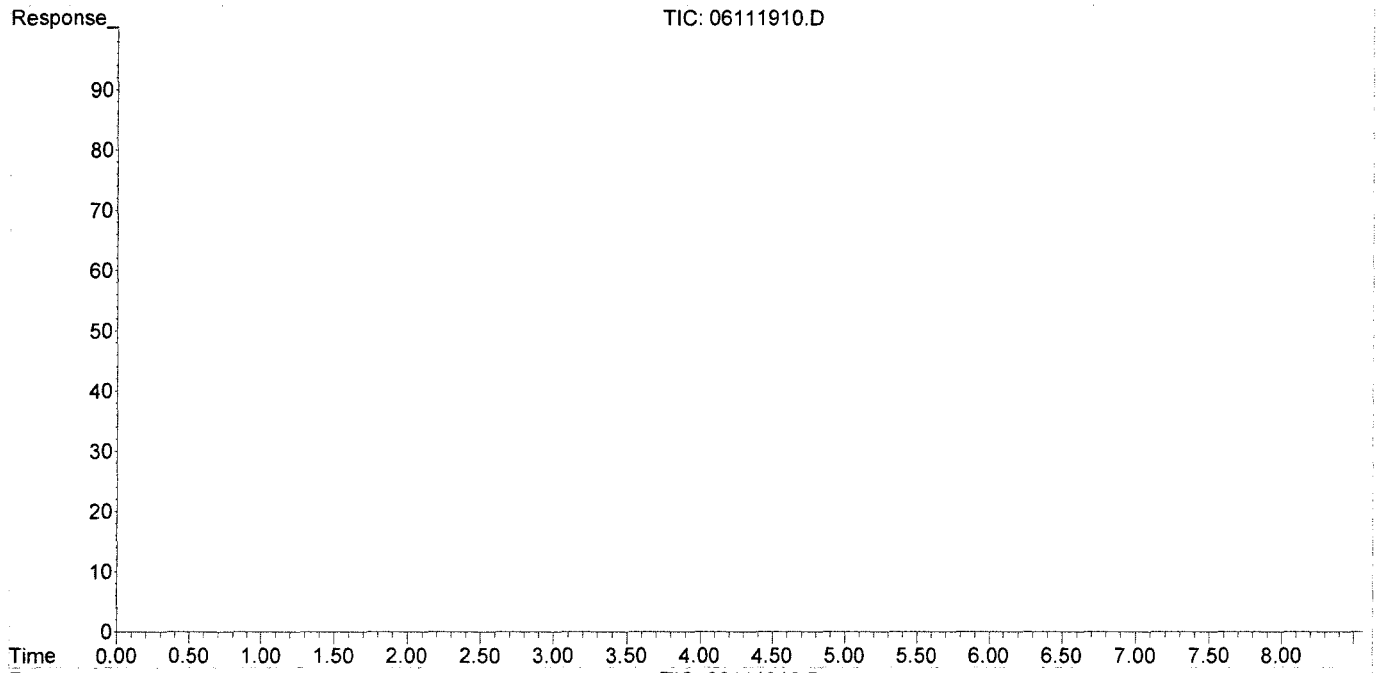
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.107	11662	1.286	ppm
7)	Ethylene	1.667	18008	1.076	ppm
8)	Ethane	1.928	20085	1.185	ppm
9)	Propylene	4.306	25142	1.073	ppm
10)	Propane	4.429	30346	1.220	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.646	39080	1.468	ppm
13)	n-Butane	6.646	39080	1.468	ppm

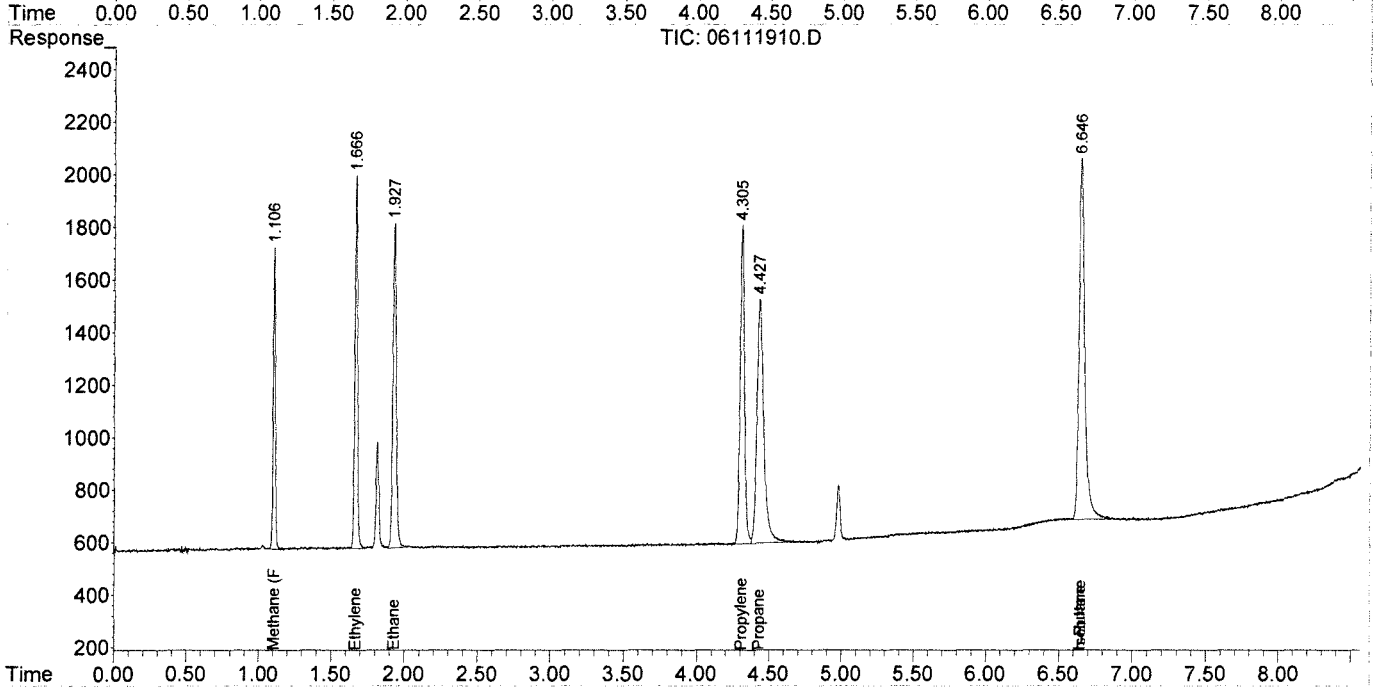
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_06\11\
Data File : 06111910.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 11-Jun-2019, 13:33:06
Operator : WH
Sample : lcs fid 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 11 13:42:21 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : J:\GC10\DATA\RSK_FID\2019_06\11\
Data File : 06111911.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 11-Jun-2019, 13:54:43
Operator : WH
Sample : lcsd fid 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 11 14:11:34 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

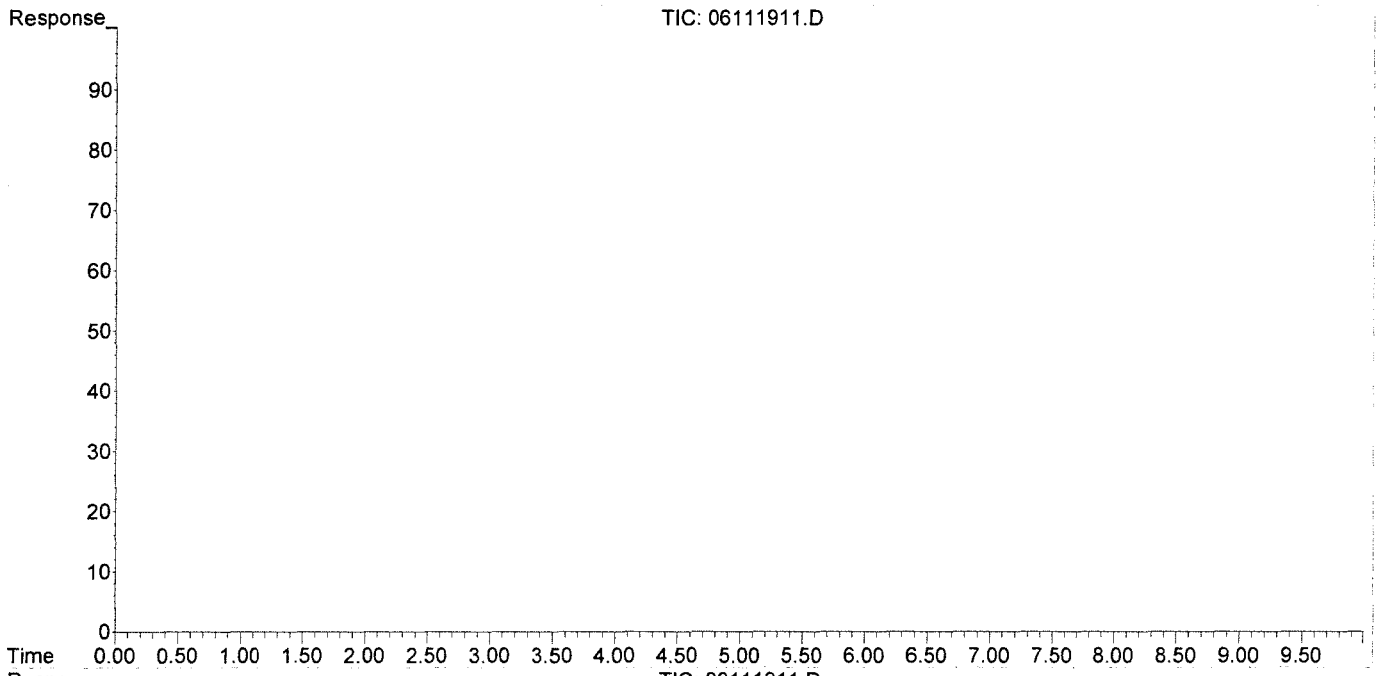
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.108	12106	1.335	ppm
7)	Ethylene	1.668	18922	1.131	ppm
8)	Ethane	1.929	21403	1.263	ppm
9)	Propylene	4.306	26661	1.138	ppm
10)	Propane	4.429	32816	1.319	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.645f	43079	1.618	ppm
13)	n-Butane	6.645f	43079	1.618	ppm

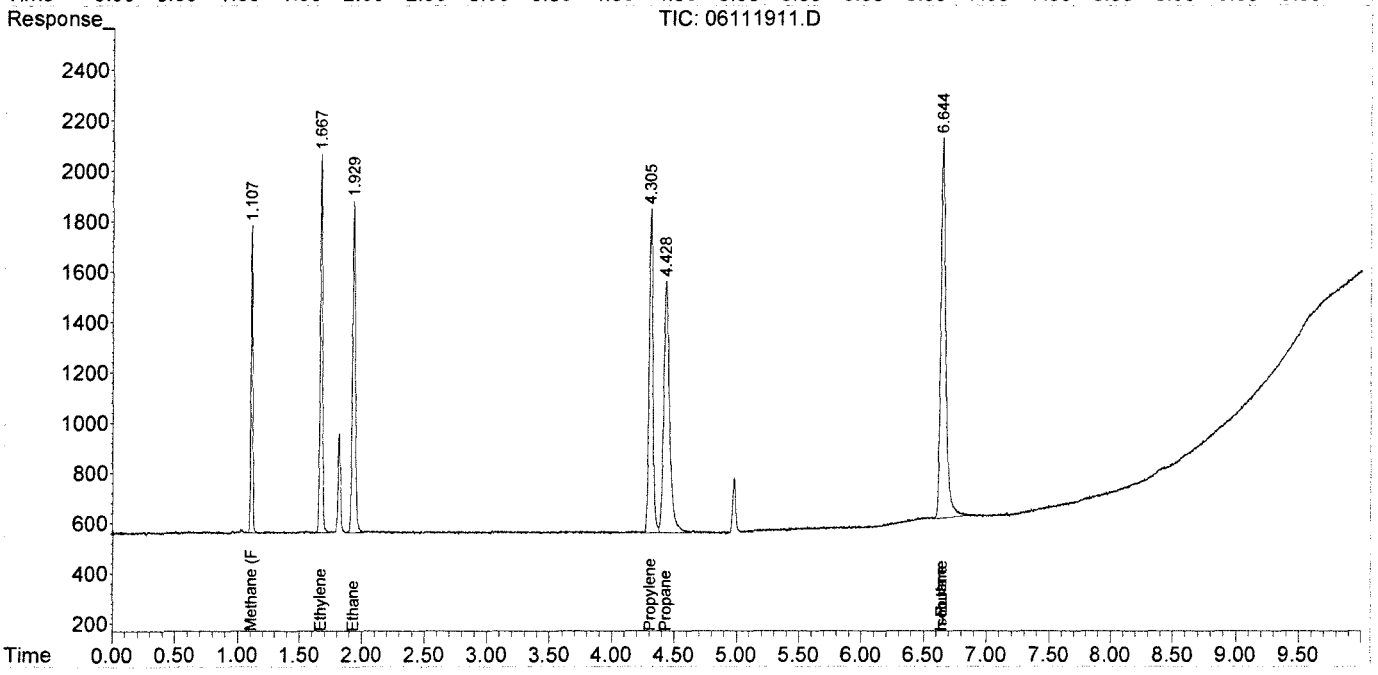
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_06\11\
Data File : 06111911.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 11-Jun-2019, 13:54:43
Operator : WH
Sample : lcsd fid 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 11 14:11:34 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Response Factor Report HP5890

Method Path : J:\GC10\METHODS\
Method File : RS091217_R.M
Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
Last Update : Wed Sep 13 11:14:47 2017
Response Via : Initial Calibration

Calibration Files
1 =09121702.D 2 =09121703.D 3 =09121704.D
4 =09121705.D 5 =09121706.D 6 =09121707.D

	Compound	1	2	3	4	5	6	Avg		%RSD
1)	Oxygen/Argon	3.739		1.014			0.001	0.793	E6	189.17
2)	Carbon monoxide	3.739		1.014			0.001	0.594	E6	221.92
3)	Methane (TCD)						2.161	0.951	E2	106.37
4)	Carbon dioxide	2.365	2.569	2.558	2.361	2.459	2.314	2.438	E2	4.44

Signal #2 Calibration Files
1 =09121702.D 2 =09121703.D 3 =09121704.D
4 =09121705.D 5 =09121706.D 6 =09121707.D

	Compound	1	2	3	4	5	6	Avg		%RSD
6)	Methane (FID)		1.180	0.975	0.908	0.870	0.868	0.907	E4	11.66
7)	Ethylene	1.736	1.638	1.780	1.720	1.628	1.670	1.673	E4	3.90
8)	Ethane	1.781	1.676	1.784	1.730	1.692	1.675	1.695	E4	3.83
9)	Propylene	2.505	2.296	2.592	2.480	2.346	2.252	2.343	E4	6.56
10)	Propane	2.439	2.283	2.645	2.555	2.433	2.522	2.488	E4	4.20
11)	Isobutylene							0.652	E1	138.46
12)	Isobutane	6.058	4.793	2.214	1.553	1.353		2.662	E4	86.17
13)	n-Butane	6.058	4.793	2.214	1.553	1.353		2.662	E4	86.17

(#) = Out of Range ### Number of calibration levels exceeded format ###

RS091217_R.M Wed Sep 13 15:11:48 2017

Edit Compounds -- Compound #6 -- Methane (FID)

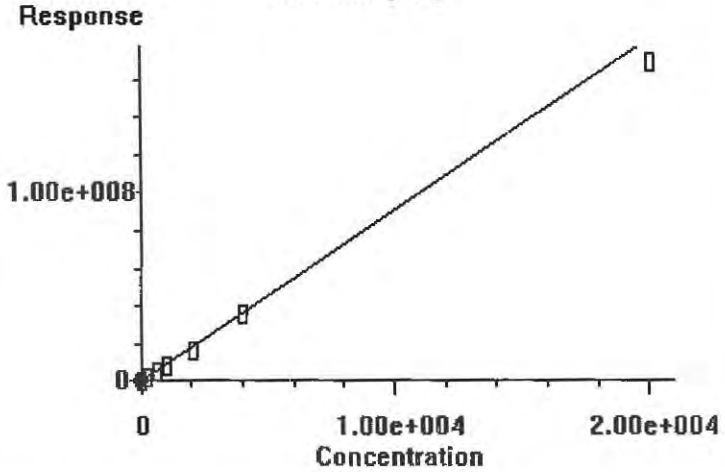
Search by: Ret Time | Name | Index | Find Compound

- Compound Database
- External Standard Compoun
  - Oxygen/Argon
  - Carbon monoxide
  - Methane (TCD)
  - Carbon dioxide
  - Signal #2
  - Methane (FID)
  - Ethylene
  - Ethane
  - Propylene
  - Propane
  - Isobutylene
  - Isobutane
  - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	
2	0.302000	3564.400000
3	1.510000	14725.268625
4	4.530000	41128.575000
5	10.570000	91966.784531
6	200.000000	1735997.497500
7	600.000000	5189848.900000
8	1000.000000	8598533.570000
9	2000.000000	16098209.390000
10	4000.000000	35776839.311362
11	20000.000000	169009160.49199

Methane (FID)



0.000e+000	Quadratic term
9.071e+003	Linear term
0.000e+000	Constant term
11.657%	RF Rel Std Dev

OK | Cancel | Help | Print Calibration Curve | Copy Calibration Curve

Edit Compounds -- Compound #7 -- Ethylene

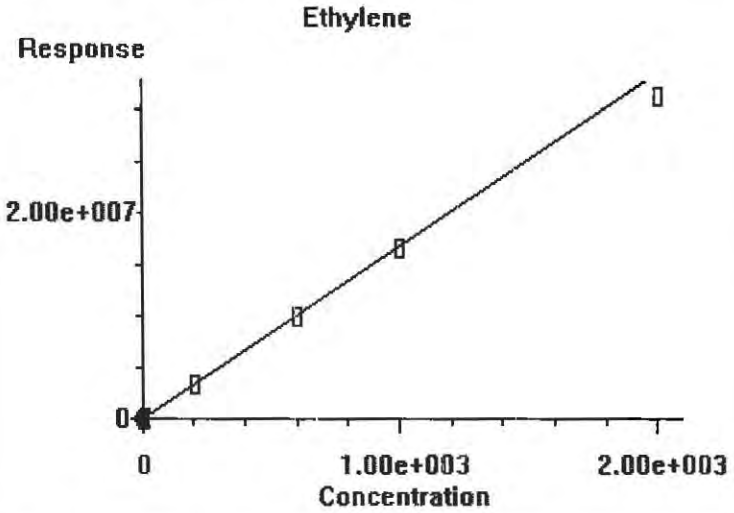
Search by: Ret Time | Name | Index | Find Compound

Compound Database
External Standard Compoun
- Oxygen/Argon
- Carbon monoxide
- Methane (TCD)
- Carbon dioxide
- Signal #2
- Methane (FID)
- Ethylene
- Ethane
- Propylene
- Propane
- Isobutylene
- Isobutane
- n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	2621.970000
2	0.302000	4946.731301
3	1.510000	26884.746847
4	4.530000	77902.721497
5	10.570000	172085.529560
6	200.000000	3339702.313219
7	600.000000	10007758.776971
8	1000.000000	16608503.805988
9	2000.000000	31192443.898600
10	4000.000000	

Lvl ID	Concentration	Response
11	20000.000000	



0.000e+000	Quadratic term
1.673e+004	Linear term
0.000e+000	Constant term
3.897%	RF Rel Std Dev

OK | Cancel | Help | Print Calibration Curve | Copy Calibration Curve

Edit Compounds -- Compound #8 -- Ethane

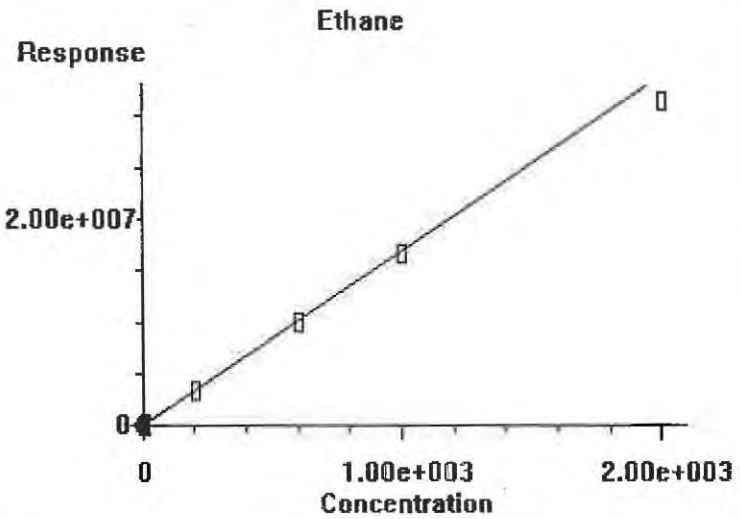
Search by: Ret Time | Name | Index — Find Compound

- Compound Database
- External Standard Compoun
  - Oxygen/Argon
  - Carbon monoxide
  - Methane (TCD)
  - Carbon dioxide
  - Signal #2
  - Methane (FID)
  - Ethylene
  - Ethane
  - Propylene
  - Propane
  - Isobutylene
  - Isobutane
  - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	2689.928008
2	0.302000	5060.331943
3	1.510000	26943.667500
4	4.530000	78353.525045
5	10.570000	178840.731148
6	200.000000	3350442.319129
7	600.000000	10048964.218029
8	1000.000000	16703164.879012
9	2000.000000	31424217.938900
10	4000.000000	

Lvl ID	Concentration	Response
11	20000.000000	



0.000e+000	Quadratic term
1.695e+004	Linear term
0.000e+000	Constant term
3.831%	RF Rel Std Dev

OK | Cancel | Help | Print Calibration Curve | Copy Calibration Curve

Edit Compounds -- Compound #9 -- Propylene

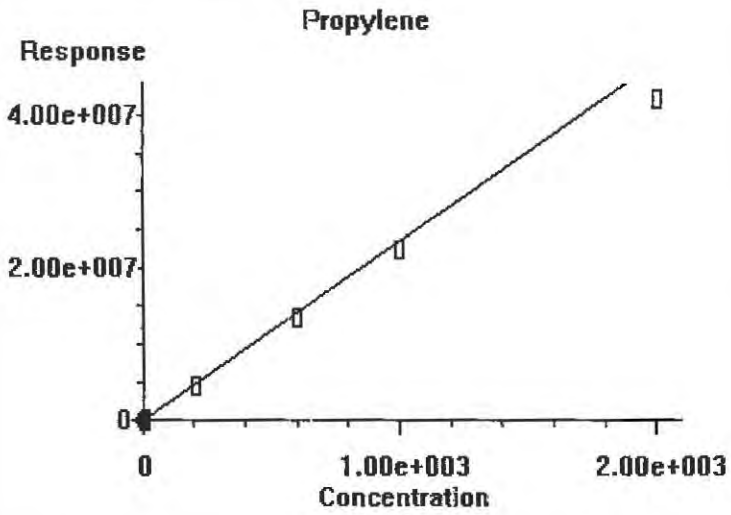
Search by: Ret Time | Name | Index | Find Compound

- Compound Database
- External Standard Compoun
  - Oxygen/Argon
  - Carbon monoxide
  - Methane (TCD)
  - Carbon dioxide
  - Signal #2
  - Methane (FID)
  - Ethylene
  - Ethane
  - Propylene
  - Propane
  - Isobutylene
  - Isobutane
  - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	3782.537646
2	0.302000	6933.285530
3	1.510000	39139.518208
4	4.530000	112341.896872
5	10.570000	248003.903623
6	200.000000	4504060.086084
7	600.000000	13569342.761419
8	1000.000000	22494887.720990
9	2000.000000	42124689.656800
10	4000.000000	

Lvl ID	Concentration	Response
11	20000.000000	



0.000e+000	Quadratic term
2.343e+004	Linear term
0.000e+000	Constant term
6.559%	RF Rel Std Dev

OK | Cancel | Help | Print Calibration Curve | Copy Calibration Curve

Edit Compounds -- Compound #10 -- Propane

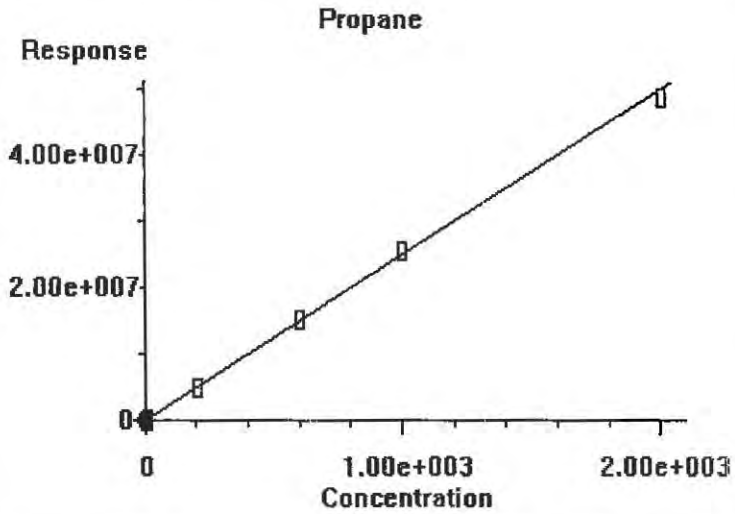
Search by ◉ Ret Time ○ Name ○ Index [ ] Find Compound

- Compound Database
- External Standard Compoun
  - Oxygen/Argon
  - Carbon monoxide
  - Methane (TCD)
  - Carbon dioxide
  - Signal #2
  - Methane (FID)
  - Ethylene
  - Ethane
  - Propylene
  - Propane
  - Isobutylene
  - Isobutane
  - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	3682.897354
2	0.302000	6894.237803
3	1.510000	39934.166792
4	4.530000	115723.428128
5	10.570000	257124.432806
6	200.000000	5043035.663316
7	600.000000	15251325.797404
8	1000.000000	25459410.657938
9	2000.000000	48583085.287451
10	4000.000000	

Lvl ID	Concentration	Response
11	20000.000000	



0.000e+000	Quadratic term
2.488e+004	Linear term
0.000e+000	Constant term
4.200%	RF Rel Std Dev

OK | Cancel | Help | Print Calibration Curve | Copy Calibration Curve

00949754

Calibration Status Report HP5890

Method Path : J:\GC10\METHODS\
Method File : RS091217_R.M
Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
Last Update : Wed Sep 13 11:14:47 2017
Response Via : Initial Calibration

#	ID	Conc	ISTD Conc	Path\File
1	1	0	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121702.D
2	2	0	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121703.D
3	3	3	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121704.D
4	4	10	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121705.D
5	5	25	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121706.D
6	6	125	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121707.D
7	7	5000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121708.D
8	8	25000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121709.D
9	9	2000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121710.D
10	10	30000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121711.D
11	11	20000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121712.D

#	ID	Update Time	Quant Time	Acquisition Time
1	1	Sep 13 11:04 2017	Sep 12 15:03 2017	12-Sep-2017, 10:52
2	2	Sep 13 11:05 2017	Sep 13 11:05 2017	12-Sep-2017, 11:05
3	3	Sep 13 11:06 2017	Sep 13 11:05 2017	12-Sep-2017, 11:45
4	4	Sep 13 11:09 2017	Sep 13 11:06 2017	12-Sep-2017, 12:09
5	5	Sep 13 11:09 2017	Sep 13 11:09 2017	12-Sep-2017, 12:30
6	6	Sep 13 11:10 2017	Sep 13 11:10 2017	12-Sep-2017, 12:47
7	7	Sep 13 11:11 2017	Sep 13 11:10 2017	12-Sep-2017, 13:00
8	8	Sep 13 11:12 2017	Sep 13 11:11 2017	12-Sep-2017, 13:47
9	9	Sep 13 11:12 2017	Sep 13 11:12 2017	12-Sep-2017, 14:07
10	10	Sep 13 11:14 2017	Sep 13 11:13 2017	12-Sep-2017, 14:48
11	11	Sep 13 11:14 2017	Sep 13 11:14 2017	12-Sep-2017, 15:21

RS091217_R.M Wed Sep 13 15:11:22 2017

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121702.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 10:52
Operator : MC
Sample : 0.151ppm 0.250ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 12 11:03:15 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.767	373920	0.128	ppm	
2)	Carbon monoxide	1.767	373920	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	1.595	2622	0.156	ppm	
8)	Ethane	1.848	2690	0.156	ppm	
9)	Propylene	4.222	3783	0.154	ppm	
10)	Propane	4.348	3683	0.139	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	6.582f	6058	NoCal	ppm	
13)	n-Butane	6.582f	6058	NoCal	ppm	

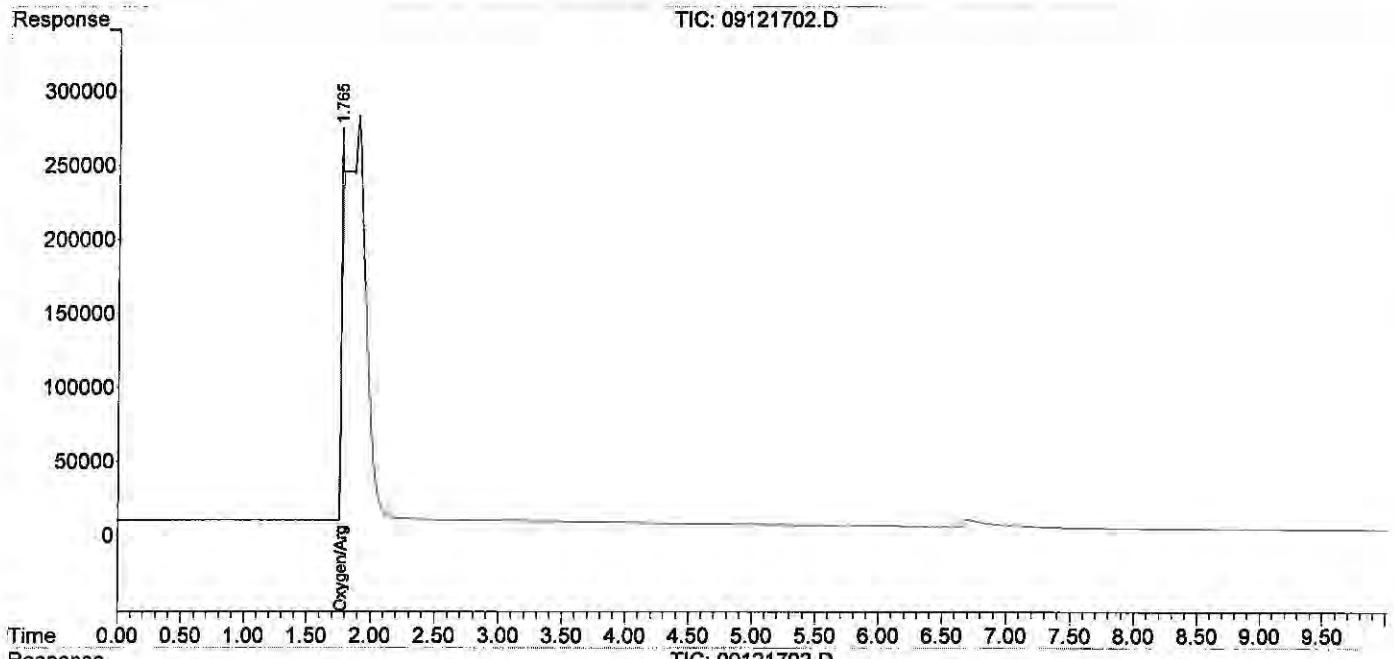
(f)=RT Delta > 1/2 Window (m)=manual int.

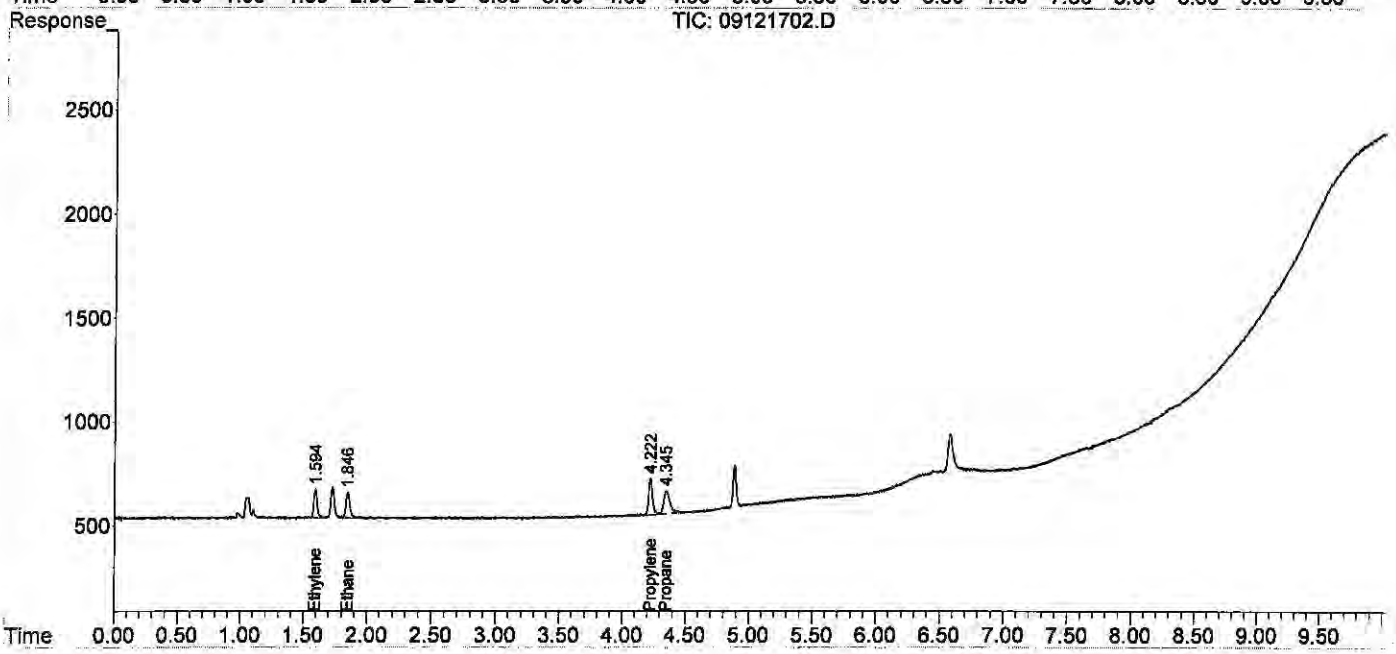
9/13/17

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121702.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 10:52
Operator : MC
Sample : 0.151ppm 0.250ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 12 11:03:15 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121703.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:05
Operator : MC
Sample : 0.302ppm 0.5ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:03 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.913f	-25181981	N.D.	ppm	
2)	Carbon monoxide	1.913f	-25181981	1.089	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.049	3564	0.391	ppm	m
7)	Ethylene	1.577	4947	0.292	ppm	
8)	Ethane	1.828	5060	0.293	ppm	
9)	Propylene	4.207	6933	0.281	ppm	
10)	Propane	4.337	6894	0.268	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	6.579f	9587	0.158	ppm	
13)	n-Butane	6.579f	9587	0.158	ppm	

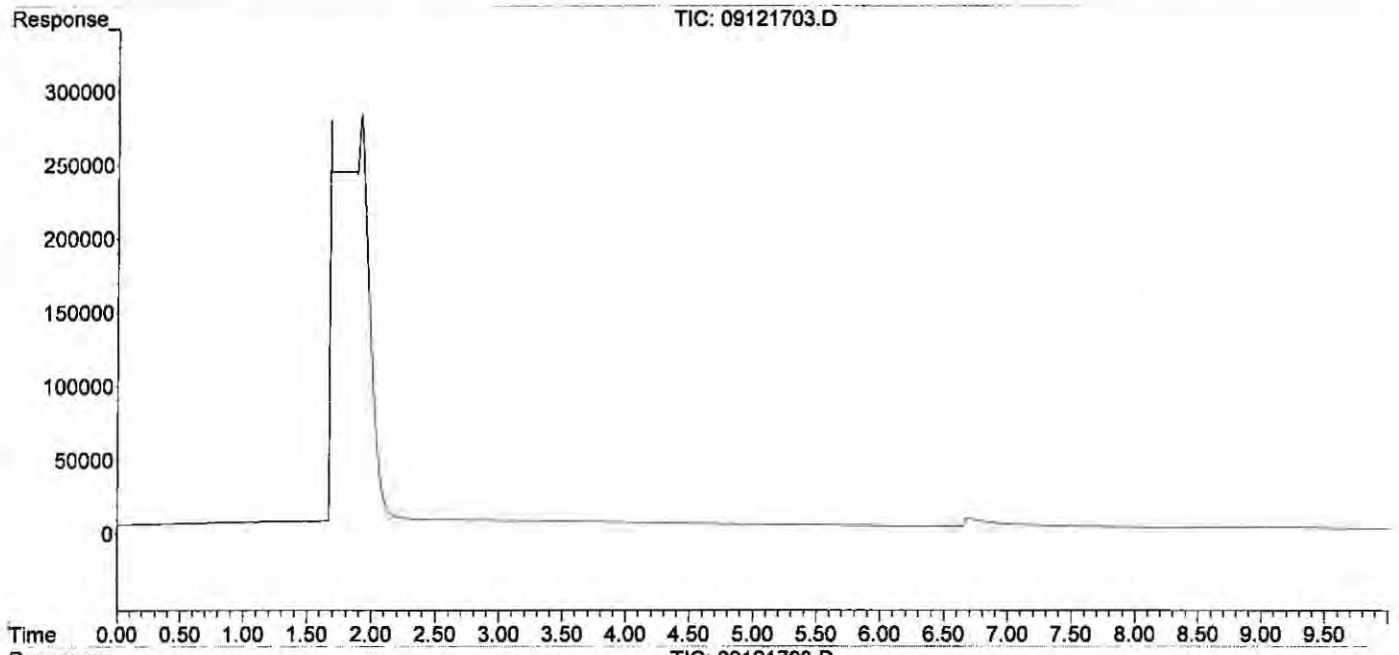
(f)=RT Delta > 1/2 Window (m)=manual int.

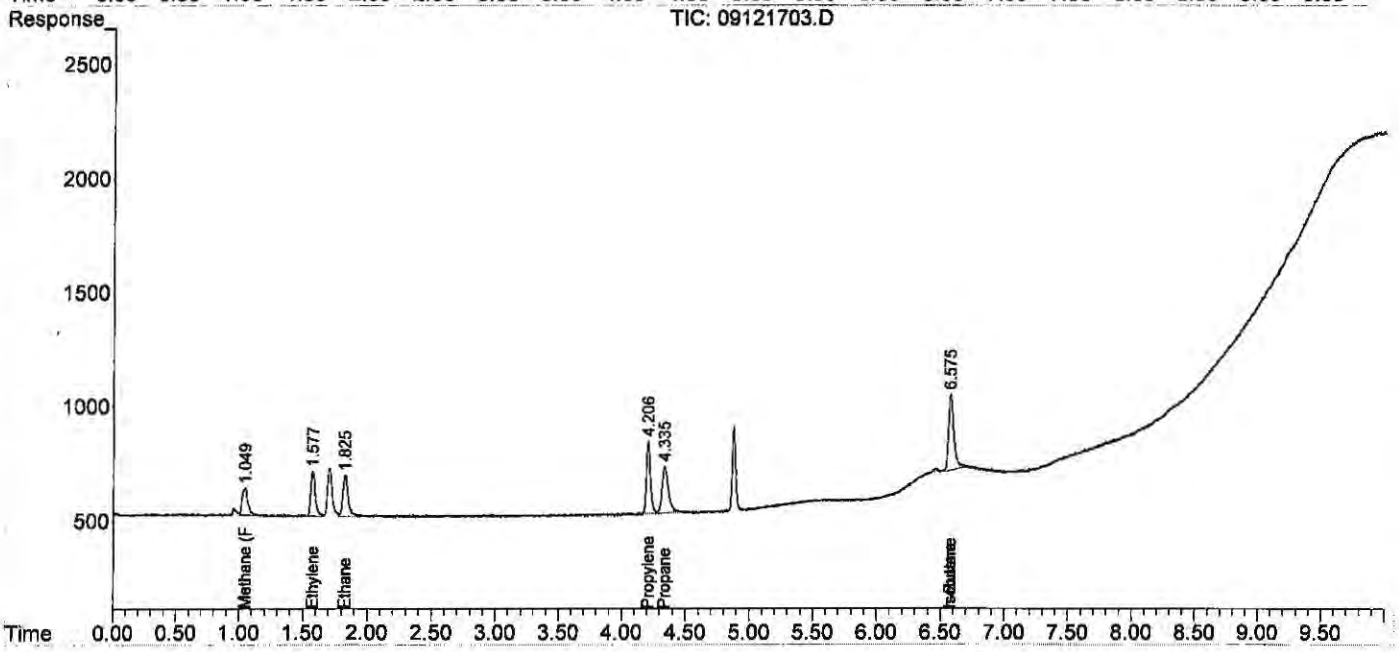
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121703.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:05
Operator : MC
Sample : 0.302ppm 0.5ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:03 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



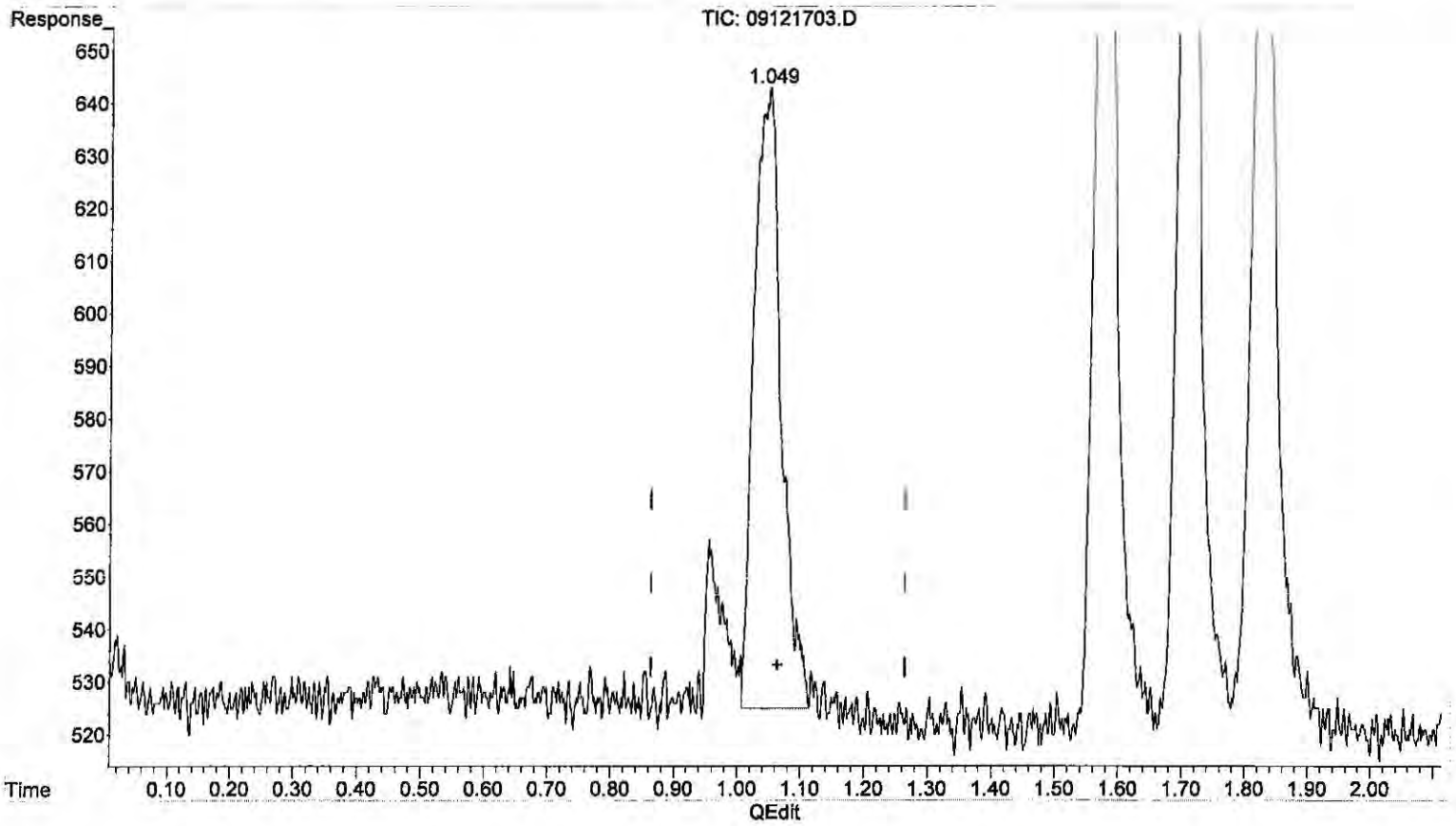


Quantitation Report (Qedit)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121703.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:05
Operator : MC
Sample : 0.302ppm 0.5ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:03 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(6) Methane (FID)
1.049min 0.391 ppm m
response 3564

(+) = Expected Retention Time
RS091217_R.M Wed Sep 13 15:00:03 2017

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121704.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:45
Operator : MC
Sample : 1.51ppm 0.1ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:55 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

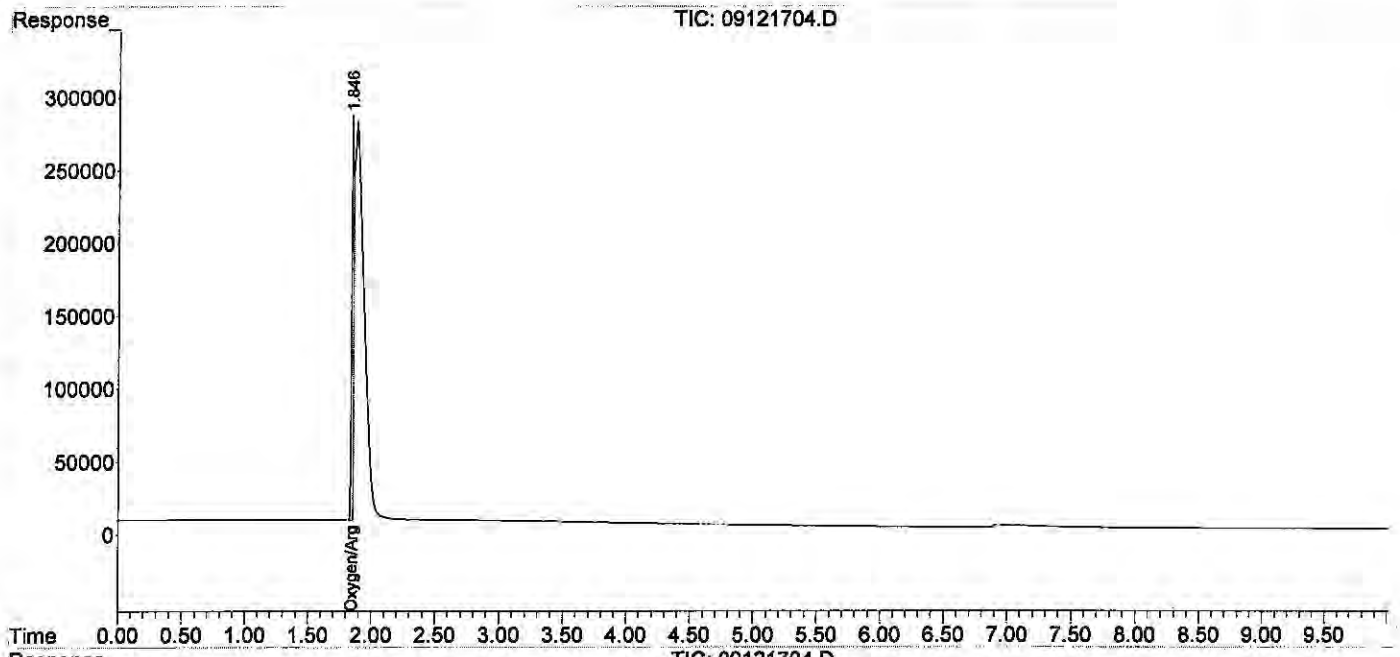
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.847	2536230	1.056	ppm
2)	Carbon monoxide	1.847	2536230	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.064	14725	1.613	ppm
7)	Ethylene	1.598	26885	1.582	ppm
8)	Ethane	1.851	26944	1.555	ppm
9)	Propylene	4.220	39140	1.589	ppm
10)	Propane	4.349	39934	1.596	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.578f	55348	1.020	ppm
13)	n-Butane	6.578f	55348	1.020	ppm

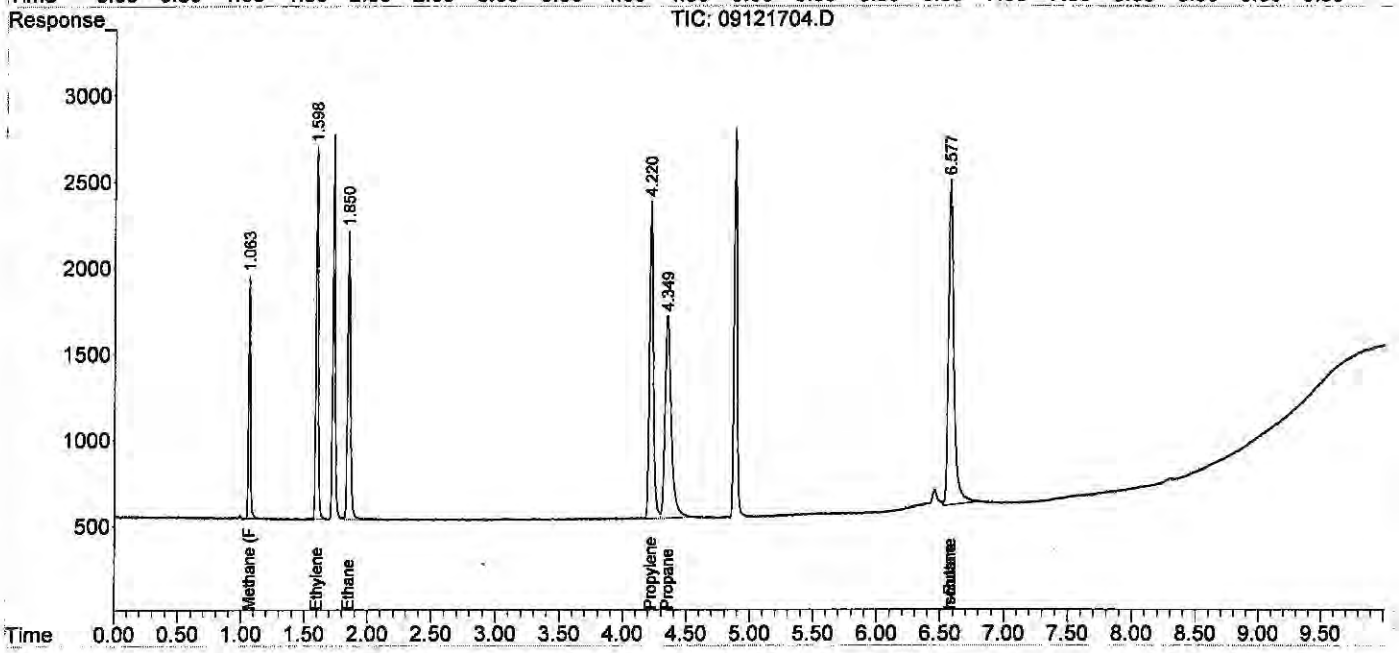
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121704.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:45
Operator : MC
Sample : 1.51ppm 0.1ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:55 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121705.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:09
Operator : MC
Sample : 4.53ppm 0.3ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:06:32 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

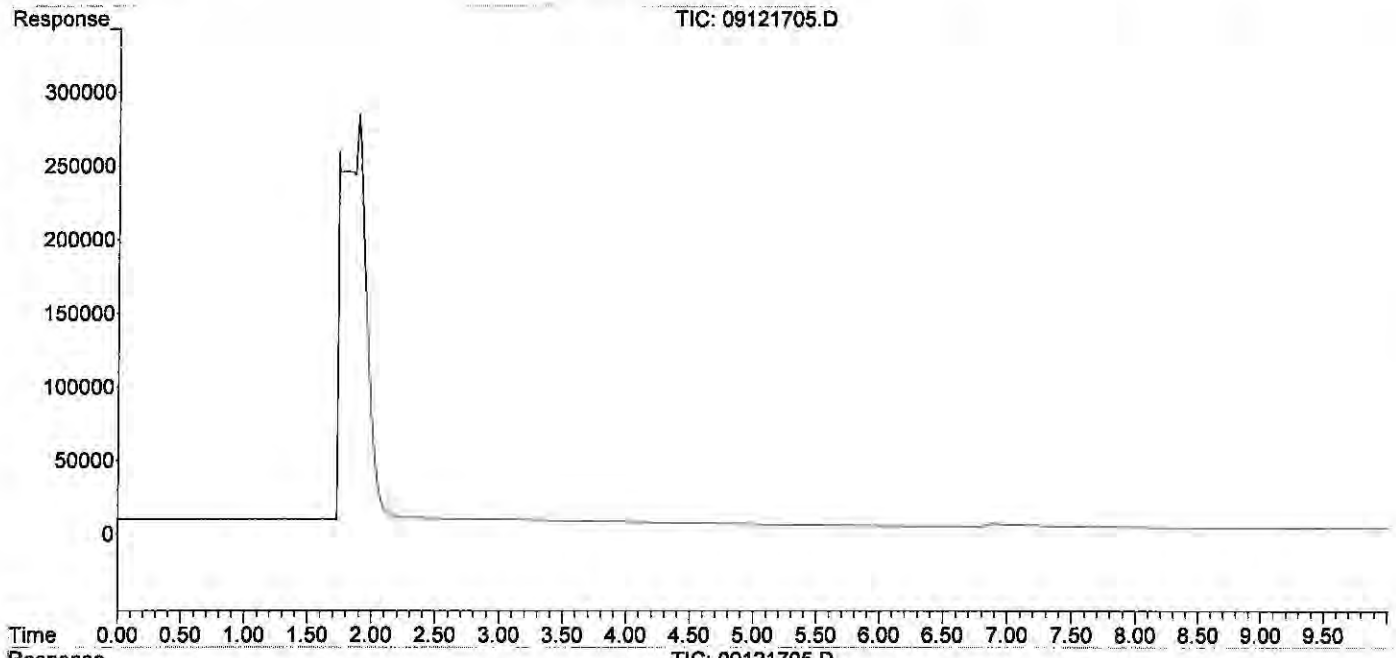
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.738	-331216	N.D.	ppm
2)	Carbon monoxide	1.738	-331216	0.019	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.052	41129	4.522	ppm
7)	Ethylene	1.586	77903	4.637	ppm
8)	Ethane	1.838	78354	4.558	ppm
9)	Propylene	4.218	112342	4.614	ppm
10)	Propane	4.347	115723	4.680	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.580f	155256	3.565	ppm
13)	n-Butane	6.580f	155256	3.565	ppm

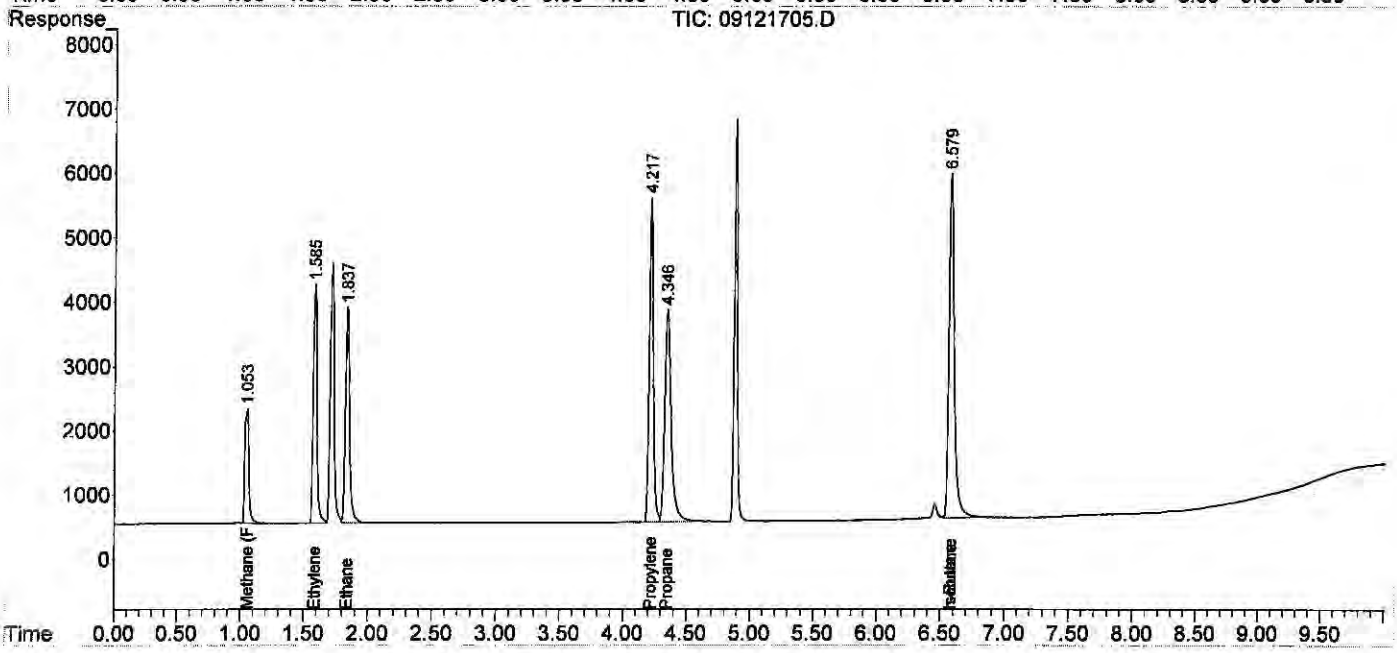
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121705.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:09
Operator : MC
Sample : 4.53ppm 0.3ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:06:32 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121706.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:30
Operator : MC
Sample : 10.57ppm 0.7ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:24 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.929f	-31871242	N.D.	ppm
2)	Carbon monoxide	1.929f	-31871242	1.818	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.025	91967	10.135	ppm
7)	Ethylene	1.568	172086	10.273	ppm
8)	Ethane	1.822	178841	10.441	ppm
9)	Propylene	4.214	248004	10.236	ppm
10)	Propane	4.344	257124	10.458	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.578f	338181	9.254	ppm
13)	n-Butane	6.578f	338181	9.254	ppm

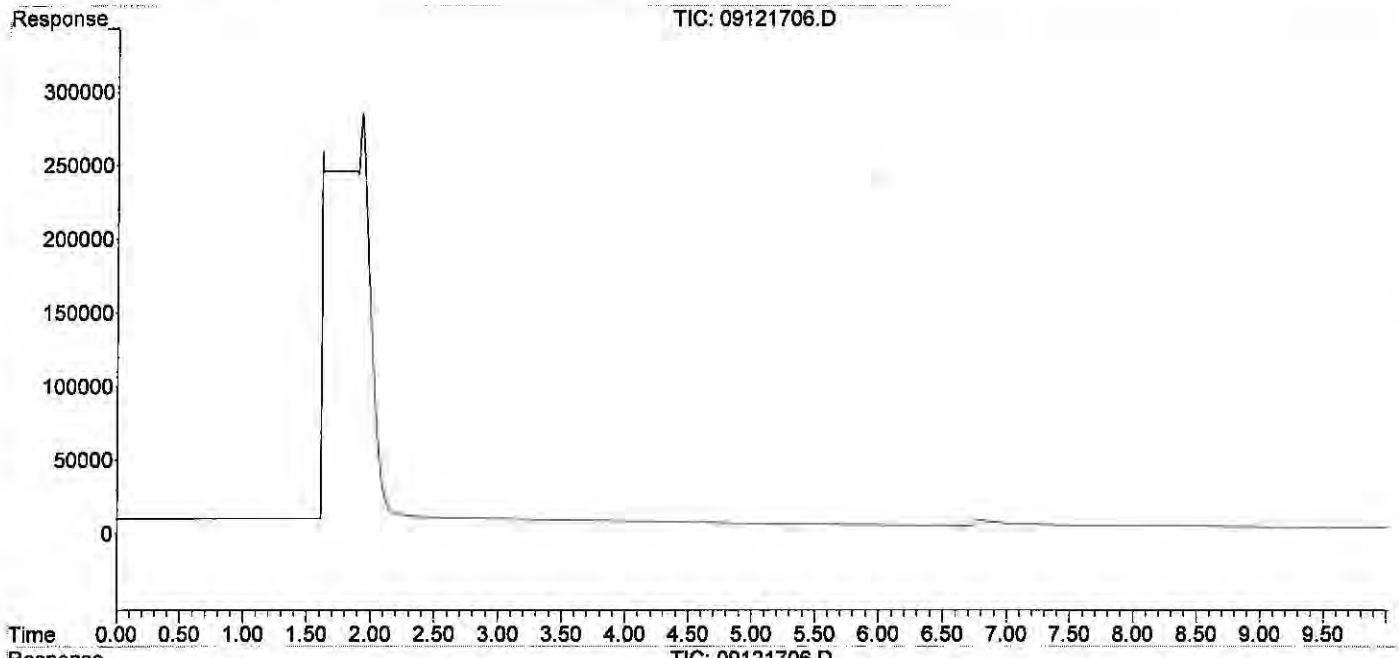
(f)=RT Delta > 1/2 Window (m)=manual int.

