LONGHORN ARMY AMMUNITION PLANT KARNACK, TEXAS

ADMINISTRATIVE RECORD

Volume 43

2018

Bate Stamp Numbers
00901366 – 00903262

Prepared for

Department of the Army
Longhorn Army Ammunition Plant

1976 – 2018

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

VOLUME 43

2018

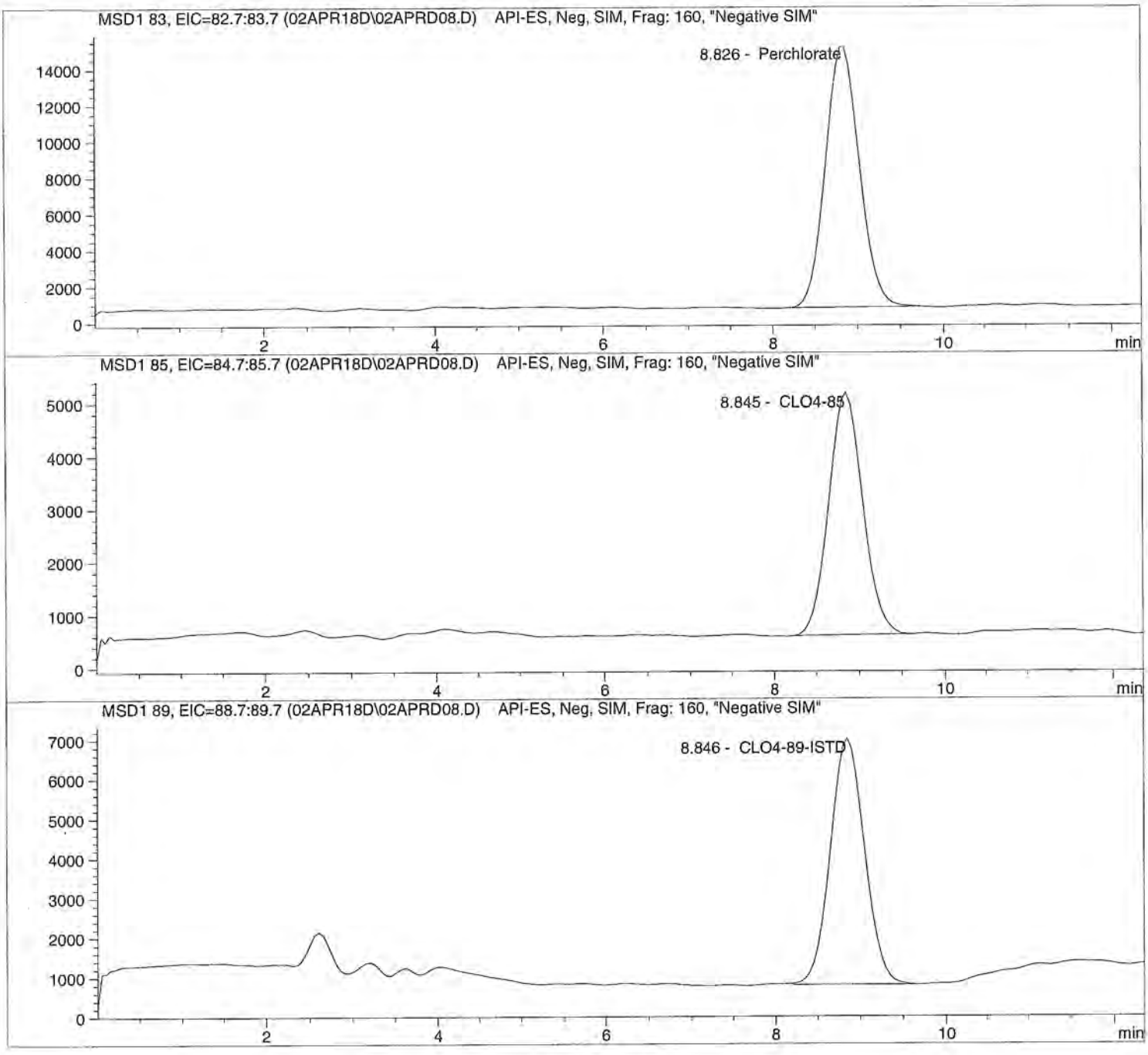
A. Title: Report (cont'd) – Draft Quarterly Evaluation Report, 2nd Quarter (April–June) 2018, Groundwater Treatment Plant, Longhorn Army Ammunition Plant, Karnack, Texas
Author(s): Bhate Environmental Associates, Inc.
Recipient: U.S. Army Corps of Engineers, Tulsa District
Date: October 8, 2018
Bate Stamp: 00901366 – 00903262

Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD08.D Sample Name: ICAL Verf@10ug/L

Injection Date:	4/02/2018 10:47:33	Seq Line:	8
Sample Name:	ICAL Verf@10ug/L	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



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Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	10.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.826	BBA	399587.8	10.1698	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.845	PBA	127530.4	10.1657	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.846	BBA	174490.2	5.0000	CLO4-89-ISTD

*** End of Report ***

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

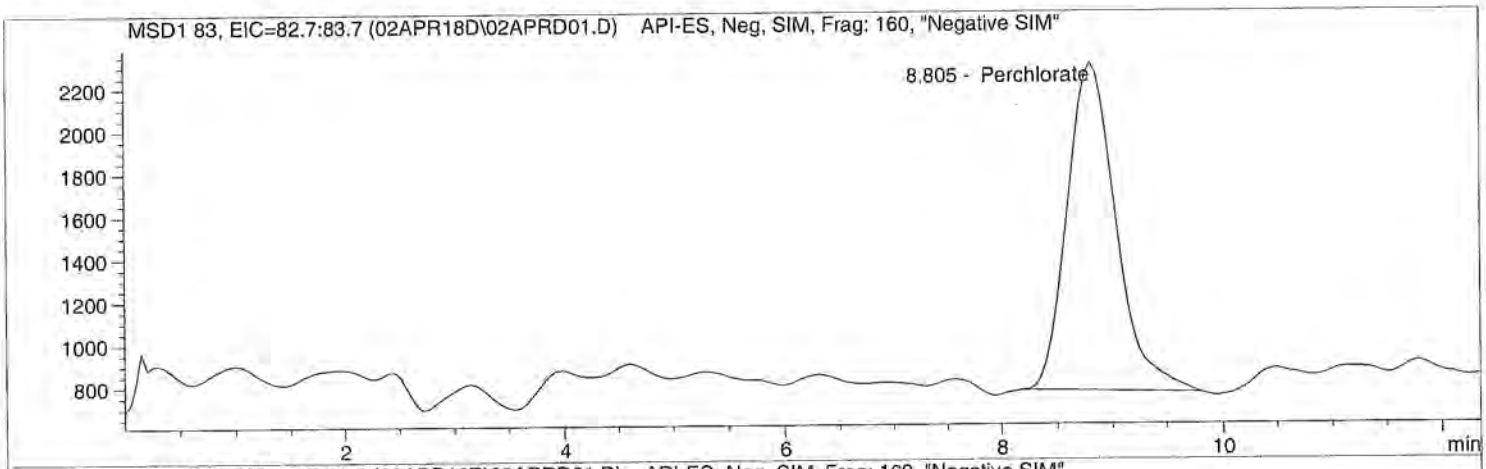
Unmodified

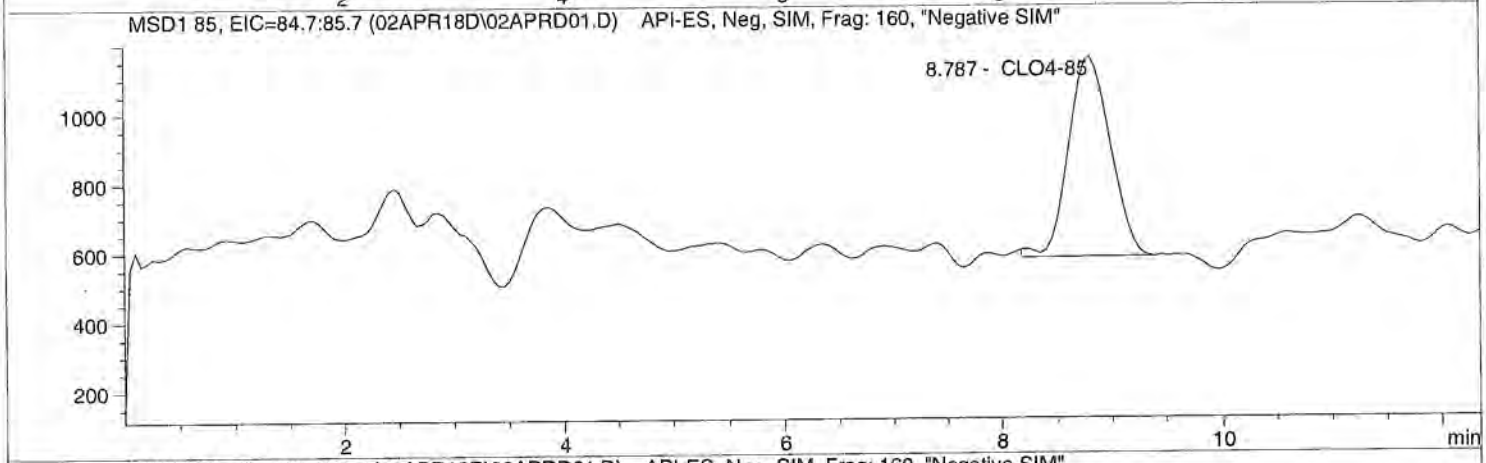
Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD01.D Sample Name: ICAL1@ 1.0ug/L

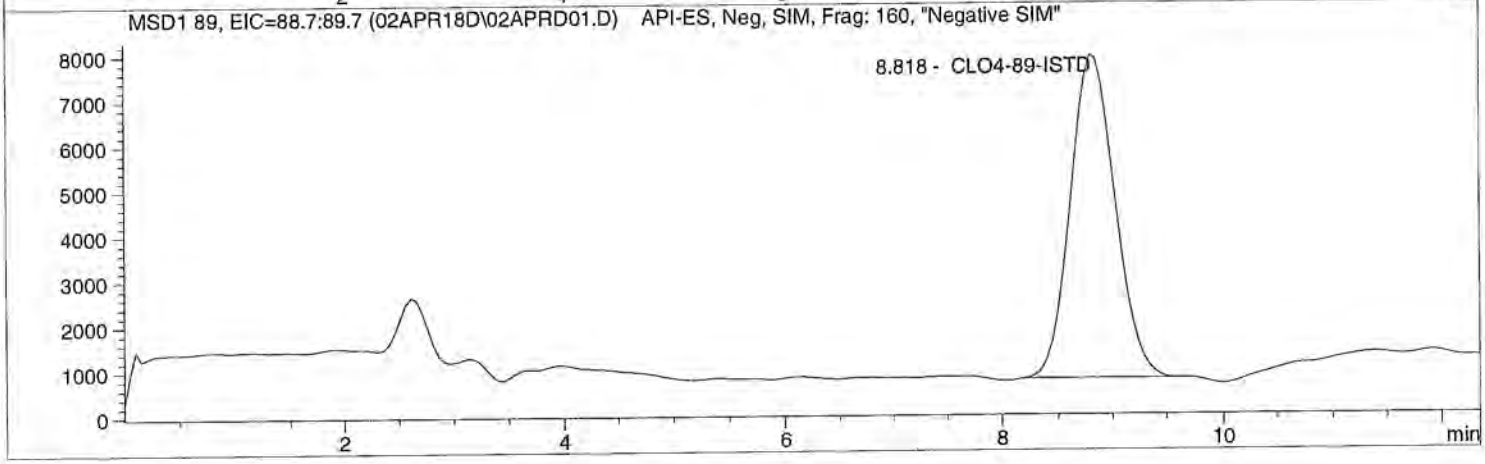
Injection Date:	4/02/2018 09:08:19	Seq Line:	1
Sample Name:	ICAL1@ 1.0ug/L	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD01.D Sample Name: ICAL1@ 1.0ug/L

Injection Date:	4/02/2018 09:08:19	Seq Line:	1
Sample Name:	ICAL1@ 1.0ug/L	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.805	PBA	47521.7	1.0438	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.787	BBA	15364.8	0.9338	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.818	PBA	205633.2	5.0000	CLO4-89-ISTD

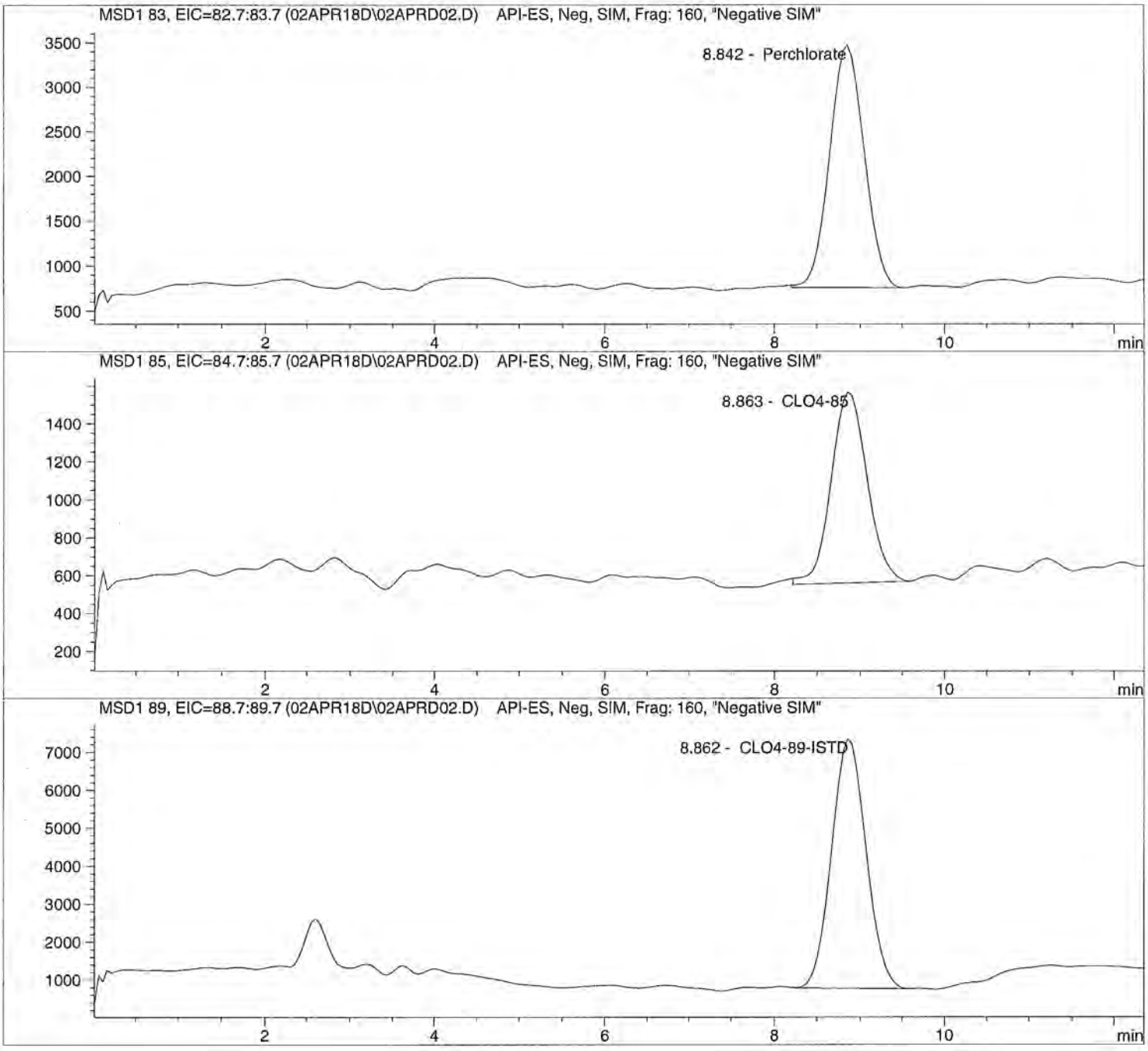
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD02.D Sample Name: ICAL2@ 2.0ug/L

Injection Date:	4/02/2018 09:22:28	Seq Line:	2
Sample Name:	ICAL2@ 2.0ug/L	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD02.D Sample Name: ICAL2@ 2.0ug/L

Injection Date:	4/02/2018 09:22:28	Seq Line:	2
Sample Name:	ICAL2@ 2.0ug/L	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	2.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.842	BBA	75767.3	1.8858	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.863	BBA	29265.6	2.1651	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.862	BBA	183981.5	5.0000	CLO4-89-ISTD

*** End of Report ***

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WorkOrder: HS18040244

Longhorn GW Treatment Plant Bi Weekly Samples

Bhate Environmental Associates, Inc.

Marcia Olive
445 Union Blvd Ste 129
Lakewood CO 80228

09-May-2018

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Houston, TX 77099
T: +1 281 530 5656
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April 19, 2018

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

Work Order: **HS18040244**

Laboratory Results for: **Longhorn GW Treatment Plant Bi Weekly Samples**

Dear Marcia,

ALS Environmental received 2 sample(s) on Apr 05, 2018 for the analysis presented in the following report.

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

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

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

Sincerely,

Generated By: JUMOKE.LAWAL
RJ Modashia
Project Manager

ALS Group Houston, Corp Date: 19-Apr-18

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi Weekly Samples
Work Order: HS18040244

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS18040244-01	LH18/24-SP650_040418	Water		04-Apr-2018 14:00	05-Apr-2018 08:50	☐
HS18040244-02	Trip Blank	Water	ALS-021518-31	04-Apr-2018 00:00	05-Apr-2018 08:50	☐

ALS Group Houston, Corp Date: 19-Apr-18

Client: Bhate Environmental Associates, Inc. **CASE NARRATIVE**
Project: Longhorn GW Treatment Plant Bi Weekly Samples
Work Order: HS18040244

GCMS Volatiles by Method SW8260

Batch ID: R314612

Sample ID: LH18/24-SP650_040418 (HS18040244-01MS)

- The recovery of the Matrix Spike (MS) associated to this analyte was outside of the established control limits. However, the LCS was within control limits. The recovery of the MS may be due to sample matrix interference.

Sample ID: LH18/24-SP650_040418 (HS18040244-01MSD)

- The recovery of the Matrix Spike Duplicate (MSD) associated to this analyte was outside of the established control limits. However, the LCS was within control limits. The failed recovery of the MSD may be due to sample matrix interference.

WetChemistry by Method SW9056

Batch ID: R314699

Sample ID: HS18040832-01MS

- MS and MSD are for an unrelated sample.

ALS Group Houston, Corp Date: 19-Apr-18

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi Weekly Samples
Sample ID: LH18/24-SP650_040418
Collection Date: 04-Apr-2018 14:00

ANALYTICAL REPORT
WorkOrder:HS18040244
Lab ID:HS18040244-01
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	18-Apr-2018 14:13
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-Apr-2018 14:13
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	ug/L	1	18-Apr-2018 14:13
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	18-Apr-2018 14:13
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-Apr-2018 14:13
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	18-Apr-2018 14:13
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	ug/L	1	18-Apr-2018 14:13
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	18-Apr-2018 14:13
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	18-Apr-2018 14:13
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	ug/L	1	18-Apr-2018 14:13
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	18-Apr-2018 14:13
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	18-Apr-2018 14:13
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-Apr-2018 14:13
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	ug/L	1	18-Apr-2018 14:13
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-Apr-2018 14:13
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	18-Apr-2018 14:13
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	18-Apr-2018 14:13
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	18-Apr-2018 14:13
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	ug/L	1	18-Apr-2018 14:13
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	18-Apr-2018 14:13
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	18-Apr-2018 14:13
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	18-Apr-2018 14:13
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	ug/L	1	18-Apr-2018 14:13
2-Hexanone	1.0	U	1.0	1.0	2.0	ug/L	1	18-Apr-2018 14:13
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	ug/L	1	18-Apr-2018 14:13
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	ug/L	1	18-Apr-2018 14:13
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	ug/L	1	18-Apr-2018 14:13
Acetone	1.0	U	0.40	1.0	2.0	ug/L	1	18-Apr-2018 14:13
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	18-Apr-2018 14:13
Bromobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	18-Apr-2018 14:13
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-Apr-2018 14:13
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-Apr-2018 14:13
Bromoform	0.50	U	0.40	0.50	1.0	ug/L	1	18-Apr-2018 14:13
Bromomethane	0.50	U	0.40	0.50	1.0	ug/L	1	18-Apr-2018 14:13
Carbon disulfide	1.0	U	0.60	1.0	2.0	ug/L	1	18-Apr-2018 14:13
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	ug/L	1	18-Apr-2018 14:13
Chlorobenzene	0.50	U	0.30	0.50	1.0	ug/L	1	18-Apr-2018 14:13
Chloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	18-Apr-2018 14:13

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

ALS Group Houston, Corp Date: 19-Apr-18

Client: Bhate Environmental Associates, Inc. **ANALYTICAL REPORT**
Project: Longhorn GW Treatment Plant Bi Weekly Samples WorkOrder:HS18040244
Sample ID: LH18/24-SP650_040418 Lab ID:HS18040244-01
Collection Date: 04-Apr-2018 14:00 Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	18-Apr-2018 14:13
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-Apr-2018 14:13
cis-1,2-Dichloroethene	**3.6**		**0.20**	**0.50**	**1.0**	**ug/L**	1	18-Apr-2018 14:13
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	18-Apr-2018 14:13
Dibromochloromethane	0.50	U	0.30	0.50	1.0	ug/L	1	18-Apr-2018 14:13
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-Apr-2018 14:13
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	18-Apr-2018 14:13
Ethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	18-Apr-2018 14:13
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	ug/L	1	18-Apr-2018 14:13
Isopropylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	18-Apr-2018 14:13
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	18-Apr-2018 14:13
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	18-Apr-2018 14:13
n-Butylbenzene	0.50	U	0.40	0.50	1.0	ug/L	1	18-Apr-2018 14:13
n-Propylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	18-Apr-2018 14:13
Naphthalene	0.50	U	0.30	0.50	1.0	ug/L	1	18-Apr-2018 14:13
o-Xylene	0.50	U	0.30	0.50	1.0	ug/L	1	18-Apr-2018 14:13
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	18-Apr-2018 14:13
Styrene	0.50	U	0.30	0.50	1.0	ug/L	1	18-Apr-2018 14:13
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	18-Apr-2018 14:13
Tetrachloroethene	0.50	U	0.30	0.50	1.0	ug/L	1	18-Apr-2018 14:13
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	18-Apr-2018 14:13
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	18-Apr-2018 14:13
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	18-Apr-2018 14:13
Trichloroethene	**4.1**		**0.20**	**0.50**	**1.0**	**ug/L**	1	18-Apr-2018 14:13
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	18-Apr-2018 14:13
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	18-Apr-2018 14:13
Surr: 1,2-Dichloroethane-d4	*94.8*			**0**	*81-118*	*%REC*	*1*	*18-Apr-2018 14:13*
Surr: 4-Bromofluorobenzene	*94.9*			**0**	*85-114*	*%REC*	*1*	*18-Apr-2018 14:13*
Surr: Dibromofluoromethane	*101*			**0**	*80-119*	*%REC*	*1*	*18-Apr-2018 14:13*
Surr: Toluene-d8	*99.3*			**0**	*89-112*	*%REC*	*1*	*18-Apr-2018 14:13*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KMU
Chloride	**293**		**2.00**	**0**	**5.00**	**mg/L**	10	19-Apr-2018 01:39
Sulfate	**48.1**		**2.00**	**0**	**5.00**	**mg/L**	10	19-Apr-2018 01:39

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

ALS Group Houston, Corp Date: 19-Apr-18

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi Weekly Samples
Sample ID: Trip Blank
Collection Date: 04-Apr-2018 00:00

ANALYTICAL REPORT
WorkOrder:HS18040244
Lab ID:HS18040244-02
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	18-Apr-2018 13:48
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-Apr-2018 13:48
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	ug/L	1	18-Apr-2018 13:48
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	18-Apr-2018 13:48
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-Apr-2018 13:48
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	18-Apr-2018 13:48
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	ug/L	1	18-Apr-2018 13:48
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	18-Apr-2018 13:48
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	18-Apr-2018 13:48
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	ug/L	1	18-Apr-2018 13:48
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	18-Apr-2018 13:48
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	18-Apr-2018 13:48
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-Apr-2018 13:48
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	ug/L	1	18-Apr-2018 13:48
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-Apr-2018 13:48
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	18-Apr-2018 13:48
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	18-Apr-2018 13:48
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	18-Apr-2018 13:48
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	ug/L	1	18-Apr-2018 13:48
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	18-Apr-2018 13:48
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	18-Apr-2018 13:48
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	18-Apr-2018 13:48
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	ug/L	1	18-Apr-2018 13:48
2-Hexanone	1.0	U	1.0	1.0	2.0	ug/L	1	18-Apr-2018 13:48
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	ug/L	1	18-Apr-2018 13:48
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	ug/L	1	18-Apr-2018 13:48
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	ug/L	1	18-Apr-2018 13:48
Acetone	1.0	U	0.40	1.0	2.0	ug/L	1	18-Apr-2018 13:48
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	18-Apr-2018 13:48
Bromobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	18-Apr-2018 13:48
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-Apr-2018 13:48
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-Apr-2018 13:48
Bromoform	0.50	U	0.40	0.50	1.0	ug/L	1	18-Apr-2018 13:48
Bromomethane	0.50	U	0.40	0.50	1.0	ug/L	1	18-Apr-2018 13:48
Carbon disulfide	1.0	U	0.60	1.0	2.0	ug/L	1	18-Apr-2018 13:48
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	ug/L	1	18-Apr-2018 13:48
Chlorobenzene	0.50	U	0.30	0.50	1.0	ug/L	1	18-Apr-2018 13:48
Chloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	18-Apr-2018 13:48

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

ALS Group Houston, Corp Date: 19-Apr-18

Client: Bhate Environmental Associates, Inc. **ANALYTICAL REPORT**
Project: Longhorn GW Treatment Plant Bi Weekly Samples WorkOrder:HS18040244
Sample ID: Trip Blank Lab ID:HS18040244-02
Collection Date: 04-Apr-2018 00:00 Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	18-Apr-2018 13:48
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-Apr-2018 13:48
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	18-Apr-2018 13:48
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	18-Apr-2018 13:48
Dibromochloromethane	0.50	U	0.30	0.50	1.0	ug/L	1	18-Apr-2018 13:48
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-Apr-2018 13:48
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	18-Apr-2018 13:48
Ethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	18-Apr-2018 13:48
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	ug/L	1	18-Apr-2018 13:48
Isopropylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	18-Apr-2018 13:48
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	18-Apr-2018 13:48
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	18-Apr-2018 13:48
n-Butylbenzene	0.50	U	0.40	0.50	1.0	ug/L	1	18-Apr-2018 13:48
n-Propylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	18-Apr-2018 13:48
Naphthalene	0.50	U	0.30	0.50	1.0	ug/L	1	18-Apr-2018 13:48
o-Xylene	0.50	U	0.30	0.50	1.0	ug/L	1	18-Apr-2018 13:48
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	18-Apr-2018 13:48
Styrene	0.50	U	0.30	0.50	1.0	ug/L	1	18-Apr-2018 13:48
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	18-Apr-2018 13:48
Tetrachloroethene	0.50	U	0.30	0.50	1.0	ug/L	1	18-Apr-2018 13:48
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	18-Apr-2018 13:48
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	18-Apr-2018 13:48
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	18-Apr-2018 13:48
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	18-Apr-2018 13:48
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	18-Apr-2018 13:48
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	18-Apr-2018 13:48
Surr: 1,2-Dichloroethane-d4	*94.9*			**0**	*81-118*	*%REC*	*1*	*18-Apr-2018 13:48*
Surr: 4-Bromofluorobenzene	*94.7*			**0**	*85-114*	*%REC*	*1*	*18-Apr-2018 13:48*
Surr: Dibromofluoromethane	*101*			**0**	*80-119*	*%REC*	*1*	*18-Apr-2018 13:48*
Surr: Toluene-d8	*99.7*			**0**	*89-112*	*%REC*	*1*	*18-Apr-2018 13:48*

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

ALS Group Houston, Corp Date: 19-Apr-18

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi Weekly Samples
WorkOrder: HS18040244

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID R314612	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C			**Matrix:** Water		
HS18040244-01	LH18/24-SP650_040418	04 Apr 2018 14:00			18 Apr 2018 14:13	1
HS18040244-02	Trip Blank	04 Apr 2018 00:00			18 Apr 2018 13:48	1
Batch ID R314699	**Test Name :** ANIONS BY SW9056A			**Matrix:** Water		
HS18040244-01	LH18/24-SP650_040418	04 Apr 2018 14:00			19 Apr 2018 01:39	10

ALS Group Houston, Corp Date: 19-Apr-18

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi Weekly Samples
WorkOrder: HS18040244

QC BATCH REPORT

Batch ID: R314612 **Instrument:** VOA6 **Method:** SW8260

MBLK Sample ID: **VBLKW-180418** Units: **ug/L** Analysis Date: **18-Apr-2018 13:24**
Client ID: Run ID: **VOA6_314612** SeqNo: **4525985** PrepDate: DF: **1**

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

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

ALS Group Houston, Corp Date: 19-Apr-18

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi Weekly Samples
WorkOrder: HS18040244

QC BATCH REPORT

Batch ID: R314612 **Instrument:** VOA6 **Method:** SW8260

MBLK Sample ID: **VBLKW-180418** Units: **ug/L** Analysis Date: **18-Apr-2018 13:24**
Client ID: Run ID: **VOA6_314612** SeqNo: **4525985** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	1.0	2.0								U
Carbon tetrachloride	0.50	1.0								U
Chlorobenzene	0.50	1.0								U
Chloroethane	0.50	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	0.50	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	0.50	1.0								U
Ethylbenzene	0.50	1.0								U
Hexachlorobutadiene	0.50	1.0								U
Isopropylbenzene	0.50	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	1.0	2.0								U
Naphthalene	0.50	1.0								U
n-Butylbenzene	0.50	1.0								U
n-Propylbenzene	0.50	1.0								U
o-Xylene	0.50	1.0								U
sec-Butylbenzene	0.50	1.0								U
Styrene	0.50	1.0								U
tert-Butylbenzene	0.50	1.0								U
Tetrachloroethene	0.50	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	0.50	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*46.92*	*1.0*	*50*	*0*	*93.8*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*48.16*	*1.0*	*50*	*0*	*96.3*	*85 - 114*				
Surr: Dibromofluoromethane	*50.7*	*1.0*	*50*	*0*	*101*	*80 - 119*				
Surr: Toluene-d8	*50.03*	*1.0*	*50*	*0*	*100*	*89 - 112*				

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

ALS Group Houston, Corp Date: 19-Apr-18

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi Weekly Samples
WorkOrder: HS18040244

QC BATCH REPORT

Batch ID: R314612 **Instrument: VOA6** **Method: SW8260**

LCS Sample ID: **VLCSW-180418** Units: **ug/L** Analysis Date: **18-Apr-2018 12:10**
Client ID: Run ID: **VOA6_314612** SeqNo: **4525984** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	51.29	1.0	50	0	103	78 - 124				
1,1,1-Trichloroethane	48.91	1.0	50	0	97.8	74 - 131				
1,1,2,2-Tetrachloroethane	51.19	1.0	50	0	102	71 - 121				
1,1,2-Trichloroethane	50.73	1.0	50	0	101	80 - 119				
1,1-Dichloroethane	55.2	1.0	50	0	110	77 - 125				
1,1-Dichloroethene	48.2	1.0	50	0	96.4	71 - 131				
1,1-Dichloropropene	47.2	1.0	50	0	94.4	78 - 125				
1,2,3-Trichlorobenzene	54.93	1.0	50	0	110	69 - 129				
1,2,3-Trichloropropane	50.73	1.0	50	0	101	73 - 122				
1,2,4-Trichlorobenzene	58.27	1.0	50	0	117	69 - 130				
1,2,4-Trimethylbenzene	49.77	1.0	50	0	99.5	76 - 124				
1,2-Dibromo-3-chloropropane	53.76	1.0	50	0	108	62 - 128				
1,2-Dibromoethane	52.12	1.0	50	0	104	77 - 121				
1,2-Dichlorobenzene	48.28	1.0	50	0	96.6	80 - 119				
1,2-Dichloroethane	50.65	1.0	50	0	101	73 - 128				
1,2-Dichloropropane	53.5	1.0	50	0	107	78 - 122				
1,3,5-Trimethylbenzene	50.63	1.0	50	0	101	75 - 124				
1,3-Dichlorobenzene	49.99	1.0	50	0	100.0	80 - 119				
1,3-Dichloropropane	49.98	1.0	50	0	100.0	80 - 119				
1,4-Dichlorobenzene	49.01	1.0	50	0	98.0	79 - 118				
2,2-Dichloropropane	50.55	1.0	50	0	101	60 - 139				
2-Butanone	109.5	2.0	100	0	109	56 - 143				
2-Chlorotoluene	51.06	1.0	50	0	102	79 - 122				
2-Hexanone	102.2	2.0	100	0	102	57 - 139				
4-Chlorotoluene	50.84	1.0	50	0	102	78 - 122				
4-Isopropyltoluene	45.89	1.0	50	0	91.8	77 - 127				
4-Methyl-2-pentanone	102.5	2.0	100	0	103	67 - 130				
Acetone	99.49	2.0	100	0	99.5	39 - 160				
Benzene	49.03	1.0	50	0	98.1	79 - 120				
Bromobenzene	50.36	1.0	50	0	101	80 - 120				
Bromochloromethane	57.33	1.0	50	0	115	78 - 123				
Bromodichloromethane	52.31	1.0	50	0	105	79 - 125				
Bromoform	50.82	1.0	50	0	102	66 - 130				
Bromomethane	44.46	1.0	50	0	88.9	53 - 141				

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

ALS Group Houston, Corp Date: 19-Apr-18

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi Weekly Samples
WorkOrder: HS18040244

QC BATCH REPORT

Batch ID: R314612 **Instrument: VOA6** **Method: SW8260**

LCS Sample ID: **VLCSW-180418** Units: **ug/L** Analysis Date: **18-Apr-2018 12:10**
Client ID: Run ID: **VOA6_314612** SeqNo: **4525984** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	100.8	2.0	100	0	101	64 - 133				
Carbon tetrachloride	46.39	1.0	50	0	92.8	72 - 136				
Chlorobenzene	52.84	1.0	50	0	106	82 - 118				
Chloroethane	48.72	1.0	50	0	97.4	68 - 138				
Chloroform	54.59	1.0	50	0	109	79 - 124				
Chloromethane	45.79	1.0	50	0	91.6	50 - 139				
cis-1,2-Dichloroethene	56.15	1.0	50	0	112	78 - 123				
cis-1,3-Dichloropropene	53.63	1.0	50	0	107	75 - 124				
Dibromochloromethane	52.09	1.0	50	0	104	74 - 126				
Dibromomethane	52.47	1.0	50	0	105	79 - 123				
Dichlorodifluoromethane	45.03	1.0	50	0	90.1	32 - 152				
Ethylbenzene	53.01	1.0	50	0	106	79 - 121				
Hexachlorobutadiene	50	1.0	50	0	100.0	66 - 134				
Isopropylbenzene	47.42	1.0	50	0	94.8	72 - 131				
m,p-Xylene	105.9	2.0	100	0	106	80 - 121				
Methylene chloride	50.38	2.0	50	0	101	74 - 124				
Naphthalene	62.59	1.0	50	0	125	61 - 128				
n-Butylbenzene	48.15	1.0	50	0	96.3	75 - 128				
n-Propylbenzene	46.57	1.0	50	0	93.1	76 - 126				
o-Xylene	53.46	1.0	50	0	107	78 - 122				
sec-Butylbenzene	46.37	1.0	50	0	92.7	78 - 123				
Styrene	52.63	1.0	50	0	105	78 - 128				
tert-Butylbenzene	45.89	1.0	50	0	91.8	78 - 124				
Tetrachloroethene	48.29	1.0	50	0	96.6	74 - 129				
Toluene	53.6	1.0	50	0	107	80 - 121				
trans-1,2-Dichloroethene	51.16	1.0	50	0	102	75 - 124				
trans-1,3-Dichloropropene	51.21	1.0	50	0	102	73 - 127				
Trichloroethene	49.04	1.0	50	0	98.1	79 - 123				
Trichlorofluoromethane	45.69	1.0	50	0	91.4	65 - 141				
Vinyl chloride	46.89	1.0	50	0	93.8	58 - 137				
Surr: 1,2-Dichloroethane-d4	*46.02*	*1.0*	*50*	*0*	*92.0*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*47.89*	*1.0*	*50*	*0*	*95.8*	*85 - 114*				
Surr: Dibromofluoromethane	*50.56*	*1.0*	*50*	*0*	*101*	*80 - 119*				
Surr: Toluene-d8	*49.61*	*1.0*	*50*	*0*	*99.2*	*89 - 112*				

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

ALS Group Houston, Corp Date: 19-Apr-18

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi Weekly Samples
WorkOrder: HS18040244

QC BATCH REPORT

Batch ID: R314612 **Instrument:** VOA6 **Method:** SW8260

MS Sample ID: **HS18040244-01MS** Units: **ug/L** Analysis Date: **18-Apr-2018 17:54**
Client ID: **LH18/24-SP650_040418** Run ID: **VOA6_314612** SeqNo: **4525988** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	51.64	1.0	50	0	103	78 - 124				
1,1,1-Trichloroethane	47.28	1.0	50	0	94.6	74 - 131				
1,1,2,2-Tetrachloroethane	51.9	1.0	50	0	104	71 - 121				
1,1,2-Trichloroethane	51.04	1.0	50	0	102	80 - 119				
1,1-Dichloroethane	57.48	1.0	50	0	115	77 - 125				
1,1-Dichloroethene	46.74	1.0	50	0	93.5	71 - 131				
1,1-Dichloropropene	44.16	1.0	50	0	88.3	78 - 125				
1,2,3-Trichlorobenzene	43.81	1.0	50	0	87.6	69 - 129				
1,2,3-Trichloropropane	49.97	1.0	50	0	99.9	73 - 122				
1,2,4-Trichlorobenzene	47.09	1.0	50	0	94.2	69 - 130				
1,2,4-Trimethylbenzene	45.41	1.0	50	0	90.8	76 - 124				
1,2-Dibromo-3-chloropropane	50.28	1.0	50	0	101	62 - 128				
1,2-Dibromoethane	52.28	1.0	50	0	105	77 - 121				
1,2-Dichlorobenzene	45.77	1.0	50	0	91.5	80 - 119				
1,2-Dichloroethane	52.53	1.0	50	0	105	73 - 128				
1,2-Dichloropropane	55.08	1.0	50	0	110	78 - 122				
1,3,5-Trimethylbenzene	45.27	1.0	50	0	90.5	75 - 124				
1,3-Dichlorobenzene	46.7	1.0	50	0	93.4	80 - 119				
1,3-Dichloropropane	51.31	1.0	50	0	103	80 - 119				
1,4-Dichlorobenzene	46.33	1.0	50	0	92.7	79 - 118				
2,2-Dichloropropane	48.28	1.0	50	0	96.6	60 - 139				
2-Butanone	116.3	2.0	100	0	116	56 - 143				
2-Chlorotoluene	47.93	1.0	50	0	95.9	79 - 122				
2-Hexanone	109.2	2.0	100	0	109	57 - 139				
4-Chlorotoluene	47.92	1.0	50	0	95.8	78 - 122				
4-Isopropyltoluene	39.96	1.0	50	0	79.9	77 - 127				
4-Methyl-2-pentanone	110.8	2.0	100	0	111	67 - 130				
Acetone	95.75	2.0	100	0	95.8	39 - 160				
Benzene	49.52	1.0	50	0	99.0	79 - 120				
Bromobenzene	48.9	1.0	50	0	97.8	80 - 120				
Bromochloromethane	58.4	1.0	50	0	117	78 - 123				
Bromodichloromethane	53.48	1.0	50	0	107	79 - 125				
Bromoform	52.73	1.0	50	0	105	66 - 130				
Bromomethane	24.07	1.0	50	0	48.1	53 - 141				S

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

ALS Group Houston, Corp Date: 19-Apr-18

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi Weekly Samples
WorkOrder: HS18040244

QC BATCH REPORT

Batch ID: R314612 **Instrument:** VOA6 **Method:** SW8260

MS Sample ID: **HS18040244-01MS** Units: **ug/L** Analysis Date: **18-Apr-2018 17:54**
Client ID: **LH18/24-SP650_040418** Run ID: **VOA6_314612** SeqNo: **4525988** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	94.72	2.0	100	0	94.7	64 - 133				
Carbon tetrachloride	42.17	1.0	50	0	84.3	72 - 136				
Chlorobenzene	52.02	1.0	50	0	104	82 - 118				
Chloroethane	79.22	1.0	50	0	158	60 - 138				S
Chloroform	55.28	1.0	50	0	111	79 - 124				
Chloromethane	40.67	1.0	50	0	81.3	50 - 139				
cis-1,2-Dichloroethene	59.76	1.0	50	3.601	112	78 - 123				
cis-1,3-Dichloropropene	53.79	1.0	50	0	108	75 - 124				
Dibromochloromethane	52.25	1.0	50	0	105	74 - 126				
Dibromomethane	53.87	1.0	50	0	108	79 - 123				
Dichlorodifluoromethane	31.05	1.0	50	0	62.1	32 - 152				
Ethylbenzene	51.14	1.0	50	0	102	79 - 121				
Hexachlorobutadiene	29.93	1.0	50	0	59.9	66 - 134				S
Isopropylbenzene	43.83	1.0	50	0	87.7	72 - 131				
m,p-Xylene	102.2	2.0	100	0	102	80 - 121				
Methylene chloride	51.98	2.0	50	0	104	74 - 124				
Naphthalene	54	1.0	50	0	108	61 - 128				
n-Butylbenzene	37.3	1.0	50	0	74.6	75 - 128				S
n-Propylbenzene	41.67	1.0	50	0	83.3	76 - 126				
o-Xylene	51.3	1.0	50	0	103	78 - 122				
sec-Butylbenzene	37.99	1.0	50	0	76.0	78 - 123				S
Styrene	51.72	1.0	50	0	103	78 - 128				
tert-Butylbenzene	39.96	1.0	50	0	79.9	78 - 124				
Tetrachloroethene	44.15	1.0	50	0	88.3	74 - 129				
Toluene	52.77	1.0	50	0	106	80 - 121				
trans-1,2-Dichloroethene	50.8	1.0	50	0	102	75 - 124				
trans-1,3-Dichloropropene	52.85	1.0	50	0	106	73 - 127				
Trichloroethene	49.1	1.0	50	4.107	90.0	79 - 123				
Trichlorofluoromethane	38	1.0	50	0	76.0	65 - 141				
Vinyl chloride	43.35	1.0	50	0	86.7	58 - 137				
Surr: 1,2-Dichloroethane-d4	*45.23*	*1.0*	*50*	*0*	*90.5*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*46.11*	*1.0*	*50*	*0*	*92.2*	*85 - 114*				
Surr: Dibromofluoromethane	*49.58*	*1.0*	*50*	*0*	*99.2*	*80 - 119*				
Surr: Toluene-d8	*47.7*	*1.0*	*50*	*0*	*95.4*	*89 - 112*				

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

ALS Group Houston, Corp Date: 19-Apr-18

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi Weekly Samples
WorkOrder: HS18040244

QC BATCH REPORT

Batch ID: R314612 **Instrument:** VOA6 **Method:** SW8260

MSD Sample ID: **HS18040244-01MSD** Units: **ug/L** Analysis Date: **18-Apr-2018 18:18**
Client ID: **LH18/24-SP650_040418** Run ID: **VOA6_314612** SeqNo: **4525989** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	53.33	1.0	50	0	107	78 - 124	51.64	3.22	20	
1,1,1-Trichloroethane	49.72	1.0	50	0	99.4	74 - 131	47.28	5.05	20	
1,1,2,2-Tetrachloroethane	54.67	1.0	50	0	109	71 - 121	51.9	5.2	20	
1,1,2-Trichloroethane	53.22	1.0	50	0	106	80 - 119	51.04	4.18	20	
1,1-Dichloroethane	56.77	1.0	50	0	114	77 - 125	57.48	1.24	20	
1,1-Dichloroethene	48.44	1.0	50	0	96.9	71 - 131	46.74	3.57	20	
1,1-Dichloropropene	46.79	1.0	50	0	93.6	78 - 125	44.16	5.79	20	
1,2,3-Trichlorobenzene	52.31	1.0	50	0	105	69 - 129	43.81	17.7	20	
1,2,3-Trichloropropane	52.13	1.0	50	0	104	73 - 122	49.97	4.23	20	
1,2,4-Trichlorobenzene	55.37	1.0	50	0	111	69 - 130	47.09	16.2	20	
1,2,4-Trimethylbenzene	49.62	1.0	50	0	99.2	76 - 124	45.41	8.86	20	
1,2-Dibromo-3-chloropropane	56.55	1.0	50	0	113	62 - 128	50.28	11.7	20	
1,2-Dibromoethane	54.18	1.0	50	0	108	77 - 121	52.28	3.56	20	
1,2-Dichlorobenzene	48.65	1.0	50	0	97.3	80 - 119	45.77	6.1	20	
1,2-Dichloroethane	53.39	1.0	50	0	107	73 - 128	52.53	1.62	20	
1,2-Dichloropropane	56	1.0	50	0	112	78 - 122	55.08	1.65	20	
1,3,5-Trimethylbenzene	49.86	1.0	50	0	99.7	75 - 124	45.27	9.64	20	
1,3-Dichlorobenzene	50.19	1.0	50	0	100	80 - 119	46.7	7.22	20	
1,3-Dichloropropane	52.22	1.0	50	0	104	80 - 119	51.31	1.75	20	
1,4-Dichlorobenzene	49.98	1.0	50	0	100.0	79 - 118	46.33	7.57	20	
2,2-Dichloropropane	49.4	1.0	50	0	98.8	60 - 139	48.28	2.29	20	
2-Butanone	118.5	2.0	100	0	119	56 - 143	116.3	1.85	20	
2-Chlorotoluene	51.34	1.0	50	0	103	79 - 122	47.93	6.88	20	
2-Hexanone	113.7	2.0	100	0	114	57 - 139	109.2	4.08	20	
4-Chlorotoluene	50.71	1.0	50	0	101	78 - 122	47.92	5.66	20	
4-Isopropyltoluene	44.68	1.0	50	0	89.4	77 - 127	39.96	11.2	20	
4-Methyl-2-pentanone	114.5	2.0	100	0	115	67 - 130	110.8	3.3	20	
Acetone	97.06	2.0	100	0	97.1	39 - 160	95.75	1.35	20	
Benzene	50.6	1.0	50	0	101	79 - 120	49.52	2.15	20	
Bromobenzene	51.41	1.0	50	0	103	80 - 120	48.9	5.01	20	
Bromochloromethane	59.38	1.0	50	0	119	78 - 123	58.4	1.66	20	
Bromodichloromethane	54.04	1.0	50	0	108	79 - 125	53.48	1.04	20	
Bromoform	54.44	1.0	50	0	109	66 - 130	52.73	3.2	20	
Bromomethane	23.04	1.0	50	0	46.1	53 - 141	24.07	4.39	20	S

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

ALS Group Houston, Corp Date: 19-Apr-18

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi Weekly Samples
WorkOrder: HS18040244

QC BATCH REPORT

Batch ID: R314612 **Instrument:** VOA6 **Method:** SW8260

MSD Sample ID: **HS18040244-01MSD** Units: **ug/L** Analysis Date: **18-Apr-2018 18:18**
Client ID: **LH18/24-SP650_040418** Run ID: **VOA6_314612** SeqNo: **4525989** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Carbon disulfide	98.36	2.0	100	0	98.4	64 - 133	94.72	3.77	20	
Carbon tetrachloride	44.73	1.0	50	0	89.5	72 - 136	42.17	5.89	20	
Chlorobenzene	54.47	1.0	50	0	109	82 - 118	52.02	4.6	20	
Chloroethane	82.36	1.0	50	0	165	60 - 138	79.22	3.9	20	S
Chloroform	56.57	1.0	50	0	113	79 - 124	55.28	2.3	20	
Chloromethane	40.85	1.0	50	0	81.7	50 - 139	40.67	0.42	20	
cis-1,2-Dichloroethene	60.52	1.0	50	3.601	114	78 - 123	59.76	1.26	20	
cis-1,3-Dichloropropene	55.19	1.0	50	0	110	75 - 124	53.79	2.57	20	
Dibromochloromethane	54.26	1.0	50	0	109	74 - 126	52.25	3.77	20	
Dibromomethane	54.92	1.0	50	0	110	79 - 123	53.87	1.93	20	
Dichlorodifluoromethane	31.11	1.0	50	0	62.2	32 - 152	31.05	0.213	20	
Ethylbenzene	54.31	1.0	50	0	109	79 - 121	51.14	6.02	20	
Hexachlorobutadiene	36.22	1.0	50	0	72.4	66 - 134	29.93	19	20	
Isopropylbenzene	47.01	1.0	50	0	94.0	72 - 131	43.83	7.01	20	
m,p-Xylene	107.4	2.0	100	0	107	80 - 121	102.2	5	20	
Methylene chloride	52.99	2.0	50	0	106	74 - 124	51.98	1.92	20	
Naphthalene	64.66	1.0	50	0	129	61 - 128	54	18	20	S
n-Butylbenzene	43.01	1.0	50	0	86.0	75 - 128	37.3	14.2	20	
n-Propylbenzene	45.36	1.0	50	0	90.7	76 - 126	41.67	8.47	20	
o-Xylene	54.32	1.0	50	0	109	78 - 122	51.3	5.72	20	
sec-Butylbenzene	42.86	1.0	50	0	85.7	78 - 123	37.99	12.1	20	
Styrene	53.52	1.0	50	0	107	78 - 128	51.72	3.42	20	
tert-Butylbenzene	44.68	1.0	50	0	89.4	78 - 124	39.96	11.2	20	
Tetrachloroethene	47.35	1.0	50	0	94.7	74 - 129	44.15	6.99	20	
Toluene	54.84	1.0	50	0	110	80 - 121	52.77	3.85	20	
trans-1,2-Dichloroethene	52.23	1.0	50	0	104	75 - 124	50.8	2.78	20	
trans-1,3-Dichloropropene	53.81	1.0	50	0	108	73 - 127	52.85	1.81	20	
Trichloroethene	51.09	1.0	50	4.107	94.0	79 - 123	49.1	3.97	20	
Trichlorofluoromethane	40.26	1.0	50	0	80.5	65 - 141	38	5.78	20	
Vinyl chloride	44.72	1.0	50	0	89.4	58 - 137	43.35	3.1	20	
Surr: 1,2-Dichloroethane-d4	*45.74*	*1.0*	*50*	*0*	*91.5*	*81 - 118*	*45.23*	*1.13*	*20*	
Surr: 4-Bromofluorobenzene	*46.64*	*1.0*	*50*	*0*	*93.3*	*85 - 114*	*46.11*	*1.14*	*20*	
Surr: Dibromofluoromethane	*49.94*	*1.0*	*50*	*0*	*99.9*	*80 - 119*	*49.58*	*0.712*	*20*	
Surr: Toluene-d8	*47.96*	*1.0*	*50*	*0*	*95.9*	*89 - 112*	*47.7*	*0.541*	*20*	

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

ALS Group Houston, Corp Date: 19-Apr-18

Client:	Bhate Environmental Associates, Inc.
Project:	Longhorn GW Treatment Plant Bi Weekly Samples
WorkOrder:	HS18040244

QC BATCH REPORT

Batch ID:	**R314612**	**Instrument:**	**VOA6**	**Method:**	**SW8260**

The following samples were analyzed in this batch:	HS18040244-01	HS18040244-02

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

ALS Group Houston, Corp Date: 19-Apr-18

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi Weekly Samples
WorkOrder: HS18040244

QC BATCH REPORT

Batch ID: R314699 **Instrument: ICS2100** **Method: SW9056**

MBLK Sample ID: **WBLKW1-041818** Units: **mg/L** Analysis Date: **18-Apr-2018 18:22**
Client ID: Run ID: **ICS2100_314699** SeqNo: **4526237** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	0	0.500								U
Sulfate	0	0.500								U

LCS Sample ID: **WLCSW1-041818** Units: **mg/L** Analysis Date: **18-Apr-2018 18:37**
Client ID: Run ID: **ICS2100_314699** SeqNo: **4526238** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.47	0.500	20	0	97.3	80 - 120				
Sulfate	19.54	0.500	20	0	97.7	80 - 120				

LCSD Sample ID: **WLCSDW1-041818** Units: **mg/L** Analysis Date: **18-Apr-2018 18:51**
Client ID: Run ID: **ICS2100_314699** SeqNo: **4526239** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.38	0.500	20	0	96.9	80 - 120	19.47	0.417	20	
Sulfate	19.42	0.500	20	0	97.1	80 - 120	19.54	0.57	20	

MS Sample ID: **HS18040832-01MS** Units: **mg/L** Analysis Date: **18-Apr-2018 19:20**
Client ID: Run ID: **ICS2100_314699** SeqNo: **4526241** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	50.34	0.500	10	42.08	82.6	80 - 120				O
Sulfate	83.9	0.500	10	76.96	69.3	80 - 120				SO

MSD Sample ID: **HS18040832-01MSD** Units: **mg/L** Analysis Date: **18-Apr-2018 19:35**
Client ID: Run ID: **ICS2100_314699** SeqNo: **4526242** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	50.72	0.500	10	42.08	86.4	80 - 120	50.34	0.76	20	O
Sulfate	84.58	0.500	10	76.96	76.2	80 - 120	83.9	0.811	20	SO

The following samples were analyzed in this batch: HS18040244-01

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

ALS Group Houston, Corp Date: 19-Apr-18

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi Weekly Samples
WorkOrder: **HS18040244**

QUALIFIERS, ACRONYMS, UNITS

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

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

Unit Reported	Description
mg/L	Milligrams per Liter

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
California	2919 2016-2018	31-Jul-2018
Illinois	004112	09-May-2018
Kentucky	123043	30-Apr-2018
North Dakota	R193 2017-2017	30-Apr-2018
Oklahoma	2017-088	31-Aug-2018
Texas	T104704231-17-19	30-Apr-2018
North Carolina	624-2018	31-Dec-2018
Louisiana	03087 2017-2018	30-Jun-2018
Arkansas	88-0356	27-Mar-2019

Date: 19-Apr-18

Sample Receipt Checklist

Client Name:	Bhate Environmental	Date/Time Received:	**05-Apr-2018 08:50**
Work Order:	HS18040244	Received by:	**JRM**

Checklist completed by: *Pablo Marinez* eSignature — 5-Apr-2018 Date

Reviewed by: *RJ Modashia* eSignature — 6-Apr-2018 Date

Matrices: **WATER**

Carrier name: **FedEx Priority Overnight**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
TX1005 solids received in hermetically sealed vials?	Yes ☐	No ☐	N/A ☑
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.4C/1.9C UC/C	IR # 11	
Cooler(s)/Kit(s):	BLUE		
Date/Time sample(s) sent to storage:	4/5/2018 17:15		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

HS18040244

CHAIN OF CUSTODY

Name Of Lab Shipping To: ALS 10450 Stancliff Rd. Suite 210, Houston, Tx. 77099 ATTN: SONIA WEST

Bhate Environmental Associates, Inc.
Longhorn GW Treatment Plant

Project: BHATE LONGHORN ARMY AMMN. PLANT (LHAAP) GROUNDWATER TREATMENT PLANT (GWTP) KARNACK, TEXAS	Project No. NWO1312.0150.0 16.0001
Job: **GROUNDWATER TREATMENT PLANT BI-WEEKLY SAMPLES**	
Prepared By: Scott Beesinger	P.O Number

Field Sample I.D.	Sample Matrix	Date / Time	MS / MSD	No. OF CONTAINERS	Analys: VOC	Analys: CHLORIDE, SULFATE	Remarks (Preservatives, etc.)	Lab I.D.#
LH18/24-SP650_040418	Water	04/04/18 / 14:00		3	3		HCL	
LH18/24-SP650_040418	Water	04/04/18 / 14:00		1		1	NONE	
Trip Blank	Water	04/04/18		2	2		HCL	

Additional Remarks: **STANDARD TAT ON ALL PARAMETERS.**

Relinquished By:	Date	Time	Received By:	Date	Time	Relinquished By:	Date	Time	Received By:	Date	Time
Scott Beesinger	04/04/18	14:30									

For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition
JM	4/5/18	08:30							

Remarks: Cooler - Blue IR11
Temp 2.4 UC CF-0.5

(Word) S:\I-ces\Forms\Chain of Custody - BiWeekly

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

Blue

CUSTODY SEAL

Date: 4/4/18 Time: 1430

Name: Stoff Beesinger

Company: BHATL

PM

Date: 4-5-18

FedEx
TRK# 0221 7376 9752 7495

THU - 05 APR 10:30A
PRIORITY OVERNIGHT

AB SGRA Blue

77099
X-US
IAH

FID 162J85 04APR18 GGGA 5960/9132/8C0A

Volatile Organics Raw Data

Bhate Environmental Associates, Inc.
Project: LONGHORN GW TREATMENT
PLANT BI WEEKLY SAMPLES
ALS WO# HS18040244

FORM 2
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS18040244

	CLIENT SAMPLE NO.	SMC1 (DCE) #	SMC2 #	SMC3 (TOL) #	OTHER #	TOT OUT
01	VLCSW-180418	92	101	99	96	0
02	VBLKW-180418	94	101	100	96	0
03	HS18040244-02	95	101	100	95	0
04	HS18040244-01	95	101	99	95	0
05	HS18040244-01	90	99	95	92	0
06	HS18040244-01	91	100	96	93	0
07						
08						
09						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						

		QC LIMITS
SMC1 (DCE)	= 1,2-Dichloroethane-d4	(70-130)
SMC2	= Dibromofluoromethane	(70-130)
SMC3 (TOL)	= Toluene-d8	(70-130)
OTHER	= 4-Bromofluorobenzene	(70-130)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS18040244

Matrix Spike - Sample No.: VSDT-ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
1,1,1-Trichloroethane	50.00	49.39	99	80-120
1,1,1,2-Tetrachloroetha	50.00	53.54	107	80-120
tert-Butylbenzene	50.00	49.49	99	80-120
Naphthalene	50.00	52.43	105	80-120
sec-Butylbenzene	50.00	49.18	98	80-120
1,1,2,2-Tetrachloroetha	50.00	50.43	101	80-120
1,1,2-Trichloroethane	50.00	51.74	103	80-120
1,1-Dichloropropene	50.00	48.04	96	80-120
1,1-Dichloroethane	50.00	55.60	111	80-120
1,1-Dichloroethene	50.00	46.99	94	80-120
1,2,4-Trichlorobenzene	50.00	56.50	113	80-120
1,2-Dibromo-3-Chloropro	50.00	47.40	95	80-120
1,2-Dibromoethane	50.00	52.72	105	80-120
1,2-Dichlorobenzene	50.00	49.52	99	80-120
1,2-Dichloroethane	50.00	52.48	105	80-120
1,2-Dichloropropane	50.00	54.30	109	80-120
1,3-Dichlorobenzene	50.00	51.31	103	80-120
1,4-Dichlorobenzene	50.00	50.77	102	80-120
2-Butanone	100.00	102.25	102	80-120
2-Hexanone	100.00	101.55	102	80-120
4-Methyl-2-Pentanone	100.00	102.81	103	80-120
Acetone	100.00	101.38	101	80-120
Benzene	50.00	49.03	98	80-120
Bromodichloromethane	50.00	53.36	107	80-120
Bromoform	50.00	51.13	102	80-120
Bromomethane	50.00	54.04	108	80-120
Carbon Disulfide	100.00	96.93	97	80-120
Carbon Tetrachloride	50.00	47.72	95	80-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

_____

FORM III VOA

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS18040244

Matrix Spike - Sample No.: VSDT-ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
Chlorobenzene	50.00	54.25	108	80-120
Chloroethane	50.00	49.32	99	80-120
Chloroform	50.00	53.87	108	80-120
Chloromethane	50.00	49.94	100	80-120
cis-1,2-Dichloroethene	50.00	54.22	108	80-120
cis-1,3-Dichloropropene	50.00	53.22	106	80-120
Dibromochloromethane	50.00	53.08	106	80-120
Dichlorodifluoromethane	50.00	47.14	94	80-120
Ethylbenzene	50.00	55.66	111	80-120
Isopropylbenzene	50.00	50.14	100	80-120
Methylene Chloride	50.00	50.60	101	80-120
Tetrachloroethene	50.00	49.48	99	80-120
Toluene	50.00	54.81	110	80-120
trans-1,2-Dichloroethen	50.00	49.38	99	80-120
trans-1,3-Dichloroprope	50.00	51.70	103	80-120
Trichloroethene	50.00	48.34	97	80-120
Trichlorofluoromethane	50.00	47.38	95	80-120
Vinyl Chloride	50.00	47.81	96	80-120
m,p-Xylenes	100.00	110.40	110	80-120
o-Xylene	50.00	54.63	109	80-120
Xylenes (total)	150.00	165.04	110	80-120
1,2,3-Trichloropropane	50.00	48.83	98	80-120
1,2,3-Trichlorobenzene	50.00	51.26	102	80-120
1,2,4-Trimethylbenzene	50.00	52.35	105	80-120
1,3,5-Trimethylbenzene	50.00	53.93	108	80-120
2,2-Dichloropropane	50.00	47.40	95	80-120
1,3-Dichloropropane	50.00	52.50	105	80-120
2-Chlorotoluene	50.00	53.36	107	80-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

_____

FORM III VOA

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS18040244

Matrix Spike - Sample No.: VSDT-ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
4-Chlorotoluene	50.00	53.53	107	80-120
p-Isopropyltoluene	50.00	49.49	99	80-120
Bromochloromethane	50.00	55.96	112	80-120
Bromobenzene	50.00	51.59	103	80-120
Dibromomethane	50.00	51.80	104	80-120
Hexachlorobutadiene	50.00	50.26	100	80-120
n-Propylbenzene	50.00	48.62	97	80-120
n-Butylbenzene	50.00	50.38	101	80-120
Styrene	50.00	54.04	108	80-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

_____

FORM III VOA

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS18040244

Lab File ID: X041101 BFB Injection Date: 04/11/18

Instrument ID: VOA6 BFB Injection Time: 1219

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	15.5
75	30.0 - 60.0% of mass 95	43.9
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.3
173	Less than 2.0% of mass 174	0.6 (0.7)1
174	Greater than 50.0% of mass 95	90.9
175	5.0 - 9.0% of mass 174	6.4 (7.1)1
176	95.0 - 101.0% of mass 174	88.2 (97.0)1
177	5.0 - 9.0% of mass 176	5.8 (6.6)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD00.5	VSTD00.5	X041103	04/11/18	1323
02	VSTD001	VSTD001	X041104	04/11/18	1348
03	VSTD002	VSTD002	X041105	04/11/18	1413
04	VSTD005	VSTD005	X041106	04/11/18	1437
05	VSTD020	VSTD020	X041107	04/11/18	1502
06	VSTD050	VSTD050	X041108	04/11/18	1527
07	VSTD100	VSTD100	X041109	04/11/18	1551
08	VSTD150	VSTD150	X041110	04/11/18	1616
09	VSTD200	VSTD200	X041111	04/11/18	1640
10	VSDT-ICV	VSTD-ICV	X041114	04/11/18	1754
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM V VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS18040244

Instrument ID: VOA6 Calibration Date(s): 04/02/18 04/11/18

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1022 1640

LAB FILE ID: RF0.5: X041103 RF1: X041104 RF2: X041105
RF5: X041106 RF20: X041107 RF50: X041108

COMPOUND	RF0.5	RF1	RF2	RF5	RF20	RF50
1,1,1-Trichloroethane	2466	3241	7465	15819	74056	221714
1,1,1,2-Tetrachloroethane	0.357	0.308	0.289	0.257	0.288	0.305
tert-Butylbenzene	5231	7765	16593	35955	161184	462958
Naphthalene	9003	10468	16356	38350	155852	382975
sec-Butylbenzene	7379	10557	21455	47304	214472	649111
1,1,2,2-Tetrachloroethane	3807	4863	8254	20662	84331	190897
1,1,2-Trichloroethane	0.332	0.246	0.260	0.236	0.246	0.245
1,1-Dichloropropene	2751	3548	7762	14917	72168	214089
1,1-Dichloroethane	0.863	0.666	0.707	0.618	0.718	0.795
1,1-Dichloroethene	1573	2019	4548	8551	43443	133451
1,2,4-Trichlorobenzene	3502	4257	7919	18281	73493	196043
1,2-Dibromo-3-Chloropropane	669	749	1269	3121	11721	28932
1,2-Dibromoethane	0.372	0.336	0.291	0.281	0.305	0.303
1,2-Dichlorobenzene	4928	7035	12580	29424	129012	318489
1,2-Dichloroethane	0.407	0.380	0.324	0.306	0.346	0.360
1,2-Dichloropropane	0.363	0.276	0.294	0.260	0.299	0.319
1,3-Dichlorobenzene	1.652	1.263	1.190	1.048	1.172	1.221
1,4-Dichlorobenzene	1.746	1.337	1.252	1.076	1.210	1.253
2-Butanone	1665	2997	4565	13103	58741	133166
2-Hexanone	4301	5338	8557	21192	89959	196505
4-Methyl-2-Pentanone	5542	8161	12596	31384	134372	300344
Acetone	2981	3613	5356	10482	41130	94971
Benzene	7332	11613	22918	50702	231067	641202
Bromodichloromethane	0.459	0.384	0.370	0.332	0.368	0.393
Bromoform	0.335	0.285	0.250	0.238	0.252	0.248
Bromomethane	1358	2222	4403	8808	39153	104334
Carbon Disulfide	10804	14228	32565	62436	302928	970334
Carbon Tetrachloride	2913	3627	7509	12785	62076	199056
Chlorobenzene	1.010	0.804	0.774	0.695	0.770	0.837
Chloroethane	1510	1878	3996	7429	36345	107507
Chloroform	0.891	0.694	0.708	0.605	0.687	0.768
Chloromethane	2505	3028	7228	12990	61113	176053
cis-1,2-Dichloroethene	0.563	0.448	0.465	0.385	0.447	0.503
cis-1,3-Dichloropropene	0.598	0.504	0.492	0.451	0.499	0.533
Dibromochloromethane	0.382	0.388	0.332	0.308	0.345	0.346
Dichlorodifluoromethane	1429	1627	4688	8481	46180	152864
Ethylbenzene	0.483	0.382	0.378	0.325	0.375	0.437
Isopropylbenzene	7133	11155	22013	49083	225531	648558
Methylene Chloride	4113	5665	8337	16479	66994	172661
Tetrachloroethene	1453	2054	4357	9280	43164	128594
Toluene	1.512	1.133	1.142	0.981	1.118	1.280
trans-1,2-Dichloroethene	1922	2716	5973	11879	56142	159815
trans-1,3-Dichloropropene	0.537	0.441	0.412	0.381	0.417	0.439
Trichloroethene	1793	2794	5845	12554	58107	167697

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1804024

Instrument ID: VOA6 Calibration Date(s): 04/02/18 04/11/18

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1022 1640

LAB FILE ID: RF0.5: X041103 RF1: X041104 RF2: X041105
RF5: X041106 RF20: X041107 RF50: X041108

COMPOUND	RF0.5	RF1	RF2	RF5	RF20	RF50
Trichlorofluoromethane	2034	2458	6157	11141	61144	204892
Vinyl Chloride	2151	2928	6345	11627	59996	191875
m,p-Xylenes	0.596	0.475	0.472	0.407	0.462	0.529
o-Xylene	0.626	0.468	0.478	0.420	0.480	0.525
Xylenes (total)	0.573	0.444	0.441	0.385	0.437	0.501
1,2,3-Trichloropropane	4107	5912	10422	24725	101138	232049
1,2,3-Trichlorobenzene	3518	4094	6539	15893	62278	166167
1,2,4-Trimethylbenzene	2.710	2.086	1.937	1.746	1.928	2.094
1,3,5-Trimethylbenzene	2.488	1.894	1.861	1.597	1.826	2.029
2,2-Dichloropropane	2899	3431	7692	15414	71063	203364
1,3-Dichloropropane	0.640	0.557	0.513	0.486	0.517	0.516
2-Chlorotoluene	2.208	1.635	1.639	1.428	1.631	1.744
4-Chlorotoluene	2.544	1.889	1.907	1.656	1.915	2.018
p-Isopropyltoluene	5231	7765	16593	35955	161184	462958
Bromochloromethane	0.283	0.237	0.226	0.216	0.236	0.247
Bromobenzene	0.970	0.692	0.683	0.639	0.694	0.715
Dibromomethane	0.218	0.199	0.190	0.174	0.193	0.192
Hexachlorobutadiene	1171	1323	2508	5253	23132	80499
n-Propylbenzene	9146	13098	28328	60865	279208	806027
n-Butylbenzene	5831	8194	16437	35996	157741	465564
Styrene	1.073	0.905	0.800	0.760	0.850	0.913
1,2-Dichloroethane-d4	0.700	0.627	0.534	0.479	0.511	0.484
Dibromofluoromethane	0.581	0.496	0.482	0.437	0.480	0.450
Toluene-d8	1.524	1.335	1.222	1.115	1.178	1.138
4-Bromofluorobenzene		0.566	0.507	0.434	0.444	0.411

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1804024

Instrument ID: VOA6 Calibration Date(s): 04/02/18 04/11/18

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1022 1640

LAB FILE ID: RF100: X041109 RF150: X041110 RF200: X041111

COMPOUND	RF100	RF150	RF200
1,1,1-Trichloroethane	464105	726816	939311
1,1,1,2-Tetrachloroethane	0.330	0.359	0.339
tert-Butylbenzene	955699	1500896	1949190
Naphthalene	789837	1321694	1792401
sec-Butylbenzene	1327731	2105946	2742019
1,1,2,2-Tetrachloroethane	386060	608927	778010
1,1,2-Trichloroethane	0.258	0.275	0.259
1,1-Dichloropropene	448804	707774	919511
1,1-Dichloroethane	0.843	0.902	0.876
1,1-Dichloroethene	291171	469714	605421
1,2,4-Trichlorobenzene	411409	660407	
1,2-Dibromo-3-Chloropropane	58141	95873	124506
1,2-Dibromoethane	0.318	0.340	0.324
1,2-Dichlorobenzene	645854	1020061	1312824
1,2-Dichloroethane	0.379	0.409	0.387
1,2-Dichloropropane	0.338	0.364	0.348
1,3-Dichlorobenzene	1.349	1.500	1.414
1,4-Dichlorobenzene	1.368	1.519	1.431
2-Butanone	257439	403024	514555
2-Hexanone	404952	644035	828684
4-Methyl-2-Pentanone	617014	963057	1221789
Acetone	192091	303821	368573
Benzene	1326821	2091934	2689274
Bromodichloromethane	0.417	0.450	0.433
Bromoform	0.260	0.287	0.274
Bromomethane	234102	412280	557249
Carbon Disulfide	2050081	3265953	4237659
Carbon Tetrachloride	415812	653054	849669
Chlorobenzene	0.894	0.974	0.932
Chloroethane	224868	358265	472870
Chloroform	0.797	0.846	0.809
Chloromethane	369278	608678	814923
cis-1,2-Dichloroethene	0.534	0.572	0.544
cis-1,3-Dichloropropene	0.560	0.608	0.587
Dibromochloromethane	0.363	0.396	0.373
Dichlorodifluoromethane	332122	545917	712363
Ethylbenzene	0.468	0.512	0.481
Isopropylbenzene	1327235	2104371	2725551
Methylene Chloride	355383	555205	713815
Tetrachloroethene	269448	433221	558156
Toluene	1.359	1.460	1.375
trans-1,2-Dichloroethene	337889	531900	678674
trans-1,3-Dichloropropene	0.464	0.501	0.482
Trichloroethene	350953	562023	725656

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1804024

Instrument ID: VOA6 Calibration Date(s): 04/02/18 04/11/18

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1022 1640

LAB FILE ID: RF100: X041109 RF150: X041110 RF200: X041111

COMPOUND	RF100	RF150	RF200
Trichlorofluoromethane	445066	713497	927822
Vinyl Chloride	409862	671783	866176
m,p-Xylenes	0.568	0.620	0.586
o-Xylene	0.561	0.609	0.574
Xylenes (total)	0.536	0.586	0.562
1,2,3-Trichloropropane	473929	753856	967759
1,2,3-Trichlorobenzene	338991	549337	739420
1,2,4-Trimethylbenzene	2.275	2.514	2.383
1,3,5-Trimethylbenzene	2.203	2.422	2.326
2,2-Dichloropropane	427020	674155	860908
1,3-Dichloropropane	0.540	0.581	0.545
2-Chlorotoluene	1.894	2.109	
4-Chlorotoluene	2.165	2.385	
p-Isopropyltoluene	955699	1500896	1949190
Bromochloromethane	0.248	0.240	0.228
Bromobenzene	0.794	0.879	0.820
Dibromomethane	0.204	0.220	0.212
Hexachlorobutadiene	166296	269294	353366
n-Propylbenzene	1630889	2595018	3344811
n-Butylbenzene	932054	1478458	1935893
Styrene	0.968	1.061	0.988
1,2-Dichloroethane-d4	0.490	0.513	0.465
Dibromofluoromethane	0.466	0.492	0.442
Toluene-d8	1.201	1.282	1.128
4-Bromofluorobenzene	0.422	0.457	0.409

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1804024

Instrument ID: VOA6 Calibration Date(s): 04/02/18 04/11/18

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1022 1640

COMPOUND	CURVE	COEFFICENTS A0	A1	A2	%RSD OR R^2	MAX %RSD OR R^2
1,1,1-Trichloroethane	LINR	4.357e-002	1.44016970		0.9984308	0.9900000
1,1,1,2-Tetrachloroethane	AVRG		0.31474284		10.869	15.000
tert-Butylbenzene	LINR	4.932e-002	0.49599895		0.9975117	0.9900000
Naphthalene	2ORDR	1.38e-002	0.67180283	-1.81e-002	0.9979312	0.9900000
sec-Butylbenzene	LINR	5.507e-002	0.35276715		0.9972842	0.9900000
1,1,2,2-Tetrachloroethane	LINR	2.099e-002	1.24397360		0.9973562	0.9900000
1,1,2-Trichloroethane	AVRG		0.26179484		10.991	15.000
1,1-Dichloropropene	LINR	5.384e-002	2.19533701		0.9978804	0.9900000
1,1-Dichloroethane	AVRG		0.77654957		13.178	15.000
1,1-Dichloroethene	LINR	6.147e-002	2.22957174		0.9971770	0.9900000
1,2,4-Trichlorobenzene	2ORDR	4.397e-004	1.45318534	-0.1308854	0.9998754	0.9900000
1,2-Dibromo-3-Chloropropane	LINR	4.347e-002	7.82169539		0.9961135	0.9900000
1,2-Dibromoethane	AVRG		0.31895233		8.775	15.000
1,2-Dichlorobenzene	LINR	3.323e-002	0.73720724		0.9975067	0.9900000
1,2-Dichloroethane	AVRG		0.36648337		9.708	15.000
1,2-Dichloropropane	AVRG		0.31777879		11.968	15.000
1,3-Dichlorobenzene	AVRG		1.31202389		14.191	15.000
1,4-Dichlorobenzene	AVRG		1.35469960		14.443	15.000
2-Butanone	LINR	4.61e-003	5.28283480		0.9988186	0.9900000
2-Hexanone	LINR	3.674e-002	4.69978135		0.9977531	0.9900000
4-Methyl-2-Pentanone	LINR	2.11e-002	3.16523387		0.9977442	0.9900000
Acetone	LINR	-1.47e-002	7.23389250		0.9962322	0.9900000
Benzene	LINR	4.414e-002	0.74900385		0.9980238	0.9900000
Bromodichloromethane	AVRG		0.40066120		10.518	15.000
Bromoform	AVRG		0.26994100		11.063	15.000
Bromomethane	2ORDR	3.363e-002	3.14920653	-0.4581698	0.9971932	0.9900000
Carbon Disulfide	LINR	0.11140315	0.63879697		0.9978631	0.9900000
Carbon Tetrachloride	LINR	5.589e-002	2.37447803		0.9978336	0.9900000
Chlorobenzene	AVRG		0.85464820		12.266	15.000
Chloroethane	LINR	5.263e-002	2.88711215		0.9981553	0.9900000
Chloroform	AVRG		0.75614782		11.901	15.000
Chloromethane	LINR	6.542e-002	1.68610090		0.9967576	0.9900000
cis-1,2-Dichloroethene	AVRG		0.49556000		12.749	15.000
cis-1,3-Dichloropropene	AVRG		0.53689334		10.189	15.000
Dibromochloromethane	AVRG		0.35929855		7.981	15.000
Dichlorodifluoromethane	LINR	7.528e-002	1.90149536		0.9965738	0.9900000
Ethylbenzene	AVRG		0.42681528		14.951	15.000
Isopropylbenzene	LINR	4.28e-002	0.71102807		0.9978943	0.9900000
Methylene Chloride	LINR	1.922e-002	1.90383625		0.9986449	0.9900000
Tetrachloroethene	LINR	5.263e-002	3.46064824		0.9971164	0.9900000
Toluene	AVRG		1.26222925		14.145	15.000
trans-1,2-Dichloroethene	LINR	3.983e-002	1.98533851		0.9980575	0.9900000
trans-1,3-Dichloropropene	AVRG		0.45273559		10.734	15.000
Trichloroethene	LINR	5.521e-002	2.77796748		0.9974593	0.9900000

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1804024

Instrument ID: VOA6 Calibration Date(s): 04/02/18 04/11/18

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1022 1640

COMPOUND	CURVE	COEFFICENTS A0	A1	A2	%RSD OR R^2	MAX %RSD OR R^2
Trichlorofluoromethane	LINR	6.737e-002	1.45678431		0.9973498	0.9900000
Vinyl Chloride	LINR	6.518e-002	1.55930278		0.9968364	0.9900000
m,p-Xylenes	AVRG		0.52408820		13.967	15.000
o-Xylene	AVRG		0.52670028		13.329	15.000
Xylenes (total)	AVRG		0.49601745		14.527	15.000
1,2,3-Trichloropropane	LINR	2.828e-002	1.00138709		0.9971469	0.9900000
1,2,3-Trichlorobenzene	LINR	5.736e-002	1.33044383		0.9965373	0.9900000
1,2,4-Trimethylbenzene	AVRG		2.18586875		14.186	15.000
1,3,5-Trimethylbenzene	AVRG		2.07180037		14.703	15.000
2,2-Dichloropropane	LINR	3.929e-002	1.56641653		0.9980626	0.9900000
1,3-Dichloropropane	AVRG		0.54406380		8.368	15.000
2-Chlorotoluene	AVRG		1.78603875		14.857	15.000
4-Chlorotoluene	AVRG		2.05987795		14.088	15.000
p-Isopropyltoluene	LINR	4.932e-002	0.49599895		0.9975117	0.9900000
Bromochloromethane	AVRG		0.23997648		7.938	15.000
Bromobenzene	AVRG		0.76504535		14.212	15.000
Dibromomethane	AVRG		0.20031660		7.472	15.000
Hexachlorobutadiene	LINR	7.2e-002	2.74002825		0.9962111	0.9900000
n-Propylbenzene	LINR	4.863e-002	0.28845295		0.9972064	0.9900000
n-Butylbenzene	LINR	5.001e-002	0.50158575		0.9976035	0.9900000
Styrene	AVRG		0.92427144		11.805	15.000
1,2-Dichloroethane-d4	AVRG		0.53365881		14.722	15.000
Dibromofluoromethane	AVRG		0.48079769		8.982	15.000
Toluene-d8	AVRG		1.23595749		10.532	15.000
4-Bromofluorobenzene	AVRG		0.45648702		11.927	15.000

FORM VI VOA

MSVOA06 -Logbook

Batch: 31548
Date: 04-11-2018
Method: 8260
Comments:

Analyst: Diana Nguyen
Reviewer:
Laboratory: Houston

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	04-11-2018 12:19 pm	1.00	50 mL	50 mL	X041101.D	Liquid	Y	NA
	Purged, auto find									
2	VSTD00.25	ICAL 1	04-11-2018 12:34 pm	1.00	50 mL	50 mL	X041102.D	Liquid	Y	NA
	0.1 µL cal STD/100 mL DI									
3	VSTD00.5	ICAL 2	04-11-2018 01:23 pm	1.00	50 mL	50 mL	X041103.D	Liquid	Y	NA
	0.1 µL cal STD/100 mL DI									
4	VSTD001	ICAL 3	04-11-2018 01:48 pm	1.00	50 mL	50 mL	X041104.D	Liquid	Y	NA
	0.2 µL cal STD/50 mL DI									
5	VSTD002	ICAL 4	04-11-2018 02:13 pm	1.00	50 mL	50 mL	X041105.D	Liquid	Y	NA
	0.4 µL cal STD/50 mL DI									
6	VSTD005	ICAL 5	04-11-2018 02:37 pm	1.00	50 mL	50 mL	X041106.D	Liquid	Y	NA
	1.0 µL cal STD/50 mL DI									
7	VSTD020	ICAL 6	04-11-2018 03:02 pm	1.00	50 mL	50 mL	X041107.D	Liquid	Y	NA
	4 µL cal STD/50 mL DI									
8	VSTD050	ICAL 7	04-11-2018 03:27 pm	1.00	50 mL	50 mL	X041108.D	Liquid	Y	NA
	10 µL cal STD/50 mL DI									
9	VSTD100	ICAL 8	04-11-2018 03:51 pm	1.00	50 mL	50 mL	X041109.D	Liquid	Y	NA
	20 µL cal STD/50 mL DI									
10	VSTD150	ICAL 9	04-11-2018 04:16 pm	1.00	50 mL	50 mL	X041110.D	Liquid	Y	NA
	30 µL cal STD/50 mL DI									
11	VSTD200	ICAL 10	04-11-2018 04:40 pm	1.00	50 mL	50 mL	X041111.D	Liquid	Y	NA
	40 µL cal STD/50 mL DI									
12	BLK	SAMP	04-11-2018 05:05 pm	1.00	50 mL	50 mL	X041112.D	Liquid	Y	NA
	Clean up blank									
13	BLK	SAMP	04-11-2018 05:29 pm	1.00	50 mL	50 mL	X041113.D	Liquid	Y	NA
	Clean up blank									
14	VSTD-ICV	METHSPIKI	04-11-2018 05:54 pm	1.00	50 mL	50 mL	X041114.D	Liquid	Y	NA
	10 µL cal STD/50 mL DI									
15	VLCSW1-180411	LCS	04-11-2018 06:48 pm	1.00	50 mL	50 mL	X041115.D	Liquid	Y	NA
	10 µL cal STD/50 mL DI									
16	CBLK	SAMP	04-11-2018 07:13 pm	1.00	50 mL	50 mL	X041116.D	Liquid	Y	NA
	Clean up blank									
17	VBLKW1-180411	MBLK	04-11-2018 07:38 pm	1.00	50 mL	50 mL	X041117.D	Liquid	Y	<2
18	HS18031432-04	SAMP	04-11-2018 08:02 pm	1.00	50 mL	50 mL	X041118.D	Liquid	Y	<2
19	HS18031432-02	SAMP	04-11-2018 08:27 pm	1.00	50 mL	50 mL	X041119.D	Liquid	Y	<2
20	HS18031432-03	SAMP	04-11-2018 08:51 pm	1.00	50 mL	50 mL	X041120.D	Liquid	Y	<2
21	HS18031432-01	SAMP	04-11-2018 09:16 pm	1.00	50 mL	50 mL	X041121.D	Liquid	Y	<2
22	HS18031432-05	SAMP	04-11-2018 09:40 pm	1.00	50 mL	50 mL	X041122.D	Liquid	Y	<2
23	HS18031311-01	SAMP	04-11-2018 10:05 pm	100.0(	500 µL	50 mL	X041123.D	Liquid	Y	<2
24	HS18031335-34	SAMP	04-11-2018 10:30 pm	5.00	10 mL	50 mL	X041124.D	Liquid	Y	<2
25	HS18031432-01MS	MS	04-11-2018 10:54 pm	1.00	50 mL	50 mL	X041125.D	Liquid	Y	NA
	5 µL cal STD/25 mL DI									
26	HS18031432-01MSD	MSD	04-11-2018 11:19 pm	1.00	50 mL	50 mL	X041126.D	Liquid	Y	NA
	5 µL cal STD/25 mL DI									
27	VTD050-END	CCV	04-11-2018 11:43 pm	1.00	50 mL	50 mL	X041127.D	Liquid	Y	NA
28	VCSTD050	CCV	04-12-2018 12:08 am	1.00	50 mL	50 mL	X041128.D	Liquid	Y	NA
	10 µL cal STD/50 mL DI									

MSVOA06 -Logbook

Chemical	Value
SURR SPK ID	30502-18-03
IS ID	30502-18-04
ICV STD ID	30502-20-02
LCS/MS ID	30502-20-01
CAL STD ID	30502-20-01
BFB ID	30603-12-05
pH Paper	634-37-03

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041101.D

Date : 11-APR-2018 12:19

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

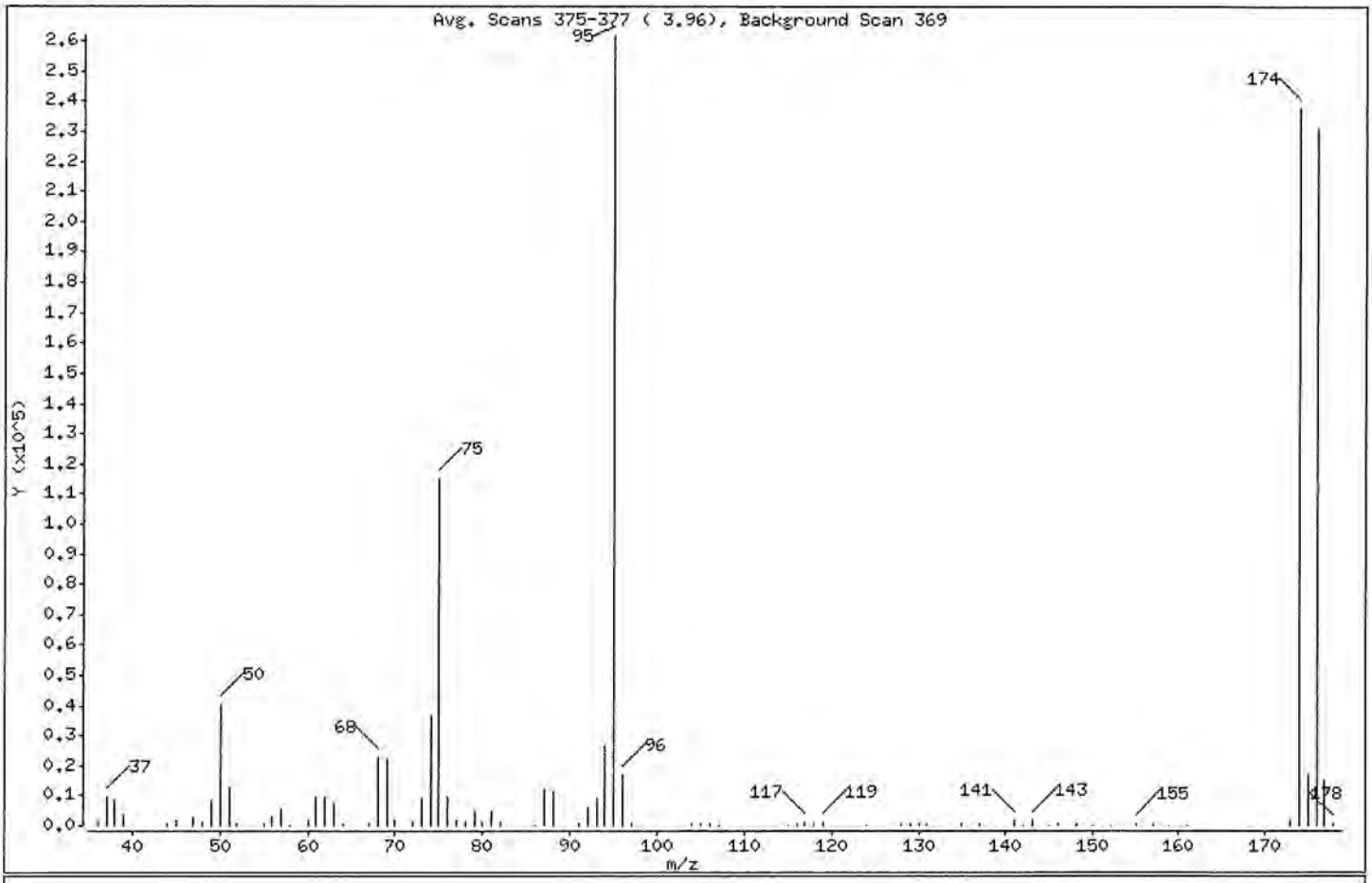
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	15.48
75	30.00 - 60.00% of mass 95	43.92
96	5.00 - 9.00% of mass 95	6.35
173	Less than 2.00% of mass 174	0.59 (0.65)
174	Greater than 50.00% of mass 95	90.91
175	5.00 - 9.00% of mass 174	6.44 (7.08)
176	95.00 - 101.00% of mass 174	88.17 (96.99)
177	5.00 - 9.00% of mass 176	5.78 (6.55)

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041101.D

Date : 11-APR-2018 12:19

Client ID: BFB Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0 Operator: PC

Column phase: DB624 Column diameter: 0.25

Data File: X041101.D
Spectrum: Avg. Scans 375-377 (3.96), Background Scan 369
Location of Maximum: 95.00
Number of points: 80

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	1689	67.00	510	94.00	26536	142.00	294
37.00	9611	68.00	22696	95.00	261952	143.00	1982
38.00	8495	69.00	22544	96.00	16624	145.00	80
39.00	3413	70.00	1628	97.00	493	146.00	381
44.00	774	72.00	1130	104.00	851	148.00	559
45.00	1758	73.00	9256	105.00	319	150.00	181
47.00	3205	74.00	36600	106.00	882	152.00	68
48.00	1239	75.00	115056	107.00	167	155.00	698
49.00	8471	76.00	9672	115.00	93	157.00	477
50.00	40544	77.00	1543	116.00	716	159.00	176
51.00	12763	78.00	1113	117.00	1401	161.00	274
52.00	556	79.00	4866	118.00	717	173.00	1552
55.00	495	80.00	1393	119.00	970	174.00	238144
56.00	2973	81.00	4876	124.00	67	175.00	16864
57.00	5379	82.00	928	128.00	873	176.00	230976
58.00	82	86.00	223	129.00	357	177.00	15136
60.00	1847	87.00	12084	130.00	866	178.00	464
61.00	9626	88.00	11567	131.00	371		
62.00	9453	91.00	816	135.00	324		
63.00	6939	92.00	6012	137.00	374		
64.00	649	93.00	9124	141.00	1978		

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041101.D Page 1

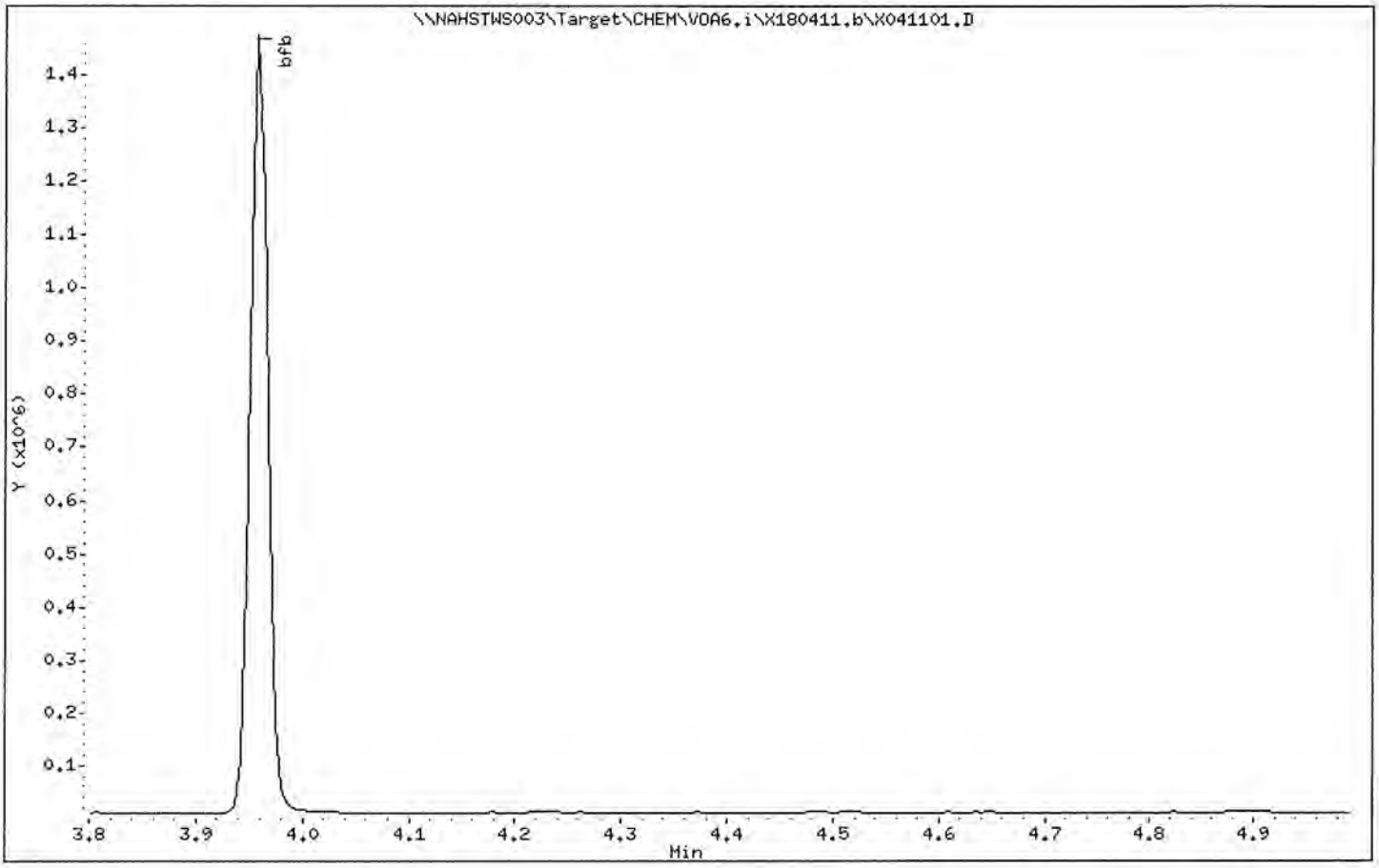
Date : 11-APR-2018 12:19

Client ID: BFB Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0 Operator: PC

Column phase: DB624 Column diameter: 0.25



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041103.D
Report Date: 20-Apr-2018 19:18

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041103.D
Lab Smp Id: VSTD00.5 Client Smp ID: VSTD00.5
Inj Date : 11-APR-2018 13:23
Operator : PC Inst ID: voa6.i
Smp Info : VSTD00.5;VSTD00.5;1;2;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\8260W.m
Meth Date : 20-Apr-2018 19:18 voa6.i Quant Type: ISTD
Cal Date : 11-APR-2018 15:27 Cal File: X041108.D
Als bottle: 2 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: dn_bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
	31 1,1,1-Trichloroethane	97	4.204	4.204	(0.978)	2466	0.50000	2.66(a)
*	1 Pentafluorobenzene	168	4.297	4.297	(1.000)	367361	50.0000	
$	30 Dibromofluoromethane	113	4.225	4.225	(0.983)	2134	0.50000	0.60(a)
*	36 1,4-Difluorobenzene	114	5.063	5.063	(1.000)	565040	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.583	4.583	(1.067)	2572	0.50000	0.65(Ta)
*	47 Chlorobenzene-d5	117	7.735	7.735	(1.000)	533980	50.0000	
$	48 Toluene-d8	98	6.460	6.460	(0.835)	8139	0.50000	0.61(a)
$	69 4-Bromofluorobenzene	95	8.752	8.752	(1.131)	3916	0.50000	0.80(a)
*	70 1,4-Dichlorobenzene-d4	152	9.719	9.719	(1.000)	270395	50.0000	
	68 1,1,2,2-Tetrachloroethane	83	8.903	8.903	(0.916)	3807	0.50000	1.92(aM)
	53 1,1,2-Trichloroethane	83	6.911	6.911	(0.894)	1773	0.50000	0.63(a)
	32 1,1-Dichloropropene	75	4.390	4.390	(0.867)	2751	0.50000	3.22(a)
	22 1,1-Dichloroethane	63	3.036	3.036	(0.707)	3171	0.50000	0.55(Ta)
	11 1,1-Dichloroethene	96	2.005	2.005	(0.467)	1573	0.50000	3.55(a)
	90 1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	3502	0.50000	0.96(a)
	89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	669	0.50000	3.14(a)
	57 1,2-Dibromoethane	107	7.334	7.334	(0.948)	1987	0.50000	0.58(a)
	88 1,2-Dichlorobenzene	146	10.056	10.056	(1.035)	4928	0.50000	2.33(a)
	33 1,2-Dichloroethane	62	4.662	4.662	(0.921)	2300	0.50000	0.55(a)
	42 1,2-Dichloropropane	63	5.529	5.529	(1.092)	2050	0.50000	0.57(aM)
	83 1,3-Dichlorobenzene	146	9.669	9.669	(0.995)	4467	0.50000	0.62(a)
	84 1,4-Dichlorobenzene	146	9.741	9.741	(1.002)	4721	0.50000	0.64(a)

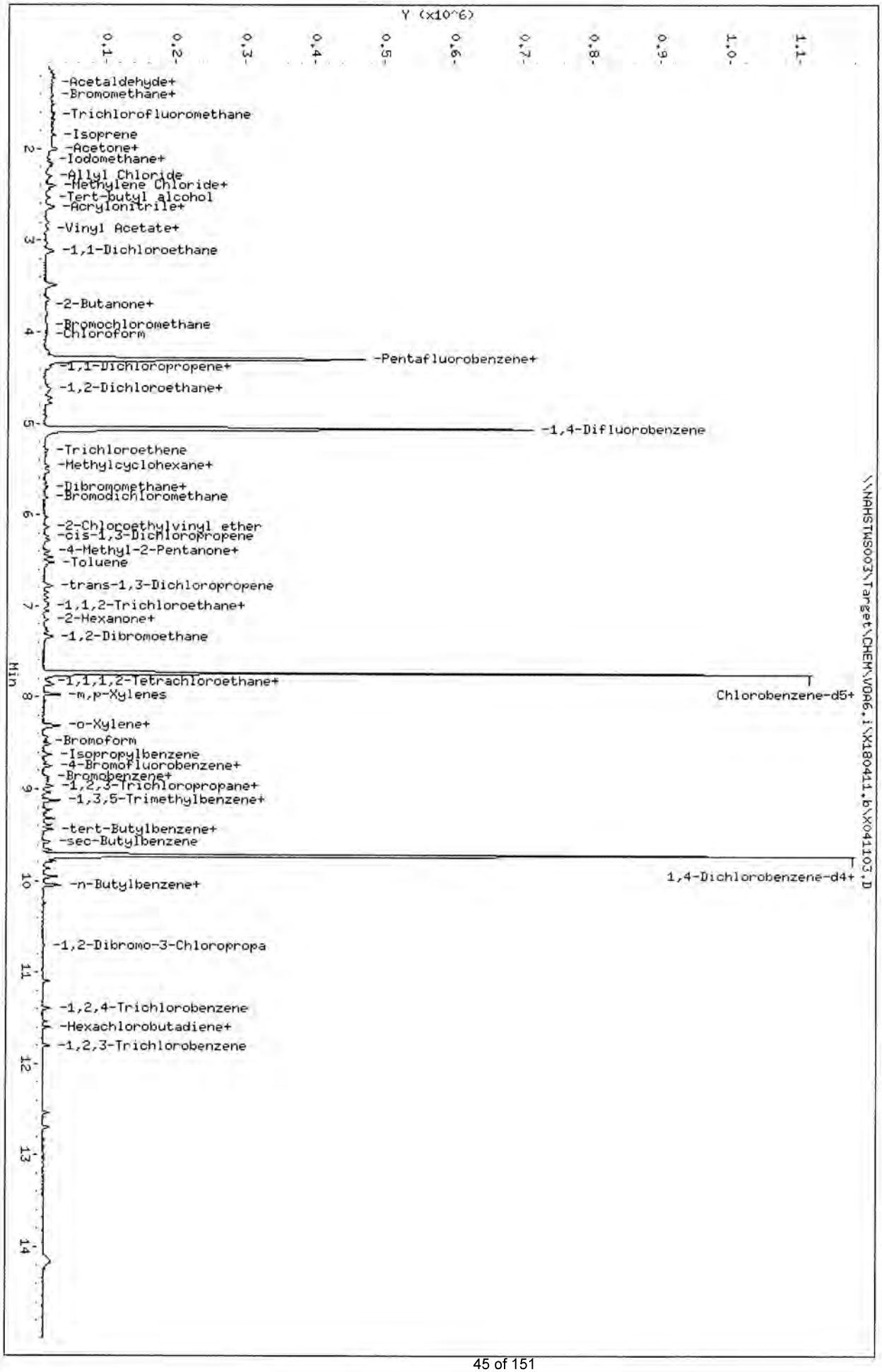
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041103.D
Report Date: 20-Apr-2018 19:18

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
24	2-Butanone	43	3.702	3.702	(0.862)	1665	1.00000	1.42(a)
52	2-Hexanone	43	7.155	7.155	(0.925)	4301	1.00000	3.72(a)
45	4-Methyl-2-Pentanone	43	6.403	6.403	(0.828)	5542	1.00000	2.69(a)
10	Acetone	43	2.069	2.069	(0.482)	2981	1.00000	2.20(a)
37	Benzene	78	4.619	4.619	(0.912)	7332	0.50000	2.69(a)
39	Bromodichloromethane	83	5.808	5.808	(1.147)	2595	0.50000	0.57(aM)
66	Bromoform	173	8.480	8.480	(1.096)	1791	0.50000	0.62(Ta)
6	Bromomethane	94	1.410	1.410	(0.328)	1358	0.50000	2.26(a)
19	Carbon Disulfide	76	2.162	2.162	(0.503)	10804	1.00000	6.50
34	Carbon Tetrachloride	117	4.383	4.383	(0.866)	2913	0.50000	3.40(a)
59	Chlorobenzene	112	7.764	7.764	(1.004)	5394	0.50000	0.59(a)
7	Chloroethane	64	1.475	1.475	(0.343)	1510	0.50000	3.22(a)
28	Chloroform	83	4.032	4.032	(0.938)	3274	0.50000	0.58(a)
3	Chloromethane	50	1.138	1.138	(0.265)	2505	0.50000	3.84(a)
27	cis-1,2-Dichloroethene	96	3.645	3.645	(0.848)	2069	0.50000	0.56(a)
46	cis-1,3-Dichloropropene	75	6.238	6.238	(1.232)	3382	0.50000	0.55(a)
55	Dibromochloromethane	129	7.241	7.241	(0.936)	2043	0.50000	0.53(a)
2	Dichlorodifluoromethane	85	1.030	1.030	(0.240)	1429	0.50000	4.13(aM)
61	Ethylbenzene	106	7.864	7.864	(1.017)	2581	0.50000	0.56(a)
67	Isopropylbenzene	105	8.623	8.623	(1.115)	7133	0.50000	2.61(a)
17	Methylene Chloride	84	2.399	2.399	(0.558)	4113	0.50000	2.02(a)
56	Tetrachloroethene	164	7.004	7.004	(0.906)	1453	0.50000	3.10(a)
50	Toluene	91	6.524	6.524	(0.844)	8076	0.50000	0.59(a)
20	trans-1,2-Dichloroethene	96	2.635	2.635	(0.613)	1922	0.50000	2.51(a)
51	trans-1,3-Dichloropropene	75	6.754	6.754	(1.334)	3037	0.50000	0.59(a)
38	Trichloroethene	130	5.300	5.300	(1.047)	1793	0.50000	3.20(a)
8	Trichlorofluoromethane	101	1.639	1.639	(0.382)	2034	0.50000	3.77(a)
5	Vinyl Chloride	62	1.209	1.209	(0.282)	2151	0.50000	3.71(a)
62	m,p-Xylenes	106	7.971	7.971	(1.031)	6371	1.00000	1.13(a)
63	o-Xylene	106	8.301	8.301	(1.073)	3341	0.50000	0.59(a)
M 95	Xylenes (total)	106				9712	1.50000	(a)
71	1,2,3-Trichloropropane	75	8.924	8.924	(0.918)	4107	0.50000	2.17(a)
93	1,2,3-Trichlorobenzene	180	11.804	11.804	(1.214)	3518	0.50000	3.73(a)
79	1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	7327	0.50000	0.61(a)
75	1,3,5-Trimethylbenzene	105	9.125	9.125	(0.939)	6729	0.50000	0.60(a)
26	2,2-Dichloropropane	77	3.623	3.623	(0.843)	2899	0.50000	2.58(aM)
54	1,3-Dichloropropane	76	7.055	7.055	(0.912)	3417	0.50000	0.58(a)
76	2-Chlorotoluene	91	9.032	9.032	(0.929)	5970	0.50000	0.61(a)
77	4-Chlorotoluene	91	9.132	9.132	(0.940)	6878	0.50000	0.61(a)
82	p-Isopropyltoluene	119	9.390	9.390	(0.966)	5231	0.50000	2.94(a)
29	Bromochloromethane	128	3.924	3.924	(0.913)	1039	0.50000	0.58(a)
74	Bromobenzene	156	8.867	8.867	(0.912)	2622	0.50000	0.63(a)
44	Dibromomethane	93	5.651	5.651	(1.116)	1230	0.50000	0.54(a)
91	Hexachlorobutadiene	225	11.539	11.539	(1.187)	1171	0.50000	4.19(a)
73	n-Propylbenzene	91	8.967	8.967	(0.923)	9146	0.50000	2.91(a)
87	n-Butylbenzene	91	10.049	10.049	(1.034)	5831	0.50000	3.04(a)
81	sec-Butylbenzene	105	9.576	9.576	(0.985)	7379	0.50000	3.23(a)
92	Naphthalene	128	11.603	11.603	(1.194)	9003	0.50000	1.80(a)
78	tert-Butylbenzene	119	9.390	9.390	(0.966)	5231	0.50000	2.94(a)
60	1,1,1,2-Tetrachloroethane	131	7.835	7.835	(1.013)	1908	0.50000	0.56(a)
64	Styrene	104	8.322	8.322	(1.076)	5730	0.50000	0.58(a)

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041103.D
Report Date: 20-Apr-2018 19:18

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.


Y (x10^6)
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
Min
1
2
3
4
5
6
7
8
9
10
11
12
13
14
-Acetaldehyde+
-Bromomethane+
-Trichlorofluoromethane
-Isoprene
-Acetone+
-Iodomethane+
-Allyl Chloride
-Methylene Chloride+
-Tert-butyl alcohol
-Acrylonitrile+
-Vinyl Acetate+
-1,1-Dichloroethane
-2-Butanone+
-Bromochloromethane
-Chloroform
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-1,4-Difluorobenzene
-Trichloroethene
-Methylcyclohexane+
-Dibromomethane+
-Bromodichloromethane
-2-Chloroethylvinyl ether
-cis-1,3-Dichloropropene
-4-Methyl-2-Pentanone+
-Toluene
-trans-1,3-Dichloropropene
-1,1,2-Trichloroethane+
-2-Hexanone+
-1,2-Dibromoethane
-1,1,1,2-Tetrachloroethane+
-m,p-Xylenes
Chlorobenzene-d5+
-o-Xylene+
-Bromoform
-Isopropylbenzene
-4-Bromofluorobenzene+
-Bromobenzene+
-1,2,3-Trichloropropane+
-1,3,5-Trimethylbenzene+
-tert-Butylbenzene+
-sec-Butylbenzene
1,4-Dichlorobenzene-d4+
-n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Hexachlorobutadiene+
-1,2,3-Trichlorobenzene
\\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041103.D
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041103.D
Date : 11-APR-2018 13:23
Client ID: VSTD00.5
Sample Info: VSTD00.5;VSTD00.5;1;2;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041104.D
Report Date: 20-Apr-2018 19:18

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041104.D
Lab Smp Id: VSTD001 Client Smp ID: VSTD001
Inj Date : 11-APR-2018 13:48
Operator : PC Inst ID: voa6.i
Smp Info : VSTD001;VSTD001;1;3;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\8260W.m
Meth Date : 20-Apr-2018 19:18 voa6.i Quant Type: ISTD
Cal Date : 11-APR-2018 13:23 Cal File: X041103.D
Als bottle: 3 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: dn_bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
	31 1,1,1-Trichloroethane	97	4.204	4.204	(0.978)	3241	1.00000	2.81(a)
*	1 Pentafluorobenzene	168	4.297	4.297	(1.000)	367135	50.0000	
$	30 Dibromofluoromethane	113	4.218	4.218	(0.982)	3644	1.00000	1.03(a)
*	36 1,4-Difluorobenzene	114	5.063	5.063	(1.000)	567058	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.583	4.583	(1.067)	4602	1.00000	1.17(a)
*	47 Chlorobenzene-d5	117	7.735	7.735	(1.000)	532098	50.0000	
$	48 Toluene-d8	98	6.460	6.460	(0.835)	14209	1.00000	1.08(a)
$	69 4-Bromofluorobenzene	95	8.752	8.752	(1.131)	6028	1.00000	1.24(a)
*	70 1,4-Dichlorobenzene-d4	152	9.719	9.719	(1.000)	271213	50.0000	
	68 1,1,2,2-Tetrachloroethane	83	8.895	8.895	(0.915)	4863	1.00000	2.16(aM)
	53 1,1,2-Trichloroethane	83	6.911	6.911	(0.894)	2613	1.00000	0.93(a)
	32 1,1-Dichloropropene	75	4.397	4.397	(0.868)	3548	1.00000	3.37(a)
	22 1,1-Dichloroethane	63	3.036	3.036	(0.707)	4887	1.00000	0.85(a)
	11 1,1-Dichloroethene	96	2.004	2.004	(0.467)	2019	1.00000	3.68(a)
	90 1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	4257	1.00000	1.16(a)
	89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	749	1.00000	3.25(a)
	57 1,2-Dibromoethane	107	7.334	7.334	(0.948)	3580	1.00000	1.05(a)
	88 1,2-Dichlorobenzene	146	10.049	10.049	(1.034)	7035	1.00000	2.61(a)
	33 1,2-Dichloroethane	62	4.662	4.662	(0.921)	4311	1.00000	1.03(a)
	42 1,2-Dichloropropane	63	5.522	5.522	(1.091)	3129	1.00000	0.86(aM)
	83 1,3-Dichlorobenzene	146	9.662	9.662	(0.994)	6851	1.00000	0.96(a)
	84 1,4-Dichlorobenzene	146	9.741	9.741	(1.002)	7252	1.00000	0.98(a)

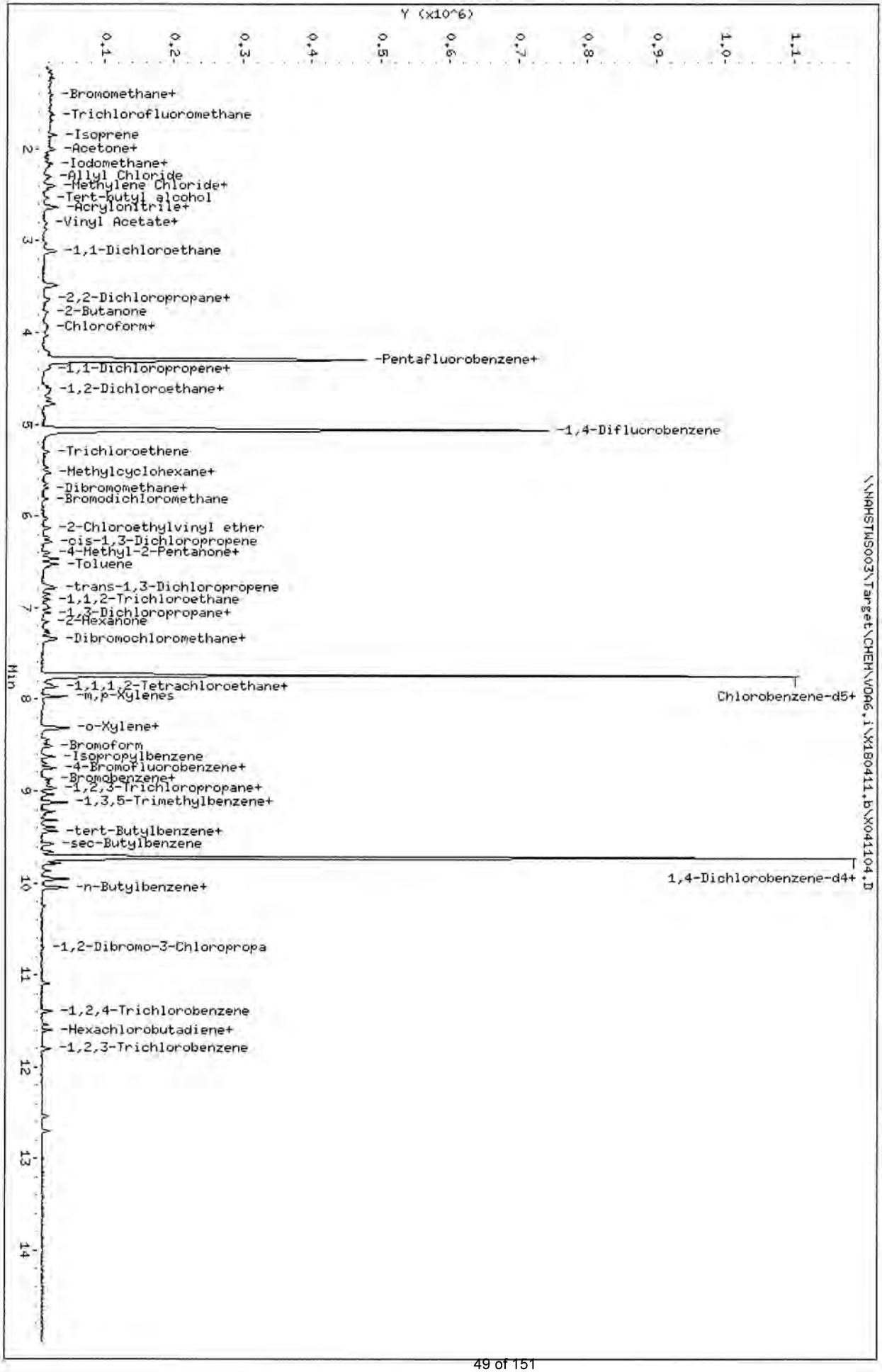
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041104.D
Report Date: 20-Apr-2018 19:18

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
	24 2-Butanone	43	3.702	3.702	(0.862)	2997	2.00000	2.38(a)
	52 2-Hexanone	43	7.155	7.155	(0.925)	5338	2.00000	4.19(a)
	45 4-Methyl-2-Pentanone	43	6.403	6.403	(0.828)	8161	2.00000	3.48(a)
	10 Acetone	43	2.069	2.069	(0.482)	3613	2.00000	2.82(a)
	37 Benzene	78	4.619	4.619	(0.912)	11613	1.00000	2.97(a)
	39 Bromodichloromethane	83	5.815	5.815	(1.149)	4352	1.00000	0.95(aM)
	66 Bromoform	173	8.473	8.473	(1.095)	3032	1.00000	1.05(Ta)
	6 Bromomethane	94	1.410	1.410	(0.328)	2222	1.00000	2.63(a)
	19 Carbon Disulfide	76	2.162	2.162	(0.503)	14228	2.00000	6.80
	34 Carbon Tetrachloride	117	4.383	4.383	(0.866)	3627	1.00000	3.55(a)
	59 Chlorobenzene	112	7.764	7.764	(1.004)	8560	1.00000	0.94(a)
	7 Chloroethane	64	1.474	1.474	(0.343)	1878	1.00000	3.36(aM)
	28 Chloroform	83	4.024	4.024	(0.937)	5095	1.00000	0.91(a)
	3 Chloromethane	50	1.145	1.145	(0.267)	3028	1.00000	3.96(a)
	27 cis-1,2-Dichloroethene	96	3.652	3.652	(0.850)	3287	1.00000	0.90(a)
	46 cis-1,3-Dichloropropene	75	6.238	6.238	(1.232)	5711	1.00000	0.93(a)
	55 Dibromochloromethane	129	7.248	7.248	(0.937)	4124	1.00000	1.07(a)
	2 Dichlorodifluoromethane	85	1.030	1.030	(0.240)	1627	1.00000	4.18(aM)
	61 Ethylbenzene	106	7.864	7.864	(1.017)	4064	1.00000	0.89(a)
	67 Isopropylbenzene	105	8.623	8.623	(1.115)	11155	1.00000	2.88(a)
	17 Methylene Chloride	84	2.406	2.406	(0.560)	5665	1.00000	2.42(a)
	56 Tetrachloroethene	164	7.004	7.004	(0.906)	2054	1.00000	3.29(a)
	50 Toluene	91	6.524	6.524	(0.844)	12057	1.00000	0.89(a)
	20 trans-1,2-Dichloroethene	96	2.635	2.635	(0.613)	2716	1.00000	2.72(a)
	51 trans-1,3-Dichloropropene	75	6.754	6.754	(1.334)	5005	1.00000	0.97(a)
	38 Trichloroethene	130	5.299	5.299	(1.047)	2794	1.00000	3.44(a)
	8 Trichlorofluoromethane	101	1.639	1.639	(0.382)	2458	1.00000	3.85(a)
	5 Vinyl Chloride	62	1.209	1.209	(0.282)	2928	1.00000	3.88(a)
	62 m,p-Xylenes	106	7.971	7.971	(1.031)	10116	2.00000	1.81(a)
	63 o-Xylene	106	8.301	8.301	(1.073)	4983	1.00000	0.88(a)
M	95 Xylenes (total)	106				15099	3.00000	(a)
	71 1,2,3-Trichloropropane	75	8.924	8.924	(0.918)	5912	1.00000	2.50(a)
	93 1,2,3-Trichlorobenzene	180	11.796	11.796	(1.214)	4094	1.00000	3.87(a)
	79 1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	11314	1.00000	0.95(a)
	75 1,3,5-Trimethylbenzene	105	9.125	9.125	(0.939)	10273	1.00000	0.91(a)
	26 2,2-Dichloropropane	77	3.630	3.630	(0.845)	3431	1.00000	2.69(a)
	54 1,3-Dichloropropane	76	7.054	7.054	(0.912)	5932	1.00000	1.02(a)
	76 2-Chlorotoluene	91	9.031	9.031	(0.929)	8868	1.00000	0.91(a)
	77 4-Chlorotoluene	91	9.132	9.132	(0.940)	10246	1.00000	0.91(a)
	82 p-Isopropyltoluene	119	9.397	9.397	(0.967)	7765	1.00000	3.17(a)
	29 Bromochloromethane	128	3.917	3.917	(0.912)	1739	1.00000	0.98(a)
	74 Bromobenzene	156	8.867	8.867	(0.912)	3751	1.00000	0.90(a)
	44 Dibromomethane	93	5.643	5.643	(1.115)	2253	1.00000	0.99(a)
	91 Hexachlorobutadiene	225	11.538	11.538	(1.187)	1323	1.00000	4.26(a)
	73 n-Propylbenzene	91	8.974	8.974	(0.923)	13098	1.00000	3.12(a)
	87 n-Butylbenzene	91	10.049	10.049	(1.034)	8194	1.00000	3.25(a)
	81 sec-Butylbenzene	105	9.583	9.583	(0.986)	10557	1.00000	3.44(a)
	92 Naphthalene	128	11.603	11.603	(1.194)	10468	1.00000	1.98(a)
	78 tert-Butylbenzene	119	9.397	9.397	(0.967)	7765	1.00000	3.17(a)
	60 1,1,1,2-Tetrachloroethane	131	7.842	7.842	(1.014)	3284	1.00000	0.98(a)
	64 Styrene	104	8.322	8.322	(1.076)	9635	1.00000	0.97(a)

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041104.D
Report Date: 20-Apr-2018 19:18

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041104.D
Date : 11-APR-2018 13:48
Client ID: VSTD001
Sample Info: VSTD001;VSTD001;1;3;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041105.D
Report Date: 20-Apr-2018 19:18

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041105.D
Lab Smp Id: VSTD002 Client Smp ID: VSTD002
Inj Date : 11-APR-2018 14:13
Operator : PC Inst ID: voa6.i
Smp Info : VSTD002;VSTD002;1;4;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\8260W.m
Meth Date : 20-Apr-2018 19:18 voa6.i Quant Type: ISTD
Cal Date : 11-APR-2018 13:48 Cal File: X041104.D
Als bottle: 4 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: dn_bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
	31 1,1,1-Trichloroethane	97	4.204	4.204	(0.978)	7465	2.00000	1.63(a)
*	1 Pentafluorobenzene	168	4.297	4.297	(1.000)	369695	50.0000	
$	30 Dibromofluoromethane	113	4.218	4.218	(0.982)	7124	2.00000	2.00(a)
*	36 1,4-Difluorobenzene	114	5.063	5.063	(1.000)	572275	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.583	4.583	(1.067)	7897	2.00000	2.00(a)
*	47 Chlorobenzene-d5	117	7.735	7.735	(1.000)	532444	50.0000	
$	48 Toluene-d8	98	6.460	6.460	(0.835)	26031	2.00000	1.97(a)
$	69 4-Bromofluorobenzene	95	8.752	8.752	(1.131)	10804	2.00000	2.22(a)
*	70 1,4-Dichlorobenzene-d4	152	9.719	9.719	(1.000)	267428	50.0000	
	68 1,1,2,2-Tetrachloroethane	83	8.895	8.895	(0.915)	8254	2.00000	2.96(a)
	53 1,1,2-Trichloroethane	83	6.911	6.911	(0.894)	5533	2.00000	1.98(a)
	32 1,1-Dichloropropene	75	4.390	4.390	(0.867)	7762	2.00000	4.18(a)
	22 1,1-Dichloroethane	63	3.029	3.029	(0.705)	10450	2.00000	1.82(a)
	11 1,1-Dichloroethene	96	2.005	2.005	(0.467)	4548	2.00000	4.44(a)
	90 1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	7919	2.00000	2.16(a)
	89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	1269	2.00000	4.02(a)
	57 1,2-Dibromoethane	107	7.334	7.334	(0.948)	6201	2.00000	1.82(a)
	88 1,2-Dichlorobenzene	146	10.056	10.056	(1.035)	12580	2.00000	3.39(a)
	33 1,2-Dichloroethane	62	4.662	4.662	(0.921)	7423	2.00000	1.76(a)
	42 1,2-Dichloropropane	63	5.522	5.522	(1.091)	6720	2.00000	1.84(aM)
	83 1,3-Dichlorobenzene	146	9.662	9.662	(0.994)	12728	2.00000	1.81(a)
	84 1,4-Dichlorobenzene	146	9.741	9.741	(1.002)	13388	2.00000	1.84(a)

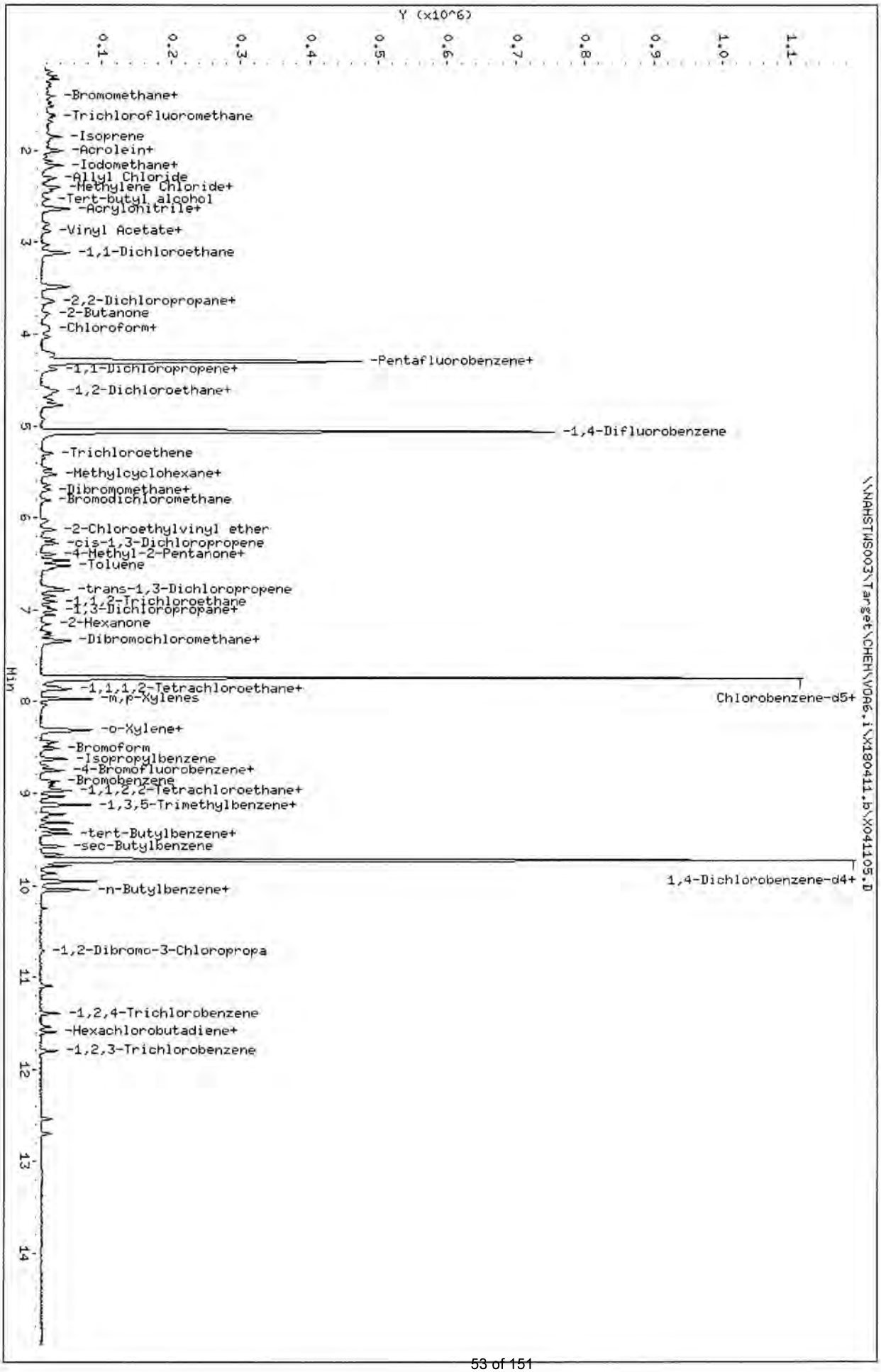
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041105.D
Report Date: 20-Apr-2018 19:18

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
24	2-Butanone	43	3.709	3.709	(0.863)	4565	4.00000	3.49(a)
52	2-Hexanone	43	7.155	7.155	(0.925)	8557	4.00000	5.61
45	4-Methyl-2-Pentanone	43	6.403	6.403	(0.828)	12596	4.00000	4.79(a)
10	Acetone	43	2.062	2.062	(0.480)	5356	4.00000	4.50(a)
37	Benzene	78	4.619	4.619	(0.912)	22918	2.00000	3.70(a)
39	Bromodichloromethane	83	5.808	5.808	(1.147)	8464	2.00000	1.84(a)
66	Bromoform	173	8.473	8.473	(1.095)	5319	2.00000	1.85(Ta)
6	Bromomethane	94	1.410	1.410	(0.328)	4403	2.00000	3.55(a)
19	Carbon Disulfide	76	2.162	2.162	(0.503)	32565	4.00000	8.38
34	Carbon Tetrachloride	117	4.376	4.376	(0.864)	7509	2.00000	4.35(a)
59	Chlorobenzene	112	7.764	7.764	(1.004)	16486	2.00000	1.81(a)
7	Chloroethane	64	1.475	1.475	(0.343)	3996	2.00000	4.19(a)
28	Chloroform	83	4.032	4.032	(0.938)	10467	2.00000	1.87(a)
3	Chloromethane	50	1.138	1.138	(0.265)	7228	2.00000	4.91(a)
27	cis-1,2-Dichloroethene	96	3.645	3.645	(0.848)	6871	2.00000	1.87(a)
46	cis-1,3-Dichloropropene	75	6.238	6.238	(1.232)	11255	2.00000	1.83(a)
55	Dibromochloromethane	129	7.248	7.248	(0.937)	7075	2.00000	1.84(a)
2	Dichlorodifluoromethane	85	1.030	1.030	(0.240)	4688	2.00000	4.96(a)
61	Ethylbenzene	106	7.864	7.864	(1.017)	8049	2.00000	1.77(a)
67	Isopropylbenzene	105	8.623	8.623	(1.115)	22013	2.00000	3.60(a)
17	Methylene Chloride	84	2.406	2.406	(0.560)	8337	2.00000	3.10(a)
56	Tetrachloroethene	164	7.004	7.004	(0.906)	4357	2.00000	4.04(a)
50	Toluene	91	6.525	6.525	(0.844)	24324	2.00000	1.80(a)
20	trans-1,2-Dichloroethene	96	2.635	2.635	(0.613)	5973	2.00000	3.59(a)
51	trans-1,3-Dichloropropene	75	6.754	6.754	(1.334)	9431	2.00000	1.82(a)
38	Trichloroethene	130	5.300	5.300	(1.047)	5845	2.00000	4.17(a)
8	Trichlorofluoromethane	101	1.639	1.639	(0.382)	6157	2.00000	4.58(a)
5	Vinyl Chloride	62	1.210	1.210	(0.282)	6345	2.00000	4.59(a)
62	m,p-Xylenes	106	7.971	7.971	(1.031)	20096	4.00000	3.60(a)
63	o-Xylene	106	8.301	8.301	(1.073)	10181	2.00000	1.81(a)
M 95	Xylenes (total)	106				30277	6.00000	(a)
71	1,2,3-Trichloropropane	75	8.924	8.924	(0.918)	10422	2.00000	3.36(a)
93	1,2,3-Trichlorobenzene	180	11.797	11.797	(1.214)	6539	2.00000	4.49(a)
79	1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	20719	2.00000	1.77(a)
75	1,3,5-Trimethylbenzene	105	9.125	9.125	(0.939)	19907	2.00000	1.79(a)
26	2,2-Dichloropropane	77	3.623	3.623	(0.843)	7692	2.00000	3.59(a)
54	1,3-Dichloropropane	76	7.055	7.055	(0.912)	10931	2.00000	1.88(a)
76	2-Chlorotoluene	91	9.032	9.032	(0.929)	17534	2.00000	1.83(a)
77	4-Chlorotoluene	91	9.132	9.132	(0.940)	20397	2.00000	1.85(a)
82	p-Isopropyltoluene	119	9.397	9.397	(0.967)	16593	2.00000	4.00(a)
29	Bromochloromethane	128	3.917	3.917	(0.912)	3344	2.00000	1.88(a)
74	Bromobenzene	156	8.867	8.867	(0.912)	7305	2.00000	1.78(a)
44	Dibromomethane	93	5.643	5.643	(1.115)	4358	2.00000	1.90(a)
91	Hexachlorobutadiene	225	11.539	11.539	(1.187)	2508	2.00000	4.88(a)
73	n-Propylbenzene	91	8.974	8.974	(0.923)	28328	2.00000	3.95(a)
87	n-Butylbenzene	91	10.049	10.049	(1.034)	16437	2.00000	4.04(a)
81	sec-Butylbenzene	105	9.576	9.576	(0.985)	21455	2.00000	4.16(a)
92	Naphthalene	128	11.596	11.596	(1.193)	16356	2.00000	2.74(a)
78	tert-Butylbenzene	119	9.397	9.397	(0.967)	16593	2.00000	4.00(a)
60	1,1,1,2-Tetrachloroethane	131	7.843	7.843	(1.014)	6162	2.00000	1.83(a)
64	Styrene	104	8.322	8.322	(1.076)	17046	2.00000	1.73(a)

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041105.D
Report Date: 20-Apr-2018 19:18

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.


Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041105.D
Date : 11-APR-2018 14:13
Client ID: VSTD002
Sample Info: VSTD002;VSTD002;1;4;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
\\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041105.D
Y (x10^6)
Min
-Bromomethane+
-Trichlorofluoromethane
-Isoprene
-Acrolein+
-Iodomethane+
-Allyl Chloride
-Methylene Chloride+
-Tert-butyl alcohol
-Acrylonitrile+
-Vinyl Acetate+
-1,1-Dichloroethane
-2,2-Dichloropropane+
-2-Butanone
-Chloroform+
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-1,4-Difluorobenzene
-Trichloroethene
-Methylcyclohexane+
-Dibromomethane+
-Bromodichloromethane
-2-Chloroethylvinyl ether
-cis-1,3-Dichloropropene
-4-Methyl-2-Pentanone+
-Toluene
-trans-1,3-Dichloropropene
-1,1,2-Trichloroethane
-1,3-Dichloropropane+
-2-Hexanone
-Dibromochloromethane+
-1,1,1,2-Tetrachloroethane+
-m,p-Xylenes
Chlorobenzene-d5+
-o-Xylene+
-Bromoform
-Isopropylbenzene
-4-Bromofluorobenzene+
-Bromobenzene
-1,1,2,2-Tetrachloroethane+
-1,3,5-Trimethylbenzene+
-tert-Butylbenzene+
-sec-Butylbenzene
1,4-Dichlorobenzene-d4+
-n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Hexachlorobutadiene+
-1,2,3-Trichlorobenzene

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041106.D
Report Date: 20-Apr-2018 19:18

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041106.D
Lab Smp Id: VSTD005 Client Smp ID: VSTD005
Inj Date : 11-APR-2018 14:37
Operator : PC Inst ID: voa6.i
Smp Info : VSTD005;VSTD005;1;5;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\8260W.m
Meth Date : 20-Apr-2018 19:18 voa6.i Quant Type: ISTD
Cal Date : 11-APR-2018 14:13 Cal File: X041105.D
Als bottle: 5 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: dn_bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
	31 1,1,1-Trichloroethane	97	4.204	4.204	(0.978)	15819	5.00000	5.20
*	1 Pentafluorobenzene	168	4.297	4.297	(1.000)	375954	50.0000	
$	30 Dibromofluoromethane	113	4.218	4.218	(0.982)	16429	5.00000	4.54(a)
*	36 1,4-Difluorobenzene	114	5.063	5.063	(1.000)	580644	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.583	4.583	(1.067)	18009	5.00000	4.48(a)
*	47 Chlorobenzene-d5	117	7.735	7.735	(1.000)	543141	50.0000	
$	48 Toluene-d8	98	6.460	6.460	(0.835)	60586	5.00000	4.51(a)
$	69 4-Bromofluorobenzene	95	8.752	8.752	(1.131)	23583	5.00000	4.75(a)
*	70 1,4-Dichlorobenzene-d4	152	9.719	9.719	(1.000)	277043	50.0000	
	68 1,1,2,2-Tetrachloroethane	83	8.895	8.895	(0.915)	20662	5.00000	5.68
	53 1,1,2-Trichloroethane	83	6.911	6.911	(0.894)	12802	5.00000	4.50(a)
	32 1,1-Dichloropropene	75	4.390	4.390	(0.867)	14917	5.00000	5.51
	22 1,1-Dichloroethane	63	3.029	3.029	(0.705)	23240	5.00000	3.98(a)
	11 1,1-Dichloroethene	96	2.005	2.005	(0.467)	8551	5.00000	5.60
	90 1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	18281	5.00000	4.78(a)
	89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	3121	5.00000	6.57
	57 1,2-Dibromoethane	107	7.334	7.334	(0.948)	15255	5.00000	4.40(a)
	88 1,2-Dichlorobenzene	146	10.049	10.049	(1.034)	29424	5.00000	5.57
	33 1,2-Dichloroethane	62	4.662	4.662	(0.921)	17752	5.00000	4.17(a)
	42 1,2-Dichloropropane	63	5.529	5.529	(1.092)	15079	5.00000	4.08(a)
	83 1,3-Dichlorobenzene	146	9.662	9.662	(0.994)	29049	5.00000	3.99(a)
	84 1,4-Dichlorobenzene	146	9.741	9.741	(1.002)	29804	5.00000	3.97(a)

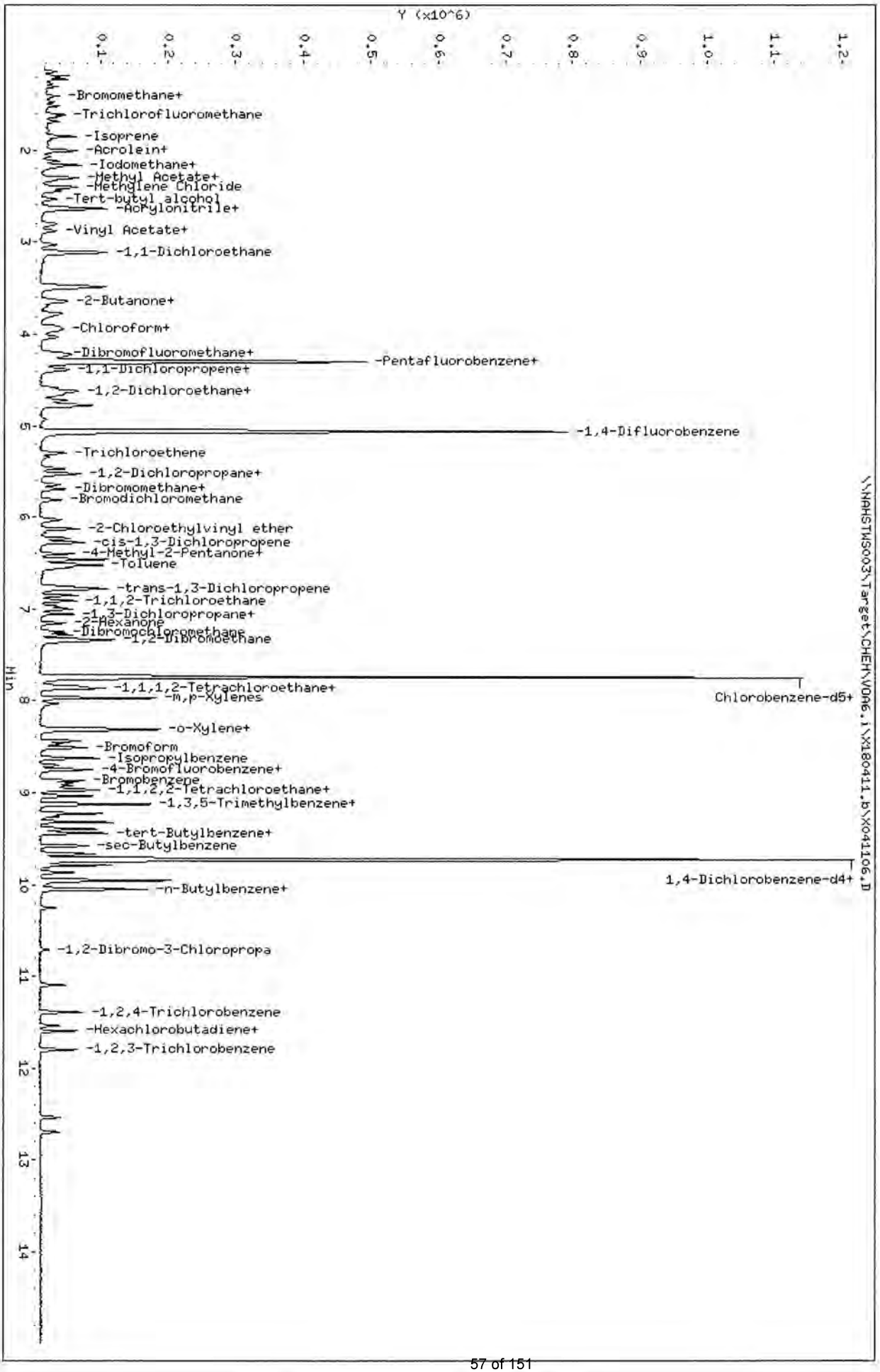
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041106.D
Report Date: 20-Apr-2018 19:18

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
24	2-Butanone	43	3.695	3.695	(0.860)	13103	10.0000	9.43
52	2-Hexanone	43	7.155	7.155	(0.925)	21192	10.0000	11.00
45	4-Methyl-2-Pentanone	43	6.403	6.403	(0.828)	31384	10.0000	10.19
10	Acetone	43	2.062	2.062	(0.480)	10482	10.0000	9.34
37	Benzene	78	4.619	4.619	(0.912)	50702	5.00000	5.47
39	Bromodichloromethane	83	5.808	5.808	(1.147)	19276	5.00000	4.14(a)
66	Bromoform	173	8.473	8.473	(1.095)	12949	5.00000	4.41(a)
6	Bromomethane	94	1.410	1.410	(0.328)	8808	5.00000	5.35
19	Carbon Disulfide	76	2.162	2.162	(0.503)	62436	10.0000	10.87
34	Carbon Tetrachloride	117	4.383	4.383	(0.866)	12785	5.00000	5.40
59	Chlorobenzene	112	7.757	7.757	(1.003)	37758	5.00000	4.06(a)
7	Chloroethane	64	1.475	1.475	(0.343)	7429	5.00000	5.48
28	Chloroform	83	4.032	4.032	(0.938)	22754	5.00000	4.00(a)
3	Chloromethane	50	1.138	1.138	(0.265)	12990	5.00000	6.18
27	cis-1,2-Dichloroethene	96	3.645	3.645	(0.848)	14491	5.00000	3.88(a)
46	cis-1,3-Dichloropropene	75	6.231	6.231	(1.231)	26180	5.00000	4.19(a)
55	Dibromochloromethane	129	7.248	7.248	(0.937)	16757	5.00000	4.29(a)
2	Dichlorodifluoromethane	85	1.030	1.030	(0.240)	8481	5.00000	5.90
61	Ethylbenzene	106	7.864	7.864	(1.017)	17659	5.00000	3.80(a)
67	Isopropylbenzene	105	8.623	8.623	(1.115)	49083	5.00000	5.35
17	Methylene Chloride	84	2.399	2.399	(0.558)	16479	5.00000	5.13
56	Tetrachloroethene	164	6.997	6.997	(0.905)	9280	5.00000	5.58
50	Toluene	91	6.525	6.525	(0.844)	53298	5.00000	3.88(a)
20	trans-1,2-Dichloroethene	96	2.635	2.635	(0.613)	11879	5.00000	5.12
51	trans-1,3-Dichloropropene	75	6.754	6.754	(1.334)	22117	5.00000	4.20(a)
38	Trichloroethene	130	5.300	5.300	(1.047)	12554	5.00000	5.76
8	Trichlorofluoromethane	101	1.639	1.639	(0.382)	11141	5.00000	5.52
5	Vinyl Chloride	62	1.210	1.210	(0.282)	11627	5.00000	5.67
62	m,p-Xylenes	106	7.964	7.964	(1.030)	44249	10.0000	7.77
63	o-Xylene	106	8.301	8.301	(1.073)	22797	5.00000	3.98(a)
M 95	Xylenes (total)	106				67046	15.0000	(a)
71	1,2,3-Trichloropropane	75	8.924	8.924	(0.918)	24725	5.00000	5.88
93	1,2,3-Trichlorobenzene	180	11.797	11.797	(1.214)	15893	5.00000	6.68
79	1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	48383	5.00000	3.99(a)
75	1,3,5-Trimethylbenzene	105	9.125	9.125	(0.939)	44242	5.00000	3.85(a)
26	2,2-Dichloropropane	77	3.623	3.623	(0.843)	15414	5.00000	5.17
54	1,3-Dichloropropane	76	7.055	7.055	(0.912)	26390	5.00000	4.46(a)
76	2-Chlorotoluene	91	9.032	9.032	(0.929)	39549	5.00000	3.99(a)
77	4-Chlorotoluene	91	9.132	9.132	(0.940)	45868	5.00000	4.01(a)
82	p-Isopropyltoluene	119	9.397	9.397	(0.967)	35955	5.00000	5.68
29	Bromochloromethane	128	3.917	3.917	(0.912)	8116	5.00000	4.49(a)
74	Bromobenzene	156	8.867	8.867	(0.912)	17695	5.00000	4.17(a)
44	Dibromomethane	93	5.643	5.643	(1.115)	10079	5.00000	4.33(a)
91	Hexachlorobutadiene	225	11.539	11.539	(1.187)	5253	5.00000	6.19
73	n-Propylbenzene	91	8.974	8.974	(0.923)	60865	5.00000	5.60
87	n-Butylbenzene	91	10.049	10.049	(1.034)	35996	5.00000	5.75
81	sec-Butylbenzene	105	9.583	9.583	(0.986)	47304	5.00000	5.76
92	Naphthalene	128	11.596	11.596	(1.193)	38350	5.00000	5.32
78	tert-Butylbenzene	119	9.397	9.397	(0.967)	35955	5.00000	5.68
60	1,1,1,2-Tetrachloroethane	131	7.843	7.843	(1.014)	13969	5.00000	4.08(a)
64	Styrene	104	8.322	8.322	(1.076)	41273	5.00000	4.11(a)

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041106.D
Report Date: 20-Apr-2018 19:18

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).


Y (x10^6)
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
Min
2
3
4
5
6
7
8
9
10
11
12
13
14
-Bromomethane+
-Trichlorofluoromethane
-Isoprene
-Acrolein+
-Iodomethane+
-Methyl Acetate+
-Methylene Chloride
-Tert-butyl alcohol
-Acrylonitrile+
-Vinyl Acetate+
-1,1-Dichloroethane
-2-Butanone+
-Chloroform+
-Dibromofluoromethane+
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-1,4-Difluorobenzene
-Trichloroethene
-1,2-Dichloropropane+
-Dibromomethane+
-Bromodichloromethane
-2-Chloroethylvinyl ether
-cis-1,3-Dichloropropene
-4-Methyl-2-Pentanone+
-Toluene
-trans-1,3-Dichloropropene
-1,1,2-Trichloroethane
-1,3-Dichloropropane+
-2-Hexanone
-Dibromochloromethane
-1,2-Dibromoethane
-1,1,1,2-Tetrachloroethane+
-m,p-Xylenes
Chlorobenzene-d5+
-o-Xylene+
-Bromoform
-Isopropylbenzene
-4-Bromofluorobenzene+
-Bromobenzene
-1,1,2,2-Tetrachloroethane+
-1,3,5-Trimethylbenzene+
-tert-Butylbenzene+
-sec-Butylbenzene
1,4-Dichlorobenzene-d4+
-n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Hexachlorobutadiene+
-1,2,3-Trichlorobenzene
\\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041106.D
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041106.D
Date : 11-APR-2018 14:37
Client ID: VSTD005
Sample Info: VSTD005;VSTD005;1;5;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041107.D
Report Date: 20-Apr-2018 19:18

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041107.D
Lab Smp Id: VSTD020 Client Smp ID: VSTD020
Inj Date : 11-APR-2018 15:02
Operator : PC Inst ID: voa6.i
Smp Info : VSTD020;VSTD020;1;6;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\8260W.m
Meth Date : 20-Apr-2018 19:18 voa6.i Quant Type: ISTD
Cal Date : 11-APR-2018 14:37 Cal File: X041106.D
Als bottle: 7 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: dn_bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
	31 1,1,1-Trichloroethane	97	4.204	4.204	(0.978)	74056	20.0000	16.56
*	1 Pentafluorobenzene	168	4.297	4.297	(1.000)	370766	50.0000	
$	30 Dibromofluoromethane	113	4.218	4.218	(0.982)	71275	20.0000	19.99
*	36 1,4-Difluorobenzene	114	5.063	5.063	(1.000)	576916	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.583	4.583	(1.067)	75838	20.0000	19.16
*	47 Chlorobenzene-d5	117	7.735	7.735	(1.000)	538728	50.0000	
$	48 Toluene-d8	98	6.460	6.460	(0.835)	253927	20.0000	19.06
$	69 4-Bromofluorobenzene	95	8.752	8.752	(1.131)	95695	20.0000	19.45
*	70 1,4-Dichlorobenzene-d4	152	9.719	9.719	(1.000)	273793	50.0000	
	68 1,1,2,2-Tetrachloroethane	83	8.895	8.895	(0.915)	84331	20.0000	20.20
	53 1,1,2-Trichloroethane	83	6.911	6.911	(0.894)	52984	20.0000	18.78
	32 1,1-Dichloropropene	75	4.397	4.397	(0.868)	72168	20.0000	16.42
	22 1,1-Dichloroethane	63	3.029	3.029	(0.705)	106544	20.0000	18.50
	11 1,1-Dichloroethene	96	2.005	2.005	(0.467)	43443	20.0000	16.13
	90 1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	73493	20.0000	19.05
	89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	11721	20.0000	18.91
	57 1,2-Dibromoethane	107	7.334	7.334	(0.948)	65646	20.0000	19.10
	88 1,2-Dichlorobenzene	146	10.049	10.049	(1.034)	129012	20.0000	19.03
	33 1,2-Dichloroethane	62	4.662	4.662	(0.921)	79895	20.0000	18.89
	42 1,2-Dichloropropane	63	5.529	5.529	(1.092)	68960	20.0000	18.80
	83 1,3-Dichlorobenzene	146	9.662	9.662	(0.994)	128310	20.0000	17.85
	84 1,4-Dichlorobenzene	146	9.741	9.741	(1.002)	132568	20.0000	17.87

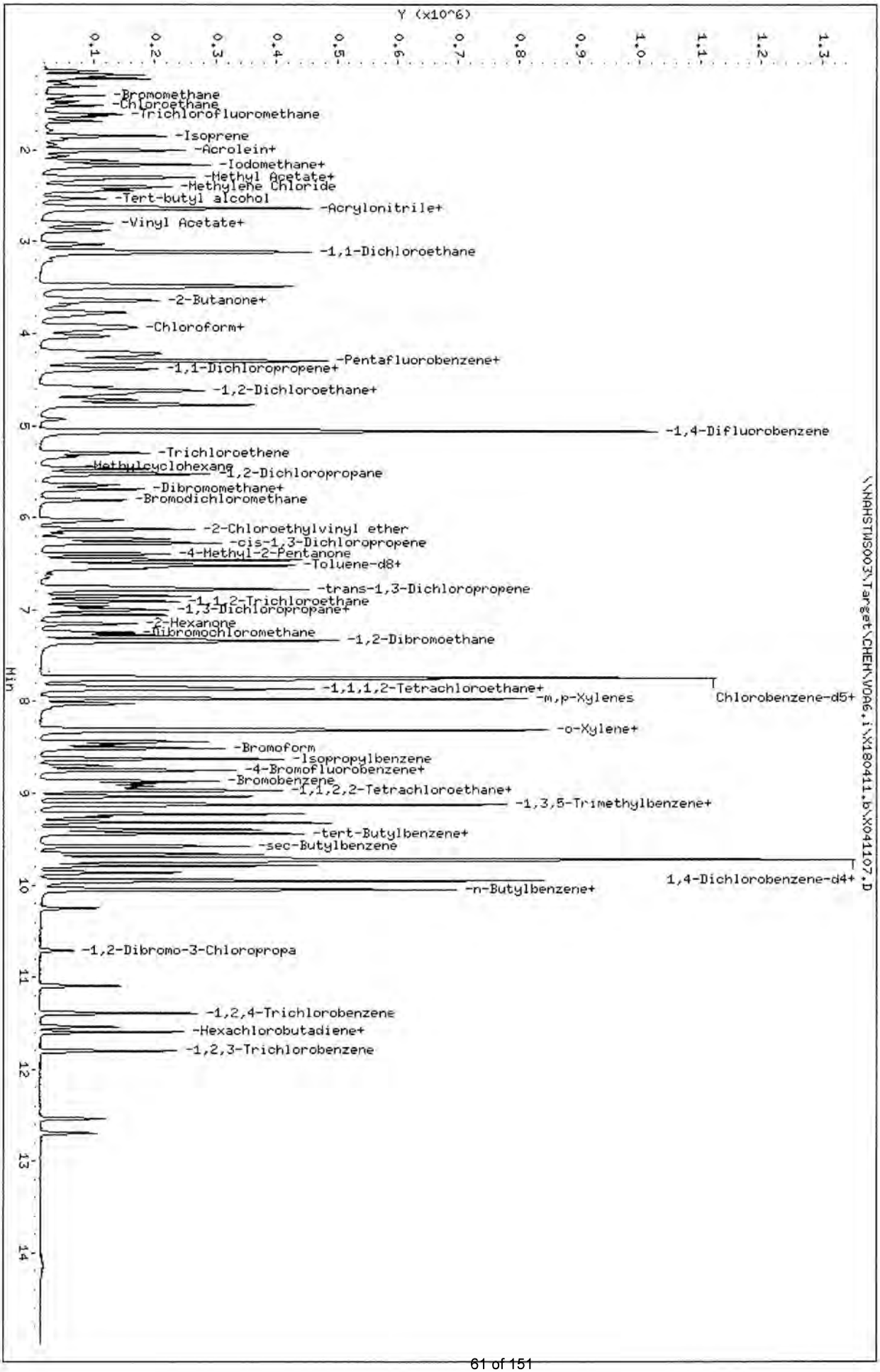
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041107.D
Report Date: 20-Apr-2018 19:18

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)	
24	2-Butanone	43	3.695	3.695	(0.860)	58741	40.0000	42.07	
52	2-Hexanone	43	7.155	7.155	(0.925)	89959	40.0000	41.07	
45	4-Methyl-2-Pentanone	43	6.403	6.403	(0.828)	134372	40.0000	40.52	
10	Acetone	43	2.062	2.062	(0.480)	41130	40.0000	39.38	
37	Benzene	78	4.619	4.619	(0.912)	231067	20.0000	17.20	
39	Bromodichloromethane	83	5.808	5.808	(1.147)	85025	20.0000	18.39	
66	Bromoform	173	8.473	8.473	(1.095)	54317	20.0000	18.67	
6	Bromomethane	94	1.410	1.410	(0.328)	39153	20.0000	18.05	
19	Carbon Disulfide	76	2.162	2.162	(0.503)	302928	40.0000	31.66	
34	Carbon Tetrachloride	117	4.383	4.383	(0.866)	62076	20.0000	15.56	
59	Chlorobenzene	112	7.757	7.757	(1.003)	166000	20.0000	18.02	
7	Chloroethane	64	1.475	1.475	(0.343)	36345	20.0000	16.78	
28	Chloroform	83	4.032	4.032	(0.938)	101872	20.0000	18.16	
3	Chloromethane	50	1.138	1.138	(0.265)	61113	20.0000	17.16	
27	cis-1,2-Dichloroethene	96	3.645	3.645	(0.848)	66316	20.0000	18.04	
46	cis-1,3-Dichloropropene	75	6.231	6.231	(1.231)	115226	20.0000	18.60	
55	Dibromochloromethane	129	7.248	7.248	(0.937)	74353	20.0000	19.20	
2	Dichlorodifluoromethane	85	1.030	1.030	(0.240)	46180	20.0000	15.60	
61	Ethylbenzene	106	7.864	7.864	(1.017)	80858	20.0000	17.58	
67	Isopropylbenzene	105	8.623	8.623	(1.115)	225531	20.0000	17.02	
17	Methylene Chloride	84	2.406	2.406	(0.560)	66994	20.0000	18.16	
56	Tetrachloroethene	164	6.997	6.997	(0.905)	43164	20.0000	16.49	
50	Toluene	91	6.525	6.525	(0.844)	240833	20.0000	17.70	
20	trans-1,2-Dichloroethene	96	2.628	2.628	(0.612)	56142	20.0000	17.02	
51	trans-1,3-Dichloropropene	75	6.754	6.754	(1.334)	96292	20.0000	18.43	
38	Trichloroethene	130	5.300	5.300	(1.047)	58107	20.0000	16.75	
8	Trichlorofluoromethane	101	1.639	1.639	(0.382)	61144	20.0000	15.38	
5	Vinyl Chloride	62	1.210	1.210	(0.282)	59996	20.0000	15.87	
62	m,p-Xylenes	106	7.964	7.964	(1.030)	199183	40.0000	35.27	
63	o-Xylene	106	8.301	8.301	(1.073)	103357	20.0000	18.21	
M 95	Xylenes (total)	106				302540	60.0000		(a)
71	1,2,3-Trichloropropane	75	8.924	8.924	(0.918)	101138	20.0000	19.90	
93	1,2,3-Trichlorobenzene	180	11.797	11.797	(1.214)	62278	20.0000	17.99	
79	1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	211111	20.0000	17.53	
75	1,3,5-Trimethylbenzene	105	9.125	9.125	(0.939)	199942	20.0000	17.62	
26	2,2-Dichloropropane	77	3.631	3.631	(0.845)	71063	20.0000	16.97	
54	1,3-Dichloropropane	76	7.055	7.055	(0.912)	111509	20.0000	19.02	
76	2-Chlorotoluene	91	9.032	9.032	(0.929)	178646	20.0000	18.26	
77	4-Chlorotoluene	91	9.132	9.132	(0.940)	209773	20.0000	18.59	
82	p-Isopropyltoluene	119	9.397	9.397	(0.967)	161184	20.0000	17.06	
29	Bromochloromethane	128	3.917	3.917	(0.912)	34976	20.0000	19.65	
74	Bromobenzene	156	8.867	8.867	(0.912)	75981	20.0000	18.13	
44	Dibromomethane	93	5.643	5.643	(1.115)	44602	20.0000	19.29	
91	Hexachlorobutadiene	225	11.539	11.539	(1.187)	23132	20.0000	15.17	
73	n-Propylbenzene	91	8.974	8.974	(0.923)	279208	20.0000	17.13	
87	n-Butylbenzene	91	10.049	10.049	(1.034)	157741	20.0000	16.94	
81	sec-Butylbenzene	105	9.576	9.576	(0.985)	214472	20.0000	16.57	
92	Naphthalene	128	11.596	11.596	(1.193)	155852	20.0000	19.51	
78	tert-Butylbenzene	119	9.397	9.397	(0.967)	161184	20.0000	17.06	
60	1,1,1,2-Tetrachloroethane	131	7.843	7.843	(1.014)	62090	20.0000	18.30	
64	Styrene	104	8.322	8.322	(1.076)	183120	20.0000	18.38	

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041107.D
Report Date: 20-Apr-2018 19:18

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041107.D
Date : 11-APR-2018 15:02
Client ID: VSTD020
Sample Info: VSTD020;VSTD020;1;6;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041108.D
Report Date: 20-Apr-2018 19:18

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041108.D
Lab Smp Id: VSTD050 Client Smp ID: VSTD050
Inj Date : 11-APR-2018 15:27
Operator : PC Inst ID: voa6.i
Smp Info : VSTD050;VSTD050;1;7;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\8260W.m
Meth Date : 20-Apr-2018 19:18 voa6.i Quant Type: ISTD
Cal Date : 11-APR-2018 15:02 Cal File: X041107.D
Als bottle: 8 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: dn_bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
	31 1,1,1-Trichloroethane	97	4.204	4.204	(0.978)	221714	50.0000	46.78
*	1 Pentafluorobenzene	168	4.297	4.297	(1.000)	357914	50.0000	
$	30 Dibromofluoromethane	113	4.218	4.218	(0.982)	161231	50.0000	46.84
*	36 1,4-Difluorobenzene	114	5.063	5.063	(1.000)	546992	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.576	4.576	(1.065)	173281	50.0000	45.36
*	47 Chlorobenzene-d5	117	7.735	7.735	(1.000)	519304	50.0000	
$	48 Toluene-d8	98	6.460	6.460	(0.835)	590851	50.0000	46.02
$	69 4-Bromofluorobenzene	95	8.752	8.752	(1.131)	213693	50.0000	45.07
*	70 1,4-Dichlorobenzene-d4	152	9.719	9.719	(1.000)	270424	50.0000	
	68 1,1,2,2-Tetrachloroethane	83	8.895	8.895	(0.915)	190897	50.0000	44.95
	53 1,1,2-Trichloroethane	83	6.911	6.911	(0.894)	127285	50.0000	46.81
	32 1,1-Dichloropropene	75	4.390	4.390	(0.867)	214089	50.0000	45.65
	22 1,1-Dichloroethane	63	3.029	3.029	(0.705)	284551	50.0000	51.18
	11 1,1-Dichloroethene	96	2.004	2.004	(0.467)	133451	50.0000	44.63
	90 1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	196043	50.0000	49.25
	89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	28932	50.0000	44.01
	57 1,2-Dibromoethane	107	7.334	7.334	(0.948)	157491	50.0000	47.54
	88 1,2-Dichlorobenzene	146	10.049	10.049	(1.034)	318489	50.0000	45.07
	33 1,2-Dichloroethane	62	4.662	4.662	(0.921)	197114	50.0000	49.16
	42 1,2-Dichloropropane	63	5.529	5.529	(1.092)	174612	50.0000	50.22
	83 1,3-Dichlorobenzene	146	9.662	9.662	(0.994)	330140	50.0000	46.52
	84 1,4-Dichlorobenzene	146	9.741	9.741	(1.002)	338744	50.0000	46.23

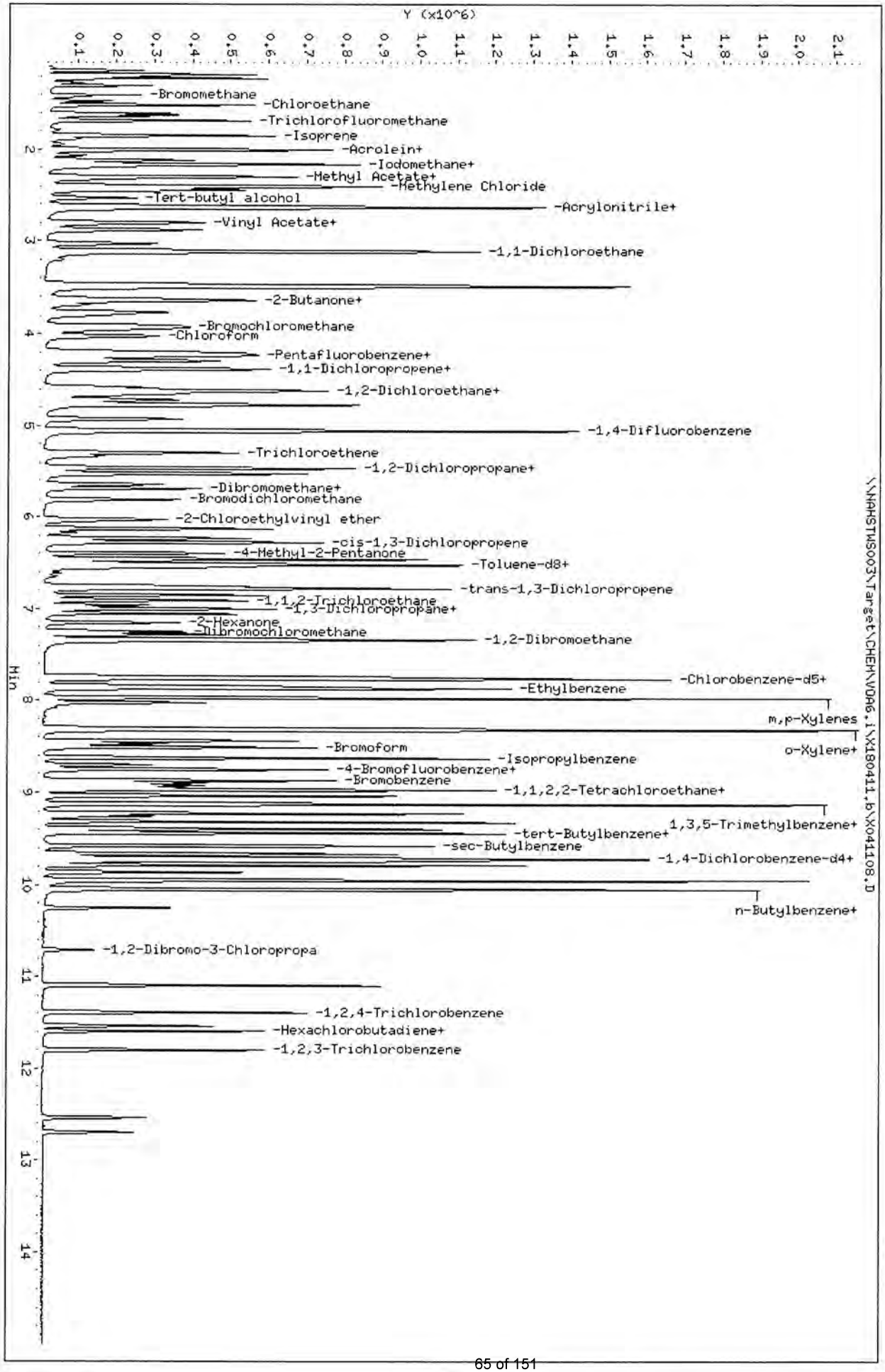
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041108.D
Report Date: 20-Apr-2018 19:18

			QUANT SIG					AMOUNTS	
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/l)	ON-COL (ug/l)	
	24	2-Butanone	43	3.688	3.688	(0.858)	133166	100.000	98.50	
	52	2-Hexanone	43	7.155	7.155	(0.925)	196505	100.000	90.75	
	45	4-Methyl-2-Pentanone	43	6.395	6.395	(0.827)	300344	100.000	92.58	
	10	Acetone	43	2.062	2.062	(0.480)	94971	100.000	95.23	
	37	Benzene	78	4.619	4.619	(0.912)	641202	50.0000	46.10	
	39	Bromodichloromethane	83	5.808	5.808	(1.147)	215055	50.0000	49.06	
	66	Bromoform	173	8.473	8.473	(1.095)	128614	50.0000	45.87	
	6	Bromomethane	94	1.410	1.410	(0.328)	104334	50.0000	45.63	
	19	Carbon Disulfide	76	2.162	2.162	(0.503)	970334	100.000	92.16	
	34	Carbon Tetrachloride	117	4.375	4.375	(0.864)	199056	50.0000	45.99	
	59	Chlorobenzene	112	7.756	7.756	(1.003)	434570	50.0000	48.95	
	7	Chloroethane	64	1.474	1.474	(0.343)	107507	50.0000	45.99	
	28	Chloroform	83	4.032	4.032	(0.938)	274797	50.0000	50.76	
	3	Chloromethane	50	1.138	1.138	(0.265)	176053	50.0000	44.73	
	27	cis-1,2-Dichloroethene	96	3.645	3.645	(0.848)	179913	50.0000	50.71	
	46	cis-1,3-Dichloropropene	75	6.231	6.231	(1.231)	291407	50.0000	49.61	
	55	Dibromochloromethane	129	7.248	7.248	(0.937)	179504	50.0000	48.10	
	2	Dichlorodifluoromethane	85	1.030	1.030	(0.240)	152864	50.0000	44.37	
	61	Ethylbenzene	106	7.864	7.864	(1.017)	226957	50.0000	51.19	
	67	Isopropylbenzene	105	8.623	8.623	(1.115)	648558	50.0000	46.54	
	17	Methylene Chloride	84	2.406	2.406	(0.560)	172661	50.0000	46.88	
	56	Tetrachloroethene	164	6.997	6.997	(0.905)	128594	50.0000	45.47	
	50	Toluene	91	6.524	6.524	(0.844)	664552	50.0000	50.69	
	20	trans-1,2-Dichloroethene	96	2.628	2.628	(0.612)	159815	50.0000	46.31	
	51	trans-1,3-Dichloropropene	75	6.754	6.754	(1.334)	240048	50.0000	48.46	
	38	Trichloroethene	130	5.299	5.299	(1.047)	167697	50.0000	45.34	
	8	Trichlorofluoromethane	101	1.639	1.639	(0.382)	204892	50.0000	45.06	
	5	Vinyl Chloride	62	1.209	1.209	(0.282)	191875	50.0000	45.05	
	62	m,p-Xylenes	106	7.971	7.971	(1.031)	549769	100.000	101.00	
	63	o-Xylene	106	8.301	8.301	(1.073)	272651	50.0000	49.84	
M	95	Xylenes (total)	106				822420	150.000		(a)
	71	1,2,3-Trichloropropane	75	8.924	8.924	(0.918)	232049	50.0000	44.37	
	93	1,2,3-Trichlorobenzene	180	11.796	11.796	(1.214)	166167	50.0000	43.74	
	79	1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	566220	50.0000	47.89	
	75	1,3,5-Trimethylbenzene	105	9.125	9.125	(0.939)	548714	50.0000	48.96	
	26	2,2-Dichloropropane	77	3.630	3.630	(0.845)	203364	50.0000	46.46	
	54	1,3-Dichloropropane	76	7.054	7.054	(0.912)	268026	50.0000	47.43	
	76	2-Chlorotoluene	91	9.031	9.031	(0.929)	471626	50.0000	48.82	
	77	4-Chlorotoluene	91	9.132	9.132	(0.940)	545820	50.0000	48.99	
	82	p-Isopropyltoluene	119	9.397	9.397	(0.967)	462958	50.0000	44.92	
	29	Bromochloromethane	128	3.917	3.917	(0.912)	88318	50.0000	51.41	
	74	Bromobenzene	156	8.867	8.867	(0.912)	193302	50.0000	46.71	
	44	Dibromomethane	93	5.643	5.643	(1.115)	105184	50.0000	47.99	
	91	Hexachlorobutadiene	225	11.538	11.538	(1.187)	80499	50.0000	44.38	
	73	n-Propylbenzene	91	8.974	8.974	(0.923)	806027	50.0000	45.41	
	87	n-Butylbenzene	91	10.049	10.049	(1.034)	465564	50.0000	45.67	
	81	sec-Butylbenzene	105	9.583	9.583	(0.986)	649111	50.0000	45.09	
	92	Naphthalene	128	11.596	11.596	(1.193)	382975	50.0000	46.44	
	78	tert-Butylbenzene	119	9.397	9.397	(0.967)	462958	50.0000	44.92	
	60	1,1,1,2-Tetrachloroethane	131	7.842	7.842	(1.014)	158298	50.0000	48.42	
	64	Styrene	104	8.322	8.322	(1.076)	474014	50.0000	49.37	

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041108.D
Report Date: 20-Apr-2018 19:18

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).


Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041108.D
Date : 11-APR-2018 15:27
Client ID: VSTD050
Sample Info: VSTD050;VSTD050;1;7;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
Y (x10^6)
0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1
Min
2 3 4 5 6 7 8 9 10 11 12 13 14
-Bromomethane
-Chloroethane
-Trichlorofluoromethane
-Isoprene
-Acrolein+
-Iodomethane+
-Methyl Acetate+
-Methylene Chloride
-Tert-butyl alcohol
-Acrylonitrile+
-Vinyl Acetate+
-1,1-Dichloroethane
-2-Butanone+
-Bromochloromethane
-Chloroform
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-1,4-Difluorobenzene
-Trichloroethene
-1,2-Dichloropropane+
-Dibromomethane+
-Bromodichloromethane
-2-Chloroethylvinyl ether
-cis-1,3-Dichloropropene
-4-Methyl-2-Pentanone
-Toluene-d8+
-trans-1,3-Dichloropropene
-1,1,2-Trichloroethane
-1,3-Dichloropropane+
-2-Hexanone
-Dibromochloromethane
-1,2-Dibromoethane
-Chlorobenzene-d5+
-Ethylbenzene
m,p-Xylenes
o-Xylene+
-Bromoform
-Isopropylbenzene
-4-Bromofluorobenzene+
-Bromobenzene
-1,1,2,2-Tetrachloroethane+
1,3,5-Trimethylbenzene+
-tert-Butylbenzene+
-sec-Butylbenzene
-1,4-Dichlorobenzene-d4+
n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Hexachlorobutadiene+
-1,2,3-Trichlorobenzene
\\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041108.D

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041109.D
Report Date: 20-Apr-2018 19:18

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041109.D
Lab Smp Id: VSTD100 Client Smp ID: VSTD100
Inj Date : 11-APR-2018 15:51
Operator : PC Inst ID: voa6.i
Smp Info : VSTD100;VSTD100;1;8;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\8260W.m
Meth Date : 20-Apr-2018 19:18 voa6.i Quant Type: ISTD
Cal Date : 11-APR-2018 15:27 Cal File: X041108.D
Als bottle: 9 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: dn_bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
	31 1,1,1-Trichloroethane	97	4.204	4.204	(0.978)	464105	100.000	97.54
*	1 Pentafluorobenzene	168	4.297	4.297	(1.000)	350434	50.0000	
$	30 Dibromofluoromethane	113	4.218	4.218	(0.982)	326495	100.000	96.88
*	36 1,4-Difluorobenzene	114	5.063	5.063	(1.000)	528846	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.576	4.576	(1.065)	343079	100.000	91.72
*	47 Chlorobenzene-d5	117	7.735	7.735	(1.000)	500761	50.0000	
$	48 Toluene-d8	98	6.460	6.460	(0.835)	1202455	100.000	97.14
$	69 4-Bromofluorobenzene	95	8.752	8.752	(1.131)	423113	100.000	92.54
*	70 1,4-Dichlorobenzene-d4	152	9.719	9.719	(1.000)	252778	50.0000	
	68 1,1,2,2-Tetrachloroethane	83	8.895	8.895	(0.915)	386060	100.000	96.04
	53 1,1,2-Trichloroethane	83	6.911	6.911	(0.894)	257940	100.000	98.37
	32 1,1-Dichloropropene	75	4.390	4.390	(0.867)	448804	100.000	95.84
	22 1,1-Dichloroethane	63	3.029	3.029	(0.705)	590857	100.000	108.56
	11 1,1-Dichloroethene	96	2.005	2.005	(0.467)	291171	100.000	95.69
	90 1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	411409	100.000	100.94
	89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	58141	100.000	92.12
	57 1,2-Dibromoethane	107	7.327	7.327	(0.947)	318729	100.000	99.77
	88 1,2-Dichlorobenzene	146	10.049	10.049	(1.034)	645854	100.000	95.84
	33 1,2-Dichloroethane	62	4.662	4.662	(0.921)	400546	100.000	103.33
	42 1,2-Dichloropropane	63	5.529	5.529	(1.092)	357136	100.000	106.25
	83 1,3-Dichlorobenzene	146	9.662	9.662	(0.994)	681813	100.000	102.79
	84 1,4-Dichlorobenzene	146	9.741	9.741	(1.002)	691638	100.000	100.98

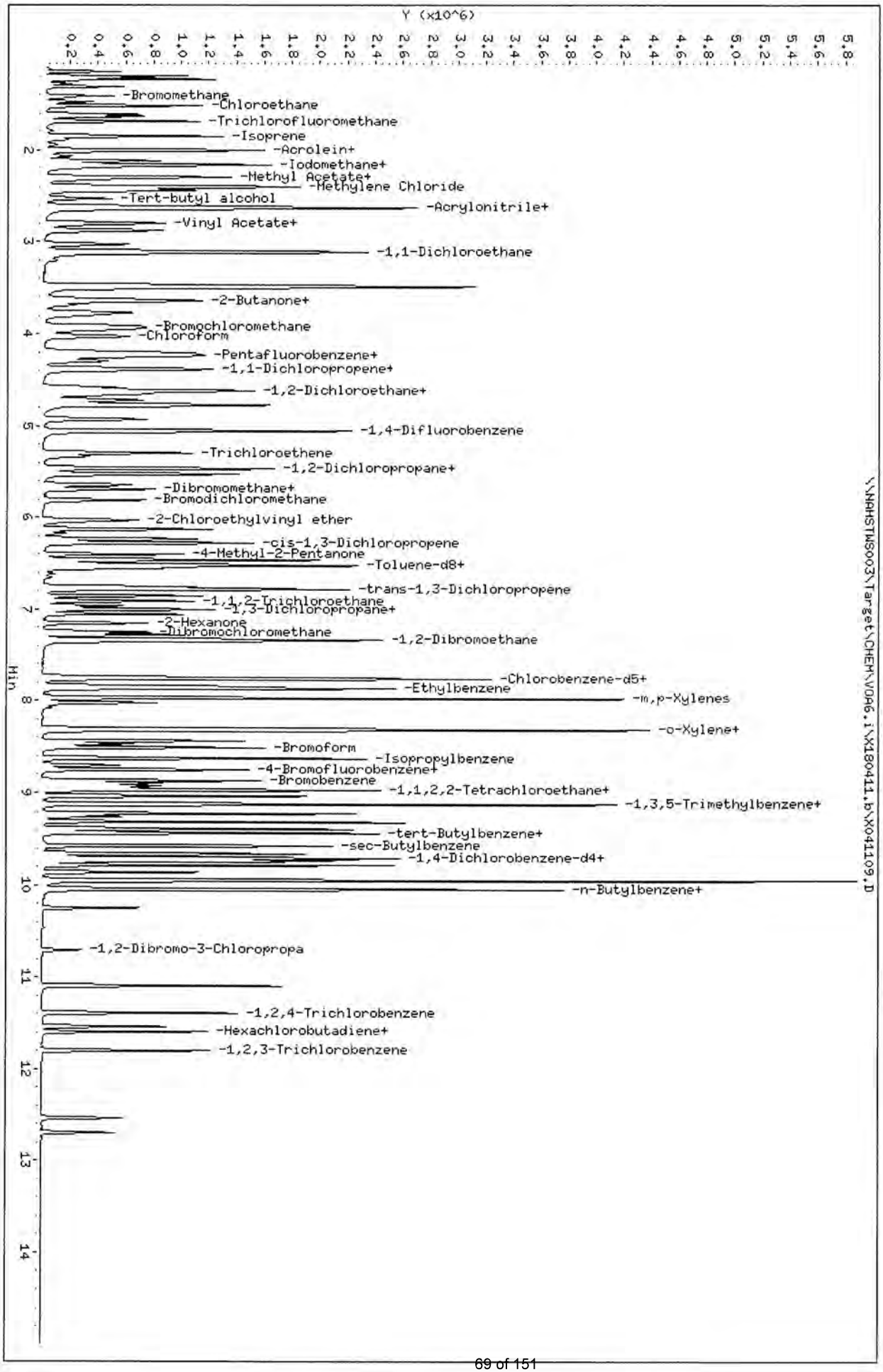
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041109.D
Report Date: 20-Apr-2018 19:18

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
24	2-Butanone	43	3.688	3.688	(0.858)	257439	200.000	194.27
52	2-Hexanone	43	7.155	7.155	(0.925)	404952	200.000	191.86
45	4-Methyl-2-Pentanone	43	6.403	6.403	(0.828)	617014	200.000	196.05
10	Acetone	43	2.062	2.062	(0.480)	192091	200.000	197.52
37	Benzene	78	4.619	4.619	(0.912)	1326821	100.000	96.16
39	Bromodichloromethane	83	5.808	5.808	(1.147)	440889	100.000	104.03
66	Bromoform	173	8.473	8.473	(1.095)	260633	100.000	96.40
6	Bromomethane	94	1.410	1.410	(0.328)	234102	100.000	96.64
19	Carbon Disulfide	76	2.162	2.162	(0.503)	2050081	200.000	192.42
34	Carbon Tetrachloride	117	4.383	4.383	(0.866)	415812	100.000	96.14
59	Chlorobenzene	112	7.757	7.757	(1.003)	895896	100.000	104.66
7	Chloroethane	64	1.475	1.475	(0.343)	224868	100.000	95.26
28	Chloroform	83	4.032	4.032	(0.938)	558766	100.000	105.43
3	Chloromethane	50	1.138	1.138	(0.265)	369278	100.000	92.10
27	cis-1,2-Dichloroethene	96	3.645	3.645	(0.848)	374160	100.000	107.72
46	cis-1,3-Dichloropropene	75	6.231	6.231	(1.231)	592079	100.000	104.26
55	Dibromochloromethane	129	7.248	7.248	(0.937)	363690	100.000	101.06
2	Dichlorodifluoromethane	85	1.030	1.030	(0.240)	332122	100.000	93.87
61	Ethylbenzene	106	7.864	7.864	(1.017)	468325	100.000	109.55
67	Isopropylbenzene	105	8.623	8.623	(1.115)	1327235	100.000	96.36
17	Methylene Chloride	84	2.399	2.399	(0.558)	355383	100.000	97.49
56	Tetrachloroethene	164	7.004	7.004	(0.906)	269448	100.000	95.73
50	Toluene	91	6.525	6.525	(0.844)	1361315	100.000	107.68
20	trans-1,2-Dichloroethene	96	2.628	2.628	(0.612)	337889	100.000	97.70
51	trans-1,3-Dichloropropene	75	6.754	6.754	(1.334)	490507	100.000	102.43
38	Trichloroethene	130	5.300	5.300	(1.047)	350953	100.000	94.93
8	Trichlorofluoromethane	101	1.639	1.639	(0.382)	445066	100.000	95.87
5	Vinyl Chloride	62	1.210	1.210	(0.282)	409862	100.000	94.44
62	m,p-Xylenes	106	7.971	7.971	(1.031)	1137793	200.000	216.76 (A)
63	o-Xylene	106	8.301	8.301	(1.073)	562146	100.000	106.56
M 95	Xylenes (total)	106				1699939	300.000	(a)
71	1,2,3-Trichloropropane	75	8.924	8.924	(0.918)	473929	100.000	95.28
93	1,2,3-Trichlorobenzene	180	11.797	11.797	(1.214)	338991	100.000	92.07
79	1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	1150357	100.000	104.09
75	1,3,5-Trimethylbenzene	105	9.125	9.125	(0.939)	1113565	100.000	106.31
26	2,2-Dichloropropane	77	3.631	3.631	(0.845)	427020	100.000	97.40
54	1,3-Dichloropropane	76	7.055	7.055	(0.912)	541110	100.000	99.30
76	2-Chlorotoluene	91	9.032	9.032	(0.929)	957649	100.000	106.05
77	4-Chlorotoluene	91	9.132	9.132	(0.940)	1094636	100.000	105.11
82	p-Isopropyltoluene	119	9.397	9.397	(0.967)	955699	100.000	96.22
29	Bromochloromethane	128	3.917	3.917	(0.912)	174022	100.000	103.46
74	Bromobenzene	156	8.867	8.867	(0.912)	401707	100.000	103.86
44	Dibromomethane	93	5.643	5.643	(1.115)	216185	100.000	102.03
91	Hexachlorobutadiene	225	11.539	11.539	(1.187)	166296	100.000	93.72
73	n-Propylbenzene	91	8.974	8.974	(0.923)	1630889	100.000	95.48
87	n-Butylbenzene	91	10.049	10.049	(1.034)	932054	100.000	94.97
81	sec-Butylbenzene	105	9.583	9.583	(0.986)	1327731	100.000	95.40
92	Naphthalene	128	11.596	11.596	(1.193)	789837	100.000	96.80
78	tert-Butylbenzene	119	9.397	9.397	(0.967)	955699	100.000	96.22
60	1,1,1,2-Tetrachloroethane	131	7.843	7.843	(1.014)	330210	100.000	104.75
64	Styrene	104	8.322	8.322	(1.076)	969463	100.000	104.73

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041109.D
Report Date: 20-Apr-2018 19:18

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
A - Target compound detected but, quantitated amount
exceeded maximum amount.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Date : 11-APR-2018 15:51
Client ID: VSTD100
Sample Info: VSTD100;VSTD100;1;8;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
\\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041109.D
Y (x10^6)
Min
-Bromomethane
-Chloroethane
-Trichlorofluoromethane
-Isoprene
-Acrolein+
-Iodomethane+
-Methyl Acetate+
-Methylene Chloride
-Tert-butyl alcohol
-Acrylonitrile+
-Vinyl Acetate+
-1,1-Dichloroethane
-2-Butanone+
-Bromochloromethane
-Chloroform
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-1,4-Difluorobenzene
-Trichloroethene
-1,2-Dichloropropane+
-Dibromomethane+
-Bromodichloromethane
-2-Chloroethylvinyl ether
-cis-1,3-Dichloropropene
-4-Methyl-2-Pentanone
-Toluene-d8+
-trans-1,3-Dichloropropene
-1,1,2-Trichloroethane
-1,3-Dichloropropane+
-2-Hexanone
-Dibromochloromethane
-1,2-Dibromoethane
-Chlorobenzene-d5+
-Ethylbenzene
-m,p-Xylenes
-o-Xylene+
-Bromoform
-Isopropylbenzene
-4-Bromofluorobenzene+
-Bromobenzene
-1,1,2,2-Tetrachloroethane+
-1,3,5-Trimethylbenzene+
-tert-Butylbenzene+
-sec-Butylbenzene
-1,4-Dichlorobenzene-d4+
-n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Hexachlorobutadiene+
-1,2,3-Trichlorobenzene

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041110.D
Report Date: 20-Apr-2018 19:18

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041110.D
Lab Smp Id: VSTD150 Client Smp ID: VSTD150
Inj Date : 11-APR-2018 16:16
Operator : PC Inst ID: voa6.i
Smp Info : VSTD150;VSTD150;1;9;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\8260W.m
Meth Date : 20-Apr-2018 19:18 voa6.i Quant Type: ISTD
Cal Date : 11-APR-2018 15:51 Cal File: X041109.D
Als bottle: 10 Calibration Sample, Level: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: dn_bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
	31 1,1,1-Trichloroethane	97	4.204	4.204	(0.978)	726816	150.000	155.20
*	1 Pentafluorobenzene	168	4.297	4.297	(1.000)	342003	50.0000	
$	30 Dibromofluoromethane	113	4.218	4.218	(0.982)	504711	150.000	153.46
*	36 1,4-Difluorobenzene	114	5.063	5.063	(1.000)	509648	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.583	4.583	(1.067)	526128	150.000	144.13
*	47 Chlorobenzene-d5	117	7.735	7.735	(1.000)	484539	50.0000	
$	48 Toluene-d8	98	6.460	6.460	(0.835)	1862960	150.000	155.53
$	69 4-Bromofluorobenzene	95	8.752	8.752	(1.131)	664113	150.000	150.12
*	70 1,4-Dichlorobenzene-d4	152	9.719	9.719	(1.000)	241622	50.0000	
	68 1,1,2,2-Tetrachloroethane	83	8.895	8.895	(0.915)	608927	150.000	157.80
	53 1,1,2-Trichloroethane	83	6.911	6.911	(0.894)	400286	150.000	157.77
	32 1,1-Dichloropropene	75	4.390	4.390	(0.867)	707774	150.000	155.13
	22 1,1-Dichloroethane	63	3.029	3.029	(0.705)	926014	150.000	174.33
	11 1,1-Dichloroethene	96	2.005	2.005	(0.467)	469714	150.000	156.18
	90 1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	660407	150.000	149.72
	89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	95873	150.000	157.35
	57 1,2-Dibromoethane	107	7.334	7.334	(0.948)	494002	150.000	159.82
	88 1,2-Dichlorobenzene	146	10.049	10.049	(1.034)	1020061	150.000	157.27
	33 1,2-Dichloroethane	62	4.662	4.662	(0.921)	625392	150.000	167.41
	42 1,2-Dichloropropane	63	5.529	5.529	(1.092)	556703	150.000	171.86
	83 1,3-Dichlorobenzene	146	9.662	9.662	(0.994)	1087043	150.000	171.45
	84 1,4-Dichlorobenzene	146	9.741	9.741	(1.002)	1101414	150.000	168.24

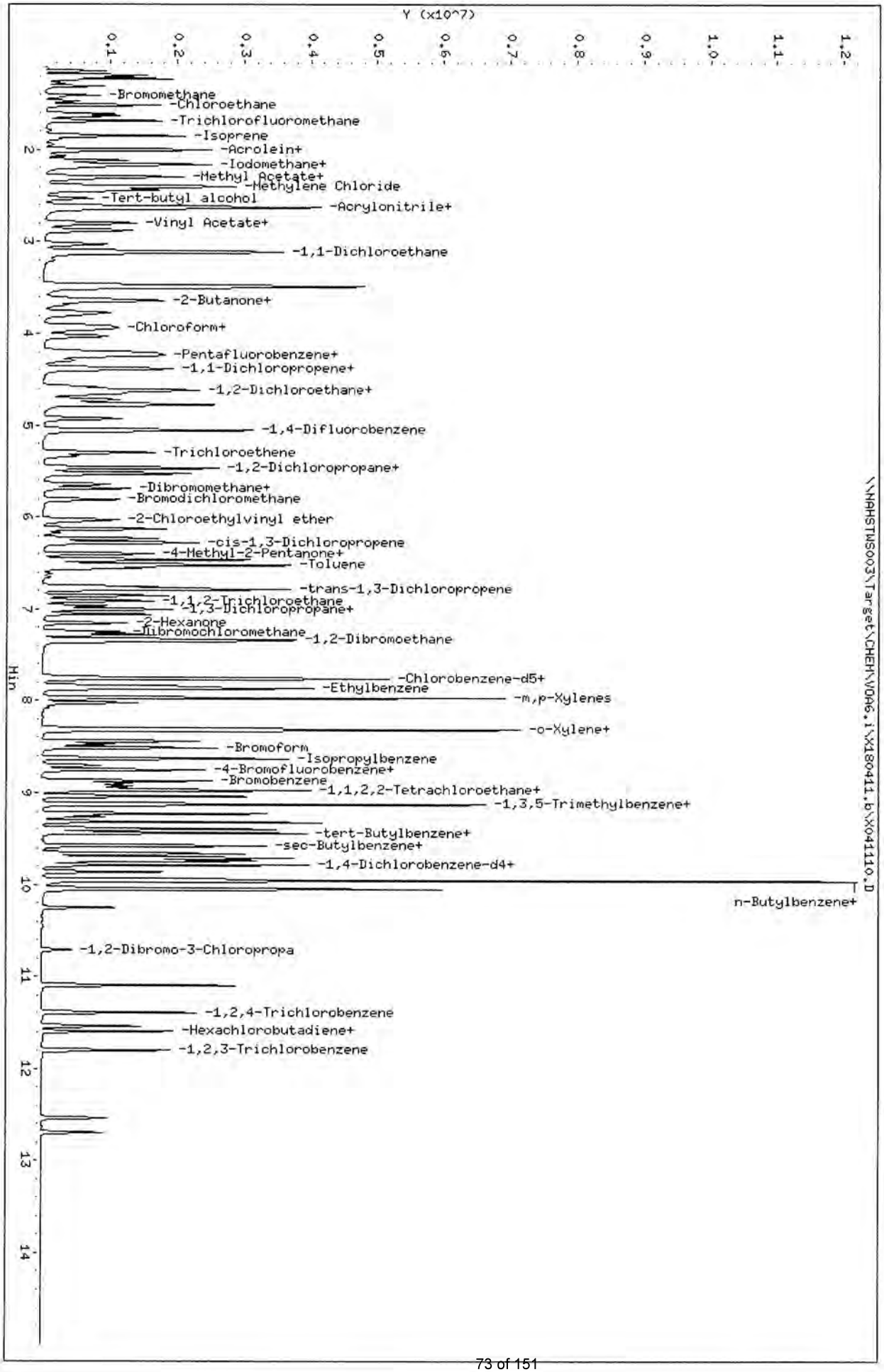
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041110.D
Report Date: 20-Apr-2018 19:18

			QUANT SIG					AMOUNTS	
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/l)	ON-COL (ug/l)
	24	2-Butanone	43	3.688	3.688	(0.858)	403024	300.000	311.50(A)
	52	2-Hexanone	43	7.155	7.155	(0.925)	644035	300.000	314.17(A)
	45	4-Methyl-2-Pentanone	43	6.403	6.403	(0.828)	963057	300.000	315.61(A)
	10	Acetone	43	2.062	2.062	(0.480)	303821	300.000	320.57(A)
	37	Benzene	78	4.619	4.619	(0.912)	2091934	150.000	155.92
	39	Bromodichloromethane	83	5.808	5.808	(1.147)	687699	150.000	168.39
	66	Bromoform	173	8.473	8.473	(1.095)	417449	150.000	159.57
	6	Bromomethane	94	1.403	1.403	(0.327)	412280	150.000	158.20
	19	Carbon Disulfide	76	2.162	2.162	(0.503)	3265953	300.000	310.57(A)
	34	Carbon Tetrachloride	117	4.383	4.383	(0.866)	653054	150.000	154.92
	59	Chlorobenzene	112	7.764	7.764	(1.004)	1415639	150.000	170.92
	7	Chloroethane	64	1.474	1.474	(0.343)	358265	150.000	153.85
	28	Chloroform	83	4.032	4.032	(0.938)	868603	150.000	167.94
	3	Chloromethane	50	1.138	1.138	(0.265)	608678	150.000	153.31
	27	cis-1,2-Dichloroethene	96	3.645	3.645	(0.848)	586655	150.000	173.07
	46	cis-1,3-Dichloropropene	75	6.231	6.231	(1.231)	930100	150.000	169.95
	55	Dibromochloromethane	129	7.248	7.248	(0.937)	575194	150.000	165.19
	2	Dichlorodifluoromethane	85	1.030	1.030	(0.240)	545917	150.000	155.52
	61	Ethylbenzene	106	7.864	7.864	(1.017)	744051	150.000	179.88
	67	Isopropylbenzene	105	8.623	8.623	(1.115)	2104371	150.000	156.54
	17	Methylene Chloride	84	2.398	2.398	(0.558)	555205	150.000	155.49
	56	Tetrachloroethene	164	7.004	7.004	(0.906)	433221	150.000	157.33
	50	Toluene	91	6.524	6.524	(0.844)	2121856	150.000	173.46
	20	trans-1,2-Dichloroethene	96	2.628	2.628	(0.612)	531900	150.000	156.37
	51	trans-1,3-Dichloropropene	75	6.754	6.754	(1.334)	765975	150.000	165.98
	38	Trichloroethene	130	5.300	5.300	(1.047)	562023	150.000	155.93
	8	Trichlorofluoromethane	101	1.639	1.639	(0.382)	713497	150.000	155.32
	5	Vinyl Chloride	62	1.209	1.209	(0.282)	671783	150.000	156.40
	62	m,p-Xylenes	106	7.971	7.971	(1.031)	1802739	300.000	354.95(A)
	63	o-Xylene	106	8.308	8.308	(1.074)	885420	150.000	173.47
M	95	Xylenes (total)	106				2688159	450.000	(a)
	71	1,2,3-Trichloropropane	75	8.924	8.924	(0.918)	753856	150.000	157.62
	93	1,2,3-Trichlorobenzene	180	11.796	11.796	(1.214)	549337	150.000	154.10
	79	1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	1822162	150.000	172.50
	75	1,3,5-Trimethylbenzene	105	9.125	9.125	(0.939)	1755770	150.000	175.36
	26	2,2-Dichloropropane	77	3.631	3.631	(0.845)	674155	150.000	156.35
	54	1,3-Dichloropropane	76	7.054	7.054	(0.912)	844801	150.000	160.23
	76	2-Chlorotoluene	91	9.039	9.039	(0.930)	1529026	150.000	177.15
	77	4-Chlorotoluene	91	9.132	9.132	(0.940)	1728792	150.000	173.67
	82	p-Isopropyltoluene	119	9.397	9.397	(0.967)	1500896	150.000	156.51
	29	Bromochloromethane	128	3.917	3.917	(0.912)	245829	150.000	149.76
	74	Bromobenzene	156	8.867	8.867	(0.912)	637519	150.000	172.44
	44	Dibromomethane	93	5.636	5.636	(1.113)	336967	150.000	165.03
	91	Hexachlorobutadiene	225	11.539	11.539	(1.187)	269294	150.000	156.29
	73	n-Propylbenzene	91	8.974	8.974	(0.923)	2595018	150.000	157.33
	87	n-Butylbenzene	91	10.049	10.049	(1.034)	1478458	150.000	155.95
	81	sec-Butylbenzene	105	9.583	9.583	(0.986)	2105946	150.000	156.48
	92	Naphthalene	128	11.596	11.596	(1.193)	1321694	150.000	157.32
	78	tert-Butylbenzene	119	9.397	9.397	(0.967)	1500896	150.000	156.51
	60	1,1,1,2-Tetrachloroethane	131	7.842	7.842	(1.014)	521701	150.000	171.04
	64	Styrene	104	8.322	8.322	(1.076)	1542232	150.000	172.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041110.D
Report Date: 20-Apr-2018 19:18

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
A - Target compound detected but, quantitated amount
exceeded maximum amount.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Date : 11-APR-2018 16:16
Client ID: VSTD150
Sample Info: VSTD150;VSTD150;1;9;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
\\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041110.D
Y (x10^7)
Min
-Bromomethane
-Chloroethane
-Trichlorofluoromethane
-Isoprene
-Acrolein+
-Iodomethane+
-Methyl Acetate+
-Methylene Chloride
-Tert-butyl alcohol
-Acrylonitrile+
-Vinyl Acetate+
-1,1-Dichloroethane
-2-Butanone+
-Chloroform+
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-1,4-Difluorobenzene
-Trichloroethene
-1,2-Dichloropropane+
-Dibromomethane+
-Bromodichloromethane
-2-Chloroethylvinyl ether
-cis-1,3-Dichloropropene
-4-Methyl-2-Pentanone+
-Toluene
-trans-1,3-Dichloropropene
-1,1,2-Trichloroethane
-1,3-Dichloropropane+
-2-Hexanone
-Dibromochloromethane
-1,2-Dibromoethane
-Chlorobenzene-d5+
-Ethylbenzene
-m,p-Xylenes
-o-Xylene+
-Bromoform
-Isopropylbenzene
-4-Bromofluorobenzene+
-Bromobenzene
-1,1,2,2-Tetrachloroethane+
-1,3,5-Trimethylbenzene+
-tert-Butylbenzene+
-sec-Butylbenzene+
-1,4-Dichlorobenzene-d4+
n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Hexachlorobutadiene+
-1,2,3-Trichlorobenzene

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041111.D
Report Date: 20-Apr-2018 19:18

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041111.D
Lab Smp Id: VSTD200 Client Smp ID: VSTD200
Inj Date : 11-APR-2018 16:40
Operator : PC Inst ID: voa6.i
Smp Info : VSTD200;VSTD200;1;10;
Misc Info : HS16030331;WATER;0;1;
Comment :
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Meth Date : 20-Apr-2018 19:18 voa6.i Quant Type: ISTD
Cal Date : 11-APR-2018 16:16 Cal File: X041110.D
Als bottle: 11 Calibration Sample, Level: 10
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: dn_bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
	31 1,1,1-Trichloroethane	97	4.204	4.204	(0.978)	939311	200.000	198.08
*	1 Pentafluorobenzene	168	4.297	4.297	(1.000)	345259	50.0000	
$	30 Dibromofluoromethane	113	4.218	4.218	(0.982)	611016	200.000	184.04
*	36 1,4-Difluorobenzene	114	5.063	5.063	(1.000)	513758	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.583	4.583	(1.067)	642478	200.000	174.34
*	47 Chlorobenzene-d5	117	7.735	7.735	(1.000)	495824	50.0000	
$	48 Toluene-d8	98	6.460	6.460	(0.835)	2237419	200.000	182.55
$	69 4-Bromofluorobenzene	95	8.752	8.752	(1.131)	811292	200.000	179.22
*	70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	247278	50.0000	
	68 1,1,2,2-Tetrachloroethane	83	8.896	8.896	(0.915)	778010	200.000	196.74
	53 1,1,2-Trichloroethane	83	6.911	6.911	(0.894)	514036	200.000	198.00
	32 1,1-Dichloropropene	75	4.397	4.397	(0.868)	919511	200.000	199.14
	22 1,1-Dichloroethane	63	3.029	3.029	(0.705)	1210302	200.000	225.70(A)
	11 1,1-Dichloroethene	96	1.997	1.997	(0.465)	605421	200.000	198.55
	90 1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	865470	200.000	174.16
	89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	124506	200.000	199.08
	57 1,2-Dibromoethane	107	7.334	7.334	(0.948)	642660	200.000	203.18(A)
	88 1,2-Dichlorobenzene	146	10.049	10.049	(1.033)	1312824	200.000	197.35
	33 1,2-Dichloroethane	62	4.662	4.662	(0.921)	795020	200.000	211.12(A)
	42 1,2-Dichloropropane	63	5.529	5.529	(1.092)	715619	200.000	219.16(A)
	83 1,3-Dichlorobenzene	146	9.662	9.662	(0.993)	1398664	200.000	215.55(A)
	84 1,4-Dichlorobenzene	146	9.741	9.741	(1.001)	1415786	200.000	211.31(A)

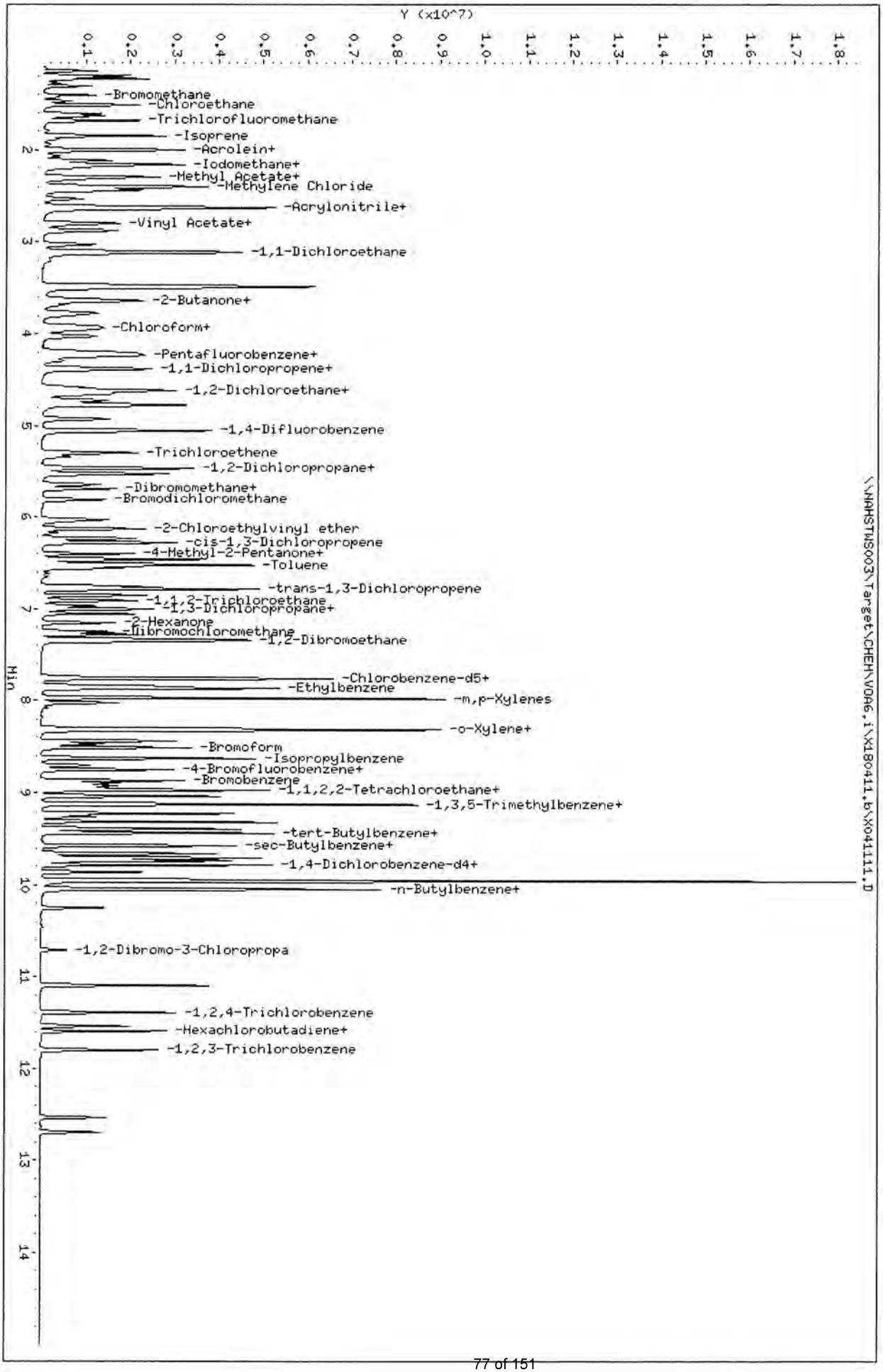
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041111.D
Report Date: 20-Apr-2018 19:18

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
24	2-Butanone	43	3.688	3.688	(0.858)	514555	400.000	393.89(A)
52	2-Hexanone	43	7.155	7.155	(0.925)	828684	400.000	394.58(A)
45	4-Methyl-2-Pentanone	43	6.403	6.403	(0.828)	1221789	400.000	391.03(A)
10	Acetone	43	2.062	2.062	(0.480)	368573	400.000	385.38(A)
37	Benzene	78	4.619	4.619	(0.912)	2689274	200.000	198.24
39	Bromodichloromethane	83	5.808	5.808	(1.147)	889818	200.000	216.14(A)
66	Bromoform	173	8.473	8.473	(1.095)	543136	200.000	202.90(A)
6	Bromomethane	94	1.403	1.403	(0.327)	557249	200.000	196.14
19	Carbon Disulfide	76	2.162	2.162	(0.503)	4237659	400.000	397.59(A)
34	Carbon Tetrachloride	117	4.376	4.376	(0.864)	849669	200.000	199.14
59	Chlorobenzene	112	7.764	7.764	(1.004)	1849418	200.000	218.21(A)
7	Chloroethane	64	1.475	1.475	(0.343)	472870	200.000	200.34(A)
28	Chloroform	83	4.032	4.032	(0.938)	1116798	200.000	213.89(A)
3	Chloromethane	50	1.138	1.138	(0.265)	814923	200.000	202.25(A)
27	cis-1,2-Dichloroethene	96	3.645	3.645	(0.848)	750773	200.000	219.40(A)
46	cis-1,3-Dichloropropene	75	6.238	6.238	(1.232)	1206719	200.000	218.74(A)
55	Dibromochloromethane	129	7.248	7.248	(0.937)	740390	200.000	207.80(A)
2	Dichlorodifluoromethane	85	1.030	1.030	(0.240)	712363	200.000	199.92
61	Ethylbenzene	106	7.864	7.864	(1.017)	954570	200.000	225.53(A)
67	Isopropylbenzene	105	8.623	8.623	(1.115)	2725551	200.000	197.56
17	Methylene Chloride	84	2.399	2.399	(0.558)	713815	200.000	197.76
56	Tetrachloroethene	164	7.004	7.004	(0.906)	558156	200.000	197.41
50	Toluene	91	6.525	6.525	(0.844)	2727118	200.000	217.87(A)
20	trans-1,2-Dichloroethene	96	2.628	2.628	(0.612)	678674	200.000	197.12
51	trans-1,3-Dichloropropene	75	6.754	6.754	(1.334)	990661	200.000	212.95(A)
38	Trichloroethene	130	5.300	5.300	(1.047)	725656	200.000	198.94
8	Trichlorofluoromethane	101	1.639	1.639	(0.382)	927822	200.000	199.11
5	Vinyl Chloride	62	1.202	1.202	(0.280)	866176	200.000	198.85
62	m,p-Xylenes	106	7.971	7.971	(1.031)	2325236	400.000	447.40(A)
63	o-Xylene	106	8.308	8.308	(1.074)	1137526	200.000	217.79(A)
M 95	Xylenes (total)	106				3462762	600.000	(a)
71	1,2,3-Trichloropropane	75	8.924	8.924	(0.918)	967759	200.000	197.36
93	1,2,3-Trichlorobenzene	180	11.797	11.797	(1.213)	739420	200.000	201.78(A)
79	1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	2357336	200.000	218.06(A)
75	1,3,5-Trimethylbenzene	105	9.125	9.125	(0.938)	2300882	200.000	224.55(A)
26	2,2-Dichloropropane	77	3.631	3.631	(0.845)	860908	200.000	197.25
54	1,3-Dichloropropane	76	7.055	7.055	(0.912)	1081042	200.000	200.37(A)
76	2-Chlorotoluene	91	9.039	9.039	(0.929)	1975471	200.000	223.64(A)
77	4-Chlorotoluene	91	9.132	9.132	(0.939)	2252127	200.000	221.07(A)
82	p-Isopropyltoluene	119	9.397	9.397	(0.966)	1949190	200.000	197.95
29	Bromochloromethane	128	3.917	3.917	(0.912)	314366	200.000	189.71
74	Bromobenzene	156	8.867	8.867	(0.912)	810986	200.000	214.34(A)
44	Dibromomethane	93	5.643	5.643	(1.115)	436051	200.000	211.85(A)
91	Hexachlorobutadiene	225	11.539	11.539	(1.186)	353366	200.000	199.37
73	n-Propylbenzene	91	8.974	8.974	(0.923)	3344811	200.000	197.51
87	n-Butylbenzene	91	10.049	10.049	(1.033)	1935893	200.000	198.84
81	sec-Butylbenzene	105	9.583	9.583	(0.985)	2742019	200.000	198.34
92	Naphthalene	128	11.596	11.596	(1.192)	1792401	200.000	196.56
78	tert-Butylbenzene	119	9.397	9.397	(0.966)	1949190	200.000	197.95
60	1,1,1,2-Tetrachloroethane	131	7.843	7.843	(1.014)	671737	200.000	215.22(A)
64	Styrene	104	8.322	8.322	(1.076)	1959917	200.000	213.83(A)

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041111.D
Report Date: 20-Apr-2018 19:18

QC Flag Legend

a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).
A - Target compound detected but, quantitated amount
    exceeded maximum amount.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Date : 11-APR-2018 16:40
Client ID: VSTD200
Sample Info: VSTD200;VSTD200;1;10;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6,i
Operator: PC
Column diameter: 0.18
\\NAHSTWS003\Target\CHEM\VOA6,i\X180411,b\X041111.D
Y (x10^7)
Min
-Bromomethane
-Chloroethane
-Trichlorofluoromethane
-Isoprene
-Acrolein+
-Iodomethane+
-Methyl Acetate+
-Methylene Chloride
-Acrylonitrile+
-Vinyl Acetate+
-1,1-Dichloroethane
-2-Butanone+
-Chloroform+
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-1,4-Difluorobenzene
-Trichloroethene
-1,2-Dichloropropane+
-Dibromomethane+
-Bromodichloromethane
-2-Chloroethylvinyl ether
-cis-1,3-Dichloropropene
-4-Methyl-2-Pentanone+
-Toluene
-trans-1,3-Dichloropropene
-1,1,2-Trichloroethane
-1,3-Dichloropropane+
-2-Hexanone
-Dibromochloromethane
-1,2-Dibromoethane
-Chlorobenzene-d5+
-Ethylbenzene
-m,p-Xylenes
-o-Xylene+
-Bromoform
-Isopropylbenzene
-4-Bromofluorobenzene+
-Bromobenzene
-1,1,2,2-Tetrachloroethane+
-1,3,5-Trimethylbenzene+
-tert-Butylbenzene+
-sec-Butylbenzene+
-1,4-Dichlorobenzene-d4+
-n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Hexachlorobutadiene+
-1,2,3-Trichlorobenzene

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041114.D
Report Date: 20-Apr-2018 19:18

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041114.D
Lab Smp Id: VSTD-ICV Client Smp ID: VSDT-ICV
Inj Date : 11-APR-2018 17:54
Operator : PC Inst ID: voa6.i
Smp Info : VSTD-ICV;VSDT-ICV;3;;METHSPIKE
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\8260W.m
Meth Date : 20-Apr-2018 19:18 voa6.i Quant Type: ISTD
Cal Date : 11-APR-2018 16:40 Cal File: X041111.D
Als bottle: 13 QC Sample: METHSPIKE
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: dn_bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7056

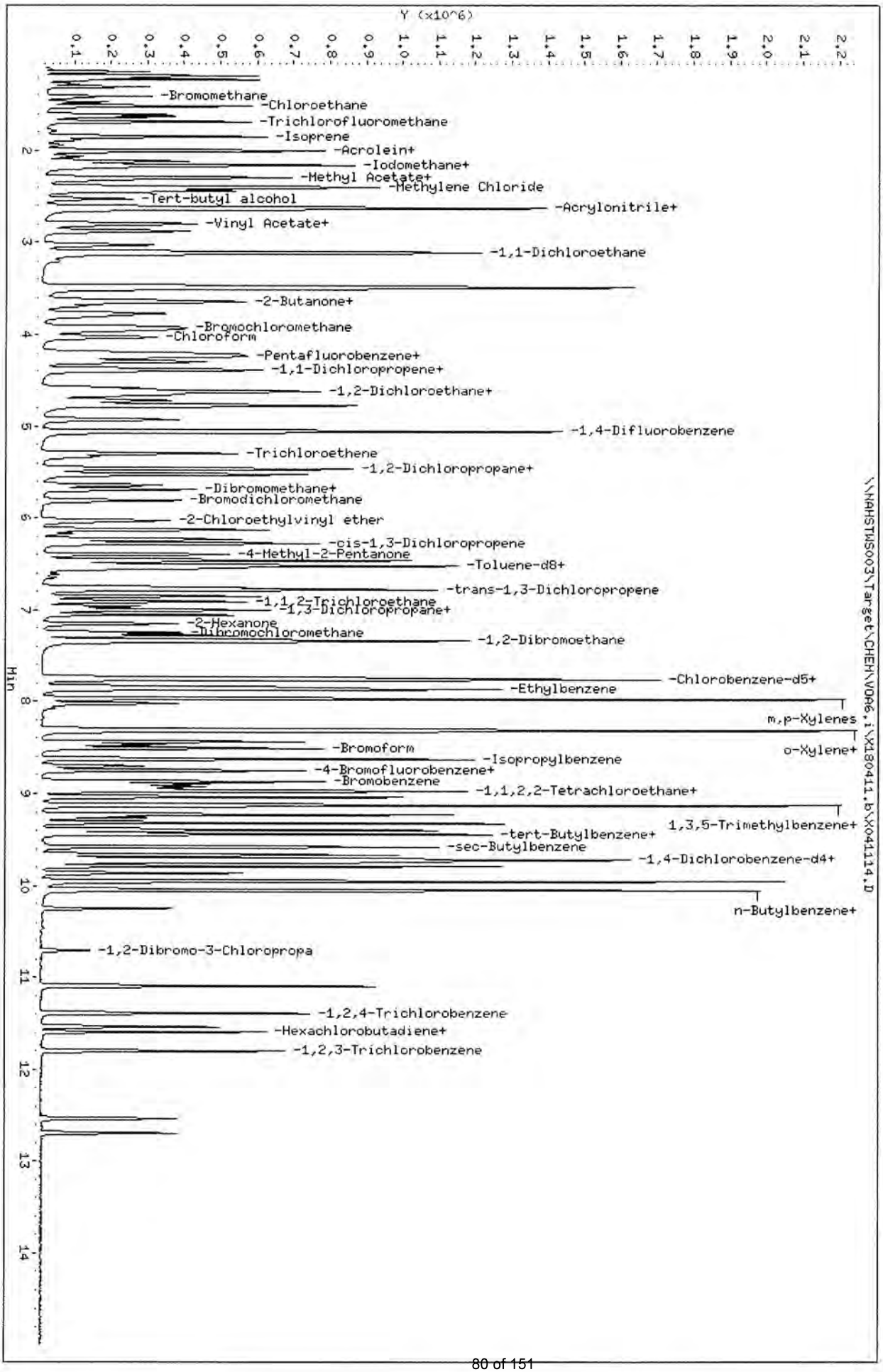
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
	31 1,1,1-Trichloroethane	97	4.204	4.204	(0.978)	226013	49.3924	49.39
*	1 Pentafluorobenzene	168	4.297	4.297	(1.000)	347754	50.0000	
$	30 Dibromofluoromethane	113	4.218	4.218	(0.982)	164333	49.1428	49.14
*	36 1,4-Difluorobenzene	114	5.063	5.063	(1.000)	532464	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.576	4.583	(1.065)	177647	47.8621	47.86
*	47 Chlorobenzene-d5	117	7.735	7.735	(1.000)	495362	50.0000	
$	48 Toluene-d8	98	6.460	6.460	(0.835)	609430	49.7700	49.77
$	69 4-Bromofluorobenzene	95	8.752	8.752	(1.131)	216524	47.8768	47.87
*	70 1,4-Dichlorobenzene-d4	152	9.719	9.726	(1.000)	255103	50.0000	
	68 1,1,2,2-Tetrachloroethane	83	8.895	8.896	(0.915)	202555	50.4360	50.43
	53 1,1,2-Trichloroethane	83	6.911	6.911	(0.894)	134213	51.7465	51.74
	32 1,1-Dichloropropene	75	4.390	4.397	(0.867)	220025	48.0498	48.04
	22 1,1-Dichloroethane	63	3.029	3.029	(0.705)	300308	55.6027	55.60
	11 1,1-Dichloroethene	96	2.005	1.997	(0.467)	137008	46.9938	46.99
	90 1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	214570	56.5067	56.50
	89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	29501	47.4001	47.40
	57 1,2-Dibromoethane	107	7.327	7.334	(0.947)	166619	52.7286	52.72
	88 1,2-Dichlorobenzene	146	10.049	10.049	(1.034)	331234	49.5222	49.52
	33 1,2-Dichloroethane	62	4.662	4.662	(0.921)	204852	52.4887	52.48
	42 1,2-Dichloropropane	63	5.529	5.529	(1.092)	183790	54.3096	54.30
	83 1,3-Dichlorobenzene	146	9.662	9.662	(0.994)	343516	51.3168	51.31
	84 1,4-Dichlorobenzene	146	9.741	9.741	(1.002)	350937	50.7739	50.77

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041114.D
Report Date: 20-Apr-2018 19:18

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
24	2-Butanone	43	3.688	3.688	(0.858)	134315	102.251	102.25
52	2-Hexanone	43	7.155	7.155	(0.925)	210214	101.558	101.55
45	4-Methyl-2-Pentanone	43	6.396	6.403	(0.827)	318520	102.818	102.81
10	Acetone	43	2.062	2.062	(0.480)	98186	101.387	101.38
37	Benzene	78	4.619	4.619	(0.912)	665730	49.0304	49.03
39	Bromodichloromethane	83	5.808	5.808	(1.147)	227674	53.3600	53.36
66	Bromoform	173	8.473	8.473	(1.095)	136763	51.1384	51.13
6	Bromomethane	94	1.410	1.403	(0.328)	121861	54.0463	54.04
19	Carbon Disulfide	76	2.162	2.162	(0.503)	994714	96.9308	96.93
34	Carbon Tetrachloride	117	4.376	4.376	(0.864)	201492	47.7211	47.72
59	Chlorobenzene	112	7.757	7.764	(1.003)	459404	54.2569	54.25
7	Chloroethane	64	1.475	1.475	(0.343)	112477	49.3216	49.32
28	Chloroform	83	4.032	4.032	(0.938)	283309	53.8706	53.87
3	Chloromethane	50	1.138	1.138	(0.265)	192518	49.9424	49.94
27	cis-1,2-Dichloroethene	96	3.645	3.645	(0.848)	186910	54.2293	54.22
46	cis-1,3-Dichloropropene	75	6.231	6.238	(1.231)	304296	53.2216	53.22
55	Dibromochloromethane	129	7.248	7.248	(0.937)	188948	53.0804	53.08
2	Dichlorodifluoromethane	85	1.030	1.030	(0.240)	158686	47.1483	47.14
61	Ethylbenzene	106	7.864	7.864	(1.017)	235365	55.6608	55.66
67	Isopropylbenzene	105	8.623	8.623	(1.115)	668821	50.1403	50.14
17	Methylene Chloride	84	2.399	2.399	(0.558)	181363	50.6059	50.60
56	Tetrachloroethene	164	6.997	7.004	(0.905)	134120	49.4801	49.48
50	Toluene	91	6.525	6.525	(0.844)	685471	54.8148	54.81
20	trans-1,2-Dichloroethene	96	2.628	2.628	(0.612)	166047	49.3899	49.38
51	trans-1,3-Dichloropropene	75	6.754	6.754	(1.334)	249301	51.7082	51.70
38	Trichloroethene	130	5.300	5.300	(1.047)	174764	48.3494	48.34
8	Trichlorofluoromethane	101	1.639	1.639	(0.382)	210161	47.3881	47.38
5	Vinyl Chloride	62	1.210	1.202	(0.282)	198714	47.8101	47.81
62	m,p-Xylenes	106	7.964	7.971	(1.030)	573250	110.405	110.40
63	o-Xylene	106	8.301	8.308	(1.073)	285113	54.6388	54.63
M 95	Xylenes (total)	106				858363	165.043	165.04
71	1,2,3-Trichloropropane	75	8.924	8.924	(0.918)	241633	48.8395	48.83
93	1,2,3-Trichlorobenzene	180	11.797	11.797	(1.214)	185611	51.2691	51.26
79	1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	583837	52.3506	52.35
75	1,3,5-Trimethylbenzene	105	9.125	9.125	(0.939)	570082	53.9317	53.93
26	2,2-Dichloropropane	77	3.631	3.631	(0.845)	201746	47.4014	47.40
54	1,3-Dichloropropane	76	7.055	7.055	(0.912)	283029	52.5084	52.50
76	2-Chlorotoluene	91	9.032	9.039	(0.929)	486308	53.3673	53.36
77	4-Chlorotoluene	91	9.132	9.132	(0.940)	562666	53.5382	53.53
82	p-Isopropyltoluene	119	9.397	9.397	(0.967)	483762	49.4951	49.49
29	Bromochloromethane	128	3.917	3.917	(0.912)	93415	55.9688	55.96
74	Bromobenzene	156	8.867	8.867	(0.912)	201374	51.5906	51.59
44	Dibromomethane	93	5.643	5.643	(1.115)	110507	51.8027	51.80
91	Hexachlorobutadiene	225	11.539	11.539	(1.187)	86901	50.2696	50.26
73	n-Propylbenzene	91	8.974	8.974	(0.923)	817020	48.6229	48.62
87	n-Butylbenzene	91	10.049	10.049	(1.034)	487095	50.3870	50.38
81	sec-Butylbenzene	105	9.576	9.583	(0.985)	671481	49.1811	49.18
92	Naphthalene	128	11.596	11.596	(1.193)	410814	52.4332	52.43
78	tert-Butylbenzene	119	9.397	9.397	(0.967)	483762	49.4951	49.49
60	1,1,1,2-Tetrachloroethane	131	7.843	7.843	(1.014)	166953	53.5409	53.54
64	Styrene	104	8.322	8.322	(1.076)	494860	54.0418	54.04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Date : 11-APR-2018 17:54
Client ID: VSDT-ICV
Sample Info: VSTD-ICV;VSDT-ICV;3;;METHSPIKE
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
Y (x10^6)
Min
\\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041114.D
-Bromomethane
-Chloroethane
-Trichlorofluoromethane
-Isoprene
-Acrolein+
-Iodomethane+
-Methyl Acetate+
-Methylene Chloride
-Tert-butyl alcohol
-Acrylonitrile+
-Vinyl Acetate+
-1,1-Dichloroethane
-2-Butanone+
-Bromochloromethane
-Chloroform
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-1,4-Difluorobenzene
-Trichloroethene
-1,2-Dichloropropane+
-Dibromomethane+
-Bromodichloromethane
-2-Chloroethylvinyl ether
-cis-1,3-Dichloropropene
-4-Methyl-2-Pentanone
-Toluene-d8+
-trans-1,3-Dichloropropene
-1,1,2-Trichloroethane
-1,3-Dichloropropane+
-2-Hexanone
-Dibromochloromethane
-1,2-Dibromoethane
-Chlorobenzene-d5+
-Ethylbenzene
m,p-Xylenes
o-Xylene+
-Bromoform
-Isopropylbenzene
-4-Bromofluorobenzene+
-Bromobenzene
-1,1,2,2-Tetrachloroethane+
1,3,5-Trimethylbenzene+
-tert-Butylbenzene+
-sec-Butylbenzene
-1,4-Dichlorobenzene-d4+
n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Hexachlorobutadiene+
-1,2,3-Trichlorobenzene

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS18040244

Lab File ID: X041801 BFB Injection Date: 04/18/18

Instrument ID: VOA6 BFB Injection Time: 1121

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	19.2
75	30.0 - 60.0% of mass 95	48.2
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.2
173	Less than 2.0% of mass 174	0.6 (0.9)1
174	Greater than 50.0% of mass 95	65.0
175	5.0 - 9.0% of mass 174	5.1 (7.8)1
176	95.0 - 101.0% of mass 174	64.7 (99.5)1
177	5.0 - 9.0% of mass 176	4.5 (7.0)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CCV	CCV	X041802	04/18/18	1145
02	VLCSW-180418	VLCSW-180418	X041803	04/18/18	1210
03	VBLKW-180418	VBLKW-180418	X041806	04/18/18	1324
04	HS18040244-0	HS18040244-02	X041807	04/18/18	1348
05	HS18040244-0	HS18040244-01	X041808	04/18/18	1413
06	HS18040244-0	HS18040244-01M	X041817	04/18/18	1754
07	HS18040244-0	HS18040244-01M	X041818	04/18/18	1818
08	CCV-END	CCV-END	X041829	04/18/18	2248
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS18040244

Instrument ID: VOA6 Calibration Date: 04/18/18 Time: 1145

Lab File ID: X041802 Init. Calib. Date(s): 04/02/18 04/11/18

Init. Calib. Times: 1022 1640

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
1,1,1-Trichloroethane	49.747188	50.000000	0.6606007	0.1	0.50	20.00	LINR
1,1,1,2-Tetrachloroethane	0.3150000	0.3189556	0.3189556	0.1	-1.26	20.00	AVRG
tert-Butylbenzene	46.833160	50.000000	1.7890018	0.1	6.33	20.00	LINR
Naphthalene	54.240781	50.000000	1.6694214	0.2	-8.48	20.00	2RDR
sec-Butylbenzene	47.734463	50.000000	2.5501764	0.1	4.53	20.00	LINR
1,1,2,2-Tetrachloroethane	47.171314	50.000000	0.7415248	0.3	5.66	20.00	LINR
1,1,2-Trichloroethane	0.2620000	0.2559591	0.2559591	0.1	2.30	20.00	AVRG
1,1-Dichloropropene	48.614560	50.000000	0.4183657	0.1	2.77	20.00	LINR
1,1-Dichloroethane	0.7760000	0.8527300	0.8527300	0.2	-9.89	20.00	AVRG
1,1-Dichloroethene	49.188226	50.000000	0.4136648	0.1	1.62	20.00	LINR
1,2,4-Trichlorobenzene	55.513776	50.000000	0.8250337	0.2	-11.03	20.00	2RDR
1,2-Dibromo-3-Chloropropane	46.393065	50.000000	0.1130686	0.05	7.21	20.00	LINR
1,2-Dibromoethane	0.3190000	0.3152413	0.3152413	0.1	1.18	20.00	AVRG
1,2-Dichlorobenzene	47.053942	50.000000	1.2314690	0.4	5.89	20.00	LINR
1,2-Dichloroethane	0.3660000	0.3686824	0.3686824	0.1	-0.73	20.00	AVRG
1,2-Dichloropropane	0.3180000	0.3377697	0.3377697	0.1	-6.22	20.00	AVRG
1,3-Dichlorobenzene	1.3120000	1.2888400	1.2888400	0.6	1.76	20.00	AVRG
1,4-Dichlorobenzene	1.3550000	1.3052418	1.3052418	0.4	3.67	20.00	AVRG
2-Butanone	102.76084	100.00000	0.1940820	0.1	-2.76	20.00	LINR
2-Hexanone	95.745247	100.00000	0.1998144	0.1	4.25	20.00	LINR
4-Methyl-2-Pentanone	95.568143	100.00000	0.2985981	0.1	4.43	20.00	LINR
Acetone	92.632409	100.00000	0.1290691	0.1	7.37	20.00	LINR
Benzene	48.808586	50.000000	1.2443576	0.5	2.38	20.00	LINR
Bromodichloromethane	0.4010000	0.4060385	0.4060385	0.2	-1.26	20.00	AVRG
Bromoform	0.2700000	0.2618828	0.2618828	0.1	3.01	20.00	AVRG
Bromomethane	43.460672	50.000000	0.2764489	0.1	13.08	20.00	2RDR
Carbon Disulfide	101.95060	100.00000	1.5087805	0.1	-1.95	20.00	LINR
Carbon Tetrachloride	47.888799	50.000000	0.3798265	0.1	4.22	20.00	LINR
Chlorobenzene	0.8540000	0.8878254	0.8878254	0.5	-3.96	20.00	AVRG
Chloroethane	47.952636	50.000000	0.3139550	0.1	4.09	20.00	LINR
Chloroform	0.7560000	0.8116948	0.8116948	0.2	-7.37	20.00	AVRG
Chloromethane	43.724787	50.000000	0.4798526	0.1	12.55	20.00	LINR
cis-1,2-Dichloroethene	0.4960000	0.5464230	0.5464230	0.1	-10.16	20.00	AVRG
cis-1,3-Dichloropropene	0.5370000	0.5514038	0.5514038	0.2	-2.68	20.00	AVRG
Dibromochloromethane	0.3590000	0.3613322	0.3613322	0.1	-0.65	20.00	AVRG
Dichlorodifluoromethane	48.103824	50.000000	0.4663666	0.1	3.79	20.00	LINR
Ethylbenzene	0.4270000	0.4565114	0.4565114	0.1	-6.91	20.00	AVRG
Isopropylbenzene	48.614559	50.000000	1.3072505	0.1	2.77	20.00	LINR
Methylene Chloride	49.787233	50.000000	0.5129260	0.1	0.42	20.00	LINR
Tetrachloroethene	48.776236	50.000000	0.2666839	0.2	2.45	20.00	LINR
Toluene	1.2620000	1.3426082	1.3426082	0.4	-6.39	20.00	AVRG
trans-1,2-Dichloroethene	51.641015	50.000000	0.5001616	0.1	-3.28	20.00	LINR

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1804024

Instrument ID: VOA6 Calibration Date: 04/18/18 Time: 1145

Lab File ID: X041802 Init. Calib. Date(s): 04/02/18 04/11/18

Init. Calib. Times: 1022 1640

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
trans-1,3-Dichloropropene	0.4530000	0.4581606	0.4581606	0.1	-1.14	20.00	AVRG
Trichloroethene	48.820925	50.000000	0.3316122	0.2	2.36	20.00	LINR
Trichlorofluoromethane	45.909265	50.000000	0.5840358	0.1	8.18	20.00	LINR
Vinyl Chloride	48.309331	50.000000	0.5778245	0.1	3.38	20.00	LINR
m,p-Xylenes	0.5240000	0.5567666	0.5567666	0.1	-6.25	20.00	AVRG
o-Xylene	0.5270000	0.5481811	0.5481811	0.3	-4.02	20.00	AVRG
Xylenes (total)	0.4960000	0.5332577	0.5332577	0.1	-7.51	20.00	AVRG
1,2,3-Trichloropropane	46.675249	50.000000	0.9039726	0.1	6.65	20.00	LINR
1,2,3-Trichlorobenzene	50.808642	50.000000	0.7206712	0.1	-1.62	20.00	LINR
1,2,4-Trimethylbenzene	2.1860000	2.1351890	2.1351890	0.1	2.32	20.00	AVRG
1,3,5-Trimethylbenzene	2.0720000	2.0927044	2.0927044	0.1	-1.00	20.00	AVRG
2,2-Dichloropropane	50.782856	50.000000	0.6233142	0.1	-1.56	20.00	LINR
1,3-Dichloropropane	0.5440000	0.5302660	0.5302660	0.1	2.52	20.00	AVRG
2-Chlorotoluene	1.7860000	1.7771424	1.7771424	0.1	0.50	20.00	AVRG
4-Chlorotoluene	2.0600000	2.0546557	2.0546557	0.1	0.26	20.00	AVRG
p-Isopropyltoluene	46.833160	50.000000	1.7890018	0.1	6.33	20.00	LINR
Bromochloromethane	0.2400000	0.2719567	0.2719567	0.1	-13.32	20.00	AVRG
Bromobenzene	0.7650000	0.7375072	0.7375072	0.1	3.59	20.00	AVRG
Dibromomethane	0.2000000	0.2024337	0.2024337	0.1	-1.22	20.00	AVRG
Hexachlorobutadiene	54.527369	50.000000	0.3717293	0.1	-9.05	20.00	LINR
n-Propylbenzene	46.623583	50.000000	3.0640801	0.1	6.75	20.00	LINR
n-Butylbenzene	50.347911	50.000000	1.9078481	0.5	-0.70	20.00	LINR
Styrene	0.9240000	0.9555164	0.9555164	0.3	-3.41	20.00	AVRG
1,2-Dichloroethane-d4	0.5340000	0.4892510	0.4892510	0.1	8.38	20.00	AVRG
Dibromofluoromethane	0.4810000	0.4825629	0.4825629	0.1	-0.32	20.00	AVRG
Toluene-d8	1.2360000	1.2281156	1.2281156	0.1	0.64	20.00	AVRG
4-Bromofluorobenzene	0.4560000	0.4351099	0.4351099	0.1	4.58	20.00	AVRG

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS18040244

Instrument ID: VOA6 Calibration Date: 04/18/18 Time: 2248

Lab File ID: X041829 Init. Calib. Date(s): 04/02/18 04/11/18

Init. Calib. Times: 1022 1640

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
1,1,1-Trichloroethane	51.040080	50.000000	0.6785554	0.1	-2.08	50.00	LINR
1,1,1,2-Tetrachloroethane	0.3150000	0.3261343	0.3261343	0.1	-3.53	50.00	AVRG
tert-Butylbenzene	46.911219	50.000000	1.7921493	0.1	6.18	50.00	LINR
Naphthalene	53.471118	50.000000	1.6442589	0.2	-6.94	50.00	2RDR
sec-Butylbenzene	46.940864	50.000000	2.5051836	0.1	6.12	50.00	LINR
1,1,2,2-Tetrachloroethane	49.321528	50.000000	0.7760949	0.3	1.36	50.00	LINR
1,1,2-Trichloroethane	0.2620000	0.2625604	0.2625604	0.1	-0.21	50.00	AVRG
1,1-Dichloropropene	49.933601	50.000000	0.4303825	0.1	0.13	50.00	LINR
1,1-Dichloroethane	0.7760000	0.8730055	0.8730055	0.2	-12.50	50.00	AVRG
1,1-Dichloroethene	50.882486	50.000000	0.4288629	0.1	-1.76	50.00	LINR
1,2,4-Trichlorobenzene	53.082746	50.000000	0.7858974	0.2	-6.16	50.00	2RDR
1,2-Dibromo-3-Chloropropane	48.357622	50.000000	0.1180920	0.05	3.28	50.00	LINR
1,2-Dibromoethane	0.3190000	0.3270572	0.3270572	0.1	-2.52	50.00	AVRG
1,2-Dichlorobenzene	46.984185	50.000000	1.2295765	0.4	6.03	50.00	LINR
1,2-Dichloroethane	0.3660000	0.3800559	0.3800559	0.1	-3.84	50.00	AVRG
1,2-Dichloropropane	0.3180000	0.3489039	0.3489039	0.1	-9.72	50.00	AVRG
1,3-Dichlorobenzene	1.3120000	1.2849120	1.2849120	0.6	2.06	50.00	AVRG
1,4-Dichlorobenzene	1.3550000	1.2933796	1.2933796	0.4	4.55	50.00	AVRG
2-Butanone	106.58877	100.00000	0.2013280	0.1	-6.59	50.00	LINR
2-Hexanone	102.20403	100.00000	0.2135571	0.1	-2.20	50.00	LINR
4-Methyl-2-Pentanone	100.19813	100.00000	0.3132257	0.1	-0.20	50.00	LINR
Acetone	98.581187	100.00000	0.1372926	0.1	1.42	50.00	LINR
Benzene	50.508905	50.000000	1.2897597	0.5	-1.02	50.00	LINR
Bromodichloromethane	0.4010000	0.4257056	0.4257056	0.2	-6.16	50.00	AVRG
Bromoform	0.2700000	0.2715141	0.2715141	0.1	-0.56	50.00	AVRG
Bromomethane	27.537541	50.000000	0.1683277	0.1	44.92	50.00	2RDR
Carbon Disulfide	105.21521	100.00000	1.5598862	0.1	-5.22	50.00	LINR
Carbon Tetrachloride	49.363007	50.000000	0.3922436	0.1	1.27	50.00	LINR
Chlorobenzene	0.8540000	0.8998240	0.8998240	0.5	-5.36	50.00	AVRG
Chloroethane	50.449017	50.000000	0.3312483	0.1	-0.90	50.00	LINR
Chloroform	0.7560000	0.8373110	0.8373110	0.2	-10.76	50.00	AVRG
Chloromethane	34.370536	50.000000	0.3688954	0.1	31.26	50.00	LINR
cis-1,2-Dichloroethene	0.4960000	0.5620312	0.5620312	0.1	-13.31	50.00	AVRG
cis-1,3-Dichloropropene	0.5370000	0.5623009	0.5623009	0.2	-4.71	50.00	AVRG
Dibromochloromethane	0.3590000	0.3688879	0.3688879	0.1	-2.75	50.00	AVRG
Dichlorodifluoromethane	50.147937	50.000000	0.4878666	0.1	-0.30	50.00	LINR
Ethylbenzene	0.4270000	0.4638479	0.4638479	0.1	-8.63	50.00	AVRG
Isopropylbenzene	48.591220	50.000000	1.3065940	0.1	2.82	50.00	LINR
Methylene Chloride	51.195775	50.000000	0.5277229	0.1	-2.39	50.00	LINR
Tetrachloroethene	49.922732	50.000000	0.2733098	0.2	0.15	50.00	LINR
Toluene	1.2620000	1.3666683	1.3666683	0.4	-8.29	50.00	AVRG
trans-1,2-Dichloroethene	52.610742	50.000000	0.5099304	0.1	-5.22	50.00	LINR

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1804024

Instrument ID: VOA6 Calibration Date: 04/18/18 Time: 2248

Lab File ID: X041829 Init. Calib. Date(s): 04/02/18 04/11/18

Init. Calib. Times: 1022 1640

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
trans-1,3-Dichloropropene	0.4530000	0.4614737	0.4614737	0.1	-1.87	50.00	AVRG
Trichloroethene	50.569464	50.000000	0.3442008	0.2	-1.14	50.00	LINR
Trichlorofluoromethane	50.088059	50.000000	0.6414059	0.1	-0.18	50.00	LINR
Vinyl Chloride	48.192446	50.000000	0.5763253	0.1	3.62	50.00	LINR
m,p-Xylenes	0.5240000	0.5650220	0.5650220	0.1	-7.83	50.00	AVRG
o-Xylene	0.5270000	0.5593236	0.5593236	0.3	-6.13	50.00	AVRG
Xylenes (total)	0.4960000	0.5455301	0.5455301	0.1	-9.98	50.00	AVRG
1,2,3-Trichloropropane	47.570094	50.000000	0.9218447	0.1	4.86	50.00	LINR
1,2,3-Trichlorobenzene	48.444992	50.000000	0.6851395	0.1	3.11	50.00	LINR
1,2,4-Trimethylbenzene	2.1860000	2.1369584	2.1369584	0.1	2.24	50.00	AVRG
1,3,5-Trimethylbenzene	2.0720000	2.1059474	2.1059474	0.1	-1.64	50.00	AVRG
2,2-Dichloropropane	46.341669	50.000000	0.5666092	0.1	7.32	50.00	LINR
1,3-Dichloropropane	0.5440000	0.5456926	0.5456926	0.1	-0.31	50.00	AVRG
2-Chlorotoluene	1.7860000	1.7972520	1.7972520	0.1	-0.63	50.00	AVRG
4-Chlorotoluene	2.0600000	2.0434516	2.0434516	0.1	0.80	50.00	AVRG
p-Isopropyltoluene	46.911219	50.000000	1.7921493	0.1	6.18	50.00	LINR
Bromochloromethane	0.2400000	0.2765471	0.2765471	0.1	-15.23	50.00	AVRG
Bromobenzene	0.7650000	0.7572758	0.7572758	0.1	1.01	50.00	AVRG
Dibromomethane	0.2000000	0.2110181	0.2110181	0.1	-5.51	50.00	AVRG
Hexachlorobutadiene	45.430105	50.000000	0.3053266	0.1	9.14	50.00	LINR
n-Propylbenzene	46.684580	50.000000	3.0683094	0.1	6.63	50.00	LINR
n-Butylbenzene	47.226974	50.000000	1.7834053	0.5	5.55	50.00	LINR
Styrene	0.9240000	0.9613161	0.9613161	0.3	-4.04	50.00	AVRG
1,2-Dichloroethane-d4	0.5340000	0.4958804	0.4958804	0.1	7.14	50.00	AVRG
Dibromofluoromethane	0.4810000	0.4933927	0.4933927	0.1	-2.58	50.00	AVRG
Toluene-d8	1.2360000	1.2176226	1.2176226	0.1	1.49	50.00	AVRG
4-Bromofluorobenzene	0.4560000	0.4414030	0.4414030	0.1	3.20	50.00	AVRG

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS18040244

Lab File ID (Standard): X041802 Date Analyzed: 04/18/18

Instrument ID: VOA6 Time Analyzed: 1145

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS1 AREA #	IS1 RT #	IS2(DFB) AREA #	IS2(DFB) RT #	IS3(CBZ) AREA #	IS3(CBZ) RT #
	12 HOUR STD	318775	4.30	496948	5.06	478424	7.74
	UPPER LIMIT	637550	4.80	993896	5.56	956848	8.24
	LOWER LIMIT	159388	3.80	248474	4.56	239212	7.24
	CLIENT SAMPLE NO.						
01	VLCSW-180418	313358	4.30	486664	5.06	468399	7.74
02	VBLKW-180418	323724	4.30	503824	5.06	485229	7.74
03	HS18040244-02	324337	4.30	516745	5.06	493856	7.74
04	HS18040244-01	328267	4.30	515631	5.06	493519	7.74
05	HS18040244-01	329516	4.30	514798	5.06	501953	7.74
06	HS18040244-01	321392	4.30	502792	5.06	488067	7.74
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

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

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS18040244

Lab File ID (Standard): X041802 Date Analyzed: 04/18/18

Instrument ID: VOA6 Time Analyzed: 1145

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS4 (DCB) AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	253386	9.72				
	UPPER LIMIT	506772	10.22				
	LOWER LIMIT	126693	9.22				
	CLIENT SAMPLE NO.						
01	VLCSW-180418	243351	9.72				
02	VBLKW-180418	240731	9.72				
03	HS18040244-02	242453	9.72				
04	HS18040244-01	250813	9.72				
05	HS18040244-01	263789	9.72				
06	HS18040244-01	255249	9.72				
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

IS4 (DCB) = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM VIII VOA

MSVOA06 -Logbook

Batch: 31625
Date: 04-18-2018
Method: 8260
Comments:

Analyst: Diana Nguyen
Reviewer:
Laboratory: Houston

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	04-18-2018 11:21 am	1.00	50 mL	50 mL	X041801.D	Liquid	Y	NA
	Purged, auto find									
2	CCV	CCV	04-18-2018 11:45 am	1.00	50 mL	50 mL	X041802.D	Liquid	Y	NA
	10 µL cal STD/50 mL DI									
3	VLCSW-180418	LCS	04-18-2018 12:10 pm	1.00	50 mL	50 mL	X041803.D	Liquid	Y	NA
	10 µL cal STD/50 mL DI									
4	BLANKW	SAMP	04-18-2018 12:35 pm	1.00	50 mL	50 mL	X041804.D	Liquid	Y	NA
	Clean up blank									
5	VBLKW-180418	MBLK	04-18-2018 12:59 pm	1.00	50 mL	50 mL	X041805.D	Liquid	Y	NA
	Clean up blank									
6	VBLKW-180418	MBLK	04-18-2018 01:24 pm	1.00	50 mL	50 mL	X041806.D	Liquid	Y	NA
7	HS18040244-02	SAMP	04-18-2018 01:48 pm	1.00	50 mL	50 mL	X041807.D	Liquid	Y	<2
8	HS18040244-01	SAMP	04-18-2018 02:13 pm	1.00	50 mL	50 mL	X041808.D	Liquid	Y	<2
9	DCS@0.25PPB	SAMP	04-18-2018 02:37 pm	1.00	50 mL	50 mL	X041809.D	Liquid	Y	NA
10	HS18040346-23	SAMP	04-18-2018 03:02 pm	1.00	50 mL	50 mL	X041810.D	Liquid	Y	<2
11	HS18040384-03	SAMP	04-18-2018 03:26 pm	1.00	50 mL	50 mL	X041811.D	Liquid	Y	<2
12	HS18040346-24	SAMP	04-18-2018 03:51 pm	1.00	50 mL	50 mL	X041812.D	Liquid	Y	<2
13	HS18040375-04	SAMP	04-18-2018 04:16 pm	1.00	50 mL	50 mL	X041813.D	Liquid	Y	<2
14	HS18040346-25	SAMP	04-18-2018 04:40 pm	1.00	50 mL	50 mL	X041814.D	Liquid	Y	<2
15	HS18040384-04	SAMP	04-18-2018 05:05 pm	1.00	50 mL	50 mL	X041815.D	Liquid	Y	<2
16	HS18040346-26	SAMP	04-18-2018 05:29 pm	1.00	50 mL	50 mL	X041816.D	Liquid	Y	<2
17	HS18040244-01MS	MS	04-18-2018 05:54 pm	1.00	50 mL	50 mL	X041817.D	Liquid	Y	<2
	5 µL cal STD/25 mL DI									
18	HS18040244-01MSD	MSD	04-18-2018 06:18 pm	1.00	50 mL	50 mL	X041818.D	Liquid	Y	<2
	5 µL cal STD/25 mL DI									
19	HS18040709-06	SAMP	04-18-2018 06:43 pm	50.00	1 mL	50 mL	X041819.D	Liquid	Y	<2
20	MBLK-127010 040418	MBLK	04-18-2018 07:07 pm	20.00	2.5 mL	50 mL	X041820.D	Liquid	Y	NA
21	HS18040346-27	SAMP	04-18-2018 07:32 pm	1.00	50 mL	50 mL	X041821.D	Liquid	Y	<2
22	HS18040105-01	SAMP	04-18-2018 07:56 pm	250.0(	200 µL	50 mL	X041822.D	Liquid	Y	N/A
23	HS18040374-04	SAMP	04-18-2018 08:21 pm	1.00	50 mL	50 mL	X041823.D	Liquid	Y	<2
24	HS18040374-01	SAMP	04-18-2018 08:46 pm	1.00	50 mL	50 mL	X041824.D	Liquid	Y	<2
25	HS18040374-02	SAMP	04-18-2018 09:10 pm	1.00	50 mL	50 mL	X041825.D	Liquid	Y	<2
26	HS18040374-03	SAMP	04-18-2018 09:35 pm	1.00	50 mL	50 mL	X041826.D	Liquid	Y	<2
27	HS18040544-01	SAMP	04-18-2018 09:59 pm	1.00	50 mL	50 mL	X041827.D	Liquid	Y	<2
28	HS18040544-02	SAMP	04-18-2018 10:24 pm	1.00	50 mL	50 mL	X041828.D	Liquid	Y	<2
29	CCV-END	CCV	04-18-2018 10:48 pm	1.00	50 mL	50 mL	X041829.D	Liquid	Y	NA
	10 µL cal STD/50 mL DI									

MSVOA06 -Logbook

Chemical	Value
SURR SPK ID	30502-18-03
IS ID	30502-18-04
ICV STD ID	30502-21-02
LCS/MS ID	30502-21-01
CAL STD ID	30502-21-01
BFB ID	30603-12-05
pH Paper	634-37-03

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180418.b\X041801.D

Date : 18-APR-2018 11:21

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

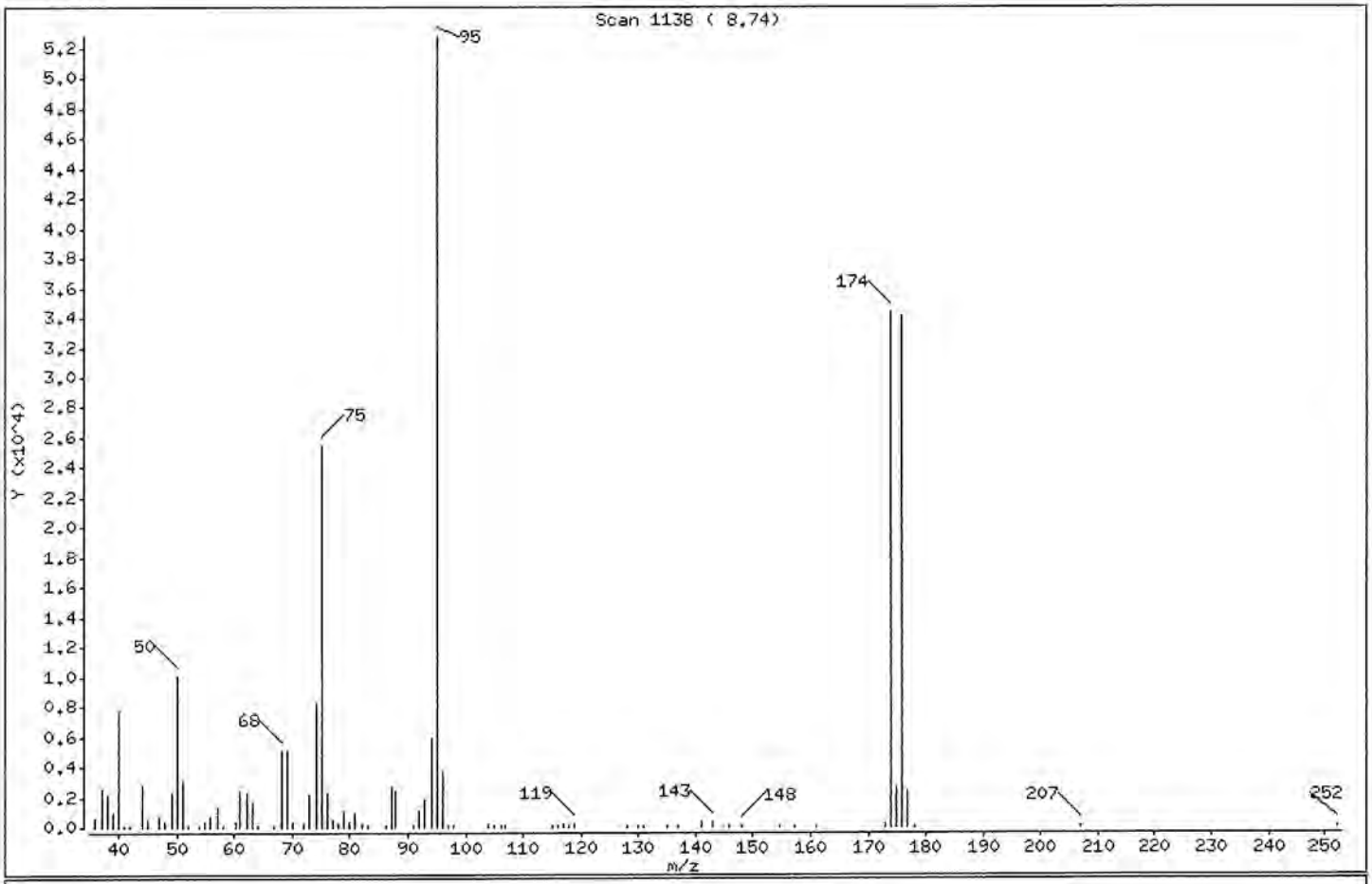
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	19.16
75	30.00 - 60.00% of mass 95	48.18
96	5.00 - 9.00% of mass 95	7.17
173	Less than 2.00% of mass 174	0.56 (0.86)
174	Greater than 50.00% of mass 95	64.98
175	5.00 - 9.00% of mass 174	5.07 (7.81)
176	95.00 - 101.00% of mass 174	64.66 (99.51)
177	5.00 - 9.00% of mass 176	4.55 (7.03)

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180418.b\X041801.D

Date : 18-APR-2018 11:21

Client ID: BFB Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0 Operator: PC

Column phase: DB624 Column diameter: 0.25

Data File: X041801.D
Spectrum: Scan 1138 (8.74)
Location of Maximum: 95.00
Number of points: 82

m/z	Y	m/z	Y	m/z	Y	m/z	Y
35.90	557	61.00	2428	87.00	2723	130.90	88
37.00	2603	62.00	2273	87.90	2403	134.90	79
38.00	2229	63.00	1650	90.80	114	136.90	78
39.00	972	64.10	152	92.00	1096	140.90	359
40.00	7739	66.90	161	93.00	1833	142.90	388
41.00	124	68.00	5056	94.00	5918	144.70	54
42.00	161	69.00	5044	95.00	52840	145.90	119
44.00	2755	69.90	390	96.00	3790	148.00	141
45.00	491	72.00	265	96.90	145	154.70	94
47.00	707	73.00	2207	98.00	94	157.00	92
47.90	383	74.10	8255	104.00	200	160.90	86
49.00	2364	75.00	25456	104.80	82	173.00	294
50.00	10126	76.10	2340	106.00	127	173.90	34336
51.10	3066	77.10	484	106.90	97	174.90	2680
52.10	169	78.10	253	114.90	72	175.90	34168
54.00	62	78.90	1064	116.00	140	176.90	2402
55.00	325	80.00	310	116.90	219	178.00	83
55.90	750	80.90	1001	117.90	159	207.00	83
57.00	1289	82.00	223	118.90	261	252.10	66
58.00	63	83.00	93	127.90	149		
60.10	406	86.10	97	129.90	152		

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180418.b\X041801.D

Date : 18-APR-2018 11:21

Client ID: BFB

Instrument: voa6.i

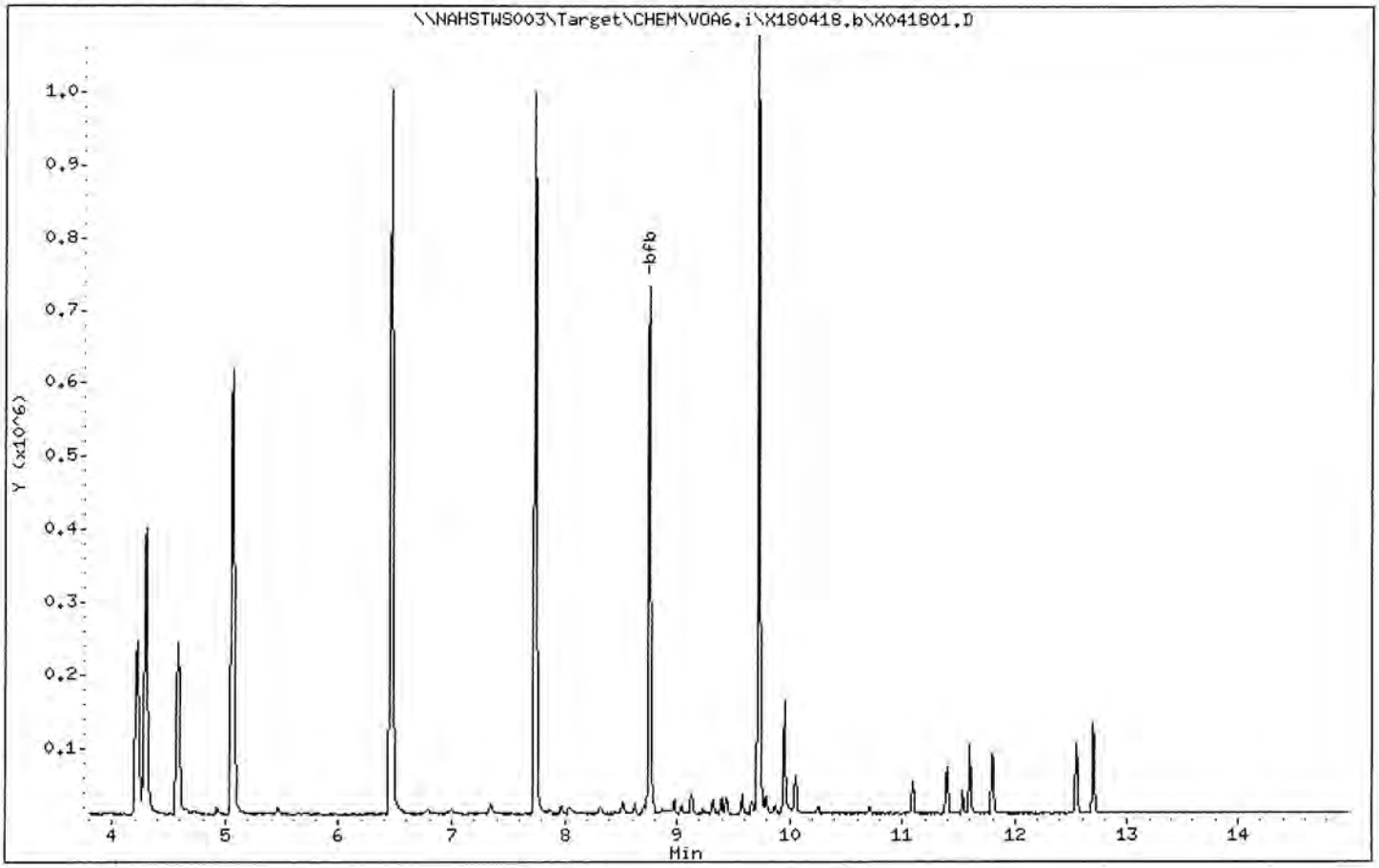
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180418.b\X041802.D
Report Date: 01-May-2018 17:37

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X180418.b\X041802.D
Lab Smp Id: CCV Client Smp ID: CCV
Inj Date : 18-APR-2018 11:45
Operator : PC Inst ID: voa6.i
Smp Info : CCV;CCV;2;;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\chem\voa6.i\X180418.b\8260W.m
Meth Date : 01-May-2018 17:37 voa6.i Quant Type: ISTD
Cal Date : 11-APR-2018 15:27 Cal File: X041108.D
Als bottle: 2 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: dn_bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
	31 1,1,1-Trichloroethane	97	4.204	4.204	(0.978)	210583	50.0000	49.74
*	1 Pentafluorobenzene	168	4.297	4.297	(1.000)	318775	50.0000	
$	30 Dibromofluoromethane	113	4.218	4.218	(0.982)	153829	50.0000	50.18
*	36 1,4-Difluorobenzene	114	5.063	5.063	(1.000)	496948	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.583	4.583	(1.067)	155961	50.0000	45.83
*	47 Chlorobenzene-d5	117	7.735	7.735	(1.000)	478424	50.0000	
$	48 Toluene-d8	98	6.460	6.460	(0.835)	587560	50.0000	49.68
$	69 4-Bromofluorobenzene	95	8.752	8.752	(1.131)	208167	50.0000	47.65
*	70 1,4-Dichlorobenzene-d4	152	9.719	9.719	(1.000)	253386	50.0000	
	68 1,1,2,2-Tetrachloroethane	83	8.895	8.895	(0.915)	187892	50.0000	47.17
	53 1,1,2-Trichloroethane	83	6.911	6.911	(0.894)	122457	50.0000	48.88
	32 1,1-Dichloropropene	75	4.390	4.390	(0.867)	207906	50.0000	48.61
	22 1,1-Dichloroethane	63	3.029	3.029	(0.705)	271829	50.0000	54.90
	11 1,1-Dichloroethene	96	2.005	2.005	(0.467)	131866	50.0000	49.18
	90 1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	209052	50.0000	55.51
	89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	28650	50.0000	46.39
	57 1,2-Dibromoethane	107	7.334	7.334	(0.948)	150819	50.0000	49.41
	88 1,2-Dichlorobenzene	146	10.049	10.049	(1.034)	312037	50.0000	47.05
	33 1,2-Dichloroethane	62	4.662	4.662	(0.921)	183216	50.0000	50.30
	42 1,2-Dichloropropane	63	5.529	5.529	(1.092)	167854	50.0000	53.14
	83 1,3-Dichlorobenzene	146	9.662	9.662	(0.994)	326574	50.0000	49.11
	84 1,4-Dichlorobenzene	146	9.741	9.741	(1.002)	330730	50.0000	48.17

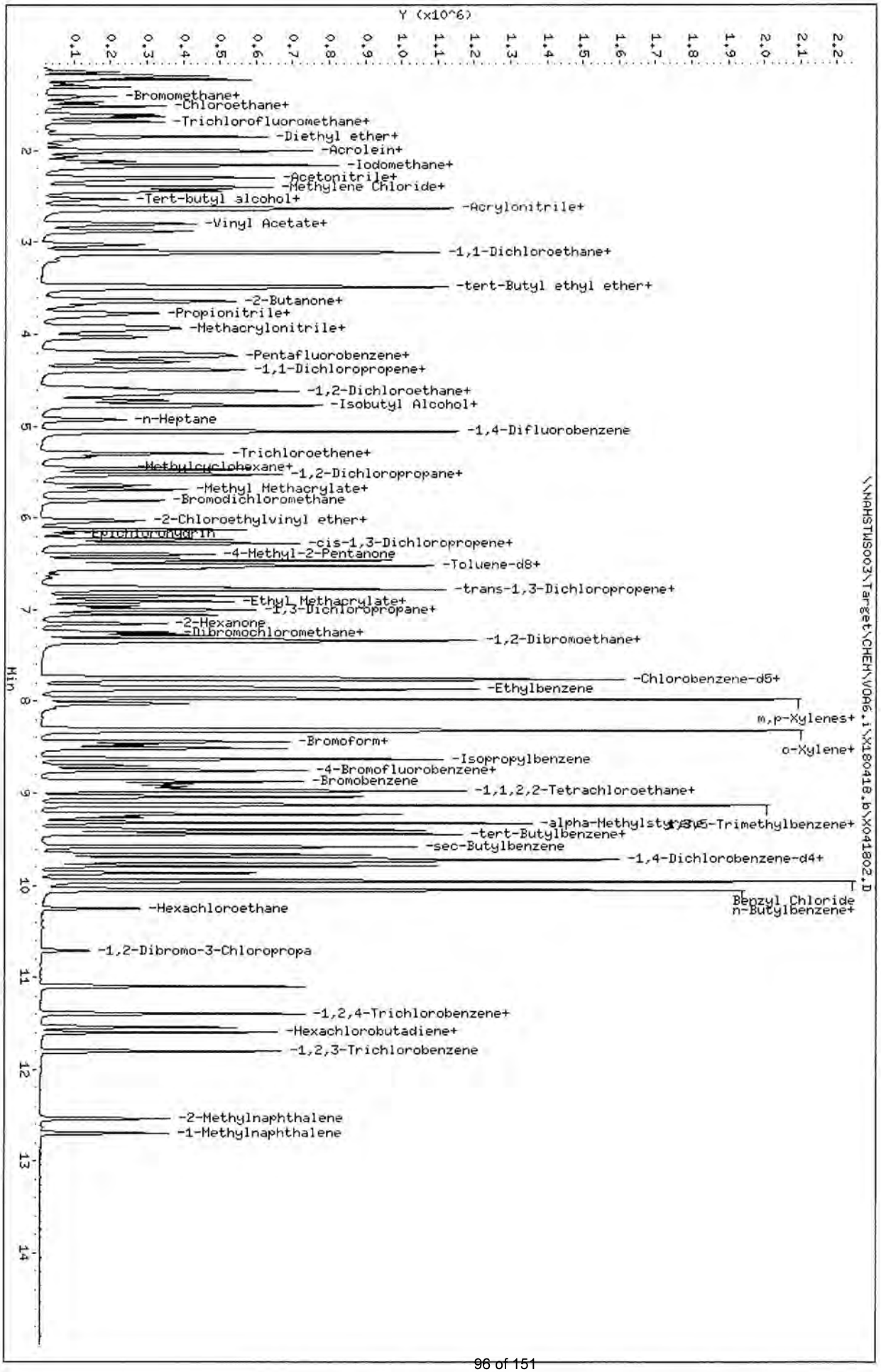
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180418.b\X041802.D
Report Date: 01-May-2018 17:37

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)	
24	2-Butanone	43	3.688	3.688	(0.858)	123737	100.000	102.76	
52	2-Hexanone	43	7.155	7.155	(0.925)	191192	100.000	95.74	
45	4-Methyl-2-Pentanone	43	6.403	6.403	(0.828)	285713	100.000	95.56	
10	Acetone	43	2.062	2.062	(0.480)	82288	100.000	92.63	
37	Benzene	78	4.619	4.619	(0.912)	618381	50.0000	48.80	
39	Bromodichloromethane	83	5.808	5.808	(1.147)	201780	50.0000	50.67	
66	Bromoform	173	8.473	8.473	(1.095)	125291	50.0000	48.50	
6	Bromomethane	94	1.410	1.410	(0.328)	88125	50.0000	43.46	
19	Carbon Disulfide	76	2.162	2.162	(0.503)	961923	100.000	101.95	
34	Carbon Tetrachloride	117	4.376	4.376	(0.864)	188754	50.0000	47.88	
59	Chlorobenzene	112	7.764	7.764	(1.004)	424757	50.0000	51.94	
7	Chloroethane	64	1.475	1.475	(0.343)	100081	50.0000	47.95	
28	Chloroform	83	4.032	4.032	(0.938)	258748	50.0000	53.67	
3	Chloromethane	50	1.145	1.145	(0.267)	152965	50.0000	43.72	
27	cis-1,2-Dichloroethene	96	3.645	3.645	(0.848)	174186	50.0000	55.13	
46	cis-1,3-Dichloropropene	75	6.231	6.231	(1.231)	274019	50.0000	51.35	
55	Dibromochloromethane	129	7.248	7.248	(0.937)	172870	50.0000	50.28	
2	Dichlorodifluoromethane	85	1.030	1.030	(0.240)	148666	50.0000	48.10	
61	Ethylbenzene	106	7.864	7.864	(1.017)	218406	50.0000	53.47	
67	Isopropylbenzene	105	8.623	8.623	(1.115)	625420	50.0000	48.61	
17	Methylene Chloride	84	2.399	2.399	(0.558)	163508	50.0000	49.78	
56	Tetrachloroethene	164	7.004	7.004	(0.906)	127588	50.0000	48.77	
50	Toluene	91	6.525	6.525	(0.844)	642336	50.0000	53.18	
20	trans-1,2-Dichloroethene	96	2.628	2.628	(0.612)	159439	50.0000	51.64	
51	trans-1,3-Dichloropropene	75	6.754	6.754	(1.334)	227682	50.0000	50.59	
38	Trichloroethene	130	5.300	5.300	(1.047)	164794	50.0000	48.82	
8	Trichlorofluoromethane	101	1.639	1.639	(0.382)	186176	50.0000	45.90	
5	Vinyl Chloride	62	1.210	1.210	(0.282)	184196	50.0000	48.30	
62	m,p-Xylenes	106	7.964	7.964	(1.030)	532741	100.000	106.23	
63	o-Xylene	106	8.308	8.308	(1.074)	262263	50.0000	52.03	
M 95	Xylenes (total)	106				795004	150.000		(a)
71	1,2,3-Trichloropropane	75	8.924	8.924	(0.918)	229054	50.0000	46.67	
93	1,2,3-Trichlorobenzene	180	11.797	11.797	(1.214)	182608	50.0000	50.80	
79	1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	541027	50.0000	48.84	
75	1,3,5-Trimethylbenzene	105	9.125	9.125	(0.939)	530262	50.0000	50.50	
26	2,2-Dichloropropane	77	3.623	3.623	(0.843)	198697	50.0000	50.78	
54	1,3-Dichloropropane	76	7.055	7.055	(0.912)	253692	50.0000	48.73	
76	2-Chlorotoluene	91	9.032	9.032	(0.929)	450303	50.0000	49.75	
77	4-Chlorotoluene	91	9.132	9.132	(0.940)	520621	50.0000	49.87	
82	p-Isopropyltoluene	119	9.397	9.397	(0.967)	453308	50.0000	46.83	
29	Bromochloromethane	128	3.917	3.917	(0.912)	86693	50.0000	56.66	
74	Bromobenzene	156	8.867	8.867	(0.912)	186874	50.0000	48.20	
44	Dibromomethane	93	5.643	5.643	(1.115)	100599	50.0000	50.52	
91	Hexachlorobutadiene	225	11.539	11.539	(1.187)	94191	50.0000	54.52	
73	n-Propylbenzene	91	8.974	8.974	(0.923)	776395	50.0000	46.62	
87	n-Butylbenzene	91	10.049	10.049	(1.034)	483422	50.0000	50.34	
81	sec-Butylbenzene	105	9.583	9.583	(0.986)	646179	50.0000	47.73	
92	Naphthalene	128	11.596	11.596	(1.193)	423008	50.0000	54.24	
78	tert-Butylbenzene	119	9.397	9.397	(0.967)	453308	50.0000	46.83	
60	1,1,1,2-Tetrachloroethane	131	7.843	7.843	(1.014)	152596	50.0000	50.66	
64	Styrene	104	8.322	8.322	(1.076)	457142	50.0000	51.69	

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180418.b\X041802.D
Report Date: 01-May-2018 17:37

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).


Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180418.b\X041802.D
Date : 18-APR-2018 11:45
Client ID: CCV
Sample Info: CCV;CCV;2;;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
\\NAHSTWS003\Target\CHEM\VOA6.i\X180418.b\X041802.D
Y (x10^6)
Min
-Bromomethane+
-Chloroethane+
-Trichlorofluoromethane+
-Diethyl ether+
-Acrolein+
-Iodomethane+
-Acetonitrile+
-Methylene Chloride+
-Tert-butyl alcohol+
-Acrylonitrile+
-Vinyl Acetate+
-1,1-Dichloroethane+
-tert-Butyl ethyl ether+
-2-Butanone+
-Propionitrile+
-Methacrylonitrile+
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-Isobutyl Alcohol+
-n-Heptane
-1,4-Difluorobenzene
-Trichloroethene+
-Methylcyclohexane+
-1,2-Dichloropropane+
-Methyl Methacrylate+
-Bromodichloromethane
-2-Chloroethylvinyl ether+
-Epichlorohydrin
-cis-1,3-Dichloropropene+
-4-Methyl-2-Pentanone
-Toluene-d8+
-trans-1,3-Dichloropropene+
-Ethyl Methacrylate+
-1,3-Dichloropropane+
-2-Hexanone
-Dibromochloromethane+
-1,2-Dibromoethane+
-Chlorobenzene-d5+
-Ethylbenzene
m,p-Xylenes+
o-Xylene+
-Bromoform+
-Isopropylbenzene
-4-Bromofluorobenzene+
-Bromobenzene
-1,1,2,2-Tetrachloroethane+
-alpha-Methylstyrene
-1,3,5-Trimethylbenzene+
-tert-Butylbenzene+
-sec-Butylbenzene
-1,4-Dichlorobenzene-d4+
Benzyl Chloride
n-Butylbenzene+
-Hexachloroethane
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene+
-Hexachlorobutadiene+
-1,2,3-Trichlorobenzene
-2-Methylnaphthalene
-1-Methylnaphthalene

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180418.b\X041803.D
Report Date: 01-May-2018 17:37

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X180418.b\X041803.D
Lab Smp Id: VLCSW-180418 Client Smp ID: VLCSW-180418
Inj Date : 18-APR-2018 12:10
Operator : PC Inst ID: voa6.i
Smp Info : VLCSW-180418;VLCSW-180418;3;;LCS
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\chem\voa6.i\X180418.b\8260W.m
Meth Date : 01-May-2018 17:37 voa6.i Quant Type: ISTD
Cal Date : 11-APR-2018 15:27 Cal File: X041108.D
Als bottle: 3 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: dn_bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7056

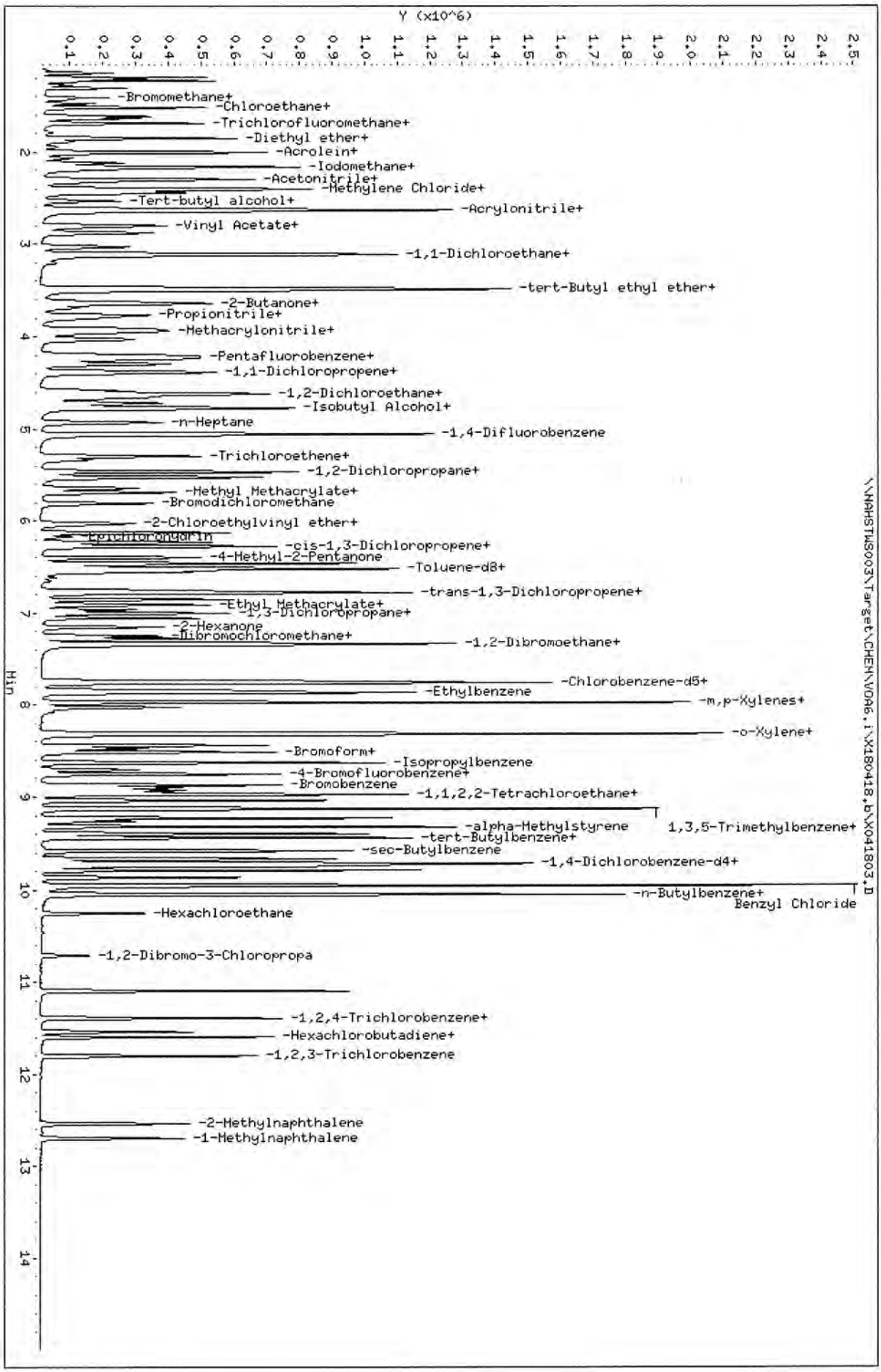
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
	31 1,1,1-Trichloroethane	97	4.204	4.204	(0.978)	203343	48.9058	48.90
*	1 Pentafluorobenzene	168	4.297	4.297	(1.000)	313358	50.0000	
$	30 Dibromofluoromethane	113	4.218	4.218	(0.982)	152341	50.5573	50.55
*	36 1,4-Difluorobenzene	114	5.063	5.063	(1.000)	486664	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.576	4.583	(1.065)	153911	46.0188	46.01
*	47 Chlorobenzene-d5	117	7.735	7.735	(1.000)	468399	50.0000	
$	48 Toluene-d8	98	6.460	6.460	(0.835)	574458	49.6145	49.61
$	69 4-Bromofluorobenzene	95	8.752	8.752	(1.131)	204804	47.8921	47.89
*	70 1,4-Dichlorobenzene-d4	152	9.719	9.719	(1.000)	243351	50.0000	
	68 1,1,2,2-Tetrachloroethane	83	8.895	8.895	(0.915)	196191	51.1944	51.19
	53 1,1,2-Trichloroethane	83	6.911	6.911	(0.894)	124425	50.7342	50.73
	32 1,1-Dichloropropene	75	4.390	4.390	(0.867)	197324	47.1982	47.19
	22 1,1-Dichloroethane	63	3.029	3.029	(0.705)	268638	55.1985	55.19
	11 1,1-Dichloroethene	96	2.005	2.005	(0.467)	126861	48.2049	48.20
	90 1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	211652	58.2662	58.26
	89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	32101	53.7626	53.76
	57 1,2-Dibromoethane	107	7.334	7.334	(0.948)	155734	52.1209	52.12
	88 1,2-Dichlorobenzene	146	10.049	10.049	(1.034)	307792	48.2828	48.28
	33 1,2-Dichloroethane	62	4.662	4.662	(0.921)	180680	50.6520	50.65
	42 1,2-Dichloropropane	63	5.529	5.529	(1.092)	165485	53.5026	53.50
	83 1,3-Dichlorobenzene	146	9.662	9.662	(0.994)	319193	49.9860	49.98
	84 1,4-Dichlorobenzene	146	9.741	9.741	(1.002)	323142	49.0103	49.01

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180418.b\X041803.D
Report Date: 01-May-2018 17:37

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
24	2-Butanone	43	3.688	3.688	(0.858)	129621	109.493	109.49
52	2-Hexanone	43	7.155	7.155	(0.925)	199957	102.152	102.15
45	4-Methyl-2-Pentanone	43	6.403	6.403	(0.828)	300268	102.509	102.50
10	Acetone	43	2.062	2.062	(0.480)	86827	99.4856	99.48
37	Benzene	78	4.619	4.619	(0.912)	608513	49.0340	49.03
39	Bromodichloromethane	83	5.808	5.808	(1.147)	204012	52.3142	52.31
66	Bromoform	173	8.473	8.473	(1.095)	128511	50.8189	50.81
6	Bromomethane	94	1.410	1.410	(0.328)	88782	44.4551	44.45
19	Carbon Disulfide	76	2.162	2.162	(0.503)	934341	100.805	100.80
34	Carbon Tetrachloride	117	4.383	4.376	(0.866)	178714	46.3924	46.39
59	Chlorobenzene	112	7.764	7.764	(1.004)	423027	52.8366	52.83
7	Chloroethane	64	1.475	1.475	(0.343)	100056	48.7246	48.72
28	Chloroform	83	4.032	4.032	(0.938)	258675	54.5855	54.58
3	Chloromethane	50	1.145	1.145	(0.267)	158060	45.7949	45.79
27	cis-1,2-Dichloroethene	96	3.645	3.645	(0.848)	174394	56.1519	56.15
46	cis-1,3-Dichloropropene	75	6.231	6.231	(1.231)	280233	53.6256	53.62
55	Dibromochloromethane	129	7.248	7.248	(0.937)	175323	52.0880	52.08
2	Dichlorodifluoromethane	85	1.030	1.030	(0.240)	136005	45.0289	45.02
61	Ethylbenzene	106	7.864	7.864	(1.017)	211964	53.0122	53.01
67	Isopropylbenzene	105	8.623	8.623	(1.115)	596532	47.4166	47.41
17	Methylene Chloride	84	2.399	2.399	(0.558)	162683	50.3807	50.38
56	Tetrachloroethene	164	7.004	7.004	(0.906)	123596	48.2892	48.28
50	Toluene	91	6.525	6.525	(0.844)	633767	53.5976	53.59
20	trans-1,2-Dichloroethene	96	2.628	2.628	(0.612)	155225	51.1644	51.16
51	trans-1,3-Dichloropropene	75	6.754	6.754	(1.334)	225654	51.2082	51.20
38	Trichloroethene	130	5.300	5.300	(1.047)	162146	49.0385	49.03
8	Trichlorofluoromethane	101	1.639	1.639	(0.382)	182066	45.6893	45.68
5	Vinyl Chloride	62	1.210	1.210	(0.282)	175376	46.8936	46.89
62	m,p-Xylenes	106	7.964	7.964	(1.030)	519756	105.864	105.86
63	o-Xylene	106	8.301	8.308	(1.073)	263801	53.4647	53.46
M 95	Xylenes (total)	106				783557	159.329	159.32
71	1,2,3-Trichloropropane	75	8.924	8.924	(0.918)	239671	50.7261	50.72
93	1,2,3-Trichlorobenzene	180	11.797	11.797	(1.214)	190462	54.9325	54.93
79	1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	529531	49.7742	49.77
75	1,3,5-Trimethylbenzene	105	9.125	9.125	(0.939)	510525	50.6298	50.62
26	2,2-Dichloropropane	77	3.623	3.623	(0.843)	194371	50.5455	50.54
54	1,3-Dichloropropane	76	7.055	7.055	(0.912)	254712	49.9751	49.97
76	2-Chlorotoluene	91	9.032	9.032	(0.929)	443838	51.0588	51.05
77	4-Chlorotoluene	91	9.132	9.132	(0.940)	509692	50.8397	50.83
82	p-Isopropyltoluene	119	9.397	9.397	(0.967)	426113	45.8913	45.89
29	Bromochloromethane	128	3.917	3.917	(0.912)	86220	57.3282	57.32
74	Bromobenzene	156	8.867	8.867	(0.912)	187507	50.3578	50.35
44	Dibromomethane	93	5.636	5.643	(1.113)	102309	52.4732	52.47
91	Hexachlorobutadiene	225	11.539	11.539	(1.187)	82414	49.9973	49.99
73	n-Propylbenzene	91	8.974	8.974	(0.923)	744697	46.5673	46.56
87	n-Butylbenzene	91	10.049	10.049	(1.034)	442937	48.1487	48.14
81	sec-Butylbenzene	105	9.583	9.583	(0.986)	601698	46.3653	46.36
92	Naphthalene	128	11.596	11.596	(1.193)	473243	62.5858	62.58
78	tert-Butylbenzene	119	9.397	9.397	(0.967)	426113	45.8913	45.89
60	1,1,1,2-Tetrachloroethane	131	7.843	7.843	(1.014)	151241	51.2941	51.29
64	Styrene	104	8.322	8.322	(1.076)	455687	52.6285	52.62



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180418.b\X041803.D
Date : 18-APR-2018 12:10
Client ID: VLCSW-180418
Sample Info: VLCSW-180418;VLCSW-180418;3;;LCS
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180418.b\X041806.D
Report Date: 01-May-2018 17:38

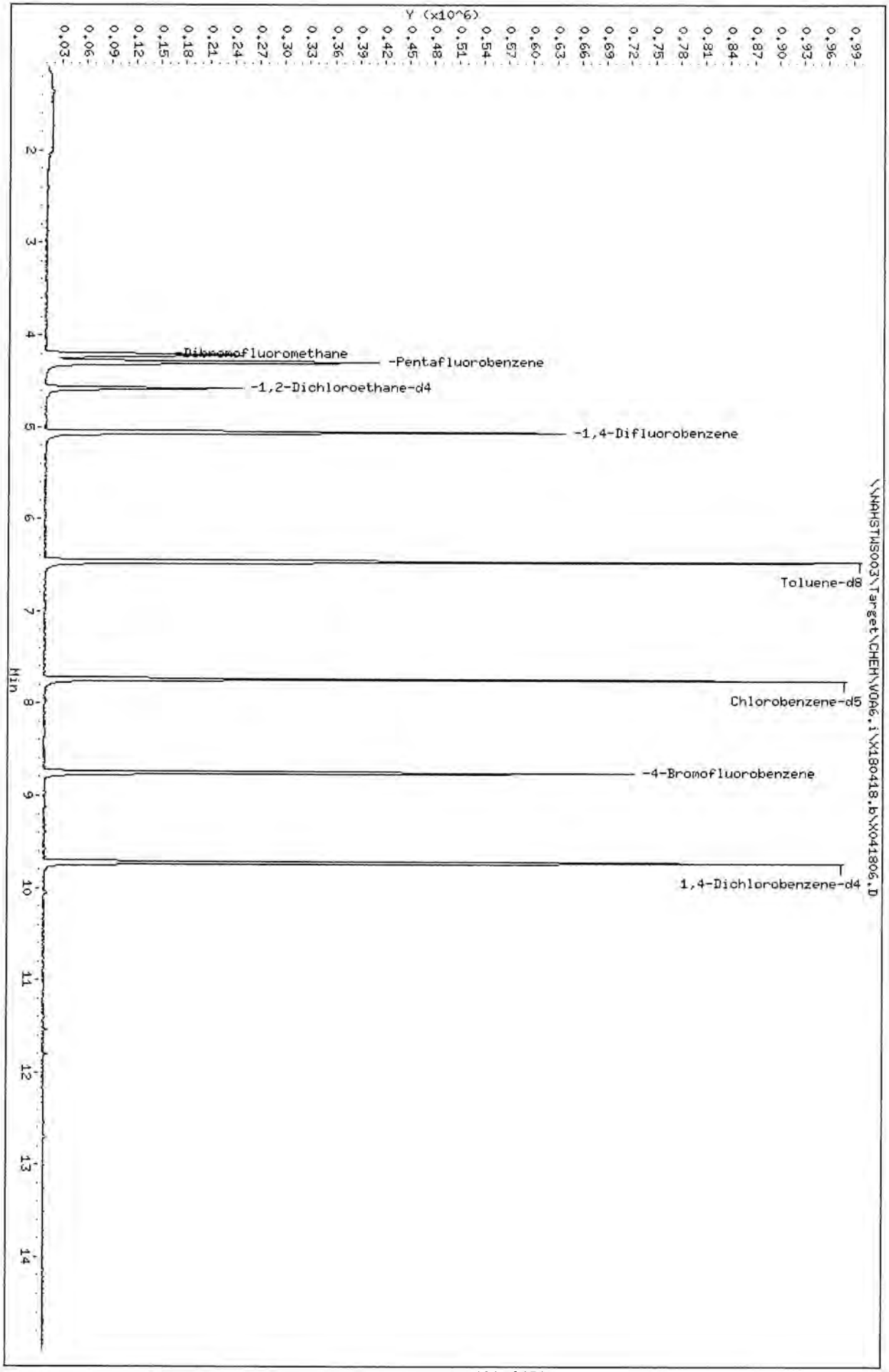
ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X180418.b\X041806.D
Lab Smp Id: VBLKW-180418 Client Smp ID: VBLKW-180418
Inj Date : 18-APR-2018 13:24
Operator : PC Inst ID: voa6.i
Smp Info : VBLKW-180418;VBLKW-180418;3;;BLANK
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\chem\voa6.i\X180418.b\8260W.m
Meth Date : 01-May-2018 17:37 voa6.i Quant Type: ISTD
Cal Date : 11-APR-2018 15:27 Cal File: X041108.D
Als bottle: 6 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: dn_bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.297	4.297	(1.000)	323724	50.0000	
$	30 Dibromofluoromethane	113	4.218	4.218	(0.982)	157814	50.6965	50.69
*	36 1,4-Difluorobenzene	114	5.063	5.063	(1.000)	503824	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.576	4.583	(1.065)	162131	46.9243	46.92
*	47 Chlorobenzene-d5	117	7.735	7.735	(1.000)	485229	50.0000	
$	48 Toluene-d8	98	6.460	6.460	(0.835)	600134	50.0343	50.03
$	69 4-Bromofluorobenzene	95	8.752	8.752	(1.131)	213350	48.1601	48.16
*	70 1,4-Dichlorobenzene-d4	152	9.719	9.719	(1.000)	240731	50.0000	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Date : 18-APR-2018 13:24
Client ID: VBLKW-180418
Sample Info: VBLKW-180418;VBLKW-180418;3;;BLANK
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6,i
Operator: PC
Column diameter: 0.18
\\NAHSTWS003\Target\CHEM\VOA6,i\X180418,b\X041806.D
Y (x10^6)
Min
Dibromofluoromethane
-Pentafluorobenzene
-1,2-Dichloroethane-d4
-1,4-Difluorobenzene
Toluene-d8
Chlorobenzene-d5
-4-Bromofluorobenzene
1,4-Dichlorobenzene-d4

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180418.b\X041807.D
Report Date: 01-May-2018 17:38

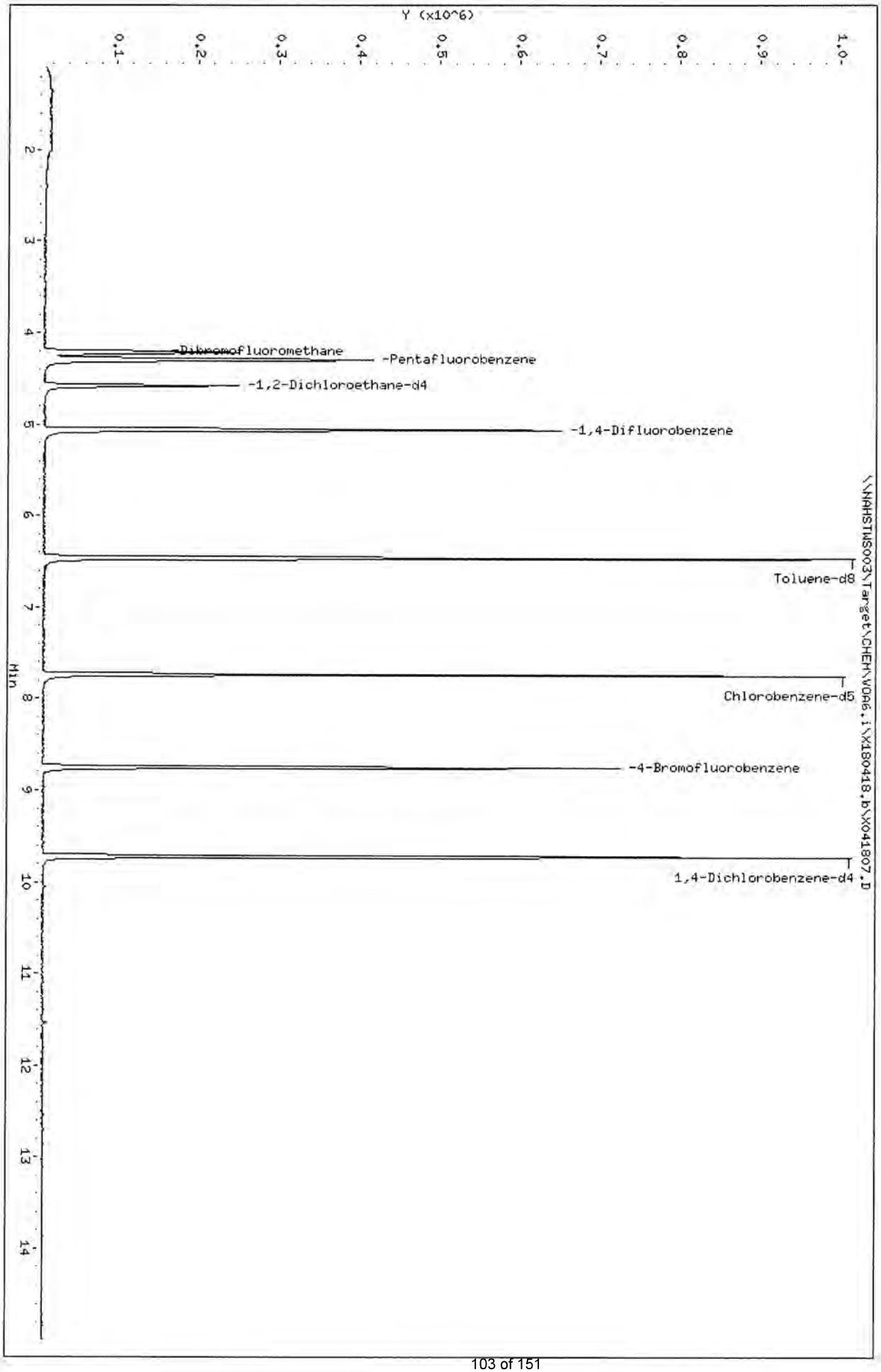
ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X180418.b\X041807.D
Lab Smp Id: HS18040244-02 Client Smp ID: HS18040244-02
Inj Date : 18-APR-2018 13:48
Operator : PC Inst ID: voa6.i
Smp Info : HS18040244-02;HS18040244-02;;;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\chem\voa6.i\X180418.b\8260W.m
Meth Date : 01-May-2018 17:37 voa6.i Quant Type: ISTD
Cal Date : 11-APR-2018 15:27 Cal File: X041108.D
Als bottle: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: dn_bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.297	4.297	(1.000)	324337	50.0000	
$	30 Dibromofluoromethane	113	4.218	4.218	(0.982)	157129	50.3811	50.38
*	36 1,4-Difluorobenzene	114	5.063	5.063	(1.000)	516745	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.576	4.583	(1.065)	164335	47.4723	47.47
*	47 Chlorobenzene-d5	117	7.735	7.735	(1.000)	493856	50.0000	
$	48 Toluene-d8	98	6.460	6.460	(0.835)	608503	49.8458	49.84
$	69 4-Bromofluorobenzene	95	8.752	8.752	(1.131)	213581	47.3701	47.37
*	70 1,4-Dichlorobenzene-d4	152	9.719	9.719	(1.000)	242453	50.0000	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Date : 18-APR-2018 13:48
Client ID: HS18040244-02
Sample Info: HS18040244-02;HS18040244-02;;;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
Y (x10^6)
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
Dibromofluoromethane
-Pentafluorobenzene
-1,2-Dichloroethane-d4
-1,4-Difluorobenzene
Toluene-d8
Chlorobenzene-d5
-4-Bromofluorobenzene
1,4-Dichlorobenzene-d4
\\NAHSTWS003\Target\CHEM\VOA6.i\X180418.b\X041807.D
Min
2
3
4
5
6
7
8
9
10
11
12
13
14

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180418.b\X041808.D
Report Date: 01-May-2018 17:38

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X180418.b\X041808.D
Lab Smp Id: HS18040244-01 Client Smp ID: HS18040244-01
Inj Date : 18-APR-2018 14:13
Operator : PC Inst ID: voa6.i
Smp Info : HS18040244-01;HS18040244-01;;;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\chem\voa6.i\X180418.b\8260W.m
Meth Date : 01-May-2018 17:37 voa6.i Quant Type: ISTD
Cal Date : 11-APR-2018 15:27 Cal File: X041108.D
Als bottle: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: dn_bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7056

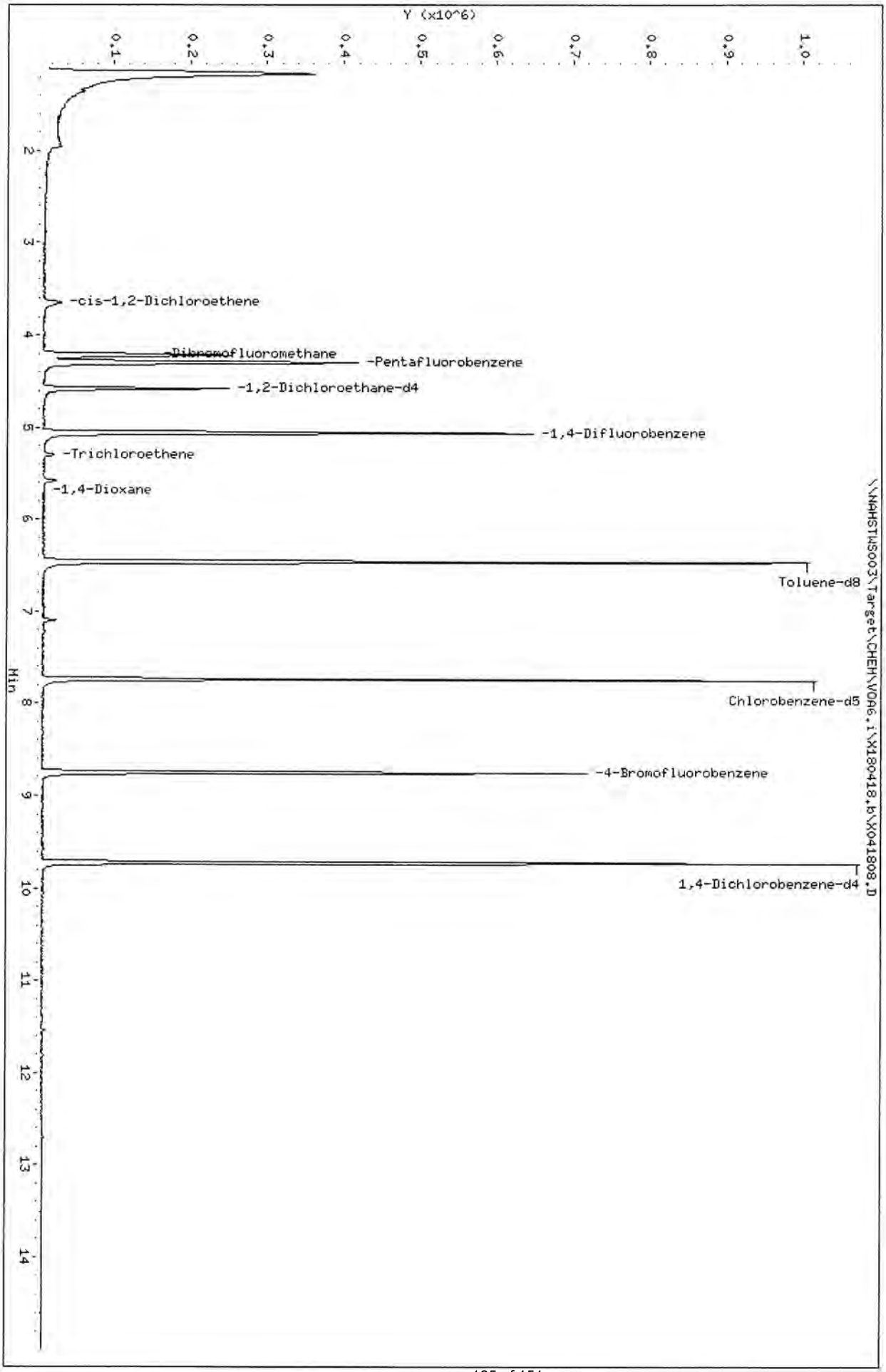
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.297	4.297	(1.000)	328267	50.0000	
$	30 Dibromofluoromethane	113	4.218	4.218	(0.982)	160023	50.6947	50.69
*	36 1,4-Difluorobenzene	114	5.063	5.063	(1.000)	515631	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.583	4.583	(1.067)	166126	47.4151	47.41
*	47 Chlorobenzene-d5	117	7.735	7.735	(1.000)	493519	50.0000	
$	48 Toluene-d8	98	6.460	6.460	(0.835)	605491	49.6330	49.63
$	69 4-Bromofluorobenzene	95	8.752	8.752	(1.131)	213895	47.4721	47.47
*	70 1,4-Dichlorobenzene-d4	152	9.719	9.719	(1.000)	250813	50.0000	
	27 cis-1,2-Dichloroethene	96	3.645	3.645	(0.848)	11717	3.60133	3.60(a)
	38 Trichloroethene	130	5.299	5.300	(1.047)	4999	4.10714	4.10(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).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Date : 18-APR-2018 14:13
Client ID: HS18040244-01
Sample Info: HS18040244-01;HS18040244-01;;;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
Y (x10^6)
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
2
3
4
5
6
7
8
9
10
11
12
13
14
Min
-cis-1,2-Dichloroethene
-Dibromofluoromethane
-Pentafluorobenzene
-1,2-Dichloroethane-d4
-1,4-Difluorobenzene
-Trichloroethene
-1,4-Dioxane
Toluene-d8
Chlorobenzene-d5
-4-Bromofluorobenzene
1,4-Dichlorobenzene-d4
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Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180418.b\X041808.D

Date : 18-APR-2018 14:13

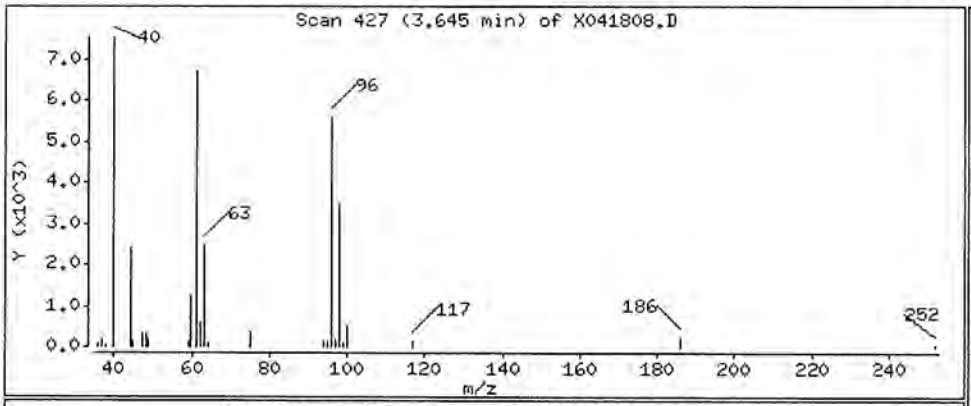
Client ID: HS18040244-01 Instrument: voa6.i

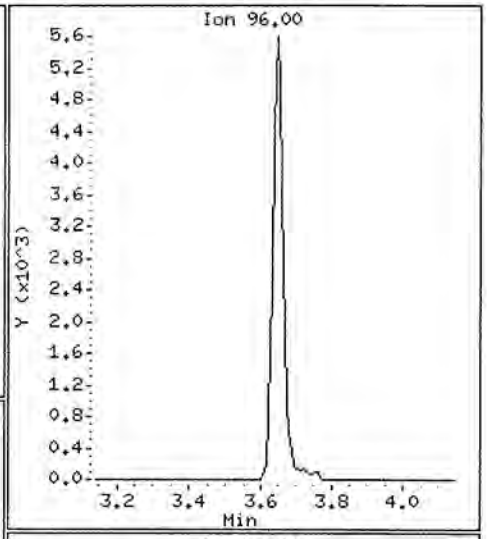
Sample Info: HS18040244-01;HS18040244-01;;;

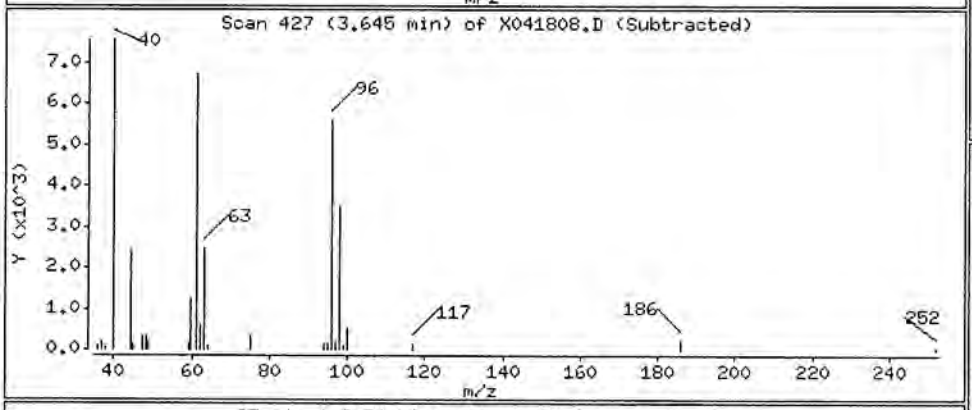
Purge Volume: 5.0 Operator: PC

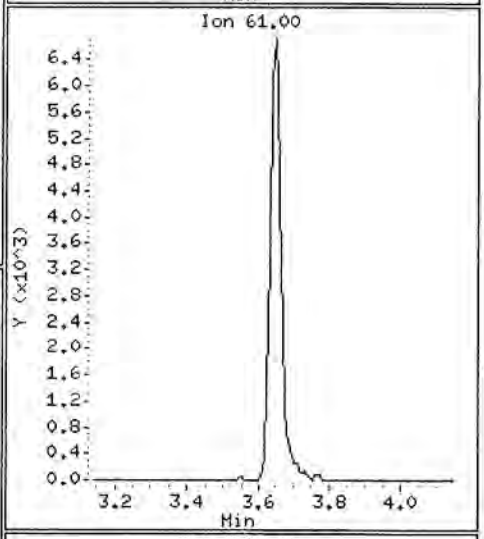
Column phase: DB624 Column diameter: 0.18

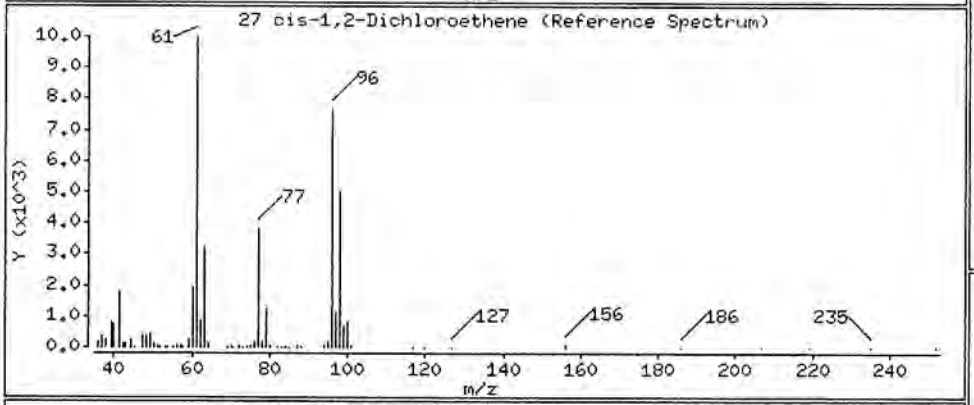
27 cis-1,2-Dichloroethene Concentration: 3.60 ug/l Review Code:

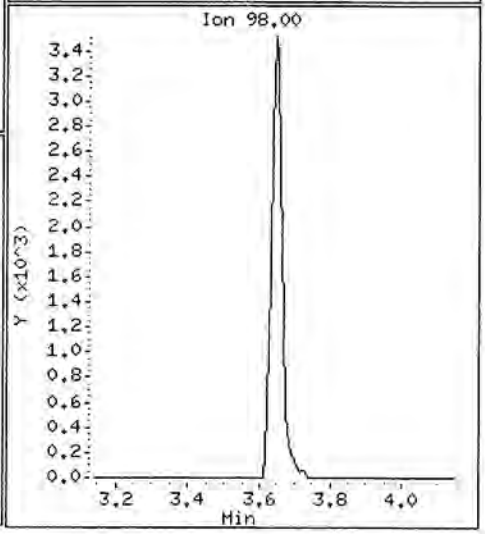


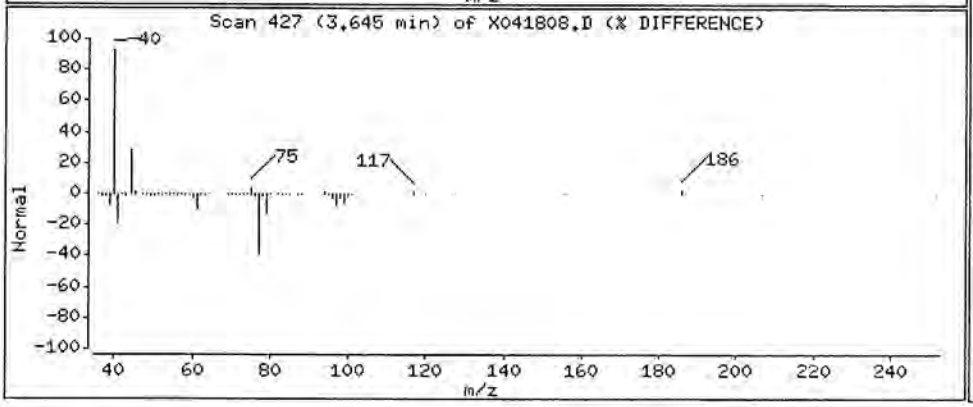












Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180418.b\X041808.D

Date : 18-APR-2018 14:13

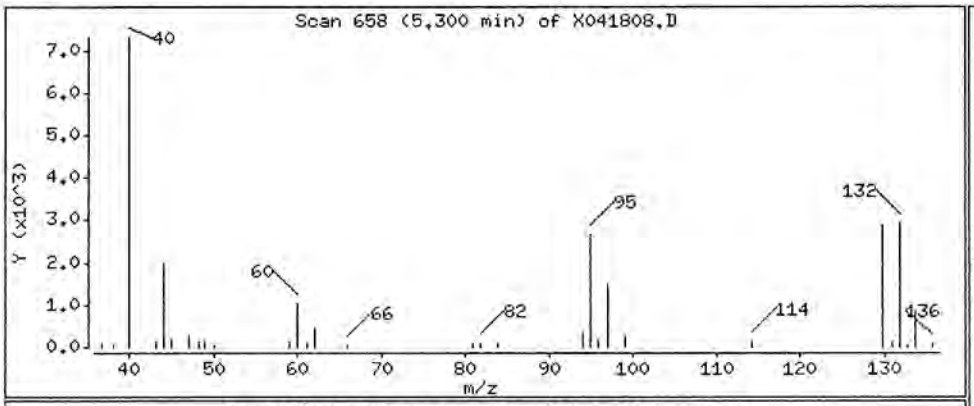
Client ID: HS18040244-01 Instrument: voa6.i

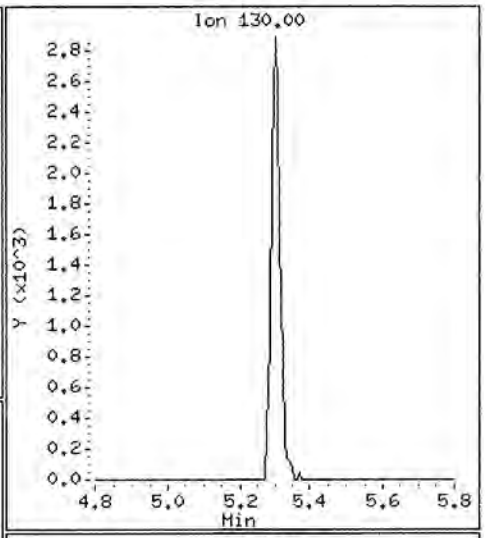
Sample Info: HS18040244-01;HS18040244-01;;;

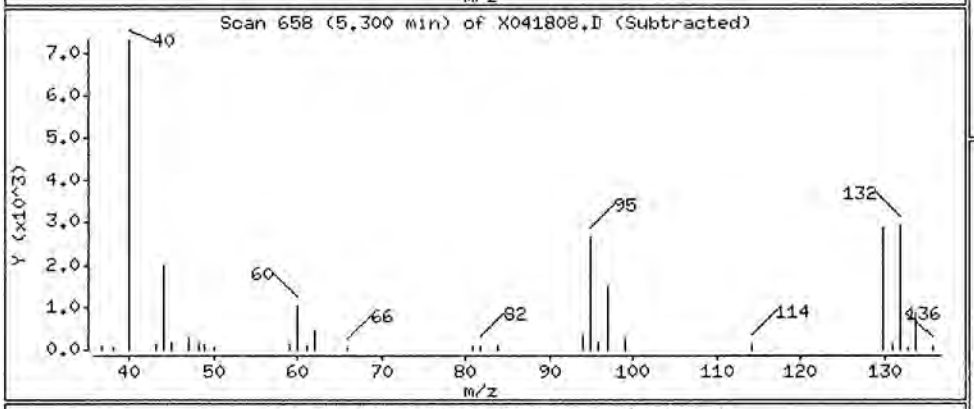
Purge Volume: 5.0 Operator: PC

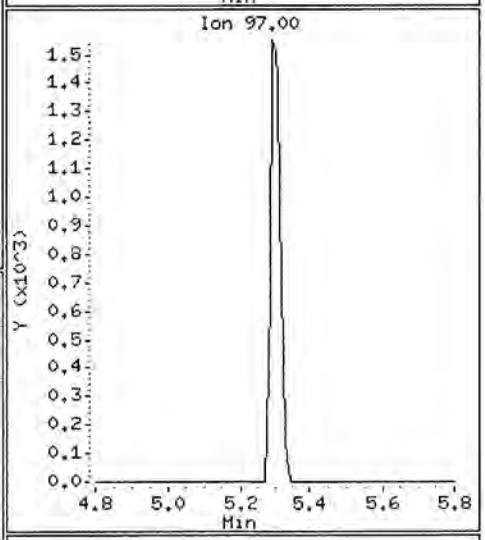
Column phase: DB624 Column diameter: 0.18

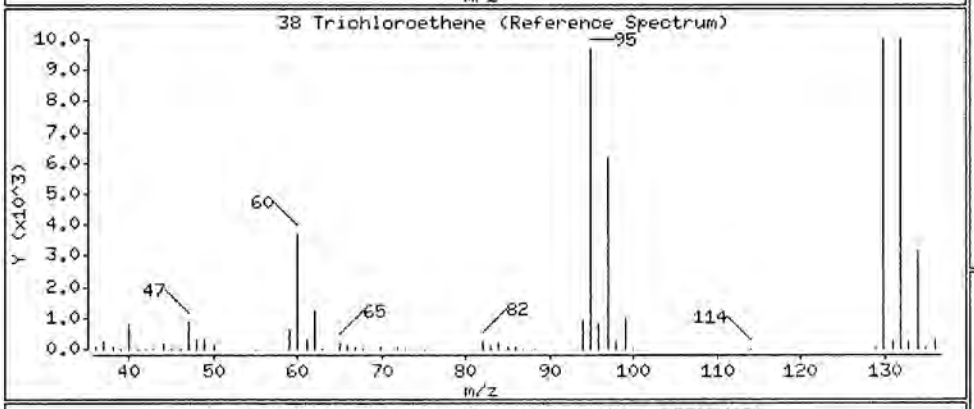
38 Trichloroethene Concentration: 4.10 ug/l Review Code:

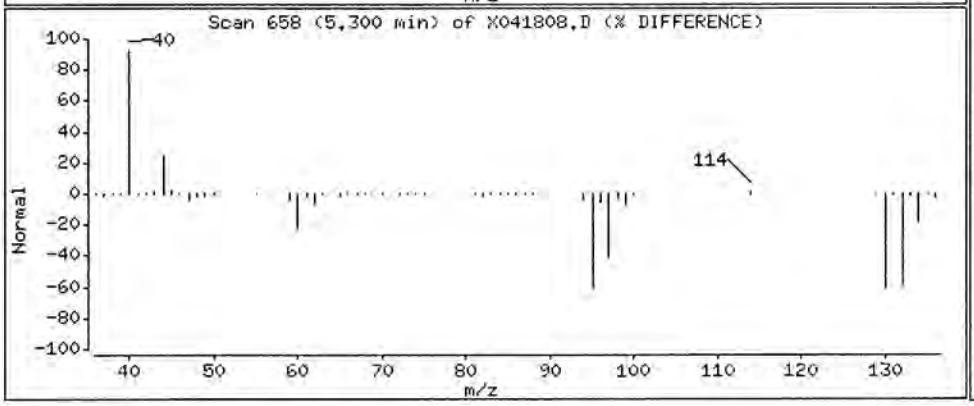


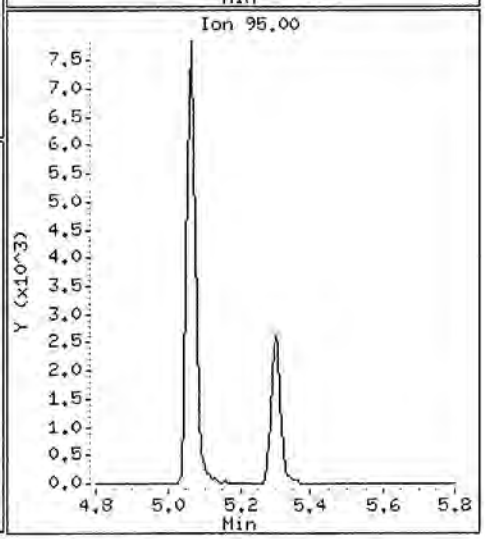












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Report Date: 01-May-2018 17:38

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X180418.b\X041817.D
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Inj Date : 18-APR-2018 17:54
Operator : PC Inst ID: voa6.i
Smp Info : HS18040244-01MS;HS18040244-01MS;3;;MS
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\chem\voa6.i\X180418.b\8260W.m
Meth Date : 01-May-2018 17:37 voa6.i Quant Type: ISTD
Cal Date : 11-APR-2018 15:27 Cal File: X041108.D
Als bottle: 17 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: dn_bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7056

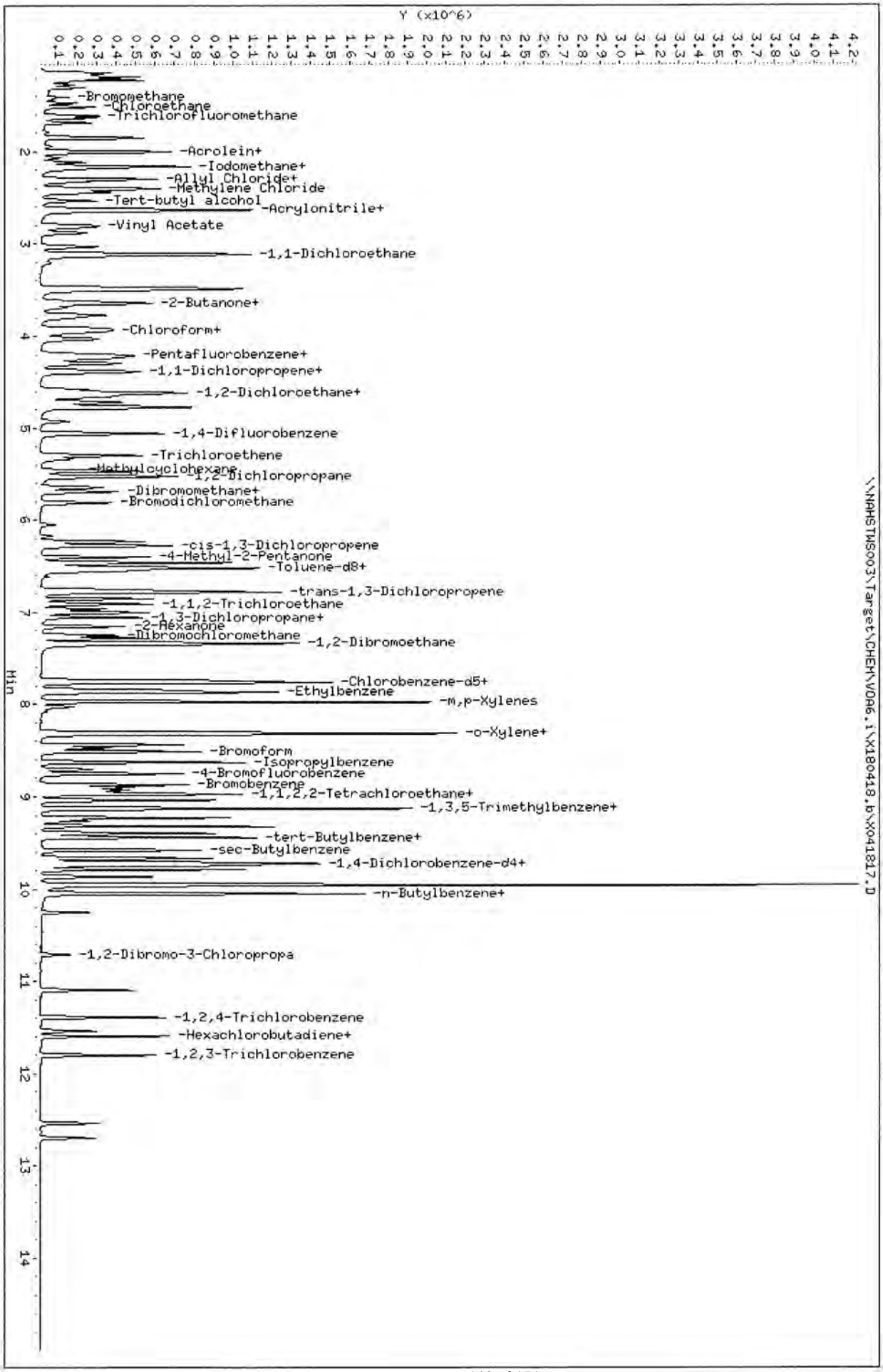
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
	31 1,1,1-Trichloroethane	97	4.204	4.204	(0.978)	206367	47.2753	47.27
*	1 Pentafluorobenzene	168	4.297	4.297	(1.000)	329516	50.0000	
$	30 Dibromofluoromethane	113	4.218	4.218	(0.982)	157104	49.5814	49.58
*	36 1,4-Difluorobenzene	114	5.063	5.063	(1.000)	514798	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.583	4.583	(1.067)	159081	45.2322	45.23
*	47 Chlorobenzene-d5	117	7.735	7.735	(1.000)	501953	50.0000	
$	48 Toluene-d8	98	6.460	6.460	(0.835)	591879	47.7020	47.70
$	69 4-Bromofluorobenzene	95	8.752	8.752	(1.131)	211320	46.1125	46.11
*	70 1,4-Dichlorobenzene-d4	152	9.719	9.719	(1.000)	263789	50.0000	
	68 1,1,2,2-Tetrachloroethane	83	8.896	8.895	(0.915)	215647	51.8968	51.89
	53 1,1,2-Trichloroethane	83	6.911	6.911	(0.894)	134141	51.0396	51.03
	32 1,1-Dichloropropene	75	4.390	4.390	(0.867)	194476	44.1587	44.15
	22 1,1-Dichloroethane	63	3.029	3.029	(0.705)	294161	57.4790	57.47
	11 1,1-Dichloroethene	96	2.005	2.005	(0.467)	129073	46.7402	46.74
	90 1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	182207	47.0876	47.08
	89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	32450	50.2829	50.28
	57 1,2-Dibromoethane	107	7.334	7.334	(0.948)	167410	52.2832	52.28
	88 1,2-Dichlorobenzene	146	10.049	10.049	(1.034)	315671	45.7716	45.77
	33 1,2-Dichloroethane	62	4.662	4.662	(0.921)	198214	52.5307	52.53
	42 1,2-Dichloropropane	63	5.529	5.529	(1.092)	180208	55.0785	55.07
	83 1,3-Dichlorobenzene	146	9.662	9.662	(0.994)	323223	46.6954	46.69
	84 1,4-Dichlorobenzene	146	9.741	9.741	(1.002)	331138	46.3318	46.33

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180418.b\X041817.D
Report Date: 01-May-2018 17:38

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
24	2-Butanone	43	3.688	3.688	(0.858)	144841	116.336	116.33
52	2-Hexanone	43	7.155	7.155	(0.925)	229344	109.204	109.20
45	4-Methyl-2-Pentanone	43	6.403	6.403	(0.828)	348152	110.824	110.82
10	Acetone	43	2.062	2.062	(0.480)	87905	95.7545	95.75
37	Benzene	78	4.619	4.619	(0.912)	650367	49.5196	49.51
39	Bromodichloromethane	83	5.808	5.808	(1.147)	220598	53.4758	53.47
66	Bromoform	173	8.473	8.473	(1.095)	142888	52.7271	52.72
6	Bromomethane	94	1.410	1.410	(0.328)	47872	24.0740	24.07
19	Carbon Disulfide	76	2.162	2.162	(0.503)	919719	94.7181	94.71
34	Carbon Tetrachloride	117	4.383	4.376	(0.866)	170754	42.1740	42.17
59	Chlorobenzene	112	7.764	7.764	(1.004)	446309	52.0182	52.01
7	Chloroethane	64	1.475	1.475	(0.343)	174815	79.2151	79.21
28	Chloroform	83	4.032	4.032	(0.938)	275497	55.2845	55.28
3	Chloromethane	50	1.145	1.145	(0.267)	146197	40.6746	40.67
27	cis-1,2-Dichloroethene	96	3.645	3.645	(0.848)	195164	59.7581	59.75
46	cis-1,3-Dichloropropene	75	6.231	6.231	(1.231)	297328	53.7874	53.78
55	Dibromochloromethane	129	7.248	7.248	(0.937)	188476	52.2526	52.25
2	Dichlorodifluoromethane	85	1.031	1.030	(0.240)	94558	31.0468	31.04
61	Ethylbenzene	106	7.864	7.864	(1.017)	219114	51.1372	51.13
67	Isopropylbenzene	105	8.623	8.623	(1.115)	588563	43.8256	43.82
17	Methylene Chloride	84	2.399	2.399	(0.558)	176609	51.9803	51.98
56	Tetrachloroethene	164	7.004	7.004	(0.906)	120443	44.1502	44.15
50	Toluene	91	6.525	6.525	(0.844)	668677	52.7698	52.76
20	trans-1,2-Dichloroethene	96	2.628	2.628	(0.612)	162008	50.7965	50.79
51	trans-1,3-Dichloropropene	75	6.754	6.754	(1.334)	246345	52.8485	52.84
38	Trichloroethene	130	5.300	5.300	(1.047)	171732	49.0958	49.09
8	Trichlorofluoromethane	101	1.639	1.639	(0.382)	156661	37.9983	37.99
5	Vinyl Chloride	62	1.210	1.210	(0.282)	169444	43.3505	43.35
62	m,p-Xylenes	106	7.971	7.964	(1.031)	537578	102.175	102.17
63	o-Xylene	106	8.301	8.308	(1.073)	271232	51.2961	51.29
M 95	Xylenes (total)	106				808810	153.471	153.47
71	1,2,3-Trichloropropane	75	8.924	8.924	(0.918)	255831	49.9728	49.97
93	1,2,3-Trichlorobenzene	180	11.797	11.797	(1.214)	162364	43.8129	43.81
79	1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	523670	45.4095	45.40
75	1,3,5-Trimethylbenzene	105	9.125	9.125	(0.939)	494861	45.2740	45.27
26	2,2-Dichloropropane	77	3.631	3.623	(0.845)	194879	48.2841	48.28
54	1,3-Dichloropropane	76	7.055	7.055	(0.912)	280267	51.3132	51.31
76	2-Chlorotoluene	91	9.032	9.032	(0.929)	451596	47.9261	47.92
77	4-Chlorotoluene	91	9.132	9.132	(0.940)	520807	47.9235	47.92
82	p-Isopropyltoluene	119	9.397	9.397	(0.967)	398795	39.9585	39.95
29	Bromochloromethane	128	3.917	3.917	(0.912)	92365	58.4026	58.40
74	Bromobenzene	156	8.867	8.867	(0.912)	197358	48.8968	48.89
44	Dibromomethane	93	5.644	5.643	(1.115)	111113	53.8742	53.87
91	Hexachlorobutadiene	225	11.539	11.539	(1.187)	50693	29.9278	29.92
73	n-Propylbenzene	91	8.974	8.974	(0.923)	717724	41.6730	41.67
87	n-Butylbenzene	91	10.049	10.049	(1.034)	365977	37.2951	37.29
81	sec-Butylbenzene	105	9.583	9.583	(0.986)	526906	37.9853	37.98
92	Naphthalene	128	11.596	11.596	(1.193)	438331	54.0039	54.00
78	tert-Butylbenzene	119	9.397	9.397	(0.967)	398795	39.9585	39.95
60	1,1,1,2-Tetrachloroethane	131	7.843	7.843	(1.014)	163167	51.6397	51.63
64	Styrene	104	8.322	8.322	(1.076)	479879	51.7177	51.71



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Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

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Report Date: 01-May-2018 17:38

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Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X180418.b\X041818.D
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Inj Date : 18-APR-2018 18:18
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Misc Info : HS16030331;WATER;0;1;
Comment :
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Meth Date : 01-May-2018 17:37 voa6.i Quant Type: ISTD
Cal Date : 11-APR-2018 15:27 Cal File: X041108.D
Als bottle: 18 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: dn_bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
	31 1,1,1-Trichloroethane	97	4.204	4.204	(0.978)	212200	49.7221	49.72
*	1 Pentafluorobenzene	168	4.297	4.297	(1.000)	321392	50.0000	
$	30 Dibromofluoromethane	113	4.218	4.218	(0.982)	154325	49.9354	49.93
*	36 1,4-Difluorobenzene	114	5.063	5.063	(1.000)	502792	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.576	4.583	(1.065)	156915	45.7442	45.74
*	47 Chlorobenzene-d5	117	7.735	7.735	(1.000)	488067	50.0000	
$	48 Toluene-d8	98	6.460	6.460	(0.835)	578627	47.9607	47.96
$	69 4-Bromofluorobenzene	95	8.752	8.752	(1.131)	207824	46.6399	46.63
*	70 1,4-Dichlorobenzene-d4	152	9.719	9.719	(1.000)	255249	50.0000	
	68 1,1,2,2-Tetrachloroethane	83	8.895	8.895	(0.915)	220044	54.6694	54.66
	53 1,1,2-Trichloroethane	83	6.911	6.911	(0.894)	136002	53.2200	53.21
	32 1,1-Dichloropropene	75	4.390	4.390	(0.867)	202004	46.7923	46.79
	22 1,1-Dichloroethane	63	3.029	3.029	(0.705)	283374	56.7709	56.77
	11 1,1-Dichloroethene	96	2.005	2.005	(0.467)	130782	48.4367	48.43
	90 1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	209979	55.3659	55.36
	89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	35487	56.5458	56.54
	57 1,2-Dibromoethane	107	7.327	7.334	(0.947)	168685	54.1803	54.18
	88 1,2-Dichlorobenzene	146	10.049	10.049	(1.034)	325405	48.6531	48.65
	33 1,2-Dichloroethane	62	4.662	4.662	(0.921)	196760	53.3905	53.39
	42 1,2-Dichloropropane	63	5.529	5.529	(1.092)	178934	55.9950	55.99
	83 1,3-Dichlorobenzene	146	9.662	9.662	(0.994)	336196	50.1946	50.19
	84 1,4-Dichlorobenzene	146	9.741	9.741	(1.002)	345636	49.9784	49.97

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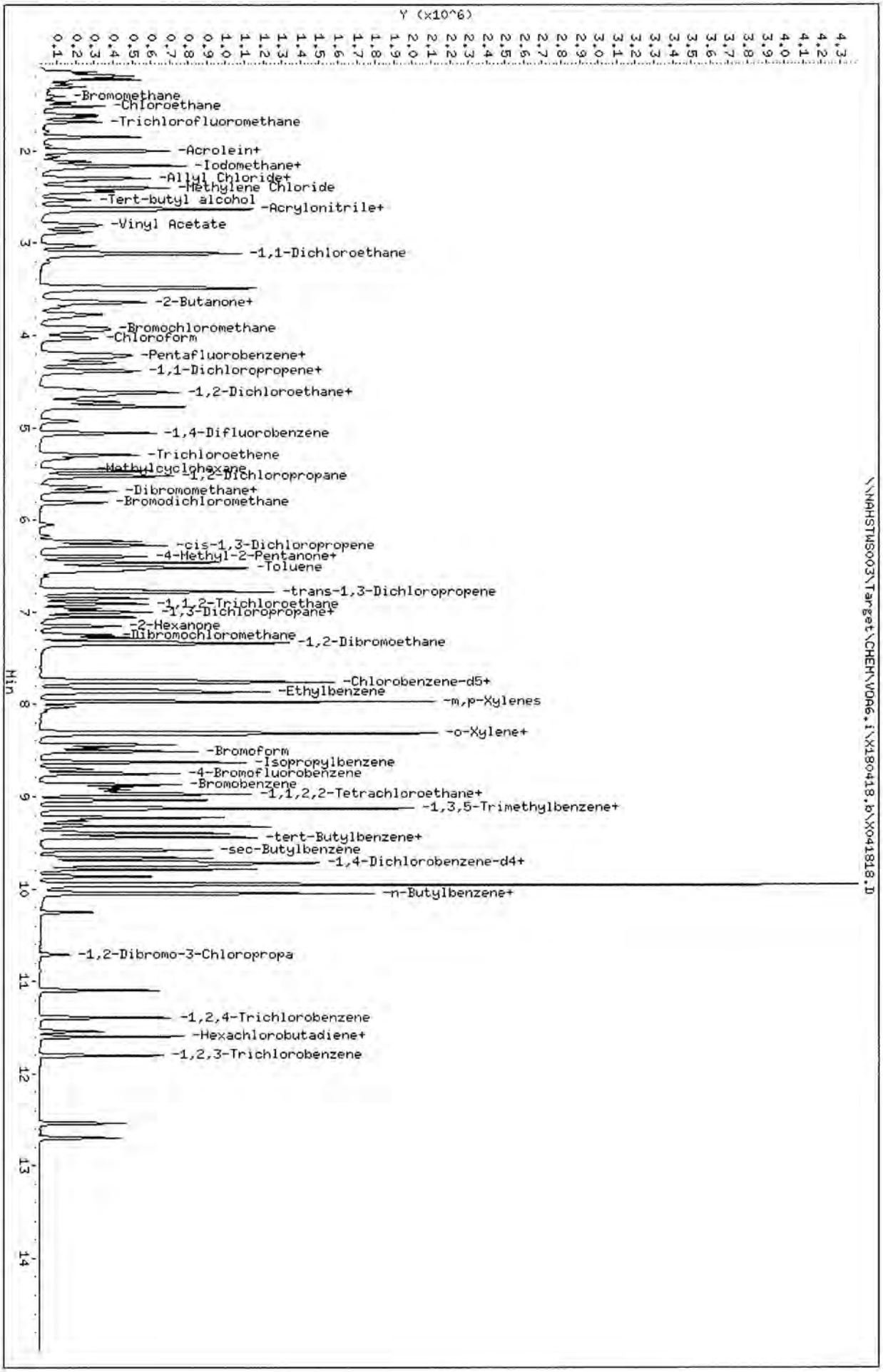
Report Date: 01-May-2018 17:38

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
24	2-Butanone	43	3.688	3.688	(0.858)	143916	118.510	118.51
52	2-Hexanone	43	7.155	7.155	(0.925)	232440	113.749	113.74
45	4-Methyl-2-Pentanone	43	6.395	6.403	(0.827)	350001	114.547	114.54
10	Acetone	43	2.062	2.062	(0.480)	86898	97.0602	97.06
37	Benzene	78	4.619	4.619	(0.912)	649655	50.5964	50.59
39	Bromodichloromethane	83	5.808	5.808	(1.147)	217709	54.0357	54.03
66	Bromoform	173	8.473	8.473	(1.095)	143459	54.4439	54.44
6	Bromomethane	94	1.410	1.410	(0.328)	44489	23.0393	23.03
19	Carbon Disulfide	76	2.162	2.162	(0.503)	933686	98.3596	98.35
34	Carbon Tetrachloride	117	4.376	4.376	(0.864)	177607	44.7325	44.73
59	Chlorobenzene	112	7.756	7.764	(1.003)	454407	54.4688	54.46
7	Chloroethane	64	1.474	1.475	(0.343)	177516	82.3641	82.36
28	Chloroform	83	4.032	4.032	(0.938)	274948	56.5690	56.56
3	Chloromethane	50	1.145	1.145	(0.267)	143245	40.8457	40.84
27	cis-1,2-Dichloroethene	96	3.645	3.645	(0.848)	192767	60.5162	60.51
46	cis-1,3-Dichloropropene	75	6.231	6.231	(1.231)	297968	55.1904	55.19
55	Dibromochloromethane	129	7.248	7.248	(0.937)	190313	54.2630	54.26
2	Dichlorodifluoromethane	85	1.030	1.030	(0.240)	92450	31.1129	31.11
61	Ethylbenzene	106	7.864	7.864	(1.017)	226276	54.3112	54.31
67	Isopropylbenzene	105	8.623	8.623	(1.115)	616001	47.0102	47.01
17	Methylene Chloride	84	2.399	2.399	(0.558)	175655	52.9874	52.98
56	Tetrachloroethene	164	6.997	7.004	(0.905)	126132	47.3483	47.34
50	Toluene	91	6.524	6.525	(0.844)	675707	54.8417	54.84
20	trans-1,2-Dichloroethene	96	2.628	2.628	(0.612)	162656	52.2304	52.23
51	trans-1,3-Dichloropropene	75	6.754	6.754	(1.334)	244985	53.8117	53.81
38	Trichloroethene	130	5.300	5.300	(1.047)	174928	51.0851	51.08
8	Trichlorofluoromethane	101	1.639	1.639	(0.382)	162774	40.2591	40.25
5	Vinyl Chloride	62	1.209	1.210	(0.282)	170899	44.7168	44.71
62	m,p-Xylenes	106	7.964	7.964	(1.030)	549486	107.410	107.40
63	o-Xylene	106	8.301	8.308	(1.073)	279269	54.3187	54.31
M 95	Xylenes (total)	106				828755	161.728	161.72
71	1,2,3-Trichloropropane	75	8.924	8.924	(0.918)	258568	52.1343	52.13
93	1,2,3-Trichlorobenzene	180	11.796	11.797	(1.214)	189701	52.3073	52.30
79	1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	553696	49.6196	49.61
75	1,3,5-Trimethylbenzene	105	9.125	9.125	(0.939)	527313	49.8570	49.85
26	2,2-Dichloropropane	77	3.631	3.623	(0.845)	194668	49.4035	49.40
54	1,3-Dichloropropane	76	7.054	7.055	(0.912)	277330	52.2201	52.22
76	2-Chlorotoluene	91	9.031	9.032	(0.929)	468100	51.3397	51.33
77	4-Chlorotoluene	91	9.132	9.132	(0.940)	533293	50.7143	50.71
82	p-Isopropyltoluene	119	9.397	9.397	(0.967)	434481	44.6801	44.68
29	Bromochloromethane	128	3.917	3.917	(0.912)	91593	59.3784	59.37
74	Bromobenzene	156	8.867	8.867	(0.912)	200789	51.4113	51.41
44	Dibromomethane	93	5.636	5.643	(1.113)	110635	54.9234	54.92
91	Hexachlorobutadiene	225	11.539	11.539	(1.187)	60768	36.2163	36.21
73	n-Propylbenzene	91	8.974	8.974	(0.923)	759707	45.3581	45.35
87	n-Butylbenzene	91	10.049	10.049	(1.034)	412250	43.0057	43.00
81	sec-Butylbenzene	105	9.583	9.583	(0.986)	580401	42.8607	42.86
92	Naphthalene	128	11.596	11.596	(1.193)	514051	64.6628	64.66
78	tert-Butylbenzene	119	9.397	9.397	(0.967)	434481	44.6801	44.68
60	1,1,1,2-Tetrachloroethane	131	7.842	7.843	(1.014)	163852	53.3318	53.33
64	Styrene	104	8.322	8.322	(1.076)	482862	53.5197	53.51



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Sample Info: HS18040244-01HSD;HS18040244-01HSD;3;;HSD
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180418.b\X041829.D
Report Date: 01-May-2018 17:38

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X180418.b\X041829.D
Lab Smp Id: CCV-END Client Smp ID: CCV-END
Inj Date : 18-APR-2018 22:48
Operator : PC Inst ID: voa6.i
Smp Info : CCV-END;CCV-END;2;;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\chem\voa6.i\X180418.b\8260W.m
Meth Date : 01-May-2018 17:38 voa6.i Quant Type: ISTD
Cal Date : 11-APR-2018 15:27 Cal File: X041108.D
Als bottle: 29 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: dn_bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

			QUANT SIG					AMOUNTS	
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/l)	ON-COL (ug/l)
	31	1,1,1-Trichloroethane	97	4.204	4.204	(0.978)	216848	50.0000	51.04
*	1	Pentafluorobenzene	168	4.297	4.297	(1.000)	319573	50.0000	
S	30	Dibromofluoromethane	113	4.218	4.218	(0.982)	157675	50.0000	51.30
*	36	1,4-Difluorobenzene	114	5.063	5.063	(1.000)	494351	50.0000	
S	35	1,2-Dichloroethane-d4	65	4.583	4.583	(1.067)	158470	50.0000	46.46
*	47	Chlorobenzene-d5	117	7.735	7.735	(1.000)	478907	50.0000	
S	48	Toluene-d8	98	6.460	6.460	(0.835)	583128	50.0000	49.25
S	69	4-Bromofluorobenzene	95	8.752	8.752	(1.131)	211391	50.0000	48.34
*	70	1,4-Dichlorobenzene-d4	152	9.719	9.719	(1.000)	253201	50.0000	
	68	1,1,2,2-Tetrachloroethane	83	8.895	8.895	(0.915)	196508	50.0000	49.32
	53	1,1,2-Trichloroethane	83	6.911	6.911	(0.894)	125742	50.0000	50.14
	32	1,1-Dichloropropene	75	4.390	4.390	(0.867)	212760	50.0000	49.93
	22	1,1-Dichloroethane	63	3.029	3.029	(0.705)	278989	50.0000	56.21
	11	1,1-Dichloroethene	96	2.005	2.005	(0.467)	137053	50.0000	50.88
	90	1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	198990	50.0000	53.08
	89	1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	29901	50.0000	48.35
	57	1,2-Dibromoethane	107	7.327	7.327	(0.947)	156630	50.0000	51.27
	88	1,2-Dichlorobenzene	146	10.049	10.049	(1.034)	311330	50.0000	46.98
	33	1,2-Dichloroethane	62	4.662	4.662	(0.921)	187881	50.0000	51.85
	42	1,2-Dichloropropane	63	5.529	5.529	(1.092)	172481	50.0000	54.89
	83	1,3-Dichlorobenzene	146	9.662	9.662	(0.994)	325341	50.0000	48.96
	84	1,4-Dichlorobenzene	146	9.741	9.741	(1.002)	327485	50.0000	47.73

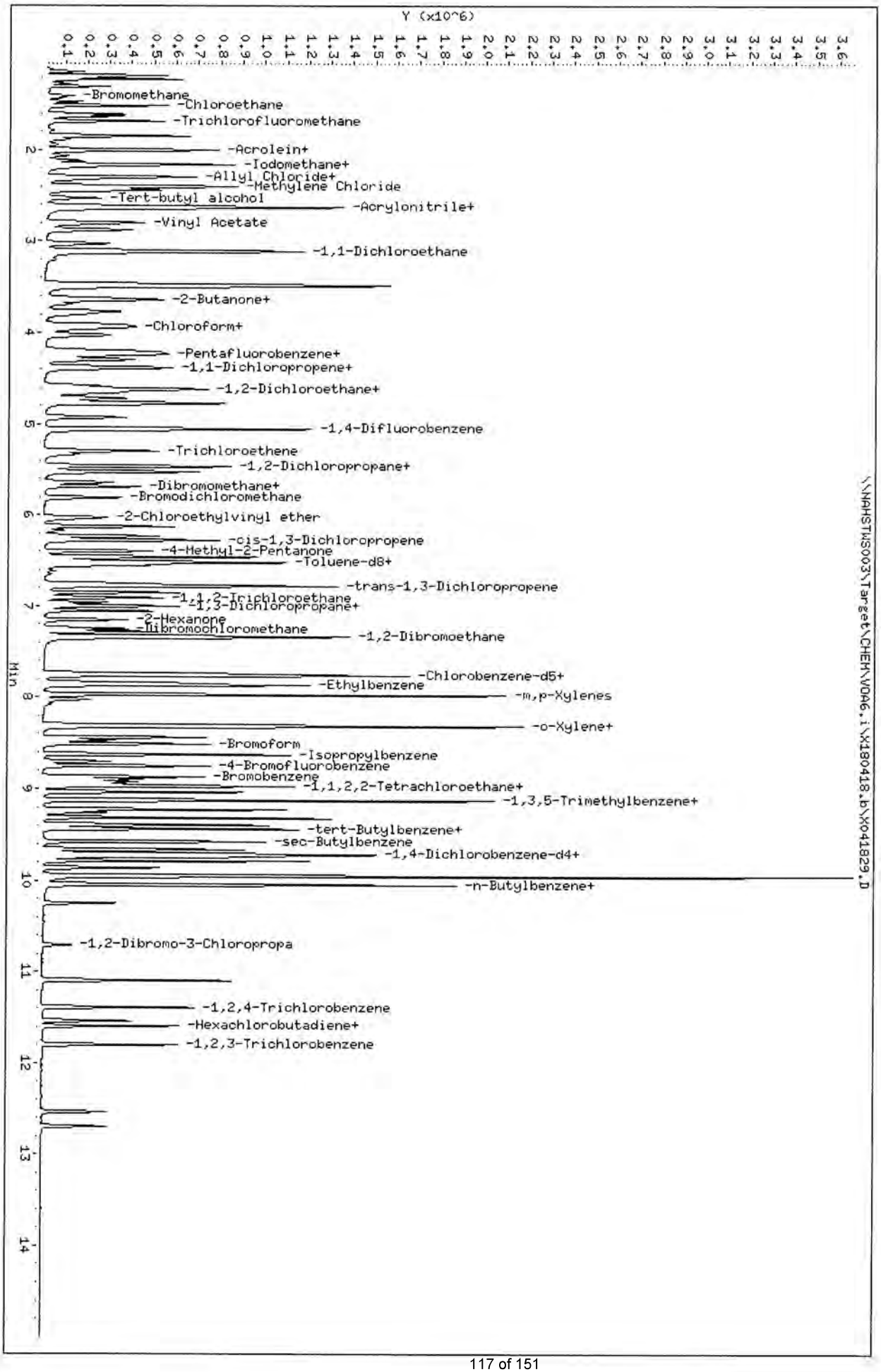
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180418.b\X041829.D
Report Date: 01-May-2018 17:38

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)	
24	2-Butanone	43	3.688	3.688	(0.858)	128678	100.000	106.58	
52	2-Hexanone	43	7.155	7.155	(0.925)	204548	100.000	102.20	
45	4-Methyl-2-Pentanone	43	6.403	6.403	(0.828)	300012	100.000	100.19	
10	Acetone	43	2.062	2.062	(0.480)	87750	100.000	98.58	
37	Benzene	78	4.619	4.619	(0.912)	637594	50.0000	50.50	
39	Bromodichloromethane	83	5.808	5.808	(1.147)	210448	50.0000	53.12	
66	Bromoform	173	8.473	8.473	(1.095)	130030	50.0000	50.29	
6	Bromomethane	94	1.410	1.410	(0.328)	53793	50.0000	27.53	(M)
19	Carbon Disulfide	76	2.162	2.162	(0.503)	996995	100.000	105.21	
34	Carbon Tetrachloride	117	4.376	4.376	(0.864)	193906	50.0000	49.36	
59	Chlorobenzene	112	7.756	7.756	(1.003)	430932	50.0000	52.64	
7	Chloroethane	64	1.475	1.475	(0.343)	105858	50.0000	50.44	
28	Chloroform	83	4.032	4.032	(0.938)	267582	50.0000	55.36	
3	Chloromethane	50	1.145	1.145	(0.267)	117889	50.0000	34.37	
27	cis-1,2-Dichloroethene	96	3.645	3.645	(0.848)	179610	50.0000	56.70	
46	cis-1,3-Dichloropropene	75	6.231	6.231	(1.231)	277974	50.0000	52.36	
55	Dibromochloromethane	129	7.248	7.248	(0.937)	176663	50.0000	51.33	
2	Dichlorodifluoromethane	85	1.030	1.030	(0.240)	155909	50.0000	50.14	
61	Ethylbenzene	106	7.864	7.864	(1.017)	222140	50.0000	54.33	
67	Isopropylbenzene	105	8.623	8.623	(1.115)	625737	50.0000	48.59	
17	Methylene Chloride	84	2.399	2.399	(0.558)	168646	50.0000	51.19	
56	Tetrachloroethene	164	6.997	6.997	(0.905)	130890	50.0000	49.92	
50	Toluene	91	6.524	6.524	(0.844)	654507	50.0000	54.13	
20	trans-1,2-Dichloroethene	96	2.628	2.628	(0.612)	162960	50.0000	52.61	
51	trans-1,3-Dichloropropene	75	6.754	6.754	(1.334)	228130	50.0000	50.96	
38	Trichloroethene	130	5.300	5.300	(1.047)	170156	50.0000	50.56	
8	Trichlorofluoromethane	101	1.639	1.639	(0.382)	204976	50.0000	50.08	
5	Vinyl Chloride	62	1.209	1.209	(0.282)	184178	50.0000	48.19	
62	m,p-Xylenes	106	7.964	7.964	(1.030)	541186	100.000	107.81	
63	o-Xylene	106	8.301	8.301	(1.073)	267864	50.0000	53.09	
M 95	Xylenes (total)	106				809050	150.000		(a)
71	1,2,3-Trichloropropane	75	8.924	8.924	(0.918)	233412	50.0000	47.57	
93	1,2,3-Trichlorobenzene	180	11.796	11.796	(1.214)	173478	50.0000	48.44	
79	1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	541080	50.0000	48.88	
75	1,3,5-Trimethylbenzene	105	9.125	9.125	(0.939)	533228	50.0000	50.82	
26	2,2-Dichloropropane	77	3.631	3.631	(0.845)	181073	50.0000	46.34	
54	1,3-Dichloropropane	76	7.055	7.055	(0.912)	261336	50.0000	50.14	
76	2-Chlorotoluene	91	9.032	9.032	(0.929)	455066	50.0000	50.31	
77	4-Chlorotoluene	91	9.132	9.132	(0.940)	517404	50.0000	49.60	
82	p-Isopropyltoluene	119	9.397	9.397	(0.967)	453774	50.0000	46.91	
29	Bromochloromethane	128	3.917	3.917	(0.912)	88377	50.0000	57.61	
74	Bromobenzene	156	8.867	8.867	(0.912)	191743	50.0000	49.49	
44	Dibromomethane	93	5.643	5.643	(1.115)	104317	50.0000	52.67	
91	Hexachlorobutadiene	225	11.539	11.539	(1.187)	77309	50.0000	45.43	
73	n-Propylbenzene	91	8.974	8.974	(0.923)	776899	50.0000	46.68	
87	n-Butylbenzene	91	10.049	10.049	(1.034)	451560	50.0000	47.22	
81	sec-Butylbenzene	105	9.576	9.576	(0.985)	634315	50.0000	46.94	
92	Naphthalene	128	11.596	11.596	(1.193)	416328	50.0000	53.47	
78	tert-Butylbenzene	119	9.397	9.397	(0.967)	453774	50.0000	46.91	
60	1,1,1,2-Tetrachloroethane	131	7.842	7.842	(1.014)	156188	50.0000	51.80	
64	Styrene	104	8.322	8.322	(1.076)	460381	50.0000	52.00	

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180418.b\X041829.D
Report Date: 01-May-2018 17:38

QC Flag Legend

a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180418.b\X041829.D
Date : 18-APR-2018 22:48
Client ID: CCV-END
Sample Info: CCV-END;CCV-END;2;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Anions Raw Data

Bhate Environmental Associates, Inc.
Project: LONGHORN GW TREATMENT PLANT
Bi WEEKLY SAMPLES
ALS WO# HS18040244

HS18040244

Sequence: 041818
Operator: ALSHS.NoUser

Printed: 4/24/2018 7:50:43 PM

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\01-2018
Timebase: ICS2100
#Samples: 67

Created: 4/19/2018 10:33:52 AM by ALSHS.NoUser
(Modified, not saved)

No.	Name	Comment	Type	Pos.	Dil. Factor	Inj. Vol.	*Initial_Vol_Wt	*Final_Volume
1	STD1	CAL PO4 OFF	Standard	1	1.0000	10.0	1.00	1.00
2	STD2		Standard	2	1.0000	10.0	1.00	1.00
3	STD3		Standard	3	1.0000	10.0	1.00	1.00
4	STD4		Standard	4	1.0000	10.0	1.00	1.00
5	STD5		Standard	5	1.0000	10.0	1.00	1.00
6	STD6		Standard	6	1.0000	10.0	1.00	1.00
7	ICV		Unknown	7	1.0000	10.0	1.00	1.00
8	ICB		Unknown	8	1.0000	10.0	1.00	1.00
9	ICV	2/10PPM	Unknown	9	1.0000	10.0	1.00	1.00
10	ICB		Unknown	10	1.0000	10.0	1.00	1.00
11	CCV		Unknown	1	1.0000	10.0	1.00	1.00
12	CCB		Unknown	2	1.0000	10.0	1.00	1.00
13	WBLKW1-041818	300_W / 9056_W	Unknown	5	1.0000	10.0	1.00	1.00
14	WLCSW1-041818		Unknown	6	1.0000	10.0	1.00	1.00
15	WLCSDW1-041818		Unknown	7	1.0000	10.0	1.00	1.00
16	HS18040832-01	9056_W	Unknown	11	1.0000	10.0	1.00	1.00
17	HS18040832-01MS		Unknown	12	1.0000	10.0	1.00	1.00
18	HS18040832-01MSD		Unknown	13	1.0000	10.0	1.00	1.00
19	HS18040832-01DF20		Unknown	14	20.0000	10.0	1.00	1.00
20	HS18040832-02		Unknown	15	1.0000	10.0	1.00	1.00
21	HS18040832-02DF20		Unknown	16	20.0000	10.0	1.00	1.00
22	DI H2O		Unknown	10	1.0000	10.0	1.00	1.00
23	CCV1		Unknown	3	1.0000	10.0	1.00	1.00
24	CCB		Unknown	4	1.0000	10.0	1.00	1.00
25	HS18040832-03	9056_W	Unknown	17	1.0000	10.0	1.00	1.00
26	HS18040832-03DF20		Unknown	18	20.0000	10.0	1.00	1.00
27	HS18040832-04		Unknown	19	1.0000	10.0	1.00	1.00
28	HS18040832-04DF20		Unknown	20	20.0000	10.0	1.00	1.00
29	HS18040832-05		Unknown	21	1.0000	10.0	1.00	1.00
30	HS18040832-05DF20		Unknown	22	20.0000	10.0	1.00	1.00
31	HS18040832-06		Unknown	23	1.0000	10.0	1.00	1.00
32	HS18040832-06DF20		Unknown	24	20.0000	10.0	1.00	1.00
33	HS18040861-01		Unknown	25	1.0000	10.0	1.00	1.00
34	HS18040861-01DF10		Unknown	26	10.0000	10.0	1.00	1.00
35	CCV		Unknown	1	1.0000	10.0	1.00	1.00
36	CCB		Unknown	2	1.0000	10.0	1.00	1.00
37	HS18040859-01		Unknown	27	1.0000	10.0	1.00	1.00
38	HS18040859-01MS		Unknown	28	1.0000	10.0	1.00	1.00
39	HS18040859-01MSD		Unknown	29	1.0000	10.0	1.00	1.00
40	HS18040859-01DF10		Unknown	30	10.0000	10.0	1.00	1.00
41	HS18040862-01		Unknown	31	1.0000	10.0	1.00	1.00
42	HS18040862-01DF10		Unknown	32	10.0000	10.0	1.00	1.00

Chromeleon © Dionex Corporation, Version 6.80 SR8 Build 2623 (156243)

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\01-2018
Timebase: ICS2100
#Samples: 67
Created: 4/19/2018 10:33:52 AM by ALSHS.NoUser
(Modified, not saved)

No.	Name	Method	Status	Inj. Date/Time	Program
1	STD1	041318	Finished	4/13/2018 2:19:01 PM	Anions Gradient Program
2	STD2	041318	Finished	4/13/2018 2:33:34 PM	Anions Gradient Program
3	STD3	041318	Finished	4/13/2018 2:48:07 PM	Anions Gradient Program
4	STD4	041318	Finished	4/13/2018 3:02:40 PM	Anions Gradient Program
5	STD5	041318	Finished	4/13/2018 3:17:13 PM	Anions Gradient Program
6	STD6	041318	Finished	4/13/2018 3:31:46 PM	Anions Gradient Program
7	ICV	041318	Finished	4/13/2018 5:00:48 PM	Anions Gradient Program
8	ICB	041318	Finished	4/13/2018 5:15:20 PM	Anions Gradient Program
9	ICV	041318	Finished	4/13/2018 6:12:54 PM	Anions Gradient Program
10	ICB	041318	Finished	4/13/2018 6:27:27 PM	Anions Gradient Program
11	CCV	041318	Finished	4/18/2018 5:53:34 PM	Anions Gradient Program
12	CCB	041318	Finished	4/18/2018 6:08:07 PM	Anions Gradient Program
13	WBLKW1-041818	041318	Finished	4/18/2018 6:22:40 PM	Anions Gradient Program
14	WLCSW1-041818	041318	Finished	4/18/2018 6:37:13 PM	Anions Gradient Program
15	WLCSDW1-041818	041318	Finished	4/18/2018 6:51:46 PM	Anions Gradient Program
16	HS18040832-01	041318	Finished	4/18/2018 7:06:19 PM	Anions Gradient Program
17	HS18040832-01MS	041318	Finished	4/18/2018 7:20:52 PM	Anions Gradient Program
18	HS18040832-01MSD	041318	Finished	4/18/2018 7:35:25 PM	Anions Gradient Program
19	HS18040832-01DF20	041318	Finished	4/18/2018 7:49:58 PM	Anions Gradient Program
20	HS18040832-02	041318	Finished	4/18/2018 8:04:31 PM	Anions Gradient Program
21	HS18040832-02DF20	041318	Finished	4/18/2018 8:19:04 PM	Anions Gradient Program
22	DI H2O	041318	Finished	4/18/2018 8:33:37 PM	Anions Gradient Program
23	CCV1	041318	Finished	4/18/2018 8:48:10 PM	Anions Gradient Program
24	CCB	041318	Finished	4/18/2018 9:02:43 PM	Anions Gradient Program
25	HS18040832-03	041318	Finished	4/18/2018 9:17:16 PM	Anions Gradient Program
26	HS18040832-03DF20	041318	Finished	4/18/2018 9:31:48 PM	Anions Gradient Program
27	HS18040832-04	041318	Finished	4/18/2018 9:46:21 PM	Anions Gradient Program
28	HS18040832-04DF20	041318	Finished	4/18/2018 10:00:54 PM	Anions Gradient Program
29	HS18040832-05	041318	Finished	4/18/2018 10:15:27 PM	Anions Gradient Program
30	HS18040832-05DF20	041318	Finished	4/18/2018 10:30:00 PM	Anions Gradient Program
31	HS18040832-06	041318	Finished	4/18/2018 10:44:32 PM	Anions Gradient Program
32	HS18040832-06DF20	041318	Finished	4/18/2018 10:59:06 PM	Anions Gradient Program
33	HS18040861-01	041318	Finished	4/18/2018 11:13:39 PM	Anions Gradient Program
34	HS18040861-01DF10	041318	Finished	4/18/2018 11:28:12 PM	Anions Gradient Program
35	CCV	041318	Finished	4/18/2018 11:42:45 PM	Anions Gradient Program
36	CCB	041318	Finished	4/18/2018 11:57:18 PM	Anions Gradient Program
37	HS18040859-01	041318	Finished	4/19/2018 12:11:51 AM	Anions Gradient Program
38	HS18040859-01MS	041318	Finished	4/19/2018 12:26:24 AM	Anions Gradient Program
39	HS18040859-01MSD	041318	Finished	4/19/2018 12:40:56 AM	Anions Gradient Program
40	HS18040859-01DF10	041318	Finished	4/19/2018 12:55:29 AM	Anions Gradient Program
41	HS18040862-01	041318	Finished	4/19/2018 1:10:01 AM	Anions Gradient Program
42	HS18040862-01DF10	041318	Finished	4/19/2018 1:24:34 AM	Anions Gradient Program

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\01-2018
Timebase: ICS2100
#Samples: 67
Created: 4/19/2018 10:33:52 AM by ALSHS.NoUser
(Modified, not saved)

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3	STD3	74fb102d-3f53-11e8-b6d9-ac2a724b15e4
4	STD4	7d467e19-3f55-11e8-b6d9-ac2a724b15e4
5	STD5	859dd7ae-3f57-11e8-b6d9-ac2a724b15e4
6	STD6	8de6e345-3f59-11e8-b6d9-ac2a724b15e4
7	ICV	80c9f4ed-3f65-11e8-b6d9-ac2a724b15e4
8	ICB	05bcb116-3f68-11e8-b6d9-ac2a724b15e4
9	ICV	93a8deb2-3f6f-11e8-b6d9-ac2a724b15e4
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12	CCB	39279040-435d-11e8-b6d9-ac2a724b15e4
13	WBLKW1-041818	41945ed2-435f-11e8-b6d9-ac2a724b15e4
14	WLCSW1-041818	4a3f2a06-4361-11e8-b6d9-ac2a724b15e4
15	WLCSDW1-041818	5298e5f0-4363-11e8-b6d9-ac2a724b15e4
16	HS18040832-01	5af2a1da-4365-11e8-b6d9-ac2a724b15e4
17	HS18040832-01MS	6366976b-4367-11e8-b6d9-ac2a724b15e4
18	HS18040832-01MSD	6b9a2e05-4369-11e8-b6d9-ac2a724b15e4
19	HS18040832-01DF20	73ef2545-436b-11e8-b6d9-ac2a724b15e4
20	HS18040832-02	7c526a83-436d-11e8-b6d9-ac2a724b15e4
21	HS18040832-02DF20	84ae88c2-436f-11e8-b6d9-ac2a724b15e4
22	DI H2O	8d0f6bab-4371-11e8-b6d9-ac2a724b15e4
23	CCV1	9553b298-4373-11e8-b6d9-ac2a724b15e4
24	CCB	9da8a9d8-4375-11e8-b6d9-ac2a724b15e4
25	HS18040832-03	a5fda118-4377-11e8-b6d9-ac2a724b15e4
26	HS18040832-03DF20	adee7666-4379-11e8-b6d9-ac2a724b15e4
27	HS18040832-04	b60c9803-437b-11e8-b6d9-ac2a724b15e4
28	HS18040832-04DF20	be85523e-437d-11e8-b6d9-ac2a724b15e4
29	HS18040832-05	c6c4d481-437f-11e8-b6d9-ac2a724b15e4
30	HS18040832-05DF20	cf1e906b-4381-11e8-b6d9-ac2a724b15e4
31	HS18040832-06	d724dab6-4383-11e8-b6d9-ac2a724b15e4
32	HS18040832-06DF20	df8e0892-4385-11e8-b6d9-ac2a724b15e4
33	HS18040861-01	e8270024-4387-11e8-b6d9-ac2a724b15e4
34	HS18040861-01DF10	f075afeb-4389-11e8-b6d9-ac2a724b15e4
35	CCV	f8cf775e-438b-11e8-b6d9-ac2a724b15e4
36	CCB	0105704d-438e-11e8-b6d9-ac2a724b15e4
37	HS18040859-01	0974a134-4390-11e8-b6d9-ac2a724b15e4
38	HS18040859-01MS	11c99874-4392-11e8-b6d9-ac2a724b15e4
39	HS18040859-01MSD	19a0341b-4394-11e8-b6d9-ac2a724b15e4
40	HS18040859-01DF10	21be55b8-4396-11e8-b6d9-ac2a724b15e4
41	HS18040862-01	29c4a003-4398-11e8-b6d9-ac2a724b15e4
42	HS18040862-01DF10	32232097-439a-11e8-b6d9-ac2a724b15e4

Title:
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Location: ICS2100\Sequences and Data\01-2018
Timebase: ICS2100
#Samples: 67
Created: 4/19/2018 10:33:52 AM by ALSHS.NoUser
(Modified, not saved)

No.	Name	Comment	Type	Pos.	Dil. Factor	Inj. Vol.	*Initial_Vol_Wt	*Final_Volume
43	HS18040244-01DF10	9056_W	Unknown	33	10.0000	10.0	1.00	1.00
44	HS18040856-01		Unknown	34	1.0000	10.0	1.00	1.00
45	HS18040856-01DF10		Unknown	35	10.0000	10.0	1.00	1.00
46	DI H2O		Unknown	10	1.0000	10.0	1.00	1.00
47	CCV1		Unknown	3	1.0000	10.0	1.00	1.00
48	CCB		Unknown	4	1.0000	10.0	1.00	1.00
49	HS18040833-01		Unknown	36	1.0000	10.0	1.00	1.00
50	HS18040833-01DF20		Unknown	37	20.0000	10.0	1.00	1.00
51	HS18040833-02		Unknown	38	1.0000	10.0	1.00	1.00
52	HS18040833-02DF20		Unknown	39	20.0000	10.0	1.00	1.00
53	HS18040833-03		Unknown	40	1.0000	10.0	1.00	1.00
54	HS18040833-03DF20		Unknown	41	20.0000	10.0	1.00	1.00
55	HS18040844-01DF10		Unknown	42	10.0000	10.0	1.00	1.00
56	HS18040844-01DF100		Unknown	43	100.0000	10.0	1.00	1.00
57	DI H2O		Unknown	10	1.0000	10.0	1.00	1.00
58	DI H2O		Unknown	10	1.0000	10.0	1.00	1.00
59	CCV		Unknown	1	1.0000	10.0	1.00	1.00
60	CCB		Unknown	2	1.0000	10.0	1.00	1.00
61	HS18040844-01		Unknown	44	1.0000	10.0	1.00	1.00
62	DI H2O		Unknown	10	1.0000	10.0	1.00	1.00
63	DI H2O		Unknown	10	1.0000	10.0	1.00	1.00
64	DI H2O		Unknown	10	1.0000	10.0	1.00	1.00
65	DI H2O		Unknown	10	1.0000	10.0	1.00	1.00
66	CCV1		Unknown	3	1.0000	10.0	1.00	1.00
67	CCB		Unknown	4	1.0000	10.0	1.00	1.00

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\01-2018
Timebase: ICS2100
#Samples: 67
Created: 4/19/2018 10:33:52 AM by ALSHS.NoUser
(Modified, not saved)