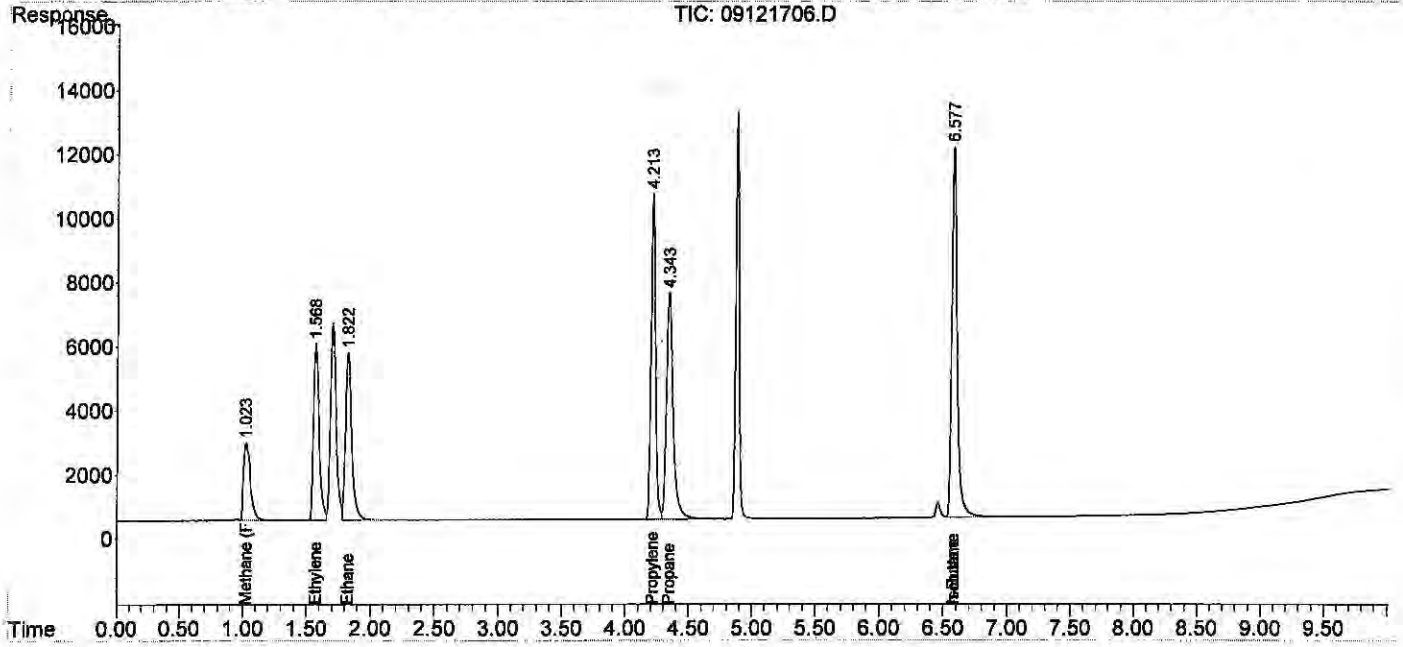
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121706.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:30
Operator : MC
Sample : 10.57ppm 0.7ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:24 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121707.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:47
Operator : MC
Sample : 200ppm 0.1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:59 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.897	155286	0.065	ppm
2)	Carbon monoxide	1.897	155286	N.D.	ppm
3)	Methane (TCD)	4.079f	27015	2856.472	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.063	1735997	190.792	ppm
7)	Ethylene	1.597	3339702	198.758	ppm
8)	Ethane	1.849	3350442	194.597	ppm
9)	Propylene	4.201	4504060	185.706	ppm
10)	Propane	4.333	5043036	204.809	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

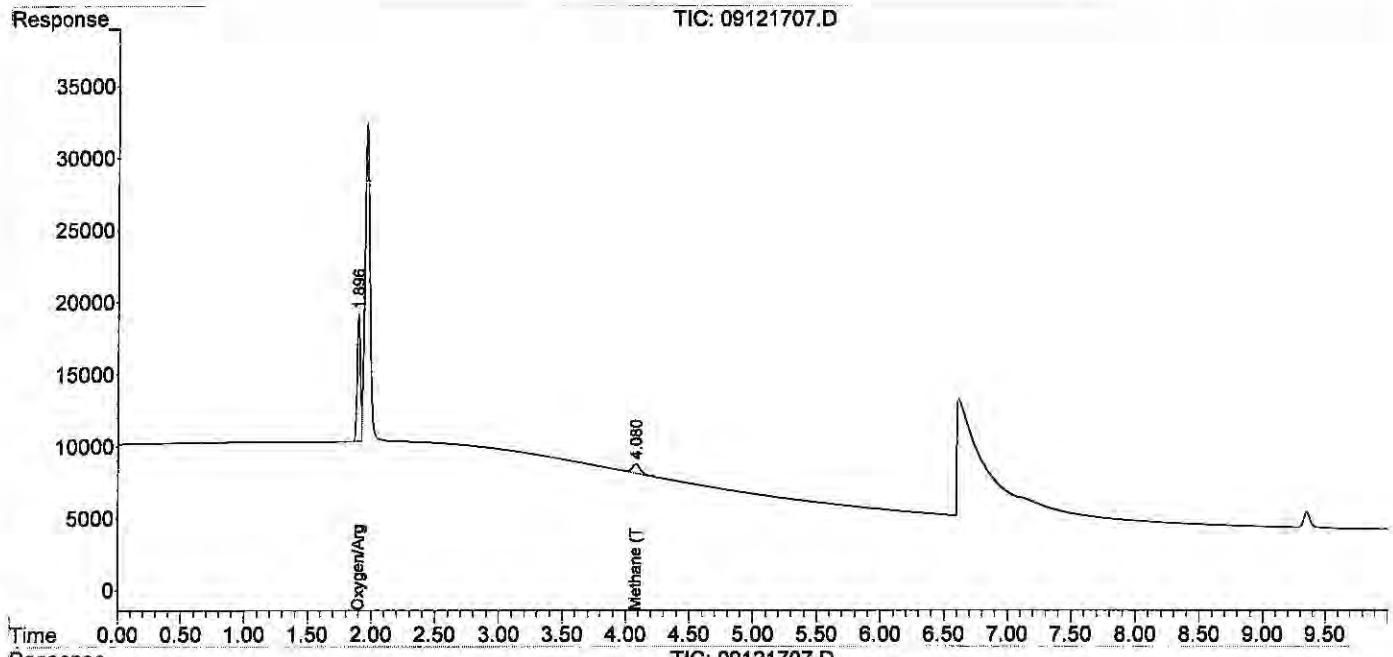
(f)=RT Delta > 1/2 Window (m)=manual int.

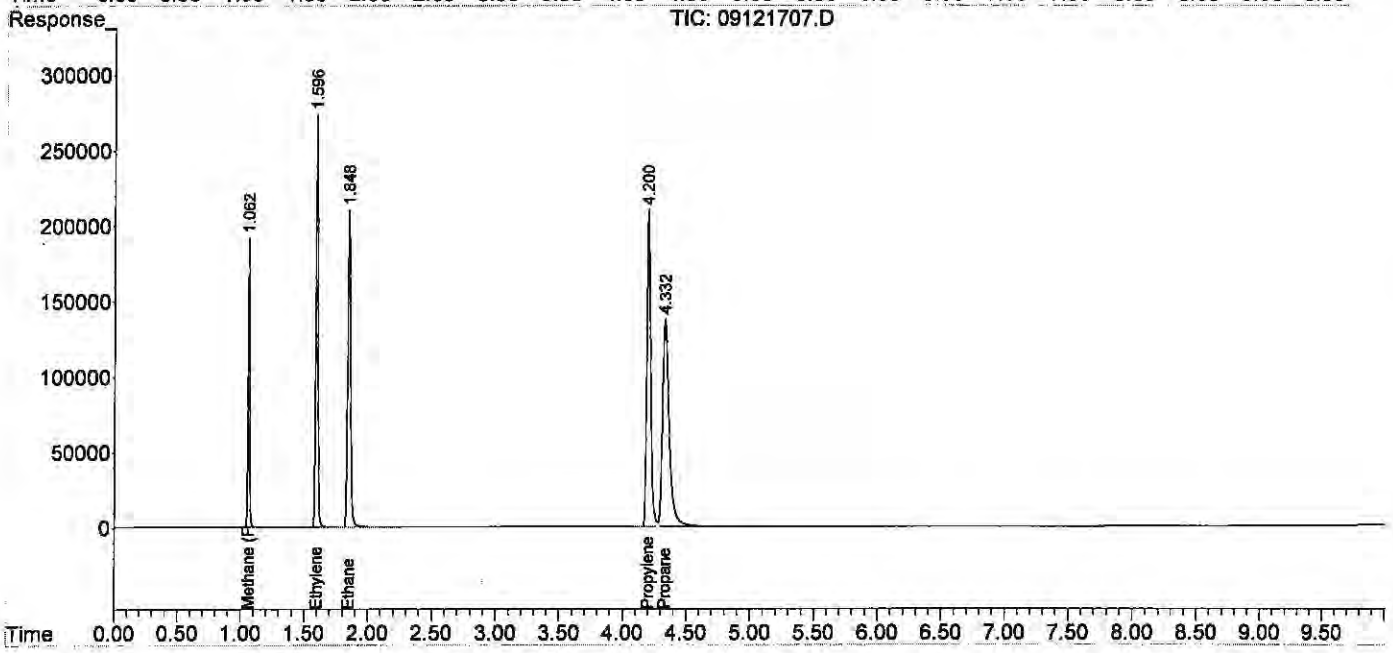
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121707.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:47
Operator : MC
Sample : 200ppm 0.1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:59 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121708.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:00
Operator : MC
Sample : 600ppm 0.3ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:10:57 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:10:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.884	196022	0.124	ppm
2)	Carbon monoxide	1.884	196022	N.D.	ppm
3)	Methane (TCD)	4.070f	88282	782.730	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.044	5189849	539.759	ppm
7)	Ethylene	1.573	10007759	590.286	ppm
8)	Ethane	1.822	10048964	583.213	ppm
9)	Propylene	4.160	13569343	562.612	ppm
10)	Propane	4.300	15251326	615.171	ppm
11)	Isobutylene	6.143	9815	NoCal	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

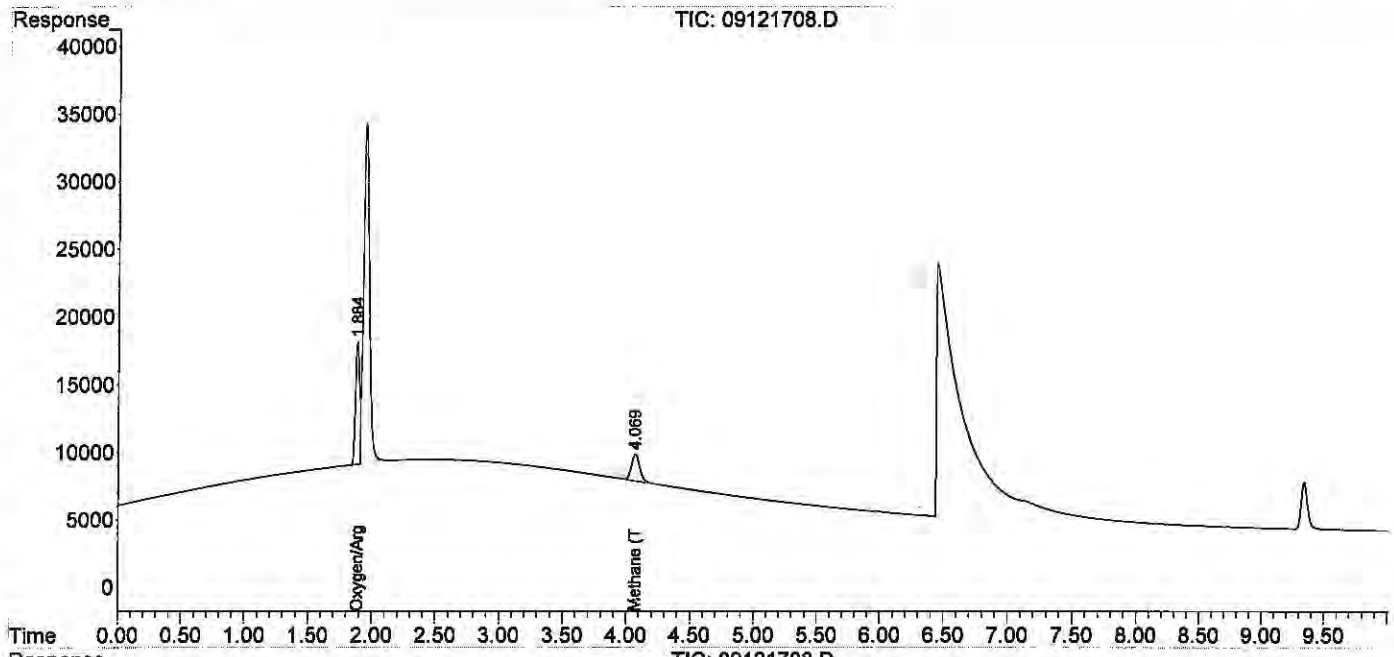
(f)=RT Delta > 1/2 Window (m)=manual int.

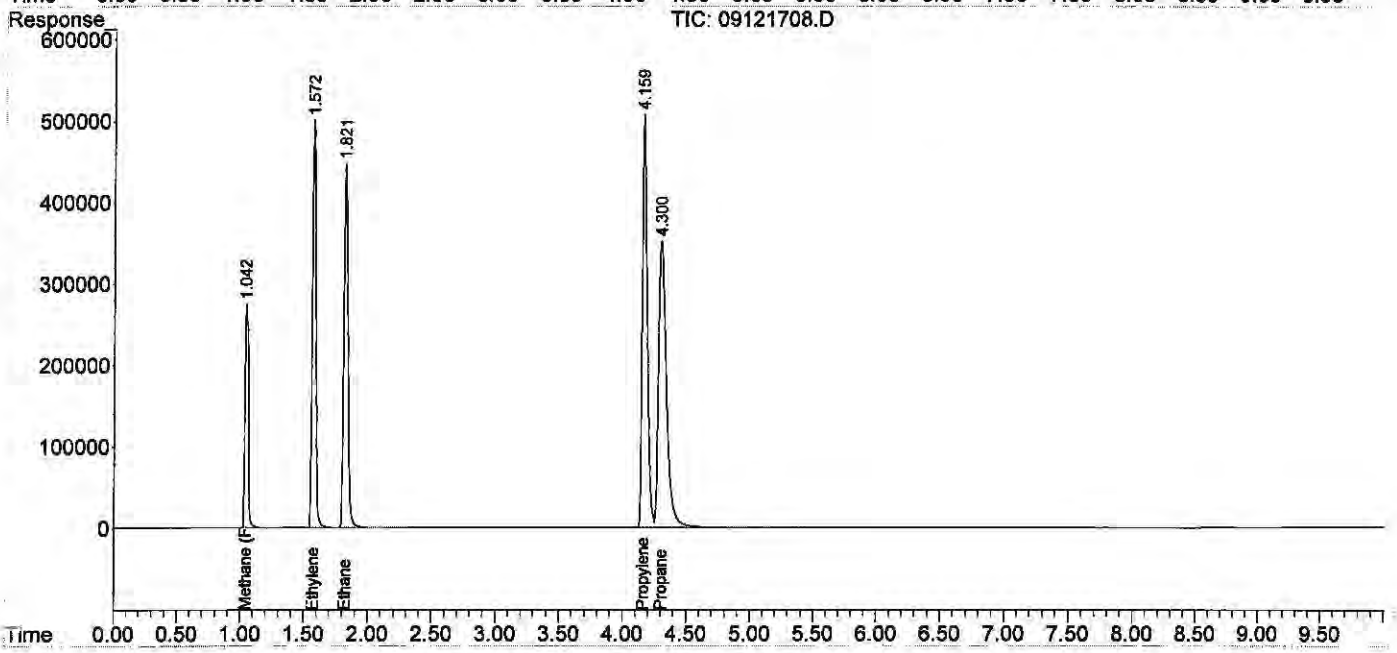
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121708.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:00
Operator : MC
Sample : 600ppm 0.3ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:10:57 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:10:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121709.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:47
Operator : MC
Sample : 1000ppm 0.5ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:11:46 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:11:38 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.879	192611	0.162	ppm
2)	Carbon monoxide	1.879	192611	N.D.	ppm
3)	Methane (TCD)	4.070f	145492	1244.729	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.039	8598534	945.644	ppm
7)	Ethylene	1.576	16608504	981.887	ppm
8)	Ethane	1.827	16709165	973.644	ppm
9)	Propylene	4.161	22494888	941.060	ppm
10)	Propane	4.298	25459411	1023.223	ppm
11)	Isobutylene	6.138	16970	8645.243	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

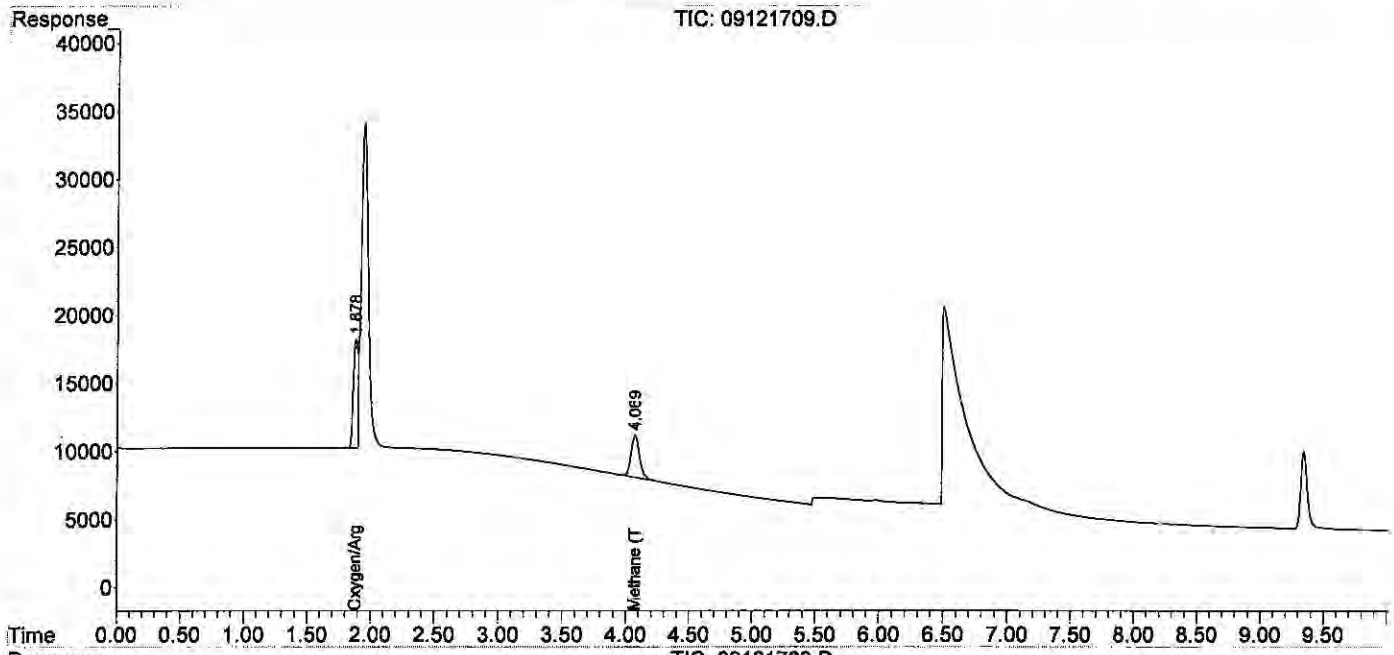
(f)=RT Delta > 1/2 Window (m)=manual int.

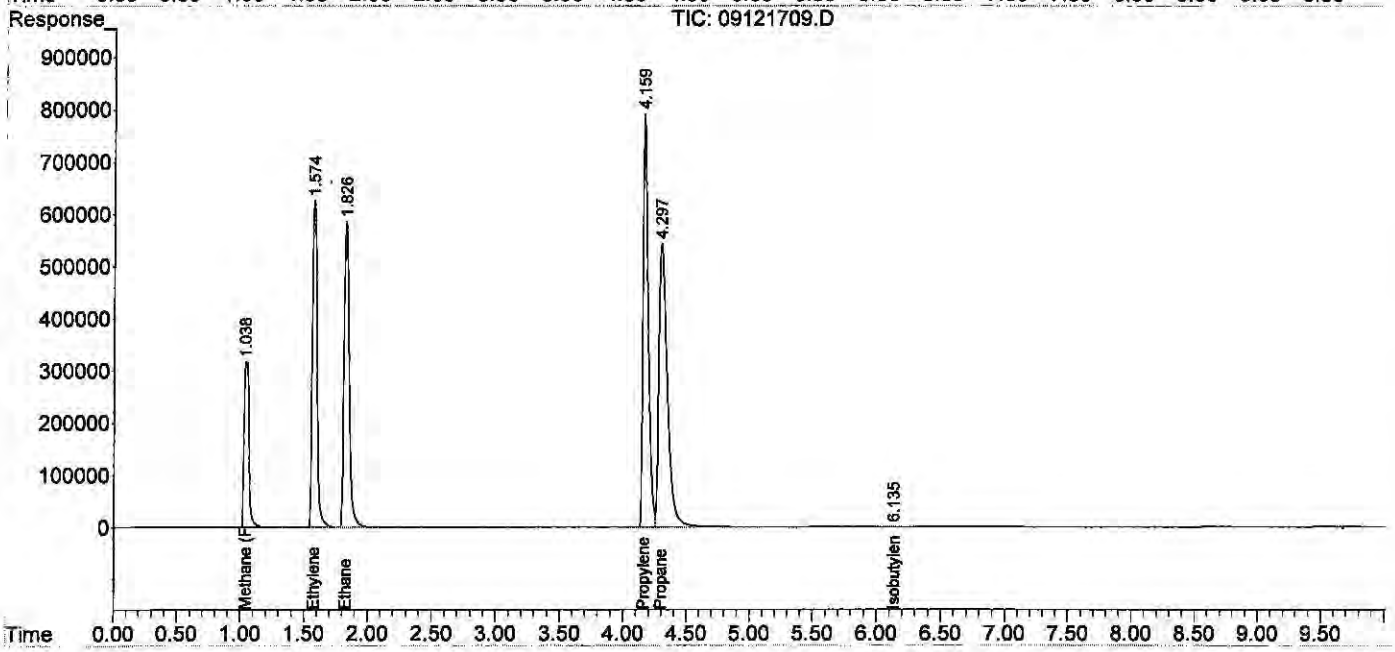
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121709.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:47
Operator : MC
Sample : 1000ppm 0.5ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:11:46 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:11:38 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121710.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:07
Operator : MC
Sample : 2000ppm 1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:12:33 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:12:25 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

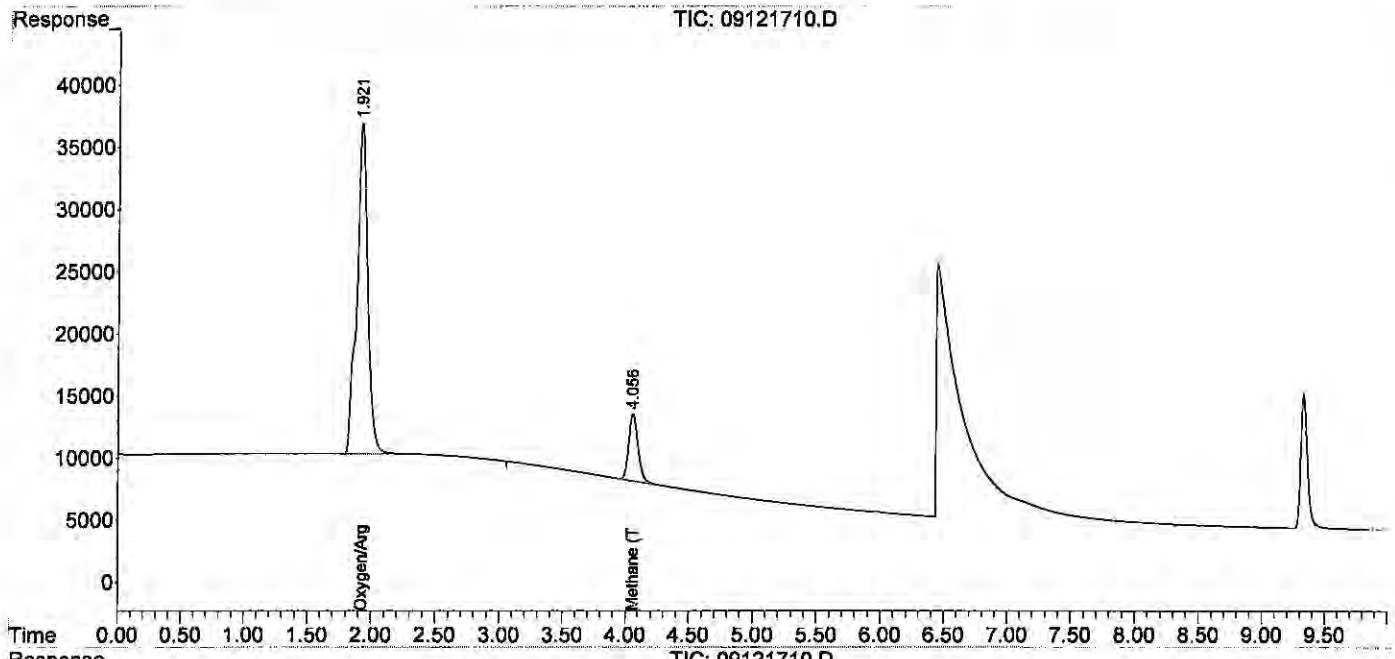
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.922f	1578147	1.659	ppm	
2)	Carbon monoxide	1.922f	1578147	N.D.	ppm	
3)	Methane (TCD)	4.057f	281651	3526.607	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.016	16098209	1763.622	ppm	
7)	Ethylene	1.552	31192444	1848.268	ppm	
8)	Ethane	1.801	31424218	1837.143	ppm	
9)	Propylene	4.129	42124690	1775.341	ppm	m
10)	Propane	4.269	48583085	1946.921	ppm	
11)	Isobutylene	6.136	33832	25613.603	ppm	
12)	Isobutane	6.576f	3845	0.120	ppm	
13)	n-Butane	6.576f	3845	0.120	ppm	

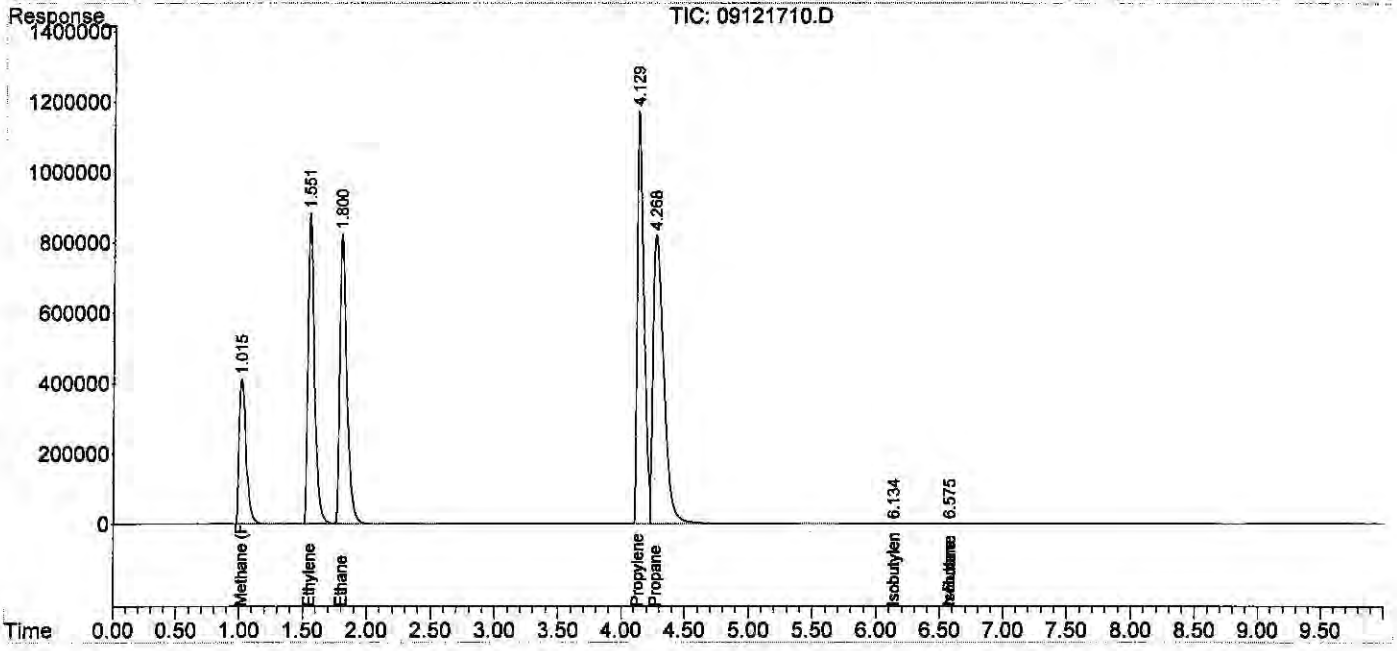
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121710.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:07
Operator : MC
Sample : 2000ppm 1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:12:33 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:12:25 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



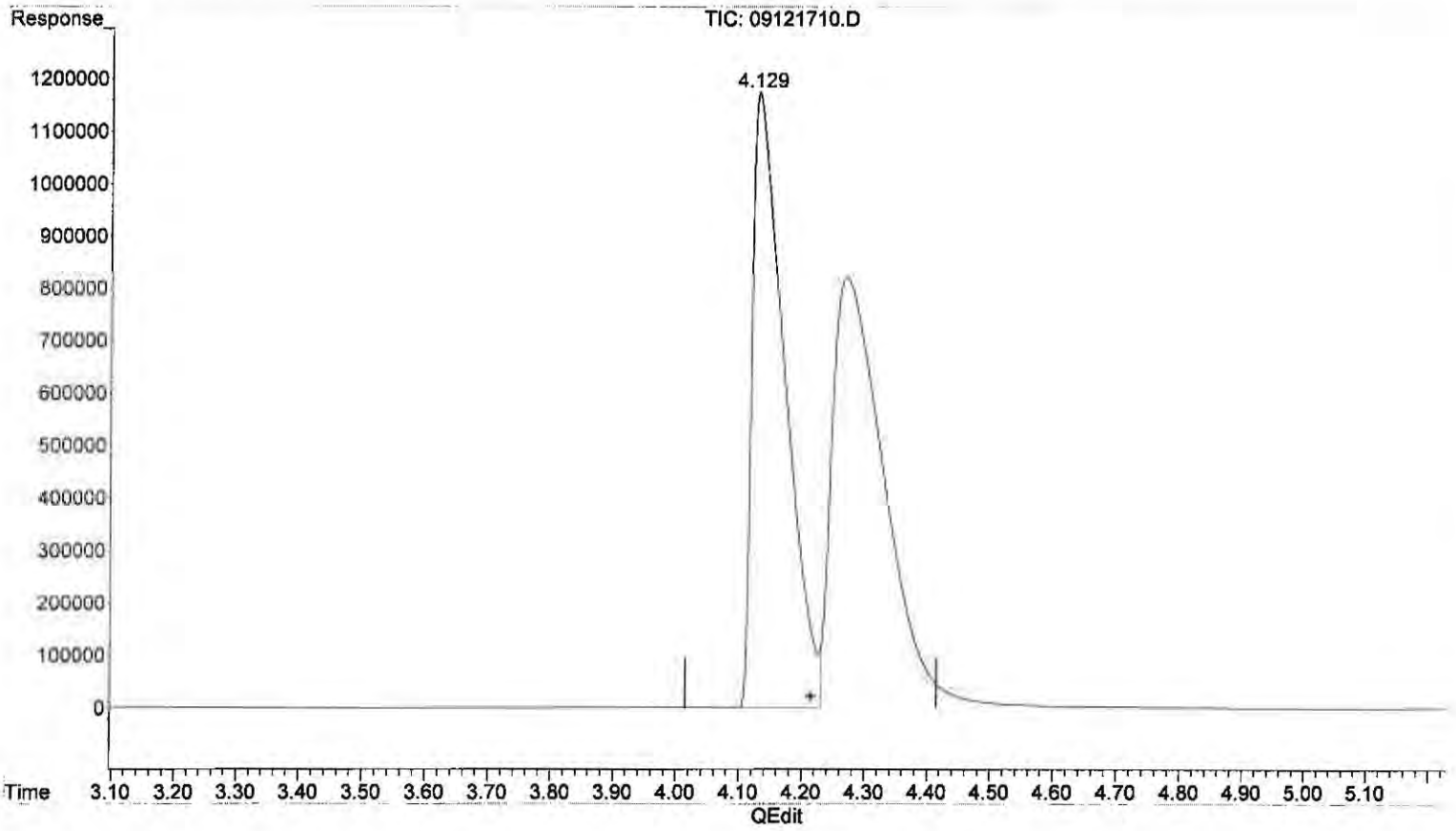


Quantitation Report (Qedit)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121710.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:07
Operator : MC
Sample : 2000ppm 1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:12:33 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:12:25 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(9) Propylene
4.129min 1775.341 ppm m
response 42124690

(+) = Expected Retention Time
RS091217_R.M Wed Sep 13 15:08:03 2017

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121711.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:48
Operator : MC
Sample : 4000ppm 0.1ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:13:37 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

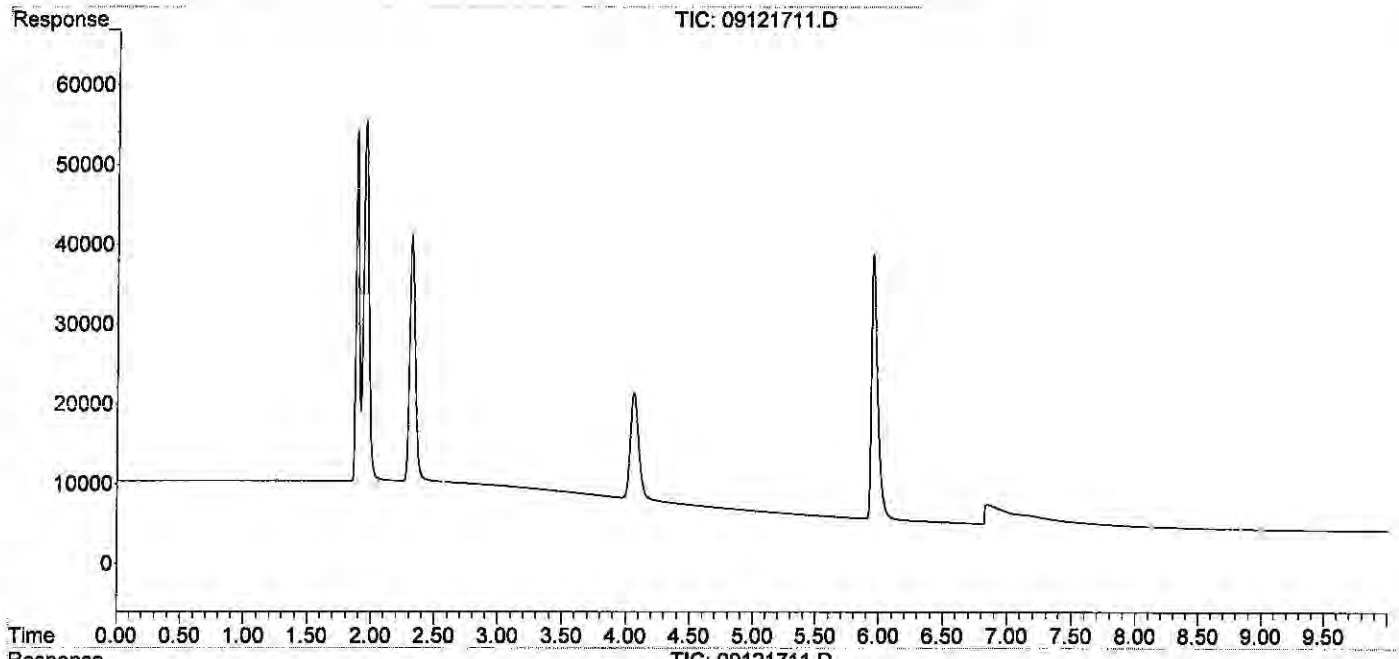
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	0.000	0	N.D.	ppm	d
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	0.000	0	N.D.	ppm	d
6)	Methane (FID)	1.059	35776839	3925.122	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

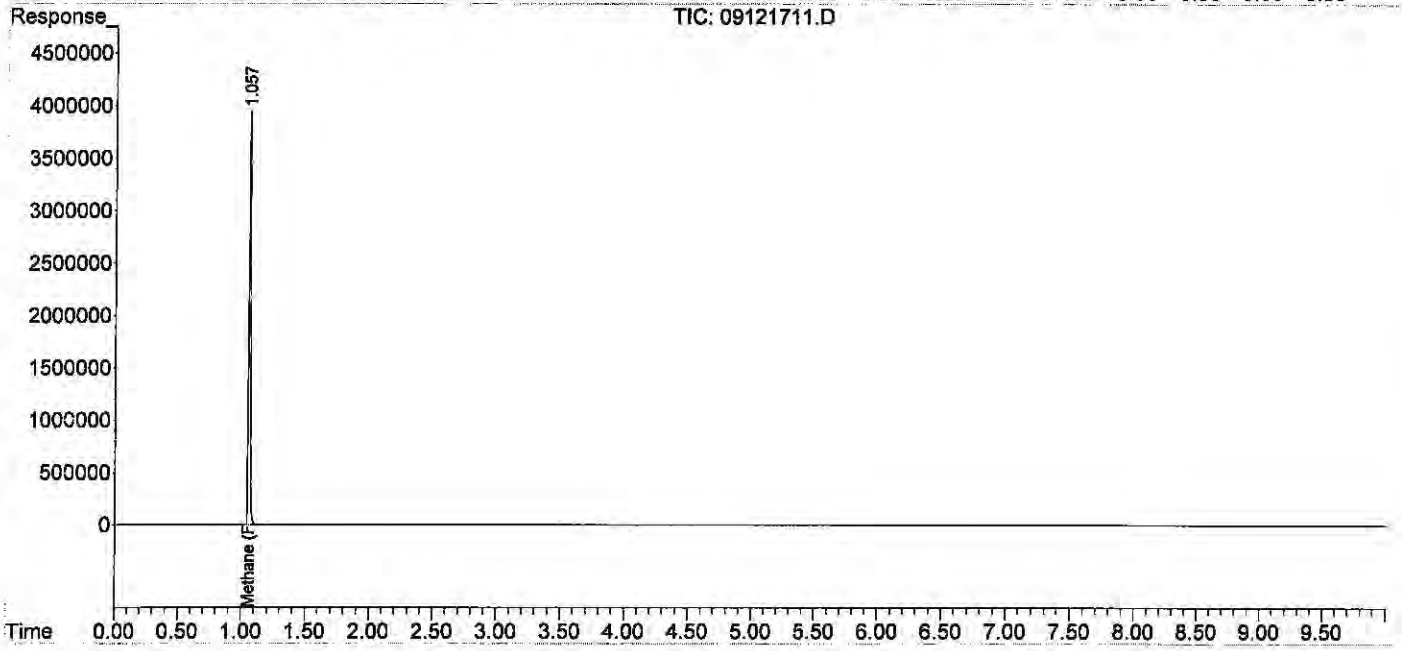
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121711.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:48
Operator : MC
Sample : 4000ppm 0.1ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:13:37 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase :
Signal #1 Info :
Signal #2 Phase:
Signal #2 Info :





Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121712.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 15:21
Operator : MC
Sample : 20000ppm 0.5ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:14:17 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.836	3190788	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	0.000	0	N.D.	ppm	d
6)	Methane (FID)	1.034	169009160	18492.064	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

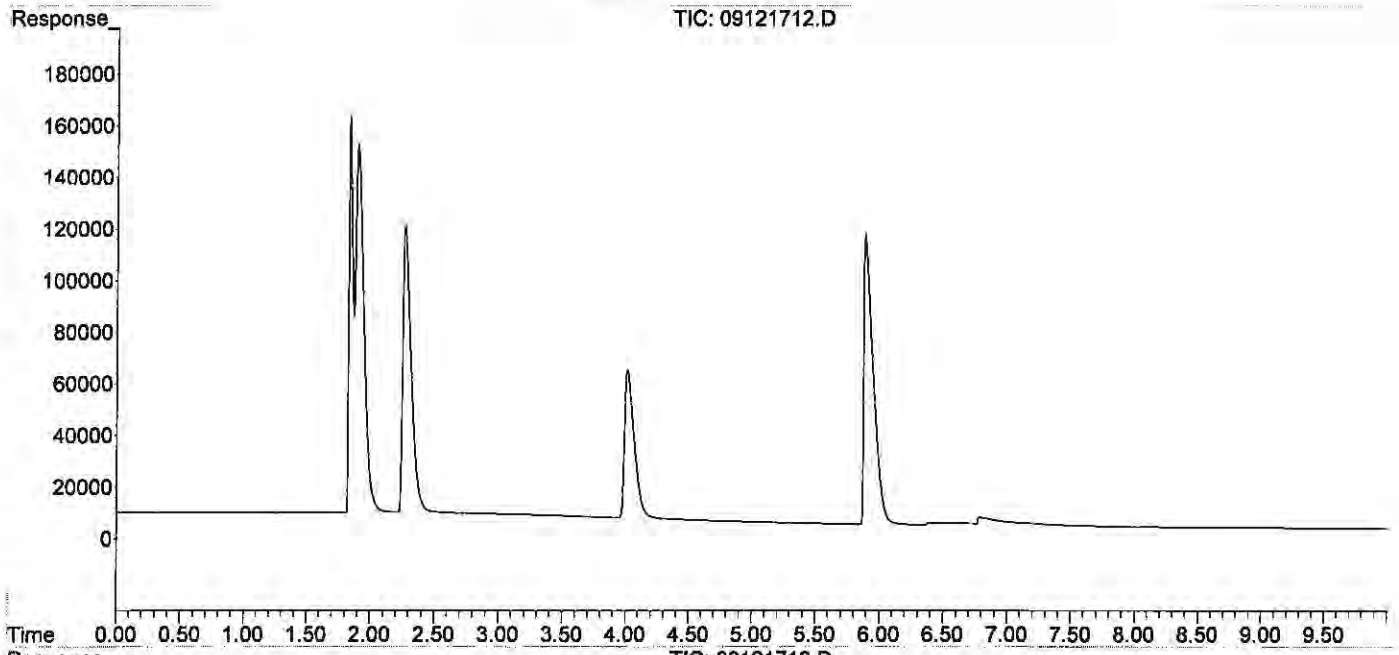
(f)=RT Delta > 1/2 Window (m)=manual int.

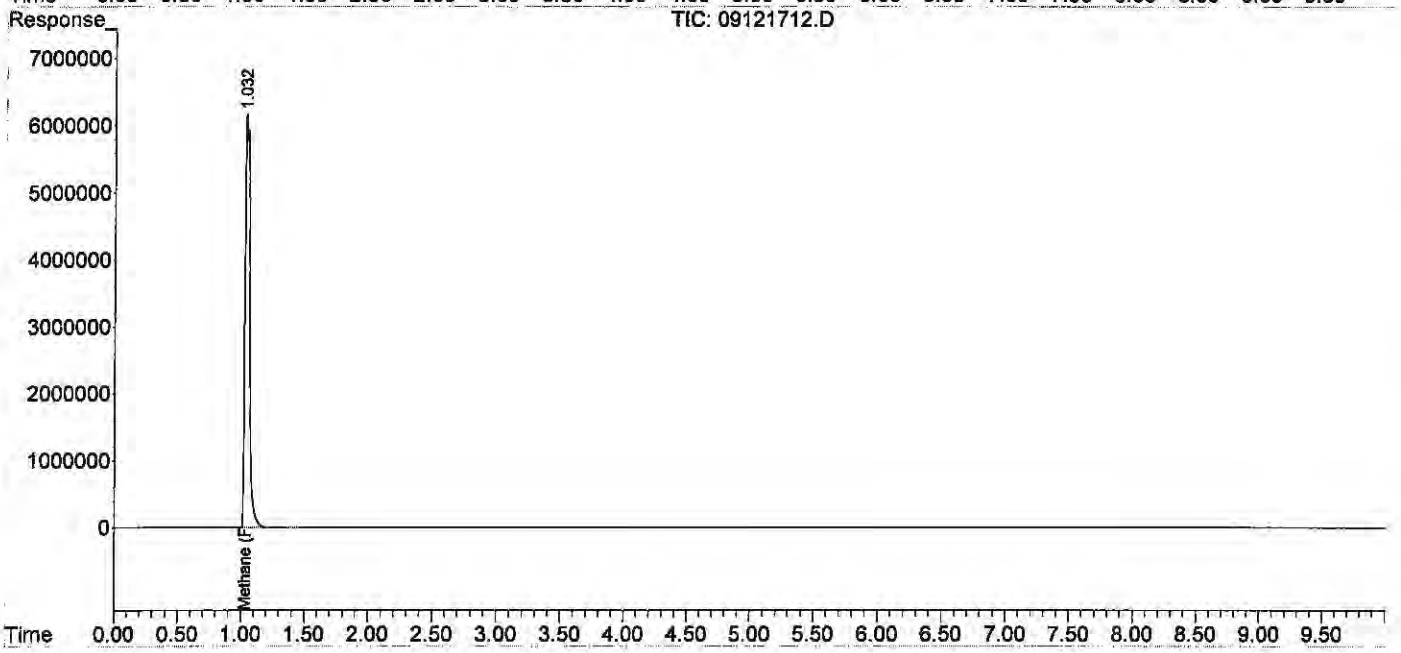
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121712.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 15:21
Operator : MC
Sample : 20000ppm 0.5ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:14:17 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 16:15
Operator : MC
Sample : icv s30-05241604
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:15:11 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.843	2922459	3.687	ppm	
2)	Carbon monoxide	1.843	2922459	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	actual %D
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.063	13748	1.516	ppm	1.50 101.1
7)	Ethylene	1.598	24153	1.443	ppm	1.50 96.2
8)	Ethane	1.850	24488	1.445	ppm	1.50 96.3
9)	Propylene	4.221	36004	1.537	ppm	1.50 102.5
10)	Propane	4.350	37738	1.517	ppm	1.51 100.5
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	6.579f	48019	1.804	ppm	9/14/2
13)	n-Butane	6.579f	48019	1.804	ppm	

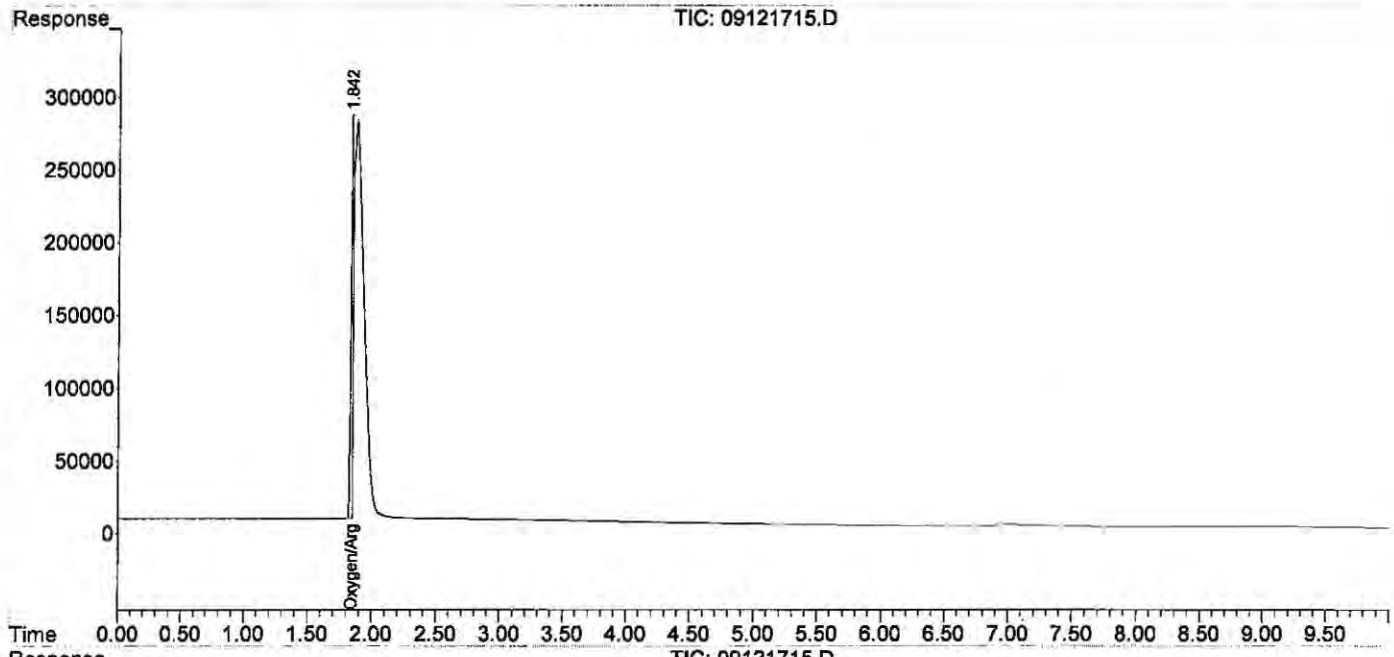
(f)=RT Delta > 1/2 Window (m)=manual int.

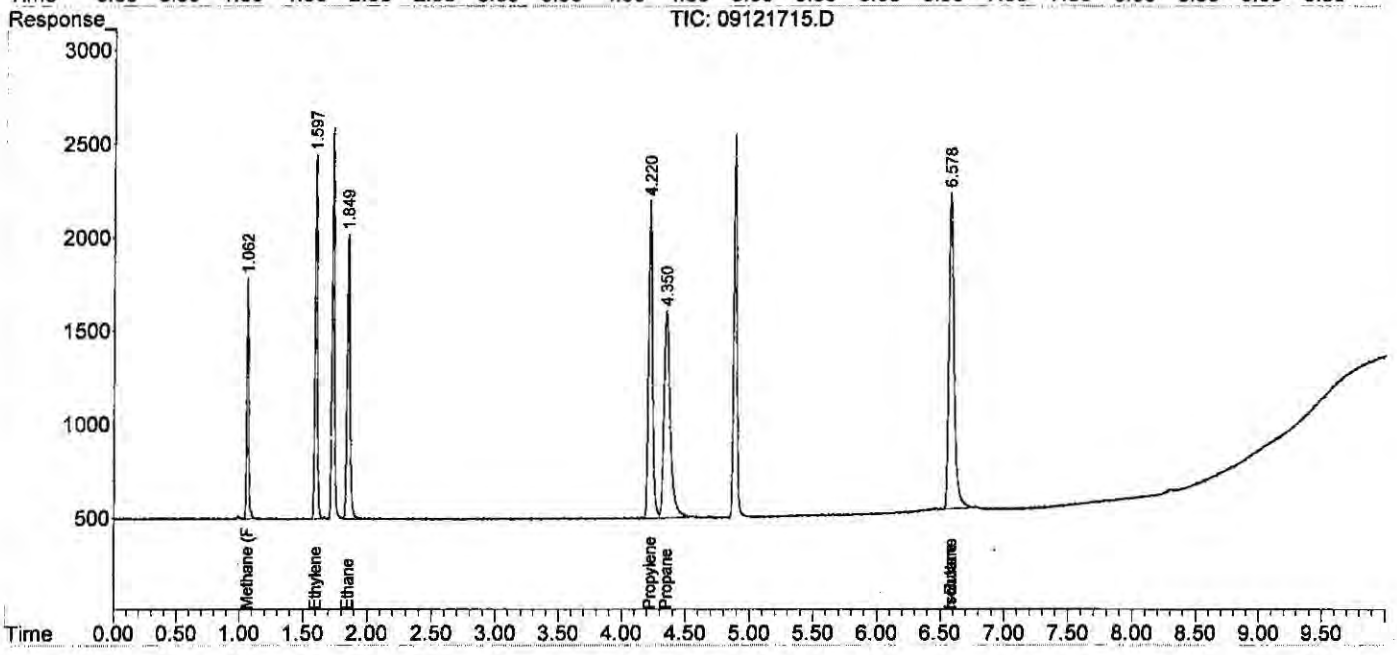
9/14/2017

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 16:15
Operator : MC
Sample : icv s30-05241604
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:15:11 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





ALS Environmental

Method : RSK175 Headspace Method for Dissolved Hydrocarbon in Water by FID/TCD
Client : ALS Laboratory Group
Service Request: P1903244
Sample Vol. (ml) : 32.00 ml
Analyst : WH
Date Analysis : 06/11/19
Head Space Vol.(ml) : 8.00 ml
Instrument : GC#10
Detector : FID#10, TCD#10
Gas Constant : 24.05684 (20°C)

HEAD SPACE RESULT (ppm)

Sample ID	Ini. Vol.	Methane	Ethylene	Ethane
std s32-05221901	0.100	92.320	98.364	97.463
ACTUAL		101.50	100.90	101.40
%Difference		9.0%	2.5%	3.9%
MCS 0.1ML	0.100	0.000	0.000	0.000
RB 0.1ML	0.100	0.040	0.000	0.000
lcs fid 0.1ml	0.100	1.286	1.076	1.185
lcsd fid 0.1ml	0.100	1.335	1.131	1.263
P1903244-001 0.1ml	0.100	1542.72	0.369	0.000
P1903244-002 0.1ml	0.100	1565.89	0.923	0.000
P1903244-003 0.1ml	0.100	483.713	0.295	0.051
P1903244-004 0.1ml	0.100	0.064	0.000	0.000
P1903244-005 0.1ml	0.100	0.053	0.000	0.000
P1903244-006 0.1ml	0.100	770.906	0.000	0.000

FINAL HEAD SPACE RESULT (ppm)

	Methane	Ethylene	Ethane
WWt.	16.04	28.05	30.07
HENRY'S CONSTANT	3.76E+04	1.02E+04	2.63E+04
RL	1.30	1.00	0.60
MCS 0.1ML	0.000	0.000	0.000
lcs fid 0.1ml	12.860	10.760	11.850
lcsd fid 0.1ml	13.350	11.310	12.630
P1903244-001 0.1ml	15427.23	3.690	0.000
P1903244-002 0.1ml	15658.92	9.230	0.000
P1903244-003 0.1ml	4837.130	2.950	0.510
P1903244-004 0.1ml	0.640	0.000	0.000
P1903244-005 0.1ml	0.530	0.000	0.000
P1903244-006 0.1ml	7709.060	0.000	0.000

STD s32-05221901	95.163	101.347	100.504
ACTUAL	101.50	100.90	101.40
%Difference	6.2%	0.4%	0.9%

00949782

Data Path : J:\GC10\DATA\RSK_FID\2019_06\11\
Data File : 06111901.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 11-Jun-2019, 10:13:41
Operator : WH
Sample : std s32-05221901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 11 10:36:39 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

6/12/19

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

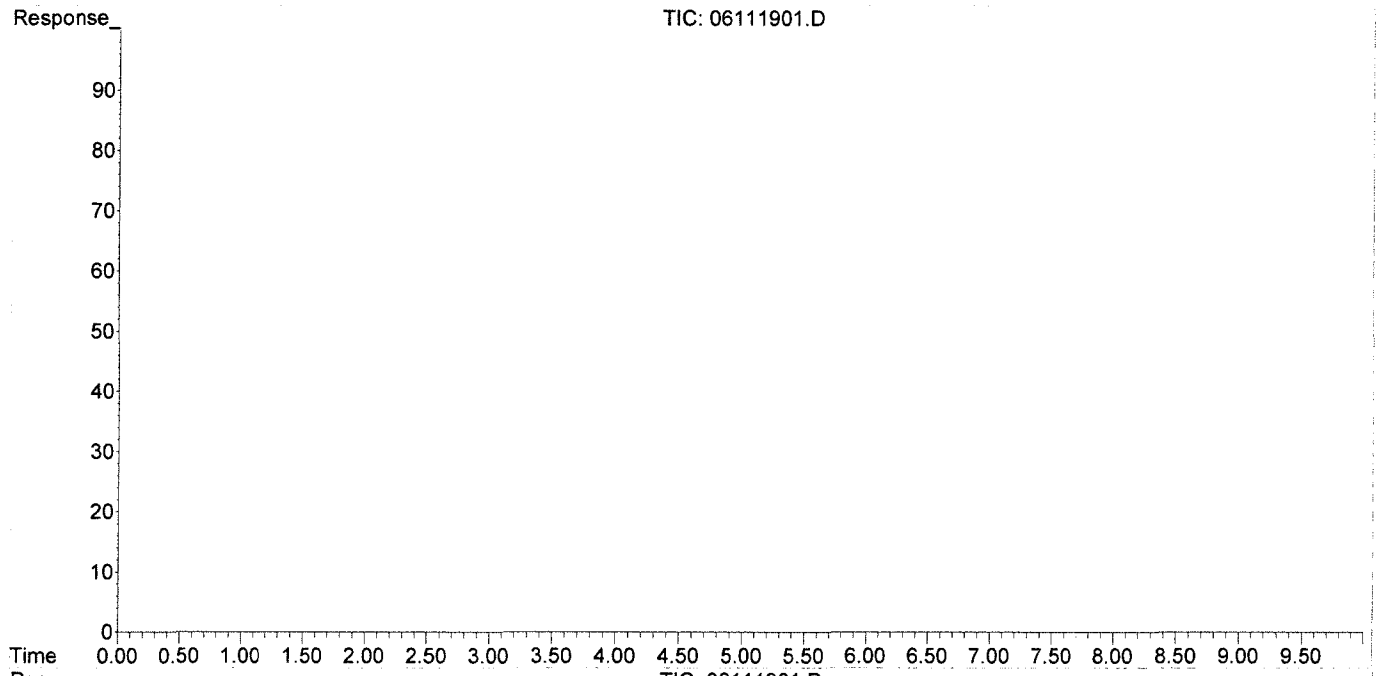
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.110	837405	92.320	ppm
7)	Ethylene	1.670	1646050	98.364	ppm
8)	Ethane	1.930	1652017	97.463	ppm
9)	Propylene	4.301	2419054	103.239	ppm
10)	Propane	4.426	2475195	99.484	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