No.	Name	Method	Status	Inj. Date/Time	Program
43	HS18040244-01DF10	041318	Finished	4/19/2018 1:39:07 AM	Anions Gradient Program
44	HS18040856-01	041318	Finished	4/19/2018 1:53:40 AM	Anions Gradient Program
45	HS18040856-01DF10	041318	Finished	4/19/2018 2:08:13 AM	Anions Gradient Program
46	DI H2O	041318	Finished	4/19/2018 2:22:46 AM	Anions Gradient Program
47	CCV1	041318	Finished	4/19/2018 2:37:19 AM	Anions Gradient Program
48	CCB	041318	Finished	4/19/2018 2:51:52 AM	Anions Gradient Program
49	HS18040833-01	041318	Finished	4/19/2018 3:06:24 AM	Anions Gradient Program
50	HS18040833-01DF20	041318	Finished	4/19/2018 3:20:57 AM	Anions Gradient Program
51	HS18040833-02	041318	Finished	4/19/2018 3:35:30 AM	Anions Gradient Program
52	HS18040833-02DF20	041318	Finished	4/19/2018 3:50:03 AM	Anions Gradient Program
53	HS18040833-03	041318	Finished	4/19/2018 4:04:36 AM	Anions Gradient Program
54	HS18040833-03DF20	041318	Finished	4/19/2018 4:19:09 AM	Anions Gradient Program
55	HS18040844-01DF10	041318	Finished	4/19/2018 4:33:42 AM	Anions Gradient Program
56	HS18040844-01DF100	041318	Finished	4/19/2018 4:48:15 AM	Anions Gradient Program
57	DI H2O	041318	Finished	4/19/2018 5:02:48 AM	Anions Gradient Program
58	DI H2O	041318	Finished	4/19/2018 5:17:21 AM	Anions Gradient Program
59	CCV	041318	Finished	4/19/2018 5:31:54 AM	Anions Gradient Program
60	CCB	041318	Finished	4/19/2018 5:46:27 AM	Anions Gradient Program
61	HS18040844-01	041318	Finished	4/19/2018 6:00:59 AM	Anions Gradient Program
62	DI H2O	041318	Finished	4/19/2018 6:15:32 AM	Anions Gradient Program
63	DI H2O	041318	Finished	4/19/2018 6:30:05 AM	Anions Gradient Program
64	DI H2O	041318	Finished	4/19/2018 6:44:38 AM	Anions Gradient Program
65	DI H2O	041318	Finished	4/19/2018 6:59:11 AM	Anions Gradient Program
66	CCV1	041318	Finished	4/19/2018 7:13:44 AM	Anions Gradient Program
67	CCB	041318	Finished	4/19/2018 7:28:17 AM	Anions Gradient Program

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\01-2018
Timebase: ICS2100
#Samples: 67
Created: 4/19/2018 10:33:52 AM by ALSHS.NoUser
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No.	Name	GUID
43	HS18040244-01DF10	3a6e8e83-439c-11e8-b6d9-ac2a724b15e4
44	HS18040856-01	42c5e818-439e-11e8-b6d9-ac2a724b15e4
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46	DI H2O	5363eaef-43a2-11e8-b6d9-ac2a724b15e4
47	CCV1	5bc0092e-43a4-11e8-b6d9-ac2a724b15e4
48	CCB	6401edc6-43a6-11e8-b6d9-ac2a724b15e4
49	HS18040833-01	6c5482b1-43a8-11e8-b6d9-ac2a724b15e4
50	HS18040833-01DF20	749d8e48-43aa-11e8-b6d9-ac2a724b15e4
51	HS18040833-02	7cedc0de-43ac-11e8-b6d9-ac2a724b15e4
52	HS18040833-02DF20	850e44d0-43ae-11e8-b6d9-ac2a724b15e4
53	HS18040833-03	8d764eb8-43b0-11e8-b6d9-ac2a724b15e4
54	HS18040833-03DF20	95bcf7fa-43b2-11e8-b6d9-ac2a724b15e4
55	HS18040844-01DF10	9dfc7a3d-43b4-11e8-b6d9-ac2a724b15e4
56	HS18040844-01DF100	a651717d-43b6-11e8-b6d9-ac2a724b15e4
57	DI H2O	ae9f41be-43b8-11e8-b6d9-ac2a724b15e4
58	DI H2O	b6f438fe-43ba-11e8-b6d9-ac2a724b15e4
59	CCV	bf3fa6ea-43bc-11e8-b6d9-ac2a724b15e4
60	CCB	c79962d4-43be-11e8-b6d9-ac2a724b15e4
61	HS18040844-01	cfa471c9-43c0-11e8-b6d9-ac2a724b15e4
62	DI H2O	d80554b2-43c2-11e8-b6d9-ac2a724b15e4
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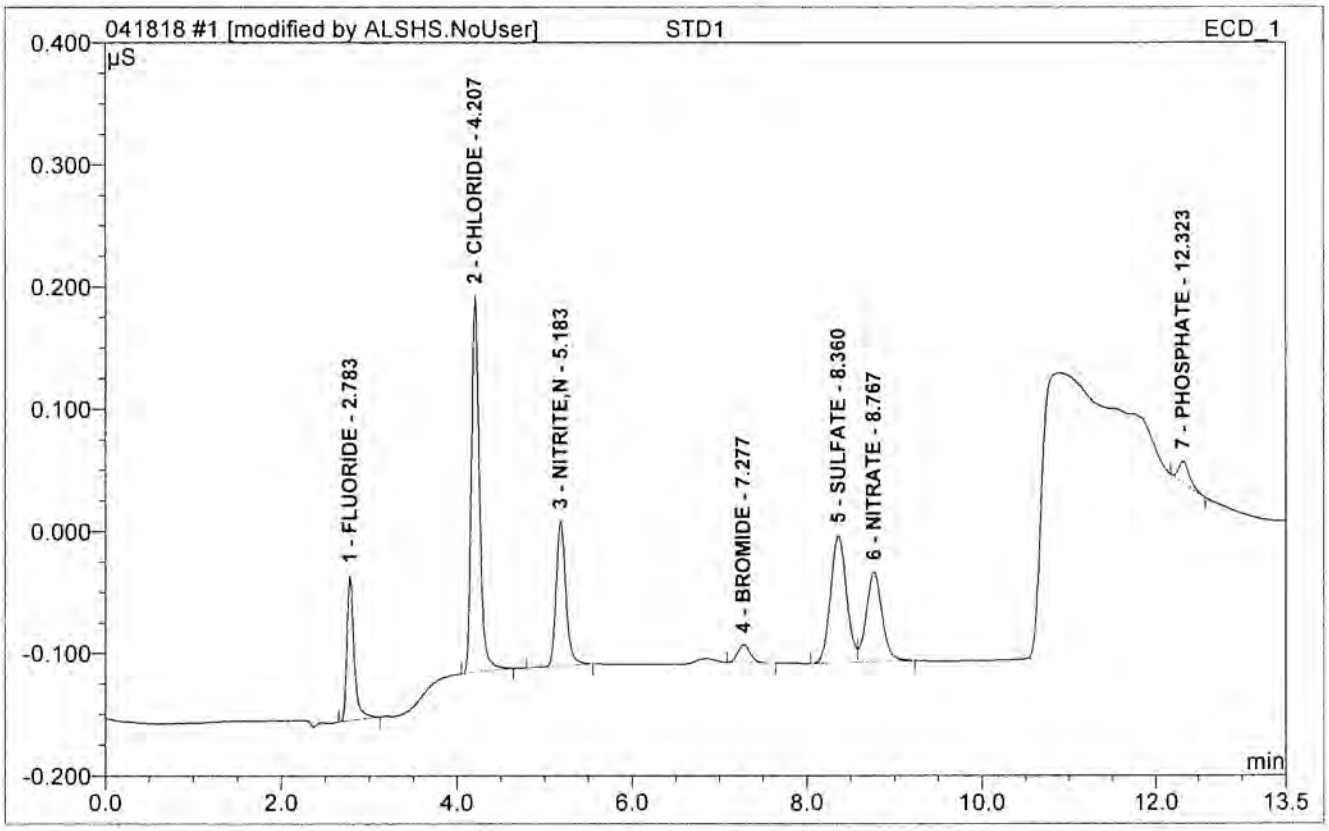
65	DI H2O	f0b7efd2-43c8-11e8-b6d9-ac2a724b15e4
66	CCV1	f905c013-43ca-11e8-b6d9-ac2a724b15e4
67	CCB	015f7bfd-43cd-11e8-b6d9-ac2a724b15e4

1 STD1

CAL PO4 OFF

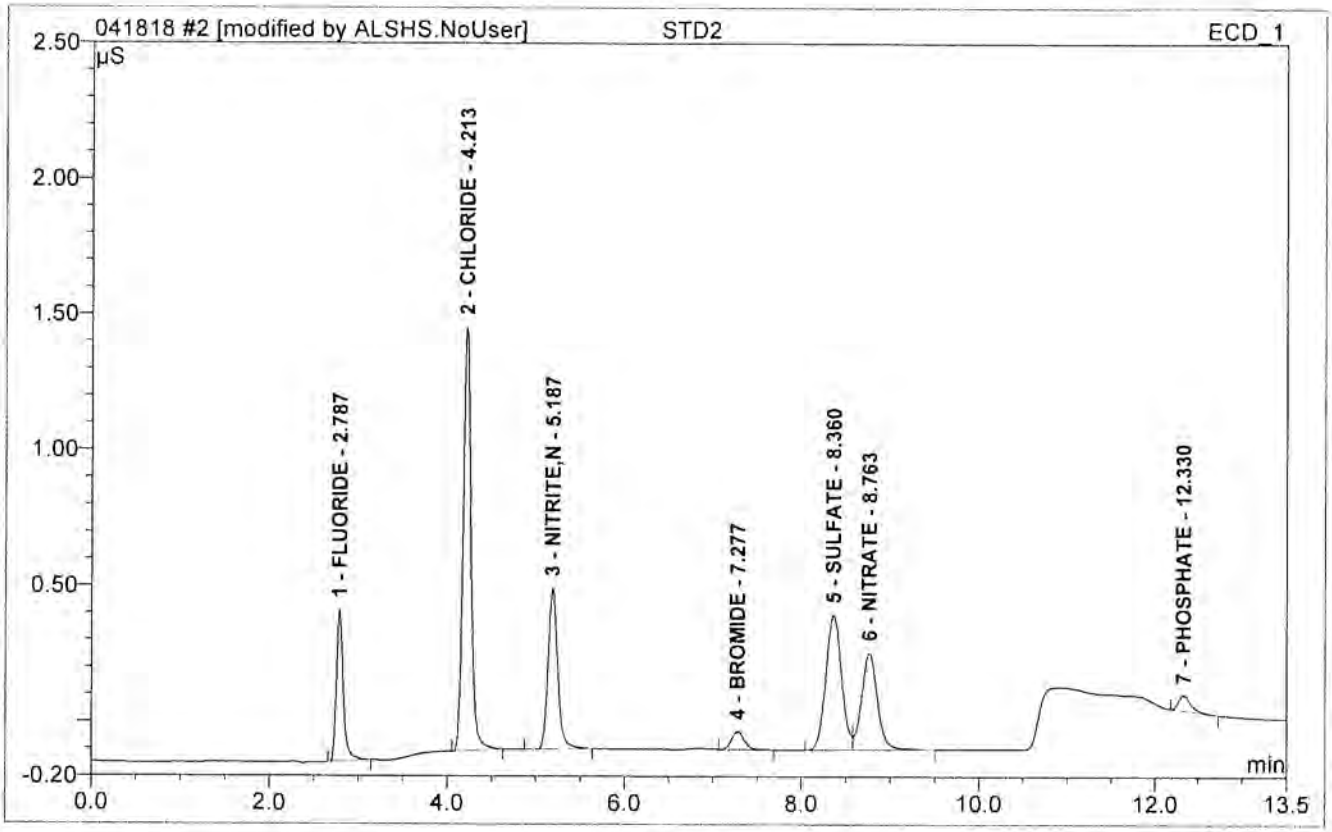
Sample Name:	**STD1**	*Injection Volume:*	**10.0**
Vial Number:	**1**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**041318**	*Dilution Factor:*	**1.**
Recording Time:	**4/13/2018 14:19**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.78	FLUORIDE	0.119	0.011	10.95	0.096	1.
2	4.21	CHLORIDE	0.308	0.033	32.20	0.492	1.
3	5.18	NITRITE,N	0.119	0.015	15.02	0.087	1.
4	7.28	BROMIDE	0.014	0.002	2.32	0.118	1.
5	8.36	SULFATE	0.104	0.022	21.81	0.535	1.
6	8.77	NITRATE	0.073	0.015	15.17	0.107	1.
7	12.32	PHOSPHATE	0.018	0.003	2.53	0.151	1.
Total:			0.755	0.102	100.00	1.587	

2 STD2

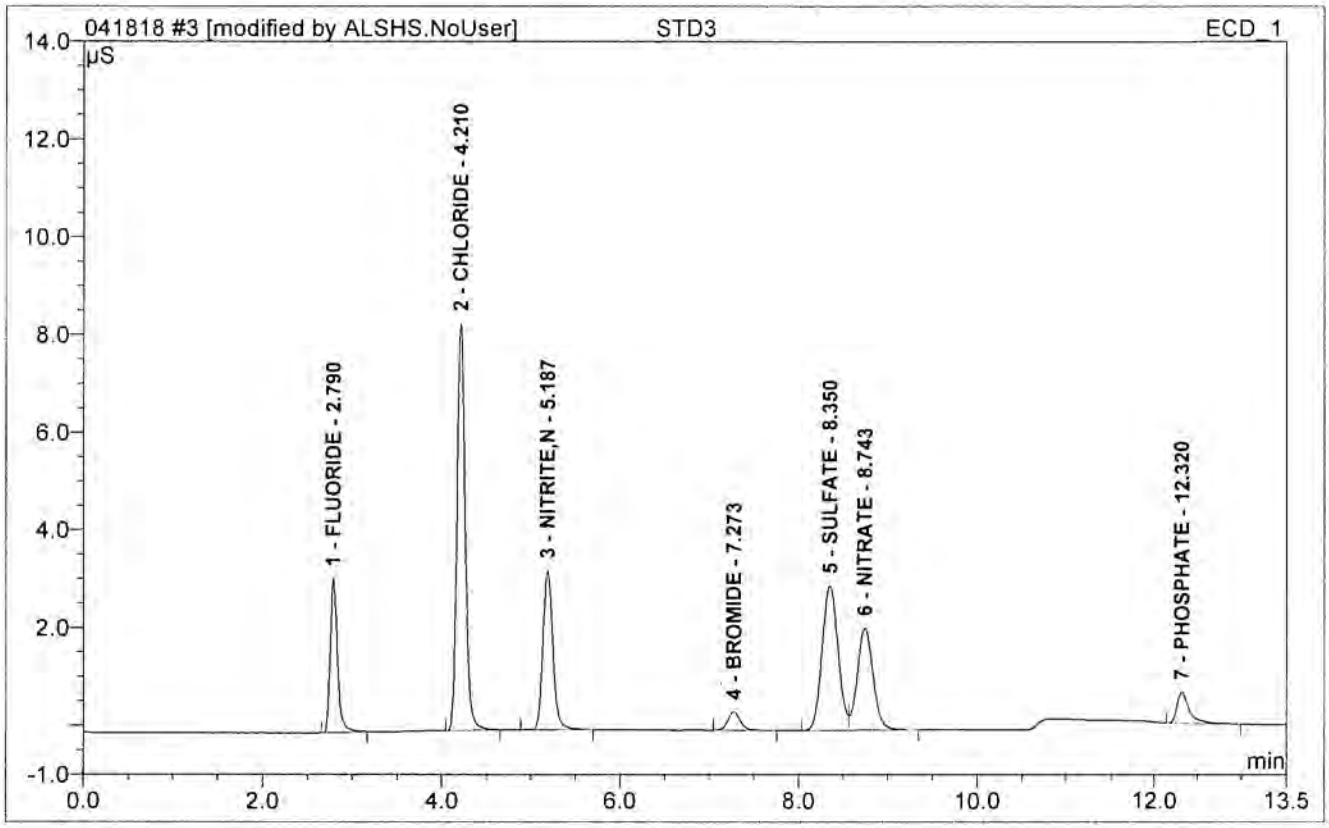
Sample Name:	**STD2**	*Injection Volume:*	**10.0**
Vial Number:	**2**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**041318**	*Dilution Factor:*	**1.**
Recording Time:	**4/13/2018 14:33**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.79	FLUORIDE	0.558	0.050	10.34	0.377	1.
2	4.21	CHLORIDE	1.560	0.162	33.50	1.970	1.
3	5.19	NITRITE,N	0.593	0.074	15.34	0.396	1.
4	7.28	BROMIDE	0.067	0.011	2.30	0.366	1.
5	8.36	SULFATE	0.498	0.103	21.22	1.831	1.
6	8.76	NITRATE	0.356	0.074	15.29	0.372	1.
7	12.33	PHOSPHATE	0.059	0.010	2.02	0.250	1.
Total:			3.690	0.485	100.00	5.560	

3 STD3

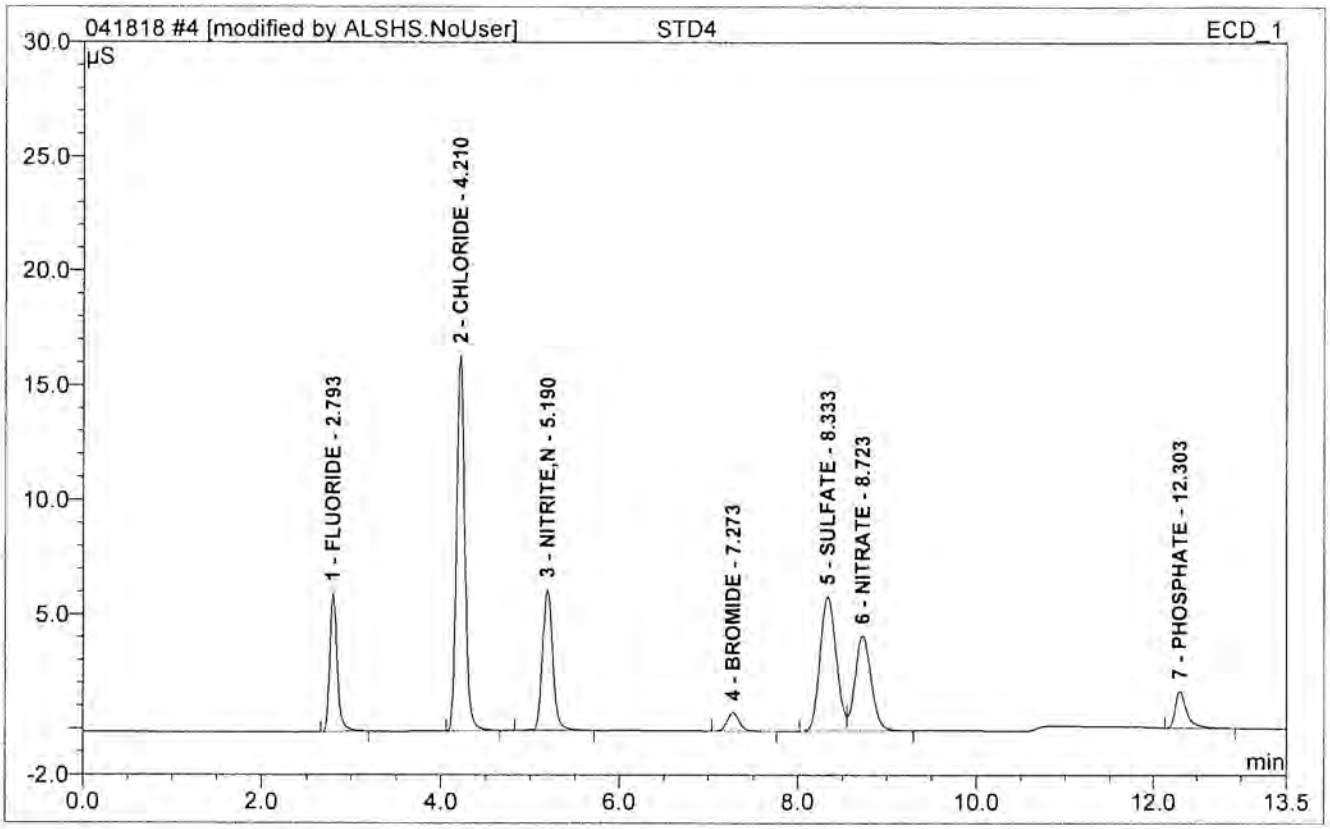
Sample Name:	**STD3**	*Injection Volume:*	**10.0**
Vial Number:	**3**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**041318**	*Dilution Factor:*	**1.**
Recording Time:	**4/13/2018 14:48**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.79	FLUORIDE	3.148	0.292	10.38	2.119	1.
2	4.21	CHLORIDE	8.333	0.889	31.57	10.256	1.
3	5.19	NITRITE,N	3.254	0.423	15.03	2.218	1.
4	7.27	BROMIDE	0.378	0.062	2.21	1.801	1.
5	8.35	SULFATE	2.956	0.615	21.82	10.051	1.
6	8.74	NITRATE	2.085	0.429	15.24	1.972	1.
7	12.32	PHOSPHATE	0.636	0.106	3.75	1.572	1.
Total:			20.791	2.816	100.00	29.990	

4 STD4

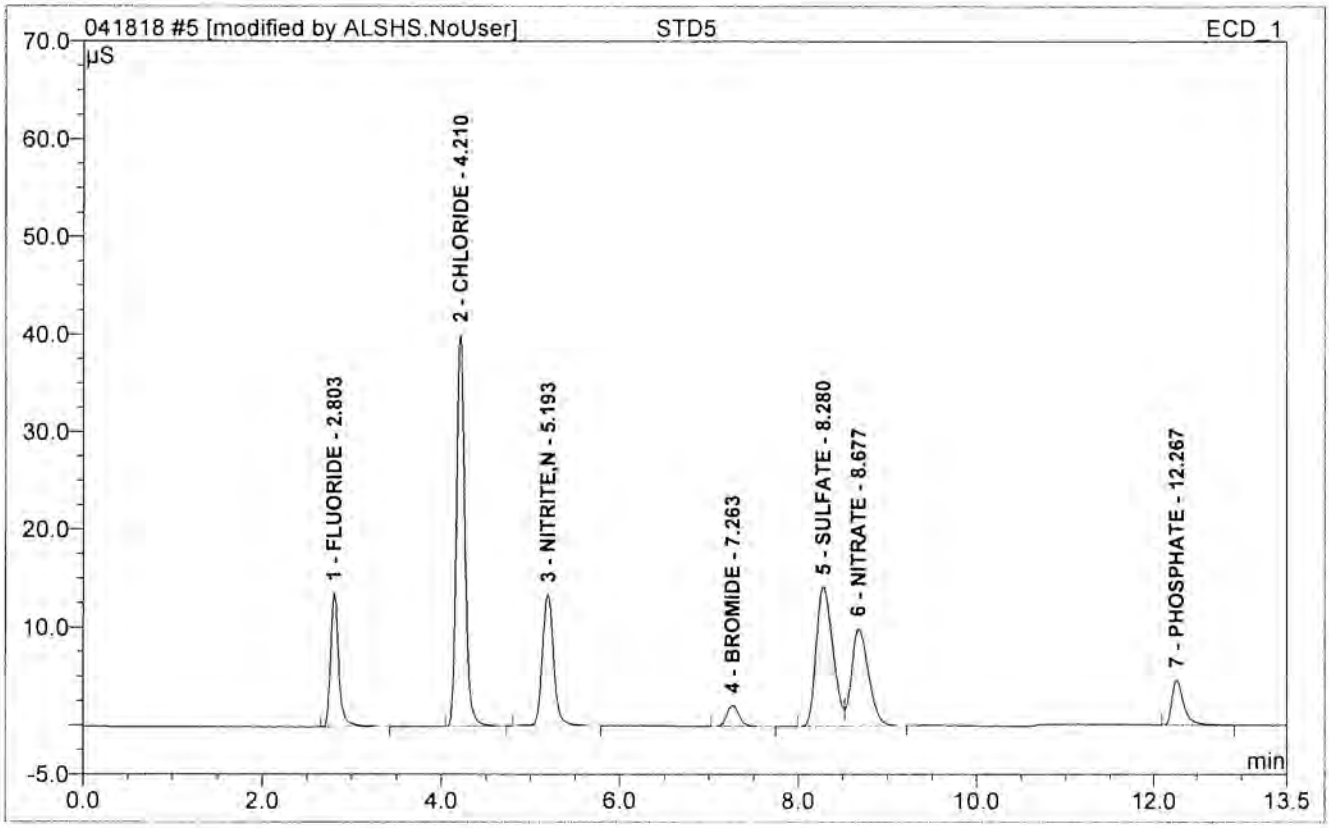
Sample Name:	**STD4**	*Injection Volume:*	**10.0**
Vial Number:	**4**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**041318**	*Dilution Factor:*	**1.**
Recording Time:	**4/13/2018 15:02**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.79	FLUORIDE	6.063	0.586	10.29	4.229	1.
2	4.21	CHLORIDE	16.372	1.764	30.99	20.229	1.
3	5.19	NITRITE,N	6.157	0.835	14.67	4.370	1.
4	7.27	BROMIDE	0.805	0.131	2.30	3.731	1.
5	8.33	SULFATE	5.884	1.246	21.89	20.195	1.
6	8.72	NITRATE	4.154	0.875	15.38	3.985	1.
7	12.30	PHOSPHATE	1.616	0.255	4.49	3.634	1.
Total:			41.050	5.692	100.00	60.373	

5 STD5

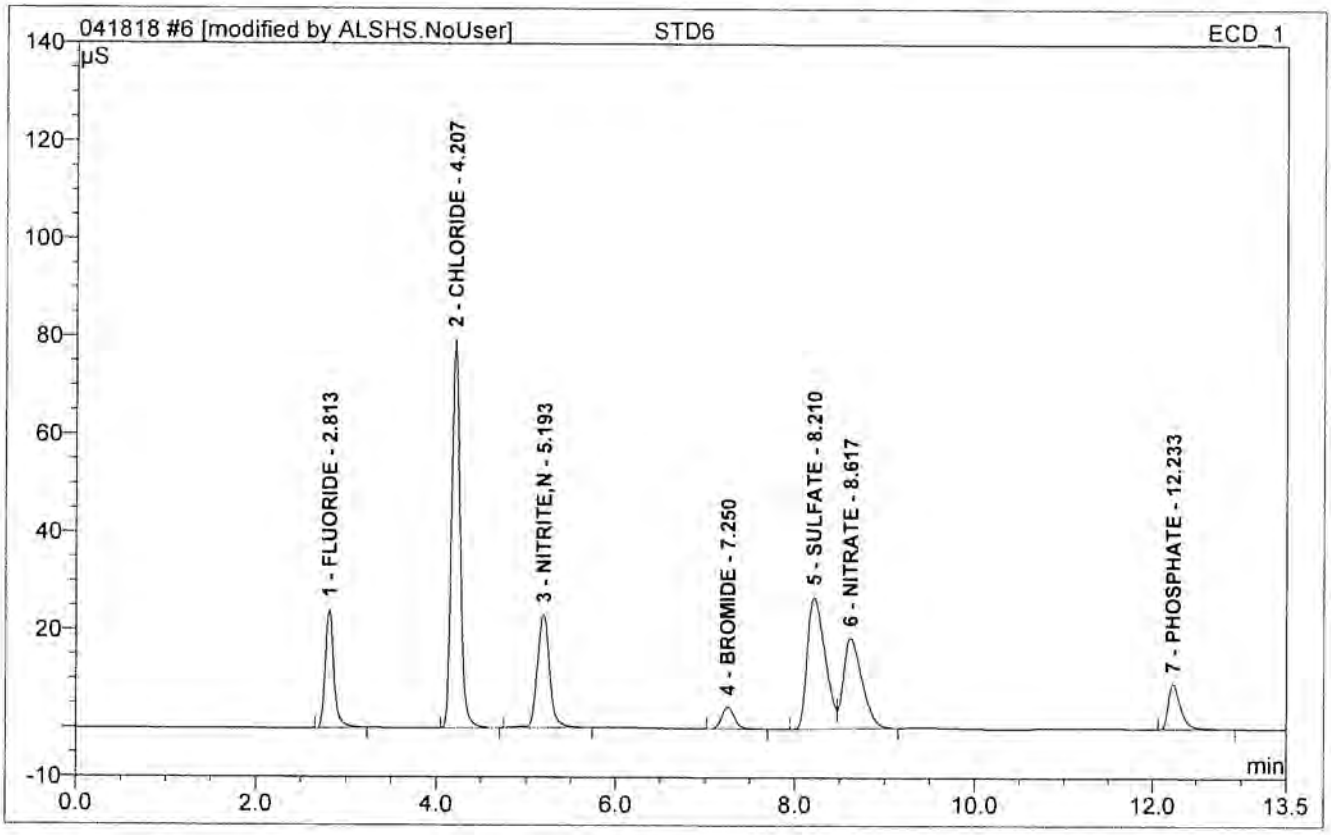
Sample Name:	**STD5**	*Injection Volume:*	**10.0**
Vial Number:	**5**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**041318**	*Dilution Factor:*	**1.**
Recording Time:	**4/13/2018 15:17**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.80	FLUORIDE	13.651	1.430	10.11	10.296	1.
2	4.21	CHLORIDE	40.087	4.363	30.85	49.867	1.
3	5.19	NITRITE,N	13.437	1.964	13.88	10.265	1.
4	7.26	BROMIDE	2.153	0.350	2.48	9.912	1.
5	8.28	SULFATE	14.230	3.105	21.95	50.056	1.
6	8.68	NITRATE	9.937	2.204	15.58	9.975	1.
7	12.27	PHOSPHATE	4.651	0.730	5.16	10.171	1.
Total:			98.147	14.145	100.00	150.542	

6 STD6

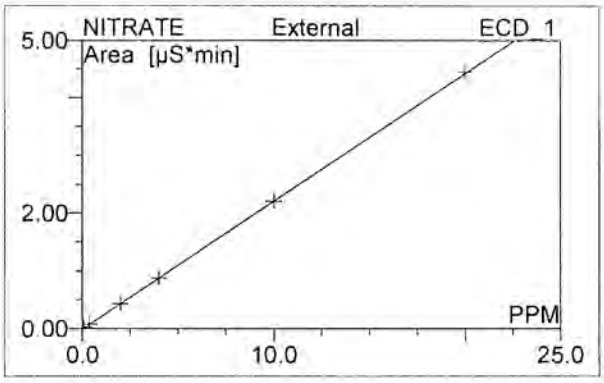
Sample Name:	**STD6**	*Injection Volume:*	**10.0**
Vial Number:	**6**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**041318**	*Dilution Factor:*	**1.**
Recording Time:	**4/13/2018 15:31**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**

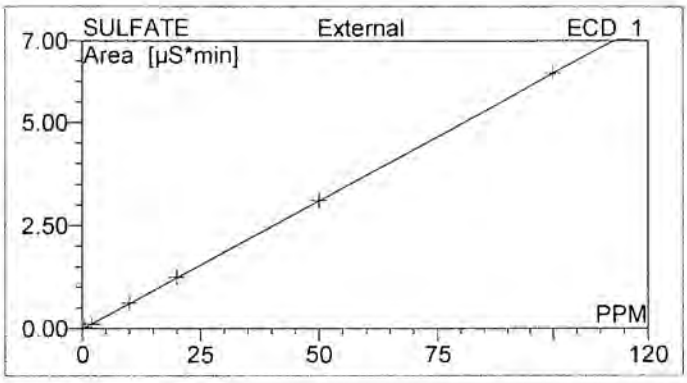


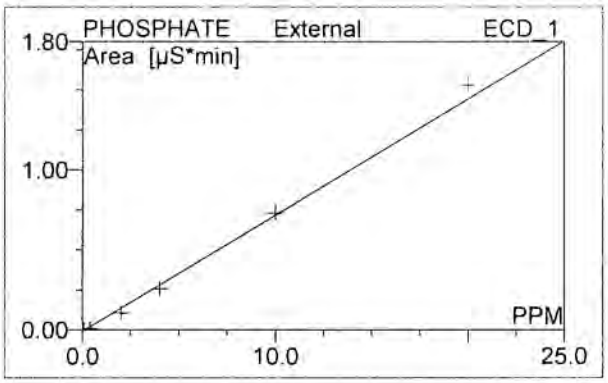
No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.81	FLUORIDE	24.323	2.700	9.63	19.429	1.
2	4.21	CHLORIDE	79.461	8.732	31.16	99.686	1.
3	5.19	NITRITE,N	23.123	3.685	13.15	19.255	1.
4	7.25	BROMIDE	4.467	0.731	2.61	20.644	1.
5	8.21	SULFATE	27.000	6.203	22.13	99.832	1.
6	8.62	NITRATE	18.572	4.447	15.87	20.093	1.
7	12.23	PHOSPHATE	9.206	1.530	5.46	21.196	1.
Total:			186.152	28.028	100.00	300.135	

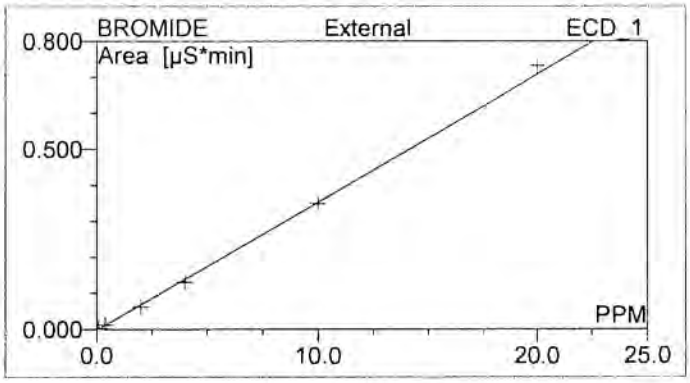
6 STD6

Sample Name:	**STD6**	*Injection Volume:*	**10.0**
Vial Number:	**6**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**041318**	*Dilution Factor:*	**1.**
Recording Time:	**4/13/2018 15:31**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**









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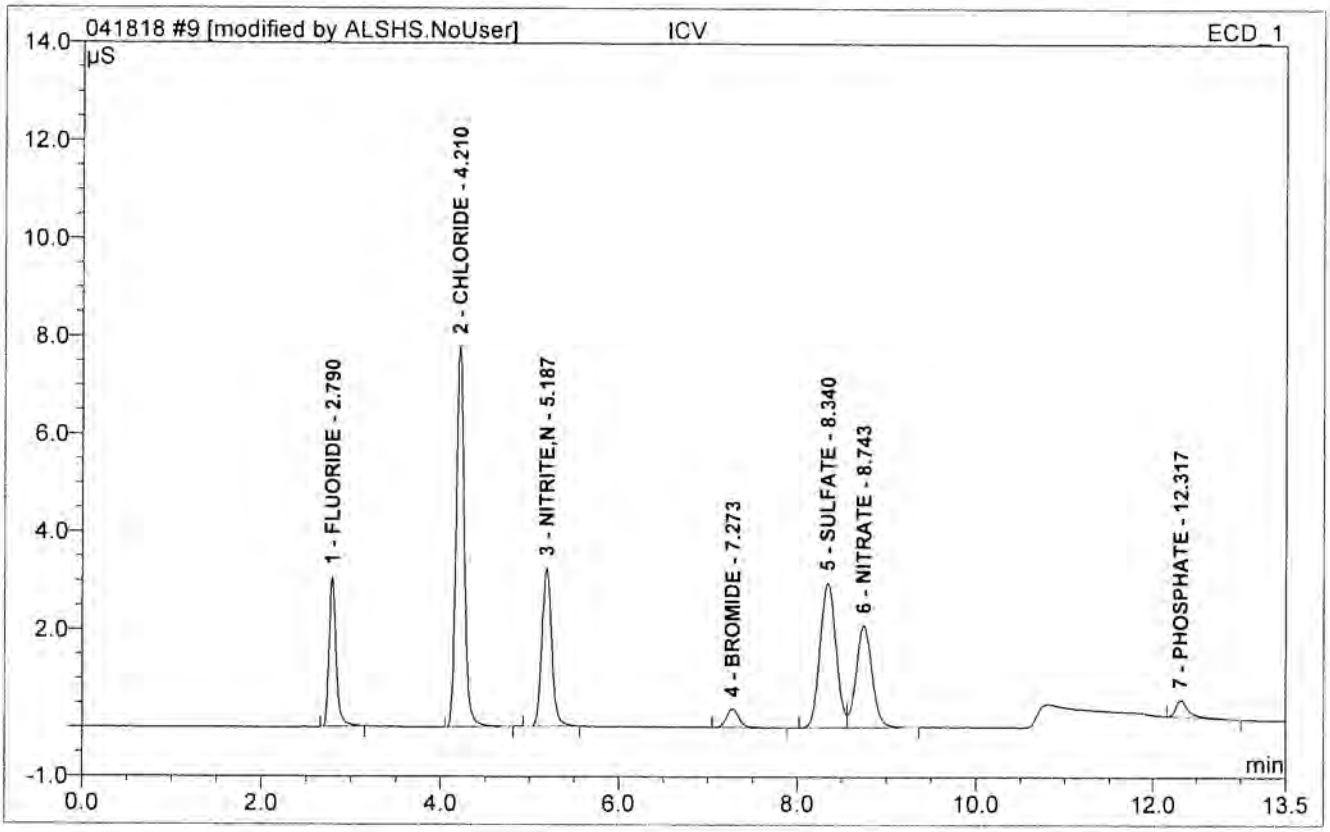
No.	Ret.Time min	Peak Name	Cal.Type	Points	Coeff.Det. %	Offset	Slope	Curve
1	2.81	FLUORIDE	YLOff	6	99.865	-0.0022	0.1391	0.000
2	4.21	CHLORIDE	XLOff	6	99.993	-0.0103	0.0877	0.000
3	5.19	NITRITE,N	YLOff	6	99.736	-0.0014	0.1915	0.000
4	7.25	BROMIDE	YLOff	6	99.791	-0.0018	0.0355	0.000
5	8.21	SULFATE	XLOff	6	99.989	-0.0111	0.0622	0.000
6	8.62	NITRATE	YLOff	6	99.988	-0.0083	0.2217	0.000
7	12.23	PHOSPHATE	YLOff	6	98.656	-0.0084	0.0726	0.000
Average:					99.7169	-0.0062	0.1158	0.0000

No.	Ret.Time min	Peak Name	Cal.Type	Points	Corr.Coeff. %	RF-Value	Std.Dev.	RSD %
1	2.81	FLUORIDE	YLOff	6	99.933	7.191	0.009	17.587
2	4.21	CHLORIDE	XLOff	6	99.997	11.402	0.007	3.719
3	5.19	NITRITE,N	YLOff	6	99.868	5.223	0.018	24.490
4	7.25	BROMIDE	YLOff	6	99.895	28.161	0.003	23.989
5	8.21	SULFATE	XLOff	6	99.994	16.066	0.006	5.045
6	8.62	NITRATE	YLOff	6	99.994	4.510	0.004	5.559
7	12.23	PHOSPHATE	YLOff	6	99.326	13.781	0.010	85.172
Average:					99.8581	12.3333	0.0081	23.6518

9 ICV

2/10PPM

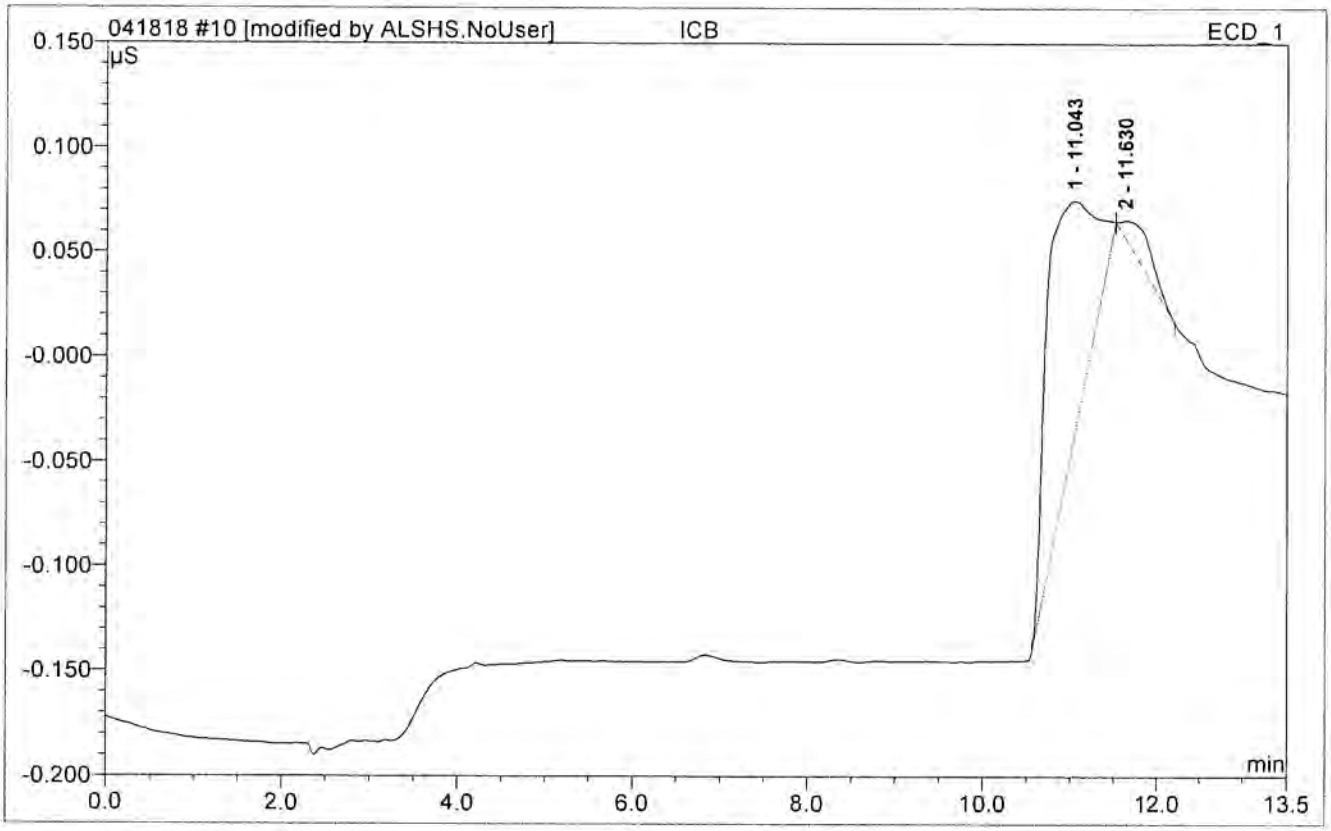
Sample Name:	**ICV**	*Injection Volume:*	**10.0**
Vial Number:	**9**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**041318**	*Dilution Factor:*	**1.**
Recording Time:	**4/13/2018 18:12**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.79	FLUORIDE	3.084	0.282	10.43	2.044	1.
2	4.21	CHLORIDE	7.796	0.830	30.67	9.578	1.
3	5.19	NITRITE,N	3.241	0.417	15.40	2.183	1.
4	7.27	BROMIDE	0.383	0.063	2.33	1.827	1.
5	8.34	SULFATE	2.972	0.620	22.91	10.133	1.
6	8.74	NITRATE	2.103	0.433	16.01	1.991	1.
7	12.32	PHOSPHATE	0.346	0.061	2.26	0.958	1.
Total:			19.924	2.705	100.00	28.714	

10 ICB

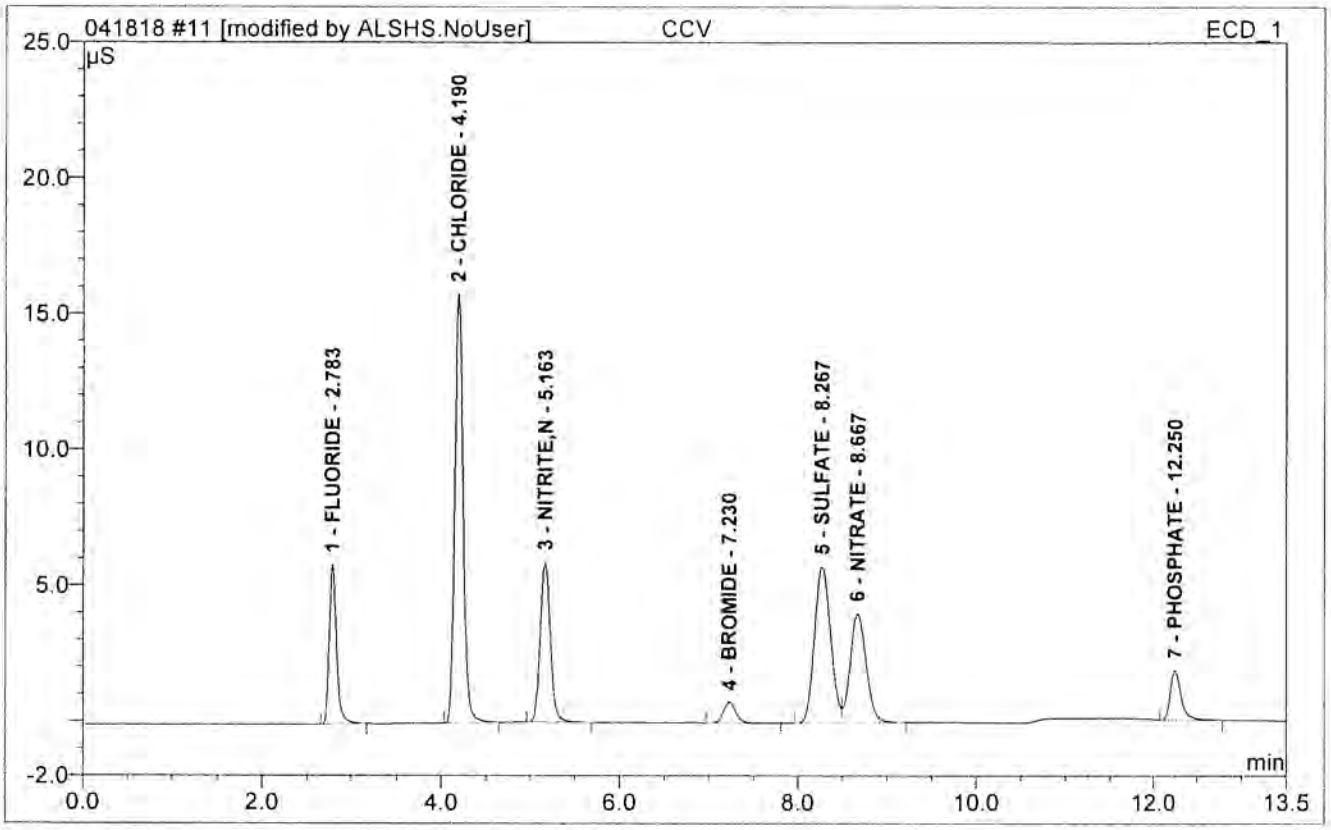
Sample Name:	**ICB**	*Injection Volume:*	**10.0**
Vial Number:	**10**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**041318**	*Dilution Factor:*	**1.**
Recording Time:	**4/13/2018 18:27**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
Total:			0.000	0.000	0.00	0.000	

11 CCV

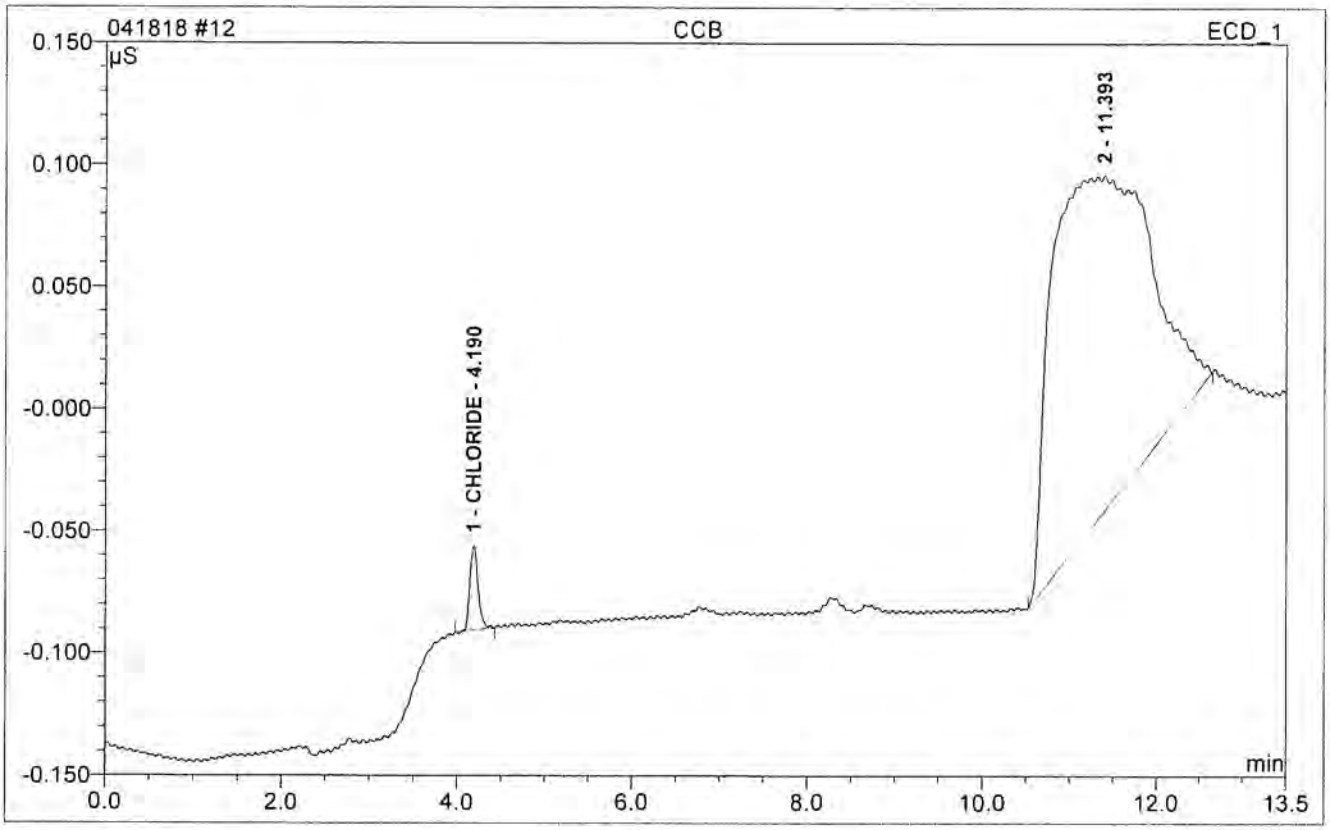
Sample Name:	**CCV**	*Injection Volume:*	**10.0**
Vial Number:	**1**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**041318**	*Dilution Factor:*	**1.**
Recording Time:	**4/18/2018 17:53**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.78	FLUORIDE	5.872	0.556	10.16	4.016	1.
2	4.19	CHLORIDE	15.792	1.700	31.04	19.499	1.
3	5.16	NITRITE,N	5.891	0.783	14.30	4.098	1.
4	7.23	BROMIDE	0.776	0.126	2.31	3.609	1.
5	8.27	SULFATE	5.764	1.207	22.04	19.573	1.
6	8.67	NITRATE	4.028	0.838	15.30	3.815	1.
7	12.25	PHOSPHATE	1.822	0.266	4.86	3.780	1.
Total:			39.945	5.476	100.00	58.390	

12 CCB

Sample Name:	**CCB**	*Injection Volume:*	**10.0**
Vial Number:	**2**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**041318**	*Dilution Factor:*	**1.**
Recording Time:	**4/18/2018 18:08**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**

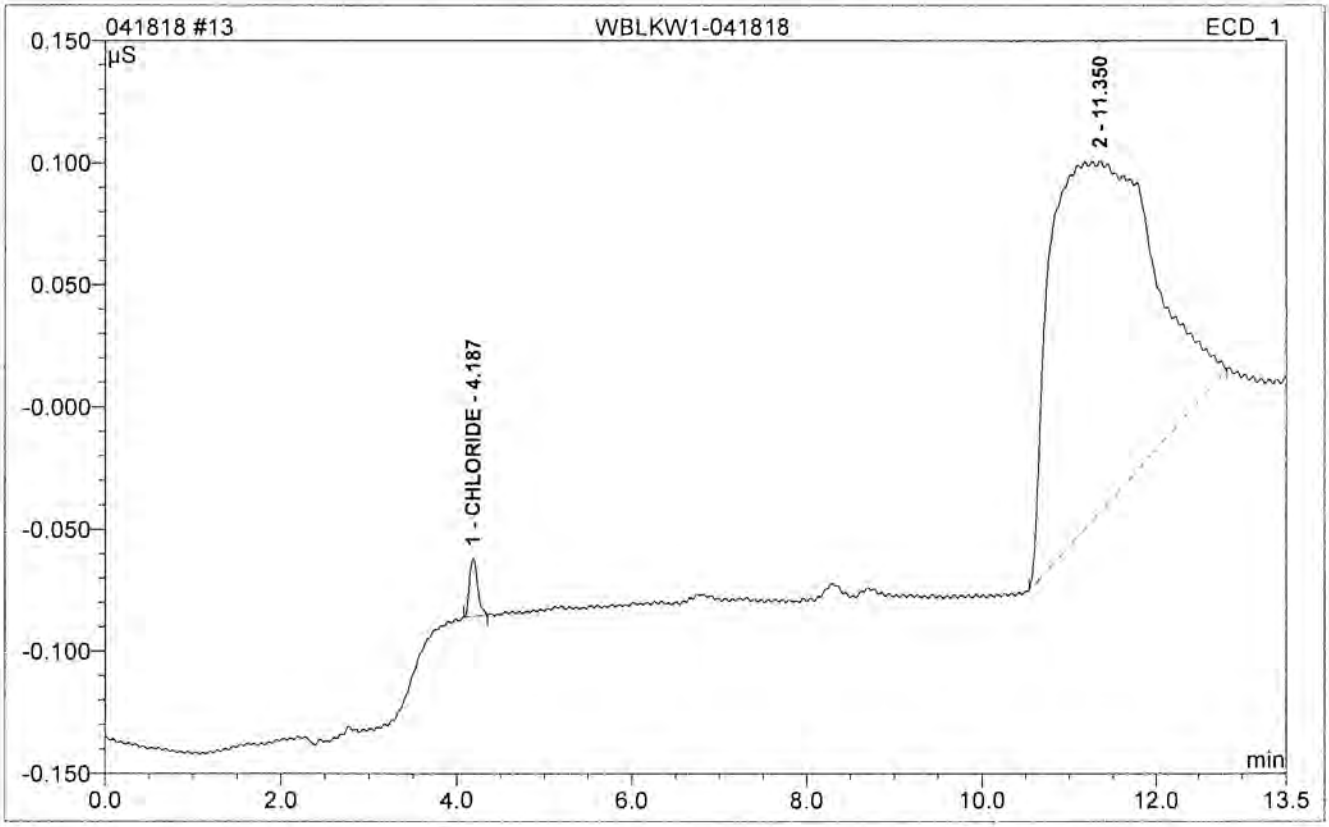


No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	4.19	CHLORIDE	0.035	0.004	1.97	0.160	1.
Total:			0.035	0.004	1.97	0.160	

13 WBLKW1-041818

300_W / 9056_W

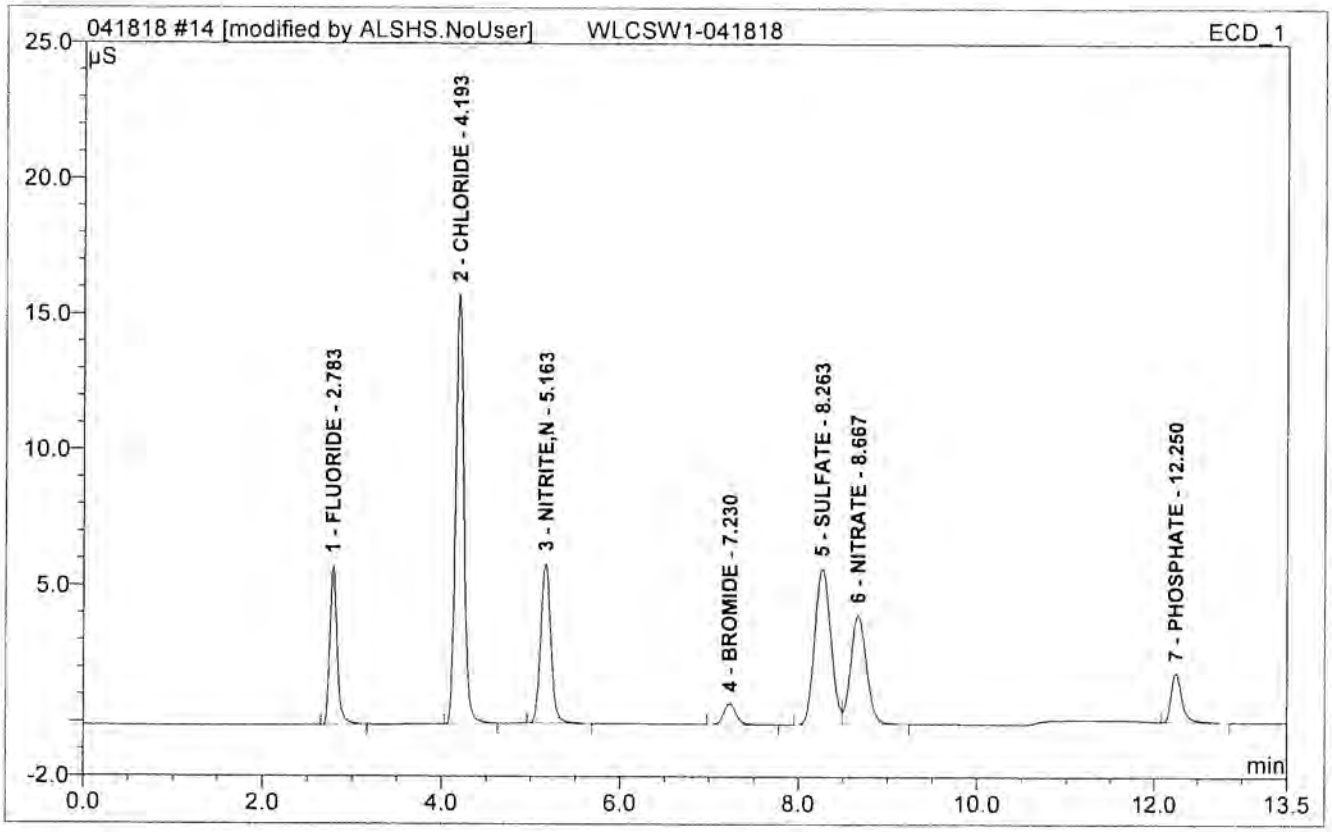
Sample Name:	**WBLKW1-041818**	*Injection Volume:*	**10.0**
Vial Number:	**5**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**041318**	*Dilution Factor:*	**1.**
Recording Time:	**4/18/2018 18:22**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	4.19	CHLORIDE	0.024	0.003	1.25	0.146	1.
Total:			0.024	0.003	1.25	0.146	

14 WLCSW1-041818

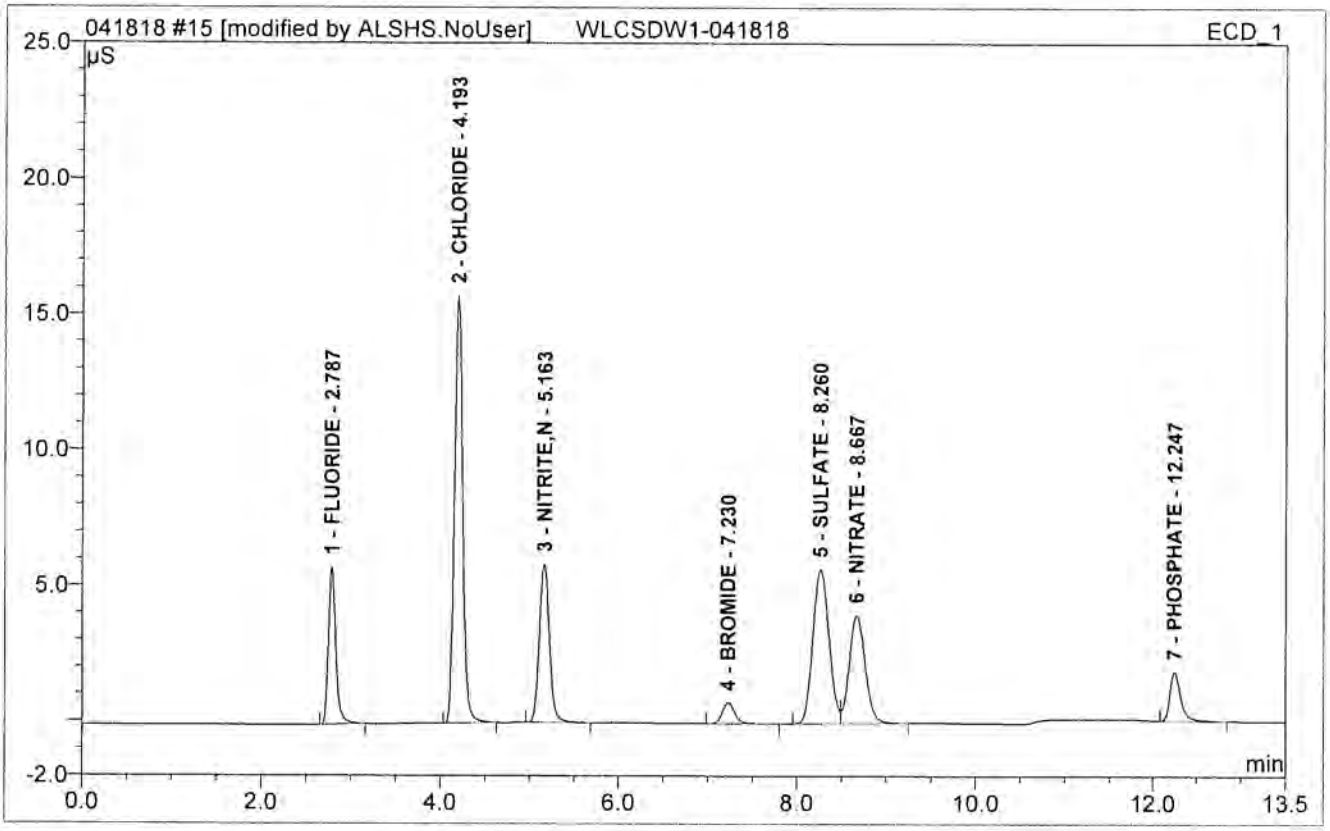
Sample Name:	**WLCSW1-041818**	*Injection Volume:*	**10.0**
Vial Number:	**6**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**041318**	*Dilution Factor:*	**1.**
Recording Time:	**4/18/2018 18:37**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.78	FLUORIDE	5.857	0.555	10.14	4.004	1.
2	4.19	CHLORIDE	15.808	1.697	31.04	19.466	1.
3	5.16	NITRITE,N	5.867	0.782	14.30	4.090	1.
4	7.23	BROMIDE	0.776	0.126	2.31	3.601	1.
5	8.26	SULFATE	5.740	1.205	22.04	19.535	1.
6	8.67	NITRATE	4.017	0.835	15.27	3.803	1.
7	12.25	PHOSPHATE	1.824	0.268	4.90	3.804	1.
Total:			39.888	5.467	100.00	58.302	

15 WLCSDW1-041818

Sample Name:	**WLCSDW1-041818**	*Injection Volume:*	**10.0**
Vial Number:	**7**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**041318**	*Dilution Factor:*	**1.**
Recording Time:	**4/18/2018 18:51**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**

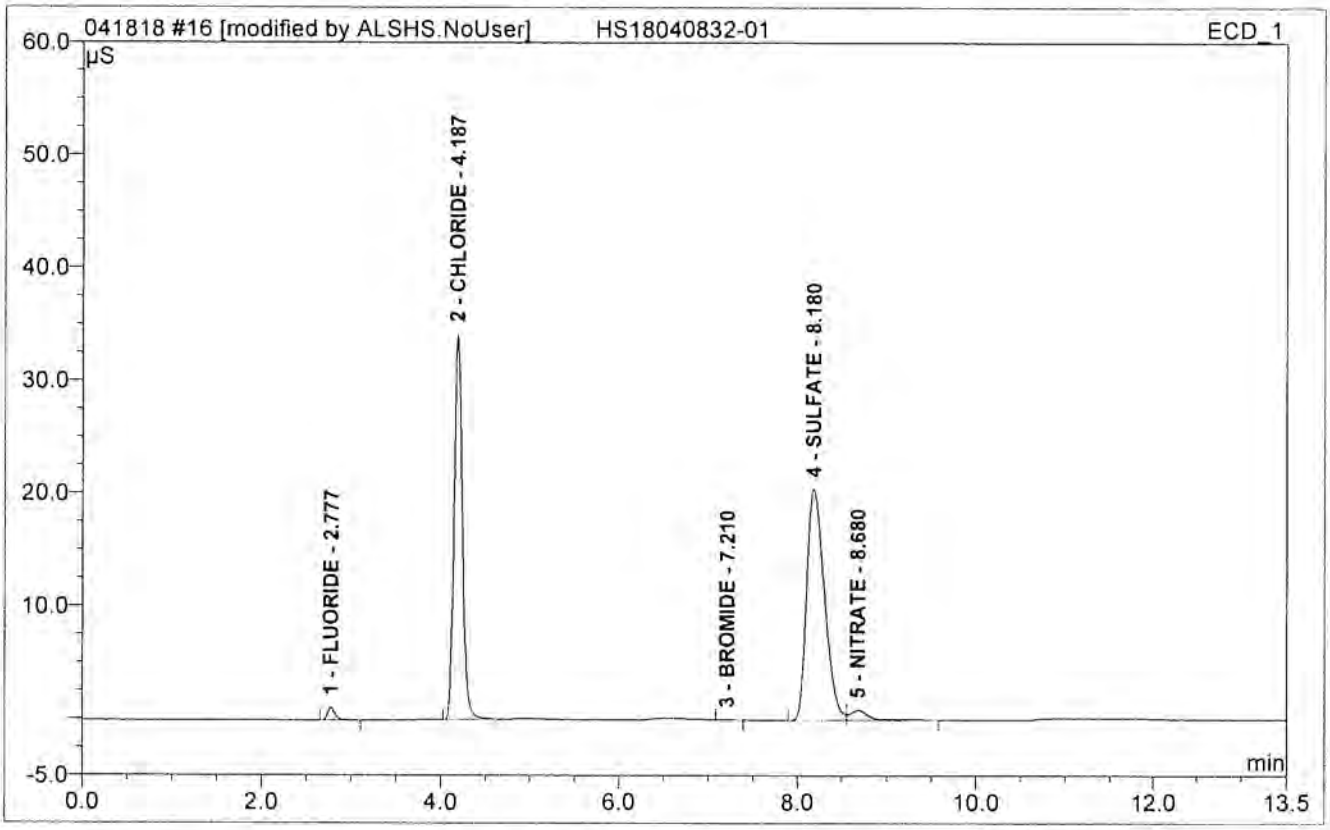


No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.79	FLUORIDE	5.822	0.551	10.13	3.980	1.
2	4.19	CHLORIDE	15.752	1.690	31.06	19.385	1.
3	5.16	NITRITE,N	5.858	0.778	14.30	4.072	1.
4	7.23	BROMIDE	0.773	0.126	2.32	3.606	1.
5	8.26	SULFATE	5.713	1.198	22.02	19.424	1.
6	8.67	NITRATE	4.004	0.831	15.27	3.784	1.
7	12.25	PHOSPHATE	1.817	0.267	4.90	3.792	1.
Total:			39.739	5.441	100.00	58.043	

16 HS18040832-01

9056_W

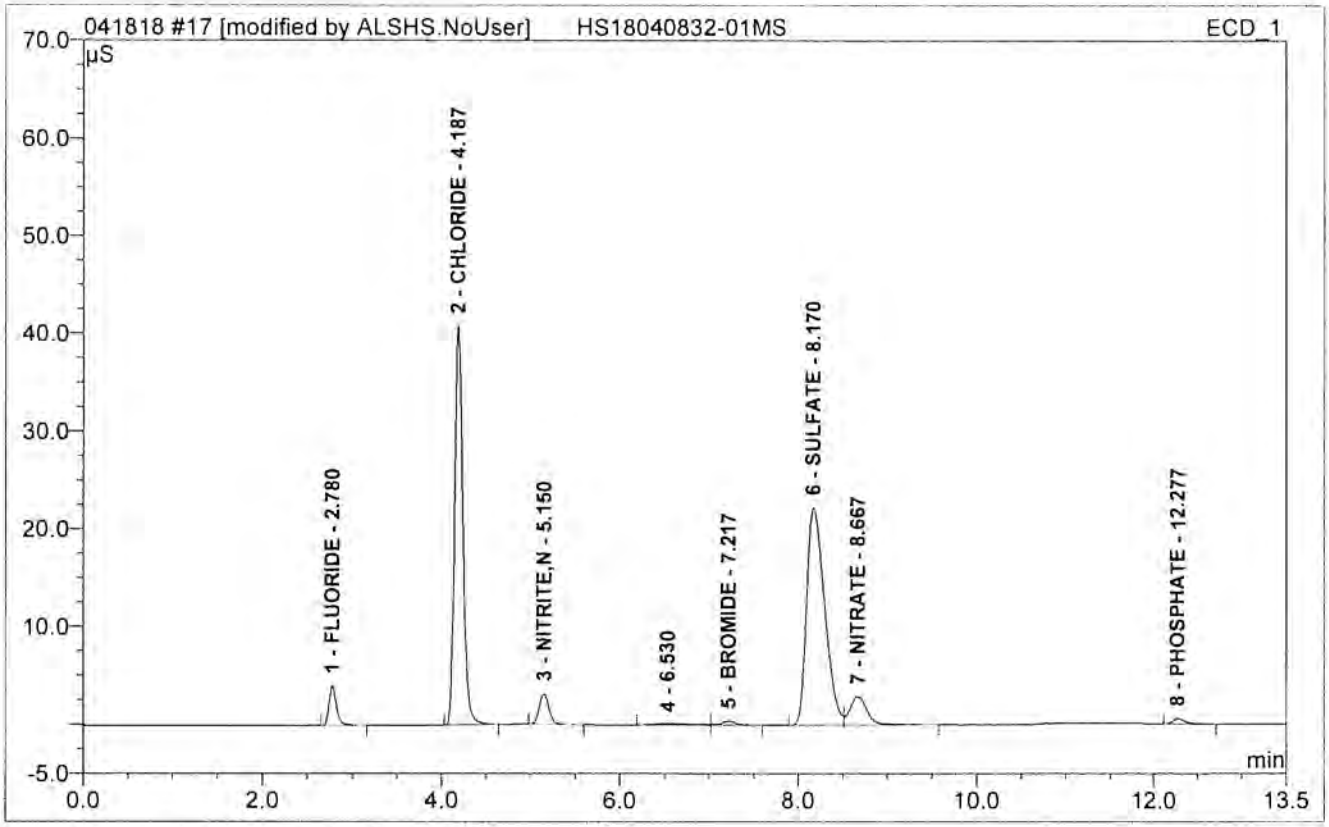
Sample Name:	**HS18040832-01**	*Injection Volume:*	**10.0**
Vial Number:	**11**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**041318**	*Dilution Factor:*	**1.**
Recording Time:	**4/18/2018 19:06**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.78	FLUORIDE	1.148	0.108	1.23	0.794	1.
2	4.19	CHLORIDE	34.166	3.681	41.90	42.083	1.
3	7.21	BROMIDE	0.036	0.005	0.06	0.199	1.
4	8.18	SULFATE	20.480	4.780	54.41	76.964	1.
5	8.68	NITRATE	0.876	0.211	2.40	0.988	1.
Total:			56.707	8.784	100.00	121.028	

17 HS18040832-01MS

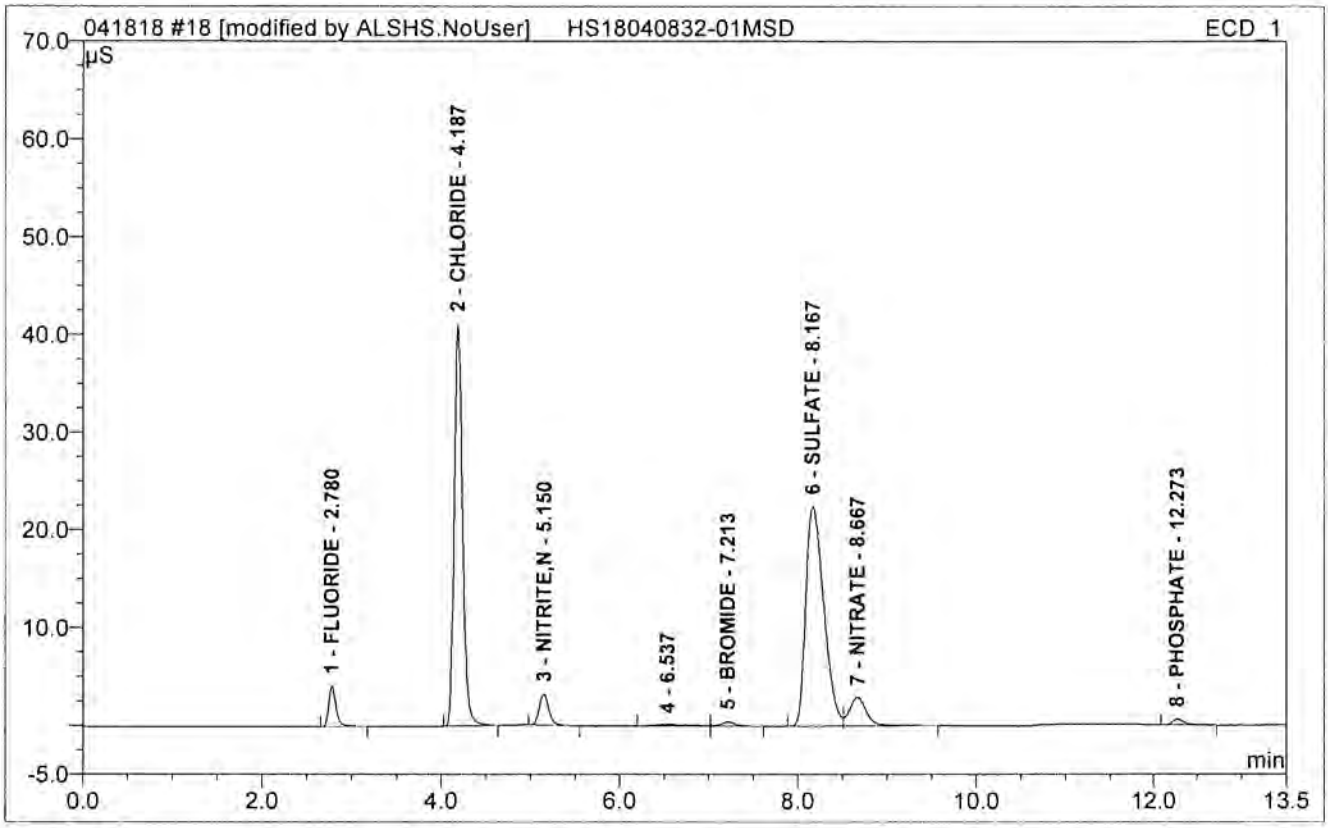
Sample Name:	**HS18040832-01MS**	*Injection Volume:*	**10.0**
Vial Number:	**12**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**041318**	*Dilution Factor:*	**1.**
Recording Time:	**4/18/2018 19:20**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.78	FLUORIDE	4.077	0.388	3.44	2.806	1.
2	4.19	CHLORIDE	40.838	4.405	39.05	50.341	1.
3	5.15	NITRITE,N	3.126	0.389	3.45	2.041	1.
5	7.22	BROMIDE	0.415	0.071	0.63	2.059	1.
6	8.17	SULFATE	22.298	5.211	46.20	83.897	1.
7	8.67	NITRATE	2.906	0.648	5.74	2.958	1.
8	12.28	PHOSPHATE	0.585	0.092	0.81	1.381	1.
Total:			74.245	11.204	99.33	145.483	

18 HS18040832-01MSD

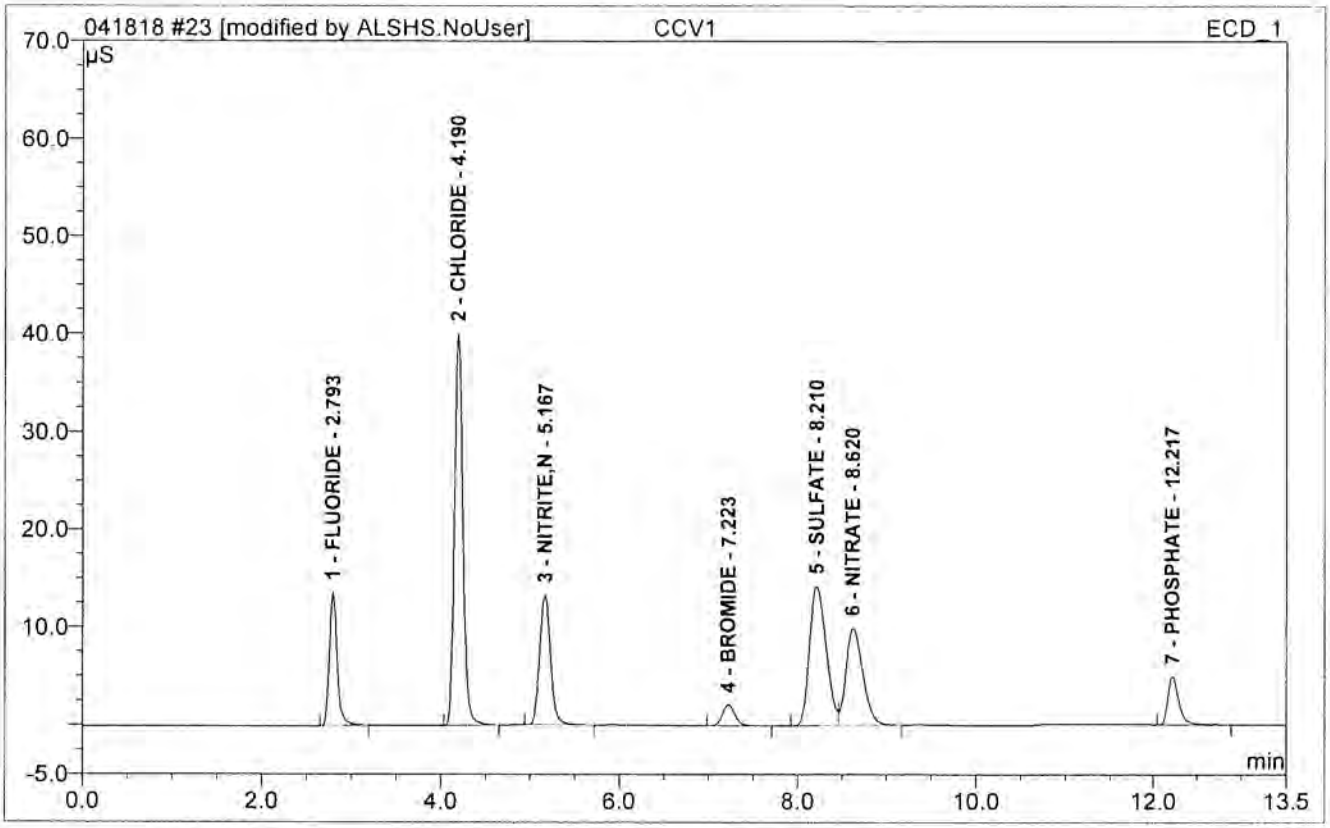
Sample Name:	**HS18040832-01MSD**	*Injection Volume:*	**10.0**
Vial Number:	**13**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**041318**	*Dilution Factor:*	**1.**
Recording Time:	**4/18/2018 19:35**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.78	FLUORIDE	4.164	0.397	3.49	2.874	1.
2	4.19	CHLORIDE	41.159	4.438	38.95	50.725	1.
3	5.15	NITRITE,N	3.198	0.400	3.51	2.097	1.
5	7.21	BROMIDE	0.425	0.074	0.65	2.123	1.
6	8.17	SULFATE	22.484	5.254	46.10	84.580	1.
7	8.67	NITRATE	2.953	0.659	5.78	3.008	1.
8	12.27	PHOSPHATE	0.622	0.098	0.86	1.460	1.
Total:			75.005	11.319	99.33	146.866	

23 CCV1

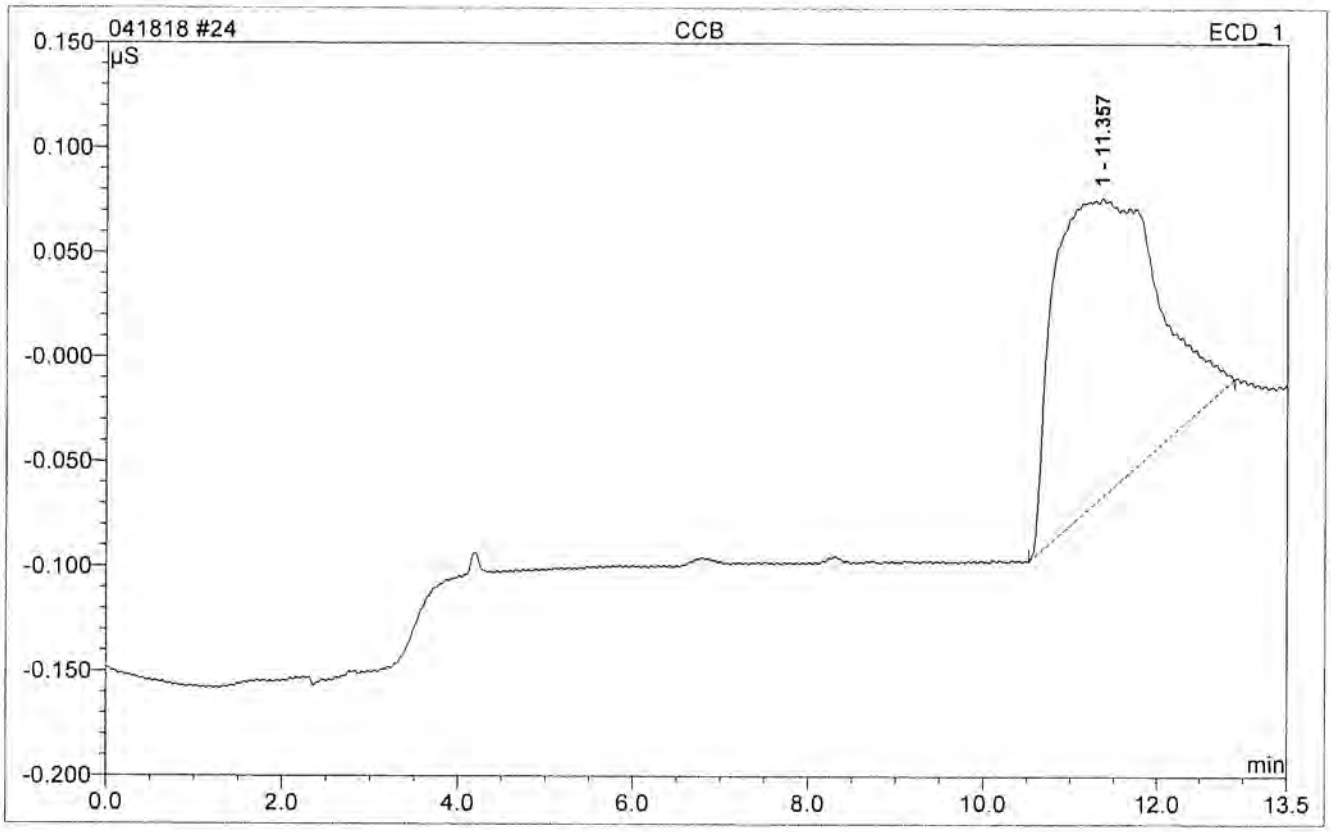
Sample Name:	**CCV1**	*Injection Volume:*	**10.0**
Vial Number:	**3**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**041318**	*Dilution Factor:*	**1.**
Recording Time:	**4/18/2018 20:48**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.79	FLUORIDE	13.679	1.395	9.94	10.047	1.
2	4.19	CHLORIDE	40.051	4.355	31.04	49.769	1.
3	5.17	NITRITE,N	13.249	1.888	13.46	9.869	1.
4	7.22	BROMIDE	2.154	0.348	2.48	9.848	1.
5	8.21	SULFATE	14.292	3.111	22.18	50.166	1.
6	8.62	NITRATE	9.953	2.188	15.60	9.904	1.
7	12.22	PHOSPHATE	4.944	0.744	5.30	10.367	1.
Total:			98.323	14.029	100.00	149.970	

24 CCB

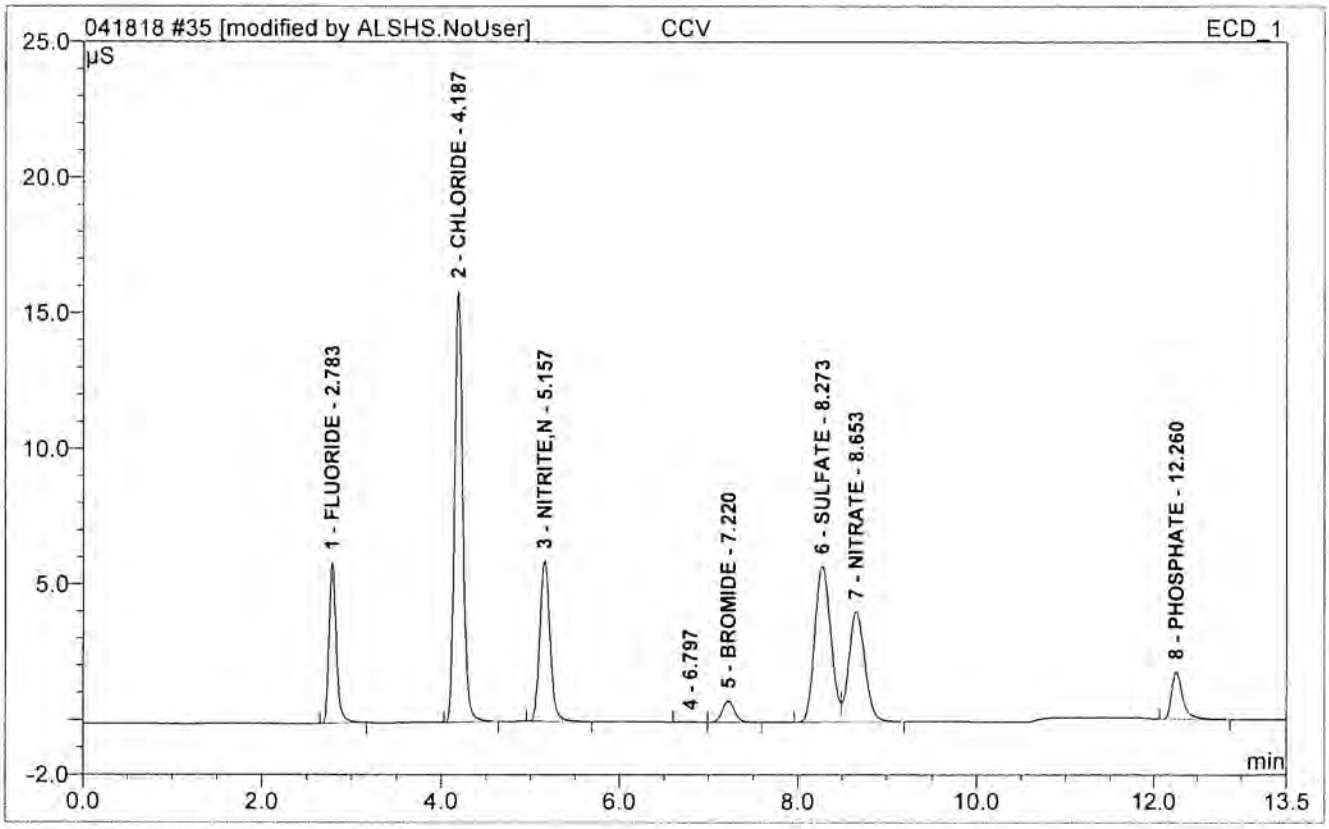
Sample Name:	**CCB**	*Injection Volume:*	**10.0**
Vial Number:	**4**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**041318**	*Dilution Factor:*	**1.**
Recording Time:	**4/18/2018 21:02**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
Total:			0.000	0.000	0.00	0.000	

35 CCV

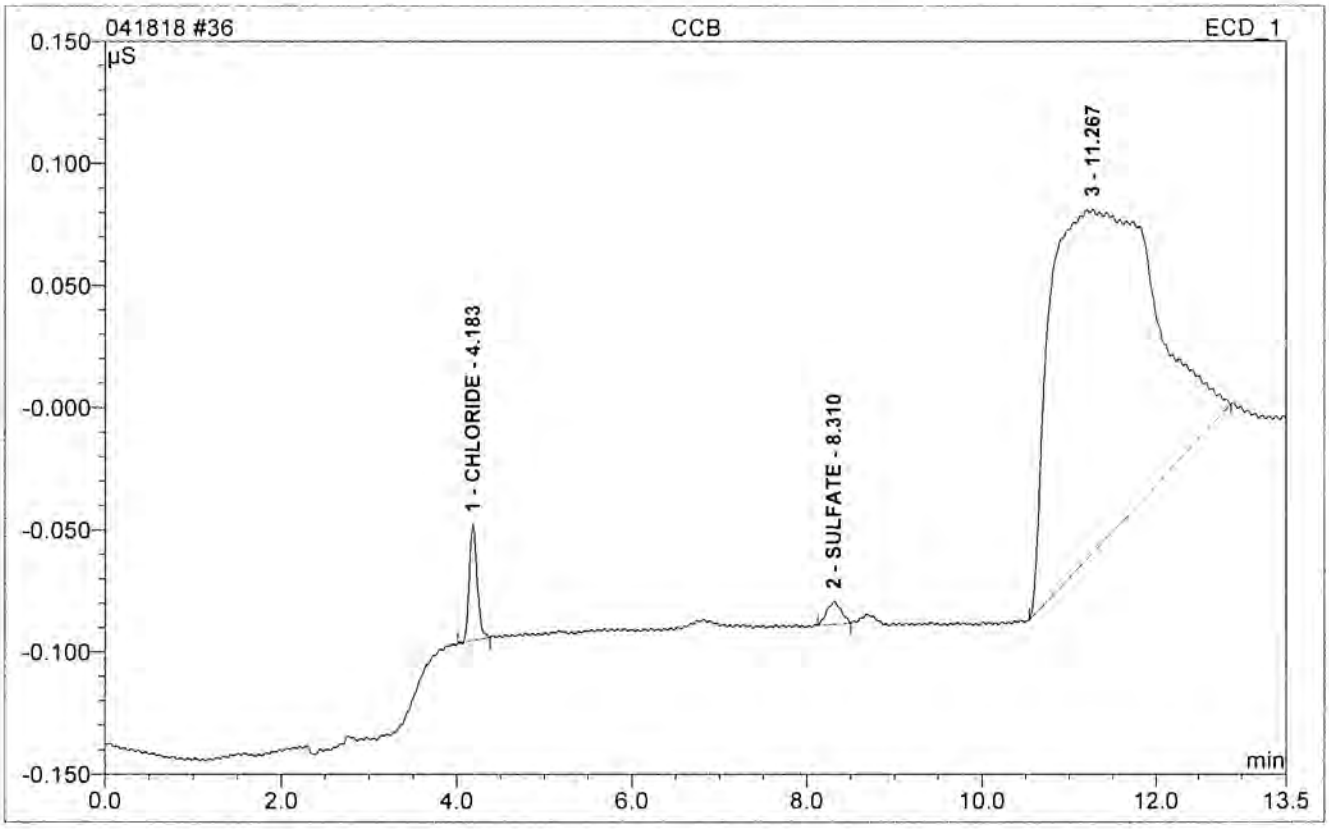
Sample Name:	**CCV**	*Injection Volume:*	**10.0**
Vial Number:	**1**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**041318**	*Dilution Factor:*	**1.**
Recording Time:	**4/18/2018 23:42**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.78	FLUORIDE	5.933	0.562	10.20	4.056	1.
2	4.19	CHLORIDE	15.911	1.708	31.02	19.588	1.
3	5.16	NITRITE,N	5.910	0.788	14.31	4.121	1.
5	7.22	BROMIDE	0.788	0.126	2.29	3.603	1.
6	8.27	SULFATE	5.759	1.209	21.95	19.596	1.
7	8.65	NITRATE	4.075	0.850	15.44	3.871	1.
8	12.26	PHOSPHATE	1.750	0.262	4.76	3.724	1.
Total:			40.126	5.504	99.97	58.557	

36 CCB

Sample Name:	**CCB**	*Injection Volume:*	**10.0**
Vial Number:	**2**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**041318**	*Dilution Factor:*	**1.**
Recording Time:	**4/18/2018 23:57**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**

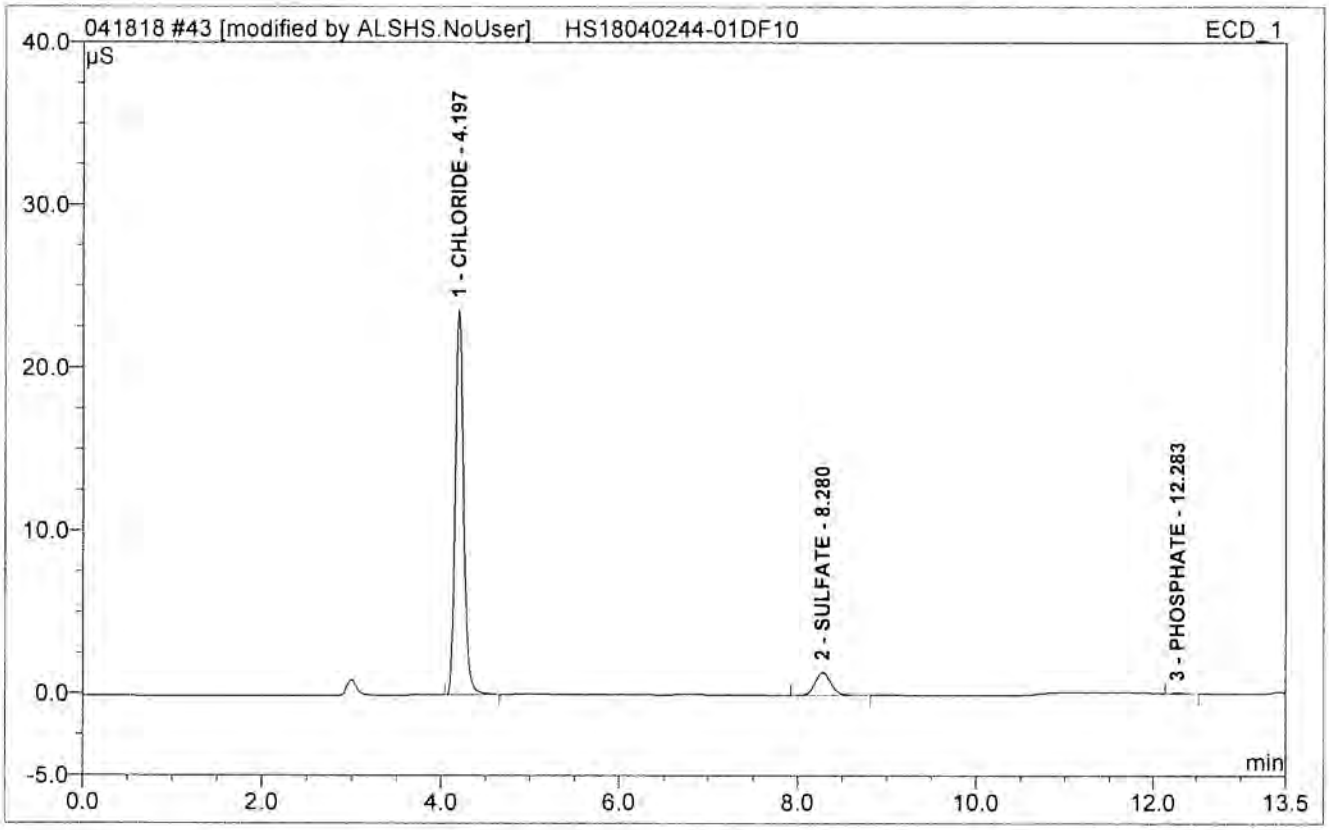


No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	4.18	CHLORIDE	0.048	0.005	2.47	0.174	1.
2	8.31	SULFATE	0.009	0.002	0.89	0.207	1.
Total:			0.057	0.007	3.36	0.381	

43 HS18040244-01DF10

9056_W

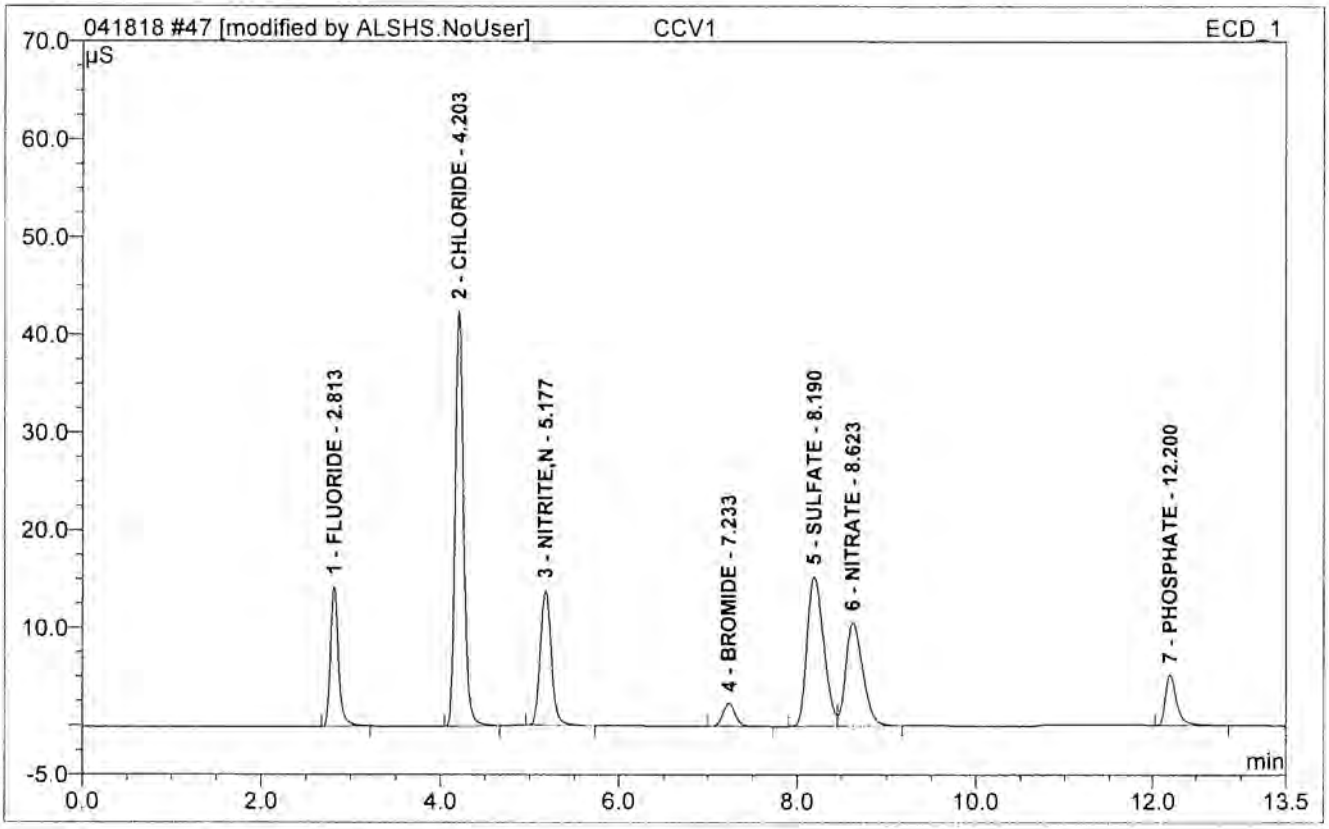
Sample Name:	**HS18040244-01DF10**	*Injection Volume:*	**10.0**
Vial Number:	**33**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**041318**	*Dilution Factor:*	**10.**
Recording Time:	**4/19/2018 1:39**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	4.20	CHLORIDE	23.640	2.561	89.63	293.146	10.
2	8.28	SULFATE	1.389	0.288	10.09	48.072	10.
3	12.28	PHOSPHATE	0.052	0.008	0.28	2.271	10.
Total:			25.081	2.857	100.00	343.489	

47 CCV1

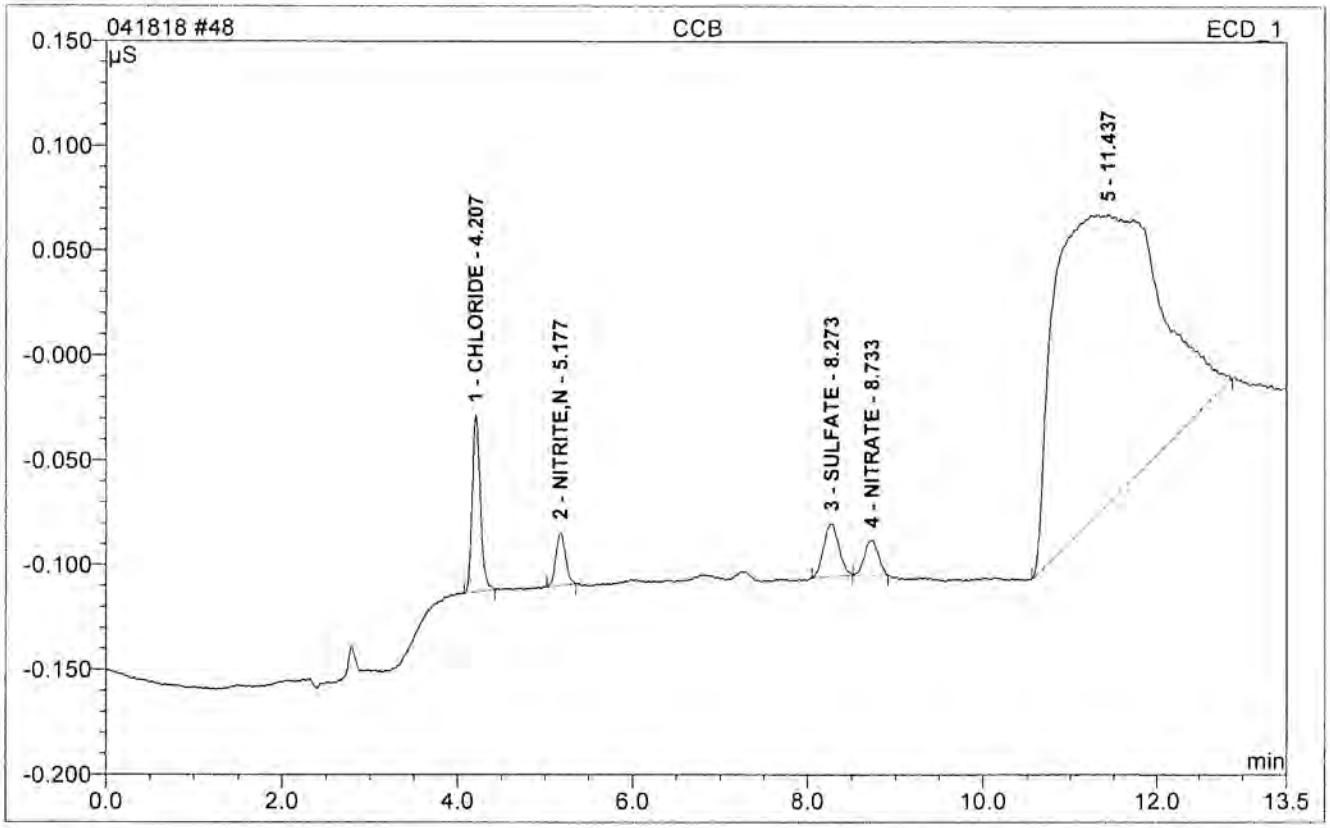
Sample Name:	**CCV1**	*Injection Volume:*	**10.0**
Vial Number:	**3**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**041318**	*Dilution Factor:*	**1.**
Recording Time:	**4/19/2018 2:37**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.81	FLUORIDE	14.350	1.480	9.89	10.655	1.
2	4.20	CHLORIDE	42.466	4.640	31.03	53.026	1.
3	5.18	NITRITE,N	13.830	1.991	13.32	10.408	1.
4	7.23	BROMIDE	2.329	0.377	2.52	10.665	1.
5	8.19	SULFATE	15.349	3.340	22.33	53.831	1.
6	8.62	NITRATE	10.611	2.340	15.65	10.588	1.
7	12.20	PHOSPHATE	5.172	0.786	5.26	10.946	1.
Total:			104.108	14.953	100.00	160.118	

48 CCB

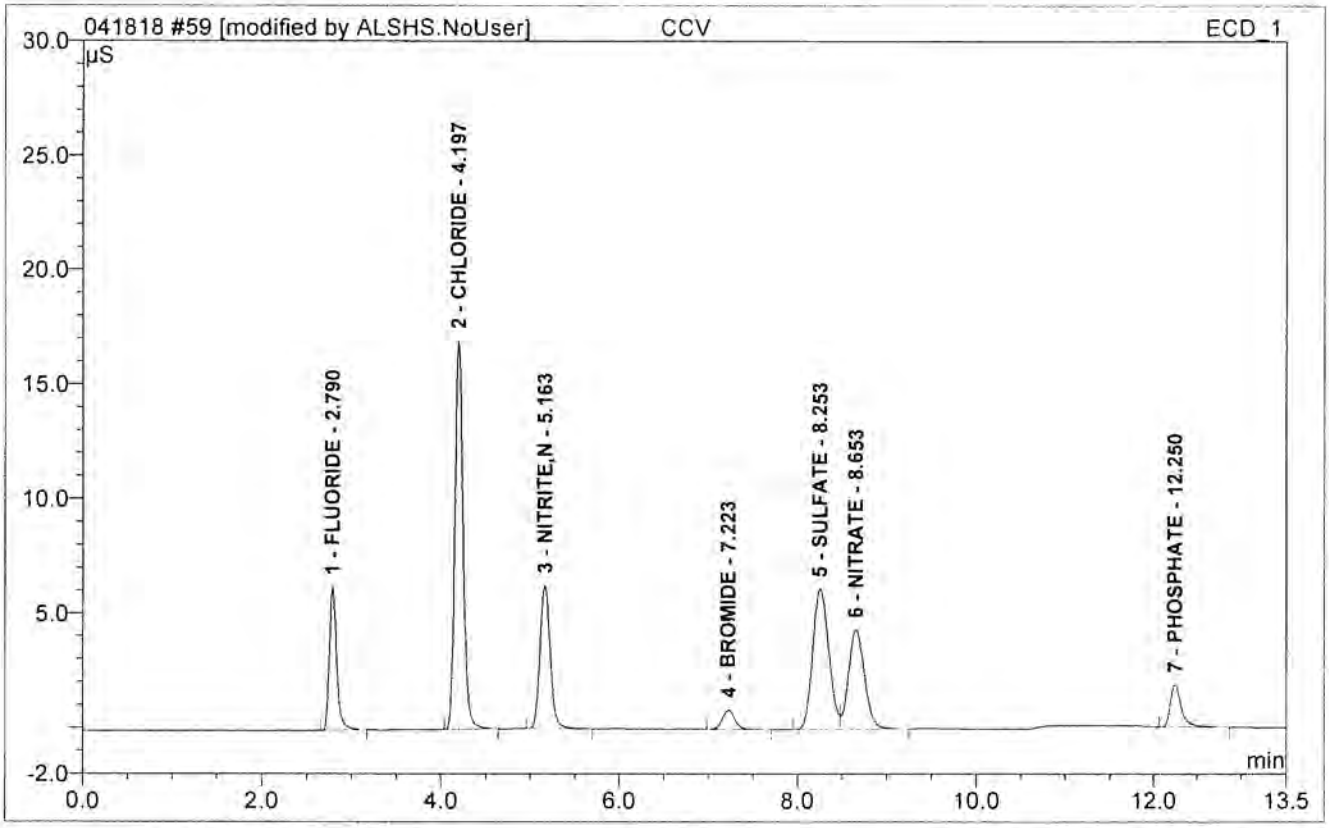
Sample Name:	**CCB**	*Injection Volume:*	**10.0**
Vial Number:	**4**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**041318**	*Dilution Factor:*	**1.**
Recording Time:	**4/19/2018 2:51**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	4.21	CHLORIDE	0.085	0.009	4.15	0.221	1.
2	5.18	NITRITE,N	0.026	0.003	1.47	0.024	1.
3	8.27	SULFATE	0.026	0.005	2.35	0.261	1.
4	8.73	NITRATE	0.017	0.003	1.44	0.052	1.
Total:			0.153	0.021	9.41	0.558	

59 CCV

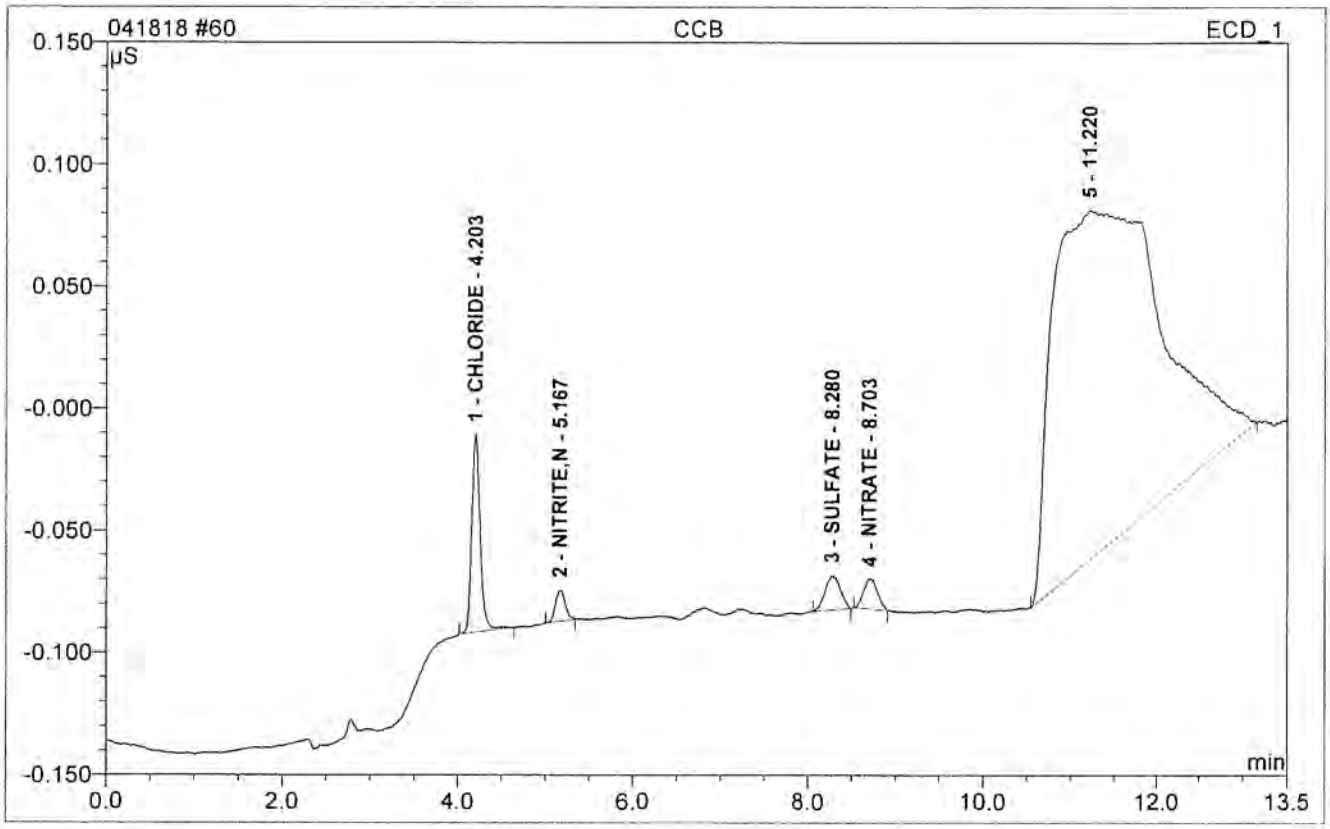
Sample Name:	**CCV**	*Injection Volume:*	**10.0**
Vial Number:	**1**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**041318**	*Dilution Factor:*	**1.**
Recording Time:	**4/19/2018 5:31**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.79	FLUORIDE	6.254	0.597	10.19	4.311	1.
2	4.20	CHLORIDE	16.939	1.822	31.07	20.894	1.
3	5.16	NITRITE,N	6.259	0.838	14.29	4.385	1.
4	7.22	BROMIDE	0.845	0.136	2.31	3.867	1.
5	8.25	SULFATE	6.136	1.290	22.00	20.910	1.
6	8.65	NITRATE	4.332	0.904	15.41	4.113	1.
7	12.25	PHOSPHATE	1.856	0.277	4.73	3.937	1.
Total:			42.622	5.865	100.00	62.418	

60 CCB

Sample Name:	**CCB**	*Injection Volume:*	**10.0**
Vial Number:	**2**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**041318**	*Dilution Factor:*	**1.**
Recording Time:	**4/19/2018 5:46**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	4.20	CHLORIDE	0.081	0.009	4.03	0.220	1.
2	5.17	NITRITE,N	0.013	0.002	0.74	0.016	1.
3	8.28	SULFATE	0.014	0.003	1.28	0.223	1.
4	8.70	NITRATE	0.012	0.002	1.04	0.048	1.
Total:			0.121	0.016	7.10	0.507	

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WorkOrder: HS18040595

Longhorn GW Treatment Plant Monthly Effluent Samples

Bhate Environmental Associates, Inc.

Marcia Olive
445 Union Blvd Ste 129
Lakewood CO 80228

23-May-2018

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
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April 23, 2018

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

Work Order: **HS18040595**

Laboratory Results for: **Longhorn GW Treatment Plant Monthly Effluent Samples**

Dear Marcia,

ALS Environmental received 2 sample(s) on Apr 12, 2018 for the analysis presented in the following report.

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

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

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

Sincerely,

Generated By: DAYNA.FISHER
RJ Modashia
Project Manager

ALS Group Houston, Corp Date: 23-Apr-18

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
Work Order: HS18040595

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS18040595-01	LH18/24-SP650-041118	Water		11-Apr-2018 14:00	12-Apr-2018 08:50	☐
HS18040595-02	Trip Blank	Water	ALS 021518-28	11-Apr-2018 00:00	12-Apr-2018 08:50	☐

ALS Group Houston, Corp Date: 23-Apr-18

Client: Bhate Environmental Associates, Inc. **CASE NARRATIVE**
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
Work Order:

Work Order Comments

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

GCMS Semivolatiles by Method SW8270SIM

Batch ID: 127409

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

GCMS Volatiles by Method SW8260

Batch ID: R314853

Sample ID: HS18040701-07MS

• MS and MSD are for an unrelated sample

Metals by Method SW6020

Batch ID: 127364

Sample ID: HS18040243-01MS

• MS and MSD are for an unrelated sample

WetChemistry by Method SW7196

Batch ID: R314568

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

ALS Group Houston, Corp Date: 23-Apr-18

Client: Bhate Environmental Associates, Inc.
ANALYTICAL REPORT
Project: Longhorn GW Treatment Plant Monthly Effluent Samples WorkOrder:HS18040595
Sample ID: LH18/24-SP650-041118 Lab ID:HS18040595-01
Collection Date: 11-Apr-2018 14:00 Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	22-Apr-2018 13:27
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Apr-2018 13:27
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	ug/L	1	22-Apr-2018 13:27
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	22-Apr-2018 13:27
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Apr-2018 13:27
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Apr-2018 13:27
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	ug/L	1	22-Apr-2018 13:27
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	22-Apr-2018 13:27
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	22-Apr-2018 13:27
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	ug/L	1	22-Apr-2018 13:27
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	22-Apr-2018 13:27
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Apr-2018 13:27
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Apr-2018 13:27
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	ug/L	1	22-Apr-2018 13:27
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Apr-2018 13:27
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	22-Apr-2018 13:27
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	22-Apr-2018 13:27
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	22-Apr-2018 13:27
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	ug/L	1	22-Apr-2018 13:27
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	22-Apr-2018 13:27
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Apr-2018 13:27
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	22-Apr-2018 13:27
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	ug/L	1	22-Apr-2018 13:27
2-Hexanone	1.0	U	1.0	1.0	2.0	ug/L	1	22-Apr-2018 13:27
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	ug/L	1	22-Apr-2018 13:27
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	ug/L	1	22-Apr-2018 13:27
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	ug/L	1	22-Apr-2018 13:27
Acetone	**2.9**		**0.40**	**1.0**	**2.0**	**ug/L**	1	22-Apr-2018 13:27
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Apr-2018 13:27
Bromobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	22-Apr-2018 13:27
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Apr-2018 13:27
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Apr-2018 13:27
Bromoform	0.50	U	0.40	0.50	1.0	ug/L	1	22-Apr-2018 13:27
Bromomethane	0.50	U	0.40	0.50	1.0	ug/L	1	22-Apr-2018 13:27
Carbon disulfide	1.0	U	0.60	1.0	2.0	ug/L	1	22-Apr-2018 13:27
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	ug/L	1	22-Apr-2018 13:27
Chlorobenzene	0.50	U	0.30	0.50	1.0	ug/L	1	22-Apr-2018 13:27
Chloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	22-Apr-2018 13:27

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

ALS Group Houston, Corp Date: 23-Apr-18

Client: Bhate Environmental Associates, Inc. **ANALYTICAL REPORT**
Project: Longhorn GW Treatment Plant Monthly Effluent Samples WorkOrder:HS18040595
Sample ID: LH18/24-SP650-041118 Lab ID:HS18040595-01
Collection Date: 11-Apr-2018 14:00 Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	22-Apr-2018 13:27
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Apr-2018 13:27
cis-1,2-Dichloroethene	**3.4**		**0.20**	**0.50**	**1.0**	**ug/L**	1	22-Apr-2018 13:27
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	22-Apr-2018 13:27
Dibromochloromethane	0.50	U	0.30	0.50	1.0	ug/L	1	22-Apr-2018 13:27
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Apr-2018 13:27
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	22-Apr-2018 13:27
Ethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	22-Apr-2018 13:27
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	ug/L	1	22-Apr-2018 13:27
Isopropylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	22-Apr-2018 13:27
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	22-Apr-2018 13:27
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	22-Apr-2018 13:27
n-Butylbenzene	0.50	U	0.40	0.50	1.0	ug/L	1	22-Apr-2018 13:27
n-Propylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	22-Apr-2018 13:27
Naphthalene	0.50	U	0.30	0.50	1.0	ug/L	1	22-Apr-2018 13:27
o-Xylene	0.50	U	0.30	0.50	1.0	ug/L	1	22-Apr-2018 13:27
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	22-Apr-2018 13:27
Styrene	0.50	U	0.30	0.50	1.0	ug/L	1	22-Apr-2018 13:27
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	22-Apr-2018 13:27
Tetrachloroethene	0.50	U	0.30	0.50	1.0	ug/L	1	22-Apr-2018 13:27
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Apr-2018 13:27
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Apr-2018 13:27
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Apr-2018 13:27
Trichloroethene	**4.8**		**0.20**	**0.50**	**1.0**	**ug/L**	1	22-Apr-2018 13:27
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	22-Apr-2018 13:27
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	22-Apr-2018 13:27
Surr: 1,2-Dichloroethane-d4	*95.5*			**0**	*81-118*	*%REC*	*1*	*22-Apr-2018 13:27*
Surr: 4-Bromofluorobenzene	*95.6*			**0**	*85-114*	*%REC*	*1*	*22-Apr-2018 13:27*
Surr: Dibromofluoromethane	*103*			**0**	*80-119*	*%REC*	*1*	*22-Apr-2018 13:27*
Surr: Toluene-d8	*98.6*			**0**	*89-112*	*%REC*	*1*	*22-Apr-2018 13:27*
SEMIVOLATILES SIM	**Method:SW8270SIM**					Prep:SW3510 / 17-Apr-2018		Analyst: ACN
1,4-Dioxane	**3.6**		**0.10**	**0.10**	**0.10**	**ug/L**	10	18-Apr-2018 14:25
Surr: 2-Fluorobiphenyl	*102*			**0**	*40-140*	*%REC*	*10*	*18-Apr-2018 14:25*
Surr: 4-Terphenyl-d14	*79.5*			**0**	*40-140*	*%REC*	*10*	*18-Apr-2018 14:25*
Surr: Nitrobenzene-d5	*102*			**0**	*40-140*	*%REC*	*10*	*18-Apr-2018 14:25*

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

ALS Group Houston, Corp Date: 23-Apr-18

Client: Bhate Environmental Associates, Inc. **ANALYTICAL REPORT**
Project: Longhorn GW Treatment Plant Monthly Effluent Samples WorkOrder:HS18040595
Sample ID: LH18/24-SP650-041118 Lab ID:HS18040595-01
Collection Date: 11-Apr-2018 14:00 Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 16-Apr-2018		Analyst: JDE
Barium	**0.124**		**0.00190**	**0.00250**	**0.00400**	**mg/L**	1	17-Apr-2018 10:32
Lead	0.00100	U	0.000600	0.00100	0.00200	mg/L	1	17-Apr-2018 10:32
Selenium	0.00200	U	0.00110	0.00200	0.00200	mg/L	1	17-Apr-2018 10:32
Silver	0.00100	U	0.000200	0.00100	0.00200	mg/L	1	17-Apr-2018 10:32
HEXAVALENT CHROMIUM BY SW7196A		**Method:SW7196**				Prep:SW7196		Analyst: JHD
Chromium, Hexavalent	0.0100	U	0.00600	0.0100	0.0100	mg/L	1	12-Apr-2018 13:20
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	19-Apr-2018 14:00

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

ALS Group Houston, Corp Date: 23-Apr-18

Client: Bhate Environmental Associates, Inc.
ANALYTICAL REPORT
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder:HS18040595
Sample ID: Trip Blank
Lab ID:HS18040595-02
Collection Date: 11-Apr-2018 00:00
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	22-Apr-2018 12:38
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Apr-2018 12:38
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	ug/L	1	22-Apr-2018 12:38
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	22-Apr-2018 12:38
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Apr-2018 12:38
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Apr-2018 12:38
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	ug/L	1	22-Apr-2018 12:38
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	22-Apr-2018 12:38
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	22-Apr-2018 12:38
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	ug/L	1	22-Apr-2018 12:38
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	22-Apr-2018 12:38
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Apr-2018 12:38
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Apr-2018 12:38
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	ug/L	1	22-Apr-2018 12:38
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Apr-2018 12:38
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	22-Apr-2018 12:38
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	22-Apr-2018 12:38
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	22-Apr-2018 12:38
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	ug/L	1	22-Apr-2018 12:38
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	22-Apr-2018 12:38
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Apr-2018 12:38
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	22-Apr-2018 12:38
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	ug/L	1	22-Apr-2018 12:38
2-Hexanone	1.0	U	1.0	1.0	2.0	ug/L	1	22-Apr-2018 12:38
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	ug/L	1	22-Apr-2018 12:38
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	ug/L	1	22-Apr-2018 12:38
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	ug/L	1	22-Apr-2018 12:38
Acetone	1.0	U	0.40	1.0	2.0	ug/L	1	22-Apr-2018 12:38
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Apr-2018 12:38
Bromobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	22-Apr-2018 12:38
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Apr-2018 12:38
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Apr-2018 12:38
Bromoform	0.50	U	0.40	0.50	1.0	ug/L	1	22-Apr-2018 12:38
Bromomethane	0.50	U	0.40	0.50	1.0	ug/L	1	22-Apr-2018 12:38
Carbon disulfide	1.0	U	0.60	1.0	2.0	ug/L	1	22-Apr-2018 12:38
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	ug/L	1	22-Apr-2018 12:38
Chlorobenzene	0.50	U	0.30	0.50	1.0	ug/L	1	22-Apr-2018 12:38
Chloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	22-Apr-2018 12:38

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

ALS Group Houston, Corp Date: 23-Apr-18

Client: Bhate Environmental Associates, Inc. **ANALYTICAL REPORT**
Project: Longhorn GW Treatment Plant Monthly Effluent Samples WorkOrder:HS18040595
Sample ID: Trip Blank Lab ID:HS18040595-02
Collection Date: 11-Apr-2018 00:00 Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	22-Apr-2018 12:38
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Apr-2018 12:38
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Apr-2018 12:38
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	22-Apr-2018 12:38
Dibromochloromethane	0.50	U	0.30	0.50	1.0	ug/L	1	22-Apr-2018 12:38
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	22-Apr-2018 12:38
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	22-Apr-2018 12:38
Ethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	22-Apr-2018 12:38
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	ug/L	1	22-Apr-2018 12:38
Isopropylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	22-Apr-2018 12:38
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	22-Apr-2018 12:38
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	22-Apr-2018 12:38
n-Butylbenzene	0.50	U	0.40	0.50	1.0	ug/L	1	22-Apr-2018 12:38
n-Propylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	22-Apr-2018 12:38
Naphthalene	0.50	U	0.30	0.50	1.0	ug/L	1	22-Apr-2018 12:38
o-Xylene	0.50	U	0.30	0.50	1.0	ug/L	1	22-Apr-2018 12:38
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	22-Apr-2018 12:38
Styrene	0.50	U	0.30	0.50	1.0	ug/L	1	22-Apr-2018 12:38
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	22-Apr-2018 12:38
Tetrachloroethene	0.50	U	0.30	0.50	1.0	ug/L	1	22-Apr-2018 12:38
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Apr-2018 12:38
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Apr-2018 12:38
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Apr-2018 12:38
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	22-Apr-2018 12:38
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	22-Apr-2018 12:38
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	22-Apr-2018 12:38
Surr: 1,2-Dichloroethane-d4	*94.6*			**0**	*81-118*	*%REC*	*1*	*22-Apr-2018 12:38*
Surr: 4-Bromofluorobenzene	*95.6*			**0**	*85-114*	*%REC*	*1*	*22-Apr-2018 12:38*
Surr: Dibromofluoromethane	*103*			**0**	*80-119*	*%REC*	*1*	*22-Apr-2018 12:38*
Surr: Toluene-d8	*98.7*			**0**	*89-112*	*%REC*	*1*	*22-Apr-2018 12:38*

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

ALS Group Houston, Corp Date: 23-Apr-18

WEIGHT LOG

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: HS18040595

Batch ID: 127364 **Method:** ICP-MS METALS BY SW6020A **Prep:** 3010A

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS18040595-01	1	10	10 (mL)	1

Batch ID: 127409 **Method:** SEMIVOLATILES SIM **Prep:** 3510_B_SIM

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS18040595-01	1	990	1 (mL)	0.00101

ALS Group Houston, Corp Date: 23-Apr-18

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: HS18040595

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID 127364	**Test Name :** ICP-MS METALS BY SW6020A			**Matrix:** Water		
HS18040595-01	LH18/24-SP650-041118	11 Apr 2018 14:00		16 Apr 2018 11:14	17 Apr 2018 10:32	1
Batch ID 127409	**Test Name :** SEMIVOLATILES SIM			**Matrix:** Water		
HS18040595-01	LH18/24-SP650-041118	11 Apr 2018 14:00		17 Apr 2018 07:35	18 Apr 2018 14:25	10
Batch ID R314568	**Test Name :** HEXAVALENT CHROMIUM BY SW7196A			**Matrix:** Water		
HS18040595-01	LH18/24-SP650-041118	11 Apr 2018 14:00			12 Apr 2018 13:20	1
Batch ID R314688	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)			**Matrix:** Water		
HS18040595-01	LH18/24-SP650-041118	11 Apr 2018 14:00			19 Apr 2018 14:00	1
Batch ID R314853	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C			**Matrix:** Water		
HS18040595-01	LH18/24-SP650-041118	11 Apr 2018 14:00			22 Apr 2018 13:27	1
HS18040595-02	Trip Blank	11 Apr 2018 00:00			22 Apr 2018 12:38	1

ALS Group Houston, Corp Date: 23-Apr-18

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: HS18040595

QC BATCH REPORT

Batch ID: 127364 **Instrument: ICPMS05** **Method: SW6020**

MBLK Sample ID: **MBLK-127364** Units: **mg/L** Analysis Date: **17-Apr-2018 10:11**
Client ID: Run ID: **ICPMS05_314436** SeqNo: **4521824** PrepDate: **16-Apr-2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Barium	0.00250	0.00400								U
Lead	0.00100	0.00200								U
Selenium	0.00200	0.00200								U
Silver	0.00100	0.00200								U

LCS Sample ID: **LCS-127364** Units: **mg/L** Analysis Date: **17-Apr-2018 10:13**
Client ID: Run ID: **ICPMS05_314436** SeqNo: **4521825** PrepDate: **16-Apr-2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Barium	0.04627	0.00400	0.05	0	92.5	80 - 120				
Lead	0.04507	0.00200	0.05	0	90.1	80 - 120				
Selenium	0.04738	0.00200	0.05	0	94.8	80 - 120				
Silver	0.04454	0.00200	0.05	0	89.1	80 - 120				

MS Sample ID: **HS18040243-01MS** Units: **mg/L** Analysis Date: **17-Apr-2018 10:20**
Client ID: Run ID: **ICPMS05_314436** SeqNo: **4521828** PrepDate: **16-Apr-2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Barium	0.08019	0.00400	0.05	0.03669	87.0	80 - 120				
Lead	0.03944	0.00200	0.05	0.001216	76.5	80 - 120				S
Selenium	0.04455	0.00200	0.05	0.001069	87.0	80 - 120				
Silver	0.04275	0.00200	0.05	0.000067	85.4	80 - 120				

MSD Sample ID: **HS18040243-01MSD** Units: **mg/L** Analysis Date: **17-Apr-2018 10:22**
Client ID: Run ID: **ICPMS05_314436** SeqNo: **4521829** PrepDate: **16-Apr-2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Barium	0.08314	0.00400	0.05	0.03669	92.9	80 - 120	0.08019	3.6	20	
Lead	0.04056	0.00200	0.05	0.001216	78.7	80 - 120	0.03944	2.79	20	S
Selenium	0.04898	0.00200	0.05	0.001069	95.8	80 - 120	0.04455	9.46	20	
Silver	0.0452	0.00200	0.05	0.000067	90.3	80 - 120	0.04275	5.57	20	

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

ALS Group Houston, Corp Date: 23-Apr-18

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: HS18040595

QC BATCH REPORT

Batch ID: 127364 **Instrument: ICPMS05** **Method: SW6020**

PDS Sample ID: **HS18040243-01PDS** Units: **mg/L** Analysis Date: **17-Apr-2018 10:28**
Client ID: Run ID: **ICPMS05_314436** SeqNo: **4521832** PrepDate: **16-Apr-2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Barium	0.1312	0.00400	0.1	0.03669	94.5	75 - 125				
Lead	0.08771	0.00200	0.1	0.001216	86.5	75 - 125				
Selenium	0.09914	0.00200	0.1	0.001069	98.1	75 - 125				
Silver	0.08958	0.00200	0.1	0.000067	89.5	75 - 125				

SD Sample ID: **HS18040243-01SD** Units: **mg/L** Analysis Date: **17-Apr-2018 10:18**
Client ID: Run ID: **ICPMS05_314436** SeqNo: **4521827** PrepDate: **16-Apr-2018** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Barium	0.03816	0.0200					0.03669	4	10	
Lead	0.00500	0.0100					0.001216	0	10	U
Selenium	0.0100	0.0100					0.001069	0	10	U
Silver	0.00500	0.0100					0.000067	0	10	U

The following samples were analyzed in this batch: HS18040595-01

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

ALS Group Houston, Corp Date: 23-Apr-18

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: HS18040595

QC BATCH REPORT

Batch ID: 127409 **Instrument: SV-5** **Method: SW8270SIM**

MBLK Sample ID: **MBLK-127409** Units: **ug/L** Analysis Date: **18-Apr-2018 12:06**
Client ID: Run ID: **SV-5_314621** SeqNo: **4524674** PrepDate: **17-Apr-2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.010	0.010								U
Surr: 2-Fluorobiphenyl	*0.08303*	*0*	*0.08*	*0*	*104*	*40 - 140*				
Surr: 4-Terphenyl-d14	*0.07872*	*0*	*0.08*	*0*	*98.4*	*40 - 140*				
Surr: Nitrobenzene-d5	*0.07538*	*0*	*0.08*	*0*	*94.2*	*40 - 140*				

LCS Sample ID: **LCS-127409** Units: **ug/L** Analysis Date: **18-Apr-2018 13:16**
Client ID: Run ID: **SV-5_314621** SeqNo: **4524676** PrepDate: **17-Apr-2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.08279	0.010	0.08	0	103	40 - 140				
Surr: 2-Fluorobiphenyl	*0.09618*	*0*	*0.08*	*0*	*120*	*40 - 140*				
Surr: 4-Terphenyl-d14	*0.05784*	*0*	*0.08*	*0*	*72.3*	*40 - 140*				
Surr: Nitrobenzene-d5	*0.07155*	*0*	*0.08*	*0*	*89.4*	*40 - 140*				

LCSD Sample ID: **LCSD-127409** Units: **ug/L** Analysis Date: **18-Apr-2018 12:47**
Client ID: Run ID: **SV-5_314621** SeqNo: **4524675** PrepDate: **17-Apr-2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dioxane	0.07688	0.010	0.08	0	96.1	40 - 140	0.08279	7.41	20	
Surr: 2-Fluorobiphenyl	*0.09458*	*0*	*0.08*	*0*	*118*	*40 - 140*	*0.09618*	*1.68*	*20*	
Surr: 4-Terphenyl-d14	*0.05966*	*0*	*0.08*	*0*	*74.6*	*40 - 140*	*0.05784*	*3.1*	*20*	
Surr: Nitrobenzene-d5	*0.06868*	*0*	*0.08*	*0*	*85.8*	*40 - 140*	*0.07155*	*4.1*	*20*	

The following samples were analyzed in this batch: HS18040595-01

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

ALS Group Houston, Corp Date: 23-Apr-18

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: HS18040595

QC BATCH REPORT

Batch ID: R314853 **Instrument:** VOA6 **Method:** SW8260

MBLK Sample ID: **VBLKW-180422** Units: **ug/L** Analysis Date: **22-Apr-2018 11:49**
Client ID: Run ID: **VOA6_314853** SeqNo: **4529975** PrepDate: DF: **1**

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

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

ALS Group Houston, Corp Date: 23-Apr-18

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: HS18040595

QC BATCH REPORT

Batch ID: R314853 **Instrument:** VOA6 **Method:** SW8260

MBLK Sample ID: **VBLKW-180422** Units: **ug/L** Analysis Date: **22-Apr-2018 11:49**
Client ID: Run ID: **VOA6_314853** SeqNo: **4529975** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	1.0	2.0								U
Carbon tetrachloride	0.50	1.0								U
Chlorobenzene	0.50	1.0								U
Chloroethane	0.50	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	0.50	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	0.50	1.0								U
Ethylbenzene	0.50	1.0								U
Hexachlorobutadiene	0.50	1.0								U
Isopropylbenzene	0.50	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	1.0	2.0								U
Naphthalene	0.50	1.0								U
n-Butylbenzene	0.50	1.0								U
n-Propylbenzene	0.50	1.0								U
o-Xylene	0.50	1.0								U
sec-Butylbenzene	0.50	1.0								U
Styrene	0.50	1.0								U
tert-Butylbenzene	0.50	1.0								U
Tetrachloroethene	0.50	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	0.50	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*46.41*	*1.0*	*50*	*0*	*92.8*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*47.16*	*1.0*	*50*	*0*	*94.3*	*85 - 114*				
Surr: Dibromofluoromethane	*50.76*	*1.0*	*50*	*0*	*102*	*80 - 119*				
Surr: Toluene-d8	*48.85*	*1.0*	*50*	*0*	*97.7*	*89 - 112*				

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

ALS Group Houston, Corp Date: 23-Apr-18

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: HS18040595

QC BATCH REPORT

Batch ID: R314853 **Instrument:** VOA6 **Method:** SW8260

LCS Sample ID: **VLCSW-180422** Units: **ug/L** Analysis Date: **22-Apr-2018 10:36**
Client ID: Run ID: **VOA6_314853** SeqNo: **4529974** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	52.94	1.0	50	0	106	78 - 124				
1,1,1-Trichloroethane	54.28	1.0	50	0	109	74 - 131				
1,1,2,2-Tetrachloroethane	50.14	1.0	50	0	100	71 - 121				
1,1,2-Trichloroethane	51.43	1.0	50	0	103	80 - 119				
1,1-Dichloroethane	60.53	1.0	50	0	121	77 - 125				
1,1-Dichloroethene	55.75	1.0	50	0	111	71 - 131				
1,1-Dichloropropene	52.08	1.0	50	0	104	78 - 125				
1,2,3-Trichlorobenzene	53.2	1.0	50	0	106	69 - 129				
1,2,3-Trichloropropane	48.55	1.0	50	0	97.1	73 - 122				
1,2,4-Trichlorobenzene	57.06	1.0	50	0	114	69 - 130				
1,2,4-Trimethylbenzene	51.72	1.0	50	0	103	76 - 124				
1,2-Dibromo-3-chloropropane	51.24	1.0	50	0	102	62 - 128				
1,2-Dibromoethane	52.83	1.0	50	0	106	77 - 121				
1,2-Dichlorobenzene	48.84	1.0	50	0	97.7	80 - 119				
1,2-Dichloroethane	54.53	1.0	50	0	109	73 - 128				
1,2-Dichloropropane	58.19	1.0	50	0	116	78 - 122				
1,3,5-Trimethylbenzene	53.3	1.0	50	0	107	75 - 124				
1,3-Dichlorobenzene	51.45	1.0	50	0	103	80 - 119				
1,3-Dichloropropane	51.23	1.0	50	0	102	80 - 119				
1,4-Dichlorobenzene	50.5	1.0	50	0	101	79 - 118				
2,2-Dichloropropane	56.74	1.0	50	0	113	60 - 139				
2-Butanone	112.7	2.0	100	0	113	56 - 143				
2-Chlorotoluene	52.61	1.0	50	0	105	79 - 122				
2-Hexanone	101.6	2.0	100	0	102	57 - 139				
4-Chlorotoluene	52.96	1.0	50	0	106	78 - 122				
4-Isopropyltoluene	48.05	1.0	50	0	96.1	77 - 127				
4-Methyl-2-pentanone	102.7	2.0	100	0	103	67 - 130				
Acetone	103.2	2.0	100	0	103	39 - 160				
Benzene	53.36	1.0	50	0	107	79 - 120				
Bromobenzene	51.09	1.0	50	0	102	80 - 120				
Bromochloromethane	61.45	1.0	50	0	123	78 - 123				
Bromodichloromethane	55.74	1.0	50	0	111	79 - 125				
Bromoform	51.04	1.0	50	0	102	66 - 130				
Bromomethane	44.19	1.0	50	0	88.4	53 - 141				

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

ALS Group Houston, Corp Date: 23-Apr-18

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: HS18040595

QC BATCH REPORT

Batch ID: R314853 **Instrument:** VOA6 **Method:** SW8260

LCS Sample ID: **VLCSW-180422** Units: **ug/L** Analysis Date: **22-Apr-2018 10:36**
Client ID: Run ID: **VOA6_314853** SeqNo: **4529974** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	112.8	2.0	100	0	113	64 - 133				
Carbon tetrachloride	51.18	1.0	50	0	102	72 - 136				
Chlorobenzene	55.14	1.0	50	0	110	82 - 118				
Chloroethane	53.75	1.0	50	0	107	60 - 138				
Chloroform	58.59	1.0	50	0	117	79 - 124				
Chloromethane	48.58	1.0	50	0	97.2	50 - 139				
cis-1,2-Dichloroethene	59.81	1.0	50	0	120	78 - 123				
cis-1,3-Dichloropropene	56.47	1.0	50	0	113	75 - 124				
Dibromochloromethane	53.26	1.0	50	0	107	74 - 126				
Dibromomethane	55.83	1.0	50	0	112	79 - 123				
Dichlorodifluoromethane	55.74	1.0	50	0	111	32 - 152				
Ethylbenzene	56.48	1.0	50	0	113	79 - 121				
Hexachlorobutadiene	49.38	1.0	50	0	98.8	66 - 134				
Isopropylbenzene	50.6	1.0	50	0	101	72 - 131				
m,p-Xylene	111.9	2.0	100	0	112	80 - 121				
Methylene chloride	54.53	2.0	50	0	109	74 - 124				
Naphthalene	60.07	1.0	50	0	120	61 - 128				
n-Butylbenzene	49.2	1.0	50	0	98.4	75 - 128				
n-Propylbenzene	48.27	1.0	50	0	96.5	76 - 126				
o-Xylene	55.75	1.0	50	0	112	78 - 122				
sec-Butylbenzene	48.02	1.0	50	0	96.0	78 - 123				
Styrene	54.55	1.0	50	0	109	78 - 128				
tert-Butylbenzene	48.05	1.0	50	0	96.1	78 - 124				
Tetrachloroethene	51.03	1.0	50	0	102	74 - 129				
Toluene	56.37	1.0	50	0	113	80 - 121				
trans-1,2-Dichloroethene	55.3	1.0	50	0	111	75 - 124				
trans-1,3-Dichloropropene	55.49	1.0	50	0	111	73 - 127				
Trichloroethene	53.85	1.0	50	0	108	79 - 123				
Trichlorofluoromethane	53.03	1.0	50	0	106	65 - 141				
Vinyl chloride	54.32	1.0	50	0	109	58 - 137				
Surr: 1,2-Dichloroethane-d4	*46.43*	*1.0*	*50*	*0*	*92.9*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*48.23*	*1.0*	*50*	*0*	*96.5*	*85 - 114*				
Surr: Dibromofluoromethane	*51.27*	*1.0*	*50*	*0*	*103*	*80 - 119*				
Surr: Toluene-d8	*48.89*	*1.0*	*50*	*0*	*97.8*	*89 - 112*				

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

ALS Group Houston, Corp Date: 23-Apr-18

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: HS18040595

QC BATCH REPORT

Batch ID: R314853 **Instrument:** VOA6 **Method:** SW8260

MS Sample ID: **HS18040701-07MS** Units: **ug/L** Analysis Date: **22-Apr-2018 14:17**
Client ID: Run ID: **VOA6_314853** SeqNo: **4529981** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	54.57	1.0	50	0	109	78 - 124				
1,1,1-Trichloroethane	53.55	1.0	50	0	107	74 - 131				
1,1,2,2-Tetrachloroethane	53.48	1.0	50	0	107	71 - 121				
1,1,2-Trichloroethane	54.33	1.0	50	0	109	80 - 119				
1,1-Dichloroethane	60.99	1.0	50	0	122	77 - 125				
1,1-Dichloroethene	51.84	1.0	50	3.558	96.6	71 - 131				
1,1-Dichloropropene	50.64	1.0	50	0	101	78 - 125				
1,2,3-Trichlorobenzene	49	1.0	50	0	98.0	69 - 129				
1,2,3-Trichloropropane	49.7	1.0	50	0	99.4	73 - 122				
1,2,4-Trichlorobenzene	54.56	1.0	50	0	109	69 - 130				
1,2,4-Trimethylbenzene	50.92	1.0	50	0	102	76 - 124				
1,2-Dibromo-3-chloropropane	49.75	1.0	50	0	99.5	62 - 128				
1,2-Dibromoethane	54.46	1.0	50	0	109	77 - 121				
1,2-Dichlorobenzene	49.15	1.0	50	0	98.3	80 - 119				
1,2-Dichloroethane	57.02	1.0	50	0	114	73 - 128				
1,2-Dichloropropane	59.24	1.0	50	0	118	78 - 122				
1,3,5-Trimethylbenzene	51.94	1.0	50	0	104	75 - 124				
1,3-Dichlorobenzene	51.15	1.0	50	0	102	80 - 119				
1,3-Dichloropropane	54.23	1.0	50	0	108	80 - 119				
1,4-Dichlorobenzene	50.72	1.0	50	0	101	79 - 118				
2,2-Dichloropropane	54.67	1.0	50	0	109	60 - 139				
2-Butanone	119.4	2.0	100	0	119	56 - 143				
2-Chlorotoluene	52.54	1.0	50	0	105	79 - 122				
2-Hexanone	107.8	2.0	100	0	108	57 - 139				
4-Chlorotoluene	52.28	1.0	50	0	105	78 - 122				
4-Isopropyltoluene	47.3	1.0	50	0	94.6	77 - 127				
4-Methyl-2-pentanone	110.3	2.0	100	0	110	67 - 130				
Acetone	102.5	2.0	100	3.248	99.2	39 - 160				
Benzene	53.01	1.0	50	0	106	79 - 120				
Bromobenzene	53	1.0	50	0	106	80 - 120				
Bromochloromethane	64.34	1.0	50	0	129	78 - 123				S
Bromodichloromethane	57.75	1.0	50	0	115	79 - 125				
Bromoform	52.94	1.0	50	0	106	66 - 130				
Bromomethane	22.18	1.0	50	0	44.4	53 - 141				S

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

ALS Group Houston, Corp Date: 23-Apr-18

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: HS18040595

QC BATCH REPORT

Batch ID: R314853 **Instrument: VOA6** **Method: SW8260**

MS Sample ID: **HS18040701-07MS** Units: **ug/L** Analysis Date: **22-Apr-2018 14:17**
Client ID: Run ID: **VOA6_314853** SeqNo: **4529981** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	112.9	2.0	100	0	113	64 - 133				
Carbon tetrachloride	49.59	1.0	50	0	99.2	72 - 136				
Chlorobenzene	55.71	1.0	50	0	111	82 - 118				
Chloroethane	62.15	1.0	50	0	124	60 - 138				
Chloroform	60.24	1.0	50	0	120	79 - 124				
Chloromethane	41.92	1.0	50	0	83.8	50 - 139				
cis-1,2-Dichloroethene	61.62	1.0	50	0	123	78 - 123				S
cis-1,3-Dichloropropene	59	1.0	50	0	118	75 - 124				
Dibromochloromethane	55.73	1.0	50	0	111	74 - 126				
Dibromomethane	57.75	1.0	50	0	115	79 - 123				
Dichlorodifluoromethane	48.69	1.0	50	0	97.4	32 - 152				
Ethylbenzene	55.73	1.0	50	0	111	79 - 121				
Hexachlorobutadiene	45.87	1.0	50	0	91.7	66 - 134				
Isopropylbenzene	48.87	1.0	50	0	97.7	72 - 131				
m,p-Xylene	109.8	2.0	100	0	110	80 - 121				
Methylene chloride	56.41	2.0	50	0	113	74 - 124				
Naphthalene	54.39	1.0	50	0	109	61 - 128				
n-Butylbenzene	48.31	1.0	50	0	96.6	75 - 128				
n-Propylbenzene	47.65	1.0	50	0	95.3	76 - 126				
o-Xylene	55.12	1.0	50	0	110	78 - 122				
sec-Butylbenzene	46.69	1.0	50	0	93.4	78 - 123				
Styrene	55.14	1.0	50	0	110	78 - 128				
tert-Butylbenzene	47.3	1.0	50	0	94.6	78 - 124				
Tetrachloroethene	49.47	1.0	50	0	98.9	74 - 129				
Toluene	56.42	1.0	50	0	113	80 - 121				
trans-1,2-Dichloroethene	55.15	1.0	50	0	110	75 - 124				
trans-1,3-Dichloropropene	56.79	1.0	50	0	114	73 - 127				
Trichloroethene	52.8	1.0	50	0	106	79 - 123				
Trichlorofluoromethane	51.37	1.0	50	0	103	65 - 141				
Vinyl chloride	51.75	1.0	50	0	103	58 - 137				
Surr: 1,2-Dichloroethane-d4	*46.27*	*1.0*	*50*	*0*	*92.5*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*47.59*	*1.0*	*50*	*0*	*95.2*	*85 - 114*				
Surr: Dibromofluoromethane	*51.27*	*1.0*	*50*	*0*	*103*	*80 - 119*				
Surr: Toluene-d8	*48.44*	*1.0*	*50*	*0*	*96.9*	*89 - 112*				

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

ALS Group Houston, Corp Date: 23-Apr-18

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: HS18040595

QC BATCH REPORT

Batch ID: R314853 **Instrument:** VOA6 **Method:** SW8260

MSD Sample ID: **HS18040701-07MSD** Units: **ug/L** Analysis Date: **22-Apr-2018 14:41**
Client ID: Run ID: **VOA6_314853** SeqNo: **4529982** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	53.19	1.0	50	0	106	78 - 124	54.57	2.55	20	
1,1,1-Trichloroethane	53.24	1.0	50	0	106	74 - 131	53.55	0.595	20	
1,1,2,2-Tetrachloroethane	49.75	1.0	50	0	99.5	71 - 121	53.48	7.22	20	
1,1,2-Trichloroethane	52.26	1.0	50	0	105	80 - 119	54.33	3.89	20	
1,1-Dichloroethane	61.34	1.0	50	0	123	77 - 125	60.99	0.573	20	
1,1-Dichloroethene	52.31	1.0	50	3.558	97.5	71 - 131	51.84	0.889	20	
1,1-Dichloropropene	49.41	1.0	50	0	98.8	78 - 125	50.64	2.47	20	
1,2,3-Trichlorobenzene	49.75	1.0	50	0	99.5	69 - 129	49	1.53	20	
1,2,3-Trichloropropane	46.01	1.0	50	0	92.0	73 - 122	49.7	7.7	20	
1,2,4-Trichlorobenzene	54.84	1.0	50	0	110	69 - 130	54.56	0.499	20	
1,2,4-Trimethylbenzene	49.56	1.0	50	0	99.1	76 - 124	50.92	2.72	20	
1,2-Dibromo-3-chloropropane	48.65	1.0	50	0	97.3	62 - 128	49.75	2.25	20	
1,2-Dibromoethane	53.11	1.0	50	0	106	77 - 121	54.46	2.52	20	
1,2-Dichlorobenzene	47.28	1.0	50	0	94.6	80 - 119	49.15	3.89	20	
1,2-Dichloroethane	54.59	1.0	50	0	109	73 - 128	57.02	4.36	20	
1,2-Dichloropropane	57.84	1.0	50	0	116	78 - 122	59.24	2.39	20	
1,3,5-Trimethylbenzene	50.71	1.0	50	0	101	75 - 124	51.94	2.41	20	
1,3-Dichlorobenzene	48.82	1.0	50	0	97.6	80 - 119	51.15	4.68	20	
1,3-Dichloropropane	51.56	1.0	50	0	103	80 - 119	54.23	5.06	20	
1,4-Dichlorobenzene	48.26	1.0	50	0	96.5	79 - 118	50.72	4.97	20	
2,2-Dichloropropane	54.03	1.0	50	0	108	60 - 139	54.67	1.17	20	
2-Butanone	109.7	2.0	100	0	110	56 - 143	119.4	8.47	20	
2-Chlorotoluene	50.39	1.0	50	0	101	79 - 122	52.54	4.18	20	
2-Hexanone	102	2.0	100	0	102	57 - 139	107.8	5.48	20	
4-Chlorotoluene	50.52	1.0	50	0	101	78 - 122	52.28	3.43	20	
4-Isopropyltoluene	46.85	1.0	50	0	93.7	77 - 127	47.3	0.959	20	
4-Methyl-2-pentanone	103.4	2.0	100	0	103	67 - 130	110.3	6.39	20	
Acetone	94.31	2.0	100	3.248	91.1	39 - 160	102.5	8.32	20	
Benzene	51.43	1.0	50	0	103	79 - 120	53.01	3.04	20	
Bromobenzene	49.5	1.0	50	0	99.0	80 - 120	53	6.83	20	
Bromochloromethane	62.59	1.0	50	0	125	78 - 123	64.34	2.75	20	S
Bromodichloromethane	54.84	1.0	50	0	110	79 - 125	57.75	5.16	20	
Bromoform	51.4	1.0	50	0	103	66 - 130	52.94	2.96	20	
Bromomethane	30.08	1.0	50	0	60.2	53 - 141	22.18	30.2	20	R

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

ALS Group Houston, Corp Date: 23-Apr-18

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: HS18040595

QC BATCH REPORT

Batch ID: R314853 **Instrument:** VOA6 **Method:** SW8260

MSD Sample ID: **HS18040701-07MSD** Units: **ug/L** Analysis Date: **22-Apr-2018 14:41**
Client ID: Run ID: **VOA6_314853** SeqNo: **4529982** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Carbon disulfide	111.4	2.0	100	0	111	64 - 133	112.9	1.29	20	
Carbon tetrachloride	49.97	1.0	50	0	99.9	72 - 136	49.59	0.758	20	
Chlorobenzene	53.82	1.0	50	0	108	82 - 118	55.71	3.44	20	
Chloroethane	57.4	1.0	50	0	115	60 - 138	62.15	7.95	20	
Chloroform	58.41	1.0	50	0	117	79 - 124	60.24	3.09	20	
Chloromethane	39.37	1.0	50	0	78.7	50 - 139	41.92	6.29	20	
cis-1,2-Dichloroethene	59.63	1.0	50	0	119	78 - 123	61.62	3.29	20	
cis-1,3-Dichloropropene	56.45	1.0	50	0	113	75 - 124	59	4.42	20	
Dibromochloromethane	52.44	1.0	50	0	105	74 - 126	55.73	6.08	20	
Dibromomethane	56.03	1.0	50	0	112	79 - 123	57.75	3.02	20	
Dichlorodifluoromethane	48.74	1.0	50	0	97.5	32 - 152	48.69	0.0918	20	
Ethylbenzene	54.81	1.0	50	0	110	79 - 121	55.73	1.67	20	
Hexachlorobutadiene	43.76	1.0	50	0	87.5	66 - 134	45.87	4.7	20	
Isopropylbenzene	49.34	1.0	50	0	98.7	72 - 131	48.87	0.956	20	
m,p-Xylene	109	2.0	100	0	109	80 - 121	109.8	0.753	20	
Methylene chloride	54.19	2.0	50	0	108	74 - 124	56.41	4	20	
Naphthalene	56.49	1.0	50	0	113	61 - 128	54.39	3.78	20	
n-Butylbenzene	47.9	1.0	50	0	95.8	75 - 128	48.31	0.846	20	
n-Propylbenzene	46.8	1.0	50	0	93.6	76 - 126	47.65	1.81	20	
o-Xylene	54.37	1.0	50	0	109	78 - 122	55.12	1.38	20	
sec-Butylbenzene	46.69	1.0	50	0	93.4	78 - 123	46.69	0.00389	20	
Styrene	53.74	1.0	50	0	107	78 - 128	55.14	2.57	20	
tert-Butylbenzene	46.85	1.0	50	0	93.7	78 - 124	47.3	0.959	20	
Tetrachloroethene	49.19	1.0	50	0	98.4	74 - 129	49.47	0.573	20	
Toluene	54.69	1.0	50	0	109	80 - 121	56.42	3.11	20	
trans-1,2-Dichloroethene	53.82	1.0	50	0	108	75 - 124	55.15	2.45	20	
trans-1,3-Dichloropropene	54.86	1.0	50	0	110	73 - 127	56.79	3.47	20	
Trichloroethene	50.93	1.0	50	0	102	79 - 123	52.8	3.6	20	
Trichlorofluoromethane	50.43	1.0	50	0	101	65 - 141	51.37	1.84	20	
Vinyl chloride	51.03	1.0	50	0	102	58 - 137	51.75	1.4	20	
Surr: 1,2-Dichloroethane-d4	*46.81*	*1.0*	*50*	*0*	*93.6*	*81 - 118*	*46.27*	*1.15*	*20*	
Surr: 4-Bromofluorobenzene	*47.96*	*1.0*	*50*	*0*	*95.9*	*85 - 114*	*47.59*	*0.781*	*20*	
Surr: Dibromofluoromethane	*51.12*	*1.0*	*50*	*0*	*102*	*80 - 119*	*51.27*	*0.29*	*20*	
Surr: Toluene-d8	*48.88*	*1.0*	*50*	*0*	*97.8*	*89 - 112*	*48.44*	*0.894*	*20*	

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

ALS Group Houston, Corp Date: 23-Apr-18

Client:	Bhate Environmental Associates, Inc.
Project:	Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder:	HS18040595

QC BATCH REPORT

Batch ID:	**R314853**	**Instrument:**	**VOA6**	**Method:**	**SW8260**

The following samples were analyzed in this batch:	HS18040595-01	HS18040595-02

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

ALS Group Houston, Corp Date: 23-Apr-18

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: HS18040595

QC BATCH REPORT

Batch ID: R314568 **Instrument: UV-2450** **Method: SW7196**

MBLK Sample ID: **MBLK-314568** Units: **mg/L** Analysis Date: **12-Apr-2018 13:20**
Client ID: Run ID: **UV-2450_314568** SeqNo: **4523697** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent	0.0100	0.0100								U

LCS Sample ID: **LCS-314568** Units: **mg/L** Analysis Date: **12-Apr-2018 13:20**
Client ID: Run ID: **UV-2450_314568** SeqNo: **4523698** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent	0.247	0.0100	0.25	0	98.8	80 - 120				

MS Sample ID: **HS18040507-03MS** Units: **mg/L** Analysis Date: **12-Apr-2018 13:20**
Client ID: Run ID: **UV-2450_314568** SeqNo: **4523701** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent	0.274	0.0100	0.25	0.002	109	75 - 125				

MSD Sample ID: **HS18040507-03MSD** Units: **mg/L** Analysis Date: **12-Apr-2018 13:20**
Client ID: Run ID: **UV-2450_314568** SeqNo: **4523702** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent	0.275	0.0100	0.25	0.002	109	75 - 125	0.274	0.364	20	

The following samples were analyzed in this batch: HS18040595-01

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

ALS Group Houston, Corp Date: 23-Apr-18

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: **HS18040595**

QUALIFIERS, ACRONYMS, UNITS

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

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

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
California	2919 2016-2018	31-Jul-2018
Illinois	004112	09-May-2018
Kentucky	123043	30-Apr-2018
North Dakota	R193 2017-2017	30-Apr-2018
Oklahoma	2017-088	31-Aug-2018
Texas	T104704231-17-19	30-Apr-2018
North Carolina	624-2018	31-Dec-2018
Louisiana	03087 2017-2018	30-Jun-2018
Arkansas	88-0356	27-Mar-2019

ALS Group Houston, Corp Date: 23-Apr-18

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
Work Order: HS18040595

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS18040595-01	LH18/24-SP650-041118	Login	4/12/2018 12:12:46 PM	JRM	Sub
HS18040595-01	LH18/24-SP650-041118	Login	4/12/2018 12:12:46 PM	JRM	EXT028
HS18040595-01	LH18/24-SP650-041118	Login	4/12/2018 12:12:46 PM	JRM	WET292
HS18040595-01	LH18/24-SP650-041118	Login	4/12/2018 12:12:46 PM	JRM	MET009
HS18040595-01	LH18/24-SP650-041118	Login	4/12/2018 12:12:46 PM	JRM	VOA131
HS18040595-02	Trip Blank	Login	4/12/2018 12:12:46 PM	JRM	VOA131

Date: 23-Apr-18

Sample Receipt Checklist

Client Name: Bhate Environmental
Work Order: HS18040595
Date/Time Received: **12-Apr-2018 08:50**
Received by: **JRM**

Checklist completed by: *Jared R. Makan* eSignature — 12-Apr-2018 Date
Reviewed by: *RJ Modashia* eSignature — 12-Apr-2018 Date

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

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
TX1005 solids received in hermetically sealed vials?	Yes ☐	No ☐	N/A ☑
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	3.6c/3.1c UC/C	IR11	
Cooler(s)/Kit(s):	25303		
Date/Time sample(s) sent to storage:	04/12/2018 12:30		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

CHAIN OF CUSTODY

Name Of Lab Shipping To: ALS 10450 Stancliff Rd., Suite 210 Houston, TX 77099 (281) 530 – 5656 ATTN: SONIA WEST

Page 1 of 1

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

Project No.
NWO1312.0150.0
16.0001

Job:
GROUNDWATER TREATMENT PLANT MONTHLY EFFLUENT SAMPLES

Prepared By:
Scott Beesinger

P.O. Number

Field Sample I.D.	Sample Matrix	Date / Time	MS / MSD	No. OF CONTAINERS	Analyses: VOLATILES	SILVER, SELENIUM, LEAD, BARIUM	HEXAVALENT CHROMIUM	1, 4 - DIOXANE	PERCHLORATE						Remarks (Preservatives, etc.)	Lab I.D.#
LH18/24-SP650_041118	Water	04/11/18 / 14:00		3	X										HCL	
LH18/24-SP650_041118	Water	04/11/18 / 14:00		3			X	X	X						NONE	
LH18/24-SP650_041118	Water	04/11/18 / 14:00		1		X									HNO3	
Trip Blank	Water	04/11/18		2	X										HCL	

HS18040595

Bhate Environmental Associates, Inc.
Longhorn GW Treatment Plant Monthly Effluent Sample

Additional Remarks: **STANDARD TURN AROUND TIME**

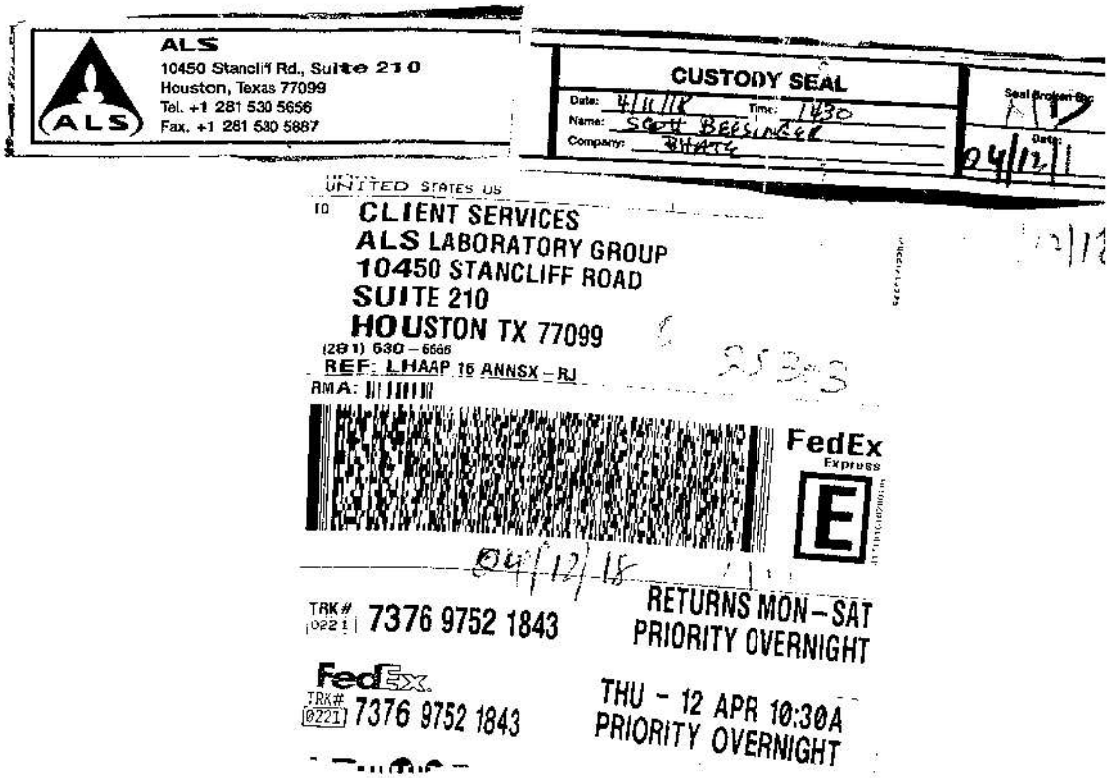
Relinquished By:	Date	Time	Received By:	Date	Time	Relinquished By:	Date	Time	Received By:	Date	Time
Scott Beesinger	04/11/18	14:30									

For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition
Jm	4/12/18	08:30							

Remarks:
Cooler 25303 IRM
Temp 3.6 CF-0.5

(Word) S:\Forms\Chain of Custody - BiWeekly



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

CUSTODY SEAL
Date: 4/11/12 Time: 1430
Name: Scott Beesinger
Company: Shaw
Seal Broken By
Date: 4/12/12

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

FedEx Express

04/12/15

TRK# 0221 7376 9752 1843
RETURNS MON-SAT
PRIORITY OVERNIGHT

FedEx
TRK# 0221 7376 9752 1843
THU - 12 APR 10:30A
PRIORITY OVERNIGHT

Volatile Organics Raw Data

Bhate Environmental Associates, Inc.
Project: LONGHORN GW TREATMENT PLANT
MONTHLY EFFLUENT SAMPLES
ALS WO# HS18040595

FORM 2

WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS18040595

	CLIENT SAMPLE NO.	SMC1 #	SMC2 (DCE)#	SMC3 (TOL)#	OTHER #	TOT OUT
01	VLCSW-180422	102	93	98	96	0
02	VBLKW-180422	102	93	98	94	0
03	HS18040595-02	103	95	99	96	0
04	HS18040595-01	103	96	99	96	0
05	HS18040701-07	102	92	97	95	0
06	HS18040701-07	102	94	98	96	0
07						
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		QC LIMITS
SMC1	= Dibromofluoromethane	(71-125)
SMC2 (DCE)	= 1,2-Dichloroethane-d4	(70-125)
SMC3 (TOL)	= Toluene-d8	(75-125)
OTHER	= 4-Bromofluorobenzene	(72-125)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS18040595

Matrix Spike - Sample No.: VSDT-ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
Xylenes (total)	150.00	165.04	110	80-120
1,2-Dichloroethylene (t	100.00	103.61	104	80-120
Dichlorodifluoromethane	50.00	47.14	94	80-120
Chloromethane	50.00	49.94	100	80-120
Vinyl Chloride	50.00	47.81	96	80-120
Bromomethane	50.00	54.04	108	80-120
Chloroethane	50.00	49.32	99	80-120
Trichlorofluoromethane	50.00	47.38	95	80-120
Acrolein	100.00	97.48	97	80-120
Acetone	100.00	101.38	101	80-120
1,1-Dichloroethene	50.00	46.99	94	80-120
Acrylonitrile	100.00	109.68	110	80-120
Methylene Chloride	50.00	50.60	101	80-120
Methyl tert-butyl ether	50.00	53.52	107	80-120
Carbon Disulfide	100.00	96.93	97	80-120
trans-1,2-Dichloroethen	50.00	49.38	99	80-120
1,1-Dichloroethane	50.00	55.60	111	80-120
2-Butanone	100.00	102.25	102	80-120
2,2-Dichloropropane	50.00	47.40	95	80-120
cis-1,2-Dichloroethene	50.00	54.22	108	80-120
Chloroform	50.00	53.87	108	80-120
Bromochloromethane	50.00	55.96	112	80-120
1,1,1-Trichloroethane	50.00	49.39	99	80-120
1,1-Dichloropropene	50.00	48.04	96	80-120
1,2-Dichloroethane	50.00	52.48	105	80-120
Carbon Tetrachloride	50.00	47.72	95	80-120
Benzene	50.00	49.03	98	80-120
Trichloroethene	50.00	48.34	97	80-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS18040595

Matrix Spike - Sample No.: VSDT-ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
Bromodichloromethane	50.00	53.36	107	80-120
1,2-Dichloropropane	50.00	54.30	109	80-120
Dibromomethane	50.00	51.80	104	80-120
4-Methyl-2-Pentanone	100.00	102.81	103	80-120
cis-1,3-Dichloropropene	50.00	53.22	106	80-120
Toluene	50.00	54.81	110	80-120
trans-1,3-Dichloroprope	50.00	51.70	103	80-120
2-Hexanone	100.00	101.55	102	80-120
1,1,2-Trichloroethane	50.00	51.74	103	80-120
1,3-Dichloropropane	50.00	52.50	105	80-120
Dibromochloromethane	50.00	53.08	106	80-120
Tetrachloroethene	50.00	49.48	99	80-120
1,2-Dibromoethane	50.00	52.72	105	80-120
Chlorobenzene	50.00	54.25	108	80-120
1,1,1,2-Tetrachloroetha	50.00	53.54	107	80-120
Ethylbenzene	50.00	55.66	111	80-120
m,p-Xylenes	100.00	110.40	110	80-120
o-Xylene	50.00	54.63	109	80-120
Styrene	50.00	54.04	108	80-120
Bromoform	50.00	51.13	102	80-120
Isopropylbenzene	50.00	50.14	100	80-120
1,1,2,2-Tetrachloroetha	50.00	50.43	101	80-120
1,2,3-Trichloropropane	50.00	48.83	98	80-120
n-Propylbenzene	50.00	48.62	97	80-120
Bromobenzene	50.00	51.59	103	80-120
1,3,5-Trimethylbenzene	50.00	53.93	108	80-120
2-Chlorotoluene	50.00	53.36	107	80-120
4-Chlorotoluene	50.00	53.53	107	80-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

FORM III VOA

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS18040595

Matrix Spike - Sample No.: VSDT-ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
tert-Butylbenzene	50.00	49.49	99	80-120
1,2,4-Trimethylbenzene	50.00	52.35	105	80-120
sec-Butylbenzene	50.00	49.18	98	80-120
p-Isopropyltoluene	50.00	49.49	99	80-120
1,3-Dichlorobenzene	50.00	51.31	103	80-120
1,4-Dichlorobenzene	50.00	50.77	102	80-120
n-Butylbenzene	50.00	50.38	101	80-120
1,2-Dichlorobenzene	50.00	49.52	99	80-120
1,2-Dibromo-3-Chloropro	50.00	47.40	95	80-120
1,2,4-Trichlorobenzene	50.00	56.50	113	80-120
Hexachlorobutadiene	50.00	50.26	100	80-120
Naphthalene	50.00	52.43	105	80-120
1,2,3-Trichlorobenzene	50.00	51.26	102	80-120
1-Chlorohexane	50.00	48.62	97	80-120
1,4-Dioxane	1000.00	914.52	91	80-120
Cyclohexane	50.00	48.51	97	80-120
Freon TF	50.00	49.16	98	80-120
Methylcyclohexane	50.00	50.26	100	80-120
Methyl Acetate	50.00	53.07	106	80-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

_____

FORM III VOA

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS18040595

Lab File ID: X041101 BFB Injection Date: 04/11/18

Instrument ID: VOA6 BFB Injection Time: 1219

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15.0 - 40.0% of mass 95	15.5	
75	30.0 - 60.0% of mass 95	43.9	
95	Base Peak, 100% relative abundance	100.0	
96	5.0 - 9.0% of mass 95	6.3	
173	Less than 2.0% of mass 174	0.6	(0.7)1
174	Greater than 50.0% of mass 95	90.9	
175	5.0 - 9.0% of mass 174	6.4	(7.1)1
176	95.0 - 101.0% of mass 174	88.2	(97.0)1
177	5.0 - 9.0% of mass 176	5.8	(6.6)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD00.5	VSTD00.5	X041103	04/11/18	1323
02	VSTD001	VSTD001	X041104	04/11/18	1348
03	VSTD002	VSTD002	X041105	04/11/18	1413
04	VSTD005	VSTD005	X041106	04/11/18	1437
05	VSTD020	VSTD020	X041107	04/11/18	1502
06	VSTD050	VSTD050	X041108	04/11/18	1527
07	VSTD100	VSTD100	X041109	04/11/18	1551
08	VSTD150	VSTD150	X041110	04/11/18	1616
09	VSTD200	VSTD200	X041111	04/11/18	1640
10	VSDT-ICV	VSTD-ICV	X041114	04/11/18	1754
11					
12					
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22					

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS18040595

Instrument ID: VOA6 Calibration Date(s): 04/11/18 04/11/18

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1234 1640

LAB FILE ID: RF0.25: X041102 RF0.5: X041103 RF1: X041104
RF2: X041105 RF5: X041106 RF20: X041107

COMPOUND	RF0.25	RF0.5	RF1	RF2	RF5	RF20
Dichlorodifluoromethane		1429	1627	4688	8481	46180
Chloromethane		2505	3028	7228	12990	61113
Vinyl Chloride		2151	2928	6345	11627	59996
Bromomethane		1358	2222	4403	8808	39153
Chloroethane		1510	1878	3996	7429	36345
Trichlorofluoromethane		2034	2458	6157	11141	61144
Acrolein		0.060	0.049	0.043	0.045	0.042
Acetone		2981	3613	5356	10482	41130
1,1-Dichloroethene		1573	2019	4548	8551	43443
Iodomethane		4203	6024	12143	24791	122490
Acrylonitrile		0.225	0.178	0.144	0.158	0.186
Methylene Chloride		4113	5665	8337	16479	66994
Methyl tert-butyl ether		1.533	1.255	1.242	1.217	1.354
Carbon Disulfide		10804	14228	32565	62436	302928
trans-1,2-Dichloroethene		1922	2716	5973	11879	56142
Vinyl Acetate		1234	1772	4287	7602	35261
1,1-Dichloroethane		0.863	0.666	0.707	0.618	0.718
2-Butanone		1665	2997	4565	13103	58741
2,2-Dichloropropane		2899	3431	7692	15414	71063
cis-1,2-Dichloroethene		0.563	0.448	0.465	0.385	0.447
Chloroform		0.891	0.694	0.708	0.605	0.687
Bromochloromethane		0.283	0.237	0.226	0.216	0.236
1,1,1-Trichloroethane		2466	3241	7465	15819	74056
1,1-Dichloropropene		2751	3548	7762	14917	72168
1,2-Dichloroethane		0.407	0.380	0.324	0.306	0.346
Carbon Tetrachloride		2913	3627	7509	12785	62076
Benzene		7332	11613	22918	50702	231067
Trichloroethene		1793	2794	5845	12554	58107
Bromodichloromethane		0.459	0.384	0.370	0.332	0.368
2-Chloroethylvinyl ether		0.264	0.237	0.222	0.206	0.221
1,2-Dichloropropane		0.363	0.276	0.294	0.260	0.299
Dibromomethane		0.218	0.199	0.190	0.174	0.193
4-Methyl-2-Pentanone		5542	8161	12596	31384	134372
cis-1,3-Dichloropropene		0.598	0.504	0.492	0.451	0.499
Toluene		1.512	1.133	1.142	0.981	1.118
trans-1,3-Dichloropropene		0.537	0.441	0.412	0.381	0.417
2-Hexanone		4301	5338	8557	21192	89959
1,1,2-Trichloroethane		0.332	0.246	0.260	0.236	0.246
1,3-Dichloropropane		0.640	0.557	0.513	0.486	0.517
Dibromochloromethane		0.382	0.388	0.332	0.308	0.345
Tetrachloroethene		1453	2054	4357	9280	43164
1,2-Dibromoethane		0.372	0.336	0.291	0.281	0.305
Chlorobenzene		1.010	0.804	0.774	0.695	0.770
1,1,1,2-Tetrachloroethane		0.357	0.308	0.289	0.257	0.288

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1804059

Instrument ID: VOA6 Calibration Date(s): 04/11/18 04/11/18

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1234 1640

LAB FILE ID: RF0.25: X041102 RF0.5: X041103 RF1: X041104
RF2: X041105 RF5: X041106 RF20: X041107

COMPOUND	RF0.25	RF0.5	RF1	RF2	RF5	RF20
Ethylbenzene		0.483	0.382	0.378	0.325	0.375
m,p-Xylenes		0.596	0.475	0.472	0.407	0.462
o-Xylene		0.626	0.468	0.478	0.420	0.480
Styrene		1.073	0.905	0.800	0.760	0.850
Bromoform		0.335	0.285	0.250	0.238	0.252
Isopropylbenzene		7133	11155	22013	49083	225531
Allyl Chloride		1.387	1.134	1.058	1.086	1.263
1,1,2,2-Tetrachloroethane		3807	4863	8254	20662	84331
Methacrylonitrile		0.593	0.506	0.436	0.414	0.461
1,2,3-Trichloropropane		4107	5912	10422	24725	101138
Isobutyl Alcohol		0.080	0.066	0.058	0.057	0.064
n-Propylbenzene		9146	13098	28328	60865	279208
Bromobenzene		0.970	0.692	0.683	0.639	0.694
1,3,5-Trimethylbenzene		2.488	1.894	1.861	1.597	1.826
2-Chlorotoluene		2.208	1.635	1.639	1.428	1.631
4-Chlorotoluene		2.544	1.889	1.907	1.656	1.915
Propionitrile		0.072	0.067	0.068	0.063	0.070
tert-Butylbenzene		5231	7765	16593	35955	161184
1,2,4-Trimethylbenzene		2.710	2.086	1.937	1.746	1.928
sec-Butylbenzene		7379	10557	21455	47304	214472
p-Isopropyltoluene		5231	7765	16593	35955	161184
Methyl Methacrylate		2320	3425	5425	14564	66350
1,3-Dichlorobenzene		1.652	1.263	1.190	1.048	1.172
1,4-Dichlorobenzene		1.746	1.337	1.252	1.076	1.210
2-Nitropropane		1149	1885	2486	6596	29059
Ethyl Methacrylate		0.597	0.494	0.422	0.428	0.444
n-Butylbenzene		5831	8194	16437	35996	157741
1,2-Dichlorobenzene		4928	7035	12580	29424	129012
1,2-Dibromo-3-Chloropropane		669	749	1269	3121	11721
1,2,4-Trichlorobenzene	2548	3502	4257	7919	18281	73493
Hexachlorobutadiene		1171	1323	2508	5253	23132
Naphthalene		9003	10468	16356	38350	155852
1,2,3-Trichlorobenzene		3518	4094	6539	15893	62278
Benzyl Chloride		6292	8188	14289	32687	143114
1-Chlorohexane		2162	2978	5152	10533	49401
trans-1,4-Dichloro-2-butene		1191	1386	2491	5540	24232
Chloroprene		1498	1857	3442	6352	29941
n-Butanol		1618	1861	3328	7374	32065
Cyclohexanone	560	1583	2508	4503	10418	43427
1,4-Dioxane	303	867	1033	1777	3769	14669
n-Hexane		2066	2433	5746	11776	53391
Diethyl ether		0.465	0.398	0.349	0.340	0.379
1,3-Butadiene		1703	1679	4187	7993	43500
Cyclohexane		5920	5782	6151	7305	81580

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1804059

Instrument ID: VOA6 Calibration Date(s): 04/11/18 04/11/18

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1234 1640

LAB FILE ID: RF0.25: X041102 RF0.5: X041103 RF1: X041104
RF2: X041105 RF5: X041106 RF20: X041107

COMPOUND	RF0.25	RF0.5	RF1	RF2	RF5	RF20
Freon TF		1209	1410	3825	6963	37743
Methylcyclohexane		1988	1913	3554	7390	31557
Methyl Acetate		0.517	0.666	0.557	0.536	0.589
Tert-Butyl alcohol		6836	7906	12265	28804	114620
Allyl alcohol		2065	2433	5745	10990	55507
Isopropyl Alcohol		9225	9578	13152	23853	80481
4-Methyl-2-pentanol		0.065	0.059	0.058	0.054	0.060
Diisopropyl ether		1.866	1.325	1.345	1.365	1.501
Butyl acrylate		0.920	0.738	0.670	0.670	0.745
Ethanol		802	1112	1529	3072	12468
tert-Butyl formate		5921	6437	10331	23027	92374
3,3-Dimethyl-1-butanol		3815	5456	11429	27830	113048
tert-Amyl methyl ether		1.883	1.476	1.384	1.318	1.459
tert-Butyl ethyl ether		1.858	1.413	1.284	1.296	1.450
tert-Amyl alcohol		5921	6437	10367	22932	93131
2-Furfural		0.009	0.009	0.008	0.008	0.010
Isoprene		988	1419	2785	5074	23051
Acetaldehyde	1895	2075	3102	4597	7365	22899
Dibromofluoromethane		0.581	0.496	0.482	0.437	0.480
1,2-Dichloroethane-d4		0.700	0.627	0.534	0.479	0.511
Toluene-d8		1.524	1.335	1.222	1.115	1.178
4-Bromofluorobenzene			0.566	0.507	0.434	0.444

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1804059

Instrument ID: VOA6 Calibration Date(s): 04/11/18 04/11/18

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1234 1640

LAB FILE ID: RF50: X041108 RF100: X041109 RF150: X041110
RF200: X041111

COMPOUND	RF50	RF100	RF150	RF200
Dichlorodifluoromethane	152864	332122	545917	712363
Chloromethane	176053	369278	608678	814923
Vinyl Chloride	191875	409862	671783	866176
Bromomethane	104334	234102	412280	557249
Chloroethane	107507	224868	358265	472870
Trichlorofluoromethane	204892	445066	713497	927822
Acrolein	0.042	0.043	0.047	0.046
Acetone	94971	192091	303821	368573
1,1-Dichloroethene	133451	291171	469714	605421
Iodomethane	389151	853759		
Acrylonitrile	0.188	0.191	0.202	0.192
Methylene Chloride	172661	355383	555205	713815
Methyl tert-butyl ether	1.344	1.381	1.466	1.401
Carbon Disulfide	970334	2050081	3265953	4237659
trans-1,2-Dichloroethene	159815	337889	531900	678674
Vinyl Acetate	124906	260216	409965	525344
1,1-Dichloroethane	0.795	0.843	0.902	0.876
2-Butanone	133166	257439	403024	514555
2,2-Dichloropropane	203364	427020	674155	860908
cis-1,2-Dichloroethene	0.503	0.534	0.572	0.544
Chloroform	0.768	0.797	0.846	0.809
Bromochloromethane	0.247	0.248	0.240	0.228
1,1,1-Trichloroethane	221714	464105	726816	939311
1,1-Dichloropropene	214089	448804	707774	919511
1,2-Dichloroethane	0.360	0.379	0.409	0.387
Carbon Tetrachloride	199056	415812	653054	849669
Benzene	641202	1326821	2091934	2689274
Trichloroethene	167697	350953	562023	725656
Bromodichloromethane	0.393	0.417	0.450	0.433
2-Chloroethylvinyl ether	0.221	0.225	0.245	0.236
1,2-Dichloropropane	0.319	0.338	0.364	0.348
Dibromomethane	0.192	0.204	0.220	0.212
4-Methyl-2-Pentanone	300344	617014	963057	1221789
cis-1,3-Dichloropropene	0.533	0.560	0.608	0.587
Toluene	1.280	1.359	1.460	1.375
trans-1,3-Dichloropropene	0.439	0.464	0.501	0.482
2-Hexanone	196505	404952	644035	828684
1,1,2-Trichloroethane	0.245	0.258	0.275	0.259
1,3-Dichloropropane	0.516	0.540	0.581	0.545
Dibromochloromethane	0.346	0.363	0.396	0.373
Tetrachloroethene	128594	269448	433221	558156
1,2-Dibromoethane	0.303	0.318	0.340	0.324
Chlorobenzene	0.837	0.894	0.974	0.932
1,1,1,2-Tetrachloroethane	0.305	0.330	0.359	0.339