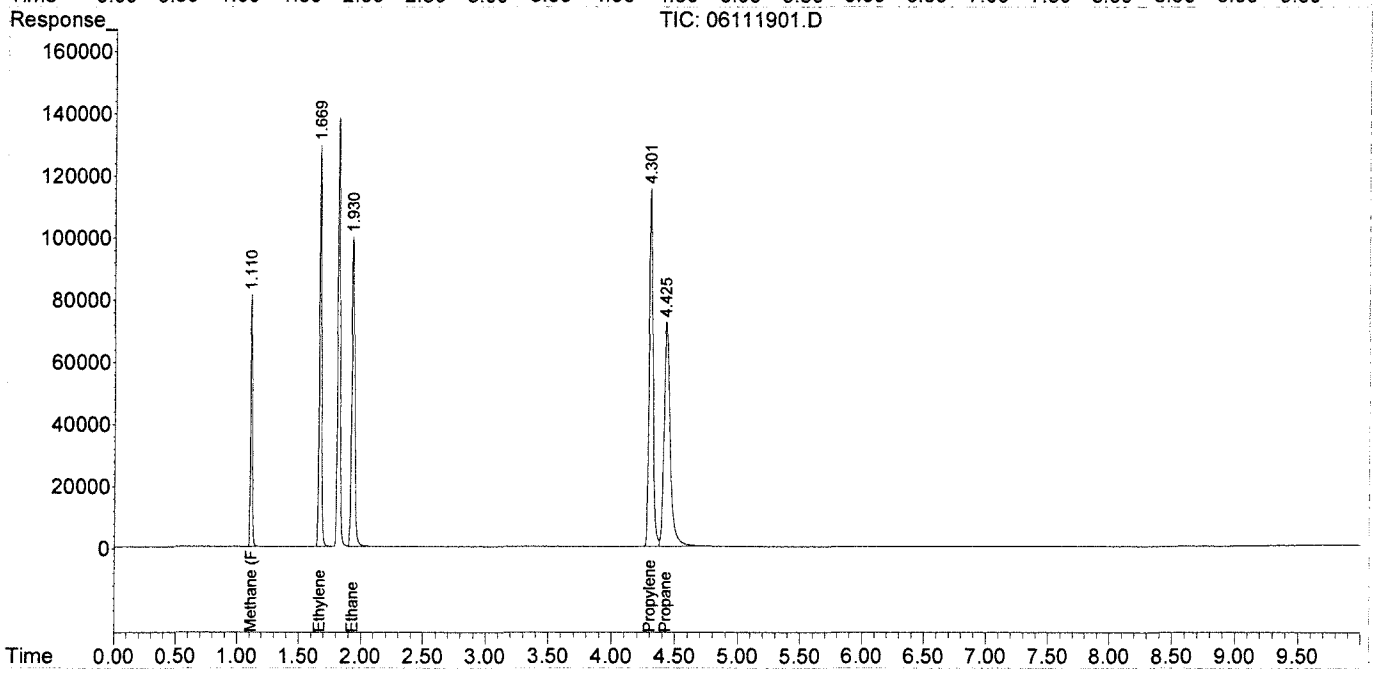
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_06\11\
Data File : 06111901.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 11-Jun-2019, 10:13:41
Operator : WH
Sample : std s32-05221901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 11 10:36:39 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : J:\GC10\DATA\RSK_FID\2019_06\11\
Data File : 06111912.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 11-Jun-2019, 14:21:07
Operator : WH
Sample : STD s32-05221901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 11 14:46:26 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

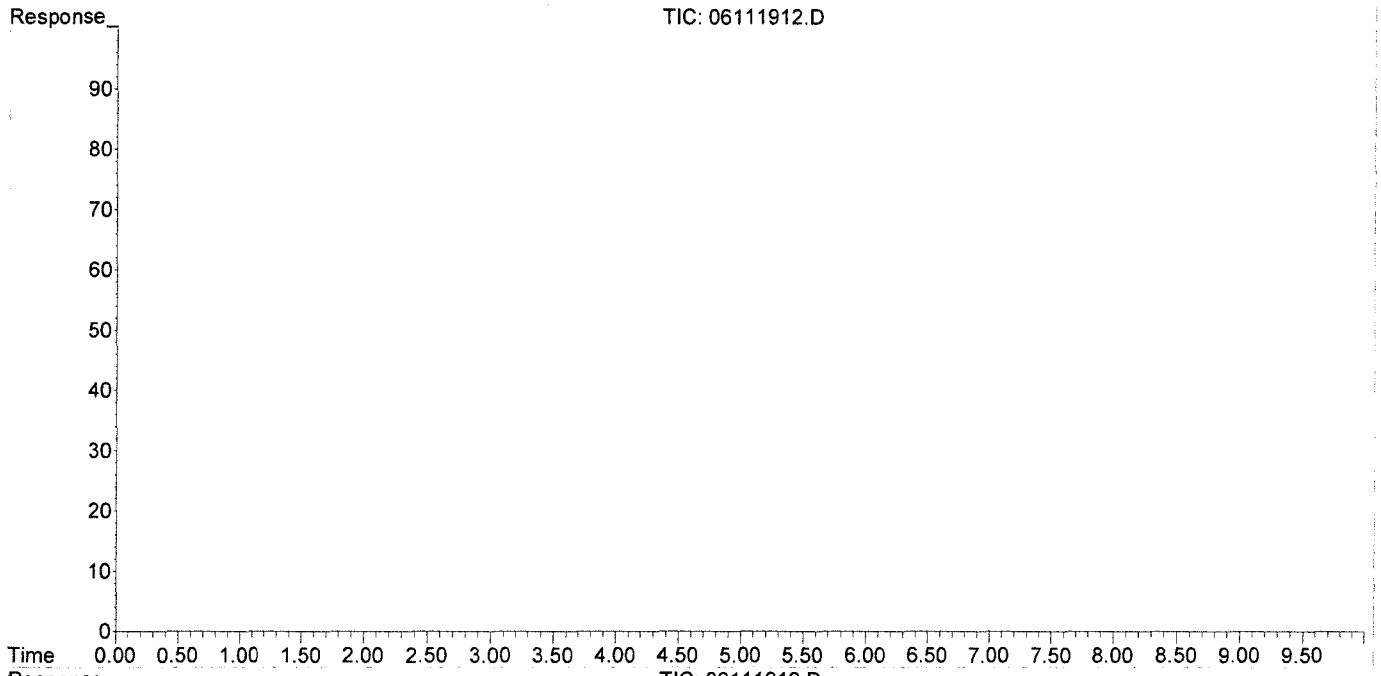
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.109	863192	95.163	ppm
7)	Ethylene	1.668	1695976	101.347	ppm
8)	Ethane	1.929	1703569	100.504	ppm
9)	Propylene	4.300	2497345	106.581	ppm
10)	Propane	4.424	2559918	102.890	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

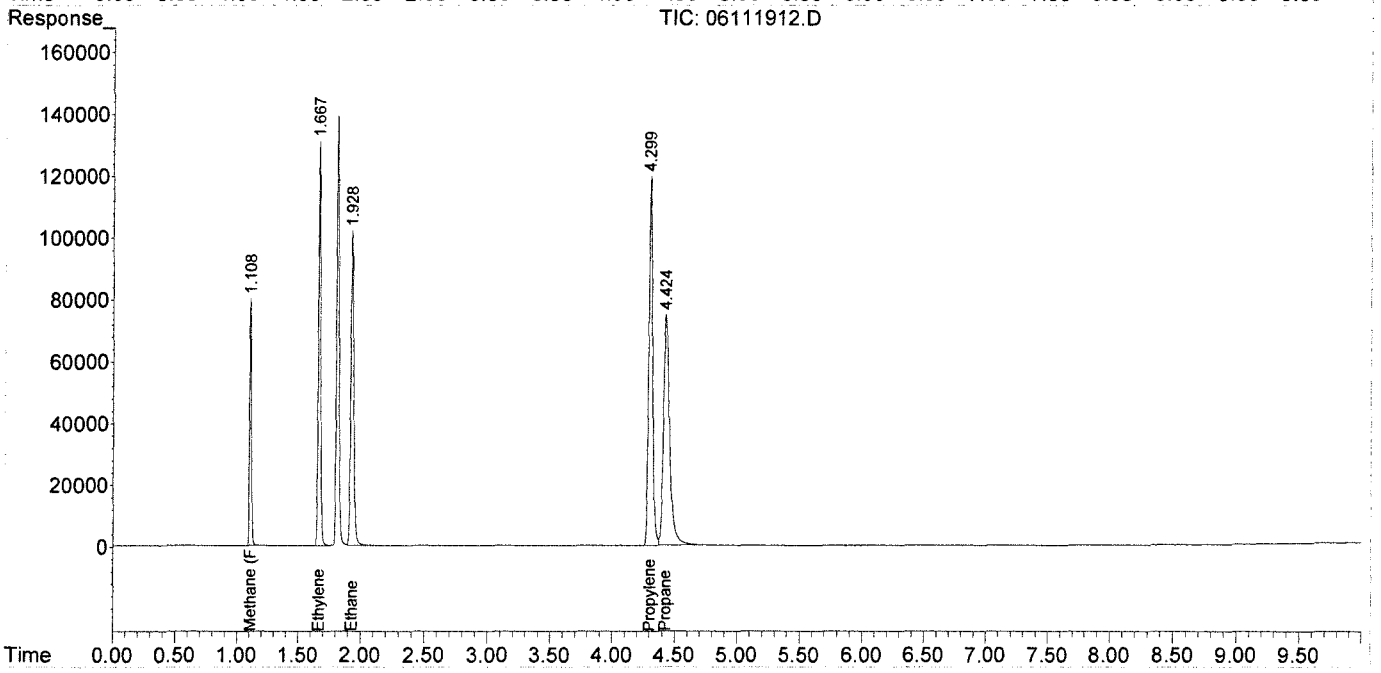
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_06\11\
Data File : 06111912.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 11-Jun-2019, 14:21:07
Operator : WH
Sample : STD s32-05221901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 11 14:46:26 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Injection Log

Directory: I:\GC10\DATA\RSK_FID\2017_09\12\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Acquisition Method	Comments
1	12-Sep-17, 08:38:08	09121701.D	test		MC	RSKBOTH.M	
2	12-Sep-17, 10:52:40	09121702.D	0.151ppm 0.250ml s32-09121702		MC	RSKBOTH.M	Curve
3	12-Sep-17, 11:05:49	09121703.D	0.302ppm 0.5ml s32-09121702		MC	RSKBOTH.M	Curve
4	12-Sep-17, 11:45:34	09121704.D	1.51ppm 0.1ml s32-09051701		MC	RSKBOTH.M	Curve
5	12-Sep-17, 12:09:33	09121705.D	4.53ppm 0.3ml s32-09051701		MC	RSKBOTH.M	Curve
6	12-Sep-17, 12:30:23	09121706.D	10.57ppm 0.7ml s32-09051701		MC	RSKBOTH.M	Curve
7	12-Sep-17, 12:47:18	09121707.D	200ppm 0.1ml s32-09121701		MC	RSKBOTH.M	Curve
8	12-Sep-17, 13:00:22	09121708.D	600ppm 0.3ml s32-09121701		MC	RSKBOTH.M	Curve
9	12-Sep-17, 13:47:48	09121709.D	1000ppm 0.5ml s32-09121701		MC	RSKBOTH.M	Curve
10	12-Sep-17, 14:07:58	09121710.D	2000ppm 1ml s32-09121701		MC	RSKBOTH.M	Curve
11	12-Sep-17, 14:48:48	09121711.D	4000ppm 0.1ml s32-08231701		MC	RSKBOTH.M	Curve
12	12-Sep-17, 15:21:51	09121712.D	20000ppm 0.5ml s32-08231701		MC	RSKBOTH.M	Curve
13	12-Sep-17, 15:38:59	09121713.D	mb 0.5ml		MC	RSKBOTH.M	Pass
14	12-Sep-17, 15:55:35	09121714.D	mb 0.1ml		MC	RSKBOTH.M	Pass
15	12-Sep-17, 16:15:26	09121715.D	icv s30-05241604		MC	RSKBOTH.M	Pass

Injection Log

Directory: I:\GC10\DATA\RSK_FID\2019_06\11\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Acquisition Method	Comments
1	11-Jun-19, 10:13:41	06111901.D	std s32-05221901		WH	RSKBOTH.M	pass
2	11-Jun-19, 10:38:02	06111902.D	RB 0.1ML		WH	RSKBOTH.M	pass
3	11-Jun-19, 11:04:29	06111903.D	MCS 0.1ML		WH	RSKBOTH.M	pass
4	11-Jun-19, 11:25:19	06111904.D	P1903244-001 0.1ml		WH	RSKBOTH.M	
5	11-Jun-19, 11:46:28	06111905.D	P1903244-002 0.1ml		WH	RSKBOTH.M	
6	11-Jun-19, 12:04:41	06111906.D	P1903244-003 0.1ml		WH	RSKBOTH.M	
7	11-Jun-19, 12:21:51	06111907.D	P1903244-004 0.1ml		WH	RSKBOTH.M	
8	11-Jun-19, 12:48:27	06111908.D	P1903244-005 0.1ml		WH	RSKBOTH.M	
9	11-Jun-19, 13:06:16	06111909.D	P1903244-006 0.1ml		WH	RSKBOTH.M	
10	11-Jun-19, 13:33:06	06111910.D	lcs fid 0.1ml		WH	RSKBOTH.M	pass
11	11-Jun-19, 13:54:43	06111911.D	lcsd fid 0.1ml		WH	RSKBOTH.M	pass
12	11-Jun-19, 14:21:07	06111912.D	STD s32-05221901		WH	RSKBOTH.M	pass
13	11-Jun-19, 14:48:57	06111913.D	P1903217-001 0.1ml		WH	RSKBOTH.M	
14	11-Jun-19, 15:13:17	06111914.D	P1903217-002 0.1ml		WH	RSKBOTH.M	
15	11-Jun-19, 15:38:23	06111915.D	P1903217-003 0.1ml		WH	RSKBOTH.M	
16	11-Jun-19, 15:51:45	06111916.D	P1903217-004 0.1ml		WH	RSKBOTH.M	
17	11-Jun-19, 16:14:33	06111917.D	P1903217-005 0.1ml		WH	RSKBOTH.M	
18	11-Jun-19, 16:36:27	06111918.D	P1903217-006 0.1ml		WH	RSKBOTH.M	
19	11-Jun-19, 17:01:32	06111919.D	STD s32-05221901		WH	RSKBOTH.M	pass

REPORT TO:
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Project Manager: Kim Nemmers
Project Name: LHAAP-58
Project No.: NW01312.0150

Purchase Order No.
Subcontract No.
MI Quote No.

Please Check One:
☐ More samples to follow
☒ No Additional Samples

Report Type: ☐ Standard (default) ☐ Microbial Insights Level III raw data(15% surcharge) ☐ Microbial Insights Level IV (25% surcharge) ☐ Comprehensive Interpretive(15%) ☐ Historical Interpretive (30%)
EDD type: ☐ Microbial Insights Standard (default) ☐ All other available EDDs (5% surcharge) Specify EDD Type:

Please contact us with any questions about the analyses or filling out the COC at (865) 573-8188 (9:00 am to 5:00 pm EST, M-F). After hours email: customerservice@microbe.com

Sample Information					Analyses					CENSUS: Please select the target organism/gene																							
MI ID (Laboratory Use Only)	Sample Name	Date Sampled	Time Sampled	Matrix	PLFA	DGGE+3ID	DGGE+5ID	QuantArray Chlor	QuantArray Petro	DHC (Dehalococcoides)	DHC Functional genes (bvc, tce, vcr)	DHBt (Dehalobacter)	DSM (Desulfuromonas)	DSB (Desulfitobacterium)	EBAC (Total)	SRB (Sulfate Reducing Bacteria-APS)	MGN (Methanogens)	MOB (Methanotrophs)	SMMO	DNF (Dentrifiers-nirS and nirK)	AOB (ammonia oxidizing bacteria)	PM1 (MTBE aerobic)	RMO (Toluene Monooxygenase)	RDEG (Toluene Monooxygenase)	PHE (Phenol Hydroxylase)	NAH (Napthalene-aerobic)	BSSA (Toluene/Xylene-Anaerobic)	add. qPCR:	add. qPCR:	RNA (Expression Option)*	Other:	Other:	Other:
009QF1	03WW01_060419	6/4/19	0745	WG						X		X																					
2	35AWW08_060419	6/4/19	0820	WG						X		X																					
3	35AWW20_060419	6/4/19	0925	WG						X		X																					
4	35AWW10_060419	6/4/19	1030	WG						X		X																					
5	35AWW06_060419	6/4/19	1135	WG						X		X																					

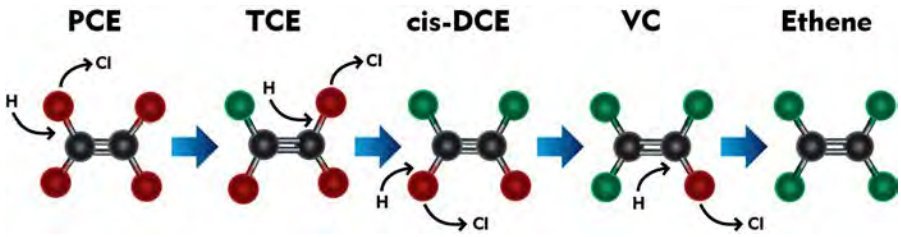
Relinquished by: Scott Beesing 6/4/19 1400
Received by: Savona Carbon Date 6-5-19

It is vital that chain of custody is filled out correctly & that all relative information is provided.
Failure to provide sufficient and/or correct information regarding reporting, invoicing & analyses requested information may result in delays for which MI will not be liable.

DHC Interpretation

Dehalococcoides 16S rRNA gene (qDHC)

Under anaerobic conditions, tetrachloroethene (PCE) and trichloroethene (TCE) can undergo sequential reductive dechlorination through the daughter products *cis*-dichloroethene (*cis*-DCE) and vinyl chloride to nontoxic ethene (1,2).



While a number of bacterial cultures capable of utilizing PCE and TCE as growth supporting electron acceptors have been isolated (3-7), *Dehalococcoides* spp. may be the most important because they are the only bacterial group that has been isolated to date which is capable of complete reductive dechlorination of PCE to ethene (8). In fact, the presence of *Dehalococcoides* spp. has been associated with complete dechlorination to ethene at sites across North America and Europe (9).

Status	*Dehalococcoides spp.*	Observation
	**≥ 10^4** (cells/mL)	Lu et al. proposed that a concentration of 1 x 10^4 DHC cells/mL could be used as a screening criterion to identify sites where reductive dechlorination will yield a generally useful biodegradation rate (10). Similarly, in an internal study conducted with nearly 1000 groundwater samples obtained from sites across the US, ethene production was observed in approximately 80% of samples in which CENSUS® qDHC results were greater than or equal to 10^4 DHC cells/mL.
	**10^1 to < 10^4** (cells/mL)	When vinyl chloride reductase genes (See DHC functional genes discussion below) are also detected, complete reductive dechlorination of PCE and TCE to ethene may still occur even with moderate DHC concentrations. When the DHC population is below the 10^4 cells/mL criterion proposed by Lu et al. (10), project managers should carefully consider other site-specific data to determine whether subsurface conditions may be limiting reductive dechlorination. For example, the addition of an electron donor may be able to stimulate DHC growth and enhance anaerobic bioremediation.
	**< 10^1** (cells/mL)	DHC concentrations are low suggesting that complete reductive dechlorination of PCE and TCE to ethene is unlikely to occur under existing conditions. Enhanced anaerobic bioremediation options (biostimulation or bioaugmentation) may need to be considered.

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DHC Interpretation

DHC Functional Genes (*tce*A, *bvc*A, *vcr*A)

A "stall" where daughter products *cis*-DCE and vinyl chloride accumulate can occur at PCE- and TCE-impacted sites especially under MNA conditions. The accumulation of vinyl chloride, generally considered more carcinogenic than the parent compounds, is particularly problematic. Although elevated *Dehalococcoides* concentrations correspond to ethene production in numerous studies, the range of chlorinated ethenes metabolized and cometabolized varies among species and strains within the *Dehalococcoides* genus. For example, *Dehalococcoides ethenogenes* str. 195 metabolizes PCE, TCE, and *cis*-DCE and cometabolizes vinyl chloride (8) to produce ethene. Conversely, *Dehalococcoides* sp. CBDB1 utilizes PCE and TCE but does not cometabolize additional chloroethenes (11). Other *Dehalococcoides* strains, such as BAV1, GT and VS, are known to fully dechlorinate cis-DCE and VC to ethene (14,16,19). Quantification of reductive dehalogenase genes is used to more definitively confirm the potential for reductive dechlorination of TCE, cis-DCE, and vinyl chloride (12-15).

Functional Gene	Observation
TCE Reductase	
***tce*A gene**	The *tce*A gene encodes the enzyme responsible for reductive dechlorination of TCE to *cis*-DCE in some strains of *Dehalococcoides*. Absence of *tce*A does not preclude the potential for reductive dechlorination of TCE in the field since the *tce*A gene is not universally distributed among all DHC and is not present in other microorganisms capable of reductive dechlorination of TCE (e.g. *Dehalobacter*). Detection of the *tce*A gene provides an additional line of evidence indicating the potential for dechlorination of TCE.
Vinyl Chloride Reductase	
***bvc*A gene**	The *bvc*A gene encodes the vinyl chloride reductase enzyme responsible for reductive dechlorination of vinyl chloride to ethene by *Dehalococcoides* sp. str. BAV1 (16). Presence of *bvc*A gene indicates the potential for reductive dechlorination of VC to ethene. Absence of both *bvc*A and *vcr*A genes suggests VC may accumulate. An internal study with ~1,000 samples showed ethene production was observed in 80% of the samples that the DHC population was greater than or equal to 10^4 cells/mL. The *bvc*A gene was detected in over 50% of these samples. Van Der Zaan et al (17) noted that the bvcA gene was the only VC reductase gene detected at three of their sites. Alfred Spormann's laboratory at Stanford University (18) reported that the *bvc*A gene was the most abundant and active at the outflow of a PCE fed column study. This section of the column was in the DCE to VC stages of reductive dechlorination thus confirming the importance of the *bvc*A gene for complete reductive dechlorination.
***vcr*A gene**	The *vcr*A gene encodes the vinyl chloride reductase enzyme responsible for reductive dechlorination of *cis*-DCE and vinyl chloride by *Dehalococcoides* sp. strain VS (14). Presence of *vcr*A gene indicates the potential for reductive dechlorination of DCE and/or VC to ethene. Absence of both *bvc*A and *vcr*A genes suggest VC may accumulate. As with the *bvc*A gene, detection of the *vcr*A gene is associated with ethene production in internal studies (67%) and vinyl chloride reduction in independent studies (14, 17).

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DHC Interpretation

Reporting

Microbial Insights can provide a variety of data packages and reporting levels to suit the needs of any project. Data packages range from simple analytical reports with results only to more complex data packages that include a report narrative, analytical results, QC data, and supporting materials including all raw data and chain-of-custody documentation. The figure below shows our standard report and explains the way values are reported.

Microbial Insights, Inc.

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CENSUS

Client: Company Name
Project: Your Project Name

MI Project Number: Unique Laboratory Identifier
Date Received: Date Samples Arrived

Sample Information

Client Sample ID:		Sample A	Sample B	Sample C
Sample Date:		00/00/0000	00/00/0000	00/00/0000
Units:		cells/mL	cells/mL	cells/mL
Analyst:		Intials	Intials	Intials
Dechlorinating Bacteria				
Dehalococcoides spp.	DHC	**1.84E+05**	**2.76E+02**	**2.28E+01 (J)**
Functional Genes				
tceA Reductase	TCE	**6.00E+01**	**3.23E+01**	<4.00E-01
bvcA Reductase	BVC	**1.17E+04**	**1.81E+01**	<4.00E-01
vcrA Reducatase	VCR	**8.42E+04**	**1.74E+02**	<4.00E-01

Legend:
NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited
< = Result not detected

"J" value
Result is an estimated value. This data qualifier (flag) is used when the target gene is detected but at a concentration or abundance below the practical quantification limit (PQL).

< value
The target gene was not detected at the limit of quantitation (LOQ) reported for that sample.

"I" value
QA Procedure indicated that the sample may have exhibited PCR inhibition. Although relatively rare, PCR inhibition can occur due to the presence of metals or humic acids at high concentrations in the sample.

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DHC Interpretation

Quality Assurance

Microbial Insights' comprehensive Quality Assurance (QA) Program is the foundation of all laboratory analyses, ensuring that our clients receive high-quality analytical services that are timely, reliable, and meet their intended purpose in a cost effective manner. MI is committed to providing quality data that surpasses regulatory and industry standards, thus enabling the client to make well-informed decisions. MI maintains strict standard operating procedures and QA/QC measures throughout all of the analyses offered. The following Table details specific QA/QC procedures that are used for CENSUS.

QA/QC	Description
Date of Extraction	DNA and RNA extractions are performed the day the samples are received by MI to minimize the possibility of any changes to the microbial community prior to analysis.
Laboratory Method Blanks	An extraction blank (no sample added) is processed alongside each set of field samples from DNA extraction through CENSUS® analysis to ensure that cross contamination has not occurred. Although MI has never experienced this issue, the detection of the CENSUS® target (e.g. *Dehalococcoides*) in an extraction blank is direct evidence of cross contamination with a sample or contamination of a reagent and would invalidate the results. If this were to occur, MI would re-extract the sample. If not possible to re-extract, MI would contact the client immediately and notate it on the laboratory report.
Laboratory Control Samples (LCS)	A laboratory control sample (LCS) or positive control (target DNA) is included with each CENSUS® plate to confirm amplification and as a continuing calibration check.
Negative Controls	A negative control (no DNA) is included with each CENSUS plate to ensure that cross contamination has not occurred during amplification. As with the extraction blank, detection of CENSUS target (e.g. DHC) in a negative control is direct evidence of contamination and would invalidate the results. If this were to occur, MI would rerun the analysis.

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How to Retrieve and Use Estimated Percentile Ranks from the Microbial Insights Database

The MI Database

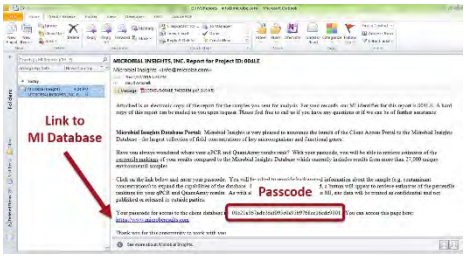
The Microbial Insights Database is the largest collection of field concentrations of key microorganisms and functional genes currently containing qPCR and QuantArray results for more than 40,000 unique groundwater, soil, and sediment samples from all 50 states and 33 countries worldwide.

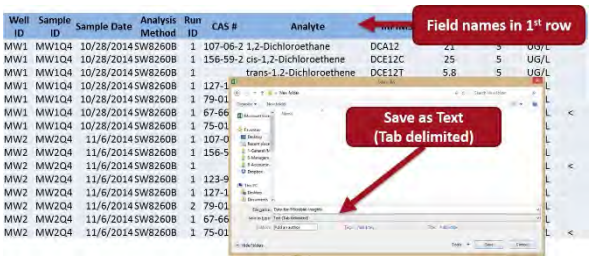
Is that low, medium or high?

In practice, biodegradation depends not just on the presence but the actual concentrations of the contaminant degrading microorganisms. The estimated percentile ranks retrieved from the MI Database answer the question "Is that low, medium or high?" by comparing your results to those of the literally thousands of other environmental samples submitted to MI for analysis over the last 20+ years.

Retrieving Estimated Percentile Ranks

With your report, you were emailed a passcode and link enabling you to login to the Client Portal. Just enter basic information about the sample (e.g. contaminant concentrations) to aid in understanding the links between environmental conditions and microbial populations and you can retrieve estimates of the percentile ranks of your results based on those compiled in the MI database at no additional charge.





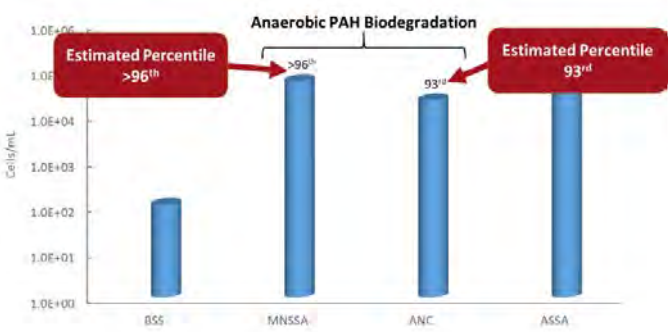
All site specific data will be treated as confidential and uploading is easy.

You can even upload chemical and geochemical data from EDDs. Just save as a Tab Delimited text file.

Example - Using Estimated Percentile for MNA Assessment at an MGP Site

CENSUS® qPCR was performed to quantify anaerobic naphthalene carboxylase (ANC) and naphthyl-2-methylsuccinate synthase (MNSSA) to assess anaerobic biodegradation of naphthalene and methyl-naphthalene under existing site conditions.

- Not only were ANC and MNSSA genes detected, but these functional genes responsible for anaerobic biodegradation of PAHs were present at concentrations "far better than average" based on the estimated percentile ranks.
- Demonstrating high concentrations of ANC and MNSSA gave an additional line of evidence indicating growth substantial populations of anaerobic PAH degraders and suggested a greater probability that monitored natural attenuation (MNA) will be successful.



How to Use Estimated Percentile Ranks from the Microbial Insights Database

The MI Database and Client Portal

The Microbial Insights Database is the largest collection of field concentrations of key microorganisms and functional genes currently containing qPCR and QuantArray results for more than 32,000 unique groundwater, soil, and sediment samples from all 50 states and 33 countries worldwide. Driven by field samples, the database reflects the impacts of common contaminants, geochemical conditions, and site management practices on critical microbial populations.

With your report, you received a passcode enabling you to retrieve estimates of the percentile ranks of your results based on those compiled in the MI database at no additional charge. When accessing the database, you will be asked to provide background information about the sample (e.g. contaminant concentrations) to aid in understanding the links between environmental conditions and microbial populations. As with all client information provided to MI, site specific data will be treated as confidential.

Is that low, medium or high?

In practice, biodegradation depends not just on the presence but the actual concentrations of the contaminant degrading microorganisms. Simply put, qPCR and QuantArray results demonstrating high concentrations of target microorganisms or functional genes suggest in situ selection, enrichment and growth of those specific contaminant degraders and therefore a greater probability that monitored natural attenuation (MNA) or bioremediation will be successful.

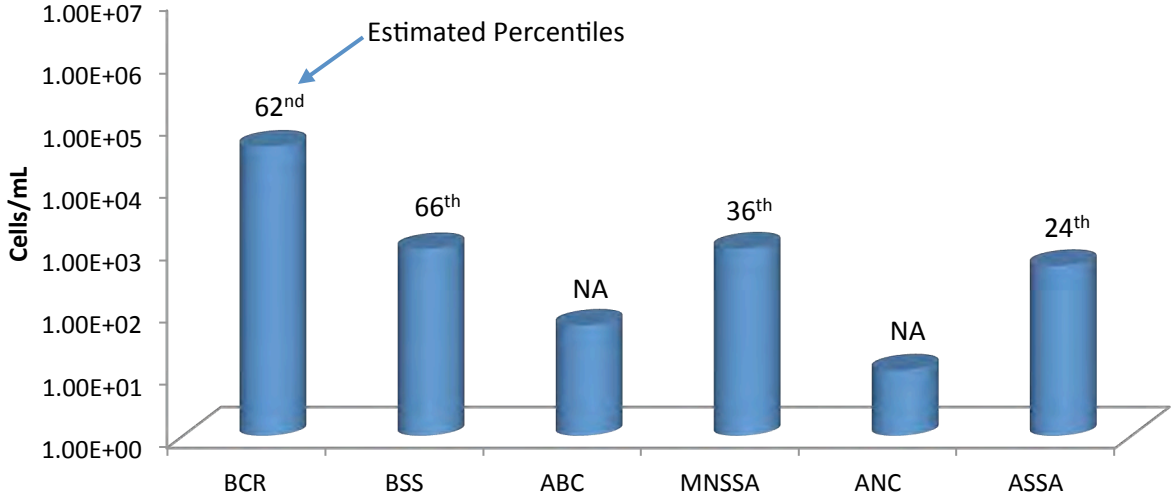
Is that a low, medium, or high concentration? The estimated percentile ranks retrieved from the MI Database answer that question by comparing your qPCR and QuantArray results to those of the literally thousands of other environmental samples submitted to MI for analysis over the last 20+ years.

Using the Estimated Percentile - Interpretation Examples

MNA Assessment – Petroleum Hydrocarbon Site:

Whenever possible, interpretation of qPCR and QuantArray results should include comparisons between samples obtained from background and impacted wells. The estimated percentile ranks however provide an additional avenue for comparison and evaluation of treatment options as shown below.

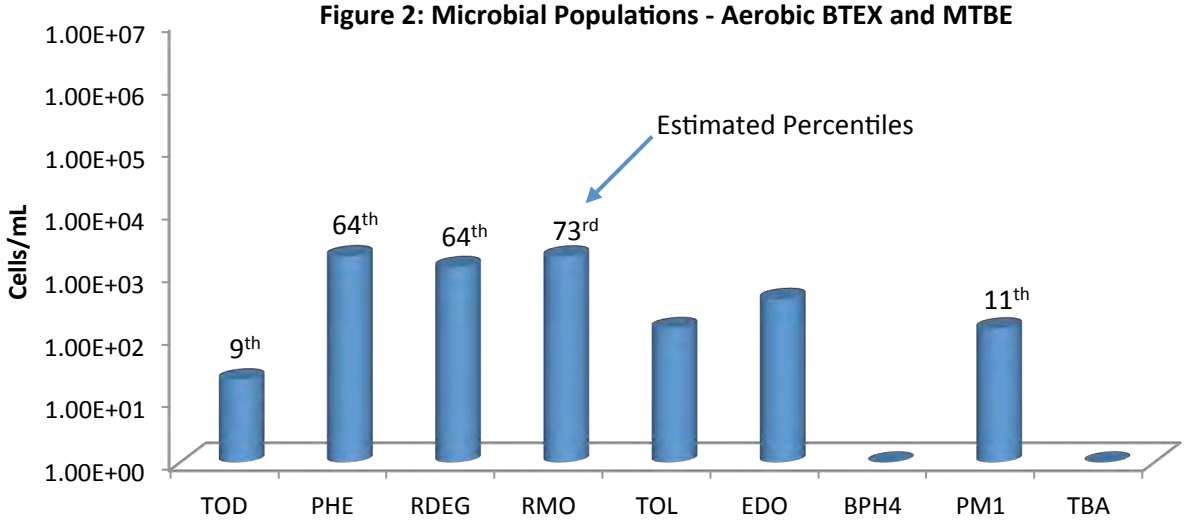
Figure 1: Microbial Populations - Anaerobic BTEX and PAHs



Anaerobic BTEX and PAH Biodegradation (Figure 1):

- With moderate concentrations of functional genes involved in anaerobic BTEX metabolism detected, the QuantArray-Petro® results were encouraging in terms of evaluating biodegradation potential under existing site conditions.
- More specifically, benzylsuccinate synthase (BSS) was detected on the order of nearly 10^3 cells/mL indicating the presence of a substantial population (66th percentile) capable of anaerobic biodegradation of toluene and other alkyl substituted benzenes.
- Naphthyl-2-methylsuccinate synthase (MNSSA) and alkylsuccinate synthase (ASSA) genes were also detected indicating the potential for anaerobic biodegradation of 2-methylnaphthalene and normal alkanes.
- The concentration of MNSSA genes would be considered modest with an estimated percentile of 36th.
- While the percentile rank for MNSSA would be "below average", a number of additional factors should be considered.
    - First, anaerobic hydrocarbon degraders are less prevalent than aerobic BTEX degraders and overall detection frequencies for many genes involved in anaerobic hydrocarbon biodegradation are less than 50%.
    - Therefore, the detection of genes like BSS, MNSSA, ASSA, anaerobic benzene carboxylase (ABC), and anaerobic naphthalene carboxylase (ANC) even at low concentrations is certainly noteworthy and inherently "better than average".
    - The estimated percentiles for all assays are based only on samples where the concentration of the target gene was greater than the practical quantitation limit (PQL).
    - For less commonly detected targets like many of the genes involved in anaerobic hydrocarbon biodegradation this is an especially important consideration.
    - Excluding samples where a gene target is below the PQL ensured that the median concentrations of less commonly detected targets would not be unduly biased low by the fact that the gene is not detected in most samples.
- Anaerobic benzene carboxylase (ABC) and naphthalene carboxylase (ANC) genes were also detected indicating the presence of bacterial populations capable of anaerobic biodegradation of benzene and naphthalene.
- For newly identified genes like ABC and ANC, estimated percentile ranks are not yet available due to the limited number of field samples that have been analyzed to date.
- However, like MNSSA and other genes involved in anaerobic hydrocarbon biodegradation, ABC and ANC detection frequencies are relatively low so the detection of these genes even at low concentrations should be considered when evaluating biodegradation potential under existing site conditions.

Figure 2: Microbial Populations - Aerobic BTEX and MTBE



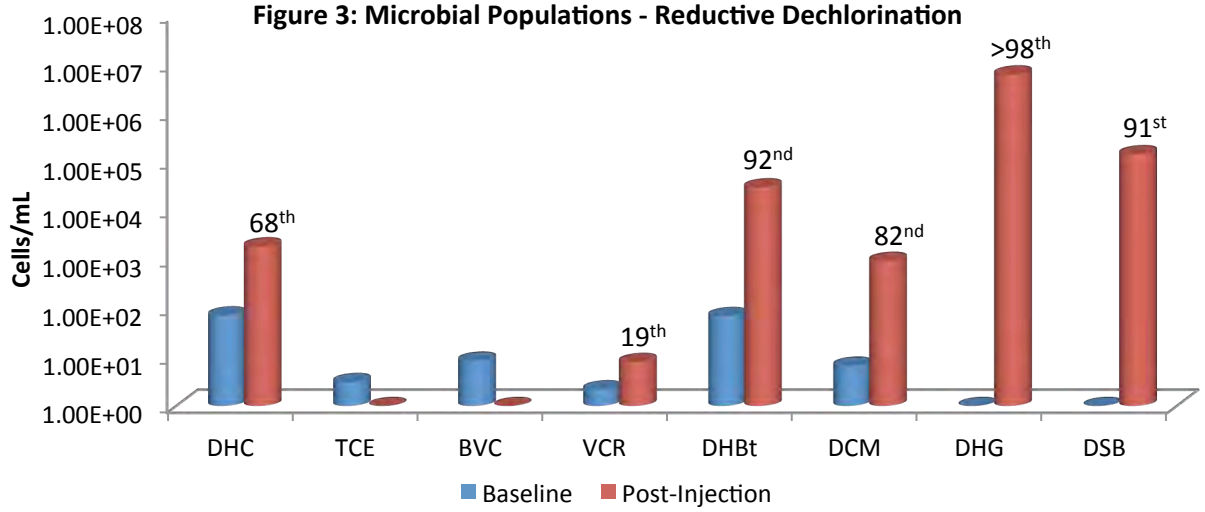
Aerobic BTEX and MTBE Biodegradation (Figure 2):

- With growing evidence that aromatic oxygenases function at low dissolved oxygen concentrations, aerobic BTEX biodegradation pathways should also be evaluated when considering MNA.
- Again, the QuantArray-Petro results were encouraging – genes encoding the first step in multiple pathways for aerobic BTEX biodegradation were detected indicating the presence of a diverse population of aerobic BTEX degraders.
- However, aerobic BTEX degraders are often considered ubiquitous. Therefore answering the question "Is that low, medium or high?" becomes especially important when evaluating aerobic BTEX biodegradation at petroleum hydrocarbon sites.
- In this case, the estimated percentile ranks of the concentrations of toluene/benzene monooxygenase (RMO and RDEG) and phenol hydroxylase (PHE) genes ranged from the 64th to 73rd percentile.
- In other words, the concentrations of RMO, RDEG, and PHE detected in this groundwater sample were greater than the concentrations detected in 64% to 73% of all other groundwater samples where these genes were analyzed and detected above the PQL.
- Aerobic BTEX degraders are common in the environment, but in this sample concentrations of toluene/benzene monooxygenase genes could be viewed as "better than average" when compared to the MI Database.

Biostimulation – Chlorinated Solvent Site:

Whenever possible, interpretation of qPCR and QuantArray results should include comparisons between baseline and post-injection monitoring events as shown below (Figure 3). The estimated percentile ranks however provide an additional avenue for comparison and evaluation of remedy performance.

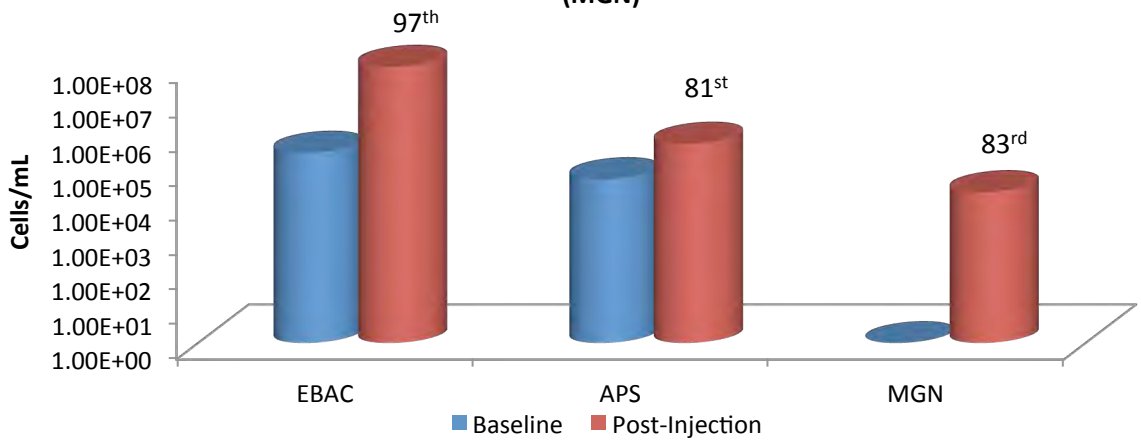
Figure 3: Microbial Populations - Reductive Dechlorination



- During the baseline groundwater sampling event, *Dehalococcoides* and vinyl chloride reductase genes were detected indicating the potential for complete reductive dechlorination of PCE and TCE to ethene.
- However, the *Dehalococcoides* concentration was well below the 10^4 cells/mL recommended by Lu et al. (2006) for generally effective rates of reductive dechlorination.
- Based on qPCR results as well as traditional groundwater monitoring, biostimulation with electron donor addition was selected as the site management plan.
- By the first monitoring event after injection, populations of halorespiring bacteria had increased substantially in response to electron donor addition.
    - *Dehalobacter* populations increased by more than two orders of magnitude to post-injection concentrations greater than 10^4 cells/mL (92nd percentile).
    - *Dehalogenimonas* (10^6 cells/mL) and *Desulfitobacterium* (10^5 cells/mL) which had not been detected prior electron donor addition were present at concentrations greater than observed in over 90% of other groundwater samples where these halorespiring bacteria were detected.
- After injection, *Dehalococcoides* populations increased by more than an order of magnitude to a concentration of over 10^3 cells/mL (68th percentile) demonstrating growth of this key group of halorespiring bacteria.
- Despite a substantial increase and a "better than average" concentration, the *Dehalococcoides* population was still below the 10^4 cells/mL threshold and vinyl chloride reductase gene copies were low (19th percentile).
    - In terms of electron donors and acceptors, the metabolic capabilities of *Dehalococcoides* are rather specialized (hydrogen utilizing obligate halorespiring bacteria) so the median concentration is low. With a low median concentration across the database, a "better than average" *Dehalococcoides* concentration in a given sample may not exceed the 10^4 cells/mL threshold established for effective reductive dechlorination (Lu et al. 2006) and ethene production (Microbial Insights, unpublished data).

- In this case, the initial growth of *Dehalococcoides* was substantial but may have been somewhat hindered by competition with sulfate reducing bacteria (Figure 4 below).
    - The baseline population of sulfate reducing bacteria was moderate (10^4 cells/mL; 63rd percentile). Consistent with an observed decreased in dissolved sulfate concentrations, populations of sulfate reducing bacteria increased and were detected at a relatively high concentration (81st percentile) after electron donor addition.
    - After injection, methanogen populations also increased to a relatively high concentration (83rd percentile) suggesting generation of methanogenic conditions.
- With sulfate depletion and generation of highly anaerobic conditions more conducive to reductive dechlorination, *Dehalococcoides* populations may continue to increase and exceed the 10^4 *Dehalococcoides* cells/mL threshold in subsequent monitoring events.
- Overall, QuantArray analysis conclusively demonstrated that electron donor addition stimulated growth of halorespiring bacteria with the estimated percentiles retrieved from the MI Database providing the "low, medium or high" perspective to the observed changes in microbial populations.

Figure 4: Total Bacteria (EBAC), Sulfate Reducering Bacteria (APS) and Methanogens (MGN)



References

Lu, X., J.T. Wilson, and D.H. Kampbell. 2006. Relationship between *Dehalococcoides* DNA in ground water and rates of reductive dechlorination at field scale. *Water Research* 40 no. 16: 3131-3140.

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Client: RJ Modashia
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10450 Stancliff Rd
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Phone: 281-575-2279

Fax:

Identifier: 009QF **Date Rec:** 06/05/2019 **Report Date:** 06/12/2019

Client Project #: NW01312.0150 **Client Project Name:** LHAAP-58

Purchase Order #:

Analysis Requested: CENSUS

Reviewed By:



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MICROBIAL INSIGHTS, INC.

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CENSUS

Client: **ALS Laboratory Group**
Project: LHAAP-58

MI Project Number: **009QF**
Date Received: 06/05/2019

Sample Information

Client Sample ID:		**03MW01_060419**	**35AWW08_060419**	**35AWW20_060419**	**35AWW10_060419**	**35AWW06_060419**
Sample Date:		06/04/2019	06/04/2019	06/04/2019	06/04/2019	06/04/2019
Units:		cells/mL	cells/mL	cells/mL	cells/mL	cells/mL
Analyst/Reviewer:		HT	HT	HT	HT	HT
Dechlorinating Bacteria						
Dehalococcoides	*DHC*	**6.04E+03**	**3.79E+06**	**1.55E+04**	**9.66E+01**	**2.68E+01**
tceA Reductase	TCE	**2.10E+00**	**4.80E+05**	<2.20E+00	**6.50E+00**	<1.60E+00
BAV1 Vinyl Chloride Reductase	BVC	<5.00E-01	<3.00E+00	**2.37E+03**	<5.00E-01	**8.00E-01 (J)**
Vinyl Chloride Reductase	VCR	**2.02E+03**	**2.65E+05**	<2.20E+00	**6.40E+00**	**9.00E-01 (J)**
Dehalobacter spp.	*DHBt*	**2.92E+02**	**1.39E+05**	<2.17E+01	**2.61E+02**	**1.59E+02**

Legend:
NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited
< = Result not detected

Quality Assurance/Quality Control Data

Samples Received **6/5/2019**

Component	Date Prepared	Date Analyzed	Arrival Temperature	Positive Control	Extraction Blank	Negative Control
BVC	06/05/2019	06/12/2019	1 °C	105%	non-detect	non-detect
TCE	06/05/2019	06/12/2019	1 °C	104%	non-detect	non-detect
VCR	06/05/2019	06/12/2019	1 °C	101%	non-detect	non-detect
DHBt	06/05/2019	06/12/2019	1 °C	110%	non-detect	non-detect
DHC	06/05/2019	06/12/2019	1 °C	100%	non-detect	non-detect

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June 21, 2019

Marcia Olive
Bhate Environmental Associates, Inc.
445 Union Blvd Ste 129
Lakewood, CO 80228

Work Order: **HS19060461**

Laboratory Results for: **LHAAP-58**

Dear Marcia,

ALS Environmental received 6 sample(s) on Jun 08, 2019 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: DAYNA.FISHER
RJ Modashia
Project Manager

ALS Houston, US Date: 21-jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Work Order: HS19060461

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS19060461-01	35AWW15_060719	Groundwater		07-Jun-2019 08:15	08-Jun-2019 08:45	☐
HS19060461-02	LHSMW06_060719	Groundwater		07-Jun-2019 09:00	08-Jun-2019 08:45	☐
HS19060461-03	35AWW13_060719	Groundwater		07-Jun-2019 09:50	08-Jun-2019 08:45	☐
HS19060461-04	35AWW14_060719	Groundwater		07-Jun-2019 10:10	08-Jun-2019 08:45	☐
HS19060461-05	35ASW03_060719	Groundwater		07-Jun-2019 10:25	08-Jun-2019 08:45	☐
HS19060461-06	Trip Blank	Water		07-Jun-2019 00:00	08-Jun-2019 08:45	☐

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Work Order: HS19060461

CASE NARRATIVE

GCMS Volatiles by Method SW8260

Batch ID: R340945

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Metals by Method SW6020

Batch ID: 142012

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW15_060719
Collection Date: 07-Jun-2019 08:15

ANALYTICAL REPORT
WorkOrder:HS19060461
Lab ID:HS19060461-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:02
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 19:02
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	19-Jun-2019 19:02
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:02
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 19:02
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 19:02
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:02
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	19-Jun-2019 19:02
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	19-Jun-2019 19:02
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	19-Jun-2019 19:02
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:02
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 19:02
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 19:02
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	19-Jun-2019 19:02
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 19:02
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	19-Jun-2019 19:02
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:02
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	19-Jun-2019 19:02
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:02
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	19-Jun-2019 19:02
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 19:02
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	19-Jun-2019 19:02
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:02
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	19-Jun-2019 19:02
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	19-Jun-2019 19:02
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:02
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	19-Jun-2019 19:02
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	19-Jun-2019 19:02
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 19:02
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	19-Jun-2019 19:02
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 19:02
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 19:02
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	19-Jun-2019 19:02
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	19-Jun-2019 19:02
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	19-Jun-2019 19:02
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	19-Jun-2019 19:02
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:02
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:02
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 19:02

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW15_060719
Collection Date: 07-Jun-2019 08:15

ANALYTICAL REPORT
WorkOrder:HS19060461
Lab ID:HS19060461-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 19:02
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 19:02
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	19-Jun-2019 19:02
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:02
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 19:02
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:02
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:02
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	19-Jun-2019 19:02
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:02
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	19-Jun-2019 19:02
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	19-Jun-2019 19:02
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	19-Jun-2019 19:02
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:02
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:02
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:02
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:02
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:02
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:02
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:02
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 19:02
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 19:02
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 19:02
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 19:02
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:02
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 19:02
Surr: 1,2-Dichloroethane-d4	*88.5*			**0**	*81-118*	*%REC*	*1*	*19-Jun-2019 19:02*
Surr: 4-Bromofluorobenzene	*99.0*			**0**	*85-114*	*%REC*	*1*	*19-Jun-2019 19:02*
Surr: Dibromofluoromethane	*89.7*			**0**	*80-119*	*%REC*	*1*	*19-Jun-2019 19:02*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*19-Jun-2019 19:02*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: LHSMW06_060719
Collection Date: 07-Jun-2019 09:00

ANALYTICAL REPORT
WorkOrder:HS19060461
Lab ID:HS19060461-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:27
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 19:27
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	19-Jun-2019 19:27
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:27
1,1-Dichloroethane	**2.2**		**0.20**	**0.50**	**1.0**	**UG/L**	1	19-Jun-2019 19:27
1,1-Dichloroethene	**4.3**		**0.20**	**0.50**	**1.0**	**UG/L**	1	19-Jun-2019 19:27
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:27
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	19-Jun-2019 19:27
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	19-Jun-2019 19:27
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	19-Jun-2019 19:27
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:27
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 19:27
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 19:27
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	19-Jun-2019 19:27
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 19:27
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	19-Jun-2019 19:27
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:27
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	19-Jun-2019 19:27
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:27
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	19-Jun-2019 19:27
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 19:27
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	19-Jun-2019 19:27
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:27
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	19-Jun-2019 19:27
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	19-Jun-2019 19:27
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:27
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	19-Jun-2019 19:27
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	19-Jun-2019 19:27
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 19:27
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	19-Jun-2019 19:27
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 19:27
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 19:27
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	19-Jun-2019 19:27
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	19-Jun-2019 19:27
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	19-Jun-2019 19:27
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	19-Jun-2019 19:27
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:27
Chloroethane	**0.75**	J	**0.30**	**0.50**	**1.0**	**UG/L**	1	19-Jun-2019 19:27
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 19:27

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: LHSMW06_060719
Collection Date: 07-Jun-2019 09:00

ANALYTICAL REPORT
WorkOrder:HS19060461
Lab ID:HS19060461-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 19:27
cis-1,2-Dichloroethene	**29**		**0.20**	**0.50**	**1.0**	**UG/L**	1	19-Jun-2019 19:27
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	19-Jun-2019 19:27
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:27
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 19:27
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:27
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:27
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	19-Jun-2019 19:27
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:27
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	19-Jun-2019 19:27
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	19-Jun-2019 19:27
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	19-Jun-2019 19:27
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:27
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:27
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:27
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:27
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:27
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:27
Tetrachloroethene	**1.4**		**0.30**	**0.50**	**1.0**	**UG/L**	1	19-Jun-2019 19:27
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 19:27
trans-1,2-Dichloroethene	**0.46**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	19-Jun-2019 19:27
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 19:27
Trichloroethene	**7.5**		**0.20**	**0.50**	**1.0**	**UG/L**	1	19-Jun-2019 19:27
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:27
Vinyl chloride	**1.2**		**0.20**	**0.50**	**1.0**	**UG/L**	1	19-Jun-2019 19:27
Surr: 1,2-Dichloroethane-d4	*88.8*			**0**	*81-118*	*%REC*	*1*	*19-Jun-2019 19:27*
Surr: 4-Bromofluorobenzene	*99.9*			**0**	*85-114*	*%REC*	*1*	*19-Jun-2019 19:27*
Surr: Dibromofluoromethane	*90.8*			**0**	*80-119*	*%REC*	*1*	*19-Jun-2019 19:27*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*1*	*19-Jun-2019 19:27*
ICP-MS METALS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 13-Jun-2019		Analyst: JHD
Arsenic	**0.00123**	J	**0.000400**	**0.000500**	**0.00200**	**mg/L**	1	17-Jun-2019 15:43

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW13_060719
Collection Date: 07-Jun-2019 09:50

ANALYTICAL REPORT
WorkOrder:HS19060461
Lab ID:HS19060461-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:51
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 19:51
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	19-Jun-2019 19:51
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:51
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 19:51
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 19:51
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:51
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	19-Jun-2019 19:51
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	19-Jun-2019 19:51
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	19-Jun-2019 19:51
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:51
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 19:51
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 19:51
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	19-Jun-2019 19:51
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 19:51
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	19-Jun-2019 19:51
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:51
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	19-Jun-2019 19:51
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:51
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	19-Jun-2019 19:51
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 19:51
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	19-Jun-2019 19:51
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:51
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	19-Jun-2019 19:51
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	19-Jun-2019 19:51
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:51
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	19-Jun-2019 19:51
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	19-Jun-2019 19:51
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 19:51
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	19-Jun-2019 19:51
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 19:51
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 19:51
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	19-Jun-2019 19:51
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	19-Jun-2019 19:51
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	19-Jun-2019 19:51
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	19-Jun-2019 19:51
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:51
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:51
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 19:51

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW13_060719
Collection Date: 07-Jun-2019 09:50

ANALYTICAL REPORT
WorkOrder:HS19060461
Lab ID:HS19060461-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 19:51
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 19:51
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	19-Jun-2019 19:51
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:51
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 19:51
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:51
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:51
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	19-Jun-2019 19:51
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:51
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	19-Jun-2019 19:51
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	19-Jun-2019 19:51
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	19-Jun-2019 19:51
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:51
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:51
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:51
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:51
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:51
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:51
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:51
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 19:51
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 19:51
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 19:51
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 19:51
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 19:51
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 19:51
Surr: 1,2-Dichloroethane-d4	*88.5*			**0**	*81-118*	*%REC*	*1*	*19-Jun-2019 19:51*
Surr: 4-Bromofluorobenzene	*99.9*			**0**	*85-114*	*%REC*	*1*	*19-Jun-2019 19:51*
Surr: Dibromofluoromethane	*90.3*			**0**	*80-119*	*%REC*	*1*	*19-Jun-2019 19:51*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*1*	*19-Jun-2019 19:51*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW14_060719
Collection Date: 07-Jun-2019 10:10

ANALYTICAL REPORT
WorkOrder:HS19060461
Lab ID:HS19060461-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 21:27
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 21:27
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	19-Jun-2019 21:27
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 21:27
1,1-Dichloroethane	**11**		**0.20**	**0.50**	**1.0**	**UG/L**	1	19-Jun-2019 21:27
1,1-Dichloroethene	**12**		**0.20**	**0.50**	**1.0**	**UG/L**	1	19-Jun-2019 21:27
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 21:27
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	19-Jun-2019 21:27
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	19-Jun-2019 21:27
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	19-Jun-2019 21:27
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 21:27
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 21:27
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 21:27
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	19-Jun-2019 21:27
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 21:27
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	19-Jun-2019 21:27
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 21:27
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	19-Jun-2019 21:27
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 21:27
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	19-Jun-2019 21:27
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 21:27
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	19-Jun-2019 21:27
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 21:27
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	19-Jun-2019 21:27
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	19-Jun-2019 21:27
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 21:27
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	19-Jun-2019 21:27
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	19-Jun-2019 21:27
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 21:27
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	19-Jun-2019 21:27
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 21:27
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 21:27
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	19-Jun-2019 21:27
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	19-Jun-2019 21:27
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	19-Jun-2019 21:27
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	19-Jun-2019 21:27
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 21:27
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 21:27
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 21:27

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW14_060719
Collection Date: 07-Jun-2019 10:10

ANALYTICAL REPORT
WorkOrder:HS19060461
Lab ID:HS19060461-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 21:27
cis-1,2-Dichloroethene	**5.2**		**0.20**	**0.50**	**1.0**	**UG/L**	1	19-Jun-2019 21:27
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	19-Jun-2019 21:27
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 21:27
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 21:27
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 21:27
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 21:27
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	19-Jun-2019 21:27
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 21:27
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	19-Jun-2019 21:27
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	19-Jun-2019 21:27
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	19-Jun-2019 21:27
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 21:27
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 21:27
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 21:27
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 21:27
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 21:27
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 21:27
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 21:27
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 21:27
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 21:27
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 21:27
Trichloroethene	**12**		**0.20**	**0.50**	**1.0**	**UG/L**	1	19-Jun-2019 21:27
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 21:27
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 21:27
Surr: 1,2-Dichloroethane-d4	*88.4*			**0**	*81-118*	*%REC*	*1*	*19-Jun-2019 21:27*
Surr: 4-Bromofluorobenzene	*98.6*			**0**	*85-114*	*%REC*	*1*	*19-Jun-2019 21:27*
Surr: Dibromofluoromethane	*90.1*			**0**	*80-119*	*%REC*	*1*	*19-Jun-2019 21:27*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*1*	*19-Jun-2019 21:27*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35ASW03_060719
Collection Date: 07-Jun-2019 10:25

ANALYTICAL REPORT
WorkOrder:HS19060461
Lab ID:HS19060461-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 21:51
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 21:51
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	19-Jun-2019 21:51
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 21:51
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 21:51
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 21:51
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 21:51
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	19-Jun-2019 21:51
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	19-Jun-2019 21:51
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	19-Jun-2019 21:51
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 21:51
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 21:51
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 21:51
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	19-Jun-2019 21:51
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 21:51
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	19-Jun-2019 21:51
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 21:51
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	19-Jun-2019 21:51
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 21:51
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	19-Jun-2019 21:51
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 21:51
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	19-Jun-2019 21:51
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 21:51
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	19-Jun-2019 21:51
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	19-Jun-2019 21:51
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 21:51
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	19-Jun-2019 21:51
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	19-Jun-2019 21:51
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 21:51
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	19-Jun-2019 21:51
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 21:51
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 21:51
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	19-Jun-2019 21:51
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	19-Jun-2019 21:51
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	19-Jun-2019 21:51
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	19-Jun-2019 21:51
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 21:51
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 21:51
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 21:51

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35ASW03_060719
Collection Date: 07-Jun-2019 10:25

ANALYTICAL REPORT
WorkOrder:HS19060461
Lab ID:HS19060461-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 21:51
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 21:51
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	19-Jun-2019 21:51
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 21:51
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 21:51
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 21:51
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 21:51
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	19-Jun-2019 21:51
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 21:51
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	19-Jun-2019 21:51
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	19-Jun-2019 21:51
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	19-Jun-2019 21:51
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 21:51
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 21:51
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 21:51
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 21:51
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 21:51
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 21:51
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 21:51
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 21:51
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 21:51
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 21:51
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 21:51
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 21:51
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 21:51
Surr: 1,2-Dichloroethane-d4	*86.3*			**0**	*81-118*	*%REC*	*1*	*19-Jun-2019 21:51*
Surr: 4-Bromofluorobenzene	*97.4*			**0**	*85-114*	*%REC*	*1*	*19-Jun-2019 21:51*
Surr: Dibromofluoromethane	*89.4*			**0**	*80-119*	*%REC*	*1*	*19-Jun-2019 21:51*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*1*	*19-Jun-2019 21:51*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: Trip Blank
Collection Date: 07-Jun-2019 00:00