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1804059

Instrument ID: VOA6 Calibration Date(s): 04/11/18 04/11/18

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1234 1640

LAB FILE ID: RF50: X041108 RF100: X041109 RF150: X041110
RF200: X041111

COMPOUND	RF50	RF100	RF150	RF200
Ethylbenzene	0.437	0.468	0.512	0.481
m,p-Xylenes	0.529	0.568	0.620	0.586
o-Xylene	0.525	0.561	0.609	0.574
Styrene	0.913	0.968	1.061	0.988
Bromoform	0.248	0.260	0.287	0.274
Isopropylbenzene	648558	1327235	2104371	2725551
Allyl Chloride	1.317	1.368	1.459	1.371
1,1,2,2-Tetrachloroethane	190897	386060	608927	778010
Methacrylonitrile	0.449	0.437	0.469	0.442
1,2,3-Trichloropropane	232049	473929	753856	967759
Isobutyl Alcohol	0.058	0.060	0.062	0.061
n-Propylbenzene	806027	1630889	2595018	3344811
Bromobenzene	0.715	0.794	0.879	0.820
1,3,5-Trimethylbenzene	2.029	2.203	2.422	2.326
2-Chlorotoluene	1.744	1.894	2.109	
4-Chlorotoluene	2.018	2.165	2.385	
Propionitrile	0.065	0.067	0.072	0.068
tert-Butylbenzene	462958	955699	1500896	1949190
1,2,4-Trimethylbenzene	2.094	2.275	2.514	2.383
sec-Butylbenzene	649111	1327731	2105946	2742019
p-Isopropyltoluene	462958	955699	1500896	1949190
Methyl Methacrylate	153011	306139	465818	596764
1,3-Dichlorobenzene	1.221	1.349	1.500	1.414
1,4-Dichlorobenzene	1.253	1.368	1.519	1.431
2-Nitropropane	65853	130012	204264	260546
Ethyl Methacrylate	0.457	0.487	0.534	0.514
n-Butylbenzene	465564	932054	1478458	1935893
1,2-Dichlorobenzene	318489	645854	1020061	1312824
1,2-Dibromo-3-Chloropropane	28932	58141	95873	124506
1,2,4-Trichlorobenzene	196043	411409	660407	
Hexachlorobutadiene	80499	166296	269294	353366
Naphthalene	382975	789837	1321694	1792401
1,2,3-Trichlorobenzene	166167	338991	549337	739420
Benzyl Chloride	338385	710313	1133992	1453413
1-Chlorohexane	141675	287178	457010	576606
trans-1,4-Dichloro-2-butene	54983	112705	179105	225186
Chloroprene	104363	225216	360630	464196
n-Butanol	77101	156767	254312	324726
Cyclohexanone	99821	194376	310949	394001
1,4-Dioxane	34022	68575	111918	141608
n-Hexane	190791	403445	640625	828425
Diethyl ether	0.385	0.400	0.436	0.413
1,3-Butadiene	145391	312953	485376	624220
Cyclohexane	268819	557670	878533	1142315

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1804059

Instrument ID: VOA6 Calibration Date(s): 04/11/18 04/11/18

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1234 1640

LAB FILE ID: RF50: X041108 RF100: X041109 RF150: X041110
RF200: X041111

COMPOUND	RF50	RF100	RF150	RF200
Freon TF	132462	282458	460320	594993
Methylcyclohexane	240839	498498	796373	1052508
Methyl Acetate	0.555	0.582	0.629	0.576
Tert-Butyl alcohol	262371	535331	856064	
Allyl alcohol	190618	392446	639189	830539
Isopropyl Alcohol	182667	362584	578706	723351
4-Methyl-2-pentanol	0.058	0.065	0.075	0.074
Diisopropyl ether	1.589	1.622	1.702	1.606
Butyl acrylate	0.743	0.793	0.876	0.838
Ethanol	29205	59127	91928	119950
tert-Butyl formate	211146	416335	692618	878089
3,3-Dimethyl-1-butanol	262778	564588		
tert-Amyl methyl ether	1.417	1.488		
tert-Butyl ethyl ether	1.476	1.483	1.578	1.506
tert-Amyl alcohol	206014	424397	681614	878589
2-Furfural	0.010	0.010	0.011	0.010
Isoprene	68764	144059	243241	309311
Acetaldehyde	58405	111879	172772	216266
Dibromofluoromethane	0.450	0.466	0.492	0.442
1,2-Dichloroethane-d4	0.484	0.490	0.513	0.465
Toluene-d8	1.138	1.201	1.282	1.128
4-Bromofluorobenzene	0.411	0.422	0.457	0.409

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1804059

Instrument ID: VOA6 Calibration Date(s): 04/11/18 04/11/18

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1234 1640

COMPOUND	CURVE	COEFFICENTS A0	A1	A2	%RSD OR R^2	MAX %RSD OR R^2
Dichlorodifluoromethane	LINR	7.528e-002	1.90149536		0.9965738	0.9900000
Chloromethane	LINR	6.542e-002	1.68610090		0.9967576	0.9900000
Vinyl Chloride	LINR	6.518e-002	1.55930278		0.9968364	0.9900000
Bromomethane	2ORDR	3.363e-002	3.14920653	-0.4581698	0.9971932	0.9900000
Chloroethane	LINR	5.263e-002	2.88711215		0.9981553	0.9900000
Trichlorofluoromethane	LINR	6.737e-002	1.45678431		0.9973498	0.9900000
Acrolein	AVRG		4.646e-002		12.474	15.000
Acetone	LINR	-1.47e-002	7.23389250		0.9962322	0.9900000
1,1-Dichloroethene	LINR	6.147e-002	2.22957174		0.9971770	0.9900000
Iodomethane	2ORDR	3.696e-002	2.03809571	-0.1702684	0.9986250	0.9900000
Acrylonitrile	AVRG		0.18495995		12.812	15.000
Methylene Chloride	LINR	1.922e-002	1.90383625		0.9986449	0.9900000
Methyl tert-butyl ether	AVRG		1.35490476		7.780	15.000
Carbon Disulfide	LINR	0.11140315	0.63879697		0.9978631	0.9900000
trans-1,2-Dichloroethene	LINR	3.983e-002	1.98533851		0.9980575	0.9900000
Vinyl Acetate	LINR	0.10368013	5.11961391		0.9977613	0.9900000
1,1-Dichloroethane	AVRG		0.77654957		13.178	15.000
2-Butanone	LINR	4.61e-003	5.28283480		0.9988186	0.9900000
2,2-Dichloropropane	LINR	3.929e-002	1.56641653		0.9980626	0.9900000
cis-1,2-Dichloroethene	AVRG		0.49556000		12.749	15.000
Chloroform	AVRG		0.75614782		11.901	15.000
Bromochloromethane	AVRG		0.23997648		7.938	15.000
1,1,1-Trichloroethane	LINR	4.357e-002	1.44016970		0.9984308	0.9900000
1,1-Dichloropropene	LINR	5.384e-002	2.19533701		0.9978804	0.9900000
1,2-Dichloroethane	AVRG		0.36648337		9.708	15.000
Carbon Tetrachloride	LINR	5.589e-002	2.37447803		0.9978336	0.9900000
Benzene	LINR	4.414e-002	0.74900385		0.9980238	0.9900000
Trichloroethene	LINR	5.521e-002	2.77796748		0.9974593	0.9900000
Bromodichloromethane	AVRG		0.40066120		10.518	15.000
2-Chloroethylvinyl ether	AVRG		0.23095728		7.358	15.000
1,2-Dichloropropane	AVRG		0.31777879		11.968	15.000
Dibromomethane	AVRG		0.20031660		7.472	15.000
4-Methyl-2-Pentanone	LINR	2.11e-002	3.16523387		0.9977442	0.9900000
cis-1,3-Dichloropropene	AVRG		0.53689334		10.189	15.000
Toluene	AVRG		1.26222925		14.145	15.000
trans-1,3-Dichloropropene	AVRG		0.45273559		10.734	15.000
2-Hexanone	LINR	3.674e-002	4.69978135		0.9977531	0.9900000
1,1,2-Trichloroethane	AVRG		0.26179484		10.991	15.000
1,3-Dichloropropane	AVRG		0.54406380		8.368	15.000
Dibromochloromethane	AVRG		0.35929855		7.981	15.000
Tetrachloroethene	LINR	5.263e-002	3.46064824		0.9971164	0.9900000
1,2-Dibromoethane	AVRG		0.31895233		8.775	15.000
Chlorobenzene	AVRG		0.85464820		12.266	15.000
1,1,1,2-Tetrachloroethane	AVRG		0.31474284		10.869	15.000

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1804059

Instrument ID: VOA6 Calibration Date(s): 04/11/18 04/11/18

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1234 1640

COMPOUND	CURVE	COEFFICENTS A0	A1	A2	%RSD OR R^2	MAX %RSD OR R^2
Ethylbenzene	AVRG		0.42681528		14.951	15.000
m,p-Xylenes	AVRG		0.52408820		13.967	15.000
o-Xylene	AVRG		0.52670028		13.329	15.000
Styrene	AVRG		0.92427144		11.805	15.000
Bromoform	AVRG		0.26994100		11.063	15.000
Isopropylbenzene	LINR	4.28e-002	0.71102807		0.9978943	0.9900000
Allyl Chloride	AVRG		1.27143666		11.427	15.000
1,1,2,2-Tetrachloroethane	LINR	2.099e-002	1.24397360		0.9973562	0.9900000
Methacrylonitrile	AVRG		0.46743952		11.461	15.000
1,2,3-Trichloropropane	LINR	2.828e-002	1.00138709		0.9971469	0.9900000
Isobutyl Alcohol	AVRG		6.287e-002		11.072	15.000
n-Propylbenzene	LINR	4.863e-002	0.28845295		0.9972064	0.9900000
Bromobenzene	AVRG		0.76504535		14.212	15.000
1,3,5-Trimethylbenzene	AVRG		2.07180037		14.703	15.000
2-Chlorotoluene	AVRG		1.78603875		14.857	15.000
4-Chlorotoluene	AVRG		2.05987795		14.088	15.000
Propionitrile	AVRG		6.792e-002		4.207	15.000
tert-Butylbenzene	LINR	4.932e-002	0.49599895		0.9975117	0.9900000
1,2,4-Trimethylbenzene	AVRG		2.18586875		14.186	15.000
sec-Butylbenzene	LINR	5.507e-002	0.39276715		0.9972842	0.9900000
p-Isopropyltoluene	LINR	4.932e-002	0.49599895		0.9975117	0.9900000
Methyl Methacrylate	LINR	2.097e-003	2.27414643		0.9991296	0.9900000
1,3-Dichlorobenzene	AVRG		1.31202389		14.191	15.000
1,4-Dichlorobenzene	AVRG		1.35469960		14.443	15.000
2-Nitropropane	LINR	4.994e-003	5.21610813		0.9986920	0.9900000
Ethyl Methacrylate	AVRG		0.48634838		11.622	15.000
n-Butylbenzene	LINR	5.001e-002	0.50158575		0.9976035	0.9900000
1,2-Dichlorobenzene	LINR	3.323e-002	0.73720724		0.9975067	0.9900000
1,2-Dibromo-3-Chloropropane	LINR	4.347e-002	7.82169539		0.9961135	0.9900000
1,2,4-Trichlorobenzene	2ORDR	4.397e-004	1.45318534	-0.1308854	0.9998754	0.9900000
Hexachlorobutadiene	LINR	7.2e-002	2.74002825		0.9962111	0.9900000
Naphthalene	2ORDR	1.38e-002	0.67180283	-1.81e-002	0.9979312	0.9900000
1,2,3-Trichlorobenzene	LINR	5.736e-002	1.33044383		0.9965373	0.9900000
Benzyl Chloride	LINR	3.016e-002	1.33374026		0.9974046	0.9900000
1-Chlorohexane	LINR	3.981e-002	3.46991488		0.9974644	0.9900000
trans-1,4-Dichloro-2-butene	LINR	1.476e-002	8.55898324		0.9970564	0.9900000
Chloroprene	LINR	6.221e-002	2.90206374		0.9971550	0.9900000
n-Butanol	LINR	0.52293683	83.6319763		0.9978168	0.9900000
Cyclohexanone	LINR	0.29813444	49.0800433		0.9972250	0.9900000
1,4-Dioxane	LINR	0.26640268	191.856498		0.9976077	0.9900000
n-Hexane	LINR	5.991e-002	1.62836694		0.9976320	0.9900000
Diethyl ether	AVRG		0.39629768		9.908	15.000
1,3-Butadiene	LINR	5.313e-002	2.15380275		0.9979992	0.9900000
Cyclohexane	LINR	5.541e-002	1.10378096		0.9981598	0.9900000

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1804059

Instrument ID: VOA6 Calibration Date(s): 04/11/18 04/11/18

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1234 1640

COMPOUND	CURVE	COEFFICENTS A0	A1	A2	%RSD OR R^2	MAX %RSD OR R^2
Freon TF	2ORDR	5.158e-002	2.46891439	-0.1283332	0.9974375	0.9900000
Methylcyclohexane	LINR	9.941e-002	1.90658142		0.9954150	0.9900000
Methyl Acetate	AVRG		0.57874508		7.951	15.000
Tert-Butyl alcohol	LINR	0.43055576	24.4991997		0.9967697	0.9900000
Allyl alcohol	LINR	1.26253041	32.6127827		0.9973383	0.9900000
Isopropyl Alcohol	LINR	-0.2856504	37.5418397		0.9976225	0.9900000
4-Methyl-2-pentanol	AVRG		6.306e-002		11.716	15.000
Diisopropyl ether	AVRG		1.54672279		11.701	15.000
Butyl acrylate	AVRG		0.77699048		11.227	15.000
Ethanol	LINR	0.17351375	228.661090		0.9991125	0.9900000
tert-Butyl formate	LINR	3.656e-002	3.09758772		0.9970204	0.9900000
3,3-Dimethyl-1-butanol	LINR	0.29794794	35.8505683		0.9975608	0.9900000
tert-Amyl methyl ether	AVRG		1.48943143		12.299	15.000
tert-Butyl ethyl ether	AVRG		1.48255807		11.465	15.000
tert-Amyl alcohol	LINR	0.34053638	31.1028664		0.9980802	0.9900000
2-Furfural	AVRG		9.511e-003		11.811	15.000
Isoprene	LINR	6.042e-002	4.35907415		0.9958176	0.9900000
Acetaldehyde	LINR	-0.1001596	25.0752218		0.9983139	0.9900000
Dibromofluoromethane	AVRG		0.48079769		8.982	15.000
1,2-Dichloroethane-d4	AVRG		0.53365881		14.722	15.000
Toluene-d8	AVRG		1.23595749		10.532	15.000
4-Bromofluorobenzene	AVRG		0.45648702		11.927	15.000

FORM VI VOA

MSVOA06 -Logbook

Batch: 31548
Date: 04-11-2018
Method: 8260
Comments:

Analyst: Diana Nguyen
Reviewer:
Laboratory: Houston

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	04-11-2018 12:19 pm	1.00	50 mL	50 mL	X041101.D	Liquid	Y	NA
	Purged, auto find									
2	VSTD00.25	ICAL 1	04-11-2018 12:34 pm	1.00	50 mL	50 mL	X041102.D	Liquid	Y	NA
	0.1 µL cal STD/100 mL DI									
3	VSTD00.5	ICAL 2	04-11-2018 01:23 pm	1.00	50 mL	50 mL	X041103.D	Liquid	Y	NA
	0.1 µL cal STD/100 mL DI									
4	VSTD001	ICAL 3	04-11-2018 01:48 pm	1.00	50 mL	50 mL	X041104.D	Liquid	Y	NA
	0.2 µL cal STD/50 mL DI									
5	VSTD002	ICAL 4	04-11-2018 02:13 pm	1.00	50 mL	50 mL	X041105.D	Liquid	Y	NA
	0.4 µL cal STD/50 mL DI									
6	VSTD005	ICAL 5	04-11-2018 02:37 pm	1.00	50 mL	50 mL	X041106.D	Liquid	Y	NA
	1.0 µL cal STD/50 mL DI									
7	VSTD020	ICAL 6	04-11-2018 03:02 pm	1.00	50 mL	50 mL	X041107.D	Liquid	Y	NA
	4 µL cal STD/50 mL DI									
8	VSTD050	ICAL 7	04-11-2018 03:27 pm	1.00	50 mL	50 mL	X041108.D	Liquid	Y	NA
	10 µL cal STD/50 mL DI									
9	VSTD100	ICAL 8	04-11-2018 03:51 pm	1.00	50 mL	50 mL	X041109.D	Liquid	Y	NA
	20 µL cal STD/50 mL DI									
10	VSTD150	ICAL 9	04-11-2018 04:16 pm	1.00	50 mL	50 mL	X041110.D	Liquid	Y	NA
	30 µL cal STD/50 mL DI									
11	VSTD200	ICAL 10	04-11-2018 04:40 pm	1.00	50 mL	50 mL	X041111.D	Liquid	Y	NA
	40 µL cal STD/50 mL DI									
12	BLK	SAMP	04-11-2018 05:05 pm	1.00	50 mL	50 mL	X041112.D	Liquid	Y	NA
	Clean up blank									
13	BLK	SAMP	04-11-2018 05:29 pm	1.00	50 mL	50 mL	X041113.D	Liquid	Y	NA
	Clean up blank									
14	VSTD-ICV	METHSPIKI	04-11-2018 05:54 pm	1.00	50 mL	50 mL	X041114.D	Liquid	Y	NA
	10 µL cal STD/50 mL DI									
15	VLCSW1-180411	LCS	04-11-2018 06:48 pm	1.00	50 mL	50 mL	X041115.D	Liquid	Y	NA
	10 µL cal STD/50 mL DI									
16	CBLK	SAMP	04-11-2018 07:13 pm	1.00	50 mL	50 mL	X041116.D	Liquid	Y	NA
	Clean up blank									
17	VBLKW1-180411	MBLK	04-11-2018 07:38 pm	1.00	50 mL	50 mL	X041117.D	Liquid	Y	<2
18	HS18031432-04	SAMP	04-11-2018 08:02 pm	1.00	50 mL	50 mL	X041118.D	Liquid	Y	<2
19	HS18031432-02	SAMP	04-11-2018 08:27 pm	1.00	50 mL	50 mL	X041119.D	Liquid	Y	<2
20	HS18031432-03	SAMP	04-11-2018 08:51 pm	1.00	50 mL	50 mL	X041120.D	Liquid	Y	<2
21	HS18031432-01	SAMP	04-11-2018 09:16 pm	1.00	50 mL	50 mL	X041121.D	Liquid	Y	<2
22	HS18031432-05	SAMP	04-11-2018 09:40 pm	1.00	50 mL	50 mL	X041122.D	Liquid	Y	<2
23	HS18031311-01	SAMP	04-11-2018 10:05 pm	100.0(	500 µL	50 mL	X041123.D	Liquid	Y	<2
24	HS18031335-34	SAMP	04-11-2018 10:30 pm	5.00	10 mL	50 mL	X041124.D	Liquid	Y	<2
25	HS18031432-01MS	MS	04-11-2018 10:54 pm	1.00	50 mL	50 mL	X041125.D	Liquid	Y	NA
	5 µL cal STD/25 mL DI									
26	HS18031432-01MSD	MSD	04-11-2018 11:19 pm	1.00	50 mL	50 mL	X041126.D	Liquid	Y	NA
	5 µL cal STD/25 mL DI									
27	VTD050-END	CCV	04-11-2018 11:43 pm	1.00	50 mL	50 mL	X041127.D	Liquid	Y	NA
28	VCSTD050	CCV	04-12-2018 12:08 am	1.00	50 mL	50 mL	X041128.D	Liquid	Y	NA
	10 µL cal STD/50 mL DI									

MSVOA06 -Logbook

Chemical	Value
SURR SPK ID	30502-18-03
IS ID	30502-18-04
ICV STD ID	30502-20-02
LCS/MS ID	30502-20-01
CAL STD ID	30502-20-01
BFB ID	30603-12-05
pH Paper	634-37-03

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041101.D

Date : 11-APR-2018 12:19

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

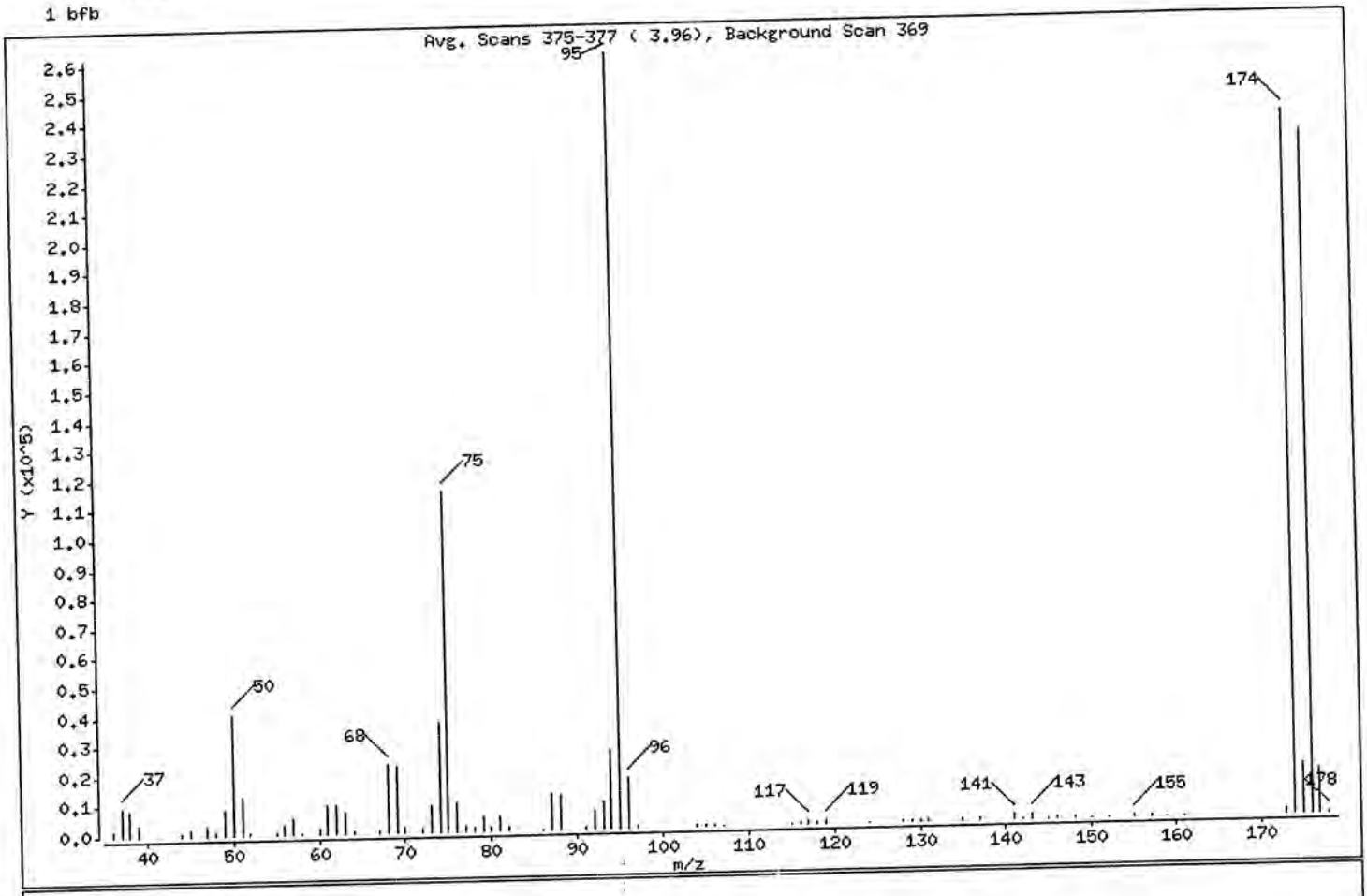
Operator: PC

Volume Injected (uL): 2.0

Column diameter: 0.25

Column phase: DB624

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	15.48
75	30.00 - 60.00% of mass 95	43.92
96	5.00 - 9.00% of mass 95	6.35
173	Less than 2.00% of mass 174	0.59 (0.65)
174	Greater than 50.00% of mass 95	90.91
175	5.00 - 9.00% of mass 174	6.44 (7.08)
176	95.00 - 101.00% of mass 174	88.17 (96.99)
177	5.00 - 9.00% of mass 176	5.78 (6.55)

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041101.D

Date : 11-APR-2018 12:19

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

Data File: X041101.D

Spectrum: Avg. Scans 375-377 (3.96), Background Scan 369

Location of Maximum: 95.00

Number of points: 80

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	1689	67.00	510	94.00	26536	142.00	294
37.00	9611	68.00	22696	95.00	261952	143.00	1982
38.00	8495	69.00	22544	96.00	16624	145.00	80
39.00	3413	70.00	1628	97.00	493	146.00	381
44.00	774	72.00	1130	104.00	851	148.00	559
45.00	1758	73.00	9256	105.00	319	150.00	181
47.00	3205	74.00	36600	106.00	882	152.00	68
48.00	1239	75.00	115056	107.00	167	155.00	698
49.00	8471	76.00	9672	115.00	93	157.00	477
50.00	40544	77.00	1543	116.00	716	159.00	176
51.00	12763	78.00	1113	117.00	1401	161.00	274
52.00	556	79.00	4866	118.00	717	173.00	1552
55.00	495	80.00	1393	119.00	970	174.00	238144
56.00	2973	81.00	4876	124.00	67	175.00	16864
57.00	5379	82.00	928	128.00	873	176.00	230976
58.00	82	86.00	223	129.00	357	177.00	15136
60.00	1847	87.00	12084	130.00	866	178.00	464
61.00	9626	88.00	11567	131.00	371		
62.00	9453	91.00	816	135.00	324		
63.00	6939	92.00	6012	137.00	374		
64.00	649	93.00	9124	141.00	1978		

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041101.D

Date : 11-APR-2018 12:19

Client ID: BFB

Instrument: voa6.i

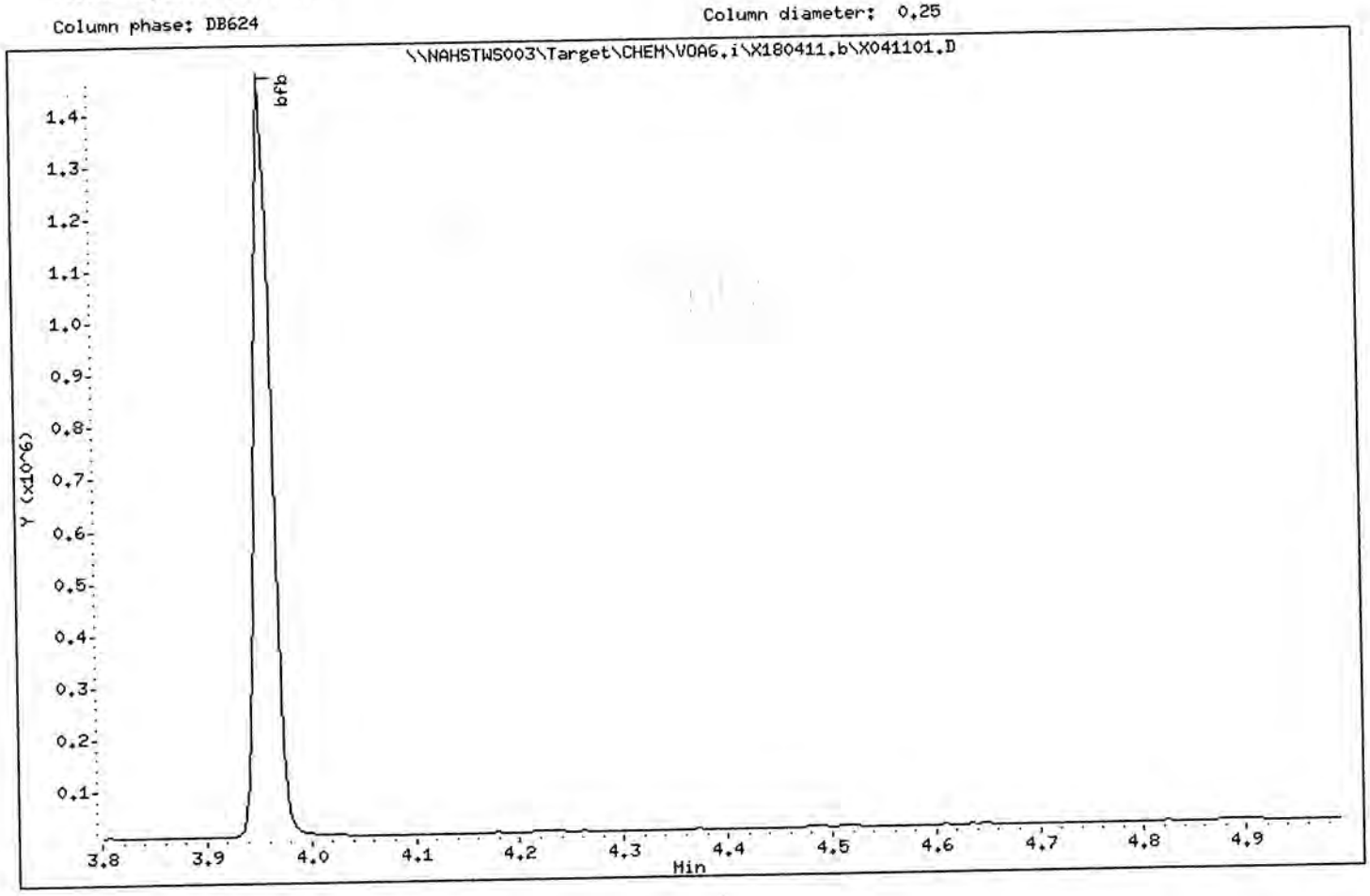
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041102.D
Report Date: 15-May-2018 15:39

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041102.D
Lab Smp Id: VSTD00.25 Client Smp ID: VSTD00.25
Inj Date : 11-APR-2018 12:34
Operator : PC Inst ID: voa6.i
Smp Info : VSTD00.25;VSTD00.25;1;1;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\8260W.m
Meth Date : 15-May-2018 15:39 voa6.i Quant Type: ISTD
Cal Date : 11-APR-2018 15:27 Cal File: X041108.D
Als bottle: 1 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 8260_GB++.sub
Target Version: 4.14
Processing Host: ALSHSW7085

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

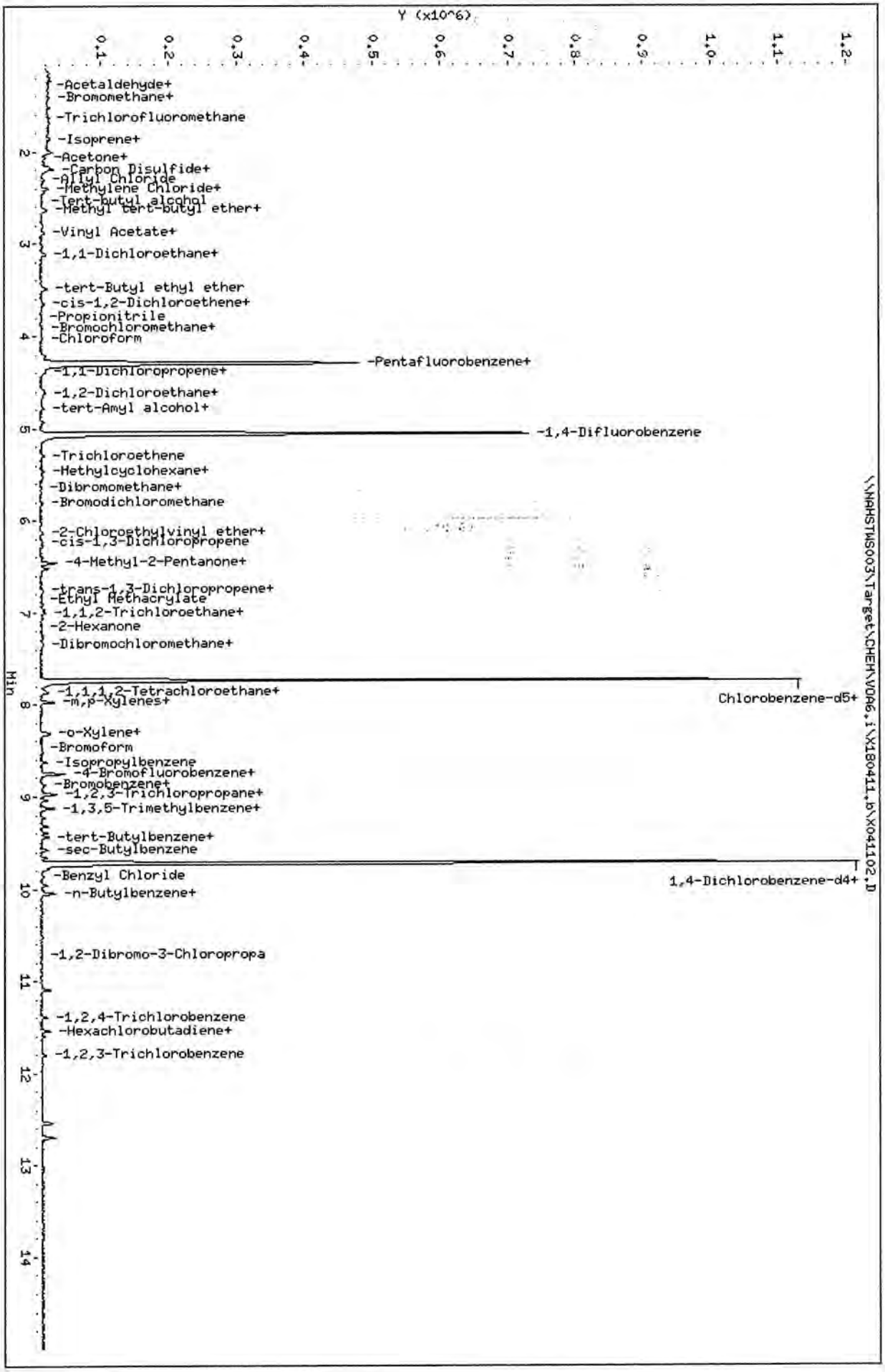
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
* 1	Pentafluorobenzene	168	4.297	4.297	(1.000)	380553	50.0000	
173	3,3-Dimethyl-1-butanol	57	7.348	7.348	(0.950)	1072	5.00000	18.32(M)
23	Chloroprene	53	1.854	1.854	(0.432)	827	0.25000	3.42(aM)
43	2-Nitropropane	43	6.037	6.037	(1.405)	609	0.25000	0.66(aM)
132	n-Butanol	56	5.386	5.386	(1.253)	569	5.00000	32.39(aM)
176	tert-Amyl alcohol	59	4.727	4.727	(1.100)	1133	5.00000	21.65(M)
172	tert-Butyl formate	59	4.727	4.727	(1.100)	1077	0.50000	2.26(aM)
72	trans-1,4-Dichloro-2-butene	53	8.946	8.946	(1.156)	513	0.25000	1.12(M)
86	Benzyl Chloride	91	9.863	9.863	(1.275)	2496	0.25000	1.80(aM)
185	Isoprene	39	1.861	1.861	(0.433)	566	0.25000	3.34(aM)
136	n-Hexane	57	2.871	2.871	(0.668)	2436	0.25000	3.51(aM)
194	Acetaldehyde	44	1.281	1.281	(0.298)	1895	1.00000	1.23(aM)
140	1,3-Butadiene	54	1.231	1.231	(0.287)	1405	0.25000	3.05(aM)
134	Cyclohexanone	55	8.709	8.709	(0.896)	560	5.00000	19.87(aM)
2	Dichlorodifluoromethane	85	1.031	1.031	(0.240)	1157	0.25000	4.05(aM)
3	Chloromethane	50	1.138	1.138	(0.265)	2689	0.25000	3.86(a)
5	Vinyl Chloride	62	1.210	1.210	(0.282)	2288	0.25000	3.72(a)
6	Bromomethane	94	1.410	1.410	(0.328)	1719	0.25000	2.39(a)
7	Chloroethane	64	1.475	1.475	(0.343)	974	0.25000	3.00(a)
8	Trichlorofluoromethane	101	1.639	1.639	(0.382)	1644	0.25000	3.68(a)
10	Acetone	43	2.062	2.062	(0.480)	3895	0.50000	2.96(a)
11	1,1-Dichloroethene	96	2.005	2.005	(0.467)	1375	0.25000	3.47(a)

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041102.D
Report Date: 15-May-2018 15:39

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
	15 Iodomethane	142	2.119	2.119	(0.493)	3976	0.50000	2.91(a)
	17 Methylene Chloride	84	2.406	2.406	(0.560)	2711	0.25000	1.63(a)
	19 Carbon Disulfide	76	2.162	2.162	(0.503)	12220	0.50000	6.59
	20 trans-1,2-Dichloroethene	96	2.635	2.635	(0.613)	1682	0.25000	2.43(a)
	21 Vinyl Acetate	43	2.871	2.871	(0.668)	1450	0.50000	6.15(M)
	22 1,1-Dichloroethane	63	3.029	3.029	(0.705)	2576	0.25000	0.43(Ta)
	26 2,2-Dichloropropane	77	3.624	3.624	(0.843)	2249	0.25000	2.42(aM)
$	30 Dibromofluoromethane	113	4.211	4.211	(0.980)	3648	0.25000	0.99(a)
	31 1,1,1-Trichloroethane	97	4.211	4.211	(0.980)	1884	0.25000	2.53(a)
	32 1,1-Dichloropropene	75	4.397	4.397	(0.868)	2399	0.25000	3.13(a)
	34 Carbon Tetrachloride	117	4.368	4.368	(0.863)	1878	0.25000	3.17(a)
$	35 1,2-Dichloroethane-d4	65	4.576	4.576	(1.065)	4984	0.25000	1.22(a)
*	36 1,4-Difluorobenzene	114	5.063	5.063	(1.000)	590583	50.0000	
	37 Benzene	78	4.619	4.619	(0.912)	6217	0.25000	2.60(a)
	38 Trichloroethene	130	5.300	5.300	(1.047)	1599	0.25000	3.13(a)
	45 4-Methyl-2-Pentanone	43	6.403	6.403	(0.828)	1796	0.50000	1.56(a)
*	47 Chlorobenzene-d5	117	7.735	7.735	(1.000)	559948	50.0000	
$	48 Toluene-d8	98	6.460	6.460	(0.835)	14048	0.25000	1.01(a)
	52 2-Hexanone	43	7.155	7.155	(0.925)	1702	0.50000	2.55(a)
	56 Tetrachloroethene	164	6.997	6.997	(0.905)	1368	0.25000	3.05(a)
	58 1-Chlorohexane	55	7.742	7.742	(1.529)	2756	0.25000	2.80(aM)
	59 Chlorobenzene	112	7.757	7.757	(1.003)	4072	0.25000	0.42(a)
	60 1,1,1,2-Tetrachloroethane	131	7.835	7.835	(1.013)	1222	0.25000	0.34(a)
	62 m,p-Xylenes	106	7.964	7.964	(1.030)	5260	0.50000	0.89(a)
	67 Isopropylbenzene	105	8.623	8.623	(1.115)	5689	0.25000	2.50(a)
	68 1,1,2,2-Tetrachloroethane	83	8.896	8.896	(0.915)	1312	0.25000	1.34(aM)
$	69 4-Bromofluorobenzene	95	8.752	8.752	(1.131)	10356	0.25000	2.02(a)
*	70 1,4-Dichlorobenzene-d4	152	9.719	9.719	(1.000)	276811	50.0000	
	71 1,2,3-Trichloropropane	75	8.924	8.924	(0.918)	1858	0.25000	1.75(a)
	73 n-Propylbenzene	91	8.974	8.974	(0.923)	7596	0.25000	2.82(a)
	78 tert-Butylbenzene	119	9.397	9.397	(0.967)	4265	0.25000	2.84(a)
	81 sec-Butylbenzene	105	9.576	9.576	(0.985)	6482	0.25000	3.16(a)
	82 p-Isopropyltoluene	119	9.397	9.397	(0.967)	4265	0.25000	2.84(a)
	87 n-Butylbenzene	91	10.049	10.049	(1.034)	5746	0.25000	3.02(a)
	88 1,2-Dichlorobenzene	146	10.049	10.049	(1.034)	3076	0.25000	2.07(a)
	89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	173	0.25000	2.41(aM)
	90 1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	2548	0.25000	0.69(a)
	92 Naphthalene	128	11.603	11.603	(1.194)	3984	0.25000	1.17(a)
	93 1,2,3-Trichlorobenzene	180	11.797	11.797	(1.214)	2553	0.25000	3.48(a)
M	94 1,2-Dichloroethylene (total)	96				3243	0.50000	(a)
	141 Cyclohexane	56	4.290	4.290	(0.998)	6023	0.25000	3.70(a)
	138 Freon TF	101	2.005	2.005	(0.467)	1100	0.25000	2.93(a)
	147 Methylcyclohexane	83	5.464	5.464	(1.079)	1649	0.25000	5.23
	148 Tert-Butyl alcohol	59	2.528	2.528	(0.588)	1771	5.00000	27.22(aM)
	149 Isopropyl Alcohol	45	2.191	2.191	(0.510)	21227	5.00000	90.42

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.


Y (x10^6)
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
Min
2
3
4
5
6
7
8
9
10
11
12
13
14
-Acetaldehyde+
-Bromomethane+
-Trichlorofluoromethane
-Isoprene+
-Acetone+
-Carbon Disulfide+
-Allyl Chloride
-Methylene Chloride+
-Tert-butyl alcohol
-Methyl tert-butyl ether+
-Vinyl Acetate+
-1,1-Dichloroethane+
-tert-Butyl ethyl ether
-cis-1,2-Dichloroethene+
-Propionitrile
-Bromochloromethane+
-Chloroform
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-tert-Amyl alcohol+
-1,4-Difluorobenzene
-Trichloroethene
-Methylcyclohexane+
-Dibromomethane+
-Bromodichloromethane
-2-Chloroethylvinyl ether+
-cis-1,3-Dichloropropene
-4-Methyl-2-Pentanone+
-trans-1,3-Dichloropropene+
-Ethyl Methacrylate
-1,1,2-Trichloroethane+
-2-Hexanone
-Dibromochloromethane+
Chlorobenzene-d5+
-1,1,1,2-Tetrachloroethane+
-m,p-Xylenes+
-o-Xylene+
-Bromoform
-Isopropylbenzene
-4-Bromofluorobenzene+
-Bromobenzene+
-1,2,3-Trichloropropane+
-1,3,5-Trimethylbenzene+
-tert-Butylbenzene+
-sec-Butylbenzene
1,4-Dichlorobenzene-d4+
-Benzyl Chloride
-n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Hexachlorobutadiene+
-1,2,3-Trichlorobenzene
\\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041102.D
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041102.D
Date : 11-APR-2018 12:34
Client ID: VSTD00.25
Sample Info: VSTD00.25;VSTD00.25;1;1;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041103.D
Report Date: 15-May-2018 15:39

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041103.D
Lab Smp Id: VSTD00.5 Client Smp ID: VSTD00.5
Inj Date : 11-APR-2018 13:23
Operator : PC Inst ID: voa6.i
Smp Info : VSTD00.5;VSTD00.5;1;2;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\8260W.m
Meth Date : 15-May-2018 15:39 voa6.i Quant Type: ISTD
Cal Date : 11-APR-2018 12:34 Cal File: X041102.D
Als bottle: 2 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 8260_GB++.sub
Target Version: 4.14
Processing Host: ALSHSW7085

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.297	4.297	(1.000)	367361	50.0000	
173 3,3-Dimethyl-1-butanol	57	7.355	7.355	(0.951)	3815	10.0000	27.70(M)
23 Chloroprene	53	1.854	1.854	(0.432)	1498	0.50000	3.70(aM)
43 2-Nitropropane	43	6.045	6.045	(1.407)	1149	0.50000	1.06(aM)
139 Diethyl ether	59	1.840	1.840	(0.428)	1707	0.50000	0.58(aM)
49 Ethyl Methacrylate	69	6.854	6.854	(1.354)	3372	0.50000	0.61(aM)
12 Isobutyl Alcohol	43	4.777	4.777	(1.112)	5854	10.0000	12.67(aM)
25 Methacrylonitrile	41	3.939	3.939	(0.917)	2177	0.50000	0.63(aM)
40 Methyl Methacrylate	41	5.694	5.694	(1.325)	2320	0.50000	0.82(aM)
4 Propionitrile	54	3.788	3.788	(0.882)	2627	5.00000	5.26(aM)
156 Diisopropyl ether	45	3.108	3.108	(0.723)	6857	0.50000	0.60(aM)
167 Ethanol	45	1.783	1.783	(0.415)	802	10.0000	33.63(M)
132 n-Butanol	56	5.357	5.357	(1.247)	1618	10.0000	44.56(aM)
176 tert-Amyl alcohol	59	4.719	4.719	(1.098)	5921	10.0000	42.09(M)
174 tert-Amyl methyl ether	73	4.770	4.770	(1.110)	6916	0.50000	0.63(aM)
175 tert-Butyl ethyl ether	59	3.495	3.495	(0.813)	6827	0.50000	0.62(aM)
172 tert-Butyl formate	59	4.719	4.719	(1.098)	5921	1.00000	4.32(aM)
72 trans-1,4-Dichloro-2-butene	53	8.946	8.946	(1.156)	1191	0.50000	1.69(M)
86 Benzyl Chloride	91	9.870	9.870	(1.276)	6292	0.50000	2.29(aM)
162 Butyl acrylate	55	8.315	8.315	(1.075)	4912	0.50000	0.59(aM)
185 Isoprene	39	1.854	1.854	(0.432)	988	0.50000	3.60(aM)
136 n-Hexane	57	2.886	2.886	(0.672)	2066	0.50000	3.45(aM)

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041103.D
Report Date: 15-May-2018 15:39

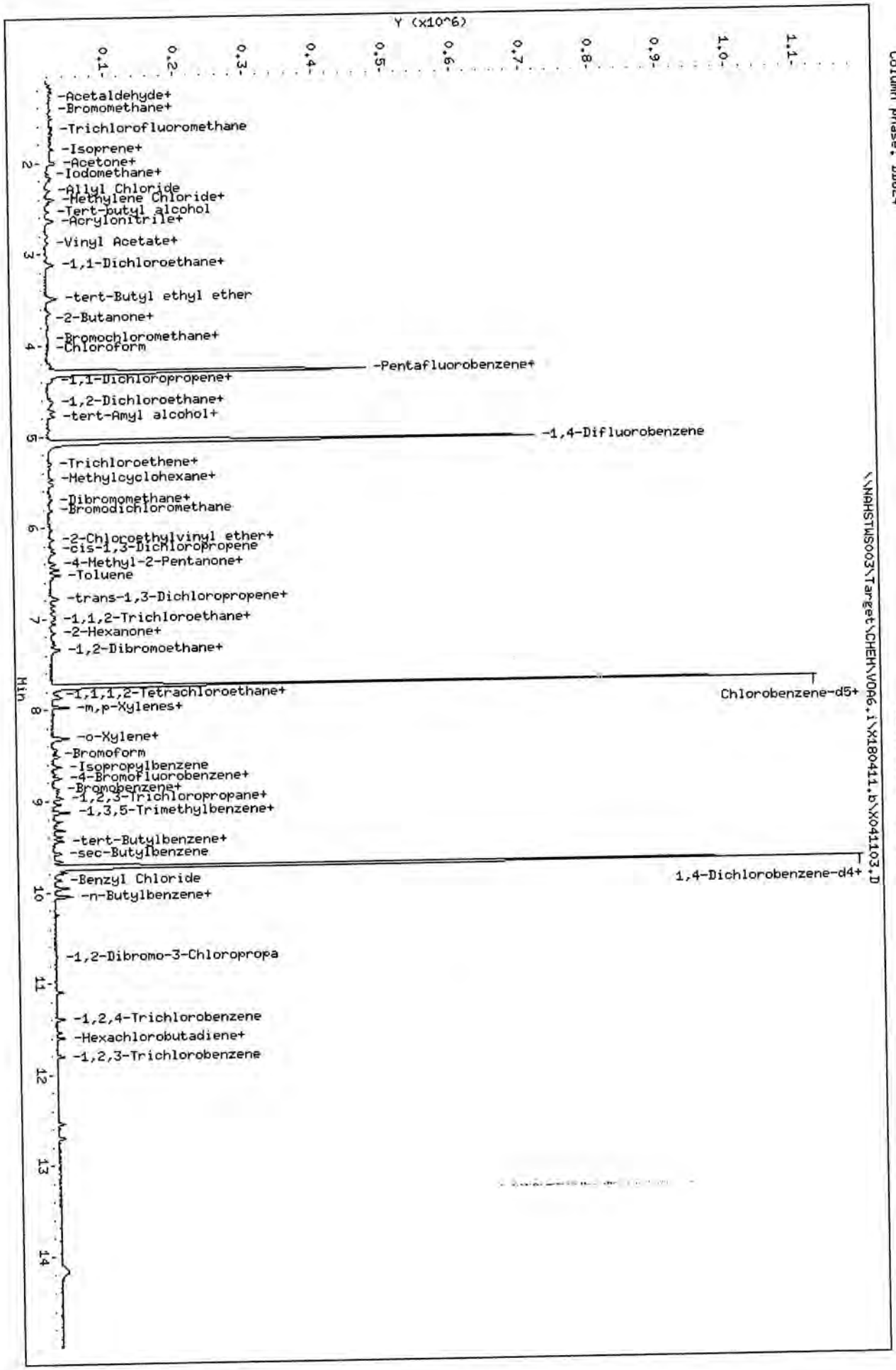
			QUANT SIG					AMOUNTS	
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/l)	ON-COL (ug/l)
	14	Allyl Chloride	41	2.298	2.298	(0.535)	5096	0.50000	0.54 (aM)
	194	Acetaldehyde	44	1.281	1.281	(0.298)	2075	2.00000	2.07 (aM)
	140	1,3-Butadiene	54	1.231	1.231	(0.287)	1703	0.50000	3.15 (aM)
	134	Cyclohexanone	55	8.709	8.709	(0.896)	1583	10.0000	29.27 (aM)
	2	Dichlorodifluoromethane	85	1.030	1.030	(0.240)	1429	0.50000	4.13 (aM)
	3	Chloromethane	50	1.138	1.138	(0.265)	2505	0.50000	3.84 (a)
	5	Vinyl Chloride	62	1.209	1.209	(0.282)	2151	0.50000	3.71 (a)
	6	Bromomethane	94	1.410	1.410	(0.328)	1358	0.50000	2.26 (a)
	7	Chloroethane	64	1.475	1.475	(0.343)	1510	0.50000	3.22 (a)
	8	Trichlorofluoromethane	101	1.639	1.639	(0.382)	2034	0.50000	3.77 (a)
	10	Acetone	43	2.069	2.069	(0.482)	2981	1.00000	2.20 (a)
	11	1,1-Dichloroethene	96	2.005	2.005	(0.467)	1573	0.50000	3.55 (a)
	15	Iodomethane	142	2.119	2.119	(0.493)	4203	1.00000	3.01 (a)
	17	Methylene Chloride	84	2.399	2.399	(0.558)	4113	0.50000	2.02 (a)
	19	Carbon Disulfide	76	2.162	2.162	(0.503)	10804	1.00000	6.50
	20	trans-1,2-Dichloroethene	96	2.635	2.635	(0.613)	1922	0.50000	2.51 (a)
	21	Vinyl Acetate	43	2.878	2.878	(0.670)	1234	1.00000	6.04 (M)
	22	1,1-Dichloroethane	63	3.036	3.036	(0.707)	3171	0.50000	0.55 (Ta)
	24	2-Butanone	43	3.702	3.702	(0.862)	1665	1.00000	1.42 (a)
	26	2,2-Dichloropropane	77	3.623	3.623	(0.843)	2899	0.50000	2.58 (aM)
	29	Bromochloromethane	128	3.924	3.924	(0.913)	1039	0.50000	0.58 (a)
$	30	Dibromofluoromethane	113	4.225	4.225	(0.983)	2134	0.50000	0.60 (a)
	31	1,1,1-Trichloroethane	97	4.204	4.204	(0.978)	2466	0.50000	2.66 (a)
	32	1,1-Dichloropropene	75	4.390	4.390	(0.867)	2751	0.50000	3.22 (a)
	33	1,2-Dichloroethane	62	4.662	4.662	(0.921)	2300	0.50000	0.55 (a)
	34	Carbon Tetrachloride	117	4.383	4.383	(0.866)	2913	0.50000	3.40 (a)
$	35	1,2-Dichloroethane-d4	65	4.583	4.583	(1.067)	2572	0.50000	0.65 (Ta)
*	36	1,4-Difluorobenzene	114	5.063	5.063	(1.000)	565040	50.0000	
	37	Benzene	78	4.619	4.619	(0.912)	7332	0.50000	2.69 (a)
	38	Trichloroethene	130	5.300	5.300	(1.047)	1793	0.50000	3.20 (a)
	45	4-Methyl-2-Pentanone	43	6.403	6.403	(0.828)	5542	1.00000	2.69 (a)
*	47	Chlorobenzene-d5	117	7.735	7.735	(1.000)	533980	50.0000	
$	48	Toluene-d8	98	6.460	6.460	(0.835)	8139	0.50000	0.61 (a)
	50	Toluene	91	6.524	6.524	(0.844)	8076	0.50000	0.59 (a)
	52	2-Hexanone	43	7.155	7.155	(0.925)	4301	1.00000	3.72 (a)
	53	1,1,2-Trichloroethane	83	6.911	6.911	(0.894)	1773	0.50000	0.63 (a)
	54	1,3-Dichloropropane	76	7.055	7.055	(0.912)	3417	0.50000	0.58 (a)
	55	Dibromochloromethane	129	7.241	7.241	(0.936)	2043	0.50000	0.53 (a)
	56	Tetrachloroethene	164	7.004	7.004	(0.906)	1453	0.50000	3.10 (a)
	57	1,2-Dibromoethane	107	7.334	7.334	(0.948)	1987	0.50000	0.58 (a)
	58	1-Chlorohexane	55	7.749	7.749	(1.530)	2162	0.50000	2.65 (aM)
	59	Chlorobenzene	112	7.764	7.764	(1.004)	5394	0.50000	0.59 (a)
	60	1,1,1,2-Tetrachloroethane	131	7.835	7.835	(1.013)	1908	0.50000	0.56 (a)
	61	Ethylbenzene	106	7.864	7.864	(1.017)	2581	0.50000	0.56 (a)
	62	m,p-Xylenes	106	7.971	7.971	(1.031)	6371	1.00000	1.13 (a)
	63	o-Xylene	106	8.301	8.301	(1.073)	3341	0.50000	0.59 (a)
	64	Styrene	104	8.322	8.322	(1.076)	5730	0.50000	0.58 (a)
	66	Bromoform	173	8.480	8.480	(1.096)	1791	0.50000	0.62 (Ta)
	67	Isopropylbenzene	105	8.623	8.623	(1.115)	7133	0.50000	2.61 (a)
	68	1,1,2,2-Tetrachloroethane	83	8.903	8.903	(0.916)	3807	0.50000	1.92 (aM)
$	69	4-Bromofluorobenzene	95	8.752	8.752	(1.131)	3916	0.50000	0.80 (a)
*	70	1,4-Dichlorobenzene-d4	152	9.719	9.719	(1.000)	270395	50.0000	
	71	1,2,3-Trichloropropane	75	8.924	8.924	(0.918)	4107	0.50000	2.17 (a)
	73	n-Propylbenzene	91	8.967	8.967	(0.923)	9146	0.50000	2.91 (a)

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041103.D
Report Date: 15-May-2018 15:39

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
74	Bromobenzene	156	8.867	8.867	(0.912)	2622	0.50000	0.63(a)
75	1,3,5-Trimethylbenzene	105	9.125	9.125	(0.939)	6729	0.50000	0.60(a)
76	2-Chlorotoluene	91	9.032	9.032	(0.929)	5970	0.50000	0.61(a)
77	4-Chlorotoluene	91	9.132	9.132	(0.940)	6878	0.50000	0.61(a)
78	tert-Butylbenzene	119	9.390	9.390	(0.966)	5231	0.50000	2.94(a)
79	1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	7327	0.50000	0.61(a)
81	sec-Butylbenzene	105	9.576	9.576	(0.985)	7379	0.50000	3.23(a)
82	p-Isopropyltoluene	119	9.390	9.390	(0.966)	5231	0.50000	2.94(a)
83	1,3-Dichlorobenzene	146	9.669	9.669	(0.995)	4467	0.50000	0.62(a)
84	1,4-Dichlorobenzene	146	9.741	9.741	(1.002)	4721	0.50000	0.64(a)
87	n-Butylbenzene	91	10.049	10.049	(1.034)	5831	0.50000	3.04(a)
88	1,2-Dichlorobenzene	146	10.056	10.056	(1.035)	4928	0.50000	2.33(a)
89	1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	669	0.50000	3.14(a)
90	1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	3502	0.50000	0.96(a)
92	Naphthalene	128	11.603	11.603	(1.194)	9003	0.50000	1.80(a)
93	1,2,3-Trichlorobenzene	180	11.804	11.804	(1.214)	3518	0.50000	3.73(a)
M 94	1,2-Dichloroethylene (total)	96				3991	1.00000	(a)
141	Cyclohexane	56	4.297	4.297	(1.000)	5920	0.50000	3.72(a)
138	Freon TF	101	2.005	2.005	(0.467)	1209	0.50000	2.98(a)
147	Methylcyclohexane	83	5.464	5.464	(1.079)	1988	0.50000	5.30
148	Tert-Butyl alcohol	59	2.535	2.535	(0.590)	6836	10.0000	44.32(a)
149	Isopropyl Alcohol	45	2.191	2.191	(0.510)	9225	10.0000	32.85(T)

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.


Y (x10^6)
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0.3
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1.1
Min
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14
-Acetaldehyde+
-Bromomethane+
-Trichlorofluoromethane
-Isoprene+
-Acetone+
-Iodomethane+
-Allyl Chloride
-Methylene Chloride+
-Tert-butyl alcohol
-Acrylonitrile+
-Vinyl Acetate+
-1,1-Dichloroethane+
-tert-Butyl ethyl ether
-2-Butanone+
-Bromochloromethane+
-Chloroform
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-tert-Amyl alcohol+
-1,4-Difluorobenzene
-Trichloroethene+
-Methylcyclohexane+
-Dibromomethane+
-Bromodichloromethane
-2-Chloroethylvinyl ether+
-cis-1,3-Dichloropropene
-4-Methyl-2-Pentanone+
-Toluene
-trans-1,3-Dichloropropene+
-1,1,2-Trichloroethane+
-2-Hexanone+
-1,2-Dibromoethane+
Chlorobenzene-d5+
-1,1,1,2-Tetrachloroethane+
-m,p-Xylenes+
-o-Xylene+
-Bromoform
-Isopropylbenzene
-4-Bromofluorobenzene+
-Bromobenzene+
-1,2,3-Trichloropropane+
-1,3,5-Trimethylbenzene+
-tert-Butylbenzene+
-sec-Butylbenzene
1,4-Dichlorobenzene-d4+
-Benzyl Chloride
-n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Hexachlorobutadiene+
-1,2,3-Trichlorobenzene
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041103.D
Date : 11-APR-2018 13:23
Client ID: VSTD00.5
Sample Info: VSTD00.5;VSTD00.5;1;2;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
\\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041103.D

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041104.D
Report Date: 15-May-2018 15:39

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041104.D
Lab Smp Id: VSTD001 Client Smp ID: VSTD001
Inj Date : 11-APR-2018 13:48
Operator : PC Inst ID: voa6.i
Smp Info : VSTD001;VSTD001;1;3;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\8260W.m
Meth Date : 15-May-2018 15:39 voa6.i Quant Type: ISTD
Cal Date : 11-APR-2018 13:23 Cal File: X041103.D
Als bottle: 3 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 8260_GB++.sub
Target Version: 4.14
Processing Host: ALSHSW7085

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.297	4.297	(1.000)	367135	50.0000	
181 2-Furfural	96	8.043	8.043	(1.040)	3809	40.0000	37.63 (M)
173 3,3-Dimethyl-1-butanol	57	7.355	7.355	(0.951)	5456	20.0000	33.27 (M)
23 Chloroprene	53	1.854	1.854	(0.432)	1857	1.00000	3.84 (aM)
43 2-Nitropropane	43	6.044	6.044	(1.407)	1885	1.00000	1.58 (aM)
139 Diethyl ether	59	1.840	1.840	(0.428)	2925	1.00000	1.00 (aM)
49 Ethyl Methacrylate	69	6.861	6.861	(1.355)	5601	1.00000	1.01 (aM)
12 Isobutyl Alcohol	43	4.777	4.777	(1.112)	9686	20.0000	20.98 (M)
25 Methacrylonitrile	41	3.946	3.946	(0.918)	3717	1.00000	1.08 (aM)
40 Methyl Methacrylate	41	5.693	5.693	(1.325)	3425	1.00000	1.16 (M)
4 Propionitrile	54	3.781	3.781	(0.880)	4915	10.0000	9.85 (aM)
156 Diisopropyl ether	45	3.108	3.108	(0.723)	9728	1.00000	0.85 (aM)
167 Ethanol	45	1.790	1.790	(0.417)	1112	20.0000	43.30 (M)
132 n-Butanol	56	5.350	5.350	(1.245)	1861	20.0000	47.34 (aM)
176 tert-Amyl alcohol	59	4.719	4.719	(1.098)	6437	20.0000	44.29 (M)
174 tert-Amyl methyl ether	73	4.769	4.769	(1.110)	10841	1.00000	0.99 (aM)
175 tert-Butyl ethyl ether	59	3.487	3.487	(0.812)	10374	1.00000	0.95 (aM)
172 tert-Butyl formate	59	4.719	4.719	(1.098)	6437	2.00000	4.54 (aM)
72 trans-1,4-Dichloro-2-butene	53	8.945	8.945	(1.156)	1386	1.00000	1.85 (M)
86 Benzyl Chloride	91	9.870	9.870	(1.276)	8188	1.00000	2.53 (aM)
162 Butyl acrylate	55	8.308	8.308	(1.074)	7849	1.00000	0.94 (aM)
185 Isoprene	39	1.854	1.854	(0.432)	1419	1.00000	3.86 (aM)

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041104.D
Report Date: 15-May-2018 15:39

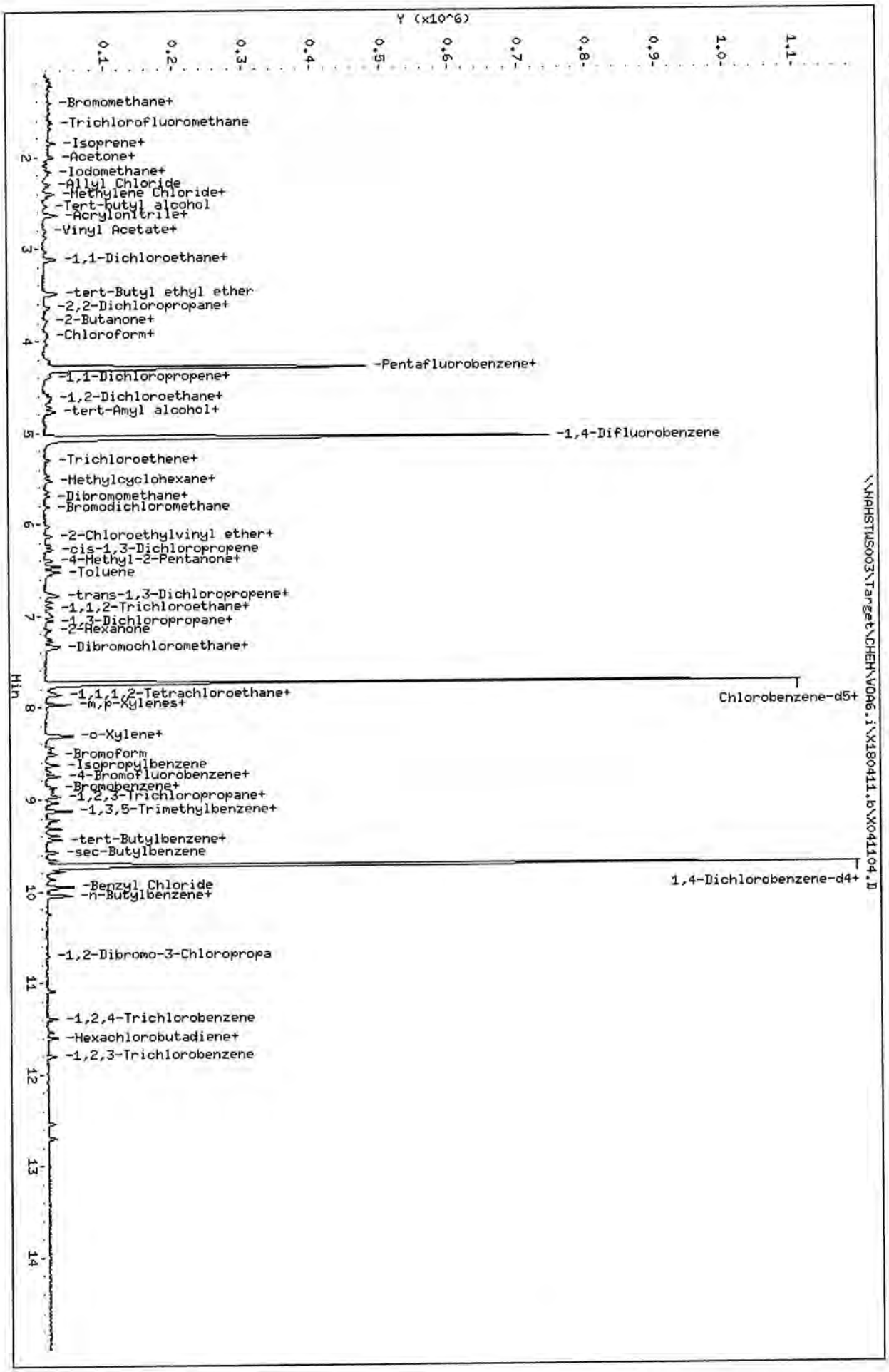
			QUANT SIG					AMOUNTS	
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/l)	ON-COL (ug/l)
	136	n-Hexane	57	2.878	2.878	(0.670)	2433	1.00000	3.53 (aM)
	14	Allyl Chloride	41	2.298	2.298	(0.535)	8323	1.00000	0.89 (aM)
	194	Acetaldehyde	44	1.274	1.274	(0.297)	3102	4.00000	5.58 (M)
	140	1,3-Butadiene	54	1.231	1.231	(0.287)	1679	1.00000	3.14 (aM)
	134	Cyclohexanone	55	8.709	8.709	(0.896)	2508	20.0000	37.59 (aM)
	2	Dichlorodifluoromethane	85	1.030	1.030	(0.240)	1627	1.00000	4.18 (aM)
	3	Chloromethane	50	1.145	1.145	(0.267)	3028	1.00000	3.96 (a)
	5	Vinyl Chloride	62	1.209	1.209	(0.282)	2928	1.00000	3.88 (a)
	6	Bromomethane	94	1.410	1.410	(0.328)	2222	1.00000	2.63 (a)
	7	Chloroethane	64	1.474	1.474	(0.343)	1878	1.00000	3.36 (aM)
	8	Trichlorofluoromethane	101	1.639	1.639	(0.382)	2458	1.00000	3.85 (a)
	10	Acetone	43	2.069	2.069	(0.482)	3613	2.00000	2.82 (a)
	11	1,1-Dichloroethene	96	2.004	2.004	(0.467)	2019	1.00000	3.68 (a)
	15	Iodomethane	142	2.119	2.119	(0.493)	6024	2.00000	3.51 (a)
	17	Methylene Chloride	84	2.406	2.406	(0.560)	5665	1.00000	2.42 (a)
	18	Methyl tert-butyl ether	73	2.635	2.635	(0.613)	9214	1.00000	0.92 (a)
	19	Carbon Disulfide	76	2.162	2.162	(0.503)	14228	2.00000	6.80
	20	trans-1,2-Dichloroethene	96	2.635	2.635	(0.613)	2716	1.00000	2.72 (a)
	21	Vinyl Acetate	43	2.878	2.878	(0.670)	1772	2.00000	6.41
	22	1,1-Dichloroethane	63	3.036	3.036	(0.707)	4887	1.00000	0.85 (a)
	24	2-Butanone	43	3.702	3.702	(0.862)	2997	2.00000	2.38 (a)
	26	2,2-Dichloropropane	77	3.630	3.630	(0.845)	3431	1.00000	2.69 (a)
	27	cis-1,2-Dichloroethene	96	3.652	3.652	(0.850)	3287	1.00000	0.90 (a)
	28	Chloroform	83	4.024	4.024	(0.937)	5095	1.00000	0.91 (a)
	29	Bromochloromethane	128	3.917	3.917	(0.912)	1739	1.00000	0.98 (a)
$	30	Dibromofluoromethane	113	4.218	4.218	(0.982)	3644	1.00000	1.03 (a)
	31	1,1,1-Trichloroethane	97	4.204	4.204	(0.978)	3241	1.00000	2.81 (a)
	32	1,1-Dichloropropene	75	4.397	4.397	(0.868)	3548	1.00000	3.37 (a)
	33	1,2-Dichloroethane	62	4.662	4.662	(0.921)	4311	1.00000	1.03 (a)
	34	Carbon Tetrachloride	117	4.383	4.383	(0.866)	3627	1.00000	3.55 (a)
$	35	1,2-Dichloroethane-d4	65	4.583	4.583	(1.067)	4602	1.00000	1.17 (a)
*	36	1,4-Difluorobenzene	114	5.063	5.063	(1.000)	567058	50.0000	
	37	Benzene	78	4.619	4.619	(0.912)	11613	1.00000	2.97 (a)
	38	Trichloroethene	130	5.299	5.299	(1.047)	2794	1.00000	3.44 (a)
	39	Bromodichloromethane	83	5.815	5.815	(1.149)	4352	1.00000	0.95 (aM)
	42	1,2-Dichloropropane	63	5.522	5.522	(1.091)	3129	1.00000	0.86 (aM)
	44	Dibromomethane	93	5.643	5.643	(1.115)	2253	1.00000	0.99 (a)
	45	4-Methyl-2-Pentanone	43	6.403	6.403	(0.828)	8161	2.00000	3.48 (a)
	46	cis-1,3-Dichloropropene	75	6.238	6.238	(1.232)	5711	1.00000	0.93 (a)
*	47	Chlorobenzene-d5	117	7.735	7.735	(1.000)	532098	50.0000	
$	48	Toluene-d8	98	6.460	6.460	(0.835)	14209	1.00000	1.08 (a)
	50	Toluene	91	6.524	6.524	(0.844)	12057	1.00000	0.89 (a)
	51	trans-1,3-Dichloropropene	75	6.754	6.754	(1.334)	5005	1.00000	0.97 (a)
	52	2-Hexanone	43	7.155	7.155	(0.925)	5338	2.00000	4.19 (a)
	53	1,1,2-Trichloroethane	83	6.911	6.911	(0.894)	2613	1.00000	0.93 (a)
	54	1,3-Dichloropropane	76	7.054	7.054	(0.912)	5932	1.00000	1.02 (a)
	55	Dibromochloromethane	129	7.248	7.248	(0.937)	4124	1.00000	1.07 (a)
	56	Tetrachloroethene	164	7.004	7.004	(0.906)	2054	1.00000	3.29 (a)
	57	1,2-Dibromoethane	107	7.334	7.334	(0.948)	3580	1.00000	1.05 (a)
	58	1-Chlorohexane	55	7.764	7.764	(1.533)	2978	1.00000	2.90 (aM)
	59	Chlorobenzene	112	7.764	7.764	(1.004)	8560	1.00000	0.94 (a)
	60	1,1,1,2-Tetrachloroethane	131	7.842	7.842	(1.014)	3284	1.00000	0.98 (a)
	61	Ethylbenzene	106	7.864	7.864	(1.017)	4064	1.00000	0.89 (a)
	62	m,p-Xylenes	106	7.971	7.971	(1.031)	10116	2.00000	1.81 (a)

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041104.D
Report Date: 15-May-2018 15:39

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
	63 o-Xylene	106	8.301	8.301	(1.073)	4983	1.00000	0.88 (a)
	64 Styrene	104	8.322	8.322	(1.076)	9635	1.00000	0.97 (a)
	66 Bromoform	173	8.473	8.473	(1.095)	3032	1.00000	1.05 (Ta)
	67 Isopropylbenzene	105	8.623	8.623	(1.115)	11155	1.00000	2.88 (a)
	68 1,1,2,2-Tetrachloroethane	83	8.895	8.895	(0.915)	4863	1.00000	2.16 (aM)
$	69 4-Bromofluorobenzene	95	8.752	8.752	(1.131)	6028	1.00000	1.24 (a)
*	70 1,4-Dichlorobenzene-d4	152	9.719	9.719	(1.000)	271213	50.0000	
	71 1,2,3-Trichloropropane	75	8.924	8.924	(0.918)	5912	1.00000	2.50 (a)
	73 n-Propylbenzene	91	8.974	8.974	(0.923)	13098	1.00000	3.12 (a)
	74 Bromobenzene	156	8.867	8.867	(0.912)	3751	1.00000	0.90 (a)
	75 1,3,5-Trimethylbenzene	105	9.125	9.125	(0.939)	10273	1.00000	0.91 (a)
	76 2-Chlorotoluene	91	9.031	9.031	(0.929)	8868	1.00000	0.91 (a)
	77 4-Chlorotoluene	91	9.132	9.132	(0.940)	10246	1.00000	0.91 (a)
	78 tert-Butylbenzene	119	9.397	9.397	(0.967)	7765	1.00000	3.17 (a)
	79 1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	11314	1.00000	0.95 (a)
	81 sec-Butylbenzene	105	9.583	9.583	(0.986)	10557	1.00000	3.44 (a)
	82 p-Isopropyltoluene	119	9.397	9.397	(0.967)	7765	1.00000	3.17 (a)
	83 1,3-Dichlorobenzene	146	9.662	9.662	(0.994)	6851	1.00000	0.96 (a)
	84 1,4-Dichlorobenzene	146	9.741	9.741	(1.002)	7252	1.00000	0.98 (a)
	87 n-Butylbenzene	91	10.049	10.049	(1.034)	8194	1.00000	3.25 (a)
	88 1,2-Dichlorobenzene	146	10.049	10.049	(1.034)	7035	1.00000	2.61 (a)
	89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	749	1.00000	3.25 (a)
	90 1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	4257	1.00000	1.16 (a)
	92 Naphthalene	128	11.603	11.603	(1.194)	10468	1.00000	1.98 (a)
	93 1,2,3-Trichlorobenzene	180	11.796	11.796	(1.214)	4094	1.00000	3.87 (a)
M	94 1,2-Dichloroethylene (total)	96				6003	2.00000	(a)
	141 Cyclohexane	56	4.297	4.297	(1.000)	5782	1.00000	3.70 (a)
	138 Freon TF	101	1.997	1.997	(0.465)	1410	1.00000	3.05 (a)
	147 Methylcyclohexane	83	5.464	5.464	(1.079)	1913	1.00000	5.29
	146 Methyl Acetate	43	2.327	2.327	(0.542)	4891	1.00000	1.15 (a)
	148 Tert-Butyl alcohol	59	2.527	2.527	(0.588)	7906	20.0000	47.90 (a)
	149 Isopropyl Alcohol	45	2.191	2.191	(0.510)	9578	20.0000	34.68

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.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Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041104.D
Date : 11-APR-2018 13:48
Client ID: VSTD001
Sample Info: VSTD001;VSTD001;1;3;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
\\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041104.D
-Bromomethane+
-Trichlorofluoromethane
-Isoprene+
-Acetone+
-Iodomethane+
-Allyl Chloride
-Methylene Chloride+
-Tert-butyl alcohol
-Acrylonitrile+
-Vinyl Acetate+
-1,1-Dichloroethane+
-tert-Butyl ethyl ether
-2,2-Dichloropropane+
-2-Butanone+
-Chloroform+
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-tert-Amyl alcohol+
-1,4-Difluorobenzene
-Trichloroethene+
-Methylcyclohexane+
-Dibromomethane+
-Bromodichloromethane
-2-Chloroethylvinyl ether+
-cis-1,3-Dichloropropene
-4-Methyl-2-Pentanone+
-Toluene
-trans-1,3-Dichloropropene+
-1,1,2-Trichloroethane+
-1,3-Dichloropropane+
-2-Hexanone
-Dibromochloromethane+
Chlorobenzene-d5+
-1,1,1,2-Tetrachloroethane+
-m,p-Xylenes+
-o-Xylene+
-Bromoform
-Isopropylbenzene
-4-Bromofluorobenzene+
-Bromobenzene+
-1,2,3-Trichloropropane+
-1,3,5-Trimethylbenzene+
-tert-Butylbenzene+
-sec-Butylbenzene
1,4-Dichlorobenzene-d4+
-Benzyl Chloride
-n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Hexachlorobutadiene+
-1,2,3-Trichlorobenzene
Min
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Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041105.D
Report Date: 15-May-2018 15:39

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041105.D
Lab Smp Id: VSTD002 Client Smp ID: VSTD002
Inj Date : 11-APR-2018 14:13
Operator : PC Inst ID: voa6.i
Smp Info : VSTD002;VSTD002;1;4;
Misc Info : HS16030331;WATER;0;1;
Comment :
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Meth Date : 15-May-2018 15:39 voa6.i Quant Type: ISTD
Cal Date : 11-APR-2018 13:48 Cal File: X041104.D
Als bottle: 4 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 8260_GB++.sub
Target Version: 4.14
Processing Host: ALSHSW7085

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.297	4.297	(1.000)	369695	50.0000	
181 2-Furfural	96	8.043	8.043	(1.040)	6896	80.0000	68.09(M)
173 3,3-Dimethyl-1-butanol	57	7.355	7.355	(0.951)	11429	40.0000	53.37(M)
23 Chloroprene	53	1.854	1.854	(0.432)	3442	2.00000	4.46(aM)
43 2-Nitropropane	43	6.052	6.052	(1.408)	2486	2.00000	2.00(aM)
139 Diethyl ether	59	1.840	1.840	(0.428)	5163	2.00000	1.76(aM)
49 Ethyl Methacrylate	69	6.854	6.854	(1.354)	9651	2.00000	1.73(aM)
12 Isobutyl Alcohol	43	4.777	4.777	(1.112)	17007	40.0000	36.58(M)
25 Methacrylonitrile	41	3.953	3.953	(0.920)	6443	2.00000	1.86(aM)
40 Methyl Methacrylate	41	5.694	5.694	(1.325)	5425	2.00000	1.77(M)
4 Propionitrile	54	3.781	3.781	(0.880)	10030	20.0000	19.97(aM)
156 Diisopropyl ether	45	3.108	3.108	(0.723)	19891	2.00000	1.73(aM)
167 Ethanol	45	1.790	1.790	(0.417)	1529	40.0000	55.96(M)
132 n-Butanol	56	5.350	5.350	(1.245)	3328	40.0000	63.78(aM)
176 tert-Amyl alcohol	59	4.719	4.719	(1.098)	10367	40.0000	60.63(M)
174 tert-Amyl methyl ether	73	4.770	4.770	(1.110)	20475	2.00000	1.85(aM)
175 tert-Butyl ethyl ether	59	3.487	3.487	(0.812)	18989	2.00000	1.73(aM)
172 tert-Butyl formate	59	4.719	4.719	(1.098)	10331	4.00000	6.15(M)
72 trans-1,4-Dichloro-2-butene	53	8.953	8.953	(1.157)	2491	2.00000	2.73(M)
86 Benzyl Chloride	91	9.870	9.870	(1.276)	14289	2.00000	3.29(aM)
162 Butyl acrylate	55	8.308	8.308	(1.074)	14260	2.00000	1.72(aM)
185 Isoprene	39	1.854	1.854	(0.432)	2785	2.00000	4.66(aM)

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041105.D
Report Date: 15-May-2018 15:39

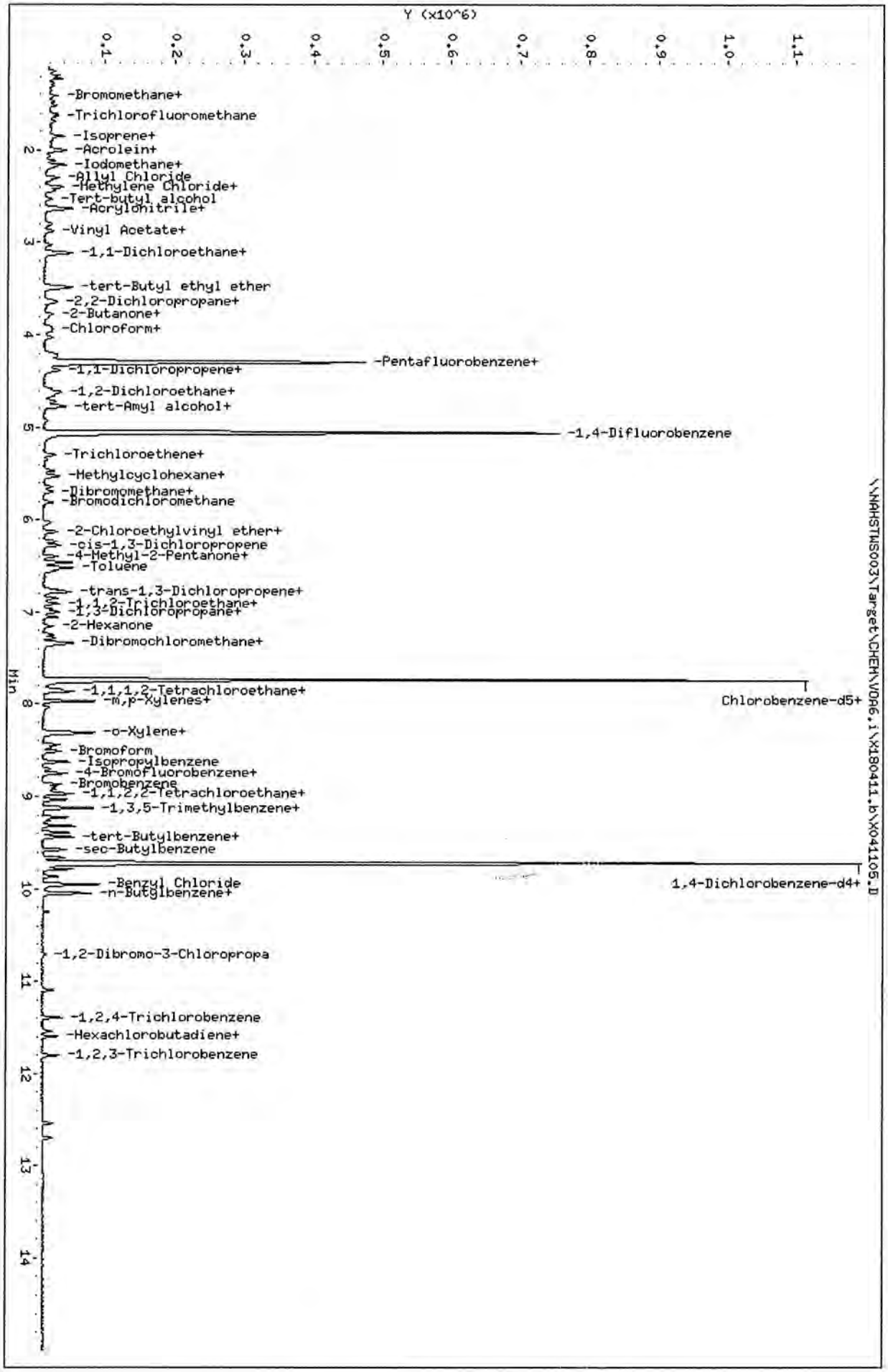
		Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
	136	n-Hexane	57	2.879	2.879	(0.670)	5746	2.00000	4.26 (aM)
	14	Allyl Chloride	41	2.298	2.298	(0.535)	15652	2.00000	1.66 (M)
	194	Acetaldehyde	44	1.274	1.274	(0.297)	4597	8.00000	10.58 (M)
	140	1,3-Butadiene	54	1.231	1.231	(0.287)	4187	2.00000	3.87 (aM)
	134	Cyclohexanone	55	8.709	8.709	(0.896)	4503	40.0000	56.22 (aM)
	2	Dichlorodifluoromethane	85	1.030	1.030	(0.240)	4688	2.00000	4.96 (a)
	3	Chloromethane	50	1.138	1.138	(0.265)	7228	2.00000	4.91 (a)
	5	Vinyl Chloride	62	1.210	1.210	(0.282)	6345	2.00000	4.59 (a)
	6	Bromomethane	94	1.410	1.410	(0.328)	4403	2.00000	3.55 (a)
	7	Chloroethane	64	1.475	1.475	(0.343)	3996	2.00000	4.19 (a)
	8	Trichlorofluoromethane	101	1.639	1.639	(0.382)	6157	2.00000	4.58 (a)
	10	Acetone	43	2.062	2.062	(0.480)	5356	4.00000	4.50 (a)
	11	1,1-Dichloroethene	96	2.005	2.005	(0.467)	4548	2.00000	4.44 (a)
	15	Iodomethane	142	2.119	2.119	(0.493)	12143	4.00000	5.18
	17	Methylene Chloride	84	2.406	2.406	(0.560)	8337	2.00000	3.10 (a)
	18	Methyl tert-butyl ether	73	2.635	2.635	(0.613)	18365	2.00000	1.83 (a)
	19	Carbon Disulfide	76	2.162	2.162	(0.503)	32565	4.00000	8.38
	20	trans-1,2-Dichloroethene	96	2.635	2.635	(0.613)	5973	2.00000	3.59 (a)
	21	Vinyl Acetate	43	2.879	2.879	(0.670)	4287	4.00000	8.15
	22	1,1-Dichloroethane	63	3.029	3.029	(0.705)	10450	2.00000	1.82 (a)
	24	2-Butanone	43	3.709	3.709	(0.863)	4565	4.00000	3.49 (a)
	26	2,2-Dichloropropane	77	3.623	3.623	(0.843)	7692	2.00000	3.59 (a)
	27	cis-1,2-Dichloroethene	96	3.645	3.645	(0.848)	6871	2.00000	1.87 (a)
	28	Chloroform	83	4.032	4.032	(0.938)	10467	2.00000	1.87 (a)
	29	Bromochloromethane	128	3.917	3.917	(0.912)	3344	2.00000	1.88 (a)
$	30	Dibromofluoromethane	113	4.218	4.218	(0.982)	7124	2.00000	2.00 (a)
	31	1,1,1-Trichloroethane	97	4.204	4.204	(0.978)	7465	2.00000	3.63 (a)
	32	1,1-Dichloropropene	75	4.390	4.390	(0.867)	7762	2.00000	4.18 (a)
	33	1,2-Dichloroethane	62	4.662	4.662	(0.921)	7423	2.00000	1.76 (a)
	34	Carbon Tetrachloride	117	4.376	4.376	(0.864)	7509	2.00000	4.35 (a)
$	35	1,2-Dichloroethane-d4	65	4.583	4.583	(1.067)	7897	2.00000	2.00 (a)
*	36	1,4-Difluorobenzene	114	5.063	5.063	(1.000)	572275	50.0000	
	37	Benzene	78	4.619	4.619	(0.912)	22918	2.00000	3.70 (a)
	38	Trichloroethene	130	5.300	5.300	(1.047)	5845	2.00000	4.17 (a)
	39	Bromodichloromethane	83	5.808	5.808	(1.147)	8464	2.00000	1.84 (a)
	42	1,2-Dichloropropane	63	5.522	5.522	(1.091)	6720	2.00000	1.84 (aM)
	44	Dibromomethane	93	5.643	5.643	(1.115)	4358	2.00000	1.90 (a)
	45	4-Methyl-2-Pentanone	43	6.403	6.403	(0.828)	12596	4.00000	4.79 (a)
	46	cis-1,3-Dichloropropene	75	6.238	6.238	(1.232)	11255	2.00000	1.83 (a)
*	47	Chlorobenzene-d5	117	7.735	7.735	(1.000)	532444	50.0000	
$	48	Toluene-d8	98	6.460	6.460	(0.835)	26031	2.00000	1.97 (a)
	50	Toluene	91	6.525	6.525	(0.844)	24324	2.00000	1.80 (a)
	51	trans-1,3-Dichloropropene	75	6.754	6.754	(1.334)	9431	2.00000	1.82 (a)
	52	2-Hexanone	43	7.155	7.155	(0.925)	8557	4.00000	5.61
	53	1,1,2-Trichloroethane	83	6.911	6.911	(0.894)	5533	2.00000	1.98 (a)
	54	1,3-Dichloropropane	76	7.055	7.055	(0.912)	10931	2.00000	1.88 (a)
	55	Dibromochloromethane	129	7.248	7.248	(0.937)	7075	2.00000	1.84 (a)
	56	Tetrachloroethene	164	7.004	7.004	(0.906)	4357	2.00000	4.04 (a)
	57	1,2-Dibromoethane	107	7.334	7.334	(0.948)	6201	2.00000	1.82 (a)
	58	1-Chlorohexane	55	7.757	7.757	(1.532)	5152	2.00000	3.55 (aM)
	59	Chlorobenzene	112	7.764	7.764	(1.004)	16486	2.00000	1.81 (a)
	60	1,1,1,2-Tetrachloroethane	131	7.843	7.843	(1.014)	6162	2.00000	1.83 (a)
	61	Ethylbenzene	106	7.864	7.864	(1.017)	8049	2.00000	1.77 (a)
	62	m,p-Xylenes	106	7.971	7.971	(1.031)	20096	4.00000	3.60 (a)

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041105.D
Report Date: 15-May-2018 15:39

			QUANT SIG					AMOUNTS	
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/l)	ON-COL (ug/l)
	63	o-Xylene	106	8.301	8.301	(1.073)	10181	2.00000	1.81(a)
	64	Styrene	104	8.322	8.322	(1.076)	17046	2.00000	1.73(a)
	66	Bromoform	173	8.473	8.473	(1.095)	5319	2.00000	1.85(Ta)
	67	Isopropylbenzene	105	8.623	8.623	(1.115)	22013	2.00000	3.60(a)
	68	1,1,2,2-Tetrachloroethane	83	8.895	8.895	(0.915)	8254	2.00000	2.96(a)
$	69	4-Bromofluorobenzene	95	8.752	8.752	(1.131)	10804	2.00000	2.22(a)
*	70	1,4-Dichlorobenzene-d4	152	9.719	9.719	(1.000)	267428	50.0000	
	71	1,2,3-Trichloropropane	75	8.924	8.924	(0.918)	10422	2.00000	3.36(a)
	73	n-Propylbenzene	91	8.974	8.974	(0.923)	28328	2.00000	3.95(a)
	74	Bromobenzene	156	8.867	8.867	(0.912)	7305	2.00000	1.78(a)
	75	1,3,5-Trimethylbenzene	105	9.125	9.125	(0.939)	19907	2.00000	1.79(a)
	76	2-Chlorotoluene	91	9.032	9.032	(0.929)	17534	2.00000	1.83(a)
	77	4-Chlorotoluene	91	9.132	9.132	(0.940)	20397	2.00000	1.85(a)
	78	tert-Butylbenzene	119	9.397	9.397	(0.967)	16593	2.00000	4.00(a)
	79	1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	20719	2.00000	1.77(a)
	81	sec-Butylbenzene	105	9.576	9.576	(0.985)	21455	2.00000	4.16(a)
	82	p-Isopropyltoluene	119	9.397	9.397	(0.967)	16593	2.00000	4.00(a)
	83	1,3-Dichlorobenzene	146	9.662	9.662	(0.994)	12728	2.00000	1.81(a)
	84	1,4-Dichlorobenzene	146	9.741	9.741	(1.002)	13388	2.00000	1.84(a)
	87	n-Butylbenzene	91	10.049	10.049	(1.034)	16437	2.00000	4.04(a)
	88	1,2-Dichlorobenzene	146	10.056	10.056	(1.035)	12580	2.00000	3.39(a)
	89	1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	1269	2.00000	4.02(a)
	90	1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	7919	2.00000	2.16(a)
	92	Naphthalene	128	11.596	11.596	(1.193)	16356	2.00000	2.74(a)
	93	1,2,3-Trichlorobenzene	180	11.797	11.797	(1.214)	6539	2.00000	4.49(a)
M	94	1,2-Dichloroethylene (total)	96				12844	4.00000	(a)
	135	1,4-Dioxane	88	5.686	5.686	(1.333)	1777	40.0000	59.42(a)
	141	Cyclohexane	56	4.297	4.297	(1.000)	6151	2.00000	3.75(a)
	138	Freon TF	101	2.005	2.005	(0.467)	3825	2.00000	3.85(a)
	147	Methylcyclohexane	83	5.464	5.464	(1.079)	3554	2.00000	5.56
	146	Methyl Acetate	43	2.327	2.327	(0.542)	8240	2.00000	1.92(a)
	148	Tert-Butyl alcohol	59	2.535	2.535	(0.590)	12265	40.0000	62.16
	149	Isopropyl Alcohol	45	2.191	2.191	(0.510)	13152	40.0000	52.49(T)

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041105.D
Date : 11-APR-2018 14:13
Client ID: VSTD002
Sample Info: VSTD002;VSTD002;1;4;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041106.D
Report Date: 15-May-2018 15:39

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041106.D
Lab Smp Id: VSTD005 Client Smp ID: VSTD005
Inj Date : 11-APR-2018 14:37
Operator : PC Inst ID: voa6.i
Smp Info : VSTD005;VSTD005;1;5;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\8260W.m
Meth Date : 15-May-2018 15:39 voa6.i Quant Type: ISTD
Cal Date : 11-APR-2018 14:13 Cal File: X041105.D
Als bottle: 5 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 8260_GB++.sub
Target Version: 4.14
Processing Host: ALSHSW7085

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.297	4.297	(1.000)	375954	50.0000	
181 2-Furfural	96	8.029	8.029	(1.038)	17344	200.000	167.88 (M)
173 3,3-Dimethyl-1-butanol	57	7.348	7.348	(0.950)	27830	100.000	106.74 (M)
23 Chloroprene	53	1.854	1.854	(0.432)	6352	5.00000	5.56 (M)
43 2-Nitropropane	43	6.045	6.045	(1.407)	6596	5.00000	4.82 (aM)
139 Diethyl ether	59	1.840	1.840	(0.428)	12797	5.00000	4.29 (aM)
49 Ethyl Methacrylate	69	6.854	6.854	(1.354)	24859	5.00000	4.40 (aM)
12 Isobutyl Alcohol	43	4.777	4.777	(1.112)	43174	100.000	91.33 (M)
25 Methacrylonitrile	41	3.946	3.946	(0.918)	15570	5.00000	4.42 (M)
40 Methyl Methacrylate	41	5.686	5.686	(1.323)	14564	5.00000	4.50 (M)
4 Propionitrile	54	3.774	3.774	(0.878)	23571	50.0000	46.15 (aM)
156 Diisopropyl ether	45	3.108	3.108	(0.723)	51328	5.00000	4.41 (aM)
167 Ethanol	45	1.790	1.790	(0.417)	3072	100.000	102.09 (M)
132 n-Butanol	56	5.343	5.343	(1.243)	7374	100.000	108.16 (aM)
176 tert-Amyl alcohol	59	4.719	4.719	(1.098)	22932	100.000	111.88 (M)
174 tert-Amyl methyl ether	73	4.770	4.770	(1.110)	49543	5.00000	4.42 (aM)
175 tert-Butyl ethyl ether	59	3.487	3.487	(0.812)	48708	5.00000	4.36 (aM)
172 tert-Butyl formate	59	4.719	4.719	(1.098)	23027	10.0000	11.31 (M)
72 trans-1,4-Dichloro-2-butene	53	8.946	8.946	(1.156)	5540	5.00000	5.10 (M)
86 Benzyl Chloride	91	9.870	9.870	(1.276)	32687	5.00000	5.52 (M)
150 Allyl alcohol	57	2.879	2.879	(0.670)	10990	100.000	110.79 (M)
162 Butyl acrylate	55	8.308	8.308	(1.074)	36416	5.00000	4.31 (aM)

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041106.D
Report Date: 15-May-2018 15:39

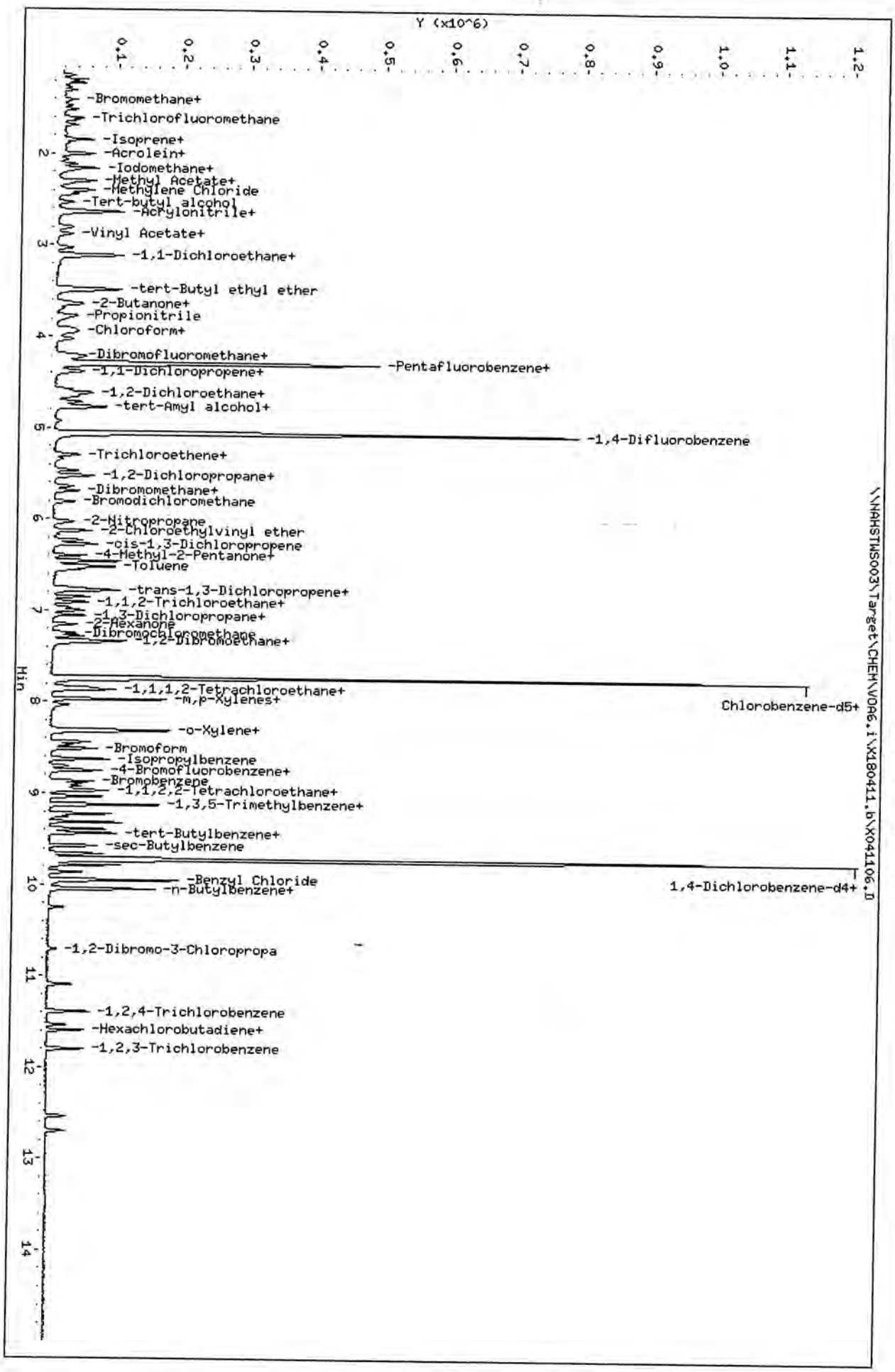
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
	185 Isoprene	39	1.854	1.854	(0.432)	5074	5.00000	5.96 (M)
	136 n-Hexane	57	2.879	2.879	(0.670)	11776	5.00000	5.54 (M)
	14 Allyl Chloride	41	2.298	2.298	(0.535)	40821	5.00000	4.26 (M)
	194 Acetaldehyde	44	1.274	1.274	(0.297)	7365	20.0000	19.55 (M)
	140 1,3-Butadiene	54	1.231	1.231	(0.287)	7993	5.00000	4.94 (aM)
	134 Cyclohexanone	55	8.702	8.702	(0.895)	10418	100.000	107.18 (aM)
	2 Dichlorodifluoromethane	85	1.030	1.030	(0.240)	8481	5.00000	5.90
	3 Chloromethane	50	1.138	1.138	(0.265)	12990	5.00000	6.18
	5 Vinyl Chloride	62	1.210	1.210	(0.282)	11627	5.00000	5.67
	6 Bromomethane	94	1.410	1.410	(0.328)	8808	5.00000	5.35
	7 Chloroethane	64	1.475	1.475	(0.343)	7429	5.00000	5.48
	8 Trichlorofluoromethane	101	1.639	1.639	(0.382)	11141	5.00000	5.52
	9 Acrolein	56	1.940	1.940	(0.452)	3395	10.0000	9.71 (a)
	10 Acetone	43	2.062	2.062	(0.480)	10482	10.0000	9.34
	11 1,1-Dichloroethene	96	2.005	2.005	(0.467)	8551	5.00000	5.60
	15 Iodomethane	142	2.119	2.119	(0.493)	24791	10.0000	8.53
	16 Acrylonitrile	53	2.635	2.635	(0.613)	11855	10.0000	8.52 (a)
	17 Methylene Chloride	84	2.399	2.399	(0.558)	16479	5.00000	5.13
	18 Methyl tert-butyl ether	73	2.635	2.635	(0.613)	45749	5.00000	4.49 (a)
	19 Carbon Disulfide	76	2.162	2.162	(0.503)	62436	10.0000	10.87
	20 trans-1,2-Dichloroethene	96	2.635	2.635	(0.613)	11879	5.00000	5.12
	21 Vinyl Acetate	43	2.879	2.879	(0.670)	7602	10.0000	10.36
	22 1,1-Dichloroethane	63	3.029	3.029	(0.705)	23240	5.00000	3.98 (a)
	24 2-Butanone	43	3.695	3.695	(0.860)	13103	10.0000	9.43
	26 2,2-Dichloropropane	77	3.623	3.623	(0.843)	15414	5.00000	5.17
	27 cis-1,2-Dichloroethene	96	3.645	3.645	(0.848)	14491	5.00000	3.88 (a)
	28 Chloroform	83	4.032	4.032	(0.938)	22754	5.00000	4.00 (a)
	29 Bromochloromethane	128	3.917	3.917	(0.912)	8116	5.00000	4.49 (a)
$	30 Dibromofluoromethane	113	4.218	4.218	(0.982)	16429	5.00000	4.54 (a)
	31 1,1,1-Trichloroethane	97	4.204	4.204	(0.978)	15819	5.00000	5.20
	32 1,1-Dichloropropene	75	4.390	4.390	(0.867)	14917	5.00000	5.51
	33 1,2-Dichloroethane	62	4.662	4.662	(0.921)	17752	5.00000	4.17 (a)
	34 Carbon Tetrachloride	117	4.383	4.383	(0.866)	12785	5.00000	5.40
$	35 1,2-Dichloroethane-d4	65	4.583	4.583	(1.067)	18009	5.00000	4.48 (a)
*	36 1,4-Difluorobenzene	114	5.063	5.063	(1.000)	580644	50.0000	
	37 Benzene	78	4.619	4.619	(0.912)	50702	5.00000	5.47
	38 Trichloroethene	130	5.300	5.300	(1.047)	12554	5.00000	5.76
	39 Bromodichloromethane	83	5.808	5.808	(1.147)	19276	5.00000	4.14 (a)
	42 1,2-Dichloropropane	63	5.529	5.529	(1.092)	15079	5.00000	4.08 (a)
	44 Dibromomethane	93	5.643	5.643	(1.115)	10079	5.00000	4.33 (a)
	45 4-Methyl-2-Pentanone	43	6.403	6.403	(0.828)	31384	10.0000	10.19
	46 cis-1,3-Dichloropropene	75	6.231	6.231	(1.231)	26180	5.00000	4.19 (a)
*	47 Chlorobenzene-d5	117	7.735	7.735	(1.000)	543141	50.0000	
$	48 Toluene-d8	98	6.460	6.460	(0.835)	60586	5.00000	4.51 (a)
	50 Toluene	91	6.525	6.525	(0.844)	53298	5.00000	3.88 (a)
	51 trans-1,3-Dichloropropene	75	6.754	6.754	(1.334)	22117	5.00000	4.20 (a)
	52 2-Hexanone	43	7.155	7.155	(0.925)	21192	10.0000	11.00
	53 1,1,2-Trichloroethane	83	6.911	6.911	(0.894)	12802	5.00000	4.50 (a)
	54 1,3-Dichloropropane	76	7.055	7.055	(0.912)	26390	5.00000	4.46 (a)
	55 Dibromochloromethane	129	7.248	7.248	(0.937)	16757	5.00000	4.29 (a)
	56 Tetrachloroethene	164	6.997	6.997	(0.905)	9280	5.00000	5.58
	57 1,2-Dibromoethane	107	7.334	7.334	(0.948)	15255	5.00000	4.40 (a)
	58 1-Chlorohexane	55	7.764	7.764	(1.533)	10533	5.00000	5.13 (M)
	59 Chlorobenzene	112	7.757	7.757	(1.003)	37758	5.00000	4.06 (a)

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041106.D
Report Date: 15-May-2018 15:39

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
60	1,1,1,2-Tetrachloroethane	131	7.843	7.843	(1.014)	13969	5.00000	4.08(a)
61	Ethylbenzene	106	7.864	7.864	(1.017)	17659	5.00000	3.80(a)
62	m,p-Xylenes	106	7.964	7.964	(1.030)	44249	10.0000	7.77(a)
63	o-Xylene	106	8.301	8.301	(1.073)	22797	5.00000	3.98(a)
64	Styrene	104	8.322	8.322	(1.076)	41273	5.00000	4.11(a)
66	Bromoform	173	8.473	8.473	(1.095)	12949	5.00000	4.41(a)
67	Isopropylbenzene	105	8.623	8.623	(1.115)	49083	5.00000	5.35
68	1,1,2,2-Tetrachloroethane	83	8.895	8.895	(0.915)	20662	5.00000	5.68
$ 69	4-Bromofluorobenzene	95	8.752	8.752	(1.131)	23583	5.00000	4.75(a)
* 70	1,4-Dichlorobenzene-d4	152	9.719	9.719	(1.000)	277043	50.0000	
71	1,2,3-Trichloropropane	75	8.924	8.924	(0.918)	24725	5.00000	5.88
73	n-Propylbenzene	91	8.974	8.974	(0.923)	60865	5.00000	5.60
74	Bromobenzene	156	8.867	8.867	(0.912)	17695	5.00000	4.17(a)
75	1,3,5-Trimethylbenzene	105	9.125	9.125	(0.939)	44242	5.00000	3.85(a)
76	2-Chlorotoluene	91	9.032	9.032	(0.929)	39549	5.00000	3.99(a)
77	4-Chlorotoluene	91	9.132	9.132	(0.940)	45868	5.00000	4.01(a)
78	tert-Butylbenzene	119	9.397	9.397	(0.967)	35955	5.00000	5.68
79	1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	48383	5.00000	3.99(a)
81	sec-Butylbenzene	105	9.583	9.583	(0.986)	47304	5.00000	5.76
82	p-Isopropyltoluene	119	9.397	9.397	(0.967)	35955	5.00000	5.68
83	1,3-Dichlorobenzene	146	9.662	9.662	(0.994)	29049	5.00000	3.99(a)
84	1,4-Dichlorobenzene	146	9.741	9.741	(1.002)	29804	5.00000	3.97(a)
87	n-Butylbenzene	91	10.049	10.049	(1.034)	35996	5.00000	5.75
88	1,2-Dichlorobenzene	146	10.049	10.049	(1.034)	29424	5.00000	5.57
89	1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	3121	5.00000	6.57
90	1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	18281	5.00000	4.78(a)
91	Hexachlorobutadiene	225	11.539	11.539	(1.187)	5253	5.00000	6.19
92	Naphthalene	128	11.596	11.596	(1.193)	38350	5.00000	5.32
93	1,2,3-Trichlorobenzene	180	11.797	11.797	(1.214)	15893	5.00000	6.68
M 94	1,2-Dichloroethylene (total)	96				26370	10.0000	(a)
135	1,4-Dioxane	88	5.686	5.686	(1.323)	3769	100.000	109.48
141	Cyclohexane	56	4.297	4.297	(1.000)	7305	5.00000	3.92(a)
138	Freon TF	101	2.005	2.005	(0.467)	6963	5.00000	4.86(a)
147	Methylcyclohexane	83	5.464	5.464	(1.079)	7390	5.00000	6.18
146	Methyl Acetate	43	2.327	2.327	(0.542)	20159	5.00000	4.63(a)
148	Tert-Butyl alcohol	59	2.528	2.528	(0.588)	28804	100.000	115.37
149	Isopropyl Alcohol	45	2.191	2.191	(0.510)	23853	100.000	104.81(T)

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041106.D
Date : 11-APR-2018 14:37
Client ID: VSTD005
Sample Info: VSTD005;VSTD005;1;5;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041107.D
Report Date: 15-May-2018 15:39

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041107.D
Lab Smp Id: VSTD020 Client Smp ID: VSTD020
Inj Date : 11-APR-2018 15:02
Operator : PC Inst ID: voa6.i
Smp Info : VSTD020;VSTD020;1;6;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\8260W.m
Meth Date : 15-May-2018 15:39 voa6.i Quant Type: ISTD
Cal Date : 11-APR-2018 14:37 Cal File: X041106.D
Als bottle: 7 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 8260_GB++.sub
Target Version: 4.14
Processing Host: ALSHSW7085

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.297	4.297	(1.000)	370766	50.0000	
181 2-Furfural	96	8.029	8.029	(1.038)	84359	800.000	823.23(M)
173 3,3-Dimethyl-1-butanol	57	7.348	7.348	(0.950)	113048	400.000	391.04(M)
23 Chloroprene	53	1.854	1.854	(0.432)	29941	20.0000	14.82(M)
43 2-Nitropropane	43	6.045	6.045	(1.407)	29059	20.0000	20.69(M)
139 Diethyl ether	59	1.840	1.840	(0.428)	56274	20.0000	19.14(M)
49 Ethyl Methacrylate	69	6.854	6.854	(1.354)	102441	20.0000	18.25(M)
12 Isobutyl Alcohol	43	4.777	4.777	(1.112)	189130	400.000	405.71(M)
25 Methacrylonitrile	41	3.939	3.939	(0.917)	68393	20.0000	19.73(M)
40 Methyl Methacrylate	41	5.686	5.686	(1.323)	66350	20.0000	20.45(M)
4 Propionitrile	54	3.774	3.774	(0.878)	103544	200.000	205.58(aM)
156 Diisopropyl ether	45	3.108	3.108	(0.723)	222604	20.0000	19.40(M)
167 Ethanol	45	1.783	1.783	(0.415)	12468	400.000	393.14(M)
132 n-Butanol	56	5.335	5.335	(1.242)	32065	400.000	387.78(aM)
176 tert-Amyl alcohol	59	4.719	4.719	(1.098)	93131	400.000	407.65(M)
174 tert-Amyl methyl ether	73	4.770	4.770	(1.110)	216368	20.0000	19.59(M)
175 tert-Butyl ethyl ether	59	3.495	3.495	(0.813)	215075	20.0000	19.56(M)
172 tert-Butyl formate	59	4.719	4.719	(1.098)	92374	40.0000	40.41(M)
72 trans-1,4-Dichloro-2-butene	53	8.946	8.946	(1.156)	24232	20.0000	19.98(M)
86 Benzyl Chloride	91	9.862	9.862	(1.275)	143114	20.0000	19.22(M)
150 Allyl alcohol	57	2.879	2.879	(0.670)	55507	400.000	307.24(M)
151 4-Methyl-2-pentanol	45	6.775	6.775	(1.338)	274723	400.000	377.45(M)

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041107.D
Report Date: 15-May-2018 15:39

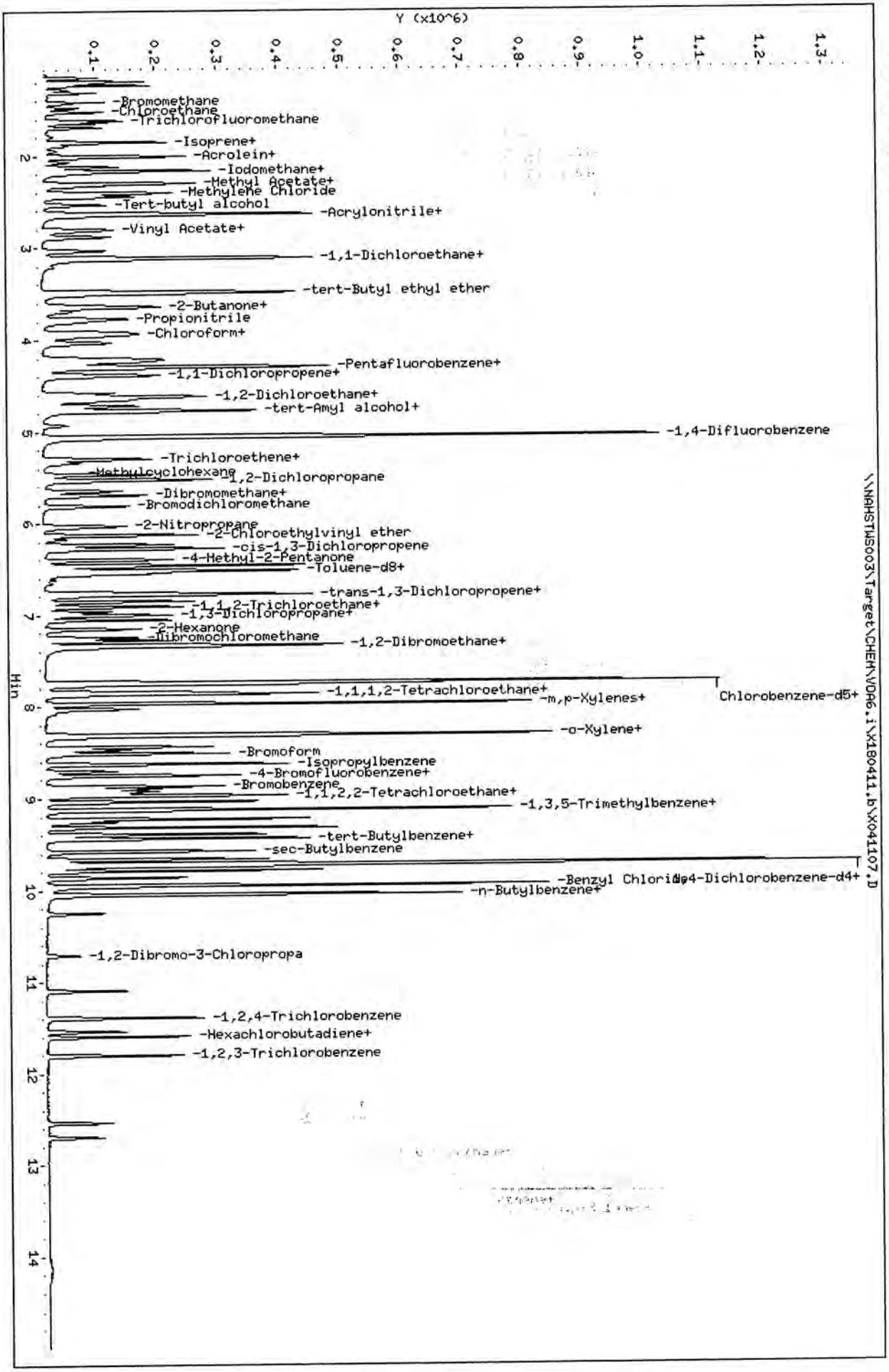
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
	162 Butyl acrylate	55	8.308	8.308	(1.074)	160556	20.0000	19.17 (M)
	185 Isoprene	39	1.854	1.854	(0.432)	23051	20.0000	16.57 (M)
	136 n-Hexane	57	2.879	2.879	(0.670)	53391	20.0000	14.71 (M)
	14 Allyl Chloride	41	2.291	2.291	(0.533)	187264	20.0000	19.86 (M)
	194 Acetaldehyde	44	1.274	1.274	(0.297)	22899	80.0000	72.42 (M)
	140 1,3-Butadiene	54	1.231	1.231	(0.287)	43500	20.0000	15.29 (M)
	134 Cyclohexanone	55	8.702	8.702	(0.655)	43427	400.000	404.14 (aM)
	2 Dichlorodifluoromethane	85	1.030	1.030	(0.240)	46180	20.0000	15.60
	3 Chloromethane	50	1.138	1.138	(0.265)	61113	20.0000	17.16
	5 Vinyl Chloride	62	1.210	1.210	(0.282)	59996	20.0000	15.87
	6 Bromomethane	94	1.410	1.410	(0.328)	39153	20.0000	18.05
	7 Chloroethane	64	1.475	1.475	(0.343)	36345	20.0000	16.78
	8 Trichlorofluoromethane	101	1.639	1.639	(0.382)	61144	20.0000	15.38
	9 Acrolein	56	1.940	1.940	(0.452)	12612	40.0000	36.60
	10 Acetone	43	2.062	2.062	(0.480)	41130	40.0000	39.38
	11 1,1-Dichloroethene	96	2.005	2.005	(0.467)	43443	20.0000	16.13
	15 Iodomethane	142	2.119	2.119	(0.493)	122490	40.0000	34.58
	16 Acrylonitrile	53	2.635	2.635	(0.613)	55149	40.0000	40.20
	17 Methylene Chloride	84	2.406	2.406	(0.560)	66994	20.0000	18.16
	18 Methyl tert-butyl ether	73	2.635	2.635	(0.613)	200874	20.0000	19.99
	19 Carbon Disulfide	76	2.162	2.162	(0.503)	302928	40.0000	31.66
	20 trans-1,2-Dichloroethene	96	2.628	2.628	(0.612)	56142	20.0000	17.02
	21 Vinyl Acetate	43	2.879	2.879	(0.670)	35261	40.0000	29.52
	22 1,1-Dichloroethane	63	3.029	3.029	(0.705)	106544	20.0000	18.50
	24 2-Butanone	43	3.695	3.695	(0.860)	58741	40.0000	42.07
	26 2,2-Dichloropropane	77	3.631	3.631	(0.845)	71063	20.0000	16.97
	27 cis-1,2-Dichloroethene	96	3.645	3.645	(0.848)	66316	20.0000	18.04
	28 Chloroform	83	4.032	4.032	(0.938)	101872	20.0000	18.16
	29 Bromochloromethane	128	3.917	3.917	(0.912)	34976	20.0000	19.65
$	30 Dibromofluoromethane	113	4.218	4.218	(0.982)	71275	20.0000	19.99
	31 1,1,1-Trichloroethane	97	4.204	4.204	(0.978)	74056	20.0000	16.56
	32 1,1-Dichloropropene	75	4.397	4.397	(0.868)	72168	20.0000	16.42
	33 1,2-Dichloroethane	62	4.662	4.662	(0.921)	79895	20.0000	18.89
	34 Carbon Tetrachloride	117	4.383	4.383	(0.866)	62076	20.0000	15.56
$	35 1,2-Dichloroethane-d4	65	4.583	4.583	(1.067)	75838	20.0000	19.16
*	36 1,4-Difluorobenzene	114	5.063	5.063	(1.000)	576916	50.0000	
	37 Benzene	78	4.619	4.619	(0.912)	231067	20.0000	17.20
	38 Trichloroethene	130	5.300	5.300	(1.047)	58107	20.0000	16.75
	39 Bromodichloromethane	83	5.808	5.808	(1.147)	85025	20.0000	18.39
	41 2-Chloroethylvinyl ether	63	6.123	6.123	(1.209)	102088	40.0000	38.30
	42 1,2-Dichloropropane	63	5.529	5.529	(1.092)	68960	20.0000	18.80
	44 Dibromomethane	93	5.643	5.643	(1.115)	44602	20.0000	19.29
	45 4-Methyl-2-Pentanone	43	6.403	6.403	(0.828)	134372	40.0000	40.52
	46 cis-1,3-Dichloropropene	75	6.231	6.231	(1.231)	115226	20.0000	18.60
*	47 Chlorobenzene-d5	117	7.735	7.735	(1.000)	538728	50.0000	
$	48 Toluene-d8	98	6.460	6.460	(0.835)	253927	20.0000	19.06
	50 Toluene	91	6.525	6.525	(0.844)	240833	20.0000	17.70
	51 trans-1,3-Dichloropropene	75	6.754	6.754	(1.334)	96292	20.0000	18.43
	52 2-Hexanone	43	7.155	7.155	(0.925)	89959	40.0000	41.07
	53 1,1,2-Trichloroethane	83	6.911	6.911	(0.894)	52984	20.0000	18.78
	54 1,3-Dichloropropane	76	7.055	7.055	(0.912)	111509	20.0000	19.02
	55 Dibromochloromethane	129	7.248	7.248	(0.937)	74353	20.0000	19.20
	56 Tetrachloroethene	164	6.997	6.997	(0.905)	43164	20.0000	16.49
	57 1,2-Dibromoethane	107	7.334	7.334	(0.948)	65646	20.0000	19.10

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041107.D
Report Date: 15-May-2018 15:39

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)	
58	1-Chlorohexane	55	7.757	7.757	(1.532)	49401	20.0000	16.84	
59	Chlorobenzene	112	7.757	7.757	(1.003)	166000	20.0000	18.02	
60	1,1,1,2-Tetrachloroethane	131	7.843	7.843	(1.014)	62090	20.0000	18.30	
61	Ethylbenzene	106	7.864	7.864	(1.017)	80858	20.0000	17.58	
62	m,p-Xylenes	106	7.964	7.964	(1.030)	199183	40.0000	35.27	
63	o-Xylene	106	8.301	8.301	(1.073)	103357	20.0000	18.21	
64	Styrene	104	8.322	8.322	(1.076)	183120	20.0000	18.38	
66	Bromoform	173	8.473	8.473	(1.095)	54317	20.0000	18.67	
67	Isopropylbenzene	105	8.623	8.623	(1.115)	225531	20.0000	17.02	
68	1,1,2,2-Tetrachloroethane	83	8.895	8.895	(0.915)	84331	20.0000	20.20	
$ 69	4-Bromofluorobenzene	95	8.752	8.752	(1.131)	95695	20.0000	19.45	
* 70	1,4-Dichlorobenzene-d4	152	9.719	9.719	(1.000)	273793	50.0000		
71	1,2,3-Trichloropropane	75	8.924	8.924	(0.918)	101138	20.0000	19.90	
73	n-Propylbenzene	91	8.974	8.974	(0.923)	279208	20.0000	17.13	
74	Bromobenzene	156	8.867	8.867	(0.912)	75981	20.0000	18.13	
75	1,3,5-Trimethylbenzene	105	9.125	9.125	(0.939)	199942	20.0000	17.62	
76	2-Chlorotoluene	91	9.032	9.032	(0.929)	178646	20.0000	18.26	
77	4-Chlorotoluene	91	9.132	9.132	(0.940)	209773	20.0000	18.59	
78	tert-Butylbenzene	119	9.397	9.397	(0.967)	161184	20.0000	17.06	
79	1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	211111	20.0000	17.63	
81	sec-Butylbenzene	105	9.576	9.576	(0.985)	214472	20.0000	16.57	
82	p-Isopropyltoluene	119	9.397	9.397	(0.967)	161184	20.0000	17.06	
83	1,3-Dichlorobenzene	146	9.662	9.662	(0.994)	128310	20.0000	17.85	
84	1,4-Dichlorobenzene	146	9.741	9.741	(1.002)	132568	20.0000	17.87	
87	n-Butylbenzene	91	10.049	10.049	(1.034)	157741	20.0000	16.94	
88	1,2-Dichlorobenzene	146	10.049	10.049	(1.034)	129012	20.0000	19.03	
89	1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	11721	20.0000	18.91	
90	1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	73493	20.0000	19.05	
91	Hexachlorobutadiene	225	11.539	11.539	(1.187)	23132	20.0000	15.17	
92	Naphthalene	128	11.596	11.596	(1.193)	155852	20.0000	19.51	
93	1,2,3-Trichlorobenzene	180	11.797	11.797	(1.214)	62278	20.0000	17.99	
M 94	1,2-Dichloroethylene (total)	96				122458	40.0000		(a)
135	1,4-Dioxane	88	5.679	5.679	(1.322)	14669	400.000	392.85	
141	Cyclohexane	56	4.239	4.239	(0.987)	81580	20.0000	15.79	
138	Freon TF	101	2.005	2.005	(0.467)	37743	20.0000	15.07	
147	Methylcyclohexane	83	5.464	5.464	(1.079)	31557	20.0000	10.18	
146	Methyl Acetate	43	2.327	2.327	(0.542)	87396	20.0000	20.36	
148	Tert-Butyl alcohol	59	2.528	2.528	(0.588)	114620	400.000	400.21	
149	Isopropyl Alcohol	45	2.184	2.184	(0.508)	80481	400.000	393.17	

QC Flag Legend

a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041107.D
Date : 11-APR-2018 15:02
Client ID: VSTD020
Sample Info: VSTD020;VSTD020;1;6;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041108.D
Report Date: 15-May-2018 15:39

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041108.D
Lab Smp Id: VSTD050 Client Smp ID: VSTD050
Inj Date : 11-APR-2018 15:27 Inst ID: voa6.i
Operator : PC
Smp Info : VSTD050;VSTD050;1;7;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\8260W.m
Meth Date : 15-May-2018 15:39 voa6.i Quant Type: ISTD
Cal Date : 11-APR-2018 15:02 Cal File: X041107.D
Als bottle: 8 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 8260_GB++.sub
Target Version: 4.14
Processing Host: ALSHSW7085

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.297	4.297	(1.000)	357914	50.0000	
181 2-Furfural	96	8.021	8.021	(1.037)	207998	2000.00	2105.72(M)
173 3,3-Dimethyl-1-butanol	57	7.348	7.348	(0.950)	262778	1000.00	921.95(M)
23 Chloroprene	53	1.854	1.854	(0.432)	104363	50.0000	45.42(M)
43 2-Nitropropane	43	6.044	6.044	(1.407)	65853	50.0000	48.23(M)
139 Diethyl ether	59	1.840	1.840	(0.428)	137801	50.0000	48.57(M)
49 Ethyl Methacrylate	69	6.854	6.854	(1.354)	250137	50.0000	47.01(M)
12 Isobutyl Alcohol	43	4.777	4.777	(1.112)	416151	1000.00	924.76(M)
25 Methacrylonitrile	41	3.939	3.939	(0.917)	160607	50.0000	47.99(M)
40 Methyl Methacrylate	41	5.686	5.686	(1.323)	153011	50.0000	48.71(M)
4 Propionitrile	54	3.767	3.767	(0.877)	234353	500.000	482.00(M)
156 Diisopropyl ether	45	3.108	3.108	(0.723)	568717	50.0000	51.36(M)
167 Ethanol	45	1.790	1.790	(0.417)	29205	1000.00	941.58(M)
132 n-Butanol	56	5.335	5.335	(1.242)	77101	1000.00	926.93(M)
176 tert-Amyl alcohol	59	4.719	4.719	(1.098)	206014	1000.00	912.16(M)
174 tert-Amyl methyl ether	73	4.769	4.769	(1.110)	507259	50.0000	47.57(M)
175 tert-Butyl ethyl ether	59	3.494	3.494	(0.813)	528127	50.0000	49.76(M)
172 tert-Butyl formate	59	4.719	4.719	(1.098)	211146	100.000	93.19(M)
72 trans-1,4-Dichloro-2-butene	53	8.945	8.945	(1.156)	54983	50.0000	46.04(M)
86 Benzyl Chloride	91	9.869	9.869	(1.276)	338385	50.0000	44.96(M)
150 Allyl alcohol	57	2.878	2.878	(0.670)	190618	1000.00	931.57(M)
151 4-Methyl-2-pentanol	45	6.775	6.775	(1.338)	630526	1000.00	913.69(M)

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041108.D
Report Date: 15-May-2018 15:39

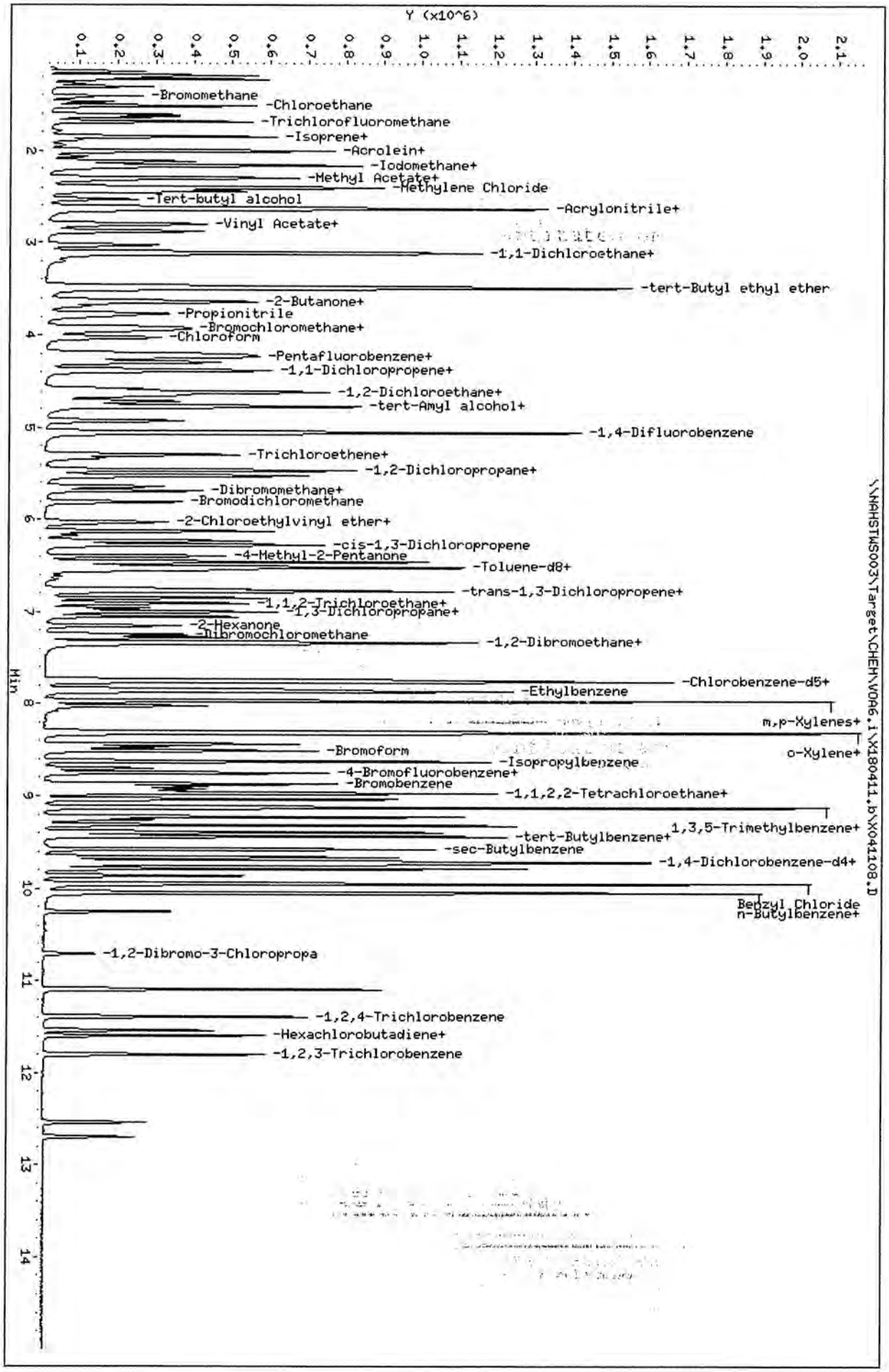
			QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
		Compounds							
	162	Butyl acrylate	55	8.308	8.308	(1.074)	385829	50.0000	47.81(M)
	185	Isoprene	39	1.854	1.854	(0.432)	68764	50.0000	44.89(M)
	136	n-Hexane	57	2.878	2.878	(0.670)	190791	50.0000	46.39(M)
	14	Allyl Chloride	41	2.291	2.291	(0.533)	471486	50.0000	51.80(M)
	194	Acetaldehyde	44	1.274	1.274	(0.297)	58405	200.000	199.58(M)
	140	1,3-Butadiene	54	1.231	1.231	(0.287)	145391	50.0000	46.40(M)
	134	Cyclohexanone	55	8.702	8.702	(0.895)	99821	1000.00	920.74(M)
	2	Dichlorodifluoromethane	85	1.030	1.030	(0.240)	152864	50.0000	44.37
	3	Chloromethane	50	1.138	1.138	(0.265)	176053	50.0000	44.73
	5	Vinyl Chloride	62	1.209	1.209	(0.282)	191875	50.0000	45.05
	6	Bromomethane	94	1.410	1.410	(0.328)	104334	50.0000	45.63
	7	Chloroethane	64	1.474	1.474	(0.343)	107507	50.0000	45.99
	8	Trichlorofluoromethane	101	1.639	1.639	(0.382)	204892	50.0000	45.06
	9	Acrolein	56	1.940	1.940	(0.452)	29732	100.000	89.40
	10	Acetone	43	2.062	2.062	(0.480)	94971	100.000	95.23
	11	1,1-Dichloroethene	96	2.004	2.004	(0.467)	133451	50.0000	44.63
	15	Iodomethane	142	2.119	2.119	(0.493)	389151	100.000	102.58
	16	Acrylonitrile	53	2.635	2.635	(0.613)	134826	100.000	101.83
	17	Methylene Chloride	84	2.406	2.406	(0.560)	172661	50.0000	46.88
	18	Methyl tert-butyl ether	73	2.635	2.635	(0.613)	481104	50.0000	49.60
	19	Carbon Disulfide	76	2.162	2.162	(0.503)	970334	100.000	92.16
	20	trans-1,2-Dichloroethene	96	2.628	2.628	(0.612)	159815	50.0000	46.31
	21	Vinyl Acetate	43	2.878	2.878	(0.670)	124906	100.000	94.51
	22	1,1-Dichloroethane	63	3.029	3.029	(0.705)	284551	50.0000	51.18
	24	2-Butanone	43	3.688	3.688	(0.858)	133166	100.000	98.50
	26	2,2-Dichloropropane	77	3.630	3.630	(0.845)	203364	50.0000	46.46
	27	cis-1,2-Dichloroethene	96	3.645	3.645	(0.848)	179913	50.0000	50.71
	28	Chloroform	83	4.032	4.032	(0.938)	274797	50.0000	50.76
	29	Bromochloromethane	128	3.917	3.917	(0.912)	88318	50.0000	51.41
$	30	Dibromofluoromethane	113	4.218	4.218	(0.982)	161231	50.0000	46.84
	31	1,1,1-Trichloroethane	97	4.204	4.204	(0.978)	221714	50.0000	46.78
	32	1,1-Dichloropropene	75	4.390	4.390	(0.867)	214089	50.0000	45.65
	33	1,2-Dichloroethane	62	4.662	4.662	(0.921)	197114	50.0000	49.16
	34	Carbon Tetrachloride	117	4.375	4.375	(0.864)	199056	50.0000	45.99
$	35	1,2-Dichloroethane-d4	65	4.576	4.576	(1.065)	173281	50.0000	45.36
*	36	1,4-Difluorobenzene	114	5.063	5.063	(1.000)	546992	50.0000	
	37	Benzene	78	4.619	4.619	(0.912)	641202	50.0000	46.10
	38	Trichloroethene	130	5.299	5.299	(1.047)	167697	50.0000	45.34
	39	Bromodichloromethane	83	5.808	5.808	(1.147)	215055	50.0000	49.06
	41	2-Chloroethylvinyl ether	63	6.123	6.123	(1.209)	242076	100.000	95.80
	42	1,2-Dichloropropane	63	5.529	5.529	(1.092)	174612	50.0000	50.22
	44	Dibromomethane	93	5.643	5.643	(1.115)	105184	50.0000	47.99
	45	4-Methyl-2-Pentanone	43	6.395	6.395	(0.827)	300344	100.000	92.58
	46	cis-1,3-Dichloropropene	75	6.231	6.231	(1.231)	291407	50.0000	49.61
*	47	Chlorobenzene-d5	117	7.735	7.735	(1.000)	519304	50.0000	
$	48	Toluene-d8	98	6.460	6.460	(0.835)	590851	50.0000	46.02
	50	Toluene	91	6.524	6.524	(0.844)	664552	50.0000	50.69
	51	trans-1,3-Dichloropropene	75	6.754	6.754	(1.334)	240048	50.0000	48.46
	52	2-Hexanone	43	7.155	7.155	(0.925)	196505	100.000	90.75
	53	1,1,2-Trichloroethane	83	6.911	6.911	(0.894)	127285	50.0000	46.81
	54	1,3-Dichloropropane	76	7.054	7.054	(0.912)	268026	50.0000	47.43
	55	Dibromochloromethane	129	7.248	7.248	(0.937)	179504	50.0000	48.10
	56	Tetrachloroethene	164	6.997	6.997	(0.905)	128594	50.0000	45.47
	57	1,2-Dibromoethane	107	7.334	7.334	(0.948)	157491	50.0000	47.54

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041108.D
Report Date: 15-May-2018 15:39

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)	
58	1-Chlorohexane	55	7.764	7.764	(1.533)	141675	50.0000	46.92	
59	Chlorobenzene	112	7.756	7.756	(1.003)	434570	50.0000	48.95	
60	1,1,1,2-Tetrachloroethane	131	7.842	7.842	(1.014)	158298	50.0000	48.42	
61	Ethylbenzene	106	7.864	7.864	(1.017)	226957	50.0000	51.19	
62	m,p-Xylenes	106	7.971	7.971	(1.031)	549769	100.000	101.00	
63	o-Xylene	106	8.301	8.301	(1.073)	272651	50.0000	49.84	
64	Styrene	104	8.322	8.322	(1.076)	474014	50.0000	49.37	
66	Bromoform	173	8.473	8.473	(1.095)	128614	50.0000	45.87	
67	Isopropylbenzene	105	8.623	8.623	(1.115)	648558	50.0000	46.54	
68	1,1,2,2-Tetrachloroethane	83	8.895	8.895	(0.915)	190897	50.0000	44.95	
$ 69	4-Bromofluorobenzene	95	8.752	8.752	(1.131)	213693	50.0000	45.07	
* 70	1,4-Dichlorobenzene-d4	152	9.719	9.719	(1.000)	270424	50.0000		
71	1,2,3-Trichloropropane	75	8.924	8.924	(0.918)	232049	50.0000	44.37	
73	n-Propylbenzene	91	8.974	8.974	(0.923)	806027	50.0000	45.41	
74	Bromobenzene	156	8.867	8.867	(0.912)	193302	50.0000	46.71	
75	1,3,5-Trimethylbenzene	105	9.125	9.125	(0.939)	548714	50.0000	48.96	
76	2-Chlorotoluene	91	9.031	9.031	(0.929)	471626	50.0000	48.82	
77	4-Chlorotoluene	91	9.132	9.132	(0.940)	545820	50.0000	48.99	
78	tert-Butylbenzene	119	9.397	9.397	(0.967)	462958	50.0000	44.92	
79	1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	566220	50.0000	47.89	
81	sec-Butylbenzene	105	9.583	9.583	(0.986)	649111	50.0000	45.09	
82	p-Isopropyltoluene	119	9.397	9.397	(0.967)	462958	50.0000	44.92	
83	1,3-Dichlorobenzene	146	9.662	9.662	(0.994)	330140	50.0000	46.52	
84	1,4-Dichlorobenzene	146	9.741	9.741	(1.002)	338744	50.0000	46.23	
87	n-Butylbenzene	91	10.049	10.049	(1.034)	465564	50.0000	45.67	
88	1,2-Dichlorobenzene	146	10.049	10.049	(1.034)	318489	50.0000	45.07	
89	1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	28932	50.0000	44.01	
90	1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	196043	50.0000	49.25	
91	Hexachlorobutadiene	225	11.538	11.538	(1.187)	80499	50.0000	44.38	
92	Naphthalene	128	11.596	11.596	(1.193)	382975	50.0000	46.44	
93	1,2,3-Trichlorobenzene	180	11.796	11.796	(1.214)	166167	50.0000	43.74	
M 94	1,2-Dichloroethylene (total)	96				339728	100.000		(a)
135	1,4-Dioxane	88	5.679	5.679	(1.322)	34022	1000.00	925.17	
141	Cyclohexane	56	4.239	4.239	(0.987)	268819	50.0000	47.22	
138	Freon TF	101	2.004	2.004	(0.467)	132462	50.0000	47.38	
147	Methylcyclohexane	83	5.464	5.464	(1.079)	240839	50.0000	46.94	
146	Methyl Acetate	43	2.327	2.327	(0.542)	198757	50.0000	47.97	
148	Tert-Butyl alcohol	59	2.527	2.527	(0.588)	262371	1000.00	919.49	
149	Isopropyl Alcohol	45	2.191	2.191	(0.510)	182667	1000.00	943.72	

QC Flag Legend

a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041108.D
Date : 11-APR-2018 15:27
Client ID: VSTD050
Sample Info: VSTD050;VSTD050;1;7;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041109.D
Report Date: 15-May-2018 15:39

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041109.D
Lab Smp Id: VSTD100 Client Smp ID: VSTD100
Inj Date : 11-APR-2018 15:51
Operator : PC Inst ID: voa6.i
Smp Info : VSTD100;VSTD100;1;8;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\8260W.m
Meth Date : 15-May-2018 15:39 voa6.i Quant Type: ISTD
Cal Date : 11-APR-2018 15:27 Cal File: X041108.D
Als bottle: 9 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 8260_GB++.sub
Target Version: 4.14
Processing Host: ALSHSW7085

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.297	4.297	(1.000)	350434	50.0000	
181 2-Furfural	96	8.022	8.022	(1.037)	393346	4000.00	4129.60(M)
173 3,3-Dimethyl-1-butanol	57	7.348	7.348	(0.950)	564588	2000.00	2035.90(M)
23 Chloroprene	53	1.854	1.854	(0.432)	225216	100.000	96.36(M)
43 2-Nitropropane	43	6.045	6.045	(1.407)	130012	100.000	97.00(M)
139 Diethyl ether	59	1.840	1.840	(0.428)	280647	100.000	101.04(M)
49 Ethyl Methacrylate	69	6.854	6.854	(1.354)	515192	100.000	100.15(M)
12 Isobutyl Alcohol	43	4.777	4.777	(1.112)	835076	2000.00	1895.30(M)
25 Methacrylonitrile	41	3.939	3.939	(0.917)	306436	100.000	93.53(M)
40 Methyl Methacrylate	41	5.686	5.686	(1.323)	306139	100.000	99.43(M)
4 Propionitrile	54	3.774	3.774	(0.878)	471433	1000.00	990.31(M)
156 Diisopropyl ether	45	3.108	3.108	(0.723)	1136491	100.000	104.83(M)
167 Ethanol	45	1.790	1.790	(0.417)	59127	2000.00	1937.71(M)
132 n-Butanol	56	5.335	5.335	(1.242)	156767	2000.00	1896.78(M)
176 tert-Amyl alcohol	59	4.719	4.719	(1.098)	424397	2000.00	1900.40(M)
174 tert-Amyl methyl ether	73	4.770	4.770	(1.110)	1043171	100.000	99.93(M)
175 tert-Butyl ethyl ether	59	3.495	3.495	(0.813)	1039269	100.000	100.01(M)
172 tert-Butyl formate	59	4.719	4.719	(1.098)	416335	200.000	185.83(M)
72 trans-1,4-Dichloro-2-butene	53	8.946	8.946	(1.156)	112705	100.000	97.05(M)
86 Benzyl Chloride	91	9.862	9.862	(1.275)	710313	100.000	96.10(M)
150 Allyl alcohol	57	2.879	2.879	(0.670)	392446	2000.00	1889.25(M)
151 4-Methyl-2-pentanol	45	6.775	6.775	(1.338)	1378255	2000.00	2065.74(M)

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041109.D
Report Date: 15-May-2018 15:39

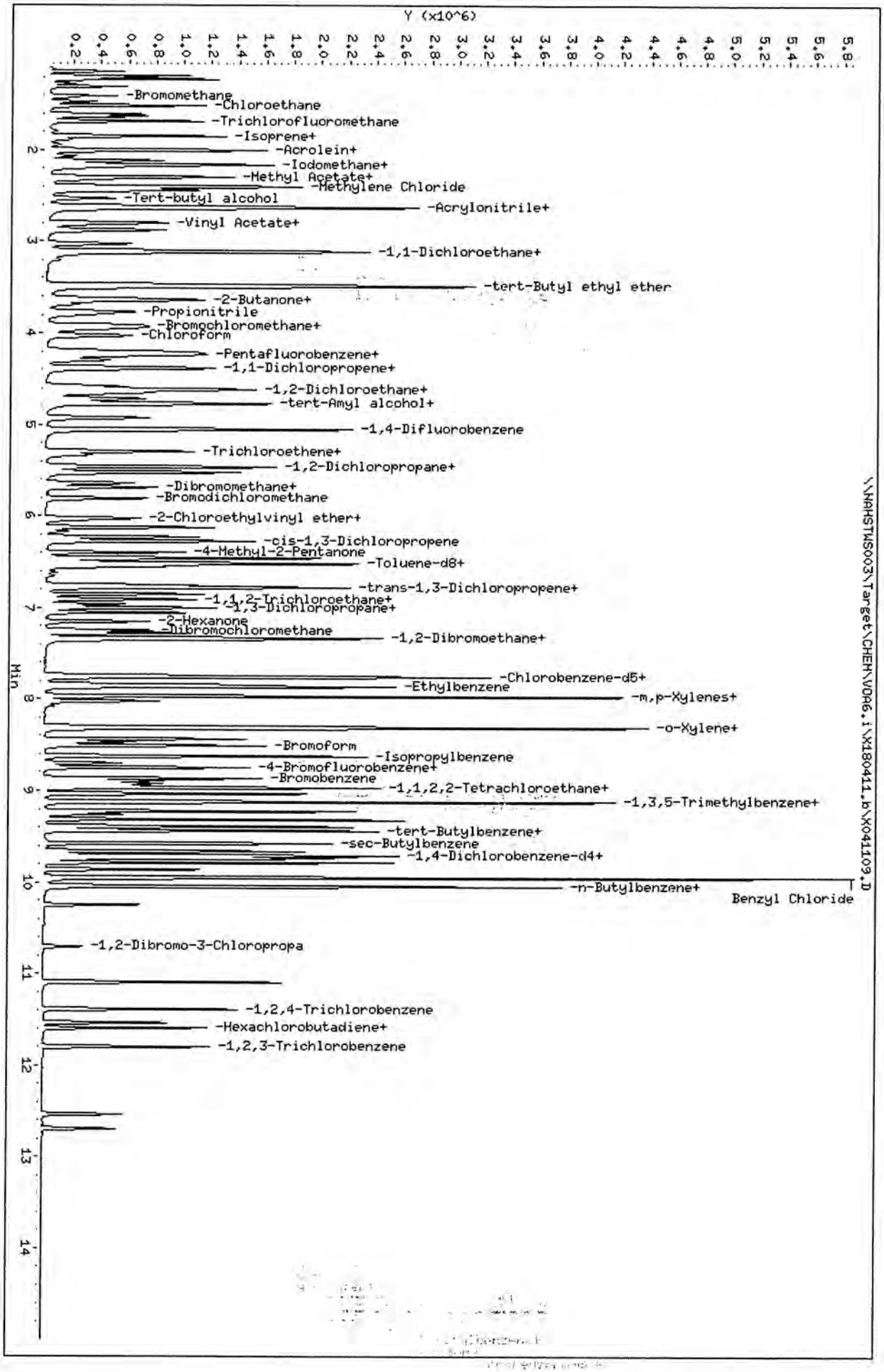
			QUANT SIG					AMOUNTS	
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/l)	ON-COL (ug/l)
	162	Butyl acrylate	55	8.308	8.308	(1.074)	794568	100.000	102.10(M)
	185	Isoprene	39	1.854	1.854	(0.432)	144059	100.000	92.61(M)
	136	n-Hexane	57	2.879	2.879	(0.670)	403445	100.000	96.73(M)
	14	Allyl Chloride	41	2.291	2.291	(0.533)	958914	100.000	107.60(M)
	194	Acetaldehyde	44	1.274	1.274	(0.297)	111879	400.000	395.26(M)
	140	1,3-Butadiene	54	1.231	1.231	(0.287)	312953	100.000	98.82(M)
	134	Cyclohexanone	55	8.702	8.702	(0.895)	194376	2000.00	1901.93(M)
	2	Dichlorodifluoromethane	85	1.030	1.030	(0.240)	332122	100.000	93.87
	3	Chloromethane	50	1.138	1.138	(0.265)	369278	100.000	92.10
	5	Vinyl Chloride	62	1.210	1.210	(0.282)	409862	100.000	94.44
	6	Bromomethane	94	1.410	1.410	(0.328)	234102	100.000	96.64
	7	Chloroethane	64	1.475	1.475	(0.343)	224868	100.000	95.26
	8	Trichlorofluoromethane	101	1.639	1.639	(0.382)	445066	100.000	95.87
	9	Acrolein	56	1.947	1.947	(0.453)	60546	200.000	185.94
	10	Acetone	43	2.062	2.062	(0.480)	192091	200.000	197.52
	11	1,1-Dichloroethene	96	2.005	2.005	(0.467)	291171	100.000	95.69
	15	Iodomethane	142	2.119	2.119	(0.493)	853759	200.000	199.58
	16	Acrylonitrile	53	2.635	2.635	(0.613)	268010	200.000	206.74
	17	Methylene Chloride	84	2.399	2.399	(0.558)	355383	100.000	97.49
	18	Methyl tert-butyl ether	73	2.635	2.635	(0.613)	968244	100.000	101.96
	19	Carbon Disulfide	76	2.162	2.162	(0.503)	2050081	200.000	192.42
	20	trans-1,2-Dichloroethene	96	2.628	2.628	(0.612)	337889	100.000	97.70
	21	Vinyl Acetate	43	2.879	2.879	(0.670)	260216	200.000	195.26
	22	1,1-Dichloroethane	63	3.029	3.029	(0.705)	590857	100.000	108.56
	24	2-Butanone	43	3.688	3.688	(0.858)	257439	200.000	194.27
	26	2,2-Dichloropropane	77	3.631	3.631	(0.845)	427020	100.000	97.40
	27	cis-1,2-Dichloroethene	96	3.645	3.645	(0.848)	374160	100.000	107.72
	28	Chloroform	83	4.032	4.032	(0.938)	558766	100.000	105.43
	29	Bromochloromethane	128	3.917	3.917	(0.912)	174022	100.000	103.46
$	30	Dibromofluoromethane	113	4.218	4.218	(0.982)	326495	100.000	96.88
	31	1,1,1-Trichloroethane	97	4.204	4.204	(0.978)	464105	100.000	97.54
	32	1,1-Dichloropropene	75	4.390	4.390	(0.867)	448804	100.000	95.84
	33	1,2-Dichloroethane	62	4.662	4.662	(0.921)	400546	100.000	103.33
	34	Carbon Tetrachloride	117	4.383	4.383	(0.866)	415812	100.000	96.14
$	35	1,2-Dichloroethane-d4	65	4.576	4.576	(1.065)	343079	100.000	91.72
*	36	1,4-Difluorobenzene	114	5.063	5.063	(1.000)	528846	50.0000	
	37	Benzene	78	4.619	4.619	(0.912)	1326821	100.000	96.16
	38	Trichloroethene	130	5.300	5.300	(1.047)	350953	100.000	94.93
	39	Bromodichloromethane	83	5.808	5.808	(1.147)	440889	100.000	104.03
	41	2-Chloroethylvinyl ether	63	6.123	6.123	(1.209)	476226	200.000	194.94
	42	1,2-Dichloropropane	63	5.529	5.529	(1.092)	357136	100.000	106.25
	44	Dibromomethane	93	5.643	5.643	(1.115)	216185	100.000	102.03
	45	4-Methyl-2-Pentanone	43	6.403	6.403	(0.828)	617014	200.000	196.05
	46	cis-1,3-Dichloropropene	75	6.231	6.231	(1.231)	592079	100.000	104.26
*	47	Chlorobenzene-d5	117	7.735	7.735	(1.000)	500761	50.0000	
$	48	Toluene-d8	98	6.460	6.460	(0.835)	1202455	100.000	97.14
	50	Toluene	91	6.525	6.525	(0.844)	1361315	100.000	107.68
	51	trans-1,3-Dichloropropene	75	6.754	6.754	(1.334)	490507	100.000	102.43
	52	2-Hexanone	43	7.155	7.155	(0.925)	404952	200.000	191.86
	53	1,1,2-Trichloroethane	83	6.911	6.911	(0.894)	257940	100.000	98.37
	54	1,3-Dichloropropane	76	7.055	7.055	(0.912)	541110	100.000	99.30
	55	Dibromochloromethane	129	7.248	7.248	(0.937)	363690	100.000	101.06
	56	Tetrachloroethene	164	7.004	7.004	(0.906)	269448	100.000	95.73
	57	1,2-Dibromoethane	107	7.327	7.327	(0.947)	318729	100.000	99.77

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041109.D
Report Date: 15-May-2018 15:39

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)	
58	1-Chlorohexane	55	7.764	7.764	(1.533)	287178	100.000	96.20	
59	Chlorobenzene	112	7.757	7.757	(1.003)	895896	100.000	104.66	
60	1,1,1,2-Tetrachloroethane	131	7.843	7.843	(1.014)	330210	100.000	104.75	
61	Ethylbenzene	106	7.864	7.864	(1.017)	468325	100.000	109.55	
62	m,p-Xylenes	106	7.971	7.971	(1.031)	1137793	200.000	216.76	
63	o-Xylene	106	8.301	8.301	(1.073)	562146	100.000	106.56	
64	Styrene	104	8.322	8.322	(1.076)	969463	100.000	104.73	
66	Bromoform	173	8.473	8.473	(1.095)	260633	100.000	96.40	
67	Isopropylbenzene	105	8.623	8.623	(1.115)	1327235	100.000	96.36	
68	1,1,2,2-Tetrachloroethane	83	8.895	8.895	(0.915)	386060	100.000	96.04	
$ 69	4-Bromofluorobenzene	95	8.752	8.752	(1.131)	423113	100.000	92.54	
* 70	1,4-Dichlorobenzene-d4	152	9.719	9.719	(1.000)	252778	50.0000		
71	1,2,3-Trichloropropane	75	8.924	8.924	(0.918)	473929	100.000	95.28	
73	n-Propylbenzene	91	8.974	8.974	(0.923)	1630889	100.000	95.48	
74	Bromobenzene	156	8.867	8.867	(0.912)	401707	100.000	103.86	
75	1,3,5-Trimethylbenzene	105	9.125	9.125	(0.939)	1113565	100.000	106.31	
76	2-Chlorotoluene	91	9.032	9.032	(0.929)	957649	100.000	106.05	
77	4-Chlorotoluene	91	9.132	9.132	(0.940)	1094636	100.000	105.11	
78	tert-Butylbenzene	119	9.397	9.397	(0.967)	955699	100.000	96.22	
79	1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	1150357	100.000	104.09	
81	sec-Butylbenzene	105	9.583	9.583	(0.986)	1327731	100.000	95.40	
82	p-Isopropyltoluene	119	9.397	9.397	(0.967)	955699	100.000	96.22	
83	1,3-Dichlorobenzene	146	9.662	9.662	(0.994)	681813	100.000	102.79	
84	1,4-Dichlorobenzene	146	9.741	9.741	(1.002)	691638	100.000	100.98	
87	n-Butylbenzene	91	10.049	10.049	(1.034)	932054	100.000	94.97	
88	1,2-Dichlorobenzene	146	10.049	10.049	(1.034)	645854	100.000	95.84	
89	1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	58141	100.000	92.12	
90	1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	411409	100.000	100.94	
91	Hexachlorobutadiene	225	11.539	11.539	(1.187)	166296	100.000	93.72	
92	Naphthalene	128	11.596	11.596	(1.193)	789837	100.000	96.80	
93	1,2,3-Trichlorobenzene	180	11.797	11.797	(1.214)	338991	100.000	92.07	
M 94	1,2-Dichloroethylene (total)	96				712049	200.000	(a)	
135	1,4-Dioxane	88	5.679	5.679	(1.322)	68575	2000.00	1890.50	
141	Cyclohexane	56	4.240	4.240	(0.987)	557670	100.000	96.96	
138	Freon TF	101	2.005	2.005	(0.467)	282458	100.000	97.91	
147	Methylcyclohexane	83	5.464	5.464	(1.079)	498498	100.000	94.82	
146	Methyl Acetate	43	2.327	2.327	(0.542)	408137	100.000	100.61	
148	Tert-Butyl alcohol	59	2.528	2.528	(0.588)	535331	2000.00	1892.80	
149	Isopropyl Alcohol	45	2.191	2.191	(0.510)	362584	2000.00	1927.89	

QC Flag Legend

a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



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Date : 11-APR-2018 15:51
Client ID: VSTD100
Sample Info: VSTD100;VSTD100;1;8;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041110.D
Report Date: 15-May-2018 15:39

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041110.D
Lab Smp Id: VSTD150 Client Smp ID: VSTD150
Inj Date : 11-APR-2018 16:16
Operator : PC Inst ID: voa6.i
Smp Info : VSTD150;VSTD150;1;9;
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Comment :
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Meth Date : 15-May-2018 15:39 voa6.i Quant Type: ISTD
Cal Date : 11-APR-2018 15:51 Cal File: X041109.D
Als bottle: 10 Calibration Sample, Level: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 8260_GB++.sub
Target Version: 4.14
Processing Host: ALSHSW7085

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1	Pentafluorobenzene	168	4.297	4.297	(1.000)	342003	50.0000	
181	2-Furfural	96	8.021	8.021	(1.037)	664259	6000.00	7207.30(M)
173	3,3-Dimethyl-1-butanol	57	7.355	7.355	(0.951)	963387	3000.00	3578.90(M)
23	Chloroprene	53	1.854	1.854	(0.432)	360630	150.000	156.11(M)
43	2-Nitropropane	43	6.044	6.044	(1.407)	204264	150.000	156.01(M)
139	Diethyl ether	59	1.840	1.840	(0.428)	447659	150.000	165.14(M)
49	Ethyl Methacrylate	69	6.854	6.854	(1.354)	817305	150.000	164.86(M)
12	Isobutyl Alcohol	43	4.777	4.777	(1.112)	1284487	3000.00	2987.15(M)
25	Methacrylonitrile	41	3.939	3.939	(0.917)	481218	150.000	150.50(M)
40	Methyl Methacrylate	41	5.686	5.686	(1.323)	465818	150.000	154.97(M)
4	Propionitrile	54	3.774	3.774	(0.878)	735470	1500.00	1583.04(M)
156	Diisopropyl ether	45	3.108	3.108	(0.723)	1745923	150.000	165.02(M)
167	Ethanol	45	1.790	1.790	(0.417)	91928	3000.00	3081.80(M)
132	n-Butanol	56	5.335	5.335	(1.242)	254312	3000.00	3135.56(M)
176	tert-Amyl alcohol	59	4.719	4.719	(1.098)	581614	3000.00	3116.43(AM)
174	tert-Amyl methyl ether	73	4.769	4.769	(1.110)	1163163	150.000	114.17(M)
175	tert-Butyl ethyl ether	59	3.494	3.494	(0.813)	1618558	150.000	159.60(M)
172	tert-Butyl formate	59	4.719	4.719	(1.098)	692618	300.000	315.48(AM)
72	trans-1,4-Dichloro-2-butene	53	8.945	8.945	(1.156)	179105	150.000	158.92(M)
86	Benzyl Chloride	91	9.862	9.862	(1.275)	1133992	150.000	157.57(M)
150	Allyl alcohol	57	2.878	2.878	(0.670)	639189	3000.00	3110.72(M)
151	4-Methyl-2-pentanol	45	6.782	6.782	(1.340)	2294813	3000.00	3569.06(M)

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041110.D
Report Date: 15-May-2018 15:39

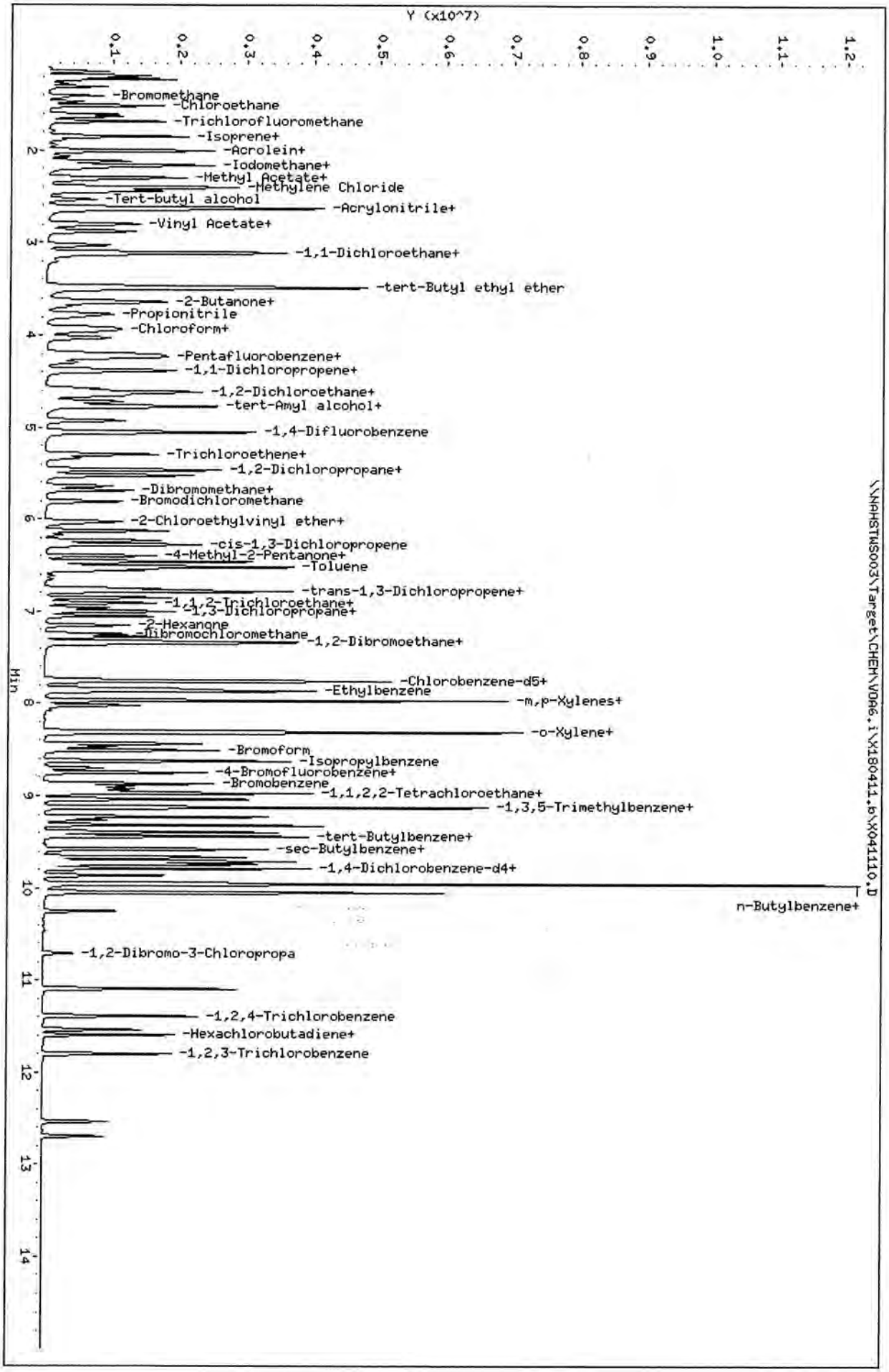
			QUANT SIG					AMOUNTS	
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/l)	ON-COL (ug/l)
	162	Butyl acrylate	55	8.308	8.308	(1.074)	1274018	150.000	169.20(M)
	185	Isoprene	39	1.854	1.854	(0.432)	243241	150.000	158.03(M)
	136	n-Hexane	57	2.878	2.878	(0.670)	640625	150.000	155.50(M)
	14	Allyl Chloride	41	2.291	2.291	(0.533)	1497029	150.000	172.13(M)
	194	Acetaldehyde	44	1.274	1.274	(0.297)	172772	600.000	628.36(M)
	140	1,3-Butadiene	54	1.231	1.231	(0.287)	485376	150.000	155.49(M)
	134	Cyclohexanone	55	8.702	8.702	(0.895)	310949	3000.00	3173.01(M)
	2	Dichlorodifluoromethane	85	1.030	1.030	(0.240)	545917	150.000	155.52
	3	Chloromethane	50	1.138	1.138	(0.265)	608678	150.000	153.31
	5	Vinyl Chloride	62	1.209	1.209	(0.282)	671783	150.000	156.40
	6	Bromomethane	94	1.403	1.403	(0.327)	412280	150.000	158.20
	7	Chloroethane	64	1.474	1.474	(0.343)	358265	150.000	153.85
	8	Trichlorofluoromethane	101	1.639	1.639	(0.382)	713497	150.000	155.32
	9	Acrolein	56	1.940	1.940	(0.452)	97253	300.000	306.04
	10	Acetone	43	2.062	2.062	(0.480)	303821	300.000	320.57
	11	1,1-Dichloroethene	96	2.005	2.005	(0.467)	469714	150.000	156.18
	15	Iodomethane	142	2.119	2.119	(0.493)	1321865	300.000	268.53
	16	Acrylonitrile	53	2.635	2.635	(0.613)	414993	300.000	328.02
	17	Methylene Chloride	84	2.398	2.398	(0.558)	555205	150.000	155.49
	18	Methyl tert-butyl ether	73	2.635	2.635	(0.613)	1504146	150.000	162.30
	19	Carbon Disulfide	76	2.162	2.162	(0.503)	3265953	300.000	310.57
	20	trans-1,2-Dichloroethene	96	2.628	2.628	(0.612)	531900	150.000	156.37
	21	Vinyl Acetate	43	2.878	2.878	(0.670)	409965	300.000	312.03
	22	1,1-Dichloroethane	63	3.029	3.029	(0.705)	926014	150.000	174.33
	24	2-Butanone	43	3.688	3.688	(0.858)	403024	300.000	311.50
	26	2,2-Dichloropropane	77	3.631	3.631	(0.845)	674155	150.000	156.35
	27	cis-1,2-Dichloroethene	96	3.645	3.645	(0.848)	586655	150.000	173.07
	28	Chloroform	83	4.032	4.032	(0.938)	868603	150.000	167.94
	29	Bromochloromethane	128	3.917	3.917	(0.912)	245829	150.000	149.76
$	30	Dibromofluoromethane	113	4.218	4.218	(0.982)	504711	150.000	153.46
	31	1,1,1-Trichloroethane	97	4.204	4.204	(0.978)	726816	150.000	155.20
	32	1,1-Dichloropropene	75	4.390	4.390	(0.867)	707774	150.000	155.13
	33	1,2-Dichloroethane	62	4.662	4.662	(0.921)	625392	150.000	167.41
	34	Carbon Tetrachloride	117	4.383	4.383	(0.866)	653054	150.000	154.92
$	35	1,2-Dichloroethane-d4	65	4.583	4.583	(1.067)	526128	150.000	144.13
*	36	1,4-Difluorobenzene	114	5.063	5.063	(1.000)	509648	50.0000	
	37	Benzene	78	4.619	4.619	(0.912)	2091934	150.000	155.92
	38	Trichloroethene	130	5.300	5.300	(1.047)	562023	150.000	155.93
	39	Bromodichloromethane	83	5.808	5.808	(1.147)	687699	150.000	168.39
	41	2-Chloroethylvinyl ether	63	6.123	6.123	(1.209)	750193	300.000	318.66
	42	1,2-Dichloropropane	63	5.529	5.529	(1.092)	556703	150.000	171.86
	44	Dibromomethane	93	5.636	5.636	(1.113)	336967	150.000	165.03
	45	4-Methyl-2-Pentanone	43	6.403	6.403	(0.828)	963057	300.000	315.61
	46	cis-1,3-Dichloropropene	75	6.231	6.231	(1.231)	930100	150.000	169.95
*	47	Chlorobenzene-d5	117	7.735	7.735	(1.000)	484539	50.0000	
$	48	Toluene-d8	98	6.460	6.460	(0.835)	1862960	150.000	155.53
	50	Toluene	91	6.524	6.524	(0.844)	2121856	150.000	173.46
	51	trans-1,3-Dichloropropene	75	6.754	6.754	(1.334)	765975	150.000	165.98
	52	2-Hexanone	43	7.155	7.155	(0.925)	644035	300.000	314.17
	53	1,1,2-Trichloroethane	83	6.911	6.911	(0.894)	400286	150.000	157.77
	54	1,3-Dichloropropane	76	7.054	7.054	(0.912)	844801	150.000	160.23
	55	Dibromochloromethane	129	7.248	7.248	(0.937)	575194	150.000	165.19
	56	Tetrachloroethene	164	7.004	7.004	(0.906)	433221	150.000	157.33
	57	1,2-Dibromoethane	107	7.334	7.334	(0.948)	494002	150.000	159.82

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041110.D
Report Date: 15-May-2018 15:39

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)	
58	1-Chlorohexane	55	7.764	7.764	(1.533)	457010	150.000	157.56	
59	Chlorobenzene	112	7.764	7.764	(1.004)	1415639	150.000	170.92	
60	1,1,1,2-Tetrachloroethane	131	7.842	7.842	(1.014)	521701	150.000	171.04	
61	Ethylbenzene	106	7.864	7.864	(1.017)	744051	150.000	179.88	
62	m,p-Xylenes	106	7.971	7.971	(1.031)	1802739	300.000	354.95	
63	o-Xylene	106	8.308	8.308	(1.074)	885420	150.000	173.47	
64	Styrene	104	8.322	8.322	(1.076)	1542232	150.000	172.18	
66	Bromoform	173	8.473	8.473	(1.095)	417449	150.000	159.57	
67	Isopropylbenzene	105	8.623	8.623	(1.115)	2104371	150.000	156.54	
68	1,1,2,2-Tetrachloroethane	83	8.895	8.895	(0.915)	608927	150.000	157.80	
$ 69	4-Bromofluorobenzene	95	8.752	8.752	(1.131)	664113	150.000	150.12	
* 70	1,4-Dichlorobenzene-d4	152	9.719	9.719	(1.000)	241622	50.0000		
71	1,2,3-Trichloropropane	75	8.924	8.924	(0.918)	753856	150.000	157.62	
73	n-Propylbenzene	91	8.974	8.974	(0.923)	2595018	150.000	157.33	
74	Bromobenzene	156	8.867	8.867	(0.912)	637519	150.000	172.44	
75	1,3,5-Trimethylbenzene	105	9.125	9.125	(0.939)	1755770	150.000	175.36	
76	2-Chlorotoluene	91	9.039	9.039	(0.930)	1529026	150.000	177.15	
77	4-Chlorotoluene	91	9.132	9.132	(0.940)	1728792	150.000	173.67	
78	tert-Butylbenzene	119	9.397	9.397	(0.967)	1500896	150.000	156.51	
79	1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	1822162	150.000	172.50	
81	sec-Butylbenzene	105	9.583	9.583	(0.986)	2105946	150.000	156.48	
82	p-Isopropyltoluene	119	9.397	9.397	(0.967)	1500896	150.000	156.51	
83	1,3-Dichlorobenzene	146	9.662	9.662	(0.994)	1087043	150.000	171.45	
84	1,4-Dichlorobenzene	146	9.741	9.741	(1.002)	1101414	150.000	168.24	
87	n-Butylbenzene	91	10.049	10.049	(1.034)	1478458	150.000	155.95	
88	1,2-Dichlorobenzene	146	10.049	10.049	(1.034)	1020061	150.000	157.27	
89	1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	95873	150.000	157.35	
90	1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	660407	150.000	149.72	
91	Hexachlorobutadiene	225	11.539	11.539	(1.187)	269294	150.000	156.29	
92	Naphthalene	128	11.596	11.596	(1.193)	1321694	150.000	157.32	
93	1,2,3-Trichlorobenzene	180	11.796	11.796	(1.214)	549337	150.000	154.10	
M 94	1,2-Dichloroethylene (total)	96				1118555	300.000		(a)
135	1,4-Dioxane	88	5.679	5.679	(1.322)	111918	3000.00	3152.50	
141	Cyclohexane	56	4.239	4.239	(0.987)	878533	150.000	154.81	
138	Freon TF	101	2.005	2.005	(0.467)	460320	150.000	157.10	
147	Methylcyclohexane	83	5.464	5.464	(1.079)	796373	150.000	153.93	(A)
146	Methyl Acetate	43	2.327	2.327	(0.542)	645455	150.000	163.04	
148	Tert-Butyl alcohol	59	2.527	2.527	(0.588)	856064	3000.00	3087.71	
149	Isopropyl Alcohol	45	2.191	2.191	(0.510)	578706	3000.00	3161.95	

QC Flag Legend

a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).
A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041110.D
Date : 11-APR-2018 16:16
Client ID: VSTD150
Sample Info: VSTD150;VSTD150;1;9;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041111.D
Report Date: 15-May-2018 15:39

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041111.D
Lab Smp Id: VSTD200 Client Smp ID: VSTD200
Inj Date : 11-APR-2018 16:40
Operator : PC Inst ID: voa6.i
Smp Info : VSTD200;VSTD200;1;10;
Misc Info : HS16030331;WATER;0;1;
Comment :
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Meth Date : 15-May-2018 15:39 voa6.i Quant Type: ISTD
Cal Date : 11-APR-2018 16:16 Cal File: X041110.D
Als bottle: 11 Calibration Sample, Level: 10
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 8260_GB++.sub
Target Version: 4.14
Processing Host: ALSHSW7085

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
* 1	Pentafluorobenzene	168	4.297	4.297	(1.000)	345259	50.0000	
181	2-Furfural	96	8.022	8.022	(1.037)	836647	8000.00	8871.12(AM)
173	3,3-Dimethyl-1-butanol	57	7.355	7.355	(0.951)	1275892	4000.00	4627.56(AM)
23	Chloroprene	53	1.854	1.854	(0.432)	464196	200.000	198.19(M)
43	2-Nitropropane	43	6.045	6.045	(1.407)	260546	200.000	197.06(M)
139	Diethyl ether	59	1.840	1.840	(0.428)	570282	200.000	208.39(AM)
49	Ethyl Methacrylate	69	6.854	6.854	(1.354)	1056093	200.000	211.33(AM)
12	Isobutyl Alcohol	43	4.777	4.777	(1.112)	1689371	4000.00	3891.69(M)
25	Methacrylonitrile	41	3.939	3.939	(0.917)	610634	200.000	189.18(M)
40	Methyl Methacrylate	41	5.686	5.686	(1.323)	596764	200.000	196.64(M)
4	Propionitrile	54	3.774	3.774	(0.878)	940316	2000.00	2004.87(AM)
156	Diisopropyl ether	45	3.108	3.108	(0.723)	2217342	200.000	207.60(AM)
167	Ethanol	45	1.790	1.790	(0.417)	119950	4000.00	3980.75(M)
132	n-Butanol	56	5.343	5.343	(1.243)	324726	4000.00	3959.06(M)
176	tert-Amyl alcohol	59	4.727	4.727	(1.100)	878589	4000.00	3974.43(AM)
174	tert-Amyl methyl ether	73	4.770	4.770	(1.110)	2156009	200.000	209.63(AM)
175	tert-Butyl ethyl ether	59	3.495	3.495	(0.813)	2079815	200.000	203.15(AM)
172	tert-Butyl formate	59	4.727	4.727	(1.100)	878089	400.000	395.72(AM)
72	trans-1,4-Dichloro-2-butene	53	8.946	8.946	(1.156)	225186	200.000	195.09(M)
86	Benzyl Chloride	91	9.863	9.863	(1.275)	1453413	200.000	196.98(M)
150	Allyl alcohol	57	2.879	2.879	(0.670)	830539	4000.00	3985.71(M)
151	4-Methyl-2-pentanol	45	6.782	6.782	(1.339)	3042148	4000.00	4693.52(AM)

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041111.D
Report Date: 15-May-2018 15:39

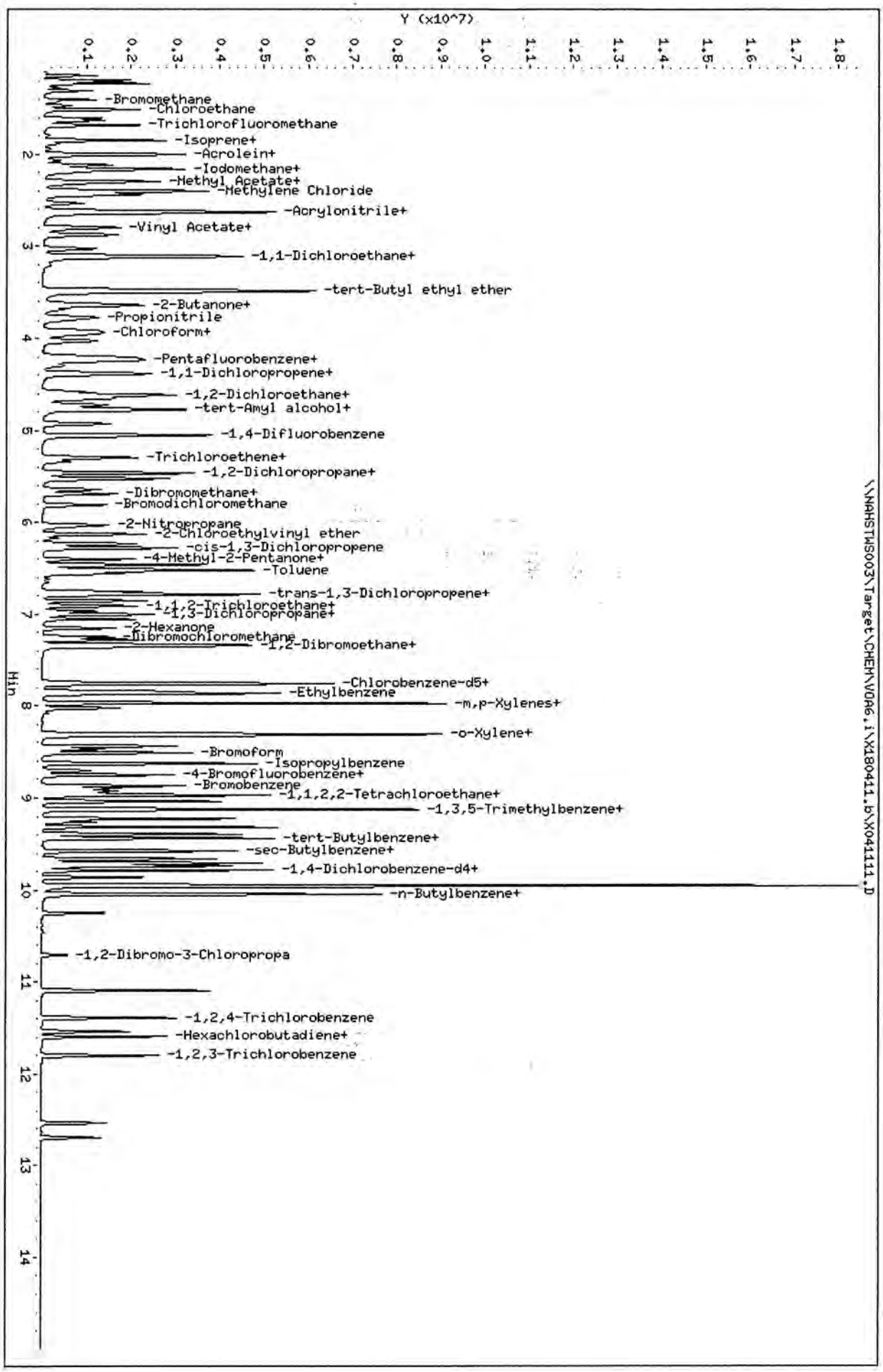
			QUANT SIG					AMOUNTS	
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/l)	ON-COL (ug/l)
	162	Butyl acrylate	55	8.308	8.308	(1.074)	1661214	200.000	215.60 (AM)
	185	Isoprene	39	1.854	1.854	(0.432)	309311	200.000	198.28 (M)
	136	n-Hexane	57	2.879	2.879	(0.670)	828425	200.000	198.35 (M)
	14	Allyl Chloride	41	2.291	2.291	(0.533)	1893033	200.000	215.61 (AM)
	194	Acetaldehyde	44	1.274	1.274	(0.297)	216266	800.000	780.33 (M)
	140	1,3-Butadiene	54	1.231	1.231	(0.287)	624220	200.000	197.35 (M)
	134	Cyclohexanone	55	8.709	8.709	(0.895)	394001	4000.00	3924.99 (M)
	2	Dichlorodifluoromethane	85	1.030	1.030	(0.240)	712363	200.000	199.92
	3	Chloromethane	50	1.138	1.138	(0.265)	814923	200.000	202.25 (A)
	5	Vinyl Chloride	62	1.202	1.202	(0.280)	866176	200.000	198.85
	6	Bromomethane	94	1.403	1.403	(0.327)	557249	200.000	196.14
	7	Chloroethane	64	1.475	1.475	(0.343)	472870	200.000	200.34 (A)
	8	Trichlorofluoromethane	101	1.639	1.639	(0.382)	927822	200.000	199.11
	9	Acrolein	56	1.940	1.940	(0.452)	125829	400.000	392.23
	10	Acetone	43	2.062	2.062	(0.480)	368573	400.000	385.38
	11	1,1-Dichloroethene	96	1.997	1.997	(0.465)	605421	200.000	198.55
	15	Iodomethane	142	2.119	2.119	(0.493)	1714979	400.000	297.97
	16	Acrylonitrile	53	2.635	2.635	(0.613)	530788	400.000	415.59 (A)
	17	Methylene Chloride	84	2.399	2.399	(0.558)	713815	200.000	197.76
	18	Methyl tert-butyl ether	73	2.635	2.635	(0.613)	1935196	200.000	206.84 (A)
	19	Carbon Disulfide	76	2.162	2.162	(0.503)	4237659	400.000	397.59
	20	trans-1,2-Dichloroethene	96	2.628	2.628	(0.612)	678674	200.000	197.12
	21	Vinyl Acetate	43	2.879	2.879	(0.670)	525344	400.000	394.68
	22	1,1-Dichloroethane	63	3.029	3.029	(0.705)	1210302	200.000	225.70 (A)
	24	2-Butanone	43	3.688	3.688	(0.858)	514555	400.000	393.89
	26	2,2-Dichloropropane	77	3.631	3.631	(0.845)	860908	200.000	197.25
	27	cis-1,2-Dichloroethene	96	3.645	3.645	(0.848)	750773	200.000	219.40 (A)
	28	Chloroform	83	4.032	4.032	(0.938)	1116798	200.000	213.89 (A)
	29	Bromochloromethane	128	3.917	3.917	(0.912)	314366	200.000	189.71
$	30	Dibromofluoromethane	113	4.218	4.218	(0.982)	611016	200.000	184.04
	31	1,1,1-Trichloroethane	97	4.204	4.204	(0.978)	939311	200.000	198.08
	32	1,1-Dichloropropene	75	4.397	4.397	(0.868)	919511	200.000	199.14
	33	1,2-Dichloroethane	62	4.662	4.662	(0.921)	795020	200.000	211.12 (A)
	34	Carbon Tetrachloride	117	4.376	4.376	(0.864)	849669	200.000	199.14
$	35	1,2-Dichloroethane-d4	65	4.583	4.583	(1.067)	642478	200.000	174.34
*	36	1,4-Difluorobenzene	114	5.063	5.063	(1.000)	513758	50.0000	
	37	Benzene	78	4.619	4.619	(0.912)	2689274	200.000	198.24
	38	Trichloroethene	130	5.300	5.300	(1.047)	725656	200.000	198.94
	39	Bromodichloromethane	83	5.808	5.808	(1.147)	889818	200.000	216.14 (A)
	41	2-Chloroethylvinyl ether	63	6.123	6.123	(1.209)	970543	400.000	408.97 (A)
	42	1,2-Dichloropropane	63	5.529	5.529	(1.092)	715619	200.000	219.16 (A)
	44	Dibromomethane	93	5.643	5.643	(1.115)	436051	200.000	211.85 (A)
	45	4-Methyl-2-Pentanone	43	6.403	6.403	(0.828)	1221789	400.000	391.03
	46	cis-1,3-Dichloropropene	75	6.238	6.238	(1.232)	1206719	200.000	218.74 (A)
*	47	Chlorobenzene-d5	117	7.735	7.735	(1.000)	495824	50.0000	
$	48	Toluene-d8	98	6.460	6.460	(0.835)	2237419	200.000	182.55
	50	Toluene	91	6.525	6.525	(0.844)	2727118	200.000	217.87 (A)
	51	trans-1,3-Dichloropropene	75	6.754	6.754	(1.334)	990661	200.000	212.95 (A)
	52	2-Hexanone	43	7.155	7.155	(0.925)	828684	400.000	394.58
	53	1,1,2-Trichloroethane	83	6.911	6.911	(0.894)	514036	200.000	198.00
	54	1,3-Dichloropropane	76	7.055	7.055	(0.912)	1081042	200.000	200.37 (A)
	55	Dibromochloromethane	129	7.248	7.248	(0.937)	740390	200.000	207.80 (A)
	56	Tetrachloroethene	164	7.004	7.004	(0.905)	558156	200.000	197.41
	57	1,2-Dibromoethane	107	7.334	7.334	(0.948)	642660	200.000	203.18 (A)