ANALYTICAL REPORT
WorkOrder:HS19060461
Lab ID:HS19060461-06
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 18:38
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 18:38
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	19-Jun-2019 18:38
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 18:38
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 18:38
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 18:38
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 18:38
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	19-Jun-2019 18:38
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	19-Jun-2019 18:38
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	19-Jun-2019 18:38
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 18:38
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 18:38
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 18:38
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	19-Jun-2019 18:38
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 18:38
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	19-Jun-2019 18:38
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 18:38
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	19-Jun-2019 18:38
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 18:38
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	19-Jun-2019 18:38
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 18:38
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	19-Jun-2019 18:38
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 18:38
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	19-Jun-2019 18:38
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	19-Jun-2019 18:38
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 18:38
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	19-Jun-2019 18:38
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	19-Jun-2019 18:38
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 18:38
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	19-Jun-2019 18:38
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 18:38
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 18:38
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	19-Jun-2019 18:38
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	19-Jun-2019 18:38
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	19-Jun-2019 18:38
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	19-Jun-2019 18:38
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 18:38
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 18:38
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 18:38

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: Trip Blank
Collection Date: 07-Jun-2019 00:00

ANALYTICAL REPORT
WorkOrder:HS19060461
Lab ID:HS19060461-06
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 18:38
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 18:38
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	19-Jun-2019 18:38
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 18:38
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 18:38
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 18:38
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 18:38
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	19-Jun-2019 18:38
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 18:38
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	19-Jun-2019 18:38
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	19-Jun-2019 18:38
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	19-Jun-2019 18:38
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 18:38
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 18:38
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 18:38
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 18:38
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 18:38
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 18:38
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 18:38
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 18:38
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 18:38
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 18:38
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 18:38
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	19-Jun-2019 18:38
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	19-Jun-2019 18:38
Surr: 1,2-Dichloroethane-d4	*87.4*			**0**	*81-118*	*%REC*	*1*	*19-Jun-2019 18:38*
Surr: 4-Bromofluorobenzene	*99.4*			**0**	*85-114*	*%REC*	*1*	*19-Jun-2019 18:38*
Surr: Dibromofluoromethane	*90.1*			**0**	*80-119*	*%REC*	*1*	*19-Jun-2019 18:38*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*1*	*19-Jun-2019 18:38*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US

Date: 21-Jun-19

WEIGHT LOG

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060461

Batch ID: 142012 **Method:** ICP-MS METALS BY SW6020A **Prep:** 3010A

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19060461-02	1	10	10 (mL)	1

ALS Houston, US Date: 21-jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060461

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID 142012	**Test Name :** ICP-MS METALS BY SW6020A			**Matrix:** Groundwater		
HS19060461-02	LHSMW06_060719	07 Jun 2019 09:00		13 Jun 2019 09:00	17 Jun 2019 15:43	1
Batch ID R340945	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C			**Matrix:** Water		
HS19060461-06	Trip Blank	07 Jun 2019 00:00			19 Jun 2019 18:38	1
Batch ID R340945	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C			**Matrix:** Groundwater		
HS19060461-01	35AWW15_060719	07 Jun 2019 08:15			19 Jun 2019 19:02	1
HS19060461-02	LHSMW06_060719	07 Jun 2019 09:00			19 Jun 2019 19:27	1
HS19060461-03	35AWW13_060719	07 Jun 2019 09:50			19 Jun 2019 19:51	1
HS19060461-04	35AWW14_060719	07 Jun 2019 10:10			19 Jun 2019 21:27	1
HS19060461-05	35ASW03_060719	07 Jun 2019 10:25			19 Jun 2019 21:51	1

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060461

QC BATCH REPORT

Batch ID: 142012 (0) **Instrument: ICPMS06** **Method: ICP-MS METALS BY SW6020A**

MBLK Sample ID: **MBLKF1-142012** Units: **mg/L** Analysis Date: **17-Jun-2019 15:04**
Client ID: Run ID: **ICPMS04_340640** SeqNo: **5125857** PrepDate: **13-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.000500	0.00200								U

MBLK Sample ID: **MBLK-142012** Units: **mg/L** Analysis Date: **14-Jun-2019 22:50**
Client ID: Run ID: **ICPMS06_340535** SeqNo: **5124912** PrepDate: **13-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.000500	0.00200								U

LCS Sample ID: **LCS-142012** Units: **mg/L** Analysis Date: **14-Jun-2019 22:54**
Client ID: Run ID: **ICPMS06_340535** SeqNo: **5124914** PrepDate: **13-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.0515	0.00200	0.05	0	103	80 - 120				

MS Sample ID: **HS19060404-07MS** Units: **mg/L** Analysis Date: **17-Jun-2019 15:39**
Client ID: Run ID: **ICPMS04_340640** SeqNo: **5125869** PrepDate: **13-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.04729	0.00200	0.05	0.003532	87.5	80 - 120				

MSD Sample ID: **HS19060404-07MSD** Units: **mg/L** Analysis Date: **14-Jun-2019 23:01**
Client ID: Run ID: **ICPMS06_340535** SeqNo: **5124918** PrepDate: **13-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.0548	0.00200	0.05	0.003532	103	80 - 120	0.05748	4.76	20	

PDS Sample ID: **HS19060404-07PDS** Units: **mg/L** Analysis Date: **14-Jun-2019 23:03**
Client ID: Run ID: **ICPMS06_340535** SeqNo: **5124919** PrepDate: **13-Jun-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.09857	0.00200	0.1	0.003532	95.0	75 - 125				

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060461

QC BATCH REPORT

Batch ID: 142012 (0) **Instrument: ICPMS06** **Method: ICP-MS METALS BY SW6020A**

SD Sample ID: **HS19060404-07SD** Units: **mg/L** Analysis Date: **14-Jun-2019 22:57**
Client ID: Run ID: **ICPMS06_340535** SeqNo: **5124916** PrepDate: **13-Jun-2019** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Arsenic	0.004609	0.0100					0.003532	0	10	J

The following samples were analyzed in this batch: HS19060461-02

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060461

QC BATCH REPORT

Batch ID: R340945 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-190619** Units: **UG/L** Analysis Date: **19-Jun-2019 17:50**
Client ID: Run ID: **VOA6_340945** SeqNo: **5132736** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	0.50	1.0								U
1,1,1-Trichloroethane	0.50	1.0								U
1,1,2,2-Tetrachloroethane	0.50	1.0								U
1,1,2-Trichloroethane	0.50	1.0								U
1,1-Dichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,1-Dichloropropene	0.50	1.0								U
1,2,3-Trichlorobenzene	0.50	1.0								U
1,2,3-Trichloropropane	0.50	1.0								U
1,2,4-Trichlorobenzene	0.50	1.0								U
1,2,4-Trimethylbenzene	0.50	1.0								U
1,2-Dibromo-3-chloropropane	0.50	1.0								U
1,2-Dibromoethane	0.50	1.0								U
1,2-Dichlorobenzene	0.50	1.0								U
1,2-Dichloroethane	0.50	1.0								U
1,2-Dichloropropane	0.50	1.0								U
1,3,5-Trimethylbenzene	0.50	1.0								U
1,3-Dichlorobenzene	0.50	1.0								U
1,3-Dichloropropane	0.50	1.0								U
1,4-Dichlorobenzene	0.50	1.0								U
2,2-Dichloropropane	0.50	1.0								U
2-Butanone	1.0	2.0								U
2-Chlorotoluene	0.50	1.0								U
2-Hexanone	1.0	2.0								U
4-Chlorotoluene	0.50	1.0								U
4-Isopropyltoluene	0.50	1.0								U
4-Methyl-2-pentanone	1.0	2.0								U
Acetone	1.0	2.0								U
Benzene	0.50	1.0								U
Bromobenzene	0.50	1.0								U
Bromochloromethane	0.50	1.0								U
Bromodichloromethane	0.50	1.0								U
Bromoform	0.50	1.0								U
Bromomethane	0.50	1.0								U

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060461

QC BATCH REPORT

Batch ID: R340945 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-190619** Units: **UG/L** Analysis Date: **19-Jun-2019 17:50**
Client ID: Run ID: **VOA6_340945** SeqNo: **5132736** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	1.0	2.0								U
Carbon tetrachloride	0.50	1.0								U
Chlorobenzene	0.50	1.0								U
Chloroethane	0.50	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	0.50	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	0.50	1.0								U
Ethylbenzene	0.50	1.0								U
Hexachlorobutadiene	1.0	1.0								U
Isopropylbenzene	0.50	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	1.0	2.0								U
Naphthalene	0.50	1.0								U
n-Butylbenzene	0.50	1.0								U
n-Propylbenzene	0.50	1.0								U
o-Xylene	0.50	1.0								U
sec-Butylbenzene	0.50	1.0								U
Styrene	0.50	1.0								U
tert-Butylbenzene	0.50	1.0								U
Tetrachloroethene	0.50	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	0.50	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*43.14*	*1.0*	*50*	*0*	*86.3*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*49.75*	*1.0*	*50*	*0*	*99.5*	*85 - 114*				
Surr: Dibromofluoromethane	*44.59*	*1.0*	*50*	*0*	*89.2*	*80 - 119*				
Surr: Toluene-d8	*51.52*	*1.0*	*50*	*0*	*103*	*89 - 112*				

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060461

QC BATCH REPORT

Batch ID: R340945 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-190619** Units: **UG/L** Analysis Date: **19-Jun-2019 17:02**
Client ID: Run ID: **VOA6_340945** SeqNo: **5132735** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.73	1.0	20	0	98.7	78 - 124				
1,1,1-Trichloroethane	18.18	1.0	20	0	90.9	74 - 131				
1,1,2,2-Tetrachloroethane	19.49	1.0	20	0	97.4	71 - 121				
1,1,2-Trichloroethane	19.86	1.0	20	0	99.3	80 - 119				
1,1-Dichloroethane	18.12	1.0	20	0	90.6	77 - 125				
1,1-Dichloroethene	17.12	1.0	20	0	85.6	71 - 131				
1,1-Dichloropropene	17.02	1.0	20	0	85.1	78 - 125				
1,2,3-Trichlorobenzene	22.71	1.0	20	0	114	69 - 129				
1,2,3-Trichloropropane	19.53	1.0	20	0	97.6	73 - 122				
1,2,4-Trichlorobenzene	20.12	1.0	20	0	101	69 - 130				
1,2,4-Trimethylbenzene	18.5	1.0	20	0	92.5	76 - 124				
1,2-Dibromo-3-chloropropane	20.42	1.0	20	0	102	62 - 128				
1,2-Dibromoethane	19.78	1.0	20	0	98.9	77 - 121				
1,2-Dichlorobenzene	18.74	1.0	20	0	93.7	80 - 119				
1,2-Dichloroethane	19	1.0	20	0	95.0	73 - 128				
1,2-Dichloropropane	18.82	1.0	20	0	94.1	78 - 122				
1,3,5-Trimethylbenzene	17.59	1.0	20	0	88.0	75 - 124				
1,3-Dichlorobenzene	18.75	1.0	20	0	93.7	80 - 119				
1,3-Dichloropropane	20.63	1.0	20	0	103	80 - 119				
1,4-Dichlorobenzene	18.62	1.0	20	0	93.1	79 - 118				
2,2-Dichloropropane	18.63	1.0	20	0	93.1	60 - 139				
2-Butanone	45.65	2.0	40	0	114	56 - 143				
2-Chlorotoluene	17.62	1.0	20	0	88.1	79 - 122				
2-Hexanone	41.22	2.0	40	0	103	57 - 139				
4-Chlorotoluene	17.8	1.0	20	0	89.0	78 - 122				
4-Isopropyltoluene	16.86	1.0	20	0	84.3	77 - 127				
4-Methyl-2-pentanone	40.67	2.0	40	0	102	67 - 130				
Acetone	43.15	2.0	40	0	108	39 - 160				
Benzene	18.59	1.0	20	0	92.9	79 - 120				
Bromobenzene	18.57	1.0	20	0	92.8	80 - 120				
Bromochloromethane	18.92	1.0	20	0	94.6	78 - 123				
Bromodichloromethane	19.35	1.0	20	0	96.8	79 - 125				
Bromoform	20.65	1.0	20	0	103	66 - 130				
Bromomethane	20.82	1.0	20	0	104	53 - 141				

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060461

QC BATCH REPORT

Batch ID: R340945 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-190619** Units: **UG/L** Analysis Date: **19-Jun-2019 17:02**
Client ID: Run ID: **VOA6_340945** SeqNo: **5132735** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	35.41	2.0	40	0	88.5	64 - 133				
Carbon tetrachloride	16.09	1.0	20	0	80.4	72 - 136				
Chlorobenzene	18.98	1.0	20	0	94.9	82 - 118				
Chloroethane	20.77	1.0	20	0	104	60 - 138				
Chloroform	18.67	1.0	20	0	93.4	79 - 124				
Chloromethane	17.75	1.0	20	0	88.8	50 - 139				
cis-1,2-Dichloroethene	18.7	1.0	20	0	93.5	78 - 123				
cis-1,3-Dichloropropene	20	1.0	20	0	100	75 - 124				
Dibromochloromethane	19.2	1.0	20	0	96.0	74 - 126				
Dibromomethane	19.69	1.0	20	0	98.4	79 - 123				
Dichlorodifluoromethane	16.18	1.0	20	0	80.9	32 - 152				
Ethylbenzene	18.29	1.0	20	0	91.5	79 - 121				
Hexachlorobutadiene	18.77	1.0	20	0	93.8	66 - 134				
Isopropylbenzene	17.67	1.0	20	0	88.3	72 - 131				
m,p-Xylene	37.49	2.0	40	0	93.7	80 - 121				
Methylene chloride	19.58	2.0	20	0	97.9	74 - 124				
Naphthalene	21.63	1.0	20	0	108	61 - 128				
n-Butylbenzene	16.75	1.0	20	0	83.8	75 - 128				
n-Propylbenzene	17.15	1.0	20	0	85.7	76 - 126				
o-Xylene	18.69	1.0	20	0	93.5	78 - 122				
sec-Butylbenzene	15.93	1.0	20	0	79.7	77 - 126				
Styrene	19.61	1.0	20	0	98.0	78 - 123				
tert-Butylbenzene	16.63	1.0	20	0	83.1	78 - 124				
Tetrachloroethene	18.06	1.0	20	0	90.3	74 - 129				
Toluene	18.75	1.0	20	0	93.7	80 - 121				
trans-1,2-Dichloroethene	18.67	1.0	20	0	93.4	75 - 124				
trans-1,3-Dichloropropene	20.21	1.0	20	0	101	73 - 127				
Trichloroethene	18.96	1.0	20	0	94.8	79 - 123				
Trichlorofluoromethane	16.31	1.0	20	0	81.5	65 - 141				
Vinyl chloride	16.84	1.0	20	0	84.2	58 - 137				
Surr: 1,2-Dichloroethane-d4	*50.08*	*1.0*	*50*	*0*	*100*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.93*	*1.0*	*50*	*0*	*104*	*85 - 114*				
Surr: Dibromofluoromethane	*50.53*	*1.0*	*50*	*0*	*101*	*80 - 119*				
Surr: Toluene-d8	*48.59*	*1.0*	*50*	*0*	*97.2*	*89 - 112*				

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060461

QC BATCH REPORT

Batch ID: R340945 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS19060461-03MS** Units: **UG/L** Analysis Date: **19-Jun-2019 20:15**
Client ID: **35AWW13_060719** Run ID: **VOA6_340945** SeqNo: **5132742** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.8	1.0	20	0	99.0	78 - 124				
1,1,1-Trichloroethane	17.86	1.0	20	0	89.3	74 - 131				
1,1,2,2-Tetrachloroethane	19.17	1.0	20	0	95.8	71 - 121				
1,1,2-Trichloroethane	19.66	1.0	20	0	98.3	80 - 119				
1,1-Dichloroethane	16.86	1.0	20	0	84.3	77 - 125				
1,1-Dichloroethene	17.73	1.0	20	0	88.6	71 - 131				
1,1-Dichloropropene	18.74	1.0	20	0	93.7	78 - 125				
1,2,3-Trichlorobenzene	17.75	1.0	20	0	88.8	69 - 129				
1,2,3-Trichloropropane	19.1	1.0	20	0	95.5	73 - 122				
1,2,4-Trichlorobenzene	18.04	1.0	20	0	90.2	69 - 130				
1,2,4-Trimethylbenzene	20.32	1.0	20	0	102	76 - 124				
1,2-Dibromo-3-chloropropane	18.25	1.0	20	0	91.3	62 - 128				
1,2-Dibromoethane	18.9	1.0	20	0	94.5	77 - 121				
1,2-Dichlorobenzene	19.25	1.0	20	0	96.2	80 - 119				
1,2-Dichloroethane	18.11	1.0	20	0	90.6	73 - 128				
1,2-Dichloropropane	17.92	1.0	20	0	89.6	78 - 122				
1,3,5-Trimethylbenzene	20.23	1.0	20	0	101	75 - 124				
1,3-Dichlorobenzene	19.77	1.0	20	0	98.8	80 - 119				
1,3-Dichloropropane	19.94	1.0	20	0	99.7	80 - 119				
1,4-Dichlorobenzene	19.61	1.0	20	0	98.1	79 - 118				
2,2-Dichloropropane	16.53	1.0	20	0	82.7	60 - 139				
2-Butanone	34.27	2.0	40	0	85.7	56 - 143				
2-Chlorotoluene	19.72	1.0	20	0	98.6	79 - 122				
2-Hexanone	36.8	2.0	40	0	92.0	57 - 139				
4-Chlorotoluene	19.55	1.0	20	0	97.8	78 - 122				
4-Isopropyltoluene	20.19	1.0	20	0	101	77 - 127				
4-Methyl-2-pentanone	38.71	2.0	40	0	96.8	67 - 130				
Acetone	30.47	2.0	40	0	76.2	39 - 160				
Benzene	18.34	1.0	20	0	91.7	79 - 120				
Bromobenzene	19.74	1.0	20	0	98.7	80 - 120				
Bromochloromethane	16.84	1.0	20	0	84.2	78 - 123				
Bromodichloromethane	18.47	1.0	20	0	92.3	79 - 125				
Bromoform	19.44	1.0	20	0	97.2	66 - 130				
Bromomethane	18.92	1.0	20	0	94.6	53 - 141				

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060461

QC BATCH REPORT

Batch ID: R340945 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS19060461-03MS** Units: **UG/L** Analysis Date: **19-Jun-2019 20:15**
Client ID: **35AWW13_060719** Run ID: **VOA6_340945** SeqNo: **5132742** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	34.71	2.0	40	0	86.8	64 - 133				
Carbon tetrachloride	18.47	1.0	20	0	92.4	72 - 136				
Chlorobenzene	19.6	1.0	20	0	98.0	82 - 118				
Chloroethane	17.97	1.0	20	0	89.9	60 - 138				
Chloroform	17.15	1.0	20	0	85.7	79 - 124				
Chloromethane	16.25	1.0	20	0	81.3	50 - 139				
cis-1,2-Dichloroethene	17.23	1.0	20	0	86.1	78 - 123				
cis-1,3-Dichloropropene	18.49	1.0	20	0	92.4	75 - 124				
Dibromochloromethane	19.35	1.0	20	0	96.8	74 - 126				
Dibromomethane	18.18	1.0	20	0	90.9	79 - 123				
Dichlorodifluoromethane	10.99	1.0	20	0	54.9	32 - 152				
Ethylbenzene	19.8	1.0	20	0	99.0	79 - 121				
Hexachlorobutadiene	17.88	1.0	20	0	89.4	66 - 134				
Isopropylbenzene	20.09	1.0	20	0	100	72 - 131				
m,p-Xylene	39.7	2.0	40	0	99.2	80 - 121				
Methylene chloride	17.11	2.0	20	0	85.5	74 - 124				
Naphthalene	16.96	1.0	20	0	84.8	61 - 128				
n-Butylbenzene	19.79	1.0	20	0	98.9	75 - 128				
n-Propylbenzene	20.38	1.0	20	0	102	76 - 126				
o-Xylene	19.63	1.0	20	0	98.2	78 - 122				
sec-Butylbenzene	20	1.0	20	0	100.0	77 - 126				
Styrene	19.74	1.0	20	0	98.7	78 - 123				
tert-Butylbenzene	20.14	1.0	20	0	101	78 - 124				
Tetrachloroethene	21.01	1.0	20	0	105	74 - 129				
Toluene	20.05	1.0	20	0	100	80 - 121				
trans-1,2-Dichloroethene	17.78	1.0	20	0	88.9	75 - 124				
trans-1,3-Dichloropropene	18	1.0	20	0	90.0	73 - 127				
Trichloroethene	19.04	1.0	20	0	95.2	79 - 123				
Trichlorofluoromethane	17.66	1.0	20	0	88.3	65 - 141				
Vinyl chloride	16.1	1.0	20	0	80.5	58 - 137				
Surr: 1,2-Dichloroethane-d4	*43.49*	*1.0*	*50*	*0*	*87.0*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*49.47*	*1.0*	*50*	*0*	*98.9*	*85 - 114*				
Surr: Dibromofluoromethane	*45.25*	*1.0*	*50*	*0*	*90.5*	*80 - 119*				
Surr: Toluene-d8	*51.51*	*1.0*	*50*	*0*	*103*	*89 - 112*				

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060461

QC BATCH REPORT

Batch ID: R340945 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19060461-03MSD** Units: **UG/L** Analysis Date: **19-Jun-2019 20:39**
Client ID: **35AWW13_060719** Run ID: **VOA6_340945** SeqNo: **5132743** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.73	1.0	20	0	98.6	78 - 124	19.8	0.372	20	
1,1,1-Trichloroethane	17.29	1.0	20	0	86.5	74 - 131	17.86	3.21	20	
1,1,2,2-Tetrachloroethane	19.54	1.0	20	0	97.7	71 - 121	19.17	1.91	20	
1,1,2-Trichloroethane	19.57	1.0	20	0	97.9	80 - 119	19.66	0.453	20	
1,1-Dichloroethane	16.34	1.0	20	0	81.7	77 - 125	16.86	3.15	20	
1,1-Dichloroethene	17.29	1.0	20	0	86.5	71 - 131	17.73	2.49	20	
1,1-Dichloropropene	17.98	1.0	20	0	89.9	78 - 125	18.74	4.14	20	
1,2,3-Trichlorobenzene	18.99	1.0	20	0	94.9	69 - 129	17.75	6.72	20	
1,2,3-Trichloropropane	19.28	1.0	20	0	96.4	73 - 122	19.1	0.968	20	
1,2,4-Trichlorobenzene	18.56	1.0	20	0	92.8	69 - 130	18.04	2.84	20	
1,2,4-Trimethylbenzene	20.15	1.0	20	0	101	76 - 124	20.32	0.86	20	
1,2-Dibromo-3-chloropropane	19.17	1.0	20	0	95.9	62 - 128	18.25	4.91	20	
1,2-Dibromoethane	19.19	1.0	20	0	95.9	77 - 121	18.9	1.52	20	
1,2-Dichlorobenzene	19.31	1.0	20	0	96.5	80 - 119	19.25	0.303	20	
1,2-Dichloroethane	17.94	1.0	20	0	89.7	73 - 128	18.11	0.942	20	
1,2-Dichloropropane	17.72	1.0	20	0	88.6	78 - 122	17.92	1.14	20	
1,3,5-Trimethylbenzene	19.97	1.0	20	0	99.8	75 - 124	20.23	1.31	20	
1,3-Dichlorobenzene	19.71	1.0	20	0	98.6	80 - 119	19.77	0.277	20	
1,3-Dichloropropane	19.95	1.0	20	0	99.8	80 - 119	19.94	0.0665	20	
1,4-Dichlorobenzene	19.5	1.0	20	0	97.5	79 - 118	19.61	0.598	20	
2,2-Dichloropropane	16.14	1.0	20	0	80.7	60 - 139	16.53	2.43	20	
2-Butanone	35.49	2.0	40	0	88.7	56 - 143	34.27	3.51	20	
2-Chlorotoluene	19.56	1.0	20	0	97.8	79 - 122	19.72	0.814	20	
2-Hexanone	36.56	2.0	40	0	91.4	57 - 139	36.8	0.645	20	
4-Chlorotoluene	19.62	1.0	20	0	98.1	78 - 122	19.55	0.355	20	
4-Isopropyltoluene	20.16	1.0	20	0	101	77 - 127	20.19	0.136	20	
4-Methyl-2-pentanone	38.09	2.0	40	0	95.2	67 - 130	38.71	1.61	20	
Acetone	31.39	2.0	40	0	78.5	39 - 160	30.47	2.95	20	
Benzene	18.06	1.0	20	0	90.3	79 - 120	18.34	1.53	20	
Bromobenzene	19.38	1.0	20	0	96.9	80 - 120	19.74	1.81	20	
Bromochloromethane	16.4	1.0	20	0	82.0	78 - 123	16.84	2.67	20	
Bromodichloromethane	18.34	1.0	20	0	91.7	79 - 125	18.47	0.661	20	
Bromoform	19.66	1.0	20	0	98.3	66 - 130	19.44	1.12	20	
Bromomethane	17.34	1.0	20	0	86.7	53 - 141	18.92	8.73	20	

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060461

QC BATCH REPORT

Batch ID: R340945 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19060461-03MSD** Units: **UG/L** Analysis Date: **19-Jun-2019 20:39**
Client ID: **35AWW13_060719** Run ID: **VOA6_340945** SeqNo: **5132743** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Carbon disulfide	34.09	2.0	40	0	85.2	64 - 133	34.71	1.81	20	
Carbon tetrachloride	17.95	1.0	20	0	89.8	72 - 136	18.47	2.85	20	
Chlorobenzene	19.12	1.0	20	0	95.6	82 - 118	19.6	2.5	20	
Chloroethane	17.42	1.0	20	0	87.1	60 - 138	17.97	3.11	20	
Chloroform	16.88	1.0	20	0	84.4	79 - 124	17.15	1.55	20	
Chloromethane	15.56	1.0	20	0	77.8	50 - 139	16.25	4.31	20	
cis-1,2-Dichloroethene	16.86	1.0	20	0	84.3	78 - 123	17.23	2.17	20	
cis-1,3-Dichloropropene	18.21	1.0	20	0	91.1	75 - 124	18.49	1.49	20	
Dibromochloromethane	19.22	1.0	20	0	96.1	74 - 126	19.35	0.681	20	
Dibromomethane	18.27	1.0	20	0	91.4	79 - 123	18.18	0.499	20	
Dichlorodifluoromethane	10.46	1.0	20	0	52.3	32 - 152	10.99	4.88	20	
Ethylbenzene	19.82	1.0	20	0	99.1	79 - 121	19.8	0.114	20	
Hexachlorobutadiene	18.78	1.0	20	0	93.9	66 - 134	17.88	4.87	20	
Isopropylbenzene	19.73	1.0	20	0	98.6	72 - 131	20.09	1.81	20	
m,p-Xylene	39.12	2.0	40	0	97.8	80 - 121	39.7	1.47	20	
Methylene chloride	17.12	2.0	20	0	85.6	74 - 124	17.11	0.0991	20	
Naphthalene	17.89	1.0	20	0	89.5	61 - 128	16.96	5.37	20	
n-Butylbenzene	20.02	1.0	20	0	100	75 - 128	19.79	1.15	20	
n-Propylbenzene	20.1	1.0	20	0	100	76 - 126	20.38	1.38	20	
o-Xylene	19.2	1.0	20	0	96.0	78 - 122	19.63	2.26	20	
sec-Butylbenzene	19.86	1.0	20	0	99.3	77 - 126	20	0.692	20	
Styrene	19.62	1.0	20	0	98.1	78 - 123	19.74	0.62	20	
tert-Butylbenzene	19.97	1.0	20	0	99.9	78 - 124	20.14	0.816	20	
Tetrachloroethene	20.32	1.0	20	0	102	74 - 129	21.01	3.33	20	
Toluene	19.43	1.0	20	0	97.2	80 - 121	20.05	3.15	20	
trans-1,2-Dichloroethene	17.07	1.0	20	0	85.4	75 - 124	17.78	4.06	20	
trans-1,3-Dichloropropene	18.16	1.0	20	0	90.8	73 - 127	18	0.862	20	
Trichloroethene	18.48	1.0	20	0	92.4	79 - 123	19.04	2.97	20	
Trichlorofluoromethane	17.17	1.0	20	0	85.9	65 - 141	17.66	2.83	20	
Vinyl chloride	15.93	1.0	20	0	79.6	58 - 137	16.1	1.08	20	
Surr: 1,2-Dichloroethane-d4	*43.99*	*1.0*	*50*	*0*	*88.0*	*81 - 118*	*43.49*	*1.15*	*20*	
Surr: 4-Bromofluorobenzene	*50.17*	*1.0*	*50*	*0*	*100*	*85 - 114*	*49.47*	*1.41*	*20*	
Surr: Dibromofluoromethane	*45.6*	*1.0*	*50*	*0*	*91.2*	*80 - 119*	*45.25*	*0.768*	*20*	
Surr: Toluene-d8	*50.71*	*1.0*	*50*	*0*	*101*	*89 - 112*	*51.51*	*1.56*	*20*	

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060461

QC BATCH REPORT

Batch ID: R340945 (0)	Instrument: VOA6	Method: VOLATILES ORGANICS BY METHOD 8260C

The following samples were analyzed in this batch:

HS19060461-01	HS19060461-02	HS19060461-03	HS19060461-04
HS19060461-05	HS19060461-06		

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: **HS19060461**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

ALS Houston, US Date: 21-Jun-19

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	19-028-0	27-Mar-2020
Dept of Defense	ANAB L2231	20-Dec-2021
Illinois	004438	29-Jun-2019
Kansas	E-10352 2018-2019	31-Jul-2019
Louisiana	03087	30-Jun-2019
Maryland	343, 2018-2019	30-Jun-2019
North Carolina	624-2019	31-Dec-2019
Oklahoma	2018-156	31-Aug-2019
Texas	TX104704231-19-23	30-Apr-2020

ALS Houston, US Date: 21-jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Work Order: HS19060461

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS19060461-01	35AWW15_060719	Login	10/06/2019 13:00:50	RPG	WET267
HS19060461-01	35AWW15_060719	Login	10/06/2019 13:00:50	RPG	VOA102
HS19060461-01	35AWW15_060719	Login	10/06/2019 13:00:50	RPG	Sub
HS19060461-01	35AWW15_060719	Login	10/06/2019 13:00:50	RPG	Sub
HS19060461-01	35AWW15_060719	Login	10/06/2019 13:00:50	RPG	Sub
HS19060461-02	LHSMW06_060719	Login	10/06/2019 13:00:50	RPG	MET084
HS19060461-02	LHSMW06_060719	Login	10/06/2019 13:00:50	RPG	WET267
HS19060461-02	LHSMW06_060719	Login	10/06/2019 13:00:50	RPG	VOA102
HS19060461-02	LHSMW06_060719	Login	10/06/2019 13:00:50	RPG	Sub
HS19060461-02	LHSMW06_060719	Login	10/06/2019 13:00:50	RPG	Sub
HS19060461-02	LHSMW06_060719	Login	10/06/2019 13:00:50	RPG	Sub
HS19060461-03	35AWW13_060719	Login	10/06/2019 13:00:50	RPG	WET267
HS19060461-03	35AWW13_060719	Login	10/06/2019 13:00:50	RPG	VOA102
HS19060461-03	35AWW13_060719	Login	10/06/2019 13:00:50	RPG	Sub
HS19060461-03	35AWW13_060719	Login	10/06/2019 13:00:50	RPG	Sub
HS19060461-03	35AWW13_060719	Login	10/06/2019 13:00:50	RPG	Sub
HS19060461-04	35AWW14_060719	Login	10/06/2019 13:00:50	RPG	WET267
HS19060461-04	35AWW14_060719	Login	10/06/2019 13:00:50	RPG	VOA102
HS19060461-04	35AWW14_060719	Login	10/06/2019 13:00:50	RPG	Sub
HS19060461-04	35AWW14_060719	Login	10/06/2019 13:00:50	RPG	Sub
HS19060461-04	35AWW14_060719	Login	10/06/2019 13:00:50	RPG	Sub
HS19060461-05	35ASW03_060719	Login	10/06/2019 13:00:50	RPG	WET267
HS19060461-05	35ASW03_060719	Login	10/06/2019 13:00:50	RPG	VOA102
HS19060461-05	35ASW03_060719	Login	10/06/2019 13:00:50	RPG	Sub
HS19060461-05	35ASW03_060719	Login	10/06/2019 13:00:50	RPG	Sub
HS19060461-05	35ASW03_060719	Login	10/06/2019 13:00:50	RPG	Sub
HS19060461-06	Trip Blank	Login	10/06/2019 13:00:50	RPG	VOA102

00949835

ALS Houston, US Date: 21-Jun-19

Sample Receipt Checklist

Client Name: Bhate Environmental
Work Order: HS19060461
Date/Time Received: **08-Jun-2019 08:45**
Received by: **AC**

Checklist completed by: *Raegen Giga* eSignature — 10-Jun-2019 Date
Reviewed by: *RJ Modashia* eSignature — 10-Jun-2019 Date

Matrices: **GW**
Carrier name: **FedEx First Overnight**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Samplers name present on COC?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	

Temperature(s)/Thermometer(s):	3.0c uc/c	IR 25
Cooler(s)/Kit(s):	44161	
Date/Time sample(s) sent to storage:	06/10/2019 13:31	

Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

bhate
ENVIRONMENTAL CONSTRUCTION

1608 13th Avenue South, Suite 300
Birmingham Alabama 35205
Tel: 205-918-4000
Fax: 205-918-4050

Chain of Custody and Analytical Request

Page: ____ of ____

Project/Phase No: NWO1312.0150

COC Number(1): ____

LIMS Number: ____

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / Site 58

Client Name:

Collected by: Scott Beesinger

Field Sample ID (30 Characters Max)	ERPIMS LOCID (15 Characters Max)	Date Collected (dd-mmm-yyyy)	Time Collected (Military) (hhmm)	Sample Depth (beginning - ending)	SA Code (2)	Sample Number (3)	Sample Matrix (4)	Number of containers	VOC	MEE	TOC	Carbon Dioxide	Anions	Arsenic					Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Code ID
35AWW15-060719		07 JUN 2019	0815	-	N		WG	3	X													
LHSMW06-060719		07 JUN 2019	0900	-	N		WG	3	X					X								
35AWW13-060719		07 JUN 2019	0950	-	N		WG	3	X													
35AWW13-060719-MS		07 JUN 2019	0950		MS		WG	3	X													
35AWW13-060719-MSD		07 JUN 2019	0950		SD		WG	3	X													
35AWW14-060719		07 JUN 2019	1010	-	N		WG	3	X													
35ASW03-060719		07 JUN 2019	1025	-	N		WG	3	X													
TRIP BLANK		07 JUN 2019		-	TB		W	2	X													
				-																		
				-																		
				-																		

Sample Analysis Requested (5) | Quality Assurance Samples (6)

HS19060461

Bhate Environmental Associates, Inc.
LHAAP-58

COMMENTS: ____

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (Signed)	Date	Time
1. Scott Beesinger	6/7/19	1130	1. AK	6/8/19	0730
2.			2.		
3.			3.		

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: ____ Shipped ____ No.:

Method of Shipment: ____

Fed Ex ____ Airbill ____ Number:

Analytical Lab: ALS 10450 Stanciff Rd. Suite 210 Houston, TX 77099 (281) 530-5656

ATTN: SONIA WEST Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01)

2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-c) Sample, FD = Field Duplicate (-a) Samples, FR = Field Replicate (-b) Samples, EB = Equipment Blank (-d) Samples, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-e)

3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)

4.) Matrix Codes: GS = Soil Gas, WG = Groundwater, WS = Surface Water, SO = Soil, SE = Sediment, SL = Sludge, SS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blanks

5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each.

6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 10109901 in the Equipment Blank Lot Control

44161

00949836

00949837

ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

44161

CUSTODY SEAL

Date: 6/7/13 Time: 1130
Name: Scott Beesinger
Comp Any: BHATE

Seal Broken By: SW
Date: 06/05/13

44161

Must Deliver Next Business Day
Time and Tempature Sensitive!

44161

ORIGIN ID:SGRA (303) 597-2450
SCOTT BEESINER
BHATE ENVIRONMENTAL ASSOCIATES
1203-B EAST GRAND AVE. PMB202

MARSHALL, TX 75670
UNITED STATES US

SHIP DATE: 24MAY13
ACTWGT: 1.00 LB MAN
CAD: 30C130/CAFE3211
DIMS: 26x14x14 IN

TO **CLIENT SERVICES**
ALS LABORATORY GROUP
10450 STANCLIFF ROAD
SUITE 210
HOUSTON TX 77099
(281) 530-5656
REF: LHAAP-58-BO 55568-DW

RMA:

FedEx Express

FedEx
TRK# 0221 4809 7834 2900

SATURDAY 12:00P
PRIORITY OVERNIGHT

77099
TX-US
IAH

XØ SGRA

FRM 5121768 07JUN13 GGGA 553C1/B210/8C8A

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887

June 21, 2019

Marcia Olive
Bhate Environmental Associates, Inc.
445 Union Blvd Ste 129
Lakewood, CO 80228

Work Order: **HS19060573**

Laboratory Results for: **LHAAP-58**

Dear Marcia,

ALS Environmental received 10 sample(s) on Jun 11, 2019 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: DAYNA.FISHER
RJ Modashia
Project Manager

ALS Houston, US Date: 21-jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Work Order: HS19060573

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS19060573-01	35AWW22_061019	Groundwater		10-Jun-2019 07:50	11-Jun-2019 11:11	☐
HS19060573-02	35AWW12_061019	Groundwater		10-Jun-2019 08:40	11-Jun-2019 11:11	☐
HS19060573-03	35AWW12_061019a	Groundwater		10-Jun-2019 08:40	11-Jun-2019 11:11	☐
HS19060573-04	35AWW21_061019	Groundwater		10-Jun-2019 09:30	11-Jun-2019 11:11	☐
HS19060573-05	35AWW21_060119_a	Groundwater		10-Jun-2019 09:30	11-Jun-2019 11:11	☐
HS19060573-06	35AWW01_061019	Groundwater		10-Jun-2019 10:20	11-Jun-2019 11:11	☐
HS19060573-07	35AWW05_061019	Groundwater		10-Jun-2019 11:10	11-Jun-2019 11:11	☐
HS19060573-08	35AWW16_061019	Groundwater		10-Jun-2019 11:55	11-Jun-2019 11:11	☐
HS19060573-09	35AWW17_061019	Groundwater		10-Jun-2019 12:50	11-Jun-2019 11:11	☐
HS19060573-10	Trip Blank	Water		10-Jun-2019 00:00	11-Jun-2019 11:11	☐

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Work Order: HS19060573

CASE NARRATIVE

GCMS Volatiles by Method SW8260

Batch ID: R340996

Sample ID: 35AWW01_061019 (HS19060573-06MS)

- MS/MSD failed QC limits for some compounds.

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW22_061019
Collection Date: 10-Jun-2019 07:50

ANALYTICAL REPORT
WorkOrder:HS19060573
Lab ID:HS19060573-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 15:57
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 15:57
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 15:57
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 15:57
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 15:57
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 15:57
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 15:57
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 15:57
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 15:57
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 15:57
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 15:57
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 15:57
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 15:57
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 15:57
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 15:57
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 15:57
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 15:57
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 15:57
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 15:57
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 15:57
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 15:57
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	20-Jun-2019 15:57
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 15:57
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	20-Jun-2019 15:57
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 15:57
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 15:57
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	20-Jun-2019 15:57
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	20-Jun-2019 15:57
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 15:57
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 15:57
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 15:57
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 15:57
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 15:57
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 15:57
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	20-Jun-2019 15:57
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 15:57
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 15:57
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 15:57
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 15:57

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW22_061019
Collection Date: 10-Jun-2019 07:50

ANALYTICAL REPORT
WorkOrder:HS19060573
Lab ID:HS19060573-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 15:57
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 15:57
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	20-Jun-2019 15:57
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 15:57
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 15:57
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 15:57
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 15:57
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	20-Jun-2019 15:57
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 15:57
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	20-Jun-2019 15:57
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	20-Jun-2019 15:57
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 15:57
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 15:57
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 15:57
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 15:57
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 15:57
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 15:57
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 15:57
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 15:57
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 15:57
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 15:57
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 15:57
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 15:57
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 15:57
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 15:57
Surr: 1,2-Dichloroethane-d4	*82.1*			**0**	*81-118*	*%REC*	*1*	*20-Jun-2019 15:57*
Surr: 4-Bromofluorobenzene	*102*			**0**	*85-114*	*%REC*	*1*	*20-Jun-2019 15:57*
Surr: Dibromofluoromethane	*85.1*			**0**	*80-119*	*%REC*	*1*	*20-Jun-2019 15:57*
Surr: Toluene-d8	*97.0*			**0**	*89-112*	*%REC*	*1*	*20-Jun-2019 15:57*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW12_061019
Collection Date: 10-Jun-2019 08:40

ANALYTICAL REPORT
WorkOrder:HS19060573
Lab ID:HS19060573-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 16:21
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 16:21
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 16:21
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 16:21
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 16:21
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 16:21
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 16:21
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 16:21
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 16:21
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 16:21
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 16:21
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 16:21
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 16:21
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 16:21
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 16:21
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 16:21
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 16:21
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 16:21
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 16:21
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 16:21
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 16:21
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	20-Jun-2019 16:21
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 16:21
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	20-Jun-2019 16:21
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 16:21
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 16:21
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	20-Jun-2019 16:21
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	20-Jun-2019 16:21
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 16:21
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 16:21
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 16:21
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 16:21
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 16:21
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 16:21
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	20-Jun-2019 16:21
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 16:21
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 16:21
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 16:21
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 16:21

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW12_061019
Collection Date: 10-Jun-2019 08:40

ANALYTICAL REPORT
WorkOrder:HS19060573
Lab ID:HS19060573-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 16:21
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 16:21
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	20-Jun-2019 16:21
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 16:21
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 16:21
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 16:21
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 16:21
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	20-Jun-2019 16:21
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 16:21
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	20-Jun-2019 16:21
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	20-Jun-2019 16:21
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 16:21
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 16:21
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 16:21
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 16:21
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 16:21
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 16:21
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 16:21
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 16:21
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 16:21
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 16:21
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 16:21
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 16:21
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 16:21
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 16:21
Surr: 1,2-Dichloroethane-d4	*82.6*			**0**	*81-118*	*%REC*	*1*	*20-Jun-2019 16:21*
Surr: 4-Bromofluorobenzene	*99.5*			**0**	*85-114*	*%REC*	*1*	*20-Jun-2019 16:21*
Surr: Dibromofluoromethane	*85.6*			**0**	*80-119*	*%REC*	*1*	*20-Jun-2019 16:21*
Surr: Toluene-d8	*96.8*			**0**	*89-112*	*%REC*	*1*	*20-Jun-2019 16:21*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW12_061019a
Collection Date: 10-Jun-2019 08:40

ANALYTICAL REPORT
WorkOrder:HS19060573
Lab ID:HS19060573-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 16:45
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 16:45
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 16:45
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 16:45
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 16:45
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 16:45
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 16:45
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 16:45
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 16:45
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 16:45
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 16:45
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 16:45
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 16:45
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 16:45
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 16:45
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 16:45
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 16:45
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 16:45
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 16:45
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 16:45
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 16:45
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	20-Jun-2019 16:45
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 16:45
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	20-Jun-2019 16:45
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 16:45
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 16:45
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	20-Jun-2019 16:45
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	20-Jun-2019 16:45
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 16:45
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 16:45
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 16:45
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 16:45
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 16:45
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 16:45
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	20-Jun-2019 16:45
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 16:45
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 16:45
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 16:45
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 16:45

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW12_061019a
Collection Date: 10-Jun-2019 08:40

ANALYTICAL REPORT
WorkOrder:HS19060573
Lab ID:HS19060573-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 16:45
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 16:45
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	20-Jun-2019 16:45
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 16:45
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 16:45
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 16:45
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 16:45
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	20-Jun-2019 16:45
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 16:45
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	20-Jun-2019 16:45
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	20-Jun-2019 16:45
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 16:45
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 16:45
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 16:45
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 16:45
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 16:45
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 16:45
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 16:45
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 16:45
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 16:45
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 16:45
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 16:45
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 16:45
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 16:45
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 16:45
Surr: 1,2-Dichloroethane-d4	*83.9*			**0**	*81-118*	*%REC*	*1*	*20-Jun-2019 16:45*
Surr: 4-Bromofluorobenzene	*100.0*			**0**	*85-114*	*%REC*	*1*	*20-Jun-2019 16:45*
Surr: Dibromofluoromethane	*86.6*			**0**	*80-119*	*%REC*	*1*	*20-Jun-2019 16:45*
Surr: Toluene-d8	*94.5*			**0**	*89-112*	*%REC*	*1*	*20-Jun-2019 16:45*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW21_061019
Collection Date: 10-Jun-2019 09:30

ANALYTICAL REPORT
WorkOrder:HS19060573
Lab ID:HS19060573-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:09
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:09
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 17:09
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:09
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:09
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:09
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:09
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 17:09
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 17:09
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 17:09
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:09
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:09
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:09
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 17:09
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:09
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 17:09
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:09
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 17:09
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:09
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 17:09
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:09
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	20-Jun-2019 17:09
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:09
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	20-Jun-2019 17:09
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 17:09
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:09
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	20-Jun-2019 17:09
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	20-Jun-2019 17:09
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:09
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 17:09
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:09
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:09
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 17:09
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 17:09
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	20-Jun-2019 17:09
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 17:09
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:09
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:09
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:09

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW21_061019
Collection Date: 10-Jun-2019 09:30

ANALYTICAL REPORT
WorkOrder:HS19060573
Lab ID:HS19060573-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:09
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:09
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	20-Jun-2019 17:09
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:09
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:09
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:09
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:09
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	20-Jun-2019 17:09
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:09
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	20-Jun-2019 17:09
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	20-Jun-2019 17:09
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 17:09
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:09
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:09
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:09
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:09
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:09
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:09
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:09
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:09
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:09
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:09
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:09
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:09
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:09
Surr: 1,2-Dichloroethane-d4	*82.4*			**0**	*81-118*	*%REC*	*1*	*20-Jun-2019 17:09*
Surr: 4-Bromofluorobenzene	*99.8*			**0**	*85-114*	*%REC*	*1*	*20-Jun-2019 17:09*
Surr: Dibromofluoromethane	*84.4*			**0**	*80-119*	*%REC*	*1*	*20-Jun-2019 17:09*
Surr: Toluene-d8	*95.7*			**0**	*89-112*	*%REC*	*1*	*20-Jun-2019 17:09*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW21_060119_a
Collection Date: 10-Jun-2019 09:30

ANALYTICAL REPORT
WorkOrder:HS19060573
Lab ID:HS19060573-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:33
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:33
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 17:33
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:33
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:33
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:33
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:33
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 17:33
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 17:33
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 17:33
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:33
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:33
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:33
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 17:33
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:33
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 17:33
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:33
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 17:33
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:33
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 17:33
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:33
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	20-Jun-2019 17:33
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:33
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	20-Jun-2019 17:33
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 17:33
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:33
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	20-Jun-2019 17:33
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	20-Jun-2019 17:33
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:33
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 17:33
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:33
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:33
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 17:33
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 17:33
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	20-Jun-2019 17:33
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 17:33
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:33
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:33
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:33

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW21_060119_a
Collection Date: 10-Jun-2019 09:30

ANALYTICAL REPORT
WorkOrder:HS19060573
Lab ID:HS19060573-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:33
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:33
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	20-Jun-2019 17:33
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:33
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:33
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:33
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:33
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	20-Jun-2019 17:33
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:33
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	20-Jun-2019 17:33
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	20-Jun-2019 17:33
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 17:33
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:33
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:33
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:33
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:33
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:33
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:33
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:33
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:33
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:33
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:33
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:33
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:33
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:33
Surr: 1,2-Dichloroethane-d4	*83.5*			**0**	*81-118*	*%REC*	*1*	*20-Jun-2019 17:33*
Surr: 4-Bromofluorobenzene	*101*			**0**	*85-114*	*%REC*	*1*	*20-Jun-2019 17:33*
Surr: Dibromofluoromethane	*87.0*			**0**	*80-119*	*%REC*	*1*	*20-Jun-2019 17:33*
Surr: Toluene-d8	*98.1*			**0**	*89-112*	*%REC*	*1*	*20-Jun-2019 17:33*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW01_061019
Collection Date: 10-Jun-2019 10:20

ANALYTICAL REPORT
WorkOrder:HS19060573
Lab ID:HS19060573-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 14:21
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 14:21
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 14:21
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 14:21
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 14:21
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 14:21
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 14:21
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 14:21
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 14:21
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 14:21
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 14:21
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 14:21
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 14:21
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 14:21
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 14:21
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 14:21
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 14:21
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 14:21
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 14:21
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 14:21
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 14:21
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	20-Jun-2019 14:21
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 14:21
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	20-Jun-2019 14:21
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 14:21
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 14:21
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	20-Jun-2019 14:21
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	20-Jun-2019 14:21
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 14:21
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 14:21
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 14:21
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 14:21
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 14:21
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 14:21
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	20-Jun-2019 14:21
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 14:21
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 14:21
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 14:21
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 14:21

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW01_061019
Collection Date: 10-Jun-2019 10:20

ANALYTICAL REPORT
WorkOrder:HS19060573
Lab ID:HS19060573-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 14:21
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 14:21
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	20-Jun-2019 14:21
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 14:21
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 14:21
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 14:21
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 14:21
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	20-Jun-2019 14:21
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 14:21
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	20-Jun-2019 14:21
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	20-Jun-2019 14:21
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 14:21
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 14:21
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 14:21
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 14:21
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 14:21
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 14:21
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 14:21
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 14:21
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 14:21
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 14:21
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 14:21
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 14:21
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 14:21
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 14:21
Surr: 1,2-Dichloroethane-d4	*85.0*			**0**	*81-118*	*%REC*	*1*	*20-Jun-2019 14:21*
Surr: 4-Bromofluorobenzene	*103*			**0**	*85-114*	*%REC*	*1*	*20-Jun-2019 14:21*
Surr: Dibromofluoromethane	*88.3*			**0**	*80-119*	*%REC*	*1*	*20-Jun-2019 14:21*
Surr: Toluene-d8	*99.7*			**0**	*89-112*	*%REC*	*1*	*20-Jun-2019 14:21*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW05_061019
Collection Date: 10-Jun-2019 11:10

ANALYTICAL REPORT
WorkOrder:HS19060573
Lab ID:HS19060573-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:57
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:57
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 17:57
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:57
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:57
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:57
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:57
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 17:57
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 17:57
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 17:57
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:57
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:57
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:57
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 17:57
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:57
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 17:57
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:57
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 17:57
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:57
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 17:57
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:57
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	20-Jun-2019 17:57
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:57
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	20-Jun-2019 17:57
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 17:57
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:57
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	20-Jun-2019 17:57
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	20-Jun-2019 17:57
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:57
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 17:57
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:57
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:57
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 17:57
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 17:57
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	20-Jun-2019 17:57
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 17:57
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:57
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:57
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:57

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW05_061019
Collection Date: 10-Jun-2019 11:10

ANALYTICAL REPORT
WorkOrder:HS19060573
Lab ID:HS19060573-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:57
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:57
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	20-Jun-2019 17:57
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:57
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:57
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:57
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:57
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	20-Jun-2019 17:57
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:57
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	20-Jun-2019 17:57
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	20-Jun-2019 17:57
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 17:57
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:57
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:57
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:57
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:57
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:57
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:57
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:57
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:57
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:57
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:57
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:57
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 17:57
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 17:57
Surr: 1,2-Dichloroethane-d4	*83.8*			**0**	*81-118*	*%REC*	*1*	*20-Jun-2019 17:57*
Surr: 4-Bromofluorobenzene	*99.8*			**0**	*85-114*	*%REC*	*1*	*20-Jun-2019 17:57*
Surr: Dibromofluoromethane	*88.2*			**0**	*80-119*	*%REC*	*1*	*20-Jun-2019 17:57*
Surr: Toluene-d8	*96.4*			**0**	*89-112*	*%REC*	*1*	*20-Jun-2019 17:57*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW16_061019
Collection Date: 10-Jun-2019 11:55

ANALYTICAL REPORT
WorkOrder:HS19060573
Lab ID:HS19060573-08
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 18:20
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 18:20
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 18:20
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 18:20
1,1-Dichloroethane	**1.4**		**0.20**	**0.50**	**1.0**	**UG/L**	1	20-Jun-2019 18:20
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 18:20
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 18:20
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 18:20
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 18:20
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 18:20
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 18:20
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 18:20
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 18:20
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 18:20
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 18:20
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 18:20
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 18:20
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 18:20
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 18:20
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 18:20
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 18:20
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	20-Jun-2019 18:20
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 18:20
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	20-Jun-2019 18:20
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 18:20
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 18:20
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	20-Jun-2019 18:20
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	20-Jun-2019 18:20
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 18:20
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 18:20
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 18:20
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 18:20
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 18:20
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 18:20
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	20-Jun-2019 18:20
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 18:20
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 18:20
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 18:20
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 18:20

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW16_061019
Collection Date: 10-Jun-2019 11:55

ANALYTICAL REPORT
WorkOrder:HS19060573
Lab ID:HS19060573-08
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 18:20
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 18:20
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	20-Jun-2019 18:20
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 18:20
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 18:20
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 18:20
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 18:20
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	20-Jun-2019 18:20
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 18:20
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	20-Jun-2019 18:20
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	20-Jun-2019 18:20
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 18:20
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 18:20
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 18:20
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 18:20
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 18:20
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 18:20
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 18:20
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 18:20
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 18:20
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 18:20
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 18:20
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 18:20
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 18:20
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 18:20
Surr: 1,2-Dichloroethane-d4	*81.5*			**0**	*81-118*	*%REC*	*1*	*20-Jun-2019 18:20*
Surr: 4-Bromofluorobenzene	*100*			**0**	*85-114*	*%REC*	*1*	*20-Jun-2019 18:20*
Surr: Dibromofluoromethane	*85.9*			**0**	*80-119*	*%REC*	*1*	*20-Jun-2019 18:20*
Surr: Toluene-d8	*94.1*			**0**	*89-112*	*%REC*	*1*	*20-Jun-2019 18:20*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW17_061019
Collection Date: 10-Jun-2019 12:50

ANALYTICAL REPORT
WorkOrder:HS19060573
Lab ID:HS19060573-09
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 18:44
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 18:44
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 18:44
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 18:44
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 18:44
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 18:44
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 18:44
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 18:44
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 18:44
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 18:44
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 18:44
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 18:44
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 18:44
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 18:44
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 18:44
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 18:44
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 18:44
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 18:44
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 18:44
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 18:44
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 18:44
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	20-Jun-2019 18:44
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 18:44
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	20-Jun-2019 18:44
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 18:44
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 18:44
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	20-Jun-2019 18:44
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	20-Jun-2019 18:44
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 18:44
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 18:44
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 18:44
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 18:44
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 18:44
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 18:44
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	20-Jun-2019 18:44
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 18:44
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 18:44
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 18:44
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 18:44

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW17_061019
Collection Date: 10-Jun-2019 12:50

ANALYTICAL REPORT
WorkOrder:HS19060573
Lab ID:HS19060573-09
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 18:44
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 18:44
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	20-Jun-2019 18:44
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 18:44
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 18:44
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 18:44
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 18:44
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	20-Jun-2019 18:44
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 18:44
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	20-Jun-2019 18:44
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	20-Jun-2019 18:44
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 18:44
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 18:44
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 18:44
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 18:44
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 18:44
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 18:44
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 18:44
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 18:44
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 18:44
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 18:44
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 18:44
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 18:44
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 18:44
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 18:44
Surr: 1,2-Dichloroethane-d4	*85.6*			**0**	*81-118*	*%REC*	*1*	*20-Jun-2019 18:44*
Surr: 4-Bromofluorobenzene	*99.0*			**0**	*85-114*	*%REC*	*1*	*20-Jun-2019 18:44*
Surr: Dibromofluoromethane	*89.1*			**0**	*80-119*	*%REC*	*1*	*20-Jun-2019 18:44*
Surr: Toluene-d8	*95.6*			**0**	*89-112*	*%REC*	*1*	*20-Jun-2019 18:44*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: Trip Blank
Collection Date: 10-Jun-2019 00:00

ANALYTICAL REPORT
WorkOrder:HS19060573
Lab ID:HS19060573-10
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 12:21
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 12:21
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 12:21
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 12:21
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 12:21
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 12:21
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 12:21
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 12:21
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 12:21
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 12:21
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 12:21
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 12:21
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 12:21
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 12:21
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 12:21
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 12:21
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 12:21
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 12:21
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 12:21
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 12:21
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 12:21
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	20-Jun-2019 12:21
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 12:21
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	20-Jun-2019 12:21
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 12:21
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 12:21
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	20-Jun-2019 12:21
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	20-Jun-2019 12:21
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 12:21
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 12:21
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 12:21
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 12:21
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 12:21
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 12:21
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	20-Jun-2019 12:21
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	20-Jun-2019 12:21
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 12:21
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 12:21
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 12:21

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: Trip Blank
Collection Date: 10-Jun-2019 00:00

ANALYTICAL REPORT
WorkOrder:HS19060573
Lab ID:HS19060573-10
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 12:21
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 12:21
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	20-Jun-2019 12:21
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 12:21
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 12:21
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 12:21
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 12:21
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	20-Jun-2019 12:21
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 12:21
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	20-Jun-2019 12:21
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	20-Jun-2019 12:21
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	20-Jun-2019 12:21
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 12:21
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 12:21
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 12:21
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 12:21
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 12:21
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 12:21
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 12:21
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 12:21
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 12:21
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 12:21
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 12:21
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Jun-2019 12:21
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	20-Jun-2019 12:21
Surr: 1,2-Dichloroethane-d4	*81.7*			**0**	*81-118*	*%REC*	*1*	*20-Jun-2019 12:21*
Surr: 4-Bromofluorobenzene	*96.8*			**0**	*85-114*	*%REC*	*1*	*20-Jun-2019 12:21*
Surr: Dibromofluoromethane	*86.7*			**0**	*80-119*	*%REC*	*1*	*20-Jun-2019 12:21*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*1*	*20-Jun-2019 12:21*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 21-jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060573

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID R340996	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C			**Matrix:** Water		
HS19060573-10	Trip Blank	10 Jun 2019 00:00			20 Jun 2019 12:21	1
Batch ID R340996	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C			**Matrix:** Groundwater		
HS19060573-01	35AWW22_061019	10 Jun 2019 07:50			20 Jun 2019 15:57	1
HS19060573-02	35AWW12_061019	10 Jun 2019 08:40			20 Jun 2019 16:21	1
HS19060573-03	35AWW12_061019a	10 Jun 2019 08:40			20 Jun 2019 16:45	1
HS19060573-04	35AWW21_061019	10 Jun 2019 09:30			20 Jun 2019 17:09	1
HS19060573-05	35AWW21_060119_a	10 Jun 2019 09:30			20 Jun 2019 17:33	1
HS19060573-06	35AWW01_061019	10 Jun 2019 10:20			20 Jun 2019 14:21	1
HS19060573-07	35AWW05_061019	10 Jun 2019 11:10			20 Jun 2019 17:57	1
HS19060573-08	35AWW16_061019	10 Jun 2019 11:55			20 Jun 2019 18:20	1
HS19060573-09	35AWW17_061019	10 Jun 2019 12:50			20 Jun 2019 18:44	1

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060573

QC BATCH REPORT

Batch ID: R340996 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-190620** Units: **UG/L** Analysis Date: **20-Jun-2019 11:33**
Client ID: Run ID: **VOA6_340996** SeqNo: **5133849** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	0.50	1.0								U
1,1,1-Trichloroethane	0.50	1.0								U
1,1,2,2-Tetrachloroethane	0.50	1.0								U
1,1,2-Trichloroethane	0.50	1.0								U
1,1-Dichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,1-Dichloropropene	0.50	1.0								U
1,2,3-Trichlorobenzene	0.50	1.0								U
1,2,3-Trichloropropane	0.50	1.0								U
1,2,4-Trichlorobenzene	0.50	1.0								U
1,2,4-Trimethylbenzene	0.50	1.0								U
1,2-Dibromo-3-chloropropane	0.50	1.0								U
1,2-Dibromoethane	0.50	1.0								U
1,2-Dichlorobenzene	0.50	1.0								U
1,2-Dichloroethane	0.50	1.0								U
1,2-Dichloropropane	0.50	1.0								U
1,3,5-Trimethylbenzene	0.50	1.0								U
1,3-Dichlorobenzene	0.50	1.0								U
1,3-Dichloropropane	0.50	1.0								U
1,4-Dichlorobenzene	0.50	1.0								U
2,2-Dichloropropane	0.50	1.0								U
2-Butanone	1.0	2.0								U
2-Chlorotoluene	0.50	1.0								U
2-Hexanone	1.0	2.0								U
4-Chlorotoluene	0.50	1.0								U
4-Isopropyltoluene	0.50	1.0								U
4-Methyl-2-pentanone	1.0	2.0								U
Acetone	1.0	2.0								U
Benzene	0.50	1.0								U
Bromobenzene	0.50	1.0								U
Bromochloromethane	0.50	1.0								U
Bromodichloromethane	0.50	1.0								U
Bromoform	0.50	1.0								U
Bromomethane	0.50	1.0								U

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060573

QC BATCH REPORT

Batch ID: R340996 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-190620** Units: **UG/L** Analysis Date: **20-Jun-2019 11:33**
Client ID: Run ID: **VOA6_340996** SeqNo: **5133849** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	1.0	2.0								U
Carbon tetrachloride	0.50	1.0								U
Chlorobenzene	0.50	1.0								U
Chloroethane	0.50	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	0.50	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	0.50	1.0								U
Ethylbenzene	0.50	1.0								U
Hexachlorobutadiene	1.0	1.0								U
Isopropylbenzene	0.50	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	1.0	2.0								U
Naphthalene	0.50	1.0								U
n-Butylbenzene	0.50	1.0								U
n-Propylbenzene	0.50	1.0								U
o-Xylene	0.50	1.0								U
sec-Butylbenzene	0.50	1.0								U
Styrene	0.50	1.0								U
tert-Butylbenzene	0.50	1.0								U
Tetrachloroethene	0.50	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	0.50	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*41.57*	*1.0*	*50*	*0*	*83.1*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*48.23*	*1.0*	*50*	*0*	*96.5*	*85 - 114*				
Surr: Dibromofluoromethane	*43.71*	*1.0*	*50*	*0*	*87.4*	*80 - 119*				
Surr: Toluene-d8	*52.42*	*1.0*	*50*	*0*	*105*	*89 - 112*				

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060573

QC BATCH REPORT

Batch ID: R340996 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-190620** Units: **UG/L** Analysis Date: **20-Jun-2019 10:45**
Client ID: Run ID: **VOA6_340996** SeqNo: **5133848** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.82	1.0	20	0	99.1	78 - 124				
1,1,1-Trichloroethane	17.72	1.0	20	0	88.6	74 - 131				
1,1,2,2-Tetrachloroethane	17.36	1.0	20	0	86.8	71 - 121				
1,1,2-Trichloroethane	20.45	1.0	20	0	102	80 - 119				
1,1-Dichloroethane	17.45	1.0	20	0	87.2	77 - 125				
1,1-Dichloroethene	17.72	1.0	20	0	88.6	71 - 131				
1,1-Dichloropropene	17.22	1.0	20	0	86.1	78 - 125				
1,2,3-Trichlorobenzene	18.94	1.0	20	0	94.7	69 - 129				
1,2,3-Trichloropropane	17.56	1.0	20	0	87.8	73 - 122				
1,2,4-Trichlorobenzene	18.83	1.0	20	0	94.2	69 - 130				
1,2,4-Trimethylbenzene	19.68	1.0	20	0	98.4	76 - 124				
1,2-Dibromo-3-chloropropane	17.68	1.0	20	0	88.4	62 - 128				
1,2-Dibromoethane	19.3	1.0	20	0	96.5	77 - 121				
1,2-Dichlorobenzene	19.42	1.0	20	0	97.1	80 - 119				
1,2-Dichloroethane	18.97	1.0	20	0	94.9	73 - 128				
1,2-Dichloropropane	18.78	1.0	20	0	93.9	78 - 122				
1,3,5-Trimethylbenzene	18.89	1.0	20	0	94.4	75 - 124				
1,3-Dichlorobenzene	19.97	1.0	20	0	99.9	80 - 119				
1,3-Dichloropropane	20.35	1.0	20	0	102	80 - 119				
1,4-Dichlorobenzene	19.62	1.0	20	0	98.1	79 - 118				
2,2-Dichloropropane	18.35	1.0	20	0	91.8	60 - 139				
2-Butanone	37.42	2.0	40	0	93.5	56 - 143				
2-Chlorotoluene	18.67	1.0	20	0	93.3	79 - 122				
2-Hexanone	35.93	2.0	40	0	89.8	57 - 139				
4-Chlorotoluene	18.96	1.0	20	0	94.8	78 - 122				
4-Isopropyltoluene	18.53	1.0	20	0	92.7	77 - 127				
4-Methyl-2-pentanone	37.47	2.0	40	0	93.7	67 - 130				
Acetone	39.15	2.0	40	0	97.9	39 - 160				
Benzene	18.81	1.0	20	0	94.1	79 - 120				
Bromobenzene	18.86	1.0	20	0	94.3	80 - 120				
Bromochloromethane	18.73	1.0	20	0	93.7	78 - 123				
Bromodichloromethane	19.53	1.0	20	0	97.6	79 - 125				
Bromoform	19.93	1.0	20	0	99.7	66 - 130				
Bromomethane	21.2	1.0	20	0	106	53 - 141				

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060573

QC BATCH REPORT

Batch ID: R340996 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-190620** Units: **UG/L** Analysis Date: **20-Jun-2019 10:45**
Client ID: Run ID: **VOA6_340996** SeqNo: **5133848** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	35.13	2.0	40	0	87.8	64 - 133				
Carbon tetrachloride	17.16	1.0	20	0	85.8	72 - 136				
Chlorobenzene	19.57	1.0	20	0	97.8	82 - 118				
Chloroethane	18.62	1.0	20	0	93.1	60 - 138				
Chloroform	18.33	1.0	20	0	91.7	79 - 124				
Chloromethane	16.45	1.0	20	0	82.3	50 - 139				
cis-1,2-Dichloroethene	18.38	1.0	20	0	91.9	78 - 123				
cis-1,3-Dichloropropene	20.2	1.0	20	0	101	75 - 124				
Dibromochloromethane	19.72	1.0	20	0	98.6	74 - 126				
Dibromomethane	19.53	1.0	20	0	97.6	79 - 123				
Dichlorodifluoromethane	17.24	1.0	20	0	86.2	32 - 152				
Ethylbenzene	19.16	1.0	20	0	95.8	79 - 121				
Hexachlorobutadiene	21.8	1.0	20	0	109	66 - 134				
Isopropylbenzene	18.38	1.0	20	0	91.9	72 - 131				
m,p-Xylene	38.78	2.0	40	0	96.9	80 - 121				
Methylene chloride	19.05	2.0	20	0	95.2	74 - 124				
Naphthalene	17.5	1.0	20	0	87.5	61 - 128				
n-Butylbenzene	18.69	1.0	20	0	93.5	75 - 128				
n-Propylbenzene	17.87	1.0	20	0	89.3	76 - 126				
o-Xylene	19	1.0	20	0	95.0	78 - 122				
sec-Butylbenzene	17.94	1.0	20	0	89.7	77 - 126				
Styrene	19.94	1.0	20	0	99.7	78 - 123				
tert-Butylbenzene	17.91	1.0	20	0	89.5	78 - 124				
Tetrachloroethene	19.91	1.0	20	0	99.5	74 - 129				
Toluene	19.77	1.0	20	0	98.9	80 - 121				
trans-1,2-Dichloroethene	18.07	1.0	20	0	90.3	75 - 124				
trans-1,3-Dichloropropene	19.93	1.0	20	0	99.7	73 - 127				
Trichloroethene	19.22	1.0	20	0	96.1	79 - 123				
Trichlorofluoromethane	17.32	1.0	20	0	86.6	65 - 141				
Vinyl chloride	17.08	1.0	20	0	85.4	58 - 137				
Surr: 1,2-Dichloroethane-d4	*47.4*	*1.0*	*50*	*0*	*94.8*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.02*	*1.0*	*50*	*0*	*100*	*85 - 114*				
Surr: Dibromofluoromethane	*49.54*	*1.0*	*50*	*0*	*99.1*	*80 - 119*				
Surr: Toluene-d8	*49.84*	*1.0*	*50*	*0*	*99.7*	*89 - 112*				

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060573

QC BATCH REPORT

Batch ID: R340996 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS19060573-06MS** Units: **UG/L** Analysis Date: **20-Jun-2019 14:45**
Client ID: **35AWW01_061019** Run ID: **VOA6_340996** SeqNo: **5133852** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.14	1.0	20	0	95.7	78 - 124				
1,1,1-Trichloroethane	16.29	1.0	20	0	81.5	74 - 131				
1,1,2,2-Tetrachloroethane	14.02	1.0	20	0	70.1	71 - 121				S
1,1,2-Trichloroethane	16.27	1.0	20	0	81.4	80 - 119				
1,1-Dichloroethane	12.32	1.0	20	0	61.6	77 - 125				S
1,1-Dichloroethene	11.95	1.0	20	0	59.7	71 - 131				S
1,1-Dichloropropene	16.12	1.0	20	0	80.6	78 - 125				
1,2,3-Trichlorobenzene	17.48	1.0	20	0	87.4	69 - 129				
1,2,3-Trichloropropane	13.99	1.0	20	0	70.0	73 - 122				S
1,2,4-Trichlorobenzene	17.74	1.0	20	0	88.7	69 - 130				
1,2,4-Trimethylbenzene	17.74	1.0	20	0	88.7	76 - 124				
1,2-Dibromo-3-chloropropane	17.1	1.0	20	0	85.5	62 - 128				
1,2-Dibromoethane	17	1.0	20	0	85.0	77 - 121				
1,2-Dichlorobenzene	17.49	1.0	20	0	87.4	80 - 119				
1,2-Dichloroethane	16.61	1.0	20	0	83.1	73 - 128				
1,2-Dichloropropane	13.4	1.0	20	0	67.0	78 - 122				S
1,3,5-Trimethylbenzene	17.63	1.0	20	0	88.1	75 - 124				
1,3-Dichlorobenzene	17.93	1.0	20	0	89.7	80 - 119				
1,3-Dichloropropane	16.31	1.0	20	0	81.6	80 - 119				
1,4-Dichlorobenzene	17.69	1.0	20	0	88.5	79 - 118				
2,2-Dichloropropane	15.34	1.0	20	0	76.7	60 - 139				
2-Butanone	21.9	2.0	40	0	54.7	56 - 143				S
2-Chlorotoluene	15.98	1.0	20	0	79.9	79 - 122				
2-Hexanone	24.3	2.0	40	0	60.8	57 - 139				
4-Chlorotoluene	16.45	1.0	20	0	82.2	78 - 122				
4-Isopropyltoluene	18.36	1.0	20	0	91.8	77 - 127				
4-Methyl-2-pentanone	25.94	2.0	40	0	64.9	67 - 130				S
Acetone	16.25	2.0	40	0	40.6	39 - 160				
Benzene	15.43	1.0	20	0	77.1	79 - 120				S
Bromobenzene	17.81	1.0	20	0	89.0	80 - 120				
Bromochloromethane	15.29	1.0	20	0	76.5	78 - 123				S
Bromodichloromethane	17.08	1.0	20	0	85.4	79 - 125				
Bromoform	20	1.0	20	0	100.0	66 - 130				
Bromomethane	12.31	1.0	20	0	61.5	53 - 141				

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060573

QC BATCH REPORT

Batch ID: R340996 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS19060573-06MS** Units: **UG/L** Analysis Date: **20-Jun-2019 14:45**
Client ID: **35AWW01_061019** Run ID: **VOA6_340996** SeqNo: **5133852** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	26.53	2.0	40	0	66.3	64 - 133				
Carbon tetrachloride	18.92	1.0	20	0	94.6	72 - 136				
Chlorobenzene	17.92	1.0	20	0	89.6	82 - 118				
Chloroethane	9.39	1.0	20	0	47.0	60 - 138				S
Chloroform	14.53	1.0	20	0	72.6	79 - 124				S
Chloromethane	8.228	1.0	20	0	41.1	50 - 139				S
cis-1,2-Dichloroethene	14.15	1.0	20	0	70.7	78 - 123				S
cis-1,3-Dichloropropene	15.92	1.0	20	0	79.6	75 - 124				
Dibromochloromethane	18.35	1.0	20	0	91.7	74 - 126				
Dibromomethane	16.12	1.0	20	0	80.6	79 - 123				
Dichlorodifluoromethane	9.08	1.0	20	0	45.4	32 - 152				
Ethylbenzene	17.91	1.0	20	0	89.5	79 - 121				
Hexachlorobutadiene	21.3	1.0	20	0	107	66 - 134				
Isopropylbenzene	18.6	1.0	20	0	93.0	72 - 131				
m,p-Xylene	36.08	2.0	40	0	90.2	80 - 121				
Methylene chloride	13.05	2.0	20	0	65.3	74 - 124				S
Naphthalene	15.24	1.0	20	0	76.2	61 - 128				
n-Butylbenzene	16.46	1.0	20	0	82.3	75 - 128				
n-Propylbenzene	16.52	1.0	20	0	82.6	76 - 126				
o-Xylene	17.88	1.0	20	0	89.4	78 - 122				
sec-Butylbenzene	17.45	1.0	20	0	87.3	77 - 126				
Styrene	17.72	1.0	20	0	88.6	78 - 123				
tert-Butylbenzene	18.03	1.0	20	0	90.2	78 - 124				
Tetrachloroethene	21.8	1.0	20	0	109	74 - 129				
Toluene	17.68	1.0	20	0	88.4	80 - 121				
trans-1,2-Dichloroethene	14.47	1.0	20	0	72.4	75 - 124				S
trans-1,3-Dichloropropene	16.53	1.0	20	0	82.6	73 - 127				
Trichloroethene	18.55	1.0	20	0	92.8	79 - 123				
Trichlorofluoromethane	14.61	1.0	20	0	73.1	65 - 141				
Vinyl chloride	8.739	1.0	20	0	43.7	58 - 137				S
Surr: 1,2-Dichloroethane-d4	*39.96*	*1.0*	*50*	*0*	*79.9*	*81 - 118*				S
Surr: 4-Bromofluorobenzene	*49.12*	*1.0*	*50*	*0*	*98.2*	*85 - 114*				
Surr: Dibromofluoromethane	*41.79*	*1.0*	*50*	*0*	*83.6*	*80 - 119*				
Surr: Toluene-d8	*47.84*	*1.0*	*50*	*0*	*95.7*	*89 - 112*				

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060573

QC BATCH REPORT

Batch ID: R340996 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19060573-06MSD** Units: **UG/L** Analysis Date: **20-Jun-2019 15:09**
Client ID: **35AWW01_061019** Run ID: **VOA6_340996** SeqNo: **5133853** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.02	1.0	20	0	95.1	78 - 124	19.14	0.67	20	
1,1,1-Trichloroethane	16.69	1.0	20	0	83.4	74 - 131	16.29	2.39	20	
1,1,2,2-Tetrachloroethane	14.23	1.0	20	0	71.2	71 - 121	14.02	1.49	20	
1,1,2-Trichloroethane	16.38	1.0	20	0	81.9	80 - 119	16.27	0.694	20	
1,1-Dichloroethane	12.21	1.0	20	0	61.0	77 - 125	12.32	0.912	20	S
1,1-Dichloroethene	12.05	1.0	20	0	60.2	71 - 131	11.95	0.812	20	S
1,1-Dichloropropene	15.92	1.0	20	0	79.6	78 - 125	16.12	1.21	20	
1,2,3-Trichlorobenzene	19.48	1.0	20	0	97.4	69 - 129	17.48	10.8	20	
1,2,3-Trichloropropane	14.49	1.0	20	0	72.4	73 - 122	13.99	3.48	20	S
1,2,4-Trichlorobenzene	18.78	1.0	20	0	93.9	69 - 130	17.74	5.72	20	
1,2,4-Trimethylbenzene	17.4	1.0	20	0	87.0	76 - 124	17.74	1.97	20	
1,2-Dibromo-3-chloropropane	17.38	1.0	20	0	86.9	62 - 128	17.1	1.65	20	
1,2-Dibromoethane	17.04	1.0	20	0	85.2	77 - 121	17	0.262	20	
1,2-Dichlorobenzene	17.59	1.0	20	0	87.9	80 - 119	17.49	0.591	20	
1,2-Dichloroethane	17.56	1.0	20	0	87.8	73 - 128	16.61	5.55	20	
1,2-Dichloropropane	13.51	1.0	20	0	67.5	78 - 122	13.4	0.779	20	S
1,3,5-Trimethylbenzene	17.5	1.0	20	0	87.5	75 - 124	17.63	0.728	20	
1,3-Dichlorobenzene	17.85	1.0	20	0	89.3	80 - 119	17.93	0.445	20	
1,3-Dichloropropane	15.93	1.0	20	0	79.6	80 - 119	16.31	2.41	20	S
1,4-Dichlorobenzene	17.72	1.0	20	0	88.6	79 - 118	17.69	0.159	20	
2,2-Dichloropropane	15.18	1.0	20	0	75.9	60 - 139	15.34	1.01	20	
2-Butanone	23.29	2.0	40	0	58.2	56 - 143	21.9	6.17	20	
2-Chlorotoluene	16.34	1.0	20	0	81.7	79 - 122	15.98	2.2	20	
2-Hexanone	24.65	2.0	40	0	61.6	57 - 139	24.3	1.42	20	
4-Chlorotoluene	16.43	1.0	20	0	82.2	78 - 122	16.45	0.0842	20	
4-Isopropyltoluene	18	1.0	20	0	90.0	77 - 127	18.36	2	20	
4-Methyl-2-pentanone	27.03	2.0	40	0	67.6	67 - 130	25.94	4.12	20	
Acetone	16.9	2.0	40	0	42.2	39 - 160	16.25	3.94	20	
Benzene	15.45	1.0	20	0	77.2	79 - 120	15.43	0.137	20	S
Bromobenzene	17.69	1.0	20	0	88.5	80 - 120	17.81	0.662	20	
Bromochloromethane	15.57	1.0	20	0	77.9	78 - 123	15.29	1.81	20	S
Bromodichloromethane	17.79	1.0	20	0	89.0	79 - 125	17.08	4.06	20	
Bromoform	19.88	1.0	20	0	99.4	66 - 130	20	0.609	20	
Bromomethane	11.79	1.0	20	0	58.9	53 - 141	12.31	4.33	20	

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060573

QC BATCH REPORT

Batch ID: R340996 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19060573-06MSD** Units: **UG/L** Analysis Date: **20-Jun-2019 15:09**
Client ID: **35AWW01_061019** Run ID: **VOA6_340996** SeqNo: **5133853** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Carbon disulfide	26.12	2.0	40	0	65.3	64 - 133	26.53	1.56	20	
Carbon tetrachloride	18.97	1.0	20	0	94.8	72 - 136	18.92	0.242	20	
Chlorobenzene	17.76	1.0	20	0	88.8	82 - 118	17.92	0.883	20	
Chloroethane	9.486	1.0	20	0	47.4	60 - 138	9.39	1.01	20	S
Chloroform	14.71	1.0	20	0	73.6	79 - 124	14.53	1.27	20	S
Chloromethane	7.652	1.0	20	0	38.3	50 - 139	8.228	7.25	20	S
cis-1,2-Dichloroethene	14.28	1.0	20	0	71.4	78 - 123	14.15	0.947	20	S
cis-1,3-Dichloropropene	17.45	1.0	20	0	87.3	75 - 124	15.92	9.18	20	
Dibromochloromethane	18.02	1.0	20	0	90.1	74 - 126	18.35	1.79	20	
Dibromomethane	16.88	1.0	20	0	84.4	79 - 123	16.12	4.59	20	
Dichlorodifluoromethane	8.701	1.0	20	0	43.5	32 - 152	9.08	4.26	20	
Ethylbenzene	18.02	1.0	20	0	90.1	79 - 121	17.91	0.604	20	
Hexachlorobutadiene	21.97	1.0	20	0	110	66 - 134	21.3	3.09	20	
Isopropylbenzene	18.52	1.0	20	0	92.6	72 - 131	18.6	0.425	20	
m,p-Xylene	36.13	2.0	40	0	90.3	80 - 121	36.08	0.119	20	
Methylene chloride	13.28	2.0	20	0	66.4	74 - 124	13.05	1.74	20	S
Naphthalene	16.43	1.0	20	0	82.1	61 - 128	15.24	7.5	20	
n-Butylbenzene	16.76	1.0	20	0	83.8	75 - 128	16.46	1.81	20	
n-Propylbenzene	16.46	1.0	20	0	82.3	76 - 126	16.52	0.347	20	
o-Xylene	17.44	1.0	20	0	87.2	78 - 122	17.88	2.47	20	
sec-Butylbenzene	17.14	1.0	20	0	85.7	77 - 126	17.45	1.82	20	
Styrene	17.86	1.0	20	0	89.3	78 - 123	17.72	0.784	20	
tert-Butylbenzene	17.67	1.0	20	0	88.3	78 - 124	18.03	2.02	20	
Tetrachloroethene	20.78	1.0	20	0	104	74 - 129	21.8	4.79	20	
Toluene	17.53	1.0	20	0	87.7	80 - 121	17.68	0.822	20	
trans-1,2-Dichloroethene	14.43	1.0	20	0	72.2	75 - 124	14.47	0.299	20	S
trans-1,3-Dichloropropene	17.97	1.0	20	0	89.8	73 - 127	16.53	8.35	20	
Trichloroethene	18.68	1.0	20	0	93.4	79 - 123	18.55	0.667	20	
Trichlorofluoromethane	14.47	1.0	20	0	72.3	65 - 141	14.61	1.01	20	
Vinyl chloride	8.412	1.0	20	0	42.1	58 - 137	8.739	3.81	20	S
Surr: 1,2-Dichloroethane-d4	*40.73*	*1.0*	*50*	*0*	*81.5*	*81 - 118*	*39.96*	*1.91*	*20*	
Surr: 4-Bromofluorobenzene	*49.19*	*1.0*	*50*	*0*	*98.4*	*85 - 114*	*49.12*	*0.145*	*20*	
Surr: Dibromofluoromethane	*42.34*	*1.0*	*50*	*0*	*84.7*	*80 - 119*	*41.79*	*1.32*	*20*	
Surr: Toluene-d8	*46.95*	*1.0*	*50*	*0*	*93.9*	*89 - 112*	*47.84*	*1.88*	*20*	

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19060573

QC BATCH REPORT

Batch ID: R340996 (0)	Instrument: VOA6	Method: VOLATILES ORGANICS BY METHOD 8260C

The following samples were analyzed in this batch:

HS19060573-01	HS19060573-02	HS19060573-03	HS19060573-04
HS19060573-05	HS19060573-06	HS19060573-07	HS19060573-08
HS19060573-09	HS19060573-10		

ALS Houston, US Date: 21-Jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: **HS19060573**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

ALS Houston, US Date: 21-Jun-19

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	19-028-0	27-Mar-2020
Dept of Defense	ANAB L2231	20-Dec-2021
Illinois	004438	29-Jun-2019
Kansas	E-10352 2018-2019	31-Jul-2019
Louisiana	03087	30-Jun-2019
Maryland	343, 2018-2019	30-Jun-2019
North Carolina	624-2019	31-Dec-2019
Oklahoma	2018-156	31-Aug-2019
Texas	TX104704231-19-23	30-Apr-2020

ALS Houston, US Date: 21-jun-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Work Order: HS19060573

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS19060573-01	35AWW22_061019	Login	12/06/2019 12:49:33	NDR	MET086
HS19060573-01	35AWW22_061019	Login	12/06/2019 12:49:33	NDR	WET280
HS19060573-01	35AWW22_061019	Login	12/06/2019 12:49:33	NDR	VOA161
HS19060573-01	35AWW22_061019	Login	12/06/2019 12:49:33	NDR	Sub
HS19060573-01	35AWW22_061019	Login	12/06/2019 12:49:33	NDR	Sub
HS19060573-01	35AWW22_061019	Login	12/06/2019 12:49:33	NDR	Sub
HS19060573-01	35AWW22_061019	Login	12/06/2019 12:49:33	NDR	Sub

00949874

ALS Houston, US Date: 21-Jun-19

Sample Receipt Checklist

Client Name: Bhate Environmental
Work Order: HS19060573
Date/Time Received: **11-Jun-2019 11:11**
Received by: **RPG**

Checklist completed by: *Nilesh D. Ranchod* eSignature 12-Jun-2019 Date
Reviewed by: *RJ Modashia* eSignature 12-Jun-2019 Date

Matrices: **Groundwater/Water**
Carrier name: **FedEx Priority Overnight**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs:None
Samplers name present on COC?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.1c U/C	IR11	
Cooler(s)/Kit(s):	44892		
Date/Time sample(s) sent to storage:	06/11/2019 18:00		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

bhate

Page: ____ of ____

Project/Phase No: NWO1312.0150

COC Number(1): ____

LIMS Number: ____

1608 13th Avenue South, Suite 300
Birmingham Alabama 35205
Tel: 205-918-4000
Fax: 205-918-4050

Chain of Custody and Analytical Request

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / Site 58

Client Name:

Collected by: Scott Beesinger

Field Sample ID (30 Characters Max)	ERPIMS LOCID (15 Characters Max)	Date Collected (dd-mmm-yyyy)	Time Collected (Military) (hhmm)	Sample Depth (beginning - ending)	SA Code [2]	Sample Number [3]	Sample Matrix [4]	Number of containers	VOC	MEE	TOC	Carbon Dioxide	Anions						Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
35AWW22_061019		10-JAN-2019	0750	-	N		WG	3	X													
35AWW12_061019		10-JAN-2019	0840	-	N		WG	3	X													
35AWW12_061019_a		10-JAN-2019	0840	-	FD		WG	3	X													
35AWW21_061019		10-JAN-2019	0930		N		WG	3	X													
35AWW21_061019_a		10-JAN-2019	0930		FD		WG	3	X													
35AWW01_061019		10-JAN-2019	1020	-	N		WG	3	X													
35AWW01_061019_MS		10-JAN-2019	1020	-	MS		WG	3	X													
35AWW01_061019_MSD		10-JAN-2019	1020	-	SD		WG	3	X													
35AWW05_061019		10-JAN-2019	1110	-	N		WG	3	X													
35AWW16_061019		10-JAN-2019	1155	-	N		WG	3	X													
35AWW17_061019		10-JAN-2019	1250	-	N		WG	3	X													
TRIP BLANK		10 JAN 2019			TB		W	2	X													

Sample Analysis Requested [5] | Quality Assurance Samples [6]

COMMENTS:

HS19060573

Bhate Environmental Associates, Inc.
LHAAP-58

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1. Scott Beesinger	6/10/19	1430	1. Nelson	06/11/19	11:11
2.			2.		
3.			3.		

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: ____ Shipped

Method of Shipment: UPS

____ Fed ____ Ex ____ Airbill Number: ____

Analytical Lab: ALS 10450 Stanciff Rd. Suite 210 Houston, TX 77099 (281) 530-5656

ATTN: SONIA WEST Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01)

2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-c) Sample, FD = Field Duplicate (-a) Samples, FR = Field Replicate (-b) Samples, EB = Equipment Blank (-d) Samples, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-e)

3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)

4.) Matrix Codes: GS = Soil Gas, WG = Groundwater, WS = Surface Water, SO = Soil, SE = Sediment, SL = Sludge, SS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blanks

5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each.

6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 10109901 in the Equipment Blank Lot Control

IR11 2.1°C Cooler # 448472

00949875

APPENDIX F
MANN-KENDALL TREND TEST RESULTS

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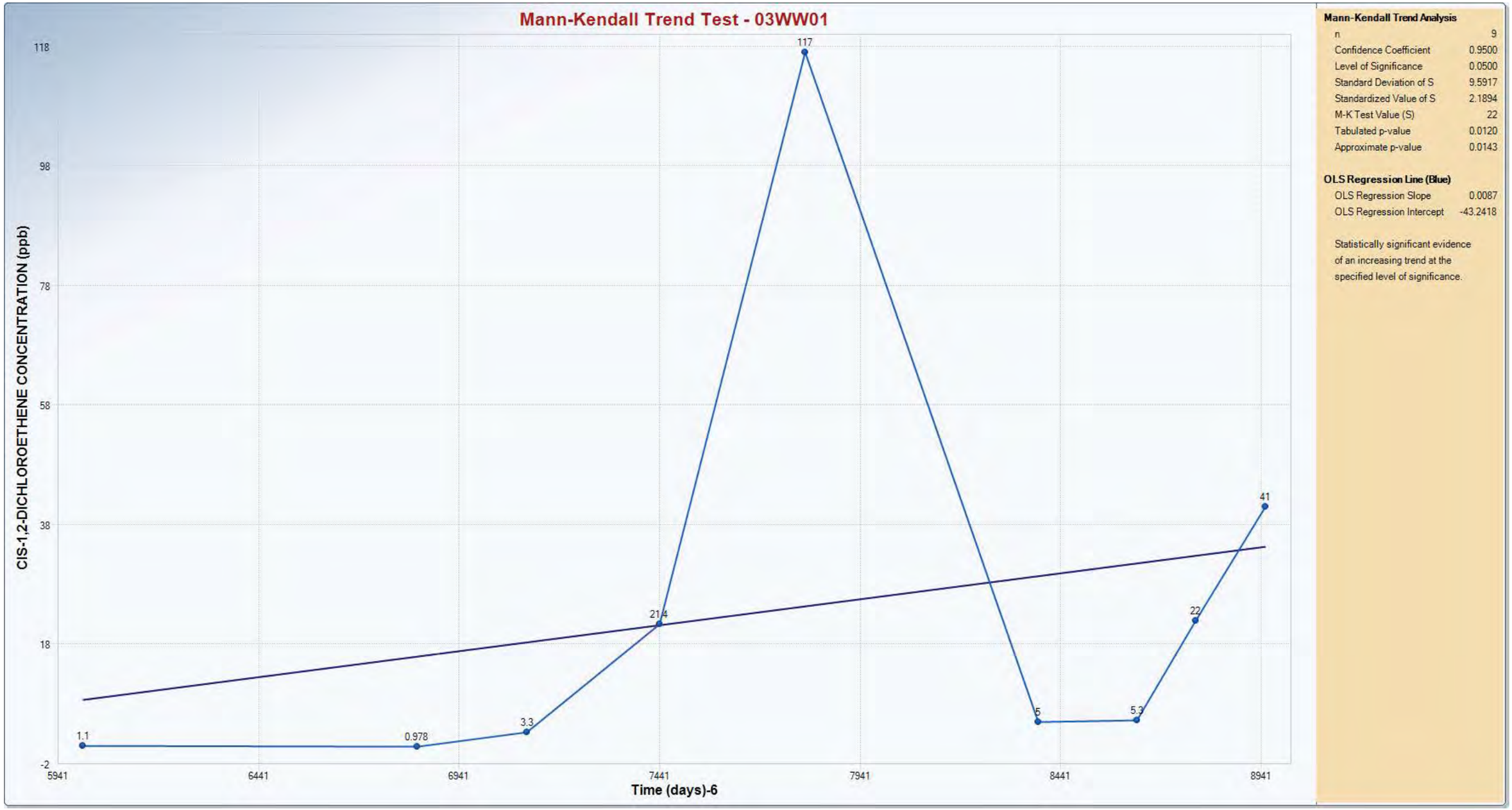
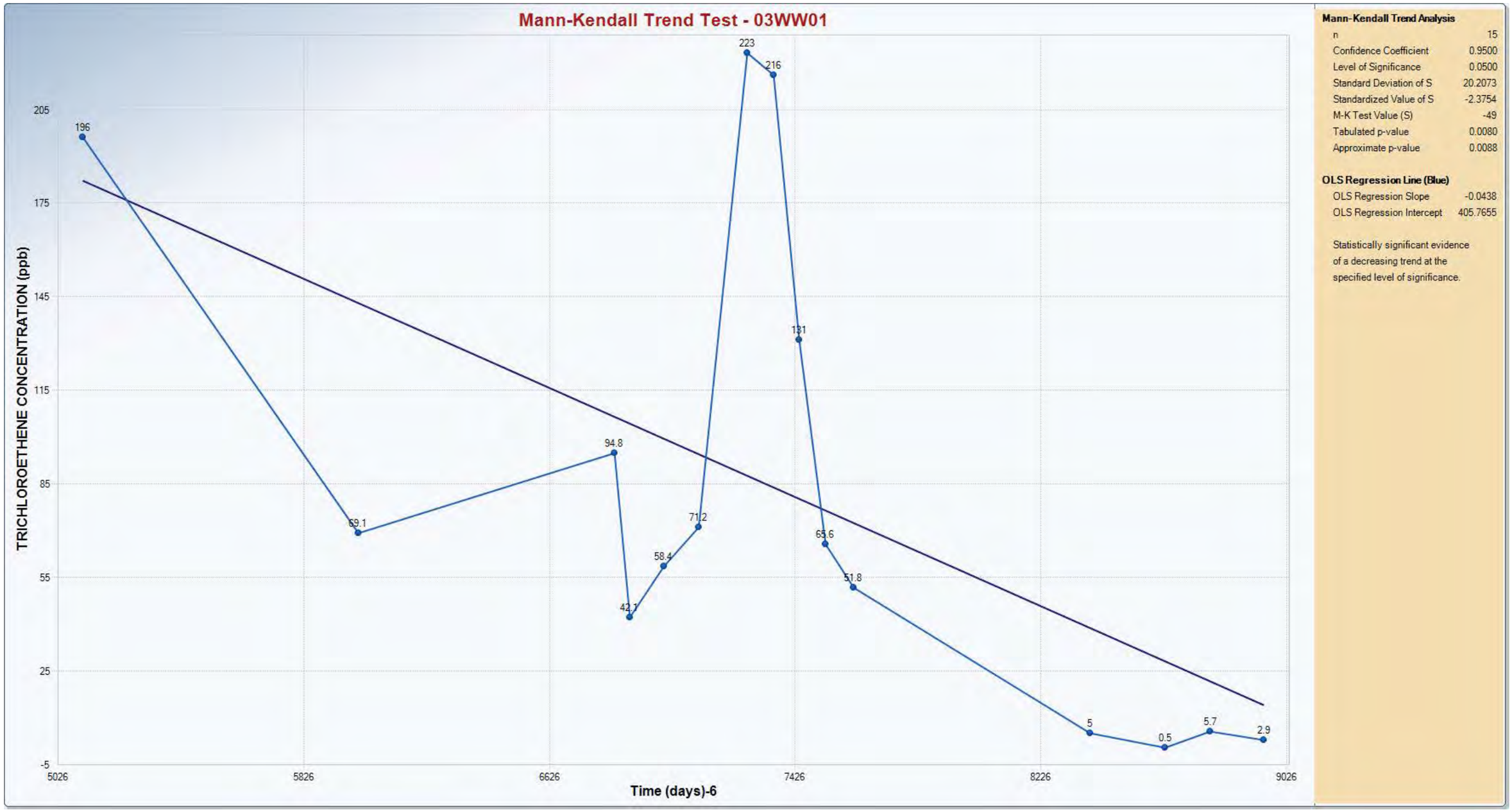
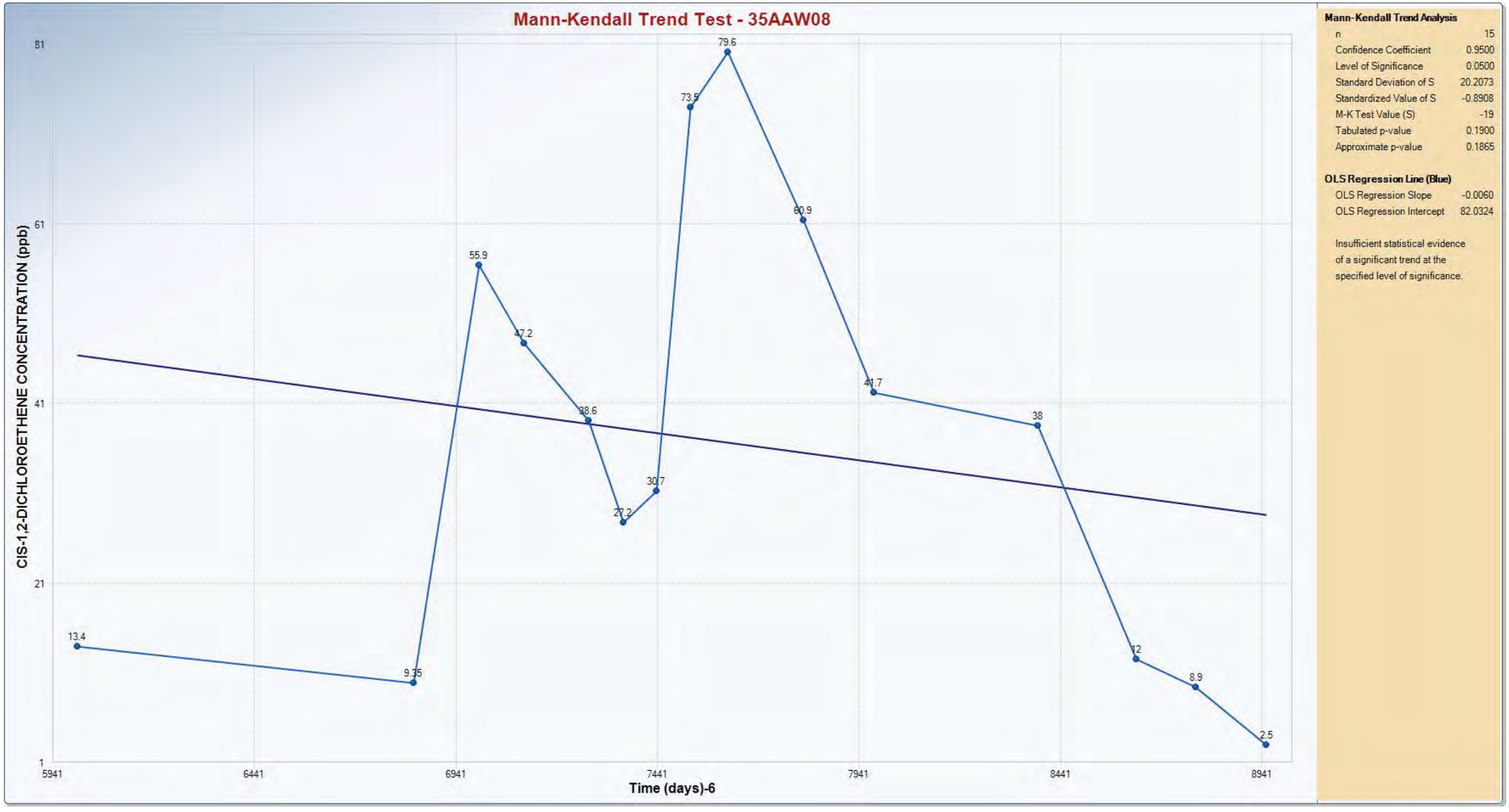

Mann-Kendall Trend Test - 03WW01
CIS-1,2-DICHLOROETHENE CONCENTRATION (ppb)
118
98
78
58
38
18
-2
5941
6441
6941
7441
7941
8441
8941
Time (days)-6
1.1
0.978
3.3
21.4
117
5
5.3
22
41
Mann-Kendall Trend Analysis
n 9
Confidence Coefficient 0.9500
Level of Significance 0.0500
Standard Deviation of S 9.5917
Standardized Value of S 2.1894
M-K Test Value (S) 22
Tabulated p-value 0.0120
Approximate p-value 0.0143
OLS Regression Line (Blue)
OLS Regression Slope 0.0087
OLS Regression Intercept -43.2418
Statistically significant evidence of an increasing trend at the specified level of significance.


Mann-Kendall Trend Test - 03WW01
TETRACHLOROETHENE CONCENTRATION (ppb)
2570
2336
1936
1536
1136
736
418
368
336
172
172
154
48.6
32.8
15.9
31.4
36.4
6.49
5
0.5
15
3.2
-64
5026
5826
6626
7426
8226
9026
Time (days)-6
Mann-Kendall Trend Analysis
n 16
Confidence Coefficient 0.9500
Level of Significance 0.0500
Standard Deviation of S 22.1886
Standardized Value of S -4.5970
M-K Test Value (S) -103
Tabulated p-value 0.0000
Approximate p-value 0.0000
OLS Regression Line (Blue)
OLS Regression Slope -0.4598
OLS Regression Intercept 3,663.9053
Statistically significant evidence of a decreasing trend at the specified level of significance.

bhate


Mann-Kendall Trend Test - 03WW01
TRICHLOROETHENE CONCENTRATION (ppb)
205
175
145
115
85
55
25
-5
5026
5826
6626
7426
8226
9026
Time (days)-6
196
69.1
94.8
42.1
58.4
71.2
223
216
131
65.6
51.8
5
0.5
5.7
2.9
Mann-Kendall Trend Analysis
n 15
Confidence Coefficient 0.9500
Level of Significance 0.0500
Standard Deviation of S 20.2073
Standardized Value of S -2.3754
M-K Test Value (S) -49
Tabulated p-value 0.0080
Approximate p-value 0.0088
OLS Regression Line (Blue)
OLS Regression Slope -0.0438
OLS Regression Intercept 405.7655
Statistically significant evidence of a decreasing trend at the specified level of significance.

bhate


Mann-Kendall Trend Test - 35AAW08
CIS-1,2-DICHLOROETHENE CONCENTRATION (ppb)
81
61
41
21
1
13.4
55.9
9.35
47.2
38.6
27.2
30.7
73.5
79.6
60.9
41.7
38
12
8.9
2.5
5941
6441
6941
7441
7941
8441
8941
Time (days)-6
Mann-Kendall Trend Analysis
n 15
Confidence Coefficient 0.9500
Level of Significance 0.0500
Standard Deviation of S 20.2073
Standardized Value of S -0.8908
M-K Test Value (S) -19
Tabulated p-value 0.1900
Approximate p-value 0.1865
OLS Regression Line (Blue)
OLS Regression Slope -0.0060
OLS Regression Intercept 82.0324
Insufficient statistical evidence of a significant trend at the specified level of significance.

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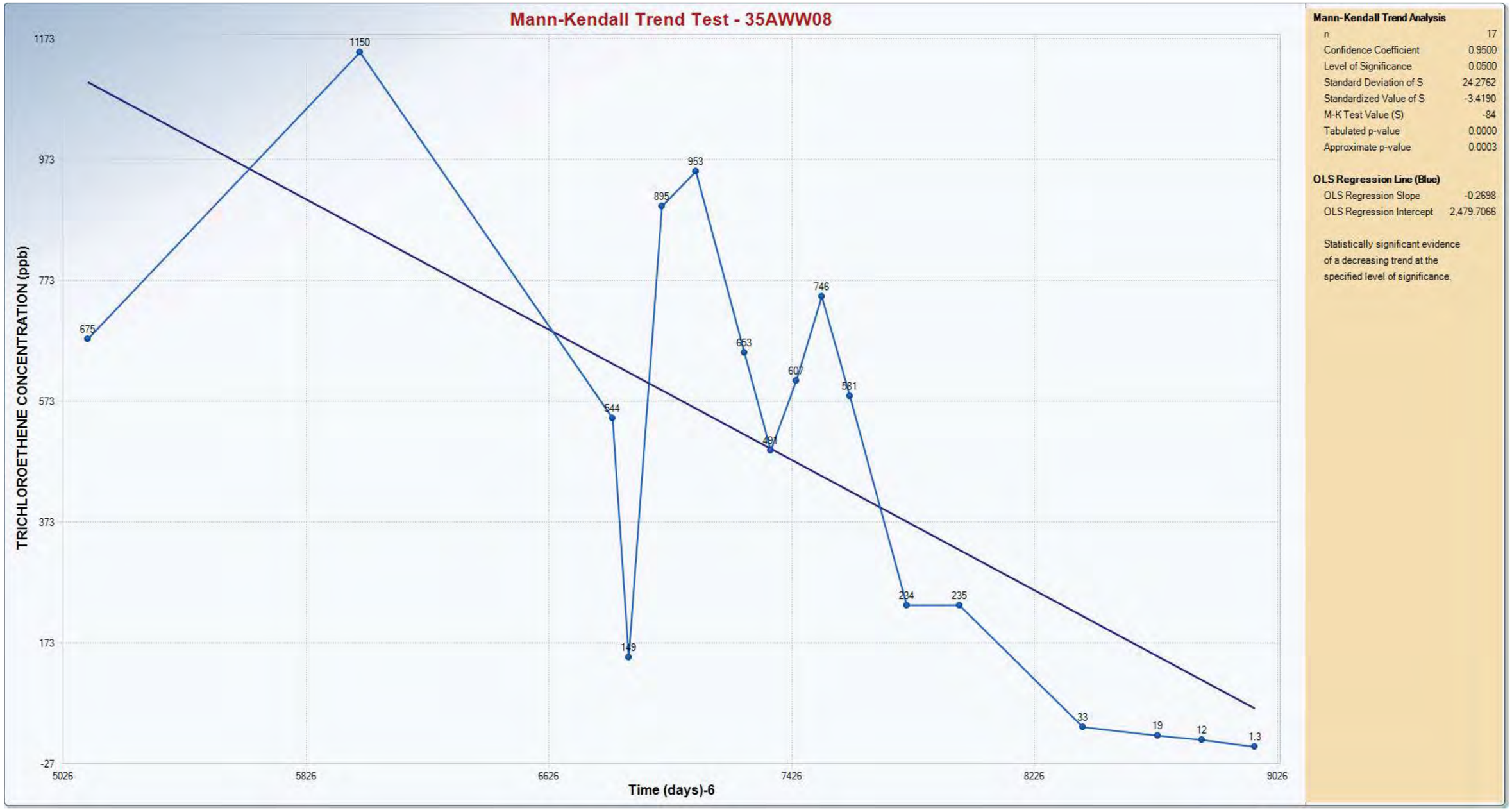
Mann-Kendall Trend Test - 35AWW08
TETRACHLOROETHENE CONCENTRATION (ppb)
1640
1460
1210
960
710
460
210
-40
603
599
204
112
119
110
110
79
80.1
36.9
12
2.5
0.5
4.8
6793
7193
7593
7993
8393
8793
Time (days)-6
Mann-Kendall Trend Analysis
n 15
Confidence Coefficient 0.9500
Level of Significance 0.0500
Standard Deviation of S 20.1825
Standardized Value of S -4.7070
M-K Test Value (S) -96
Tabulated p-value 0.0000
Approximate p-value 0.0000
OLS Regression Line (Blue)
OLS Regression Slope -0.3779
OLS Regression Intercept 3,158.8091
Statistically significant evidence of a decreasing trend at the specified level of significance.

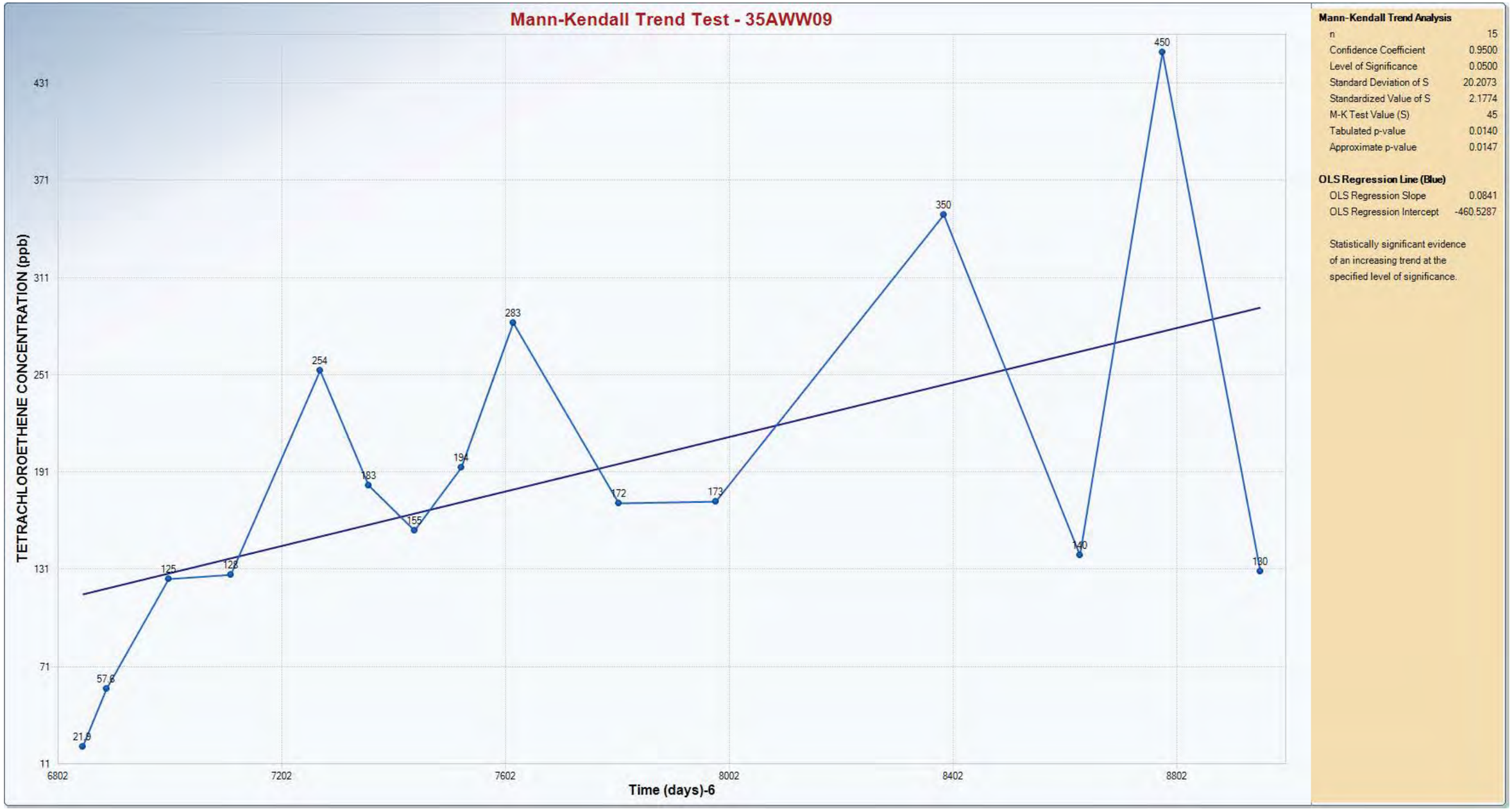
bhate


Mann-Kendall Trend Test - 35AWW08
TRICHLOROETHENE CONCENTRATION (ppb)
1173
973
773
573
373
173
-27
5026
5826
6626
7426
8226
9026
Time (days)-6
675
1150
544
149
895
953
653
491
607
746
581
234
235
33
19
12
1.3
Mann-Kendall Trend Analysis
n 17
Confidence Coefficient 0.9500
Level of Significance 0.0500
Standard Deviation of S 24.2762
Standardized Value of S -3.4190
M-K Test Value (S) -84
Tabulated p-value 0.0000
Approximate p-value 0.0003
OLS Regression Line (Blue)
OLS Regression Slope -0.2698
OLS Regression Intercept 2,479.7066
Statistically significant evidence of a decreasing trend at the specified level of significance.

bhate


Mann-Kendall Trend Test - 35AWW09
CIS-1,2-DICHLOROETHENE CONCENTRATION (ppb)
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.703
0.717
0.622
0.94
0.502
0.486
0.483
0.515
0.437
0.5
0.5
0.317
6958
7358
7758
8158
8558
8958
Time (days)-6
Mann-Kendall Trend Analysis
n 12
Confidence Coefficient 0.9500
Level of Significance 0.0500
Standard Deviation of S 14.5488
Standardized Value of S 0.6873
M-K Test Value (S) 11
Tabulated p-value 0.2730
Approximate p-value 0.2459
OLS Regression Line (Blue)
OLS Regression Slope 0.0001
OLS Regression Intercept -0.0910
Insufficient statistical evidence of a significant trend at the specified level of significance.

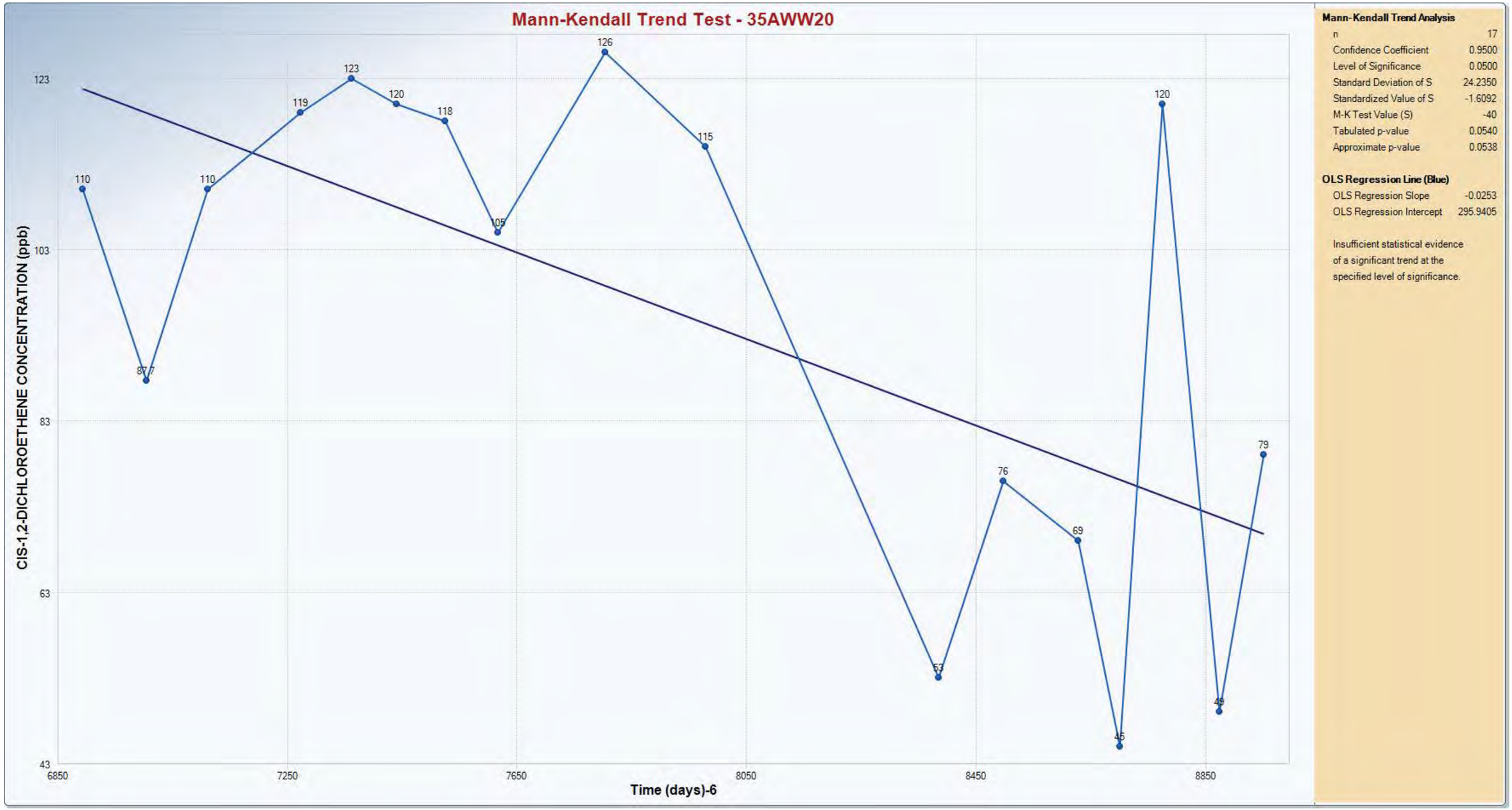
bhate


Mann-Kendall Trend Test - 35AWW09
TETRACHLOROETHENE CONCENTRATION (ppb)
431
371
311
251
191
131
71
11
6802
7202
7602
8002
8402
8802
Time (days)-6
21.9
57.6
125
128
254
183
155
194
283
172
173
350
140
450
130
Mann-Kendall Trend Analysis
n 15
Confidence Coefficient 0.9500
Level of Significance 0.0500
Standard Deviation of S 20.2073
Standardized Value of S 2.1774
M-K Test Value (S) 45
Tabulated p-value 0.0140
Approximate p-value 0.0147
OLS Regression Line (Blue)
OLS Regression Slope 0.0841
OLS Regression Intercept -460.5287
Statistically significant evidence of an increasing trend at the specified level of significance.

bhate


Mann-Kendall Trend Test - 35AWW09
TRICHLOROETHENE CONCENTRATION (ppb)
145
125
105
85
65
45
25
5
6802
7202
7602
8002
8402
8802
Time (days)-6
11.9
8.97
37.3
41.7
93
64.3
45
81.3
59.5
55.7
48.2
97
51
150
38
Mann-Kendall Trend Analysis
n 15
Confidence Coefficient 0.9500
Level of Significance 0.0500
Standard Deviation of S 20.2073
Standardized Value of S 1.8805
M-K Test Value (S) 39
Tabulated p-value 0.0290
Approximate p-value 0.0300
OLS Regression Line (Blue)
OLS Regression Slope 0.0263
OLS Regression Intercept -144.0378
Statistically significant evidence of an increasing trend at the specified level of significance.

bhate


Mann-Kendall Trend Test - 35AWW20
CIS-1,2-DICHLOROETHENE CONCENTRATION (ppb)
123
103
83
63
43
110
87.7
110
119
123
120
118
105
126
115
53
76
69
45
120
49
79
6850
7250
7650
8050
8450
8850
Time (days)-6
Mann-Kendall Trend Analysis
n 17
Confidence Coefficient 0.9500
Level of Significance 0.0500
Standard Deviation of S 24.2350
Standardized Value of S -1.6092
M-K Test Value (S) -40
Tabulated p-value 0.0540
Approximate p-value 0.0538
OLS Regression Line (Blue)
OLS Regression Slope -0.0253
OLS Regression Intercept 295.9405
Insufficient statistical evidence of a significant trend at the specified level of significance.

bhate


Mann-Kendall Trend Test - 35AWW20
TRICHLOROETHENE CONCENTRATION (ppb)
853
753
653
553
453
353
253
153
6850
7250
7650
8050
8450
8850
Time (days)-6
513
479
695
843
820
718
536
582
707
594
320
330
270
170
570
180
230
Mann-Kendall Trend Analysis
n 17
Confidence Coefficient 0.9500
Level of Significance 0.0500
Standard Deviation of S 24.2762
Standardized Value of S -2.8423
M-K Test Value (S) -70
Tabulated p-value 0.0020
Approximate p-value 0.0022
OLS Regression Line (Blue)
OLS Regression Slope -0.2313
OLS Regression Intercept 2,343.5035
Statistically significant evidence of a decreasing trend at the specified level of significance.

bhate


Mann-Kendall Trend Test - 35AWW20
VINYL CHLORIDE CONCENTRATION (ppb)
205
175
145
115
85
55
25
-5
6850
7250
7650
8050
8450
8850
Time (days)-6
105
62.4
65.7
102
122
90.6
151
126
216
166
78
110
71
0.5
110
54
140
Mann-Kendall Trend Analysis
n 17
Confidence Coefficient 0.9500
Level of Significance 0.0500
Standard Deviation of S 24.2556
Standardized Value of S 0.0825
M-K Test Value (S) 3
Tabulated p-value 0.4840
Approximate p-value 0.4671
OLS Regression Line (Blue)
OLS Regression Slope -0.0107
OLS Regression Intercept 189.0443
Insufficient statistical evidence of a significant trend at the specified level of significance.

bhate


Mann-Kendall Trend Test - 35AWW20
1,1-DICHLOROETHENE CONCENTRATION (ppb)
4986
4186
3386
2586
1786
986
6850
7250
7650
8050
8450
8850
Time (days)-6
5660
5460
5060
4910
4780
4540
3630
3440
3230
2950
2700
2300
1900
1800
1500
1400
1100
Mann-Kendall Trend Analysis
n 17
Confidence Coefficient 0.9500
Level of Significance 0.0500
Standard Deviation of S 24.2762
Standardized Value of S -2.7599
M-K Test Value (S) -68
Tabulated p-value 0.0020
Approximate p-value 0.0029
OLS Regression Line (Blue)
OLS Regression Slope -1.6017
OLS Regression Intercept 16,022.8774
Statistically significant evidence of a decreasing trend at the specified level of significance.

bhate


Mann-Kendall Trend Test - LHSMW06
TRICHLOROETHENE CONCENTRATION (ppb)
Time (days)-6
0
3
6
9
12
15
446
2446
4446
6446
8446
0.43
0.53
0.77
0.486
1.87
0.751
1.41
2.77
1.75
3.02
3.23
5.66
6.5
9.06
5.8
16
7.5
2.8
Mann-Kendall Trend Analysis
n 18
Confidence Coefficient 0.9500
Level of Significance 0.0500
Standard Deviation of S 26.4008
Standardized Value of S 4.4696
M-K Test Value (S) 119
Tabulated p-value 0.0000
Approximate p-value 0.0000
OLS Regression Line (Blue)
OLS Regression Slope 0.0010
OLS Regression Intercept -2.4703
Statistically significant evidence of an increasing trend at the specified level of significance.