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041111.D
Report Date: 15-May-2018 15:39

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
	58 1-Chlorohexane	55	7.764	7.764	(1.533)	576606	200.000	196.70
	59 Chlorobenzene	112	7.764	7.764	(1.004)	1849418	200.000	218.21(A)
	60 1,1,1,2-Tetrachloroethane	131	7.843	7.843	(1.014)	671737	200.000	215.22(A)
	61 Ethylbenzene	106	7.864	7.864	(1.017)	954570	200.000	225.53(A)
	62 m,p-Xylenes	106	7.971	7.971	(1.031)	2325236	400.000	447.40(A)
	63 o-Xylene	106	8.308	8.308	(1.074)	1137526	200.000	217.79(A)
	64 Styrene	104	8.322	8.322	(1.076)	1959917	200.000	213.83(A)
	66 Bromoform	173	8.473	8.473	(1.095)	543136	200.000	202.90(A)
	67 Isopropylbenzene	105	8.623	8.623	(1.115)	2725551	200.000	197.56
	68 1,1,2,2-Tetrachloroethane	83	8.896	8.896	(0.915)	778010	200.000	196.74
$	69 4-Bromofluorobenzene	95	8.752	8.752	(1.131)	811292	200.000	179.22
*	70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	247278	50.0000	
	71 1,2,3-Trichloropropane	75	8.924	8.924	(0.918)	967759	200.000	197.36
	73 n-Propylbenzene	91	8.974	8.974	(0.923)	3344811	200.000	197.51
	74 Bromobenzene	156	8.867	8.867	(0.912)	810986	200.000	214.34(A)
	75 1,3,5-Trimethylbenzene	105	9.125	9.125	(0.938)	2300882	200.000	224.55(A)
	76 2-Chlorotoluene	91	9.039	9.039	(0.929)	1975471	200.000	223.64(A)
	77 4-Chlorotoluene	91	9.132	9.132	(0.939)	2252127	200.000	221.07(A)
	78 tert-Butylbenzene	119	9.397	9.397	(0.966)	1949190	200.000	197.95
	79 1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	2357336	200.000	218.06(A)
	81 sec-Butylbenzene	105	9.583	9.583	(0.985)	2742019	200.000	198.34
	82 p-Isopropyltoluene	119	9.397	9.397	(0.966)	1949190	200.000	197.95
	83 1,3-Dichlorobenzene	146	9.662	9.662	(0.993)	1398664	200.000	215.55(A)
	84 1,4-Dichlorobenzene	146	9.741	9.741	(1.001)	1415786	200.000	211.31(A)
	87 n-Butylbenzene	91	10.049	10.049	(1.033)	1935893	200.000	198.84
	88 1,2-Dichlorobenzene	146	10.049	10.049	(1.033)	1312824	200.000	197.35
	89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	124506	200.000	199.08
	90 1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	865470	200.000	174.16
	91 Hexachlorobutadiene	225	11.539	11.539	(1.186)	353366	200.000	199.37
	92 Naphthalene	128	11.596	11.596	(1.192)	1792401	200.000	196.56
	93 1,2,3-Trichlorobenzene	180	11.797	11.797	(1.213)	739420	200.000	201.78(A)
M	94 1,2-Dichloroethylene (total)	96				1429447	400.000	(a)
	135 1,4-Dioxane	88	5.679	5.679	(1.322)	141608	4000.00	3947.81
	141 Cyclohexane	56	4.240	4.240	(0.987)	1142315	200.000	198.60
	138 Freon TF	101	2.005	2.005	(0.467)	594993	200.000	196.25
	147 Methylcyclohexane	83	5.464	5.464	(1.079)	1052508	200.000	200.26(A)
	146 Methyl Acetate	43	2.327	2.327	(0.542)	795765	200.000	199.12
	148 Tert-Butyl alcohol	59	2.535	2.535	(0.590)	1085696	4000.00	3873.51
	149 Isopropyl Alcohol	45	2.191	2.191	(0.510)	723351	4000.00	3918.40

QC Flag Legend

a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).
A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041111.D
Date : 11-APR-2018 16:40
Client ID: VSTD200
Sample Info: VSTD200;VSTD200;1;10;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041114.D
Report Date: 15-May-2018 15:39

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041114.D
Lab Smp Id: VSTD-ICV Client Smp ID: VSDT-ICV
Inj Date : 11-APR-2018 17:54
Operator : PC Inst ID: voa6.i
Smp Info : VSTD-ICV;VSDT-ICV;3;;METHSPIKE
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\8260W.m
Meth Date : 15-May-2018 15:39 voa6.i Quant Type: ISTD
Cal Date : 11-APR-2018 16:40 Cal File: X041111.D
Als bottle: 13 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 8260_GB++.sub
Target Version: 4.14
Processing Host: ALSHSW7085

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.297	4.297	(1.000)	347754	50.0000	
181 2-Furfural	96	8.022	8.022	(1.037)	184602	2000.00	1959.19(M)
173 3,3-Dimethyl-1-butanol	57	7.348	7.348	(0.950)	269145	1000.00	988.83(M)
23 Chloroprene	53	1.854	1.854	(0.432)	104374	50.0000	46.66(M)
43 2-Nitropropane	43	6.045	6.045	(1.407)	69516	50.0000	52.38(M)
139 Diethyl ether	59	1.840	1.840	(0.428)	143593	50.0000	52.09(M)
49 Ethyl Methacrylate	69	6.854	6.854	(1.354)	260398	50.0000	50.27(M)
12 Isobutyl Alcohol	43	4.777	4.777	(1.112)	434142	1000.00	992.92(M)
25 Methacrylonitrile	41	3.939	3.939	(0.917)	165570	50.0000	50.92(M)
40 Methyl Methacrylate	41	5.686	5.686	(1.323)	160765	50.0000	52.67(M)
4 Propionitrile	54	3.767	3.767	(0.877)	245725	500.000	520.15(M)
156 Diisopropyl ether	45	3.108	3.108	(0.723)	598049	50.0000	55.59(M)
167 Ethanol	45	1.790	1.790	(0.417)	29422	1000.00	975.97(M)
132 n-Butanol	56	5.335	5.335	(1.242)	75543	1000.00	934.52(M)
176 tert-Amyl alcohol	59	4.719	4.719	(1.098)	210556	1000.00	958.62(M)
174 tert-Amyl methyl ether	73	4.770	4.770	(1.110)	523360	50.0000	50.52(M)
175 tert-Butyl ethyl ether	59	3.487	3.487	(0.812)	554723	50.0000	53.79(M)
172 tert-Butyl formate	59	4.719	4.719	(1.098)	206449	100.000	93.77(M)
72 trans-1,4-Dichloro-2-butene	53	8.946	8.946	(1.156)	57116	50.0000	50.08(M)
86 Benzyl Chloride	91	9.862	9.862	(1.275)	329480	50.0000	45.86(M)
150 Allyl alcohol	57	2.879	2.879	(0.670)	188211	1000.00	945.65(M)
151 4-Methyl-2-pentanol	45	6.775	6.775	(1.338)	654692	1000.00	974.59(M)

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041114.D
Report Date: 15-May-2018 15:39

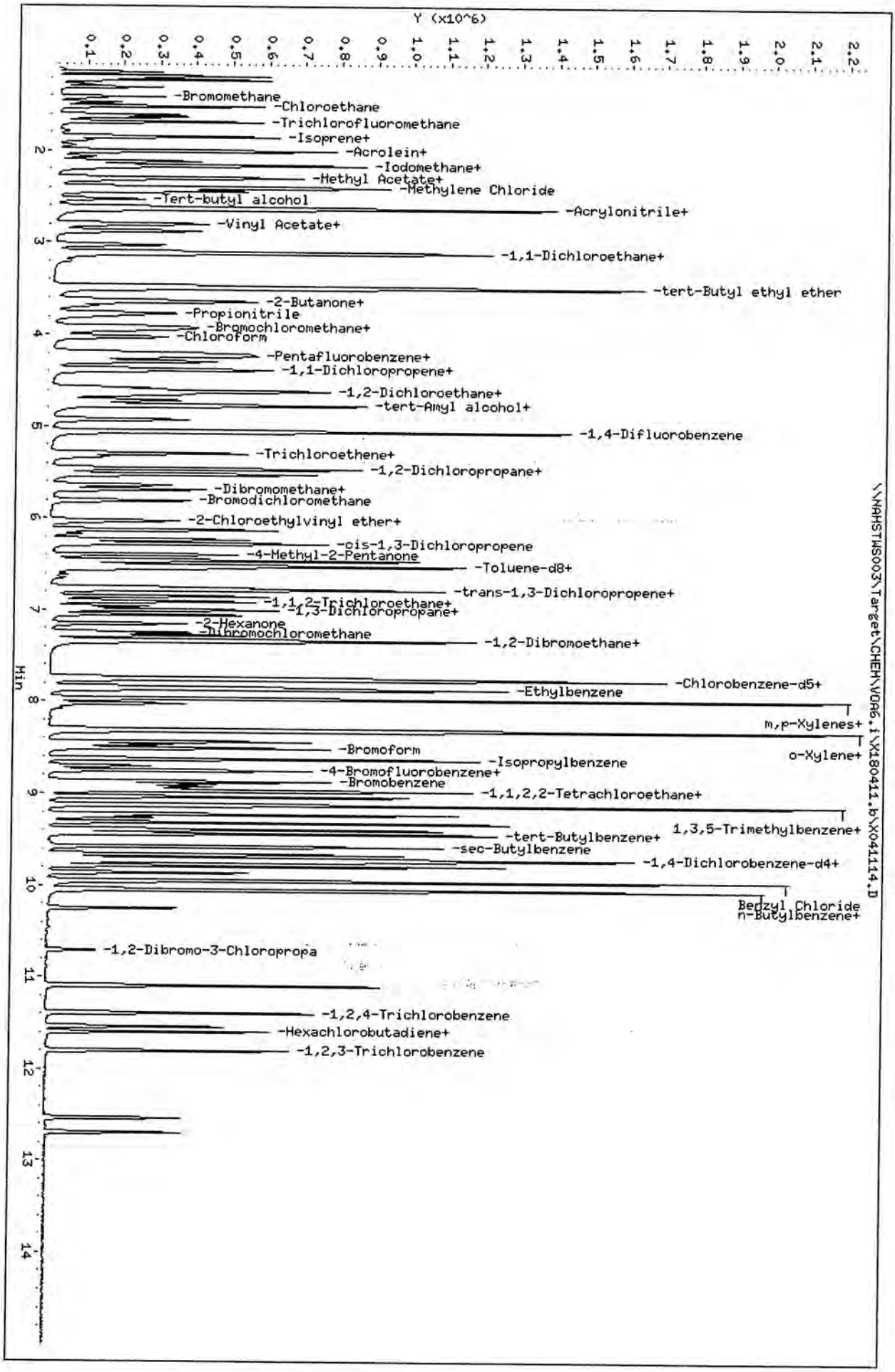
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
	162 Butyl acrylate	55	8.308	8.308	(1.074)	402216	50.0000	52.25(M)
	185 Isoprene	39	1.854	1.854	(0.432)	68849	50.0000	46.17(M)
	136 n-Hexane	57	2.879	2.879	(0.670)	189661	50.0000	47.40(M)
	14 Allyl Chloride	41	2.291	2.291	(0.533)	488579	50.0000	55.25(M)
	194 Acetaldehyde	44	1.274	1.274	(0.297)	58651	200.000	206.44(M)
	140 1,3-Butadiene	54	1.231	1.231	(0.287)	149861	50.0000	49.06(M)
	134 Cyclohexanone	55	8.702	8.702	(0.895)	99214	1000.00	969.31(M)
	2 Dichlorodifluoromethane	85	1.030	1.030	(0.240)	158686	50.0000	47.14
	3 Chloromethane	50	1.138	1.138	(0.265)	192518	50.0000	49.94
	5 Vinyl Chloride	62	1.210	1.210	(0.282)	198714	50.0000	47.81
	6 Bromomethane	94	1.410	1.410	(0.328)	121861	50.0000	54.04
	7 Chloroethane	64	1.475	1.475	(0.343)	112477	50.0000	49.32
	8 Trichlorofluoromethane	101	1.639	1.639	(0.382)	210161	50.0000	47.38
	9 Acrolein	56	1.940	1.940	(0.452)	31498	100.000	97.48
	10 Acetone	43	2.062	2.062	(0.480)	98186	100.000	101.38
	11 1,1-Dichloroethene	96	2.005	2.005	(0.467)	137008	50.0000	46.99
	15 Iodomethane	142	2.119	2.119	(0.493)	399127	100.000	107.59
	16 Acrylonitrile	53	2.635	2.635	(0.613)	141105	100.000	109.68
	17 Methylene Chloride	84	2.399	2.399	(0.558)	181363	50.0000	50.60
	18 Methyl tert-butyl ether	73	2.635	2.635	(0.613)	504394	50.0000	53.52
	19 Carbon Disulfide	76	2.162	2.162	(0.503)	994714	100.000	96.93
	20 trans-1,2-Dichloroethene	96	2.628	2.628	(0.612)	166047	50.0000	49.38
	21 Vinyl Acetate	43	2.879	2.879	(0.670)	121216	100.000	94.41
	22 1,1-Dichloroethane	63	3.029	3.029	(0.705)	300308	50.0000	55.60
	24 2-Butanone	43	3.688	3.688	(0.858)	134315	100.000	102.25
	26 2,2-Dichloropropane	77	3.631	3.631	(0.845)	201746	50.0000	47.40
	27 cis-1,2-Dichloroethene	96	3.645	3.645	(0.848)	186910	50.0000	54.22
	28 Chloroform	83	4.032	4.032	(0.938)	283309	50.0000	53.87
	29 Bromochloromethane	128	3.917	3.917	(0.912)	93415	50.0000	55.96
$	30 Dibromofluoromethane	113	4.218	4.218	(0.982)	164333	50.0000	49.14
	31 1,1,1-Trichloroethane	97	4.204	4.204	(0.978)	228013	50.0000	49.39
	32 1,1-Dichloropropene	75	4.390	4.390	(0.867)	220025	50.0000	48.04
	33 1,2-Dichloroethane	62	4.662	4.662	(0.921)	204852	50.0000	52.48
	34 Carbon Tetrachloride	117	4.376	4.376	(0.864)	201492	50.0000	47.72
$	35 1,2-Dichloroethane-d4	65	4.576	4.576	(1.065)	177647	50.0000	47.86
*	36 1,4-Difluorobenzene	114	5.063	5.063	(1.000)	532464	50.0000	
	37 Benzene	78	4.619	4.619	(0.912)	665730	50.0000	49.03
	38 Trichloroethene	130	5.300	5.300	(1.047)	174764	50.0000	48.34
	39 Bromodichloromethane	83	5.808	5.808	(1.147)	227674	50.0000	53.36
	41 2-Chloroethylvinyl ether	63	6.123	6.123	(1.209)	256647	100.000	104.34
	42 1,2-Dichloropropane	63	5.529	5.529	(1.092)	183790	50.0000	54.30
	44 Dibromomethane	93	5.643	5.643	(1.115)	110507	50.0000	51.80
	45 4-Methyl-2-Pentanone	43	6.396	6.396	(0.827)	318520	100.000	102.81
	46 cis-1,3-Dichloropropene	75	6.231	6.231	(1.231)	304296	50.0000	53.22
*	47 Chlorobenzene-d5	117	7.735	7.735	(1.000)	495362	50.0000	
$	48 Toluene-d8	98	6.460	6.460	(0.835)	609430	50.0000	49.77
	50 Toluene	91	6.525	6.525	(0.844)	685471	50.0000	54.81
	51 trans-1,3-Dichloropropene	75	6.754	6.754	(1.334)	249301	50.0000	51.70
	52 2-Hexanone	43	7.155	7.155	(0.925)	210214	100.000	101.55
	53 1,1,2-Trichloroethane	83	6.911	6.911	(0.894)	134213	50.0000	51.74
	54 1,3-Dichloropropane	76	7.055	7.055	(0.912)	283029	50.0000	52.50
	55 Dibromochloromethane	129	7.248	7.248	(0.937)	188948	50.0000	53.08
	56 Tetrachloroethene	164	6.997	6.997	(0.905)	134120	50.0000	49.48
	57 1,2-Dibromoethane	107	7.327	7.327	(0.947)	166619	50.0000	52.72

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041114.D
Report Date: 15-May-2018 15:39

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)	
58	1-Chlorohexane	55	7.757	7.757	(1.532)	143122	50.0000	48.62	
59	Chlorobenzene	112	7.757	7.757	(1.003)	459404	50.0000	54.25	
60	1,1,1,2-Tetrachloroethane	131	7.843	7.843	(1.014)	166953	50.0000	53.54	
61	Ethylbenzene	106	7.864	7.864	(1.017)	235365	50.0000	55.66	
62	m,p-Xylenes	106	7.964	7.964	(1.030)	573250	100.000	110.40	
63	o-Xylene	106	8.301	8.301	(1.073)	285113	50.0000	54.63	
64	Styrene	104	8.322	8.322	(1.076)	494860	50.0000	54.04	
66	Bromoform	173	8.473	8.473	(1.095)	136763	50.0000	51.13	
67	Isopropylbenzene	105	8.623	8.623	(1.115)	668821	50.0000	50.14	
68	1,1,2,2-Tetrachloroethane	83	8.895	8.895	(0.915)	202555	50.0000	50.43	
$ 69	4-Bromofluorobenzene	95	8.752	8.752	(1.131)	216524	50.0000	47.87	
* 70	1,4-Dichlorobenzene-d4	152	9.719	9.719	(1.000)	255103	50.0000		
71	1,2,3-Trichloropropane	75	8.924	8.924	(0.918)	241633	50.0000	48.83	
73	n-Propylbenzene	91	8.974	8.974	(0.923)	817020	50.0000	48.62	
74	Bromobenzene	156	8.867	8.867	(0.912)	201374	50.0000	51.59	
75	1,3,5-Trimethylbenzene	105	9.125	9.125	(0.939)	570082	50.0000	53.93	
76	2-Chlorotoluene	91	9.032	9.032	(0.929)	486308	50.0000	53.36	
77	4-Chlorotoluene	91	9.132	9.132	(0.940)	562666	50.0000	53.53	
78	tert-Butylbenzene	119	9.397	9.397	(0.967)	483762	50.0000	49.49	
79	1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	583837	50.0000	52.35	
81	sec-Butylbenzene	105	9.576	9.576	(0.985)	671481	50.0000	49.18	
82	p-Isopropyltoluene	119	9.397	9.397	(0.967)	483762	50.0000	49.49	
83	1,3-Dichlorobenzene	146	9.662	9.662	(0.994)	343516	50.0000	51.31	
84	1,4-Dichlorobenzene	146	9.741	9.741	(1.002)	350937	50.0000	50.77	
87	n-Butylbenzene	91	10.049	10.049	(1.034)	487095	50.0000	50.38	
88	1,2-Dichlorobenzene	146	10.049	10.049	(1.034)	331234	50.0000	49.52	
89	1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	29501	50.0000	47.40	
90	1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	214570	50.0000	56.50	
91	Hexachlorobutadiene	225	11.539	11.539	(1.187)	86901	50.0000	50.26	
92	Naphthalene	128	11.596	11.596	(1.193)	410814	50.0000	52.43	
93	1,2,3-Trichlorobenzene	180	11.797	11.797	(1.214)	185611	50.0000	51.26	
M 94	1,2-Dichloroethylene (total)	96				352957	100.000		(a)
135	1,4-Dioxane	88	5.679	5.679	(1.322)	32670	1000.00	914.52	
141	Cyclohexane	56	4.239	4.239	(0.987)	268769	50.0000	48.51	
138	Freon TF	101	2.005	2.005	(0.467)	133903	50.0000	49.16	
147	Methylcyclohexane	83	5.464	5.464	(1.079)	253006	50.0000	50.26	
146	Methyl Acetate	43	2.327	2.327	(0.542)	213635	50.0000	53.07	
148	Tert-Butyl alcohol	59	2.528	2.528	(0.588)	269367	1000.00	970.37	
149	Isopropyl Alcohol	45	2.191	2.191	(0.510)	181208	1000.00	963.83	

QC Flag Legend

a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180411.b\X041114.D
Date : 11-APR-2018 17:54
Client ID: VSDT-ICV
Sample Info: VSTD-ICV;VSDT-ICV;3;;METHSPIKE
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS18040595

Lab File ID: X042201 BFB Injection Date: 04/22/18

Instrument ID: VOA6 BFB Injection Time: 0947

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	17.3
75	30.0 - 60.0% of mass 95	45.7
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.0
173	Less than 2.0% of mass 174	0.6 (0.7)1
174	Greater than 50.0% of mass 95	81.5
175	5.0 - 9.0% of mass 174	6.4 (7.9)1
176	95.0 - 101.0% of mass 174	78.1 (95.8)1
177	5.0 - 9.0% of mass 176	5.3 (6.8)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CCV	CCV	X042202	04/22/18	1011
02	VLCSW-180422	VLCSW-180422	X042203	04/22/18	1036
03	VBLKW-180422	VBLKW-180422	X042206	04/22/18	1149
04	HS18040595-0	HS18040595-02	X042208	04/22/18	1238
05	HS18040595-0	HS18040595-01	X042210	04/22/18	1327
06	HS18040701-0	HS18040701-07M	X042212	04/22/18	1417
07	HS18040701-0	HS18040701-07M	X042213	04/22/18	1441
08	CCV-END	CCV-END	X042229	04/22/18	2113
09					
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22					

page 1 of 1

FORM V VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS18040595

Instrument ID: VOA6 Calibration Date: 04/22/18 Time: 1011

Lab File ID: X042202 Init. Calib. Date(s): 04/11/18 04/11/18

Init. Calib. Times: 1234 1640

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE	
Dichlorodifluoromethane	55.390787	50.000000	0.5430111	0.1	-10.78	20.00	LINR	
Chloromethane	46.229660	50.000000	0.5095646	0.1	7.54	20.00	LINR	
Vinyl Chloride	53.042692	50.000000	0.6385357	0.1	-6.08	20.00	LINR	
Bromomethane	40.676569	50.000000	0.2572791	0.1	18.65	20.00	2RDR	
Chloroethane	53.710264	50.000000	0.3538400	0.1	-7.42	20.00	LINR	
Trichlorofluoromethane	51.102104	50.000000	0.6553276	0.1	-2.20	20.00	LINR	
Acrolein	4.6e-002	4.93e-002	4.93e-002	0.02	-7.17	20.00	AVRG	
Acetone	99.087188	100.00000	0.1379921	0.1	0.91	20.00	LINR	
1,1-Dichloroethene	53.833442	50.000000	0.4553339	0.1	-7.67	20.00	LINR	
Iodomethane	88.270050	100.00000	0.4592784	0.1	11.73	20.00	2RDR	
Acrylonitrile	0.1850000	0.2248258	0.2248258	0.05	-21.53	20.00	AVRG	<-
Methylene Chloride	53.882549	50.000000	0.5559478	0.1	-7.76	20.00	LINR	
Methyl tert-butyl ether	1.3550000	1.5640216	1.5640216	0.1	-15.42	20.00	AVRG	
Carbon Disulfide	109.06737	100.00000	1.6201894	0.1	-9.07	20.00	LINR	
trans-1,2-Dichloroethene	54.498639	50.000000	0.5289488	0.1	-9.00	20.00	LINR	
Vinyl Acetate	108.64802	100.00000	0.2020934	0.01	-8.65	20.00	LINR	
1,1-Dichloroethane	0.7760000	0.9109644	0.9109644	0.2	-17.39	20.00	AVRG	
2-Butanone	110.58962	100.00000	0.2089013	0.1	-10.59	20.00	LINR	
2,2-Dichloropropane	54.445729	50.000000	0.6700818	0.1	-8.89	20.00	LINR	
cis-1,2-Dichloroethene	0.4960000	0.5887279	0.5887279	0.1	-18.70	20.00	AVRG	
Chloroform	0.7560000	0.8668165	0.8668165	0.2	-14.66	20.00	AVRG	
Bromochloromethane	0.2400000	0.2876644	0.2876644	0.1	-19.86	20.00	AVRG	
1,1,1-Trichloroethane	52.342368	50.000000	0.6966407	0.1	-4.68	20.00	LINR	
1,1-Dichloropropene	50.079278	50.000000	0.4317096	0.1	-0.16	20.00	LINR	
1,2-Dichloroethane	0.3660000	0.3929774	0.3929774	0.1	-7.37	20.00	AVRG	
Carbon Tetrachloride	49.546890	50.000000	0.3937924	0.1	0.91	20.00	LINR	
Benzene	51.769630	50.000000	1.3234237	0.5	-3.54	20.00	LINR	
Trichloroethene	51.375093	50.000000	0.3500009	0.2	-2.75	20.00	LINR	
Bromodichloromethane	0.4010000	0.4320405	0.4320405	0.2	-7.74	20.00	AVRG	
2-Chloroethylvinyl ether	0.2310000	0.2506929	0.2506929	0.001	-8.52	20.00	AVRG	
1,2-Dichloropropane	0.3180000	0.3616882	0.3616882	0.1	-13.74	20.00	AVRG	
Dibromomethane	0.2000000	0.2158037	0.2158037	0.1	-7.90	20.00	AVRG	
4-Methyl-2-Pentanone	101.63763	100.00000	0.3177736	0.1	-1.64	20.00	LINR	
cis-1,3-Dichloropropene	0.5370000	0.5912850	0.5912850	0.2	-10.11	20.00	AVRG	
Toluene	1.2620000	1.3728322	1.3728322	0.4	-8.78	20.00	AVRG	
trans-1,3-Dichloropropene	0.4530000	0.4884670	0.4884670	0.1	-7.83	20.00	AVRG	
2-Hexanone	101.14309	100.00000	0.2112997	0.1	-1.14	20.00	LINR	
1,1,2-Trichloroethane	0.2620000	0.2625933	0.2625933	0.1	-0.23	20.00	AVRG	
1,3-Dichloropropane	0.5440000	0.5432914	0.5432914	0.1	0.13	20.00	AVRG	
Dibromochloromethane	0.3590000	0.3718943	0.3718943	0.1	-3.59	20.00	AVRG	
Tetrachloroethene	49.461260	50.000000	0.2706429	0.2	1.08	20.00	LINR	
1,2-Dibromoethane	0.3190000	0.3267776	0.3267776	0.1	-2.44	20.00	AVRG	

FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1804059

Instrument ID: VOA6 Calibration Date: 04/22/18 Time: 1011

Lab File ID: X042202 Init. Calib. Date(s): 04/11/18 04/11/18

Init. Calib. Times: 1234 1640

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE	
Chlorobenzene	0.8540000	0.9063384	0.9063384	0.5	-6.13	20.00	AVRG	
1,1,1,2-Tetrachloroethane	0.3150000	0.3226734	0.3226734	0.1	-2.44	20.00	AVRG	
Ethylbenzene	0.4270000	0.4638594	0.4638594	0.1	-8.63	20.00	AVRG	
m,p-Xylenes	0.5240000	0.5638792	0.5638792	0.1	-7.61	20.00	AVRG	
o-Xylene	0.5270000	0.5698086	0.5698086	0.3	-8.12	20.00	AVRG	
Styrene	0.9240000	0.9847110	0.9847110	0.3	-6.57	20.00	AVRG	
Bromoform	0.2700000	0.2669386	0.2669386	0.1	1.13	20.00	AVRG	
Allyl Chloride	1.2710000	1.5769296	1.5769296	0.1	-24.07	20.00	AVRG	<-
Isopropylbenzene	48.906811	50.000000	1.3154710	0.1	2.19	20.00	LINR	
1,1,2,2-Tetrachloroethane	48.050522	50.000000	0.7556603	0.3	3.90	20.00	LINR	
1,2,3-Trichloropropane	47.675363	50.000000	0.9239471	0.1	4.65	20.00	LINR	
n-Propylbenzene	47.340744	50.000000	3.1138049	0.1	5.32	20.00	LINR	
Bromobenzene	0.7650000	0.7461664	0.7461664	0.1	2.46	20.00	AVRG	
1,3,5-Trimethylbenzene	2.0720000	2.1472491	2.1472491	0.1	-3.63	20.00	AVRG	
2-Chlorotoluene	1.7860000	1.8180995	1.8180995	0.1	-1.80	20.00	AVRG	
4-Chlorotoluene	2.0600000	2.1041660	2.1041660	0.1	-2.14	20.00	AVRG	
tert-Butylbenzene	47.559156	50.000000	1.8182759	0.1	4.88	20.00	LINR	
1,2,4-Trimethylbenzene	2.1860000	2.2163560	2.2163560	0.1	-1.39	20.00	AVRG	
sec-Butylbenzene	47.882382	50.000000	2.5585625	0.1	4.24	20.00	LINR	
p-Isopropyltoluene	47.559156	50.000000	1.8182759	0.1	4.88	20.00	LINR	
1,3-Dichlorobenzene	1.3120000	1.3092054	1.3092054	0.6	0.21	20.00	AVRG	
1,4-Dichlorobenzene	1.3550000	1.3174253	1.3174253	0.4	2.77	20.00	AVRG	
n-Butylbenzene	50.059191	50.000000	1.8963357	0.5	-0.12	20.00	LINR	
1,2-Dichlorobenzene	47.412197	50.000000	1.2411882	0.4	5.18	20.00	LINR	
1,2-Dibromo-3-Chloropropane	47.206845	50.000000	0.1151494	0.05	5.59	20.00	LINR	
1,2,4-Trichlorobenzene	56.412492	50.000000	0.8395842	0.2	-12.82	20.00	2RDR	
Hexachlorobutadiene	54.940555	50.000000	0.3747452	0.1	-9.88	20.00	LINR	
Naphthalene	53.551605	50.000000	1.6468884	0.2	-7.10	20.00	2RDR	
1,2,3-Trichlorobenzene	50.448830	50.000000	0.7152623	0.1	-0.90	20.00	LINR	
1-Chlorohexane	51.083977	50.000000	0.2865605	0.1	-2.17	20.00	LINR	
1,4-Dioxane	1140.8567	1000.0000	5.88e-003	0.001	-14.08	20.00	LINR	
n-Hexane	57.923205	50.000000	0.6746353	0.1	-15.85	20.00	LINR	
1,3-Butadiene	57.718074	50.000000	0.5104638	0.1	-15.44	20.00	LINR	
Cyclohexane	52.202828	50.000000	0.8351621	0.1	-4.40	20.00	LINR	
Freon TF	53.102732	50.000000	0.4183766	0.1	-6.20	20.00	2RDR	
Methylcyclohexane	32.539519	50.000000	0.2891974	0.1	34.92	20.00	LINR	<-
Methyl Acetate	0.5780000	0.6593836	0.6593836	0.1	-14.08	20.00	AVRG	
Tert-Butyl alcohol	1121.6071	1000.0000	4.49e-002	0.005	-12.16	20.00	LINR	
Isopropyl Alcohol	1129.6659	1000.0000	3.05e-002	0.005	-12.97	20.00	LINR	
Isoprene	55.122817	50.000000	0.2390491	0.1	-10.24	20.00	LINR	
Acetaldehyde	226.42639	200.00000	4.61e-002	0.001	-13.21	20.00	LINR	

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1804059

Instrument ID: VOA6 Calibration Date: 04/22/18 Time: 1011

Lab File ID: X042202 Init. Calib. Date(s): 04/11/18 04/11/18

Init. Calib. Times: 1234 1640

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Dibromofluoromethane	0.4810000	0.4898742	0.4898742	0.1	-1.84	20.00	AVRG
1,2-Dichloroethane-d4	0.5340000	0.4954736	0.4954736	0.1	7.21	20.00	AVRG
Toluene-d8	1.2360000	1.2083963	1.2083963	0.1	2.23	20.00	AVRG
4-Bromofluorobenzene	0.4560000	0.4388552	0.4388552	0.1	3.76	20.00	AVRG

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS18040595

Instrument ID: VOA6 Calibration Date: 04/22/18 Time: 2113

Lab File ID: X042229 Init. Calib. Date(s): 04/11/18 04/11/18

Init. Calib. Times: 1234 1640

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Dichlorodifluoromethane	56.204590	50.000000	0.5515707	0.1	-12.41	50.00	LINR
Chloromethane	38.926614	50.000000	0.4229381	0.1	22.15	50.00	LINR
Vinyl Chloride	55.109547	50.000000	0.6650457	0.1	-10.22	50.00	LINR
Bromomethane	37.140902	50.000000	0.2330997	0.1	25.72	50.00	2RDR
Chloroethane	55.131465	50.000000	0.3636852	0.1	-10.26	50.00	LINR
Trichlorofluoromethane	51.541722	50.000000	0.6613630	0.1	-3.08	50.00	LINR
Acrolein	4.6e-002	5.45e-002	5.45e-002	0.02	-18.48	50.00	AVRG
Acetone	106.66238	100.00000	0.1484639	0.1	-6.66	50.00	LINR
1,1-Dichloroethene	56.780586	50.000000	0.4817708	0.1	-13.56	50.00	LINR
Iodomethane	72.695906	100.00000	0.3705623	0.1	27.30	50.00	2RDR
Acrylonitrile	0.1850000	0.2267592	0.2267592	0.05	-22.57	50.00	AVRG
Methylene Chloride	54.445250	50.000000	0.5618590	0.1	-8.89	50.00	LINR
Methyl tert-butyl ether	1.3550000	1.5280454	1.5280454	0.1	-12.77	50.00	AVRG
Carbon Disulfide	113.95821	100.00000	1.6967528	0.1	-13.96	50.00	LINR
trans-1,2-Dichloroethene	55.925804	50.000000	0.5433259	0.1	-11.85	50.00	LINR
Vinyl Acetate	96.790605	100.00000	0.1789326	0.01	3.21	50.00	LINR
1,1-Dichloroethane	0.7760000	0.9467480	0.9467480	0.2	-22.00	50.00	AVRG
2-Butanone	112.11949	100.00000	0.2117972	0.1	-12.12	50.00	LINR
2,2-Dichloropropane	49.142383	50.000000	0.6023687	0.1	1.72	50.00	LINR
cis-1,2-Dichloroethene	0.4960000	0.5945474	0.5945474	0.1	-19.87	50.00	AVRG
Chloroform	0.7560000	0.8919116	0.8919116	0.2	-17.98	50.00	AVRG
Bromochloromethane	0.2400000	0.2951139	0.2951139	0.1	-22.96	50.00	AVRG
1,1,1-Trichloroethane	53.316543	50.000000	0.7101693	0.1	-6.63	50.00	LINR
1,1-Dichloropropene	51.348590	50.000000	0.4432733	0.1	-2.70	50.00	LINR
1,2-Dichloroethane	0.3660000	0.3974631	0.3974631	0.1	-8.60	50.00	AVRG
Carbon Tetrachloride	50.981682	50.000000	0.4058775	0.1	-1.96	50.00	LINR
Benzene	52.785352	50.000000	1.3505457	0.5	-5.57	50.00	LINR
Trichloroethene	52.337414	50.000000	0.3569292	0.2	-4.67	50.00	LINR
Bromodichloromethane	0.4010000	0.4433558	0.4433558	0.2	-10.56	50.00	AVRG
2-Chloroethylvinyl ether	0.2310000	0.2422356	0.2422356	0.001	-4.86	50.00	AVRG
1,2-Dichloropropane	0.3180000	0.3630446	0.3630446	0.1	-14.16	50.00	AVRG
Dibromomethane	0.2000000	0.2168655	0.2168655	0.1	-8.43	50.00	AVRG
4-Methyl-2-Pentanone	100.16946	100.00000	0.3131352	0.1	-0.17	50.00	LINR
cis-1,3-Dichloropropene	0.5370000	0.5854009	0.5854009	0.2	-9.01	50.00	AVRG
Toluene	1.2620000	1.3998767	1.3998767	0.4	-10.92	50.00	AVRG
trans-1,3-Dichloropropene	0.4530000	0.4777165	0.4777165	0.1	-5.46	50.00	AVRG
2-Hexanone	98.965090	100.00000	0.2066654	0.1	1.03	50.00	LINR
1,1,2-Trichloroethane	0.2620000	0.2616894	0.2616894	0.1	0.12	50.00	AVRG
1,3-Dichloropropane	0.5440000	0.5565891	0.5565891	0.1	-2.31	50.00	AVRG
Dibromochloromethane	0.3590000	0.3719504	0.3719504	0.1	-3.61	50.00	AVRG
Tetrachloroethene	49.622495	50.000000	0.2715747	0.2	0.76	50.00	LINR
1,2-Dibromoethane	0.3190000	0.3269721	0.3269721	0.1	-2.50	50.00	AVRG

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1804059

Instrument ID: VOA6 Calibration Date: 04/22/18 Time: 2113

Lab File ID: X042229 Init. Calib. Date(s): 04/11/18 04/11/18

Init. Calib. Times: 1234 1640

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Chlorobenzene	0.8540000	0.9050593	0.9050593	0.5	-5.98	50.00	AVRG
1,1,1,2-Tetrachloroethane	0.3150000	0.3249259	0.3249259	0.1	-3.15	50.00	AVRG
Ethylbenzene	0.4270000	0.4614643	0.4614643	0.1	-8.07	50.00	AVRG
m,p-Xylenes	0.5240000	0.5598559	0.5598559	0.1	-6.84	50.00	AVRG
o-Xylene	0.5270000	0.5597711	0.5597711	0.3	-6.22	50.00	AVRG
Styrene	0.9240000	0.9686641	0.9686641	0.3	-4.83	50.00	AVRG
Bromoform	0.2700000	0.2679872	0.2679872	0.1	0.74	50.00	AVRG
Allyl Chloride	1.2710000	1.5837159	1.5837159	0.1	-24.60	50.00	AVRG
Isopropylbenzene	47.747171	50.000000	1.2828524	0.1	4.50	50.00	LINR
1,1,2,2-Tetrachloroethane	48.621363	50.000000	0.7648380	0.3	2.76	50.00	LINR
1,2,3-Trichloropropane	46.242091	50.000000	0.8953214	0.1	7.52	50.00	LINR
n-Propylbenzene	45.847715	50.000000	3.0102852	0.1	8.30	50.00	LINR
Bromobenzene	0.7650000	0.7422529	0.7422529	0.1	2.97	50.00	AVRG
1,3,5-Trimethylbenzene	2.0720000	2.0585538	2.0585538	0.1	0.65	50.00	AVRG
2-Chlorotoluene	1.7860000	1.8078252	1.8078252	0.1	-1.22	50.00	AVRG
4-Chlorotoluene	2.0600000	2.0462891	2.0462891	0.1	0.66	50.00	AVRG
tert-Butylbenzene	45.517486	50.000000	1.7359503	0.1	8.96	50.00	LINR
1,2,4-Trimethylbenzene	2.1860000	2.1261096	2.1261096	0.1	2.74	50.00	AVRG
sec-Butylbenzene	45.218820	50.000000	2.4075529	0.1	9.56	50.00	LINR
p-Isopropyltoluene	45.517486	50.000000	1.7359503	0.1	8.96	50.00	LINR
1,3-Dichlorobenzene	1.3120000	1.2623518	1.2623518	0.6	3.78	50.00	AVRG
1,4-Dichlorobenzene	1.3550000	1.2852811	1.2852811	0.4	5.14	50.00	AVRG
n-Butylbenzene	45.476504	50.000000	1.7136078	0.5	9.05	50.00	LINR
1,2-Dichlorobenzene	46.557876	50.000000	1.2180110	0.4	6.88	50.00	LINR
1,2-Dibromo-3-Chloropropane	45.924002	50.000000	0.1118692	0.05	8.15	50.00	LINR
1,2,4-Trichlorobenzene	51.354265	50.000000	0.7582555	0.2	-2.71	50.00	2RDR
Hexachlorobutadiene	42.545034	50.000000	0.2842579	0.1	14.91	50.00	LINR
Naphthalene	50.033268	50.000000	1.5323206	0.2	-0.07	50.00	2RDR
1,2,3-Trichlorobenzene	46.199005	50.000000	0.6513765	0.1	7.60	50.00	LINR
1-Chlorohexane	49.313963	50.000000	0.2764221	0.1	1.37	50.00	LINR
1,4-Dioxane	967.34848	1000.0000	4.97e-003	0.001	3.26	50.00	LINR
n-Hexane	49.887590	50.000000	0.5759399	0.1	0.22	50.00	LINR
1,3-Butadiene	60.927201	50.000000	0.5402898	0.1	-21.85	50.00	LINR
Cyclohexane	50.576095	50.000000	0.8076784	0.1	-1.15	50.00	LINR
Freon TF	53.472534	50.000000	0.4215090	0.1	-6.94	50.00	2RDR
Methylcyclohexane	52.594158	50.000000	0.4995701	0.1	-5.19	50.00	LINR
Methyl Acetate	0.5780000	0.6716287	0.6716287	0.1	-16.20	50.00	AVRG
Tert-Butyl alcohol	1035.3465	1000.0000	4.14e-002	0.005	-3.53	50.00	LINR
Isopropyl Alcohol	1018.9362	1000.0000	2.75e-002	0.005	-1.89	50.00	LINR
Isoprene	56.442680	50.000000	0.2451048	0.1	-12.88	50.00	LINR
Acetaldehyde	236.38088	200.00000	4.81e-002	0.001	-18.19	50.00	LINR

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1804059

Instrument ID: VOA6 Calibration Date: 04/22/18 Time: 2113

Lab File ID: X042229 Init. Calib. Date(s): 04/11/18 04/11/18

Init. Calib. Times: 1234 1640

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Dibromofluoromethane	0.4810000	0.4965339	0.4965339	0.1	-3.23	50.00	AVRG
1,2-Dichloroethane-d4	0.5340000	0.4979404	0.4979404	0.1	6.75	50.00	AVRG
Toluene-d8	1.2360000	1.2094264	1.2094264	0.1	2.15	50.00	AVRG
4-Bromofluorobenzene	0.4560000	0.4397075	0.4397075	0.1	3.57	50.00	AVRG

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS18040595

Lab File ID (Standard): X042202 Date Analyzed: 04/22/18

Instrument ID: VOA6 Time Analyzed: 1011

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS1 AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CBZ) AREA #	RT #
	12 HOUR STD	313605	4.30	489593	5.06	485119	7.74
	UPPER LIMIT	627210	4.80	979186	5.56	970238	8.24
	LOWER LIMIT	156803	3.80	244797	4.56	242560	7.24
	CLIENT SAMPLE NO.						
01	VLCSW-180422	298796	4.30	467165	5.06	463833	7.74
02	VBLKW-180422	319226	4.30	502314	5.06	498433	7.74
03	HS18040595-02	317072	4.30	503853	5.06	492641	7.74
04	HS18040595-01	317371	4.30	501062	5.06	495522	7.74
05	HS18040701-07	315117	4.30	496578	5.06	491069	7.74
06	HS18040701-07	305707	4.30	485186	5.06	479761	7.74
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

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

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS18040595

Lab File ID (Standard): X042202 Date Analyzed: 04/22/18

Instrument ID: VOA6 Time Analyzed: 1011

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS4 (DCB) AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	255112	9.72				
	UPPER LIMIT	510224	10.22				
	LOWER LIMIT	127556	9.22				
	CLIENT SAMPLE NO.						
01	VLCSW-180422	243447	9.72				
02	VBLKW-180422	250767	9.72				
03	HS18040595-02	245879	9.72				
04	HS18040595-01	247226	9.72				
05	HS18040701-07	252951	9.72				
06	HS18040701-07	255518	9.72				
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

IS4 (DCB) = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM VIII VOA

MSVOA06 -Logbook

Batch: 31745
Date: 04-22-2018
Method: 8260
Comments:

Analyst: Cesar Lira
Reviewer:
Laboratory: Houston

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	VSTD050	ICAL7	04-11-2018 03:27 pm	1.00	40 mL	40 mL	X041108.D	Liquid	Y	NA
2	BFB	TUNE	04-22-2018 09:47 am	1.00	40 mL	40 mL	X042201.D	Liquid	Y	NA
3	CCV	CCV	04-22-2018 10:11 am	1.00	40 mL	40 mL	X042202.D	Liquid	Y	NA
	10µL cal STD/50mL DI Water									
4	VLCSW-180422	LCS	04-22-2018 10:36 am	1.00	40 mL	40 mL	X042203.D	Liquid	Y	NA
	10µL cal STD/50mL DI Water									
5	BLANKW	SAMP	04-22-2018 11:00 am	1.00	40 mL	40 mL	X042204.D	Liquid	Y	NA
6	VBLKW-180422	MBLK	04-22-2018 11:25 am	1.00	40 mL	40 mL	X042205.D	Liquid	Y	NA
7	VBLKW-180422	MBLK	04-22-2018 11:49 am	1.00	40 mL	40 mL	X042206.D	Liquid	Y	NA
8	HS18040701-07	SAMP	04-22-2018 12:14 pm	1.00	40 mL	40 mL	X042207.D	Liquid	Y	<2
9	HS18040595-02	SAMP	04-22-2018 12:38 pm	1.00	40 mL	40 mL	X042208.D	Liquid	Y	<2
10	HS18040991-02	SAMP	04-22-2018 01:03 pm	1.00	40 mL	40 mL	X042209.D	Liquid	Y	<2
11	HS18040595-01	SAMP	04-22-2018 01:27 pm	1.00	40 mL	40 mL	X042210.D	Liquid	Y	<2
12	HS18040991-01	SAMP	04-22-2018 01:52 pm	1.00	40 mL	40 mL	X042211.D	Liquid	Y	<2
13	HS18040701-07MS	MS	04-22-2018 02:17 pm	1.00	40 mL	40 mL	X042212.D	Liquid	Y	<2
	5µL cal STD/50mL DI Water									
14	HS18040701-07MSD	MSD	04-22-2018 02:41 pm	1.00	40 mL	40 mL	X042213.D	Liquid	Y	<2
	5µL cal STD/50mL DI Water									
15	HS18040539-04	SAMP	04-22-2018 03:06 pm	5.00	8 mL	40 mL	X042214.D	Liquid	Y	<2
16	HS18040542-03	SAMP	04-22-2018 03:30 pm	10.00	4 mL	40 mL	X042215.D	Liquid	Y	<2
17	HS18040542-11	SAMP	04-22-2018 03:54 pm	10.00	4 mL	40 mL	X042216.D	Liquid	Y	<2
18	HS18040539-02	SAMP	04-22-2018 04:19 pm	25.00	1.6 mL	40 mL	X042217.D	Liquid	Y	<2
19	HS18040480-05	SAMP	04-22-2018 04:44 pm	1.00	40 mL	40 mL	X042218.D	Liquid	Y	<2
20	HS18040797-05	SAMP	04-22-2018 05:08 pm	1.00	40 mL	40 mL	X042219.D	Liquid	Y	<2
21	HS18040539-05	SAMP	04-22-2018 05:33 pm	25.00	1.6 mL	40 mL	X042220.D	Liquid	Y	<2
22	HS18040701-09	SAMP	04-22-2018 05:57 pm	1.00	40 mL	40 mL	X042221.D	Liquid	Y	<2
23	HS18040701-08	SAMP	04-22-2018 06:22 pm	1.00	40 mL	40 mL	X042222.D	Liquid	Y	<2
24	HS18040734-01	SAMP	04-22-2018 06:46 pm	1.00	40 mL	40 mL	X042223.D	Liquid	Y	<2
25	HS18040734-04	SAMP	04-22-2018 07:11 pm	1.00	40 mL	40 mL	X042224.D	Liquid	Y	<2
26	HS18040734-05	SAMP	04-22-2018 07:35 pm	1.00	40 mL	40 mL	X042225.D	Liquid	Y	<2
27	HS18040734-06	SAMP	04-22-2018 08:00 pm	1.00	40 mL	40 mL	X042226.D	Liquid	Y	<2
28	HS18040734-07	SAMP	04-22-2018 08:24 pm	1.00	40 mL	40 mL	X042227.D	Liquid	Y	<2
29	HS18040734-11	SAMP	04-22-2018 08:49 pm	1.00	40 mL	40 mL	X042228.D	Liquid	Y	<2
30	CCV-END	CCV	04-22-2018 09:13 pm	1.00	40 mL	40 mL	X042229.D	Liquid	Y	NA
	10µL cal STD/50mL DI Water									

MSVOA06 -Logbook

Chemical	Value
SURR SPK ID	30502-18-03
IS ID	30502-18-04
ICV STD ID	30502-21-02
LCS/MS ID	30502-21-01
CAL STD ID	30502-21-01
Pentafluorobenzene Response	
BFB ID	30603-12-05
pH Paper	634-37-03

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180422.b\X042201.D

Date : 22-APR-2018 09:47

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

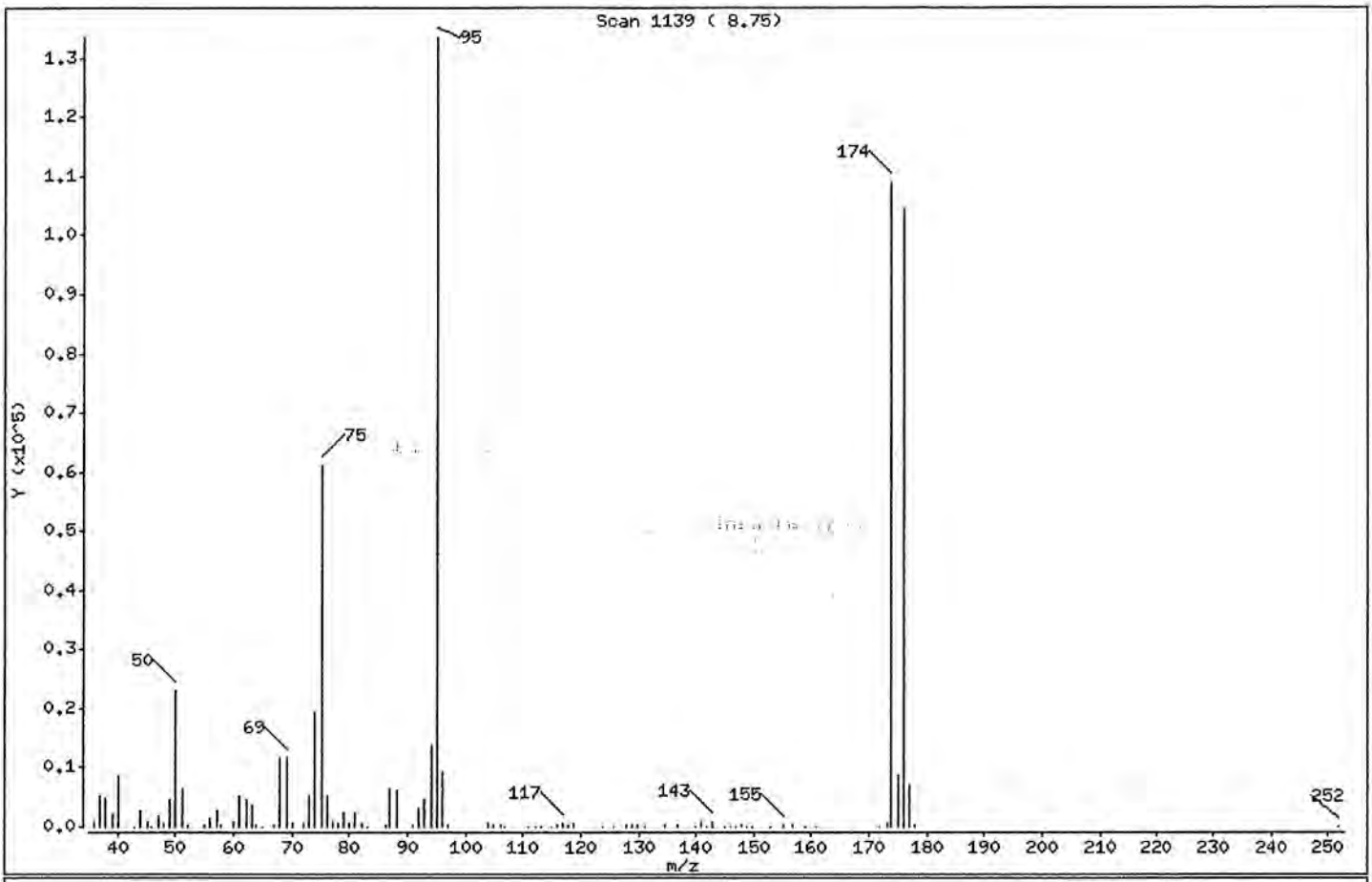
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	17.35
75	30.00 - 60.00% of mass 95	45.73
96	5.00 - 9.00% of mass 95	7.00
173	Less than 2.00% of mass 174	0.56 (0.69)
174	Greater than 50.00% of mass 95	81.52
175	5.00 - 9.00% of mass 174	6.40 (7.85)
176	95.00 - 101.00% of mass 174	78.10 (95.81)
177	5.00 - 9.00% of mass 176	5.28 (6.76)

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180422.b\X042201.D

Date : 22-APR-2018 09:47

Client ID: BFB Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0 Operator: PC

Column phase: DB624 Column diameter: 0.25

Data File: X042201.D
Spectrum: Scan 1139 (8.75)
Location of Maximum: 95.00
Number of points: 94

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	1005	65.10	115	95.00	133632	140.90	900
37.00	5205	67.00	222	96.00	9354	142.00	85
38.00	4802	68.00	11679	97.00	232	142.90	907
39.10	2146	69.00	11698	103.80	488	145.10	95
40.00	8493	70.10	747	104.90	173	145.80	142
42.90	102	72.00	630	106.00	402	146.90	75
44.00	2871	73.00	5189	106.90	149	147.90	246
45.00	1060	74.00	19320	110.80	53	148.80	124
45.80	97	75.00	61104	112.00	72	149.90	87
47.10	1965	76.10	5350	113.00	117	152.90	115
48.00	719	77.00	810	115.00	112	155.00	262
49.00	4685	77.90	492	115.80	448	156.80	196
50.00	23184	78.90	2387	116.90	676	158.90	126
51.00	6541	80.00	702	117.90	391	160.80	139
52.20	219	80.90	2542	118.90	635	172.00	72
55.00	308	82.00	584	123.80	87	173.00	750
56.00	1499	82.90	71	125.70	51	173.90	108936
57.10	2840	86.10	195	127.90	396	174.90	8555
57.90	161	87.00	6460	129.00	182	175.90	104368
60.00	1019	88.00	6054	129.80	365	176.90	7054
61.00	5114	90.90	352	131.00	144	177.90	255
62.10	4609	92.00	3047	134.70	168	251.80	64
63.10	3627	93.00	4569	136.90	211		
63.90	283	94.00	13674	139.80	126		

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180422.b\X042201.D

Date : 22-APR-2018 09:47

Client ID: BFB

Instrument: voa6.i

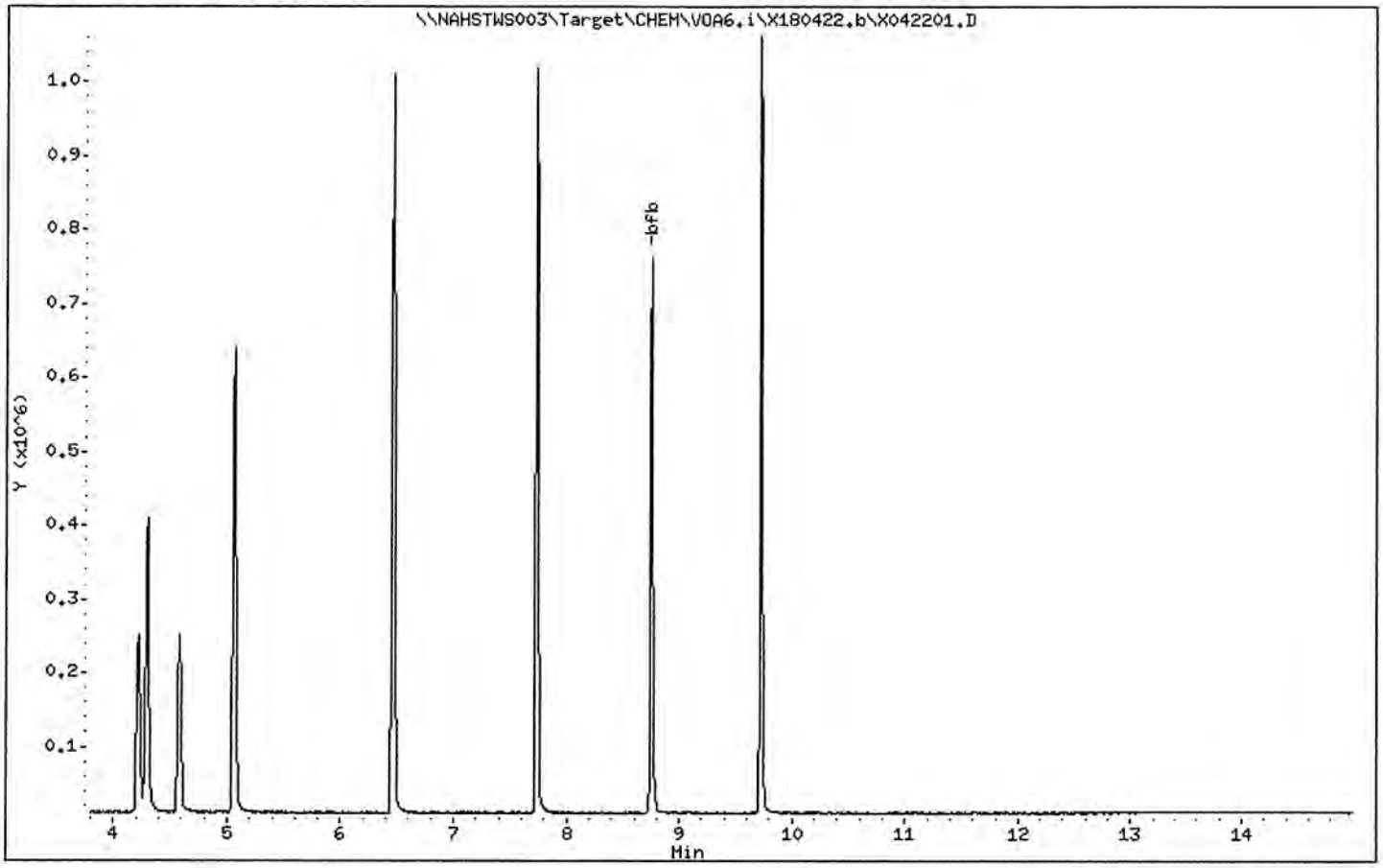
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180422.b\X042202.D
Report Date: 15-May-2018 15:34

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X180422.b\X042202.D
Lab Smp Id: CCV Client Smp ID: CCV
Inj Date : 22-APR-2018 10:11
Operator : PC Inst ID: voa6.i
Smp Info : CCV;CCV;2;;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\VOA6.i\X180422.b\8260W.m
Meth Date : 15-May-2018 15:34 voa6.i Quant Type: ISTD
Cal Date : 11-APR-2018 15:27 Cal File: X041108.D
Als bottle: 2 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 8260_GB++.sub
Target Version: 4.14
Processing Host: ALSHSW7085

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.297	4.297	(1.000)	313605	50.0000	
185 Isoprene	39	1.854	1.854	(0.432)	74967	50.0000	55.12
136 n-Hexane	57	2.879	2.879	(0.670)	211569	50.0000	57.92
14 Allyl Chloride	41	2.291	2.291	(0.533)	494533	50.0000	62.01
194 Acetaldehyde	44	1.274	1.274	(0.297)	57889	200.000	226.42
140 1,3-Butadiene	54	1.231	1.231	(0.287)	160084	50.0000	57.71
2 Dichlorodifluoromethane	85	1.030	1.030	(0.240)	170291	50.0000	55.39
3 Chloromethane	50	1.138	1.138	(0.265)	159802	50.0000	46.22
5 Vinyl Chloride	62	1.202	1.202	(0.280)	200248	50.0000	53.04
6 Bromomethane	94	1.410	1.410	(0.328)	80684	50.0000	40.67
7 Chloroethane	64	1.475	1.475	(0.343)	110966	50.0000	53.71
8 Trichlorofluoromethane	101	1.639	1.639	(0.382)	205514	50.0000	51.10
9 Acrolein	56	1.940	1.940	(0.452)	30920	100.000	106.11
10 Acetone	43	2.062	2.062	(0.480)	86550	100.000	99.08
11 1,1-Dichloroethene	96	2.005	2.005	(0.467)	142795	50.0000	53.83
15 Iodomethane	142	2.119	2.119	(0.493)	288064	100.000	88.27
16 Acrylonitrile	53	2.635	2.635	(0.613)	141013	100.000	121.55
17 Methylene Chloride	84	2.399	2.399	(0.558)	174348	50.0000	53.88
18 Methyl tert-butyl ether	73	2.635	2.635	(0.613)	490485	50.0000	57.71
19 Carbon Disulfide	76	2.162	2.162	(0.503)	1016199	100.000	109.06
20 trans-1,2-Dichloroethene	96	2.628	2.628	(0.612)	165881	50.0000	54.49
21 Vinyl Acetate	43	2.879	2.879	(0.670)	126755	100.000	108.64

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180422.b\X042202.D
Report Date: 15-May-2018 15:34

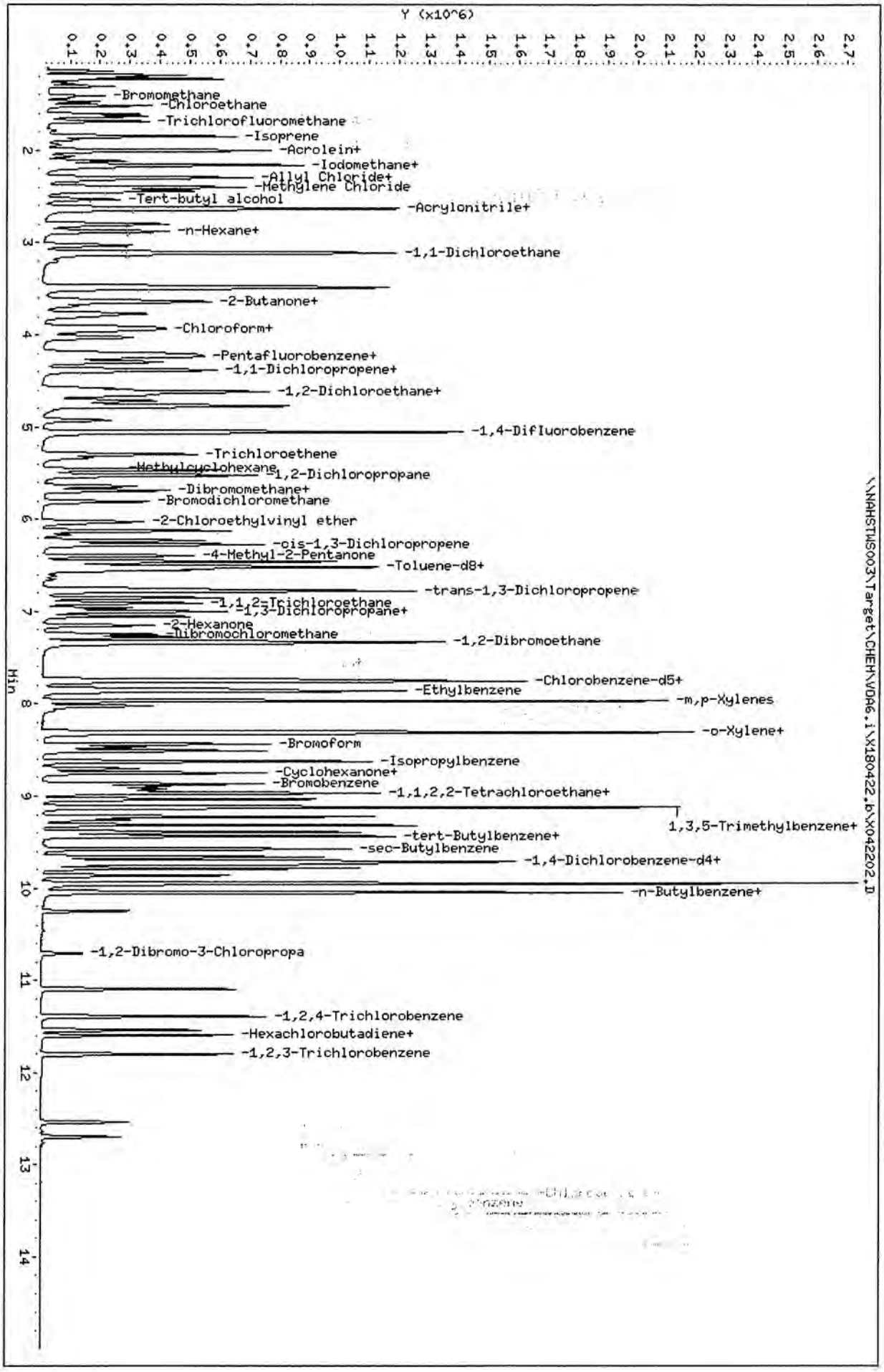
			QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
	22	1,1-Dichloroethane	63	3.029	3.029	(0.705)	285683	50.0000	58.65
	24	2-Butanone	43	3.688	3.688	(0.858)	131025	100.000	110.58
	26	2,2-Dichloropropane	77	3.623	3.623	(0.843)	210141	50.0000	54.44
	27	cis-1,2-Dichloroethene	96	3.645	3.645	(0.848)	184628	50.0000	59.40
	28	Chloroform	83	4.032	4.032	(0.938)	271838	50.0000	57.31
	29	Bromochloromethane	128	3.917	3.917	(0.912)	90213	50.0000	59.93(M)
$	30	Dibromofluoromethane	113	4.218	4.218	(0.982)	153627	50.0000	50.94
	31	1,1,1-Trichloroethane	97	4.204	4.204	(0.978)	218470	50.0000	52.34
	32	1,1-Dichloropropene	75	4.390	4.390	(0.867)	211362	50.0000	50.07
	33	1,2-Dichloroethane	62	4.662	4.662	(0.921)	192399	50.0000	53.61
	34	Carbon Tetrachloride	117	4.376	4.376	(0.864)	192798	50.0000	49.54
$	35	1,2-Dichloroethane-d4	65	4.576	4.576	(1.065)	155383	50.0000	46.42
*	36	1,4-Difluorobenzene	114	5.063	5.063	(1.000)	489593	50.0000	
	37	Benzene	78	4.619	4.619	(0.912)	647939	50.0000	51.76
	38	Trichloroethene	130	5.300	5.300	(1.047)	171358	50.0000	51.37
	39	Bromodichloromethane	83	5.808	5.808	(1.147)	211524	50.0000	53.91
	41	2-Chloroethylvinyl ether	63	6.123	6.123	(1.209)	245475	100.000	108.54
	42	1,2-Dichloropropane	63	5.529	5.529	(1.092)	177080	50.0000	56.90
	44	Dibromomethane	93	5.643	5.643	(1.115)	105656	50.0000	53.86
	45	4-Methyl-2-Pentanone	43	6.403	6.403	(0.828)	308316	100.000	101.63
	46	cis-1,3-Dichloropropene	75	6.231	6.231	(1.231)	289489	50.0000	55.06
*	47	Chlorobenzene-d5	117	7.735	7.735	(1.000)	485119	50.0000	
$	48	Toluene-d8	98	6.460	6.460	(0.835)	586216	50.0000	48.88
	50	Toluene	91	6.524	6.524	(0.844)	665987	50.0000	54.38
	51	trans-1,3-Dichloropropene	75	6.754	6.754	(1.324)	239150	50.0000	53.94
	52	2-Hexanone	43	7.155	7.155	(0.925)	205011	100.000	101.14
	53	1,1,2-Trichloroethane	83	6.911	6.911	(0.894)	127389	50.0000	50.15
	54	1,3-Dichloropropane	76	7.055	7.055	(0.912)	263561	50.0000	49.92
	55	Dibromochloromethane	129	7.248	7.248	(0.937)	180413	50.0000	51.75
	56	Tetrachloroethene	164	6.997	6.997	(0.905)	131294	50.0000	49.46
	57	1,2-Dibromoethane	107	7.334	7.334	(0.948)	158526	50.0000	51.22
	58	1-Chlorohexane	55	7.764	7.764	(1.533)	140298	50.0000	51.08
	59	Chlorobenzene	112	7.764	7.764	(1.004)	439682	50.0000	53.02
	60	1,1,1,2-Tetrachloroethane	131	7.842	7.842	(1.014)	156535	50.0000	51.25
	61	Ethylbenzene	106	7.864	7.864	(1.017)	225027	50.0000	54.33
	62	m,p-Xylenes	106	7.964	7.964	(1.030)	547097	100.000	107.59
	63	o-Xylene	106	8.301	8.301	(1.073)	276425	50.0000	54.09
	64	Styrene	104	8.322	8.322	(1.076)	477702	50.0000	53.26
	66	Bromoform	173	8.473	8.473	(1.095)	129497	50.0000	49.44
	67	Isopropylbenzene	105	8.623	8.623	(1.115)	638160	50.0000	48.90
	68	1,1,2,2-Tetrachloroethane	83	8.895	8.895	(0.915)	192778	50.0000	48.05
$	69	4-Bromofluorobenzene	95	8.752	8.752	(1.131)	212897	50.0000	48.06
*	70	1,4-Dichlorobenzene-d4	152	9.719	9.719	(1.000)	255112	50.0000	
	71	1,2,3-Trichloropropane	75	8.924	8.924	(0.918)	235710	50.0000	47.67
	73	n-Propylbenzene	91	8.974	8.974	(0.923)	794369	50.0000	47.34
	74	Bromobenzene	156	8.867	8.867	(0.912)	190356	50.0000	48.76
	75	1,3,5-Trimethylbenzene	105	9.125	9.125	(0.939)	547789	50.0000	51.82
	76	2-Chlorotoluene	91	9.032	9.032	(0.929)	463819	50.0000	50.89
	77	4-Chlorotoluene	91	9.132	9.132	(0.940)	536798	50.0000	51.07
	78	tert-Butylbenzene	119	9.397	9.397	(0.967)	463864	50.0000	47.55
	79	1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	565419	50.0000	50.69
	81	sec-Butylbenzene	105	9.576	9.576	(0.985)	652720	50.0000	47.88
	82	p-Isopropyltoluene	119	9.397	9.397	(0.967)	463864	50.0000	47.55
	83	1,3-Dichlorobenzene	146	9.662	9.662	(0.994)	333994	50.0000	49.89

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180422.b\X042202.D
Report Date: 15-May-2018 15:34

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)	
84	1,4-Dichlorobenzene	146	9.741	9.741	(1.002)	336091	50.0000	48.62	
87	n-Butylbenzene	91	10.049	10.049	(1.034)	483778	50.0000	50.05	
88	1,2-Dichlorobenzene	146	10.049	10.049	(1.034)	316642	50.0000	47.41	
89	1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	29376	50.0000	47.20	
90	1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	214188	50.0000	56.41	
91	Hexachlorobutadiene	225	11.539	11.539	(1.187)	95602	50.0000	54.94	
92	Naphthalene	128	11.596	11.596	(1.193)	420141	50.0000	53.55	
93	1,2,3-Trichlorobenzene	180	11.796	11.796	(1.214)	182472	50.0000	50.44	
M 94	1,2-Dichloroethylene (total)	96				350509	100.000		(a)
135	1,4-Dioxane	88	5.679	5.679	(1.322)	36861	1000.00	1140.85	
141	Cyclohexane	56	4.239	4.239	(0.987)	261911	50.0000	52.20	
138	Freon TF	101	2.005	2.005	(0.467)	131205	50.0000	53.10	
147	Methylcyclohexane	83	5.464	5.464	(1.079)	141589	50.0000	32.53	
146	Methyl Acetate	43	2.327	2.327	(0.542)	206786	50.0000	56.96	
148	Tert-Butyl alcohol	59	2.528	2.528	(0.588)	281634	1000.00	1121.60	
149	Isopropyl Alcohol	45	2.191	2.191	(0.510)	191119	1000.00	1129.66	

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



Data File: \\NAHSTWS003\Target\CHEM\VOA6_i\X180422_b\X042202.D
Date : 22-APR-2018 10:11
Client ID: CCV
Sample Info: CCV;CCV;2;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6_i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180422.b\X042203.D
Report Date: 15-May-2018 15:34

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X180422.b\X042203.D
Lab Smp Id: VLCSW-180422 Client Smp ID: VLCSW-180422
Inj Date : 22-APR-2018 10:36
Operator : PC Inst ID: voa6.i
Smp Info : VLCSW-180422;VLCSW-180422;3;;LCS
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\VOA6.i\X180422.b\8260W.m
Meth Date : 15-May-2018 15:34 voa6.i Quant Type: ISTD
Cal Date : 11-APR-2018 15:27 Cal File: X041108.D
Als bottle: 3 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 8260_GB++.sub
Target Version: 4.14
Processing Host: ALSHSW7085

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.297	4.297	(1.000)	298796	50.0000	
185 Isoprene	39	1.854	1.854	(0.432)	72616	55.9902	55.99
136 n-Hexane	57	2.879	2.879	(0.670)	193190	55.6375	55.63
14 Allyl Chloride	41	2.291	2.291	(0.533)	482615	63.5187	63.51
194 Acetaldehyde	44	1.274	1.274	(0.297)	56101	230.394	230.39
140 1,3-Butadiene	54	1.224	1.231	(0.285)	158834	59.9901	59.99
2 Dichlorodifluoromethane	85	1.031	1.030	(0.240)	163361	55.7444	55.74
3 Chloromethane	50	1.138	1.138	(0.265)	160586	48.5800	48.58
5 Vinyl Chloride	62	1.202	1.202	(0.280)	195673	54.3163	54.31
6 Bromomethane	94	1.410	1.410	(0.328)	84115	44.1934	44.19
7 Chloroethane	64	1.475	1.475	(0.343)	105805	53.7484	53.74
8 Trichlorofluoromethane	101	1.632	1.639	(0.380)	203732	53.0335	53.03
9 Acrolein	56	1.940	1.940	(0.452)	29948	107.870	107.87
10 Acetone	43	2.062	2.062	(0.480)	85868	103.209	103.20
11 1,1-Dichloroethene	96	1.998	2.005	(0.465)	141186	55.7489	55.74
15 Iodomethane	142	2.119	2.119	(0.493)	295737	94.3694	94.36
16 Acrylonitrile	53	2.635	2.635	(0.613)	134400	121.595	121.59
17 Methylene Chloride	84	2.399	2.399	(0.558)	168143	54.5286	54.52
18 Methyl tert-butyl ether	73	2.635	2.635	(0.613)	464054	57.3132	57.31
19 Carbon Disulfide	76	2.162	2.162	(0.503)	1003088	112.795	112.79
20 trans-1,2-Dichloroethene	96	2.628	2.628	(0.612)	160450	55.2967	55.29
21 Vinyl Acetate	43	2.879	2.879	(0.670)	118128	106.385	106.38

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180422.b\X042203.D
Report Date: 15-May-2018 15:34

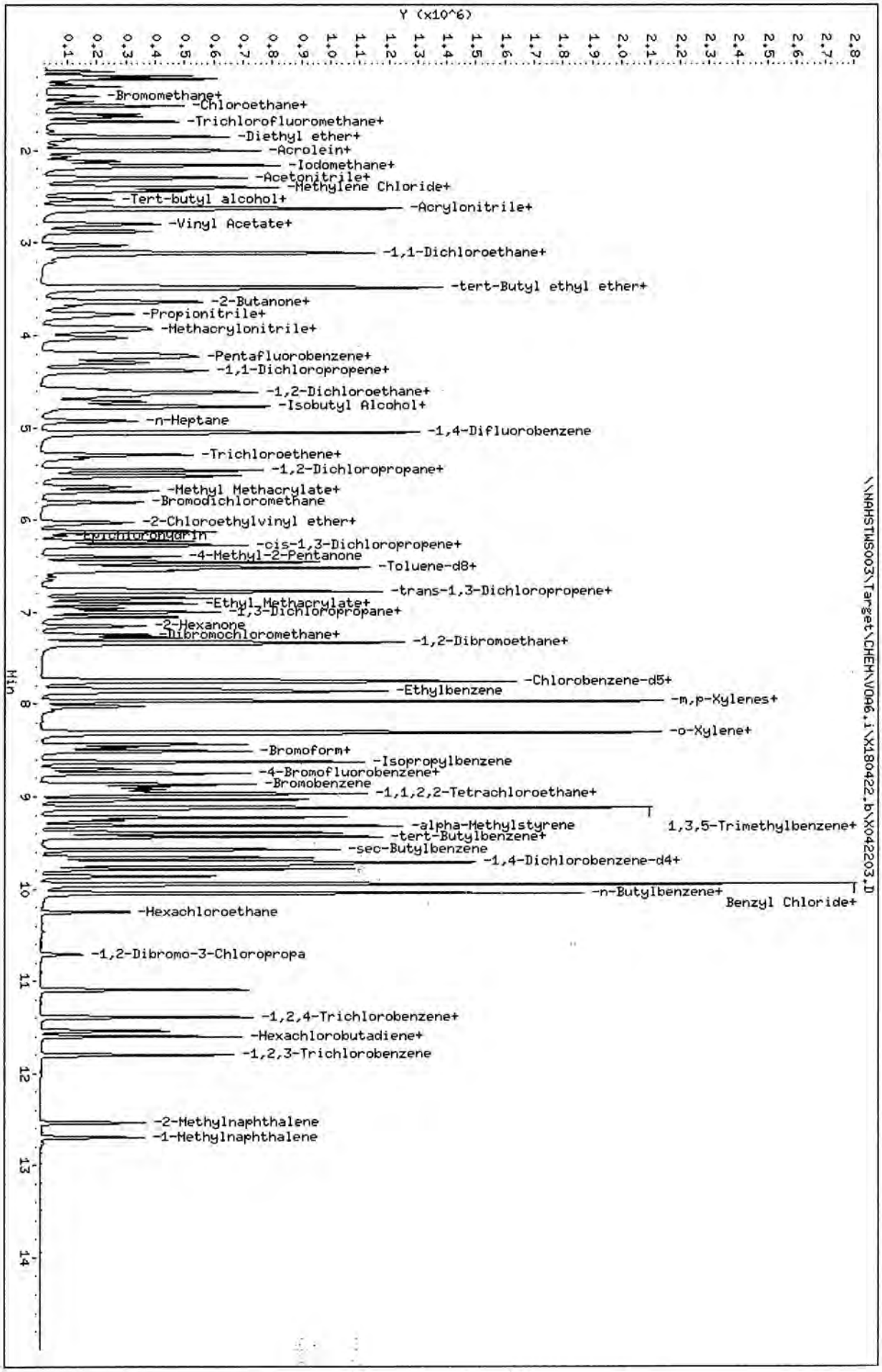
		Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
	22	1,1-Dichloroethane	63	3.029	3.029	(0.705)	280874	60.5254	60.52
	24	2-Butanone	43	3.688	3.688	(0.858)	127271	112.741	112.74
	26	2,2-Dichloropropane	77	3.624	3.623	(0.843)	208960	56.7373	56.73
	27	cis-1,2-Dichloroethene	96	3.645	3.645	(0.848)	177126	59.8110	59.81
	28	Chloroform	83	4.032	4.032	(0.938)	264739	58.5877	58.58
	29	Bromochloromethane	128	3.917	3.917	(0.912)	88118	61.4457	61.44 (M)
$	30	Dibromofluoromethane	113	4.218	4.218	(0.982)	147320	51.2737	51.27
	31	1,1,1-Trichloroethane	97	4.204	4.204	(0.978)	216203	54.2823	54.28
	32	1,1-Dichloropropene	75	4.390	4.390	(0.867)	210207	52.0829	52.08
	33	1,2-Dichloroethane	62	4.662	4.662	(0.921)	186727	54.5321	54.53
	34	Carbon Tetrachloride	117	4.376	4.376	(0.864)	190399	51.1817	51.18
$	35	1,2-Dichloroethane-d4	65	4.583	4.576	(1.067)	148074	46.4312	46.43
*	36	1,4-Difluorobenzene	114	5.063	5.063	(1.000)	467165	50.0000	
	37	Benzene	78	4.619	4.619	(0.912)	638055	53.3567	53.35
	38	Trichloroethene	130	5.300	5.300	(1.047)	171845	53.8538	53.85
	39	Bromodichloromethane	83	5.808	5.808	(1.147)	208657	55.7385	55.73
	41	2-Chloroethylvinyl ether	63	6.123	6.123	(1.209)	241851	112.077	112.07
	42	1,2-Dichloropropane	63	5.529	5.529	(1.092)	172785	58.1944	58.19
	44	Dibromomethane	93	5.644	5.643	(1.115)	104496	55.8319	55.83
	45	4-Methyl-2-Pentanone	43	6.396	6.403	(0.827)	297820	102.672	102.67
	46	cis-1,3-Dichloropropene	75	6.231	6.231	(1.231)	283264	56.4681	56.46
*	47	Chlorobenzene-d5	117	7.735	7.735	(1.000)	463833	50.0000	
$	48	Toluene-d8	98	6.460	6.460	(0.835)	560545	48.8895	48.88
	50	Toluene	91	6.525	6.524	(0.844)	660096	56.3738	56.37
	51	trans-1,3-Dichloropropene	75	6.754	6.754	(1.334)	234729	55.4909	55.49
	52	2-Hexanone	43	7.155	7.155	(0.925)	196866	101.574	101.57
	53	1,1,2-Trichloroethane	83	6.911	6.911	(0.894)	124906	51.4317	51.43
	54	1,3-Dichloropropane	76	7.055	7.055	(0.912)	258546	51.2267	51.22
	55	Dibromochloromethane	129	7.248	7.248	(0.937)	177505	53.2554	53.25
	56	Tetrachloroethene	164	6.997	6.997	(0.905)	129725	51.0250	51.02
	57	1,2-Dibromoethane	107	7.334	7.334	(0.948)	156305	52.8269	52.82
	58	1-Chlorohexane	55	7.757	7.764	(1.532)	135765	51.7918	51.79
	59	Chlorobenzene	112	7.757	7.764	(1.003)	437158	55.1391	55.13
	60	1,1,1,2-Tetrachloroethane	131	7.843	7.842	(1.014)	154565	52.9375	52.93
	61	Ethylbenzene	106	7.864	7.864	(1.017)	223645	56.4843	56.48
	62	m,p-Xylenes	106	7.964	7.964	(1.030)	543930	111.879	111.87
	63	o-Xylene	106	8.301	8.301	(1.073)	272413	55.7536	55.75
	64	Styrene	104	8.322	8.322	(1.076)	467722	54.5502	54.55
	66	Bromoform	173	8.473	8.473	(1.095)	127802	51.0361	51.03
	67	Isopropylbenzene	105	8.623	8.623	(1.115)	632185	50.5950	50.59
	68	1,1,2,2-Tetrachloroethane	83	8.896	8.895	(0.915)	192142	50.1401	50.14
$	69	4-Bromofluorobenzene	95	8.752	8.752	(1.131)	204241	48.2306	48.23
*	70	1,4-Dichlorobenzene-d4	152	9.719	9.719	(1.000)	243447	50.0000	
	71	1,2,3-Trichloropropane	75	8.924	8.924	(0.918)	229191	48.5513	48.55
	73	n-Propylbenzene	91	8.974	8.974	(0.923)	773773	48.2724	48.27
	74	Bromobenzene	156	8.867	8.867	(0.912)	190290	51.0851	51.08
	75	1,3,5-Trimethylbenzene	105	9.125	9.125	(0.939)	537684	53.3022	53.30
	76	2-Chlorotoluene	91	9.032	9.032	(0.929)	457507	52.6105	52.61
	77	4-Chlorotoluene	91	9.132	9.132	(0.940)	531133	52.9575	52.95
	78	tert-Butylbenzene	119	9.397	9.397	(0.967)	447456	48.0484	48.04
	79	1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	550449	51.7200	51.72
	81	sec-Butylbenzene	105	9.576	9.576	(0.985)	624764	48.0193	48.01
	82	p-Isopropyltoluene	119	9.397	9.397	(0.967)	447456	48.0484	48.04
	83	1,3-Dichlorobenzene	146	9.662	9.662	(0.994)	328651	51.4469	51.44

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180422.b\X042203.D
Report Date: 15-May-2018 15:34

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
	84 1,4-Dichlorobenzene	146	9.741	9.741	(1.002)	333083	50.4981	50.49
	87 n-Butylbenzene	91	10.049	10.049	(1.034)	453350	49.2034	49.20
	88 1,2-Dichlorobenzene	146	10.049	10.049	(1.034)	311565	48.8357	48.83
	89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	30542	51.2378	51.23
	90 1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	206959	57.0615	57.06
	91 Hexachlorobutadiene	225	11.539	11.539	(1.187)	81355	49.3830	49.38
	92 Naphthalene	128	11.596	11.596	(1.193)	453090	60.0675	60.06
	93 1,2,3-Trichlorobenzene	180	11.797	11.796	(1.214)	184210	53.2036	53.20
M	94 1,2-Dichloroethylene (total)	96				337576	115.108	115.10
M	95 Xylenes (total)	106				816343	167.632	167.63
	135 1,4-Dioxane	88	5.679	5.679	(1.322)	33562	1090.83	1090.82
	141 Cyclohexane	56	4.240	4.239	(0.987)	254485	53.1818	53.18
	138 Freon TF	101	2.005	2.005	(0.467)	127557	54.1091	54.10
	147 Methylcyclohexane	83	5.464	5.464	(1.079)	210533	47.9317	47.93
	146 Methyl Acetate	43	2.320	2.327	(0.540)	201619	58.2961	58.29
	148 Tert-Butyl alcohol	59	2.528	2.528	(0.588)	265013	1107.99	1107.98
	149 Isopropyl Alcohol	45	2.191	2.191	(0.510)	178752	1108.67	1108.67

QC Flag Legend

M - Compound response manually integrated.



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180422.b\X042203.D
Date : 22-APR-2018 10:36
Client ID: VLCSW-180422
Sample Info: VLCSW-180422;VLCSW-180422;3;;LCS
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180422.b\X042206.D
Report Date: 15-May-2018 15:34

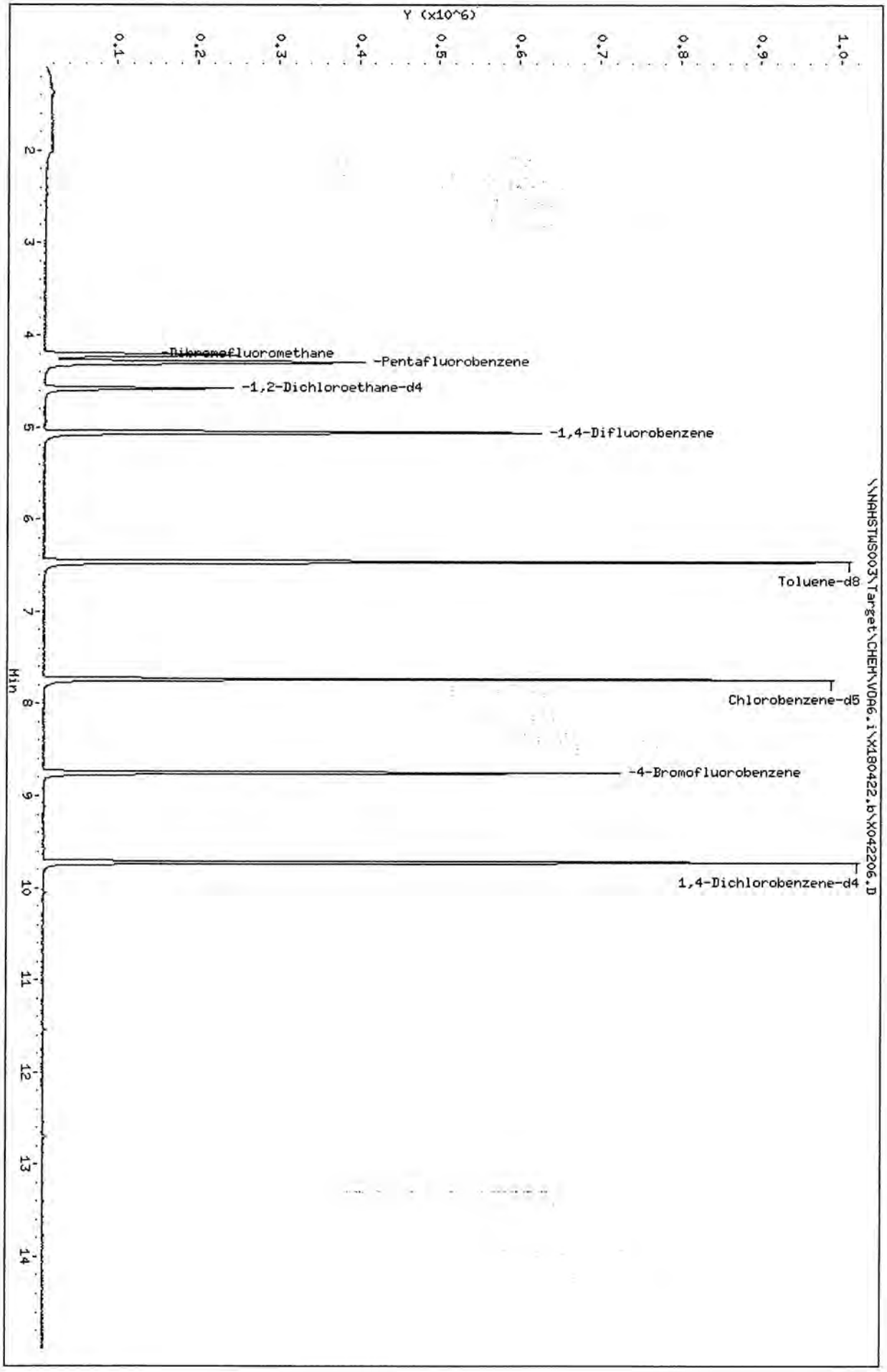
ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X180422.b\X042206.D
Lab Smp Id: VBLKW-180422 Client Smp ID: VBLKW-180422
Inj Date : 22-APR-2018 11:49
Operator : PC Inst ID: voa6.i
Smp Info : VBLKW-180422;VBLKW-180422;3;;BLANK
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\VOA6.i\X180422.b\8260W.m
Meth Date : 15-May-2018 15:34 voa6.i Quant Type: ISTD
Cal Date : 11-APR-2018 15:27 Cal File: X041108.D
Als bottle: 6 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 8260_GB++.sub
Target Version: 4.14
Processing Host: ALSHSW7085

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.297	4.297	(1.000)	319226	50.0000	
$ 30 Dibromofluoromethane	113	4.218	4.218	(0.982)	155820	50.7613	50.76
$ 35 1,2-Dichloroethane-d4	65	4.583	4.576	(1.067)	158131	46.4114	46.41
* 36 1,4-Difluorobenzene	114	5.063	5.063	(1.000)	502314	50.0000	
* 47 Chlorobenzene-d5	117	7.735	7.735	(1.000)	498433	50.0000	
$ 48 Toluene-d8	98	6.460	6.460	(0.835)	601892	48.8515	48.85
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.131)	214614	47.1621	47.16
* 70 1,4-Dichlorobenzene-d4	152	9.719	9.719	(1.000)	250767	50.0000	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Date : 22-APR-2018 11:49
Client ID: VBLKW-180422
Sample Info: VBLKW-180422;VBLKW-180422;3;;BLANK
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
Y (x10^6)
1.0
0.9
0.8
0.7
0.6
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0.4
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Min
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11
12
13
14
-Dibromofluoromethane
-Pentafluorobenzene
-1,2-Dichloroethane-d4
-1,4-Difluorobenzene
Toluene-d8
Chlorobenzene-d5
-4-Bromofluorobenzene
1,4-Dichlorobenzene-d4
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Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180422.b\X042208.D
Report Date: 15-May-2018 15:34

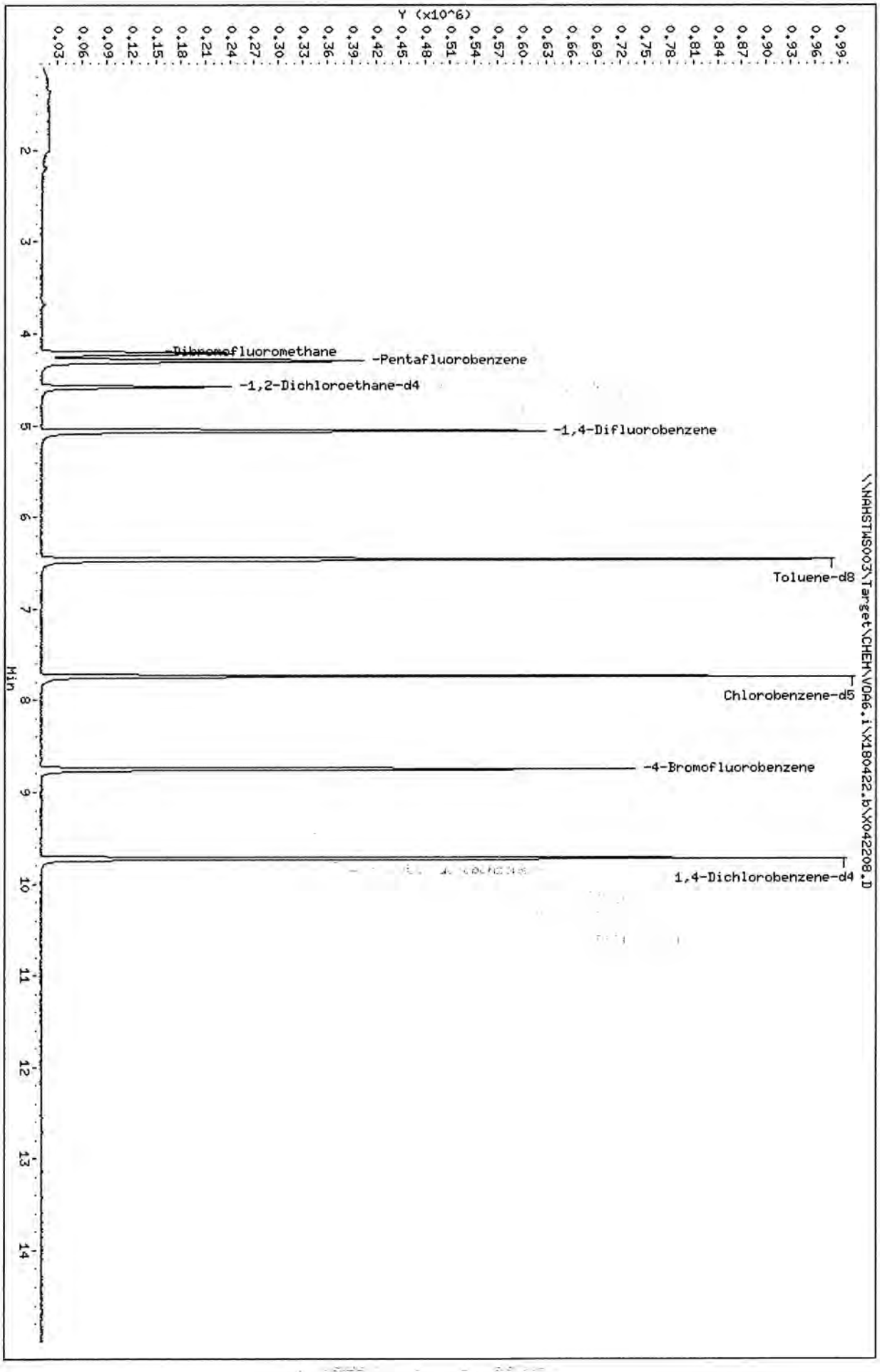
ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X180422.b\X042208.D
Lab Smp Id: HS18040595-02 Client Smp ID: HS18040595-02
Inj Date : 22-APR-2018 12:38
Operator : PC Inst ID: voa6.i
Smp Info : HS18040595-02;HS18040595-02;;;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\VOA6.i\X180422.b\8260W.m
Meth Date : 15-May-2018 15:34 voa6.i Quant Type: ISTD
Cal Date : 11-APR-2018 15:27 Cal File: X041108.D
Als bottle: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 8260_GB++.sub
Target Version: 4.14
Processing Host: ALSHSW7085

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.297	4.297	(1.000)	317072	50.0000	
$ 30 Dibromofluoromethane	113	4.218	4.218	(0.982)	156955	51.4784	51.47
$ 35 1,2-Dichloroethane-d4	65	4.576	4.576	(1.065)	160085	47.3041	47.30
* 36 1,4-Difluorobenzene	114	5.063	5.063	(1.000)	503853	50.0000	
* 47 Chlorobenzene-d5	117	7.735	7.735	(1.000)	492641	50.0000	
$ 48 Toluene-d8	98	6.460	6.460	(0.835)	600882	49.3430	49.34
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.131)	214917	47.7839	47.78
* 70 1,4-Dichlorobenzene-d4	152	9.719	9.719	(1.000)	245879	50.0000	


Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180422.b\X042208.D
Date : 22-APR-2018 12:38
Client ID: HS18040595-02
Sample Info: HS18040595-02;HS18040595-02;;;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
Y (x10^6)
Min
-Dibromofluoromethane
-Pentafluorobenzene
-1,2-Dichloroethane-d4
-1,4-Difluorobenzene
Toluene-d8
Chlorobenzene-d5
-4-Bromofluorobenzene
1,4-Dichlorobenzene-d4
\\NAHSTWS003\Target\CHEM\VOA6.i\X180422.b\X042208.D

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180422.b\X042210.D
Report Date: 15-May-2018 15:34

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X180422.b\X042210.D
Lab Smp Id: HS18040595-01 Client Smp ID: HS18040595-01
Inj Date : 22-APR-2018 13:27
Operator : PC Inst ID: voa6.i
Smp Info : HS18040595-01;HS18040595-01;;;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\VOA6.i\X180422.b\8260W.m
Meth Date : 15-May-2018 15:34 voa6.i Quant Type: ISTD
Cal Date : 11-APR-2018 15:27 Cal File: X041108.D
Als bottle: 10
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 8260_GB++.sub
Target Version: 4.14
Processing Host: ALSHSW7085

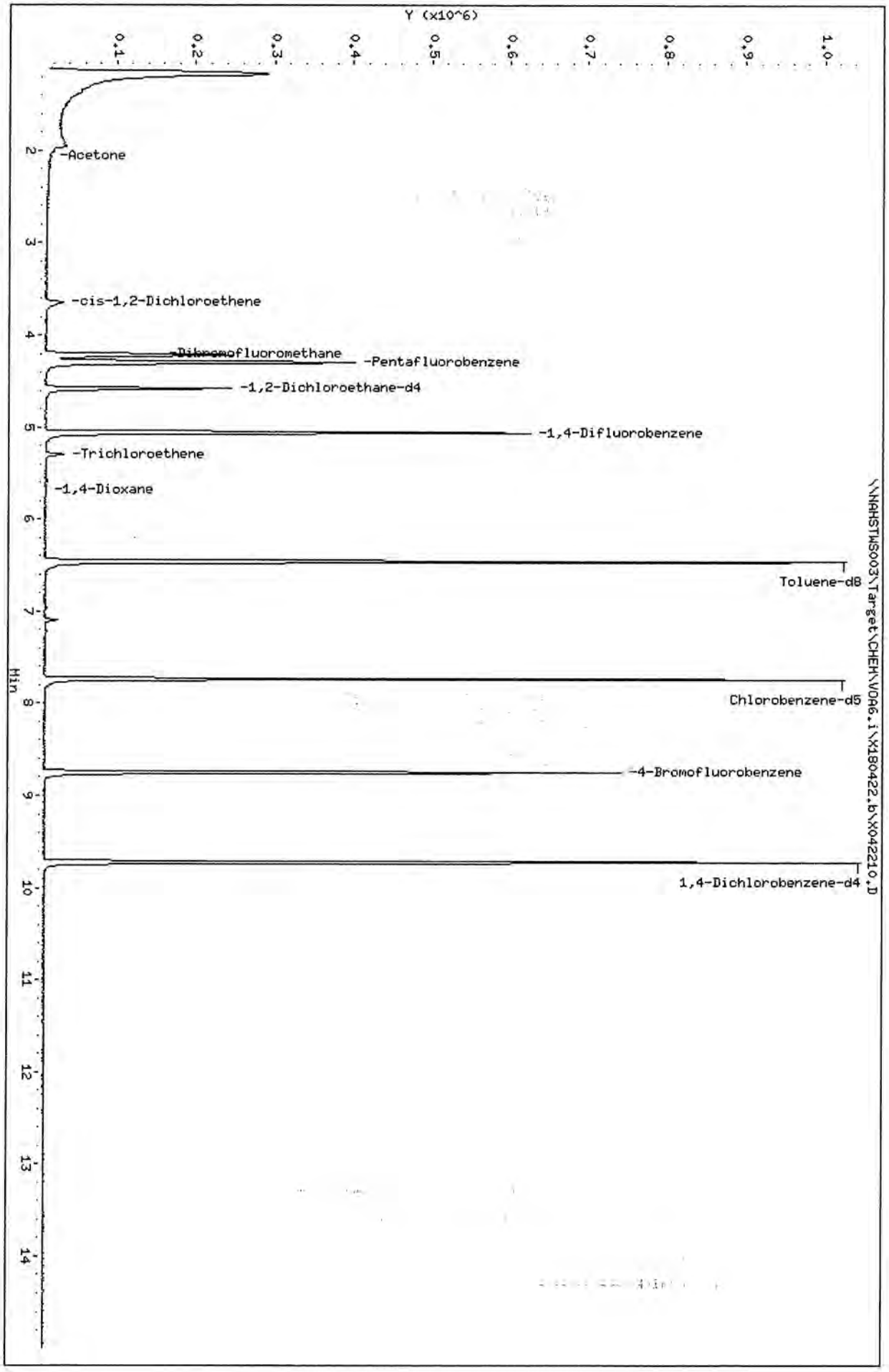
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.297	4.297	(1.000)	317371	50.0000	
	10 Acetone	43	2.062	2.062	(0.480)	3231	2.94745	2.94(a)
	27 cis-1,2-Dichloroethene	96	3.652	3.645	(0.850)	10792	3.43090	3.43(a)
$	30 Dibromofluoromethane	113	4.218	4.218	(0.982)	156776	51.3712	51.37
$	35 1,2-Dichloroethane-d4	65	4.576	4.576	(1.065)	161750	47.7511	47.75
*	36 1,4-Difluorobenzene	114	5.063	5.063	(1.000)	501062	50.0000	
	38 Trichloroethene	130	5.300	5.300	(1.047)	7325	4.79108	4.79(a)
*	47 Chlorobenzene-d5	117	7.735	7.735	(1.000)	495522	50.0000	
$	48 Toluene-d8	98	6.460	6.460	(0.835)	604072	49.3165	49.31
$	69 4-Bromofluorobenzene	95	8.752	8.752	(1.131)	216234	47.7972	47.79
*	70 1,4-Dichlorobenzene-d4	152	9.719	9.719	(1.000)	247226	50.0000	
M	94 1,2-Dichloroethylene (total)	96				10792	3.43090	3.43(a)
	135 1,4-Dioxane	88	5.686	5.679	(1.323)	1018	44.0901	44.09(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180422.b\X042210.D
Date : 22-APR-2018 13:27
Client ID: HS18040595-01
Sample Info: HS18040595-01;HS18040595-01;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180422.b\X042210.D

Date : 22-APR-2018 13:27

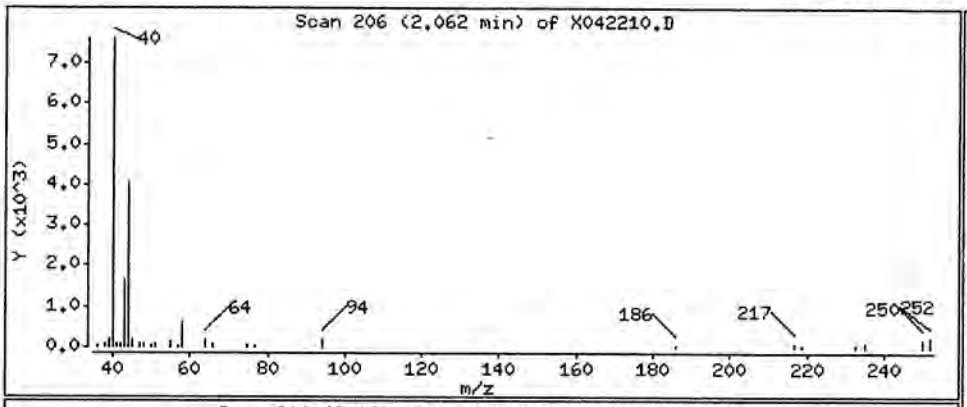
Client ID: HS18040595-01 Instrument: voa6.i

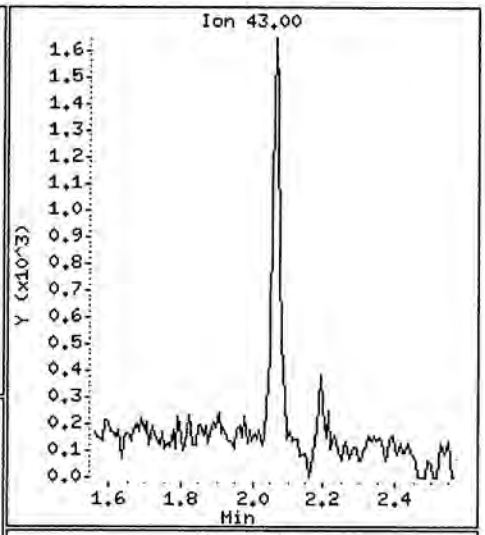
Sample Info: HS18040595-01;HS18040595-01;;;

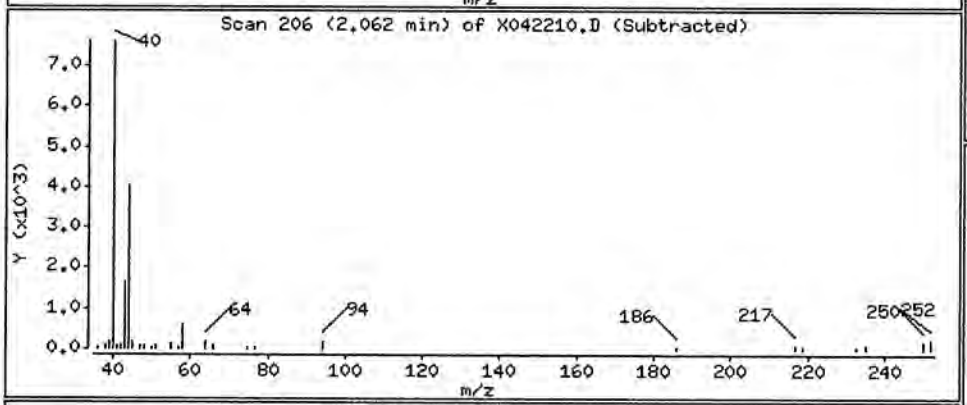
Purge Volume: 5.0 Operator: PC

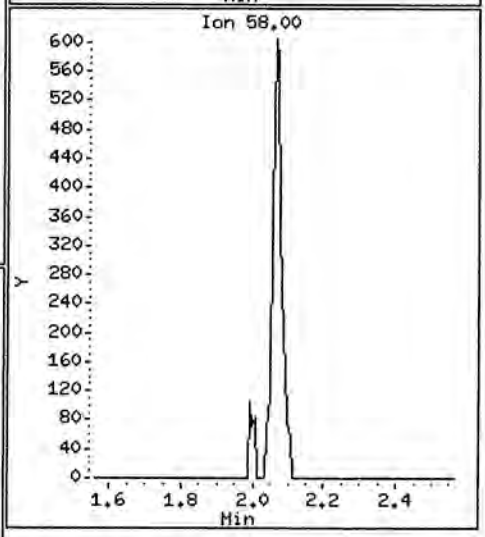
Column phase: DB624 Column diameter: 0.18

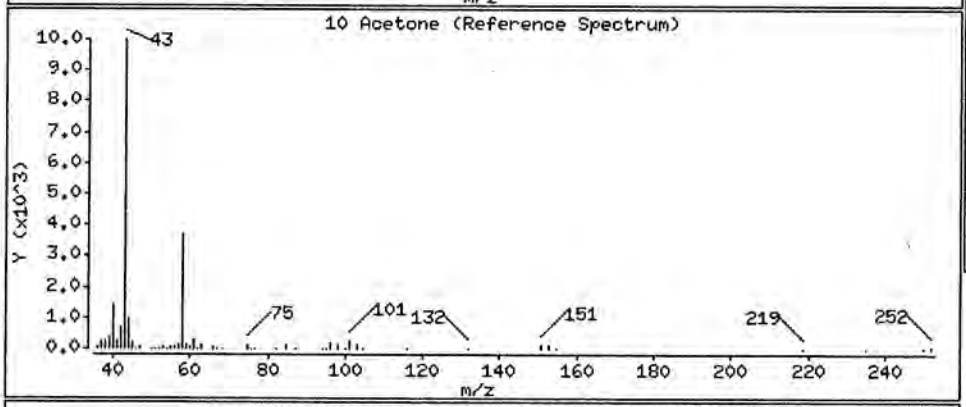
10 Acetone Concentration: 2.94 ug/l Review Code:

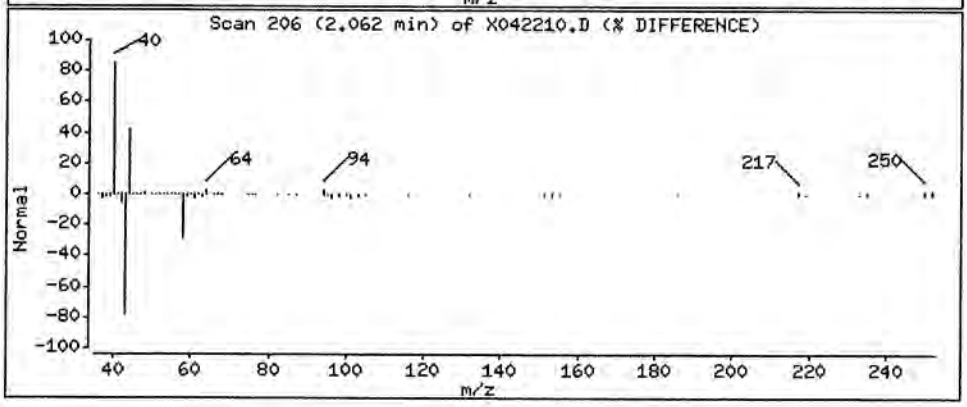












Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180422.b\X042210.D

Date : 22-APR-2018 13:27

Client ID: HS18040595-01

Instrument: voa6.i

Sample Info: HS18040595-01;HS18040595-01;;;

Purge Volume: 5.0

Operator: PC

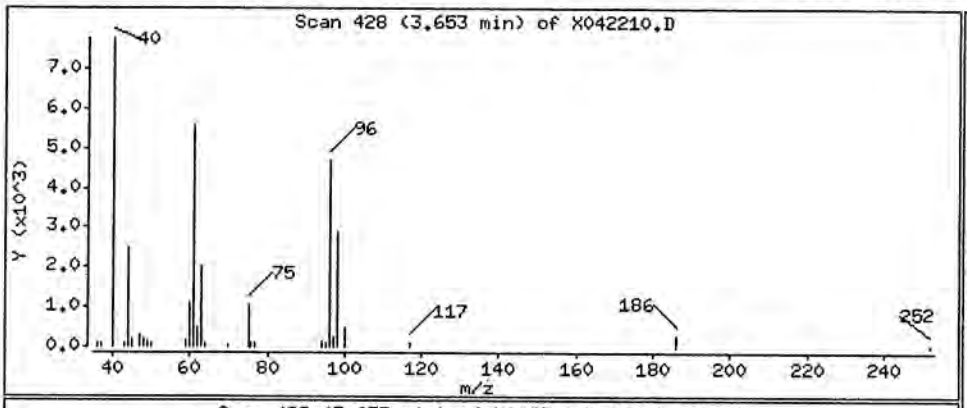
Column phase: DB624

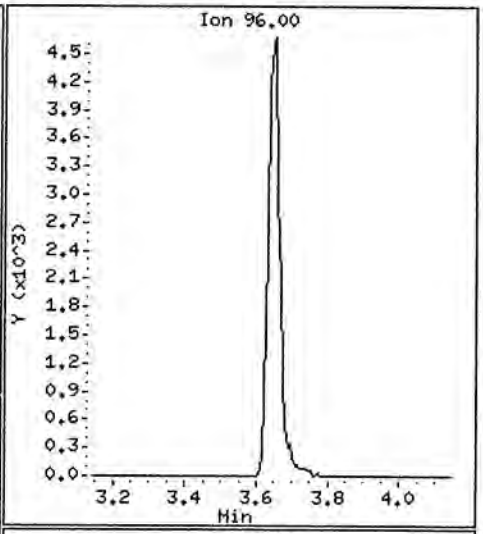
Column diameter: 0.18

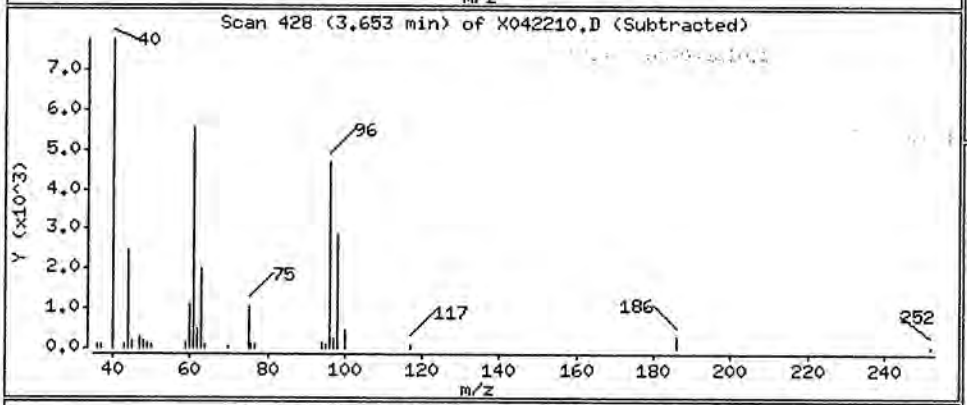
27 cis-1,2-Dichloroethene

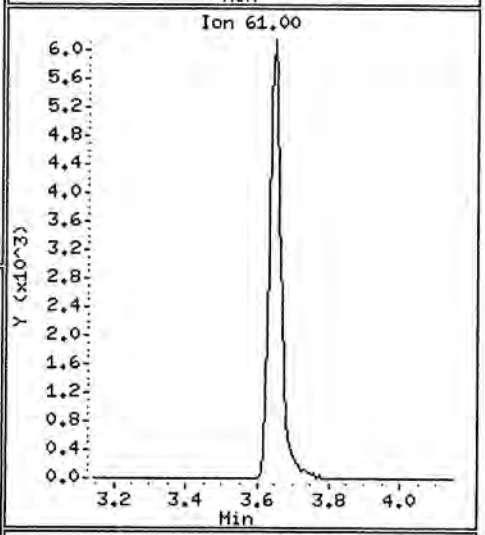
Concentration: 3.43 ug/l

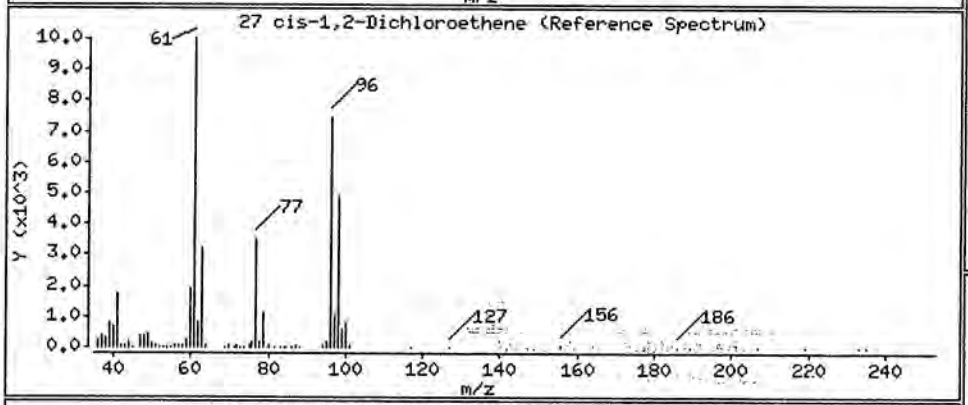
Review Code:

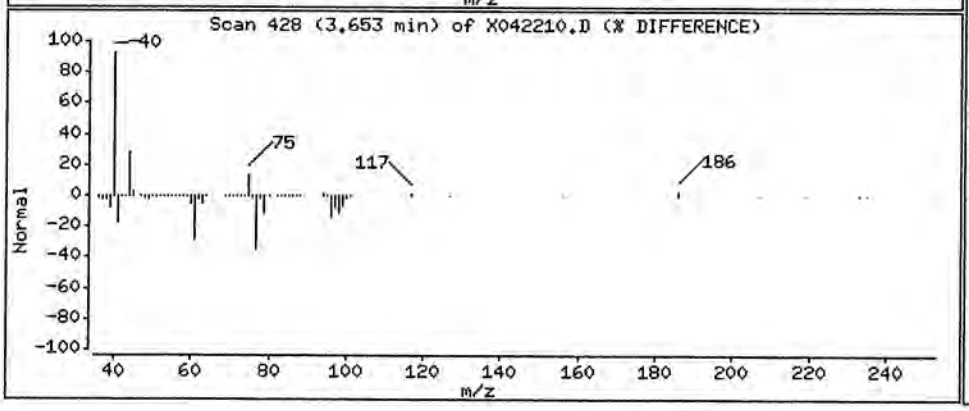


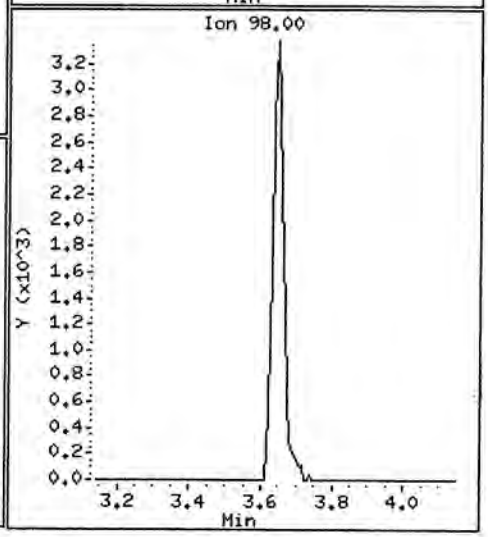












Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180422.b\X042210.D

Date : 22-APR-2018 13:27

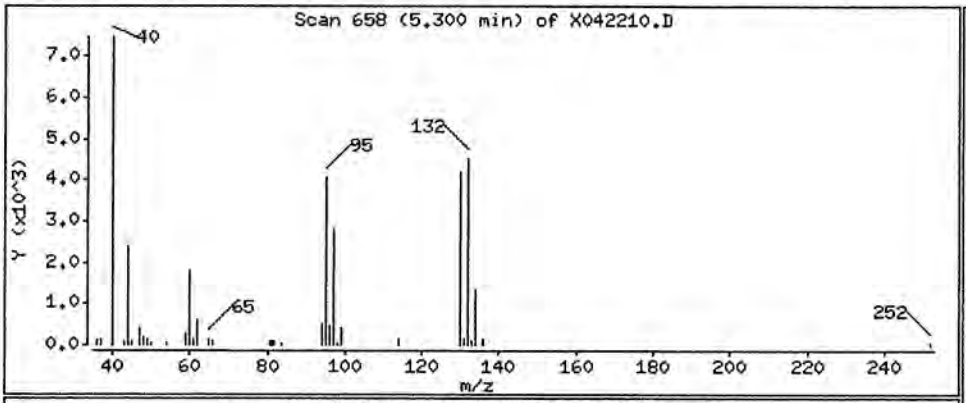
Client ID: HS18040595-01 Instrument: voa6.i

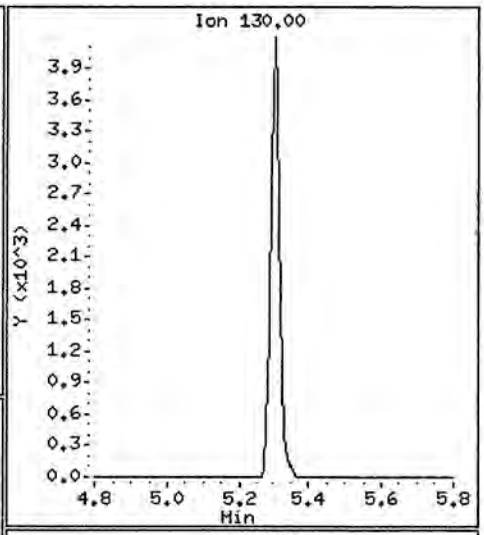
Sample Info: HS18040595-01;HS18040595-01;;;

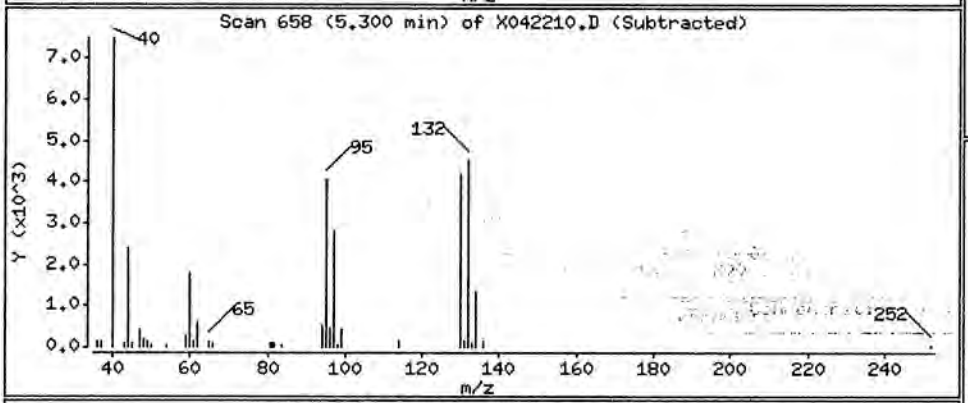
Purge Volume: 5.0 Operator: PC

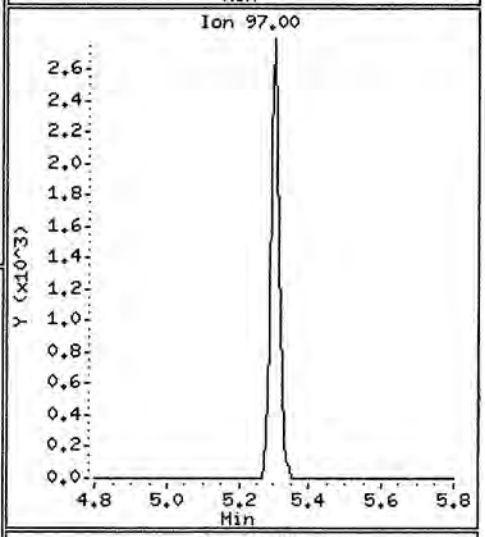
Column phase: DB624 Column diameter: 0.18

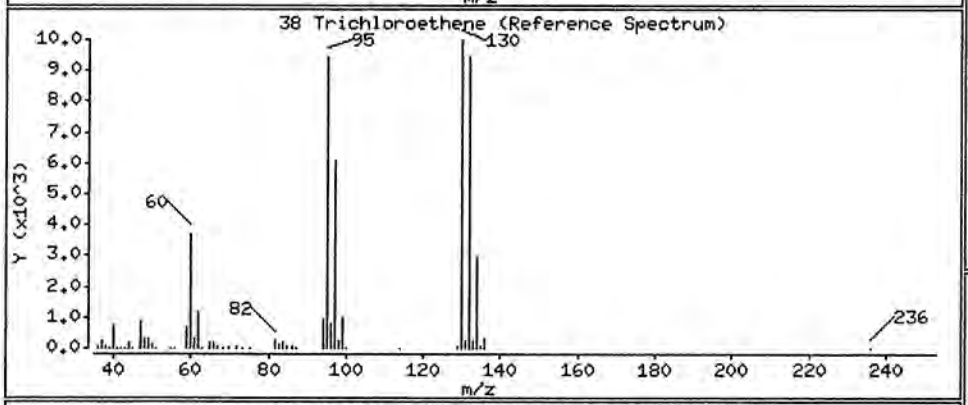
38 Trichloroethene Concentration: 4.79 ug/l Review Code:

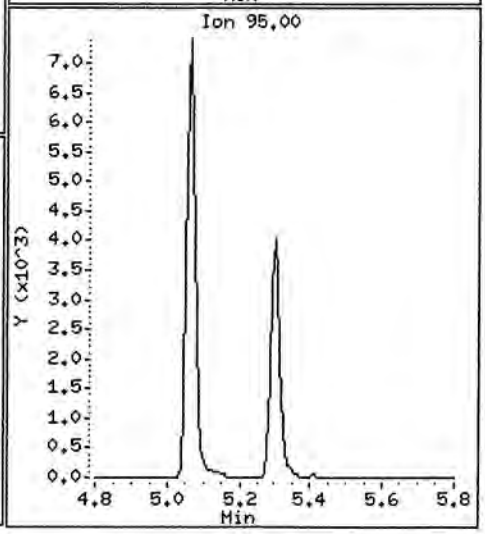


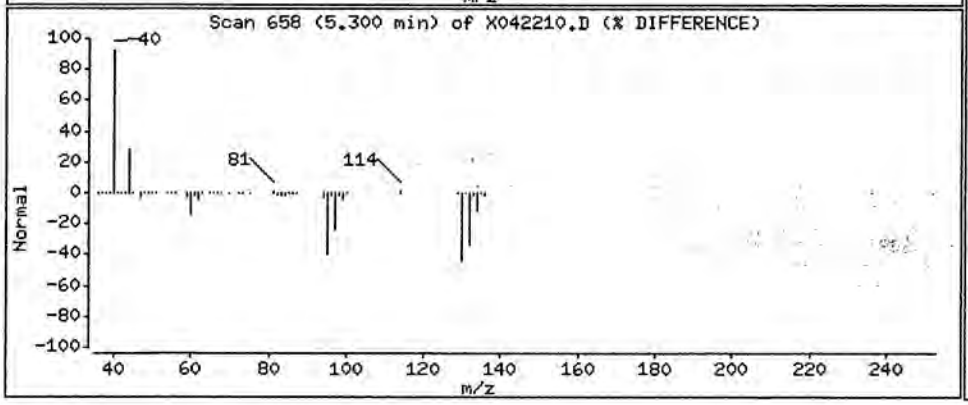












Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180422.b\X042210.D

Date : 22-APR-2018 13:27

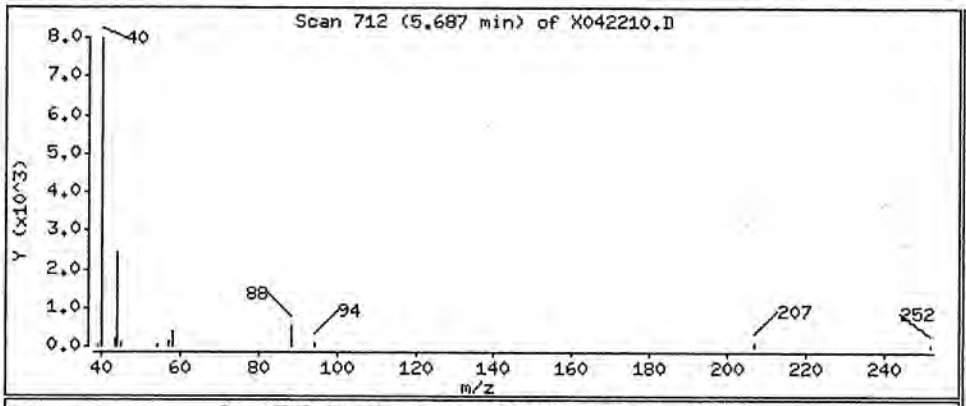
Client ID: HS18040595-01 Instrument: voa6.i

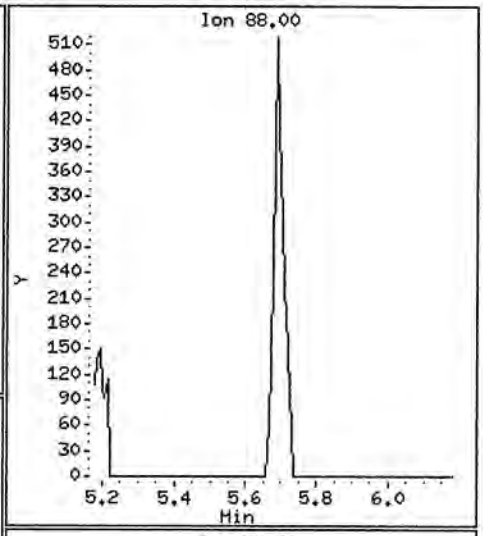
Sample Info: HS18040595-01;HS18040595-01;;;

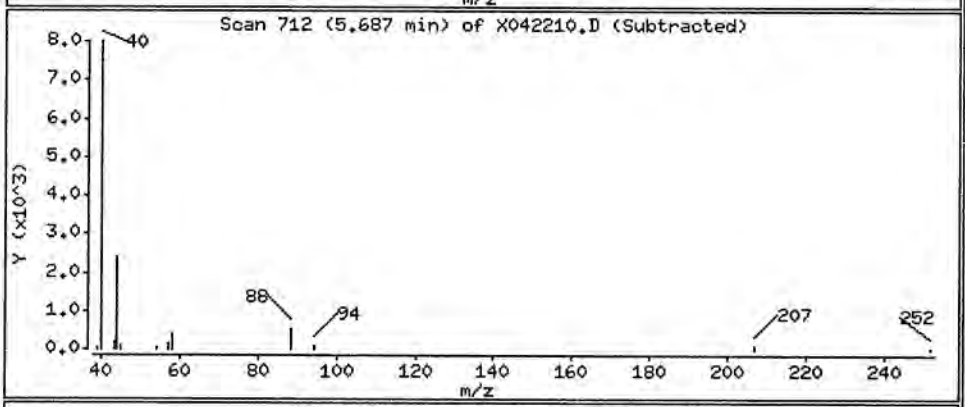
Purge Volume: 5.0 Operator: PC

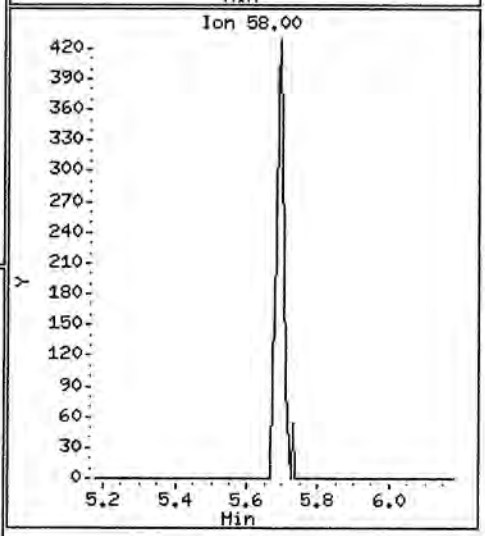
Column phase: DB624 Column diameter: 0.18

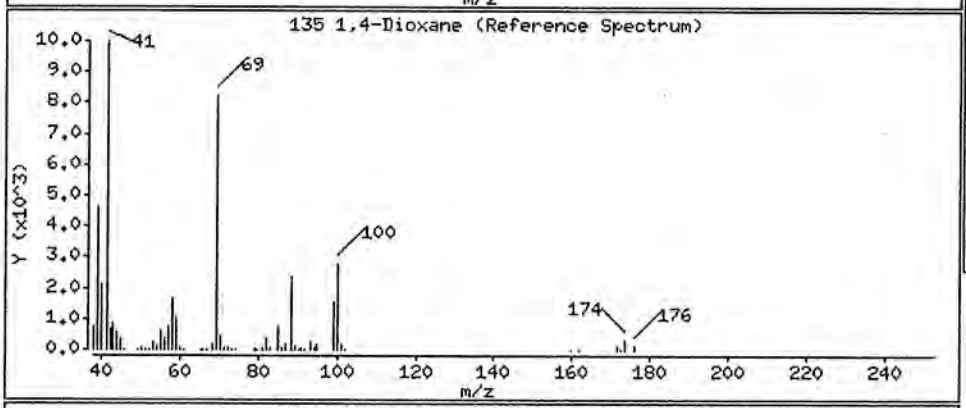
135 1,4-Dioxane Concentration: 44.09 ug/l Review Code:

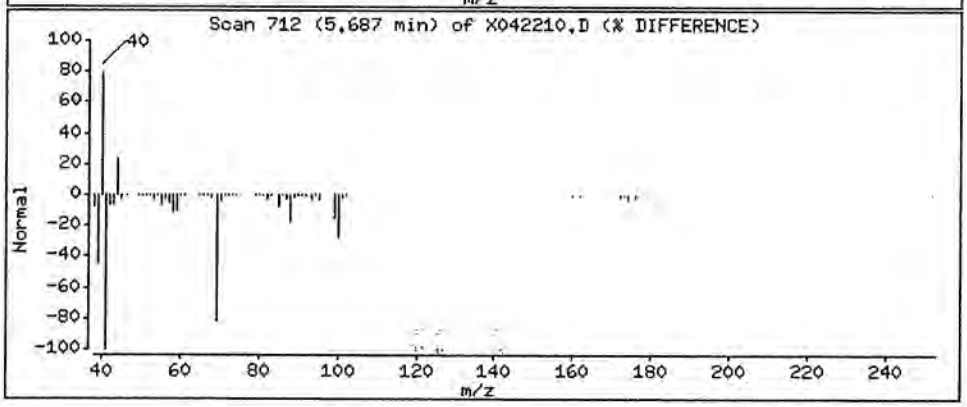












Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180422.b\X042212.D
Report Date: 15-May-2018 15:34

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X180422.b\X042212.D
Lab Smp Id: HS18040701-07MS Client Smp ID: HS18040701-07MS
Inj Date : 22-APR-2018 14:17
Operator : PC Inst ID: voa6.i
Smp Info : HS18040701-07MS;HS18040701-07MS;3;;MS
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\VOA6.i\X180422.b\8260W.m
Meth Date : 15-May-2018 15:34 voa6.i Quant Type: ISTD
Cal Date : 11-APR-2018 15:27 Cal File: X041108.D
Als bottle: 12 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 8260_GB++.sub
Target Version: 4.14
Processing Host: ALSHSW7085

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

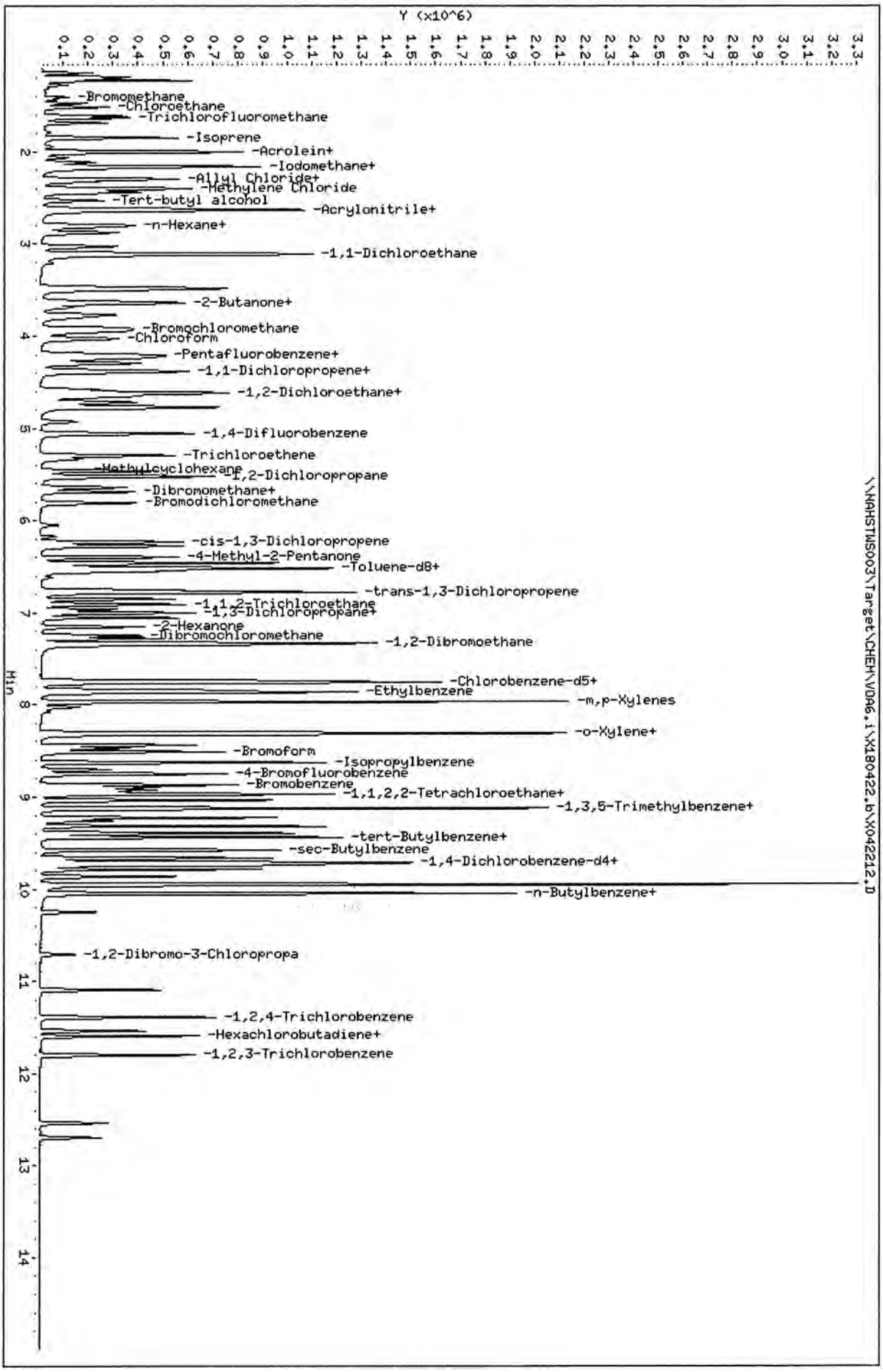
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.297	4.297	(1.000)	315117	50.0000	
185 Isoprene	39	1.854	1.854	(0.432)	60953	45.1799	45.17
136 n-Hexane	57	2.878	2.879	(0.670)	154428	42.8958	42.89
14 Allyl Chloride	41	2.291	2.291	(0.533)	406732	50.7589	50.75
194 Acetaldehyde	44	1.274	1.274	(0.297)	55233	214.748	214.74
140 1,3-Butadiene	54	1.231	1.231	(0.287)	146811	52.9226	52.92
2 Dichlorodifluoromethane	85	1.030	1.030	(0.240)	148913	48.6931	48.69
3 Chloromethane	50	1.145	1.138	(0.267)	144472	41.9222	41.92
5 Vinyl Chloride	62	1.209	1.202	(0.282)	195972	51.7459	51.74
6 Bromomethane	94	1.410	1.410	(0.328)	41829	22.1795	22.17
7 Chloroethane	64	1.474	1.475	(0.343)	129929	62.1522	62.15
8 Trichlorofluoromethane	101	1.639	1.639	(0.382)	207643	51.3652	51.36
9 Acrolein	56	1.947	1.940	(0.453)	29421	100.483	100.48
10 Acetone	43	2.062	2.062	(0.480)	89932	102.490	102.49
11 1,1-Dichloroethene	96	2.004	2.005	(0.467)	137856	51.8426	51.84
15 Iodomethane	142	2.119	2.119	(0.493)	217068	68.0052	68.00
16 Acrylonitrile	53	2.635	2.635	(0.613)	123635	106.063	106.06
17 Methylene Chloride	84	2.398	2.399	(0.558)	183544	56.4066	56.40
18 Methyl tert-butyl ether	73	2.635	2.635	(0.613)	411273	48.1637	48.16
19 Carbon Disulfide	76	2.162	2.162	(0.503)	1058829	112.892	112.89
20 trans-1,2-Dichloroethene	96	2.628	2.628	(0.612)	168748	55.1498	55.14
21 Vinyl Acetate	43	2.878	2.879	(0.670)	100262	86.6304	86.63

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180422.b\X042212.D
Report Date: 15-May-2018 15:34

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
	22 1,1-Dichloroethane	63	3.029	3.029	(0.705)	298502	60.9925	60.99
	24 2-Butanone	43	3.695	3.688	(0.860)	142181	119.411	119.41
	26 2,2-Dichloropropane	77	3.630	3.623	(0.845)	212046	54.6674	54.66
	27 cis-1,2-Dichloroethene	96	3.645	3.645	(0.848)	192445	61.6181	61.61
	28 Chloroform	83	4.032	4.032	(0.938)	287093	60.2440	60.24
	29 Bromochloromethane	128	3.917	3.917	(0.912)	97310	64.3409	64.34
$	30 Dibromofluoromethane	113	4.218	4.218	(0.982)	155358	51.2707	51.27
	31 1,1,1-Trichloroethane	97	4.204	4.204	(0.978)	224829	53.5548	53.55
	32 1,1-Dichloropropene	75	4.390	4.390	(0.867)	216935	50.6446	50.64
	33 1,2-Dichloroethane	62	4.662	4.662	(0.921)	207550	57.0231	57.02
	34 Carbon Tetrachloride	117	4.375	4.376	(0.864)	195728	49.5898	49.58
$	35 1,2-Dichloroethane-d4	65	4.583	4.576	(1.067)	155625	46.2715	46.27
*	36 1,4-Difluorobenzene	114	5.063	5.063	(1.000)	496578	50.0000	
	37 Benzene	78	4.619	4.619	(0.912)	673669	53.0129	53.01
	38 Trichloroethene	130	5.299	5.300	(1.047)	178902	52.8014	52.80
	39 Bromodichloromethane	83	5.808	5.808	(1.147)	229788	57.7474	57.74
	42 1,2-Dichloropropane	63	5.529	5.529	(1.092)	186968	59.2413	59.24
	44 Dibromomethane	93	5.643	5.643	(1.115)	114887	57.7479	57.74
	45 4-Methyl-2-Pentanone	43	6.403	6.403	(0.828)	338843	110.257	110.25
	46 cis-1,3-Dichloropropene	75	6.231	6.231	(1.231)	314586	58.9975	58.99
*	47 Chlorobenzene-d5	117	7.735	7.735	(1.000)	491069	50.0000	
$	48 Toluene-d8	98	6.460	6.460	(0.835)	588014	48.4408	48.44
	50 Toluene	91	6.524	6.524	(0.844)	699466	56.4230	56.42
	51 trans-1,3-Dichloropropene	75	6.754	6.754	(1.334)	255362	56.7929	56.79
	52 2-Hexanone	43	7.155	7.155	(0.925)	221398	107.781	107.78
	53 1,1,2-Trichloroethane	83	6.911	6.911	(0.894)	139691	54.3294	54.32
	54 1,3-Dichloropropane	76	7.054	7.055	(0.912)	289799	54.2344	54.23
	55 Dibromochloromethane	129	7.248	7.248	(0.937)	196673	55.7336	55.73
	56 Tetrachloroethene	164	6.997	6.997	(0.905)	132930	49.4703	49.47
	57 1,2-Dibromoethane	107	7.334	7.334	(0.948)	170608	54.4629	54.46
	58 1-Chlorohexane	55	7.764	7.764	(1.533)	125684	45.2423	45.24
	59 Chlorobenzene	112	7.756	7.764	(1.003)	467602	55.7079	55.70
	60 1,1,1,2-Tetrachloroethane	131	7.842	7.842	(1.014)	168680	54.5676	54.56
	61 Ethylbenzene	106	7.864	7.864	(1.017)	233629	55.7332	55.73
	62 m,p-Xylenes	106	7.971	7.964	(1.031)	565344	109.834	109.83
	63 o-Xylene	106	8.301	8.301	(1.073)	285152	55.1240	55.12
	64 Styrene	104	8.322	8.322	(1.076)	500559	55.1421	55.14
	66 Bromoform	173	8.473	8.473	(1.095)	140365	52.9441	52.94
	67 Isopropylbenzene	105	8.623	8.623	(1.115)	645466	48.8691	48.86
	68 1,1,2,2-Tetrachloroethane	83	8.895	8.895	(0.915)	213208	53.4756	53.47
$	69 4-Bromofluorobenzene	95	8.752	8.752	(1.131)	213343	47.5858	47.58
*	70 1,4-Dichlorobenzene-d4	152	9.719	9.719	(1.000)	252951	50.0000	
	71 1,2,3-Trichloropropane	75	8.924	8.924	(0.918)	243945	49.7006	49.70
	73 n-Propylbenzene	91	8.974	8.974	(0.923)	793135	47.6541	47.65
	74 Bromobenzene	156	8.867	8.867	(0.912)	205133	53.0007	53.00
	75 1,3,5-Trimethylbenzene	105	9.125	9.125	(0.939)	544444	51.9444	51.94
	76 2-Chlorotoluene	91	9.031	9.032	(0.929)	474726	52.5395	52.53
	77 4-Chlorotoluene	91	9.132	9.132	(0.940)	544857	52.2847	52.28
	78 tert-Butylbenzene	119	9.397	9.397	(0.967)	457285	47.2994	47.29
	79 1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	563134	50.9239	50.92
	81 sec-Butylbenzene	105	9.583	9.576	(0.986)	630095	46.6903	46.69
	82 p-Isopropyltoluene	119	9.397	9.397	(0.967)	457285	47.2994	47.29
	83 1,3-Dichlorobenzene	146	9.662	9.662	(0.994)	339530	51.1529	51.15
	84 1,4-Dichlorobenzene	146	9.741	9.741	(1.002)	347641	50.7249	50.72

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180422.b\X042212.D
Report Date: 15-May-2018 15:34

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
	87 n-Butylbenzene	91	10.049	10.049	(1.034)	462058	48.3120	48.31
	88 1,2-Dichlorobenzene	146	10.049	10.049	(1.034)	325905	49.1529	49.15
	89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	30775	49.7545	49.75
	90 1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	204811	54.5628	54.56
	91 Hexachlorobutadiene	225	11.538	11.539	(1.187)	78037	45.8657	45.86
	92 Naphthalene	128	11.596	11.596	(1.193)	423523	54.3907	54.39
	93 1,2,3-Trichlorobenzene	180	11.796	11.796	(1.214)	175400	48.9955	48.99
M	94 1,2-Dichloroethylene (total)	96				361193	116.768	116.76
M	95 Xylenes (total)	106				850496	164.958	164.95
	135 1,4-Dioxane	88	5.686	5.679	(1.323)	37469	1153.96	1153.95
	141 Cyclohexane	56	4.239	4.239	(0.987)	202261	40.7615	40.76
	138 Freon TF	101	2.004	2.005	(0.467)	131928	53.1366	53.13
	147 Methylcyclohexane	83	5.464	5.464	(1.079)	109660	26.0223	26.02
	146 Methyl Acetate	43	2.327	2.327	(0.542)	208265	57.0988	57.09
	148 Tert-Butyl alcohol	59	2.527	2.528	(0.588)	278535	1104.28	1104.28
	149 Isopropyl Alcohol	45	2.191	2.191	(0.510)	200161	1178.04	1178.03



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Sample Info: HS18040701-07HS;HS18040701-07HS;3;;HS
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180422.b\X042213.D
Report Date: 15-May-2018 15:34

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X180422.b\X042213.D
Lab Smp Id: HS18040701-07MSD Client Smp ID: HS18040701-07MSD
Inj Date : 22-APR-2018 14:41
Operator : PC Inst ID: voa6.i
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Misc Info : HS16030331;WATER;0;1;
Comment :
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Meth Date : 15-May-2018 15:34 voa6.i Quant Type: ISTD
Cal Date : 11-APR-2018 15:27 Cal File: X041108.D
Als bottle: 13 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 8260_GB++.sub
Target Version: 4.14
Processing Host: ALSHSW7085

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

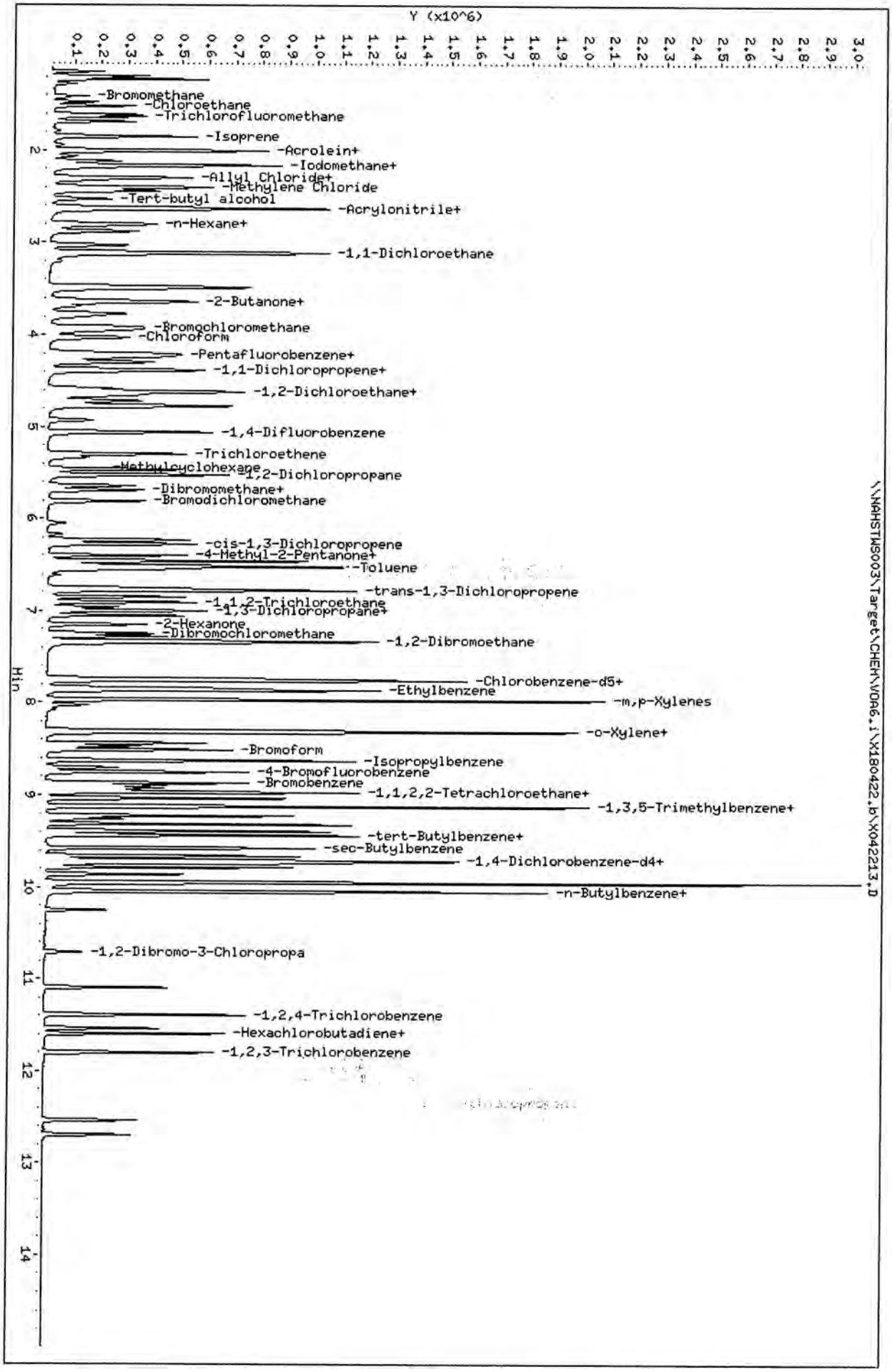
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.297	4.297	(1.000)	305707	50.0000	
185 Isoprene	39	1.854	1.854	(0.432)	61789	47.0736	47.07
136 n-Hexane	57	2.879	2.879	(0.670)	162208	46.1961	46.19
14 Allyl Chloride	41	2.291	2.291	(0.533)	381988	49.1382	49.13
194 Acetaldehyde	44	1.274	1.274	(0.297)	69896	281.648	281.64
140 1,3-Butadiene	54	1.231	1.231	(0.287)	141850	52.7195	52.71
2 Dichlorodifluoromethane	85	1.030	1.030	(0.240)	144610	48.7378	48.73
3 Chloromethane	50	1.145	1.138	(0.267)	130885	39.3650	39.36
5 Vinyl Chloride	62	1.210	1.202	(0.282)	187303	51.0275	51.02
6 Bromomethane	94	1.410	1.410	(0.328)	56668	30.0825	30.08
7 Chloroethane	64	1.475	1.475	(0.343)	115991	57.4027	57.40
8 Trichlorofluoromethane	101	1.639	1.639	(0.382)	197502	50.4263	50.42
9 Acrolein	56	1.947	1.940	(0.453)	29635	104.330	104.32
10 Acetone	43	2.062	2.062	(0.480)	80331	94.3082	94.30
11 1,1-Dichloroethene	96	2.005	2.005	(0.467)	135009	52.3056	52.30
15 Iodomethane	142	2.119	2.119	(0.493)	288634	90.4725	90.47
16 Acrylonitrile	53	2.635	2.635	(0.613)	115497	102.131	102.13
17 Methylene Chloride	84	2.406	2.399	(0.560)	170960	54.1948	54.19
18 Methyl tert-butyl ether	73	2.635	2.635	(0.613)	388761	46.9287	46.92
19 Carbon Disulfide	76	2.162	2.162	(0.503)	1013411	111.450	111.44
20 trans-1,2-Dichloroethene	96	2.635	2.628	(0.613)	159600	53.8157	53.81
21 Vinyl Acetate	43	2.879	2.879	(0.670)	104074	92.3293	92.32

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180422.b\X042213.D
Report Date: 15-May-2018 15:34

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
	22 1,1-Dichloroethane	63	3.029	3.029	(0.705)	291251	61.3427	61.34
	24 2-Butanone	43	3.688	3.688	(0.858)	126702	109.706	109.70
	26 2,2-Dichloropropane	77	3.631	3.623	(0.845)	203232	54.0315	54.03
	27 cis-1,2-Dichloroethene	96	3.645	3.645	(0.848)	180663	59.6263	59.62
	28 Chloroform	83	4.032	4.032	(0.938)	270042	58.4103	58.41
	29 Bromochloromethane	128	3.917	3.917	(0.912)	91842	62.5947	62.59
$	30 Dibromofluoromethane	113	4.218	4.218	(0.982)	150282	51.1222	51.12
	31 1,1,1-Trichloroethane	97	4.204	4.204	(0.978)	216767	53.2372	53.23
	32 1,1-Dichloropropene	75	4.390	4.390	(0.867)	206505	49.4109	49.41
	33 1,2-Dichloroethane	62	4.662	4.662	(0.921)	194137	54.5903	54.59
	34 Carbon Tetrachloride	117	4.383	4.376	(0.866)	192780	49.9671	49.96
$	35 1,2-Dichloroethane-d4	65	4.583	4.576	(1.067)	152731	46.8089	46.80
*	36 1,4-Difluorobenzene	114	5.063	5.063	(1.000)	485186	50.0000	
	37 Benzene	78	4.619	4.619	(0.912)	637676	51.4276	51.42
	38 Trichloroethene	130	5.300	5.300	(1.047)	168273	50.9335	50.93
	39 Bromodichloromethane	83	5.808	5.808	(1.147)	213230	54.8445	54.84
	42 1,2-Dichloropropane	63	5.529	5.529	(1.092)	178368	57.8434	57.84
	44 Dibromomethane	93	5.643	5.643	(1.115)	108916	56.0320	56.03
	45 4-Methyl-2-Pentanone	43	6.403	6.403	(0.828)	310347	103.431	103.43
	46 cis-1,3-Dichloropropene	75	6.231	6.231	(1.231)	294080	56.4468	56.44
*	47 Chlorobenzene-d5	117	7.735	7.735	(1.000)	479761	50.0000	
$	48 Toluene-d8	98	6.460	6.460	(0.835)	579630	48.8756	48.87
	50 Toluene	91	6.525	6.524	(0.844)	662401	54.6925	54.69
	51 trans-1,3-Dichloropropene	75	6.754	6.754	(1.334)	240998	54.8568	54.85
	52 2-Hexanone	43	7.155	7.155	(0.925)	204568	102.035	102.03
	53 1,1,2-Trichloroethane	83	6.911	6.911	(0.894)	131266	52.2560	52.25
	54 1,3-Dichloropropane	76	7.055	7.055	(0.912)	269145	51.5563	51.55
	55 Dibromochloromethane	129	7.248	7.248	(0.937)	180800	52.4431	52.44
	56 Tetrachloroethene	164	7.004	6.997	(0.906)	129085	49.1876	49.18
	57 1,2-Dibromoethane	107	7.334	7.334	(0.948)	162534	53.1084	53.10
	58 1-Chlorohexane	55	7.764	7.764	(1.533)	126939	46.7314	46.73
	59 Chlorobenzene	112	7.764	7.764	(1.004)	441370	53.8221	53.82
	60 1,1,1,2-Tetrachloroethane	131	7.843	7.842	(1.014)	160644	53.1929	53.19
	61 Ethylbenzene	106	7.864	7.864	(1.017)	224478	54.8124	54.81
	62 m,p-Xylenes	106	7.964	7.964	(1.030)	548180	109.009	109.00
	63 o-Xylene	106	8.301	8.301	(1.073)	274765	54.3679	54.36
	64 Styrene	104	8.322	8.322	(1.076)	476616	53.7420	53.74
	66 Bromoform	173	8.473	8.473	(1.095)	133134	51.4002	51.40
	67 Isopropylbenzene	105	8.623	8.623	(1.115)	636939	49.3386	49.33
	68 1,1,2,2-Tetrachloroethane	83	8.896	8.895	(0.915)	200055	49.7472	49.74
$	69 4-Bromofluorobenzene	95	8.752	8.752	(1.131)	210064	47.9588	47.95
*	70 1,4-Dichlorobenzene-d4	152	9.719	9.719	(1.000)	255518	50.0000	
	71 1,2,3-Trichloropropane	75	8.924	8.924	(0.918)	227605	46.0137	46.01
	73 n-Propylbenzene	91	8.974	8.974	(0.923)	786055	46.8001	46.80
	74 Bromobenzene	156	8.867	8.867	(0.912)	193536	49.5020	49.50
	75 1,3,5-Trimethylbenzene	105	9.125	9.125	(0.939)	536854	50.7057	50.70
	76 2-Chlorotoluene	91	9.032	9.032	(0.929)	459919	50.3894	50.38
	77 4-Chlorotoluene	91	9.132	9.132	(0.940)	531832	50.5221	50.52
	78 tert-Butylbenzene	119	9.397	9.397	(0.967)	457273	46.8478	46.84
	79 1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	553563	49.5555	49.55
	81 sec-Butylbenzene	105	9.576	9.576	(0.985)	636463	46.6885	46.68
	82 p-Isopropyltoluene	119	9.397	9.397	(0.967)	457273	46.8478	46.84
	83 1,3-Dichlorobenzene	146	9.662	9.662	(0.994)	327306	48.8158	48.81
	84 1,4-Dichlorobenzene	146	9.741	9.741	(1.002)	334132	48.2640	48.26

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180422.b\X042213.D
Report Date: 15-May-2018 15:34

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
	87 n-Butylbenzene	91	10.049	10.049	(1.034)	462598	47.9048	47.90
	88 1,2-Dichlorobenzene	146	10.049	10.049	(1.034)	316204	47.2763	47.27
	89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	30363	48.6459	48.64
	90 1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	208013	54.8356	54.83
	91 Hexachlorobutadiene	225	11.539	11.539	(1.187)	74901	43.7597	43.75
	92 Naphthalene	128	11.596	11.596	(1.193)	445372	56.4853	56.48
	93 1,2,3-Trichlorobenzene	180	11.797	11.796	(1.214)	180081	49.7507	49.75
M	94 1,2-Dichloroethylene (total)	96				340263	113.442	113.44
M	95 Xylenes (total)	106				822945	163.377	163.37
	135 1,4-Dioxane	88	5.679	5.679	(1.322)	32092	1020.34	1020.33
	141 Cyclohexane	56	4.240	4.239	(0.987)	208314	43.1028	43.10
	138 Freon TF	101	2.005	2.005	(0.467)	135531	56.0459	56.04
	147 Methylcyclohexane	83	5.464	5.464	(1.079)	125601	29.6486	29.64
	146 Methyl Acetate	43	2.327	2.327	(0.542)	186858	52.8067	52.80
	148 Tert-Butyl alcohol	59	2.528	2.528	(0.588)	245105	1003.66	1003.65
	149 Isopropyl Alcohol	45	2.184	2.191	(0.508)	176709	1070.74	1070.74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Date : 22-APR-2018 14:41
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Sample Info: HS18040701-07HSD;HS18040701-07HSD;3;;HSD
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
\\NAHSTWS003\Target\CHEM\VOA6.i\X180422.b\X042213.D
Min
-Bromomethane
-Chloroethane
-Trichlorofluoromethane
-Isoprene
-Acrolein+
-Iodomethane+
-Allyl Chloride+
-Methylene Chloride
-Tert-butyl alcohol
-Acrylonitrile+
-n-Hexane+
-1,1-Dichloroethane
-2-Butanone+
-Bromochloromethane
-Chloroform
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-1,4-Difluorobenzene
-Trichloroethene
-Methylcyclohexane
-1,2-Dichloropropane
-Dibromomethane+
-Bromodichloromethane
-cis-1,3-Dichloropropene
-4-Methyl-2-Pentanone+
-Toluene
-trans-1,3-Dichloropropene
-1,1,2-Trichloroethane
-1,3-Dichloropropane+
-2-Hexanone
-Dibromochloromethane
-1,2-Dibromoethane
-Chlorobenzene-d5+
-Ethylbenzene
-m,p-Xylenes
-o-Xylene+
-Bromoform
-Isopropylbenzene
-4-Bromofluorobenzene
-Bromobenzene
-1,1,2,2-Tetrachloroethane+
-1,3,5-Trimethylbenzene+
-tert-Butylbenzene+
-sec-Butylbenzene
-1,4-Dichlorobenzene-d4+
-n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Hexachlorobutadiene+
-1,2,3-Trichlorobenzene

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Report Date: 15-May-2018 16:40

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X180422.b\X042229.D
Lab Smp Id: CCV-END Client Smp ID: CCV-END
Inj Date : 22-APR-2018 21:13
Operator : PC Inst ID: voa6.i
Smp Info : CCV-END;CCV-END;2;;
Misc Info : HS16030331;WATER;0;1;
Comment :
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Meth Date : 15-May-2018 16:40 voa6.i Quant Type: ISTD
Cal Date : 11-APR-2018 15:27 Cal File: X041108.D
Als bottle: 29 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 8260_GB++.sub
Target Version: 4.14
Processing Host: ALSHSW7085

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.297	4.297	(1.000)	309284	50.0000	
185 Isoprene	39	1.854	1.854	(0.432)	75807	50.0000	56.44
136 n-Hexane	57	2.879	2.879	(0.670)	178129	50.0000	49.88
14 Allyl Chloride	41	2.291	2.291	(0.533)	489818	50.0000	62.28
194 Acetaldehyde	44	1.274	1.274	(0.297)	59547	200.000	236.38
140 1,3-Butadiene	54	1.231	1.231	(0.287)	167103	50.0000	60.92
2 Dichlorodifluoromethane	85	1.030	1.030	(0.240)	170592	50.0000	56.20
3 Chloromethane	50	1.145	1.145	(0.267)	130808	50.0000	38.92
5 Vinyl Chloride	62	1.210	1.210	(0.282)	205688	50.0000	55.10
6 Bromomethane	94	1.410	1.410	(0.328)	72094	50.0000	37.14
7 Chloroethane	64	1.475	1.475	(0.343)	112482	50.0000	55.13
8 Trichlorofluoromethane	101	1.639	1.639	(0.382)	204549	50.0000	51.54
9 Acrolein	56	1.940	1.940	(0.452)	33713	100.000	117.31
10 Acetone	43	2.062	2.062	(0.480)	91835	100.000	106.66
11 1,1-Dichloroethene	96	2.005	2.005	(0.467)	149004	50.0000	56.78
15 Iodomethane	142	2.119	2.119	(0.493)	229218	100.000	72.69
16 Acrylonitrile	53	2.635	2.635	(0.613)	140266	100.000	122.59
17 Methylene Chloride	84	2.399	2.399	(0.558)	173774	50.0000	54.44
18 Methyl tert-butyl ether	73	2.635	2.635	(0.613)	472600	50.0000	56.38
19 Carbon Disulfide	76	2.162	2.162	(0.503)	1049557	100.000	113.95
20 trans-1,2-Dichloroethene	96	2.628	2.628	(0.612)	168042	50.0000	55.92
21 Vinyl Acetate	43	2.879	2.879	(0.670)	110682	100.000	96.79

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180422.b\X042229.D
Report Date: 15-May-2018 16:40

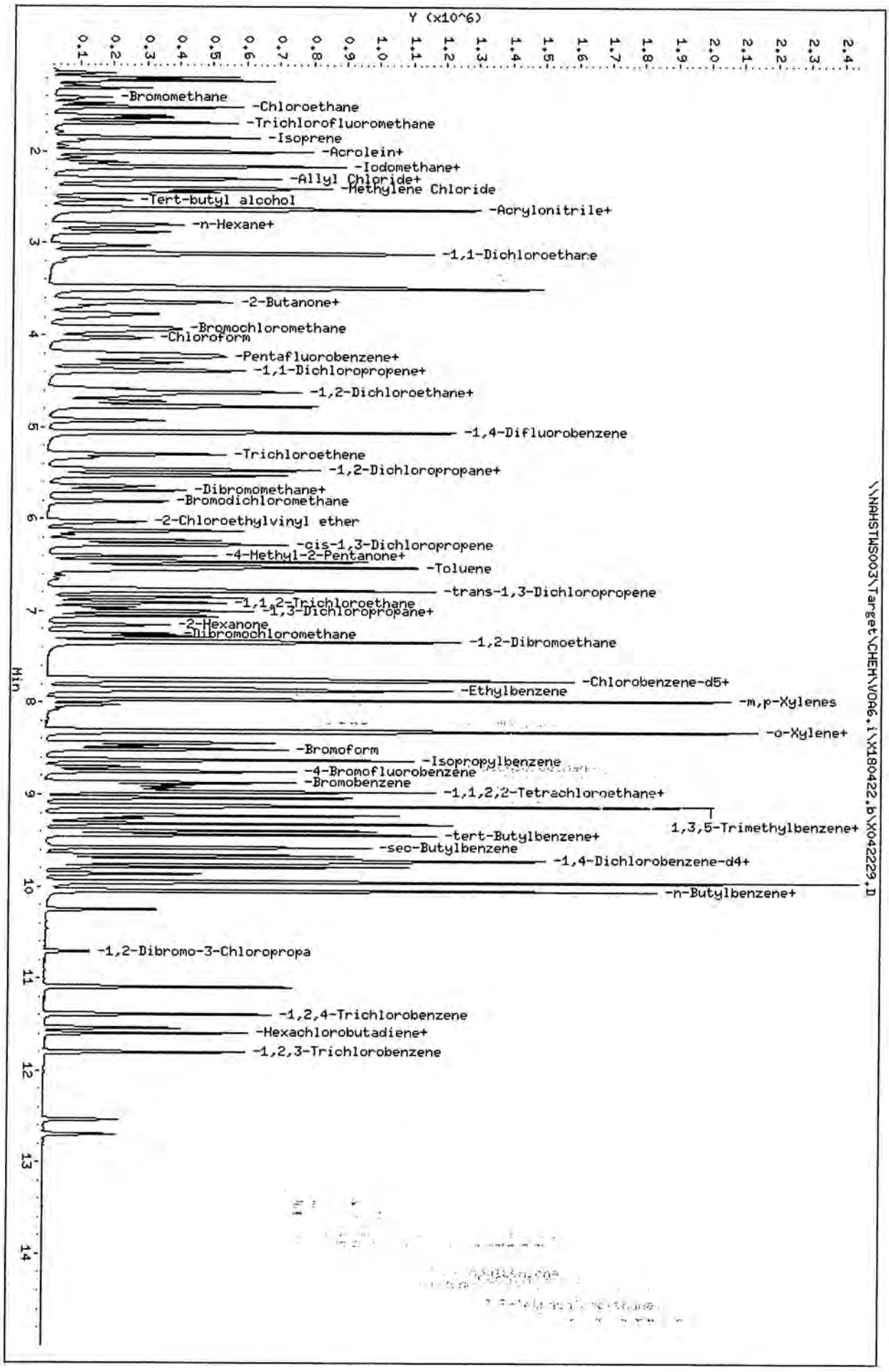
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
	22 1,1-Dichloroethane	63	3.029	3.029	(0.705)	292814	50.0000	60.95
	24 2-Butanone	43	3.688	3.688	(0.858)	131011	100.000	112.11
	26 2,2-Dichloropropane	77	3.631	3.631	(0.845)	186303	50.0000	49.14
	27 cis-1,2-Dichloroethene	96	3.645	3.645	(0.848)	183884	50.0000	59.98
	28 Chloroform	83	4.032	4.032	(0.938)	275854	50.0000	58.97
	29 Bromochloromethane	128	3.917	3.917	(0.912)	91274	50.0000	61.48
$	30 Dibromofluoromethane	113	4.218	4.218	(0.982)	153570	50.0000	51.63
	31 1,1,1-Trichloroethane	97	4.204	4.204	(0.978)	219644	50.0000	53.31
	32 1,1-Dichloropropene	75	4.390	4.390	(0.867)	214988	50.0000	51.34
	33 1,2-Dichloroethane	62	4.662	4.662	(0.921)	192770	50.0000	54.22
	34 Carbon Tetrachloride	117	4.383	4.383	(0.866)	196851	50.0000	50.98
$	35 1,2-Dichloroethane-d4	65	4.583	4.583	(1.067)	154005	50.0000	46.65
*	36 1,4-Difluorobenzene	114	5.063	5.063	(1.000)	485001	50.0000	
	37 Benzene	78	4.619	4.619	(0.912)	655016	50.0000	52.78
	38 Trichloroethene	130	5.300	5.300	(1.047)	170111	50.0000	52.33
	39 Bromodichloromethane	83	5.808	5.808	(1.147)	215028	50.0000	55.32
	41 2-Chloroethylvinyl ether	63	6.123	6.123	(1.209)	234969	100.000	104.88
	42 1,2-Dichloropropane	63	5.529	5.529	(1.092)	176077	50.0000	57.12
	44 Dibromomethane	93	5.643	5.643	(1.115)	105180	50.0000	54.13
	45 4-Methyl-2-Pentanone	43	6.403	6.403	(0.828)	302704	100.000	100.16
	46 cis-1,3-Dichloropropene	75	6.231	6.231	(1.231)	283920	50.0000	54.51
*	47 Chlorobenzene-d5	117	7.735	7.735	(1.000)	483344	50.0000	
$	48 Toluene-d8	98	6.460	6.460	(0.835)	584569	50.0000	48.92
	50 Toluene	91	6.525	6.525	(0.844)	676622	50.0000	55.45
	51 trans-1,3-Dichloropropene	75	6.754	6.754	(1.334)	231693	50.0000	52.75
	52 2-Hexanone	43	7.155	7.155	(0.925)	199781	100.000	98.96
	53 1,1,2-Trichloroethane	83	6.911	6.911	(0.894)	126486	50.0000	49.97
	54 1,3-Dichloropropane	76	7.055	7.055	(0.912)	269024	50.0000	51.15
	55 Dibromochloromethane	129	7.248	7.248	(0.937)	179780	50.0000	51.76
	56 Tetrachloroethene	164	6.997	6.997	(0.905)	131264	50.0000	49.62
	57 1,2-Dibromoethane	107	7.334	7.334	(0.948)	158040	50.0000	51.25
	58 1-Chlorohexane	55	7.764	7.764	(1.533)	134065	50.0000	49.31
	59 Chlorobenzene	112	7.757	7.757	(1.003)	437455	50.0000	52.94
	60 1,1,1,2-Tetrachloroethane	131	7.843	7.843	(1.014)	157051	50.0000	51.61
	61 Ethylbenzene	106	7.864	7.864	(1.017)	223046	50.0000	54.05
	62 m,p-Xylenes	106	7.964	7.964	(1.030)	541206	100.000	106.82
	63 o-Xylene	106	8.301	8.301	(1.073)	270562	50.0000	53.13
	64 Styrene	104	8.322	8.322	(1.075)	468198	50.0000	52.40
	66 Bromoform	173	8.473	8.473	(1.095)	129530	50.0000	49.63
	67 Isopropylbenzene	105	8.623	8.623	(1.115)	620059	50.0000	47.74
	68 1,1,2,2-Tetrachloroethane	83	8.896	8.896	(0.915)	195501	50.0000	48.62
$	69 4-Bromofluorobenzene	95	8.752	8.752	(1.131)	212530	50.0000	48.16
*	70 1,4-Dichlorobenzene-d4	152	9.719	9.719	(1.000)	255611	50.0000	
	71 1,2,3-Trichloropropane	75	8.924	8.924	(0.918)	228854	50.0000	46.24
	73 n-Propylbenzene	91	8.974	8.974	(0.923)	769462	50.0000	45.84
	74 Bromobenzene	156	8.867	8.867	(0.912)	189728	50.0000	48.51
	75 1,3,5-Trimethylbenzene	105	9.125	9.125	(0.939)	526189	50.0000	49.68
	76 2-Chlorotoluene	91	9.032	9.032	(0.929)	462100	50.0000	50.60
	77 4-Chlorotoluene	91	9.132	9.132	(0.940)	523054	50.0000	49.67
	78 tert-Butylbenzene	119	9.397	9.397	(0.967)	443728	50.0000	45.51
	79 1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	543457	50.0000	48.63
	81 sec-Butylbenzene	105	9.576	9.576	(0.985)	615397	50.0000	45.21
	82 p-Isopropyltoluene	119	9.397	9.397	(0.967)	443728	50.0000	45.51
	83 1,3-Dichlorobenzene	146	9.662	9.662	(0.994)	322671	50.0000	48.10

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X180422.b\X042229.D
Report Date: 15-May-2018 16:40

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)	
84	1,4-Dichlorobenzene	146	9.741	9.741	(1.002)	328532	50.0000	47.43	
87	n-Butylbenzene	91	10.049	10.049	(1.034)	438017	50.0000	45.47	
88	1,2-Dichlorobenzene	146	10.049	10.049	(1.034)	311337	50.0000	46.55	
89	1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	28595	50.0000	45.92	
90	1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	193821	50.0000	51.35	
91	Hexachlorobutadiene	225	11.539	11.539	(1.187)	72662	50.0000	42.54	
92	Naphthalene	128	11.596	11.596	(1.193)	391678	50.0000	50.03	
93	1,2,3-Trichlorobenzene	180	11.797	11.797	(1.214)	166499	50.0000	46.19	
M 94	1,2-Dichloroethylene (total)	96				351926	100.000		(a)
135	1,4-Dioxane	88	5.679	5.679	(1.322)	30759	1000.00	967.34	
141	Cyclohexane	56	4.240	4.240	(0.987)	249802	50.0000	50.57	
138	Freon TF	101	2.005	2.005	(0.467)	130366	50.0000	53.47	
147	Methylcyclohexane	83	5.464	5.464	(1.079)	242292	50.0000	52.59	
146	Methyl Acetate	43	2.327	2.327	(0.542)	207724	50.0000	58.02	
148	Tert-Butyl alcohol	59	2.528	2.528	(0.588)	255974	1000.00	1035.34	
149	Isopropyl Alcohol	45	2.184	2.184	(0.508)	170241	1000.00	1018.93	

QC Flag Legend

a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).