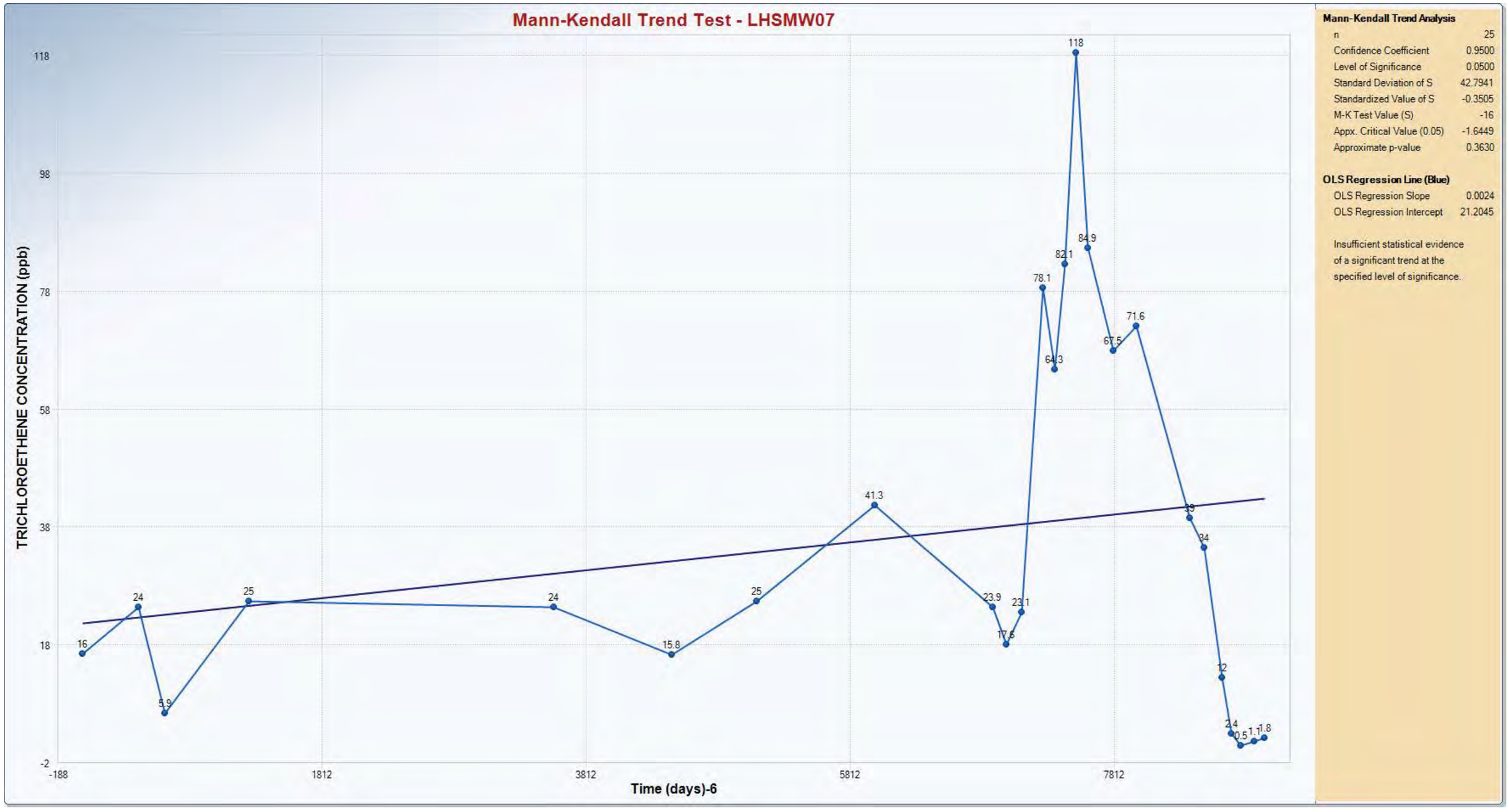
bhate


Mann-Kendall Trend Test - LHSMW06
VINYL CHLORIDE CONCENTRATION (ppb)
4.6
4.0
3.4
2.8
2.2
1.6
1.0
0.4
446
2446
4446
6446
8446
Time (days)-6
0.62
0.627
0.5
0.597
1.15
0.927
0.967
2.1
2.38
2.94
1.36
2.2
0.5
5
1.2
Mann-Kendall Trend Analysis
n 15
Confidence Coefficient 0.9500
Level of Significance 0.0500
Standard Deviation of S 20.1825
Standardized Value of S 2.6260
M-K Test Value (S) 54
Tabulated p-value 0.0030
Approximate p-value 0.0043
OLS Regression Line (Blue)
OLS Regression Slope 0.0002
OLS Regression Intercept -0.1361
Statistically significant evidence of an increasing trend at the specified level of significance.

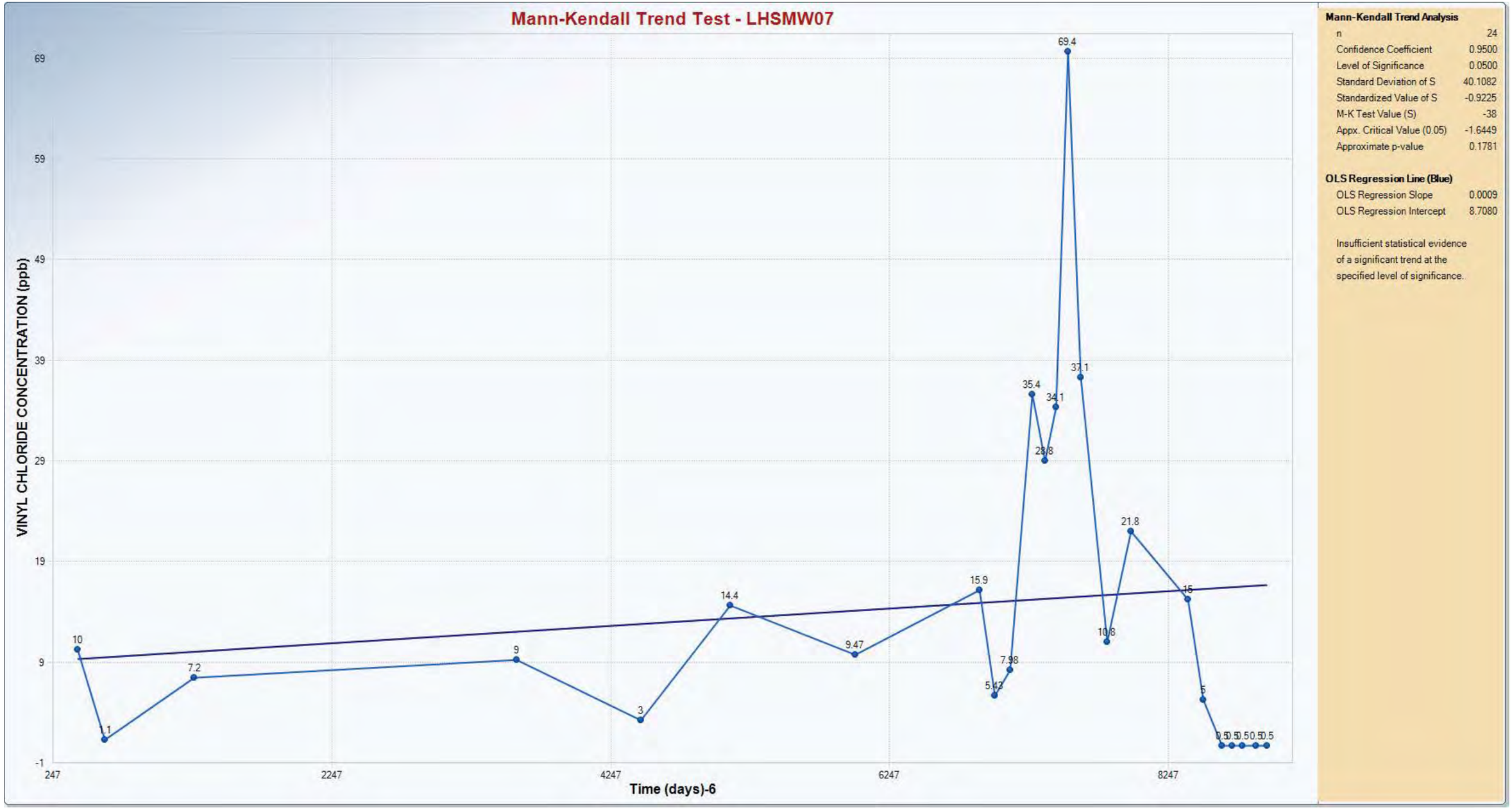
bhate


Mann-Kendall Trend Test - LHSMW06
1,1-DICHLOROETHENE CONCENTRATION (ppb)
Time (days)-6
0
3
6
9
12
15
18
446
2446
4446
6446
8446
2
1.3
1.23
0.884
1.68
4.03
3.28
5.95
8.2
12.1
13.7
19.2
12
19
2.3
2.2
Mann-Kendall Trend Analysis
n 16
Confidence Coefficient 0.9500
Level of Significance 0.0500
Standard Deviation of S 22.2111
Standardized Value of S 2.6563
M-K Test Value (S) 60
Tabulated p-value 0.0030
Approximate p-value 0.0039
OLS Regression Line (Blue)
OLS Regression Slope 0.0011
OLS Regression Intercept -0.6039
Statistically significant evidence of an increasing trend at the specified level of significance.

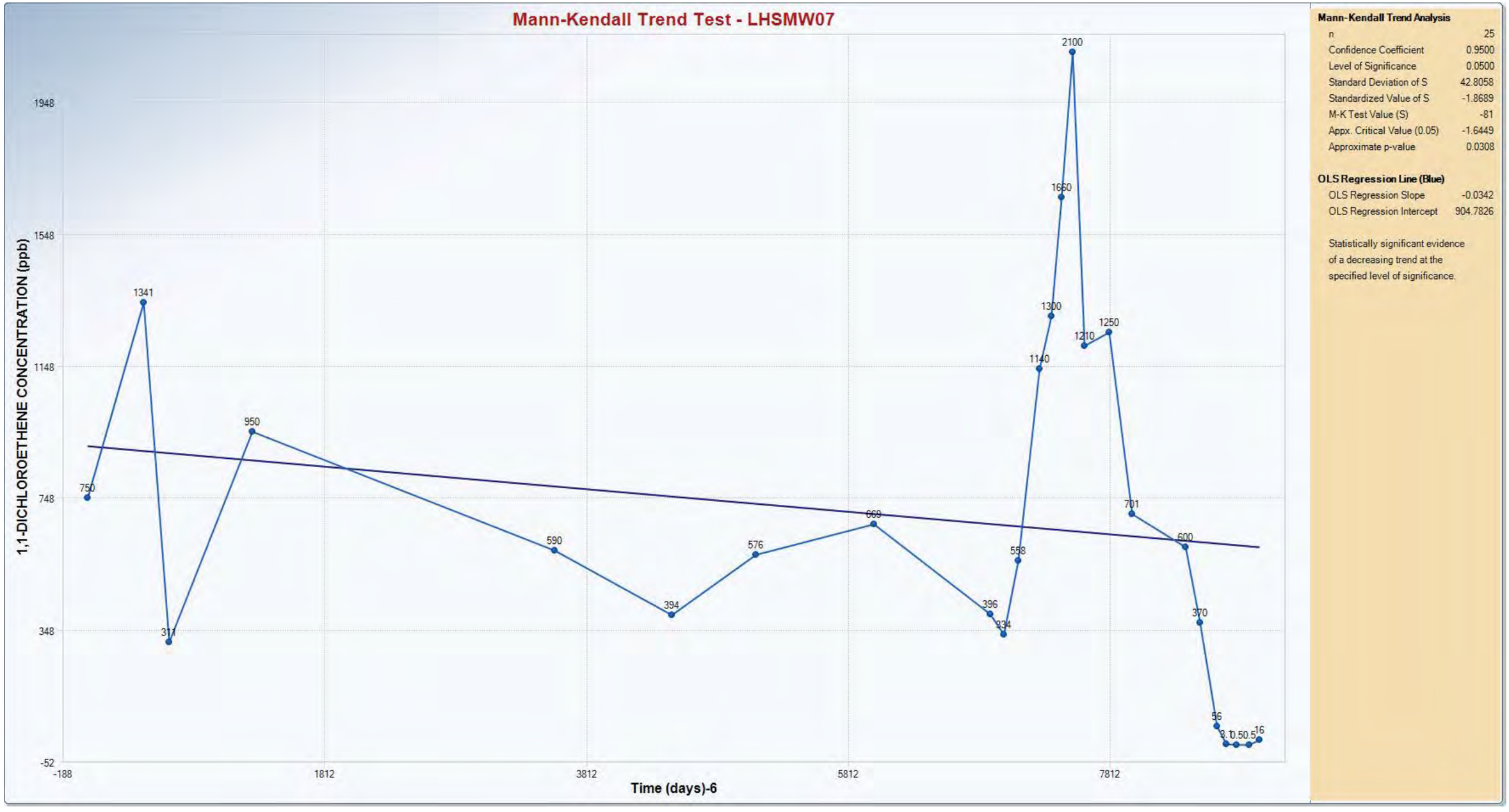
bhate


Mann-Kendall Trend Test - LHSMW07
TRICHLOROETHENE CONCENTRATION (ppb)
Time (days)-6
118
98
78
58
38
18
-2
-188
1812
3812
5812
7812
16
24
5.9
25
24
15.8
25
41.3
23.9
17.6
23.1
118
78.1
64.3
82.1
84.9
67.5
71.6
39
34
12
2.4
0.5
1.1
1.8
Mann-Kendall Trend Analysis
n 25
Confidence Coefficient 0.9500
Level of Significance 0.0500
Standard Deviation of S 42.7941
Standardized Value of S -0.3505
M-K Test Value (S) -16
Appx. Critical Value (0.05) -1.6449
Approximate p-value 0.3630
OLS Regression Line (Blue)
OLS Regression Slope 0.0024
OLS Regression Intercept 21.2045
Insufficient statistical evidence of a significant trend at the specified level of significance.

bhate


Mann-Kendall Trend Test - LHSMW07
VINYL CHLORIDE CONCENTRATION (ppb)
69
59
49
39
29
19
9
-1
247
2247
4247
6247
8247
Time (days)-6
10
1.1
7.2
9
3
14.4
9.47
15.9
5.42
7.98
35.4
28.8
34.1
69.4
37.1
10.8
21.8
15
5
0.5
Mann-Kendall Trend Analysis
n 24
Confidence Coefficient 0.9500
Level of Significance 0.0500
Standard Deviation of S 40.1082
Standardized Value of S -0.9225
M-K Test Value (S) -38
Appx. Critical Value (0.05) -1.6449
Approximate p-value 0.1781
OLS Regression Line (Blue)
OLS Regression Slope 0.0009
OLS Regression Intercept 8.7080
Insufficient statistical evidence of a significant trend at the specified level of significance.

bhate


Mann-Kendall Trend Test - LHSMW07
1,1-DICHLOROETHENE CONCENTRATION (ppb)
1948
1548
1148
748
348
-52
-188
1812
3812
5812
7812
Time (days)-6
2100
1660
1341
1300
1250
1210
1140
950
750
701
669
600
590
576
558
394
396
370
334
317
56
16
Mann-Kendall Trend Analysis
n 25
Confidence Coefficient 0.9500
Level of Significance 0.0500
Standard Deviation of S 42.8058
Standardized Value of S -1.8689
M-K Test Value (S) -81
Appx. Critical Value (0.05) -1.6449
Approximate p-value 0.0308
OLS Regression Line (Blue)
OLS Regression Slope -0.0342
OLS Regression Intercept 904.7826
Statistically significant evidence of a decreasing trend at the specified level of significance.

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APPENDIX G
REGRESSION ANALYSIS

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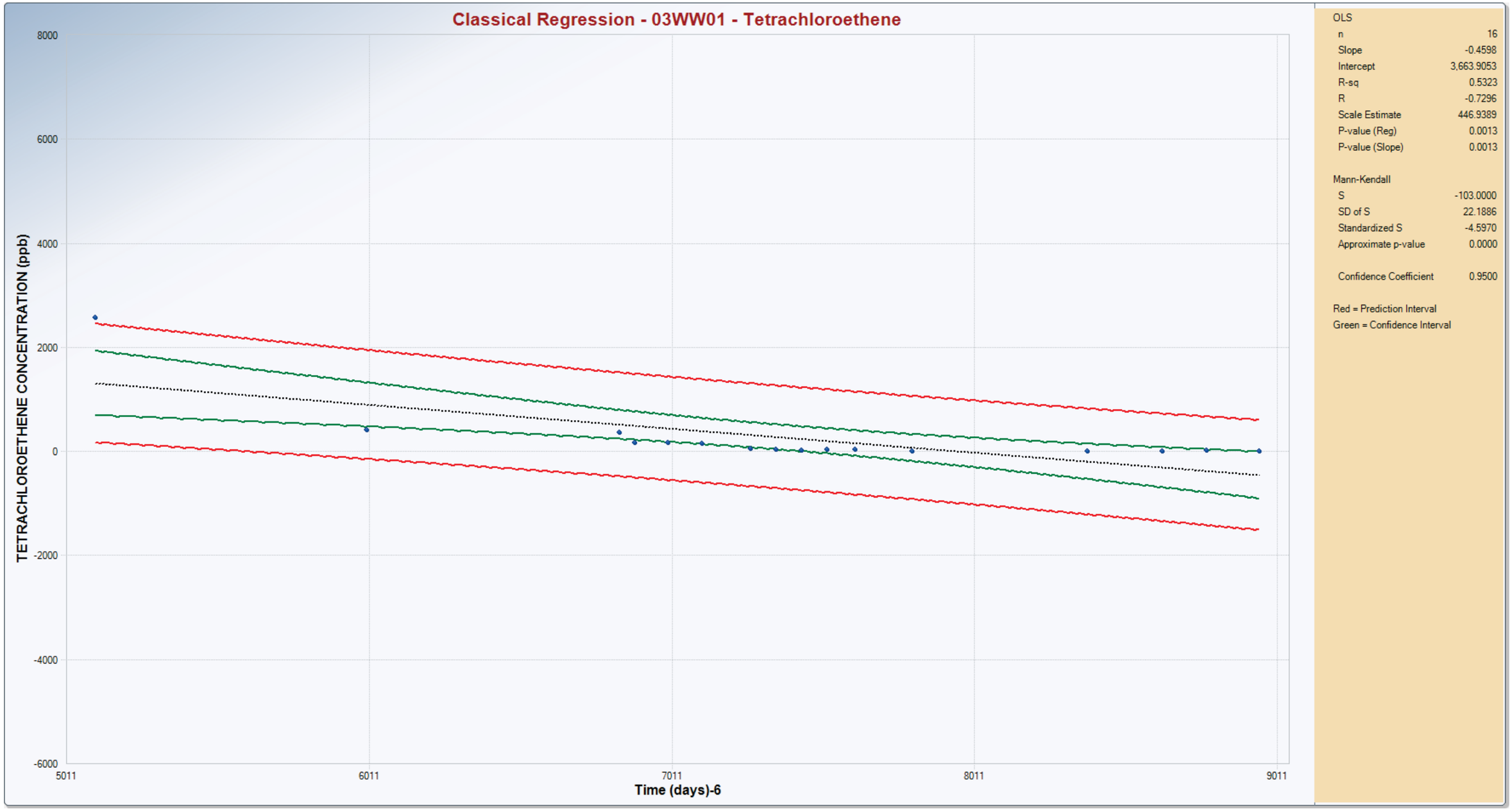
Classical Regression - 03WW01 - Tetrachloroethene
TETRACHLOROETHENE CONCENTRATION (ppb)
8000
6000
4000
2000
0
-2000
-4000
-6000
5011
6011
7011
8011
9011
Time (days)-6
OLS
n 16
Slope -0.4598
Intercept 3,663.9053
R-sq 0.5323
R -0.7296
Scale Estimate 446.9389
P-value (Reg) 0.0013
P-value (Slope) 0.0013
Mann-Kendall
S -103.0000
SD of S 22.1886
Standardized S -4.5970
Approximate p-value 0.0000
Confidence Coefficient 0.9500
Red = Prediction Interval
Green = Confidence Interval

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Classical Regression - 35AWW08 - Tetrachloroethene
TETRACHLOROETHENE CONCENTRATION (ppb)
4000
3000
2000
1000
0
-1000
-2000
-3000
6784
7784
8784
9004
Time (days)-6
OLS
n 15
Slope -0.3779
Intercept 3,158.8091
R-sq 0.3735
R -0.6111
Scale Estimate 353.9714
P-value (Reg) 0.0155
P-value (Slope) 0.0155
Mann-Kendall
S -96.0000
SD of S 20.1825
Standardized S -4.7070
Approximate p-value 0.0000
Confidence Coefficient 0.9500
Red = Prediction Interval
Green = Confidence Interval

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DEPARTMENT OF THE ARMY
LONGHORN ARMY AMMUNITION PLANT
POST OFFICE BOX 220
RATCLIFF, AR 72951

December 26, 2019

DAIM-ODB-LO

Mr. Rich Mayer
U.S. Environmental Protection Agency
1201 Elm Street, Suite 500
Dallas, TX 75270-2002

Re: Draft Final Remedial Design/Remedial Action Work Plan, Contingency Remedy, LHAAP-50 Former Sump Water Tank, Longhorn Army Ammunition Plant, Karnack, Texas, December 2019

Dear Mr. Mayer,

One hard copy and one compact disc (CD) of the above-referenced document are being transmitted to you for your records. The document includes revisions based upon the Environmental Protection Agency's (EPA) comments on the Draft version received on November 27, 2019, and Texas Commission on Environmental Quality's (TCEQ) comments received on November 25, 2019. In accordance with Federal Facility Agreement, this Draft Final will be considered Final after 30 days without further comment. Response to comments on the Draft version of the document are included with this Draft Final.

The document was prepared by Bhate Environmental Associates, Inc., (Bhate) team, on behalf of the Army as part of Bhate's Performance Based Remediation contract for the facility. I ask that Kim Nemmers, Bhate's Project Manager, be copied on any communications related to the project.

The point of contact for this action is the undersigned. I may be contacted at 479-635-0110, or by email at rose.m.zeiler.civ@mail.mil.

Sincerely,

Rose M. Zeiler, Ph.D.
Longhorn AAP Site Manager

Copies furnished:
A. Palmie, TCEQ, Austin, TX (1 hard copy and 1 CD)
P. Bruckwicki, Caddo Lake NWR, TX (1 hard copy and 1 CD)
R. Smith, USACE, Tulsa District, OK (Electronic only)
A. Williams, USACE, Tulsa District, OK (1 CD)

N. Smith, USAEC, San Antonio, TX (1 CD)
K. Nemmers, Bhate, Lakewood, CO (1 CD)
P. Srivastav, APTIM, Houston, TX

DEPARTMENT OF THE ARMY
LONGHORN ARMY AMMUNITION PLANT
POST OFFICE BOX 220
RATCLIFF, AR 72951

December 26, 2019

DAIM-ODB-LO

Ms. April Palmie
Texas Commission on Environmental Quality
Superfund Section, MC-136
12100 Park 35 Circle, Bldg. D
Austin, TX 78753

Re: Draft Final Remedial Design/Remedial Action Work Plan, Contingency Remedy, LHAAP-50 Former Sump Water Tank, Longhorn Army Ammunition Plant, Karnack, Texas, December 2019

Dear Ms. Palmie,

One hard copy and one compact disc (CD) of the above-referenced document are being transmitted to you for your records. The document includes revisions based upon the Environmental Protection Agency's (EPA) comments on the Draft version received on November 27, 2019, and Texas Commission on Environmental Quality's (TCEQ) comments received on November 25, 2019. In accordance with Federal Facility Agreement, this Draft Final will be considered Final after 30 days without further comment. Response to comments on the Draft version of the document are included with this Draft Final.

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Sincerely,

Rose M. Zeiler, Ph.D.
Longhorn AAP Site Manager

Copies furnished:
R. Mayer, USEPA Region 6, Dallas, TX (1 hard copy and 1 CD)
P. Bruckwicki, Caddo Lake NWR, TX (1 hard copy and 1 CD)
R. Smith, USACE, Tulsa District, OK (Electronic only)

A. Williams, USACE, Tulsa District, OK (1 CD)
N. Smith, USAEC, San Antonio, TX (1 CD)
K. Nemmers, Bhate, Lakewood, CO (1 CD)
P. Srivastav, APTIM, Houston, TX

Response to Comments on
Draft Remedial Design / Remedial Action Work Plan
LHAAP-50 Former Sump Water Tank,
Longhorn Army Ammunition Plant, Karnack, Texas

Document Date: 31 October 2019
Comment Date: 25 November 2019

Reviewer: April Palmie, TCEQ
Respondent: Dr. Rose Zeiler

1. Respondent Concurs (C), Does Not Concur (D), Takes Exception (E), or Delete (X)
2. Commenter Agrees (A) with response, or Does Not Agree (D) with response

Comment Ref. #	Section, Page Ref.	TCEQ Comment	C, D, E, or X	Response	A or D[2]
1.	2.2, 2-2	2nd paragraph has old language that should be removed or revised (regarding well already installed): Based on the regulatory comments received in the Final RAWP (AECOM 2013), an additional well is proposed for installation in Summer 2019 to evaluate how far plumes extend downgradient of 50WW12 as shown in Figure 2-1. Results from the new well will be used to refine the extent of the plumes in groundwater.	C	Text in Section 2.2, page 2-2 will be revised as follows: "Based on the regulatory comments received in the Final RAWP (AECOM 2013) and recommendations made in the 2018 Five Year Review (USACE 2019), an additional well, 50WW29, was installed in August 2019 to evaluate the extent of the plume downgradient of 50WW12 as shown in Figure 2-1."	

2.	4.2.2, 4-1	Notification - TCEQ needs 30-days for UIC coordination	C	Comment noted. UIC information will be provided to TCEQ 30 days prior to the commencement of field work.	
3.	Figure 2-1	Why does this figure show 50WW29 as a proposed well? Is this figure necessary?	C	Figure 2-1 will be revised to show 50WW29 as an installed well instead of “proposed well”.	

Response to Comments on
Draft Remedial Design / Remedial Action Work Plan
LHAAP-50 Former Sump Water Tank,
Longhorn Army Ammunition Plant, Karnack, Texas

Document Date: 31 October 2019
Comment Date: 27 November 2019

Reviewer: Mr. Richard Mayer, USEPA
Respondent: Dr. Rose Zeiler

Comment Ref. #	Section, Page Ref.	EPA Comment	C, D, E, or X	Response	A or D[2]
1.	2.1, 2-1, Last Paragraph	The Army's estimates of groundwater flow rates (.11 ft/year to .39 ft/year) are inconsistent with the field data. At Site 50, contaminants have travelled at least 375 feet from their source, an old AST, which was installed in 1955. The groundwater flow rate must be around six ft/yr. Did the Army use the correct groundwater flow rate formula? The correct groundwater flow rate formula is found in Appendix A.	C	Using a gradient of 0.00427 based on the May 2018 potentiometric surface, we recalculated the values using a hydraulic conductivity range of 5.5x10-5 cm/sec to 1.9x10-4 cm/sec and an estimated effective porosity of 0.35, which resulted in a range of flow rates from 0.73 to 2.19 ft per year. The flow rates estimated by the Army are based on calculations using the current hydraulic gradient information, hydraulic conductivity values from past testing, and estimated values for effective porosity. The calculation yields a snapshot of the current conditions, but is not reflective of past conditions. It is likely that there were other factors influencing the hydraulic gradient when the site was active that may have resulted in much higher flow rates.	

				The last sentence of Section 2.1 has been revised with the recalculated values to read as follows: “Using an estimated hydraulic gradient in May 2018 of 0.00427 feet per foot (ft/ft), the calculated groundwater flow velocity in the shallow zone ranges from 0.73 feet per year (ft/year) to 2.19 ft/year.	
2.	Table 2-2 & 3-2	Please provide the analytical method used for VOCs and perchlorate in the parameter/analysis row (plus other parameters without a method).	C	The analytical methods for VOCs and perchlorate are SW8260 and SW6850 respectively. Tables 2-2 and 3-2 will be revised to include the analytical methods.	
3.	Figure 2-1	The line from the 50WW12 results table to monitoring well 50WW12 extends past the well location.	C	Figure 2-1 will be revised to remove the line extending past the well location.	
4.	Table 3-1	The method for analyzing for perchlorate in groundwater should be 6850. Method 314.0 does not require filtering of the groundwater samples to remove microbes (which can biodegrade the perchlorate). Also, this method historically tends to have more false positive and negative analytical results. In addition, please include the analytical method for VOCs. EPA assumes method 8260 will be used.	C	Table 3-1 will be revised to include analytical method SW6850 used for perchlorate.	

5.	Table 4-1	Why are DPTs 07-12 stopping at 35 feet, instead of 60 feet, as is the case for DPTs 01-06? Please explain.	C	Upon review of extent of contamination and drill logs in the proposed treatment area, high perchlorate and/or TCE concentrations are known to exist in the upper and lower shallow zone in the vicinity of wells 50WW11, 50WW13 and 50WW14, and in the upper shallow zone in the vicinity of 50WW12. ISB is proposed in the known areas of contamination. DPTs 01 – 06 are proposed to treat both upper shallow and lower shallow zones because contamination is known to be present in both zones. At the upper shallow well 50WW13, perchlorate was detected at 640 µg/L in May 2018 and 130 µg/L in May 2019. At the lower shallow well 50WW14, TCE was detected 33 µg/L in 2018 although TCE or perchlorate were not detected in May 2019. At the upper shallow well 50WW11, perchlorate was detected at 1,000 µg/L in May 2018 and at 450 µg/L in May 2019. Since contamination exists in the upper shallow zone as of 2019, and existed in the lower shallow zone near 50WW14 as of 2018, it is proposed to treat both the upper and lower shallow zones in the vicinity of 50WW11, 50WW13 and 50WW14. Injections conducted in the lower shallow zone in this area will also help remediate lower levels of perchlorate and TCE observed in the downgradient lower shallow zone well 50WW06.	

				At the upper shallow well 50WW12, perchlorate was detected at 91,000 µg/L in May 2018 and at 65,000 µg/L in May 2019. ISB treatment is proposed in the upper shallow zone in the vicinity of 50WW12 where contamination is known to exist.	
6.	Page 4-5	There should be a statement indicating that Goose Prairie Creek will be inspected periodically during the day to ensure daylighting from the injections are not occurring in the creek.	C	Following text will be added to the paragraph: "Goose Prairie Creek will be monitored during and after injections for decrease in DO and visual changes in water color along the creek. Additional monitoring and visual observations will be conducted to determine if any decrease in DO is from injection materials or changes in environmental conditions."	
7.	Figure 1-5, Figure 2-1 and Figure 3-1	Please locate the intermediate well on these figures	C	Figure 1-5, Figure 2-1 and Figure 3-1 will be revised to include intermediate wells.	
8.	General Comment	What are the last monitoring results for monitoring 50WW02?	C	The last sampling event for monitoring well 50WW02 was 4/3/2009. Perchlorate was detected at 110 ppb, TCE at 8,050 ppb, cis-1,2-DCE at 978 ppb and 1,2-DCA at 18 ppb in May 2009.	
9.	General Comment	Although this comment does not directly apply to this document, as a reminder for the future, there will be a need for a lower shallow	C	Comment noted.	

		monitoring well near upper shallow monitoring well 50WW12 (91,000 ug/L). Currently, lower shallow monitoring well 50WW09, which is near the source, contains no perchlorate. However, another lower shallow monitoring well, 50WW06, approximately 200 feet farther from the source contains perchlorate at 220 ug/l (2018). Thus, the fact that perchlorate is not present near the source in the lower shallow zone does not mean that it is not present farther from the source in the lower shallow zone. Also, there may be a need for an additional intermediate well in the future. If you look at the current plume shape/geometry, the only intermediate well is located near the source at the very western edge. The plume extends northeasterly for approximately 375 feet. The most contaminated well for perchlorate is 50WW12 and it is the most eastern well within the plume. So according to future groundwater results (if a lower shallow well is installed), an intermediate well may be needed.			

Draft Final
Remedial Design/Remedial Action Work Plan, Contingency Remedy, LHAAP-50 Former Sump Water Tank
Longhorn Army Ammunition Plant
Karnack, Texas

Prepared for
U.S. Army Corps of Engineers, Tulsa District
Contracting Division
2488 East 81st Street
Tulsa, Oklahoma 74137-4290

Prepared by

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Contract No. W9128F-13-D-0012
Task Order No. W9128BV17F0150
Project No. 501032
Rev 0
December 2019

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Contract No. W9128F-13-D-0012, Task Order No. W9128BV17F0150 • Draft Final • Rev 0 • December 2019

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Acronyms and Abbreviations

µg/L	micrograms per liter
AECOM	AECOM Technical Services, Inc.
APTIM	Aptim Federal Services, LLC
AST	aboveground storage tank
bgs	below ground surface
Bhate	Bhate Environmental, Inc.
cm/s	centimeters per second
COC	chemical of concern
DAP	diammonium phosphate
DO	dissolved oxygen
DPT	direct-push technology
EDS–ER™	electron donor solution–extended release
ESD	explanation of significant differences
EVO	emulsified vegetable oil
ft/ft	feet per foot
ft/year	feet per year
GPS	global positioning system
ISB	in-situ bioremediation
IWWP	Installation-Wide Work Plan
Jacobs	Jacobs Engineering Group, Inc.
LHAAP	Longhorn Army Ammunition Plant
LTM	long-term monitoring
LUC(s)	land use control(s)
MATOC	Multiple Award Task Order Contract
MCL	maximum contaminant level
MNA	monitored natural attenuation
ORP	oxidation-reduction potential
PCL	protective concentration level
psi	pounds per square inch
RACR	Response Action Completion Report
RAO	remedial action objectives
RA-O	remedial action operation
RAWP	Remedial Action Work Plan
RD	Remedial Design

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Acronyms and Abbreviations *(continued)*

ROD	Record of Decision
ROI	radius of influence
SDC-9™	APTIM's dechlorinating culture
Shaw	Shaw Environmental & Infrastructure, Inc.
TCE	trichloroethene
TCEQ	Texas Commission on Environmental Quality
TO	Task Order
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
VOC	volatile organic compound

1.0 INTRODUCTION

The U.S. Army Corps of Engineers (USACE), Tulsa District, contracted Bhate Environmental, Inc. (Bhate) under the Omaha Multiple Environmental Government Acquisition National Small Business Multiple Award Task Order Contract (MATOC), Environmental Remediation Services with Military Munitions Response Program, Task Order (TO) Number (No.) W9128BV17F0150, to conduct environmental restoration at multiple sites at the former Longhorn Army Ammunition Plant (LHAAP). The Bhate Team is comprised of Bhate and Aptim Federal Services, LLC (APTIM). LHAAP is a closed government owned, formerly contractor operated and maintained, Department of Defense facility located central east Texas (**Figure 1-1**).

A *Final Record of Decision* (ROD) was executed for LHAAP-50 in September 2010 (USACE 2010). Groundwater monitoring at LHAAP-50 is ongoing as described in the *Final Remedial Action Completion Report* (AECOM 2016). The Remedial Action Work Plan (RAWP) for the entire site was prepared in June 2013 in accordance with the ROD and implemented in July 2013. The monitored natural attenuation (MNA) remedy for the comingled trichloroethene (TCE) and perchlorate plume at this site, as presented in the ROD calls for an evaluation of the remedy after two years of MNA remedial action operation (RA-O) and implementation. The ROD also states that the long-term monitoring (LTM) associated with this remedy will be used to track the continued effectiveness of MNA and will continue once every five years until cleanup levels are achieved. The ROD also provides for the implementation of a contingency remedy to enhance MNA if MNA is found to be ineffective. The *Draft Final Third Annual Remedial Action Operation Report* (Bhate 2018a) concluded that MNA is ineffective and implementation of a contingency remedy would be appropriate. A *Draft Explanation of Significant Differences* (Bhate 2019) was submitted to the U.S. Environmental Protection Agency (USEPA) and the Texas Commission on Environmental Quality (TCEQ) in April 2019 for changes to the ROD to implement the contingency remedy consisting of in-situ bioremediation (ISB). Therefore, this RAWP for the contingency remedy addresses ISB implementation for the groundwater plume at this site, based on the Remedial Design (RD) for the LHAAP-50 site, which was approved by regulatory agencies in September 2011 (Shaw 2011).

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1.1 Organization of Work Plan

This work plan is composed of the following sections:

- **Section 1.0:** "Introduction" summarizes the site background, proposed remedy including the chemicals of concern (COCs) and their respective cleanup levels, the nature and extent of contamination and remedial action objectives (RAOs).
- **Section 2.0:** "Site Characteristics" summarizes the hydrogeology of the site, as well as the nature and extent of contamination and the proposed contingency remedy.
- **Section 3.0:** "Land Use Control Remedial Design/Plan" references the Final RAWP for LHAAP-50 (AECOM 2013) wherein the Land Use Control Plan is presented.
- **Section 4.0:** "In Situ Bioremediation Work Plan" describes the injection activities and methodologies to be implemented for the ISB component of the remedy.
- **Section 5.0:** "Post-Remedial Monitoring and Reporting" describes the remedial performance monitoring and reporting that will be performed after ISB injections.
- **Section 6.0:** "Schedule" describes the proposed implementation schedule for the remedial action activities.
- **Section 7.0:** "References" provides a list of references cited in the document.

This work plan also includes the following appendices supporting the main text:

- **Appendix A** includes the calculation sheets and proposed injection volume worksheets for the ISB component of the remedy.
- **Appendix B** includes the safety data sheets for the proposed injection amendments, Electron Donor Solution–Extended Release (EDS–ER™) and APTIM's dechlorinating culture, SDC-9™.
- **Appendix C** includes a blank injection log that will be used in the field to track injection volumes, flow rates and pressures.

1.2 Site Description

LHAAP-50 (former sump water tank) is in the north-central portion of LHAAP and covers an area of approximately 1 acre (**Figure 1-2**). The site is an open area of grass and brush that is bounded by South Crocket Avenue to the northeast, a drainage ditch to the west, a railroad spur to the south, and Goose Prairie Creek to the north. Runoff from the northeastern portion of the site is generally toward the northeast. Runoff is collected by a drainage ditch to the northeast that runs parallel to South Crockett Avenue and eventually joins Goose Prairie Creek. Runoff from the southwestern portion of the site is collected to the west by a drainage ditch

that carries the runoff north into Goose Prairie Creek. Goose Prairie Creek eventually empties into Caddo Lake.

When operational, LHAAP-50 contained a 47,000-gallon capacity aboveground storage tank (AST) which received industrial wastewater from various industrial waste production sumps throughout LHAAP between 1955 and 1988. After the solids were filtered, the storage tank contents were discharged into Goose Prairie Creek upstream of the Goose Prairie Creek bridge on South Crockett Avenue, south of 51st Street. The flow in the creek was sufficient to dilute the water to safe levels (Jacobs 2002). If natural flow in the creek was considered insufficient, clean water was reportedly pumped into the creek to dilute the contents. The AST is no longer present.

The land use control (LUC) area associated with the groundwater use restriction at LHAAP-50 extends beyond the northern, southern, eastern, and western historical site boundaries and encompasses a total of approximately 77.19 acres (see **Figure 1-3**). The nearest significant surface water body to LHAAP-50 is Goose Prairie Creek, located approximately 80 feet north of the site, which eventually flows into Caddo Lake. LHAAP-50 has no known areas of archaeological or historical importance.

1.2.1 Contingency Remedy

The description of the proposed groundwater remedy at LHAAP-50 in Section 2.9.1 of the ROD was Excavation, MNA and LUC (USACE 2010). The ROD stated that a contingency remedy to enhance MNA would be implemented to reach the RAOs if MNA was found to be ineffective and would be documented in the Explanation of Significant Difference (ESD).

Soil excavation of perchlorate contaminated soil was conducted in July 2013 followed by MNA of the commingled plume in groundwater. The most recent potentiometric surface information for the site (May 2018) is shown on **Figure 1-4** and **Figure 1-5** presents the analytical results from the monitoring wells during the May 2018 RA-O sampling event (Bhate 2018b). As discussed in the ROD (USACE 2010) and Fourth Annual RA-O Report (Bhate 2018b), the COCs at LHAAP-50 include dissolved phase perchlorate and volatile organic compounds (VOCs), tetrachloroethene, TCE, 1,1-dichloroethene, 1,2-dichloroethane, cis-1,2-dichloroethene and vinyl chloride in groundwater, and perchlorate in soil. The groundwater cleanup levels for LHAAP-50 are presented on **Table 1-1**.

Overall, the TCE and perchlorate plumes in groundwater appear to be relatively stable. At monitoring wells 50WW05, 50WW08, and 50WW14, significant decreasing trends were observed over four years, indicating that natural attenuation is occurring. However, an increasing trend was observed at monitoring well 50WW12 and no trends were observed at monitoring wells 50WW09, 50WW11, and 50WW13. The highest perchlorate concentration

in May 2018 was detected at 50WW12 at 91,000 micrograms per liter (µg/L) while the highest TCE concentration in May 2018 was detected at 50WW13 at 620 µg/L (Bhate 2018b). Therefore, the proposed ISB contingency remedy will include ISB in areas of historical hotspots in the vicinity of wells 50WW12, 50WW11, and 50WW13.

The remedy at LHAAP-50 is intended to protect human health and the environment by preventing human exposure to the contaminated groundwater and preventing contaminated groundwater from migrating into nearby surface water. The final remedy will consist of LUC (already implemented), ISB, MNA, and LTM/Five Year Reviews.

The specific remedy components are discussed below:

- LUCs have been implemented for the impacted area as described in the Response Action Completion Report (RACR) (AECOM 2016) to ensure the protection of human health by restricting the use of groundwater. The LUC will remain in place until the cleanup levels are met.
- ISB will be implemented in the area where the highest concentrations are observed in the upper and lower shallow groundwater in the vicinity of wells 50WW11 and 50WW13, and in the shallow groundwater in the vicinity of well 50WW12. ISB is the process of removing contaminant mass by enhancing microbial populations that will utilize the contaminants in groundwater during respiratory or metabolic activities. The treatment involves injecting amendments which may include microbial cultures, electron donor sources, and nutrients into the subsurface.
- MNA constitutes a passive treatment where the contaminant concentrations decrease through natural attenuation processes such as biodegradation, dispersion, dilution, sorption, and volatilization (USEPA 1998).
- Data from performance monitoring is used to evaluate whether natural attenuation is occurring and reducing COCs. MNA will be implemented to verify that the TCE and perchlorate plumes are stable and will not migrate to nearby surface water at levels that may present an unacceptable risk to human health and the environment. MNA will return groundwater to its potential beneficial use, wherever practicable, after successful implementation of the ISB. MNA will be evaluated annually, with groundwater monitoring performed on a quarterly basis for the first two years after implementation of ISB as described in **Section 5.1.2**.
- LTM: LTM will be conducted annually until the next Five Year Review. However, LTM will continue at least once in five years until cleanup levels are achieved. A cleanup time has not been estimated and will be evaluated following the implementation of ISB.

1.2.2 Remedial Action Objectives

The RAOs for LHAAP-50, consistent with the reasonably anticipated future use as a national wildlife refuge, are:

- Protection of human health by preventing human exposure to the contaminated groundwater
- Protection of human health and environment by preventing contaminated groundwater from migrating into nearby surface water
- Protection of human health by preventing further potential degradation of groundwater and surface water from contaminated soil
- Return of groundwater to its potential beneficial uses as drinking water, wherever practicable

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2.0 SITE CHARACTERISTICS

2.1 Site Hydrogeology

The shallow unconfined aquifer extends from the ground surface to 60 feet below ground surface (bgs) across the site. While intermittent clay layers are present, no true aquiclude exists to prevent vertical communication between ground surface and approximately 60 feet bgs. Because the shallow zone is approximately 60 feet in thickness, the potential for differences in nature and extent of contaminant impacts between upper and lower portions of the shallow zone was recognized. To evaluate this concept, 27 new wells were installed in configurations to separately monitor the upper portion of the shallow zone (18 wells) and the lower portion of the shallow zone (six wells). Additionally, three fully penetrating wells (50WW17, 50WW19, and 50WW20) were installed with screened intervals across the entire saturated shallow zone (Bhate 2018b). Monitoring well locations are shown on **Figure 1-3**. Well Construction information is included in **Table 2-1**.

The 'upper shallow' zone refers to the zone from ground surface to 30 feet bgs, the 'lower shallow' zone refers to the zone from 30 to 60 feet bgs, the intermediate zone is the zone greater than 100 feet bgs. The intermediate water bearing zone underlies the shallow zone at approximately 100 feet bgs (Bhate 2018b).

Hydraulic conductivities in the shallow zone wells varied from 5.5×10^{-5} to 1.9×10^{-4} centimeters per second (cm/s) (Jacobs 2002) and groundwater flow in the shallow and intermediate zones is generally to the east and northeast. Using an estimated hydraulic gradient in May 2018 of 0.00427 feet per foot (ft/ft), the calculated groundwater flow velocity in the shallow zone ranges from 0.73 feet per year (ft/year) to 2.19 ft/year.

2.2 Nature and Extent of Contamination

The nature and extent of contamination a LHAAP-50 was evaluated during field investigations conducted between 1992 and 2010. The AST was the most likely source of contaminants released into the environment. Since the AST has been removed, there is no longer a potential release mechanism for leaks or spills. Perchlorate and VOCs were released via overland spills, and discharges to the soil and adjacent surface water.

The area of perchlorate contamination in soil was small and the concentration of perchlorate did not pose an unacceptable risk to human health or ecological receptors. The perchlorate in soil is no longer present after removal and offsite disposal of approximately 183 cubic yards of perchlorate contaminated soil in September 2013 as described in the Final RACR (AECOM 2016). An area of groundwater contamination is present in the shallow groundwater (upper and lower zones) which poses an unacceptable carcinogenic risk and non-carcinogenic

hazard. There is no groundwater contamination in the intermediate zone. The potential exposure pathways are via use of groundwater as drinking water and migration of impacted groundwater into surface water. Shallow groundwater is not used as drinking water at the refuge and this potential exposure pathway is eliminated from any hypothetical receptor because LUCs are in place that prohibit the use of groundwater, other than environmental monitoring and testing. The nearest significant surface water body to LHAAP-50 is Goose Prairie Creek, approximately 80 feet to the north of the site.

Figure 1-5 presents the estimated VOC and perchlorate plumes as of May 2018. The TCE plume is slightly larger than the perchlorate plume. The TCE and perchlorate plume start in the vicinity of 50WW09 and extend to downgradient well 50WW12 (Bhate 2018b). Based on the regulatory comments received in the Final RAWP (AECOM 2013) and recommendation made in the 2018 Five Year Review (USACE 2019), an additional well, 50WW29, was installed in August 2019 to evaluate the extent of the plume downgradient of 50WW12 as shown in **Figure 2-1**. Results from the new well will be used to refine the extent of the plumes in groundwater.

2.3 Monitoring Well Installation and Sampling

Based on recommendations made in the 2018 Five Year Review (USACE 2019), a new monitoring well, 50WW29, was installed to the northeast of 50WW12 in August 2019 in the upper shallow zone with the same screened interval as monitoring well 50WW12 from 20 to 35 feet bgs. The monitoring well was installed in accordance with the Installation Wide Work Plan (Bhate 2018c) and was developed and sampled following the installation. The COCs were detected at concentrations below the maximum contaminant level/protective concentration level (MCL/PCL). Groundwater sampling results for 50WW29 are included in **Table 2-2**. The boring log and Well Construction information are included in **Appendix A**.

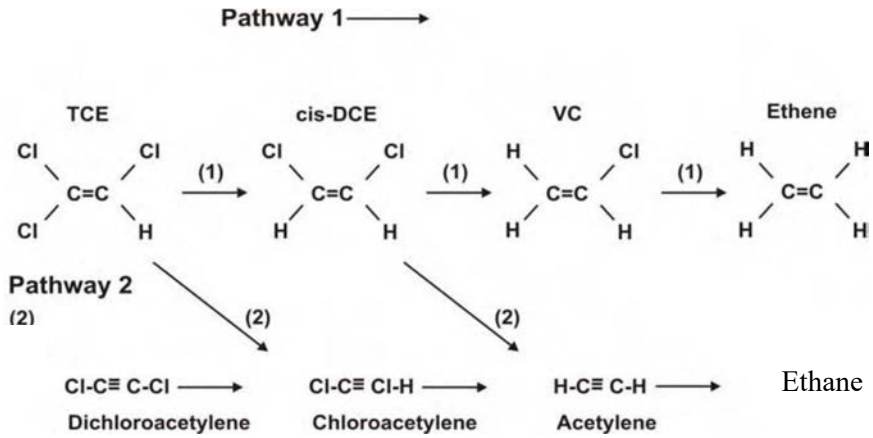
3.0 IN-SITU BIOREMEDIATION REMEDIAL DESIGN

In general, implementation of ISB will include injection of an electron donor/substrate, microbial culture and nutrients in the subsurface. The indigenous microorganisms will grow and multiply using injected substrate as a carbon and energy source, thereby degrading perchlorate. The schematic showing the degradation pathway for perchlorate and chlorinated VOCs is provided below:

Perchlorate Degradation Pathway

ClO_4^- (Perchlorate) $\longrightarrow$ ClO_3^- (Chlorate) $\longrightarrow$ ClO_2^- (Chlorite) $\longrightarrow$ $Cl^- + O_2$ (Chloride + Oxygen)

Biotic and Abiotic Degradation Pathways – Chlorinated VOCs



ISB will be implemented at LHAAP-50 to remediate groundwater impacted with high levels of perchlorate and VOCs, where MNA has proven to be ineffective. The 2018 data discussed in **Section 1.2.1** indicates an increasing trend at monitoring well 50WW12 and no trends at monitoring wells.50WW09, 50WW11, and 50WW13 (Bhate 2018b). The highest perchlorate concentration in May 2018 was detected at 50WW12 at 91,000 µg/L while the highest TCE concentration in May 2018 was detected at 50WW13 at 620 µg/L. Therefore, the proposed ISB contingency remedy will include ISB in areas of historical hotspots in the vicinity of wells 50WW12, 50WW11, and 50WW13. The ISB system has been designed and implemented to remediate perchlorate and VOCs in the groundwater down to the MCL/PCL using emulsified vegetable oil (EVO), microbial culture (SDC-9™) and nutrients. The EVO and nutrients will be mixed with water and injected using temporary direct-push technology (DPT) injection points within the plume area. The specific basis for the various design parameters selected is described in the following sections. Field implementation procedures for the ISB remedy are

described in **Section 5.0**. ISB calculation sheets used to develop the design parameters described below are provided in **Appendix A**.

3.1 Substrate Injection Strategies

The ISB substrate will be injected at 12 temporary DPT locations spaced approximately 20 to 25 feet apart as shown on **Figure 3-1**. A DPT injection system will be used to inject substrate over an interval coinciding with the saturated water bearing interval at each proposed injection point. The treatment interval depth will vary depending on the lithologic information from the wells and borings nearest to each injection location.

Several direct push injection points may be manifolded for simultaneous injection to maximize delivery efficiency. The substrate will normally be injected at relatively low pressures (generally less than 40 pounds per square inch [psi]) to avoid development of preferential flow pathways within the formation and/or surfacing of injection fluids, although higher pressures may be needed in tight formations. The injection pressure at each injection location will be dictated by the formation back pressure on the pumping system but will be controlled by use of pressure relief valves.

The substrate solution will be injected using a top down or bottom up approach at each proposed injection point depending on the lithology and field conditions. Amendments will be pumped down through the DPT drill rod to the injection interval and amendment will be forced through the stainless steel screen into the surrounding formation. The tools will then be moved to the next injection depth and the amendment will again be pumped through the rods. This cycle will be repeated to provide coverage across the entire vertical treatment interval.

If the amendment delivery is not successful at a selected depth interval, the remaining volume may be injected into the same injection point at a different depth interval or into an adjacent injection point at the same or different depth interval.

3.2 Radius of Influence and Injection Point Spacing

The low hydraulic conductivity of the shallow groundwater zone suggests that the radius of influence (ROI) for each DPT injection location will be low. Based on our experience at other locations on LHAAP and knowledge of the hydrogeologic conditions described in **Section 2.1.1**, the ROI used to calculate the number of points needed was 10 feet, and the DPT injection point spacing will be 20 to 25 feet.

3.3 Substrate Selection

EVO was selected as the substrate for ISB because of the relative ease of injection and the long lifespan of the substrate. The specific formulation of EVO used to develop the injection

volumes for this project is EDS–ER™ available from Tersus Environmental (**Appendix B**). EDS–ER™ is a water-mixable oil formulated with 100% EVO content (no water in the emulsion). EDS–ER™ is a food-grade carbon and is made from renewable crop-based oils. The use of EDS–ER™ or equivalent is expected to be cost-effective since it would eliminate the need for continuous or more frequent injection of substrate into the subsurface.

EDS–ER™ is provided by the vendor as water-mixable oil that contains no water as shipped; therefore, it will be mixed with water in the field. Use of EDS–ER™ or an equivalent volume of a similar product will reduce the cost and environmental footprint associated with transportation of higher volumes of more dilute substrate to the site. The product mixes easily with water and does not require high energy mixers. It formulates a completely miscible product when mixed with water (it does not create emulsions or particles in water), thus preventing clogging effects when injected in groundwater. A mixing tank will be used to mix the product with water. The product will be added to the tank in the volume desired, followed by pumping clean potable water into the tank to produce the mixture with the design concentration for injection. No mixers will be required due to the nature of the EDS–ER™ oil. The manufacturer's product information sheet is provided in **Appendix B**.

Bioaugmentation will be conducted by injecting SDC-9™. Nutrients in the form of diammonium phosphate (DAP) will provide essential levels of nitrogen and phosphate required for microbial activity. The nutrients will be added to each mixed batch following addition of the mix water, prior to injection. Additionally, a buffer, sodium bicarbonate will also be added to the mixture in order to maintain neutral pH levels in the aquifer. A buffer capacity test was conducted to determine the appropriate quantity of buffer to be added to the treatment area. The test was conducted using soil and groundwater samples collected during the installation of monitoring well 50WW29 (**Section 2.1.3**). Results of the buffer capacity test were used to determine the quantity of buffer and added to **Table 4-1**.

3.4 Substrate Loading and Injection

The mass of EVO required for the shallow treatment zone shown on **Figure 3-1** was estimated based on comparison of: 1) the stoichiometric demand exerted by the native (e.g., dissolved oxygen [DO], nitrate, and sulfate) and anthropogenic electron acceptors, and 2) the quantity of EVO necessary to treat the entire treatment zone when accounting for adsorption to the aquifer material. These calculations were performed using the EOS® Remediation Source Area and dense non-aqueous phase liquid Design Worksheet version 2.1f dated June 18, 2008. **Appendix A** provides the input and output calculations spreadsheets. The higher of the two values is used for the planned injection quantities.

The aquifer treatment demand in the vicinity of 50WW12 based on EOS's 60% carbon product is 2,606 pounds (**Appendix A**). That is equivalent to 1,564 pounds of 100% carbon EDS-ER™.

The gallons concentrated solution of EDS–ER™ will be diluted by mixing 51 gallons of EDS-ER™, 5 liters of SDC-9™ and 143 pounds of nutrients with approximately 2,304 gallons of water to achieve the desired treatment volume for each injection point as shown on the treatment area calculation sheet in **Appendix A**. Approximately 9,420 gallons of dilute EDS-ER™ mixture will be injected into 6 injection points in the vicinity of 50WW12 shown on **Figure 3-1**. The exact quantity of buffer (sodium bicarbonate) will be based on results of the buffer capacity test.

The aquifer treatment demand in the vicinity of 50WW13 based on EOS's 60% carbon product is 8,465 pounds (**Appendix A**). That is equivalent to 5,079 pounds of 100% carbon EDS-ER™. The gallons concentrated solution of EDS-ER™ will be diluted by mixing 110 gallons of EDS-ER™, 12 liters of SDC-9™ and 308 pounds of nutrients with approximately 4,990 gallons of water to achieve the desired treatment volume for each injection point as shown on the treatment area calculation sheet in **Appendix A**. Approximately 30,618 gallons of dilute EDS–ER™ mixture will be injected into 6 injection points in the vicinity of 50WW13 shown on **Figure 3-1**. The exact quantity of buffer (sodium bicarbonate) will be based on results of the buffer capacity test.

3.5 Bioaugmentation Culture Loading

Bioaugmentation will involve adding SDC-9™ to the amendment solution containing EDS-ER™. The EDS–ER™ will provide sufficient "food source" as the dechlorinating culture (SDC-9™) enters the subsurface environment.

An additional nutrient (DAP) and buffer (sodium bicarbonate) will be added to maintain a neutral pH in the injection area which is essential for the dechlorinating culture to thrive.

3.6 Performance Monitoring

Performance monitoring at eight locations will be used to evaluate the effectiveness of the ISB treatment. Following the injection event, groundwater will be monitored quarterly for two years.

3.6.1 Baseline Groundwater Monitoring

A separate baseline sampling event will not be conducted prior to implementing the contingency remedy. Sampling results from the November 2019 RA-O event will be used as baseline data. The RA-O samples will be analyzed for perchlorate, VOCs, total organic carbon, dissolved gases (ethene, ethane and methane), carbon dioxide, and ferrous iron (field only). Additionally, field parameters like DO, oxidation-reduction potential (ORP), specific conductance, temperature and pH will also be collected. The baseline sampling results will be

compared to sample results from post-ISB performance monitoring for remedy effectiveness evaluation.

3.6.2 In-Situ Bioremediation Performance Monitoring

Groundwater monitoring will be performed for eight quarterly events following implementation of ISB to demonstrate effectiveness of the ISB remedy. A total of eight wells will be included in the performance monitoring program. Wells included in the ISB performance monitoring program and analytical parameters are shown in **Table 3-1**. These wells were selected for their placement relative to the treatment area to monitor effectiveness of ISB. Other monitoring wells will continue to be sampled on an annual basis as part of the RA-O/LTM network included in **Table 3-2**.

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4.0 IN-SITU BIOREMEDIATION WORK PLAN

ISB will be conducted at LHAAP-50 to remediate groundwater impacted with perchlorate and VOCs. The plume geometry and proposed injections have been developed using the basis and details of the RD in **Section 3.0**. The specific formulation of EVO used to develop the RAWP is EDS–ER™ (**Appendix B**). If EDS–ER™ is not available at the time the injections are ready to proceed, equivalent EVO product will be used, and the volumes of EVO will be adjusted if the EVO content is less than the 100% in EDS–ER™. Details of the pre-mobilization, mobilization, injection, and demobilization field activities are provided in the following sections.

4.1 In-Situ Bioremediation Injection Plan

To treat the perchlorate and VOCs impacted groundwater in the shallow groundwater aquifer, a biogrid will be installed by injecting EDS–ER™ or an equivalent EVO product, SDC-9™, and nutrients, into 12 DPT points as shown in **Figure 3-1**. **Table 4-1** specifies the volume of amendment mixture to be injected and the proposed injection interval for each injection point.

4.2 Pre-Mobilization Activities

4.2.1 Permitting

No permitting is required prior to the commencement of field work.

4.2.2 Notification

TCEQ and USEPA will be notified two weeks in advance of commencement of fieldwork activities.

4.2.3 Utility Clearance

Utility location and clearance for intrusive activities will be conducted prior to drilling as follows:

The site health and safety officer will:

- Prepare a map indicating the area(s) where intrusive activity is planned to occur.
- Perform the necessary reviews.
- Contact the Texas Excavation Safety System, Inc. utility notification service by calling 811 or 800 892 0123 or using their online submittal system. This notification is to be made a minimum of three working days prior to the initiation of intrusive activity (excluding Saturdays, Sundays, and holidays), but not greater than 14 days.