Data File: \\NAHSTWS003\Target\CHEM\VOA6,i\X180422.b\X042229.D
Date : 22-APR-2018 21:13
Client ID: CCV-END
Sample Info: CCV-END;CCV-END;2;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6,i
Operator: PC
Column diameter: 0.18

Semivolatile Organics Raw Data

Bhate Environmental Associates, Inc.
Project: LONGHORN GW TREATMENT PLANT
MONTHLY EFFLUENT SAMPLES
ALS WO# HS18040595

FORM 2
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS18040595

	CLIENT SAMPLE NO.	S1 (NBZ) #	S2 #	S3 (FBP) #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	MBLK-127409	94	98	104						0
02	LCSD-127409	86	74	118						0
03	LCS-127409	89	72	120						0
04	HS18040595-01	102	79	102						0
05										
06										
07										
08										
09										
10										
11										
12										
13										
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28										

		QC LIMITS
S1 (NBZ)	= Nitrobenzene-d5	(41-120)
S2	= 4-Terphenyl-d14	(40-140)
S3 (FBP)	= 2-Fluorobiphenyl	(40-140)

\# Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogate diluted out

SV05 -Logbook

Batch: 29699
Date: 11-27-2017
Method: 8270D(SIM)
Comments: MSSV-003(SIM)

Analyst: Andrew Neir
Reviewer:
Laboratory: Houston

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	DFTPP	TUNE	11-27-2017 04:32 pm	1.00			01.D		Y	NA
2	DX-0.08	CAL	11-27-2017 04:47 pm	1.00			02.D		Y	NA
3	DX-0.01	CAL	11-27-2017 05:19 pm	1.00			03.D		Y	NA
4	DX-0.03	CAL	11-27-2017 05:40 pm	1.00			04.D		Y	NA
5	DX-0.05	CAL	11-27-2017 06:00 pm	1.00			05.D		Y	NA
6	DX-0.1	CAL	11-27-2017 06:21 pm	1.00			06.D		Y	NA
7	DX-0.15	CAL	11-27-2017 06:41 pm	1.00			07.D		Y	NA
8	DX-0.2	CAL	11-27-2017 07:01 pm	1.00			08.D		Y	NA
9	DX-0.5	CAL	11-27-2017 07:22 pm	1.00			09.D		Y	NA
10	DX-ICV	SAMP	11-27-2017 07:42 pm	1.00			10.D		Y	NA
11	CCB	SAMP	11-27-2017 08:03 pm	1.00			11.D		Y	NA
12	MBLK-122270	MBLK	11-27-2017 08:23 pm	1.00	1000.00 mL	1.00 mL	12.D	Liquid	Y	NA
13	LCS-122270	LCS	11-27-2017 08:44 pm	1.00	1000.00 mL	1.00 mL	13.D	Liquid	Y	NA
14	LCSD-122270	LCSD	11-27-2017 09:05 pm	1.00	1000.00 mL	1.00 mL	14.D	Liquid	Y	NA
15	HS17110800-01	SAMP	11-27-2017 09:25 pm	20.00	1000.00 mL	1.00 mL	15.D	Liquid	Y	NA
16	HS17110800-02	SAMP	11-27-2017 09:46 pm	10.00	1000.00 mL	1.00 mL	16.D	Liquid	Y	NA
17	HS17110800-03	SAMP	11-27-2017 10:06 pm	10.00	1000.00 mL	1.00 mL	17.D	Liquid	Y	NA
18	HS17110800-04	SAMP	11-27-2017 10:27 pm	4.00	1000.00 mL	1.00 mL	18.D	Liquid	Y	NA
19	HS17110800-05	SAMP	11-27-2017 10:47 pm	20.00	1000.00 mL	1.00 mL	19.D	Liquid	Y	NA
20	HS17110800-06	SAMP	11-27-2017 11:08 pm	20.00	1000.00 mL	1.00 mL	20.D	Liquid	Y	NA
21	HS17110731-01	SAMP	11-27-2017 11:28 pm	4.00	1000.00 mL	11.00 mL	21.D	Liquid	Y	NA
22	HS17110731-02	SAMP	11-27-2017 11:49 pm	100.0(	1000.00 mL	1.00 mL	22.D	Liquid	Y	NA
23	HS17110731-03	SAMP	11-28-2017 12:09 am	500.0(	1000.00 mL	1.00 mL	23.D	Liquid	Y	NA
24	HS17110732-01	SAMP	11-28-2017 12:30 am	20.00	1000.00 mL	1.00 mL	24.D	Liquid	Y	NA
25	HS17110732-02	SAMP	11-28-2017 12:50 am	500.0(	1000.00 mL	1.00 mL	25.D	Liquid	Y	NA
26	HS17110813-01	SAMP	11-28-2017 01:11 am	20.00	1000.00 mL	1.00 mL	26.D	Liquid	Y	NA
27	HS17110813-02	SAMP	11-28-2017 01:31 am	20.00	1000.00 mL	1.00 mL	27.D	Liquid	Y	NA
28	HS17110816-01	SAMP	11-28-2017 01:52 am	20.00	1000.00 mL	1.00 mL	28.D	Liquid	Y	NA
29	HS17110816-02	SAMP	11-28-2017 02:12 am	20.00	1000.00 mL	1.00 mL	29.D	Liquid	Y	NA
30	DX-0.08	SAMP	11-28-2017 11:28 am	1.00	1000.00 mL	1000.00 mL	30.D	Liquid	Y	NA

SV05 -Logbook

Chemical	Value
IS ID	3041118-01
CAL STD ID	3041117-04
DFTPP ID	29722-96-01
PCP Tailing	0.67
Benz. Tailing	0.86
STD-01	3041117-01
STD-02	3041117-02
STD-03	3041117-03
STD-04	3041117-05
STD-05	3041117-06
STD-06	3041117-07
ICV ID	3041117-08

FORM 3
WATER SEMIVOLATILE METHOD SPIKE RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS18040595

Matrix Spike - Sample No.: DX-ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	% REC #	QC. LIMITS REC.
1,4-Dioxane	0.08000	0.08408	105	75-125

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

COMMENTS: _____

_____

FORM III SV

FORM 5
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS18040595

Lab File ID: 01 DFTPP Injection Date: 11/27/17

Instrument ID: SV5 DFTPP Injection Time: 1632

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	47.4
68	Less than 2.0% of mass 69	0.9 (1.6)1
69	Mass 69 relative abundance	58.7
70	Less than 2.0% of mass 69	0.4 (0.7)1
127	10.0 - 80.0% of mass 198	62.4
197	Less than 2.0% of mass 198	0.7
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	8.3
275	10.0 - 60.0% of mass 198	26.8
365	1.0 - 100.0% of mass 198	2.7
441	Present, but less than mass 443	9.7
442	50.0 - 150.0% of mass 198	63.2
443	15.0 - 24.0% of mass 442	13.5 (21.3)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	DX-0.08	DX-0.08	02	11/27/17	1647
02	DX-0.01	DX-0.01	03	11/27/17	1719
03	DX-0.03	DX-0.03	04	11/27/17	1740
04	DX-0.05	DX-0.05	05	11/27/17	1800
05	DX-0.1	DX-0.1	06	11/27/17	1821
06	DX-0.15	DX-0.15	07	11/27/17	1841
07	DX-0.2	DX-0.2	08	11/27/17	1901
08	DX-0.5	DX-0.5	09	11/27/17	1922
09	DX-ICV	DX-ICV	10	11/27/17	1942
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM 6
SEMIVOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS18040595

Instrument ID: SV5 Calibration Date(s): 11/27/17 11/27/17

Column: RTX-5SIL MS ID: 0.28 (mm) Calibration Time(s): 1647 1922

LAB FILE ID: RF0.01: 03 RF0.025: 04 RF0.05: 05
RF0.08: 02 RF0.1: 06 RF0.15: 07

COMPOUND	RF0.01	RF0.025	RF0.05	RF0.08	RF0.1	RF0.15
1,4-Dioxane	0.082	0.080	0.075	0.082	0.082	0.084
Nitrobenzene-d5	0.654	0.579	0.439	0.385	0.438	0.456
4-Terphenyl-d14	1622	5762	17709	16179	39094	22443
2-Fluorobiphenyl	0.785	0.995	0.834	0.847	0.871	0.908

FORM VI SV

FORM 6
SEMIVOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1804059

Instrument ID: SV5 Calibration Date(s): 11/27/17 11/27/17

Column: RTX-5SIL MS ID: 0.28 (mm) Calibration Time(s): 1647 1922

LAB FILE ID: RF0.2: 08 RF0.5: 09

COMPOUND	RF0.2	RF0.5
1,4-Dioxane	0.086	0.091
Nitrobenzene-d5	0.455	0.408
4-Terphenyl-d14	31676	145184
2-Fluorobiphenyl	0.918	0.933

FORM VI SV

FORM 6
SEMIVOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1804059

Instrument ID: SV5 Calibration Date(s): 11/27/17 11/27/17

Column: RTX-5SIL MS ID: 0.28 (mm) Calibration Time(s): 1647 1922

COMPOUND	CURVE	COEFFICENTS A0	A1	A2	%RSD OR R^2	MAX %RSD OR R^2
1,4-Dioxane	AVRG		8.286e-002		5.457	20.000
Nitrobenzene-d5	AVRG		0.47670052		19.241	20.000
4-Terphenyl-d14	2ORDR	0.14589860	1.02412250	-3.79e-002	0.9949042	0.9900000
2-Fluorobiphenyl	AVRG		0.88628899		7.424	20.000

FORM VI SV

Data File: \\NAHSTWS003\Target\CHEM\SV5.i\171127.b\01.D

Date : 27-NOV-2017 16:32

Client ID: DFTPP

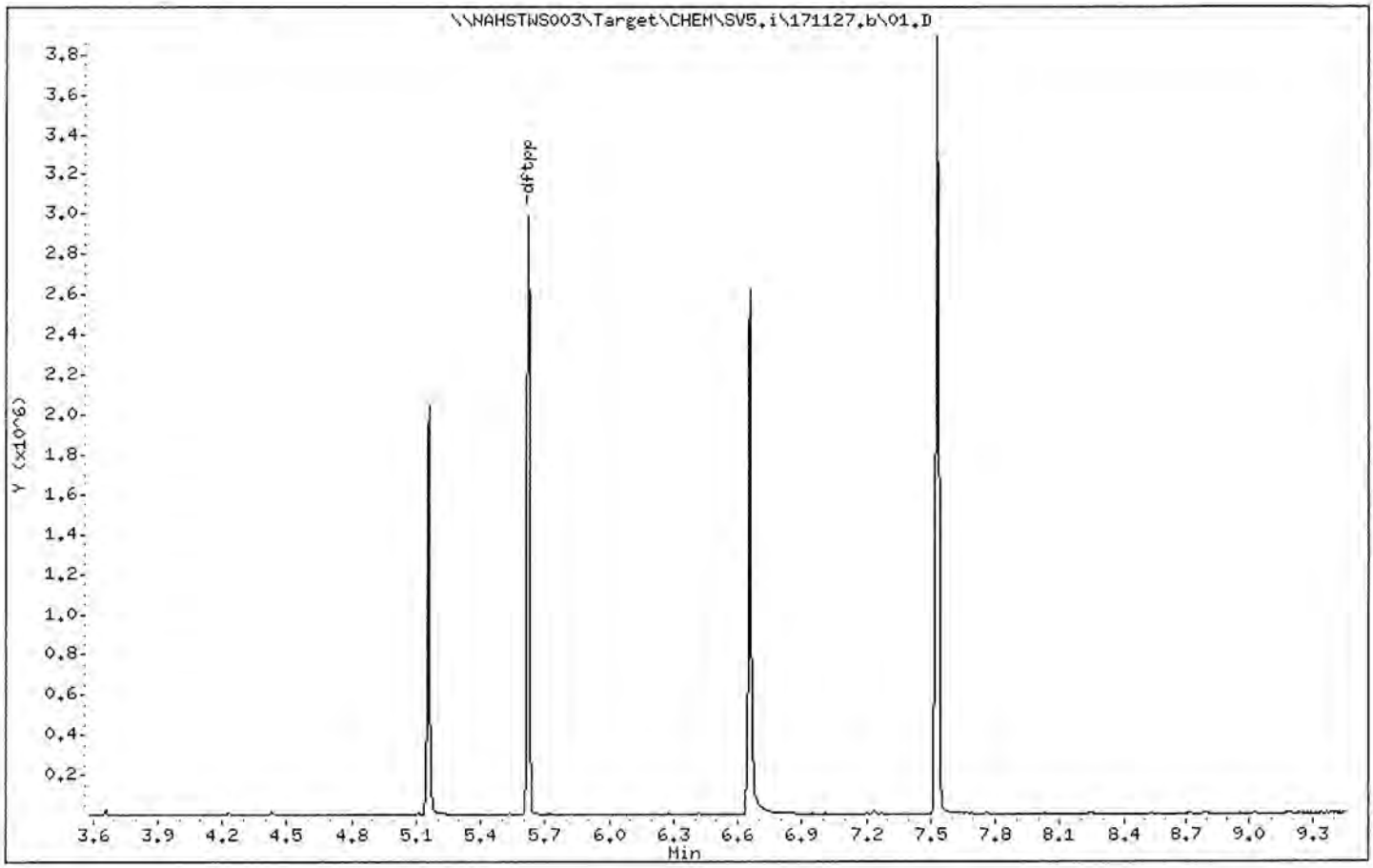
Instrument: SV5.i

Sample Info: DFTPP;DFTPP;3;;DFTPP

Operator: GY

Column phase: DB-5MS

Column diameter: 0.25



Data File: \\NAHSTWS003\Target\CHEM\SV5.i\171127.b\01.D

Date : 27-NOV-2017 16:32

Client ID: DFTPP

Instrument: SV5.i

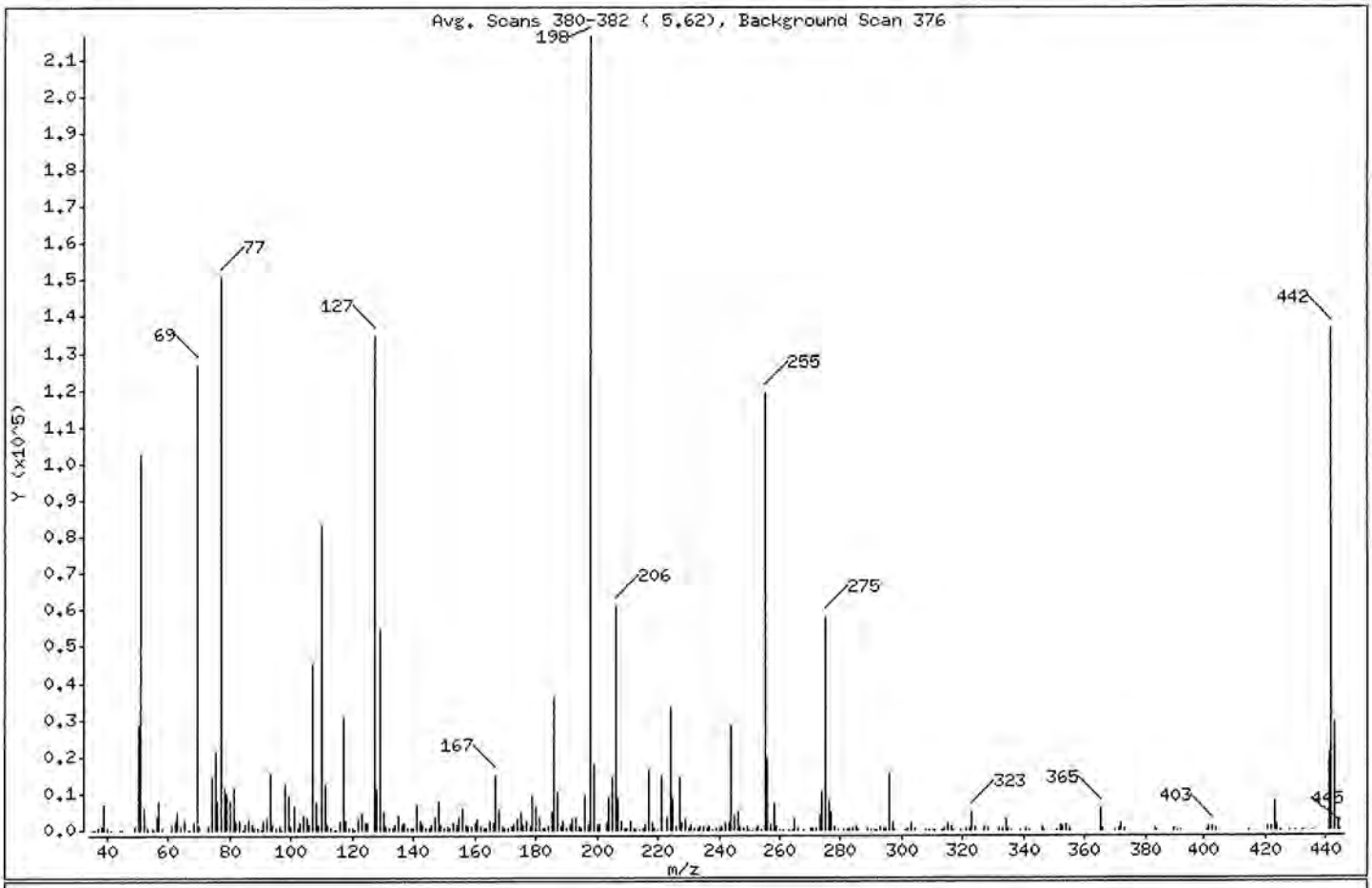
Sample Info: DFTPP;DFTPP;3;;DFTPP

Operator: CY

Column phase: DB-5MS

Column diameter: 0.25

1 dftpp



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
198	Base Peak, 100% relative abundance	100.00
51	10.00 - 80.00% of mass 198	47.36
68	Less than 2.00% of mass 69	0.92 (1.57)
69	Mass 69 relative abundance	58.68
70	Less than 2.00% of mass 69	0.43 (0.73)
127	10.00 - 80.00% of mass 198	62.40
197	Less than 2.00% of mass 198	0.70
199	5.00 - 9.00% of mass 198	8.31
275	10.00 - 60.00% of mass 198	26.85
365	1.00 - 100.00% of mass 198	2.68
441	Present, but less than mass 443	9.71
442	50.00 - 150.00% of mass 198	63.22
443	15.00 - 24.00% of mass 442	13.47 (21.30)

Data File: \\NAHSTWS003\Target\CHEM\SV5.i\171127.b\01.D Page 3

Date : 27-NOV-2017 16:32

Client ID: DFTPP Instrument: SV5.i

Sample Info: DFTPP;DFTPP;3;;DFTPP

Operator: GY

Column phase: DB-5MS Column diameter: 0.25

Data File: 01.D
Spectrum: Avg. Scans 380-382 (5,62), Background Scan 376
Location of Maximum: 198.00
Number of points: 311

m/z	Y	m/z	Y	m/z	Y	m/z	Y
35.00	64	123.00	4367	203.00	1836	286.00	163
36.00	179	124.00	1955	204.00	8877	289.00	252
37.00	524	125.00	1853	205.00	14549	290.00	180
38.00	1167	127.00	134976	206.00	61392	291.00	51
39.00	7068	128.00	10832	207.00	8276	292.00	164
40.00	376	129.00	54648	208.00	2239	293.00	1211
41.00	227	130.00	5039	209.00	641	294.00	331
44.00	62	131.00	760	210.00	737	295.00	305
45.00	158	132.00	443	211.00	2528	296.00	15231
49.00	855	133.00	285	212.00	478	297.00	2060
50.00	28200	134.00	1641	213.00	220	298.00	168
51.00	102448	135.00	4151	214.00	62	301.00	141
52.00	5837	136.00	1588	215.00	744	302.00	254
53.00	268	137.00	2001	216.00	1491	303.00	1992
55.00	442	138.00	436	217.00	16600	304.00	485
56.00	3389	139.00	385	218.00	2218	308.00	211
57.00	7803	140.00	693	219.00	297	309.00	59
58.00	295	141.00	6880	220.00	135	310.00	212
61.00	1446	142.00	2474	221.00	15007	311.00	79
62.00	1853	143.00	1584	223.00	3574	313.00	60
63.00	4945	144.00	424	224.00	33280	314.00	719
64.00	785	145.00	396	225.00	8598	315.00	1801
65.00	2792	146.00	1411	226.00	993	316.00	916
66.00	173	147.00	3551	227.00	14374	317.00	165
67.00	213	148.00	7951	228.00	1888	319.00	53
68.00	1993	149.00	1446	229.00	3181	321.00	590
69.00	126936	150.00	490	230.00	371	322.00	263
70.00	922	151.00	1135	231.00	1318	323.00	4734
73.00	1073	152.00	643	232.00	300	324.00	1033
74.00	14177	153.00	2120	233.00	393	327.00	1117
75.00	21464	154.00	1634	234.00	909	328.00	440
76.00	8028	155.00	3726	235.00	1155	332.00	342
77.00	150656	156.00	5846	236.00	600	333.00	530
78.00	11390	157.00	1245	237.00	1152	334.00	2964
79.00	9952	158.00	1237	238.00	68	335.00	698

Data File: \\NAHSTWS003\Target\CHEM\SV5.i\171127.b\01.D

Date : 27-NOV-2017 16:32

Client ID: DFTPP

Instrument: SV5.i

Sample Info: DFTPP;DFTPP;3;;DFTPP

Operator: GY

Column phase: DB-5MS

Column diameter: 0.25

Data File: 01.D
Spectrum: Avg. Scans 380-382 (5.62), Background Scan 376
Location of Maximum: 198.00
Number of points: 311

m/z	Y	m/z	Y	m/z	Y	m/z	Y
80.00	8009	159.00	919	239.00	624	336.00	83
81.00	11268	160.00	2200	240.00	319	339.00	127
82.00	2605	161.00	3181	241.00	801	341.00	498
83.00	2536	162.00	821	242.00	1868	342.00	197
84.00	91	163.00	316	243.00	1973	346.00	825
85.00	1564	164.00	494	244.00	28352	347.00	99
86.00	2774	165.00	2389	245.00	4068	351.00	55
87.00	1457	166.00	1859	246.00	5194	352.00	1396
88.00	640	167.00	14805	247.00	1109	353.00	1086
89.00	314	168.00	5607	248.00	377	354.00	1448
90.00	56	169.00	990	249.00	1137	355.00	310
91.00	2323	170.00	460	250.00	244	365.00	5793
92.00	3022	171.00	551	251.00	197	366.00	674
93.00	15440	172.00	1178	252.00	367	370.00	69
94.00	1256	173.00	1556	253.00	886	371.00	287
95.00	377	174.00	2888	254.00	194	372.00	2202
96.00	851	175.00	5089	255.00	119520	373.00	605
97.00	166	176.00	1670	256.00	19512	383.00	527
98.00	12622	177.00	2269	257.00	1635	384.00	134
99.00	9552	178.00	869	258.00	7227	390.00	306
100.00	846	179.00	9433	259.00	1170	391.00	166
101.00	6363	180.00	6527	260.00	227	392.00	111
102.00	355	181.00	3394	261.00	203	401.00	76
103.00	2141	182.00	578	263.00	63	402.00	864
104.00	4035	183.00	400	264.00	201	403.00	1064
105.00	3704	184.00	889	265.00	2960	404.00	544
106.00	1296	185.00	4909	266.00	674	415.00	52
107.00	45168	186.00	36312	268.00	69	421.00	1112
108.00	7315	187.00	10594	270.00	291	422.00	1216
109.00	1533	188.00	1161	271.00	280	423.00	8029
110.00	82920	189.00	2311	272.00	444	424.00	1632
111.00	12346	190.00	401	273.00	4022	425.00	182
112.00	1525	191.00	1280	274.00	10527	428.00	72
113.00	622	192.00	3160	275.00	58072	430.00	117
114.00	121	193.00	3303	276.00	8016	432.00	104

Data File: \\NAHSTWS003\Target\CHEM\SV5.i\171127.b\01.D

Date : 27-NOV-2017 16:32

Client ID: DFTPP

Instrument: SV5.i

Sample Info: DFTPP;DFTPP;3;;DFTPP

Operator: GY

Column phase: DB-5MS

Column diameter: 0.25

Data File: 01.D

Spectrum: Avg. Scans 380-382 (5.62), Background Scan 376

Location of Maximum: 198.00

Number of points: 311

m/z	Y	m/z	Y	m/z	Y	m/z	Y
115.00	211	194.00	802	277.00	4976	433.00	62
116.00	2538	195.00	631	278.00	778	436.00	56
117.00	30648	196.00	9545	279.00	222	441.00	21008
118.00	2305	197.00	1505	281.00	52	442.00	136768
119.00	288	198.00	216320	282.00	50	443.00	29136
120.00	476	199.00	17976	283.00	528	444.00	2817
121.00	231	200.00	1509	284.00	434	445.00	88
122.00	2773	201.00	1436	285.00	858		

ALS Laboratory Group

GC/MS Semivolatiles EPA method 8270D

Data file : \\NAHSTWS003\Target\CHEM\SV5.i\171127.b\02.D
Lab Smp Id: DX-0.08 Client Smp ID: DX-0.08
Inj Date : 27-NOV-2017 16:47 MS Autotune Date: 22-JUN-2005 09:10
Operator : GY Inst ID: SV5.i
Smp Info : DX-0.08;DX-0.08
Misc Info : ;1;0;1
Comment :
Method : \\NAHSTWS003\Target\CHEM\SV5.i\171127.b\DXSIM.m
Meth Date : 11-Jan-2018 15:47 aneir Quant Type: ISTD
Cal Date : 20-NOV-2017 15:12 Cal File: 010.D
Als bottle: 2 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 14DX.sub
Target Version: 4.14

Concentration Formula: Amt * DF * Uf * Vt/Vo * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	1000.000	Volume of final extract (uL)
Vo	1000.000	Volume of sample extracted (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (NG)	ON-COL (NG)
* 45 Naphthalene-d8	136	4.800	4.800	(1.000)	80734	0.10000	(H)
$ 33 Nitrobenzene-d5	82	4.146	4.147	(0.864)	24870	0.08000	0.06456 (MH)
* 86 Acenaphthene-d10	164	6.480	6.479	(1.000)	53474	0.10000	(H)
$ 69 2-Fluorobiphenyl	172	5.821	5.825	(0.938)	36229	0.08000	0.07644
* 126 Phenanthrene-d10	188	7.811	7.811	(1.000)	68006	0.10000	
* 182 Chrysene-d12	240	10.198	10.198	(1.000)	36826	0.10000	
$ 158 4-Terphenyl-d14	244	9.097	9.097	(0.892)	16179	0.08000	0.05060 (M)
* 198 Perylene-d12	264	12.114	12.120	(1.000)	19912	0.10000	(M)
1 1,4-Dioxane	58	1.978	2.032	(0.441)	5306	0.08000	0.07932 (aH)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.
H - Operator selected an alternate compound hit.

Data File: \\NAHSTWS003\Target\CHEM\SV5.i\171127.b\02.D

Date : 27-NOV-2017 16:47

Client ID: DX-0.08

Sample Info: DX-0.08;DX-0.08

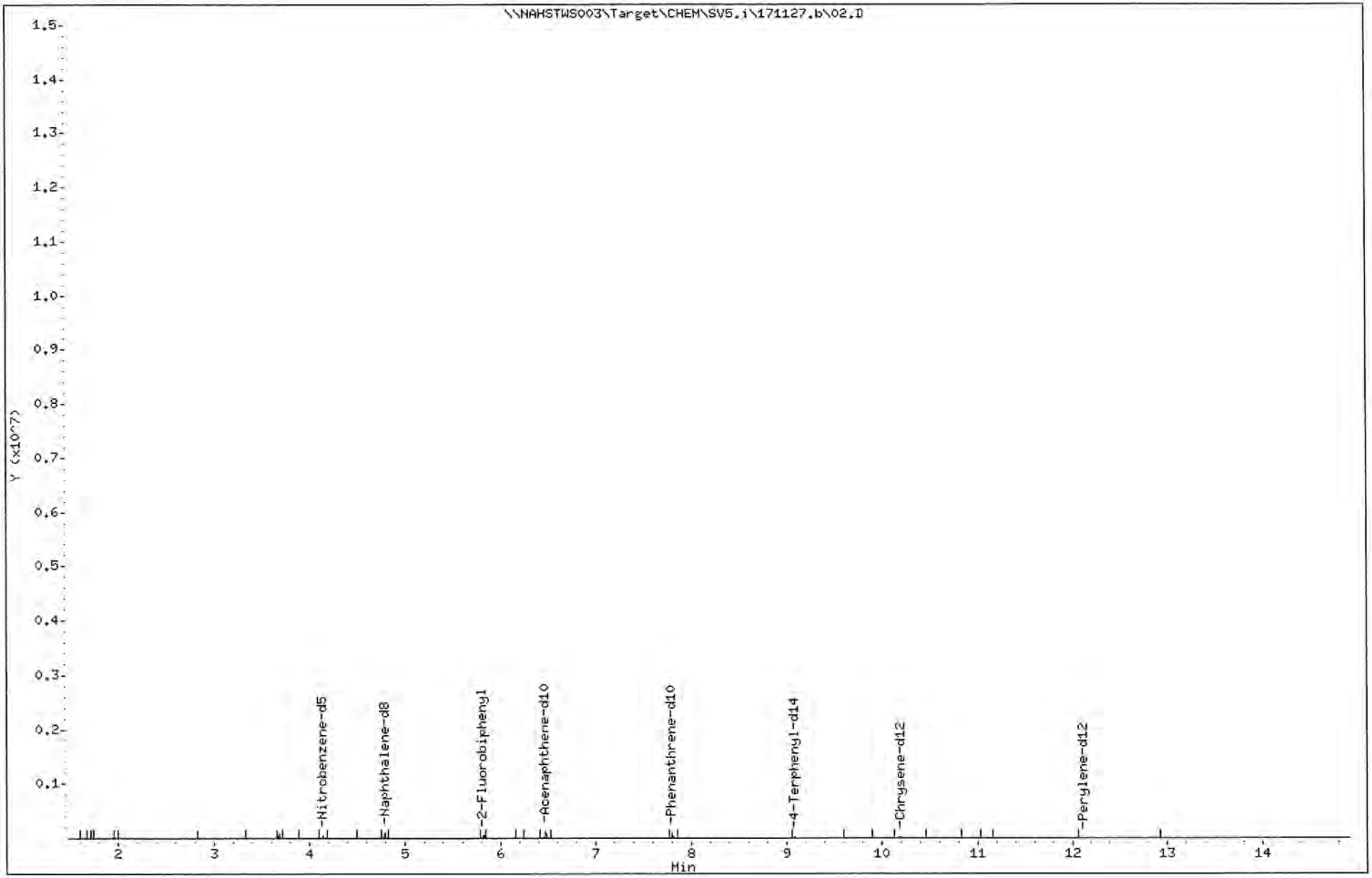
Purge Volume: 1000.0

Column phase: RTX-5SIL MS

Instrument: SV5.i

Operator: GY

Column diameter: 0.28



ALS Laboratory Group

GC/MS Semivolatiles EPA method 8270D

Data file : \\NAHSTWS003\Target\CHEM\SV5.i\171127.b\03.D
Lab Smp Id: DX-0.01 Client Smp ID: DX-0.01
Inj Date : 27-NOV-2017 17:19 MS Autotune Date: 22-JUN-2005 09:10
Operator : GY Inst ID: SV5.i
Smp Info : DX-0.01;DX-0.01
Misc Info : ;1;0;1
Comment :
Method : \\NAHSTWS003\Target\CHEM\SV5.i\171127.b\DXSIM.m
Meth Date : 11-Jan-2018 15:47 aneir Quant Type: ISTD
Cal Date : 20-NOV-2017 15:12 Cal File: 010.D
Als bottle: 3 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 14DX.sub
Target Version: 4.14

Concentration Formula: Amt * DF * Uf * Vt/Vo * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	1000.000	Volume of final extract (uL)
Vo	1000.000	Volume of sample extracted (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (NG)	ON-COL (NG)
* 45 Naphthalene-d8	136	4.800	4.800	(1.000)	67668	0.10000	
$ 33 Nitrobenzene-d5	82	4.146	4.147	(0.864)	2358	0.01000	0.008596(M)
* 86 Acenaphthene-d10	164	6.480	6.479	(1.000)	44655	0.10000	
$ 69 2-Fluorobiphenyl	172	5.821	5.825	(0.898)	3504	0.01000	0.008854
* 126 Phenanthrene-d10	188	7.811	7.811	(1.000)	59120	0.10000	
* 182 Chrysene-d12	240	10.198	10.198	(1.000)	21732	0.10000	(M)
$ 158 4-Terphenyl-d14	244	9.097	9.097	(0.892)	1493	0.01000	0.008669(M)
* 198 Perylene-d12	264	12.120	12.120	(1.000)	11157	0.10000	

QC Flag Legend

M - Compound response manually integrated.

Data File: \\NAHSTWS003\Target\CHEM\SV5.i\171127.b\03.D

Page 2

Date : 27-NOV-2017 17:19

Client ID: DX-0.01

Instrument: SV5.i

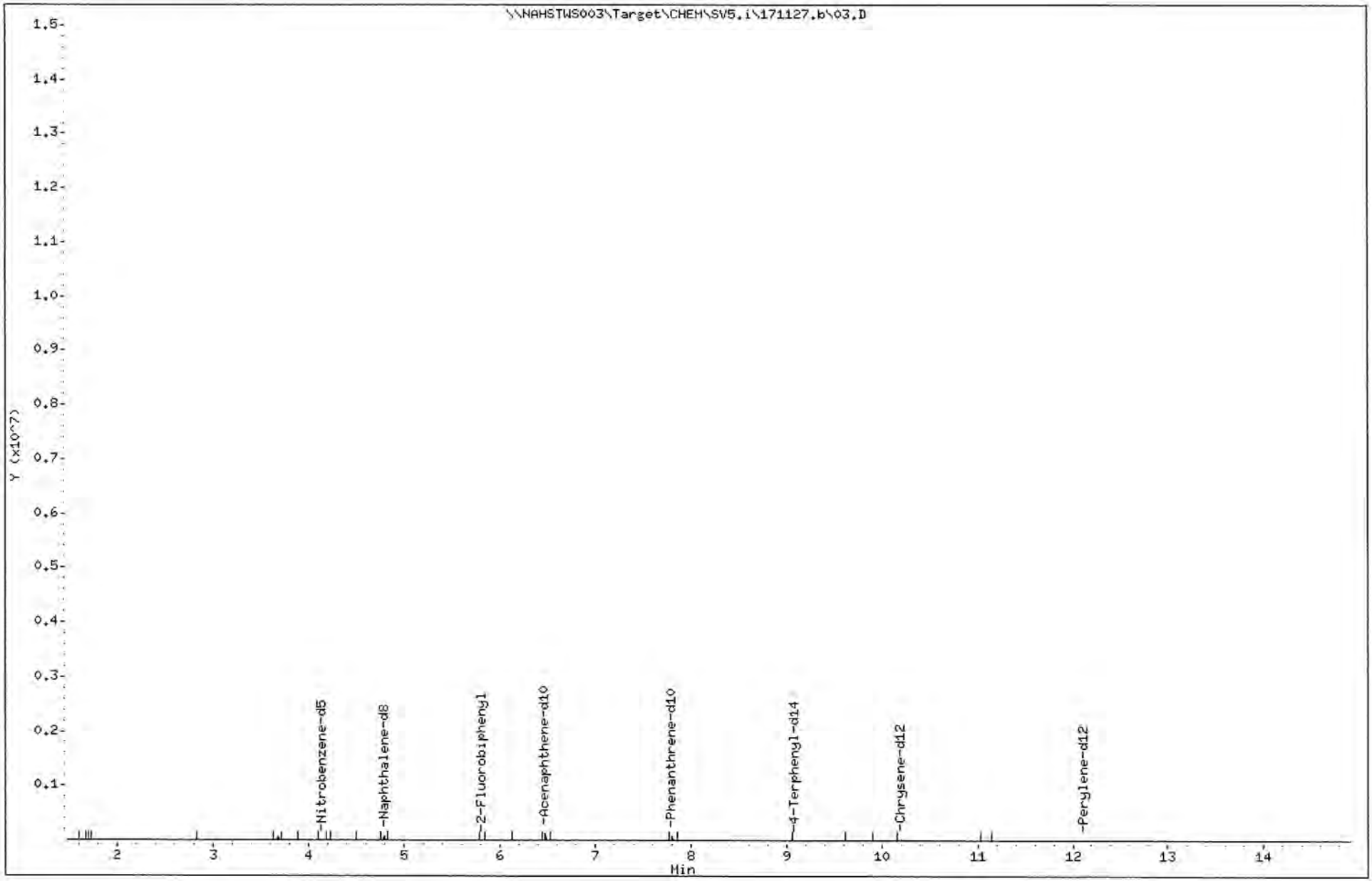
Sample Info: DX-0.01;DX-0.01

Purge Volume: 1000.0

Operator: GY

Column phase: RTX-5SIL MS

Column diameter: 0.28



ALS Laboratory Group

GC/MS Semivolatiles EPA method 8270D

Data file : \\NAHSTWS003\Target\CHEM\SV5.i\171127.b\04.D
Lab Smp Id: DX-0.03 Client Smp ID: DX-0.03
Inj Date : 27-NOV-2017 17:40 MS Autotune Date: 22-JUN-2005 09:10
Operator : GY Inst ID: SV5.i
Smp Info : DX-0.03;DX-0.03
Misc Info : ;1;0;1
Comment :
Method : \\NAHSTWS003\Target\CHEM\SV5.i\171127.b\DXSIM.m
Meth Date : 11-Jan-2018 15:47 aneir Quant Type: ISTD
Cal Date : 20-NOV-2017 15:12 Cal File: 010.D
Als bottle: 4 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 14DX.sub
Target Version: 4.14

Concentration Formula: Amt * DF * Uf * Vt/Vo * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	1000.000	Volume of final extract (uL)
Vo	1000.000	Volume of sample extracted (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (NG)	ON-COL (NG)
* 45 Naphthalene-d8	136	4.800	4.800	(1.000)	71168	0.10000	
$ 33 Nitrobenzene-d5	82	4.146	4.147	(0.864)	8040	0.02500	0.02787(M)
* 86 Acenaphthene-d10	164	6.480	6.479	(1.000)	47659	0.10000	
$ 69 2-Fluorobiphenyl	172	5.821	5.825	(0.898)	11858	0.02500	0.02807
* 126 Phenanthrene-d10	188	7.811	7.811	(1.000)	54839	0.10000	
* 182 Chrysene-d12	240	10.213	10.198	(1.000)	26518	0.10000	(M)
$ 158 4-Terphenyl-d14	244	9.102	9.097	(0.891)	5050	0.02500	0.02381(M)
* 198 Perylene-d12	264	12.130	12.120	(1.000)	13137	0.10000	

QC Flag Legend

M - Compound response manually integrated.

Data File: \\NAHSTWS003\Target\CHEM\SV5.i\171127.b\04.D

Date : 27-NOV-2017 17:40

Client ID: DX-0.03

Instrument: SV5.i

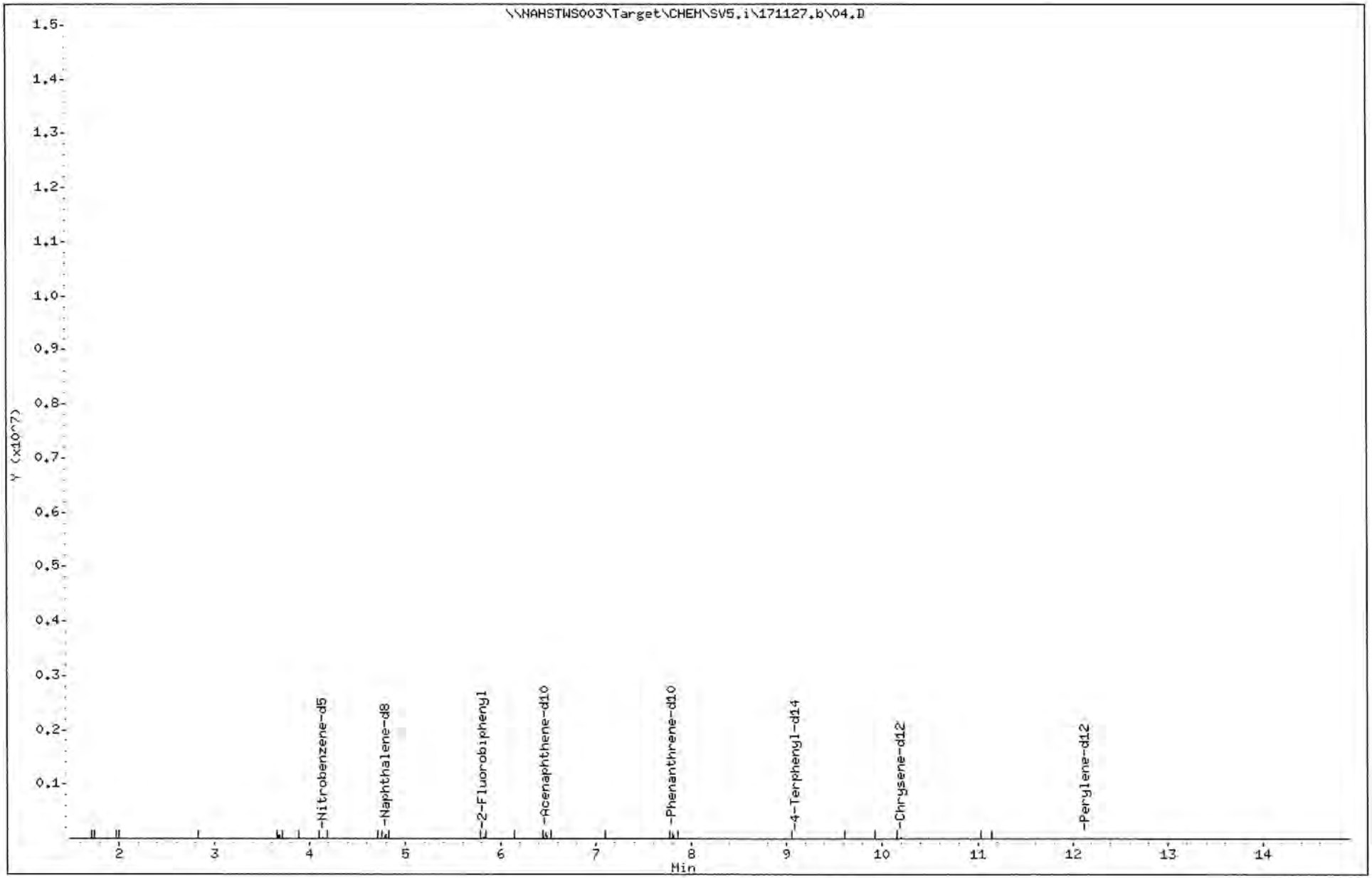
Sample Info: DX-0.03;DX-0.03

Purge Volume: 1000.0

Operator: GY

Column phase: RTX-5SIL MS

Column diameter: 0.28



ALS Laboratory Group

GC/MS Semivolatiles EPA method 8270D

Data file : \\NAHSTWS003\Target\CHEM\SV5.i\171127.b\05.D
Lab Smp Id: DX-0.05 Client Smp ID: DX-0.05
Inj Date : 27-NOV-2017 18:00 MS Autotune Date: 22-JUN-2005 09:10
Operator : GY Inst ID: SV5.i
Smp Info : DX-0.05;DX-0.05
Misc Info : ;1;0;1
Comment :
Method : \\NAHSTWS003\Target\CHEM\SV5.i\171127.b\DXSIM.m
Meth Date : 11-Jan-2018 15:47 aneir Quant Type: ISTD
Cal Date : 20-NOV-2017 15:12 Cal File: 010.D
Als bottle: 5 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 14DX.sub
Target Version: 4.14

Concentration Formula: Amt * DF * Uf * Vt/Vo * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	1000.000	Volume of final extract (uL)
Vo	1000.000	Volume of sample extracted (mL)
Cpnd Variable		Local Compound Variable

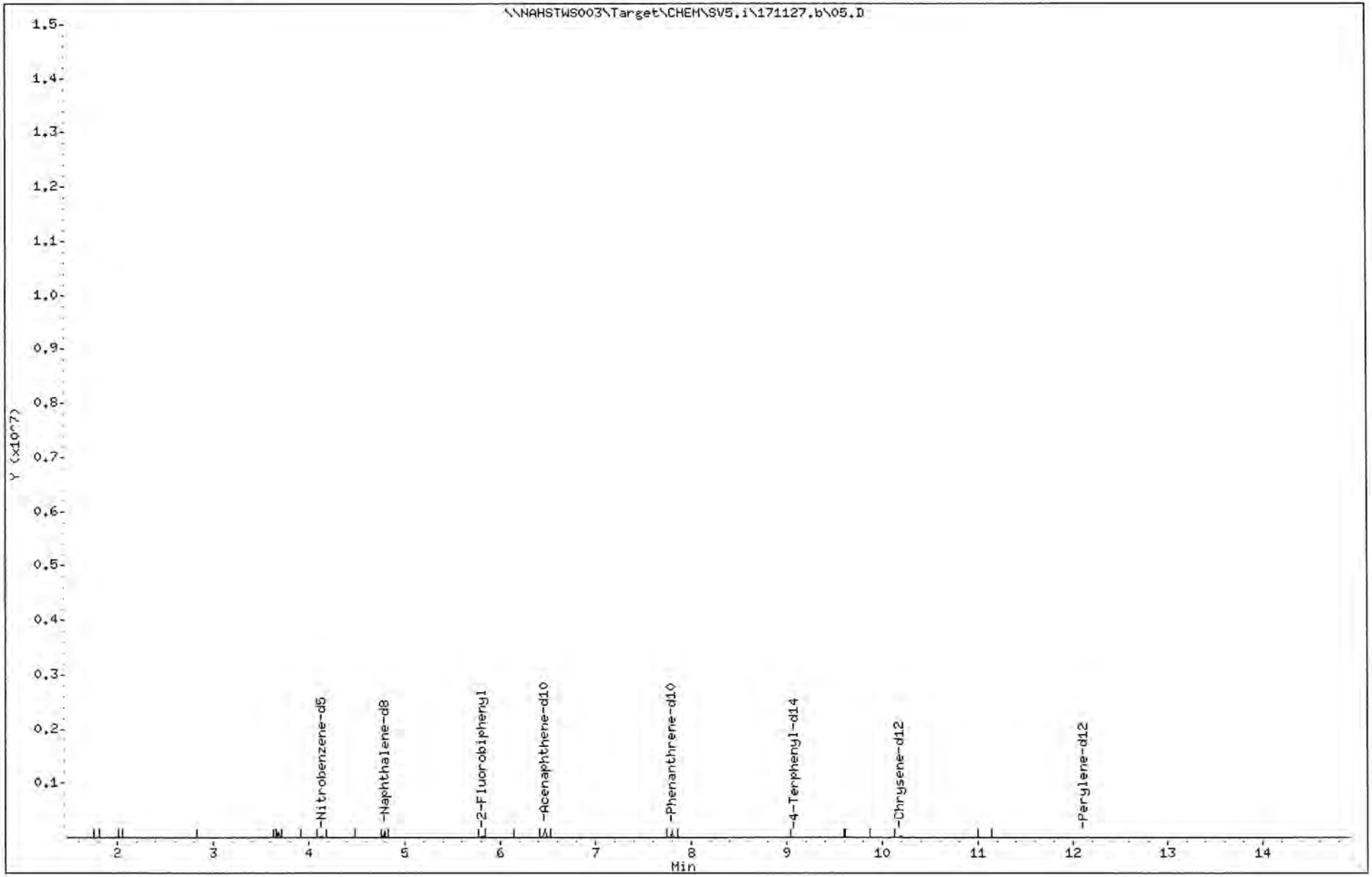
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (NG)	AMOUNTS ON-COL (NG)
* 45 Naphthalene-d8	136	4.796	4.800	(1.000)	125682	0.10000	
$ 33 Nitrobenzene-d5	82	4.146	4.147	(0.865)	24393	0.05000	0.04788(M)
* 86 Acenaphthene-d10	164	6.479	6.479	(1.000)	83458	0.10000	
$ 69 2-Fluorobiphenyl	172	5.821	5.825	(0.898)	34818	0.05000	0.04707
* 126 Phenanthrene-d10	188	7.806	7.811	(1.000)	111086	0.10000	
* 182 Chrysene-d12	240	10.191	10.198	(1.000)	52655	0.10000	(M)
$ 158 4-Terphenyl-d14	244	9.091	9.097	(0.892)	15896	0.05000	0.03712(M)
* 198 Perylene-d12	264	12.114	12.120	(1.000)	31570	0.10000	

QC Flag Legend

M - Compound response manually integrated.

Data File: \\NAHSTWS003\Target\CHEM\SV5.i\171127.b\05.D
Date : 27-NOV-2017 18:00
Client ID: DX-0.05
Sample Info: DX-0.05;DX-0.05
Purge Volume: 1000.0
Column phase: RTX-5SIL MS

Instrument: SV5.i
Operator: GY
Column diameter: 0.28



ALS Laboratory Group

GC/MS Semivolatiles EPA method 8270D

Data file : \\NAHSTWS003\Target\CHEM\SV5.i\171127.b\06.D
Lab Smp Id: DX-0.1 Client Smp ID: DX-0.1
Inj Date : 27-NOV-2017 18:21 MS Autotune Date: 22-JUN-2005 09:10
Operator : GY Inst ID: SV5.i
Smp Info : DX-0.1;DX-0.1
Misc Info : ;1;0;1
Comment :
Method : \\NAHSTWS003\Target\CHEM\SV5.i\171127.b\DXSIM.m
Meth Date : 11-Jan-2018 15:47 aneir Quant Type: ISTD
Cal Date : 20-NOV-2017 15:12 Cal File: 010.D
Als bottle: 6 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 14DX.sub
Target Version: 4.14

Concentration Formula: Amt * DF * Uf * Vt/Vo * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	1000.000	Volume of final extract (uL)
Vo	1000.000	Volume of sample extracted (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (NG)	ON-COL (NG)
* 45 Naphthalene-d8	136	4.796	4.800	(1.000)	127490	0.10000	
$ 33 Nitrobenzene-d5	82	4.146	4.147	(0.865)	51947	0.10000	0.1005(M)
* 86 Acenaphthene-d10	164	6.474	6.479	(1.000)	84497	0.10000	
$ 69 2-Fluorobiphenyl	172	5.821	5.825	(0.899)	73571	0.10000	0.09824
* 126 Phenanthrene-d10	188	7.806	7.811	(1.000)	107687	0.10000	
* 182 Chrysene-d12	240	10.184	10.198	(1.000)	51138	0.10000	(M)
$ 158 4-Terphenyl-d14	244	9.086	9.097	(0.892)	36635	0.10000	0.08716(M)
* 198 Perylene-d12	264	12.093	12.120	(1.000)	28102	0.10000	
1 1,4-Dioxane	58	2.034	2.032	(0.424)	10469	0.10000	0.09910(aM)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.

Data File: \\NAHSTWS003\Target\CHEM\SV5.i\171127.b\06.D

Date : 27-NOV-2017 18:21

Client ID: DX-0.1

Instrument: SV5.i

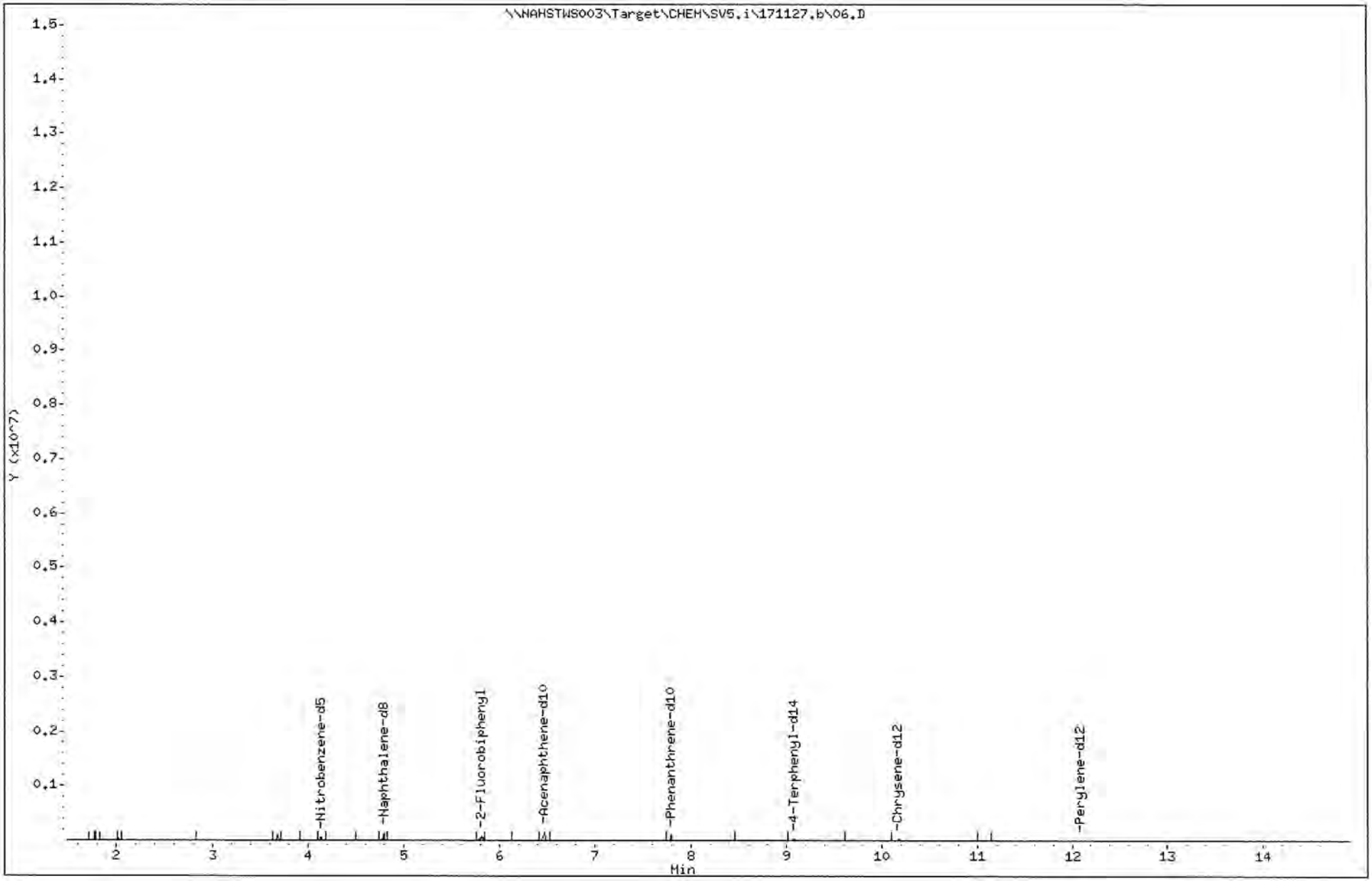
Sample Info: DX-0.1;DX-0.1

Purge Volume: 1000.0

Operator: CY

Column phase: RTX-5SIL HS

Column diameter: 0.28



ALS Laboratory Group

GC/MS Semivolatiles EPA method 8270D

Data file : \\NAHSTWS003\Target\CHEM\SV5.i\171127.b\07.D
Lab Smp Id: DX-0.15 Client Smp ID: DX-0.15
Inj Date : 27-NOV-2017 18:41 MS Autotune Date: 22-JUN-2005 09:10
Operator : GY Inst ID: SV5.i
Smp Info : DX-0.15;DX-0.15
Misc Info : ;1;0;1
Comment :
Method : \\NAHSTWS003\Target\CHEM\SV5.i\171127.b\DXSIM.m
Meth Date : 11-Jan-2018 15:47 aneir Quant Type: ISTD
Cal Date : 20-NOV-2017 15:12 Cal File: 010.D
Als bottle: 7 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 14DX.sub
Target Version: 4.14

Concentration Formula: Amt * DF * Uf * Vt/Vo * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	1000.000	Volume of final extract (uL)
Vo	1000.000	Volume of sample extracted (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (NG)	ON-COL (NG)
* 45 Naphthalene-d8	136	4.800	4.800	(1.000)	53764	0.10000	
$ 33 Nitrobenzene-d5	82	4.146	4.147	(0.864)	34032	0.15000	0.1550(AM)
* 86 Acenaphthene-d10	164	6.479	6.479	(1.000)	35221	0.10000	
$ 69 2-Fluorobiphenyl	172	5.821	5.825	(0.898)	47953	0.15000	0.1536(A)
* 126 Phenanthrene-d10	188	7.811	7.811	(1.000)	46821	0.10000	
* 182 Chrysene-d12	240	10.198	10.198	(1.000)	16112	0.10000	(M)
$ 158 4-Terphenyl-d14	244	9.097	9.097	(0.892)	22443	0.15000	0.1604(AM)
* 198 Perylene-d12	264	12.114	12.120	(1.000)	8327	0.10000	
1 1,4-Dioxane	58	1.968	2.032	(0.410)	6762	0.15000	0.1518(aM)

QC Flag Legend

a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).
A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.

Data File: \\NAHSTWS003\Target\CHEM\SV5.i\171127.b\07.D

Date : 27-NOV-2017 18:41

Client ID: DX-0.15

Instrument: SV5.i

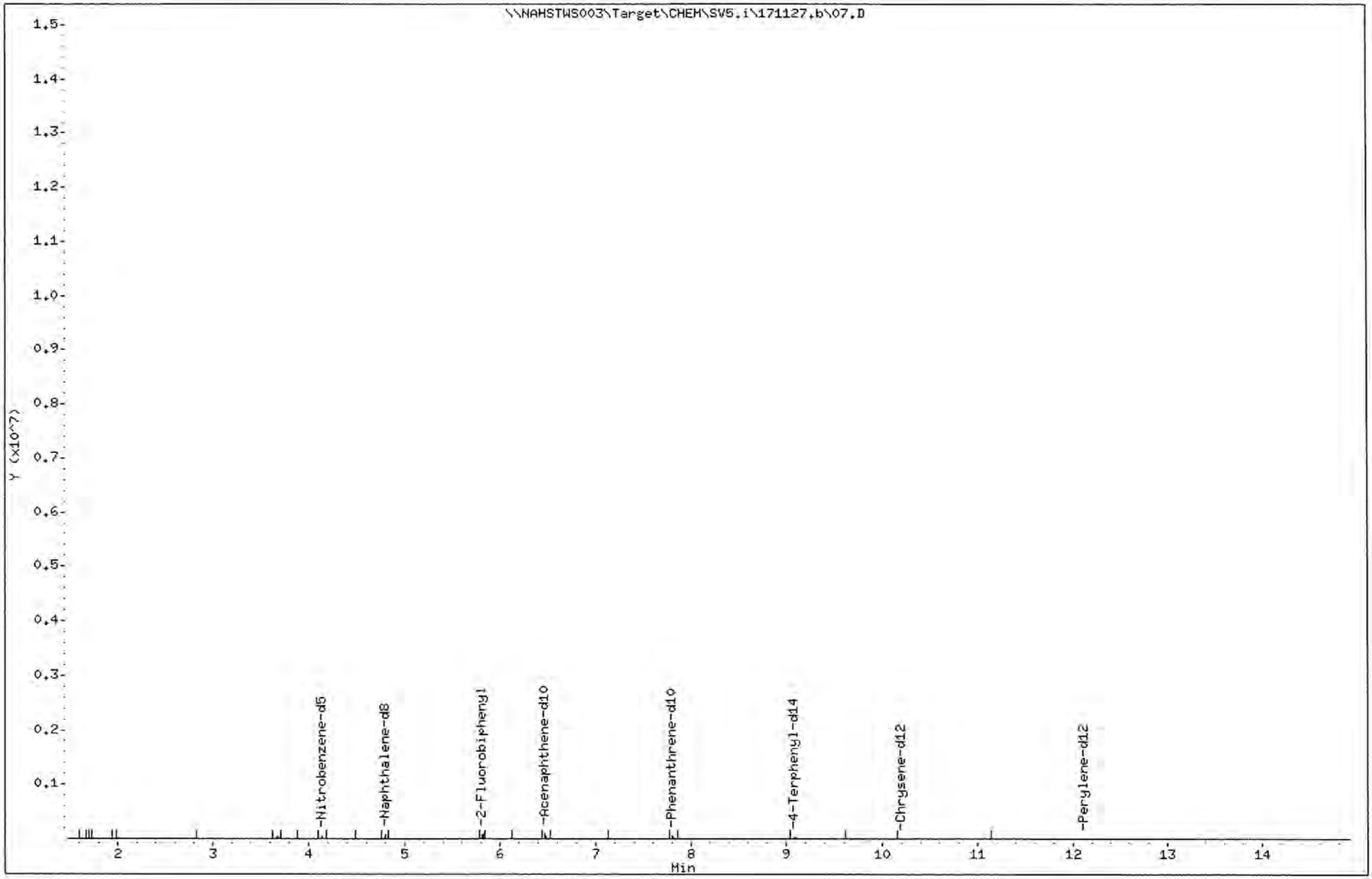
Sample Info: DX-0.15;DX-0.15

Purge Volume: 1000.0

Operator: GY

Column phase: RTX-5SIL MS

Column diameter: 0.28



ALS Laboratory Group

GC/MS Semivolatiles EPA method 8270D

Data file : \\NAHSTWS003\Target\CHEM\SV5.i\171127.b\08.D
Lab Smp Id: DX-0.2 Client Smp ID: DX-0.2
Inj Date : 27-NOV-2017 19:01 MS Autotune Date: 22-JUN-2005 09:10
Operator : GY Inst ID: SV5.i
Smp Info : DX-0.2;DX-0.2
Misc Info : ;1;0;1
Comment :
Method : \\NAHSTWS003\Target\CHEM\SV5.i\171127.b\DXSIM.m
Meth Date : 11-Jan-2018 15:47 aneir Quant Type: ISTD
Cal Date : 20-NOV-2017 15:12 Cal File: 010.D
Als bottle: 8 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 14DX.sub
Target Version: 4.14

Concentration Formula: Amt * DF * Uf * Vt/Vo * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	1000.000	Volume of final extract (uL)
Vo	1000.000	Volume of sample extracted (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (NG)	ON-COL (NG)
* 45 Naphthalene-d8	136	4.800	4.800	(1.000)	52772	0.10000	
$ 33 Nitrobenzene-d5	82	4.146	4.147	(0.864)	45367	0.20000	0.2121(AM)
* 86 Acenaphthene-d10	164	6.480	6.479	(1.000)	34095	0.10000	
$ 69 2-Fluorobiphenyl	172	5.821	5.825	(0.898)	62591	0.20000	0.2071(A)
* 126 Phenanthrene-d10	188	7.806	7.811	(1.000)	44633	0.10000	
* 182 Chrysene-d12	240	10.184	10.198	(1.000)	15430	0.10000	(M)
$ 158 4-Terphenyl-d14	244	9.086	9.097	(0.892)	28702	0.20000	0.2247(AM)
* 198 Perylene-d12	264	12.093	12.120	(1.000)	7217	0.10000	(M)
1 1,4-Dioxane	58	1.960	2.032	(0.408)	9096	0.20000	0.2080(M)

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.

Data File: \\NAHSTWS003\Target\CHEM\SV5.i\171127.b\08.D

Date : 27-NOV-2017 19:01

Client ID: DX-0.2

Sample Info: DX-0.2;DX-0.2

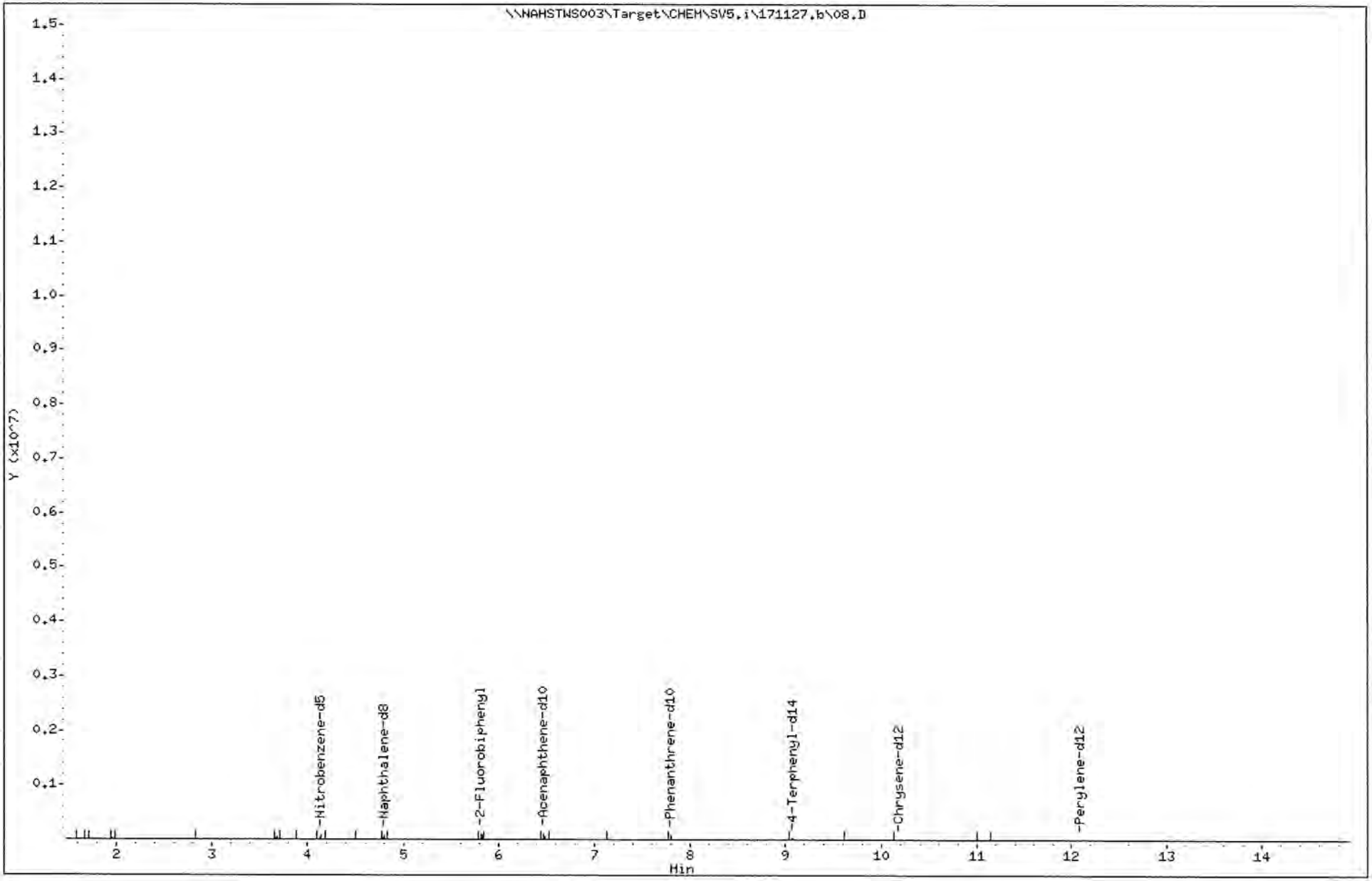
Purge Volume: 1000.0

Column phase: RTX-5SIL MS

Instrument: SV5.i

Operator: GY

Column diameter: 0.28



ALS Laboratory Group

GC/MS Semivolatiles EPA method 8270D

Data file : \\NAHSTWS003\Target\CHEM\SV5.i\171127.b\09.D
Lab Smp Id: DX-0.5 Client Smp ID: DX-0.5
Inj Date : 27-NOV-2017 19:22 MS Autotune Date: 22-JUN-2005 09:10
Operator : GY Inst ID: SV5.i
Smp Info : DX-0.5;DX-0.5
Misc Info : ;1;0;1
Comment :
Method : \\NAHSTWS003\Target\CHEM\SV5.i\171127.b\DXSIM.m
Meth Date : 11-Jan-2018 15:47 aneir Quant Type: ISTD
Cal Date : 20-NOV-2017 15:12 Cal File: 010.D
Als bottle: 9 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 14DX.sub
Target Version: 4.14

Concentration Formula: Amt * DF * Uf * Vt/Vo * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	1000.000	Volume of final extract (uL)
Vo	1000.000	Volume of sample extracted (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (NG)	ON-COL (NG)
* 45 Naphthalene-d8	136	4.800	4.800	(1.000)	81886	0.10000	
$ 33 Nitrobenzene-d5	82	4.146	4.147	(0.864)	167850	0.50000	0.5057(AM)
* 86 Acenaphthene-d10	164	6.479	6.479	(1.000)	49217	0.10000	
$ 69 2-Fluorobiphenyl	172	5.821	5.825	(0.898)	229568	0.50000	0.5263(A)
* 126 Phenanthrene-d10	188	7.806	7.811	(1.000)	62795	0.10000	
* 182 Chrysene-d12	240	10.191	10.198	(1.000)	23734	0.10000	(M)
$ 158 4-Terphenyl-d14	244	9.097	9.097	(0.893)	135623	0.50000	0.6803(AM)
* 198 Perylene-d12	264	12.114	12.120	(1.000)	11478	0.10000	
1 1,4-Dioxane	58	2.006	2.032	(0.418)	37264	0.50000	0.5492(M)

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.

Data File: \\NAHSTWS003\Target\CHEM\SV5.i\171127.b\09.D

Page 2

Date : 27-NOV-2017 19:22

Client ID: DX-0.5

Instrument: SV5.i

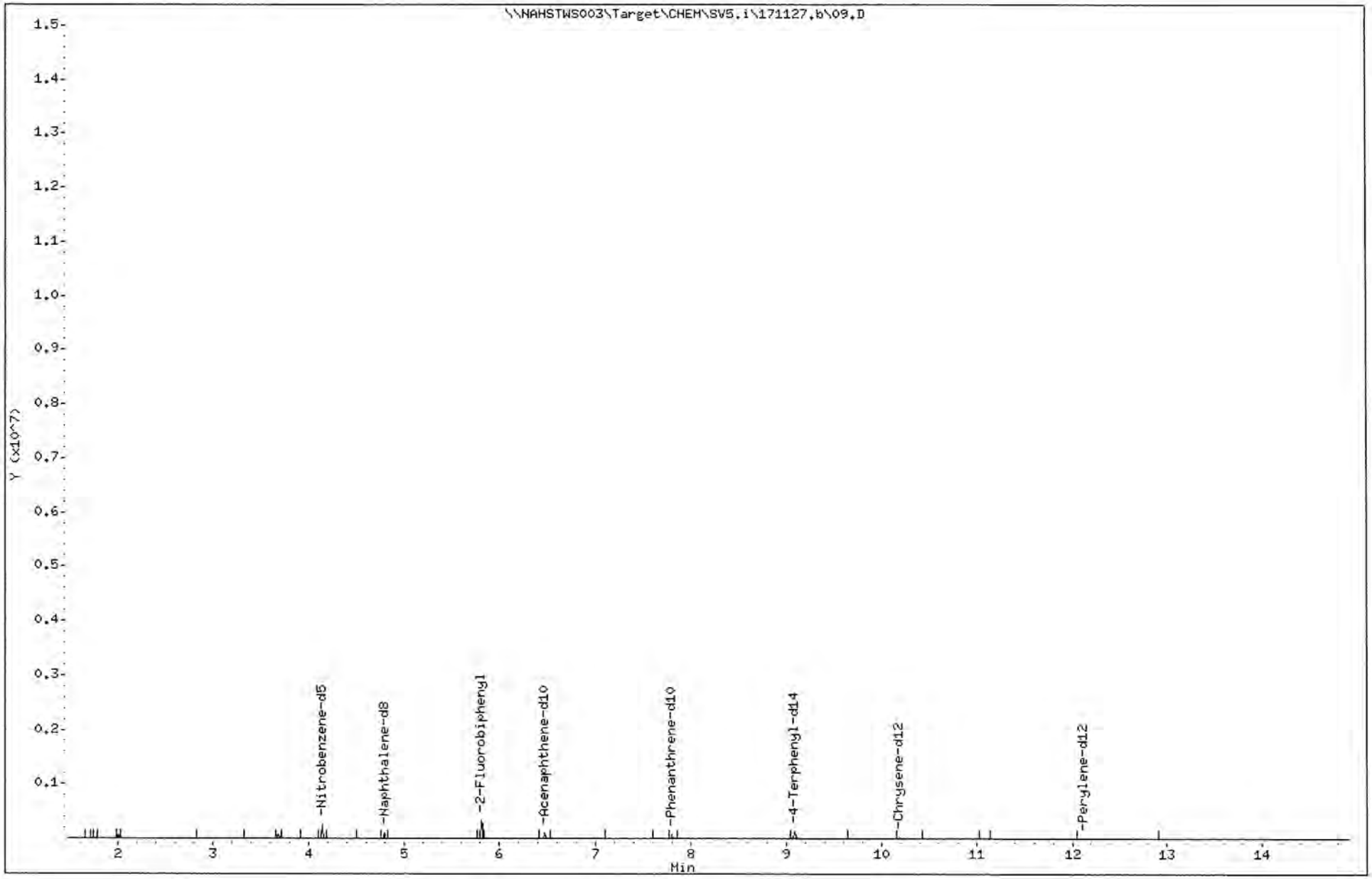
Sample Info: DX-0.5;DX-0.5

Purge Volume: 1000.0

Operator: GY

Column phase: RTX-5SIL MS

Column diameter: 0.28



ALS Laboratory Group

GC/MS Semivolatiles EPA method 8270D

Data file : \\NAHSTWS003\Target\CHEM\SV5.i\171127.b\10.D
Lab Smp Id: DX-ICV Client Smp ID: DX-ICV
Inj Date : 27-NOV-2017 19:42 MS Autotune Date: 22-JUN-2005 09:10
Operator : GY Inst ID: SV5.i
Smp Info : DX-ICV;DX-ICV
Misc Info : ;1;0;1
Comment :
Method : \\NAHSTWS003\Target\CHEM\SV5.i\171127.b\DXSIM.m
Meth Date : 11-Jan-2018 15:47 aneir Quant Type: ISTD
Cal Date : 20-NOV-2017 15:12 Cal File: 010.D
Als bottle: 10 QC Sample: METHSPIKE
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 14DX.sub
Target Version: 4.14

Concentration Formula: Amt * DF * Uf * Vt/Vo * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	1000.000	Volume of final extract (uL)
Vo	1000.000	Volume of sample extracted (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (NG)	CONCENTRATIONS FINAL (ug/L)
* 45 Naphthalene-d8	136	4.800	4.800	(1.000)	39413	0.10000	
$ 33 Nitrobenzene-d5	82	4.146	4.147	(0.864)	13722	0.07304	0.07304(M)
* 86 Acenaphthene-d10	164	6.480	6.479	(1.000)	18308	0.10000	
$ 69 2-Fluorobiphenyl	172	5.825	5.825	(0.899)	19682	0.12130	0.1213(R)
* 126 Phenanthrene-d10	188	7.806	7.811	(1.000)	25287	0.10000	
* 182 Chrysene-d12	240	10.184	10.198	(1.000)	7225	0.10000	(M)
$ 158 4-Terphenyl-d14	244	9.086	9.097	(0.892)	5850	0.09553	0.09553(M)
* 198 Perylene-d12	264	12.098	12.120	(1.000)	3902	0.10000	
1 1,4-Dioxane	58	1.946	2.032	(0.406)	2746	0.08409	0.08408(aM)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
R - Spike/Surrogate failed recovery limits.
M - Compound response manually integrated.

Data File: \\NAHSTWS003\Target\CHEM\SV5.i\171127.b\10.D

Date : 27-NOV-2017 19:42

Client ID: DX-ICV

Instrument: SV5.i

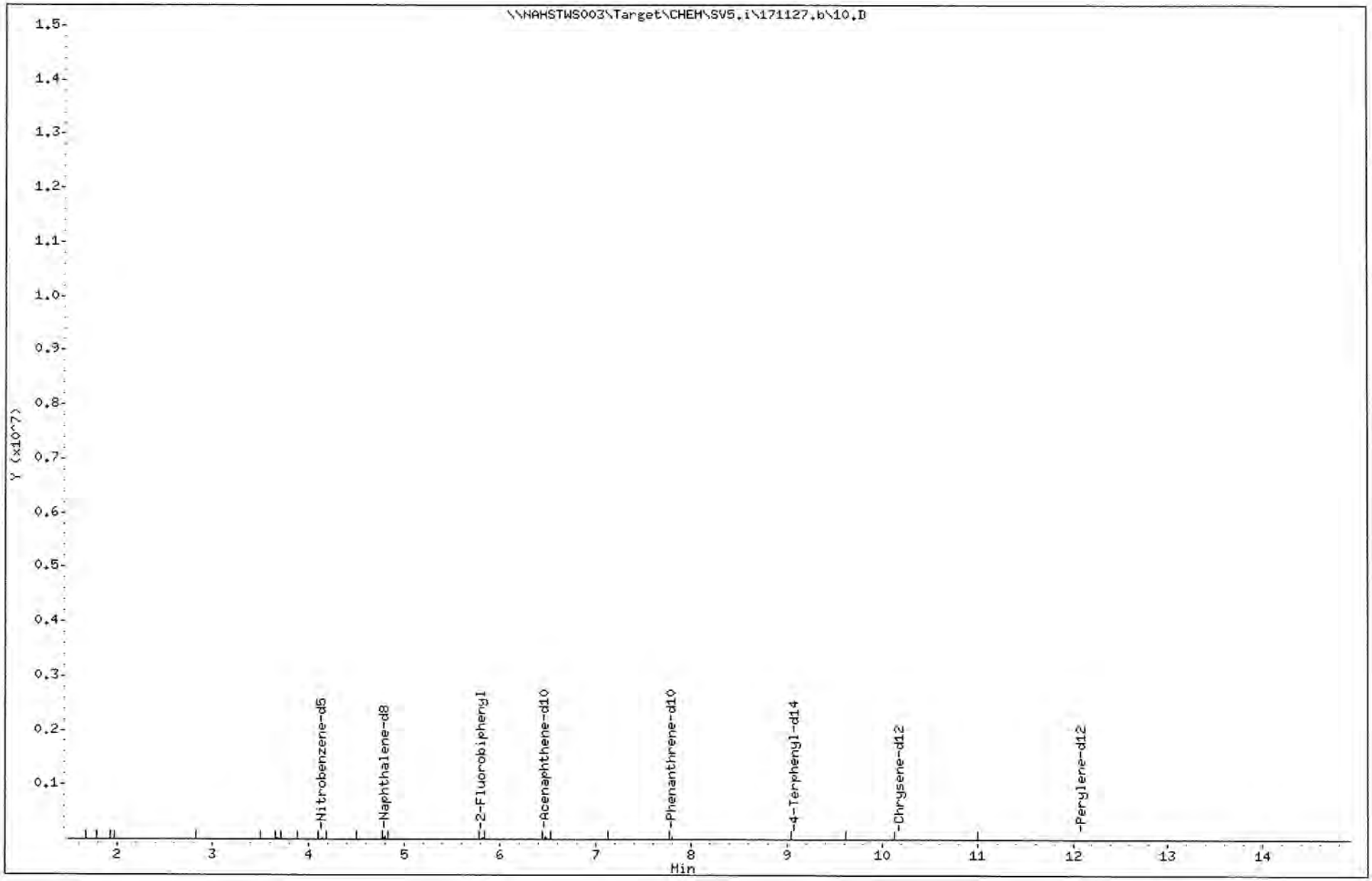
Sample Info: DX-ICV;DX-ICV

Purge Volume: 1000.0

Operator: GY

Column phase: RTX-5SIL MS

Column diameter: 0.28



SV05 -Logbook

Batch: 31530
Date: 04-18-2018
Method: 8270SIM
Comments: MSSV-003SIM

Analyst: Andrew Neir
Reviewer:
Laboratory: Houston

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	DFTPP	TUNE	04-18-2018 10:17 am	1.00			01.D		Y	NA
2	SLSTD-2.5	SAMP	04-18-2018 10:32 am	1.00			02.D		Y	NA
3	DXSIM-0.08	CCV	04-18-2018 11:11 am	1.00			03.D		Y	NA
4	CCB	SAMP	04-18-2018 11:45 am	1.00			04.D		Y	NA
5	MBLK-127409	MBLK	04-18-2018 12:06 pm	1.00	1000.00 mL	1.00 mL	05.D	Liquid	Y	NA
6	LCS-127409	LCS	04-18-2018 12:26 pm	1.00	1000.00 mL	1.00 mL	06.D	Liquid	Y	NA
7	LCSD-127409	LCSD	04-18-2018 12:47 pm	1.00	1000.00 mL	1.00 mL	07.D	Liquid	Y	NA
8	LCS-127409	LCS	04-18-2018 01:16 pm	1.00	1000.00 mL	1.00 mL	08.D	Liquid	Y	NA
9	HS18040595-01	SAMP	04-18-2018 01:36 pm	1.00	1000.00 mL	1.00 mL	09.D	Liquid	Y	NA
10	HS18040595-01	SAMP	04-18-2018 02:25 pm	10.00	1000.00 mL	1.00 mL	10.D	Liquid	Y	NA
11	HS18040595-01	SAMP	04-18-2018 02:46 pm	50.00	1000.00 mL	1.00 mL	11.D	Liquid	Y	NA
12	CCV	SAMP	04-18-2018 03:06 pm	50.00	1000.00 mL	1.00 mL	12.D	Liquid	Y	NA
13	HS18040595-01	SAMP	04-18-2018 03:26 pm	1.00	1000.00 mL	1.00 mL	13.D	Liquid	Y	NA

Chemical	Value
IS ID	30411-35-04
CAL STD ID	30411-17-04
DFTPP ID	30411-37-03
PCP Tailing	1.08
Benz. Tailing	0.84

FORM 5
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS18040595

Lab File ID: 01 DFTPP Injection Date: 04/18/18

Instrument ID: SV5 DFTPP Injection Time: 1005

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	50.2
68	Less than 2.0% of mass 69	1.0 (1.6)1
69	Mass 69 relative abundance	58.8
70	Less than 2.0% of mass 69	0.3 (0.6)1
127	10.0 - 80.0% of mass 198	62.4
197	Less than 2.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	8.0
275	10.0 - 60.0% of mass 198	29.9
365	1.0 - 100.0% of mass 198	3.8
441	Present, but less than mass 443	15.0
442	50.0 - 150.0% of mass 198	85.6
443	15.0 - 24.0% of mass 442	18.8 (22.0)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	DXSIM-0.08	DXSIM-0.08	03	04/18/18	1111
02	MBLK-127409	MBLK-127409	05	04/18/18	1206
03	LCSD-127409	LCSD-127409	07	04/18/18	1247
04	LCS-127409	LCS-127409	08	04/18/18	1316
05	HS18040595-0	HS18040595-01	10	04/18/18	1425
06	CCV	CCV	12	04/18/18	1506
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM 7B
SEMIVOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS18040595

Instrument ID: SV5 Calibration Date: 04/18/18 Time: 1111

Lab File ID: 03 Init. Calib. Date(s): 11/27/17 11/27/17

Init. Calib. Times: 1647 1922

GC Column: RTX-5SIL MS ID: 0.28 (mm)

COMPOUND	RRF OR AMOUNT	RRF8e-002 OR AMOUNT	MIN RRF	%D OR %DRIFT	MAX %D OR %DRIFT	CURV TYPE
1,4-Dioxane	8.3e-002	8.98e-002	0.01	8.19	20.00	AVRG
Nitrobenzene-d5	0.4770000	0.4371692	0.01	-8.35	20.00	AVRG
4-Terphenyl-d14	0.8680000	0.8928656	0.01	2.86	20.00	AVRG
2-Fluorobiphenyl	0.8860000	0.9742916	0.01	9.96	20.00	AVRG

FORM VII SV

FORM 7B
SEMIVOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS18040595

Instrument ID: SV5 Calibration Date: 04/18/18 Time: 1506

Lab File ID: 12 Init. Calib. Date(s): 11/27/17 11/27/17

Init. Calib. Times: 1647 1922

GC Column: RTX-5SIL MS ID: 0.28 (mm)

COMPOUND	RRF OR AMOUNT	RRF8e-002 OR AMOUNT	MIN RRF	%D OR %DRIFT	MAX %D OR %DRIFT	CURV TYPE
1,4-Dioxane	8.3e-002	8.87e-002	0.01	6.87	50.00	AVRG
Nitrobenzene-d5	0.4770000	0.4705423	0.01	-1.35	50.00	AVRG
4-Terphenyl-d14	0.8680000	0.8729774	0.01	0.57	50.00	AVRG
2-Fluorobiphenyl	0.8860000	1.2657436	0.01	42.86	50.00	AVRG

FORM VII SV

FORM 8
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS18040595

Lab File ID (Standard): 03 Date Analyzed: 04/18/18

Instrument ID: SV5 Time Analyzed: 1111

		IS1(NPT) AREA #	RT #	IS2(ANT) AREA #	RT #	IS3(PHN) AREA #	RT #
	12 HOUR STD	31175	4.45	14363	6.12	18273	7.53
	UPPER LIMIT	62350	4.95	28726	6.62	36546	8.03
	LOWER LIMIT	15588	3.95	7182	5.62	9137	7.03
	CLIENT SAMPLE NO.						
01	MBLK-127409	27532	4.45	15186	6.12	19477	7.53
02	LCSD-127409	37376	4.45	17445	6.12	25003	7.53
03	LCS-127409	36456	4.45	17569	6.12	23991	7.53
04	HS18040595-01	48446	4.45	23077	6.12	34183	7.53
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

IS1 (NPT) = Naphthalene-d8
IS2 (ANT) = Acenaphthene-d10
IS3 (PHN) = Phenanthrene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

FORM VIII SV

FORM 8
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS18040595

Lab File ID (Standard): 03 Date Analyzed: 04/18/18

Instrument ID: SV5 Time Analyzed: 1111

		IS4 (CRY) AREA #	RT #	IS5 (PRY) AREA #	RT #	AREA #	RT #
	12 HOUR STD	21004	9.78	17447	11.58		
	UPPER LIMIT	42008	10.28	34894	12.08		
	LOWER LIMIT	10502	9.28	8724	11.08		
	CLIENT SAMPLE NO.						
01	MBLK-127409	14237	9.80	14232	11.59		
02	LCSD-127409	20322	9.80	18068	11.59		
03	LCS-127409	21225	9.81	19425	11.61		
04	HS18040595-01	25284	9.80	24954	11.60		
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

IS4 (CRY) = Chrysene-d12
IS5 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

Data File: \\NAHSTWS003\Target\CHEM\SV5.i\180418.b\01.D

Date : 18-APR-2018 10:05

Client ID: DFTPP

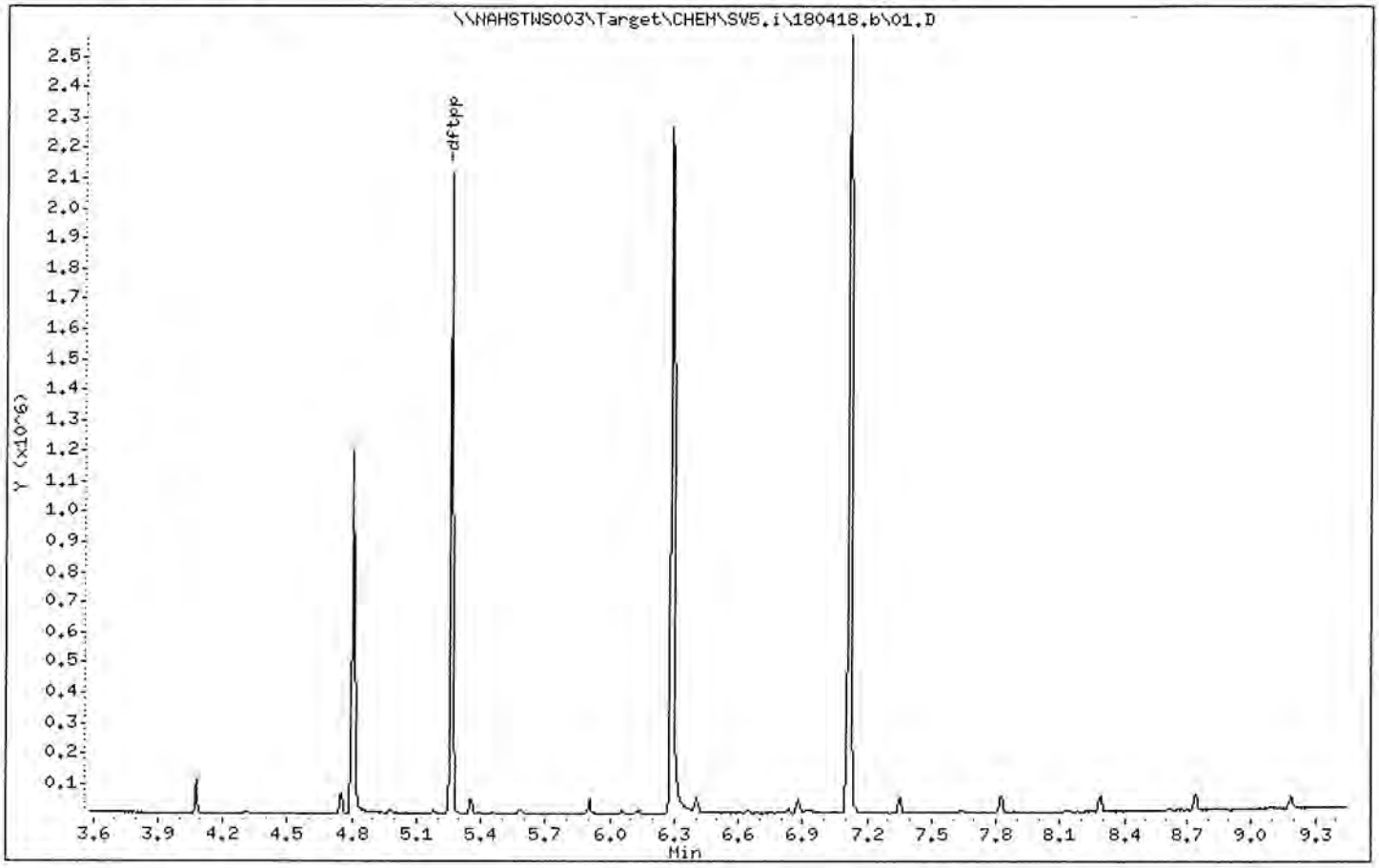
Instrument: SV5.i

Sample Info: DFTPP;DFTPP;3;;DFTPP

Operator: LG

Column phase: DB-5MS

Column diameter: 0.25



Data File: \\NAHSTWS003\Target\CHEM\SV5.i\180418.b\01.D

Date : 18-APR-2018 10:05

Client ID: DFTPP

Instrument: SV5.i

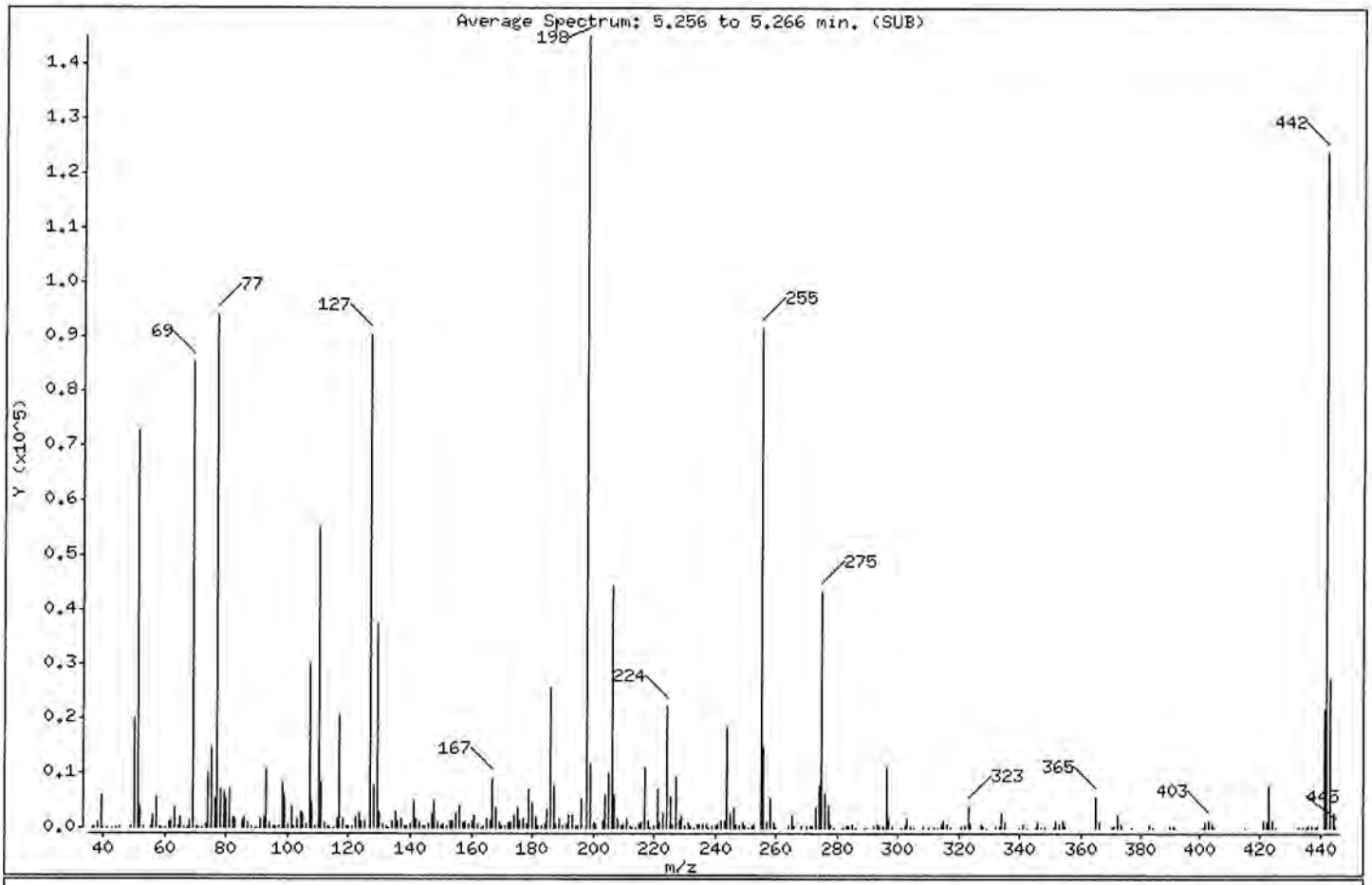
Sample Info: DFTPP;DFTPP;3;;DFTPP

Operator: LG

Column phase: DB-5MS

Column diameter: 0.25

1 dftpp



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
198	Base Peak, 100% relative abundance	100.00
51	10.00 - 80.00% of mass 198	50.17
68	Less than 2.00% of mass 69	0.96 (1.63)
69	Mass 69 relative abundance	58.84
70	Less than 2.00% of mass 69	0.34 (0.57)
127	10.00 - 80.00% of mass 198	62.40
197	Less than 2.00% of mass 198	0.00
199	5.00 - 9.00% of mass 198	8.02
275	10.00 - 60.00% of mass 198	29.86
365	1.00 - 100.00% of mass 198	3.84
441	Present, but less than mass 443	14.96
442	50.00 - 150.00% of mass 198	85.55
443	15.00 - 24.00% of mass 442	18.83 (22.01)

Data File: \\NAHSTWS003\Target\CHEM\SV5.i\180418.b\01.D

Date : 18-APR-2018 10:05

Client ID: DFTPP

Instrument: SV5.i

Sample Info: DFTPP;DFTPP;3;;DFTPP

Operator: LG

Column phase: DB-5MS

Column diameter: 0.25

Data File: 01.D
Spectrum: Average Spectrum: 5.256 to 5.266 min. (SUB)
Location of Maximum: 198.00
Number of points: 315

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	122	121.00	172	203.00	1215	293.00	727
37.00	253	122.00	1954	204.00	6018	294.00	193
38.00	1096	123.00	2804	205.00	9916	295.00	414
39.00	6068	124.00	1212	206.00	44240	296.00	10989
40.00	159	125.00	1280	207.00	6040	297.00	1736
41.00	113	127.00	90432	208.00	1749	298.00	169
43.00	50	128.00	7646	209.00	468	301.00	86
44.00	139	129.00	37192	210.00	654	302.00	260
45.00	215	130.00	3147	211.00	1658	303.00	1510
49.00	439	131.00	743	212.00	374	304.00	363
50.00	19864	132.00	426	213.00	92	305.00	71
51.00	72704	133.00	154	214.00	63	308.00	217
52.00	4115	134.00	1184	215.00	515	310.00	63
53.00	198	135.00	3077	216.00	1003	312.00	77
55.00	399	136.00	1193	217.00	11048	313.00	135
56.00	2430	137.00	1595	218.00	1362	314.00	518
57.00	5778	138.00	326	219.00	59	315.00	1331
58.00	326	139.00	176	220.00	345	316.00	737
59.00	108	140.00	573	221.00	7054	317.00	154
60.00	67	141.00	5150	222.00	910	321.00	402
61.00	1090	142.00	1747	223.00	2556	322.00	285
62.00	1306	143.00	1066	224.00	22448	323.00	3856
63.00	3527	144.00	370	225.00	5688	324.00	718
64.00	456	145.00	182	226.00	602	327.00	697
65.00	1896	146.00	755	227.00	9490	328.00	213
66.00	102	147.00	2566	228.00	1465	329.00	66
67.00	70	148.00	5040	229.00	2452	332.00	419
68.00	1394	149.00	1083	230.00	364	333.00	341
69.00	85272	150.00	303	231.00	877	334.00	2612
70.00	489	151.00	761	232.00	219	335.00	852
71.00	92	152.00	437	233.00	158	340.00	50
72.00	55	153.00	1415	234.00	673	341.00	509
73.00	748	154.00	1209	235.00	802	342.00	141
74.00	9846	155.00	2637	236.00	504	345.00	64
75.00	14570	156.00	4151	237.00	736	346.00	888

Data File: \\NAHSTWS003\Target\CHEM\SV5.i\180418.b\01.D Page 4

Date : 18-APR-2018 10:05

Client ID: DFTPP Instrument: SV5.i

Sample Info: DFTPP;DFTPP;3;;DFTPP

Operator: LC

Column phase: DB-5MS Column diameter: 0.25

Data File: 01.D
Spectrum: Average Spectrum: 5.256 to 5.266 min. (SUB)
Location of Maximum: 198.00
Number of points: 315

m/z	Y	m/z	Y	m/z	Y	m/z	Y
76.00	5198	157.00	842	238.00	52	347.00	161
77.00	93936	158.00	878	239.00	364	348.00	57
78.00	6886	159.00	717	240.00	392	351.00	102
79.00	6785	160.00	1401	241.00	555	352.00	1286
80.00	5332	161.00	2274	242.00	1193	353.00	814
81.00	7324	162.00	674	243.00	1354	354.00	1308
82.00	1925	163.00	149	244.00	18176	355.00	436
83.00	1769	164.00	330	245.00	2581	365.00	5560
85.00	1466	165.00	1654	246.00	3822	366.00	838
86.00	2002	166.00	1387	247.00	736	370.00	76
87.00	1020	167.00	9132	248.00	232	371.00	233
88.00	406	168.00	3699	249.00	864	372.00	2374
89.00	152	169.00	858	250.00	198	373.00	529
90.00	71	170.00	339	251.00	133	377.00	52
91.00	1685	171.00	396	252.00	258	383.00	643
92.00	1953	172.00	870	253.00	640	384.00	155
93.00	10701	173.00	996	255.00	91504	390.00	269
94.00	897	174.00	2222	256.00	14516	391.00	272
95.00	235	175.00	3691	257.00	1058	392.00	94
96.00	418	176.00	1169	258.00	5306	401.00	54
97.00	333	177.00	1595	259.00	936	402.00	849
98.00	8433	178.00	707	260.00	53	403.00	1477
99.00	5989	179.00	7091	264.00	307	404.00	525
100.00	583	180.00	4722	265.00	2235	405.00	60
101.00	4150	181.00	1929	266.00	230	415.00	69
102.00	237	182.00	401	268.00	198	421.00	1170
103.00	1499	183.00	235	270.00	177	422.00	1025
104.00	2844	184.00	590	271.00	311	423.00	7590
105.00	2745	185.00	3247	272.00	176	424.00	1312
106.00	807	186.00	25568	273.00	3524	425.00	57
107.00	30024	187.00	7534	274.00	7520	432.00	61
108.00	4713	188.00	692	275.00	43272	433.00	117
109.00	456	189.00	1559	276.00	6200	434.00	73
110.00	55120	190.00	231	277.00	3885	435.00	68
111.00	8164	191.00	741	278.00	695	436.00	346

Data File: \\NAHSTWS003\Target\CHEM\SV5.i\180418.b\01.D Page 5

Date : 18-APR-2018 10:05

Client ID: DFTPP Instrument: SV5.i

Sample Info: DFTPP;DFTPP;3;;DFTPP

Operator: LG

Column phase: DB-5MS Column diameter: 0.25

Data File: 01.D

Spectrum: Average Spectrum: 5.256 to 5.266 min. (SUB)

Location of Maximum: 198.00

Number of points: 315

m/z	Y	m/z	Y	m/z	Y	m/z	Y
112.00	858	192.00	2200	279.00	152	437.00	320
113.00	338	193.00	2292	282.00	97	438.00	57
114.00	57	194.00	428	283.00	443	439.00	170
115.00	133	195.00	476	284.00	269	441.00	21672
116.00	1613	196.00	5356	285.00	687	442.00	123976
117.00	20656	198.00	144896	286.00	164	443.00	27288
118.00	1588	199.00	11616	289.00	121	444.00	2656
119.00	280	200.00	1142	290.00	68	445.00	190
120.00	377	201.00	784	292.00	170		

ALS Laboratory Group

GC/MS Semivolatiles EPA method 8270D

Data file : \\NAHSTWS003\Target\CHEM\SV5.i\180418.b\03.D
Lab Smp Id: DXSIM-0.08 Client Smp ID: DXSIM-0.08
Inj Date : 18-APR-2018 11:11 MS Autotune Date: 22-JUN-2005 10:10
Operator : LG Inst ID: SV5.i
Smp Info : PAHSIM-0.08;PAHSIM-0.08
Misc Info : ;1;0;1
Comment :
Method : \\NAHSTWS003\Target\CHEM\SV5.i\180418.b\DXSIM.m
Meth Date : 19-Apr-2018 11:21 SV5.i Quant Type: ISTD
Cal Date : 27-NOV-2017 19:22 Cal File: 09.D
Als bottle: 3 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 14DX.sub
Target Version: 4.14

Concentration Formula: Amt * DF * Uf * Vt/Vo * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	1000.000	Volume of final extract (uL)
Vo	1000.000	Volume of sample extracted (mL)
Cpnd Variable		Local Compound Variable

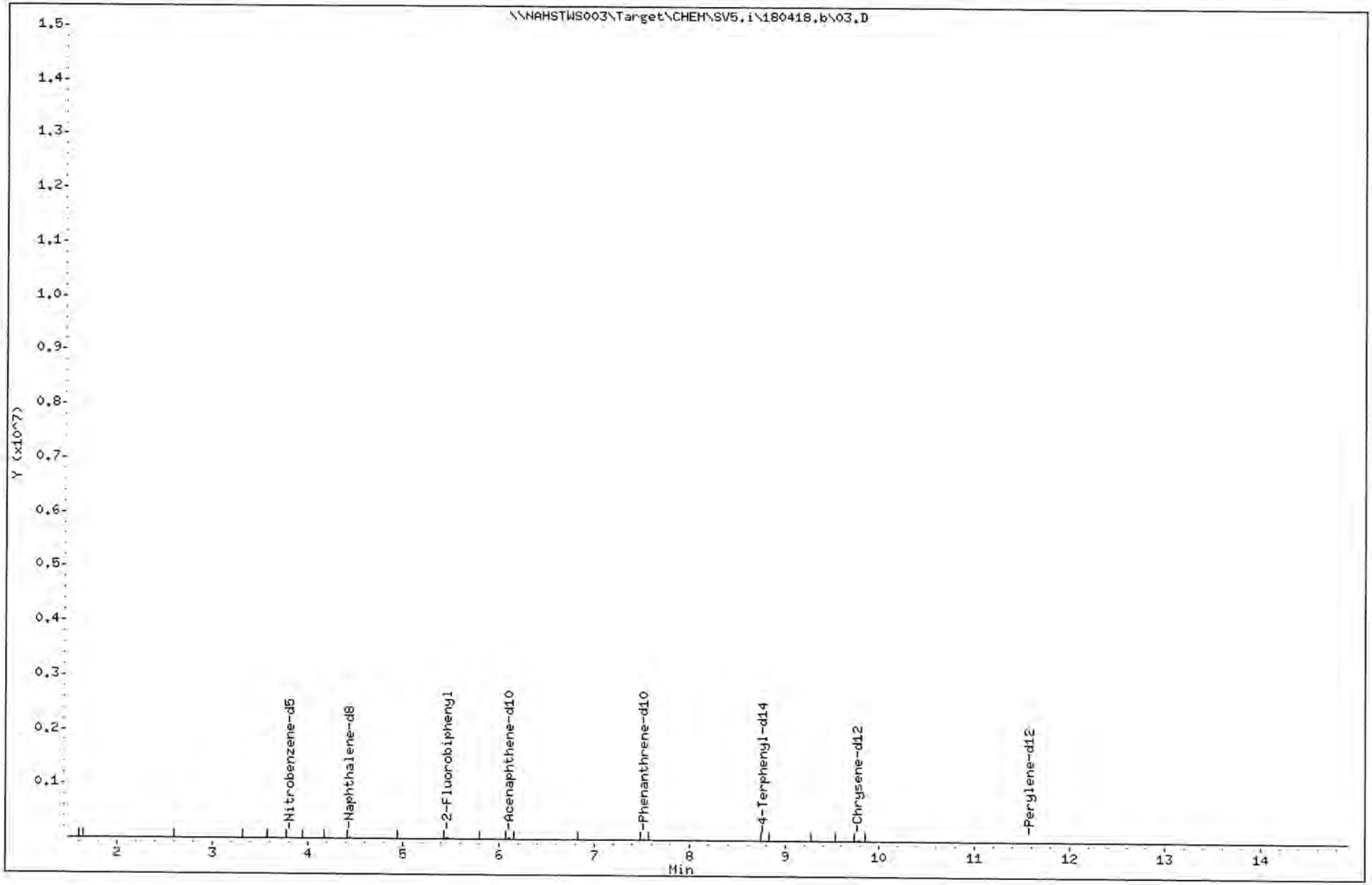
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (NG)	ON-COL (NG)	
* 45 Naphthalene-d8	136	4.449	4.449	(1.000)	31175	0.10000		(M)
$ 33 Nitrobenzene-d5	82	3.821	3.821	(0.859)	10903	0.08000	0.07330	(M)
* 86 Acenaphthene-d10	164	6.115	6.115	(1.000)	14363	0.10000		(M)
$ 69 2-Fluorobiphenyl	172	5.470	5.470	(0.895)	11195	0.08000	0.08794	(M)
* 126 Phenanthrene-d10	188	7.533	7.533	(1.000)	18273	0.10000		
* 182 Chrysene-d12	240	9.781	9.781	(1.000)	21004	0.10000		(M)
$ 158 4-Terphenyl-d14	244	8.775	8.775	(0.897)	15003	0.08000	0.08227	(M)
* 198 Perylene-d12	264	11.575	11.575	(1.000)	17447	0.10000		(M)
1 1,4-Dioxane	58	1.628	1.628	(0.366)	2240	0.08000	0.08672	(aM)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.

Data File: \\NAHSTWS003\Target\CHEM\SV5.i\180418.b\03.D
Date : 18-APR-2018 11:11
Client ID: DXSIM-0.08
Sample Info: PAHSIM-0.08;PAHSIM-0.08
Purge Volume: 1000.0
Column phase: RTX-5SIL MS

Instrument: SV5.i
Operator: LG
Column diameter: 0.28



ALS Laboratory Group

GC/MS Semivolatiles EPA method 8270D

Data file : \\NAHSTWS003\Target\CHEM\SV5.i\180418.b\05.D
Lab Smp Id: MBLK-127409 Client Smp ID: MBLK-127409
Inj Date : 18-APR-2018 12:06 MS Autotune Date: 22-JUN-2005 10:10
Operator : LG Inst ID: SV5.i
Smp Info : MBLK-127409;MBLK-127409;3;;BLANK
Misc Info : HS18040595;1;0;1
Comment :
Method : \\NAHSTWS003\Target\CHEM\SV5.i\180418.b\DXSIM.m
Meth Date : 19-Apr-2018 11:21 SV5.i Quant Type: ISTD
Cal Date : 27-NOV-2017 19:22 Cal File: 09.D
Als bottle: 5 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 14DX.sub
Target Version: 4.14

Concentration Formula: Amt * DF * Uf * Vt/Vo * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	1000.000	Volume of final extract (uL)
Vo	1000.000	Volume of sample extracted (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (NG)	FINAL (ug/L)
* 45 Naphthalene-d8	136	4.449	4.449	(1.000)	27532	0.10000	
$ 33 Nitrobenzene-d5	82	3.826	3.821	(0.860)	9903	0.07538	0.07538
* 86 Acenaphthene-d10	164	6.115	6.115	(1.000)	15186	0.10000	(M)
$ 69 2-Fluorobiphenyl	172	5.470	5.470	(1.000)	11175	0.08303	0.08303
* 126 Phenanthrene-d10	188	7.532	7.533	(1.000)	19477	0.10000	
* 182 Chrysene-d12	240	9.795	9.781	(1.000)	14237	0.10000	(M)
$ 158 4-Terphenyl-d14	244	8.786	8.775	(0.897)	9730	0.07872	0.07872 (M)
* 198 Perylene-d12	264	11.591	11.575	(1.000)	14232	0.10000	

QC Flag Legend

M - Compound response manually integrated.

Data File: \\NAHSTWS003\Target\CHEM\SV5.i\180418.b\05.D

Date : 18-APR-2018 12:06

Client ID: MBLK-127409

Instrument: SV5.i

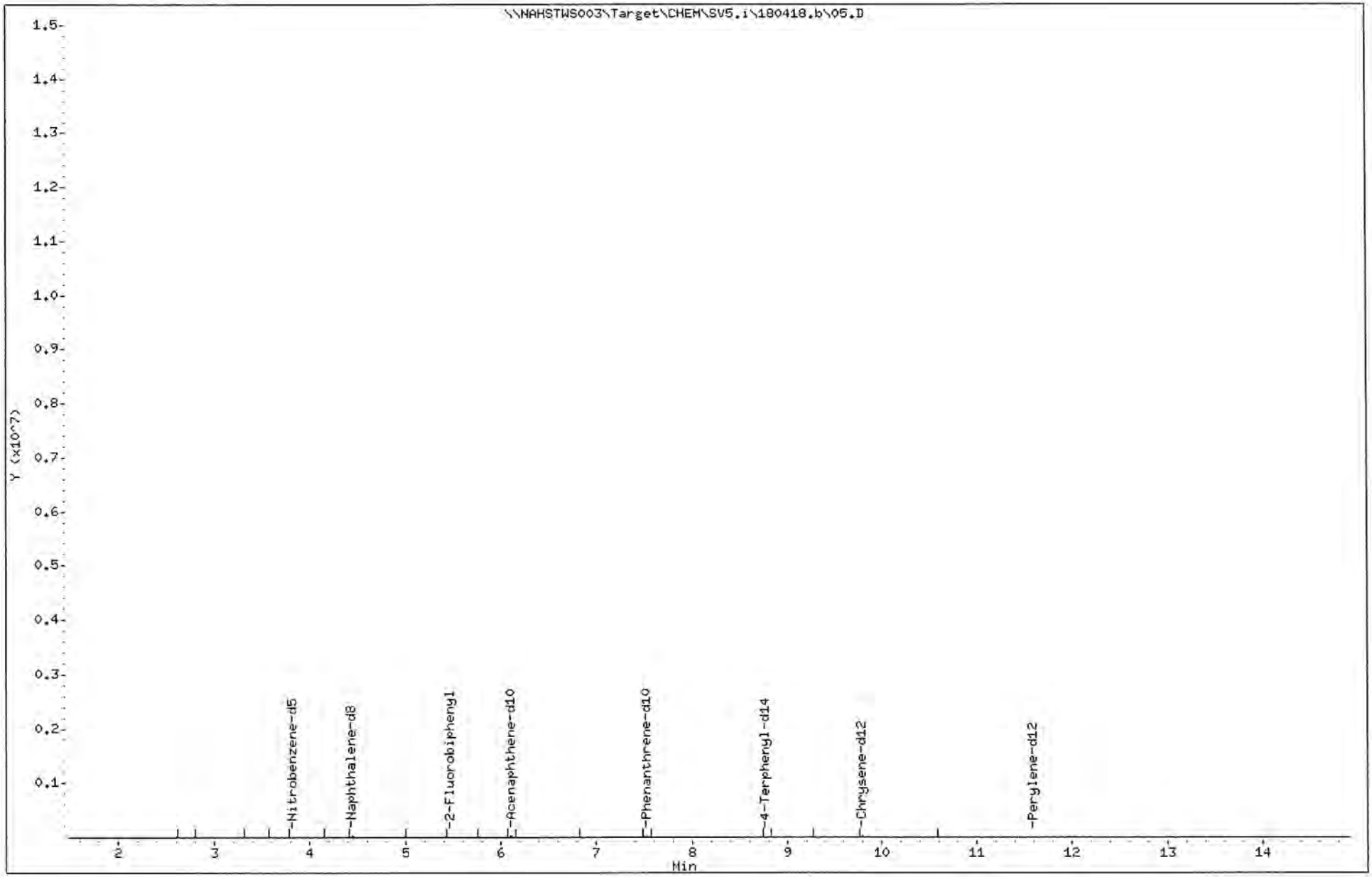
Sample Info: MBLK-127409;MBLK-127409;3;;BLANK

Purge Volume: 1000.0

Operator: LG

Column phase: RTX-5SIL MS

Column diameter: 0.28



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GC/MS Semivolatiles EPA method 8270D

Data file : \\NAHSTWS003\Target\CHEM\SV5.i\180418.b\07.D
Lab Smp Id: LCSD-127409 Client Smp ID: LCSD-127409
Inj Date : 18-APR-2018 12:47 MS Autotune Date: 22-JUN-2005 10:10
Operator : LG Inst ID: SV5.i
Smp Info : LCSD-127409;LCSD-127409;3;;LCSD
Misc Info : HS18040595;1;0;1
Comment :
Method : \\nahstws003\Target\chem\SV5.i\180418.b\DXSIM.m
Meth Date : 19-Apr-2018 11:21 SV5.i Quant Type: ISTD
Cal Date : 27-NOV-2017 19:22 Cal File: 09.D
Als bottle: 7 QC Sample: LCSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 14DX.sub
Target Version: 4.14
Processing Host: NAHSTWS003

Concentration Formula: Amt * DF * Uf * Vt/Vo * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	1000.000	Volume of final extract (uL)
Vo	1000.000	Volume of sample extracted (mL)
Cpnd Variable		Local Compound Variable

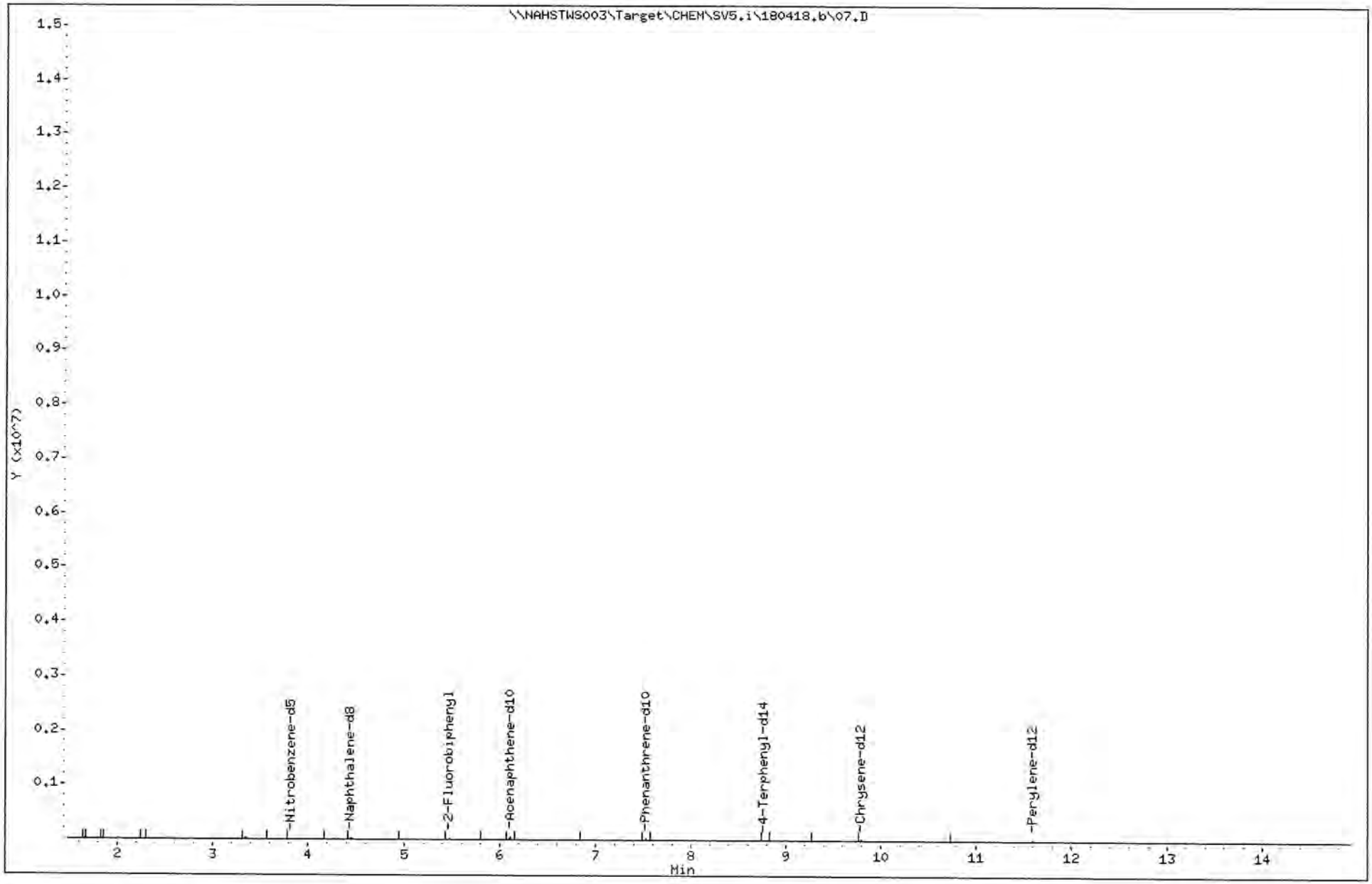
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (NG)	CONCENTRATIONS FINAL (ug/L)
* 45 Naphthalene-d8	136	4.449	4.449	(1.000)	37376	0.10000	
$ 33 Nitrobenzene-d5	82	3.826	3.821	(0.860)	12248	0.06868	0.06868
* 86 Acenaphthene-d10	164	6.115	6.115	(1.000)	17445	0.10000	(QM)
$ 69 2-Fluorobiphenyl	172	5.470	5.470	(1.000)	14623	0.09458	0.09458
* 126 Phenanthrene-d10	188	7.533	7.533	(1.000)	25003	0.10000	
* 182 Chrysene-d12	240	9.795	9.781	(1.000)	20322	0.10000	(M)
$ 158 4-Terphenyl-d14	244	8.780	8.775	(0.896)	10526	0.05966	0.05966(M)
* 198 Perylene-d12	264	11.591	11.575	(1.000)	18068	0.10000	
1 1,4-Dioxane	58	1.652	1.628	(0.371)	2381	0.07688	0.07688(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
Q - Qualifier signal failed the ratio test.
M - Compound response manually integrated.

Data File: \\NAHSTWS003\Target\CHEM\SV5.i\180418.b\07.D
Date : 18-APR-2018 12:47
Client ID: LCSD-127409
Sample Info: LCSD-127409;LCSD-127409;3;;LCSD
Purge Volume: 1000.0
Column phase: RTX-5SIL MS

Instrument: SV5.i
Operator: LG
Column diameter: 0.28



ALS Laboratory Group

GC/MS Semivolatiles EPA method 8270D

Data file : \\NAHSTWS003\Target\CHEM\SV5.i\180418.b\08.D
Lab Smp Id: LCS-127409 Client Smp ID: LCS-127409
Inj Date : 18-APR-2018 13:16 MS Autotune Date: 22-JUN-2005 10:10
Operator : LG Inst ID: SV5.i
Smp Info : LCS-127409;LCS-127409;3;;LCS
Misc Info : HS18040595;1;0;1
Comment :
Method : \\nahstws003\Target\chem\SV5.i\180418.b\DXSIM.m
Meth Date : 19-Apr-2018 11:21 SV5.i Quant Type: ISTD
Cal Date : 27-NOV-2017 19:22 Cal File: 09.D
Als bottle: 8 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 14DX.sub
Target Version: 4.14
Processing Host: NAHSTWS003

Concentration Formula: Amt * DF * Uf * Vt/Vo * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	1000.000	Volume of final extract (uL)
Vo	1000.000	Volume of sample extracted (mL)
Cpnd Variable		Local Compound Variable

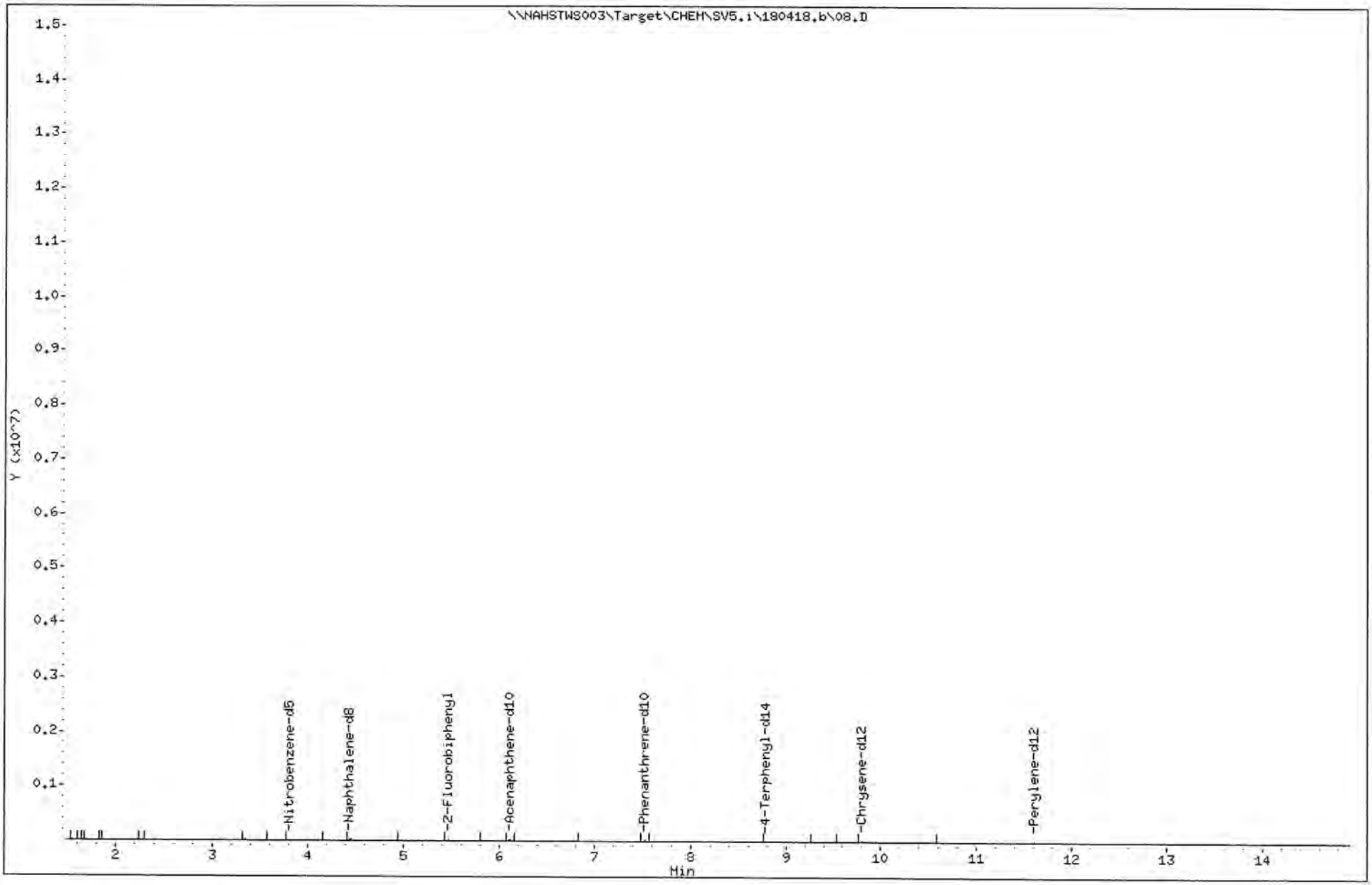
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (NG)	FINAL (ug/L)
* 45 Naphthalene-d8	136	4.449	4.449	(1.000)	36456	0.10000	
$ 33 Nitrobenzene-d5	82	3.826	3.821	(0.860)	12447	0.07155	0.07155
* 86 Acenaphthene-d10	164	6.115	6.115	(1.000)	17569	0.10000	(M)
$ 69 2-Fluorobiphenyl	172	5.470	5.470	(1.000)	14976	0.09618	0.09618
* 126 Phenanthrene-d10	188	7.532	7.533	(1.000)	23991	0.10000	
* 182 Chrysene-d12	240	9.809	9.781	(1.000)	21225	0.10000	(M)
$ 158 4-Terphenyl-d14	244	8.791	8.775	(0.896)	10658	0.05784	0.05784 (M)
* 198 Perylene-d12	264	11.613	11.575	(1.000)	19425	0.10000	
1 1,4-Dioxane	58	1.654	1.628	(0.372)	2501	0.08279	0.08279 (a)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.

Data File: \\NAHSTWS003\Target\CHEM\SV5.i\180418.b\08.D
Date : 18-APR-2018 13:16
Client ID: LCS-127409
Sample Info: LCS-127409;LCS-127409;3;;LCS
Purge Volume: 1000.0
Column phase: RTX-5SIL MS

Instrument: SV5.i
Operator: LC
Column diameter: 0.28



ALS Laboratory Group

GC/MS Semivolatiles EPA method 8270D

Data file : \\NAHSTWS003\Target\CHEM\SV5.i\180418.b\10.D
Lab Smp Id: HS18040595-01 Client Smp ID: HS18040595-01
Inj Date : 18-APR-2018 14:25 MS Autotune Date: 22-JUN-2005 10:10
Operator : LG Inst ID: SV5.i
Smp Info : HS18040595-01;HS18040595-01
Misc Info : HS18040595;1;0;10
Comment :
Method : \\nahstws003\Target\chem\SV5.i\180418.b\DXSIM.m
Meth Date : 19-Apr-2018 11:21 SV5.i Quant Type: ISTD
Cal Date : 27-NOV-2017 19:22 Cal File: 09.D
Als bottle: 10
Dil Factor: 10.00000
Integrator: HP RTE Compound Sublist: 14DX.sub
Target Version: 4.14
Processing Host: NAHSTWS003

Concentration Formula: Amt * DF * Uf * Vt/Vo * CpndVariable

Name	Value	Description
DF	10.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	1000.000	Volume of final extract (uL)
Vo	1000.000	Volume of sample extracted (mL)
Cpnd Variable		Local Compound Variable

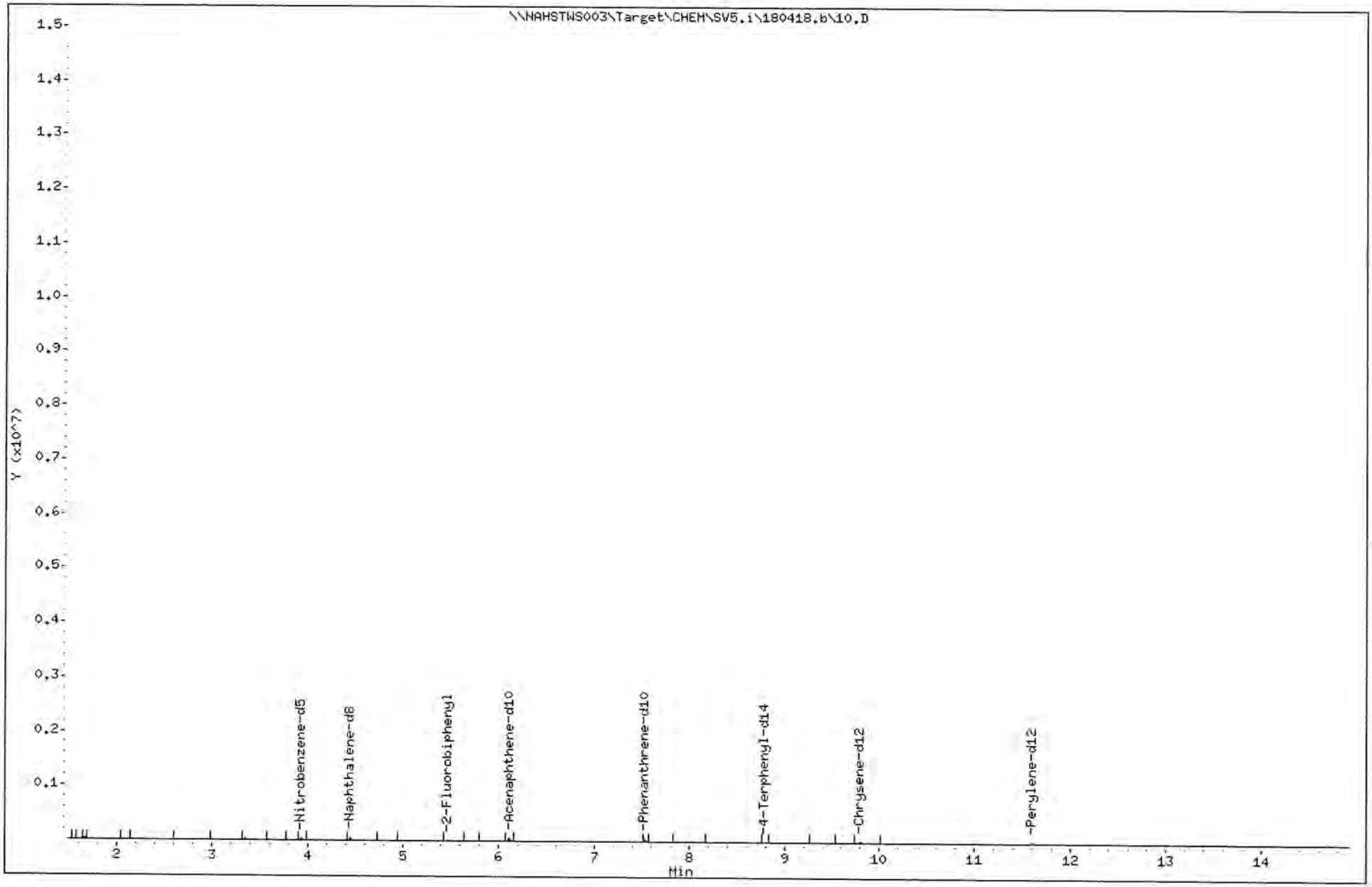
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (NG)	CONCENTRATIONS FINAL (ug/L)
* 45 Naphthalene-d8	136	4.449	4.449	(1.000)	48446	0.10000	
$ 33 Nitrobenzene-d5	82	3.826	3.821	(0.860)	1889	0.00817	0.08172 (MH)
* 86 Acenaphthene-d10	164	6.115	6.115	(1.000)	23077	0.10000	(QM)
$ 69 2-Fluorobiphenyl	172	5.470	5.470	(0.895)	1673	0.00818	0.08180 (M)
* 126 Phenanthrene-d10	188	7.532	7.533	(1.000)	34183	0.10000	
* 182 Chrysene-d12	240	9.795	9.781	(1.000)	25284	0.10000	(M)
$ 158 4-Terphenyl-d14	244	8.786	8.775	(0.897)	1396	0.00636	0.06359 (M)
* 198 Perylene-d12	264	11.597	11.575	(1.000)	24954	0.10000	
1 1,4-Dioxane	58	1.666	1.628	(0.375)	14455	0.36010	3.601

QC Flag Legend

Q - Qualifier signal failed the ratio test.
M - Compound response manually integrated.
H - Operator selected an alternate compound hit.

Data File: \\NAHSTWS003\Target\CHEM\SV5.i\180418.b\10.D
Date : 18-APR-2018 14:25
Client ID: HS18040595-01
Sample Info: HS18040595-01;HS18040595-01
Purge Volume: 1000.0
Column phase: RTX-5SIL MS

Instrument: SV5.i
Operator: LC
Column diameter: 0.28



Data File: \\NAHSTWS003\Target\CHEM\SV5.i\180418.b\10.D

Date : 18-APR-2018 14:25

Client ID: HS18040595-01

Instrument: SV5.i

Sample Info: HS18040595-01:HS18040595-01

Purge Volume: 1000.0

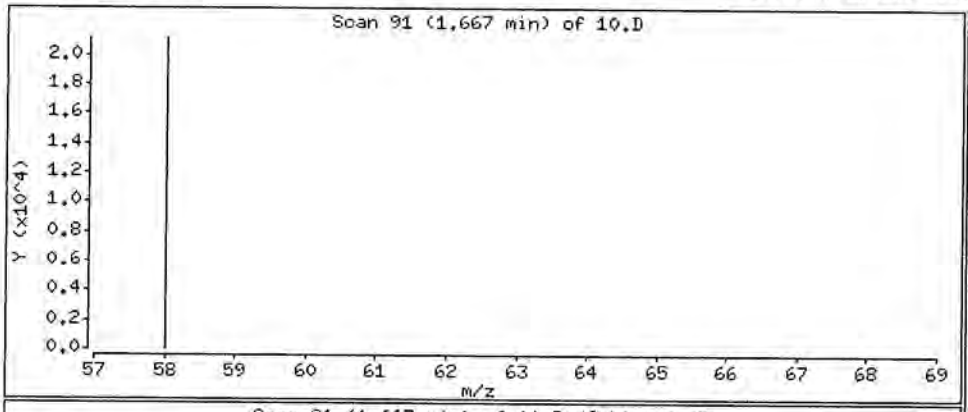
Operator: LG

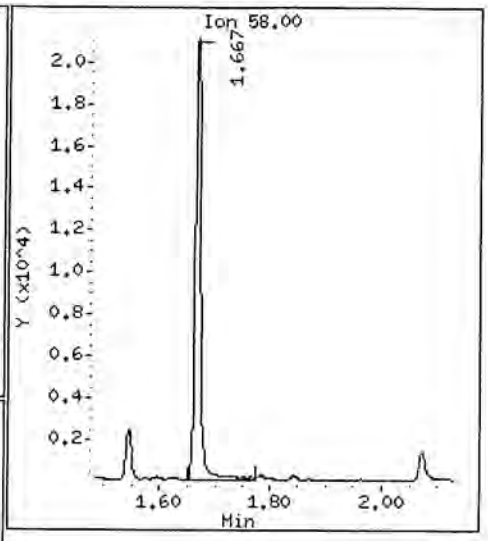
Column phase: RTX-5SIL MS

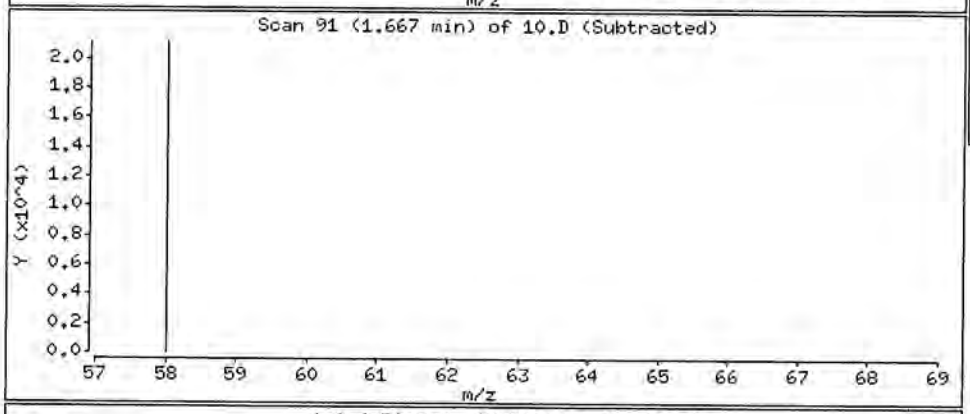
Column diameter: 0.28

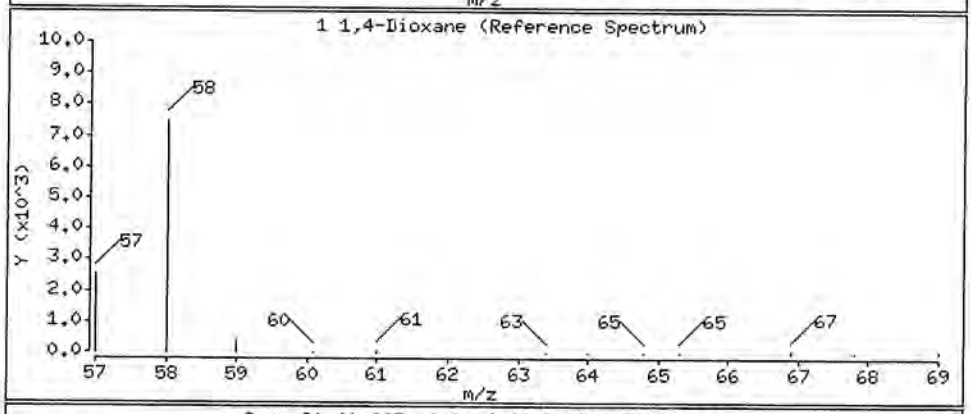
1 1,4-Dioxane

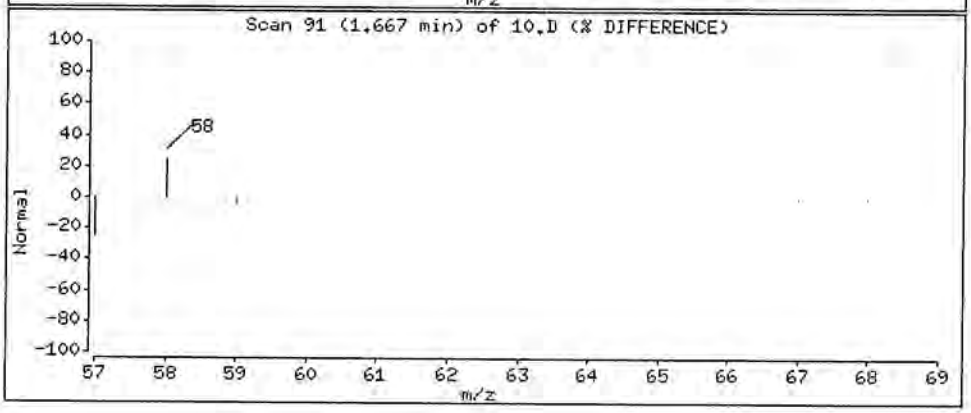
Concentration: 3.601 ug/L











ALS Laboratory Group

GC/MS Semivolatiles EPA method 8270D

Data file : \\NAHSTWS003\Target\CHEM\SV5.i\180418.b\12.D
Lab Smp Id: CCV Client Smp ID: CCV
Inj Date : 18-APR-2018 15:06 MS Autotune Date: 22-JUN-2005 10:10
Operator : LG Inst ID: SV5.i
Smp Info : CCV;CCV
Misc Info : HS18040595;1;0;50
Comment :
Method : \\NAHSTWS003\Target\CHEM\SV5.i\180418.b\DXSIM.m
Meth Date : 19-Apr-2018 11:26 SV5.i Quant Type: ISTD
Cal Date : 27-NOV-2017 19:22 Cal File: 09.D
Als bottle: 12 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 14DX.sub
Target Version: 4.14

Concentration Formula: Amt * DF * Uf * Vt/Vo * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	1000.000	Volume of final extract (uL)
Vo	1000.000	Volume of sample extracted (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (NG)	ON-COL (NG)
* 45 Naphthalene-d8	136	4.453	4.453	(1.000)	29466	0.10000	(M)
$ 33 Nitrobenzene-d5	82	3.832	3.832	(0.861)	11092	0.08000	0.07889
* 86 Acenaphthene-d10	164	6.115	6.115	(1.000)	11592	0.10000	(QM)
$ 69 2-Fluorobiphenyl	172	5.474	5.474	(0.895)	11738	0.08000	0.1142 (M)
* 126 Phenanthrene-d10	188	7.538	7.538	(1.000)	18548	0.10000	
* 182 Chrysene-d12	240	9.795	9.795	(1.000)	13411	0.10000	(M)
$ 158 4-Terphenyl-d14	244	8.786	8.786	(0.897)	9366	0.08000	0.08044 (M)
* 198 Perylene-d12	264	11.591	11.591	(1.000)	12548	0.10000	
1 1,4-Dioxane	58	1.638	1.638	(0.368)	2090	0.08000	0.08560 (aM)

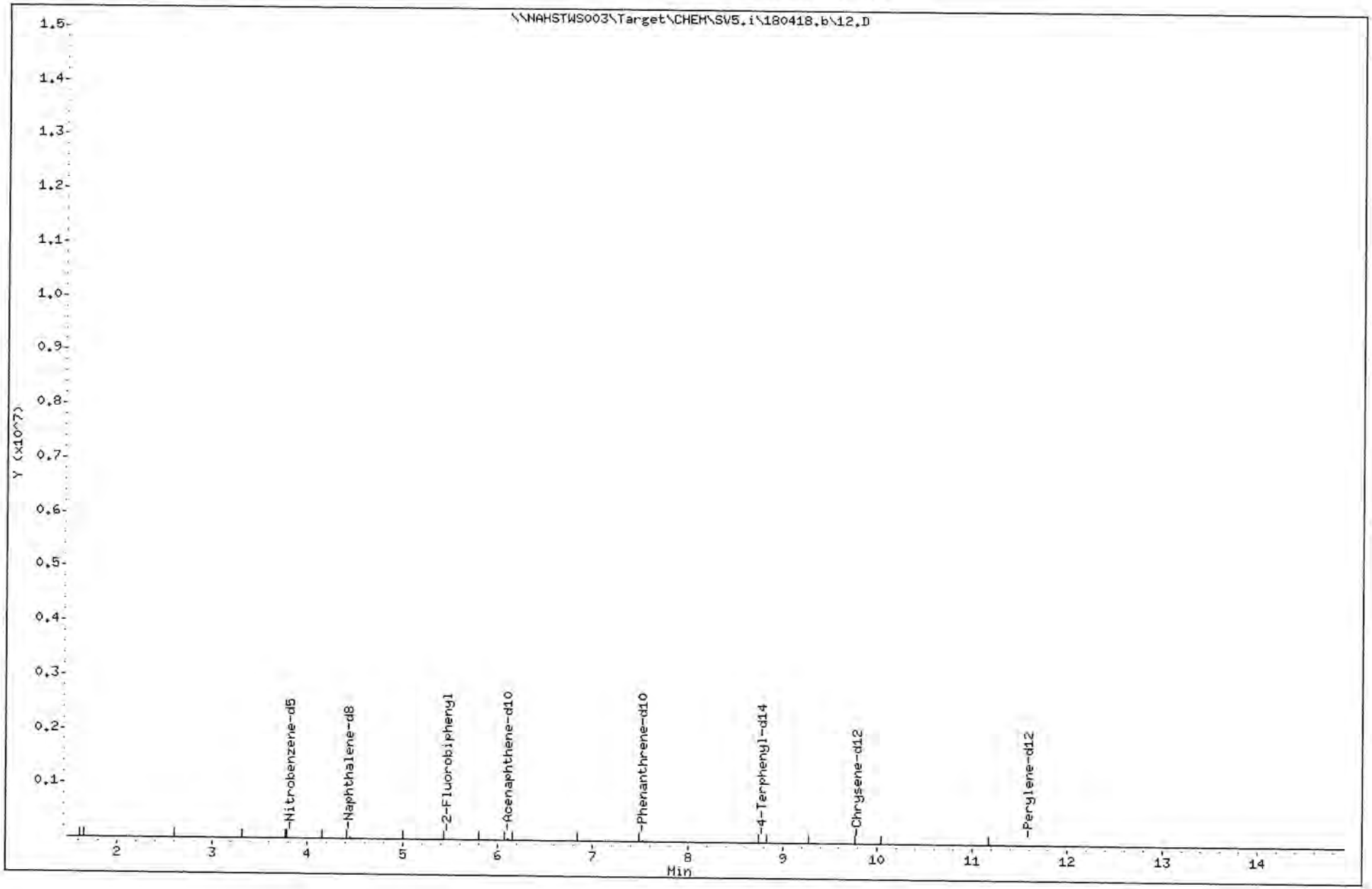
QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
Q - Qualifier signal failed the ratio test.
M - Compound response manually integrated.

Data File: \\NAHSTWS003\Target\CHEM\SV5.i\180418.b\12.D
Date : 18-APR-2018 15:06
Client ID: CCV
Sample Info: CCV;CCV
Purge Volume: 1000.0
Column phase: RTX-5SIL MS

Instrument: SV5.i

Operator: LC
Column diameter: 0.28



PREP BATCH REPORT

Batch ID: **127409**
Prep Code: **3510_B_SIM**
InitSampWt/Vol 0
FinSampVol: 1
OriginalFac: 0.001
PrepUnitFac: 1

Start Date: **17-Apr-18 07:35 am**
End Date: **17-Apr-18 02:39 pm**
Technician: **Todi Lala**

SampID	Frac	Matrix	pH	Init Wt/Vol	FinalVol (mL)	PrepFac	SpkFac	Failsafe	TestDueDate	Comments
HS18040595-01	E	Water	7	990	1	0.00101	1.01	04-18-18	04-20-18	ph adj 1/13
MBLK-127409	A		5	1000	1	0.001	1			ph adj 1/13
LCS-127409	A		5	1000	1	0.001	1			ph adj 1/13
LCSD-127409	A		5	1000	1	0.001	1			ph adj 1/13

Metals Raw Data

Bhate Environmental Associates, Inc.
Project: LONGHORN GW TREATMENT PLANT
MONTHLY EFFLUENT SAMPLES
ALS WO# HS18040595

ALS Group Houston, Corp Date: 02-May-18

Form 2 - Initial and Continuing Calibration Verification

Client: Bhate Environmental Associates, Inc. Run ID: ICPMS05_314436
Project: Longhorn GW Treatment Plant Monthly Effluent Samples Instrument: ICPMS05
WorkOrder: HS18040595 Method: SW6020

ICV	Date: 17-Apr-2018 09:04		Seq: 4520775	ICV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	100.699	101	90-110	
Lead	100	100.213	100	90-110	
Selenium	100	100.834	101	90-110	
Silver	100	99.366	99	90-110	

CCV1	Date: 17-Apr-2018 09:35		Seq: 4521806	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	99.685	100	90-110	
Lead	100	96.02	96	90-110	
Selenium	100	102.527	103	90-110	
Silver	100	100.448	100	90-110	

CCV2	Date: 17-Apr-2018 09:59		Seq: 4521818	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	101.7	102	90-110	
Lead	100	95.41	95	90-110	
Selenium	100	99.386	99	90-110	
Silver	100	97.398	97	90-110	

CCV3	Date: 17-Apr-2018 10:24		Seq: 4521830	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	100.871	101	90-110	
Lead	100	96.337	96	90-110	
Selenium	100	100.48	100	90-110	
Silver	100	98.486	99	90-110	

CCV4	Date: 17-Apr-2018 10:48		Seq: 4521851	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	101.417	101	90-110	
Lead	100	94.639	95	90-110	
Selenium	100	97.664	98	90-110	
Silver	100	98.398	98	90-110	

CCV5	Date: 17-Apr-2018 11:12		Seq: 4521863	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	101.183	101	90-110	
Lead	100	93.091	93	90-110	
Selenium	100	99.937	100	90-110	
Silver	100	98.15	98	90-110	

CCV6	Date: 17-Apr-2018 11:36		Seq: 4521875	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	107.64	108	90-110	
Lead	100	104.278	104	90-110	
Selenium	100	103.865	104	90-110	
Silver	100	103.901	104	90-110	

CCV7	Date: 17-Apr-2018 12:00		Seq: 4521887	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	102.501	103	90-110	
Lead	100	90.396	90	90-110	
Selenium	100	106.594	107	90-110	
Silver	100	99.385	99	90-110	

CCV8	Date: 17-Apr-2018 12:24		Seq: 4521899	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	108.472	108	90-110	
Lead	100	93.583	94	90-110	

Form 2 - Initial and Continuing Calibration Verification

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: HS18040595

Run ID: ICPMS05_314436
Instrument: ICPMS05
Method: SW6020

CCV8	Date: 17-Apr-2018 12:24		Seq: 4521899	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Selenium	100	104.878	105	90-110	
Silver	100	103.794	104	90-110	

CCV9	Date: 17-Apr-2018 12:48		Seq: 4521911	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	103.935	104	90-110	
Lead	100	92.556	93	90-110	
Selenium	100	109.475	109	90-110	
Silver	100	104.026	104	90-110	

CCV10	Date: 17-Apr-2018 13:06		Seq: 4521920	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	99.909	100	90-110	
Lead	100	92.948	93	90-110	
Selenium	100	103.819	104	90-110	
Silver	100	100.165	100	90-110	

CCV11	Date: 17-Apr-2018 13:38		Seq: 4522286	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	100.844	101	90-110	
Lead	100	93.613	94	90-110	
Selenium	100	105.289	105	90-110	
Silver	100	99.869	100	90-110	

CCV12	Date: 17-Apr-2018 14:02		Seq: 4522298	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	103.709	104	90-110	
Lead	100	98.399	98	90-110	
Selenium	100	98.361	98	90-110	
Silver	100	98.037	98	90-110	

CCV13	Date: 17-Apr-2018 14:26		Seq: 4522310	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	98.122	98	90-110	
Lead	100	104.641	105	90-110	
Selenium	100	99.712	100	90-110	
Silver	100	99.14	99	90-110	

CCV14	Date: 17-Apr-2018 14:38		Seq: 4522338	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	102.462	102	90-110	
Lead	100	96.978	97	90-110	
Selenium	100	103.004	103	90-110	
Silver	100	101.029	101	90-110	

CCV15	Date: 17-Apr-2018 21:24		Seq: 4522856	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	101.3	101	90-110	
Lead	100	96.568	97	90-110	
Selenium	100	99.739	100	90-110	
Silver	100	98.337	98	90-110	

CCV16	Date: 17-Apr-2018 21:46		Seq: 4522867	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	103.223	103	90-110	
Lead	100	91.045	91	90-110	
Selenium	100	98.904	99	90-110	
Silver	100	98.56	99	90-110	

Form 2 - Initial and Continuing Calibration Verification

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: HS18040595

Run ID: ICPMS05_314436
Instrument: ICPMS05
Method: SW6020

CCV17	Date: 17-Apr-2018 22:09		Seq: 4522878	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	102.538	103	90-110	
Lead	100	86.972	87	90-110	S
Selenium	100	106.758	107	90-110	
Silver	100	100.499	100	90-110	

CCV18	Date: 17-Apr-2018 22:31		Seq: 4522901	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	104.695	105	90-110	
Lead	100	85.325	85	90-110	S
Selenium	100	99.369	99	90-110	
Silver	100	95.935	96	90-110	

CCV19	Date: 17-Apr-2018 22:44		Seq: 4522922	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	103.675	104	90-110	
Lead	100	92.804	93	90-110	
Selenium	100	102.334	102	90-110	
Silver	100	97.474	98	90-110	

CCV20	Date: 17-Apr-2018 23:06		Seq: 4522944	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	103.289	103	90-110	
Lead	100	95.442	95	90-110	
Selenium	100	98.482	99	90-110	
Silver	100	96.6	97	90-110	

CCV21	Date: 17-Apr-2018 23:31		Seq: 4522964	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	103.031	103	90-110	
Lead	100	101.46	101	90-110	
Selenium	100	97.103	97	90-110	
Silver	100	96.866	97	90-110	

CCV22	Date: 17-Apr-2018 23:45		Seq: 4523104	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	102.727	103	90-110	
Lead	100	94.662	95	90-110	
Selenium	100	103.404	103	90-110	
Silver	100	99.996	100	90-110	

CCV23	Date: 18-Apr-2018 00:09		Seq: 4523116	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	105.991	106	90-110	
Lead	100	99.978	100	90-110	
Selenium	100	104.211	104	90-110	
Silver	100	99.416	99	90-110	

CCV24	Date: 18-Apr-2018 00:33		Seq: 4523128	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	104.714	105	90-110	
Lead	100	106.052	106	90-110	
Selenium	100	97.375	97	90-110	
Silver	100	98.505	99	90-110	

Form 3 - BLANKS

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: HS18040595

Run ID: ICPMS05_314436
Instrument: ICPMS05
Method: SW6020

ICB	Date: 17-Apr-2018 09:10		Seq: 4520778	ICB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Lead	2	0.6	2	U	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	

CCB1	Date: 17-Apr-2018 09:37		Seq: 4521807	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Lead	2	0.6	2	U	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	

CCB2	Date: 17-Apr-2018 10:01		Seq: 4521819	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Lead	2	0.6	2	U	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	

MBLK-127364	Date: 17-Apr-2018 10:11		Seq: 4521824	MBLK	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Lead	2	0.6	2	U	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	

CCB3	Date: 17-Apr-2018 10:26		Seq: 4521831	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Lead	2	0.6	2	U	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	

CCB4	Date: 17-Apr-2018 10:50		Seq: 4521852	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Lead	2	0.6	2	U	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	

CCB5	Date: 17-Apr-2018 11:14		Seq: 4521864	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Lead	2	0.6	2	U	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	

CCB6	Date: 17-Apr-2018 11:38		Seq: 4521876	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Lead	2	0.6	2	U	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	

CCB7	Date: 17-Apr-2018 12:02		Seq: 4521888	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	

Form 3 - BLANKS

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: HS18040595

Run ID: ICPMS05_314436
Instrument: ICPMS05
Method: SW6020

CCB7	Date: 17-Apr-2018 12:02		Seq: 4521888	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Lead	2	0.6	2	U	
Selenium	3.973	1.1	2		
Silver	2	0.2	2	U	

CCB8	Date: 17-Apr-2018 12:26		Seq: 4521900	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Lead	2	0.6	2	U	
Selenium	1.278	1.1	2	J	
Silver	2	0.2	2	U	

CCB9	Date: 17-Apr-2018 12:50		Seq: 4521912	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Lead	2	0.6	2	U	
Selenium	1.706	1.1	2	J	
Silver	2	0.2	2	U	

CCB10	Date: 17-Apr-2018 13:08		Seq: 4521921	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Lead	2	0.6	2	U	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	

CCB11	Date: 17-Apr-2018 13:40		Seq: 4522287	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Lead	2	0.6	2	U	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	

CCB12	Date: 17-Apr-2018 14:04		Seq: 4522299	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Lead	2	0.6	2	U	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	

CCB13	Date: 17-Apr-2018 14:28		Seq: 4522311	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Lead	2	0.6	2	U	
Selenium	1.269	1.1	2	J	
Silver	2	0.2	2	U	

CCB14	Date: 17-Apr-2018 14:40		Seq: 4522339	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Lead	2	0.6	2	U	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	

CCB15	Date: 17-Apr-2018 21:26		Seq: 4522857	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Lead	2	0.6	2	U	

Form 3 - BLANKS

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: HS18040595

Run ID: ICPMS05_314436
Instrument: ICPMS05
Method: SW6020

CCB15	Date: 17-Apr-2018 21:26		Seq: 4522857	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	
CCB16	Date: 17-Apr-2018 21:48		Seq: 4522868	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Lead	2	0.6	2	U	
Selenium	3.908	1.1	2		
Silver	2	0.2	2	U	
CCB17	Date: 17-Apr-2018 22:10		Seq: 4522879	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Lead	2	0.6	2	U	
Selenium	2.87	1.1	2		
Silver	2	0.2	2	U	
CCB18	Date: 17-Apr-2018 22:33		Seq: 4522902	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Lead	2	0.6	2	U	
Selenium	1.543	1.1	2	J	
Silver	2	0.2	2	U	
CCB19	Date: 17-Apr-2018 22:46		Seq: 4522923	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Lead	2	0.6	2	U	
Selenium	1.281	1.1	2	J	
Silver	2	0.2	2	U	
CCB20	Date: 17-Apr-2018 23:08		Seq: 4522945	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Lead	2	0.6	2	U	
Selenium	1.751	1.1	2	J	
Silver	2	0.2	2	U	
CCB21	Date: 17-Apr-2018 23:33		Seq: 4522965	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Lead	2	0.6	2	U	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	
CCB22	Date: 17-Apr-2018 23:47		Seq: 4523105	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Lead	2	0.6	2	U	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	
CCB23	Date: 18-Apr-2018 00:11		Seq: 4523117	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Lead	2	0.6	2	U	
Selenium	2	1.1	2	U	

Form 3 - BLANKS

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: HS18040595

Run ID: ICPMS05_314436
Instrument: ICPMS05
Method: SW6020

CCB23	Date: 18-Apr-2018 00:11		Seq: 4523117	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Silver	2	0.2	2	U	

CCB24	Date: 18-Apr-2018 00:35		Seq: 4523129	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Lead	2	0.6	2	U	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	

ALS Group Houston, Corp Date: 02-May-18

Form 4 - ICP Interference Check Sample

Client: Bhate Environmental Associates, Inc. Run ID:ICPMS05_314436

Project: Longhorn GW Treatment Plant Monthly Effluent Samples Instrument:ICPMS05

WorkOrder: HS18040595 Method:SW6020

ICSA	Date: 17-Apr-2018 09:12	Seq: 4520779	ICSA	Units: ug/L
Analyte	**True**	**Found**	**%R**	
Barium		0.089	0	
Lead		0.137	0	
Selenium		0.704	0	
Silver		0.065	0	
ICSAB	Date: 17-Apr-2018 09:14	Seq: 4520780	ICSAB	Units: ug/L
Analyte	**True**	**Found**	**%R**	
Barium	100	99.39	99.4	
Lead	100	88.7	88.7	
Selenium	100	102.2	102	
Silver	100	92.09	92.1	
ICSA	Date: 17-Apr-2018 21:50	Seq: 4522869	ICSA	Units: ug/L
Analyte	**True**	**Found**	**%R**	
Barium		0.141	0	
Lead		0.05	0	
Selenium		3.816	0	
Silver		0.037	0	
ICSAB	Date: 17-Apr-2018 21:52	Seq: 4522870	ICSAB	Units: ug/L
Analyte	**True**	**Found**	**%R**	
Barium	100	100	100	
Lead	100	79.33	79.3	
Selenium	100	98.43	98.4	
Silver	100	92.54	92.5	
ICSA	Date: 18-Apr-2018 00:45	Seq: 4523134	ICSA	Units: ug/L
Analyte	**True**	**Found**	**%R**	
Barium		0.121	0	
Lead		0.062	0	
Selenium		0.575	0	
Silver		0.039	0	
ICSAB	Date: 18-Apr-2018 00:47	Seq: 4523135	ICSAB	Units: ug/L
Analyte	**True**	**Found**	**%R**	
Barium	100	99.47	99.5	
Lead	100	83.3	83.3	
Selenium	100	106.4	106	
Silver	100	98.62	98.6	

ALS Group Houston, Corp Date: 02-May-18

Form 5A - Matrix Spike/Matrix Spike Duplicate Recovery

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: HS18040595

Date Analyzed: 17-Apr-2018 10:22
Date Extracted: 16-Apr-2018 11:14
Units: ug/L

Matrix Spike: HS18040243-01MS
Client Sample ID:

Analysis Method: SW6020

Analyte	Sample Result	MS Result	Spike Amount	% Rec	MSD Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Barium	36.69	80.19	50.00	87.0	83.14	50.00	92.9	80-120	3.60	20
Lead	1.216	39.44	50.00	76.5	40.56	50.00	78.7	80-120	2.79	20
Selenium	2.000	44.55	50.00	87.0	48.98	50.00	95.8	80-120	9.46	20
Silver	2.000	42.75	50.00	85.4	45.20	50.00	90.3	80-120	5.57	20

ALS Group Houston, Corp Date: 02-May-18

Form 5B - Post Digest Sample Recovery

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: HS18040595

Date Analyzed: 17-Apr-2018 10:28
Date Extracted: 16-Apr-2018 11:14
Units: ug/L

Lab Sample ID: HS18040243-01PDS
Client Sample ID:

Analysis Method: SW6020

Analyte	Sample Result	PDS Result	Spike Amount	% Rec	% Rec Limits
Barium	36.69	131.2	100	95	75-125
Lead	1.216	87.71	100	87	75-125
Selenium	0	99.14	100	98	75-125
Silver	0	89.58	100	90	75-125

ALS Group Houston, Corp Date: 02-May-18

Form 7 - Laboratory Control Sample

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: HS18040595

Date Analyzed: 17-Apr-2018 10:13
Date Extracted: 16-Apr-2018 11:14
Units: ug/L

Lab Sample ID: LCS-127364 Analysis Method: SW6020

Analyte	Spike Amount	LCS Result	% Rec	% Rec Limits
Barium	50	46.27	93	80-120
Lead	50	45.07	90	80-120
Selenium	50	47.38	95	80-120
Silver	50	44.54	89	80-120

ALS Group Houston, Corp Date: 02-May-18

Form 8 - ICP Serial Dilutions

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: HS18040595

Date Analyzed: 17-Apr-2018 10:18
Date Extracted: 16-Apr-2018 11:14
Units: ug/L

Lab Sample ID: HS18040243-01SD
Client Sample ID:

Analysis Method: SW6020

Analyte	Sample Result	C	SD Result	C	RPD	Q
Barium	36.69		38.16		4	
Lead	1.216	J	0	U	0	
Selenium	0	U	0	U	0	
Silver	0	U	0	U	0	

ALS Group Houston, Corp Date: 02-May-18

Form 11 - INTERNAL STANDARD ASSOCIATION

Client: Bhate Environmental Associates, Inc. Instrument:ICPMS05
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: HS18040595

Mass	Analyte	Assoc Int Standard 1	Assoc Int Standard 2	Mode
9	Beryllium	Lithium		Ar
11	Boron	Lithium		Ar
23	Sodium	Germanium		Ar
24	Magnesium	Germanium		Ar
27	Aluminum	Germanium		Ar
39	Potassium	Germanium		Ar
44	Calcium	Germanium		Ar
47	Titanium	Germanium		Ar
51	Vanadium	Germanium		ArHe
52	Chromium	Germanium		ArHe
55	Manganese	Germanium		ArHe
56	Iron	Germanium		ArHe
59	Cobalt	Germanium		ArHe
60	Nickel	Germanium		ArHe
63	Copper	Germanium		ArHe
66	Zinc	Germanium		ArHe
75	Arsenic	Germanium		ArHe
78	Selenium	Germanium		ArHe
88	Strontium	Germanium		Ar
95	Molybdenum	Germanium		Ar
105	Palladium	Germanium		Ar
107	Silver	Germanium		Ar
114	Cadmium	Indium		Ar
118	Tin	Germanium		Ar
121	Antimony	Germanium		ArHe
137	Barium	Indium		Ar
205	Thallium	Bismuth		Ar
208	Lead	Bismuth		Ar

ALS Group Houston, Corp Date: 02-May-18

FORM 12 - PREPARATION LOG

Client: Bhate Environmental Associates, Inc. Batch ID: 127364
Project: Longhorn GW Treatment Plant Monthly Effluent Samples Prep Code: 3010A
WorkOrder: HS18040595 Method: SW3010A
Start Date: 16-Apr-2018 14:10 End Date: 16-Apr-2018 17:30 Technician:

SampID	ClientID	Matrix	Init Wt	Init Vol	FinalVol (mL)	PrepFac
HS18040243-01MS				10	10	1
HS18040243-01MSD				10	10	1
HS18040243-01PDS				10	10	1
HS18040243-01SD				10	10	1
HS18040595-01	LH18/24-SP650-041118	Water		10	10	1
LCS-127364				10	10	1
MBLK-127364				10	10	1

ALS Group Houston, Corp Date: 02-May-18

FORM 13 - ANALYSIS RUN LOG

Client: Bhate Environmental Associates, Inc. Run ID:ICPMS05_314436
Project: Longhorn GW Treatment Plant Monthly Effluent Samples Instrument:ICPMS05
WorkOrder: HS18040595 Method:
Start Date: 17-Apr-2018 End Date: 18-Apr-2018

Sample No.	D/F	Time	FileID	Analytes
ICPMS05_314436_Tune	1	17-Apr-2018 00:00	ICPMS05_314436_Tune_1	
CAL BLK	1	17-Apr-2018 08:46	004CALB.d_4520766	AG BA PB SE
2/10/200	1	17-Apr-2018 08:48	005CALS.d_4520767	AG BA PB SE
5/25/500	1	17-Apr-2018 08:50	006CALS.d_4520768	AG BA PB SE
10/50/1000	1	17-Apr-2018 08:52	007CALS.d_4520769	AG BA PB SE
200/1000/20K	1	17-Apr-2018 08:58	010CALS.d_4520772	AG BA PB SE
100/500/10K	1	17-Apr-2018 09:00	011CALS.d_4520773	AG BA PB SE
ICV	1	17-Apr-2018 09:04	013_ICV.d_4520775	AG BA PB SE
LLICV2	1	17-Apr-2018 09:06	014SMPL.d_4520776	AG BA PB SE
LLICV5	1	17-Apr-2018 09:08	015LICV.d_4520777	AG BA PB SE
ICB	1	17-Apr-2018 09:10	016_ICB.d_4520778	AG BA PB SE
ICSA	1	17-Apr-2018 09:12	017ICSA.d_4520779	AG BA PB SE
ICSAB	1	17-Apr-2018 09:14	018ICSB.d_4520780	AG BA PB SE
CCV 1	1	17-Apr-2018 09:35	024_CCV.d_4521806	AG BA PB SE
CCB 1	1	17-Apr-2018 09:37	025_CCB.d_4521807	AG BA PB SE
CCV 2	1	17-Apr-2018 09:59	036_CCV.d_4521818	AG BA PB SE
CCB 2	1	17-Apr-2018 10:01	037_CCB.d_4521819	AG BA PB SE
MBLK-127364	1	17-Apr-2018 10:11	042SMPL.d_4521824	AG BA PB SE
LCS-127364	1	17-Apr-2018 10:13	043SMPL.d_4521825	AG BA PB SE
ZZZZZZSD	5	17-Apr-2018 10:18	045SMPL.d_4521827	AG BA PB SE
ZZZZZZMS	1	17-Apr-2018 10:20	046SMPL.d_4521828	AG BA PB SE
ZZZZZZMSD	1	17-Apr-2018 10:22	047SMPL.d_4521829	AG BA PB SE
CCV 3	1	17-Apr-2018 10:24	048_CCV.d_4521830	AG BA PB SE
CCB 3	1	17-Apr-2018 10:26	049_CCB.d_4521831	AG BA PB SE
ZZZZZZPDS	1	17-Apr-2018 10:28	050SMPL.d_4521832	AG BA PB SE
LH18/24-SP650-041118	1	17-Apr-2018 10:32	052SMPL.d_4521834	AG BA PB SE
CCV 4	1	17-Apr-2018 10:48	060_CCV.d_4521851	AG BA PB SE
CCB 4	1	17-Apr-2018 10:50	061_CCB.d_4521852	AG BA PB SE
CCV 5	1	17-Apr-2018 11:12	072_CCV.d_4521863	AG BA PB SE
CCB 5	1	17-Apr-2018 11:14	073_CCB.d_4521864	AG BA PB SE
CCV 6	1	17-Apr-2018 11:36	084_CCV.d_4521875	AG BA PB SE
CCB 6	1	17-Apr-2018 11:38	085_CCB.d_4521876	AG BA PB SE
CCV 7	1	17-Apr-2018 12:00	096_CCV.d_4521887	AG BA PB SE
CCB 7	1	17-Apr-2018 12:02	097_CCB.d_4521888	AG BA PB SE
CCV 8	1	17-Apr-2018 12:24	108_CCV.d_4521899	AG BA PB SE
CCB 8	1	17-Apr-2018 12:26	109_CCB.d_4521900	AG BA PB SE
CCV 9	1	17-Apr-2018 12:48	120_CCV.d_4521911	AG BA PB SE
CCB 9	1	17-Apr-2018 12:50	121_CCB.d_4521912	AG BA PB SE
CCV 10	1	17-Apr-2018 13:06	129_CCV.d_4521920	AG BA PB SE
CCB 10	1	17-Apr-2018 13:08	130_CCB.d_4521921	AG BA PB SE
CCV 11	1	17-Apr-2018 13:38	141_CCV.d_4522286	AG BA PB SE
CCB 11	1	17-Apr-2018 13:40	142_CCB.d_4522287	AG BA PB SE
CCV 12	1	17-Apr-2018 14:02	153_CCV.d_4522298	AG BA PB SE
CCB 12	1	17-Apr-2018 14:04	154_CCB.d_4522299	AG BA PB SE
CCV 13	1	17-Apr-2018 14:26	165_CCV.d_4522310	AG BA PB SE
CCB 13	1	17-Apr-2018 14:28	166_CCB.d_4522311	AG BA PB SE
CCV 14	1	17-Apr-2018 14:38	170_CCV.d_4522338	AG BA PB SE
CCB 14	1	17-Apr-2018 14:40	171_CCB.d_4522339	AG BA PB SE
CCV 15	1	17-Apr-2018 21:24	174_CCV.d_4522856	AG BA PB SE
CCB 15	1	17-Apr-2018 21:26	175_CCB.d_4522857	AG BA PB SE
CCV 16	1	17-Apr-2018 21:46	185_CCV.d_4522867	AG BA PB SE
CCB 16	1	17-Apr-2018 21:48	186_CCB.d_4522868	AG BA PB SE
ICSA	1	17-Apr-2018 21:50	187ICSA.d_4522869	AG BA PB SE
B	1	17-Apr-2018 21:52	188ICSB.d_4522870	AG BA PB SE

ALS Group Houston, Corp Date: 02-May-18

FORM 13 - ANALYSIS RUN LOG

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: HS18040595
Start Date: 17-Apr-2018 End Date: 18-Apr-2018

Run ID:ICPMS05_314436
Instrument:ICPMS05
Method:

Sample No.	D/F	Time	FileID	Analytes
CCV 17	1	17-Apr-2018 22:09	196_CCV.d_4522878	AG BA PB SE
CCB 17	1	17-Apr-2018 22:10	197_CCB.d_4522879	AG BA PB SE
CCV 18	1	17-Apr-2018 22:31	207_CCV.d_4522901	AG BA PB SE
CCB 18	1	17-Apr-2018 22:33	208_CCB.d_4522902	AG BA PB SE
CCV 19	1	17-Apr-2018 22:44	214_CCV.d_4522922	AG BA PB SE
CCB 19	1	17-Apr-2018 22:46	215_CCB.d_4522923	AG BA PB SE
CCV 20	1	17-Apr-2018 23:06	225_CCV.d_4522944	AG BA PB SE
CCB 20	1	17-Apr-2018 23:08	226_CCB.d_4522945	AG BA PB SE
CCV 21	1	17-Apr-2018 23:31	237_CCV.d_4522964	AG BA PB SE
CCB 21	1	17-Apr-2018 23:33	238_CCB.d_4522965	AG BA PB SE
CCV 22	1	17-Apr-2018 23:45	244_CCV.d_4523104	AG BA PB SE
CCB 22	1	17-Apr-2018 23:47	245_CCB.d_4523105	AG BA PB SE
CCV 23	1	18-Apr-2018 00:09	256_CCV.d_4523116	AG BA PB SE
CCB 23	1	18-Apr-2018 00:11	257_CCB.d_4523117	AG BA PB SE
CCV 24	1	18-Apr-2018 00:33	268_CCV.d_4523128	AG BA PB SE
CCB 24	1	18-Apr-2018 00:35	269_CCB.d_4523129	AG BA PB SE
LLCCV5	1	18-Apr-2018 00:41	272LICV.d_4523132	AG BA PB SE
LLCCV2	1	18-Apr-2018 00:43	273SMPL.d_4523133	AG BA PB SE
ICSA	1	18-Apr-2018 00:45	274ICSA.d_4523134	AG BA PB SE
ICSAB	1	18-Apr-2018 00:47	275ICSB.d_4523135	AG BA PB SE

Tune Report

Batch Folder C:\Agilent\ICPMH\1\DATA\041718A.b
Report Comment
Instrument Name G3281A JP11080910

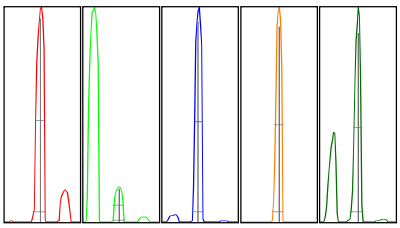
[nogas]

Mass	Range	Count (Actual)	Response (Actual) [cps/ug/l]	Response (Required) [cps/ug/l]	Response (Flag)	Resp Ratio (Actual)	Resp Ratio (Required)	Resp Ratio (Flag)
9		6462				NaN	-	
24		20585				NaN	-	
59		25172				NaN	-	
115		17599				NaN	-	
208		7099				NaN	-	

Mass	RSD% (Actual)	RSD% (Required)	RSD% (Flag)	Background (Actual)	Background (Required)	Background (Flag)
9	1.09	5.00				
24	0.58	5.00				
59	1.72	5.00				
115	1.77	5.00				
208	2.88	5.00				

Mass	Replicate 1 Count	Replicate 2 Count	Replicate 3 Count	Replicate 4 Count	Replicate 5 Count
9	6405	6473	6497	6554	6380
24	20551	20525	20773	20619	20457
59	25245	25248	24437	25578	25351
115	17457	17504	17247	17722	18067
208	7229	7119	6819	7341	6987

Integration Time [sec] 0.1



Mass	Peak Height	Axis (Actual)	Axis (Required)	Axis (Flag)	W-50%	W-X% (Actual)	W-X% (Required)	W-X% (Flag)
9	1791.62	8.95	8.9 - 9.1		0.37	0.456	0.750	
24	5613.63	23.95	23.9 - 24.1		0.38	0.445	0.750	
59	7578.19	58.95	58.9 - 59.1		0.33	0.434	0.750	
115	5734.59	115.05	114.9 - 115.1		0.29	0.427	0.750	
208	2177.73	208.05	207.9 - 208.1		0.31	0.490	0.750	

X = 5 **Integration Time [sec]** 0.1 **Acquisition Time [sec]** 168.5 **Y Axis** Linear

Tune Parameters

Plasma Paramters

RF Power	1600 W	Carrier Gas	0.35 L/min	S/C Temp	2 ℃
RF Matching	1.70 V	Option Gas	0.0 %	Makeup/Dilution Gas	0.50 L/min
Smpl Depth	8.0 mm	Nebulizer Pump	0.10 rps	Gas Switch	Dilution Gas

Lenses Parameters

Extract 1	0.0 V	Omega Lens	8.0 V	Deflect	15.6 V
Extract 2	-200.0 V	Cell Entrance	-38 V	Plate Bias	-50 V
Omega Bias	-100 V	Cell Exit	-58 V		

Cell Parameters

OctP Bias	-8.0 V	He Flow	0.0 mL/min	Energy Discrimination	5.0 V
OctP RF	190 V	H2 Flow	0.0 mL/min		
Use Gas	true	3rd Gas Flow	0 %		

[He]

Mass	Range	Count (Actual)	Response (Actual) [cps/ug/l]	Response (Required) [cps/ug/l]	Response (Flag)	Resp Ratio (Actual)	Resp Ratio (Required)	Resp Ratio (Flag)
9		50				NaN	-	
24		316				NaN	-	
59		6111				NaN	-	

Tune Report

Mass	RSD% (Actual)	RSD% (Required)	RSD% (Flag)	Background (Actual)	Background (Required)	Background (Flag)
9	9.06	5.00	[F]			
24	4.36	5.00				
59	2.91	5.00				

Mass	Replicate 1 Count	Replicate 2 Count	Replicate 3 Count	Replicate 4 Count	Replicate 5 Count
9	50	52	56	44	49
24	295	314	328	329	316
59	5920	5942	6208	6151	6335

Integration Time [sec] 0.1

Mass	Peak Height	Axis (Actual)	Axis (Required)	Axis (Flag)	W-50%	W-X% (Actual)	W-X% (Required)	W-X% (Flag)
9	14.00	8.90	8.9 - 9.1		0.37	0.448	0.750	
24	90.00	23.95	23.9 - 24.1		0.37	0.444	0.750	
59	1928.92	58.95	58.9 - 59.1		0.31	0.421	0.750	

X = 5 **Integration Time [sec]** 0.1 **Acquisition Time [sec]** 100.6 **Y Axis** Linear

Tune Parameters

Plasma Paramters

RF Power	1600 W	Carrier Gas	0.35 L/min	S/C Temp	2 ℃
RF Matching	1.70 V	Option Gas	0.0 %	Makeup/Dilution Gas	0.50 L/min
Smpl Depth	8.0 mm	Nebulizer Pump	0.10 rps	Gas Switch	Dilution Gas

Lenses Parameters

Extract 1	0.0 V	Omega Lens	8.0 V	Deflect	2.0 V
Extract 2	-200.0 V	Cell Entrance	-32 V	Plate Bias	-60 V
Omega Bias	-100 V	Cell Exit	-70 V		

Cell Parameters

OctP Bias	-18.0 V	He Flow	5.5 mL/min	Energy Discrimination	5.0 V
OctP RF	190 V	H2 Flow	0.0 mL/min		
Use Gas	true	3rd Gas Flow	0 %		

Calibration Blank Report

Sample Table

Sample Name	CAL BLK
Data File Name	004CALB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T08:46:11-05:00
Sample Type	CalBlk
Level	1
Dilution	1
Comment	

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	37	281.60
Na	23	1	nogas	310997	0.00
Mg	24	1	nogas	3501	0.50
Al	27	1	nogas	11310	0.01
K	39	1	nogas	3653618	0.00
Ti	47	1	nogas	187	1.66
V	51	1	nogas	48739	0.02
Cr	52	1	nogas	16584	0.02
Mn	55	1	nogas	6678	0.02
Co	59	1	nogas	497	5.40
Ni	60	1	nogas	280	2.55
Cu	63	1	nogas	8409	0.13
Zn	66	1	nogas	337	4.86
As	75	1	nogas	18239	0.02
Sr	88	1	nogas	283	5.03
Ag	107	1	nogas	73	77.42
Cd	111	1	nogas	33	103.92
Sb	121	1	nogas	6185	0.06
Tl	205	1	nogas	113	39.95
Pb	208	1	nogas	497	0.47
[Pb]	206	1	nogas	150	11.76
[Pb]	207	1	nogas	123	23.09
Na	23	2	He	13312	0.02
Mg	24	2	He	223	9.48
Al	27	2	He	87	40.67
K	39	2	He	18009	0.02
Ca	43	2	He	10	1732.05
Ca	44	2	He	330	6.02
V	51	2	He	73	18.68
Cr	52	2	He	1227	0.86
Mn	55	2	He	137	6.18
Fe	56	2	He	6194	0.04
Co	59	2	He	43	81.35
Ni	60	2	He	77	54.69
Cu	63	2	He	1300	0.84
Zn	66	2	He	40	62.50
As	75	2	He	18	339.10
Se	78	2	He	16	156.25
B	11	1	nogas	18232	0.01
Si	28	1	nogas	3464498	0.00
Ca	43	1	nogas	403	4.77
Ca	44	1	nogas	123310	0.00

Calibration Blank Report

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	1376403	0.00
Se	77	1	nogas	5464	0.17
Se	82	1	nogas	233	8.28
Mo	95	1	nogas	137	26.95
Sn	118	1	nogas	390	1.74
Ba	137	1	nogas	140	31.04
Sb	121	2	He	1150	1.18
Li	7	1	nogas	30608	0.01
P	31	1	nogas	27550	0.00
La	139	1	nogas	63	38.08

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Li	6	1	nogas	359778	2.32
Ge	72	1	nogas	1412575	3.11
In	115	1	nogas	1018869	0.82
Bi	209	1	nogas	569248	4.70
Ge	72	2	He	135587	0.72

Calibration Standard Report

Sample Table

Sample Name	2/10/200
Data File Name	005CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T08:48:11-05:00
Sample Type	CalStd
Level	2
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	5141	0.12
Na	23	1	nogas	2636715	0.00
Mg	24	1	nogas	1554440	0.00
Al	27	1	nogas	32045	0.01
K	39	1	nogas	5805947	0.00
Ti	47	1	nogas	2264	0.41
V	51	1	nogas	74494	0.00
Cr	52	1	nogas	38156	0.00
Mn	55	1	nogas	32335	0.01
Co	59	1	nogas	23288	0.01
Ni	60	1	nogas	5421	0.10
Cu	63	1	nogas	20051	0.02
Zn	66	1	nogas	3994	0.33
As	75	1	nogas	20645	0.01
Sr	88	1	nogas	26223	0.01
Ag	107	1	nogas	10990	0.02
Cd	111	1	nogas	2184	0.18
Sb	121	1	nogas	16448	0.02
Tl	205	1	nogas	11274	0.04
Pb	208	1	nogas	16303	0.01
[Pb]	206	1	nogas	4114	0.01
[Pb]	207	1	nogas	3667	0.06
Na	23	2	He	59406	0.00
Mg	24	2	He	20732	0.01
Al	27	2	He	183	9.57
K	39	2	He	36312	0.01
Ca	43	2	He	50	40.00
Ca	44	2	He	1310	0.86
V	51	2	He	2779	0.01
Cr	52	2	He	4711	0.20
Mn	55	2	He	1683	0.82
Fe	56	2	He	262549	0.00
Co	59	2	He	5274	0.09
Ni	60	2	He	1600	0.55
Cu	63	2	He	4967	0.07
Zn	66	2	He	640	1.52
As	75	2	He	572	1.56
Se	78	2	He	45	36.84
B	11	1	nogas	31550	0.01
Si	28	1	nogas	3516711	0.00

Calibration Standard Report

Ca	43	1	nogas	4477	0.09
Ca	44	1	nogas	186805	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	3758065	0.00
Se	77	1	nogas	5364	0.07
Se	82	1	nogas	450	1.78
Mo	95	1	nogas	4961	0.01
Sn	118	1	nogas	6768	0.03
Ba	137	1	nogas	3177	0.16
Sb	121	2	He	3110	0.37
P	31	1	nogas	35487	0.01
La	139	1	nogas	40	108.25

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	356305	1.14	359778	99.03	70	125	
Ge	72	1	nogas	1400223	3.00	1412575	99.13	70	125	
In	115	1	nogas	1009089	1.90	1018869	99.04	70	125	
Bi	209	1	nogas	574055	4.70	569248	100.84	70	125	
Ge	72	2	He	139154	1.29	135587	102.63	70	125	

Calibration Standard Report

Sample Table

Sample Name	5/25/500
Data File Name	006CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T08:50:10-05:00
Sample Type	CalStd
Level	3
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	13135	0.03
Na	23	1	nogas	6074672	0.00
Mg	24	1	nogas	3846721	0.00
Al	27	1	nogas	59558	0.01
K	39	1	nogas	8992430	0.00
Ti	47	1	nogas	5324	0.05
V	51	1	nogas	113232	0.00
Cr	52	1	nogas	70805	0.01
Mn	55	1	nogas	74778	0.00
Co	59	1	nogas	57233	0.00
Ni	60	1	nogas	13592	0.02
Cu	63	1	nogas	37308	0.00
Zn	66	1	nogas	9359	0.08
As	75	1	nogas	26740	0.01
Sr	88	1	nogas	64690	0.00
Ag	107	1	nogas	28954	0.01
Cd	111	1	nogas	5508	0.12
Sb	121	1	nogas	30494	0.01
Tl	205	1	nogas	28743	0.01
Pb	208	1	nogas	41071	0.00
[Pb]	206	1	nogas	9917	0.02
[Pb]	207	1	nogas	9313	0.02
Na	23	2	He	126661	0.00
Mg	24	2	He	51858	0.01
Al	27	2	He	210	14.16
K	39	2	He	64270	0.00
Ca	43	2	He	143	17.09
Ca	44	2	He	2727	0.35
V	51	2	He	6861	0.03
Cr	52	2	He	9523	0.03
Mn	55	2	He	3614	0.27
Fe	56	2	He	625373	0.00
Co	59	2	He	12965	0.03
Ni	60	2	He	3714	0.16
Cu	63	2	He	10830	0.06
Zn	66	2	He	1517	0.58
As	75	2	He	1279	0.54
Se	78	2	He	58	33.10
B	11	1	nogas	52111	0.00
Si	28	1	nogas	3505378	0.00

Calibration Standard Report

Ca	43	1	nogas	10423	0.04
Ca	44	1	nogas	278502	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	7235277	0.00
Se	77	1	nogas	5474	0.11
Se	82	1	nogas	703	1.15
Mo	95	1	nogas	12194	0.03
Sn	118	1	nogas	16061	0.02
Ba	137	1	nogas	8109	0.03
Sb	121	2	He	5478	0.04
P	31	1	nogas	46394	0.00
La	139	1	nogas	70	20.41

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	357247	0.35	359778	99.30	70	125	
Ge	72	1	nogas	1379962	1.01	1412575	97.69	70	125	
In	115	1	nogas	1029275	1.47	1018869	101.02	70	125	
Bi	209	1	nogas	582593	4.16	569248	102.34	70	125	
Ge	72	2	He	135761	0.54	135587	100.13	70	125	

Calibration Standard Report

Sample Table

Sample Name	10/50/1000
Data File Name	007CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T08:52:10-05:00
Sample Type	CalStd
Level	4
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	26035	0.01
Na	23	1	nogas	11979740	0.00
Mg	24	1	nogas	7791806	0.00
Al	27	1	nogas	104518	0.00
K	39	1	nogas	14718998	0.00
Ti	47	1	nogas	10306	0.02
V	51	1	nogas	178782	0.00
Cr	52	1	nogas	127903	0.00
Mn	55	1	nogas	142067	0.00
Co	59	1	nogas	113872	0.00
Ni	60	1	nogas	26593	0.01
Cu	63	1	nogas	69960	0.00
Zn	66	1	nogas	17622	0.01
As	75	1	nogas	38999	0.01
Sr	88	1	nogas	134480	0.00
Ag	107	1	nogas	58558	0.00
Cd	111	1	nogas	11124	0.08
Sb	121	1	nogas	56736	0.01
Tl	205	1	nogas	58537	0.00
Pb	208	1	nogas	82815	0.00
[Pb]	206	1	nogas	20126	0.02
[Pb]	207	1	nogas	18221	0.02
Na	23	2	He	243467	0.00
Mg	24	2	He	106442	0.00
Al	27	2	He	493	2.67
K	39	2	He	111042	0.00
Ca	43	2	He	330	1.59
Ca	44	2	He	5044	0.05
V	51	2	He	13888	0.02
Cr	52	2	He	18066	0.01
Mn	55	2	He	7785	0.05
Fe	56	2	He	1375318	0.00
Co	59	2	He	26616	0.01
Ni	60	2	He	7458	0.05
Cu	63	2	He	20859	0.01
Zn	66	2	He	3170	0.32
As	75	2	He	2589	0.24
Se	78	2	He	140	4.45
B	11	1	nogas	86411	0.00
Si	28	1	nogas	3483466	0.00

Calibration Standard Report

Ca	43	1	nogas	20458	0.00
Ca	44	1	nogas	435767	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	13690944	0.00
Se	77	1	nogas	6268	0.12
Se	82	1	nogas	1327	1.30
Mo	95	1	nogas	24868	0.01
Sn	118	1	nogas	32945	0.00
Ba	137	1	nogas	16074	0.03
Sb	121	2	He	10000	0.04
P	31	1	nogas	65841	0.00
La	139	1	nogas	47	26.51

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	356133	3.43	359778	98.99	70	125	
Ge	72	1	nogas	1382301	0.48	1412575	97.86	70	125	
In	115	1	nogas	994501	2.76	1018869	97.61	70	125	
Bi	209	1	nogas	568920	3.07	569248	99.94	70	125	
Ge	72	2	He	136692	2.33	135587	100.82	70	125	

Calibration Standard Report

Sample Table

Sample Name	200/1000/20K
Data File Name	010CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T08:58:07-05:00
Sample Type	CalStd
Level	6
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	484863	0.00
Na	23	1	nogas	214405663	0.00
Mg	24	1	nogas	141884857	0.00
Al	27	1	nogas	1760255	0.00
K	39	1	nogas	205151838	0.00
Ti	47	1	nogas	184600	0.00
V	51	1	nogas	2578493	0.00
Cr	52	1	nogas	2139912	0.00
Mn	55	1	nogas	2637479	0.00
Co	59	1	nogas	2190370	0.00
Ni	60	1	nogas	476749	0.00
Cu	63	1	nogas	1137300	0.00
Zn	66	1	nogas	328977	0.00
As	75	1	nogas	427272	0.00
Sr	88	1	nogas	2557310	0.00
Ag	107	1	nogas	1091439	0.00
Cd	111	1	nogas	212051	0.00
Sb	121	1	nogas	954179	0.00
Tl	205	1	nogas	1128414	0.00
Pb	208	1	nogas	1531985	0.00
[Pb]	206	1	nogas	374972	0.00
[Pb]	207	1	nogas	336588	0.00
Na	23	2	He	4274246	0.00
Mg	24	2	He	2043480	0.00
Al	27	2	He	5884	0.06
K	39	2	He	1767010	0.00
Ca	43	2	He	5147	0.10
Ca	44	2	He	85642	0.00
V	51	2	He	254139	0.00
Cr	52	2	He	312143	0.00
Mn	55	2	He	134083	0.00
Fe	56	2	He	23812974	0.00
Co	59	2	He	474998	0.00
Ni	60	2	He	131683	0.00
Cu	63	2	He	354376	0.00
Zn	66	2	He	55230	0.00
As	75	2	He	46690	0.00
Se	78	2	He	2053	0.09
B	11	1	nogas	1405992	0.00
Si	28	1	nogas	3465467	0.00

Calibration Standard Report

Ca	43	1	nogas	366770	0.00
Ca	44	1	nogas	6032363	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	231720430	0.00
Se	77	1	nogas	21430	0.01
Se	82	1	nogas	19074	0.01
Mo	95	1	nogas	467936	0.00
Sn	118	1	nogas	623636	0.00
Ba	137	1	nogas	307686	0.00
Sb	121	2	He	175492	0.00
P	31	1	nogas	730602	0.00
La	139	1	nogas	310	10.25

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	312469	0.44	359778	86.85	70	125	
Ge	72	1	nogas	1367073	3.70	1412575	96.78	70	125	
In	115	1	nogas	993334	0.83	1018869	97.49	70	125	
Bi	209	1	nogas	572928	1.69	569248	100.65	70	125	
Ge	72	2	He	131321	2.53	135587	96.85	70	125	

Calibration Standard Report

Sample Table

Sample Name	100/500/10K
Data File Name	011CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T09:00:07-05:00
Sample Type	CalStd
Level	5
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	261194	0.00
Na	23	1	nogas	111798053	0.00
Mg	24	1	nogas	74132108	0.00
Al	27	1	nogas	990624	0.00
K	39	1	nogas	108427490	0.00
Ti	47	1	nogas	95535	0.00
V	51	1	nogas	1384415	0.00
Cr	52	1	nogas	1104252	0.00
Mn	55	1	nogas	1416780	0.00
Co	59	1	nogas	1148430	0.00
Ni	60	1	nogas	253768	0.00
Cu	63	1	nogas	598075	0.00
Zn	66	1	nogas	175991	0.00
As	75	1	nogas	225410	0.00
Sr	88	1	nogas	1406517	0.00
Ag	107	1	nogas	567917	0.00
Cd	111	1	nogas	113047	0.00
Sb	121	1	nogas	510411	0.00
Tl	205	1	nogas	617299	0.00
Pb	208	1	nogas	842195	0.00
[Pb]	206	1	nogas	213406	0.00
[Pb]	207	1	nogas	185867	0.00
Na	23	2	He	2204385	0.00
Mg	24	2	He	975902	0.00
Al	27	2	He	3514	0.20
K	39	2	He	866979	0.00
Ca	43	2	He	2784	0.28
Ca	44	2	He	44978	0.00
V	51	2	He	133090	0.00
Cr	52	2	He	165882	0.00
Mn	55	2	He	72184	0.00
Fe	56	2	He	12343313	0.00
Co	59	2	He	253636	0.00
Ni	60	2	He	71048	0.00
Cu	63	2	He	190581	0.00
Zn	66	2	He	29461	0.00
As	75	2	He	24848	0.01
Se	78	2	He	1124	0.19
B	11	1	nogas	743827	0.00
Si	28	1	nogas	4466928	0.00

Calibration Standard Report

Ca	43	1	nogas	188646	0.00
Ca	44	1	nogas	3157774	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	119421790	0.00
Se	77	1	nogas	12971	0.01
Se	82	1	nogas	9946	0.04
Mo	95	1	nogas	246996	0.00
Sn	118	1	nogas	315228	0.00
Ba	137	1	nogas	163681	0.00
Sb	121	2	He	90457	0.00
P	31	1	nogas	390905	0.00
La	139	1	nogas	297	8.22

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	346041	3.44	359778	96.18	70	125	
Ge	72	1	nogas	1462702	3.82	1412575	103.55	70	125	
In	115	1	nogas	1022377	1.06	1018869	100.34	70	125	
Bi	209	1	nogas	592043	4.23	569248	104.00	70	125	
Ge	72	2	He	135688	2.17	135587	100.07	70	125	

Initial Calibration Verification (ICV) Report

Sample Table

Sample Name	ICV
Data File Name	013_ICV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T09:04:10-05:00
Sample Type	ICV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High	QC Flag
Be	9	1	nogas	101.995	2.694	266507	1.25	100	102.0	90	110	
Na	23	1	nogas	9804.260	5.377	112382536	1.73	10000	98.0	90	110	
Mg	24	1	nogas	9937.932	5.269	75347656	1.89	10000	99.4	90	110	
Al	27	1	nogas	102.611	3.941	983163	0.63	100	102.6	90	110	
K	39	1	nogas	9710.439	2.974	108102823	2.93	10000	97.1	90	110	
Ti	47	1	nogas	98.752	3.482	97157	1.11	100	98.8	90	110	
V	51	1	nogas	100.569	1.331	1411758	3.39	100	100.6	90	110	
Cr	52	1	nogas	99.296	4.548	1138156	5.47	100	99.3	90	110	
Mn	55	1	nogas	99.852	5.670	1414511	2.71	100	99.9	90	110	
Co	59	1	nogas	97.863	4.178	1144335	0.97	100	97.9	90	110	
Ni	60	1	nogas	102.354	4.601	261510	0.41	100	102.4	90	110	
Cu	63	1	nogas	100.350	5.355	612558	1.01	100	100.3	90	110	
Zn	66	1	nogas	100.891	1.415	178259	3.05	100	100.9	90	110	
As	75	1	nogas	98.741	3.609	232533	2.88	100	98.7	90	110	
Sr	88	1	nogas	102.590	3.392	1413718	1.24	100	102.6	90	110	
Ag	107	1	nogas	99.366	4.427	577984	0.94	100	99.4	90	110	
Cd	111	1	nogas	103.395	1.007	117632	0.38	100	103.4	90	110	
Sb	121	1	nogas	99.488	4.884	511147	1.27	100	99.5	90	110	
Tl	205	1	nogas	104.345	2.425	630515	1.62	100	104.3	90	110	
Pb	208	1	nogas	100.213	0.477	843709	0.48	100	100.2	90	110	
U	238	1	nogas	109.212	5.036	823455	4.14	100	109.2	90	110	
[Pb]	206	1	nogas	104.354	1.361	211342	0.22	100	104.4	90	110	
[Pb]	207	1	nogas	101.993	3.066	184219	1.54	100	102.0	90	110	
Na	23	2	He	9834.980	2.373	2196639	0.86	10000	98.3	90	110	
Mg	24	2	He	9402.620	1.317	986688	0.61	10000	94.0	90	110	
Al	27	2	He	107.449	5.473	3454	6.19	100	107.4	90	110	
K	39	2	He	9793.791	1.812	869626	1.77	10000	97.9	90	110	
Ca	43	2	He	9029.602	5.167	2450	6.10	10000	90.3	90	110	
Ca	44	2	He	9873.419	2.349	44373	2.28	10000	98.7	90	110	
V	51	2	He	100.349	1.424	133493	1.80	100	100.3	90	110	
Cr	52	2	He	99.685	0.400	163680	1.75	100	99.7	90	110	
Mn	55	2	He	103.396	0.222	72960	1.52	100	103.4	90	110	
Fe	56	2	He	9995.802	1.148	12421532	0.67	10000	100.0	90	110	
Co	59	2	He	102.586	1.379	255823	2.02	100	102.6	90	110	
Ni	60	2	He	103.260	1.833	71720	0.44	100	103.3	90	110	
Cu	63	2	He	102.600	1.230	191978	0.98	100	102.6	90	110	
Zn	66	2	He	101.160	1.491	29391	1.42	100	101.2	90	110	
As	75	2	He	101.142	2.199	24766	0.80	100	101.1	90	110	
Se	78	2	He	99.372	7.952	1086	7.35	100	99.4	90	110	
B	11	1	nogas	489.326	4.299	727974	2.96	500	97.9	90	110	
Si	28	1	nogas	20015.842	22.360	4505130	1.36	5000	400.3	90	110	ICV Main CR1 Failed
Ca	43	1	nogas	9698.936	3.216	189385	2.43	10000	97.0	90	110	
Ca	44	1	nogas	9850.934	2.299	3224955	4.08	10000	98.5	90	110	
Fe	56	1	nogas	9645.431	4.965	119466761	2.50	10000	96.5	90	110	
Se	77	1	nogas	86.791	9.499	12952	5.01	100	86.8	90	110	ICV Main CR1 Failed
Se	82	1	nogas	100.834	6.604	10343	2.08	100	100.8	90	110	
Mo	95	1	nogas	99.509	2.763	249044	2.93	100	99.5	90	110	
Sn	118	1	nogas	98.945	1.133	327718	0.17	100	98.9	90	110	
Ba	137	1	nogas	100.699	0.931	166195	0.47	100	100.7	90	110	
Sb	121	2	He	98.819	2.962	90805	1.67	100	98.8	90	110	
Li	7	1	nogas	101.770	0.372	649738	1.43	100	101.8	90	110	
P	31	1	nogas	489.857	4.323	395432	0.90	500	98.0	90	110	
La	139	1	nogas	201.620	98.872	373	80.62	100	201.6	90	110	ICV Main CR1 Failed
Au	197	1	nogas	386.895	20.521	87	17.63	100	386.9	90	110	ICV Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	346057	1.78	359778	96.19	70	125	
Ge	72	1	nogas	1465646	4.42	1412575	103.76	70	125	
In	115	1	nogas	1058282	1.18	1018869	103.87	70	125	
Bi	209	1	nogas	606126	1.54	569248	106.48	70	125	

Initial Calibration Verification (ICV) Report

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	2	He	136884	1.52	135587	100.96	70	125	

Sample Report

Sample Table

Sample Name	LLICV2
Data File Name	014SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T09:06:08-05:00
Sample Type	Sample
Dilution	1
Comment	
ISTD Ref FileName	004CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	1.931	1.931	7.93	5471	0.04	2000	
Na	23	1	nogas	212.943	212.943	5.19	2692164	0.01	200000	
Mg	24	1	nogas	212.939	212.939	4.87	1586346	0.01	200000	
Al	27	1	nogas	2.171	2.171	4.83	31593	0.01	2000	
K	39	1	nogas	196.314	196.314	10.56	5769520	0.00	200000	
Ti	47	1	nogas	1.942	1.942	10.83	2053	0.09	2000	
V	51	1	nogas	0.629	0.629	18.65	57869	0.00	2000	
Cr	52	1	nogas	1.918	1.918	6.07	37993	0.01	2000	
Mn	55	1	nogas	1.861	1.861	4.67	32452	0.01	2000	
Co	59	1	nogas	2.034	2.034	3.37	23776	0.01	2000	
Ni	60	1	nogas	1.868	1.868	6.15	5764	0.03	2000	
Cu	63	1	nogas	1.912	1.912	8.15	19814	0.01	2000	
Zn	66	1	nogas	2.057	2.057	6.42	4287	0.05	2000	
As	75	1	nogas	0.750	0.750	48.40	18309	0.00	2000	
Sr	88	1	nogas	2.032	2.032	4.91	27679	0.01	2000	
Ag	107	1	nogas	2.102	2.102	2.51	12041	0.02	2000	
Cd	111	1	nogas	2.061	2.061	7.86	2317	0.09	2000	
Sb	121	1	nogas	1.470	1.470	0.98	13582	0.01	2000	
Tl	205	1	nogas	2.500	2.500	9.76	15364	0.02	2000	
Pb	208	1	nogas	2.083	2.083	4.21	18021	0.01	2000	
U	238	1	nogas	2.154	2.154	2.48	16532	0.01	2000	
[Pb]	206	1	nogas	1.963	1.963	5.46	4164	0.05	2000	
[Pb]	207	1	nogas	2.118	2.118	10.76	3977	0.05	2000	
Na	23	2	He	205.374	205.374	0.22	58383	0.35	200000	
Mg	24	2	He	197.954	197.954	1.53	20762	0.95	200000	
Al	27	2	He	0.504	0.504	405.58	167	0.30	2000	
K	39	2	He	203.269	203.269	0.64	35684	0.57	200000	
Ca	43	2	He	124.701	124.701	18.74	43	287.77	200000	
Ca	44	2	He	216.943	216.943	3.17	1287	16.86	200000	
V	51	2	He	1.732	1.732	2.24	2694	0.06	2000	
Cr	52	2	He	1.951	1.951	3.42	4371	0.04	2000	
Mn	55	2	He	2.245	2.245	8.81	1700	0.13	2000	
Fe	56	2	He	207.429	207.429	2.11	260988	0.08	200000	
Co	59	2	He	2.136	2.136	3.15	5308	0.04	2000	
Ni	60	2	He	1.452	1.452	6.41	1547	0.09	2000	
Cu	63	2	He	1.550	1.550	3.06	5097	0.03	2000	
Zn	66	2	He	1.752	1.752	9.13	697	0.25	2000	
As	75	2	He	2.081	2.081	3.30	521	0.40	2000	
Se	78	2	He	0.972	0.972	58.97	35	2.80	2000	
B	11	1	nogas	43.290	43.290	8.38	86641	0.05	2000	
Si	28	1	nogas	-4013.728	-4013.728	-52.05	3337505	-0.12	2000	
Ca	43	1	nogas	210.112	210.112	7.93	4411	4.76	200000	

Sample Report

Ca	44	1	nogas	176.895	176.895	4.58	179565	0.10	200000	
Fe	56	1	nogas	202.938	202.938	4.12	3827734	0.01	200000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Se	77	1	nogas	-11.688	-11.688	-41.15	4594	-0.25	2000	
Se	82	1	nogas	2.460	2.460	25.77	477	0.52	2000	
Mo	95	1	nogas	2.328	2.328	11.10	5831	0.04	2000	
Sn	118	1	nogas	2.324	2.324	11.59	7879	0.03	2000	
Ba	137	1	nogas	2.124	2.124	8.20	3550	0.06	2000	
Sb	121	2	He	1.465	1.465	6.75	2464	0.06	2000	
La	139	1	nogas	6.406	6.406	374.10	73	8.74	2000	
Au	197	1	nogas	28.209	28.209	174.34	20	141.04	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	373127	2.76	359778	103.71	70	125	
Ge	72	1	nogas	1433387	2.53	1412575	101.47	70	125	
In	115	1	nogas	1030198	0.85	1018869	101.11	70	125	
Bi	209	1	nogas	611325	4.75	569248	107.39	70	125	
Ge	72	2	He	135366	1.19	135587	99.84	70	125	

Low Level Initial Calibration Verification (LLICV) Report

Sample Table

Sample Name	LLICV5
Data File Name	015LICV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T09:08:09-05:00
Sample Type	LLICV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High	QC Flag
Be	9	1	nogas	4.750	5.229	13201	2.34	5	95.0	70	130	
Na	23	1	nogas	509.739	2.389	6021606	1.81	500	101.9	70	130	
Mg	24	1	nogas	519.036	2.679	3863716	2.34	500	103.8	70	130	
Al	27	1	nogas	5.203	1.051	58357	2.13	5	104.1	70	130	
K	39	1	nogas	509.567	0.776	8858203	1.21	500	101.9	70	130	
Ti	47	1	nogas	5.458	7.556	5314	8.43	5	109.2	70	130	
V	51	1	nogas	3.418	7.701	92682	5.20	5	68.4	70	130	LLICV Main CR1 Failed
Cr	52	1	nogas	5.042	1.222	70869	2.47	5	100.8	70	130	
Mn	55	1	nogas	5.162	1.595	76281	2.86	5	103.2	70	130	
Co	59	1	nogas	5.174	0.986	58353	2.48	5	103.5	70	130	
Ni	60	1	nogas	4.980	3.846	13212	3.96	5	99.6	70	130	
Cu	63	1	nogas	4.865	4.276	36390	4.80	5	97.3	70	130	
Zn	66	1	nogas	5.094	3.977	9299	4.56	5	101.9	70	130	
As	75	1	nogas	4.035	3.404	24757	0.99	5	80.7	70	130	
Sr	88	1	nogas	5.050	0.734	66842	2.27	5	101.0	70	130	
Ag	107	1	nogas	5.283	3.480	29482	4.91	5	105.7	70	130	
Cd	111	1	nogas	5.079	2.424	5681	2.13	5	101.6	70	130	
Sb	121	1	nogas	4.525	0.379	28106	1.63	5	90.5	70	130	
Tl	205	1	nogas	4.938	2.796	30185	1.50	5	98.8	70	130	
Pb	208	1	nogas	5.049	1.138	42976	1.12	5	101.0	70	130	
U	238	1	nogas	5.230	3.356	39904	1.45	5	104.6	70	130	
[Pb]	206	1	nogas	5.162	5.042	10690	4.77	5	103.2	70	130	
[Pb]	207	1	nogas	5.214	2.376	9623	3.79	5	104.3	70	130	
Na	23	2	He	503.772	1.028	123465	1.14	500	100.8	70	130	
Mg	24	2	He	499.018	0.958	51817	1.03	500	99.8	70	130	
Al	27	2	He	2.515	159.670	227	53.00	5	50.3	70	130	LLICV Main CR1 Failed
K	39	2	He	504.665	2.752	61892	1.95	500	100.9	70	130	
Ca	43	2	He	488.130	20.232	140	18.90	500	97.6	70	130	
Ca	44	2	He	523.391	8.768	2630	8.39	500	104.7	70	130	
V	51	2	He	4.885	4.305	6804	4.12	5	97.7	70	130	
Cr	52	2	He	5.158	3.601	9503	2.59	5	103.2	70	130	
Mn	55	2	He	5.196	6.323	3740	5.21	5	103.9	70	130	
Fe	56	2	He	506.918	3.191	626539	2.22	500	101.4	70	130	
Co	59	2	He	5.319	0.880	13112	1.64	5	106.4	70	130	
Ni	60	2	He	4.759	3.961	3787	2.45	5	95.2	70	130	
Cu	63	2	He	4.687	4.914	10793	3.01	5	93.7	70	130	
Zn	66	2	He	4.587	13.306	1500	10.97	5	91.7	70	130	
As	75	2	He	5.311	8.525	1298	7.52	5	106.2	70	130	
Se	78	2	He	5.605	18.959	83	14.06	5	112.1	70	130	
B	11	1	nogas	42.130	5.233	83498	1.09	25	168.5	70	130	LLICV Main CR1 Failed
Si	28	1	nogas	-1734.109	-139.652	3361049	1.70	25	-6936.4	70	130	LLICV Main CR1 Failed
Ca	43	1	nogas	519.654	3.929	10086	5.21	500	103.9	70	130	
Ca	44	1	nogas	494.191	4.578	270813	2.39	500	98.8	70	130	
Fe	56	1	nogas	526.905	1.039	7535961	2.41	500	105.4	70	130	
Se	77	1	nogas	-8.350	-47.066	4764	7.39	5	-167.0	70	130	LLICV Main CR1 Failed
Se	82	1	nogas	4.986	32.161	710	22.67	5	99.7	70	130	
Mo	95	1	nogas	5.262	2.836	12721	2.96	5	105.2	70	130	
Sn	118	1	nogas	5.107	0.710	16912	1.30	5	102.1	70	130	
Ba	137	1	nogas	5.123	4.126	8402	4.56	5	102.5	70	130	
Sb	121	2	He	4.284	14.624	4974	10.79	5	85.7	70	130	
Li	7	1	nogas	4.812	3.245	62368	1.40	5	96.2	70	130	
P	31	1	nogas	25.942	7.711	45909	1.57	25	103.8	70	130	
La	139	1	nogas	6.025	226.478	73	28.39	5	120.5	70	130	
Au	197	1	nogas	172.986	51.934	47	32.73	5	3459.7	70	130	LLICV Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	367308	3.01	359778	102.09	70	125	
Ge	72	1	nogas	1400596	1.57	1412575	99.15	70	125	
In	115	1	nogas	1034503	0.60	1018869	101.53	70	125	
Bi	209	1	nogas	611142	3.77	569248	107.36	70	125	

Low Level Initial Calibration Verification (LLICV) Report

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	2	He	134888	0.96	135587	99.48	70	125	

Initial Calibration Blank (ICB) Report

Sample Table

Sample Name	ICB
Data File Name	016_ICB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T09:10:10-05:00
Sample Type	ICB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.003	179.2	47	32.7	1	
Na	23	1	nogas	0.070	1761.0	298850	2.6	100	
Mg	24	1	nogas	1.059	28.7	11038	18.6	100	
Al	27	1	nogas	0.354	11.3	14462	2.7	5	
K	39	1	nogas	-2.377	-303.8	3607371	1.0	100	
Ti	47	1	nogas	0.114	36.1	293	13.8	2.5	
V	51	1	nogas	-1.430	-7.6	29996	3.8	2.5	
Cr	52	1	nogas	-0.167	-40.7	14686	5.9	2.5	
Mn	55	1	nogas	-0.082	-8.1	5534	2.6	2.5	
Co	59	1	nogas	0.011	54.9	617	11.7	2.5	
Ni	60	1	nogas	-0.312	-7.9	330	18.9	2.5	
Cu	63	1	nogas	-0.489	-20.3	5554	10.0	2.5	
Zn	66	1	nogas	0.011	343.5	750	7.4	2.5	
As	75	1	nogas	-1.261	-44.3	13732	7.7	2.5	
Sr	88	1	nogas	0.023	47.2	590	23.5	2.5	
Ag	107	1	nogas	0.008	14.9	117	4.9	2.5	
Cd	111	1	nogas	0.018	123.2	53	47.2	1	
Sb	121	1	nogas	-0.656	-7.4	2960	8.7	2.5	
Tl	205	1	nogas	0.066	51.4	520	41.6	1	
Pb	208	1	nogas	0.015	45.1	627	9.4	2.5	
U	238	1	nogas	0.000	16250.7	163	28.9	2.5	
[Pb]	206	1	nogas	0.005	295.6	170	21.2	2.5	
[Pb]	207	1	nogas	0.007	229.6	143	17.6	2.5	
Na	23	2	He	-1.528	-178.6	12855	3.4	100	
Mg	24	2	He	0.394	135.2	263	24.4	100	
Al	27	2	He	-1.313	-127.6	110	41.7	5	
K	39	2	He	-5.833	-63.0	17502	1.8	100	
Ca	43	2	He	12.167	162.4	13	43.3	100	
Ca	44	2	He	-8.754	-109.8	290	17.9	100	
V	51	2	He	-0.259	-4.0	81	18.8	2.5	
Cr	52	2	He	-0.146	-18.8	983	6.1	2.5	
Mn	55	2	He	-0.059	-113.0	93	44.6	2.5	
Fe	56	2	He	0.413	35.5	6648	4.9	100	
Co	59	2	He	0.009	86.7	63	24.1	2.5	
Ni	60	2	He	-0.679	-5.3	93	22.3	2.5	
Cu	63	2	He	-0.771	-4.9	847	6.7	2.5	
Zn	66	2	He	-0.138	-84.7	157	22.4	2.5	
As	75	2	He	-0.009	-222.5	16	32.7	2.5	
Se	78	2	He	-0.601	-72.5	18	29.4	2.5	
B	11	1	nogas	16.483	4.5	44492	2.7	10	ICB Main CR1 Failed
Si	28	1	nogas	-2061.743	-25.8	3355252	0.4	5	
Ca	43	1	nogas	8.211	71.7	553	19.3	100	
Ca	44	1	nogas	-25.827	-23.8	114816	0.5	100	
Fe	56	1	nogas	-2.319	-102.1	1341347	2.0	100	
Se	77	1	nogas	-14.977	-26.6	4241	7.3	2.5	
Se	82	1	nogas	-0.151	-166.4	217	10.7	2.5	

Initial Calibration Blank (ICB) Report

Mo	95	1	nogas	0.010	342.3	160	49.6	2.5	
Sn	118	1	nogas	0.083	50.0	650	19.2	5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Ba	137	1	nogas	0.034	18.1	193	6.0	2.5	
Sb	121	2	He	-0.723	-13.5	497	18.3	2.5	
P	31	1	nogas	-1.621	-30.2	26235	1.8	10	
La	139	1	nogas	-6.465	-306.7	53	54.1	2.5	
Au	197	1	nogas	223.564	115.9	57	88.8	2.5	ICB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	371187	1.03	359778	103.17	70	125	
Ge	72	1	nogas	1403783	1.13	1412575	99.38	70	125	
In	115	1	nogas	1015108	1.09	1018869	99.63	70	125	
Bi	209	1	nogas	601055	3.46	569248	105.59	70	125	
Ge	72	2	He	134457	4.14	135587	99.17	70	125	

Interference Check Solution A (ICS-A) Report

Sample Table

Sample Name	ICSA
Data File Name	017ICSA.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T09:12:10-05:00
Sample Type	ICSA
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.002	364.0	40	43.3	0	ICSA Main CR1 Failed
Na	23	1	nogas	98915.981	1.0	1033660323	1.7	0	
Mg	24	1	nogas	97302.674	2.2	674134915	2.3	0	
Al	27	1	nogas	90114.143	2.3	793361242	1.9	0	
K	39	1	nogas	96034.458	1.4	962425788	1.0	0	
Ti	47	1	nogas	2006.010	1.8	1831756	2.0	0	
V	51	1	nogas	-1.140	-10.1	32736	3.7	0	ICSA Main CR1 Failed
Cr	52	1	nogas	1.188	4.4	28442	1.2	0	ICSA Main CR1 Failed
Mn	55	1	nogas	0.262	7.0	9873	1.7	0	ICSA Main CR1 Failed
Co	59	1	nogas	0.168	7.1	2300	4.7	0	ICSA Main CR1 Failed
Ni	60	1	nogas	0.609	13.5	2500	8.3	0	ICSA Main CR1 Failed
Cu	63	1	nogas	0.866	13.6	12978	6.0	0	ICSA Main CR1 Failed
Zn	66	1	nogas	1.177	13.5	2634	9.0	0	ICSA Main CR1 Failed
As	75	1	nogas	3.138	3.9	22250	2.0	0	ICSA Main CR1 Failed
Sr	88	1	nogas	0.912	1.3	11961	2.2	0	ICSA Main CR1 Failed
Ag	107	1	nogas	0.065	12.1	420	10.4	0	ICSA Main CR1 Failed
Cd	111	1	nogas	0.667	19.7	707	20.2	0	ICSA Main CR1 Failed
Sb	121	1	nogas	-0.470	-3.1	3747	1.0	0	ICSA Main CR1 Failed
Tl	205	1	nogas	0.013	126.9	177	48.1	0	ICSA Main CR1 Failed
Pb	208	1	nogas	0.137	7.4	1650	5.2	0	ICSA Main CR1 Failed
[Pb]	206	1	nogas	0.179	26.2	470	21.0	0	ICSA Main CR1 Failed
[Pb]	207	1	nogas	0.126	15.4	323	11.7	0	ICSA Main CR1 Failed
Na	23	2	He	96865.039	2.3	20058510	2.8	0	
Mg	24	2	He	93871.335	1.4	9180236	1.9	0	
Al	27	2	He	100144.090	2.0	2866084	2.5	0	
K	39	2	He	92647.104	0.9	8074116	0.9	0	
Ca	43	2	He	88472.357	3.6	22284	3.5	0	
Ca	44	2	He	92587.664	0.6	385236	1.0	0	
V	51	2	He	-0.244	-5.4	96	17.8	0	ICSA Main CR1 Failed
Cr	52	2	He	0.153	67.0	1387	11.5	0	ICSA Main CR1 Failed
Mn	55	2	He	0.637	22.9	547	17.0	0	ICSA Main CR1 Failed
Fe	56	2	He	98017.949	0.7	113481085	1.1	0	
Co	59	2	He	0.023	113.9	93	64.6	0	ICSA Main CR1 Failed
Ni	60	2	He	-0.450	-10.5	237	12.9	0	ICSA Main CR1 Failed
Cu	63	2	He	-0.348	-24.7	1533	9.8	0	ICSA Main CR1 Failed
Zn	66	2	He	0.127	33.9	220	4.5	0	ICSA Main CR1 Failed
As	75	2	He	0.044	56.7	27	21.7	0	ICSA Main CR1 Failed
Se	78	2	He	-0.429	-213.3	19	48.3	0	ICSA Main CR1 Failed
B	11	1	nogas	17.131	9.7	42040	3.0	0	ICSA Main CR1 Failed
Si	28	1	nogas	1625.527	86.0	3410615	1.7	0	
Ca	43	1	nogas	96508.952	1.0	1748560	1.6	0	
Ca	44	1	nogas	95221.425	2.5	27934485	2.4	0	
Fe	56	1	nogas	93925.768	3.2	1070380391	2.9	0	
Se	77	1	nogas	19.661	10.0	6811	1.9	0	
Se	82	1	nogas	0.704	29.8	290	6.9	0	ICSA Main CR1 Failed
Mo	95	1	nogas	2004.943	0.7	4661668	0.9	0	
Sn	118	1	nogas	0.164	9.5	843	8.4	0	ICSA Main CR1 Failed
Ba	137	1	nogas	0.089	35.1	260	20.4	0	ICSA Main CR1 Failed
Sb	121	2	He	-0.484	-12.4	673	7.3	0	ICSA Main CR1 Failed

Interference Check Solution A (ICS-A) Report

P	31	1	nogas	94771.257	1.3	66030574	0.4	0	
La	139	1	nogas	129.152	40.6	233	27.9	0	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	343300	2.90	359778	95.42	70	125	
Ge	72	1	nogas	1361514	0.94	1412575	96.39	70	125	
In	115	1	nogas	941079	2.96	1018869	92.37	70	125	
Bi	209	1	nogas	543631	4.85	569248	95.50	70	125	
Ge	72	2	He	127574	0.74	135587	94.09	70	125	

Interference Check Solution AB (ICS-AB) Report

Sample Table

Sample Name	ICSAB
Data File Name	018ICSB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T09:14:15-05:00
Sample Type	ICSB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High	QC Flag
Be	9	1	nogas	98.660	0.273	238011	1.42	100	98.7	80	120	
Na	23	1	nogas	111999.912	0.840	1136735725	3.20	100	111999.9	80	120	ICSB Main CR1 Failed
Mg	24	1	nogas	112749.377	0.954	758556650	1.55	100	112749.4	80	120	ICSB Main CR1 Failed
Al	27	1	nogas	95462.805	4.906	816534894	2.73	100	95462.8	80	120	ICSB Main CR1 Failed
K	39	1	nogas	112077.371	1.018	1091396391	2.23	100	112077.4	80	120	ICSB Main CR1 Failed
Ti	47	1	nogas	2152.052	1.050	1910325	2.13	100	2152.1	80	120	ICSB Main CR1 Failed
V	51	1	nogas	100.899	0.965	1279393	2.34	100	100.9	80	120	
Cr	52	1	nogas	93.953	1.678	973707	2.58	100	94.0	80	120	
Mn	55	1	nogas	94.926	4.617	1217002	6.12	100	94.9	80	120	
Co	59	1	nogas	92.957	1.630	982843	2.77	100	93.0	80	120	
Ni	60	1	nogas	95.805	2.231	221451	3.74	100	95.8	80	120	
Cu	63	1	nogas	95.715	1.091	528806	2.21	100	95.7	80	120	
Zn	66	1	nogas	99.011	2.236	158037	2.24	100	99.0	80	120	
As	75	1	nogas	101.179	1.322	215009	3.53	100	101.2	80	120	
Sr	88	1	nogas	98.058	3.265	1221446	3.58	100	98.1	80	120	
Ag	107	1	nogas	92.091	2.141	484296	2.09	100	92.1	80	120	
Cd	111	1	nogas	99.209	2.432	102187	3.92	100	99.2	80	120	
Sb	121	1	nogas	97.662	2.366	453730	1.06	100	97.7	80	120	
Tl	205	1	nogas	93.800	0.873	530693	1.65	100	93.8	80	120	
Pb	208	1	nogas	88.698	0.721	746821	0.72	100	88.7	80	120	
U	238	1	nogas	105.722	4.600	746324	4.10	100	105.7	80	120	
[Pb]	206	1	nogas	95.402	0.892	180909	1.81	100	95.4	80	120	
[Pb]	207	1	nogas	97.403	0.675	164747	1.59	100	97.4	80	120	
Na	23	2	He	109748.792	0.880	22242761	1.48	100	109748.8	80	120	ICSB Main CR1 Failed
Mg	24	2	He	107617.568	1.436	10300979	1.37	100	107617.6	80	120	ICSB Main CR1 Failed
Al	27	2	He	104295.287	1.722	2921650	2.21	100	104295.3	80	120	ICSB Main CR1 Failed
K	39	2	He	103348.185	1.744	9004625	1.74	100	103348.2	80	120	
Ca	43	2	He	98877.897	4.169	24380	4.64	100	98877.9	80	120	
Ca	44	2	He	104764.539	1.564	426650	2.12	100	104764.5	80	120	ICSB Main CR1 Failed
V	51	2	He	96.123	0.727	116669	0.69	100	96.1	80	120	
Cr	52	2	He	94.300	1.848	141304	1.70	100	94.3	80	120	
Mn	55	2	He	96.312	1.786	62004	1.61	100	96.3	80	120	
Fe	56	2	He	110871.516	1.728	125633355	1.14	100	110871.5	80	120	ICSB Main CR1 Failed
Co	59	2	He	96.023	0.959	218441	0.87	100	96.0	80	120	
Ni	60	2	He	95.504	1.073	60560	0.93	100	95.5	80	120	
Cu	63	2	He	96.161	1.494	164294	2.07	100	96.2	80	120	
Zn	66	2	He	98.854	4.047	26202	3.43	100	98.9	80	120	
As	75	2	He	95.972	0.847	21443	0.95	100	96.0	80	120	
Se	78	2	He	92.073	4.898	920	5.36	100	92.1	80	120	
B	11	1	nogas	496.070	1.377	681259	2.35	100	496.1	80	120	
Si	28	1	nogas	3897.800	52.115	3408251	0.80	100	3897.8	80	120	ICSB Main CR1 Failed
Ca	43	1	nogas	112138.378	0.653	1975614	3.72	100	112138.4	80	120	ICSB Main CR1 Failed
Ca	44	1	nogas	109965.412	1.508	31342754	2.22	100	109965.4	80	120	ICSB Main CR1 Failed
Fe	56	1	nogas	109666.590	3.517	1215330794	5.39	100	109666.6	80	120	ICSB Main CR1 Failed
Se	77	1	nogas	131.973	3.814	15130	3.99	100	132.0	80	120	
Se	82	1	nogas	102.208	4.472	9479	3.52	100	102.2	80	120	
Mo	95	1	nogas	2229.711	3.590	5037420	1.53	100	2229.7	80	120	ICSB Main CR1 Failed
Sn	118	1	nogas	97.551	1.825	292481	2.80	100	97.6	80	120	
Ba	137	1	nogas	99.392	2.868	148511	4.14	100	99.4	80	120	
Sb	121	2	He	93.959	0.899	78834	0.47	100	94.0	80	120	
La	139	1	nogas	142.336	52.065	257	39.03	100	142.3	80	120	ICSB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	319397	1.17	359778	88.78	70	125	
Ge	72	1	nogas	1323841	3.20	1412575	93.72	70	125	
In	115	1	nogas	957831	1.70	1018869	94.01	70	125	
Bi	209	1	nogas	567380	0.93	569248	99.67	70	125	
Ge	72	2	He	124871	0.60	135587	92.10	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	024_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T09:35:39-05:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	99.427	4.925	249225	1.88	100	99.4	90	110	
Na	23	1	nogas	10050.692	1.604	107705936	0.84	10000	100.5	90	110	
Mg	24	1	nogas	10179.428	1.904	72155383	1.45	10000	101.8	90	110	
Al	27	1	nogas	109.794	1.590	1000180	0.50	100	109.8	90	110	
K	39	1	nogas	10009.208	1.464	105864586	0.88	10000	100.1	90	110	
Ti	47	1	nogas	97.899	4.602	91616	3.57	100	97.9	90	110	
V	51	1	nogas	100.226	5.367	1337369	3.97	100	100.2	90	110	
Cr	52	1	nogas	97.239	3.794	1059779	2.26	100	97.2	90	110	
Mn	55	1	nogas	99.236	3.984	1337789	2.69	100	99.2	90	110	
Co	59	1	nogas	98.168	3.198	1092118	1.81	100	98.2	90	110	
Ni	60	1	nogas	102.557	2.557	249359	1.85	100	102.6	90	110	
Cu	63	1	nogas	99.193	1.493	576523	1.88	100	99.2	90	110	
Zn	66	1	nogas	101.161	2.468	169930	1.49	100	101.2	90	110	
As	75	1	nogas	100.989	4.207	225782	2.44	100	101.0	90	110	
Sr	88	1	nogas	102.824	3.253	1347884	2.38	100	102.8	90	110	
Ag	107	1	nogas	100.448	1.115	556120	2.26	100	100.4	90	110	
Cd	111	1	nogas	101.643	1.613	111598	0.35	100	101.6	90	110	
Sb	121	1	nogas	101.230	3.223	494799	1.85	100	101.2	90	110	
Tl	205	1	nogas	101.672	5.081	586731	3.17	100	101.7	90	110	
Pb	208	1	nogas	96.020	1.211	808431	1.21	100	96.0	90	110	
U	238	1	nogas	104.398	6.242	751783	4.33	100	104.4	90	110	
[Pb]	206	1	nogas	103.339	2.450	199935	0.60	100	103.3	90	110	
[Pb]	207	1	nogas	102.816	2.064	177458	1.51	100	102.8	90	110	
Na	23	2	He	10183.879	2.690	2182689	1.19	10000	101.8	90	110	
Mg	24	2	He	9566.178	1.552	963522	0.92	10000	95.7	90	110	
Al	27	2	He	121.840	12.684	3734	10.66	100	121.8	90	110	CCV Main CR1-2 Failed
K	39	2	He	9544.612	1.627	847958	1.59	10000	95.4	90	110	
Ca	43	2	He	10234.905	1.292	2664	1.85	10000	102.3	90	110	
Ca	44	2	He	10119.297	0.810	43648	1.85	10000	101.2	90	110	
V	51	2	He	101.240	1.295	129264	1.62	100	101.2	90	110	
Cr	52	2	He	102.703	1.729	161798	0.73	100	102.7	90	110	
Mn	55	2	He	104.424	1.218	70726	2.04	100	104.4	90	110	
Fe	56	2	He	10327.702	1.169	12318750	1.26	10000	103.3	90	110	
Co	59	2	He	104.281	0.510	249653	2.87	100	104.3	90	110	
Ni	60	2	He	104.961	2.773	69956	0.94	100	105.0	90	110	
Cu	63	2	He	104.669	3.780	187865	1.33	100	104.7	90	110	
Zn	66	2	He	106.772	3.343	29755	0.97	100	106.8	90	110	
As	75	2	He	102.650	2.438	24124	0.46	100	102.6	90	110	
Se	78	2	He	99.058	3.098	1040	5.19	100	99.1	90	110	
B	11	1	nogas	468.924	7.182	669682	3.79	500	93.8	90	110	
Si	28	1	nogas	13117.605	8.561	3988075	0.29	5000	262.4	90	110	CCV Main CR1-2 Failed
Ca	43	1	nogas	9750.252	1.867	181094	1.44	10000	97.5	90	110	
Ca	44	1	nogas	9995.053	4.817	3107937	3.13	10000	100.0	90	110	
Fe	56	1	nogas	9880.125	2.699	116404623	1.18	10000	98.8	90	110	
Se	77	1	nogas	96.505	2.985	13095	2.13	100	96.5	90	110	
Se	82	1	nogas	102.527	5.599	10006	3.97	100	102.5	90	110	
Mo	95	1	nogas	102.221	3.684	243249	2.38	100	102.2	90	110	
Sn	118	1	nogas	99.456	1.676	317996	3.05	100	99.5	90	110	
Ba	137	1	nogas	99.685	1.689	158779	1.16	100	99.7	90	110	
Sb	121	2	He	101.787	1.342	89760	1.30	100	101.8	90	110	
Li	7	1	nogas	101.998	2.491	624797	0.91	100	102.0	90	110	
P	31	1	nogas	496.499	2.946	380952	1.50	500	99.3	90	110	
La	139	1	nogas	142.154	30.072	273	21.44	100	142.2	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	391.058	18.544	83	13.86	100	391.1	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	332222	3.29	359778	92.34	70	125	
Ge	72	1	nogas	1393168	1.51	1412575	98.63	70	125	
In	115	1	nogas	1021389	1.58	1018869	100.25	70	125	
Bi	209	1	nogas	579138	1.94	569248	101.74	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	131401	2.39	135587	96.91	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	025_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T09:37:37-05:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.059	43.0	197	33.9	1	
Na	23	1	nogas	14.091	24.8	461116	5.7	100	
Mg	24	1	nogas	6.301	37.5	49814	32.0	100	
Al	27	1	nogas	0.685	13.9	17400	5.8	5	
K	39	1	nogas	-3.984	-253.6	3574414	0.7	100	
Ti	47	1	nogas	0.119	17.2	297	7.0	2.5	
V	51	1	nogas	-1.164	-15.4	33303	7.1	2.5	
Cr	52	1	nogas	-0.098	-104.4	15343	4.9	2.5	
Mn	55	1	nogas	0.155	26.3	8696	4.1	2.5	
Co	59	1	nogas	0.048	60.7	1017	29.5	2.5	
Ni	60	1	nogas	-0.253	-21.0	473	28.7	2.5	
Cu	63	1	nogas	-0.379	-12.1	6161	2.4	2.5	
Zn	66	1	nogas	-0.125	-5.8	520	3.8	2.5	
As	75	1	nogas	-0.703	-39.1	14833	1.6	2.5	
Sr	88	1	nogas	0.093	32.3	1503	24.3	2.5	
Ag	107	1	nogas	0.088	26.4	560	21.7	2.5	
Cd	111	1	nogas	0.030	74.2	67	37.7	1	
Sb	121	1	nogas	-0.546	-10.0	3477	8.6	2.5	
Tl	205	1	nogas	0.517	75.4	3271	72.9	1	
Pb	208	1	nogas	0.078	37.2	1157	21.3	2.5	
U	238	1	nogas	0.109	59.3	993	49.5	2.5	
[Pb]	206	1	nogas	0.081	79.6	327	40.4	2.5	
[Pb]	207	1	nogas	0.060	13.0	243	6.3	2.5	
Na	23	2	He	10.063	23.5	15226	3.9	100	
Mg	24	2	He	2.302	26.9	453	13.5	100	
Al	27	2	He	-2.869	-38.1	63	50.8	5	
K	39	2	He	-10.551	-37.7	17091	2.0	100	
Ca	43	2	He	-12.308	-178.4	7	86.6	100	
Ca	44	2	He	-0.877	-1762.2	320	20.5	100	
V	51	2	He	-0.257	-4.0	83	15.2	2.5	
Cr	52	2	He	-0.061	-74.1	1107	7.0	2.5	
Mn	55	2	He	0.019	450.9	147	39.4	2.5	
Fe	56	2	He	3.193	11.8	9926	3.7	100	
Co	59	2	He	0.035	60.0	127	39.7	2.5	
Ni	60	2	He	-0.694	-5.2	83	30.2	2.5	
Cu	63	2	He	-0.724	-7.2	923	11.1	2.5	
Zn	66	2	He	-0.560	-15.8	37	68.6	2.5	
As	75	2	He	0.020	200.5	22	43.3	2.5	
Se	78	2	He	-1.471	-7.0	9	13.3	2.5	
B	11	1	nogas	28.693	20.5	61091	10.8	10	CCB Main CR1 Failed
Si	28	1	nogas	-4716.760	-38.1	3224332	0.6	5	
Ca	43	1	nogas	11.616	48.2	613	14.8	100	
Ca	44	1	nogas	-38.901	-44.8	110340	2.6	100	
Fe	56	1	nogas	7.248	55.1	1446786	1.2	100	
Se	77	1	nogas	-7.399	-31.6	4827	3.0	2.5	
Se	82	1	nogas	0.283	383.3	257	39.8	2.5	
Mo	95	1	nogas	0.317	84.0	883	68.9	2.5	
Sn	118	1	nogas	0.213	50.5	1080	33.8	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.062	52.9	240	20.8	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	-0.581	-17.5	617	14.7	2.5	
P	31	1	nogas	-2.329	-28.1	25621	3.8	10	
La	139	1	nogas	-6.974	-146.0	53	28.6	2.5	
Au	197	1	nogas	170.696	46.8	47	32.7	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	358266	4.19	359778	99.58	70	125	
Ge	72	1	nogas	1397749	2.22	1412575	98.95	70	125	
In	115	1	nogas	1025521	1.77	1018869	100.65	70	125	
Bi	209	1	nogas	610632	0.82	569248	107.27	70	125	
Ge	72	2	He	132978	0.99	135587	98.08	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	036_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T09:59:54-05:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	99.982	0.513	247441	0.67	100	100.0	90	110	
Na	23	1	nogas	9945.702	1.063	108333861	2.39	10000	99.5	90	110	
Mg	24	1	nogas	10055.368	1.732	72445585	2.77	10000	100.6	90	110	
Al	27	1	nogas	108.811	2.914	1007728	2.76	100	108.8	90	110	
K	39	1	nogas	9774.477	1.137	105178219	1.19	10000	97.7	90	110	
Ti	47	1	nogas	98.450	5.285	93653	4.48	100	98.5	90	110	
V	51	1	nogas	98.077	2.252	1331794	1.94	100	98.1	90	110	
Cr	52	1	nogas	95.469	3.084	1058068	1.89	100	95.5	90	110	
Mn	55	1	nogas	100.229	2.740	1373722	2.43	100	100.2	90	110	
Co	59	1	nogas	95.001	3.404	1074377	2.40	100	95.0	90	110	
Ni	60	1	nogas	99.127	2.451	245016	0.86	100	99.1	90	110	
Cu	63	1	nogas	99.464	2.095	587506	0.63	100	99.5	90	110	
Zn	66	1	nogas	102.396	2.470	174853	2.36	100	102.4	90	110	
As	75	1	nogas	99.240	2.757	225860	1.76	100	99.2	90	110	
Sr	88	1	nogas	97.926	2.824	1304776	0.99	100	97.9	90	110	
Ag	107	1	nogas	97.398	2.539	547978	1.42	100	97.4	90	110	
Cd	111	1	nogas	103.985	1.803	111488	2.37	100	104.0	90	110	
Sb	121	1	nogas	99.660	2.315	495350	1.99	100	99.7	90	110	
Tl	205	1	nogas	99.595	5.937	574825	2.54	100	99.6	90	110	
Pb	208	1	nogas	95.410	0.183	803294	0.18	100	95.4	90	110	
U	238	1	nogas	104.610	4.586	753753	1.19	100	104.6	90	110	
[Pb]	206	1	nogas	102.806	3.639	198980	1.44	100	102.8	90	110	
[Pb]	207	1	nogas	102.444	5.192	176770	0.75	100	102.4	90	110	
Na	23	2	He	9992.601	1.735	2147292	2.46	10000	99.9	90	110	
Mg	24	2	He	9618.242	1.368	971026	2.01	10000	96.2	90	110	
Al	27	2	He	114.124	4.214	3517	2.58	100	114.1	90	110	CCV Main CR1-2 Failed
K	39	2	He	9638.941	1.214	856161	1.19	10000	96.4	90	110	
Ca	43	2	He	10092.360	8.501	2630	7.04	10000	100.9	90	110	
Ca	44	2	He	10388.352	1.099	44894	0.93	10000	103.9	90	110	
V	51	2	He	101.323	1.259	129665	2.19	100	101.3	90	110	
Cr	52	2	He	102.476	2.050	161824	2.49	100	102.5	90	110	
Mn	55	2	He	102.823	2.644	69805	3.66	100	102.8	90	110	
Fe	56	2	He	10231.506	0.935	12231476	1.48	10000	102.3	90	110	
Co	59	2	He	102.918	0.529	246898	1.95	100	102.9	90	110	
Ni	60	2	He	104.210	1.099	69628	1.14	100	104.2	90	110	
Cu	63	2	He	102.938	0.731	185287	1.39	100	102.9	90	110	
Zn	66	2	He	104.586	3.114	29230	4.06	100	104.6	90	110	
As	75	2	He	102.651	0.590	24185	2.07	100	102.7	90	110	
Se	78	2	He	106.166	5.418	1115	6.75	100	106.2	90	110	
B	11	1	nogas	485.110	2.459	683774	2.43	500	97.0	90	110	
Si	28	1	nogas	35591.196	9.345	5046050	3.85	5000	711.8	90	110	CCV Main CR1-2 Failed
Ca	43	1	nogas	9774.508	2.309	184529	1.57	10000	97.7	90	110	
Ca	44	1	nogas	9942.368	3.067	3144091	2.36	10000	99.4	90	110	
Fe	56	1	nogas	9630.811	3.753	115367144	2.55	10000	96.3	90	110	
Se	77	1	nogas	97.826	4.018	13415	0.92	100	97.8	90	110	
Se	82	1	nogas	99.386	3.570	9870	2.58	100	99.4	90	110	
Mo	95	1	nogas	100.822	2.562	243900	1.05	100	100.8	90	110	
Sn	118	1	nogas	100.683	1.427	314233	1.27	100	100.7	90	110	
Ba	137	1	nogas	101.700	3.000	158131	1.61	100	101.7	90	110	
Sb	121	2	He	100.103	1.346	88494	1.95	100	100.1	90	110	
Li	7	1	nogas	102.174	0.368	617573	0.72	100	102.2	90	110	
P	31	1	nogas	483.800	3.419	378005	1.48	500	96.8	90	110	
La	139	1	nogas	137.023	15.471	260	11.54	100	137.0	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	336.156	24.318	73	15.75	100	336.2	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	327668	0.37	359778	91.07	70	125	
Ge	72	1	nogas	1416255	2.13	1412575	100.26	70	125	
In	115	1	nogas	997226	1.41	1018869	97.88	70	125	
Bi	209	1	nogas	579813	4.67	569248	101.86	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	131676	1.49	135587	97.12	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	037_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T10:01:52-05:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.075	20.5	240	15.0	1	
Na	23	1	nogas	13.805	17.6	454045	5.8	100	
Mg	24	1	nogas	7.432	57.6	57918	54.1	100	
Al	27	1	nogas	0.796	10.5	18386	2.1	5	
K	39	1	nogas	-11.040	-101.8	3501094	1.3	100	
Ti	47	1	nogas	0.105	20.4	283	8.2	2.5	
V	51	1	nogas	-1.048	-10.2	34806	5.6	2.5	
Cr	52	1	nogas	-0.094	-116.8	15383	5.5	2.5	
Mn	55	1	nogas	0.204	16.4	9356	3.2	2.5	
Co	59	1	nogas	0.071	55.9	1280	32.5	2.5	
Ni	60	1	nogas	-0.260	-15.4	453	19.3	2.5	
Cu	63	1	nogas	-0.425	-11.6	5901	4.3	2.5	
Zn	66	1	nogas	-0.089	-25.9	580	7.9	2.5	
As	75	1	nogas	-0.119	-276.3	16061	5.9	2.5	
Sr	88	1	nogas	0.100	26.0	1587	19.6	2.5	
Ag	107	1	nogas	0.079	41.5	507	34.0	2.5	
Cd	111	1	nogas	0.039	17.1	77	7.5	1	
Sb	121	1	nogas	-0.100	-139.1	5628	9.9	2.5	
Tl	205	1	nogas	0.581	74.4	3534	71.9	1	
Pb	208	1	nogas	0.087	45.5	1227	27.1	2.5	
U	238	1	nogas	0.106	73.4	937	60.9	2.5	
[Pb]	206	1	nogas	0.070	86.9	293	41.1	2.5	
[Pb]	207	1	nogas	0.073	78.0	257	39.0	2.5	
Na	23	2	He	9.936	38.0	14753	3.5	100	
Mg	24	2	He	2.797	22.5	490	14.3	100	
Al	27	2	He	-1.428	-37.4	103	14.8	5	
K	39	2	He	-2.609	-378.2	17782	4.8	100	
Ca	43	2	He	40.347	94.8	20	50.0	100	
Ca	44	2	He	3.343	552.4	330	25.9	100	
V	51	2	He	-0.238	-6.1	104	15.7	2.5	
Cr	52	2	He	-0.137	-51.6	960	13.7	2.5	
Mn	55	2	He	0.045	32.4	160	6.3	2.5	
Fe	56	2	He	3.276	1.2	9743	2.1	100	
Co	59	2	He	0.027	98.1	103	56.7	2.5	
Ni	60	2	He	-0.699	-8.1	77	45.8	2.5	
Cu	63	2	He	-0.782	-6.2	797	11.3	2.5	
Zn	66	2	He	-0.470	-7.5	60	16.7	2.5	
As	75	2	He	0.023	129.2	22	31.2	2.5	
Se	78	2	He	-0.970	-107.0	13	75.5	2.5	
B	11	1	nogas	32.676	16.7	67462	9.8	10	CCB Main CR1 Failed
Si	28	1	nogas	133.593	1791.3	3434235	1.1	5	CCB Main CR1 Failed
Ca	43	1	nogas	21.878	47.1	803	22.3	100	
Ca	44	1	nogas	-42.919	-30.7	109129	1.7	100	
Fe	56	1	nogas	7.640	80.7	1450765	3.3	100	
Se	77	1	nogas	-1.614	-228.9	5294	7.5	2.5	
Se	82	1	nogas	-0.141	-265.8	217	16.2	2.5	

Continuing Calibration Blank (CCB) Report

Mo	95	1	nogas	0.400	67.3	1083	57.0	2.5	
Sn	118	1	nogas	0.336	28.5	1473	20.6	5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Ba	137	1	nogas	0.060	86.2	237	33.9	2.5	
Sb	121	2	He	-0.239	-76.3	893	19.0	2.5	
P	31	1	nogas	-3.881	-29.3	24493	2.6	10	
La	139	1	nogas	-11.896	-230.5	47	89.2	2.5	
Au	197	1	nogas	50.345	226.9	23	89.2	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	359841	2.34	359778	100.02	70	125	
Ge	72	1	nogas	1397366	2.03	1412575	98.92	70	125	
In	115	1	nogas	1028561	2.30	1018869	100.95	70	125	
Bi	209	1	nogas	589299	2.05	569248	103.52	70	125	
Ge	72	2	He	129186	2.51	135587	95.28	70	125	

Sample Report

Sample Table

Sample Name	MBLK-127364
Data File Name	042SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T10:11:58-05:00
Sample Type	Sample
Dilution	1
Comment	TW B127364
ISTD Ref FileName	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	0.007	0.007	169.19	60	0.01	2000	
Na	23	1	nogas	1.986	1.986	45.37	344515	0.00	200000	
Mg	24	1	nogas	9.770	9.770	1.76	80049	0.01	200000	
Al	27	1	nogas	4.900	4.900	2.01	57083	0.01	2000	
K	39	1	nogas	-31.850	-31.850	-17.01	3384632	0.00	200000	
Ti	47	1	nogas	-0.049	-0.049	-124.47	143	-0.03	2000	
V	51	1	nogas	-0.232	-0.232	-84.94	46633	0.00	2000	
Cr	52	1	nogas	-0.268	-0.268	-10.05	13909	0.00	2000	
Mn	55	1	nogas	-0.096	-0.096	-19.81	5478	0.00	2000	
Co	59	1	nogas	-0.002	-0.002	-655.43	480	0.00	2000	
Ni	60	1	nogas	-0.320	-0.320	-9.90	317	-0.10	2000	
Cu	63	1	nogas	-0.722	-0.722	-6.86	4311	-0.02	2000	
Zn	66	1	nogas	-0.113	-0.113	-68.15	553	-0.02	2000	
As	75	1	nogas	-0.097	-0.097	-103.94	16571	0.00	2000	
Sr	88	1	nogas	0.007	0.007	66.90	383	0.00	2000	
Ag	107	1	nogas	0.002	0.002	336.72	83	0.00	2000	
Cd	111	1	nogas	-0.019	-0.019	-69.32	13	-0.14	2000	
Sb	121	1	nogas	-0.797	-0.797	-3.88	2330	-0.03	2000	
Tl	205	1	nogas	-0.009	-0.009	-62.63	67	-0.01	2000	
Pb	208	1	nogas	-0.021	-0.021	-31.77	323	-0.01	2000	
U	238	1	nogas	-0.013	-0.013	-17.46	67	-0.02	2000	
[Pb]	206	1	nogas	-0.031	-0.031	-42.04	103	-0.03	2000	
[Pb]	207	1	nogas	-0.028	-0.028	-44.55	87	-0.03	2000	
Na	23	2	He	2.407	2.407	4.81	13542	0.02	200000	
Mg	24	2	He	9.289	9.289	32.62	1160	0.80	200000	
Al	27	2	He	1.489	1.489	63.83	193	0.77	2000	
K	39	2	He	-14.005	-14.005	-49.46	16791	-0.08	200000	
Ca	43	2	He	13.515	13.515	170.89	13	101.36	200000	
Ca	44	2	He	-3.244	-3.244	-418.86	310	-1.05	200000	
V	51	2	He	-0.266	-0.266	-0.61	72	-0.37	2000	
Cr	52	2	He	-0.239	-0.239	-8.54	823	-0.03	2000	
Mn	55	2	He	-0.024	-0.024	-138.43	117	-0.02	2000	
Fe	56	2	He	-0.897	-0.897	-25.47	4981	-0.02	200000	
Co	59	2	He	0.003	0.003	486.29	50	0.01	2000	
Ni	60	2	He	-0.718	-0.718	-5.41	67	-1.08	2000	
Cu	63	2	He	-0.780	-0.780	-7.95	820	-0.10	2000	
Zn	66	2	He	-0.347	-0.347	-58.44	97	-0.36	2000	
As	75	2	He	-0.017	-0.017	-75.03	13	-0.13	2000	
Se	78	2	He	-1.210	-1.210	-18.86	11	-10.68	2000	
B	11	1	nogas	10.816	10.816	9.20	36195	0.03	2000	
Si	28	1	nogas	2499.491	2499.491	95.71	3640402	0.07	2000	>LDR
Ca	43	1	nogas	-0.702	-0.702	-192.93	397	-0.18	200000	

Sample Report

Ca	44	1	nogas	-83.276	-83.276	-9.34	99881	-0.08	200000	
Fe	56	1	nogas	-3.906	-3.906	-73.25	1354689	0.00	200000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Se	77	1	nogas	-2.615	-2.615	-71.08	5364	-0.05	2000	
Se	82	1	nogas	-0.306	-0.306	-220.44	207	-0.15	2000	
Mo	95	1	nogas	-0.026	-0.026	-41.41	77	-0.03	2000	
Sn	118	1	nogas	-0.031	-0.031	-8.77	317	-0.01	2000	
Ba	137	1	nogas	0.344	0.344	18.23	743	0.05	2000	
Sb	121	2	He	-0.776	-0.776	-6.53	443	-0.18	2000	
La	139	1	nogas	-28.420	-28.420	-31.69	23	-121.80	2000	
Au	197	1	nogas	166.136	166.136	112.66	47	356.01	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	376781	0.66	359778	104.73	70	125	
Ge	72	1	nogas	1438108	1.95	1412575	101.81	70	125	
In	115	1	nogas	1106286	3.03	1018869	108.58	70	125	
Bi	209	1	nogas	634911	3.71	569248	111.53	70	125	
Ge	72	2	He	132666	2.12	135587	97.85	70	125	

Sample Report

Sample Table

Sample Name	LCS-127364
Data File Name	043SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T10:13:59-05:00
Sample Type	Sample
Dilution	1
Comment	TW B127364
ISTD Ref FileName	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	43.346	43.346	1.72	117869	0.04	2000	
Na	23	1	nogas	4633.693	4633.693	3.72	51594774	0.01	200000	
Mg	24	1	nogas	4691.239	4691.239	2.07	34447166	0.01	200000	
Al	27	1	nogas	47.691	47.691	4.38	455111	0.01	2000	
K	39	1	nogas	4615.774	4615.774	4.97	52409643	0.01	200000	
Ti	47	1	nogas	43.178	43.178	5.10	41831	0.10	2000	
V	51	1	nogas	42.551	42.551	3.93	615160	0.01	2000	
Cr	52	1	nogas	43.092	43.092	4.32	494464	0.01	2000	
Mn	55	1	nogas	43.108	43.108	4.01	604072	0.01	2000	
Co	59	1	nogas	44.309	44.309	4.32	509332	0.01	2000	
Ni	60	1	nogas	45.874	45.874	5.24	115770	0.04	2000	
Cu	63	1	nogas	45.739	45.739	6.32	278981	0.02	2000	
Zn	66	1	nogas	47.030	47.030	6.42	81944	0.06	2000	
As	75	1	nogas	43.685	43.685	4.54	110400	0.04	2000	
Sr	88	1	nogas	0.071	0.071	16.39	1243	0.01	2000	
Ag	107	1	nogas	44.543	44.543	3.99	254642	0.02	2000	
Cd	111	1	nogas	46.842	46.842	1.50	51954	0.09	2000	
Sb	121	1	nogas	43.840	43.840	5.44	224842	0.02	2000	
Tl	205	1	nogas	42.881	42.881	10.24	263840	0.02	2000	
Pb	208	1	nogas	45.067	45.067	1.92	379696	0.01	2000	
U	238	1	nogas	-0.011	-0.011	-22.09	83	-0.01	2000	
[Pb]	206	1	nogas	45.367	45.367	11.52	93568	0.05	2000	
[Pb]	207	1	nogas	46.112	46.112	6.80	85021	0.05	2000	
Na	23	2	He	4590.333	4590.333	1.36	1004073	0.46	200000	
Mg	24	2	He	4465.242	4465.242	0.56	455876	0.98	200000	
Al	27	2	He	49.335	49.335	13.64	1620	3.05	2000	
K	39	2	He	4545.165	4545.165	1.70	413233	1.10	200000	
Ca	43	2	He	4651.789	4651.789	14.58	1230	378.17	200000	
Ca	44	2	He	4426.175	4426.175	4.81	19514	22.68	200000	
V	51	2	He	44.953	44.953	0.72	58382	0.08	2000	
Cr	52	2	He	44.992	44.992	1.29	72492	0.06	2000	
Mn	55	2	He	46.594	46.594	1.94	32048	0.15	2000	
Fe	56	2	He	4678.281	4678.281	1.66	5657215	0.08	200000	
Co	59	2	He	46.954	46.954	3.02	113870	0.04	2000	
Ni	60	2	He	46.814	46.814	3.57	31921	0.15	2000	
Cu	63	2	He	47.995	47.995	0.26	88523	0.05	2000	
Zn	66	2	He	48.825	48.825	0.76	13895	0.35	2000	
As	75	2	He	45.590	45.590	0.12	10868	0.42	2000	
Se	78	2	He	47.327	47.327	7.79	515	9.18	2000	
B	11	1	nogas	8.226	8.226	3.37	30671	0.03	2000	
Si	28	1	nogas	1981.143	1981.143	147.46	3619482	0.05	2000	>LDR
Ca	43	1	nogas	4507.989	4507.989	7.04	86624	5.20	200000	
Ca	44	1	nogas	4579.240	4579.240	4.22	1538965	0.30	200000	
Fe	56	1	nogas	4399.314	4399.314	4.25	54305503	0.01	200000	

Sample Report

Se	77	1	nogas	39.666	39.666	14.95	8842	0.45	2000	
Se	82	1	nogas	47.380	47.380	8.59	4904	0.97	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Mo	95	1	nogas	44.460	44.460	3.83	109354	0.04	2000	
Sn	118	1	nogas	-0.009	-0.009	-86.85	367	0.00	2000	
Ba	137	1	nogas	46.267	46.267	2.85	74488	0.06	2000	
Sb	121	2	He	44.982	44.982	2.72	40811	0.11	2000	
La	139	1	nogas	-16.045	-16.045	-42.23	40	-40.11	2000	
Au	197	1	nogas	114.958	114.958	143.03	37	313.52	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	359949	0.64	359778	100.05	70	125	
Ge	72	1	nogas	1439536	3.01	1412575	101.91	70	125	
In	115	1	nogas	1031314	0.60	1018869	101.22	70	125	
Bi	209	1	nogas	619649	6.62	569248	108.85	70	125	
Ge	72	2	He	133116	1.85	135587	98.18	70	125	

Sample Report

Sample Table

Sample Name	HS18040243-01SD
Data File Name	045SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T10:18:01-05:00
Sample Type	Sample
Dilution	5
Comment	TW B127364
ISTD Ref FileName	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	0.036	0.178	19.48	120	0.03	2000	
Na	23	1	nogas	55306.127	276530.635	2.80	566764463	0.01	200000	
Mg	24	1	nogas	14754.735	73773.676	6.09	100129004	0.01	200000	
Al	27	1	nogas	196.757	983.785	9.21	1644416	0.01	2000	
K	39	1	nogas	75.290	376.451	17.91	4035132	0.00	200000	
Ti	47	1	nogas	7.022	35.112	4.04	6225	0.11	2000	
V	51	1	nogas	7.544	37.721	5.77	134096	0.01	2000	
Cr	52	1	nogas	0.552	2.760	7.36	20562	0.00	2000	
Mn	55	1	nogas	55.967	279.837	1.67	699052	0.01	2000	
Co	59	1	nogas	0.545	2.724	5.05	6041	0.01	2000	
Ni	60	1	nogas	1.889	9.445	8.28	5217	0.04	2000	
Cu	63	1	nogas	0.668	3.340	2.67	11207	0.01	2000	
Zn	66	1	nogas	2.237	11.184	7.78	4121	0.05	2000	
As	75	1	nogas	7.392	36.960	8.22	29150	0.03	2000	
Sr	88	1	nogas	472.760	2363.802	4.04	5718515	0.01	2000	
Ag	107	1	nogas	0.014	0.069	27.90	137	0.01	2000	
Cd	111	1	nogas	0.039	0.193	83.12	70	0.06	2000	
Sb	121	1	nogas	-0.702	-3.512	-5.56	2500	-0.03	2000	
Tl	205	1	nogas	0.041	0.203	21.13	317	0.01	2000	
Pb	208	1	nogas	0.248	1.238	4.27	2580	0.01	2000	
U	238	1	nogas	1.723	8.616	5.08	11394	0.02	2000	
[Pb]	206	1	nogas	0.307	1.537	13.56	680	0.05	2000	
[Pb]	207	1	nogas	0.307	1.534	14.37	593	0.05	2000	
Na	23	2	He	53062.372	265311.862	1.84	10974994	0.48	200000	
Mg	24	2	He	13901.837	69509.186	2.93	1357537	1.02	200000	
Al	27	2	He	195.562	977.811	4.64	5728	3.41	2000	
K	39	2	He	61.325	306.627	4.64	23341	0.26	200000	
Ca	43	2	He	22367.666	111838.331	2.76	5631	397.23	200000	
Ca	44	2	He	20618.106	103090.531	1.96	85894	24.00	200000	
V	51	2	He	1.113	5.567	4.77	1770	0.06	2000	
Cr	52	2	He	0.259	1.294	39.91	1543	0.02	2000	
Mn	55	2	He	55.702	278.511	4.14	36640	0.15	2000	
Fe	56	2	He	275.805	1379.027	1.22	324649	0.08	200000	
Co	59	2	He	0.503	2.516	8.90	1210	0.04	2000	
Ni	60	2	He	0.981	4.904	15.63	1153	0.09	2000	
Cu	63	2	He	-0.076	-0.378	-183.42	1997	0.00	2000	
Zn	66	2	He	2.140	10.698	18.68	760	0.28	2000	
As	75	2	He	0.229	1.143	29.68	69	0.33	2000	
Se	78	2	He	-0.697	-3.487	-49.21	16	-4.36	2000	
B	11	1	nogas	16.020	80.101	2.97	37964	0.04	2000	
Si	28	1	nogas	613000.080	3065000.398	3.75	27685692	2.21	2000	>LDR
Ca	43	1	nogas	20063.552	100317.760	2.78	343452	5.84	200000	
Ca	44	1	nogas	20273.876	101369.382	2.04	5703638	0.36	200000	
Fe	56	1	nogas	313.197	1565.987	2.56	4618940	0.01	200000	
Se	77	1	nogas	61.866	309.330	7.84	9536	0.65	2000	
Se	82	1	nogas	-0.127	-0.637	-430.02	200	-0.06	2000	

Sample Report

Mo	95	1	nogas	0.089	0.444	23.90	320	0.03	2000	
Sn	118	1	nogas	0.026	0.130	118.19	443	0.01	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Ba	137	1	nogas	7.632	38.158	9.79	11477	0.07	2000	
Sb	121	2	He	-0.853	-4.263	-10.17	360	-0.24	2000	
La	139	1	nogas	3441.787	17208.937	8.07	4827	71.30	2000	>LDR
Au	197	1	nogas	210.501	1052.506	71.46	47	451.07	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	322051	3.37	359778	89.51	70	125	
Ge	72	1	nogas	1285726	2.07	1412575	91.02	70	125	
In	115	1	nogas	956378	4.05	1018869	93.87	70	125	
Bi	209	1	nogas	525561	3.96	569248	92.33	70	125	
Ge	72	2	He	127399	2.26	135587	93.96	70	125	

Sample Report

Sample Table

Sample Name	HS18040243-01MS
Data File Name	046SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T10:20:02-05:00
Sample Type	Sample
Dilution	1
Comment	TW B127364
ISTD Ref FileName	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	50.127	50.127	3.39	113665	0.04	2000	
Na	23	1	nogas	252546.455	252546.455	0.66	2941382799	0.01	200000	>LDR
Mg	24	1	nogas	69852.089	69852.089	2.23	539442645	0.01	200000	
Al	27	1	nogas	947.634	947.634	6.01	8335098	0.01	2000	
K	39	1	nogas	4953.924	4953.924	1.98	52882863	0.01	200000	
Ti	47	1	nogas	78.721	78.721	5.61	71938	0.11	2000	
V	51	1	nogas	55.694	55.694	2.07	746142	0.01	2000	
Cr	52	1	nogas	46.688	46.688	2.28	504842	0.01	2000	
Mn	55	1	nogas	318.712	318.712	1.84	4177791	0.01	2000	
Co	59	1	nogas	46.350	46.350	1.91	503302	0.01	2000	
Ni	60	1	nogas	54.768	54.768	1.78	130406	0.04	2000	
Cu	63	1	nogas	50.354	50.354	2.48	289456	0.02	2000	
Zn	66	1	nogas	55.242	55.242	2.66	90845	0.06	2000	
As	75	1	nogas	58.390	58.390	2.37	134073	0.04	2000	
Sr	88	1	nogas	2177.934	2177.934	3.65	27839332	0.01	2000	>LDR
Ag	107	1	nogas	42.752	42.752	1.24	230867	0.02	2000	
Cd	111	1	nogas	45.549	45.549	2.35	46676	0.10	2000	
Sb	121	1	nogas	41.438	41.438	2.98	201083	0.02	2000	
Tl	205	1	nogas	43.738	43.738	12.85	224193	0.02	2000	
Pb	208	1	nogas	39.443	39.443	1.89	332380	0.01	2000	
U	238	1	nogas	8.329	8.329	7.34	53548	0.02	2000	
[Pb]	206	1	nogas	47.963	47.963	12.81	82458	0.06	2000	
[Pb]	207	1	nogas	48.603	48.603	9.43	74650	0.07	2000	
Na	23	2	He	278520.779	278520.779	1.59	60314856	0.46	200000	>LDR
Mg	24	2	He	75093.721	75093.721	0.72	7682583	0.98	200000	
Al	27	2	He	993.074	993.074	4.53	29868	3.32	2000	
K	39	2	He	4911.444	4911.444	0.36	445082	1.10	200000	
Ca	43	2	He	116772.621	116772.621	1.87	30769	379.51	200000	
Ca	44	2	He	111537.221	111537.221	1.12	485453	22.98	200000	
V	51	2	He	53.128	53.128	1.33	69107	0.08	2000	
Cr	52	2	He	47.143	47.143	0.73	76116	0.06	2000	
Mn	55	2	He	328.229	328.229	0.87	225548	0.15	2000	
Fe	56	2	He	6049.561	6049.561	1.99	7332371	0.08	200000	
Co	59	2	He	47.608	47.608	1.85	115782	0.04	2000	
Ni	60	2	He	52.071	52.071	6.36	35518	0.15	2000	
Cu	63	2	He	46.390	46.390	2.57	85843	0.05	2000	
Zn	66	2	He	53.649	53.649	1.35	15293	0.35	2000	
As	75	2	He	47.825	47.825	1.80	11430	0.42	2000	
Se	78	2	He	47.883	47.883	4.25	523	9.16	2000	
B	11	1	nogas	51.076	51.076	2.29	79569	0.06	2000	
Si	28	1	nogas	3068848.647	3068848.647	0.07	133187215	2.30	2000	>LDR
Ca	43	1	nogas	108016.635	108016.635	3.39	1952871	5.53	200000	
Ca	44	1	nogas	104092.003	104092.003	0.74	30469010	0.34	200000	
Fe	56	1	nogas	5862.254	5862.254	1.99	67922404	0.01	200000	
Se	77	1	nogas	131.888	131.888	3.96	15527	0.85	2000	
Se	82	1	nogas	44.554	44.554	8.24	4371	1.02	2000	
Mo	95	1	nogas	45.546	45.546	3.43	105793	0.04	2000	
Sn	118	1	nogas	0.079	0.079	16.99	600	0.01	2000	

Sample Report

Ba	137	1	nogas	80.193	80.193	4.56	119156	0.07	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Sb	121	2	He	40.733	40.733	0.27	37173	0.11	2000	
La	139	1	nogas	16651.075	16651.075	4.61	23063	72.20	2000	>LDR
Au	197	1	nogas	202.470	202.470	72.77	43	467.24	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	300217	0.70	359778	83.45	70	125	
Ge	72	1	nogas	1358848	1.33	1412575	96.20	70	125	
In	115	1	nogas	953066	2.07	1018869	93.54	70	125	
Bi	209	1	nogas	517369	7.76	569248	90.89	70	125	
Ge	72	2	He	133472	1.69	135587	98.44	70	125	

Sample Report

Sample Table

Sample Name	HS18040243-01MSD
Data File Name	047SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T10:22:04-05:00
Sample Type	Sample
Dilution	1
Comment	TW B127364
ISTD Ref FileName	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	50.351	50.351	1.26	114842	0.04	2000	
Na	23	1	nogas	266408.108	266408.108	2.00	3031550601	0.01	200000	>LDR
Mg	24	1	nogas	73265.067	73265.067	4.02	552681479	0.01	200000	
Al	27	1	nogas	1148.101	1148.101	11.02	9779687	0.01	2000	
K	39	1	nogas	5145.223	5145.223	2.12	53073448	0.01	200000	
Ti	47	1	nogas	87.497	87.497	6.79	77340	0.11	2000	
V	51	1	nogas	57.965	57.965	3.68	750013	0.01	2000	
Cr	52	1	nogas	49.206	49.206	1.43	514502	0.01	2000	
Mn	55	1	nogas	327.187	327.187	1.87	4155316	0.01	2000	
Co	59	1	nogas	47.277	47.277	2.05	497249	0.01	2000	
Ni	60	1	nogas	57.165	57.165	3.87	131746	0.04	2000	
Cu	63	1	nogas	52.948	52.948	3.93	294291	0.02	2000	
Zn	66	1	nogas	56.780	56.780	2.58	90410	0.06	2000	
As	75	1	nogas	60.030	60.030	2.10	133052	0.05	2000	
Sr	88	1	nogas	2323.649	2323.649	1.42	28779745	0.01	2000	>LDR
Ag	107	1	nogas	45.203	45.203	2.05	236424	0.02	2000	
Cd	111	1	nogas	46.077	46.077	1.29	46609	0.10	2000	
Sb	121	1	nogas	43.383	43.383	1.75	203689	0.02	2000	
Tl	205	1	nogas	45.481	45.481	6.99	234594	0.02	2000	
Pb	208	1	nogas	40.560	40.560	1.46	341775	0.01	2000	
U	238	1	nogas	8.547	8.547	11.00	55030	0.02	2000	
[Pb]	206	1	nogas	49.535	49.535	8.71	85615	0.06	2000	
[Pb]	207	1	nogas	49.437	49.437	5.42	76354	0.06	2000	
Na	23	2	He	275203.607	275203.607	1.99	60937196	0.45	200000	>LDR
Mg	24	2	He	73488.557	73488.557	3.63	7686720	0.96	200000	
Al	27	2	He	1165.351	1165.351	7.11	35831	3.25	2000	
K	39	2	He	4924.051	4924.051	1.47	446179	1.10	200000	
Ca	43	2	He	114824.353	114824.353	4.37	30929	371.25	200000	
Ca	44	2	He	110398.663	110398.663	2.05	491359	22.47	200000	
V	51	2	He	52.800	52.800	2.05	70237	0.08	2000	
Cr	52	2	He	46.708	46.708	1.92	77127	0.06	2000	
Mn	55	2	He	325.743	325.743	2.16	228874	0.14	2000	
Fe	56	2	He	6058.190	6058.190	2.11	7509198	0.08	200000	
Co	59	2	He	46.437	46.437	2.32	115483	0.04	2000	
Ni	60	2	He	51.499	51.499	3.20	35945	0.14	2000	
Cu	63	2	He	46.310	46.310	2.69	87649	0.05	2000	
Zn	66	2	He	55.458	55.458	5.01	16151	0.34	2000	
As	75	2	He	47.358	47.358	3.24	11577	0.41	2000	
Se	78	2	He	45.369	45.369	3.63	508	8.93	2000	
B	11	1	nogas	53.193	53.193	2.37	82714	0.06	2000	
Si	28	1	nogas	3240438.074	3240438.074	3.71	136002295	2.38	2000	>LDR
Ca	43	1	nogas	108953.288	108953.288	1.80	1908318	5.71	200000	
Ca	44	1	nogas	107758.620	107758.620	3.12	30539861	0.35	200000	
Fe	56	1	nogas	6084.415	6084.415	0.23	68243247	0.01	200000	
Se	77	1	nogas	124.649	124.649	5.22	14486	0.86	2000	
Se	82	1	nogas	48.980	48.980	8.13	4627	1.06	2000	
Mo	95	1	nogas	46.681	46.681	1.84	105069	0.04	2000	
Sn	118	1	nogas	0.089	0.089	18.30	623	0.01	2000	

Sample Report

Ba	137	1	nogas	83.135	83.135	3.17	121926	0.07	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Sb	121	2	He	39.575	39.575	3.09	36959	0.11	2000	
La	139	1	nogas	17713.428	17713.428	3.86	24211	73.16	2000	>LDR
Au	197	1	nogas	238.258	238.258	99.34	50	476.52	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	301942	0.09	359778	83.92	70	125	
Ge	72	1	nogas	1316359	2.14	1412575	93.19	70	125	
In	115	1	nogas	940598	2.38	1018869	92.32	70	125	
Bi	209	1	nogas	518810	6.83	569248	91.14	70	125	
Ge	72	2	He	136511	1.88	135587	100.68	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	048_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T10:24:08-05:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	101.550	3.239	250185	2.23	100	101.6	90	110	
Na	23	1	nogas	10339.174	1.282	111406748	0.66	10000	103.4	90	110	
Mg	24	1	nogas	10201.413	1.458	72712710	0.76	10000	102.0	90	110	
Al	27	1	nogas	110.141	4.015	1011932	2.32	100	110.1	90	110	CCV Main CR1-2 Failed
K	39	1	nogas	9964.038	1.852	106341773	1.70	10000	99.6	90	110	
Ti	47	1	nogas	98.674	1.308	93183	0.66	100	98.7	90	110	
V	51	1	nogas	103.962	1.310	1398219	0.97	100	104.0	90	110	
Cr	52	1	nogas	96.502	1.511	1061455	0.60	100	96.5	90	110	
Mn	55	1	nogas	100.473	2.169	1366661	1.23	100	100.5	90	110	
Co	59	1	nogas	95.487	3.191	1071828	2.42	100	95.5	90	110	
Ni	60	1	nogas	100.020	1.827	245386	1.14	100	100.0	90	110	
Cu	63	1	nogas	98.114	2.182	575434	2.76	100	98.1	90	110	
Zn	66	1	nogas	101.865	0.761	172654	1.13	100	101.9	90	110	
As	75	1	nogas	103.540	3.095	233153	1.65	100	103.5	90	110	
Sr	88	1	nogas	100.511	2.687	1329219	1.10	100	100.5	90	110	
Ag	107	1	nogas	98.486	2.490	549921	0.59	100	98.5	90	110	
Cd	111	1	nogas	103.371	1.975	112171	2.22	100	103.4	90	110	
Sb	121	1	nogas	98.539	3.193	486074	1.57	100	98.5	90	110	
Tl	205	1	nogas	100.096	2.876	588462	2.48	100	100.1	90	110	
Pb	208	1	nogas	96.337	2.514	811097	2.51	100	96.3	90	110	
U	238	1	nogas	104.283	4.310	764848	2.28	100	104.3	90	110	
[Pb]	206	1	nogas	103.123	4.764	203092	2.66	100	103.1	90	110	
[Pb]	207	1	nogas	102.309	4.112	179740	1.97	100	102.3	90	110	
Na	23	2	He	10472.358	1.521	2258166	1.16	10000	104.7	90	110	
Mg	24	2	He	9712.282	1.390	984204	0.93	10000	97.1	90	110	
Al	27	2	He	118.688	4.313	3667	4.10	100	118.7	90	110	CCV Main CR1-2 Failed
K	39	2	He	9604.151	1.297	853136	1.27	10000	96.0	90	110	
Ca	43	2	He	10067.912	3.440	2637	4.64	10000	100.7	90	110	
Ca	44	2	He	10180.756	2.321	44186	3.67	10000	101.8	90	110	
V	51	2	He	101.379	0.848	130223	0.51	100	101.4	90	110	
Cr	52	2	He	100.794	2.001	159773	0.74	100	100.8	90	110	
Mn	55	2	He	101.798	2.063	69363	1.99	100	101.8	90	110	
Fe	56	2	He	10092.443	1.823	12110341	0.78	10000	100.9	90	110	
Co	59	2	He	102.067	2.662	245732	1.43	100	102.1	90	110	
Ni	60	2	He	103.609	2.609	69487	1.52	100	103.6	90	110	
Cu	63	2	He	103.178	3.775	186372	2.44	100	103.2	90	110	
Zn	66	2	He	104.282	1.543	29250	0.87	100	104.3	90	110	
As	75	2	He	100.013	0.974	23653	1.55	100	100.0	90	110	
Se	78	2	He	97.743	3.385	1032	2.66	100	97.7	90	110	
B	11	1	nogas	478.453	3.309	671486	1.16	500	95.7	90	110	
Si	28	1	nogas	14728.135	2.389	4094658	1.98	5000	294.6	90	110	CCV Main CR1-2 Failed
Ca	43	1	nogas	9891.370	1.745	185330	0.30	10000	98.9	90	110	
Ca	44	1	nogas	9860.030	1.716	3096085	1.83	10000	98.6	90	110	
Fe	56	1	nogas	9770.558	4.079	116130007	2.29	10000	97.7	90	110	
Se	77	1	nogas	128.965	6.643	15814	2.46	100	129.0	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	100.480	4.885	9910	6.55	100	100.5	90	110	
Mo	95	1	nogas	99.595	1.454	239184	1.95	100	99.6	90	110	
Sn	118	1	nogas	98.325	1.727	310624	2.05	100	98.3	90	110	
Ba	137	1	nogas	100.871	1.259	158776	0.90	100	100.9	90	110	
Sb	121	2	He	98.038	0.395	87026	1.22	100	98.0	90	110	
Li	7	1	nogas	102.637	2.984	617443	1.67	100	102.6	90	110	
P	31	1	nogas	488.355	1.608	378533	1.12	500	97.7	90	110	
La	139	1	nogas	168.899	24.870	310	20.14	100	168.9	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	234.771	48.809	57	36.74	100	234.8	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	326342	2.97	359778	90.71	70	125	
Ge	72	1	nogas	1405592	1.88	1412575	99.51	70	125	
In	115	1	nogas	1009271	0.35	1018869	99.06	70	125	
Bi	209	1	nogas	589732	2.18	569248	103.60	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	132183	1.35	135587	97.49	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	049_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T10:26:06-05:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.062	38.1	210	29.7	1	
Na	23	1	nogas	62.032	13.1	1002669	7.9	100	
Mg	24	1	nogas	18.095	31.8	137986	29.9	100	
Al	27	1	nogas	0.560	9.9	16661	3.2	5	
K	39	1	nogas	-19.762	-18.7	3497184	1.2	100	
Ti	47	1	nogas	0.077	139.8	263	39.5	2.5	
V	51	1	nogas	0.744	30.9	59337	4.9	2.5	
Cr	52	1	nogas	-0.048	-67.3	16281	2.4	2.5	
Mn	55	1	nogas	0.292	19.3	10800	7.5	2.5	
Co	59	1	nogas	0.089	42.0	1517	28.4	2.5	
Ni	60	1	nogas	-0.175	-7.3	677	4.3	2.5	
Cu	63	1	nogas	-0.537	-11.5	5388	7.0	2.5	
Zn	66	1	nogas	-0.049	-89.1	663	11.4	2.5	
As	75	1	nogas	1.131	37.2	19114	4.5	2.5	
Sr	88	1	nogas	0.416	15.9	5888	15.5	2.5	
Ag	107	1	nogas	0.103	43.9	660	39.3	2.5	
Cd	111	1	nogas	0.082	83.6	127	64.3	1	
Sb	121	1	nogas	-0.584	-8.0	3374	7.2	2.5	
Tl	205	1	nogas	0.624	76.7	3934	75.7	1	
Pb	208	1	nogas	0.118	31.7	1493	21.1	2.5	
U	238	1	nogas	0.125	54.3	1117	47.7	2.5	
[Pb]	206	1	nogas	0.124	44.6	413	26.5	2.5	
[Pb]	207	1	nogas	0.113	55.7	340	35.3	2.5	
Na	23	2	He	49.327	5.4	23565	3.7	100	
Mg	24	2	He	11.652	8.4	1400	9.3	100	
Al	27	2	He	-1.954	-36.7	90	22.2	5	
K	39	2	He	-14.620	-22.4	16738	1.7	100	
Ca	43	2	He	-12.733	-339.2	7	173.2	100	
Ca	44	2	He	16.751	98.4	393	16.1	100	
V	51	2	He	-0.229	-5.8	118	12.8	2.5	
Cr	52	2	He	-0.106	-47.9	1030	8.6	2.5	
Mn	55	2	He	0.069	96.3	180	24.2	2.5	
Fe	56	2	He	3.789	13.7	10590	6.3	100	
Co	59	2	He	0.044	50.6	147	34.3	2.5	
Ni	60	2	He	-0.648	-9.0	113	35.7	2.5	
Cu	63	2	He	-0.705	-4.2	953	6.7	2.5	
Zn	66	2	He	-0.378	-25.4	87	29.0	2.5	
As	75	2	He	0.063	42.1	32	21.5	2.5	
Se	78	2	He	-0.689	-66.9	17	27.7	2.5	
B	11	1	nogas	26.134	17.4	59369	10.1	10	CCB Main CR1 Failed
Si	28	1	nogas	-7135.416	-14.7	3196059	1.6	5	
Ca	43	1	nogas	25.786	33.0	900	18.4	100	
Ca	44	1	nogas	-43.335	-4.8	111738	0.7	100	
Fe	56	1	nogas	15.974	30.3	1587234	4.0	100	
Se	77	1	nogas	7.507	48.5	6168	5.0	2.5	CCB Main CR1 Failed
Se	82	1	nogas	-0.229	-361.3	213	37.6	2.5	
Mo	95	1	nogas	0.342	52.5	977	45.3	2.5	
Sn	118	1	nogas	0.265	29.3	1250	22.1	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.039	45.3	203	10.2	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	-0.672	-12.6	533	13.8	2.5	
P	31	1	nogas	-4.963	-19.9	24309	3.1	10	
La	139	1	nogas	-11.286	-84.0	47	24.7	2.5	
Au	197	1	nogas	117.923	68.0	37	41.7	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	370756	2.11	359778	103.05	70	125	
Ge	72	1	nogas	1431727	0.42	1412575	101.36	70	125	
In	115	1	nogas	1030660	4.80	1018869	101.16	70	125	
Bi	209	1	nogas	609936	1.67	569248	107.15	70	125	
Ge	72	2	He	132240	2.18	135587	97.53	70	125	

Sample Report

Sample Table

Sample Name	HS18040243-01PDS
Data File Name	050SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T10:28:09-05:00
Sample Type	Sample
Dilution	1
Comment	TW B127364
ISTD Ref FileName	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	102.535	102.535	1.76	249236	0.04	2000	
Na	23	1	nogas	256308.673	256308.673	3.36	3081757869	0.01	200000	>LDR
Mg	24	1	nogas	73084.499	73084.499	6.44	582208196	0.01	200000	
Al	27	1	nogas	1013.305	1013.305	5.89	9271522	0.01	2000	
K	39	1	nogas	10229.128	10229.128	1.62	109658986	0.01	200000	
Ti	47	1	nogas	131.706	131.706	4.43	124952	0.11	2000	
V	51	1	nogas	110.185	110.185	1.17	1487219	0.01	2000	
Cr	52	1	nogas	96.606	96.606	4.01	1068023	0.01	2000	
Mn	55	1	nogas	358.320	358.320	1.68	4883233	0.01	2000	
Co	59	1	nogas	93.306	93.306	1.56	1053119	0.01	2000	
Ni	60	1	nogas	103.045	103.045	1.78	254130	0.04	2000	
Cu	63	1	nogas	99.606	99.606	2.14	587084	0.02	2000	
Zn	66	1	nogas	105.086	105.086	1.27	179045	0.06	2000	
As	75	1	nogas	106.200	106.200	1.00	240068	0.04	2000	
Sr	88	1	nogas	2185.206	2185.206	2.27	29050868	0.01	2000	>LDR
Ag	107	1	nogas	89.575	89.575	0.70	503012	0.02	2000	
Cd	111	1	nogas	96.776	96.776	1.29	104350	0.09	2000	
Sb	121	1	nogas	82.989	82.989	1.63	412630	0.02	2000	
Tl	205	1	nogas	93.979	93.979	5.84	518456	0.02	2000	
Pb	208	1	nogas	87.709	87.709	1.97	738494	0.01	2000	
U	238	1	nogas	7.871	7.871	6.22	54328	0.01	2000	
[Pb]	206	1	nogas	97.517	97.517	4.42	180405	0.05	2000	
[Pb]	207	1	nogas	100.753	100.753	5.15	166231	0.06	2000	
Na	23	2	He	274441.105	274441.105	0.85	61486772	0.45	200000	>LDR
Mg	24	2	He	77244.532	77244.532	1.57	8177252	0.94	200000	
Al	27	2	He	1053.047	1053.047	4.71	32787	3.21	2000	
K	39	2	He	10135.269	10135.269	1.47	899319	1.13	200000	
Ca	43	2	He	116888.516	116888.516	1.47	31867	366.80	200000	
Ca	44	2	He	112498.699	112498.699	1.64	506607	22.21	200000	
V	51	2	He	104.688	104.688	1.03	140457	0.07	2000	
Cr	52	2	He	98.129	98.129	0.89	162533	0.06	2000	
Mn	55	2	He	370.710	370.710	1.59	263501	0.14	2000	
Fe	56	2	He	11047.859	11047.859	2.25	13847930	0.08	200000	
Co	59	2	He	97.388	97.388	0.66	244976	0.04	2000	
Ni	60	2	He	101.344	101.344	1.38	71037	0.14	2000	
Cu	63	2	He	96.342	96.342	0.61	182011	0.05	2000	
Zn	66	2	He	102.859	102.859	1.41	30148	0.34	2000	
As	75	2	He	98.365	98.365	0.60	24302	0.40	2000	
Se	78	2	He	98.706	98.706	5.31	1088	9.07	2000	
B	11	1	nogas	56.107	56.107	1.92	92107	0.06	2000	
Si	28	1	nogas	2990485.520	2990485.520	0.88	135092671	2.21	2000	>LDR
Ca	43	1	nogas	107579.369	107579.369	0.91	2023439	5.32	200000	
Ca	44	1	nogas	106556.865	106556.865	1.37	32429578	0.33	200000	
Fe	56	1	nogas	10787.919	10787.919	2.56	128793511	0.01	200000	
Se	77	1	nogas	164.794	164.794	7.44	18790	0.88	2000	
Se	82	1	nogas	99.143	99.143	4.13	9823	1.01	2000	
Mo	95	1	nogas	96.296	96.296	4.21	232390	0.04	2000	
Sn	118	1	nogas	0.087	0.087	13.24	657	0.01	2000	

Sample Report

Ba	137	1	nogas	131.189	131.189	2.31	205101	0.06	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Sb	121	2	He	80.800	80.800	1.03	75131	0.11	2000	
La	139	1	nogas	15950.499	15950.499	2.57	23266	68.56	2000	>LDR
Au	197	1	nogas	213.265	213.265	48.91	50	426.53	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	321884	1.45	359778	89.47	70	125	
Ge	72	1	nogas	1413281	2.44	1412575	100.05	70	125	
In	115	1	nogas	1002835	1.81	1018869	98.43	70	125	
Bi	209	1	nogas	554470	5.58	569248	97.40	70	125	
Ge	72	2	He	138079	1.62	135587	101.84	70	125	

Sample Report

Sample Table

Sample Name	HS18040595-01
Data File Name	052SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T10:32:14-05:00
Sample Type	Sample
Dilution	1
Comment	TW B127364
ISTD Ref FileName	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	0.018	0.018	78.00	80	0.02	2000	
Na	23	1	nogas	333019.893	333019.893	2.11	3658650082	0.01	200000	>LDR
Mg	24	1	nogas	23741.199	23741.199	0.44	172977825	0.01	200000	
Al	27	1	nogas	11.235	11.235	2.17	113760	0.01	2000	
K	39	1	nogas	1332.482	1332.482	1.67	17429929	0.01	200000	
Ti	47	1	nogas	1.157	1.157	7.28	1280	0.09	2000	
V	51	1	nogas	9.034	9.034	10.55	166498	0.01	2000	
Cr	52	1	nogas	0.999	0.999	2.19	27414	0.00	2000	
Mn	55	1	nogas	88.334	88.334	3.29	1206577	0.01	2000	
Co	59	1	nogas	0.717	0.717	2.52	8562	0.01	2000	
Ni	60	1	nogas	2.831	2.831	2.68	8035	0.04	2000	
Cu	63	1	nogas	2.477	2.477	6.57	22784	0.01	2000	
Zn	66	1	nogas	11.887	11.887	1.24	20866	0.06	2000	
As	75	1	nogas	15.015	15.015	5.81	48000	0.03	2000	
Sr	88	1	nogas	308.117	308.117	2.57	4089031	0.01	2000	
Ag	107	1	nogas	0.014	0.014	78.97	150	0.01	2000	
Cd	111	1	nogas	0.022	0.022	99.86	57	0.04	2000	
Sb	121	1	nogas	0.438	0.438	34.26	8315	0.01	2000	
Tl	205	1	nogas	0.032	0.032	18.60	297	0.01	2000	
Pb	208	1	nogas	0.025	0.025	8.12	710	0.00	2000	
U	238	1	nogas	0.236	0.236	13.91	1830	0.01	2000	
[Pb]	206	1	nogas	0.017	0.017	109.61	183	0.01	2000	
[Pb]	207	1	nogas	0.023	0.023	53.04	163	0.01	2000	
Na	23	2	He	330372.059	330372.059	2.54	71336271	0.46	200000	>LDR
Mg	24	2	He	23210.708	23210.708	1.23	2368217	0.98	200000	
Al	27	2	He	8.067	8.067	40.88	390	2.07	2000	
K	39	2	He	1282.142	1282.142	1.48	129497	0.99	200000	
Ca	43	2	He	13270.079	13270.079	4.74	3495	379.65	200000	
Ca	44	2	He	12978.148	12978.148	2.71	56616	22.92	200000	
V	51	2	He	0.059	0.059	19.13	491	0.01	2000	
Cr	52	2	He	0.849	0.849	11.84	2550	0.03	2000	
Mn	55	2	He	90.292	90.292	1.41	61967	0.15	2000	
Fe	56	2	He	88.804	88.804	1.37	113339	0.08	200000	
Co	59	2	He	0.718	0.718	11.38	1783	0.04	2000	
Ni	60	2	He	1.431	1.431	24.68	1507	0.09	2000	
Cu	63	2	He	-0.393	-0.393	-8.57	1520	-0.03	2000	
Zn	66	2	He	11.880	11.880	7.59	3527	0.34	2000	
As	75	2	He	0.356	0.356	8.36	102	0.35	2000	
Se	78	2	He	-0.830	-0.830	-70.59	15	-5.42	2000	
B	11	1	nogas	42.199	42.199	4.15	77292	0.05	2000	
Si	28	1	nogas	1313806.291	1313806.291	1.06	61158069	2.15	2000	>LDR
Ca	43	1	nogas	11845.336	11845.336	2.02	222638	5.32	200000	
Ca	44	1	nogas	11795.263	11795.263	2.91	3691967	0.32	200000	
Fe	56	1	nogas	102.209	102.209	2.78	2579850	0.00	200000	
Se	77	1	nogas	118.011	118.011	7.11	14993	0.79	2000	
Se	82	1	nogas	0.355	0.355	75.09	267	0.13	2000	
Mo	95	1	nogas	0.763	0.763	93.44	1983	0.04	2000	
Sn	118	1	nogas	0.075	0.075	12.38	627	0.01	2000	

Sample Report

Ba	137	1	nogas	124.302	124.302	5.62	196779	0.06	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Sb	121	2	He	0.269	0.269	64.77	1367	0.02	2000	
La	139	1	nogas	68.103	68.103	34.98	163	41.70	2000	
Au	197	1	nogas	36.984	36.984	319.47	20	184.92	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	339384	1.52	359778	94.33	70	125	
Ge	72	1	nogas	1410246	0.73	1412575	99.84	70	125	
In	115	1	nogas	1015810	1.85	1018869	99.70	70	125	
Bi	209	1	nogas	573425	5.58	569248	100.73	70	125	
Ge	72	2	He	133096	0.16	135587	98.16	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	060_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T10:48:20-05:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	99.967	3.724	253057	2.15	100	100.0	90	110	
Na	23	1	nogas	10099.905	2.337	110583823	1.07	10000	101.0	90	110	
Mg	24	1	nogas	10087.707	2.705	73054208	1.17	10000	100.9	90	110	
Al	27	1	nogas	108.982	3.546	1013236	1.02	100	109.0	90	110	
K	39	1	nogas	9849.564	4.036	106358207	0.96	10000	98.5	90	110	
Ti	47	1	nogas	97.381	2.198	93063	2.52	100	97.4	90	110	
V	51	1	nogas	103.881	3.616	1413655	3.14	100	103.9	90	110	
Cr	52	1	nogas	96.101	3.180	1069370	0.61	100	96.1	90	110	
Mn	55	1	nogas	100.153	4.181	1378005	2.11	100	100.2	90	110	
Co	59	1	nogas	96.725	2.479	1098575	1.26	100	96.7	90	110	
Ni	60	1	nogas	100.529	1.298	249585	1.94	100	100.5	90	110	
Cu	63	1	nogas	98.933	0.917	587055	2.14	100	98.9	90	110	
Zn	66	1	nogas	100.706	2.103	172716	2.12	100	100.7	90	110	
As	75	1	nogas	102.348	3.486	233374	1.57	100	102.3	90	110	
Sr	88	1	nogas	97.855	5.063	1309105	3.56	100	97.9	90	110	
Ag	107	1	nogas	98.398	3.029	555880	0.35	100	98.4	90	110	
Cd	111	1	nogas	103.331	1.002	112175	1.45	100	103.3	90	110	
Sb	121	1	nogas	96.456	4.339	481422	1.29	100	96.5	90	110	
Tl	205	1	nogas	98.482	6.026	582688	2.96	100	98.5	90	110	
Pb	208	1	nogas	94.639	0.694	796813	0.69	100	94.6	90	110	
U	238	1	nogas	106.418	4.354	786244	2.97	100	106.4	90	110	
[Pb]	206	1	nogas	100.424	5.284	199167	2.12	100	100.4	90	110	
[Pb]	207	1	nogas	99.067	3.089	175338	0.86	100	99.1	90	110	
Na	23	2	He	10192.038	2.578	2216747	1.02	10000	101.9	90	110	
Mg	24	2	He	9630.222	1.766	984288	0.82	10000	96.3	90	110	
Al	27	2	He	117.837	14.219	3677	14.76	100	117.8	90	110	CCV Main CR1-2 Failed
K	39	2	He	9715.842	1.963	862848	1.92	10000	97.2	90	110	
Ca	43	2	He	10262.509	1.337	2710	1.95	10000	102.6	90	110	
Ca	44	2	He	10005.337	2.876	43795	2.96	10000	100.1	90	110	
V	51	2	He	101.119	0.651	131018	1.04	100	101.1	90	110	
Cr	52	2	He	101.379	0.631	162116	1.74	100	101.4	90	110	
Mn	55	2	He	103.401	1.009	71073	2.23	100	103.4	90	110	
Fe	56	2	He	10194.009	1.824	12338494	1.37	10000	101.9	90	110	
Co	59	2	He	102.565	2.112	249077	0.59	100	102.6	90	110	
Ni	60	2	He	102.616	3.655	69414	2.28	100	102.6	90	110	
Cu	63	2	He	102.512	3.777	186780	2.18	100	102.5	90	110	
Zn	66	2	He	101.318	0.640	28673	1.17	100	101.3	90	110	
As	75	2	He	100.015	3.131	23851	1.49	100	100.0	90	110	
Se	78	2	He	98.342	1.986	1047	2.21	100	98.3	90	110	
B	11	1	nogas	469.703	2.207	677842	0.61	500	93.9	90	110	
Si	28	1	nogas	11840.619	13.628	4014563	1.24	5000	236.8	90	110	CCV Main CR1-2 Failed
Ca	43	1	nogas	9706.782	2.724	184007	0.32	10000	97.1	90	110	
Ca	44	1	nogas	9869.544	2.318	3135179	0.92	10000	98.7	90	110	
Fe	56	1	nogas	9701.470	3.515	116681590	0.48	10000	97.0	90	110	
Se	77	1	nogas	114.378	8.235	14826	6.04	100	114.4	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	97.664	5.304	9739	2.60	100	97.7	90	110	
Mo	95	1	nogas	100.069	4.040	243032	1.03	100	100.1	90	110	
Sn	118	1	nogas	98.336	1.622	310772	1.49	100	98.3	90	110	
Ba	137	1	nogas	101.417	3.262	159706	3.24	100	101.4	90	110	
Sb	121	2	He	95.706	1.970	85703	0.28	100	95.7	90	110	
Li	7	1	nogas	102.318	1.602	632691	0.68	100	102.3	90	110	
P	31	1	nogas	489.815	3.417	383965	0.28	500	98.0	90	110	
La	139	1	nogas	91.520	19.056	197	12.80	100	91.5	90	110	
Au	197	1	nogas	366.265	96.013	80	78.06	100	366.3	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	335292	1.66	359778	93.19	70	125	
Ge	72	1	nogas	1422508	3.01	1412575	100.70	70	125	
In	115	1	nogas	1009720	0.89	1018869	99.10	70	125	
Bi	209	1	nogas	594108	3.08	569248	104.37	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	133331	1.66	135587	98.34	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	061_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T10:50:19-05:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.060	64.7	203	54.2	1	
Na	23	1	nogas	20.732	11.7	546356	4.4	100	
Mg	24	1	nogas	9.716	34.8	76849	32.7	100	
Al	27	1	nogas	0.404	13.2	15290	1.2	5	
K	39	1	nogas	-15.507	-48.5	3560359	1.3	100	
Ti	47	1	nogas	0.055	212.3	243	45.8	2.5	
V	51	1	nogas	0.239	173.3	52883	8.5	2.5	
Cr	52	1	nogas	-0.117	-57.9	15600	4.4	2.5	
Mn	55	1	nogas	0.270	15.2	10553	3.8	2.5	
Co	59	1	nogas	0.083	57.3	1457	36.7	2.5	
Ni	60	1	nogas	-0.244	-17.4	507	19.8	2.5	
Cu	63	1	nogas	-0.646	-8.2	4767	5.0	2.5	
Zn	66	1	nogas	-0.100	-57.0	577	15.2	2.5	
As	75	1	nogas	0.487	89.9	17826	3.4	2.5	
Sr	88	1	nogas	0.138	29.2	2157	24.7	2.5	
Ag	107	1	nogas	0.084	20.7	557	18.1	2.5	
Cd	111	1	nogas	0.060	16.1	100	10.0	1	
Sb	121	1	nogas	-0.610	-2.7	3264	1.0	2.5	
Tl	205	1	nogas	0.532	69.1	3354	69.0	1	
Pb	208	1	nogas	0.099	38.1	1330	23.9	2.5	
U	238	1	nogas	0.132	64.0	1167	57.4	2.5	
[Pb]	206	1	nogas	0.073	17.4	307	10.5	2.5	
[Pb]	207	1	nogas	0.128	47.2	363	32.6	2.5	
Na	23	2	He	18.424	10.9	17432	2.1	100	
Mg	24	2	He	5.012	18.6	747	12.4	100	
Al	27	2	He	-1.506	-81.1	107	35.5	5	
K	39	2	He	-7.559	-134.4	17352	5.1	100	
Ca	43	2	He	-25.325	-84.4	3	173.2	100	
Ca	44	2	He	-22.215	-50.5	233	22.0	100	
V	51	2	He	-0.227	-3.0	125	8.1	2.5	
Cr	52	2	He	-0.195	-26.7	917	8.5	2.5	
Mn	55	2	He	0.147	95.8	240	41.0	2.5	
Fe	56	2	He	3.052	6.9	9993	3.4	100	
Co	59	2	He	0.058	34.9	187	27.0	2.5	
Ni	60	2	He	-0.663	-9.0	107	39.0	2.5	
Cu	63	2	He	-0.810	-2.4	787	4.5	2.5	
Zn	66	2	He	-0.505	-14.1	53	39.0	2.5	
As	75	2	He	0.055	114.7	31	48.3	2.5	
Se	78	2	He	0.080	382.8	25	12.1	2.5	
B	11	1	nogas	30.598	10.3	65519	8.5	10	CCB Main CR1 Failed
Si	28	1	nogas	-7283.075	-24.4	3206028	1.5	5	
Ca	43	1	nogas	10.190	82.5	607	27.1	100	
Ca	44	1	nogas	-70.716	-3.5	103883	1.5	100	
Fe	56	1	nogas	9.945	63.7	1522892	4.8	100	
Se	77	1	nogas	4.104	73.8	5918	2.3	2.5	CCB Main CR1 Failed
Se	82	1	nogas	-0.067	-983.8	230	27.2	2.5	
Mo	95	1	nogas	0.323	59.0	933	49.3	2.5	
Sn	118	1	nogas	0.265	42.3	1257	30.2	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.077	45.6	267	22.0	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	-0.716	-14.5	510	18.9	2.5	
P	31	1	nogas	-4.506	-55.0	24753	5.4	10	
La	139	1	nogas	6.123	384.4	73	47.9	2.5	CCB Main CR1 Failed
Au	197	1	nogas	85.914	111.6	30	57.7	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	365615	1.40	359778	101.62	70	125	
Ge	72	1	nogas	1439564	2.09	1412575	101.91	70	125	
In	115	1	nogas	1035379	1.30	1018869	101.62	70	125	
Bi	209	1	nogas	603127	2.87	569248	105.95	70	125	
Ge	72	2	He	136141	0.96	135587	100.41	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	072_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T11:12:18-05:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	103.053	3.131	252801	1.79	100	103.1	90	110	
Na	23	1	nogas	10009.160	4.170	113322715	0.85	10000	100.1	90	110	
Mg	24	1	nogas	10027.634	3.883	75101995	1.15	10000	100.3	90	110	
Al	27	1	nogas	111.121	1.790	1031393	1.61	100	111.1	90	110	CCV Main CR1-2 Failed
K	39	1	nogas	10315.591	2.863	111071119	2.94	10000	103.2	90	110	
Ti	47	1	nogas	101.589	2.579	96892	2.47	100	101.6	90	110	
V	51	1	nogas	103.898	2.123	1411404	2.01	100	103.9	90	110	
Cr	52	1	nogas	99.418	2.152	1104051	2.16	100	99.4	90	110	
Mn	55	1	nogas	103.912	2.884	1427529	2.96	100	103.9	90	110	
Co	59	1	nogas	102.305	6.131	1159860	5.85	100	102.3	90	110	
Ni	60	1	nogas	102.610	2.459	254238	2.19	100	102.6	90	110	
Cu	63	1	nogas	99.738	1.774	590595	1.51	100	99.7	90	110	
Zn	66	1	nogas	101.527	1.015	173801	0.94	100	101.5	90	110	
As	75	1	nogas	100.406	1.871	228898	1.54	100	100.4	90	110	
Sr	88	1	nogas	100.306	2.685	1340126	2.95	100	100.3	90	110	
Ag	107	1	nogas	98.150	2.093	553640	2.09	100	98.2	90	110	
Cd	111	1	nogas	102.015	0.188	110893	2.22	100	102.0	90	110	
Sb	121	1	nogas	98.930	5.196	492993	5.17	100	98.9	90	110	
Tl	205	1	nogas	102.491	10.011	579477	4.34	100	102.5	90	110	
Pb	208	1	nogas	93.091	0.681	783784	0.68	100	93.1	90	110	
U	238	1	nogas	104.754	7.266	739957	2.43	100	104.8	90	110	
[Pb]	206	1	nogas	103.918	7.941	197074	2.69	100	103.9	90	110	
[Pb]	207	1	nogas	102.651	5.901	173762	0.61	100	102.7	90	110	
Na	23	2	He	10389.327	2.450	2303465	0.15	10000	103.9	90	110	
Mg	24	2	He	9639.973	1.994	1004658	2.40	10000	96.4	90	110	
Al	27	2	He	121.074	9.898	3850	12.04	100	121.1	90	110	CCV Main CR1-2 Failed
K	39	2	He	9996.866	3.104	887284	3.04	10000	100.0	90	110	
Ca	43	2	He	10310.997	6.545	2774	4.18	10000	103.1	90	110	
Ca	44	2	He	10162.788	2.886	45345	2.68	10000	101.6	90	110	
V	51	2	He	101.072	1.026	133527	2.13	100	101.1	90	110	
Cr	52	2	He	101.215	2.251	164978	0.90	100	101.2	90	110	
Mn	55	2	He	103.575	1.921	72575	2.22	100	103.6	90	110	
Fe	56	2	He	10165.346	0.265	12547059	2.46	10000	101.7	90	110	
Co	59	2	He	102.585	0.756	254045	1.84	100	102.6	90	110	
Ni	60	2	He	102.127	2.803	70435	0.45	100	102.1	90	110	
Cu	63	2	He	102.271	1.878	190045	2.01	100	102.3	90	110	
Zn	66	2	He	99.603	2.742	28733	0.26	100	99.6	90	110	
As	75	2	He	99.324	1.783	24159	2.98	100	99.3	90	110	
Se	78	2	He	98.502	5.714	1071	8.20	100	98.5	90	110	
B	11	1	nogas	499.326	3.550	697137	2.21	500	99.9	90	110	
Si	28	1	nogas	13909.250	8.029	4098846	0.94	5000	278.2	90	110	CCV Main CR1-2 Failed
Ca	43	1	nogas	10210.317	3.341	193238	3.57	10000	102.1	90	110	
Ca	44	1	nogas	10266.639	3.251	3250996	3.33	10000	102.7	90	110	
Fe	56	1	nogas	10024.462	2.785	120345849	2.63	10000	100.2	90	110	
Se	77	1	nogas	104.427	4.550	13986	2.53	100	104.4	90	110	
Se	82	1	nogas	99.937	3.790	9950	3.91	100	99.9	90	110	
Mo	95	1	nogas	99.427	2.216	241159	2.32	100	99.4	90	110	
Sn	118	1	nogas	100.009	6.050	316274	4.54	100	100.0	90	110	
Ba	137	1	nogas	101.183	3.348	159480	1.49	100	101.2	90	110	
Sb	121	2	He	95.524	1.893	87227	2.26	100	95.5	90	110	
Li	7	1	nogas	103.294	1.543	618822	2.97	100	103.3	90	110	
P	31	1	nogas	505.262	1.380	394610	1.23	500	101.1	90	110	
La	139	1	nogas	105.287	27.085	217	17.47	100	105.3	90	110	
Au	197	1	nogas	320.504	74.245	70	62.27	100	320.5	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	325062	4.33	359778	90.35	70	125	
Ge	72	1	nogas	1419496	0.28	1412575	100.49	70	125	
In	115	1	nogas	1011073	2.25	1018869	99.23	70	125	
Bi	209	1	nogas	569292	6.31	569248	100.01	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	135950	2.54	135587	100.27	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	073_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T11:14:17-05:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.072	77.8	237	68.7	1	
Na	23	1	nogas	29.527	7.6	659561	4.1	100	
Mg	24	1	nogas	8.881	25.1	72054	24.1	100	
Al	27	1	nogas	0.613	10.7	17081	1.7	5	
K	39	1	nogas	-5.660	-130.1	3630748	1.0	100	
Ti	47	1	nogas	0.009	942.6	197	41.1	2.5	
V	51	1	nogas	-0.747	-36.8	39448	7.7	2.5	
Cr	52	1	nogas	-0.116	-66.5	15467	4.5	2.5	
Mn	55	1	nogas	0.346	14.5	11500	6.0	2.5	
Co	59	1	nogas	0.063	42.6	1213	25.5	2.5	
Ni	60	1	nogas	-0.223	-28.3	557	28.9	2.5	
Cu	63	1	nogas	-0.482	-1.2	5688	2.6	2.5	
Zn	66	1	nogas	-0.078	-121.0	610	25.8	2.5	
As	75	1	nogas	0.112	237.7	16871	1.4	2.5	
Sr	88	1	nogas	0.142	7.9	2187	6.5	2.5	
Ag	107	1	nogas	0.056	13.5	390	11.2	2.5	
Cd	111	1	nogas	0.036	73.6	73	41.7	1	
Sb	121	1	nogas	-0.750	-1.6	2540	3.0	2.5	
Tl	205	1	nogas	0.568	75.7	3504	73.2	1	
Pb	208	1	nogas	0.102	37.8	1357	24.0	2.5	
U	238	1	nogas	0.102	83.0	920	68.5	2.5	
[Pb]	206	1	nogas	0.093	70.7	343	38.7	2.5	
[Pb]	207	1	nogas	0.101	48.7	310	28.7	2.5	
Na	23	2	He	31.621	1.8	20361	2.3	100	
Mg	24	2	He	5.981	21.8	847	13.7	100	
Al	27	2	He	-1.167	-70.6	117	19.8	5	
K	39	2	He	-4.949	-72.6	17579	1.8	100	
Ca	43	2	He	11.922	179.5	13	43.3	100	
Ca	44	2	He	-11.854	-103.5	280	21.7	100	
V	51	2	He	-0.228	-6.4	123	14.2	2.5	
Cr	52	2	He	-0.221	-34.1	873	11.5	2.5	
Mn	55	2	He	0.136	75.0	233	32.2	2.5	
Fe	56	2	He	3.715	7.5	10813	2.2	100	
Co	59	2	He	0.032	20.2	123	12.4	2.5	
Ni	60	2	He	-0.682	-6.3	93	32.7	2.5	
Cu	63	2	He	-0.782	-3.9	840	8.3	2.5	
Zn	66	2	He	-0.540	-3.7	43	13.3	2.5	
As	75	2	He	0.068	64.6	34	31.1	2.5	
Se	78	2	He	-1.489	-26.9	9	48.0	2.5	
B	11	1	nogas	31.638	5.3	66328	6.2	10	CCB Main CR1 Failed
Si	28	1	nogas	-5643.335	-12.1	3250400	2.3	5	
Ca	43	1	nogas	19.844	34.4	783	16.7	100	
Ca	44	1	nogas	-16.819	-34.2	119421	1.6	100	
Fe	56	1	nogas	14.482	34.3	1562850	2.9	100	
Se	77	1	nogas	1.795	136.8	5678	3.5	2.5	
Se	82	1	nogas	0.291	214.9	263	23.2	2.5	
Mo	95	1	nogas	0.325	62.4	930	53.3	2.5	
Sn	118	1	nogas	0.243	40.1	1163	26.5	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.101	33.4	300	17.3	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	-0.839	-15.6	397	27.2	2.5	
P	31	1	nogas	-3.278	-48.2	25457	5.9	10	
La	139	1	nogas	-6.790	-203.9	53	39.0	2.5	
Au	197	1	nogas	267.600	31.2	63	24.1	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	361337	3.18	359778	100.43	70	125	
Ge	72	1	nogas	1426392	2.02	1412575	100.98	70	125	
In	115	1	nogas	1018100	2.11	1018869	99.92	70	125	
Bi	209	1	nogas	596839	0.78	569248	104.85	70	125	
Ge	72	2	He	136235	2.37	135587	100.48	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	084_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T11:36:25-05:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	104.442	0.479	279577	1.54	100	104.4	90	110	
Na	23	1	nogas	10755.367	4.536	121698878	1.40	10000	107.6	90	110	
Mg	24	1	nogas	10550.781	6.541	78920139	1.05	10000	105.5	90	110	
Al	27	1	nogas	123.838	17.072	1156512	10.50	100	123.8	90	110	CCV Main CR1-2 Failed
K	39	1	nogas	10477.553	4.969	114119653	1.38	10000	104.8	90	110	
Ti	47	1	nogas	105.049	10.269	101183	4.01	100	105.0	90	110	
V	51	1	nogas	115.041	7.420	1574899	1.15	100	115.0	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	100.903	6.396	1133244	1.29	100	100.9	90	110	
Mn	55	1	nogas	102.988	6.293	1431209	0.74	100	103.0	90	110	
Co	59	1	nogas	102.000	4.167	1171234	3.80	100	102.0	90	110	
Ni	60	1	nogas	103.593	5.296	259737	1.09	100	103.6	90	110	
Cu	63	1	nogas	102.449	7.330	613223	1.72	100	102.4	90	110	
Zn	66	1	nogas	105.529	5.658	182753	0.90	100	105.5	90	110	
As	75	1	nogas	110.133	5.431	252468	1.02	100	110.1	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	104.247	7.677	1407967	1.54	100	104.2	90	110	
Ag	107	1	nogas	103.901	5.257	593206	2.88	100	103.9	90	110	
Cd	111	1	nogas	107.381	5.017	118156	0.56	100	107.4	90	110	
Sb	121	1	nogas	104.148	7.762	524354	1.64	100	104.1	90	110	
Tl	205	1	nogas	104.286	5.797	633303	4.03	100	104.3	90	110	
Pb	208	1	nogas	104.278	3.436	877911	3.43	100	104.3	90	110	
U	238	1	nogas	110.044	5.175	833962	2.46	100	110.0	90	110	CCV Main CR1-2 Failed
[Pb]	206	1	nogas	106.854	6.807	217477	5.50	100	106.9	90	110	
[Pb]	207	1	nogas	106.857	3.761	194118	4.03	100	106.9	90	110	
Na	23	2	He	10635.968	0.657	2295650	1.70	10000	106.4	90	110	
Mg	24	2	He	9793.467	1.474	993379	1.31	10000	97.9	90	110	
Al	27	2	He	117.801	4.951	3644	4.27	100	117.8	90	110	CCV Main CR1-2 Failed
K	39	2	He	9527.577	1.207	846477	1.18	10000	95.3	90	110	
Ca	43	2	He	10223.465	2.948	2680	4.59	10000	102.2	90	110	
Ca	44	2	He	10173.408	2.113	44186	2.40	10000	101.7	90	110	
V	51	2	He	101.182	1.671	130092	1.52	100	101.2	90	110	
Cr	52	2	He	101.470	1.443	161008	1.62	100	101.5	90	110	
Mn	55	2	He	103.357	1.772	70494	2.24	100	103.4	90	110	
Fe	56	2	He	10225.644	1.814	12281914	1.16	10000	102.3	90	110	
Co	59	2	He	103.283	1.103	248928	0.52	100	103.3	90	110	
Ni	60	2	He	104.408	4.608	70090	4.32	100	104.4	90	110	
Cu	63	2	He	103.311	0.485	186851	1.65	100	103.3	90	110	
Zn	66	2	He	102.430	0.303	28766	1.93	100	102.4	90	110	
As	75	2	He	99.088	1.363	23454	0.28	100	99.1	90	110	
Se	78	2	He	95.331	8.687	1009	9.21	100	95.3	90	110	
B	11	1	nogas	518.818	1.581	789743	2.18	500	103.8	90	110	
Si	28	1	nogas	10662.286	53.417	4000834	0.31	5000	213.2	90	110	CCV Main CR1-2 Failed
Ca	43	1	nogas	10821.933	6.691	207121	1.84	10000	108.2	90	110	
Ca	44	1	nogas	10975.236	5.187	3509218	3.01	10000	109.8	90	110	
Fe	56	1	nogas	10226.561	6.021	124184803	1.39	10000	102.3	90	110	
Se	77	1	nogas	160.560	11.503	18750	3.63	100	160.6	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	103.865	3.956	10460	2.21	100	103.9	90	110	
Mo	95	1	nogas	103.696	5.874	254588	4.32	100	103.7	90	110	
Sn	118	1	nogas	103.629	6.570	331789	1.67	100	103.6	90	110	
Ba	137	1	nogas	107.640	3.846	171875	1.23	100	107.6	90	110	
Sb	121	2	He	97.511	4.474	86611	3.05	100	97.5	90	110	
Li	7	1	nogas	106.543	1.288	695221	1.42	100	106.5	90	110	
P	31	1	nogas	520.157	6.351	410158	0.24	500	104.0	90	110	
La	139	1	nogas	407.566	128.778	684	118.77	100	407.6	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	279.858	78.241	67	60.62	100	279.9	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	354406	1.11	359778	98.51	70	125	
Ge	72	1	nogas	1439413	5.92	1412575	101.90	70	125	
In	115	1	nogas	1025112	4.82	1018869	100.61	70	125	
Bi	209	1	nogas	609833	4.52	569248	107.13	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	132311	1.63	135587	97.58	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	085_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T11:38:23-05:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.075	59.3	267	49.9	1	
Na	23	1	nogas	54.451	14.4	974069	11.2	100	
Mg	24	1	nogas	16.879	29.5	137443	30.3	100	
Al	27	1	nogas	0.530	3.6	17148	3.3	5	
K	39	1	nogas	-16.906	-60.6	3689896	1.1	100	
Ti	47	1	nogas	0.064	93.3	263	25.3	2.5	
V	51	1	nogas	1.601	27.1	73891	6.0	2.5	
Cr	52	1	nogas	-0.114	-67.2	16297	7.7	2.5	
Mn	55	1	nogas	0.364	5.7	12348	4.5	2.5	
Co	59	1	nogas	0.076	44.2	1440	30.4	2.5	
Ni	60	1	nogas	-0.266	-20.4	473	32.3	2.5	
Cu	63	1	nogas	-0.455	-20.0	6138	7.7	2.5	
Zn	66	1	nogas	-0.141	-43.0	530	23.0	2.5	
As	75	1	nogas	1.677	32.8	21206	3.7	2.5	
Sr	88	1	nogas	0.241	17.4	3700	18.3	2.5	
Ag	107	1	nogas	0.096	35.2	650	33.4	2.5	
Cd	111	1	nogas	0.089	42.9	140	32.7	1	
Sb	121	1	nogas	-0.813	-0.7	2344	1.8	2.5	
Tl	205	1	nogas	0.616	72.7	4231	71.7	1	
Pb	208	1	nogas	0.093	56.4	1280	34.5	2.5	
U	238	1	nogas	0.142	58.9	1357	52.2	2.5	
[Pb]	206	1	nogas	0.057	77.5	303	33.7	2.5	
[Pb]	207	1	nogas	0.055	150.6	253	65.1	2.5	
Na	23	2	He	48.019	7.6	23541	3.0	100	
Mg	24	2	He	11.901	3.5	1440	3.2	100	
Al	27	2	He	-1.775	-65.5	97	36.3	5	
K	39	2	He	-19.147	-6.7	16344	0.7	100	
Ca	43	2	He	13.033	447.3	13	114.6	100	
Ca	44	2	He	33.156	67.9	470	20.5	100	
V	51	2	He	-0.197	-6.4	161	9.6	2.5	
Cr	52	2	He	-0.193	-33.1	903	10.8	2.5	
Mn	55	2	He	0.143	65.3	233	27.9	2.5	
Fe	56	2	He	3.924	18.4	10873	8.3	100	
Co	59	2	He	0.039	26.3	137	18.4	2.5	
Ni	60	2	He	-0.615	-5.2	137	15.2	2.5	
Cu	63	2	He	-0.766	-5.5	853	9.5	2.5	
Zn	66	2	He	-0.300	-62.4	110	47.2	2.5	
As	75	2	He	0.024	100.2	23	24.7	2.5	
Se	78	2	He	-0.708	-57.0	17	25.0	2.5	
B	11	1	nogas	38.899	9.8	85072	7.7	10	CCB Main CR1 Failed
Si	28	1	nogas	-14039.842	-6.6	3022146	0.9	5	
Ca	43	1	nogas	39.180	40.7	1213	28.6	100	
Ca	44	1	nogas	-59.226	-11.5	111829	2.7	100	
Fe	56	1	nogas	25.182	3.4	1776442	2.6	100	
Se	77	1	nogas	14.418	53.4	7038	7.4	2.5	CCB Main CR1 Failed
Se	82	1	nogas	0.059	555.4	253	14.9	2.5	
Mo	95	1	nogas	0.393	57.8	1160	52.8	2.5	
Sn	118	1	nogas	0.311	23.5	1480	18.0	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.200	17.7	490	13.4	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	-0.927	-6.9	313	17.6	2.5	
P	31	1	nogas	-3.955	-41.9	26198	3.2	10	
La	139	1	nogas	-9.017	-164.2	53	43.3	2.5	
Au	197	1	nogas	134.336	19.4	43	13.3	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	397596	0.79	359778	110.51	70	125	
Ge	72	1	nogas	1498445	2.29	1412575	106.08	70	125	
In	115	1	nogas	1089815	1.12	1018869	106.96	70	125	
Bi	209	1	nogas	665027	2.23	569248	116.83	70	125	
Ge	72	2	He	133728	0.60	135587	98.63	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	096_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T12:00:17-05:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	103.664	3.427	257947	0.07	100	103.7	90	110	
Na	23	1	nogas	10336.922	5.100	115194198	0.72	10000	103.4	90	110	
Mg	24	1	nogas	10168.057	5.821	74938575	1.20	10000	101.7	90	110	
Al	27	1	nogas	115.473	5.915	1035046	0.65	100	115.5	90	110	CCV Main CR1-2 Failed
K	39	1	nogas	10651.344	6.193	110678082	1.26	10000	106.5	90	110	
Ti	47	1	nogas	103.423	5.524	95335	2.81	100	103.4	90	110	
V	51	1	nogas	109.139	4.000	1431789	4.35	100	109.1	90	110	
Cr	52	1	nogas	103.693	7.369	1111154	1.56	100	103.7	90	110	
Mn	55	1	nogas	105.312	3.536	1398938	2.62	100	105.3	90	110	
Co	59	1	nogas	102.953	5.952	1127726	0.79	100	103.0	90	110	
Ni	60	1	nogas	105.918	7.089	253532	4.07	100	105.9	90	110	
Cu	63	1	nogas	103.143	6.168	589802	1.81	100	103.1	90	110	
Zn	66	1	nogas	106.088	3.532	175580	2.39	100	106.1	90	110	
As	75	1	nogas	104.882	3.938	230486	2.22	100	104.9	90	110	
Sr	88	1	nogas	99.413	5.491	1285002	6.28	100	99.4	90	110	
Ag	107	1	nogas	99.385	5.369	541730	1.32	100	99.4	90	110	
Cd	111	1	nogas	101.703	2.355	108451	4.40	100	101.7	90	110	
Sb	121	1	nogas	100.065	7.020	481457	1.17	100	100.1	90	110	
Tl	205	1	nogas	103.757	3.701	573483	1.94	100	103.8	90	110	
Pb	208	1	nogas	90.396	1.829	761104	1.83	100	90.4	90	110	
U	238	1	nogas	104.708	5.468	722128	3.66	100	104.7	90	110	
[Pb]	206	1	nogas	104.504	2.829	193624	2.08	100	104.5	90	110	
[Pb]	207	1	nogas	100.321	4.891	165712	1.94	100	100.3	90	110	
Na	23	2	He	10414.211	0.397	2278019	0.15	10000	104.1	90	110	
Mg	24	2	He	9691.372	1.298	996242	1.45	10000	96.9	90	110	
Al	27	2	He	114.714	3.941	3600	3.92	100	114.7	90	110	CCV Main CR1-2 Failed
K	39	2	He	10051.044	2.762	891995	2.71	10000	100.5	90	110	
Ca	43	2	He	9461.153	3.352	2514	3.61	10000	94.6	90	110	
Ca	44	2	He	10126.140	3.261	44570	3.25	10000	101.3	90	110	
V	51	2	He	101.718	0.922	132539	1.27	100	101.7	90	110	
Cr	52	2	He	101.692	0.292	163520	0.11	100	101.7	90	110	
Mn	55	2	He	103.534	2.449	71555	2.17	100	103.5	90	110	
Fe	56	2	He	10239.762	1.300	12464569	1.22	10000	102.4	90	110	
Co	59	2	He	105.071	0.885	256648	1.21	100	105.1	90	110	
Ni	60	2	He	105.081	0.977	71489	0.82	100	105.1	90	110	
Cu	63	2	He	102.839	1.504	188491	1.65	100	102.8	90	110	
Zn	66	2	He	103.616	1.951	29484	2.03	100	103.6	90	110	
As	75	2	He	100.457	2.362	24098	2.36	100	100.5	90	110	
Se	78	2	He	100.325	7.260	1074	7.16	100	100.3	90	110	
B	11	1	nogas	2227.869	5.077	3097509	3.99	500	445.6	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	22649.979	24.675	4333742	0.34	5000	453.0	90	110	CCV Main CR1-2 Failed
Ca	43	1	nogas	10405.652	2.777	190529	4.37	10000	104.1	90	110	
Ca	44	1	nogas	10566.279	1.655	3234323	4.44	10000	105.7	90	110	
Fe	56	1	nogas	10322.173	7.253	119647240	2.84	10000	103.2	90	110	
Se	77	1	nogas	132.117	10.549	15680	2.46	100	132.1	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	106.594	4.631	10243	2.12	100	106.6	90	110	
Mo	95	1	nogas	103.959	3.733	243877	3.76	100	104.0	90	110	
Sn	118	1	nogas	100.925	2.445	313102	0.57	100	100.9	90	110	
Ba	137	1	nogas	102.501	2.362	158552	4.33	100	102.5	90	110	
Sb	121	2	He	95.845	0.216	86323	0.48	100	95.8	90	110	
Li	7	1	nogas	103.293	1.895	627664	1.78	100	103.3	90	110	
P	31	1	nogas	550.703	7.394	412933	1.26	500	110.1	90	110	CCV Main CR1-2 Failed
La	139	1	nogas	117.087	3.120	230	4.35	100	117.1	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	524.920	62.210	103	55.87	100	524.9	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	329699	3.30	359778	91.64	70	125	
Ge	72	1	nogas	1374547	5.97	1412575	97.31	70	125	
In	115	1	nogas	991515	2.07	1018869	97.32	70	125	
Bi	209	1	nogas	554695	3.16	569248	97.44	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	134075	0.35	135587	98.88	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	097_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T12:02:16-05:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.084	51.0	273	46.6	1	
Na	23	1	nogas	49.805	6.1	895829	6.9	100	
Mg	24	1	nogas	9.459	31.7	76981	33.6	100	
Al	27	1	nogas	0.503	6.4	16884	2.3	5	
K	39	1	nogas	53.661	17.6	4465582	0.8	100	
Ti	47	1	nogas	0.619	13.0	820	10.4	2.5	
V	51	1	nogas	1.540	20.9	73090	5.0	2.5	
Cr	52	1	nogas	1.545	6.8	35424	3.1	2.5	
Mn	55	1	nogas	0.369	14.0	12424	8.5	2.5	
Co	59	1	nogas	0.076	46.7	1437	31.5	2.5	
Ni	60	1	nogas	-0.222	-20.8	587	20.6	2.5	
Cu	63	1	nogas	-0.693	-3.0	4674	2.3	2.5	
Zn	66	1	nogas	-0.080	-95.4	637	22.0	2.5	
As	75	1	nogas	1.397	5.8	20599	2.2	2.5	
Sr	88	1	nogas	0.111	25.9	1870	22.8	2.5	
Ag	107	1	nogas	0.081	7.9	560	9.4	2.5	
Cd	111	1	nogas	0.071	95.9	113	68.5	1	
Sb	121	1	nogas	-0.367	-18.9	4657	7.9	2.5	
Tl	205	1	nogas	0.529	68.2	3291	72.2	1	
Pb	208	1	nogas	0.081	54.8	1177	31.6	2.5	
U	238	1	nogas	0.136	60.1	1170	58.2	2.5	
[Pb]	206	1	nogas	0.077	28.6	307	21.0	2.5	
[Pb]	207	1	nogas	0.085	50.0	280	34.1	2.5	
Na	23	2	He	52.439	8.4	24726	1.1	100	
Mg	24	2	He	4.482	5.7	687	6.7	100	
Al	27	2	He	-1.487	-50.0	107	23.6	5	
K	39	2	He	89.424	9.1	25785	2.7	100	
Ca	43	2	He	11.443	483.3	13	114.6	100	
Ca	44	2	He	-13.288	-169.7	270	35.7	100	
V	51	2	He	-0.205	-4.9	152	7.0	2.5	
Cr	52	2	He	-0.164	-50.3	960	16.2	2.5	
Mn	55	2	He	0.100	95.9	207	34.3	2.5	
Fe	56	2	He	3.587	10.8	10573	6.8	100	
Co	59	2	He	0.055	52.7	180	41.9	2.5	
Ni	60	2	He	-0.618	-7.5	137	25.7	2.5	
Cu	63	2	He	-0.808	-8.5	783	14.2	2.5	
Zn	66	2	He	-0.492	-22.2	57	53.9	2.5	
As	75	2	He	0.170	25.6	59	19.9	2.5	
Se	78	2	He	3.538	41.6	61	23.1	2.5	CCB Main CR1 Failed
B	11	1	nogas	1433.624	4.9	2234096	6.5	10	CCB Main CR1 Failed
Si	28	1	nogas	-3694.751	-88.1	3502914	1.4	5	
Ca	43	1	nogas	52.476	10.4	1473	7.5	100	
Ca	44	1	nogas	-43.339	-25.0	116889	0.4	100	
Fe	56	1	nogas	13.575	24.3	1631332	4.3	100	
Se	77	1	nogas	16.792	38.5	7252	8.2	2.5	CCB Main CR1 Failed
Se	82	1	nogas	3.973	17.0	653	7.7	2.5	CCB Main CR1 Failed
Mo	95	1	nogas	0.333	54.0	1007	48.8	2.5	
Sn	118	1	nogas	0.315	16.8	1420	13.7	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.116	22.5	330	13.9	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	-0.527	-33.6	673	22.3	2.5	
P	31	1	nogas	3.810	19.2	32168	2.9	10	
La	139	1	nogas	-11.641	-91.4	47	32.7	2.5	
Au	197	1	nogas	222.675	134.9	53	96.2	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	368022	2.43	359778	102.29	70	125	
Ge	72	1	nogas	1498613	2.95	1412575	106.09	70	125	
In	115	1	nogas	1036314	1.67	1018869	101.71	70	125	
Bi	209	1	nogas	585583	6.57	569248	102.87	70	125	
Ge	72	2	He	135047	2.85	135587	99.60	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	108_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T12:24:16-05:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	109.376	0.543	252451	3.01	100	109.4	90	110	
Na	23	1	nogas	10565.260	4.051	111627348	3.44	10000	105.7	90	110	
Mg	24	1	nogas	10855.852	7.288	75760648	1.38	10000	108.6	90	110	
Al	27	1	nogas	119.198	2.593	1051555	1.65	100	119.2	90	110	CCV Main CR1-2 Failed
K	39	1	nogas	10794.840	1.976	110392315	1.08	10000	107.9	90	110	
Ti	47	1	nogas	106.954	1.297	97036	1.87	100	107.0	90	110	
V	51	1	nogas	110.666	1.728	1427215	2.46	100	110.7	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	104.664	2.189	1104684	0.86	100	104.7	90	110	
Mn	55	1	nogas	129.862	6.037	1695008	5.26	100	129.9	90	110	CCV Main CR1-2 Failed
Co	59	1	nogas	102.155	0.409	1101878	1.03	100	102.2	90	110	
Ni	60	1	nogas	107.111	1.887	252434	2.22	100	107.1	90	110	
Cu	63	1	nogas	107.191	2.467	603136	1.50	100	107.2	90	110	
Zn	66	1	nogas	110.017	1.907	179083	1.01	100	110.0	90	110	CCV Main CR1-2 Failed
As	75	1	nogas	106.576	1.997	230155	1.56	100	106.6	90	110	
Sr	88	1	nogas	106.372	3.362	1351500	1.99	100	106.4	90	110	
Ag	107	1	nogas	103.794	0.448	556954	0.94	100	103.8	90	110	
Cd	111	1	nogas	110.361	5.411	111839	1.26	100	110.4	90	110	CCV Main CR1-2 Failed
Sb	121	1	nogas	105.176	1.364	498175	0.72	100	105.2	90	110	
Tl	205	1	nogas	104.927	4.871	562493	3.13	100	104.9	90	110	
Pb	208	1	nogas	93.583	0.716	787927	0.72	100	93.6	90	110	
U	238	1	nogas	113.126	4.788	756871	2.96	100	113.1	90	110	CCV Main CR1-2 Failed
[Pb]	206	1	nogas	107.958	6.646	193890	4.38	100	108.0	90	110	
[Pb]	207	1	nogas	108.355	3.066	173675	0.75	100	108.4	90	110	
Na	23	2	He	9953.650	8.002	2290089	1.65	10000	99.5	90	110	
Mg	24	2	He	9228.441	8.549	997185	1.61	10000	92.3	90	110	
Al	27	2	He	110.737	3.139	3680	10.83	100	110.7	90	110	CCV Main CR1-2 Failed
K	39	2	He	9789.089	2.264	869217	2.22	10000	97.9	90	110	
Ca	43	2	He	9670.604	17.525	2690	11.05	10000	96.7	90	110	
Ca	44	2	He	9643.901	10.251	44600	3.36	10000	96.4	90	110	
V	51	2	He	93.837	7.954	128600	1.42	100	93.8	90	110	
Cr	52	2	He	94.662	8.427	160172	3.67	100	94.7	90	110	
Mn	55	2	He	109.496	7.984	79594	3.40	100	109.5	90	110	
Fe	56	2	He	9474.315	8.948	12122527	2.76	10000	94.7	90	110	
Co	59	2	He	96.640	8.603	248121	1.66	100	96.6	90	110	
Ni	60	2	He	96.847	9.762	69274	3.35	100	96.8	90	110	
Cu	63	2	He	95.309	9.492	183728	2.69	100	95.3	90	110	
Zn	66	2	He	97.343	10.377	29100	2.91	100	97.3	90	110	
As	75	2	He	95.522	8.576	24099	4.04	100	95.5	90	110	
Se	78	2	He	87.724	2.884	993	5.17	100	87.7	90	110	CCV Main CR1-2 Failed
B	11	1	nogas	1403.897	1.716	1815513	0.81	500	280.8	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	22221.752	10.220	4248109	0.91	5000	444.4	90	110	CCV Main CR1-2 Failed
Ca	43	1	nogas	10646.404	1.355	191635	0.55	10000	106.5	90	110	
Ca	44	1	nogas	10780.294	1.338	3241736	2.46	10000	107.8	90	110	
Fe	56	1	nogas	10503.170	1.266	119883582	0.61	10000	105.0	90	110	
Se	77	1	nogas	120.612	5.507	14559	4.61	100	120.6	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	104.878	7.123	9916	5.86	100	104.9	90	110	
Mo	95	1	nogas	103.062	1.994	237845	3.36	100	103.1	90	110	
Sn	118	1	nogas	107.071	4.910	315909	0.95	100	107.1	90	110	
Ba	137	1	nogas	108.472	4.005	159528	1.53	100	108.5	90	110	
Sb	121	2	He	89.998	6.100	85388	1.72	100	90.0	90	110	CCV Main CR1-2 Failed
Li	7	1	nogas	107.133	1.896	602438	1.10	100	107.1	90	110	
P	31	1	nogas	533.315	1.215	394763	1.18	500	106.7	90	110	
La	139	1	nogas	182.967	48.682	310	41.19	100	183.0	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	605.862	12.520	113	13.48	100	605.9	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	305568	2.49	359778	84.93	70	125	
Ge	72	1	nogas	1350407	1.37	1412575	95.60	70	125	
In	115	1	nogas	944398	5.48	1018869	92.69	70	125	
Bi	209	1	nogas	537994	2.33	569248	94.51	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	141568	7.95	135587	104.41	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	109_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T12:26:16-05:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.079	27.1	243	23.7	1	
Na	23	1	nogas	23.189	4.5	591753	3.7	100	
Mg	24	1	nogas	10.600	21.0	86386	22.4	100	
Al	27	1	nogas	0.906	19.1	20001	4.6	5	
K	39	1	nogas	7.374	189.5	3812418	0.7	100	
Ti	47	1	nogas	0.147	15.4	333	6.9	2.5	
V	51	1	nogas	-0.504	-22.4	43190	1.2	2.5	
Cr	52	1	nogas	0.598	5.2	23615	4.0	2.5	
Mn	55	1	nogas	2.276	3.9	38494	3.5	2.5	
Co	59	1	nogas	0.067	51.7	1290	33.0	2.5	
Ni	60	1	nogas	-0.275	-15.2	433	25.4	2.5	
Cu	63	1	nogas	-0.528	-11.0	5484	4.5	2.5	
Zn	66	1	nogas	-0.096	-14.5	587	5.2	2.5	
As	75	1	nogas	1.064	13.0	19134	1.8	2.5	
Sr	88	1	nogas	0.156	16.8	2410	16.3	2.5	
Ag	107	1	nogas	0.077	31.3	520	29.1	2.5	
Cd	111	1	nogas	0.075	74.5	117	54.4	1	
Sb	121	1	nogas	-0.662	-2.5	3014	3.3	2.5	
Tl	205	1	nogas	0.565	68.4	3411	71.9	1	
Pb	208	1	nogas	0.063	83.5	1030	43.2	2.5	
U	238	1	nogas	0.127	57.5	1077	54.8	2.5	
[Pb]	206	1	nogas	0.053	113.3	257	51.4	2.5	
[Pb]	207	1	nogas	0.058	113.4	227	53.4	2.5	
Na	23	2	He	28.913	6.9	19377	3.5	100	
Mg	24	2	He	5.229	30.6	757	23.0	100	
Al	27	2	He	-1.978	-76.2	90	48.4	5	
K	39	2	He	19.724	49.8	19724	4.3	100	
Ca	43	2	He	-24.990	-87.8	3	173.2	100	
Ca	44	2	He	10.247	101.2	370	12.4	100	
V	51	2	He	-0.213	-3.7	141	7.3	2.5	
Cr	52	2	He	-0.149	-37.3	973	10.5	2.5	
Mn	55	2	He	1.783	3.9	1360	4.1	2.5	
Fe	56	2	He	5.738	12.5	13051	5.9	100	
Co	59	2	He	0.032	11.5	120	8.3	2.5	
Ni	60	2	He	-0.694	-6.2	83	34.6	2.5	
Cu	63	2	He	-0.696	-13.6	977	15.9	2.5	
Zn	66	2	He	-0.419	-8.8	77	15.1	2.5	
As	75	2	He	0.155	33.1	54	21.5	2.5	
Se	78	2	He	1.519	96.0	40	39.7	2.5	
B	11	1	nogas	761.436	3.3	1127051	3.3	10	CCB Main CR1 Failed
Si	28	1	nogas	-4005.328	-66.9	3362498	0.3	5	
Ca	43	1	nogas	31.850	9.9	1023	5.0	100	
Ca	44	1	nogas	-34.304	-34.9	115446	0.2	100	
Fe	56	1	nogas	13.272	63.5	1569303	8.2	100	
Se	77	1	nogas	7.184	49.1	6191	3.5	2.5	CCB Main CR1 Failed
Se	82	1	nogas	1.278	88.4	363	29.4	2.5	
Mo	95	1	nogas	0.320	60.7	937	52.8	2.5	
Sn	118	1	nogas	0.240	16.6	1160	12.2	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.269	7.1	570	4.6	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	-0.737	-15.6	480	19.9	2.5	
P	31	1	nogas	-4.152	-20.8	25110	1.1	10	
La	139	1	nogas	-2.320	-311.5	60	16.7	2.5	
Au	197	1	nogas	204.345	141.3	50	100.0	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	347152	0.60	359778	96.49	70	125	
Ge	72	1	nogas	1444434	3.34	1412575	102.26	70	125	
In	115	1	nogas	1023333	1.31	1018869	100.44	70	125	
Bi	209	1	nogas	570222	5.97	569248	100.17	70	125	
Ge	72	2	He	133553	1.63	135587	98.50	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	120_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T12:48:25-05:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	102.943	2.492	245462	1.38	100	102.9	90	110	
Na	23	1	nogas	10154.133	2.505	108676577	1.12	10000	101.5	90	110	
Mg	24	1	nogas	10252.274	1.803	72590866	1.59	10000	102.5	90	110	
Al	27	1	nogas	132.189	16.752	1121150	12.98	100	132.2	90	110	CCV Main CR1-2 Failed
K	39	1	nogas	10953.606	3.289	108078873	1.03	10000	109.5	90	110	
Ti	47	1	nogas	104.955	0.337	91984	3.98	100	105.0	90	110	
V	51	1	nogas	110.834	4.902	1379253	2.96	100	110.8	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	105.081	3.344	1070597	1.40	100	105.1	90	110	
Mn	55	1	nogas	111.616	2.569	1407689	1.77	100	111.6	90	110	CCV Main CR1-2 Failed
Co	59	1	nogas	104.206	2.634	1085034	1.60	100	104.2	90	110	
Ni	60	1	nogas	108.645	3.371	247106	0.94	100	108.6	90	110	
Cu	63	1	nogas	105.138	2.452	571406	2.42	100	105.1	90	110	
Zn	66	1	nogas	107.925	3.508	169598	1.85	100	107.9	90	110	
As	75	1	nogas	108.520	4.791	225850	0.63	100	108.5	90	110	
Sr	88	1	nogas	104.747	4.962	1285459	5.33	100	104.7	90	110	
Ag	107	1	nogas	104.026	5.221	538486	1.42	100	104.0	90	110	
Cd	111	1	nogas	102.812	5.569	108406	3.10	100	102.8	90	110	
Sb	121	1	nogas	106.140	1.685	485433	2.55	100	106.1	90	110	
Tl	205	1	nogas	99.409	1.903	567703	2.67	100	99.4	90	110	
Pb	208	1	nogas	92.556	1.761	779285	1.76	100	92.6	90	110	
U	238	1	nogas	105.386	1.500	750974	0.39	100	105.4	90	110	
[Pb]	206	1	nogas	99.891	0.777	191188	1.88	100	99.9	90	110	
[Pb]	207	1	nogas	99.192	1.685	169356	2.80	100	99.2	90	110	
Na	23	2	He	10658.622	1.654	2209630	2.07	10000	106.6	90	110	
Mg	24	2	He	9841.110	0.424	958900	1.63	10000	98.4	90	110	
Al	27	2	He	116.182	7.544	3454	6.98	100	116.2	90	110	CCV Main CR1-2 Failed
K	39	2	He	9302.885	1.558	826939	1.52	10000	93.0	90	110	
Ca	43	2	He	10239.839	8.117	2577	7.71	10000	102.4	90	110	
Ca	44	2	He	10121.899	0.530	42228	1.21	10000	101.2	90	110	
V	51	2	He	101.600	1.379	125469	0.87	100	101.6	90	110	
Cr	52	2	He	101.064	0.822	154042	1.39	100	101.1	90	110	
Mn	55	2	He	105.365	1.398	69036	2.96	100	105.4	90	110	
Fe	56	2	He	10124.976	0.838	11683496	2.27	10000	101.2	90	110	
Co	59	2	He	104.004	0.581	240812	2.17	100	104.0	90	110	
Ni	60	2	He	102.046	2.170	65808	0.86	100	102.0	90	110	
Cu	63	2	He	103.256	1.852	179352	1.12	100	103.3	90	110	
Zn	66	2	He	105.716	1.503	28506	0.51	100	105.7	90	110	
As	75	2	He	101.439	2.397	23069	3.56	100	101.4	90	110	
Se	78	2	He	96.981	5.329	985	4.98	100	97.0	90	110	
B	11	1	nogas	927.125	2.380	1244511	1.29	500	185.4	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	22156.652	22.757	4096657	1.89	5000	443.1	90	110	CCV Main CR1-2 Failed
Ca	43	1	nogas	11056.969	4.068	192067	1.64	10000	110.6	90	110	CCV Main CR1-2 Failed
Ca	44	1	nogas	10971.464	5.429	3180262	1.42	10000	109.7	90	110	
Fe	56	1	nogas	10678.019	3.350	117618986	0.86	10000	106.8	90	110	
Se	77	1	nogas	127.017	5.114	14526	1.26	100	127.0	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	109.475	6.304	9980	2.80	100	109.5	90	110	
Mo	95	1	nogas	106.441	2.405	237150	3.30	100	106.4	90	110	
Sn	118	1	nogas	102.050	3.037	313483	3.30	100	102.0	90	110	
Ba	137	1	nogas	103.935	5.658	158936	2.16	100	103.9	90	110	
Sb	121	2	He	96.819	1.719	82645	2.41	100	96.8	90	110	
Li	7	1	nogas	103.519	1.228	602554	0.48	100	103.5	90	110	
P	31	1	nogas	544.173	2.933	388336	1.86	500	108.8	90	110	
La	139	1	nogas	184.273	4.133	323	4.72	100	184.3	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	357.263	17.137	77	15.06	100	357.3	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	315759	1.14	359778	87.76	70	125	
Ge	72	1	nogas	1304519	4.21	1412575	92.35	70	125	
In	115	1	nogas	981823	3.58	1018869	96.36	70	125	
Bi	209	1	nogas	572694	1.12	569248	100.61	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	127088	1.62	135587	93.73	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	121_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T12:50:23-05:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.106	34.7	313	32.6	1	
Na	23	1	nogas	34.562	11.3	685500	6.7	100	
Mg	24	1	nogas	14.212	25.7	107941	24.6	100	
Al	27	1	nogas	0.963	7.6	19824	6.3	5	
K	39	1	nogas	11.570	119.1	3714186	0.5	100	
Ti	47	1	nogas	0.135	35.9	310	16.8	2.5	
V	51	1	nogas	-0.091	-286.8	46868	4.7	2.5	
Cr	52	1	nogas	0.293	28.2	19487	7.8	2.5	
Mn	55	1	nogas	2.004	7.4	33451	8.3	2.5	
Co	59	1	nogas	0.081	16.7	1393	14.0	2.5	
Ni	60	1	nogas	-0.213	-36.9	567	35.5	2.5	
Cu	63	1	nogas	-0.614	-5.3	4791	1.4	2.5	
Zn	66	1	nogas	-0.095	-36.3	567	10.6	2.5	
As	75	1	nogas	0.797	100.8	17842	5.9	2.5	
Sr	88	1	nogas	0.218	25.2	3140	25.5	2.5	
Ag	107	1	nogas	0.110	7.7	680	8.9	2.5	
Cd	111	1	nogas	0.064	52.7	103	36.6	1	
Sb	121	1	nogas	-0.698	-4.2	2727	3.6	2.5	
Tl	205	1	nogas	0.635	67.6	3807	69.7	1	
Pb	208	1	nogas	0.092	55.9	1267	34.0	2.5	
U	238	1	nogas	0.147	46.1	1213	43.8	2.5	
[Pb]	206	1	nogas	0.105	94.7	357	58.4	2.5	
[Pb]	207	1	nogas	0.061	62.9	230	32.8	2.5	
Na	23	2	He	34.143	4.9	20017	1.4	100	
Mg	24	2	He	6.857	11.0	900	8.8	100	
Al	27	2	He	-1.702	-98.0	97	52.1	5	
K	39	2	He	8.174	91.3	18720	3.5	100	
Ca	43	2	He	-24.961	-88.1	3	173.2	100	
Ca	44	2	He	-2.009	-943.7	310	27.9	100	
V	51	2	He	-0.201	-6.2	153	9.2	2.5	
Cr	52	2	He	-0.211	-26.6	853	11.4	2.5	
Mn	55	2	He	1.386	24.6	1063	22.7	2.5	
Fe	56	2	He	10.368	6.7	18236	6.4	100	
Co	59	2	He	0.033	88.6	120	58.3	2.5	
Ni	60	2	He	-0.630	-3.3	123	12.4	2.5	
Cu	63	2	He	-0.804	-6.0	763	8.9	2.5	
Zn	66	2	He	-0.390	-46.1	83	61.6	2.5	
As	75	2	He	0.061	71.1	31	30.9	2.5	
Se	78	2	He	0.643	9.9	30	0.0	2.5	
B	11	1	nogas	451.497	0.5	673916	1.8	10	CCB Main CR1 Failed
Si	28	1	nogas	-4660.609	-63.4	3209421	0.6	5	
Ca	43	1	nogas	45.262	11.3	1237	11.0	100	
Ca	44	1	nogas	-46.456	-10.1	107601	2.4	100	
Fe	56	1	nogas	22.378	16.6	1616354	4.2	100	
Se	77	1	nogas	8.474	116.1	6051	9.3	2.5	CCB Main CR1 Failed
Se	82	1	nogas	1.706	55.6	390	20.4	2.5	
Mo	95	1	nogas	0.363	55.7	1007	50.7	2.5	
Sn	118	1	nogas	0.335	32.1	1457	23.4	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.377	16.9	737	12.2	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	-0.795	-2.9	420	6.3	2.5	
P	31	1	nogas	-3.285	-9.2	24810	3.1	10	
La	139	1	nogas	-9.232	-244.5	50	69.3	2.5	
Au	197	1	nogas	226.307	16.6	53	10.8	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	346383	2.22	359778	96.28	70	125	
Ge	72	1	nogas	1391052	3.55	1412575	98.48	70	125	
In	115	1	nogas	1018123	1.91	1018869	99.93	70	125	
Bi	209	1	nogas	571862	4.37	569248	100.46	70	125	
Ge	72	2	He	130390	2.15	135587	96.17	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	129_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T13:06:32-05:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	100.782	2.838	245280	1.24	100	100.8	90	110	
Na	23	1	nogas	10218.707	3.802	107851486	2.24	10000	102.2	90	110	
Mg	24	1	nogas	10260.499	3.191	71636745	1.56	10000	102.6	90	110	
Al	27	1	nogas	112.308	1.021	988057	0.92	100	112.3	90	110	CCV Main CR1-2 Failed
K	39	1	nogas	10304.685	1.380	105173609	0.52	10000	103.0	90	110	
Ti	47	1	nogas	101.561	2.048	91847	3.27	100	101.6	90	110	
V	51	1	nogas	104.854	3.990	1349982	4.27	100	104.9	90	110	
Cr	52	1	nogas	100.210	3.736	1054908	4.09	100	100.2	90	110	
Mn	55	1	nogas	103.177	2.636	1343497	1.71	100	103.2	90	110	
Co	59	1	nogas	97.525	2.606	1048147	1.96	100	97.5	90	110	
Ni	60	1	nogas	102.130	2.413	239856	1.16	100	102.1	90	110	
Cu	63	1	nogas	100.683	1.711	565051	0.43	100	100.7	90	110	
Zn	66	1	nogas	103.813	0.822	168472	2.15	100	103.8	90	110	
As	75	1	nogas	101.349	1.875	218896	2.27	100	101.3	90	110	
Sr	88	1	nogas	98.129	3.828	1242974	4.50	100	98.1	90	110	
Ag	107	1	nogas	100.165	1.821	535650	2.54	100	100.2	90	110	
Cd	111	1	nogas	102.330	2.760	106093	3.84	100	102.3	90	110	
Sb	121	1	nogas	100.997	2.424	476978	2.54	100	101.0	90	110	
Tl	205	1	nogas	99.032	4.921	554954	0.54	100	99.0	90	110	
Pb	208	1	nogas	92.948	1.660	782578	1.66	100	92.9	90	110	
U	238	1	nogas	105.624	4.045	739009	2.08	100	105.6	90	110	
[Pb]	206	1	nogas	103.144	3.784	193793	1.51	100	103.1	90	110	
[Pb]	207	1	nogas	103.117	3.490	172837	2.04	100	103.1	90	110	
Na	23	2	He	10435.688	0.750	2166684	2.19	10000	104.4	90	110	
Mg	24	2	He	9705.122	1.884	946700	0.59	10000	97.1	90	110	
Al	27	2	He	126.494	2.323	3754	3.33	100	126.5	90	110	CCV Main CR1-2 Failed
K	39	2	He	9257.046	0.809	822953	0.79	10000	92.6	90	110	
Ca	43	2	He	10179.427	5.546	2567	6.68	10000	101.8	90	110	
Ca	44	2	He	10000.325	2.588	41794	4.32	10000	100.0	90	110	
V	51	2	He	101.872	1.457	125973	1.57	100	101.9	90	110	
Cr	52	2	He	102.290	0.176	156110	1.84	100	102.3	90	110	
Mn	55	2	He	104.233	3.559	68347	1.66	100	104.2	90	110	
Fe	56	2	He	10255.774	1.939	11846789	0.91	10000	102.6	90	110	
Co	59	2	He	102.475	1.779	237523	0.47	100	102.5	90	110	
Ni	60	2	He	100.784	2.790	65092	2.68	100	100.8	90	110	
Cu	63	2	He	102.544	3.196	178375	3.18	100	102.5	90	110	
Zn	66	2	He	105.722	2.621	28559	4.49	100	105.7	90	110	
As	75	2	He	100.696	1.102	22924	0.96	100	100.7	90	110	
Se	78	2	He	94.328	2.197	960	3.76	100	94.3	90	110	
B	11	1	nogas	710.798	2.216	977732	0.72	500	142.2	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	14012.808	10.098	3889690	0.73	5000	280.3	90	110	CCV Main CR1-2 Failed
Ca	43	1	nogas	10050.631	1.645	180357	3.20	10000	100.5	90	110	
Ca	44	1	nogas	10179.908	1.728	3056402	0.85	10000	101.8	90	110	
Fe	56	1	nogas	10008.334	3.813	113892353	3.40	10000	100.1	90	110	
Se	77	1	nogas	105.605	1.917	13352	2.79	100	105.6	90	110	
Se	82	1	nogas	103.819	5.768	9786	4.78	100	103.8	90	110	
Mo	95	1	nogas	99.271	1.425	228277	2.40	100	99.3	90	110	
Sn	118	1	nogas	101.482	1.782	306218	1.58	100	101.5	90	110	
Ba	137	1	nogas	99.909	1.795	150257	2.97	100	99.9	90	110	
Sb	121	2	He	96.626	1.855	82575	0.94	100	96.6	90	110	
Li	7	1	nogas	100.737	2.595	599198	1.16	100	100.7	90	110	
P	31	1	nogas	513.332	2.399	379570	0.61	500	102.7	90	110	
La	139	1	nogas	127.110	63.526	237	46.54	100	127.1	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	480.281	30.133	97	26.03	100	480.3	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	322341	1.96	359778	89.59	70	125	
Ge	72	1	nogas	1345749	1.75	1412575	95.27	70	125	
In	115	1	nogas	964155	1.34	1018869	94.63	70	125	
Bi	209	1	nogas	562833	4.50	569248	98.87	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	127259	2.01	135587	93.86	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	130_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T13:08:31-05:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.099	49.4	290	43.2	1	
Na	23	1	nogas	70.428	2.0	1045558	2.8	100	
Mg	24	1	nogas	10.705	34.6	79360	33.9	100	
Al	27	1	nogas	0.655	9.3	16337	4.4	5	
K	39	1	nogas	25.258	28.7	3695799	1.6	100	
Ti	47	1	nogas	0.046	170.7	217	31.4	2.5	
V	51	1	nogas	-0.607	-17.8	38614	3.3	2.5	
Cr	52	1	nogas	0.066	95.9	16334	5.2	2.5	
Mn	55	1	nogas	0.611	5.1	14152	2.0	2.5	
Co	59	1	nogas	0.099	39.2	1523	27.3	2.5	
Ni	60	1	nogas	-0.215	-26.5	537	23.1	2.5	
Cu	63	1	nogas	-0.640	-6.7	4451	5.1	2.5	
Zn	66	1	nogas	-0.015	-800.6	670	28.0	2.5	
As	75	1	nogas	0.229	122.1	16004	3.4	2.5	
Sr	88	1	nogas	0.143	22.4	2063	20.0	2.5	
Ag	107	1	nogas	0.062	38.3	400	32.5	2.5	
Cd	111	1	nogas	0.093	37.5	133	30.3	1	
Sb	121	1	nogas	-0.844	-4.0	1940	7.8	2.5	
Tl	205	1	nogas	0.681	61.2	4208	65.1	1	
Pb	208	1	nogas	0.093	48.2	1277	29.5	2.5	
U	238	1	nogas	0.161	56.7	1370	55.6	2.5	
[Pb]	206	1	nogas	0.065	89.2	287	43.6	2.5	
[Pb]	207	1	nogas	0.101	33.9	310	25.2	2.5	
Na	23	2	He	76.968	6.6	28662	2.3	100	
Mg	24	2	He	4.548	12.3	660	9.1	100	
Al	27	2	He	-1.171	-112.1	110	32.8	5	
K	39	2	He	7.981	65.9	18703	2.4	100	
Ca	43	2	He	-11.369	-200.4	7	86.6	100	
Ca	44	2	He	3.864	395.6	330	21.0	100	
V	51	2	He	-0.224	-2.9	121	7.8	2.5	
Cr	52	2	He	-0.174	-42.5	897	11.4	2.5	
Mn	55	2	He	0.388	34.2	387	23.3	2.5	
Fe	56	2	He	4.873	7.6	11564	5.0	100	
Co	59	2	He	0.041	30.1	137	21.1	2.5	
Ni	60	2	He	-0.606	-5.9	137	15.2	2.5	
Cu	63	2	He	-0.762	-4.1	827	5.5	2.5	
Zn	66	2	He	-0.259	-128.7	117	77.3	2.5	
As	75	2	He	0.062	27.4	31	12.4	2.5	
Se	78	2	He	-0.046	-508.4	23	10.2	2.5	
B	11	1	nogas	213.046	2.7	321532	2.1	10	CCB Main CR1 Failed
Si	28	1	nogas	-2911.222	-47.2	3150741	1.7	5	
Ca	43	1	nogas	17.998	21.9	700	11.2	100	
Ca	44	1	nogas	-68.985	-9.0	96682	0.8	100	
Fe	56	1	nogas	15.482	36.5	1472310	4.8	100	
Se	77	1	nogas	0.822	845.8	5231	9.8	2.5	
Se	82	1	nogas	0.632	162.7	277	32.8	2.5	
Mo	95	1	nogas	0.407	33.8	1057	29.9	2.5	
Sn	118	1	nogas	0.210	38.2	1047	26.0	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.130	71.9	343	45.2	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	-0.909	-12.8	317	31.2	2.5	
P	31	1	nogas	-1.038	-49.4	25311	2.3	10	
La	139	1	nogas	-20.076	-69.3	33	62.4	2.5	
Au	197	1	nogas	106.235	61.4	33	34.6	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	340320	0.80	359778	94.59	70	125	
Ge	72	1	nogas	1332984	1.25	1412575	94.37	70	125	
In	115	1	nogas	1002387	2.35	1018869	98.38	70	125	
Bi	209	1	nogas	592110	6.25	569248	104.02	70	125	
Ge	72	2	He	128568	1.72	135587	94.82	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	141_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T13:38:55-05:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	103.083	3.938	244997	1.33	100	103.1	90	110	
Na	23	1	nogas	10532.129	1.786	110956365	0.82	10000	105.3	90	110	
Mg	24	1	nogas	10501.792	1.554	73190060	0.38	10000	105.0	90	110	
Al	27	1	nogas	120.102	10.859	1051667	8.29	100	120.1	90	110	CCV Main CR1-2 Failed
K	39	1	nogas	10366.769	2.848	105510736	1.93	10000	103.7	90	110	
Ti	47	1	nogas	102.405	1.870	92346	1.10	100	102.4	90	110	
V	51	1	nogas	107.438	4.223	1378108	2.97	100	107.4	90	110	
Cr	52	1	nogas	100.718	1.592	1057348	1.24	100	100.7	90	110	
Mn	55	1	nogas	104.515	2.279	1357421	1.26	100	104.5	90	110	
Co	59	1	nogas	97.134	0.833	1041607	2.48	100	97.1	90	110	
Ni	60	1	nogas	103.392	1.305	242240	1.72	100	103.4	90	110	
Cu	63	1	nogas	103.071	4.043	576576	1.19	100	103.1	90	110	
Zn	66	1	nogas	105.518	2.549	170742	1.22	100	105.5	90	110	
As	75	1	nogas	104.182	2.092	223997	2.09	100	104.2	90	110	
Sr	88	1	nogas	100.956	1.677	1276012	4.36	100	101.0	90	110	
Ag	107	1	nogas	99.869	2.021	532606	0.90	100	99.9	90	110	
Cd	111	1	nogas	102.032	0.877	106173	3.72	100	102.0	90	110	
Sb	121	1	nogas	100.567	2.851	473643	0.39	100	100.6	90	110	
Tl	205	1	nogas	97.413	2.835	560440	2.01	100	97.4	90	110	
Pb	208	1	nogas	93.613	2.239	788171	2.24	100	93.6	90	110	
U	238	1	nogas	104.889	1.220	753216	1.06	100	104.9	90	110	
[Pb]	206	1	nogas	99.885	1.955	192609	1.02	100	99.9	90	110	
[Pb]	207	1	nogas	100.862	1.455	173514	2.15	100	100.9	90	110	
Na	23	2	He	10727.527	1.731	2194782	1.08	10000	107.3	90	110	
Mg	24	2	He	10007.889	2.597	962219	0.17	10000	100.1	90	110	
Al	27	2	He	119.632	10.545	3504	9.01	100	119.6	90	110	CCV Main CR1-2 Failed
K	39	2	He	9188.850	1.611	817023	1.58	10000	91.9	90	110	
Ca	43	2	He	9995.769	1.752	2484	1.16	10000	100.0	90	110	
Ca	44	2	He	10055.017	0.629	41416	2.80	10000	100.6	90	110	
V	51	2	He	101.519	1.169	123754	1.59	100	101.5	90	110	
Cr	52	2	He	101.395	1.925	152521	1.03	100	101.4	90	110	
Mn	55	2	He	102.859	1.685	66509	1.80	100	102.9	90	110	
Fe	56	2	He	10210.296	1.222	11628500	2.01	10000	102.1	90	110	
Co	59	2	He	103.035	1.989	235423	1.14	100	103.0	90	110	
Ni	60	2	He	102.960	1.154	65551	2.39	100	103.0	90	110	
Cu	63	2	He	103.452	2.234	177411	3.39	100	103.5	90	110	
Zn	66	2	He	104.349	2.531	27771	0.53	100	104.3	90	110	
As	75	2	He	101.635	2.391	22807	1.69	100	101.6	90	110	
Se	78	2	He	96.337	10.085	966	10.41	100	96.3	90	110	
B	11	1	nogas	645.038	2.549	868104	0.66	500	129.0	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	15274.503	33.349	3930005	2.70	5000	305.5	90	110	CCV Main CR1-2 Failed
Ca	43	1	nogas	10160.805	1.505	181839	2.21	10000	101.6	90	110	
Ca	44	1	nogas	10209.306	2.475	3057239	2.14	10000	102.1	90	110	
Fe	56	1	nogas	9927.022	2.132	112690540	1.05	10000	99.3	90	110	
Se	77	1	nogas	114.647	2.577	14009	1.22	100	114.6	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	105.289	5.334	9893	2.80	100	105.3	90	110	
Mo	95	1	nogas	100.715	0.215	231035	2.71	100	100.7	90	110	
Sn	118	1	nogas	101.883	3.324	308414	1.51	100	101.9	90	110	
Ba	137	1	nogas	100.844	2.784	152159	2.71	100	100.8	90	110	
Sb	121	2	He	96.825	1.561	81570	1.23	100	96.8	90	110	
Li	7	1	nogas	102.490	3.179	594917	0.41	100	102.5	90	110	
P	31	1	nogas	513.379	1.831	378682	1.17	500	102.7	90	110	
La	139	1	nogas	177.190	30.063	307	19.65	100	177.2	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	279.563	64.919	63	50.76	100	279.6	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	314908	2.96	359778	87.53	70	125	
Ge	72	1	nogas	1342561	2.78	1412575	95.04	70	125	
In	115	1	nogas	968098	4.46	1018869	95.02	70	125	
Bi	209	1	nogas	577087	0.95	569248	101.38	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	125462	2.75	135587	92.53	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	142_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T13:40:53-05:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.062	20.5	200	17.3	1	
Na	23	1	nogas	69.757	7.4	1071938	6.6	100	
Mg	24	1	nogas	6.853	51.0	53906	50.1	100	
Al	27	1	nogas	4.242	109.3	49587	83.2	5	
K	39	1	nogas	4.079	167.7	3689207	0.6	100	
Ti	47	1	nogas	0.011	586.9	197	31.1	2.5	
V	51	1	nogas	-0.497	-65.0	42288	10.4	2.5	
Cr	52	1	nogas	-0.137	-77.7	15050	6.2	2.5	
Mn	55	1	nogas	0.266	16.1	10273	4.1	2.5	
Co	59	1	nogas	0.053	66.2	1087	34.6	2.5	
Ni	60	1	nogas	-0.262	-21.4	453	28.7	2.5	
Cu	63	1	nogas	-0.740	-3.4	4127	3.6	2.5	
Zn	66	1	nogas	-0.214	-13.5	373	12.7	2.5	
As	75	1	nogas	0.204	82.3	16875	2.9	2.5	
Sr	88	1	nogas	0.103	34.5	1650	27.1	2.5	
Ag	107	1	nogas	0.046	39.8	327	29.4	2.5	
Cd	111	1	nogas	0.028	109.5	63	50.8	1	
Sb	121	1	nogas	-0.938	-3.7	1593	9.1	2.5	
Tl	205	1	nogas	0.717	58.0	4444	60.0	1	
Pb	208	1	nogas	0.065	82.3	1043	43.1	2.5	
U	238	1	nogas	0.111	68.6	1000	61.1	2.5	
[Pb]	206	1	nogas	0.066	31.5	290	18.2	2.5	
[Pb]	207	1	nogas	0.060	162.1	240	76.5	2.5	
Na	23	2	He	73.529	1.2	27771	4.0	100	
Mg	24	2	He	2.029	37.6	410	20.8	100	
Al	27	2	He	0.264	525.7	150	24.0	5	
K	39	2	He	-4.758	-84.3	17595	2.0	100	
Ca	43	2	He	-24.191	-96.5	3	173.2	100	
Ca	44	2	He	-14.593	-37.4	250	6.9	100	
V	51	2	He	-0.238	-7.6	103	22.9	2.5	
Cr	52	2	He	-0.191	-7.0	867	5.5	2.5	
Mn	55	2	He	0.171	55.2	240	23.2	2.5	
Fe	56	2	He	2.246	10.3	8435	3.4	100	
Co	59	2	He	0.024	58.6	97	36.3	2.5	
Ni	60	2	He	-0.648	-6.4	110	27.3	2.5	
Cu	63	2	He	-0.818	-10.3	723	18.9	2.5	
Zn	66	2	He	-0.482	-14.4	57	36.7	2.5	
As	75	2	He	0.063	106.6	31	48.3	2.5	
Se	78	2	He	-0.105	-322.9	22	18.2	2.5	
B	11	1	nogas	132.983	4.3	211962	3.0	10	CCB Main CR1 Failed
Si	28	1	nogas	-9147.069	-20.9	3057863	1.7	5	
Ca	43	1	nogas	17.908	37.7	737	15.6	100	
Ca	44	1	nogas	-94.073	-6.8	94654	0.6	100	
Fe	56	1	nogas	2.288	366.4	1400596	5.9	100	
Se	77	1	nogas	-1.969	-212.1	5311	7.4	2.5	
Se	82	1	nogas	0.562	42.5	287	8.8	2.5	
Mo	95	1	nogas	0.380	29.4	1050	24.0	2.5	
Sn	118	1	nogas	0.190	25.4	990	14.1	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.043	74.4	207	23.9	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	-0.909	-5.2	313	9.7	2.5	
P	31	1	nogas	-2.696	-54.2	25561	2.9	10	
La	139	1	nogas	-4.066	-437.1	57	44.4	2.5	
Au	197	1	nogas	122.854	27.1	37	15.7	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	348250	1.78	359778	96.80	70	125	
Ge	72	1	nogas	1409721	1.58	1412575	99.80	70	125	
In	115	1	nogas	1014166	1.82	1018869	99.54	70	125	
Bi	209	1	nogas	596255	4.11	569248	104.74	70	125	
Ge	72	2	He	127700	3.30	135587	94.18	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	153_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T14:02:51-05:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	103.382	3.166	260361	2.36	100	103.4	90	110	
Na	23	1	nogas	10230.719	3.445	114625032	1.74	10000	102.3	90	110	
Mg	24	1	nogas	10175.682	2.339	75429220	1.64	10000	101.8	90	110	
Al	27	1	nogas	111.668	1.095	1028402	1.83	100	111.7	90	110	CCV Main CR1-2 Failed
K	39	1	nogas	10366.017	2.785	110734290	3.34	10000	103.7	90	110	
Ti	47	1	nogas	100.630	2.001	95220	0.94	100	100.6	90	110	
V	51	1	nogas	105.451	0.881	1420724	2.01	100	105.5	90	110	
Cr	52	1	nogas	99.023	1.179	1091092	0.75	100	99.0	90	110	
Mn	55	1	nogas	105.318	1.973	1435878	3.70	100	105.3	90	110	
Co	59	1	nogas	98.730	0.882	1110878	2.29	100	98.7	90	110	
Ni	60	1	nogas	102.226	3.288	251381	4.21	100	102.2	90	110	
Cu	63	1	nogas	99.465	2.883	584462	3.23	100	99.5	90	110	
Zn	66	1	nogas	103.385	2.022	175628	3.38	100	103.4	90	110	
As	75	1	nogas	101.431	2.344	229237	1.17	100	101.4	90	110	
Sr	88	1	nogas	101.931	2.970	1351322	3.65	100	101.9	90	110	
Ag	107	1	nogas	98.037	2.161	548808	3.45	100	98.0	90	110	
Cd	111	1	nogas	103.158	2.305	109533	2.70	100	103.2	90	110	
Sb	121	1	nogas	102.929	2.078	508776	3.40	100	102.9	90	110	
Tl	205	1	nogas	98.840	9.269	581265	3.68	100	98.8	90	110	
Pb	208	1	nogas	98.399	2.920	828444	2.92	100	98.4	90	110	
U	238	1	nogas	104.462	7.905	767178	3.22	100	104.5	90	110	
[Pb]	206	1	nogas	103.987	7.418	205100	2.24	100	104.0	90	110	
[Pb]	207	1	nogas	104.136	4.649	183417	2.59	100	104.1	90	110	
Na	23	2	He	10607.659	3.539	2254955	3.06	10000	106.1	90	110	
Mg	24	2	He	9797.989	3.046	978975	2.89	10000	98.0	90	110	
Al	27	2	He	108.883	5.235	3330	6.00	100	108.9	90	110	
K	39	2	He	9402.822	2.055	835629	2.01	10000	94.0	90	110	
Ca	43	2	He	9681.986	7.103	2500	7.33	10000	96.8	90	110	
Ca	44	2	He	9910.665	1.288	42415	2.57	10000	99.1	90	110	
V	51	2	He	100.938	1.376	127856	2.22	100	100.9	90	110	
Cr	52	2	He	100.760	0.765	157501	0.91	100	100.8	90	110	
Mn	55	2	He	102.508	0.706	68868	0.83	100	102.5	90	110	
Fe	56	2	He	10174.649	0.772	12039167	1.11	10000	101.7	90	110	
Co	59	2	He	105.119	1.211	249586	1.62	100	105.1	90	110	
Ni	60	2	He	104.770	2.057	69292	2.59	100	104.8	90	110	
Cu	63	2	He	103.688	2.137	184684	0.75	100	103.7	90	110	
Zn	66	2	He	102.339	0.558	28309	1.09	100	102.3	90	110	
As	75	2	He	101.039	1.363	23561	1.80	100	101.0	90	110	
Se	78	2	He	90.360	7.503	942	5.96	100	90.4	90	110	
B	11	1	nogas	603.982	2.614	862210	1.78	500	120.8	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	9283.721	24.123	3863400	1.32	5000	185.7	90	110	CCV Main CR1-2 Failed
Ca	43	1	nogas	10274.000	0.509	192934	2.07	10000	102.7	90	110	
Ca	44	1	nogas	10330.503	0.653	3244809	1.10	10000	103.3	90	110	
Fe	56	1	nogas	10132.502	1.930	120670999	1.25	10000	101.3	90	110	
Se	77	1	nogas	107.729	8.638	14136	3.65	100	107.7	90	110	
Se	82	1	nogas	98.361	4.000	9716	2.31	100	98.4	90	110	
Mo	95	1	nogas	99.125	3.740	238577	4.22	100	99.1	90	110	
Sn	118	1	nogas	101.584	2.764	314030	3.42	100	101.6	90	110	
Ba	137	1	nogas	103.709	3.400	159751	3.94	100	103.7	90	110	
Sb	121	2	He	95.921	3.693	83965	3.22	100	95.9	90	110	
Li	7	1	nogas	104.431	2.340	641744	1.57	100	104.4	90	110	
P	31	1	nogas	514.683	0.643	398342	1.58	500	102.9	90	110	
La	139	1	nogas	124.739	29.565	240	22.05	100	124.7	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	315.979	88.211	70	65.47	100	316.0	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	333497	0.83	359778	92.70	70	125	
Ge	72	1	nogas	1408529	1.73	1412575	99.71	70	125	
In	115	1	nogas	987566	0.84	1018869	96.93	70	125	
Bi	209	1	nogas	591824	5.61	569248	103.97	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	130331	1.37	135587	96.12	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	154_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T14:04:50-05:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.089	29.0	283	24.0	1	
Na	23	1	nogas	40.221	9.0	763077	4.3	100	
Mg	24	1	nogas	5.751	52.9	46510	48.3	100	
Al	27	1	nogas	1.618	7.3	26038	0.7	5	
K	39	1	nogas	9.671	101.3	3747152	0.7	100	
Ti	47	1	nogas	0.023	329.2	210	37.2	2.5	
V	51	1	nogas	-0.866	-41.2	37410	10.5	2.5	
Cr	52	1	nogas	-0.088	-85.0	15593	3.8	2.5	
Mn	55	1	nogas	0.375	9.1	11761	1.7	2.5	
Co	59	1	nogas	0.063	18.7	1210	13.3	2.5	
Ni	60	1	nogas	-0.277	-2.9	417	7.7	2.5	
Cu	63	1	nogas	-0.679	-4.3	4477	2.0	2.5	
Zn	66	1	nogas	-0.234	-20.4	340	25.1	2.5	
As	75	1	nogas	-0.471	-104.0	15443	4.3	2.5	
Sr	88	1	nogas	0.125	24.3	1950	23.7	2.5	
Ag	107	1	nogas	0.063	50.8	427	45.3	2.5	
Cd	111	1	nogas	0.032	27.5	70	14.3	1	
Sb	121	1	nogas	-0.701	-6.5	2757	10.4	2.5	
Tl	205	1	nogas	0.720	60.2	4541	62.3	1	
Pb	208	1	nogas	0.069	52.5	1077	28.3	2.5	
U	238	1	nogas	0.104	57.8	957	50.7	2.5	
[Pb]	206	1	nogas	0.079	50.8	320	24.8	2.5	
[Pb]	207	1	nogas	0.048	8.6	220	4.5	2.5	
Na	23	2	He	40.083	7.8	21299	1.9	100	
Mg	24	2	He	1.984	4.3	413	1.4	100	
Al	27	2	He	-1.683	-37.0	97	15.8	5	
K	39	2	He	-7.252	-146.8	17378	5.3	100	
Ca	43	2	He	-12.176	-181.4	7	86.6	100	
Ca	44	2	He	7.508	356.8	350	32.5	100	
V	51	2	He	-0.241	-8.7	103	25.9	2.5	
Cr	52	2	He	-0.141	-85.1	963	20.2	2.5	
Mn	55	2	He	0.109	127.7	207	48.5	2.5	
Fe	56	2	He	1.213	25.2	7402	4.6	100	
Co	59	2	He	0.020	89.5	90	48.4	2.5	
Ni	60	2	He	-0.632	-14.9	123	54.0	2.5	
Cu	63	2	He	-0.809	-4.9	757	7.3	2.5	
Zn	66	2	He	-0.498	-32.9	53	84.5	2.5	
As	75	2	He	0.017	168.7	21	32.9	2.5	
Se	78	2	He	-0.534	-47.3	18	11.1	2.5	
B	11	1	nogas	103.577	5.8	178246	3.8	10	CCB Main CR1 Failed
Si	28	1	nogas	-8976.956	-21.8	3065634	1.3	5	
Ca	43	1	nogas	22.029	61.1	820	34.0	100	
Ca	44	1	nogas	-98.740	-8.4	93251	1.3	100	
Fe	56	1	nogas	12.208	59.4	1518843	6.4	100	
Se	77	1	nogas	-5.374	-73.4	5034	6.3	2.5	
Se	82	1	nogas	0.729	63.0	303	16.9	2.5	
Mo	95	1	nogas	0.335	59.0	953	53.6	2.5	
Sn	118	1	nogas	0.177	36.6	983	21.9	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.042	65.7	213	21.1	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	-0.762	-18.4	447	25.0	2.5	
P	31	1	nogas	-0.202	-664.6	27363	2.1	10	
La	139	1	nogas	-25.329	-39.4	27	57.3	2.5	
Au	197	1	nogas	67.064	125.8	27	57.3	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	367382	1.47	359778	102.11	70	125	
Ge	72	1	nogas	1410369	3.43	1412575	99.84	70	125	
In	115	1	nogas	1050491	0.48	1018869	103.10	70	125	
Bi	209	1	nogas	607983	3.78	569248	106.80	70	125	
Ge	72	2	He	130589	3.22	135587	96.31	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	165_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T14:26:46-05:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	98.501	1.450	265363	2.26	100	98.5	90	110	
Na	23	1	nogas	10227.805	4.249	117264186	2.19	10000	102.3	90	110	
Mg	24	1	nogas	10294.139	3.666	78075487	1.42	10000	102.9	90	110	
Al	27	1	nogas	110.902	2.903	1070886	0.80	100	110.9	90	110	CCV Main CR1-2 Failed
K	39	1	nogas	10058.192	0.985	112813065	2.96	10000	100.6	90	110	
Ti	47	1	nogas	96.050	2.541	95318	0.16	100	96.1	90	110	
V	51	1	nogas	101.028	4.109	1428932	1.98	100	101.0	90	110	
Cr	52	1	nogas	95.678	0.585	1106450	2.33	100	95.7	90	110	
Mn	55	1	nogas	102.997	1.045	1472480	1.74	100	103.0	90	110	
Co	59	1	nogas	99.368	6.567	1171579	4.62	100	99.4	90	110	
Ni	60	1	nogas	100.149	1.561	258256	1.97	100	100.1	90	110	
Cu	63	1	nogas	96.968	2.710	597605	0.25	100	97.0	90	110	
Zn	66	1	nogas	101.702	0.573	181195	2.40	100	101.7	90	110	
As	75	1	nogas	97.968	1.815	232825	1.75	100	98.0	90	110	
Sr	88	1	nogas	103.985	4.431	1444995	2.83	100	104.0	90	110	
Ag	107	1	nogas	99.140	3.779	581674	1.64	100	99.1	90	110	
Cd	111	1	nogas	100.818	1.642	118073	3.11	100	100.8	90	110	
Sb	121	1	nogas	103.466	3.941	535973	1.49	100	103.5	90	110	
Tl	205	1	nogas	100.001	8.155	637148	4.15	100	100.0	90	110	
Pb	208	1	nogas	104.641	1.678	880970	1.68	100	104.6	90	110	
U	238	1	nogas	105.094	6.744	836010	2.81	100	105.1	90	110	
[Pb]	206	1	nogas	102.988	5.905	220045	1.77	100	103.0	90	110	
[Pb]	207	1	nogas	101.701	4.702	193906	1.68	100	101.7	90	110	
Na	23	2	He	10708.808	2.635	2282026	2.31	10000	107.1	90	110	
Mg	24	2	He	9698.930	1.099	971483	1.11	10000	97.0	90	110	
Al	27	2	He	112.872	7.176	3454	6.62	100	112.9	90	110	CCV Main CR1-2 Failed
K	39	2	He	9355.747	1.519	831536	1.49	10000	93.6	90	110	
Ca	43	2	He	10110.818	11.518	2617	11.68	10000	101.1	90	110	
Ca	44	2	He	9980.664	3.173	42813	3.45	10000	99.8	90	110	
V	51	2	He	101.439	0.536	128792	0.89	100	101.4	90	110	
Cr	52	2	He	102.010	1.760	159829	1.80	100	102.0	90	110	
Mn	55	2	He	104.847	2.109	70608	2.10	100	104.8	90	110	
Fe	56	2	He	10303.014	0.455	12220551	0.44	10000	103.0	90	110	
Co	59	2	He	104.733	2.382	249256	2.10	100	104.7	90	110	
Ni	60	2	He	104.232	3.655	69096	3.36	100	104.2	90	110	
Cu	63	2	He	102.308	0.448	182725	0.59	100	102.3	90	110	
Zn	66	2	He	104.895	2.776	29083	3.09	100	104.9	90	110	
As	75	2	He	100.593	1.956	23514	2.24	100	100.6	90	110	
Se	78	2	He	94.449	5.583	987	5.74	100	94.4	90	110	
B	11	1	nogas	555.460	2.368	849421	0.58	500	111.1	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	3928.097	55.620	3805231	0.38	5000	78.6	90	110	CCV Main CR1-2 Failed
Ca	43	1	nogas	9960.356	1.214	196164	1.82	10000	99.6	90	110	
Ca	44	1	nogas	9941.443	1.675	3279488	1.06	10000	99.4	90	110	
Fe	56	1	nogas	9844.262	1.268	123004424	1.21	10000	98.4	90	110	
Se	77	1	nogas	96.645	2.972	13896	1.65	100	96.6	90	110	
Se	82	1	nogas	99.712	4.067	10326	2.47	100	99.7	90	110	
Mo	95	1	nogas	100.677	1.402	254165	3.27	100	100.7	90	110	
Sn	118	1	nogas	98.900	2.971	337055	1.58	100	98.9	90	110	
Ba	137	1	nogas	98.122	3.865	166667	3.80	100	98.1	90	110	
Sb	121	2	He	99.720	0.790	87468	0.72	100	99.7	90	110	
Li	7	1	nogas	99.132	1.526	653316	3.57	100	99.1	90	110	
P	31	1	nogas	491.705	1.128	400387	1.43	500	98.3	90	110	
La	139	1	nogas	117.260	25.675	253	19.87	100	117.3	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	361.843	20.037	87	17.63	100	361.8	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	356706	2.17	359778	99.15	70	125	
Ge	72	1	nogas	1477365	2.45	1412575	104.59	70	125	
In	115	1	nogas	1089796	4.53	1018869	106.96	70	125	
Bi	209	1	nogas	640424	4.22	569248	112.50	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	130642	0.37	135587	96.35	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	166_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T14:28:45-05:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.041	97.9	153	72.7	1	
Na	23	1	nogas	58.214	3.6	980941	2.3	100	
Mg	24	1	nogas	6.276	48.5	51223	44.6	100	
Al	27	1	nogas	2.301	54.5	33168	30.7	5	
K	39	1	nogas	0.701	1811.5	3791308	1.7	100	
Ti	47	1	nogas	-0.003	-996.3	190	9.1	2.5	
V	51	1	nogas	-1.385	-7.6	31866	4.1	2.5	
Cr	52	1	nogas	-0.256	-33.7	14269	1.6	2.5	
Mn	55	1	nogas	0.297	11.1	11093	1.2	2.5	
Co	59	1	nogas	0.055	47.5	1160	26.1	2.5	
Ni	60	1	nogas	-0.290	-14.1	403	31.4	2.5	
Cu	63	1	nogas	-0.686	-11.0	4601	6.9	2.5	
Zn	66	1	nogas	-0.222	-22.6	370	20.4	2.5	
As	75	1	nogas	-0.818	-60.7	15273	5.8	2.5	
Sr	88	1	nogas	0.106	32.4	1753	26.2	2.5	
Ag	107	1	nogas	0.069	14.8	477	12.6	2.5	
Cd	111	1	nogas	0.043	104.0	87	59.2	1	
Sb	121	1	nogas	-0.141	-86.5	5684	8.7	2.5	
Tl	205	1	nogas	0.677	62.4	4581	65.7	1	
Pb	208	1	nogas	0.073	38.5	1113	21.3	2.5	
U	238	1	nogas	0.099	72.4	987	64.6	2.5	
[Pb]	206	1	nogas	0.044	32.5	267	12.1	2.5	
[Pb]	207	1	nogas	0.057	48.4	253	25.7	2.5	
Na	23	2	He	53.504	0.7	24353	1.0	100	
Mg	24	2	He	3.306	22.1	550	12.6	100	
Al	27	2	He	-0.026	-3089.5	147	15.7	5	
K	39	2	He	-9.554	-43.5	17178	2.1	100	
Ca	43	2	He	13.535	434.5	13	114.6	100	
Ca	44	2	He	-2.440	-527.5	310	17.1	100	
V	51	2	He	-0.256	-3.9	83	15.6	2.5	
Cr	52	2	He	-0.182	-26.5	907	8.3	2.5	
Mn	55	2	He	0.006	391.6	137	11.2	2.5	
Fe	56	2	He	1.466	29.3	7765	5.9	100	
Co	59	2	He	0.023	54.2	97	29.9	2.5	
Ni	60	2	He	-0.687	-5.4	87	29.0	2.5	
Cu	63	2	He	-0.850	-3.2	690	6.3	2.5	
Zn	66	2	He	-0.535	-15.3	43	53.3	2.5	
As	75	2	He	0.054	76.7	30	33.3	2.5	
Se	78	2	He	-0.876	-52.7	15	31.5	2.5	
B	11	1	nogas	80.890	7.3	146740	5.7	10	CCB Main CR1 Failed
Si	28	1	nogas	-14377.937	-15.1	2934912	2.4	5	
Ca	43	1	nogas	18.018	15.8	767	2.0	100	
Ca	44	1	nogas	-118.321	-12.4	90548	0.2	100	
Fe	56	1	nogas	0.737	806.1	1434065	1.8	100	
Se	77	1	nogas	-13.602	-29.9	4534	7.0	2.5	
Se	82	1	nogas	1.269	45.0	367	11.4	2.5	
Mo	95	1	nogas	0.439	54.7	1240	47.7	2.5	
Sn	118	1	nogas	0.200	44.6	1087	21.3	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.085	109.6	287	48.9	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	-0.383	-10.2	783	5.2	2.5	
P	31	1	nogas	-1.542	-120.2	27373	0.5	10	
La	139	1	nogas	-8.874	-123.5	53	28.6	2.5	
Au	197	1	nogas	157.039	16.7	47	12.4	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	376186	0.79	359778	104.56	70	125	
Ge	72	1	nogas	1464163	5.35	1412575	103.65	70	125	
In	115	1	nogas	1092218	8.72	1018869	107.20	70	125	
Bi	209	1	nogas	646967	5.03	569248	113.65	70	125	
Ge	72	2	He	131666	0.84	135587	97.11	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	170_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T14:38:50-05:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	99.152	2.203	254751	1.97	100	99.2	90	110	
Na	23	1	nogas	10205.111	3.046	113676557	1.25	10000	102.1	90	110	
Mg	24	1	nogas	10083.517	1.237	74329002	2.49	10000	100.8	90	110	
Al	27	1	nogas	111.423	2.161	1017826	0.19	100	111.4	90	110	CCV Main CR1-2 Failed
K	39	1	nogas	10453.699	3.003	110719602	1.48	10000	104.5	90	110	
Ti	47	1	nogas	99.844	1.004	93759	2.61	100	99.8	90	110	
V	51	1	nogas	104.169	2.014	1392703	1.33	100	104.2	90	110	
Cr	52	1	nogas	99.191	1.745	1084241	1.09	100	99.2	90	110	
Mn	55	1	nogas	106.074	3.562	1433958	2.60	100	106.1	90	110	
Co	59	1	nogas	98.683	2.040	1101256	0.18	100	98.7	90	110	
Ni	60	1	nogas	102.073	1.302	248951	0.76	100	102.1	90	110	
Cu	63	1	nogas	99.921	1.884	582365	0.99	100	99.9	90	110	
Zn	66	1	nogas	103.069	0.954	173692	2.33	100	103.1	90	110	
As	75	1	nogas	99.536	0.956	223512	1.27	100	99.5	90	110	
Sr	88	1	nogas	102.521	1.829	1348532	3.34	100	102.5	90	110	
Ag	107	1	nogas	101.029	2.447	560847	0.73	100	101.0	90	110	
Cd	111	1	nogas	101.262	2.224	112077	1.82	100	101.3	90	110	
Sb	121	1	nogas	102.325	2.322	501881	3.95	100	102.3	90	110	
Tl	205	1	nogas	101.356	6.834	605015	1.76	100	101.4	90	110	
Pb	208	1	nogas	96.978	2.062	816486	2.06	100	97.0	90	110	
U	238	1	nogas	105.320	4.500	785414	2.73	100	105.3	90	110	
[Pb]	206	1	nogas	102.910	7.613	205828	2.57	100	102.9	90	110	
[Pb]	207	1	nogas	100.565	6.992	179443	1.88	100	100.6	90	110	
Na	23	2	He	10590.835	2.890	2246240	3.44	10000	105.9	90	110	
Mg	24	2	He	9830.574	2.015	979969	3.08	10000	98.3	90	110	
Al	27	2	He	116.864	1.285	3554	2.04	100	116.9	90	110	CCV Main CR1-2 Failed
K	39	2	He	9505.804	1.219	844584	1.19	10000	95.1	90	110	
Ca	43	2	He	10188.863	0.813	2624	0.44	10000	101.9	90	110	
Ca	44	2	He	10000.105	3.030	42673	1.93	10000	100.0	90	110	
V	51	2	He	102.855	0.905	129941	1.48	100	102.9	90	110	
Cr	52	2	He	102.441	1.506	159693	0.50	100	102.4	90	110	
Mn	55	2	He	102.804	1.904	68905	3.00	100	102.8	90	110	
Fe	56	2	He	10272.459	1.537	12126006	2.70	10000	102.7	90	110	
Co	59	2	He	104.355	1.407	247170	2.40	100	104.4	90	110	
Ni	60	2	He	103.721	2.497	68424	2.47	100	103.7	90	110	
Cu	63	2	He	101.795	0.929	180939	2.08	100	101.8	90	110	
Zn	66	2	He	104.585	0.342	28853	0.93	100	104.6	90	110	
As	75	2	He	102.391	1.363	23816	1.77	100	102.4	90	110	
Se	78	2	He	94.016	4.209	977	4.26	100	94.0	90	110	
B	11	1	nogas	545.388	0.938	796014	1.78	500	109.1	90	110	
Si	28	1	nogas	7605.827	16.270	3760241	0.63	5000	152.1	90	110	CCV Main CR1-2 Failed
Ca	43	1	nogas	10285.025	0.697	191629	2.63	10000	102.9	90	110	
Ca	44	1	nogas	10326.587	0.917	3218594	2.72	10000	103.3	90	110	
Fe	56	1	nogas	10160.556	2.052	120047903	1.69	10000	101.6	90	110	
Se	77	1	nogas	94.653	2.872	12985	1.02	100	94.7	90	110	
Se	82	1	nogas	103.004	2.980	10086	2.69	100	103.0	90	110	
Mo	95	1	nogas	101.662	1.384	242699	0.59	100	101.7	90	110	
Sn	118	1	nogas	98.548	3.221	317506	2.32	100	98.5	90	110	
Ba	137	1	nogas	102.462	3.130	164478	1.54	100	102.5	90	110	
Sb	121	2	He	97.533	0.487	85157	1.64	100	97.5	90	110	
Li	7	1	nogas	100.185	2.528	629246	2.47	100	100.2	90	110	
P	31	1	nogas	509.102	1.705	391152	0.91	500	101.8	90	110	
La	139	1	nogas	120.275	25.656	243	18.53	100	120.3	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	361.262	60.199	80	45.07	100	361.3	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	340191	0.91	359778	94.56	70	125	
Ge	72	1	nogas	1397435	1.98	1412575	98.93	70	125	
In	115	1	nogas	1029598	1.59	1018869	101.05	70	125	
Bi	209	1	nogas	600067	5.24	569248	105.41	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	130001	1.17	135587	95.88	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	171_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T14:40:49-05:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.054	80.8	190	65.9	1	
Na	23	1	nogas	81.124	1.9	1251947	4.7	100	
Mg	24	1	nogas	6.589	42.2	54500	42.9	100	
Al	27	1	nogas	1.618	0.7	26379	3.1	5	
K	39	1	nogas	6.965	178.9	3765025	1.0	100	
Ti	47	1	nogas	-0.010	-498.0	180	29.4	2.5	
V	51	1	nogas	-1.575	-13.8	28594	10.4	2.5	
Cr	52	1	nogas	-0.292	-6.2	13548	2.6	2.5	
Mn	55	1	nogas	0.331	4.7	11297	1.3	2.5	
Co	59	1	nogas	0.057	70.8	1157	41.6	2.5	
Ni	60	1	nogas	-0.257	-30.3	473	42.7	2.5	
Cu	63	1	nogas	-0.729	-3.4	4244	0.5	2.5	
Zn	66	1	nogas	-0.179	-50.9	440	37.8	2.5	
As	75	1	nogas	-1.088	-74.4	14309	9.3	2.5	
Sr	88	1	nogas	0.097	17.4	1597	16.5	2.5	
Ag	107	1	nogas	0.067	38.2	457	32.9	2.5	
Cd	111	1	nogas	0.032	95.9	70	51.5	1	
Sb	121	1	nogas	-0.859	-6.2	2007	14.0	2.5	
Tl	205	1	nogas	0.752	63.0	4818	68.4	1	
Pb	208	1	nogas	0.077	63.7	1143	36.0	2.5	
U	238	1	nogas	0.119	64.8	1090	61.9	2.5	
[Pb]	206	1	nogas	0.055	40.0	277	24.1	2.5	
[Pb]	207	1	nogas	0.090	84.0	300	50.3	2.5	
Na	23	2	He	82.553	4.4	29690	1.9	100	
Mg	24	2	He	2.039	18.3	410	6.5	100	
Al	27	2	He	-1.087	-171.1	113	50.9	5	
K	39	2	He	-4.989	-86.0	17575	2.1	100	
Ca	43	2	He	1.952	61.4	10	0.0	100	
Ca	44	2	He	2.821	160.4	323	4.7	100	
V	51	2	He	-0.244	-5.7	96	18.5	2.5	
Cr	52	2	He	-0.156	-50.5	920	12.8	2.5	
Mn	55	2	He	0.067	22.8	173	8.8	2.5	
Fe	56	2	He	1.360	38.7	7432	9.6	100	
Co	59	2	He	0.031	74.8	113	48.6	2.5	
Ni	60	2	He	-0.684	-4.1	87	24.0	2.5	
Cu	63	2	He	-0.866	-4.9	643	11.5	2.5	
Zn	66	2	He	-0.520	-27.5	47	86.6	2.5	
As	75	2	He	0.020	308.6	21	63.8	2.5	
Se	78	2	He	-0.639	-10.0	17	6.9	2.5	
B	11	1	nogas	64.017	2.0	118507	3.9	10	CCB Main CR1 Failed
Si	28	1	nogas	-11039.599	-19.5	3011812	0.1	5	
Ca	43	1	nogas	18.628	16.5	760	4.6	100	
Ca	44	1	nogas	-103.638	-5.9	92923	1.1	100	
Fe	56	1	nogas	1.082	417.9	1405180	5.3	100	
Se	77	1	nogas	-11.152	-35.3	4621	4.5	2.5	
Se	82	1	nogas	0.120	438.1	247	20.4	2.5	
Mo	95	1	nogas	0.376	58.7	1060	52.9	2.5	
Sn	118	1	nogas	0.160	40.6	910	26.3	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.036	41.0	200	15.0	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	-0.906	-11.6	317	26.3	2.5	
P	31	1	nogas	0.737	142.1	28392	0.9	10	
La	139	1	nogas	-15.747	-187.5	40	109.0	2.5	
Au	197	1	nogas	122.179	144.7	37	83.3	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	370967	2.31	359778	103.11	70	125	
Ge	72	1	nogas	1427843	3.07	1412575	101.08	70	125	
In	115	1	nogas	1027368	3.17	1018869	100.83	70	125	
Bi	209	1	nogas	610973	7.36	569248	107.33	70	125	
Ge	72	2	He	127984	3.08	135587	94.39	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	174_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T21:24:42-05:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	99.210	2.741	240906	3.65	100	99.2	90	110	
Na	23	1	nogas	10561.338	2.778	113061732	3.69	10000	105.6	90	110	
Mg	24	1	nogas	10326.033	3.283	73121735	3.75	10000	103.3	90	110	
Al	27	1	nogas	115.079	1.225	1041220	0.94	100	115.1	90	110	CCV Main CR1-2 Failed
K	39	1	nogas	10380.761	1.881	108969027	1.62	10000	103.8	90	110	
Ti	47	1	nogas	98.416	2.012	91532	0.62	100	98.4	90	110	
V	51	1	nogas	101.128	1.407	1340895	0.74	100	101.1	90	110	
Cr	52	1	nogas	97.020	2.121	1050911	0.42	100	97.0	90	110	
Mn	55	1	nogas	107.376	2.314	1438163	1.84	100	107.4	90	110	
Co	59	1	nogas	96.477	1.344	1066781	1.40	100	96.5	90	110	
Ni	60	1	nogas	99.946	1.714	241518	1.39	100	99.9	90	110	
Cu	63	1	nogas	97.047	2.045	560575	0.86	100	97.0	90	110	
Zn	66	1	nogas	102.475	0.970	171063	1.06	100	102.5	90	110	
As	75	1	nogas	96.763	2.580	215718	2.69	100	96.8	90	110	
Sr	88	1	nogas	102.346	2.645	1333081	0.92	100	102.3	90	110	
Ag	107	1	nogas	98.337	1.866	541017	2.95	100	98.3	90	110	
Cd	111	1	nogas	103.128	0.633	110682	0.36	100	103.1	90	110	
Sb	121	1	nogas	101.009	1.152	490728	1.25	100	101.0	90	110	
Tl	205	1	nogas	93.596	8.428	569515	4.94	100	93.6	90	110	
Pb	208	1	nogas	96.568	1.840	813042	1.84	100	96.6	90	110	
U	238	1	nogas	98.406	7.362	747409	3.33	100	98.4	90	110	
[Pb]	206	1	nogas	99.195	7.031	202369	3.63	100	99.2	90	110	
[Pb]	207	1	nogas	98.648	5.588	179581	2.30	100	98.6	90	110	
Na	23	2	He	10975.791	1.357	2173634	1.41	10000	109.8	90	110	
Mg	24	2	He	9891.050	1.551	920781	1.53	10000	98.9	90	110	
Al	27	2	He	111.532	1.202	3174	0.36	100	111.5	90	110	CCV Main CR1-2 Failed
K	39	2	He	8759.649	0.644	779702	0.63	10000	87.6	90	110	CCV Main CR1-2 Failed
Ca	43	2	He	10339.624	16.342	2487	16.33	10000	103.4	90	110	
Ca	44	2	He	10149.530	4.299	40451	3.80	10000	101.5	90	110	
V	51	2	He	101.665	0.845	119961	0.16	100	101.7	90	110	
Cr	52	2	He	101.843	3.250	148305	3.22	100	101.8	90	110	
Mn	55	2	He	100.454	0.255	62880	0.60	100	100.5	90	110	
Fe	56	2	He	10300.810	1.866	11356354	2.43	10000	103.0	90	110	
Co	59	2	He	103.760	0.669	229527	1.17	100	103.8	90	110	
Ni	60	2	He	103.104	1.012	63533	1.00	100	103.1	90	110	
Cu	63	2	He	103.107	1.642	171125	0.87	100	103.1	90	110	
Zn	66	2	He	103.439	0.190	26656	0.99	100	103.4	90	110	
As	75	2	He	99.801	2.923	21679	2.17	100	99.8	90	110	
Se	78	2	He	87.530	4.233	851	4.00	100	87.5	90	110	CCV Main CR1-2 Failed
B	11	1	nogas	496.296	3.855	686035	4.69	500	99.3	90	110	
Si	28	1	nogas	5809.824	19.650	3647891	0.74	5000	116.2	90	110	CCV Main CR1-2 Failed
Ca	43	1	nogas	9960.965	0.701	183859	2.00	10000	99.6	90	110	
Ca	44	1	nogas	10124.985	2.595	3128727	3.55	10000	101.2	90	110	
Fe	56	1	nogas	10059.834	2.254	117753690	0.87	10000	100.6	90	110	
Se	77	1	nogas	88.308	5.752	12364	3.97	100	88.3	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	99.739	5.618	9686	6.24	100	99.7	90	110	
Mo	95	1	nogas	100.164	4.630	236810	2.86	100	100.2	90	110	
Sn	118	1	nogas	99.689	1.882	311492	2.10	100	99.7	90	110	
Ba	137	1	nogas	101.300	2.900	157720	3.01	100	101.3	90	110	
Sb	121	2	He	93.703	1.490	76451	1.40	100	93.7	90	110	
Li	7	1	nogas	100.292	1.235	595143	0.66	100	100.3	90	110	
P	31	1	nogas	503.576	3.015	383534	0.98	500	100.7	90	110	
La	139	1	nogas	132.192	13.402	253	9.94	100	132.2	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	343.888	41.187	80	37.50	100	343.9	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	321443	0.94	359778	89.34	70	125	
Ge	72	1	nogas	1384407	1.82	1412575	98.01	70	125	
In	115	1	nogas	998267	0.29	1018869	97.98	70	125	
Bi	209	1	nogas	611598	4.24	569248	107.44	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	121422	0.80	135587	89.55	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	175_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T21:26:43-05:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.054	47.2	173	40.9	1	
Na	23	1	nogas	13.641	3.5	442991	4.0	100	
Mg	24	1	nogas	5.524	44.4	43265	43.0	100	
Al	27	1	nogas	1.870	8.0	27236	3.8	5	
K	39	1	nogas	17.323	61.4	3677452	1.3	100	
Ti	47	1	nogas	0.055	187.4	230	42.8	2.5	
V	51	1	nogas	-0.649	-55.4	38680	9.9	2.5	
Cr	52	1	nogas	-0.409	-13.1	11647	5.6	2.5	
Mn	55	1	nogas	0.554	10.3	13632	4.5	2.5	
Co	59	1	nogas	0.042	38.1	933	20.6	2.5	
Ni	60	1	nogas	-0.303	-8.2	340	17.9	2.5	
Cu	63	1	nogas	-0.924	-1.7	2940	4.8	2.5	
Zn	66	1	nogas	0.388	19.0	1340	10.5	2.5	
As	75	1	nogas	-1.027	-11.0	13732	0.6	2.5	
Sr	88	1	nogas	0.084	32.9	1353	28.3	2.5	
Ag	107	1	nogas	0.079	47.6	497	43.0	2.5	
Cd	111	1	nogas	0.062	75.5	100	52.9	1	
Sb	121	1	nogas	-0.177	-39.2	5104	5.4	2.5	
Tl	205	1	nogas	0.798	53.0	5051	54.0	1	
Pb	208	1	nogas	0.057	91.8	973	45.0	2.5	
U	238	1	nogas	0.096	74.8	903	63.2	2.5	
[Pb]	206	1	nogas	0.050	127.8	267	51.2	2.5	
[Pb]	207	1	nogas	0.055	103.0	237	46.5	2.5	
Na	23	2	He	17.565	6.1	15396	1.2	100	
Mg	24	2	He	2.330	45.2	417	22.8	100	
Al	27	2	He	0.146	908.6	140	24.7	5	
K	39	2	He	-26.322	-20.9	15720	3.0	100	
Ca	43	2	He	-9.830	-245.2	7	86.6	100	
Ca	44	2	He	24.556	150.1	393	37.2	100	
V	51	2	He	-0.234	-4.7	103	12.6	2.5	
Cr	52	2	He	0.052	120.6	1177	8.6	2.5	
Mn	55	2	He	0.220	20.9	260	10.2	2.5	
Fe	56	2	He	12.646	1.1	19504	0.3	100	
Co	59	2	He	0.044	46.3	137	33.8	2.5	
Ni	60	2	He	-0.714	-2.7	63	18.2	2.5	
Cu	63	2	He	-0.893	-7.1	567	17.4	2.5	
Zn	66	2	He	0.090	38.2	200	5.0	2.5	
As	75	2	He	-0.002	-1827.4	16	44.6	2.5	
Se	78	2	He	-0.621	-88.7	16	33.1	2.5	
B	11	1	nogas	26.174	2.5	54438	5.2	10	CCB Main CR1 Failed
Si	28	1	nogas	-11842.250	-16.1	2825597	1.7	5	
Ca	43	1	nogas	14.544	52.7	650	22.7	100	
Ca	44	1	nogas	-96.786	-6.4	90196	0.1	100	
Fe	56	1	nogas	14.055	21.0	1480881	4.2	100	
Se	77	1	nogas	-13.800	-32.5	4184	7.7	2.5	
Se	82	1	nogas	0.261	285.7	247	26.4	2.5	
Mo	95	1	nogas	0.403	47.7	1070	43.7	2.5	
Sn	118	1	nogas	0.145	22.4	830	11.0	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.056	126.5	223	47.9	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	-0.333	-32.6	763	12.1	2.5	
P	31	1	nogas	2.572	77.8	28215	3.0	10	
La	139	1	nogas	-15.004	-49.6	40	25.0	2.5	
Au	197	1	nogas	12.496	522.9	17	69.3	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	338991	3.89	359778	94.22	70	125	
Ge	72	1	nogas	1355149	1.97	1412575	95.93	70	125	
In	115	1	nogas	995450	2.04	1018869	97.70	70	125	
Bi	209	1	nogas	613702	3.35	569248	107.81	70	125	
Ge	72	2	He	121563	0.91	135587	89.66	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	185_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T21:46:44-05:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	100.944	1.450	237625	1.89	100	100.9	90	110	
Na	23	1	nogas	10479.824	3.537	111512007	3.74	10000	104.8	90	110	
Mg	24	1	nogas	10338.506	3.309	72774872	3.64	10000	103.4	90	110	
Al	27	1	nogas	113.776	2.541	1021627	3.92	100	113.8	90	110	CCV Main CR1-2 Failed
K	39	1	nogas	10305.357	3.383	107320386	2.46	10000	103.1	90	110	
Ti	47	1	nogas	99.342	3.211	91659	3.14	100	99.3	90	110	
V	51	1	nogas	102.041	1.871	1341648	0.67	100	102.0	90	110	
Cr	52	1	nogas	98.826	2.337	1061629	1.56	100	98.8	90	110	
Mn	55	1	nogas	106.613	2.698	1416621	2.71	100	106.6	90	110	
Co	59	1	nogas	97.267	1.528	1066831	0.97	100	97.3	90	110	
Ni	60	1	nogas	99.401	1.281	238329	2.63	100	99.4	90	110	
Cu	63	1	nogas	96.490	0.455	553067	2.11	100	96.5	90	110	
Zn	66	1	nogas	101.411	0.809	167951	1.83	100	101.4	90	110	
As	75	1	nogas	98.402	1.216	217393	3.16	100	98.4	90	110	
Sr	88	1	nogas	102.591	2.237	1325631	0.92	100	102.6	90	110	
Ag	107	1	nogas	98.560	2.208	537744	1.35	100	98.6	90	110	
Cd	111	1	nogas	105.392	2.822	107410	2.63	100	105.4	90	110	
Sb	121	1	nogas	94.504	3.165	455743	2.16	100	94.5	90	110	
Tl	205	1	nogas	97.865	5.190	550985	3.75	100	97.9	90	110	
Pb	208	1	nogas	91.045	3.269	766572	3.27	100	91.0	90	110	
U	238	1	nogas	103.764	2.074	729341	1.20	100	103.8	90	110	
[Pb]	206	1	nogas	99.325	4.699	187406	2.61	100	99.3	90	110	
[Pb]	207	1	nogas	100.223	6.089	168641	4.03	100	100.2	90	110	
Na	23	2	He	11221.985	3.479	2274490	1.75	10000	112.2	90	110	CCV Main CR1-2 Failed
Mg	24	2	He	10078.031	2.387	960453	1.25	10000	100.8	90	110	
Al	27	2	He	116.947	7.820	3400	7.35	100	116.9	90	110	CCV Main CR1-2 Failed
K	39	2	He	9275.087	1.610	824522	1.57	10000	92.8	90	110	
Ca	43	2	He	10570.969	4.463	2604	5.38	10000	105.7	90	110	
Ca	44	2	He	10015.155	0.821	40878	1.17	10000	100.2	90	110	
V	51	2	He	102.879	0.779	124294	1.26	100	102.9	90	110	
Cr	52	2	He	105.703	1.327	157555	1.07	100	105.7	90	110	
Mn	55	2	He	102.915	1.475	65951	0.67	100	102.9	90	110	
Fe	56	2	He	10319.271	1.386	11646826	0.73	10000	103.2	90	110	
Co	59	2	He	104.079	1.184	235776	2.89	100	104.1	90	110	
Ni	60	2	He	103.895	1.388	65551	2.07	100	103.9	90	110	
Cu	63	2	He	104.877	1.286	178189	0.97	100	104.9	90	110	
Zn	66	2	He	105.048	4.262	27705	2.89	100	105.0	90	110	
As	75	2	He	100.223	1.984	22290	0.83	100	100.2	90	110	
Se	78	2	He	96.293	6.899	956	4.89	100	96.3	90	110	
B	11	1	nogas	2324.311	2.131	3055780	0.72	500	464.9	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	14334.692	8.367	3983331	1.43	5000	286.7	90	110	CCV Main CR1-2 Failed
Ca	43	1	nogas	10019.793	3.775	183420	3.43	10000	100.2	90	110	
Ca	44	1	nogas	10122.926	4.051	3101758	3.10	10000	101.2	90	110	
Fe	56	1	nogas	10166.137	3.055	118026861	2.13	10000	101.7	90	110	
Se	77	1	nogas	96.752	0.784	12928	2.04	100	96.8	90	110	
Se	82	1	nogas	98.904	6.619	9523	5.39	100	98.9	90	110	
Mo	95	1	nogas	99.631	1.487	233855	3.75	100	99.6	90	110	
Sn	118	1	nogas	98.337	1.418	291807	2.06	100	98.3	90	110	
Ba	137	1	nogas	103.223	4.556	152587	3.98	100	103.2	90	110	
Sb	121	2	He	96.328	1.801	80432	0.51	100	96.3	90	110	
Li	7	1	nogas	102.361	1.927	588446	2.20	100	102.4	90	110	
P	31	1	nogas	505.543	2.561	381933	2.53	500	101.1	90	110	
La	139	1	nogas	109.997	35.369	210	25.20	100	110.0	90	110	
Au	197	1	nogas	343.368	50.612	73	41.66	100	343.4	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	311682	1.59	359778	86.63	70	125	
Ge	72	1	nogas	1373420	2.45	1412575	97.23	70	125	
In	115	1	nogas	947987	0.68	1018869	93.04	70	125	
Bi	209	1	nogas	564966	2.12	569248	99.25	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	124334	1.99	135587	91.70	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	186_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T21:48:42-05:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.077	83.0	240	72.2	1	
Na	23	1	nogas	69.113	8.7	1068618	4.5	100	
Mg	24	1	nogas	6.064	46.0	47741	39.9	100	
Al	27	1	nogas	1.953	2.2	28472	1.0	5	
K	39	1	nogas	74.963	8.4	4326233	0.7	100	
Ti	47	1	nogas	0.639	2.8	773	3.3	2.5	
V	51	1	nogas	0.342	127.6	51981	8.9	2.5	
Cr	52	1	nogas	1.503	7.0	32181	5.2	2.5	
Mn	55	1	nogas	0.541	5.9	13705	2.1	2.5	
Co	59	1	nogas	0.065	33.3	1203	21.0	2.5	
Ni	60	1	nogas	-0.310	-6.7	330	16.9	2.5	
Cu	63	1	nogas	-0.869	-1.5	3304	0.3	2.5	
Zn	66	1	nogas	0.388	35.7	1363	18.2	2.5	
As	75	1	nogas	-0.440	-34.2	15183	1.7	2.5	
Sr	88	1	nogas	0.108	23.2	1687	20.5	2.5	
Ag	107	1	nogas	0.062	51.0	413	43.3	2.5	
Cd	111	1	nogas	0.044	49.4	77	27.2	1	
Sb	121	1	nogas	-0.537	-11.6	3474	8.9	2.5	
Tl	205	1	nogas	0.667	62.1	4051	64.5	1	
Pb	208	1	nogas	0.046	92.5	887	40.7	2.5	
U	238	1	nogas	0.097	67.0	870	58.1	2.5	
[Pb]	206	1	nogas	0.040	74.5	233	28.5	2.5	
[Pb]	207	1	nogas	0.067	89.8	247	47.0	2.5	
Na	23	2	He	67.938	3.5	26425	2.6	100	
Mg	24	2	He	2.590	29.9	460	15.7	100	
Al	27	2	He	-0.793	-168.1	120	33.3	5	
K	39	2	He	54.570	1.2	22754	0.2	100	
Ca	43	2	He	15.376	143.2	13	43.3	100	
Ca	44	2	He	4.109	379.7	327	21.5	100	
V	51	2	He	-0.224	-5.4	121	14.1	2.5	
Cr	52	2	He	-0.047	-138.0	1077	9.5	2.5	
Mn	55	2	He	0.306	54.2	327	32.2	2.5	
Fe	56	2	He	13.392	1.8	21209	2.9	100	
Co	59	2	He	0.020	49.8	87	26.6	2.5	
Ni	60	2	He	-0.698	-3.6	77	19.9	2.5	
Cu	63	2	He	-0.971	-3.4	457	12.1	2.5	
Zn	66	2	He	0.108	129.0	213	16.5	2.5	
As	75	2	He	0.108	50.8	41	30.7	2.5	
Se	78	2	He	1.603	52.5	39	20.9	2.5	
B	11	1	nogas	1461.345	2.5	2154219	4.6	10	CCB Main CR1 Failed
Si	28	1	nogas	-5187.234	-16.7	3161930	0.8	5	
Ca	43	1	nogas	81.482	12.0	1887	8.1	100	
Ca	44	1	nogas	-71.432	-6.8	99305	0.7	100	
Fe	56	1	nogas	20.878	16.0	1585677	3.9	100	
Se	77	1	nogas	-1.678	-166.4	5214	2.9	2.5	
Se	82	1	nogas	3.908	13.1	597	9.2	2.5	CCB Main CR1 Failed
Mo	95	1	nogas	0.428	40.2	1147	36.7	2.5	
Sn	118	1	nogas	0.298	28.5	1270	18.4	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.086	90.5	263	44.0	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	-0.606	-4.3	567	4.4	2.5	
P	31	1	nogas	0.019	7755.9	26920	2.1	10	
La	139	1	nogas	-4.503	-566.6	53	65.8	2.5	
Au	197	1	nogas	149.692	172.0	40	114.6	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	348218	2.17	359778	96.79	70	125	
Ge	72	1	nogas	1379188	1.95	1412575	97.64	70	125	
In	115	1	nogas	967676	2.45	1018869	94.98	70	125	
Bi	209	1	nogas	581927	4.18	569248	102.23	70	125	
Ge	72	2	He	126819	1.71	135587	93.53	70	125	