- Verify that all underground installations have been located, physically marked, and then noted on the map. If needed, a third-party location service will be used.
- Mark all overhead utilities with kilovolts rating on the map. It is not anticipated that the existing overhead lines will impact the proposed injection location layout.
- Notify the appropriate agencies, contracting officer's representative, and property owners (when applicable).
- Confirm that utility clearance is complete and documented.

A safety meeting shall be held, and a job safety analysis shall be completed by all personnel who are involved in the intrusive activities prior to initiating work.

4.3 Site Activities

Once the premobilization activities are completed, the field crew, DPT crew, and injection equipment will mobilize to the site to perform the following activities.

4.3.1 Baseline Sampling

A separate baseline sampling event will not be conducted prior to implementing the contingency remedy. Sampling results from the RA-O event conducted in November 2019 will be used for baseline sampling. The baseline sampling results will be compared to sample results collected post ISB injections. The newly installed well 50WW29 was sampled in August 2019, and the results are included in **Table 2-2**. 50WW29 has been added to the ISB performance monitoring network in **Table 3-1** and to the LTM network as shown **Table 3-2**.

4.3.2 Injection Activities

1. Mobilize materials, equipment, mixing tanks, and labor for injections
2. Set up traffic signage and controls as needed
3. Layout injection locations and clear DPT injection points (**Section 4.3.6.1**)
4. Core concrete/asphalt at injection points, if needed, and adjust any points if obstructions are found and push rods to the desired injection interval (**Section 4.3.4**)
5. Setup amendment, equipment, and materials onsite
6. Begin preparing amendment solution for injection a day before planned injections. Preparation of amendment solution will be a continual activity (**Section 4.3.6.2**)
7. Record injection intervals and volumes during injections (**Appendix C**)

8. Once injection is complete at a DPT injection point, abandon point (**Section 4.3.4**)
9. Record DPT injection point locations with global positioning system (GPS)

4.3.3 Post-Injection Activities

After injections, the site will be restored as needed and the injection personnel and equipment will be demobilized. Groundwater sampling and reporting will be conducted as described in **Section 5.0**.

4.3.4 Direct-Push Technology Drilling

Drilling will utilize DPT rigs for in situ injections through a probe with a 4-foot injection screen interval. The injections will be performed in two areas in the vicinity of wells 50WW12 and 50WW11/50WW13 over a treatment thickness of 18-feet and 42-feet, respectively. Injections will be conducted using a top down or bottom up approach, depending on lithology and field conditions. The injection depth intervals will be adjusted to best treat the saturated zone identified in the nearest monitoring wells or soil boring where lithology was recorded (**Table 4-1**). A total of 12 points will be installed using a DPT rig in accordance with the procedures presented in the Installation-Wide Work Plan (IWWP) (Bhate 2018c). Each DPT point will be abandoned by filling with grout after injections are completed.

4.3.5 In-Situ Bioremediation Injection

Placement of DPT points is shown on **Figure 3-1**. **Table 4-1** provides the number of injection points, target depths, volumes of each amendment to be prepared, and target volumes to be injected. The calculations to determine the required volumes are based on the calculation sheets provided in **Appendix A**.

4.3.6 Preparation

4.3.6.1 Location Preparation

Prior to the ISB injection, the site will be cleared of aboveground hazards. A GPS device or linear measurements from monitoring wells and other site features will be used to locate each injection point. The locations will be reviewed to confirm that there are no injection points that will impact any underground or above ground utilities. Additionally, the locations will be reviewed to determine if concrete coring is needed at a location. If the concrete is too thick to core at a location, the location will be adjusted as needed. If there are points that are affected by utility locations, the plan will be altered to relocate those points to avoid the utility, while still meeting the injection objectives. The final DPT injection point locations will be recorded with the GPS. Prior to drilling with the DPT at each point, the location will be excavated with a hand auger or post-hole digger to 5 feet to check for underground obstructions/utilities unless the location has been cleared by other means and an exemption authorized.

4.3.6.2 Amendment Preparation

There are various EVO formulations commercially available in the market. EDS–ER™ or an equivalent product will be used for injections. The ISB amendments will be prepared in mixing tanks. The tanks will be located at LHAAP-50 adjacent to the injection area or at another convenient location. The amendment solution will be mixed prior to the day of injection. The potable water required for mixing will be obtained from water supply well near the fire station or from an off-base fire hydrant, and transported to the mixing tank in a water truck.

Steps required for preparation of ISB amendments are as follows:

- Approximately 24 hours prior to injection, the anaerobic solution will be prepared by adding the required volume of EVO, dilution water, and nutrients into the mixing tank. The same EVO amendment mixture is used for all injection locations. Microbes in the water will grow on a small amount of the carbon, and during respiration, they will use the available oxygen in the mixing tank, creating an anaerobic medium.
- When the solution has become anaerobic, based upon a DO meter reading of less than 1.0 milligrams per liter, SDC-9™ will be added and the amendments will be injected. The amendment solution will be injected into the subsurface using an injection system, as shown on **Figure 4-1**.
- The injection volume for each point at an injection area along with the associated mass and volume of amendment are provided in **Table 4-1** and are based on 100% EVO oil by weight.

4.3.7 In-Situ Injections

4.3.7.1 Injection System

An injection system will be used to allow for multiple DPT injections at a single time under low pressure (i.e., less than 40 psi). The injection system will include volume and pressure gauges, so amendment volume can be recorded for each injection location. The total volumes per well, injection pressures and gallon per minute will be tracked on paper and electronically using the Injection Log in **Appendix C**. The injection system will be connected to each DPT probe using hoses as shown in the schematic on **Figure 4-1**.

4.3.7.2 Monitoring During Injections

During the ISB injections, possible amendment surfacing (also called daylighting) may occur at the ground surface and will be monitored visually. Injection pressures will also be monitored since sudden reductions may be an indication of amendment loss into subsurface, possibly from fracturing induced by the injection or from a high-permeability zone. If daylighting on the surface is observed, injection rates will be reduced. If the reduction in pressure does not eliminate the daylighting, injections will be shut down and the remaining injection volume will

be divided among the nearest injection locations to ensure the full design volume is injected in the area. Goose Prairie Creek will be monitored during and after injections for decrease in DO and visual changes in water color along the creek. Additional monitoring and visual observations will be conducted to determine if any decrease in DO is from injection materials or changes in environmental conditions. If daylighting into a surface water feature is observed, the injection at that location will cease and necessary measures to capture the fluid released and to maintain the DO levels in the surface water will be implemented, if necessary. The remaining volume will be distributed to the other nearby injection locations.

4.3.8 Remediation Derived Waste Management

Remediation derived waste includes the following:

- Groundwater generated from purging of wells prior to sampling
- Decontamination fluids
- Disposable protective clothing and supplies

Wastewater generated from equipment decontamination, well development, groundwater sampling, or other investigative and remedial activities will be stored in 55-gallon drums and transported to the groundwater treatment plant at LHAAP-18/24 as specified in Section 3.8.2 of the IWWP (Bhate 2018c).

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5.0 POST-REMEDIAL MONITORING AND REPORTING

5.1 Groundwater Sampling

Groundwater sampling events will consist of:

- Baseline sampling: November 2019 RA-O event will be considered the baseline sampling event.
- Quarterly performance monitoring for two years used to evaluate the performance of the contingency remedy (**Table 3-1**).
- LTM to be conducted annually until the groundwater perchlorate and VOC concentrations are below the MCL/PCL or the regulators agree that a less frequent sampling schedule is more appropriate (**Table 3-2**).

5.1.1 Baseline Sampling

The RA-O sampling event conducted in November 2019 will be considered the baseline sampling event. The baseline sampling event will help establish baseline conditions against which the remedial performance will be evaluated.

5.1.2 Performance Monitoring Year 1 and Year 2

Wells included in **Table 3-1** will be used to monitor the performance of ISB injections as shown in **Figure 5-1**. The process of biodegradation results in depletion of DO and ORP. Performance monitoring will be conducted to evaluate change in geochemical conditions and perchlorate/VOCs concentrations. For the first two years post-injection, the ISB performance monitoring wells will be sampled quarterly, with results provided at the monthly manager's meetings and summarized more fully in the Annual RA-O reports described in **Section 5.3**.

5.1.3 Long-Term Monitoring

The annual LTM will continue for wells and analytical parameters shown in **Table 3-2**. The number of LTM wells and analytical parameters may be reduced based on the performance monitoring results and recommendations made in RA-O Reports. Monitoring will be discontinued with regulator concurrence after perchlorate/VOCs concentrations in the wells in the treatment area drop below the MCL/PCL. The need for any additional LTM will be discussed in the next Five-Year Review.

5.2 Response Action Completion Report Addendum

A RACR Addendum will be submitted upon implementation of the contingency remedy. ISB performance monitoring and LTM results will be included in Annual RA-O Reports.

5.3 Annual Remedial Action Operation Reports

RA-O Reports will continue to be submitted on an annual basis based on the current schedule. The RA-O report will include results from the RA-O/LTM and performance monitoring events. The reports will include an evaluation of the effectiveness of the contingency remedy for LHAAP-50. Wells within the plume areas will be evaluated for effectiveness of treatment and wells surrounding the plume will be used to evaluate plume stability. The report will provide recommendations if possible for reducing the number of monitoring wells to be included in the monitoring program and/or frequency of monitoring events. The Annual RA-O Report will also include the annual LUC inspection, and monitoring system operation and maintenance discussion.

5.3.1 Remedy Evaluation

Remedial performance will be evaluated using two primary lines of evidence to determine if the remedy is operating properly:

- Plume stability (i.e., plume concentrations are declining in the performance wells, and the plume is not expanding in area as demonstrated by downgradient monitoring wells)
- Reducing conditions conducive for the degradation of perchlorate/VOCs are present within the treatment area

Follow-up injections may be needed if the remedy is determined to not be performing, although reinjections are not expected to be needed within the 3- to 5-year lifespan of the EVO mixture selected. Nonetheless, the decision for reapplication of organic carbon will be made based on performance monitoring results. Proposed performance monitoring network locations and analyses are shown in **Table 3-1**.

6.0 SCHEDULE

Table 6-1 shows the estimated duration for each major site activity and timeline. Weather and unknown site conditions could affect this schedule.

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7.0 REFERENCES

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Tables

Table 1-1
Groundwater Cleanup Levels, LHAAP-50

Chemical	Concentration (µg/L)	Basis
Perchlorate	17	PCL
Trichloroethene	5	MCL
cis-1,2-Dichloroethene	70	MCL
Vinyl chloride	2	MCL
1,1-Dichloroethene	7	MCL
1,2-Dichloroethane	5	MCL
Tetrachloroethene	5	MCL

Notes:

µg/L - micrograms per liter

MCL - maximum contaminant level

PCL - Texas residential groundwater protective concentration level

Table 2-1
Monitoring Well Construction Summary, LHAAP-50

Well ID	Aquifer	Northing [a]	Easting [a]	Ground Surface Elevation [b,c]	Top of Casing Elevation [b]	Well Depth (ft bgs) [c]	Screen Interval (ft bgs) [c]	
							Top	Bottom
50WW01	Upper Shallow	6957599.96	3309311.00	195.29	198.5	20	10	20
50WW02	Upper Shallow	6957436.64	3309569.44	197.4	200.74	19	9	19
50WW03	Upper Shallow	6957162.82	3309376.10	199.88	202.94	20	10	20
50WW04	Upper Shallow	6957156.94	3309947.41	201.64	204.51	20	10	20
50WW05	Upper Shallow	6957581.45	3309709.69	195.34	197.6758	23	15	25
50WW06	Lower Shallow	6957553.93	3309790.22	192.99	195.3462	58	45	55
50WW07	Upper Shallow	6957484.78	3310408.51	199.88	202.55	29	19	29
50WW08	Upper Shallow	6957434.02	3309606.40	197.16	199.67	29.75	15	29
50WW09	Lower Shallow	6957437.22	3309602.73	197.06	199.41	59.5	44	59
50WW10	Intermediate	6957441.16	3309598.97	196.72	199.25	109	99	108
50WW11	Upper Shallow	6957527.87	3309743.98	194.72	197.07	35.3	20	35
50WW12	Upper Shallow	6957569.82	3309877.05	193.26	195.66	35.2	20	35
50WW13	Upper Shallow	6957493.69	3309707.59	195.01	197.45	35.1	20	35
50WW14	Lower Shallow	6957496.69	3309711.32	195.14	197.52	58.5	43	58
50WW15	Upper Shallow	6957551.18	3309588.29	193.95	196.3	35	20	34
50WW16	Upper Shallow	6957700.27	3309748.81	194.1	196.66	35.2	20	35
50WW17	Fully Screened Shallow	6957793.28	3310264.87	192.73	195.13	65	20	64
50WW18	Upper Shallow	6957788.94	3310128.27	192.57	194.84	35.2	20	35
50WW19	Fully Screened Shallow	6957748.65	3310322.10	193.71	195.96	64.2	19	64
50WW20	Fully Screened Shallow	6957347.68	3310050.11	200.3	202.54	53.3	18	53
50WW21	Upper Shallow	6957364.34	3309866.89	197.68	200.14	35	20	34
50WW22	Upper Shallow	6957340.07	3309634.58	199.93	202.1	35	20	34
50WW23	Upper Shallow	6957444.94	3309984.90	198.33	200.75	35.1	20	35
50WW24	Upper Shallow	6957469.14	3310101.17	199.37	201.63	35.5	20	35
50WW25	Lower Shallow	6957715.54	3309528.56	193.48	196	55	NA	NA
50WW26	Lower Shallow	6957367.75	3309864.01	197.68	200.07	60.2	45	60
50WW27	Lower Shallow	6957556.13	3309590.81	193.84	196.22	58	43	57
50WW28	Upper Shallow	6963745.19	3306303.59	205.57	194.71	24.3	27	37

Notes:

[a] Northing and Easting Coordinates are Texas State Plane Coordinate System, North Central Zone (4202), 1983 North American Datum (NAD 83).

[b] Survey elevations are North American Vertical Datum of 1988 (NAVD 88).

[c] The ground surface elevation is measured at the soil surface adjacent to the well pad.

ft - feet

ID - identification

TOC - top of casing

Table 2-2
LHAAP-50 Sampling Results for Newly-Installed Well 50WW29

		Location Code	50WW29	
		Sample ID	50WW29-190815	
		Sample Date	8/15/2019	
		Sample Purpose	REG	
Parameter	Units	MCL / GW-Ind / PCL	Result	Val Qual
Perchlorate (Method SW6850)				
Perchlorate	µg/L	17	< 2	U
Volatiles (Method SW8260)				
1,1,1,2-Tetrachloroethane	µg/L	110	< 0.5	U
1,1,1-Trichloroethane	µg/L	200	< 0.5	U
1,1,2,2-Tetrachloroethane	µg/L	14	< 0.5	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	3,100,000	< 0.5	U
1,1,2-Trichloroethane	µg/L	5	< 0.5	U
1,1-Dichloroethane	µg/L	10,000	< 0.5	U
1,1-Dichloroethene	µg/L	7	< 0.5	U
1,1-Dichloropropene	µg/L	2.9	< 0.5	U
1,2,3-Trichlorobenzene	µg/L	310	< 0.5	U
1,2,3-Trichloropropane	µg/L	0.041	< 0.5	U
1,2,4-Trichlorobenzene	µg/L	70	< 0.5	U
1,2,4-Trimethylbenzene	µg/L	5,100	< 0.5	U
1,2-Dibromo-3-chloropropane	µg/L	0.2	< 0.5	U
1,2-Dibromoethane	µg/L	0.05	< 0.5	U
1,2-Dichlorobenzene	µg/L	600	< 0.5	U
1,2-Dichloroethane	µg/L	5	< 0.5	U
1,2-Dichloropropane	µg/L	5	< 0.5	U
1,3,5-Trimethylbenzene	µg/L	5,100	< 0.5	U
1,3-Dichlorobenzene	µg/L	3,100	< 0.5	U
1,3-Dichloropropane	µg/L	29	< 0.5	U
1,4-Dichlorobenzene	µg/L	75	< 0.5	U
2,2-Dichloropropane	µg/L	42	< 0.5	U
2-Butanone	µg/L	61,000	< 1	U
2-Chlorotoluene	µg/L	2,000	< 0.5	U
2-Hexanone	µg/L	6,100	< 1	U
4-Chlorotoluene	µg/L	2,000	< 0.5	U
Acetone	µg/L	92,000	< 1	U
Benzene	µg/L	5	< 0.5	U
Bromobenzene	µg/L	2,000	< 0.5	U
Bromochloromethane	µg/L	4,100	< 0.5	U
Bromodichloromethane	µg/L	4.6	< 0.5	U
Bromoform	µg/L	36	< 0.5	U
Bromomethane	µg/L	140	< 0.5	U
Carbon disulfide	µg/L	10,000	< 1	U
Carbon tetrachloride	µg/L	5	< 0.5	U
Chlorobenzene	µg/L	100	< 0.5	U
Chloroethane	µg/L	41,000	< 0.5	U
Chloroform	µg/L	1,000	< 0.5	U

Table 2-2
LHAAP-50 Sampling Results for Newly-Installed Well 50WW29

		Location Code	50WW29	
		Sample ID	50WW29-190815	
		Sample Date	8/15/2019	
		Sample Purpose	REG	
Parameter	Units	MCL / GW-Ind / PCL	Result	Val Qual
Chloromethane	µg/L	220	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U
cis-1,3-Dichloropropene	µg/L	5.3	< 0.5	U
Dibromochloromethane	µg/L	34	< 0.5	U
Dibromomethane	µg/L	380	< 0.5	U
Dichlorodifluoromethane	µg/L	20,000	< 0.5	U
Ethylbenzene	µg/L	700	< 0.5	U
Hexachlorobutadiene	µg/L	20	< 1	U
Isopropylbenzene	µg/L	10,000	< 0.5	U
m,p-Xylenes	µg/L	10,000	< 1	U
Methyl isobutyl ketone	µg/L	8,200	< 1	U
Methylene chloride	µg/L	5	< 1	U
Naphthalene	µg/L	2,000	< 0.5	U
n-Butylbenzene	µg/L	4,100	< 0.5	U
n-Propylbenzene	µg/L	4,100	< 0.5	U
o-Xylene	µg/L	10,000	< 0.5	U
p-Isopropyltoluene	µg/L	10,000	< 0.5	U
sec-Butylbenzene	µg/L	4,100	< 0.5	U
Styrene	µg/L	100	< 0.5	U
tert-Butylbenzene	µg/L	4,100	< 0.5	U
Tetrachloroethene	µg/L	5	< 0.5	U
Toluene	µg/L	1,000	< 0.5	U
trans-1,2-Dichloroethene	µg/L	100	< 0.5	U
trans-1,3-Dichloropropene	µg/L	29	< 0.5	U
Trichloroethene	µg/L	5	0.65	J
Trichlorofluoromethane	µg/L	31,000	< 0.5	U
Vinyl chloride	µg/L	2	< 0.5	U

Notes:

µg/L - micrograms per liter

J - estimated value; analyte concentration was less than the limit of quantification

U - analyte was not detected

COC - contaminants of concern

GW-Ind - groundwater medium-specific concentration for industrial use

MCL - maximum contaminant level

MSC - medium-specific concentrations

NA - not analyzed

PCL - Texas residential groundwater protective concentration level

REG - regular sample

Val Qual - validation qualifier

Table 3-1
ISB Performance Monitoring Network Locations and Analyses

Monitoring Location	Primary Rationale for Well Selection	Proposed Analyses: Performance – Years 1 and 2 (Quarterly)								
		Perchlorate (SW6850)	VOCs (SW8260)	DO (field reading)	ORP (field reading)	pH (field reading)	Ferrous Iron (field reading)	Anions (SW9056)	Diss Gases (ethene, ethane, methane & carbon dioxide) (RSK175)	TOC (SM5310C)
50WW08	Upgradient well	✓	✓	✓	✓	✓				
50WW05	Crossgradient well	✓	✓	✓	✓	✓				
50WW06	Performance data within the plume	✓	✓	✓	✓	✓	✓	✓	✓	✓
50WW11	Performance data within the treatment zone	✓	✓	✓	✓	✓	✓	✓	✓	✓
50WW12	Performance data within the treatment zone	✓	✓	✓	✓	✓	✓	✓	✓	✓
50WW13	Performance data within the treatment zone	✓	✓	✓	✓	✓	✓	✓	✓	✓
50WW14	Performance data within the treatment zone	✓	✓	✓	✓	✓	✓	✓	✓	✓
50WW29	Downgradient well	✓	✓	✓	✓	✓				

Notes:

Anions include chloride, nitrate, and sulfate.

✓ Indicates that sample will be collected and analyzed for the listed analyte.

Table 3-2
RA-O / Long-Term Monitoring Network, LHAAP-50

Well ID	VOCs (Method SW 8260)	Perchlorate (Method SW6850)	Field Parameters	TOC (Method SM5310C)	Anions (chloride, nitrate, sulfate) (Method SW9056)	Dissolved Gases (ethene, ethane, methane) (Method RSK175)	Carbon dioxide (Method RSK175)	Ferrous Iron (only field)
Groundwater Sample Locations								
50WW08	X	X	X					
50WW11	X	X	X	X	X	X	X	X
50WW12	X	X	X	X	X	X	X	X
50WW13	X	X	X	X	X	X	X	X
50WW15	X	X	X					
50WW16	X	X	X					
50WW18	X	X	X					
50WW22	X	X	X					
50WW23	X	X	X					
50WW05	X	X	X					
50WW06	X	X	X	X	X	X	X	X
50WW09	X	X	X					
50WW14	X	X	X	X	X	X	X	X
50WW29	X	X	X					

Notes:

The RA-O results from the Nov 2019 sampling event will be used for baseline sampling event.

Field Parameters: DO, ORP, pH, specific conductivity, temperature

ID - identification

DO - dissolved oxygen

ORP - oxidation reduction potential

RA-O - remedial action operation

TOC - total organic carbon

VOCs - volatile organic compounds

Table 4-1

Injection Locations and Amendment Volumes

DPT Location	Amendment Volume per Location						DPT Injection Depths (ft bgs) [a]	Nearest Monitoring Well	Lithology (ft bgs)
	Gallons of EVO (EDS-ER™ or Equivalent)	Liters of SDC-9™ (1.0E11)	Pounds of Nutrients (DAP)	Pounds of Buffer (sodium bicarbonate)	Gallons of Water	Total Injection Volume (gallons)			
50DPT01	110	12	308	37	4,990	5,103	18 - 60	50WW14	0 - 2 ft bgs: Silty fine sand 2 - 15 ft bgs: Silty clay 15 - 30 ft bgs: Silty fine sand 30 - 61.5 ft bgs: Poorly graded sand with silt 58.5 ft bgs: Bottom of well casing
50DPT02	110	12	308	37	4,990	5,103	18 - 60		
50DPT03	110	12	308	37	4,990	5,103	18 - 60		
50DPT04	110	12	308	37	4,990	5,103	18 - 60		
50DPT05	110	12	308	37	4,990	5,103	18 - 60		
50DPT06	110	12	308	37	4,990	5,103	18 - 60		
50DPT07	48	5	132	16	2,139	2,188	17 - 35	50WW12	0 - 2 ft bgs: Silt 2 - 10 ft bgs: Lean clay with sand 10 - 35 ft bgs: Poorly graded sand
50DPT08	48	5	132	16	2,139	2,188	17 - 35		
50DPT09	48	5	132	16	2,139	2,188	17 - 35		
50DPT10	48	5	132	16	2,139	2,188	17 - 35		
50DPT11	48	5	132	16	2,139	2,188	17 - 35		
50DPT12	48	5	132	16	2,139	2,188	17 - 35		

Notes:

Table will be updated with quantities of buffer (Sodium Bicarbonate) which will be determined based on buffer capacity tests.

[a] The DPT injection depths may be altered in the field depending on lithology.

DAP - Diammonium Phosphate

DPT - direct-push technology

EDS-ER™ - electron donor solution-extended release

EVO - emulsified vegetable oil

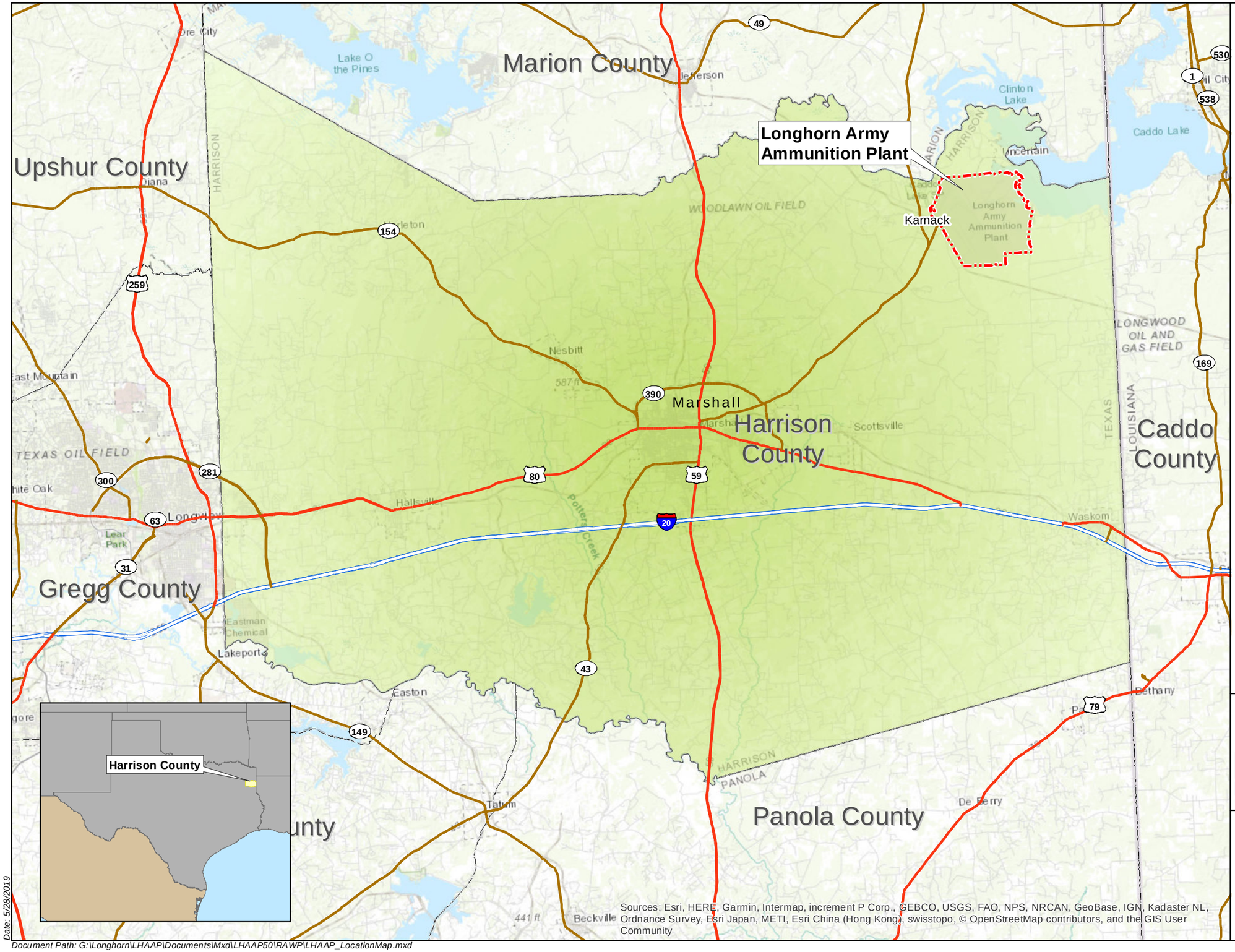
ft bgs - feet below ground surface

SDC-9™ - APTIM's dechlorinating culture

Table 6-1
Schedule of Major Site Activities

Activities	Duration
Provide Injection Information to State	30
Utility Clearance	1
Mobilization / Site Set-up for Injections	1
Clear Injection Locations	2
Conduct Injection	15
Demobilization	1
Total Number of Days	50

Figures



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TULSA, OKLAHOMA

bhate ENVIRONMENT & INFRASTRUCTURE

APTIM

Figure 1-1

LHAAP Location Map

Remedial Action Work Plan,
Contingency Remedy, LHAAP-50
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 5/28/2019

Document Path: G:\Longhorn\LHAAP\Documents\Mxd\LHAAP50\RAWP\LHAAP_LocationMap.mxd

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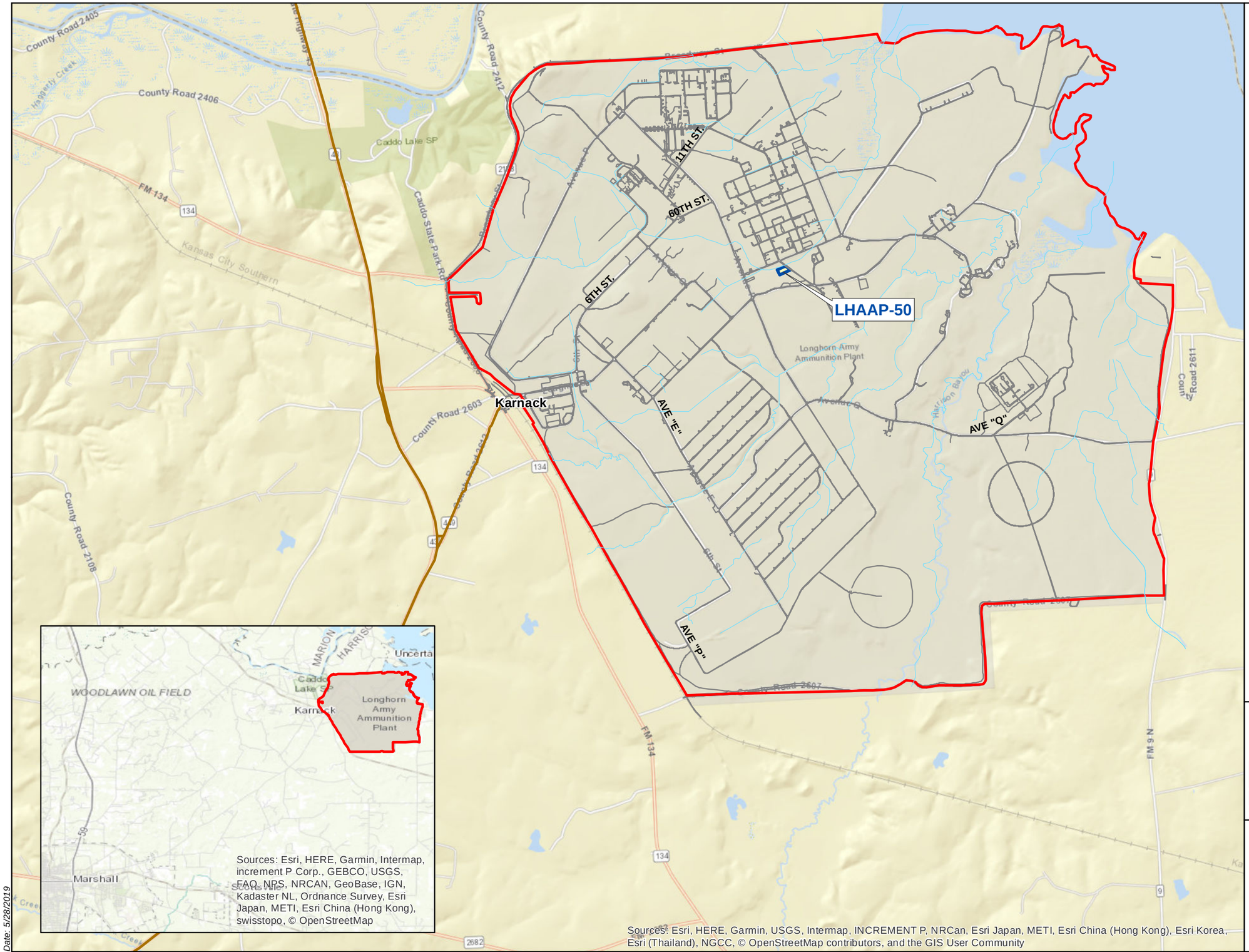

Stream
Road
LHAAP Boundary
LHAAP-16 Site Boundary

N

0 1,500 3,000 Feet

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bhate ENVIRONMENT & INFRASTRUCTURE

APTIM

Figure 1-2

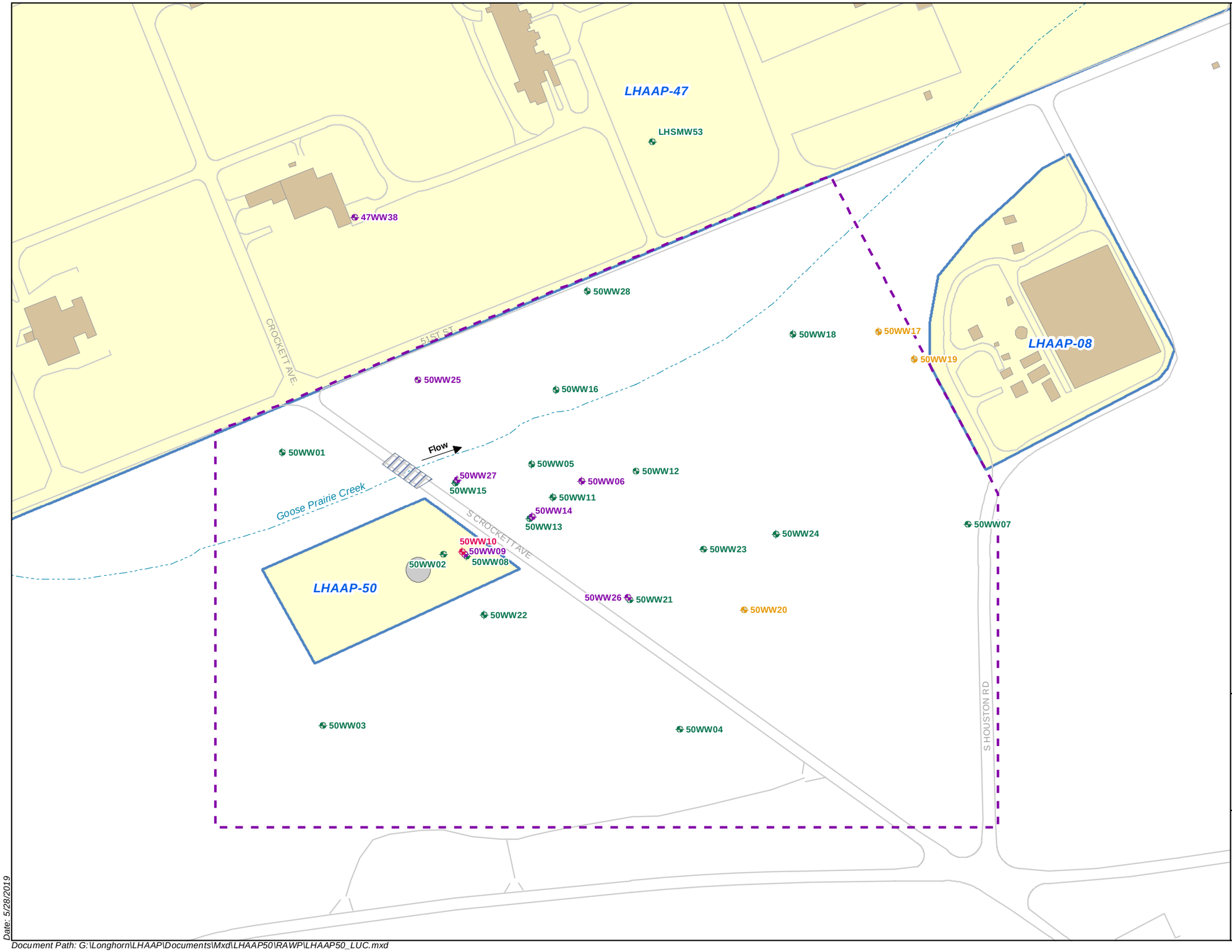
LHAAP Site Location Map

Remedial Action Work Plan,
Contingency Remedy, LHAAP-50
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 5/28/2019

Document Path: G:\Longhorn\LHAAP\Documents\Mxd\LHAAP50\RAWP\LHAAP50_SiteLocationMap.mxd

00949957



- Lower Shallow Monitor Well
- Upper Shallow Monitor Well
- Fully Penetrating Shallow Monitor Well
- Intermediate Monitor Well
- Goose Prairie Creek
- Roads
- Land Use Control Boundary
- Bridges
- Former Storage Tank Location
- Buildings
- Site Boundaries

N

0 75 150 Feet

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TULSA, OKLAHOMA

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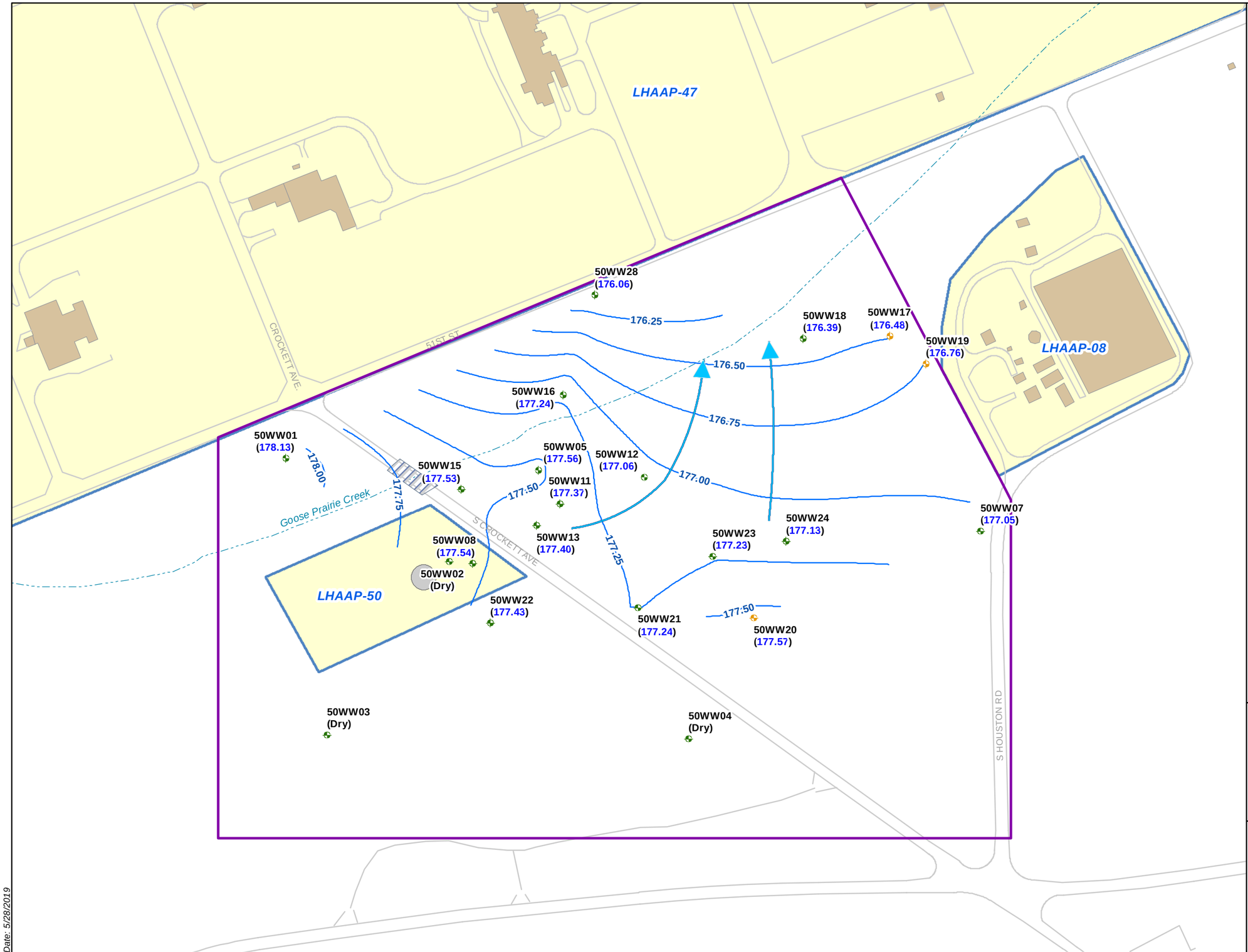
Figure 1-3
Land Use Control Boundary

Remedial Action Work Plan,
Contingency Remedy, LHAAP-50

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 5/28/2019

Document Path: G:\Longhorn\LHAAP\Documents\Mxd\LHAAP50\RAWP\LHAAP50_LUC.mxd



- Upper Shallow Monitoring Well
- Fully Screened Shallow Monitor Well
- Groundwater Flow Direction
- Groundwater Contour
- Land Use Control Boundary
- Bridges
- Former Storage Tank Location
- Goose Prairie Creek
- Roads
- Buildings
- Site Boundaries

Note:
1. Monitor wells 50WW02, 50WW03, and 50WW04 were dry during Nov 2017 sampling.
2. Groundwater levels (175.2) are in feet above mean sea level (ft amsl).

N

0 75 150
Feet

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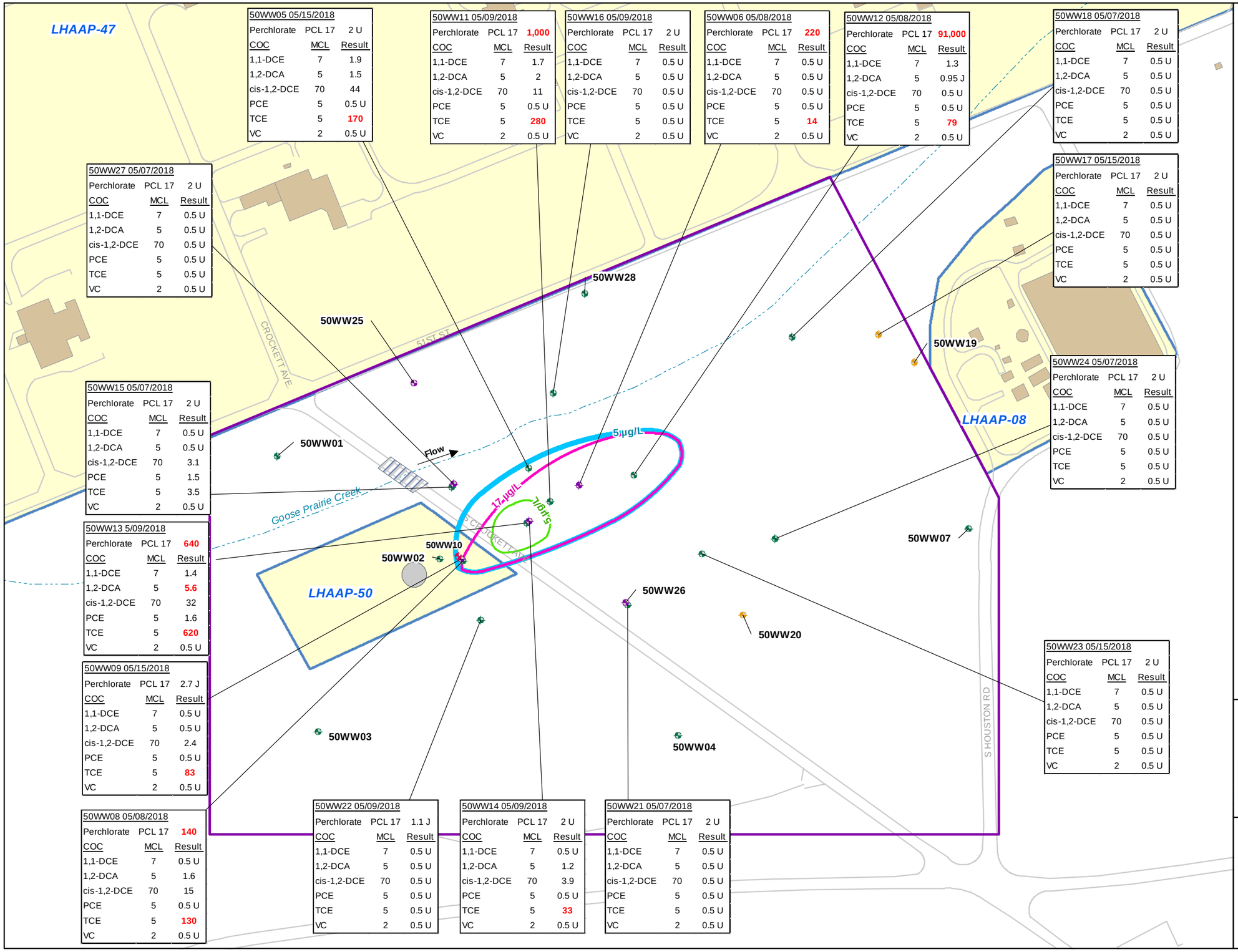
Figure 1-4
Potentiometric Surface Map for the Shallow Zone, May 2018

Remedial Action Work Plan,
Contingency Remedy, LHAAP-50
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 5/28/2019

Document Path: G:\Longhorn\LHAAP\Documents\Mxd\LHAAP50\RAWP\LHAAP50_ShallowZoneMay2018_GW.mxd



50WW05 05/15/2018

Perchlorate	PCL 17	2 U
COC	MCL	Result
1,1-DCE	7	1.9
1,2-DCA	5	1.5
cis-1,2-DCE	70	44
PCE	5	0.5 U
TCE	5	170
VC	2	0.5 U

50WW11 05/09/2018

Perchlorate	PCL 17	1,000
COC	MCL	Result
1,1-DCE	7	1.7
1,2-DCA	5	2
cis-1,2-DCE	70	11
PCE	5	0.5 U
TCE	5	280
VC	2	0.5 U

50WW16 05/09/2018

Perchlorate	PCL 17	2 U
COC	MCL	Result
1,1-DCE	7	0.5 U
1,2-DCA	5	0.5 U
cis-1,2-DCE	70	0.5 U
PCE	5	0.5 U
TCE	5	0.5 U
VC	2	0.5 U

50WW06 05/08/2018

Perchlorate	PCL 17	220
COC	MCL	Result
1,1-DCE	7	0.5 U
1,2-DCA	5	0.5 U
cis-1,2-DCE	70	0.5 U
PCE	5	0.5 U
TCE	5	14
VC	2	0.5 U

50WW12 05/08/2018

Perchlorate	PCL 17	91,000
COC	MCL	Result
1,1-DCE	7	1.3
1,2-DCA	5	0.95 J
cis-1,2-DCE	70	0.5 U
PCE	5	0.5 U
TCE	5	79
VC	2	0.5 U

50WW18 05/07/2018

Perchlorate	PCL 17	2 U
COC	MCL	Result
1,1-DCE	7	0.5 U
1,2-DCA	5	0.5 U
cis-1,2-DCE	70	0.5 U
PCE	5	0.5 U
TCE	5	0.5 U
VC	2	0.5 U

50WW27 05/07/2018

Perchlorate	PCL 17	2 U
COC	MCL	Result
1,1-DCE	7	0.5 U
1,2-DCA	5	0.5 U
cis-1,2-DCE	70	0.5 U
PCE	5	0.5 U
TCE	5	0.5 U
VC	2	0.5 U

50WW17 05/15/2018

Perchlorate	PCL 17	2 U
COC	MCL	Result
1,1-DCE	7	0.5 U
1,2-DCA	5	0.5 U
cis-1,2-DCE	70	0.5 U
PCE	5	0.5 U
TCE	5	0.5 U
VC	2	0.5 U

50WW15 05/07/2018

Perchlorate	PCL 17	2 U
COC	MCL	Result
1,1-DCE	7	0.5 U
1,2-DCA	5	0.5 U
cis-1,2-DCE	70	3.1
PCE	5	1.5
TCE	5	3.5
VC	2	0.5 U

50WW24 05/07/2018

Perchlorate	PCL 17	2 U
COC	MCL	Result
1,1-DCE	7	0.5 U
1,2-DCA	5	0.5 U
cis-1,2-DCE	70	0.5 U
PCE	5	0.5 U
TCE	5	0.5 U
VC	2	0.5 U

50WW13 5/09/2018

Perchlorate	PCL 17	640
COC	MCL	Result
1,1-DCE	7	1.4
1,2-DCA	5	5.6
cis-1,2-DCE	70	32
PCE	5	1.6
TCE	5	620
VC	2	0.5 U

50WW09 05/15/2018

Perchlorate	PCL 17	2.7 J
COC	MCL	Result
1,1-DCE	7	0.5 U
1,2-DCA	5	0.5 U
cis-1,2-DCE	70	2.4
PCE	5	0.5 U
TCE	5	83
VC	2	0.5 U

50WW08 05/08/2018

Perchlorate	PCL 17	140
COC	MCL	Result
1,1-DCE	7	0.5 U
1,2-DCA	5	1.6
cis-1,2-DCE	70	15
PCE	5	0.5 U
TCE	5	130
VC	2	0.5 U

50WW22 05/09/2018

Perchlorate	PCL 17	1.1 J
COC	MCL	Result
1,1-DCE	7	0.5 U
1,2-DCA	5	0.5 U
cis-1,2-DCE	70	0.5 U
PCE	5	0.5 U
TCE	5	0.5 U
VC	2	0.5 U

50WW14 05/09/2018

Perchlorate	PCL 17	2 U
COC	MCL	Result
1,1-DCE	7	0.5 U
1,2-DCA	5	1.2
cis-1,2-DCE	70	3.9
PCE	5	0.5 U
TCE	5	33
VC	2	0.5 U

50WW21 05/07/2018

Perchlorate	PCL 17	2 U
COC	MCL	Result
1,1-DCE	7	0.5 U
1,2-DCA	5	0.5 U
cis-1,2-DCE	70	0.5 U
PCE	5	0.5 U
TCE	5	0.5 U
VC	2	0.5 U

50WW23 05/15/2018

Perchlorate	PCL 17	2 U
COC	MCL	Result
1,1-DCE	7	0.5 U
1,2-DCA	5	0.5 U
cis-1,2-DCE	70	0.5 U
PCE	5	0.5 U
TCE	5	0.5 U
VC	2	0.5 U

- Lower Shallow Monitoring Well
- Upper Shallow Monitoring Well
- Fully Penetrating Shallow Monitoring Well
- Intermediate Monitoring Well
- 1,2-DCA Contour
- Perchlorate Contour (*Dashed where inferred*)
- TCE Contour
- Goose Prairie Creek
- Roads
- Land Use Control Boundary
- Bridges
- Former Storage Tank Location
- Buildings
- Site Boundaries

Notes:
1. All concentrations are shown in micrograms per liter (µg/L).
2. 1,1-DCE = 1,1-dichlorothene
   1,2-DCA = 1,2-dichlorethane
   cis-1,2-DCE = cis-1,2-dichloroethene
   PCE = tetrachloroethene
   TCE = trichloroethene
   VC = vinyl chloride
   MCL = maximum concentration level
   PCL = protective concentration level
   U = below detection limit
   J = estimated value
   COC = contaminant of concern
3. Results in red are above the MCL or PCL.

0 75 150 Feet

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TULSA, OKLAHOMA

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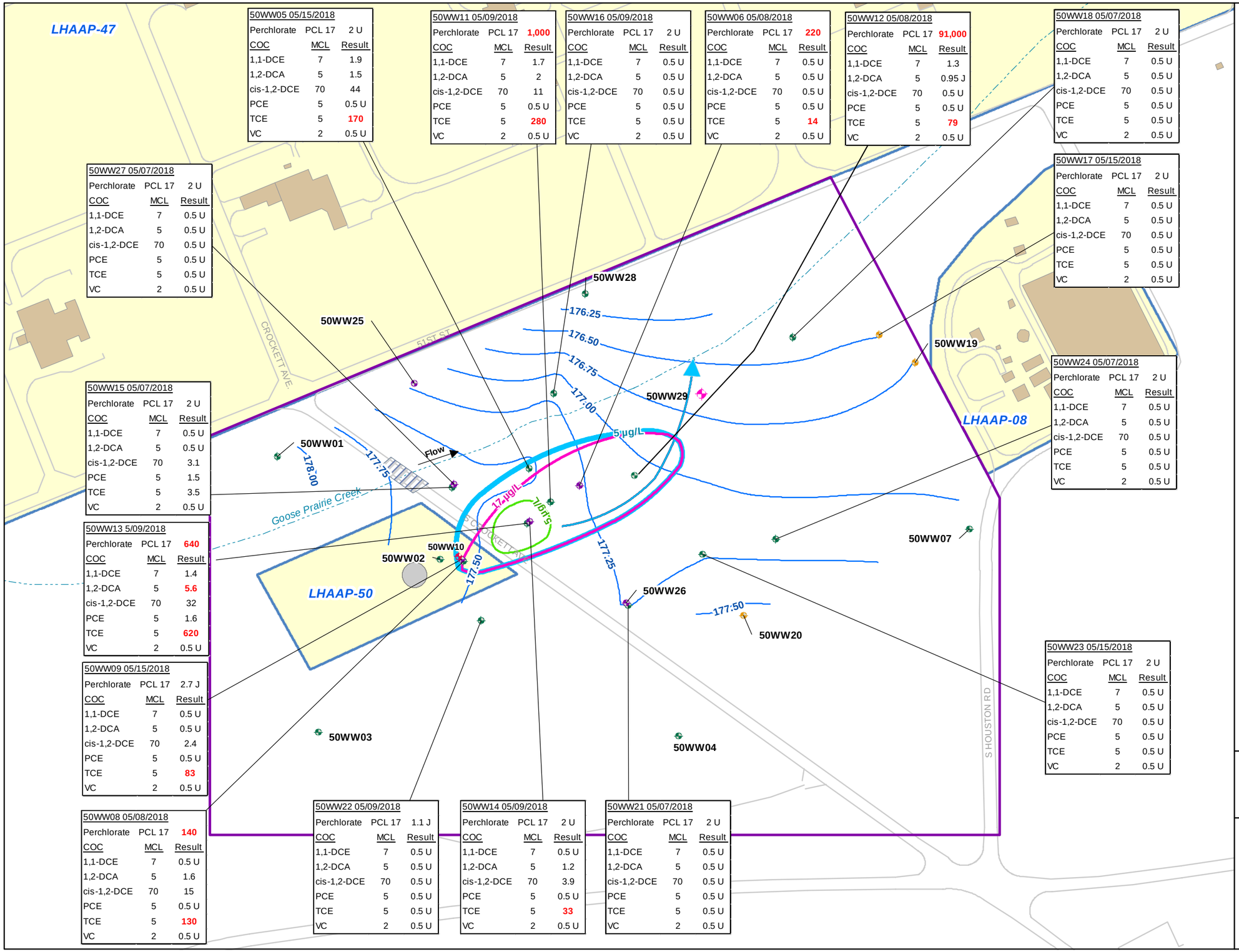
Figure 1-5
COC Concentrations in Shallow Zone, May 2018

Remedial Action Work Plan, Contingency Remedy, LHAAP-50

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS


LHAAP-47
LHAAP-50
LHAAP-08
50WW05 05/15/2018
Perchlorate PCL 17 2 U
COC MCL Result
1,1-DCE 7 1.9
1,2-DCA 5 1.5
cis-1,2-DCE 70 44
PCE 5 0.5 U
TCE 5 170
VC 2 0.5 U
50WW11 05/09/2018
Perchlorate PCL 17 1,000
COC MCL Result
1,1-DCE 7 1.7
1,2-DCA 5 2
cis-1,2-DCE 70 11
PCE 5 0.5 U
TCE 5 280
VC 2 0.5 U
50WW16 05/09/2018
Perchlorate PCL 17 2 U
COC MCL Result
1,1-DCE 7 0.5 U
1,2-DCA 5 0.5 U
cis-1,2-DCE 70 0.5 U
PCE 5 0.5 U
TCE 5 0.5 U
VC 2 0.5 U
50WW06 05/08/2018
Perchlorate PCL 17 220
COC MCL Result
1,1-DCE 7 0.5 U
1,2-DCA 5 0.5 U
cis-1,2-DCE 70 0.5 U
PCE 5 0.5 U
TCE 5 14
VC 2 0.5 U
50WW12 05/08/2018
Perchlorate PCL 17 91,000
COC MCL Result
1,1-DCE 7 1.3
1,2-DCA 5 0.95 J
cis-1,2-DCE 70 0.5 U
PCE 5 0.5 U
TCE 5 79
VC 2 0.5 U
50WW18 05/07/2018
Perchlorate PCL 17 2 U
COC MCL Result
1,1-DCE 7 0.5 U
1,2-DCA 5 0.5 U
cis-1,2-DCE 70 0.5 U
PCE 5 0.5 U
TCE 5 0.5 U
VC 2 0.5 U
50WW27 05/07/2018
Perchlorate PCL 17 2 U
COC MCL Result
1,1-DCE 7 0.5 U
1,2-DCA 5 0.5 U
cis-1,2-DCE 70 0.5 U
PCE 5 0.5 U
TCE 5 0.5 U
VC 2 0.5 U
50WW17 05/15/2018
Perchlorate PCL 17 2 U
COC MCL Result
1,1-DCE 7 0.5 U
1,2-DCA 5 0.5 U
cis-1,2-DCE 70 0.5 U
PCE 5 0.5 U
TCE 5 0.5 U
VC 2 0.5 U
50WW24 05/07/2018
Perchlorate PCL 17 2 U
COC MCL Result
1,1-DCE 7 0.5 U
1,2-DCA 5 0.5 U
cis-1,2-DCE 70 0.5 U
PCE 5 0.5 U
TCE 5 0.5 U
VC 2 0.5 U
50WW15 05/07/2018
Perchlorate PCL 17 2 U
COC MCL Result
1,1-DCE 7 0.5 U
1,2-DCA 5 0.5 U
cis-1,2-DCE 70 3.1
PCE 5 1.5
TCE 5 3.5
VC 2 0.5 U
50WW13 5/09/2018
Perchlorate PCL 17 640
COC MCL Result
1,1-DCE 7 1.4
1,2-DCA 5 5.6
cis-1,2-DCE 70 32
PCE 5 1.6
TCE 5 620
VC 2 0.5 U
50WW09 05/15/2018
Perchlorate PCL 17 2.7 J
COC MCL Result
1,1-DCE 7 0.5 U
1,2-DCA 5 0.5 U
cis-1,2-DCE 70 2.4
PCE 5 0.5 U
TCE 5 83
VC 2 0.5 U
50WW08 05/08/2018
Perchlorate PCL 17 140
COC MCL Result
1,1-DCE 7 0.5 U
1,2-DCA 5 1.6
cis-1,2-DCE 70 15
PCE 5 0.5 U
TCE 5 130
VC 2 0.5 U
50WW22 05/09/2018
Perchlorate PCL 17 1.1 J
COC MCL Result
1,1-DCE 7 0.5 U
1,2-DCA 5 0.5 U
cis-1,2-DCE 70 0.5 U
PCE 5 0.5 U
TCE 5 0.5 U
VC 2 0.5 U
50WW14 05/09/2018
Perchlorate PCL 17 2 U
COC MCL Result
1,1-DCE 7 0.5 U
1,2-DCA 5 1.2
cis-1,2-DCE 70 3.9
PCE 5 0.5 U
TCE 5 33
VC 2 0.5 U
50WW21 05/07/2018
Perchlorate PCL 17 2 U
COC MCL Result
1,1-DCE 7 0.5 U
1,2-DCA 5 0.5 U
cis-1,2-DCE 70 0.5 U
PCE 5 0.5 U
TCE 5 0.5 U
VC 2 0.5 U
50WW23 05/15/2018
Perchlorate PCL 17 2 U
COC MCL Result
1,1-DCE 7 0.5 U
1,2-DCA 5 0.5 U
cis-1,2-DCE 70 0.5 U
PCE 5 0.5 U
TCE 5 0.5 U
VC 2 0.5 U
50WW01
50WW02
50WW03
50WW04
50WW07
50WW10
50WW19
50WW20
50WW25
50WW26
50WW28
50WW29
176.25
176.50
176.75
177.00
177.25
177.50
178.00
5µg/L
17µg/L
5µg/L
Flow
Goose Prairie Creek
CROCKETT AVE.
51ST ST.
S CROCKETT AVE.
S HOUSTON RD
New Installed Monitoring Well Location
Lower Shallow Monitoring Well
Upper Shallow Monitoring Well
Fully Penetrating Shallow Monitoring Well
Intermediate Monitoring Well
1,2-DCA Contour
Perchlorate Contour
(Dashed where inferred)
TCE Contour
Groundwater Flow Direction
Groundwater Contour
Goose Prairie Creek
Roads
Land Use Control Boundary
Bridges
Former Storage Tank Location
Buildings
Site Boundaries
Notes:
1. All concentrations are shown in micrograms per liter (µg/L).
2. 1,1-DCE = 1,1-dichlorothene
1,2-DCA = 1,2-dichlorethane
cis-1,2-DCE = cis-1,2-dichloroethene
PCE = tetrachloroethene
TCE = trichloroethene
VC = vinyl chloride
MCL = maximum concentration level
PCL = protective concentration level
U = below detection limit
J = estimated value
COC = contaminant of concern
3. Results in red are above the MCL or PCL.
4. Groundwater Contours are based on May 2018 data.
0 75 150
Feet
APTIM
U.S. ARMY CORP OF ENGINEERS
TULSA DISTRICT
TULSA, OKLAHOMA
Figure 2-1
New Well Location
Remedial Action Work Plan,
Contingency Remedy, LHAAP-50
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

LHAAP-47

LHAAP-08

LHAAP-50

50WW05 05/15/2018		
Perchlorate	PCL 17	2 U
COC	MCL	Result
1,1-DCE	7	1.9
1,2-DCA	5	1.5
cis-1,2-DCE	70	44
PCE	5	0.5 U
TCE	5	170
VC	2	0.5 U

50WW11 05/09/2018		
Perchlorate	PCL 17	1,000
COC	MCL	Result
1,1-DCE	7	1.7
1,2-DCA	5	2
cis-1,2-DCE	70	11
PCE	5	0.5 U
TCE	5	280
VC	2	0.5 U

50WW16 05/09/2018		
Perchlorate	PCL 17	2 U
COC	MCL	Result
1,1-DCE	7	0.5 U
1,2-DCA	5	0.5 U
cis-1,2-DCE	70	0.5 U
PCE	5	0.5 U
TCE	5	0.5 U
VC	2	0.5 U

50WW06 05/08/2018		
Perchlorate	PCL 17	220
COC	MCL	Result
1,1-DCE	7	0.5 U
1,2-DCA	5	0.5 U
cis-1,2-DCE	70	0.5 U
PCE	5	0.5 U
TCE	5	14
VC	2	0.5 U

50WW12 05/08/2018		
Perchlorate	PCL 17	91,000
COC	MCL	Result
1,1-DCE	7	1.3
1,2-DCA	5	0.95 J
cis-1,2-DCE	70	0.5 U
PCE	5	0.5 U
TCE	5	79
VC	2	0.5 U

50WW18 05/07/2018		
Perchlorate	PCL 17	2 U
COC	MCL	Result
1,1-DCE	7	0.5 U
1,2-DCA	5	0.5 U
cis-1,2-DCE	70	0.5 U
PCE	5	0.5 U
TCE	5	0.5 U
VC	2	0.5 U

50WW27 05/07/2018		
Perchlorate	PCL 17	2 U
COC	MCL	Result
1,1-DCE	7	0.5 U
1,2-DCA	5	0.5 U
cis-1,2-DCE	70	0.5 U
PCE	5	0.5 U
TCE	5	0.5 U
VC	2	0.5 U

50WW17 05/15/2018		
Perchlorate	PCL 17	2 U
COC	MCL	Result
1,1-DCE	7	0.5 U
1,2-DCA	5	0.5 U
cis-1,2-DCE	70	0.5 U
PCE	5	0.5 U
TCE	5	0.5 U
VC	2	0.5 U

50WW24 05/07/2018		
Perchlorate	PCL 17	2 U
COC	MCL	Result
1,1-DCE	7	0.5 U
1,2-DCA	5	0.5 U
cis-1,2-DCE	70	0.5 U
PCE	5	0.5 U
TCE	5	0.5 U
VC	2	0.5 U

50WW15 05/07/2018		
Perchlorate	PCL 17	2 U
COC	MCL	Result
1,1-DCE	7	0.5 U
1,2-DCA	5	0.5 U
cis-1,2-DCE	70	3.1
PCE	5	1.5
TCE	5	3.5
VC	2	0.5 U

50WW13 5/09/2018		
Perchlorate	PCL 17	640
COC	MCL	Result
1,1-DCE	7	1.4
1,2-DCA	5	5.6
cis-1,2-DCE	70	32
PCE	5	1.6
TCE	5	620
VC	2	0.5 U

50WW09 05/15/2018		
Perchlorate	PCL 17	2.7 J
COC	MCL	Result
1,1-DCE	7	0.5 U
1,2-DCA	5	0.5 U
cis-1,2-DCE	70	2.4
PCE	5	0.5 U
TCE	5	83
VC	2	0.5 U

50WW08 05/08/2018		
Perchlorate	PCL 17	140
COC	MCL	Result
1,1-DCE	7	0.5 U
1,2-DCA	5	1.6
cis-1,2-DCE	70	15
PCE	5	0.5 U
TCE	5	130
VC	2	0.5 U

50WW22 05/09/2018		
Perchlorate	PCL 17	1.1 J
COC	MCL	Result
1,1-DCE	7	0.5 U
1,2-DCA	5	0.5 U
cis-1,2-DCE	70	0.5 U
PCE	5	0.5 U
TCE	5	0.5 U
VC	2	0.5 U

50WW14 05/09/2018		
Perchlorate	PCL 17	2 U
COC	MCL	Result
1,1-DCE	7	0.5 U
1,2-DCA	5	1.2
cis-1,2-DCE	70	3.9
PCE	5	0.5 U
TCE	5	33
VC	2	0.5 U

50WW21 05/07/2018		
Perchlorate	PCL 17	2 U
COC	MCL	Result
1,1-DCE	7	0.5 U
1,2-DCA	5	0.5 U
cis-1,2-DCE	70	0.5 U
PCE	5	0.5 U
TCE	5	0.5 U
VC	2	0.5 U

50WW23 05/15/2018		
Perchlorate	PCL 17	2 U
COC	MCL	Result
1,1-DCE	7	0.5 U
1,2-DCA	5	0.5 U
cis-1,2-DCE	70	0.5 U
PCE	5	0.5 U
TCE	5	0.5 U
VC	2	0.5 U

50WW01 50WW02 50WW03 50WW04 50WW07 50WW10 50WW19 50WW20 50WW25 50WW26 50WW28 50WW29

50DPT01 50DPT02 50DPT03 50DPT04 50DPT05 50DPT06 50DPT07 50DPT08 50DPT09 50DPT10 50DPT11 50DPT12

5µg/L 17µg/L 5µg/L

Flow

Goose Prairie Creek

CROCKETT AVE

51ST ST

S HOUSTON RD

- Lower Shallow Monitoring Well
- Upper Shallow Monitoring Well
- Fully Penetrating Shallow Monitoring Well
- Intermediate Monitoring Well
- Proposed DPT Point
- 1,2-DCA Contour
- Perchlorate Contour (*Dashed where inferred*)
- TCE Contour
- Goose Prairie Creek
- Roads
- Land Use Control Boundary
- Bridges
- Former Storage Tank Location
- Buildings
- Site Boundaries

Notes:
1. All concentrations are shown in micrograms per liter (µg/L).
2. 1,1-DCE = 1,1-dichlorothene
   1,2-DCA = 1,2-dichlorethane
   cis-1,2-DCE = cis-1,2-dichloroethene
   PCE = tetrachloroethene
   TCE = trichloroethene
   VC = vinyl chloride
   MCL = maximum concentration level
   PCL = protective concentration level
   U = below detection limit
   J = estimated value
   COC = contaminant of concern
3. Results in red are above the MCL or PCL.

0 75 150 Feet

U.S. ARMY CORP OF ENGINEERS
TULSA DISTRICT
TULSA, OKLAHOMA

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APTIM

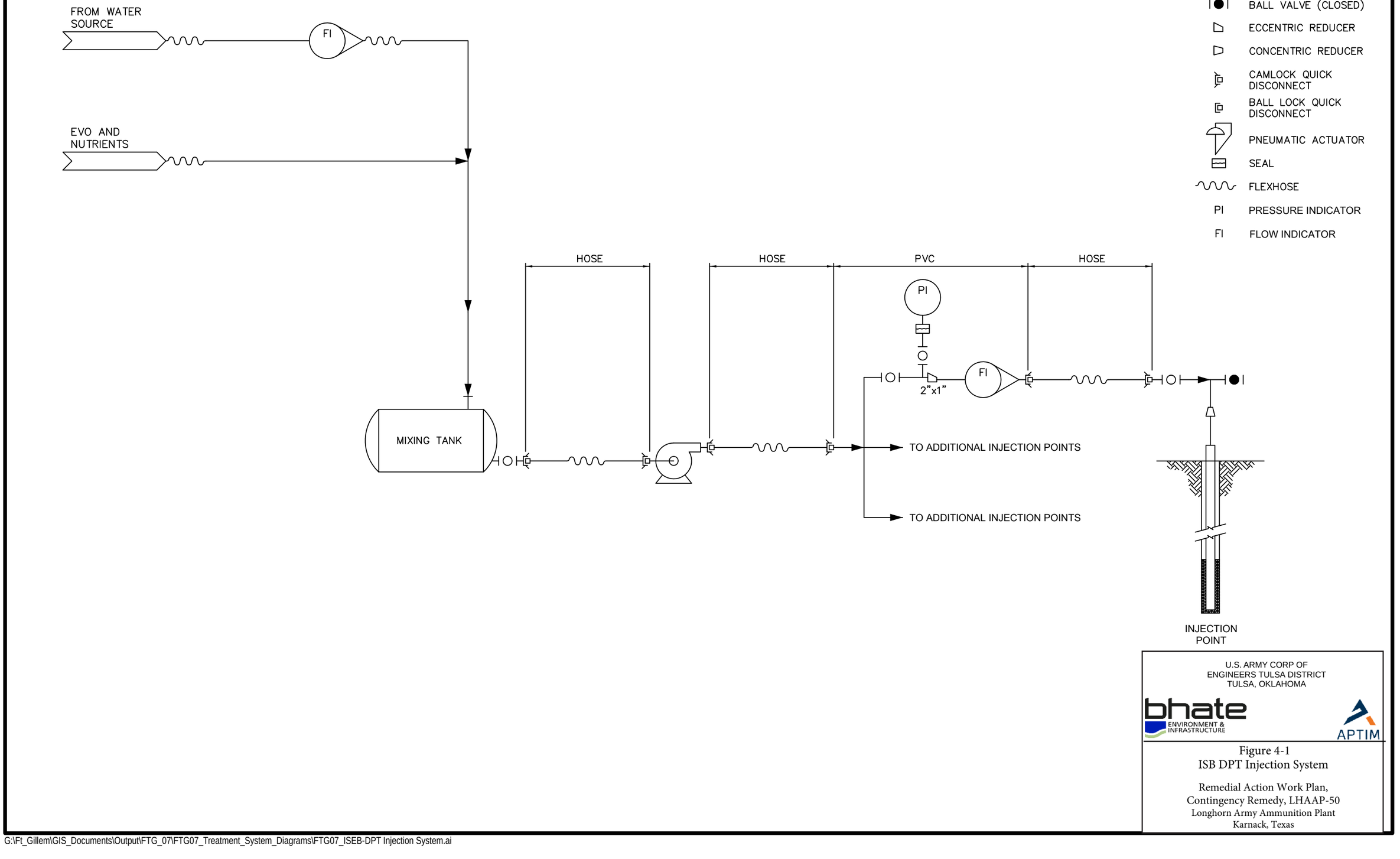
Figure 3-1

Proposed Remediation Plan
Remedial Action Work Plan,
Contigency Remedy,
LHAAP-50
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Document Path: G:\Longhorn\LHAAP\Documents\Mxd\LHAAP50\RAWP\LHAAP50_PropRemPlan.mxd Date: 10/31/2019

NOTE:

1. EVO – EMULSIFIED VEGETABLE OIL.



LEGEND:

- BALL VALVE (OPEN)
- BALL VALVE (CLOSED)
- ECCENTRIC REDUCER
- CONCENTRIC REDUCER
- CAMLOCK QUICK DISCONNECT
- BALL LOCK QUICK DISCONNECT
- PNEUMATIC ACTUATOR
- SEAL
- FLEXHOSE
- PI PRESSURE INDICATOR
- FI FLOW INDICATOR

U.S. ARMY CORP OF ENGINEERS TULSA DISTRICT
TULSA, OKLAHOMA

bhate ENVIRONMENT & INFRASTRUCTURE

APTIM

Figure 4-1
ISB DPT Injection System

Remedial Action Work Plan,
Contingency Remedy, LHAAP-50
Longhorn Army Ammunition Plant
Karnack, Texas

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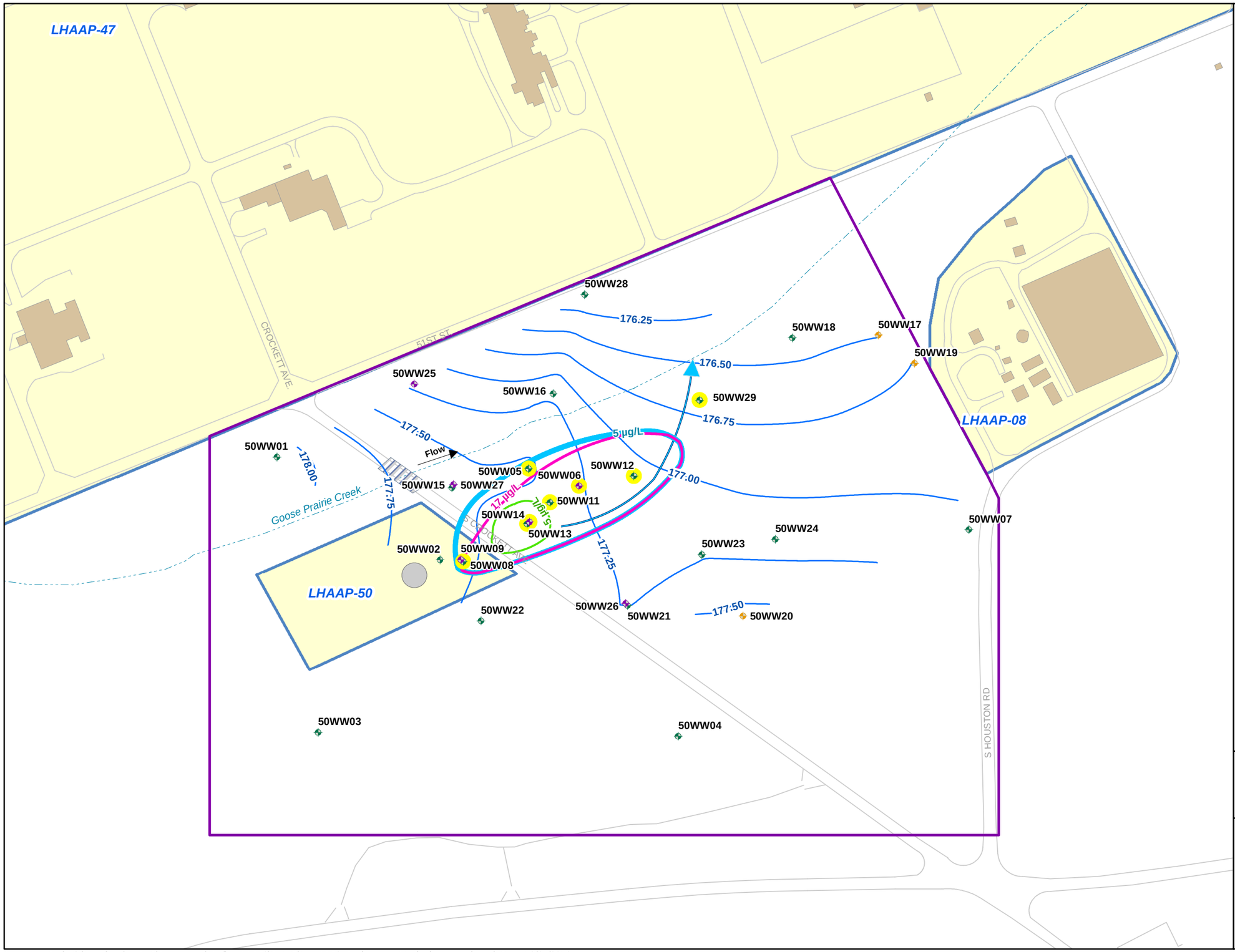

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TULSA DISTRICT
TULSA, OKLAHOMA

Figure 5-1

Performance Monitoring Network
Remedial Action Work Plan,
Contigency Remedy,
LHAAP-50

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Document Path: G:\Longhorn\LHAAP\Documents\Mxd\LHAAP50\RAWP\LHAAP50_PerformanceMonitoringNetwork.mxd Date: 10/31/2019

Appendix A

ISB Design Calculation Sheets

LHAAP-50: 50WW12 Treatment Area Calculation Worksheet

Site Parameters	units	LHAAP 50
Target Width	feet	59
Target Length	feet	59
Treatment Interval	feet	18
Target Area Volume	cubic feet	62,658
Effective Porosity		0.28
Target Area Water Volume	cubic feet	17,544
Target Area Water Volume	gallons	131,231
Target Injection Volume (10%)	gallons	13,123
Amendment Volume Requirements		
Emulsified Vegetable Oil: 60%	pounds	3,628
Emulsified Vegetable Oil: EDS-ER™ (100%)	pounds	2,177
Emulsified Vegetable Oil: EDS-ER™	gallons	283
Emulsified Vegetable Oil: EDS-ER™	drums	5
Dechlorinating culture:SDC-9™	liter	30
Dechlorinating culture:SDC-9™	gallon	8
Nutrients (DAP)	pounds	793
Water	gallons	12,832
Sodium Bicarbonate Buffer (0.87 g/L)	pounds	95
Volumes per Point		
Emulsified Vegetable Oil: EDS-ER™	gallons	48
SDC-9™	gallons	1.32
SDC-9™	liters	5.00
Nutrients (DAP)	pounds	132
Water	gallons	2,139
Sodium Bicarbonate Buffer	pounds	16
Injection Parameters		
Injection Spacing	feet	20
Target Depth	ft bgs	35
Thickness	feet	18
Total Volume per Point	gallons	2,188
Volume per foot		122
Injection Rate	gpm	3
Injection Pressure (not to exceed)	psi	40
Time per Point	hours	13
Simultaneous Points	points	4
Hours of Injection per day	hours	8
Gallons per day	gallons	5,760
Points to be Completed	points	6
Days of Injection	days	2

Notes:

ft bgs - feet below ground surface

psi - pounds per square inch

gpm - gallons per minute

Nutrient Dosing Calculation Sheet

Site Name: Longhorn AAP
Location: LHAAP-50 50WW12
Project No.:

Carbon content of soybean oil

Major component is linoleic acid				
CH3(CH2)4CH=CHCH2CH=CH(CH2)7 CO2CH3, or C19H34O2				
Formula weight:	294.48	grams per mole		
Carbon content:	77.42%			

Carbon content of 100% soybean oil EVO

Density of EVO	7.70	pounds/gallon		
Mass of EVO	2,177	pounds		
Mass of EVO	987	kilograms		
Volume of EVO	283	gallons		
55 gal drum of EVO	5.14	gallons		
Grade of EVO	100%			
Mass of carbon	764.56	kilograms		
Mass of carbon	1,682.03	pounds		

Nutrient demand based on 100C:10N:1P ratio

Carbon	1,682	pounds		
Nitrogen	168	pounds		
Phosphate	17	pounds		

Nutrient source required

DAP	**793**	lbs		

N & P content of nutrient sources

Diammonium Phosphate (DAP) solid (16-46-10)

	molecular wt.	atoms	total wt.	%
Nitrogen	14.0067	2	28.0134	21.21328922
Hydrogen	1.0079	9	9.0711	6.869136479
Phosphate	30.9738	1	30.9738	23.45506713
Oxygen	15.9994	4	63.9976	48.46250717
		Total	**132.1**	**100**

100 lbs of DAP =21.2 lbs of N

4.71 lbs DAP for 1 lb N

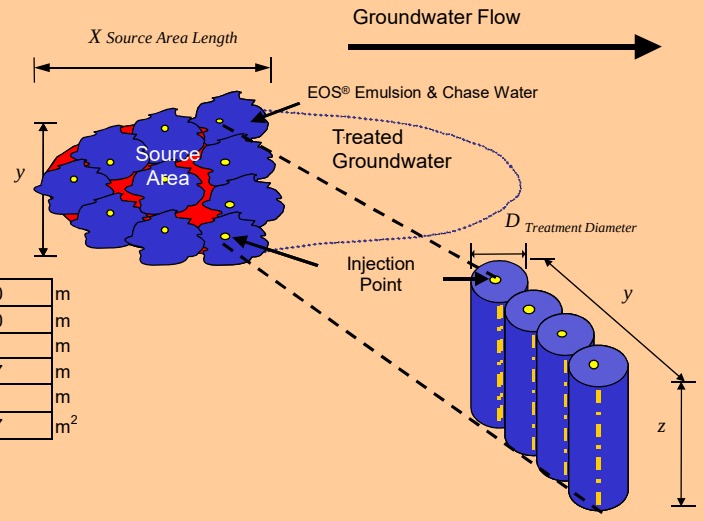
EOS Remediation, LLC

EOS® SOURCE AREA & DNAPL DESIGN WORKSHEET

U.S. Version 2.1f, Rev. Date: June 18, 2008
www.EOSRemediation.com

Help

Site Name:	Longhorn AAP	LHAAP 50
Location:	Karnack, TX	50WW12
Project No.:	501307071	



Step 1: Select a Substrate from the EOS® Family of Bioremediation Products

Substrate Selected (pick from drop down list): EOS® 598B42 (Preferred for Chlorinateds)
For Product Literature Click Here

Step 2: EOS® Consumption During Contaminant Biodegradation / Biotransformation

Section A: Source Area Dimensions

Length of treatment area parallel to groundwater flow, "x"	59	ft	18.0	m
Width of treatment area perpendicular to groundwater flow, "y"	59	ft	18.0	m
Minimum depth to contamination	17	ft	5.2	m
Maximum depth of contamination	35	ft	10.7	m
Treatment thickness, "z"	18	ft	5.5	m
Treatment zone cross-sectional area, A = y * z	1,062	ft^2	98.7	m^2

Section B: Groundwater Flow Rate / Site Data

Soil Characteristics

Nominal Soil Type (pick from drop down list)	Sand			
Total Porosity (accept default or enter *n*)	0.30	(decimal)		
Effective Porosity (accept default or enter n_e)	0.28	(decimal)		
Soil bulk density; (1-n)*2.65 g/cc (accept calculated or enter dry bulk density)	1.86	g/cc	116	lbs / ft^3
Fraction of organic carbon: foc	0.0050	range: 0.0001 to 0.01		

Hydraulic Characteristics

Hydraulic Conductivity (accept default or enter *K*)	0.4	ft/day	1.4E-04	cm/sec
Hydraulic Gradient (accept default or enter *i*)	0.004	ft/ft		

Note: Since the hydraulic gradient ($i = dh/dx$) is negative, we ask you to enter $-i$ in the EOS® Design Tool so that you can enter a positive number for convenience.

Non-reactive Transport Velocity, $V_x = -(K \times i) / n_e$	LESS THAN	0.01	ft/day	LESS THAN	0.003 m/day
Groundwater flow rate through treatment zone, $Q = -KiA$		12.71	gallons/day	LESS THAN	84.20 L/day

Section C: Calculated Contact Length

Contact time (τ) between oil and contaminants (accept default or enter τ)		60	typical values 60 to 180 days, see comment	
Calculated Contact Length (x) $= \tau * V_x$	Suggested Minimum	5.0	ft	1.5 m

Treatment zone volume	62,658	ft^3	1,774	m^3
Treatment zone groundwater volume (volume * porosity)	140,605	gallons	532,283	L

Section D: Design Lifespan For One Application

	5	year(s)	typical values 5 to 10 years	
Estimated total groundwater volume treated over design life	163,800	gallons	685,954	L

Section E: Electron Acceptors

Dissolved Phase Electron Donor Demand

Inputs	Typical Value	GW Conc. (mg/L)	MW (g/mole)	e^- equiv./ mole	Stoichiometry *Contaminant/H2 (wt/wt H_2)*	Hydrogen Demand ($g\ H_2$)
Dissolved Oxygen (DO)	0 to 8	0.69	32.0	4	7.94	59.63311906
Nitrate Nitrogen (NO_3^- - N)	1 to 10	0.483	62.0	5	12.30	26.92794793
Sulfate (SO_4^{2-})	10 to 500	432	96.1	8	11.91	24874.48727
Tetrachloroethene (PCE), C_2Cl_4			165.8	8	20.57	
Trichloroethene (TCE), C_2HCl_3		0.079	131.4	6	21.73	2.494203017
cis-1,2-dichloroethene (c-DCE), $C_2H_2Cl_2$		0.0005	96.9	4	24.05	0.014263368
Vinyl Chloride (VC), C_2H_3Cl			62.5	2	31.00	
Carbon tetrachloride, CCl_4			153.8	8	19.08	
Chloroform, $CHCl_3$			119.4	6	19.74	
sym-tetrachloroethane, $C_2H_2Cl_4$			167.8	8	20.82	
1,1,1-Trichloroethane (TCA), CH_3CCl_3			133.4	6	22.06	
1,1-Dichloroethane (DCA), CH_2CHCl_2			99.0	4	24.55	
Chloroethane, C_2H_5Cl			64.9	2	32.18	
Perchlorate, ClO_4^-		91	99.4	8	12.33	5062.096768
Hexavalent Chromium, Cr[VI]			52.0	3	17.20	
User added						
User added						
User added						

Sorbed Phase Electron Donor Demand

The concentration of the sorbed contaminant can be estimated by: $C_{SOIL} = K_{OC} \times f_{oc} \times C_{WATER}$

Where:
K_{oc} is partition coefficient with respect to organic carbon.
f_{oc} (fraction organic carbon) is the mass of organic matter in soil divided by the total mass of soil
C_{WATER} is the concentration of the contaminant in the groundwater

Default values for Koc taken from: US EPA, Superfund Section, APPENDIX K, Soil Organic Carbon (Koc) / Water (Kow) Partition Coefficients (Average Value Used)

Inputs Adjust *Koc* as necessary to provide site specific estimates or enter sediment concentration (C_{SOIL})	K_{oc} (L/kg)	C_{SOIL} (mg/Kg)	Mass (g)	Hydrogen Demand ($g\ H_2$)
Tetrachloroethene (PCE), C_2Cl_4	272			
Trichloroethene (TCE), C_2HCl_3	97	0.04	126.11	5.80
cis-1,2-dichloroethene (c-DCE), $C_2H_2Cl_2$	38	0.00	0.31	0.01
Vinyl Chloride (VC), C_2H_3Cl	241			
Carbon tetrachloride, CCl_4	158			
Chloroform, $CHCl_3$	53			
sym-tetrachloroethane, $C_2H_2Cl_4$	79			
1,1,1-Trichloroethane (TCA), CH_3CCl_3	139			
1,1-Dichloroethane (DCA), CH_2CHCl_2	54			
User added				
User added				
User added				

Section F: Additional Hydrogen Demand and Carbon Losses

Generation (Potential Amount Formed)	Typical Value	GW Conc. (mg/L)	MW (g/mole)	e^- equiv./ mole	Stoichiometry *Contaminant / H_2*	Hydrogen Demand *(g H_2)*	DOC Released *(moles)*
Estimated Amount of $Fe2^+$ Formed	10 to 100	50	55.8	1	55.41	619.0102555	
Estimated Amount of Manganese (Mn^{2+}) Formed		5	54.9	2	27.25	125.8459635	
Estimated Amount of CH_4 Formed	5 to 20	10	16.0	8	1.99	3447.683315	
Target Amount of DOC to Release	60 to 100	100	12.0				5711.04

Design Safety Factor: 2.0 typical values 1 to 3

Calculations assume:

1.) all reactions go to completion during passage through emulsified edible oil treated zone; and,
2.) perfect reaction stoichiometry.

EOS® Requirement Calculations Based on Hydrogen Demand and Carbon Losses

Stoichiometric Hydrogen Demand	150.8	pounds
DOC Released	652.1	pounds

EOS® Requirement Based on Hydrogen Demand and Carbon Loss

1,339 lbs

Step 3: EOS® Requirement Based on Attachment by Aquifer Material

Soil Characteristics

Effective treatment thickness, "z_e" (typically less than 40%) 0.25

For Additional Information on Effective Thickness, Click Here

Weight of sediment to be treated 1,814,010 lbs

Adsorptive Capacity of Soil (accept default or enter site specific value) 0.0020 lbs EOS® / lbs sediment

EOS® Attachment by Aquifer Material[1]

- Fine sand with some clay 0.001 to 0.002 lbs EOS® / lbs soil
- Sand with higher silt/clay content 0.002 to 0.004 lbs EOS® / lbs soil

[1]Default values provided based on laboratory studies completed by NCSU

For Additional Data, Click Here

EOS® Requirement Based on Oil Entrapment by Aquifer Material

3,628 lbs

Summary – How much EOS® do you need?

Suggested Quantity of EOS® for Your Project 9 drums

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††EOS® is a registered trademark of EOS Remediation, LLC

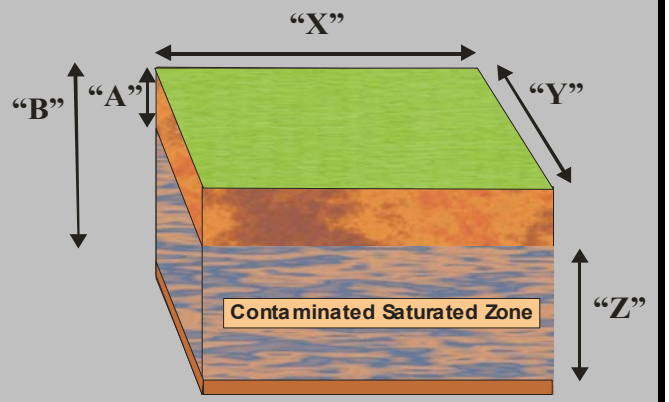
SDC-9 Dosage Estimating Software

APTIM

Site Name:	Longhorn AAP 50
Location:	LHAAP 50 50WW12
Project No.:	

Treatment Area Dimensions

Length of treatment area parallel to groundwater flow, "X"	59	ft	18.0	m
Width of treatment area perpendicular to groundwater flow, "Y"	59	ft	18.0	m
Minimum depth to contamination, "A"	17	ft	5.2	m
Maximum depth of contamination, "B"	35	ft	10.7	m
Treatment thickness, "Z"	18	ft	5.5	m



Site Data

Soil Characteristics

Nominal Soil Type (enter clay, silt, silty sand, or sand)	sand			
Hydraulic Characteristics				
Effective Porosity (accept default or enter n_e)	0.28	(decimal)		
Treatment zone volume	62,658			
Treatment zone water volume	17,544	ft^3	496,798	L

Dechlorinating Consortium Concentration

Dehalococcoides like organisms/L as determined by qPCR	>	1.0E+11
Design Final Concentration (DHC/L) (accept default or enter concentration)	6.00E+06	typical values 5 x 10^6 to 1 x 10^7

Suggested Quantity of Dechlorinating Consortium	30	Liters

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LHAAP-50: 50WW14 Treatment Area Calculation Worksheet

Site Parameters	units	LHAAP 50
Target Width	feet	59
Target Length	feet	59
Treatment Interval	feet	42
Target Area Volume	cubic feet	146,202
Effective Porosity		0.28
Target Area Water Volume	cubic feet	40,937
Target Area Water Volume	gallons	306,205
Target Injection Volume (10%)	gallons	30,621
Amendment Volume Requirements		
Emulsified Vegetable Oil: EOS (60%)	pounds	8,465
Emulsified Vegetable Oil: EDS-ER™ (100%)	pounds	5,079
Emulsified Vegetable Oil: EDS-ER™	gallons	660
Emulsified Vegetable Oil: EDS-ER™	drums	12
Dechlorinating Culture SDC-9™	liter	70
Dechlorinating Culture SDC-9™	gallon	18
Nutrients (DAP)	pounds	1,850
Water	gallons	29,942
Sodium Bicarbonate Buffer (0.87g/L)	pounds	222
Volumes per Point		
Emulsified Vegetable Oil (EDS-ER™)	gallons	110
SDC-9™	gallons	3.08
SDC-9™	liters	12
Nutrients (DAP)	pounds	308
Water	gallons	4,990
Sodium Bicarbonate Buffer	Pounds	37
Injection Parameters		
Injection Spacing	feet	20
Target Depth	ft bgs	60
Thickness	feet	42
Total Volume per Point	gallons	5,103
Volume per foot		122
Injection Rate	gpm	3
Injection Pressure (not to exceed)	psi	40
Time per Point	hours	29
Simultaneous Points	points	4
Hours of Injection per day	hours	8
Gallons per day	gallons	5,760
Points to be Completed	points	6
Days of Injection	days	5

Notes:

Table will be updated with buffer amount based on buffer capacity test results.

ft bgs - feet below ground surface

psi - pounds per square inch

gpm - gallons per minute

Nutrient Dosing Calculation Sheet

Site Name: Longhorn AAP
Location: LHAAP-50 50WW14
Project No.:

Carbon content of soybean oil

Major component is linoleic acid				
CH3(CH2)4CH=CHCH2CH=CH(CH2)7 CO2CH3, or C19H34O2				
Formula weight:	294.48	grams per mole		
Carbon content:	77.42%			

Carbon content of 100% soybean oil EVO

Density of EVO	7.70	pounds/gallon		
Mass of EVO	5,079	pounds		
Mass of EVO	2,304	kilograms		
Volume of EVO	660	gallons		
55 gal drum of EVO	11.99	gallons		
Grade of EVO	100%			
Mass of carbon	1,783.73	kilograms		
Mass of carbon	3,924.22	pounds		

Nutrient demand based on 100C:10N:1P ratio

Carbon	3,924	pounds		
Nitrogen	392	pounds		
Phosphate	39	pounds		

Nutrient source required

DAP	**1,850**	lbs		

N & P content of nutrient sources

Diammonium Phosphate (DAP) solid (16-46-10)

	molecular wt.	atoms	total wt.	%
Nitrogen	14.0067	2	28.0134	21.21328922
Hydrogen	1.0079	9	9.0711	6.869136479
Phosphate	30.9738	1	30.9738	23.45506713
Oxygen	15.9994	4	63.9976	48.46250717
		Total	**132.1**	**100**

100 lbs of DAP =21.2 lbs of N

4.71 lbs DAP for 1 lb N

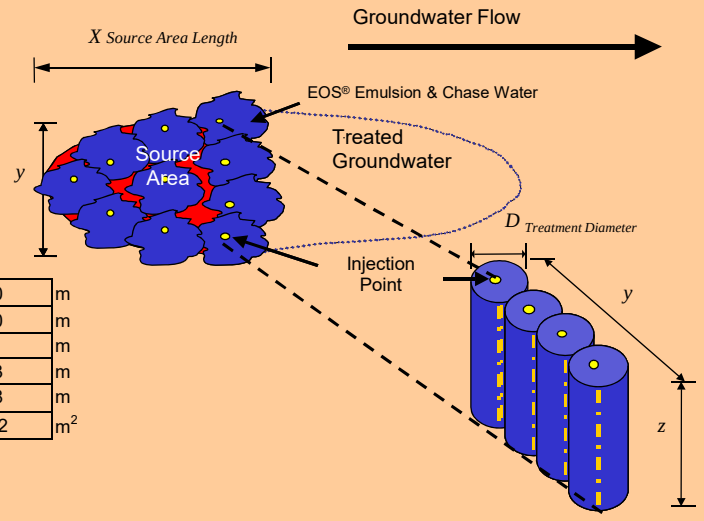
EOS Remediation, LLC

EOS® SOURCE AREA & DNAPL DESIGN WORKSHEET

U.S. Version 2.1f, Rev. Date: June 18, 2008
www.EOSRemediation.com

Help

Site Name:	Longhorn AAP	LHAAP 50
Location:	Karnack, TX	50WW14, 50WW11
Project No.:	501307071	



Step 1: Select a Substrate from the EOS® Family of Bioremediation Products

Substrate Selected (pick from drop down list): EOS® 598B42 (Preferred for Chlorinateds)
For Product Literature Click Here

Step 2: EOS® Consumption During Contaminant Biodegradation / Biotransformation

Section A: Source Area Dimensions

Length of treatment area parallel to groundwater flow, "x"	59	ft	18.0	m
Width of treatment area perpendicular to groundwater flow, "y"	59	ft	18.0	m
Minimum depth to contamination	18	ft	5.5	m
Maximum depth of contamination	60	ft	18.3	m
Treatment thickness, "z"	42	ft	12.8	m
Treatment zone cross-sectional area, A = y * z	2,478	ft^2	230.2	m^2

Section B: Groundwater Flow Rate / Site Data

Soil Characteristics

Nominal Soil Type (pick from drop down list)	Silty Sand			
Total Porosity (accept default or enter *n*)	0.30	(decimal)		
Effective Porosity (accept default or enter n_e)	0.28	(decimal)		
Soil bulk density; (1-n)*2.65 g/cc (accept calculated or enter dry bulk density)	1.86	g/cc	116	lbs / ft^3
Fraction of organic carbon: foc	0.0050	range: 0.0001 to 0.01		

Hydraulic Characteristics

Hydraulic Conductivity (accept default or enter *K*)	0.4	ft/day	1.4E-04	cm/sec
Hydraulic Gradient (accept default or enter *i*)	0.004	ft/ft		

Note: Since the hydraulic gradient ($i = dh/dx$) is negative, we ask you to enter $-i$ in the EOS® Design Tool so that you can enter a positive number for convenience.

Non-reactive Transport Velocity, $V_x = -(K \times i) / n_e$	LESS THAN	0.01	ft/day	LESS THAN	0.003 m/day
Groundwater flow rate through treatment zone, $Q = -KiA$		29.66	gallons/day	LESS THAN	196.47 L/day

Section C: Calculated Contact Length

Contact time (τ) between oil and contaminants (accept default or enter τ)		60	typical values 60 to 180 days, see comment	
Calculated Contact Length (x) $= \tau * V_x$	Suggested Minimum	5.0	ft	1.5 m

Treatment zone volume	146,202	ft^3	4,140	m^3
Treatment zone groundwater volume (volume * porosity)	328,077	gallons	1,241,994	L

Section D: Design Lifespan For One Application

	5	year(s)	typical values 5 to 10 years	
Estimated total groundwater volume treated over design life	382,201	gallons	1,600,558	L

Section E: Electron Acceptors

Dissolved Phase Electron Donor Demand

Inputs	Typical Value	GW Conc. (mg/L)	MW (g/mole)	e^- equiv./ mole	Stoichiometry *Contaminant/H2 (wt/wt H_2)*	Hydrogen Demand ($g\ H_2$)
Dissolved Oxygen (DO)	0 to 8	0.69	32.0	4	7.94	139.1439445
Nitrate Nitrogen (NO_3^- - N)	1 to 10	0.434	62.0	5	12.30	56.45762997
Sulfate (SO_4^{2-})	10 to 500	432	96.1	8	11.91	58040.47029
Tetrachloroethene (PCE), C_2Cl_4			165.8	8	20.57	
Trichloroethene (TCE), C_2HCl_3		0.28	131.4	6	21.73	20.62716419
cis-1,2-dichloroethene (c-DCE), $C_2H_2Cl_2$		0.011	96.9	4	24.05	0.732186231
Vinyl Chloride (VC), C_2H_3Cl			62.5	2	31.00	
Carbon tetrachloride, CCl_4			153.8	8	19.08	
Chloroform, $CHCl_3$			119.4	6	19.74	
sym- tetrachloroethane, $C_2H_2Cl_4$			167.8	8	20.82	
1,1,1-Trichloroethane (TCA), CH_3CCl_3			133.4	6	22.06	
1,1-Dichloroethane (DCA), CH_2CHCl_2			99.0	4	24.55	
Chloroethane, C_2H_5Cl			64.9	2	32.18	
Perchlorate, ClO_4^-		1	99.4	8	12.33	129.797353
Hexavalent Chromium, Cr[VI]			52.0	3	17.20	
User added						
User added						
User added						

Sorbed Phase Electron Donor Demand

The concentration of the sorbed contaminant can be estimated by: $C_{SOIL} = K_{OC} \times f_{oc} \times C_{WATER}$

Where:
K_{oc} is partition coefficient with respect to organic carbon.
f_{oc} (fraction organic carbon) is the mass of organic matter in soil divided by the total mass of soil
C_{WATER} is the concentration of the contaminant in the groundwater

Default values for Koc taken from: US EPA, Superfund Section, APPENDIX K, Soil Organic Carbon (Koc) / Water (Kow) Partition Coefficients (Average Value Used)

Inputs Adjust *Koc* as necessary to provide site specific estimates or enter sediment concentration (C_{SOIL})	K_{oc} (L/kg)	C_{SOIL} (mg/Kg)	Mass (g)	Hydrogen Demand ($g\ H_2$)
Tetrachloroethene (PCE), C_2Cl_4	272			
Trichloroethene (TCE), C_2HCl_3	97	0.14	1042.90	48.00
cis-1,2-dichloroethene (c-DCE), $C_2H_2Cl_2$	38	0.00	16.05	0.67
Vinyl Chloride (VC), C_2H_3Cl	241			
Carbon tetrachloride, CCl_4	158			
Chloroform, $CHCl_3$	53			
sym- tetrachloroethane, $C_2H_2Cl_4$	79			
1,1,1-Trichloroethane (TCA), CH_3CCl_3	139			
1,1-Dichloroethane (DCA), CH_2CHCl_2	54			
User added				
User added				
User added				

Section F: Additional Hydrogen Demand and Carbon Losses

Generation (Potential Amount Formed)	Typical Value	GW Conc. (mg/L)	MW (g/mole)	e^- equiv./ mole	Stoichiometry *Contaminant / H_2*	Hydrogen Demand *(g H_2)*	DOC Released *(moles)*
Estimated Amount of $Fe2^+$ Formed	10 to 100	50	55.8	1	55.41	1444.357263	
Estimated Amount of Manganese (Mn^{2+}) Formed		5	54.9	2	27.25	293.6405815	
Estimated Amount of CH_4 Formed	5 to 20	10	16.0	8	1.99	8044.594402	
Target Amount of DOC to Release	60 to 100	100	12.0				13325.77

Design Safety Factor: 2.0 typical values 1 to 3

Calculations assume:

1.) all reactions go to completion during passage through emulsified edible oil treated zone; and,
2.) perfect reaction stoichiometry.

EOS® Requirement Calculations Based on Hydrogen Demand and Carbon Losses

Stoichiometric Hydrogen Demand	300.5	pounds
DOC Released	1,521.6	pounds

EOS® Requirement Based on Hydrogen Demand and Carbon Loss

2,891 lbs

Step 3: EOS® Requirement Based on Attachment by Aquifer Material

Soil Characteristics

Effective treatment thickness, "z_e" (typically less than 40%) 0.25

For Additional Information on Effective Thickness, Click Here

Weight of sediment to be treated 4,232,689 lbs

Adsorptive Capacity of Soil (accept default or enter site specific value) 0.0020 lbs EOS® / lbs sediment

EOS® Attachment by Aquifer Material[1]

- Fine sand with some clay 0.001 to 0.002 lbs EOS® / lbs soil
- Sand with higher silt/clay content 0.002 to 0.004 lbs EOS® / lbs soil

[1]Default values provided based on laboratory studies completed by NCSU

For Additional Data, Click Here

EOS® Requirement Based on Oil Entrapment by Aquifer Material

8,465 lbs

Summary – How much EOS® do you need?

Suggested Quantity of EOS® for Your Project 21 drums

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†Exclusive license agreement with Solutions-IES under U.S. Patent # 6,398,960, E.U. Patent # EP 1 315 675 and several other pending international patents.
††EOS® is a registered trademark of EOS Remediation, LLC

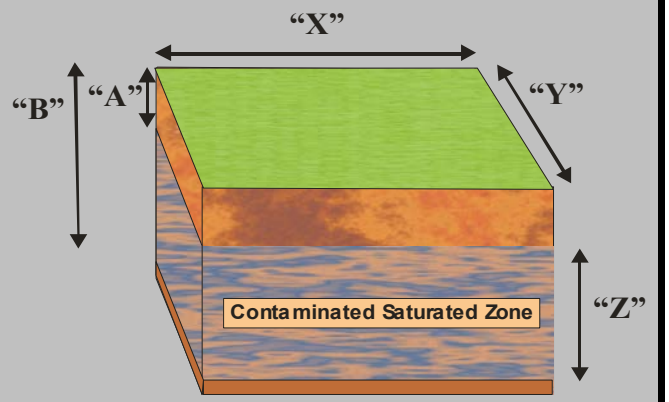
SDC-9 Dosage Estimating Software

APTIM

Site Name:	Longhorn AAP 50
Location:	LHAAP 50
Project No.:	

Treatment Area Dimensions

Length of treatment area parallel to groundwater flow, "X"	59	ft	18.0	m
Width of treatment area perpendicular to groundwater flow, "Y"	59	ft	18.0	m
Minimum depth to contamination, "A"	18	ft	5.5	m
Maximum depth of contamination, "B"	60	ft	18.3	m
Treatment thickness, "Z"	42	ft	12.8	m



Site Data

Soil Characteristics

Nominal Soil Type (enter clay, silt, silty sand, or sand)	silt		
Hydraulic Characteristics			
Effective Porosity (accept default or enter n_e)	0.28	(decimal)	
Treatment zone volume	146,202		
Treatment zone water volume	40,937	ft^3	1,159,194 L

Dechlorinating Consortium Concentration

Dehalococcoides like organisms/L as determined by qPCR	>	1.0E+11
Design Final Concentration (DHC/L) (accept default or enter concentration)	6.00E+06	typical values 5 x 10^6 to 1 x 10^7

Suggested Quantity of Dechlorinating Consortium	70	Liters

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Appendix B

Product Specification and Safety Data Sheets

Tech Brief

Enhanced Anaerobic Bioremediation

Tersus Environmental
For every zone of your plume, we've got you covered!

EDS-ER™

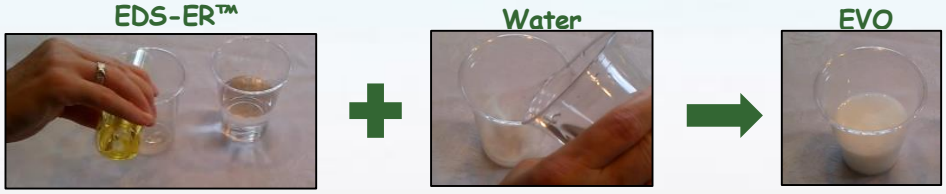
Electron Donor Solution – Extended Release



As delivered, the physical state of *EDS-ER*™ (electron donor solution – extended release) by Tersus Environmental is significantly different than standard emulsified vegetable oil (EVO) products. Whereas other EVO products are concentrated emulsions containing water, *EDS-ER*™ is a water-mixable oil; it contains no water. Thus, the costs for shipping EDS-ER are about 50% less than conventional products.

At room temperature, *EDS-ER*™ is a liquid material with an appearance and viscosity roughly equivalent to vegetable oil. Unlike common EVO products, *EDS-ER*™ will not separate, will not freeze, and has a shelf life of 2 years without spoilage.

Tersus Environmental is proud to announce that *EDS-ER*™ does NOT contain ethoxylated surfactants. As you may know, many environmental remediation injectates, such as emulsified vegetable oils use biodegradable non-ionic surfactants. Unfortunately, ethoxylation, the manufacturing process that creates these surfactants (e.g., polysorbates) often results in these products containing 1,4-dioxane.



Purpose

EDS-ER™ is a simple, safe, low-cost solution for the bioremediation of halogenated compounds (e.g., PCE, TCE, DCE, VC, TCA, CT, etc.), perchlorate, explosives such as aromatic nitrates, energetic munitions residuals, nitrates, acids, radionuclides, select oxidized heavy metals, and other contaminants.

Benefits

- 100% fermentable and contains no water
- Because the product is completely water mixable, the number of necessary injection points for low permeability structures decreases
- Easily mixes with water, simplifying field operations
- Controlled release of electron donors for up to five years
- Food-grade carbon source
- Low total dissolved solids to comply with secondary water quality requirements for amendments with low salt content
- Conforms to EPA's EPP (Environmentally Preferable Purchasing) and USDA biobased criteria
- Neutral pH when mixed with water
- Clean, low-cost, non-disruptive application (e.g., direct-push, wells and excavations)
- Lowers transportation costs when compared to other electron donors
- Over two years shelf life
- Freezing Point is -4 °F (-20 °C)

Field Application Design

EDS-ER™ applications are easily tailored to meet site-specific conditions. Typical configurations consist of grid and barrier patterns and application in excavations or trenches. The product's low viscosity allows subsurface distribution through direct-push injection points, hollow-stem augers or pumped through existing wells.

Packaging Options

- 55-gallon poly drums
- 275-gallon IBC containers
- 3,000 - 5,000 gallon tankers



tersus environmental

tersusenv.com • tersusenv.fr • tersusenv.es
919.453.5577 • info@tersusenv.com

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Rev: 2/11/2015

Material Safety Data Sheet

Electron Donor Solution

Section 1: Chemical Product and Company Identification

Product Name: Electron Donor Solution Extended Release
Catalog Codes: EDS-ER
CAS#: 8001-22-7
TSCA: TSCA 8(b) inventory: Soybean oil
HMIS Code: H F R P: 10 0 A
Trade Name and Synonyms: EDS-ER
Chemical Family: Glyceride Oils

Contact Information:
Tersus Environmental, LLC
109 E. 17th Street, Suite #3880
Cheyenne, WY 82001
Ph: 307.638.2822 • info@tersusenv.com
www.tersusenv.com
For emergency assistance, call: 919.638.7892

Section 2: Composition and Information on Ingredients

COMPONANT	CAS #	OSHA TWA	OSHA STEL	ACGIH TWA	ACGIH STEL
Soybean Oil	8001-22-7	---	10 mg/m^3	---	---
Vegetable Oil Derived Fatty Acid Esters	Confidential	---	---	---	---

HAZARDOUS INGREDIENTS: NONE AS DEFINED UNDER THE U.S. OSHA HAZARD COMMUNICATION STANDARD (29 CFR 1910.1200) OR THE CANADIAN HAZARDOUS PRODUCTS. ACT S.C. 1987, C.30 (PART 1).

THE PRECISE COMPOSITION OF THIS PRODUCT IS PROPRIETARY INFORMATION. A MORE COMPLETE DISCLOSURE WILL BE PROVIDED TO A PHYSICIAN IN THE EVENT OF A MEDICAL EMERGENCY.

SARA HAZARD: NONE NOTED (SECTION 311/312) TITLE III SECTION 313 - NOT LISTED
All components of this product are listed on the TSCA registry.

Section 3: Physical/Chemical Characteristics

BOILING RANGE: Not applicable VAPOR DENSITY: Exceeds 1.0

SPECIFIC GRAVITY (H20=1.0): 0.92 - 0.925 VAPOR PRESSURE: Not applicable

PERCENT VOLATILE BY VOLUME: 0% SOLUBILITY IN WATER: Miscible

EVAPORATION RATE: Not applicable
APPEARANCE AND ODOR: A pale yellow, oily liquid - only a faint odor.
WEIGHT PER GALLON: 7.7 lbs. at 60F.

Section 4: Fire and Explosion Data

FLAMMABILITY CLASSIFICATION: Combustible Liquid - Class IIIB.
FLASHPOINT: Greater than 550 F (288 C).
METHOD USED: Tag Closed Cup.
EXTINGUISHING MEDIA: CO2, dry chemical, foam, sand.
SPECIAL FIREFIGHTING PROCEDURES: Avoid use of water as it may spread fire by dispersing oil. Use water to keep fire-exposed containers cool. Water spray may be used to flush spills away from fire.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Rags soaked with any oil or solvent can present a fire hazard and should always be stored in UL Listed or Factory Mutual approved, covered containers. Improperly stored rags can create conditions that lead to oxidation. Oxidation, under certain conditions can lead to spontaneous combustion.

Section 5: Reactivity Data

STABILITY: Generally stable. Spontaneous combustion can occur. See Unusual Fire and Explosion Procedures, Section IV.

CONDITIONS TO AVOID: High surface area exposure to oxygen can result in polymerization and release of heat.

INCOMPATABILITY (MATERIALS TO AVOID): Avoid contact with strong oxidizing agents.

HAZARDOUS DECOMPOSITIONS OR BY-PRODUCTS: Decomposition may produce carbon dioxide and carbon monoxide.

HAZARDOUS POLYMERIZATION: Will not occur.

Section 6: Health Hazard Data

THRESHHOLD LIMIT VALUE: As a liquid - none. As oil mist - 10 mg/m3 total particulate.

INHALATION HEALTH RISKS AND SYMPTOMS OF EXPOSURE: Excessive inhalation of oil mist may affect the respiratory system. Oil mist is classified as a nuisance particulate by ACGIH.

SKIN ABSORPTION HEALTH RISKS AND SYMPTOMS OF EXPOSURE: Not classified as a primary skin irritant or corrosive material. Sensitive individuals may experience dermatitis after long exposure of oil on skin.

HEALTH HAZARDS (ACUTE AND CHRONIC): Acute: none observed by inhalation. Chronic: none reported.

EMERGENCY AND FIRST AID PROCEDURES FOR:

SKIN CONTACT: May be removed from skin by washing with soap and warm water.

EYE CONTACT: Immediately flush eyes with plenty of cool water for at least 15 minutes. Do NOT let victim rub eyes.

INHALATION: Immediately remove exposed individual to fresh air source. If victim has stopped breathing give artificial respiration, get medical attention immediately.

Section 7: Precautions for Safe Handling and Use

ENVIRONMENTAL PRECAUTIONS: Where large spills are possible, a comprehensive spill response plan should be developed and implemented.

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Wear appropriate respiratory protection and protective clothing as described in section VIII. Depending on quantity of spill: (a) Small spill - add solid adsorbent, shovel into disposable container and wash the area. Clean area with detergent. (b) Large spill - Squeegee or pump into holding container. Clean area with detergent. In the event of an uncontrolled release of this material, the user should determine if this release is reportable under applicable laws and regulations.

WASTE DISPOSAL METHOD: All recovered material should be packaged, labeled, transported, and disposed or reclaimed in accordance with local, state, and federal regulations and good engineering practices.

Section 8: Control Measures

RESPIRATORY PROTECTION: Not normally needed. A qualified health specialist should evaluate whether there is a need for respiratory protection under specific conditions.

VENTILATION: Handle in the presence of adequate ventilation. Intermittent clean air exchanges recommended, but not required.

PROTECTIVE GLOVES: Not normally needed. However, protective clothing is always recommended when handling chemicals.

EYE PROTECTION: Eye protection is always recommended when handling chemicals. Wear safety glasses meeting the specifications established in ANSI Standard Z87.1.

Section 9: Special Precautions

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Store away from flame, fire, and excessive heat.

Section 10: Disposal Considerations

General Information: Do not discharge into drains, watercourses or onto the ground. Discharge, treatment, or disposal may be subject to national, state, or local laws. Empty containers may contain product residues.

Disposal Methods: No specific disposal method required.

Container: Since emptied containers retain product residue, follow label warnings even after container is emptied.

Section 11: Transportation Information

DOT Not regulated.
TDG Not regulated.
IATA Not regulated.
IMDG Not regulated.

Section 12: Other Information

Hazard Ratings

	Health Hazard	Fire Hazard	Instability	Special Hazard
NFPA	1	1	0	NONE

Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe
NFPA Label colored diamond code: Blue - Health; Red - Flammability; Yellow - Instability; White - Special Hazards

	Health Hazard	Flammability	Physical Hazard	Personal Protection
HMIS	1	1	0	--

Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe
HMIS Label colored bar code: Blue - Health; Red - Flammability; Orange - Physical Hazards; White - Special

Section 13: Disclaimer and/or Comments

We suggest that containers be either professionally reconditioned for re-use by certified firms or properly disposed of by certified firms to help reduce the possibility of an accident. Disposal of containers should be in accordance with applicable federal, state and local laws and regulations. "Empty" drums should not be given to individuals.

The conditions of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Tersus Environmental be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Tersus Environmental has been advised of the possibility of such damages.

Material Safety Data Sheet

Shaw Environmental, Inc.

17 PRINCESS ROAD
LAWRENCEVILLE, N.J. 08648
(609) 895-5340

SECTION 1 - MATERIAL IDENTIFICATION AND INFORMATION

Material Name: DHC microbial consortium (SDC-9) MSDS #: ENV 1033

Date Prepared: 10/06/2003 CAS #: N/A (Not Applicable)

Prepared By: Simon Vainberg Formula #: N/A

Material Description: Non-hazardous, naturally occurring non-altered anaerobic microbes and enzymes in a water-based medium.

SECTION 2 - INGREDIENTS

Components	%	OSHA PEL	ACGIH TLV	OTHER LIMITS
Non-Hazardous Ingredients	100	N/A	N/A	N/A

SECTION 3 - PHYSICAL/CHEMICAL CHARACTERISTICS

Boiling Point: 100°C (water)

Specific Gravity (H_2O = 1): 0.9 - 1.1

Vapor Pressure @ 25°C: 24 mm Hg (water)

Melting Point: 0°C (water)

Vapor Density: N/A

Evaporation Rate (H_2O = 1): 0.9 - 1.1

Solubility in Water: Soluble

Water Reactive: No

pH: 6.0 - 8.0

Appearance and Odor: Murky, yellow water. Musty odor.

SECTION 4 - FIRE AND EXPLOSION HAZARD DATA

Flash Point: N/A

Flammable Limits: N/A

Extinguishing Media: Foam, carbon dioxide, water

Special Fire Fighting Procedures: None

Unusual Fire and Explosion Hazards: None

SECTION 5 - REACTIVITY DATA

Stability: Stable

Conditions to Avoid: None

Incompatibility (Materials to Avoid): Water-reactive materials

Hazardous Decomposition Byproducts: None

SECTION 6 - HEALTH HAZARD DATA

HEALTH EFFECTS

The effects of exposure to this material have not been determined. Safe handling of this material on a long-term basis will avoid any possible effect from repetitive acute exposures. Below are possible health effects based on information from similar materials. Individuals hyper allergic to enzymes or other related proteins should not handle.

Ingestion: Ingestion of large quantities may result in abdominal discomfort including nausea, vomiting, cramps, diarrhea, and fever.

Inhalation: Hypersensitive individuals may experience breathing difficulties after inhalation of aerosols.

Skin Absorption: N/A

Skin Contact: May cause skin irritation. Hypersensitive individuals may experience allergic reactions to enzymes.

Eye Contact: May cause eye irritation.

FIRST AID

Ingestion: Get medical attention if allergic symptoms develop (observe for 48 hours). Never give anything by mouth to an unconscious or convulsing person.

Inhalation: Get medical attention if allergic symptoms develop.

Skin Absorption: N/A

Skin Contact: Wash affected area with soap and water. Get medical attention if allergic symptoms develop.

Eye Contact: Flush eyes with plenty of water for at least 15 minutes using an eyewash fountain, if available. Get medical attention if irritation occurs.

NOTE TO PHYSICIANS: All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this material may have occurred.

SECTION 7 - SPILL AND LEAK PROCEDURES

Reportable quantities (in lbs of EPA Hazardous Substances): N/A

Steps to be taken in case of spill or release: No emergency results from spillage. However, spills should be cleaned up promptly. All personnel involved in the cleanup must wear protective clothing and avoid skin contact. Absorb spilled material or vacuum into a container. After clean-up, disinfect all cleaning materials and storage containers that come in contact with the spilled liquid.

Waste Disposal Method: No special disposal methods are required. The material may be sewered, and is compatible with all known biological treatment methods. To reduce odors and permanently inactivate microorganisms, mix 100 parts (by volume) of DHC consortium with 1 part (by volume) of bleach. Dispose of in accordance with local, state and federal regulations.

SECTION 8 - HANDLING AND STORAGE

Hand Protection: Rubber gloves.

Eye Protection: Safety goggles with side splash shields.

Protective Clothing: Use adequate clothing to prevent skin contact.

Respiratory Protection: Surgical mask.

Ventilation: Provide adequate ventilation to remove odors.

Storage & Handling:
Material may be stored for up to 3 weeks at 2-4°C without aeration.

Other Precautions: An eyewash station in the work area is recommended.

While the information and recommendations set forth herein are believed to be accurate as of the date hereof, Shaw Environmental, Inc. MAKES NO WARRANTY WITH RESPECT HERETO AND DISCLAIMS ALL LIABILITY FROM RELIANCE THEREON.

Appendix C

Daily ISB Injection Log

Drilling Company: _____ Area: _____ Injection Oversight: _____

Oversight Company: Aptim Federal Services, LLC Injection Operator: _____

Injection Point	Date	Pressure (psi)	Total Volume (gal)	Flow Rate (gpm)	Start	End	Comments
LHAAP-04							