Interference Check Solution A (ICS-A) Report

Sample Table

Sample Name	ICSA
Data File Name	187ICSA.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T21:50:44-05:00
Sample Type	ICSA
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.002	268.5	37	41.7	0	ICSA Main CR1 Failed
Na	23	1	nogas	101301.443	0.3	1024573923	1.2	0	
Mg	24	1	nogas	99988.220	1.5	670460748	0.9	0	
Al	27	1	nogas	97017.011	3.1	804582388	2.1	0	
K	39	1	nogas	102549.072	1.1	967984188	0.4	0	
Ti	47	1	nogas	2070.494	0.6	1781144	0.7	0	
V	51	1	nogas	-0.711	-24.7	35940	6.3	0	ICSA Main CR1 Failed
Cr	52	1	nogas	2.322	7.9	38013	5.4	0	ICSA Main CR1 Failed
Mn	55	1	nogas	0.623	6.8	13765	3.1	0	ICSA Main CR1 Failed
Co	59	1	nogas	0.145	13.2	1933	9.9	0	ICSA Main CR1 Failed
Ni	60	1	nogas	0.482	26.2	2070	12.6	0	ICSA Main CR1 Failed
Cu	63	1	nogas	0.218	17.6	8809	2.9	0	ICSA Main CR1 Failed
Zn	66	1	nogas	1.271	14.0	2627	10.6	0	ICSA Main CR1 Failed
As	75	1	nogas	3.097	9.1	20879	1.9	0	ICSA Main CR1 Failed
Sr	88	1	nogas	0.943	2.4	11641	2.8	0	ICSA Main CR1 Failed
Ag	107	1	nogas	0.037	24.3	257	18.4	0	ICSA Main CR1 Failed
Cd	111	1	nogas	0.637	10.8	640	8.7	0	ICSA Main CR1 Failed
Sb	121	1	nogas	-0.616	-7.6	2884	8.2	0	ICSA Main CR1 Failed
Tl	205	1	nogas	0.053	19.3	370	13.5	0	ICSA Main CR1 Failed
Pb	208	1	nogas	0.050	20.0	917	9.1	0	ICSA Main CR1 Failed
[Pb]	206	1	nogas	0.069	12.8	250	6.9	0	ICSA Main CR1 Failed
[Pb]	207	1	nogas	0.040	149.5	170	51.3	0	ICSA Main CR1 Failed
Na	23	2	He	104396.599	2.5	20164428	2.0	0	
Mg	24	2	He	99601.735	2.8	9085659	1.9	0	
Al	27	2	He	100313.244	3.1	2677745	2.0	0	
K	39	2	He	89400.849	2.8	7791838	2.8	0	
Ca	43	2	He	89127.211	1.7	20942	1.0	0	
Ca	44	2	He	94004.826	3.5	364834	2.7	0	
V	51	2	He	-0.253	-4.4	79	14.9	0	ICSA Main CR1 Failed
Cr	52	2	He	0.138	26.7	1273	5.9	0	ICSA Main CR1 Failed
Mn	55	2	He	0.457	4.6	400	4.3	0	ICSA Main CR1 Failed
Fe	56	2	He	101376.693	1.5	109494568	1.3	0	
Co	59	2	He	0.026	13.2	93	6.2	0	ICSA Main CR1 Failed
Ni	60	2	He	-0.447	-29.3	223	36.5	0	ICSA Main CR1 Failed
Cu	63	2	He	-0.655	-3.7	937	2.2	0	ICSA Main CR1 Failed
Zn	66	2	He	-0.026	-320.2	167	12.5	0	ICSA Main CR1 Failed
As	75	2	He	0.162	7.9	50	6.7	0	ICSA Main CR1 Failed
Se	78	2	He	2.854	45.4	48	26.0	0	ICSA Main CR1 Failed
B	11	1	nogas	1239.071	9.0	1583560	8.5	0	
Si	28	1	nogas	190.456	302.5	3155798	0.5	0	
Ca	43	1	nogas	103822.208	3.8	1771703	3.0	0	
Ca	44	1	nogas	102112.054	4.1	28206729	3.0	0	
Fe	56	1	nogas	100728.474	1.9	1081372724	1.7	0	
Se	77	1	nogas	21.801	12.5	6575	3.3	0	
Se	82	1	nogas	3.816	18.6	547	11.8	0	ICSA Main CR1 Failed
Mo	95	1	nogas	2031.190	1.8	4448804	0.8	0	
Sn	118	1	nogas	0.127	18.6	697	10.9	0	ICSA Main CR1 Failed
Ba	137	1	nogas	0.141	24.8	320	16.5	0	ICSA Main CR1 Failed
Sb	121	2	He	-0.600	-14.6	537	12.1	0	ICSA Main CR1 Failed

Interference Check Solution A (ICS-A) Report

P	31	1	nogas	99368.958	2.1	65220107	1.1	0	
La	139	1	nogas	142.243	27.0	240	22.0	0	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	301655	1.21	359778	83.84	70	125	
Ge	72	1	nogas	1282689	1.04	1412575	90.81	70	125	
In	115	1	nogas	892870	1.60	1018869	87.63	70	125	
Bi	209	1	nogas	507202	1.24	569248	89.10	70	125	
Ge	72	2	He	119033	2.06	135587	87.79	70	125	

Interference Check Solution AB (ICS-AB) Report

Sample Table

Sample Name	ICSAB
Data File Name	188ICSB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T21:52:48-05:00
Sample Type	ICSB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High	QC Flag
Be	9	1	nogas	98.241	2.848	207936	1.73	100	98.2	80	120	
Na	23	1	nogas	112618.236	2.408	1122330025	0.85	100	112618.2	80	120	
Mg	24	1	nogas	109331.425	1.951	722538549	1.60	100	109331.4	80	120	
Al	27	1	nogas	101503.551	4.233	818101081	2.42	100	101503.6	80	120	ICSB Main CR1 Failed
K	39	1	nogas	117328.172	4.016	1075723157	2.08	100	117328.2	80	120	ICSB Main CR1 Failed
Ti	47	1	nogas	2255.854	4.927	1885001	1.25	100	2255.9	80	120	ICSB Main CR1 Failed
V	51	1	nogas	101.360	5.680	1209615	2.68	100	101.4	80	120	
Cr	52	1	nogas	95.373	5.578	930003	0.88	100	95.4	80	120	
Mn	55	1	nogas	93.815	5.013	1131714	1.02	100	93.8	80	120	
Co	59	1	nogas	92.354	4.751	919388	2.80	100	92.4	80	120	
Ni	60	1	nogas	94.759	4.456	206229	2.74	100	94.8	80	120	
Cu	63	1	nogas	93.984	4.882	488963	1.82	100	94.0	80	120	
Zn	66	1	nogas	100.502	3.595	151087	2.22	100	100.5	80	120	
As	75	1	nogas	102.914	3.886	205667	2.24	100	102.9	80	120	
Sr	88	1	nogas	94.218	5.608	1104489	0.20	100	94.2	80	120	
Ag	107	1	nogas	92.538	5.461	458072	1.21	100	92.5	80	120	
Cd	111	1	nogas	98.806	1.269	92726	2.53	100	98.8	80	120	
Sb	121	1	nogas	96.201	4.301	421037	2.01	100	96.2	80	120	
Tl	205	1	nogas	97.567	7.642	483264	4.17	100	97.6	80	120	
Pb	208	1	nogas	79.328	2.881	667978	2.88	100	79.3	80	120	ICSB Main CR1 Failed
U	238	1	nogas	103.944	3.559	643346	2.80	100	103.9	80	120	
[Pb]	206	1	nogas	98.631	5.311	163824	1.71	100	98.6	80	120	
[Pb]	207	1	nogas	100.450	6.056	148812	3.09	100	100.5	80	120	
Na	23	2	He	118300.843	2.672	22284953	2.29	100	118300.8	80	120	ICSB Main CR1 Failed
Mg	24	2	He	113003.462	1.608	10054896	1.34	100	113003.5	80	120	ICSB Main CR1 Failed
Al	27	2	He	105773.916	2.201	2754225	1.96	100	105773.9	80	120	ICSB Main CR1 Failed
K	39	2	He	99496.750	1.244	8669725	1.24	100	99496.8	80	120	
Ca	43	2	He	100264.283	3.839	22974	3.20	100	100264.3	80	120	
Ca	44	2	He	106289.496	0.327	402358	0.35	100	106289.5	80	120	ICSB Main CR1 Failed
V	51	2	He	98.814	1.258	111487	1.68	100	98.8	80	120	
Cr	52	2	He	97.251	0.801	135435	0.18	100	97.3	80	120	
Mn	55	2	He	98.239	2.592	58787	2.13	100	98.2	80	120	
Fe	56	2	He	114170.366	1.021	120267568	0.40	100	114170.4	80	120	ICSB Main CR1 Failed
Co	59	2	He	98.907	1.233	209171	1.61	100	98.9	80	120	
Ni	60	2	He	96.460	2.896	56858	3.05	100	96.5	80	120	
Cu	63	2	He	94.387	2.056	149930	1.67	100	94.4	80	120	
Zn	66	2	He	97.161	1.435	23946	0.91	100	97.2	80	120	
As	75	2	He	96.116	1.546	19964	2.09	100	96.1	80	120	
Se	78	2	He	91.834	7.070	853	6.26	100	91.8	80	120	
B	11	1	nogas	1580.536	3.924	1873105	2.89	100	1580.5	80	120	ICSB Main CR1 Failed
Si	28	1	nogas	4347.276	125.701	3224568	0.87	100	4347.3	80	120	ICSB Main CR1 Failed
Ca	43	1	nogas	118468.511	1.757	1967281	5.42	100	118468.5	80	120	ICSB Main CR1 Failed
Ca	44	1	nogas	115591.938	1.392	31050300	4.39	100	115591.9	80	120	ICSB Main CR1 Failed
Fe	56	1	nogas	114331.747	2.984	1192994060	2.90	100	114331.7	80	120	ICSB Main CR1 Failed
Se	77	1	nogas	139.678	5.339	14796	2.46	100	139.7	80	120	
Se	82	1	nogas	98.431	8.826	8592	3.45	100	98.4	80	120	
Mo	95	1	nogas	2218.702	3.770	4722672	2.02	100	2218.7	80	120	ICSB Main CR1 Failed
Sn	118	1	nogas	99.699	0.942	272378	2.21	100	99.7	80	120	
Ba	137	1	nogas	100.031	1.532	136198	3.32	100	100.0	80	120	
Sb	121	2	He	91.408	0.817	71322	0.73	100	91.4	80	120	
La	139	1	nogas	186.455	16.071	290	12.43	100	186.5	80	120	ICSB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	280347	2.63	359778	77.92	70	125	
Ge	72	1	nogas	1248230	5.76	1412575	88.37	70	125	
In	115	1	nogas	872830	1.80	1018869	85.67	70	125	
Bi	209	1	nogas	497694	3.90	569248	87.43	70	125	
Ge	72	2	He	116081	0.66	135587	85.61	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	196_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T22:09:02-05:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	104.553	2.480	219040	1.41	100	104.6	90	110	
Na	23	1	nogas	10181.753	2.049	107707098	1.97	10000	101.8	90	110	
Mg	24	1	nogas	10159.896	2.287	71081370	0.64	10000	101.6	90	110	
Al	27	1	nogas	156.533	8.492	1312276	0.99	100	156.5	90	110	CCV Main CR1-2 Failed
K	39	1	nogas	10848.130	9.403	105626946	1.50	10000	108.5	90	110	
Ti	47	1	nogas	106.051	6.539	91737	1.44	100	106.1	90	110	
V	51	1	nogas	105.958	4.957	1306092	3.80	100	106.0	90	110	
Cr	52	1	nogas	103.270	8.410	1038621	1.00	100	103.3	90	110	
Mn	55	1	nogas	108.329	4.146	1351533	4.48	100	108.3	90	110	
Co	59	1	nogas	100.562	9.037	1032832	1.31	100	100.6	90	110	
Ni	60	1	nogas	106.351	10.255	238524	2.62	100	106.4	90	110	
Cu	63	1	nogas	104.623	10.088	560538	2.25	100	104.6	90	110	
Zn	66	1	nogas	107.416	10.105	166446	3.20	100	107.4	90	110	
As	75	1	nogas	104.620	9.878	215404	2.09	100	104.6	90	110	
Sr	88	1	nogas	100.726	9.304	1223770	11.21	100	100.7	90	110	
Ag	107	1	nogas	100.499	7.321	513974	1.43	100	100.5	90	110	
Cd	111	1	nogas	103.058	1.547	104609	1.89	100	103.1	90	110	
Sb	121	1	nogas	100.352	8.219	453114	0.57	100	100.4	90	110	
Tl	205	1	nogas	100.991	4.922	530062	0.21	100	101.0	90	110	
Pb	208	1	nogas	86.972	3.197	732298	3.19	100	87.0	90	110	CCV Main CR1-2 Failed
U	238	1	nogas	104.436	2.406	684698	2.73	100	104.4	90	110	
[Pb]	206	1	nogas	104.495	7.974	183618	2.94	100	104.5	90	110	
[Pb]	207	1	nogas	103.101	10.055	161485	5.18	100	103.1	90	110	
Na	23	2	He	10766.552	1.100	2170006	1.04	10000	107.7	90	110	
Mg	24	2	He	9729.382	0.578	921716	0.77	10000	97.3	90	110	
Al	27	2	He	125.965	2.927	3630	3.61	100	126.0	90	110	CCV Main CR1-2 Failed
K	39	2	He	8967.862	1.224	797807	1.20	10000	89.7	90	110	CCV Main CR1-2 Failed
Ca	43	2	He	9912.479	3.626	2427	4.41	10000	99.1	90	110	
Ca	44	2	He	9784.724	1.042	39699	0.28	10000	97.8	90	110	
V	51	2	He	102.698	0.727	123316	0.84	100	102.7	90	110	
Cr	52	2	He	102.979	0.954	152589	0.83	100	103.0	90	110	
Mn	55	2	He	104.073	2.750	66282	2.08	100	104.1	90	110	
Fe	56	2	He	10385.566	2.203	11649827	1.59	10000	103.9	90	110	
Co	59	2	He	104.367	2.694	234929	2.59	100	104.4	90	110	
Ni	60	2	He	104.615	2.014	65597	2.36	100	104.6	90	110	
Cu	63	2	He	102.073	0.648	172436	1.33	100	102.1	90	110	
Zn	66	2	He	102.605	1.779	26910	2.29	100	102.6	90	110	
As	75	2	He	98.806	2.254	21845	2.71	100	98.8	90	110	
Se	78	2	He	94.944	2.888	938	3.52	100	94.9	90	110	
B	11	1	nogas	1464.337	5.853	1718825	5.40	500	292.9	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	17388.730	55.458	3850145	2.57	5000	347.8	90	110	CCV Main CR1-2 Failed
Ca	43	1	nogas	10782.238	10.059	184710	2.39	10000	107.8	90	110	
Ca	44	1	nogas	10789.016	7.464	3091744	0.62	10000	107.9	90	110	
Fe	56	1	nogas	10487.585	8.883	114007786	1.11	10000	104.9	90	110	
Se	77	1	nogas	103.996	10.842	12655	1.89	100	104.0	90	110	
Se	82	1	nogas	106.758	10.533	9606	2.64	100	106.8	90	110	
Mo	95	1	nogas	103.308	9.975	226852	2.56	100	103.3	90	110	
Sn	118	1	nogas	99.428	1.885	293894	3.56	100	99.4	90	110	
Ba	137	1	nogas	102.538	4.070	150949	3.24	100	102.5	90	110	
Sb	121	2	He	93.863	1.606	77937	2.34	100	93.9	90	110	
Li	7	1	nogas	101.246	0.425	518354	1.24	100	101.2	90	110	
P	31	1	nogas	529.923	10.195	373578	1.83	500	106.0	90	110	
La	139	1	nogas	156.589	16.181	273	13.85	100	156.6	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	431.174	38.537	83	36.66	100	431.2	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	277434	1.27	359778	77.11	70	125	
Ge	72	1	nogas	1291922	7.90	1412575	91.46	70	125	
In	115	1	nogas	944204	1.96	1018869	92.67	70	125	
Bi	209	1	nogas	527281	5.18	569248	92.63	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	123563	0.81	135587	91.13	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	197_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T22:10:59-05:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.046	54.7	133	43.9	1	
Na	23	1	nogas	32.213	7.9	642772	3.8	100	
Mg	24	1	nogas	7.692	32.6	58474	30.4	100	
Al	27	1	nogas	3.068	6.5	37267	3.2	5	
K	39	1	nogas	21.586	56.8	3674273	1.4	100	
Ti	47	1	nogas	0.149	60.5	310	24.4	2.5	
V	51	1	nogas	-0.991	-20.5	34004	5.7	2.5	
Cr	52	1	nogas	0.484	32.8	20712	8.1	2.5	
Mn	55	1	nogas	0.429	10.9	11854	3.7	2.5	
Co	59	1	nogas	0.056	65.1	1067	35.7	2.5	
Ni	60	1	nogas	-0.302	-22.1	337	45.5	2.5	
Cu	63	1	nogas	-0.855	-6.4	3287	8.5	2.5	
Zn	66	1	nogas	0.421	19.0	1373	7.6	2.5	
As	75	1	nogas	-0.667	-18.9	14289	3.6	2.5	
Sr	88	1	nogas	0.134	20.2	1957	17.0	2.5	
Ag	107	1	nogas	0.043	24.0	300	18.6	2.5	
Cd	111	1	nogas	0.055	72.9	87	46.6	1	
Sb	121	1	nogas	-0.664	-4.6	2780	3.2	2.5	
Tl	205	1	nogas	0.605	75.6	3607	74.7	1	
Pb	208	1	nogas	0.038	83.4	817	32.7	2.5	
U	238	1	nogas	0.083	76.4	750	62.4	2.5	
[Pb]	206	1	nogas	0.020	188.0	190	39.7	2.5	
[Pb]	207	1	nogas	0.055	88.3	220	39.6	2.5	
Na	23	2	He	35.248	13.0	19076	2.0	100	
Mg	24	2	He	5.072	15.8	680	11.1	100	
Al	27	2	He	-0.306	-430.4	130	30.8	5	
K	39	2	He	2.110	293.9	18192	3.0	100	
Ca	43	2	He	44.829	5.3	20	0.0	100	
Ca	44	2	He	16.170	102.4	363	16.1	100	
V	51	2	He	-0.240	-1.8	97	6.3	2.5	
Cr	52	2	He	-0.106	-43.2	957	4.7	2.5	
Mn	55	2	He	0.189	13.5	243	6.3	2.5	
Fe	56	2	He	16.161	5.1	23635	3.8	100	
Co	59	2	He	0.030	23.9	107	14.3	2.5	
Ni	60	2	He	-0.699	-8.5	73	47.9	2.5	
Cu	63	2	He	-0.937	-2.5	500	8.0	2.5	
Zn	66	2	He	0.134	74.4	213	9.8	2.5	
As	75	2	He	0.074	67.7	32	31.6	2.5	
Se	78	2	He	2.331	45.4	45	25.9	2.5	
B	11	1	nogas	861.704	5.4	1084333	6.7	10	CCB Main CR1 Failed
Si	28	1	nogas	-6091.774	-29.8	3030894	1.1	5	
Ca	43	1	nogas	45.763	33.2	1197	22.4	100	
Ca	44	1	nogas	-90.110	-8.5	91013	0.9	100	
Fe	56	1	nogas	25.616	32.3	1590752	4.2	100	
Se	77	1	nogas	-5.424	-59.5	4777	6.1	2.5	
Se	82	1	nogas	2.870	17.5	483	8.6	2.5	CCB Main CR1 Failed
Mo	95	1	nogas	0.381	59.9	997	51.5	2.5	
Sn	118	1	nogas	0.186	44.7	913	25.8	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.216	24.6	450	16.0	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	-0.711	-8.6	463	10.2	2.5	
P	31	1	nogas	-5.555	-8.9	22320	1.2	10	
La	139	1	nogas	-1.781	-1638.5	57	71.3	2.5	
Au	197	1	nogas	93.169	119.7	30	66.7	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	295549	1.92	359778	82.15	70	125	
Ge	72	1	nogas	1338661	1.92	1412575	94.77	70	125	
In	115	1	nogas	949124	1.37	1018869	93.15	70	125	
Bi	209	1	nogas	572706	3.43	569248	100.61	70	125	
Ge	72	2	He	122915	2.88	135587	90.65	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	207_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T22:31:02-05:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	106.923	2.067	211997	2.18	100	106.9	90	110	
Na	23	1	nogas	10068.692	1.895	103135313	3.42	10000	100.7	90	110	
Mg	24	1	nogas	10170.497	1.467	68921804	4.00	10000	101.7	90	110	
Al	27	1	nogas	109.431	4.060	956869	3.56	100	109.4	90	110	
K	39	1	nogas	10209.310	2.389	103573788	1.61	10000	102.1	90	110	
Ti	47	1	nogas	98.437	4.665	88434	4.10	100	98.4	90	110	
V	51	1	nogas	100.444	3.588	1286869	3.39	100	100.4	90	110	
Cr	52	1	nogas	96.944	1.406	1014485	0.88	100	96.9	90	110	
Mn	55	1	nogas	112.602	4.313	1456598	4.20	100	112.6	90	110	CCV Main CR1-2 Failed
Co	59	1	nogas	94.711	2.602	1011534	1.94	100	94.7	90	110	
Ni	60	1	nogas	98.509	2.770	229947	2.09	100	98.5	90	110	
Cu	63	1	nogas	96.231	2.127	537036	1.44	100	96.2	90	110	
Zn	66	1	nogas	100.664	2.309	162346	2.70	100	100.7	90	110	
As	75	1	nogas	98.246	3.429	211303	2.63	100	98.2	90	110	
Sr	88	1	nogas	96.555	4.960	1215304	5.37	100	96.6	90	110	
Ag	107	1	nogas	95.935	2.587	509752	2.49	100	95.9	90	110	
Cd	111	1	nogas	102.869	2.062	101071	2.18	100	102.9	90	110	
Sb	121	1	nogas	95.434	3.647	448124	2.90	100	95.4	90	110	
Tl	205	1	nogas	103.172	4.527	526755	3.26	100	103.2	90	110	
Pb	208	1	nogas	85.325	2.016	718435	2.01	100	85.3	90	110	CCV Main CR1-2 Failed
U	238	1	nogas	102.576	4.036	653653	2.89	100	102.6	90	110	
[Pb]	206	1	nogas	104.674	4.358	179085	2.32	100	104.7	90	110	
[Pb]	207	1	nogas	103.029	4.465	157219	2.01	100	103.0	90	110	
Na	23	2	He	10922.404	3.232	2158024	1.91	10000	109.2	90	110	
Mg	24	2	He	9858.234	3.230	915568	1.89	10000	98.6	90	110	
Al	27	2	He	120.775	8.956	3417	8.02	100	120.8	90	110	CCV Main CR1-2 Failed
K	39	2	He	9008.068	0.428	801303	0.42	10000	90.1	90	110	
Ca	43	2	He	10835.739	4.056	2600	4.37	10000	108.4	90	110	
Ca	44	2	He	10047.367	1.049	39966	1.06	10000	100.5	90	110	
V	51	2	He	103.267	2.065	121575	0.88	100	103.3	90	110	
Cr	52	2	He	103.317	2.286	150094	1.00	100	103.3	90	110	
Mn	55	2	He	108.339	1.482	67657	0.58	100	108.3	90	110	
Fe	56	2	He	10335.579	2.663	11367514	1.34	10000	103.4	90	110	
Co	59	2	He	105.266	2.506	232318	1.21	100	105.3	90	110	
Ni	60	2	He	106.533	1.800	65483	0.45	100	106.5	90	110	
Cu	63	2	He	104.897	1.971	173682	0.62	100	104.9	90	110	
Zn	66	2	He	104.266	1.172	26810	1.06	100	104.3	90	110	
As	75	2	He	100.992	4.184	21888	3.16	100	101.0	90	110	
Se	78	2	He	101.384	3.939	981	4.28	100	101.4	90	110	
B	11	1	nogas	1025.440	3.067	1143034	2.61	500	205.1	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	16190.331	10.714	3955913	1.17	5000	323.8	90	110	CCV Main CR1-2 Failed
Ca	43	1	nogas	10116.582	2.144	180344	1.76	10000	101.2	90	110	
Ca	44	1	nogas	9876.611	0.646	2950458	0.96	10000	98.8	90	110	
Fe	56	1	nogas	9885.718	3.201	111802757	2.46	10000	98.9	90	110	
Se	77	1	nogas	86.950	2.176	11837	0.54	100	86.9	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	99.369	2.761	9319	2.21	100	99.4	90	110	
Mo	95	1	nogas	96.750	2.972	221035	2.38	100	96.8	90	110	
Sn	118	1	nogas	99.215	2.312	283772	1.95	100	99.2	90	110	
Ba	137	1	nogas	104.695	1.560	149211	1.39	100	104.7	90	110	
Sb	121	2	He	92.696	3.133	75463	1.75	100	92.7	90	110	
Li	7	1	nogas	102.610	1.585	496811	2.15	100	102.6	90	110	
P	31	1	nogas	497.809	1.547	366608	0.73	500	99.6	90	110	
La	139	1	nogas	130.666	24.849	230	18.95	100	130.7	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	622.773	45.938	110	39.63	100	622.8	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	262510	0.65	359778	72.96	70	125	
Ge	72	1	nogas	1337187	0.71	1412575	94.66	70	125	
In	115	1	nogas	913852	0.43	1018869	89.69	70	125	
Bi	209	1	nogas	512316	2.52	569248	90.00	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	121168	1.33	135587	89.37	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	208_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T22:33:00-05:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.086	41.3	217	34.0	1	
Na	23	1	nogas	31.526	4.8	618398	2.1	100	
Mg	24	1	nogas	8.063	41.6	59446	38.3	100	
Al	27	1	nogas	1.739	6.4	25167	1.8	5	
K	39	1	nogas	19.831	72.0	3570520	0.5	100	
Ti	47	1	nogas	0.002	2852.9	173	20.3	2.5	
V	51	1	nogas	-2.005	-5.9	20981	5.0	2.5	
Cr	52	1	nogas	0.106	104.3	16401	4.1	2.5	
Mn	55	1	nogas	1.538	5.9	25535	1.7	2.5	
Co	59	1	nogas	0.071	53.6	1197	32.6	2.5	
Ni	60	1	nogas	-0.297	-12.1	340	23.3	2.5	
Cu	63	1	nogas	-0.796	-1.3	3530	4.7	2.5	
Zn	66	1	nogas	0.369	11.6	1260	2.4	2.5	
As	75	1	nogas	-0.965	-53.2	13368	7.3	2.5	
Sr	88	1	nogas	0.129	28.8	1853	24.3	2.5	
Ag	107	1	nogas	0.042	60.7	283	45.4	2.5	
Cd	111	1	nogas	0.019	51.3	50	20.0	1	
Sb	121	1	nogas	-0.721	-3.7	2460	1.6	2.5	
Tl	205	1	nogas	0.738	69.3	4077	70.9	1	
Pb	208	1	nogas	0.044	55.7	870	23.9	2.5	
U	238	1	nogas	0.088	58.3	730	49.5	2.5	
[Pb]	206	1	nogas	0.049	78.3	227	29.4	2.5	
[Pb]	207	1	nogas	0.062	56.7	213	25.8	2.5	
Na	23	2	He	33.684	16.2	19050	5.2	100	
Mg	24	2	He	4.065	23.0	593	14.3	100	
Al	27	2	He	-1.657	-55.4	93	27.0	5	
K	39	2	He	1.151	277.8	18109	1.5	100	
Ca	43	2	He	44.114	245.6	20	132.3	100	
Ca	44	2	He	-2.407	-1352.3	293	44.4	100	
V	51	2	He	-0.252	-5.3	84	19.5	2.5	
Cr	52	2	He	-0.176	-66.4	867	19.9	2.5	
Mn	55	2	He	1.483	11.2	1077	9.2	2.5	
Fe	56	2	He	16.676	5.6	24563	3.7	100	
Co	59	2	He	0.035	54.2	120	36.3	2.5	
Ni	60	2	He	-0.611	-2.5	130	7.7	2.5	
Cu	63	2	He	-0.926	-4.2	527	12.9	2.5	
Zn	66	2	He	-0.057	-327.4	167	30.2	2.5	
As	75	2	He	0.031	125.2	23	37.8	2.5	
Se	78	2	He	0.366	149.6	26	20.4	2.5	
B	11	1	nogas	493.530	3.0	611802	2.0	10	CCB Main CR1 Failed
Si	28	1	nogas	-4034.163	-74.8	3042395	0.9	5	
Ca	43	1	nogas	40.709	13.4	1083	12.3	100	
Ca	44	1	nogas	-92.563	-16.9	88143	2.1	100	
Fe	56	1	nogas	20.784	17.0	1501178	0.9	100	
Se	77	1	nogas	-8.638	-41.2	4421	4.3	2.5	
Se	82	1	nogas	1.543	31.9	353	11.8	2.5	
Mo	95	1	nogas	0.389	59.7	997	51.5	2.5	
Sn	118	1	nogas	0.170	37.8	867	22.7	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.237	17.1	480	12.7	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	-0.804	-5.0	393	7.8	2.5	
P	31	1	nogas	-2.841	-52.2	23598	0.8	10	
La	139	1	nogas	-8.965	-371.5	47	99.0	2.5	
Au	197	1	nogas	189.877	41.4	43	26.6	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	288426	2.98	359778	80.17	70	125	
Ge	72	1	nogas	1307589	3.44	1412575	92.57	70	125	
In	115	1	nogas	947014	0.84	1018869	92.95	70	125	
Bi	209	1	nogas	530772	3.65	569248	93.24	70	125	
Ge	72	2	He	124697	0.76	135587	91.97	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	214_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T22:44:57-05:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	103.153	1.141	227182	1.49	100	103.2	90	110	
Na	23	1	nogas	9892.004	6.341	108429752	2.38	10000	98.9	90	110	
Mg	24	1	nogas	10059.183	6.991	72904562	2.09	10000	100.6	90	110	
Al	27	1	nogas	113.934	1.155	1022624	0.18	100	113.9	90	110	CCV Main CR1-2 Failed
K	39	1	nogas	10131.725	0.828	105597079	2.10	10000	101.3	90	110	
Ti	47	1	nogas	100.528	3.709	92724	2.37	100	100.5	90	110	
V	51	1	nogas	102.188	2.075	1343819	3.09	100	102.2	90	110	
Cr	52	1	nogas	98.127	1.770	1054485	2.95	100	98.1	90	110	
Mn	55	1	nogas	108.460	4.405	1441472	5.45	100	108.5	90	110	
Co	59	1	nogas	96.608	2.470	1059617	2.63	100	96.6	90	110	
Ni	60	1	nogas	99.388	3.083	238207	2.13	100	99.4	90	110	
Cu	63	1	nogas	96.628	2.360	553718	2.03	100	96.6	90	110	
Zn	66	1	nogas	101.520	2.216	168148	3.49	100	101.5	90	110	
As	75	1	nogas	98.894	2.541	218293	1.12	100	98.9	90	110	
Sr	88	1	nogas	102.018	0.997	1318341	0.88	100	102.0	90	110	
Ag	107	1	nogas	97.474	0.761	531885	1.66	100	97.5	90	110	
Cd	111	1	nogas	104.609	1.490	108804	3.83	100	104.6	90	110	
Sb	121	1	nogas	97.547	2.414	470211	1.06	100	97.5	90	110	
Tl	205	1	nogas	99.198	7.484	560618	3.52	100	99.2	90	110	
Pb	208	1	nogas	92.804	3.103	781369	3.10	100	92.8	90	110	
U	238	1	nogas	104.753	5.316	739531	3.55	100	104.8	90	110	
[Pb]	206	1	nogas	101.209	8.790	191670	5.26	100	101.2	90	110	
[Pb]	207	1	nogas	100.544	8.501	169822	4.50	100	100.5	90	110	
Na	23	2	He	11025.492	1.134	2162676	1.09	10000	110.3	90	110	CCV Main CR1-2 Failed
Mg	24	2	He	9864.860	1.416	909626	1.41	10000	98.6	90	110	
Al	27	2	He	115.360	1.609	3247	1.70	100	115.4	90	110	CCV Main CR1-2 Failed
K	39	2	He	8834.117	0.623	786177	0.61	10000	88.3	90	110	CCV Main CR1-2 Failed
Ca	43	2	He	10890.333	2.499	2594	1.98	10000	108.9	90	110	
Ca	44	2	He	10104.234	1.797	39896	2.17	10000	101.0	90	110	
V	51	2	He	103.235	0.886	120654	0.97	100	103.2	90	110	
Cr	52	2	He	105.509	2.697	152153	2.95	100	105.5	90	110	
Mn	55	2	He	105.506	2.240	65412	2.55	100	105.5	90	110	
Fe	56	2	He	10449.383	2.273	11410568	2.69	10000	104.5	90	110	
Co	59	2	He	106.707	1.165	233796	1.13	100	106.7	90	110	
Ni	60	2	He	107.366	2.315	65517	2.79	100	107.4	90	110	
Cu	63	2	He	103.784	2.774	170621	3.07	100	103.8	90	110	
Zn	66	2	He	106.704	3.708	27234	4.16	100	106.7	90	110	
As	75	2	He	101.724	2.040	21890	2.32	100	101.7	90	110	
Se	78	2	He	96.268	3.601	925	3.72	100	96.3	90	110	
B	11	1	nogas	893.124	4.798	1107427	3.41	500	178.6	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	10630.597	15.788	3824313	0.68	5000	212.6	90	110	CCV Main CR1-2 Failed
Ca	43	1	nogas	10026.580	2.957	183536	2.49	10000	100.3	90	110	
Ca	44	1	nogas	10258.428	2.900	3141681	1.87	10000	102.6	90	110	
Fe	56	1	nogas	10100.520	2.669	117310928	3.65	10000	101.0	90	110	
Se	77	1	nogas	88.549	6.447	12281	3.56	100	88.5	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	102.334	2.468	9850	2.68	100	102.3	90	110	
Mo	95	1	nogas	97.601	0.316	228995	1.04	100	97.6	90	110	
Sn	118	1	nogas	99.041	3.844	299657	1.66	100	99.0	90	110	
Ba	137	1	nogas	103.675	1.270	156357	1.14	100	103.7	90	110	
Sb	121	2	He	96.863	0.337	78245	0.67	100	96.9	90	110	
Li	7	1	nogas	100.099	2.060	538947	2.52	100	100.1	90	110	
P	31	1	nogas	494.294	3.349	373927	1.86	500	98.9	90	110	
La	139	1	nogas	190.606	28.485	327	21.72	100	190.6	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	383.454	43.619	80	33.07	100	383.5	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	291601	1.29	359778	81.05	70	125	
Ge	72	1	nogas	1373153	1.31	1412575	97.21	70	125	
In	115	1	nogas	967203	2.38	1018869	94.93	70	125	
Bi	209	1	nogas	567945	4.20	569248	99.77	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	120268	0.51	135587	88.70	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	215_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T22:46:54-05:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.069	46.7	193	38.8	1	
Na	23	1	nogas	34.246	1.6	658867	2.7	100	
Mg	24	1	nogas	7.335	37.0	55532	36.1	100	
Al	27	1	nogas	1.751	7.6	26339	3.7	5	
K	39	1	nogas	5.991	118.0	3584201	0.7	100	
Ti	47	1	nogas	0.073	167.1	247	45.2	2.5	
V	51	1	nogas	-1.794	-4.7	24521	2.9	2.5	
Cr	52	1	nogas	-0.108	-89.7	14856	6.7	2.5	
Mn	55	1	nogas	0.766	3.3	16491	0.6	2.5	
Co	59	1	nogas	0.056	39.1	1083	22.5	2.5	
Ni	60	1	nogas	-0.294	-17.9	363	35.4	2.5	
Cu	63	1	nogas	-0.870	-3.5	3257	4.0	2.5	
Zn	66	1	nogas	0.310	31.8	1217	11.7	2.5	
As	75	1	nogas	-1.745	-23.5	12344	5.8	2.5	
Sr	88	1	nogas	0.103	23.7	1597	20.3	2.5	
Ag	107	1	nogas	0.068	44.5	440	38.0	2.5	
Cd	111	1	nogas	0.070	86.8	103	59.1	1	
Sb	121	1	nogas	-0.673	-4.3	2794	6.4	2.5	
Tl	205	1	nogas	0.750	59.9	4394	63.4	1	
Pb	208	1	nogas	0.067	32.3	1060	17.2	2.5	
U	238	1	nogas	0.109	57.2	927	51.8	2.5	
[Pb]	206	1	nogas	0.036	122.6	217	39.3	2.5	
[Pb]	207	1	nogas	0.083	31.6	260	13.9	2.5	
Na	23	2	He	41.923	5.2	19804	2.6	100	
Mg	24	2	He	3.554	25.5	520	14.5	100	
Al	27	2	He	0.384	467.8	143	32.2	5	
K	39	2	He	-2.111	-308.1	17825	3.2	100	
Ca	43	2	He	76.382	86.7	27	57.3	100	
Ca	44	2	He	0.776	1352.3	293	13.8	100	
V	51	2	He	-0.241	-3.4	93	8.7	2.5	
Cr	52	2	He	-0.147	-37.2	870	7.5	2.5	
Mn	55	2	He	0.630	15.5	507	12.1	2.5	
Fe	56	2	He	13.667	6.1	20218	3.2	100	
Co	59	2	He	0.036	44.8	117	30.1	2.5	
Ni	60	2	He	-0.634	-4.8	110	15.7	2.5	
Cu	63	2	He	-0.903	-2.4	540	8.1	2.5	
Zn	66	2	He	0.131	147.5	207	23.9	2.5	
As	75	2	He	0.021	81.1	20	16.7	2.5	
Se	78	2	He	-0.078	-1002.3	21	34.0	2.5	
B	11	1	nogas	313.721	2.5	425705	2.2	10	CCB Main CR1 Failed
Si	28	1	nogas	-10258.077	-5.9	2908302	0.7	5	
Ca	43	1	nogas	28.604	9.4	907	4.5	100	
Ca	44	1	nogas	-132.150	-3.7	80352	1.7	100	
Fe	56	1	nogas	14.537	46.5	1493271	4.4	100	
Se	77	1	nogas	-12.923	-26.2	4274	5.0	2.5	
Se	82	1	nogas	1.281	55.9	343	17.8	2.5	
Mo	95	1	nogas	0.382	50.5	1023	44.7	2.5	
Sn	118	1	nogas	0.187	31.1	927	17.1	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.113	44.9	300	23.3	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	-0.820	-11.1	363	19.5	2.5	
P	31	1	nogas	-4.253	-28.3	23625	3.9	10	
La	139	1	nogas	-13.781	-185.8	40	86.6	2.5	
Au	197	1	nogas	99.223	158.8	30	88.2	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	311326	0.22	359778	86.53	70	125	
Ge	72	1	nogas	1362294	1.58	1412575	96.44	70	125	
In	115	1	nogas	959821	3.12	1018869	94.20	70	125	
Bi	209	1	nogas	561501	5.03	569248	98.64	70	125	
Ge	72	2	He	119179	1.56	135587	87.90	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	225_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T23:06:55-05:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	106.111	1.098	235706	0.58	100	106.1	90	110	
Na	23	1	nogas	10421.674	2.141	111533936	1.62	10000	104.2	90	110	
Mg	24	1	nogas	10328.932	2.862	73118731	1.96	10000	103.3	90	110	
Al	27	1	nogas	110.843	1.879	1008805	2.21	100	110.8	90	110	CCV Main CR1-2 Failed
K	39	1	nogas	10297.715	0.694	108715757	0.86	10000	103.0	90	110	
Ti	47	1	nogas	101.472	2.315	94899	2.75	100	101.5	90	110	
V	51	1	nogas	105.723	1.882	1407227	1.37	100	105.7	90	110	
Cr	52	1	nogas	98.344	1.812	1070932	1.56	100	98.3	90	110	
Mn	55	1	nogas	108.063	2.461	1455207	2.23	100	108.1	90	110	
Co	59	1	nogas	98.008	0.868	1089586	1.04	100	98.0	90	110	
Ni	60	1	nogas	101.793	1.791	247313	2.08	100	101.8	90	110	
Cu	63	1	nogas	99.066	2.220	575240	2.30	100	99.1	90	110	
Zn	66	1	nogas	102.283	1.004	171674	1.41	100	102.3	90	110	
As	75	1	nogas	96.604	0.879	216553	1.18	100	96.6	90	110	
Sr	88	1	nogas	104.619	3.837	1370307	3.69	100	104.6	90	110	
Ag	107	1	nogas	96.600	1.792	534275	2.18	100	96.6	90	110	
Cd	111	1	nogas	101.426	2.776	107949	3.54	100	101.4	90	110	
Sb	121	1	nogas	99.450	4.520	485854	4.41	100	99.4	90	110	
Tl	205	1	nogas	99.619	8.434	579998	3.29	100	99.6	90	110	
Pb	208	1	nogas	95.442	2.001	803563	2.00	100	95.4	90	110	
U	238	1	nogas	102.680	7.603	746306	2.42	100	102.7	90	110	
[Pb]	206	1	nogas	103.477	8.114	201995	4.00	100	103.5	90	110	
[Pb]	207	1	nogas	102.028	6.765	177696	2.00	100	102.0	90	110	
Na	23	2	He	10960.223	3.328	2220786	0.85	10000	109.6	90	110	
Mg	24	2	He	9866.626	3.436	939724	0.31	10000	98.7	90	110	
Al	27	2	He	114.899	8.829	3337	4.96	100	114.9	90	110	CCV Main CR1-2 Failed
K	39	2	He	8987.128	1.463	799482	1.43	10000	89.9	90	110	CCV Main CR1-2 Failed
Ca	43	2	He	9227.864	1.241	2274	3.99	10000	92.3	90	110	
Ca	44	2	He	9931.547	3.439	40518	2.72	10000	99.3	90	110	
V	51	2	He	102.994	3.689	124327	0.42	100	103.0	90	110	
Cr	52	2	He	104.266	4.428	155280	1.22	100	104.3	90	110	
Mn	55	2	He	104.408	4.607	66841	1.11	100	104.4	90	110	
Fe	56	2	He	10362.452	3.572	11686802	0.32	10000	103.6	90	110	
Co	59	2	He	105.942	3.623	239749	0.69	100	105.9	90	110	
Ni	60	2	He	105.929	5.639	66734	2.11	100	105.9	90	110	
Cu	63	2	He	104.225	4.560	176920	1.10	100	104.2	90	110	
Zn	66	2	He	106.492	4.358	28065	1.07	100	106.5	90	110	
As	75	2	He	100.352	2.316	22310	1.30	100	100.4	90	110	
Se	78	2	He	98.460	7.603	977	7.40	100	98.5	90	110	
B	11	1	nogas	823.246	2.340	1031066	1.63	500	164.6	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	6977.094	12.284	3718339	0.66	5000	139.5	90	110	CCV Main CR1-2 Failed
Ca	43	1	nogas	9956.704	0.803	184761	1.23	10000	99.6	90	110	
Ca	44	1	nogas	10050.234	0.559	3122730	0.69	10000	100.5	90	110	
Fe	56	1	nogas	9992.646	2.067	117621119	1.64	10000	99.9	90	110	
Se	77	1	nogas	83.933	0.974	12081	0.10	100	83.9	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	98.482	1.084	9616	1.17	100	98.5	90	110	
Mo	95	1	nogas	97.731	0.894	232415	1.03	100	97.7	90	110	
Sn	118	1	nogas	101.177	3.237	313470	3.71	100	101.2	90	110	
Ba	137	1	nogas	103.289	0.676	159456	1.65	100	103.3	90	110	
Sb	121	2	He	95.075	5.183	79320	2.20	100	95.1	90	110	
Li	7	1	nogas	104.902	0.500	568474	1.07	100	104.9	90	110	
P	31	1	nogas	501.603	0.882	384309	1.28	500	100.3	90	110	
La	139	1	nogas	164.202	33.788	297	25.74	100	164.2	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	296.177	34.768	67	22.91	100	296.2	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	294116	0.68	359778	81.75	70	125	
Ge	72	1	nogas	1391767	0.46	1412575	98.53	70	125	
In	115	1	nogas	989816	1.09	1018869	97.15	70	125	
Bi	209	1	nogas	585620	5.26	569248	102.88	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	124322	3.47	135587	91.69	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	226_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T23:08:54-05:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.061	95.1	183	78.7	1	
Na	23	1	nogas	33.614	4.3	668210	2.7	100	
Mg	24	1	nogas	6.022	35.7	47308	34.1	100	
Al	27	1	nogas	1.616	2.9	25764	3.0	5	
K	39	1	nogas	2.110	525.5	3629702	0.5	100	
Ti	47	1	nogas	0.020	337.2	203	31.6	2.5	
V	51	1	nogas	-2.005	-11.4	22351	10.6	2.5	
Cr	52	1	nogas	-0.186	-52.9	14379	7.6	2.5	
Mn	55	1	nogas	0.720	3.5	16281	2.9	2.5	
Co	59	1	nogas	0.046	33.9	997	17.3	2.5	
Ni	60	1	nogas	-0.285	-17.6	393	30.3	2.5	
Cu	63	1	nogas	-0.941	-4.6	2927	5.9	2.5	
Zn	66	1	nogas	0.354	17.3	1320	8.3	2.5	
As	75	1	nogas	-1.688	-16.6	12771	6.2	2.5	
Sr	88	1	nogas	0.091	25.5	1470	19.5	2.5	
Ag	107	1	nogas	0.062	41.8	417	34.5	2.5	
Cd	111	1	nogas	0.028	114.6	63	55.5	1	
Sb	121	1	nogas	-0.638	-11.6	3024	10.3	2.5	
Tl	205	1	nogas	0.688	59.5	4071	59.5	1	
Pb	208	1	nogas	0.059	45.4	993	22.7	2.5	
U	238	1	nogas	0.119	47.5	1007	41.8	2.5	
[Pb]	206	1	nogas	0.057	32.5	260	13.9	2.5	
[Pb]	207	1	nogas	0.073	75.9	250	38.6	2.5	
Na	23	2	He	39.803	11.6	20027	4.5	100	
Mg	24	2	He	2.655	20.0	453	12.1	100	
Al	27	2	He	0.311	276.9	147	17.2	5	
K	39	2	He	-13.967	-47.9	16794	3.5	100	
Ca	43	2	He	3.523	1177.2	10	100.0	100	
Ca	44	2	He	-8.354	-127.7	267	17.3	100	
V	51	2	He	-0.262	-4.9	71	22.7	2.5	
Cr	52	2	He	-0.183	-43.4	847	15.0	2.5	
Mn	55	2	He	0.728	41.2	587	33.7	2.5	
Fe	56	2	He	12.959	0.8	20098	1.3	100	
Co	59	2	He	0.024	78.2	93	44.6	2.5	
Ni	60	2	He	-0.689	-4.5	80	25.0	2.5	
Cu	63	2	He	-0.940	-7.4	497	23.9	2.5	
Zn	66	2	He	0.147	217.5	217	37.3	2.5	
As	75	2	He	0.038	138.1	24	47.9	2.5	
Se	78	2	He	0.891	75.0	31	19.9	2.5	
B	11	1	nogas	278.506	3.9	394974	3.2	10	CCB Main CR1 Failed
Si	28	1	nogas	-11977.664	-16.9	2902650	1.3	5	
Ca	43	1	nogas	28.457	52.7	930	31.7	100	
Ca	44	1	nogas	-149.958	-3.7	76948	1.9	100	
Fe	56	1	nogas	13.300	54.1	1515094	5.6	100	
Se	77	1	nogas	-15.984	-24.1	4131	5.4	2.5	
Se	82	1	nogas	1.751	36.1	397	13.9	2.5	
Mo	95	1	nogas	0.359	61.3	990	52.6	2.5	
Sn	118	1	nogas	0.169	23.7	917	13.5	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.118	18.7	323	11.7	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	-0.704	-13.1	470	16.1	2.5	
P	31	1	nogas	-2.066	-85.1	25744	4.0	10	
La	139	1	nogas	-8.431	-217.8	50	52.9	2.5	
Au	197	1	nogas	111.331	57.6	33	34.6	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	323920	1.56	359778	90.03	70	125	
Ge	72	1	nogas	1395165	2.61	1412575	98.77	70	125	
In	115	1	nogas	1005141	1.07	1018869	98.65	70	125	
Bi	209	1	nogas	573263	1.63	569248	100.71	70	125	
Ge	72	2	He	123080	1.16	135587	90.78	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	237_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T23:31:06-05:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	102.306	4.563	238780	3.92	100	102.3	90	110	
Na	23	1	nogas	10215.364	3.222	113849823	0.48	10000	102.2	90	110	
Mg	24	1	nogas	9899.633	2.642	72992622	1.12	10000	99.0	90	110	
Al	27	1	nogas	107.374	0.874	1000722	2.15	100	107.4	90	110	
K	39	1	nogas	10066.066	3.539	108818123	0.71	10000	100.7	90	110	
Ti	47	1	nogas	97.486	0.797	93337	2.39	100	97.5	90	110	
V	51	1	nogas	99.730	1.160	1362158	3.60	100	99.7	90	110	
Cr	52	1	nogas	94.471	1.252	1053988	3.07	100	94.5	90	110	
Mn	55	1	nogas	101.518	2.201	1399659	1.50	100	101.5	90	110	
Co	59	1	nogas	95.050	1.854	1081538	0.98	100	95.1	90	110	
Ni	60	1	nogas	99.106	1.100	246517	2.26	100	99.1	90	110	
Cu	63	1	nogas	97.281	0.472	578472	2.67	100	97.3	90	110	
Zn	66	1	nogas	102.611	1.496	176351	3.84	100	102.6	90	110	
As	75	1	nogas	97.601	0.678	223824	2.72	100	97.6	90	110	
Sr	88	1	nogas	101.852	2.071	1365433	0.97	100	101.9	90	110	
Ag	107	1	nogas	96.866	2.056	548473	3.22	100	96.9	90	110	
Cd	111	1	nogas	103.351	3.684	111683	4.35	100	103.4	90	110	
Sb	121	1	nogas	99.763	2.264	498846	1.92	100	99.8	90	110	
Tl	205	1	nogas	101.046	1.387	609304	1.67	100	101.0	90	110	
Pb	208	1	nogas	101.460	4.476	854203	4.47	100	101.5	90	110	
U	238	1	nogas	104.842	2.690	789143	3.66	100	104.8	90	110	
[Pb]	206	1	nogas	104.724	1.549	211621	0.93	100	104.7	90	110	
[Pb]	207	1	nogas	105.083	4.816	189350	3.58	100	105.1	90	110	
Na	23	2	He	11041.420	2.441	2234178	2.18	10000	110.4	90	110	CCV Main CR1-2 Failed
Mg	24	2	He	9829.292	1.551	934943	0.70	10000	98.3	90	110	
Al	27	2	He	107.370	2.767	3127	2.13	100	107.4	90	110	
K	39	2	He	8776.578	2.792	781174	2.73	10000	87.8	90	110	CCV Main CR1-2 Failed
Ca	43	2	He	9763.945	1.971	2400	2.60	10000	97.6	90	110	
Ca	44	2	He	9714.372	4.212	39569	3.12	10000	97.1	90	110	
V	51	2	He	102.368	2.666	123413	1.91	100	102.4	90	110	
Cr	52	2	He	104.076	0.721	154849	1.59	100	104.1	90	110	
Mn	55	2	He	102.164	1.492	65339	0.57	100	102.2	90	110	
Fe	56	2	He	10336.609	0.839	11644147	1.50	10000	103.4	90	110	
Co	59	2	He	107.019	1.006	241900	1.38	100	107.0	90	110	
Ni	60	2	He	106.541	3.570	67056	2.76	100	106.5	90	110	
Cu	63	2	He	104.588	1.867	177350	1.74	100	104.6	90	110	
Zn	66	2	He	103.716	1.686	27307	0.60	100	103.7	90	110	
As	75	2	He	102.617	2.848	22775	1.81	100	102.6	90	110	
Se	78	2	He	91.193	12.042	905	10.74	100	91.2	90	110	
B	11	1	nogas	696.922	3.329	919552	2.09	500	139.4	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	6901.315	22.207	3802470	0.98	5000	138.0	90	110	CCV Main CR1-2 Failed
Ca	43	1	nogas	9856.790	1.556	187228	1.95	10000	98.6	90	110	
Ca	44	1	nogas	9990.742	2.169	3178671	2.98	10000	99.9	90	110	
Fe	56	1	nogas	9789.280	2.375	117958228	0.40	10000	97.9	90	110	
Se	77	1	nogas	97.106	9.355	13435	4.59	100	97.1	90	110	
Se	82	1	nogas	97.103	6.147	9703	4.49	100	97.1	90	110	
Mo	95	1	nogas	98.734	3.018	240263	0.33	100	98.7	90	110	
Sn	118	1	nogas	100.406	2.895	315760	1.73	100	100.4	90	110	
Ba	137	1	nogas	103.031	4.780	161405	2.89	100	103.0	90	110	
Sb	121	2	He	96.109	2.010	80093	1.52	100	96.1	90	110	
Li	7	1	nogas	102.895	3.492	586421	3.10	100	102.9	90	110	
P	31	1	nogas	491.032	3.438	385532	0.68	500	98.2	90	110	
La	139	1	nogas	178.302	34.011	323	29.23	100	178.3	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	423.675	31.528	93	26.96	100	423.7	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	309131	2.35	359778	85.92	70	125	
Ge	72	1	nogas	1424939	2.73	1412575	100.88	70	125	
In	115	1	nogas	1005072	1.98	1018869	98.65	70	125	
Bi	209	1	nogas	604770	1.44	569248	106.24	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	124074	1.09	135587	91.51	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	238_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T23:33:05-05:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.063	18.4	193	15.8	1	
Na	23	1	nogas	143.098	3.6	1914949	1.1	100	CCB Main CR1 Failed
Mg	24	1	nogas	6.994	31.3	55898	31.9	100	
Al	27	1	nogas	1.598	2.6	26369	1.7	5	
K	39	1	nogas	21.477	10.6	3944687	0.5	100	
Ti	47	1	nogas	-0.007	-944.3	183	32.9	2.5	
V	51	1	nogas	-0.699	-20.3	40416	4.8	2.5	
Cr	52	1	nogas	-0.242	-48.4	14192	9.3	2.5	
Mn	55	1	nogas	0.434	4.9	12808	2.0	2.5	
Co	59	1	nogas	0.036	57.0	920	25.7	2.5	
Ni	60	1	nogas	-0.278	-13.7	423	22.5	2.5	
Cu	63	1	nogas	-1.005	-3.7	2644	7.9	2.5	
Zn	66	1	nogas	0.358	20.9	1367	9.1	2.5	
As	75	1	nogas	-1.101	-3.9	14406	0.9	2.5	
Sr	88	1	nogas	0.156	12.7	2400	11.2	2.5	
Ag	107	1	nogas	0.066	24.9	453	21.0	2.5	
Cd	111	1	nogas	0.036	49.6	73	28.4	1	
Sb	121	1	nogas	-0.456	-15.6	4024	9.1	2.5	
Tl	205	1	nogas	0.674	48.5	4351	50.5	1	
Pb	208	1	nogas	0.053	39.4	943	18.7	2.5	
U	238	1	nogas	0.090	51.8	873	44.4	2.5	
[Pb]	206	1	nogas	0.027	49.5	220	15.7	2.5	
[Pb]	207	1	nogas	0.032	80.2	197	28.0	2.5	
Na	23	2	He	148.456	2.6	41205	1.3	100	CCB Main CR1 Failed
Mg	24	2	He	3.399	13.5	517	7.8	100	
Al	27	2	He	-1.086	-77.2	107	21.7	5	
K	39	2	He	-2.495	-102.4	17792	1.2	100	
Ca	43	2	He	-9.744	-496.3	7	173.2	100	
Ca	44	2	He	1.898	1218.9	303	29.7	100	
V	51	2	He	-0.245	-0.6	91	1.3	2.5	
Cr	52	2	He	-0.118	-33.0	930	5.6	2.5	
Mn	55	2	He	0.332	39.3	330	24.8	2.5	
Fe	56	2	He	14.028	3.1	21029	1.7	100	
Co	59	2	He	0.038	18.7	123	12.4	2.5	
Ni	60	2	He	-0.698	-5.0	73	28.4	2.5	
Cu	63	2	He	-0.970	-7.2	440	26.2	2.5	
Zn	66	2	He	0.012	344.2	180	5.6	2.5	
As	75	2	He	0.039	98.6	24	34.3	2.5	
Se	78	2	He	-0.197	-495.6	20	45.8	2.5	
B	11	1	nogas	198.808	1.2	296936	2.5	10	CCB Main CR1 Failed
Si	28	1	nogas	-16423.051	-1.1	2792223	0.4	5	
Ca	43	1	nogas	26.338	31.9	913	17.5	100	
Ca	44	1	nogas	-151.038	-3.5	78946	2.3	100	
Fe	56	1	nogas	15.725	54.3	1589991	6.5	100	
Se	77	1	nogas	-11.788	-32.8	4604	6.9	2.5	
Se	82	1	nogas	0.540	54.8	290	10.3	2.5	
Mo	95	1	nogas	0.420	53.2	1170	46.8	2.5	
Sn	118	1	nogas	0.177	31.4	957	18.8	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.115	45.8	323	25.9	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	-0.569	-10.1	573	7.9	2.5	
P	31	1	nogas	-2.107	-6.0	26499	0.5	10	
La	139	1	nogas	-13.720	-172.2	43	81.0	2.5	
Au	197	1	nogas	180.815	70.5	50	52.9	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	335487	2.47	359778	93.25	70	125	
Ge	72	1	nogas	1437011	0.31	1412575	101.73	70	125	
In	115	1	nogas	1023080	1.77	1018869	100.41	70	125	
Bi	209	1	nogas	622611	3.40	569248	109.37	70	125	
Ge	72	2	He	121567	0.68	135587	89.66	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	244_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T23:45:09-05:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	106.426	1.753	233094	1.72	100	106.4	90	110	
Na	23	1	nogas	9974.135	1.612	105116400	0.44	10000	99.7	90	110	
Mg	24	1	nogas	10057.963	3.086	70101006	1.53	10000	100.6	90	110	
Al	27	1	nogas	107.992	1.222	951520	1.50	100	108.0	90	110	
K	39	1	nogas	10120.658	1.240	103477784	1.89	10000	101.2	90	110	
Ti	47	1	nogas	98.614	2.950	89252	2.45	100	98.6	90	110	
V	51	1	nogas	102.994	2.330	1328134	2.43	100	103.0	90	110	
Cr	52	1	nogas	95.455	1.987	1006550	2.02	100	95.5	90	110	
Mn	55	1	nogas	103.263	3.760	1345984	3.07	100	103.3	90	110	
Co	59	1	nogas	96.600	2.678	1039466	3.04	100	96.6	90	110	
Ni	60	1	nogas	101.168	1.489	237900	1.86	100	101.2	90	110	
Cu	63	1	nogas	99.214	1.015	557559	1.18	100	99.2	90	110	
Zn	66	1	nogas	104.630	1.426	169943	1.20	100	104.6	90	110	
As	75	1	nogas	97.725	2.221	211830	1.87	100	97.7	90	110	
Sr	88	1	nogas	101.085	1.742	1281452	1.39	100	101.1	90	110	
Ag	107	1	nogas	99.996	1.360	535250	1.31	100	100.0	90	110	
Cd	111	1	nogas	104.951	1.810	107181	2.54	100	105.0	90	110	
Sb	121	1	nogas	101.247	1.148	478659	1.75	100	101.2	90	110	
Tl	205	1	nogas	104.328	4.689	594998	1.05	100	104.3	90	110	
Pb	208	1	nogas	94.662	2.007	797000	2.01	100	94.7	90	110	
U	238	1	nogas	107.250	6.636	762994	3.03	100	107.2	90	110	
[Pb]	206	1	nogas	104.967	6.275	200549	2.53	100	105.0	90	110	
[Pb]	207	1	nogas	102.758	4.809	175193	1.21	100	102.8	90	110	
Na	23	2	He	10766.544	0.845	2082435	1.12	10000	107.7	90	110	
Mg	24	2	He	9762.621	0.292	887538	0.94	10000	97.6	90	110	
Al	27	2	He	118.846	2.336	3294	1.78	100	118.8	90	110	CCV Main CR1-2 Failed
K	39	2	He	8519.277	0.517	758801	0.50	10000	85.2	90	110	CCV Main CR1-2 Failed
Ca	43	2	He	9595.374	10.907	2254	10.41	10000	96.0	90	110	
Ca	44	2	He	9953.413	0.893	38754	2.08	10000	99.5	90	110	
V	51	2	He	102.268	1.197	117839	0.64	100	102.3	90	110	
Cr	52	2	He	102.926	0.857	146355	0.94	100	102.9	90	110	
Mn	55	2	He	101.346	1.196	61950	1.43	100	101.3	90	110	
Fe	56	2	He	10276.952	1.698	11062490	0.53	10000	102.8	90	110	
Co	59	2	He	105.522	2.904	227904	1.83	100	105.5	90	110	
Ni	60	2	He	107.402	1.029	64607	0.21	100	107.4	90	110	
Cu	63	2	He	106.090	2.515	171873	1.30	100	106.1	90	110	
Zn	66	2	He	106.177	2.101	26713	1.52	100	106.2	90	110	
As	75	2	He	102.517	2.085	21753	3.24	100	102.5	90	110	
Se	78	2	He	94.500	7.509	896	7.60	100	94.5	90	110	
B	11	1	nogas	651.320	1.592	807438	1.56	500	130.3	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	10010.505	6.427	3726073	0.54	5000	200.2	90	110	CCV Main CR1-2 Failed
Ca	43	1	nogas	10034.109	0.167	180206	0.76	10000	100.3	90	110	
Ca	44	1	nogas	10199.436	2.752	3065198	2.16	10000	102.0	90	110	
Fe	56	1	nogas	9824.722	3.468	111954857	3.45	10000	98.2	90	110	
Se	77	1	nogas	88.084	6.090	12011	2.76	100	88.1	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	103.404	3.710	9759	2.94	100	103.4	90	110	
Mo	95	1	nogas	98.682	2.646	227142	2.94	100	98.7	90	110	
Sn	118	1	nogas	102.800	0.764	305607	1.38	100	102.8	90	110	
Ba	137	1	nogas	102.727	0.194	152174	1.08	100	102.7	90	110	
Sb	121	2	He	97.360	1.690	77532	1.60	100	97.4	90	110	
Li	7	1	nogas	105.040	0.950	561212	1.41	100	105.0	90	110	
P	31	1	nogas	497.824	1.996	369357	2.24	500	99.6	90	110	
La	139	1	nogas	189.374	10.410	320	9.37	100	189.4	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	396.498	74.048	83	60.40	100	396.5	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	289994	0.92	359778	80.60	70	125	
Ge	72	1	nogas	1347035	0.69	1412575	95.36	70	125	
In	115	1	nogas	949810	0.90	1018869	93.22	70	125	
Bi	209	1	nogas	572659	3.88	569248	100.60	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	118577	1.20	135587	87.46	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	245_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-17T23:47:08-05:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.064	61.4	183	50.7	1	
Na	23	1	nogas	65.458	3.3	960504	2.0	100	
Mg	24	1	nogas	6.894	34.7	50584	32.7	100	
Al	27	1	nogas	1.691	6.7	25147	1.9	5	
K	39	1	nogas	23.938	37.4	3667557	1.5	100	
Ti	47	1	nogas	0.047	239.0	217	45.5	2.5	
V	51	1	nogas	-1.319	-0.4	29729	2.2	2.5	
Cr	52	1	nogas	-0.273	-31.7	12791	6.4	2.5	
Mn	55	1	nogas	0.467	7.9	12251	5.3	2.5	
Co	59	1	nogas	0.077	45.9	1287	29.3	2.5	
Ni	60	1	nogas	-0.289	-15.0	367	29.2	2.5	
Cu	63	1	nogas	-0.926	-4.2	2870	6.0	2.5	
Zn	66	1	nogas	0.349	16.0	1250	9.0	2.5	
As	75	1	nogas	-1.605	-15.3	12308	2.7	2.5	
Sr	88	1	nogas	0.098	23.1	1483	18.6	2.5	
Ag	107	1	nogas	0.074	33.6	457	28.9	2.5	
Cd	111	1	nogas	0.020	115.8	53	47.2	1	
Sb	121	1	nogas	-0.887	-5.8	1733	11.8	2.5	
Tl	205	1	nogas	0.776	66.4	4718	69.0	1	
Pb	208	1	nogas	0.070	46.7	1087	25.4	2.5	
U	238	1	nogas	0.102	58.3	913	52.8	2.5	
[Pb]	206	1	nogas	0.059	49.6	270	24.3	2.5	
[Pb]	207	1	nogas	0.049	55.1	213	25.8	2.5	
Na	23	2	He	74.244	7.5	25691	2.8	100	
Mg	24	2	He	2.106	4.1	383	3.0	100	
Al	27	2	He	-1.559	-89.0	90	38.5	5	
K	39	2	He	-12.470	-64.4	16925	4.1	100	
Ca	43	2	He	20.428	323.6	13	114.6	100	
Ca	44	2	He	-6.867	-106.8	260	10.2	100	
V	51	2	He	-0.241	-4.5	92	16.4	2.5	
Cr	52	2	He	-0.189	-68.4	797	19.9	2.5	
Mn	55	2	He	0.261	30.5	277	18.5	2.5	
Fe	56	2	He	14.575	0.7	20925	2.8	100	
Co	59	2	He	0.042	10.4	127	4.6	2.5	
Ni	60	2	He	-0.692	-13.7	73	75.1	2.5	
Cu	63	2	He	-0.955	-2.4	450	9.7	2.5	
Zn	66	2	He	0.032	727.5	180	34.7	2.5	
As	75	2	He	0.027	118.0	21	32.9	2.5	
Se	78	2	He	-0.076	-1553.7	21	55.9	2.5	
B	11	1	nogas	121.907	5.6	174856	5.3	10	CCB Main CR1 Failed
Si	28	1	nogas	-11461.186	-10.3	2784199	0.4	5	
Ca	43	1	nogas	34.347	32.5	983	18.8	100	
Ca	44	1	nogas	-144.008	-6.9	74900	1.8	100	
Fe	56	1	nogas	16.384	42.8	1475758	4.7	100	
Se	77	1	nogas	-11.940	-30.5	4244	7.8	2.5	
Se	82	1	nogas	-0.090	-705.6	210	26.5	2.5	
Mo	95	1	nogas	0.402	56.4	1040	49.2	2.5	
Sn	118	1	nogas	0.173	56.6	907	34.2	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.089	31.6	270	14.8	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	-0.971	-9.1	240	27.3	2.5	
P	31	1	nogas	0.301	303.9	26118	3.3	10	
La	139	1	nogas	1.959	1180.8	63	50.8	2.5	
Au	197	1	nogas	126.357	23.1	37	15.7	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	310920	0.30	359778	86.42	70	125	
Ge	72	1	nogas	1327654	2.07	1412575	93.99	70	125	
In	115	1	nogas	977972	1.13	1018869	95.99	70	125	
Bi	209	1	nogas	584497	4.26	569248	102.68	70	125	
Ge	72	2	He	117595	2.95	135587	86.73	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	256_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-18T00:09:08-05:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	104.242	0.290	235261	1.57	100	104.2	90	110	
Na	23	1	nogas	10285.539	0.089	108252027	1.25	10000	102.9	90	110	
Mg	24	1	nogas	10172.833	1.426	70830816	2.64	10000	101.7	90	110	
Al	27	1	nogas	108.382	3.524	968597	2.95	100	108.4	90	110	
K	39	1	nogas	10150.010	1.286	105274946	2.35	10000	101.5	90	110	
Ti	47	1	nogas	99.826	3.545	91662	3.58	100	99.8	90	110	
V	51	1	nogas	102.689	2.118	1343764	3.36	100	102.7	90	110	
Cr	52	1	nogas	98.953	2.218	1058119	3.21	100	99.0	90	110	
Mn	55	1	nogas	104.789	2.165	1386023	3.25	100	104.8	90	110	
Co	59	1	nogas	98.228	3.495	1072462	4.45	100	98.2	90	110	
Ni	60	1	nogas	100.728	3.348	240300	3.55	100	100.7	90	110	
Cu	63	1	nogas	98.867	1.885	563718	2.43	100	98.9	90	110	
Zn	66	1	nogas	104.086	1.040	171517	1.40	100	104.1	90	110	
As	75	1	nogas	99.260	2.400	218007	1.64	100	99.3	90	110	
Sr	88	1	nogas	104.512	2.211	1344404	3.42	100	104.5	90	110	
Ag	107	1	nogas	99.416	1.601	539920	2.61	100	99.4	90	110	
Cd	111	1	nogas	101.670	1.393	108459	3.48	100	101.7	90	110	
Sb	121	1	nogas	104.793	1.626	502340	1.35	100	104.8	90	110	
Tl	205	1	nogas	99.127	11.307	614698	4.97	100	99.1	90	110	
Pb	208	1	nogas	99.978	2.003	841728	2.00	100	100.0	90	110	
U	238	1	nogas	104.192	6.967	807945	0.47	100	104.2	90	110	
[Pb]	206	1	nogas	100.275	11.370	208399	5.02	100	100.3	90	110	
[Pb]	207	1	nogas	98.060	8.620	182019	2.52	100	98.1	90	110	
Na	23	2	He	10741.835	2.251	2123934	1.65	10000	107.4	90	110	
Mg	24	2	He	9761.054	1.792	907164	1.29	10000	97.6	90	110	
Al	27	2	He	120.577	4.329	3414	3.05	100	120.6	90	110	CCV Main CR1-2 Failed
K	39	2	He	8617.923	1.073	767378	1.05	10000	86.2	90	110	CCV Main CR1-2 Failed
Ca	43	2	He	9393.021	4.875	2257	5.72	10000	93.9	90	110	
Ca	44	2	He	9878.369	1.696	39318	1.51	10000	98.8	90	110	
V	51	2	He	101.993	1.182	120163	1.86	100	102.0	90	110	
Cr	52	2	He	102.875	0.641	149552	0.56	100	102.9	90	110	
Mn	55	2	He	101.592	2.341	63479	1.19	100	101.6	90	110	
Fe	56	2	He	10069.963	2.425	11082442	2.04	10000	100.7	90	110	
Co	59	2	He	104.731	1.506	231289	1.50	100	104.7	90	110	
Ni	60	2	He	105.723	1.101	65028	1.03	100	105.7	90	110	
Cu	63	2	He	105.421	2.700	174632	2.15	100	105.4	90	110	
Zn	66	2	He	105.783	2.532	27210	2.29	100	105.8	90	110	
As	75	2	He	99.784	1.641	21642	1.32	100	99.8	90	110	
Se	78	2	He	96.007	3.179	930	1.97	100	96.0	90	110	
B	11	1	nogas	640.764	0.948	818717	1.18	500	128.2	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	9266.076	8.290	3748252	0.50	5000	185.3	90	110	CCV Main CR1-2 Failed
Ca	43	1	nogas	10044.958	2.543	182988	1.84	10000	100.4	90	110	
Ca	44	1	nogas	10152.709	2.657	3096068	2.52	10000	101.5	90	110	
Fe	56	1	nogas	10124.845	1.990	117018323	2.83	10000	101.2	90	110	
Se	77	1	nogas	93.250	2.864	12591	2.34	100	93.2	90	110	
Se	82	1	nogas	104.211	3.322	9980	4.06	100	104.2	90	110	
Mo	95	1	nogas	102.302	2.830	238865	2.90	100	102.3	90	110	
Sn	118	1	nogas	100.878	5.139	312985	2.68	100	100.9	90	110	
Ba	137	1	nogas	105.991	5.339	163874	3.53	100	106.0	90	110	
Sb	121	2	He	100.405	2.879	81721	3.40	100	100.4	90	110	
Li	7	1	nogas	104.176	1.377	573701	1.83	100	104.2	90	110	
P	31	1	nogas	501.805	0.616	377489	1.56	500	100.4	90	110	
La	139	1	nogas	196.642	24.536	343	17.56	100	196.6	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	224.265	98.288	57	71.32	100	224.3	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	298802	1.29	359778	83.05	70	125	
Ge	72	1	nogas	1366575	1.32	1412575	96.74	70	125	
In	115	1	nogas	992140	2.74	1018869	97.38	70	125	
Bi	209	1	nogas	625098	6.77	569248	109.81	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	121228	1.13	135587	89.41	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	257_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-18T00:11:08-05:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.062	54.7	187	45.6	1	
Na	23	1	nogas	56.591	1.9	871186	1.9	100	
Mg	24	1	nogas	6.176	26.9	45866	26.3	100	
Al	27	1	nogas	1.527	3.0	24550	2.3	5	
K	39	1	nogas	8.228	57.7	3632807	0.2	100	
Ti	47	1	nogas	0.017	608.4	197	47.2	2.5	
V	51	1	nogas	-2.035	-2.2	21649	3.1	2.5	
Cr	52	1	nogas	-0.311	-34.2	12825	8.5	2.5	
Mn	55	1	nogas	0.487	2.1	12925	2.6	2.5	
Co	59	1	nogas	0.059	33.8	1127	19.3	2.5	
Ni	60	1	nogas	-0.291	-28.2	373	52.2	2.5	
Cu	63	1	nogas	-0.893	-1.0	3154	0.8	2.5	
Zn	66	1	nogas	0.250	39.3	1127	13.5	2.5	
As	75	1	nogas	-1.857	-1.8	12211	1.0	2.5	
Sr	88	1	nogas	0.112	8.8	1720	8.1	2.5	
Ag	107	1	nogas	0.052	12.7	353	9.1	2.5	
Cd	111	1	nogas	0.027	134.4	63	63.8	1	
Sb	121	1	nogas	-0.118	-89.8	5448	9.2	2.5	
Tl	205	1	nogas	0.735	60.1	4698	60.8	1	
Pb	208	1	nogas	0.062	28.1	1020	14.4	2.5	
U	238	1	nogas	0.088	81.1	857	67.3	2.5	
[Pb]	206	1	nogas	0.057	41.8	280	15.6	2.5	
[Pb]	207	1	nogas	0.053	70.2	233	30.1	2.5	
Na	23	2	He	62.652	7.6	23642	4.0	100	
Mg	24	2	He	3.297	22.9	493	13.0	100	
Al	27	2	He	0.291	799.1	140	43.4	5	
K	39	2	He	-19.530	-24.2	16311	2.5	100	
Ca	43	2	He	19.724	335.4	13	114.6	100	
Ca	44	2	He	2.278	783.7	297	22.4	100	
V	51	2	He	-0.256	-3.7	75	13.6	2.5	
Cr	52	2	He	-0.204	-23.1	783	8.2	2.5	
Mn	55	2	He	0.287	46.2	293	26.5	2.5	
Fe	56	2	He	14.330	3.0	20792	1.2	100	
Co	59	2	He	0.033	26.3	110	18.2	2.5	
Ni	60	2	He	-0.639	-8.6	107	30.1	2.5	
Cu	63	2	He	-0.886	-9.4	563	23.6	2.5	
Zn	66	2	He	-0.063	-370.2	157	36.9	2.5	
As	75	2	He	0.037	83.4	23	28.6	2.5	
Se	78	2	He	-0.863	-13.1	13	8.7	2.5	
B	11	1	nogas	119.526	2.9	180770	3.4	10	CCB Main CR1 Failed
Si	28	1	nogas	-13782.854	-9.1	2778449	0.7	5	
Ca	43	1	nogas	29.918	22.9	937	12.4	100	
Ca	44	1	nogas	-155.437	-3.1	74069	0.4	100	
Fe	56	1	nogas	12.835	57.3	1484695	5.3	100	
Se	77	1	nogas	-16.920	-4.6	3994	3.0	2.5	
Se	82	1	nogas	0.682	33.6	290	6.0	2.5	
Mo	95	1	nogas	0.444	54.4	1173	47.8	2.5	
Sn	118	1	nogas	0.174	33.8	943	19.9	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.130	40.6	347	24.2	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	-0.163	-112.7	877	17.1	2.5	
P	31	1	nogas	0.131	1110.5	26883	5.3	10	
La	139	1	nogas	-17.976	-43.4	37	31.5	2.5	
Au	197	1	nogas	79.733	110.8	30	57.7	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	327226	0.82	359778	90.95	70	125	
Ge	72	1	nogas	1372132	1.55	1412575	97.14	70	125	
In	115	1	nogas	1018117	0.10	1018869	99.93	70	125	
Bi	209	1	nogas	618386	3.39	569248	108.63	70	125	
Ge	72	2	He	118332	0.96	135587	87.27	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	268_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-18T00:33:08-05:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	103.964	0.998	246278	2.26	100	104.0	90	110	
Na	23	1	nogas	10109.484	4.629	109751082	1.43	10000	101.1	90	110	
Mg	24	1	nogas	10053.656	5.327	72185433	2.23	10000	100.5	90	110	
Al	27	1	nogas	104.355	3.652	976245	0.26	100	104.4	90	110	
K	39	1	nogas	9911.434	5.579	107583144	2.20	10000	99.1	90	110	
Ti	47	1	nogas	95.147	4.859	91394	2.10	100	95.1	90	110	
V	51	1	nogas	99.293	4.801	1360374	1.06	100	99.3	90	110	
Cr	52	1	nogas	94.467	4.920	1057142	1.61	100	94.5	90	110	
Mn	55	1	nogas	101.636	3.146	1406895	2.83	100	101.6	90	110	
Co	59	1	nogas	95.747	2.864	1093825	2.47	100	95.7	90	110	
Ni	60	1	nogas	97.656	5.390	243660	1.85	100	97.7	90	110	
Cu	63	1	nogas	97.780	6.362	582962	2.74	100	97.8	90	110	
Zn	66	1	nogas	102.151	4.797	176071	1.34	100	102.2	90	110	
As	75	1	nogas	96.425	4.663	222025	0.75	100	96.4	90	110	
Sr	88	1	nogas	100.342	5.266	1349615	1.86	100	100.3	90	110	
Ag	107	1	nogas	98.505	4.184	559541	0.62	100	98.5	90	110	
Cd	111	1	nogas	102.752	1.327	115006	1.91	100	102.8	90	110	
Sb	121	1	nogas	103.099	5.093	517008	1.53	100	103.1	90	110	
Tl	205	1	nogas	104.131	5.180	661077	1.69	100	104.1	90	110	
Pb	208	1	nogas	106.052	2.378	892840	2.38	100	106.1	90	110	
U	238	1	nogas	106.443	7.003	842977	3.51	100	106.4	90	110	
[Pb]	206	1	nogas	107.428	4.334	228669	2.84	100	107.4	90	110	
[Pb]	207	1	nogas	103.880	4.338	197290	3.99	100	103.9	90	110	
Na	23	2	He	10847.187	3.490	2110637	3.29	10000	108.5	90	110	
Mg	24	2	He	9854.766	1.484	901323	0.98	10000	98.5	90	110	
Al	27	2	He	116.073	5.815	3240	5.96	100	116.1	90	110	CCV Main CR1-2 Failed
K	39	2	He	8548.688	0.189	761358	0.18	10000	85.5	90	110	CCV Main CR1-2 Failed
Ca	43	2	He	10230.683	6.048	2417	5.34	10000	102.3	90	110	
Ca	44	2	He	9773.849	2.254	38283	1.05	10000	97.7	90	110	
V	51	2	He	104.443	1.241	121078	1.43	100	104.4	90	110	
Cr	52	2	He	105.608	2.056	151041	1.04	100	105.6	90	110	
Mn	55	2	He	105.941	1.242	65145	0.15	100	105.9	90	110	
Fe	56	2	He	10611.276	0.733	11492866	0.59	10000	106.1	90	110	
Co	59	2	He	108.790	1.440	236455	2.14	100	108.8	90	110	
Ni	60	2	He	108.958	1.452	65941	1.82	100	109.0	90	110	
Cu	63	2	He	108.011	1.675	176031	0.48	100	108.0	90	110	
Zn	66	2	He	108.995	2.857	27594	4.08	100	109.0	90	110	
As	75	2	He	100.641	1.110	21484	2.18	100	100.6	90	110	
Se	78	2	He	100.136	7.671	953	6.35	100	100.1	90	110	
B	11	1	nogas	585.966	1.403	787215	2.01	500	117.2	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	3237.428	104.484	3652727	0.58	5000	64.7	90	110	CCV Main CR1-2 Failed
Ca	43	1	nogas	9763.215	5.877	186009	2.47	10000	97.6	90	110	
Ca	44	1	nogas	9745.962	7.137	3112029	3.35	10000	97.5	90	110	
Fe	56	1	nogas	9741.015	5.103	117793448	2.17	10000	97.4	90	110	
Se	77	1	nogas	83.463	5.563	12374	1.95	100	83.5	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	97.375	0.892	9776	2.90	100	97.4	90	110	
Mo	95	1	nogas	99.776	4.297	243695	0.73	100	99.8	90	110	
Sn	118	1	nogas	99.276	1.301	323468	1.26	100	99.3	90	110	
Ba	137	1	nogas	104.714	1.280	170005	1.40	100	104.7	90	110	
Sb	121	2	He	101.780	0.728	81510	1.92	100	101.8	90	110	
Li	7	1	nogas	103.391	0.982	597862	2.32	100	103.4	90	110	
P	31	1	nogas	482.000	6.319	380227	2.34	500	96.4	90	110	
La	139	1	nogas	156.002	23.005	300	17.64	100	156.0	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	296.598	118.464	73	92.82	100	296.6	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	313705	3.22	359778	87.19	70	125	
Ge	72	1	nogas	1430874	3.55	1412575	101.30	70	125	
In	115	1	nogas	1040998	0.59	1018869	102.17	70	125	
Bi	209	1	nogas	637508	3.77	569248	111.99	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	119302	1.23	135587	87.99	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	269_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-18T00:35:06-05:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.065	67.5	207	55.9	1	
Na	23	1	nogas	37.434	9.7	700236	3.8	100	
Mg	24	1	nogas	6.172	39.7	47439	34.9	100	
Al	27	1	nogas	1.536	4.9	26075	5.7	5	
K	39	1	nogas	-4.699	-201.4	3705337	0.2	100	
Ti	47	1	nogas	0.043	211.6	233	37.0	2.5	
V	51	1	nogas	-1.944	-9.6	24085	7.5	2.5	
Cr	52	1	nogas	-0.357	-8.0	13058	5.1	2.5	
Mn	55	1	nogas	0.475	12.1	13502	4.0	2.5	
Co	59	1	nogas	0.045	29.1	1037	17.8	2.5	
Ni	60	1	nogas	-0.307	-15.8	357	37.7	2.5	
Cu	63	1	nogas	-0.963	-2.0	2917	5.0	2.5	
Zn	66	1	nogas	0.285	35.0	1257	15.7	2.5	
As	75	1	nogas	-2.072	-25.9	12434	6.6	2.5	
Sr	88	1	nogas	0.101	24.4	1673	23.1	2.5	
Ag	107	1	nogas	0.070	36.2	480	33.5	2.5	
Cd	111	1	nogas	0.026	57.0	63	24.1	1	
Sb	121	1	nogas	-0.646	-8.0	3104	6.0	2.5	
Tl	205	1	nogas	0.674	61.2	4561	65.7	1	
Pb	208	1	nogas	0.067	84.1	1063	44.8	2.5	
U	238	1	nogas	0.122	55.7	1173	53.8	2.5	
[Pb]	206	1	nogas	0.045	135.0	273	56.0	2.5	
[Pb]	207	1	nogas	0.047	148.8	237	64.7	2.5	
Na	23	2	He	35.467	7.2	18936	2.7	100	
Mg	24	2	He	2.036	13.1	390	6.8	100	
Al	27	2	He	-1.830	-97.9	87	56.9	5	
K	39	2	He	-26.666	-13.7	15690	2.0	100	
Ca	43	2	He	-9.802	-246.2	7	86.6	100	
Ca	44	2	He	-9.293	-280.9	260	40.5	100	
V	51	2	He	-0.247	-4.1	88	13.8	2.5	
Cr	52	2	He	-0.134	-39.0	907	8.9	2.5	
Mn	55	2	He	0.171	50.4	230	24.2	2.5	
Fe	56	2	He	14.517	2.8	21580	2.1	100	
Co	59	2	He	0.029	62.1	103	39.1	2.5	
Ni	60	2	He	-0.660	-5.4	97	21.5	2.5	
Cu	63	2	He	-0.948	-3.4	477	10.3	2.5	
Zn	66	2	He	-0.093	-171.4	153	27.2	2.5	
As	75	2	He	0.095	72.9	37	41.7	2.5	
Se	78	2	He	0.005	28505.9	22	63.6	2.5	
B	11	1	nogas	107.314	5.1	174819	3.9	10	CCB Main CR1 Failed
Si	28	1	nogas	-18332.609	-9.9	2733718	1.3	5	
Ca	43	1	nogas	19.173	27.4	787	16.1	100	
Ca	44	1	nogas	-182.557	-4.6	69907	2.0	100	
Fe	56	1	nogas	6.891	32.4	1499860	4.7	100	
Se	77	1	nogas	-21.642	-24.9	3827	9.8	2.5	
Se	82	1	nogas	0.239	80.1	263	9.6	2.5	
Mo	95	1	nogas	0.381	57.2	1097	52.7	2.5	
Sn	118	1	nogas	0.201	24.8	1063	15.1	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.089	55.5	290	26.0	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	-0.685	-6.2	480	6.3	2.5	
P	31	1	nogas	0.565	275.2	28739	1.2	10	
La	139	1	nogas	-3.549	-366.9	60	33.3	2.5	
Au	197	1	nogas	7.730	785.4	17	69.3	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	348965	1.33	359778	96.99	70	125	
Ge	72	1	nogas	1452095	3.01	1412575	102.80	70	125	
In	115	1	nogas	1052327	3.18	1018869	103.28	70	125	
Bi	209	1	nogas	645273	6.32	569248	113.36	70	125	
Ge	72	2	He	121624	0.86	135587	89.70	70	125	

Low Level Initial Calibration Verification (LLICV) Report

Sample Table

Sample Name	LLCCV5
Data File Name	272LICV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-18T00:41:06-05:00
Sample Type	LLICV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High	QC Flag
Be	9	1	nogas	4.804	4.742	12281	4.75	5	96.1	70	130	
Na	23	1	nogas	559.219	3.225	6153950	0.76	500	111.8	70	130	
Mg	24	1	nogas	533.503	4.286	3715178	1.22	500	106.7	70	130	
Al	27	1	nogas	4.882	3.470	55294	3.49	5	97.6	70	130	
K	39	1	nogas	509.756	3.674	8834502	0.39	500	102.0	70	130	
Ti	47	1	nogas	5.015	6.399	4881	5.27	5	100.3	70	130	
V	51	1	nogas	2.539	14.051	81023	4.59	5	50.8	70	130	LLICV Main CR1 Failed
Cr	52	1	nogas	4.320	6.107	62857	2.04	5	86.4	70	130	
Mn	55	1	nogas	5.103	3.149	75236	0.43	5	102.1	70	130	
Co	59	1	nogas	4.822	2.176	54260	1.05	5	96.4	70	130	
Ni	60	1	nogas	4.627	0.715	12321	2.96	5	92.5	70	130	
Cu	63	1	nogas	3.950	5.130	31050	6.21	5	79.0	70	130	
Zn	66	1	nogas	5.076	8.257	9239	7.10	5	101.5	70	130	
As	75	1	nogas	2.208	16.665	20889	3.83	5	44.2	70	130	LLICV Main CR1 Failed
Sr	88	1	nogas	4.884	3.931	64450	2.53	5	97.7	70	130	
Ag	107	1	nogas	5.100	3.889	28363	2.11	5	102.0	70	130	
Cd	111	1	nogas	5.342	4.779	5811	4.33	5	106.8	70	130	
Sb	121	1	nogas	4.129	6.120	26093	2.56	5	82.6	70	130	
Tl	205	1	nogas	4.942	6.576	31525	2.55	5	98.8	70	130	
Pb	208	1	nogas	5.183	2.468	44105	2.44	5	103.7	70	130	
U	238	1	nogas	5.318	5.159	42361	1.63	5	106.4	70	130	
[Pb]	206	1	nogas	4.845	6.319	10480	2.21	5	96.9	70	130	
[Pb]	207	1	nogas	5.144	2.458	9923	4.81	5	102.9	70	130	
Na	23	2	He	583.118	3.428	121622	2.94	500	116.6	70	130	
Mg	24	2	He	517.940	3.058	46460	4.55	500	103.6	70	130	
Al	27	2	He	2.152	57.089	187	16.37	5	43.0	70	130	LLICV Main CR1 Failed
K	39	2	He	403.116	2.260	53062	1.49	500	80.6	70	130	
Ca	43	2	He	470.492	27.688	117	24.74	500	94.1	70	130	
Ca	44	2	He	533.372	4.606	2310	6.00	500	106.7	70	130	
V	51	2	He	4.969	2.292	5970	0.27	5	99.4	70	130	
Cr	52	2	He	5.198	4.951	8269	6.24	5	104.0	70	130	
Mn	55	2	He	5.001	13.543	3120	15.04	5	100.0	70	130	
Fe	56	2	He	512.290	1.948	546835	0.52	500	102.5	70	130	
Co	59	2	He	5.532	5.220	11771	3.36	5	110.6	70	130	
Ni	60	2	He	4.868	4.925	3337	6.03	5	97.4	70	130	
Cu	63	2	He	4.640	5.781	9249	4.08	5	92.8	70	130	
Zn	66	2	He	4.897	18.144	1370	14.25	5	97.9	70	130	
As	75	2	He	4.915	9.929	1040	11.09	5	98.3	70	130	
Se	78	2	He	3.797	36.672	55	21.18	5	75.9	70	130	
B	11	1	nogas	98.066	5.425	155978	3.00	25	392.3	70	130	LLICV Main CR1 Failed
Si	28	1	nogas	-15811.576	-9.881	2739934	0.27	25	-63246.3	70	130	LLICV Main CR1 Failed
Ca	43	1	nogas	515.717	2.332	9983	3.07	500	103.1	70	130	
Ca	44	1	nogas	316.542	3.910	216849	1.64	500	63.3	70	130	LLICV Main CR1 Failed
Fe	56	1	nogas	491.243	2.303	7097452	1.24	500	98.2	70	130	
Se	77	1	nogas	-21.149	-1.870	3727	1.73	5	-423.0	70	130	LLICV Main CR1 Failed
Se	82	1	nogas	4.322	4.991	643	0.90	5	86.4	70	130	
Mo	95	1	nogas	4.884	3.912	11787	4.36	5	97.7	70	130	
Sn	118	1	nogas	5.167	6.566	16648	7.18	5	103.3	70	130	
Ba	137	1	nogas	5.366	1.783	8556	2.72	5	107.3	70	130	
Sb	121	2	He	4.208	4.142	4237	1.71	5	84.2	70	130	
Li	7	1	nogas	4.887	3.576	57798	3.18	5	97.7	70	130	
P	31	1	nogas	27.067	7.078	46608	3.64	25	108.3	70	130	
La	139	1	nogas	-6.320	-120.400	53	21.65	5	-126.4	70	130	LLICV Main CR1 Failed
Au	197	1	nogas	125.108	76.650	40	50.00	5	2502.2	70	130	LLICV Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	337611	1.87	359778	93.84	70	125	
Ge	72	1	nogas	1397008	2.58	1412575	98.90	70	125	
In	115	1	nogas	1006548	1.35	1018869	98.79	70	125	
Bi	209	1	nogas	638471	4.04	569248	112.16	70	125	

Low Level Initial Calibration Verification (LLICV) Report

Ge	72	2	He	116510	1.93	135587	85.93	70	125	

Sample Report

Sample Table

Sample Name	LLCCV2
Data File Name	273SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-18T00:43:07-05:00
Sample Type	Sample
Dilution	1
Comment	
ISTD Ref FileName	004CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	1.836	1.836	6.91	4757	0.04	2000	
Na	23	1	nogas	248.439	248.439	5.26	2874189	0.01	200000	
Mg	24	1	nogas	212.136	212.136	2.72	1470957	0.01	200000	
Al	27	1	nogas	2.146	2.146	9.97	29563	0.01	2000	
K	39	1	nogas	214.241	214.241	15.54	5617079	0.00	200000	
Ti	47	1	nogas	1.728	1.728	13.45	1740	0.10	2000	
V	51	1	nogas	-0.088	-0.088	-153.63	45698	0.00	2000	
Cr	52	1	nogas	1.548	1.548	11.85	31971	0.00	2000	
Mn	55	1	nogas	2.229	2.229	9.11	35367	0.01	2000	
Co	59	1	nogas	1.931	1.931	9.16	21279	0.01	2000	
Ni	60	1	nogas	1.558	1.558	9.23	4707	0.03	2000	
Cu	63	1	nogas	1.068	1.068	7.37	14009	0.01	2000	
Zn	66	1	nogas	1.964	1.964	2.02	3900	0.05	2000	
As	75	1	nogas	-0.426	-0.426	-85.54	14943	0.00	2000	
Sr	88	1	nogas	2.016	2.016	5.89	25899	0.01	2000	
Ag	107	1	nogas	2.053	2.053	7.24	11080	0.02	2000	
Cd	111	1	nogas	2.107	2.107	11.20	2274	0.09	2000	
Sb	121	1	nogas	1.080	1.080	1.87	10994	0.01	2000	
Tl	205	1	nogas	2.017	2.017	2.22	12452	0.02	2000	
Pb	208	1	nogas	1.964	1.964	1.53	17024	0.01	2000	
U	238	1	nogas	2.151	2.151	6.58	16562	0.01	2000	
[Pb]	206	1	nogas	1.981	1.981	1.93	4221	0.05	2000	
[Pb]	207	1	nogas	2.061	2.061	4.89	3897	0.05	2000	
Na	23	2	He	243.892	243.892	2.14	58527	0.42	200000	
Mg	24	2	He	202.295	202.295	1.55	18573	1.09	200000	
Al	27	2	He	0.539	0.539	575.05	147	0.37	2000	
K	39	2	He	141.905	141.905	5.78	30348	0.47	200000	
Ca	43	2	He	262.851	262.851	60.67	70	375.50	200000	
Ca	44	2	He	165.012	165.012	8.30	927	17.81	200000	
V	51	2	He	1.744	1.744	2.63	2373	0.07	2000	
Cr	52	2	He	1.874	1.874	7.10	3720	0.05	2000	
Mn	55	2	He	2.063	2.063	7.96	1377	0.15	2000	
Fe	56	2	He	197.014	197.014	2.00	217291	0.09	200000	
Co	59	2	He	2.062	2.062	3.58	4487	0.05	2000	
Ni	60	2	He	1.310	1.310	7.09	1270	0.10	2000	
Cu	63	2	He	1.200	1.200	16.25	3907	0.03	2000	
Zn	66	2	He	1.765	1.765	6.96	613	0.29	2000	
As	75	2	He	2.192	2.192	2.46	480	0.46	2000	
Se	78	2	He	1.028	1.028	165.82	31	3.35	2000	
B	11	1	nogas	71.761	71.761	3.88	119799	0.06	2000	
Si	28	1	nogas	-12583.984	-12583.984	-34.65	2785160	-0.45	2000	
Ca	43	1	nogas	228.304	228.304	9.19	4487	5.09	200000	

Sample Report

Ca	44	1	nogas	29.260	29.260	60.05	126538	0.02	200000	
Fe	56	1	nogas	197.182	197.182	8.13	3544299	0.01	200000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Se	77	1	nogas	-18.631	-18.631	-19.36	3797	-0.49	2000	
Se	82	1	nogas	2.358	2.358	46.02	440	0.54	2000	
Mo	95	1	nogas	2.111	2.111	5.38	5001	0.04	2000	
Sn	118	1	nogas	2.153	2.153	1.97	7038	0.03	2000	
Ba	137	1	nogas	2.141	2.141	2.43	3437	0.06	2000	
Sb	121	2	He	1.173	1.173	13.03	1927	0.06	2000	
La	139	1	nogas	-17.262	-17.262	-23.00	37	-47.08	2000	
Au	197	1	nogas	188.726	188.726	51.52	50	377.45	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	340451	1.65	359778	94.63	70	125	
Ge	72	1	nogas	1353345	5.14	1412575	95.81	70	125	
In	115	1	nogas	989483	0.23	1018869	97.12	70	125	
Bi	209	1	nogas	613429	2.62	569248	107.76	70	125	
Ge	72	2	He	118536	1.92	135587	87.42	70	125	

Interference Check Solution A (ICS-A) Report

Sample Table

Sample Name	ICSA
Data File Name	274ICSA.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-18T00:45:08-05:00
Sample Type	ICSA
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	-0.005	-101.2	20	50.0	0	ICSA Main CR1 Failed
Na	23	1	nogas	101524.859	4.0	972038422	3.3	0	
Mg	24	1	nogas	99420.365	1.0	631251431	1.0	0	
Al	27	1	nogas	91290.039	3.0	744172096	1.9	0	
K	39	1	nogas	100540.033	2.3	932773621	0.7	0	
Ti	47	1	nogas	1988.135	3.1	1680796	2.0	0	
V	51	1	nogas	-1.936	-1.8	21049	3.1	0	ICSA Main CR1 Failed
Cr	52	1	nogas	0.724	8.5	21840	3.3	0	ICSA Main CR1 Failed
Mn	55	1	nogas	0.622	9.6	13508	4.4	0	ICSA Main CR1 Failed
Co	59	1	nogas	0.131	15.4	1757	9.8	0	ICSA Main CR1 Failed
Ni	60	1	nogas	0.589	11.7	2270	5.9	0	ICSA Main CR1 Failed
Cu	63	1	nogas	0.231	40.6	8719	3.8	0	ICSA Main CR1 Failed
Zn	66	1	nogas	1.211	3.6	2490	1.4	0	ICSA Main CR1 Failed
As	75	1	nogas	2.377	17.5	19167	2.9	0	ICSA Main CR1 Failed
Sr	88	1	nogas	0.924	1.6	11217	3.2	0	ICSA Main CR1 Failed
Ag	107	1	nogas	0.039	8.0	260	6.7	0	ICSA Main CR1 Failed
Cd	111	1	nogas	0.630	21.9	640	22.7	0	ICSA Main CR1 Failed
Sb	121	1	nogas	-0.883	-3.5	1667	9.9	0	ICSA Main CR1 Failed
Tl	205	1	nogas	0.058	17.7	417	15.6	0	ICSA Main CR1 Failed
Pb	208	1	nogas	0.062	27.1	1020	13.9	0	ICSA Main CR1 Failed
[Pb]	206	1	nogas	0.093	49.7	310	29.6	0	ICSA Main CR1 Failed
[Pb]	207	1	nogas	0.077	13.8	240	7.2	0	ICSA Main CR1 Failed
Na	23	2	He	101954.417	3.0	18122879	3.7	0	
Mg	24	2	He	97932.156	0.8	8221110	1.8	0	
Al	27	2	He	99043.835	2.3	2433151	2.8	0	
K	39	2	He	79818.098	2.6	6958572	2.6	0	
Ca	43	2	He	86556.056	3.6	18710	2.5	0	
Ca	44	2	He	89823.679	1.6	320845	2.5	0	
V	51	2	He	-0.264	-3.9	61	18.0	0	ICSA Main CR1 Failed
Cr	52	2	He	0.122	71.9	1150	10.0	0	ICSA Main CR1 Failed
Mn	55	2	He	0.710	26.9	510	20.5	0	ICSA Main CR1 Failed
Fe	56	2	He	100680.027	0.7	100052025	0.8	0	
Co	59	2	He	0.041	109.1	117	76.8	0	ICSA Main CR1 Failed
Ni	60	2	He	-0.419	-21.5	220	22.7	0	ICSA Main CR1 Failed
Cu	63	2	He	-0.654	-0.8	863	0.7	0	ICSA Main CR1 Failed
Zn	66	2	He	0.045	81.3	170	5.9	0	ICSA Main CR1 Failed
As	75	2	He	0.080	58.3	30	29.4	0	ICSA Main CR1 Failed
Se	78	2	He	-0.280	-121.1	17	17.6	0	ICSA Main CR1 Failed
B	11	1	nogas	71.694	2.2	102871	1.9	0	
Si	28	1	nogas	-4900.188	-28.3	2901995	1.5	0	ICSA Main CR1 Failed
Ca	43	1	nogas	100999.030	3.5	1693917	1.8	0	
Ca	44	1	nogas	97934.614	4.2	26592281	2.5	0	
Fe	56	1	nogas	95083.115	4.6	1003118089	3.4	0	
Se	77	1	nogas	13.936	32.0	5894	5.3	0	
Se	82	1	nogas	0.575	182.8	257	34.0	0	ICSA Main CR1 Failed
Mo	95	1	nogas	2023.835	0.2	4357903	1.8	0	
Sn	118	1	nogas	0.084	19.4	580	7.5	0	ICSA Main CR1 Failed
Ba	137	1	nogas	0.121	22.5	293	14.2	0	ICSA Main CR1 Failed
Sb	121	2	He	-0.944	-11.4	243	31.4	0	ICSA Main CR1 Failed

Interference Check Solution A (ICS-A) Report

P	31	1	nogas	94919.414	2.0	61237394	0.6	0	
La	139	1	nogas	135.900	20.7	233	17.3	0	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	292617	1.95	359778	81.33	70	125	
Ge	72	1	nogas	1260895	1.79	1412575	89.26	70	125	
In	115	1	nogas	898976	1.92	1018869	88.23	70	125	
Bi	209	1	nogas	537812	3.59	569248	94.48	70	125	
Ge	72	2	He	109507	1.03	135587	80.77	70	125	

Interference Check Solution AB (ICS-AB) Report

Sample Table

Sample Name	ICSAB
Data File Name	275ICSB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\041
Acq Date Time	2018-04-18T00:47:12-05:00
Sample Type	ICSB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Fail

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High	QC Flag
Be	9	1	nogas	105.138	1.406	195725	0.12	100	105.1	80	120	
Na	23	1	nogas	111214.686	1.355	1048267257	1.99	100	111214.7	80	120	
Mg	24	1	nogas	110143.623	1.891	688366332	2.43	100	110143.6	80	120	
Al	27	1	nogas	99712.223	2.532	756003055	2.21	100	99712.2	80	120	ICSB Main CR1 Failed
K	39	1	nogas	120145.785	3.501	1035821290	1.26	100	120145.8	80	120	ICSB Main CR1 Failed
Ti	47	1	nogas	2263.144	6.312	1777673	2.57	100	2263.1	80	120	ICSB Main CR1 Failed
V	51	1	nogas	97.733	7.175	1097838	3.78	100	97.7	80	120	
Cr	52	1	nogas	94.395	2.014	866544	2.00	100	94.4	80	120	
Mn	55	1	nogas	96.991	2.642	1100754	1.48	100	97.0	80	120	
Co	59	1	nogas	94.668	3.057	886389	0.92	100	94.7	80	120	
Ni	60	1	nogas	97.753	3.630	200020	0.51	100	97.8	80	120	
Cu	63	1	nogas	95.986	2.420	469695	1.52	100	96.0	80	120	
Zn	66	1	nogas	102.141	2.374	144431	2.74	100	102.1	80	120	
As	75	1	nogas	104.415	4.944	195985	2.82	100	104.4	80	120	
Sr	88	1	nogas	101.025	2.062	1114753	1.79	100	101.0	80	120	
Ag	107	1	nogas	98.617	2.377	459439	1.87	100	98.6	80	120	
Cd	111	1	nogas	99.152	2.072	95133	0.46	100	99.2	80	120	
Sb	121	1	nogas	103.683	1.575	426638	3.31	100	103.7	80	120	
Tl	205	1	nogas	92.680	2.456	486121	2.21	100	92.7	80	120	
Pb	208	1	nogas	83.299	4.069	701394	4.07	100	83.3	80	120	
U	238	1	nogas	104.292	0.470	682716	0.02	100	104.3	80	120	
[Pb]	206	1	nogas	96.282	4.610	169251	4.28	100	96.3	80	120	
[Pb]	207	1	nogas	98.911	4.562	155088	4.27	100	98.9	80	120	
Na	23	2	He	114692.964	0.961	20053706	0.83	100	114693.0	80	120	ICSB Main CR1 Failed
Mg	24	2	He	109510.237	0.647	9044613	1.66	100	109510.2	80	120	
Al	27	2	He	101360.815	0.756	2450104	2.40	100	101360.8	80	120	ICSB Main CR1 Failed
K	39	2	He	88252.642	2.346	7691996	2.34	100	88252.6	80	120	
Ca	43	2	He	97160.874	1.480	20665	0.49	100	97160.9	80	120	
Ca	44	2	He	103136.123	1.347	362431	2.70	100	103136.1	80	120	ICSB Main CR1 Failed
V	51	2	He	98.675	2.169	103311	0.97	100	98.7	80	120	
Cr	52	2	He	96.740	1.979	125040	1.55	100	96.7	80	120	
Mn	55	2	He	96.040	1.195	53350	1.95	100	96.0	80	120	
Fe	56	2	He	113938.994	3.023	111379652	1.92	100	113939.0	80	120	ICSB Main CR1 Failed
Co	59	2	He	99.631	1.879	195541	1.45	100	99.6	80	120	
Ni	60	2	He	97.530	0.705	53351	1.08	100	97.5	80	120	
Cu	63	2	He	96.402	1.369	142084	0.43	100	96.4	80	120	
Zn	66	2	He	99.174	0.751	22684	1.53	100	99.2	80	120	
As	75	2	He	96.451	1.334	18593	1.52	100	96.5	80	120	
Se	78	2	He	91.767	2.758	791	4.30	100	91.8	80	120	
B	11	1	nogas	617.007	1.893	650768	0.45	100	617.0	80	120	
Si	28	1	nogas	323.484	1141.427	2887832	1.87	100	323.5	80	120	ICSB Main CR1 Failed
Ca	43	1	nogas	121331.290	4.176	1891851	0.35	100	121331.3	80	120	ICSB Main CR1 Failed
Ca	44	1	nogas	120061.557	3.512	30293667	0.39	100	120061.6	80	120	ICSB Main CR1 Failed
Fe	56	1	nogas	114196.072	3.647	1120077592	1.04	100	114196.1	80	120	ICSB Main CR1 Failed
Se	77	1	nogas	128.483	5.478	13162	1.76	100	128.5	80	120	
Se	82	1	nogas	106.383	1.797	8739	3.88	100	106.4	80	120	
Mo	95	1	nogas	2332.187	3.083	4668339	0.80	100	2332.2	80	120	ICSB Main CR1 Failed
Sn	118	1	nogas	100.132	2.231	279724	2.10	100	100.1	80	120	
Ba	137	1	nogas	99.470	2.496	138511	3.95	100	99.5	80	120	
Sb	121	2	He	95.847	0.706	69368	1.10	100	95.8	80	120	
La	139	1	nogas	184.014	25.193	293	19.68	100	184.0	80	120	ICSB Main CR1 Failed

QC ISTD Table

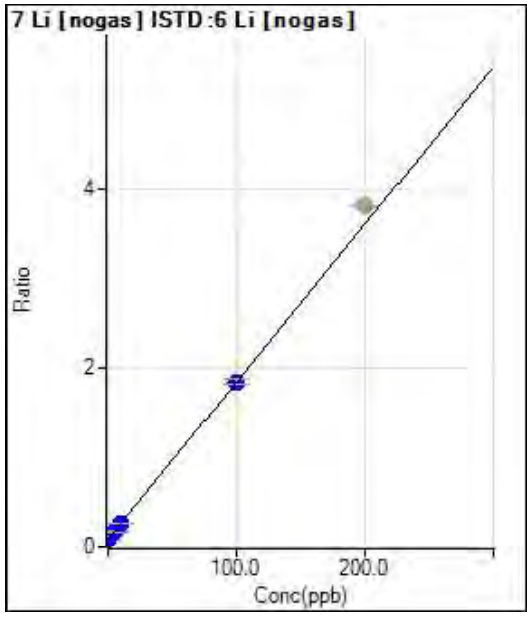
Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	246512	1.51	359778	68.52	70	125	ISTD Failed
Ge	72	1	nogas	1173055	3.85	1412575	83.04	70	125	
In	115	1	nogas	892629	1.75	1018869	87.61	70	125	
Bi	209	1	nogas	526052	0.45	569248	92.41	70	125	
Ge	72	2	He	107747	1.77	135587	79.47	70	125	

Calibration for 013_ICV.d

Batch Folder: C:\Agilent\ICPMH\1\DATA\041718A.b\
Analysis File: 041718A.batch.bin
DA Date-Time: 2018-04-17 21:26:35
Calibration Title:
Calibration Method: External Calibration
VIS Interpolation Fit:

Level	Standard Data File	Sample Name	Acq. Date-Time
1	004CALB.d	CAL BLK	2018-04-17 08:46:11
2	005CALS.d	2/10/200	2018-04-17 08:48:11
3	006CALS.d	5/25/500	2018-04-17 08:50:10
4	007CALS.d	10/50/1000	2018-04-17 08:52:10
5	011CALS.d	100/500/10K	2018-04-17 09:00:07
6	010CALS.d	200/1000/20K	2018-04-17 08:58:07
7			

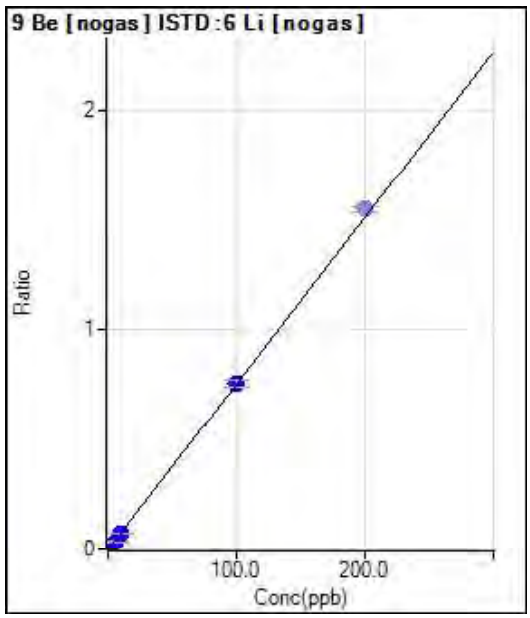
Calibration for 013_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	30608.26	0.0851	P	3.1
2	☐	2.000	1.927	42410.49	0.1190	P	2.2
3	☐	5.000	5.004	61889.80	0.1732	P	2.0
4	☐	10.000	10.029	93208.80	0.2618	P	2.3
5	☐	100.000	99.998	638503.66	1.8464	P	3.0
6	☑	200.000		1192339.23	3.8159	A	0.3
7	☐	1.000					

y = 0.0176 * x + 0.0851
R = 1.0000
DL = 0.4503
BEC = 4.832

Weight: <None>
Min Conc: <None>

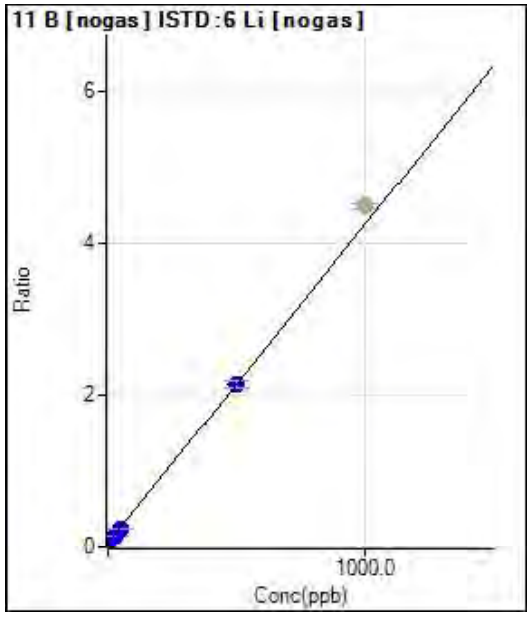


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	36.67	0.0001	P	104.
2	☐	2.000	1.898	5140.78	0.0144	P	7.3
3	☐	5.000	4.855	13134.72	0.0368	P	3.5
4	☐	10.000	9.670	26034.55	0.0731	P	2.9
5	☐	100.000	100.042	261194.40	0.7556	P	4.6
6	☑	200.000		484863.00	1.5518	P	1.6
7	☐	1.000					

y = 0.0076 * x + 1.0276E-004
R = 1.0000
DL = 0.04273
BEC = 0.01361

Weight: <None>
Min Conc: <None>

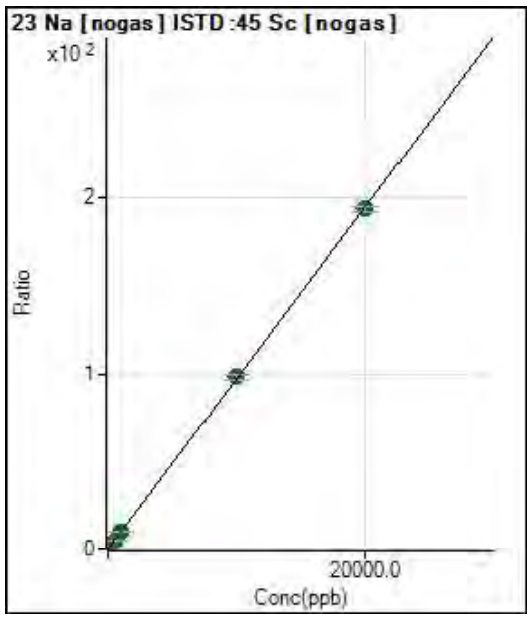
Calibration for 013_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	18232.19	0.0507	P	1.6
2	☐	10.000	9.028	31549.60	0.0886	P	5.1
3	☐	25.000	22.680	52110.94	0.1459	P	2.5
4	☐	50.000	45.768	86410.97	0.2428	P	4.6
5	☐	500.000	500.559	743827.05	2.1516	P	4.4
6	☑	1000.000		1405991.90	4.4998	A	1.6
7	☐	5.000					

y = 0.0042 * x + 0.0507
R = 1.0000
DL = 0.5856
BEC = 12.08

Weight: <None>
Min Conc: <None>

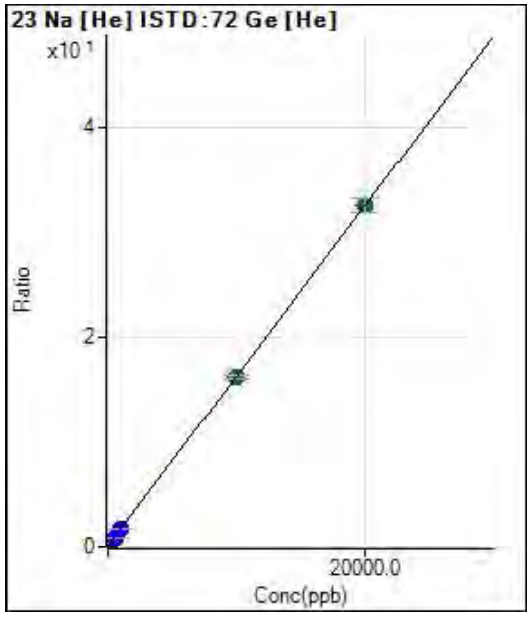


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	310996.74	0.2642	P	4.6
2	☐	200.000	204.455	2636715.10	2.2477	A	6.5
3	☐	500.000	513.179	6074672.40	5.2429	A	2.5
4	☐	1000.000	1048.270	11979740.37	10.4343	A	2.5
5	☐	10000.00	10114.630	111798052.5	98.3946	A	3.2
6	☐	20000.00	19939.897	214405663.1	193.717	A	1.3
7	☐	100.000					

y = 0.0097 * x + 0.2642
R = 1.0000
DL = 3.75
BEC = 27.23

Weight: <None>
Min Conc: <None>

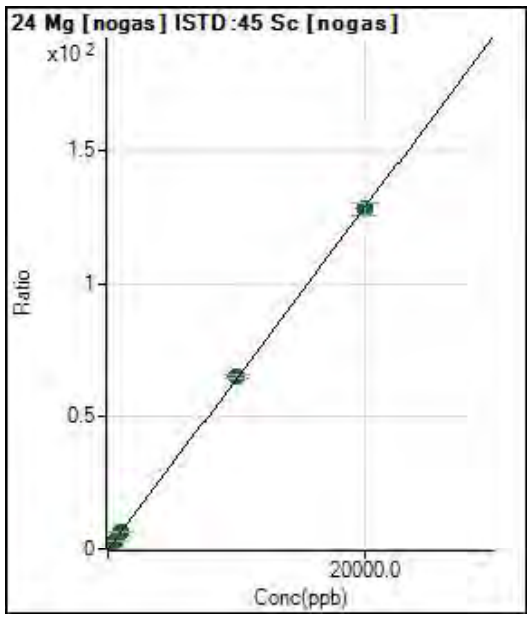
Calibration for 013_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	13311.53	0.0982	P	2.2
2	☐	200.000	202.712	59405.98	0.4270	P	2.1
3	☐	500.000	514.683	126661.18	0.9330	P	1.4
4	☐	1000.000	1037.717	243466.94	1.7814	P	1.1
5	☐	10000.00	9957.571	2204384.96	16.2501	A	2.0
6	☐	20000.00	20018.935	4274245.56	32.5704	A	4.2
7	☐	100.000					

y = 0.0016 * x + 0.0982
R = 1.0000
DL = 3.976
BEC = 60.52

Weight: <None>
Min Conc: <None>

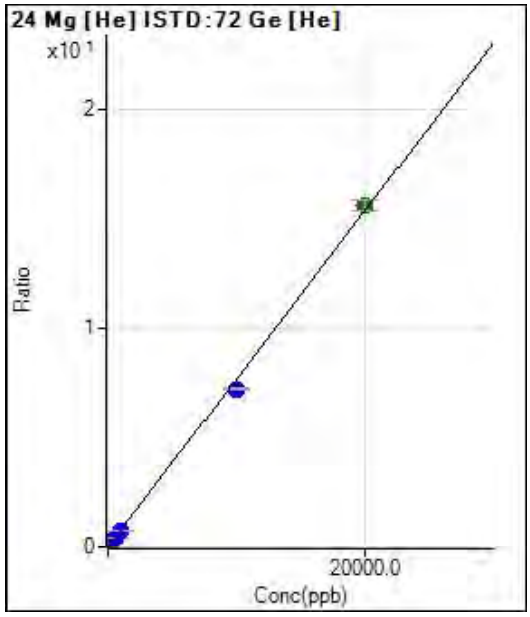


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	3501.05	0.0030	P	19.0
2	☐	200.000	205.357	1554439.55	1.3243	A	5.1
3	☐	500.000	515.556	3846720.79	3.3203	A	3.5
4	☐	1000.000	1053.882	7791806.43	6.7840	A	2.5
5	☐	10000.00	10140.258	74132107.91	65.2491	A	3.1
6	☐	20000.00	19926.735	141884857.3	128.218	A	3.5
7	☐	100.000					

y = 0.0064 * x + 0.0030
R = 1.0000
DL = 0.2632
BEC = 0.4628

Weight: <None>
Min Conc: <None>

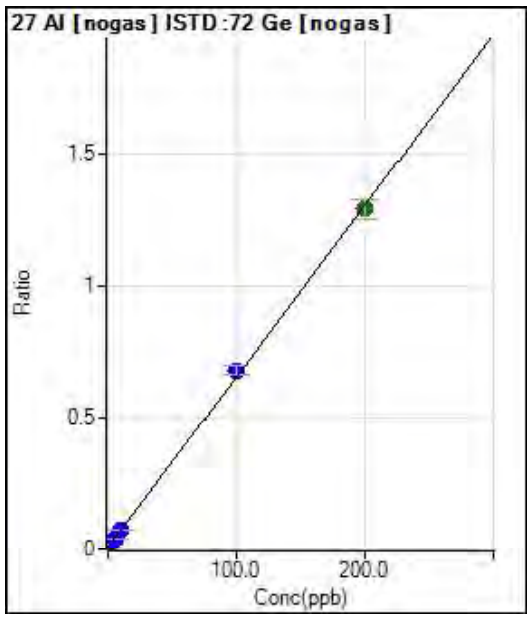
Calibration for 013_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	223.34	0.0016	P	20.5
2	☐	200.000	192.214	20731.62	0.1490	P	1.0
3	☐	500.000	496.210	51857.91	0.3820	P	3.4
4	☐	1000.000	1013.778	106442.41	0.7787	P	0.4
5	☐	10000.00	9381.871	975901.75	7.1932	P	1.0
6	☐	20000.00	20308.548	2043479.76	15.5689	A	3.2
7	☐	100.000					

y = 7.6654E-004 * x + 0.0016
R = 0.9993
DL = 1.322
BEC = 2.147

Weight: <None>
Min Conc: <None>

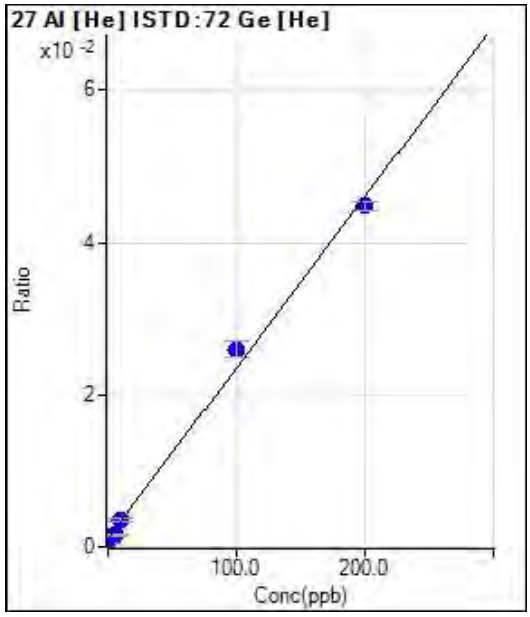


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	11310.19	0.0080	P	4.6
2	☐	2.000	2.301	32045.37	0.0229	P	3.9
3	☐	5.000	5.435	59558.10	0.0432	P	3.4
4	☐	10.000	10.454	104517.52	0.0756	P	3.4
5	☐	100.000	103.619	990623.63	0.6781	P	4.9
6	☐	200.000	198.154	1760254.92	1.2894	A	6.0
7	☐	1.000					

y = 0.0065 * x + 0.0080
R = 0.9998
DL = 0.1696
BEC = 1.239

Weight: <None>
Min Conc: <None>

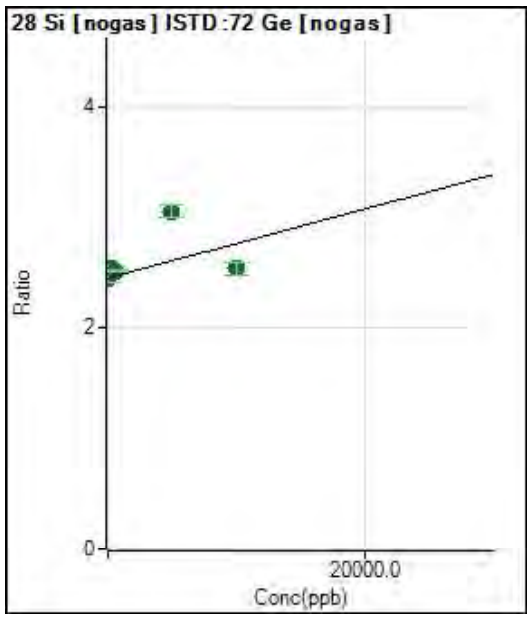
Calibration for 013_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-2.149	86.67	0.0006	P	34.8
2	☐	2.000	0.875	183.34	0.0013	P	17.1
3	☐	5.000	1.902	210.01	0.0015	P	29.9
4	☐	10.000	11.068	493.35	0.0036	P	11.0
5	☐	100.000	110.539	3513.72	0.0259	P	8.3
6	☐	200.000	194.766	5884.37	0.0448	P	2.3
7	☐	1.000					

y = 2.2431E-004 * x + 0.0011
R = 0.9977
DL = 2.969
BEC = 4.996

Weight: <None>
Min Conc: <None>

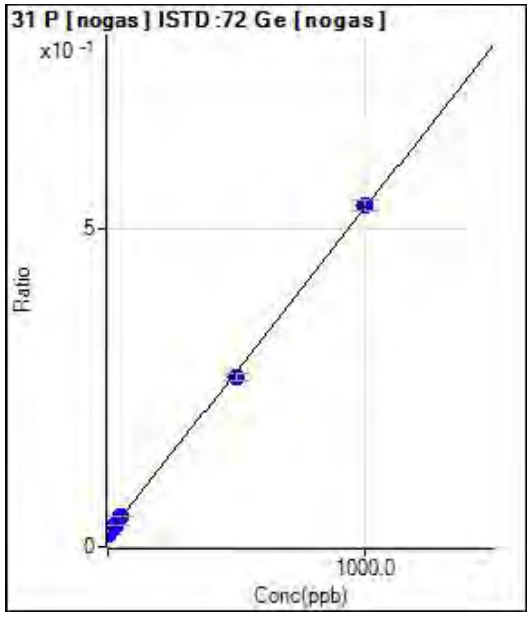


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	3464498.18	2.4545	A	3.8
2	☐	100.000	1884.356	3516710.99	2.5132	A	3.6
3	☐	250.000	2760.645	3505377.55	2.5404	A	1.5
4	☐	500.000	2105.472	3483465.99	2.5200	A	0.1
5	☐	5000.000	19351.008	4466927.95	3.0570	A	4.1
6	☐	10000.00	2663.613	3465466.83	2.5374	A	4.0
7	☐	5.000					

y = 3.1139E-005 * x + 2.4545
R = 0.3354
DL = 8894
BEC = 7.882E+04

Weight: <None>
Min Conc: <None>

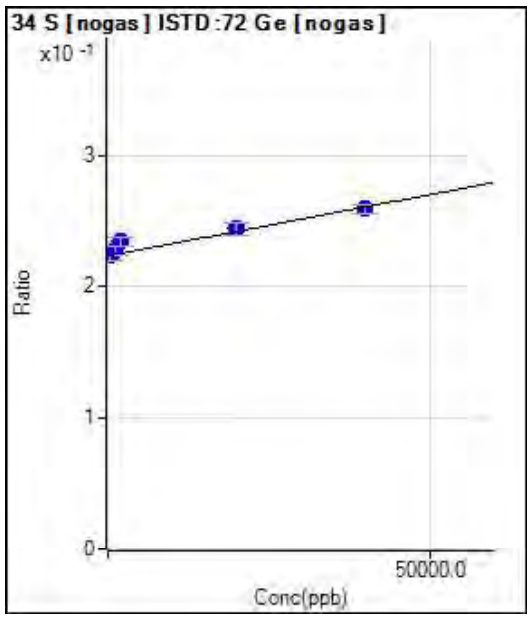
Calibration for 013_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	27550.28	0.0195	P	3.6
2	☐	10.000	11.401	35487.09	0.0254	P	2.7
3	☐	25.000	27.574	46393.87	0.0336	P	2.5
4	☐	50.000	54.965	65841.14	0.0476	P	3.5
5	☐	500.000	484.776	390904.89	0.2675	P	4.0
6	☐	1000.000	1007.285	730601.55	0.5348	P	3.3
7	☐	5.000					

y = 5.1157E-004 * x + 0.0195
R = 0.9998
DL = 4.095
BEC = 38.15

Weight: <None>
Min Conc: <None>

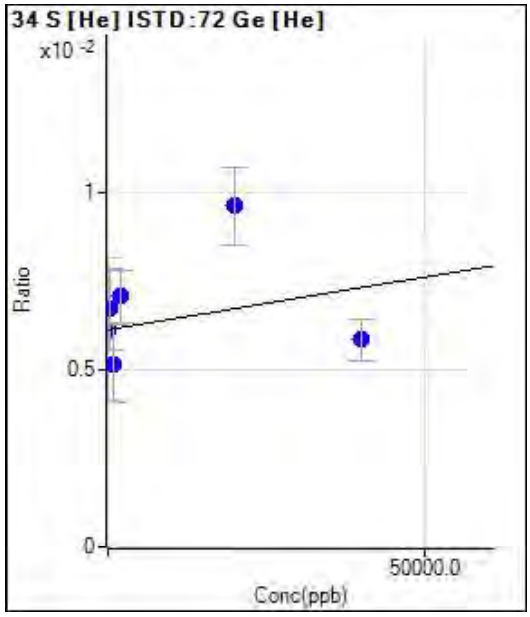


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	315681.25	0.2236	P	2.2
2	☐	400.000	1053.809	314187.08	0.2246	P	3.8
3	☐	1000.000	5282.325	315215.22	0.2285	P	3.9
4	☐	2000.000	11799.844	324160.42	0.2345	P	3.0
5	☐	20000.00	22040.379	356624.32	0.2440	P	3.6
6	☐	40000.00	38376.222	354191.55	0.2592	P	2.4
7	☐	100.000					

y = 9.2842E-007 * x + 0.2236
R = 0.9704
DL = 1.57E+04
BEC = 2.408E+05

Weight: <None>
Min Conc: <None>

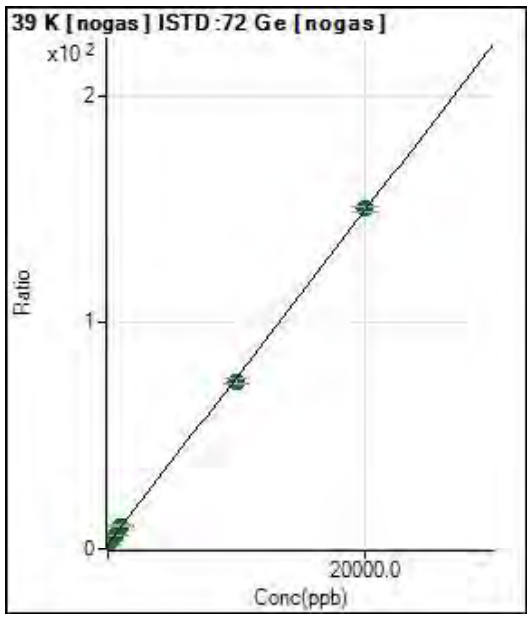
Calibration for 013_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	833.50	0.0061	P	65.6
2	☐	400.000	19501.915	933.53	0.0067	P	33.9
3	☐	1000.000	-33068.91	700.12	0.0052	P	42.5
4	☐	2000.000	31733.665	966.86	0.0071	P	20.6
5	☐	20000.00	118133.36	1300.31	0.0096	P	22.5
6	☐	40000.00	-9892.659	766.81	0.0058	P	19.7
7	☐	100.000					

y = 2.9491E-008 * x + 0.0061
R = 0.1556
DL = 4.09E+05
BEC = 2.078E+05

Weight: <None>
Min Conc: <None>

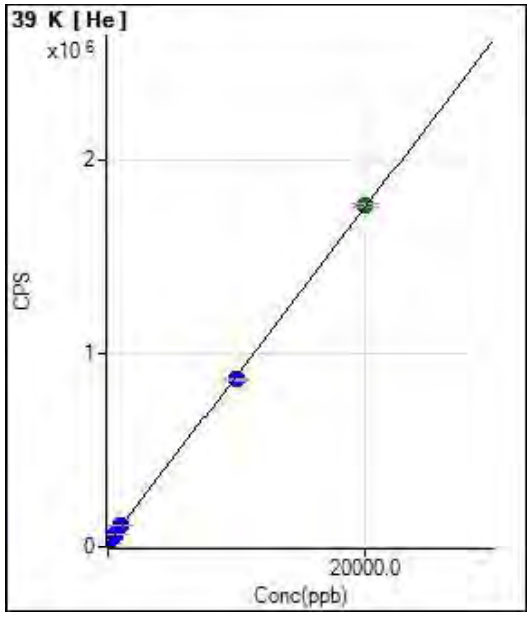


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	3653618.44	2.5876	A	2.0
2	☐	200.000	212.967	5805947.13	4.1495	A	3.7
3	☐	500.000	535.851	8992430.15	6.5176	A	2.9
4	☐	1000.000	1099.158	14718997.73	10.6490	A	2.7
5	☐	10000.00	9761.813	108427489.9	74.1828	A	3.3
6	☐	20000.00	20113.109	205151837.9	150.101	A	1.8
7	☐	100.000					

y = 0.0073 * x + 2.5876
R = 0.9999
DL = 21.33
BEC = 352.8

Weight: <None>
Min Conc: <None>

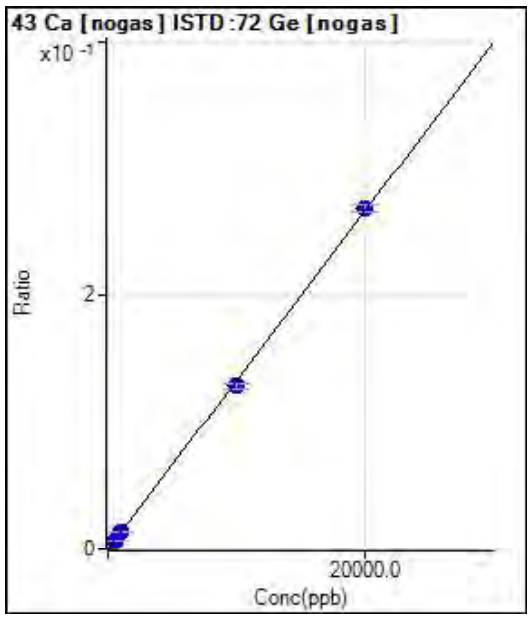
Calibration for 013_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	18008.88		P	4.2
2	☐	200.000	210.490	36311.97		P	1.9
3	☐	500.000	532.010	64269.69		P	0.4
4	☐	1000.000	1069.908	111042.46		P	2.6
5	☐	10000.00	9763.359	866979.39		P	0.9
6	☐	20000.00	20113.920	1767009.97		A	1.0
7	☐	100.000					

y = 86.9548 * x + 18008.8833
R = 0.9999
DL = 26.12
BEC = 207.1

Weight: <None>
Min Conc: <None>

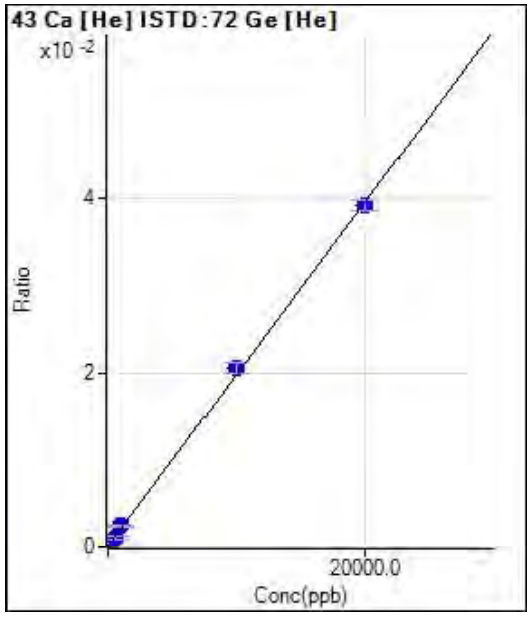


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	403.35	0.0003	P	18.0
2	☐	200.000	218.846	4477.26	0.0032	P	1.6
3	☐	500.000	546.328	10423.06	0.0076	P	4.2
4	☐	1000.000	1091.032	20458.15	0.0148	P	1.1
5	☐	10000.00	9679.446	188645.63	0.1291	P	2.8
6	☐	20000.00	20154.379	366770.13	0.2684	P	2.2
7	☐	100.000					

y = 1.3304E-005 * x + 2.8528E-004
R = 0.9998
DL = 11.56
BEC = 21.44

Weight: <None>
Min Conc: <None>

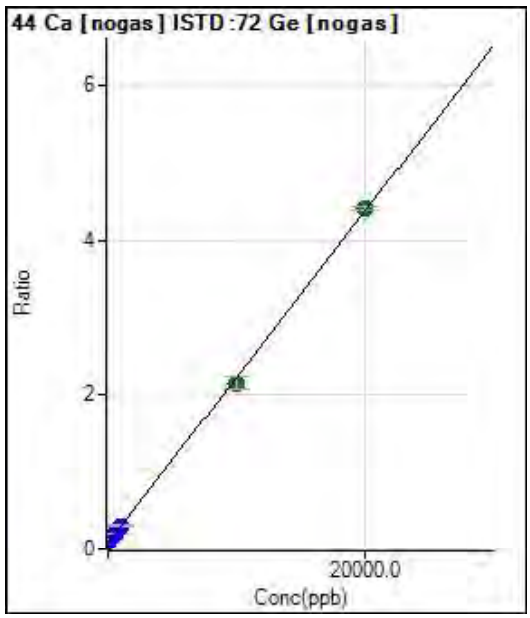
Calibration for 013_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	10.00	0.0001	P	173.
2	☐	200.000	144.447	50.00	0.0004	P	20.0
3	☐	500.000	497.788	143.33	0.0011	P	25.0
4	☐	1000.000	1186.361	330.01	0.0024	P	6.3
5	☐	10000.00	10349.593	2783.60	0.0205	P	5.7
6	☐	20000.00	19816.496	5147.45	0.0392	P	3.3
7	☐	100.000					

y = 1.9735E-006 * x + 7.4332E-005
R = 0.9997
DL = 195.7
BEC = 37.66

Weight: <None>
Min Conc: <None>

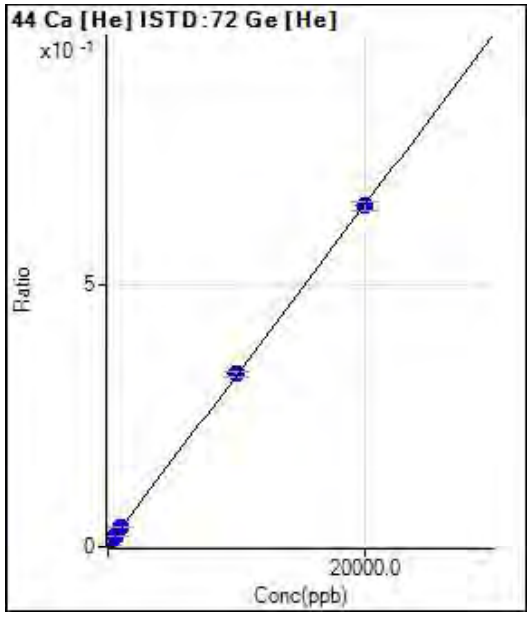


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	123310.01	0.0873	P	2.8
2	☐	200.000	215.054	186804.71	0.1335	P	2.9
3	☐	500.000	533.633	278502.44	0.2018	P	1.4
4	☐	1000.000	1062.262	435767.04	0.3153	P	1.4
5	☐	10000.00	9671.440	3157774.33	2.1624	A	6.9
6	☐	20000.00	20160.176	6032362.83	4.4129	A	1.1
7	☐	100.000					

y = 2.1456E-004 * x + 0.0873
R = 0.9998
DL = 34.71
BEC = 407.1

Weight: <None>
Min Conc: <None>

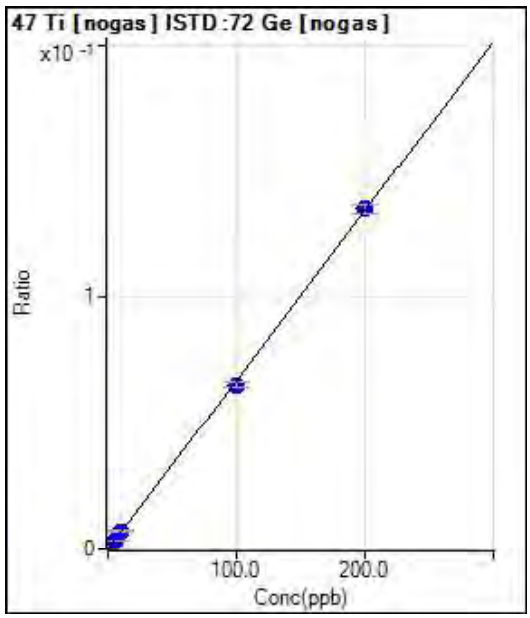
Calibration for 013_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	330.01	0.0024	P	20.5
2	☐	200.000	214.335	1310.07	0.0094	P	12.0
3	☐	500.000	541.817	2726.90	0.0201	P	10.1
4	☐	1000.000	1057.722	5044.10	0.0369	P	1.8
5	☐	10000.00	10101.166	44977.81	0.3316	P	3.2
6	☐	20000.00	19945.342	85642.10	0.6524	P	2.5
7	☐	100.000					

y = 3.2588E-005 * x + 0.0024
R = 1.0000
DL = 46.05
BEC = 74.76

Weight: <None>
Min Conc: <None>

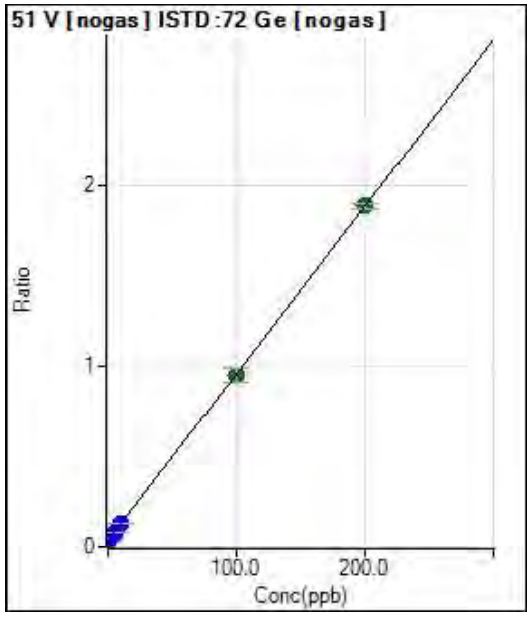


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	186.67	0.0001	P	0.4
2	☐	2.000	2.215	2263.51	0.0016	P	9.8
3	☐	5.000	5.557	5324.19	0.0039	P	3.4
4	☐	10.000	10.921	10306.36	0.0075	P	2.2
5	☐	100.000	97.292	95535.19	0.0654	P	3.9
6	☐	200.000	201.292	184600.50	0.1351	P	2.7
7	☐	1.000					

y = 6.7062E-004 * x + 1.3215E-004
R = 0.9998
DL = 0.002432
BEC = 0.1971

Weight: <None>
Min Conc: <None>

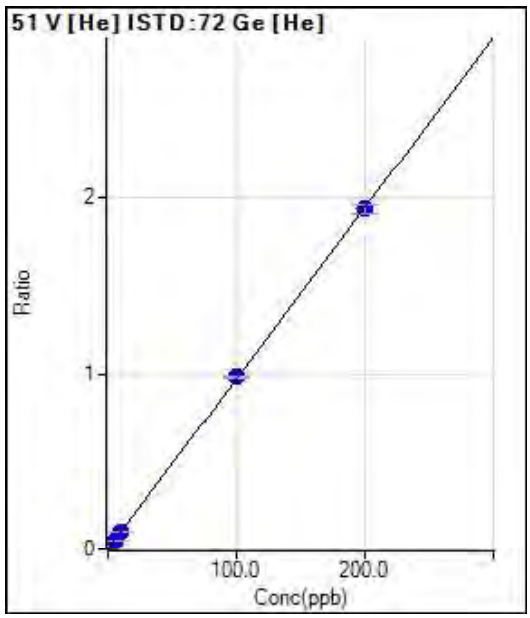
Calibration for 013_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	48738.81	0.0346	P	11.0
2	☐	2.000	2.018	74493.99	0.0532	P	2.5
3	☐	5.000	5.141	113231.79	0.0821	P	2.7
4	☐	10.000	10.259	178782.22	0.1293	P	2.3
5	☐	100.000	98.957	1384414.81	0.9487	A	9.1
6	☐	200.000	200.505	2578492.70	1.8867	A	1.3
7	☐	1.000					

y = 0.0092 * x + 0.0346
R = 1.0000
DL = 1.239
BEC = 3.743

Weight: <None>
Min Conc: <None>

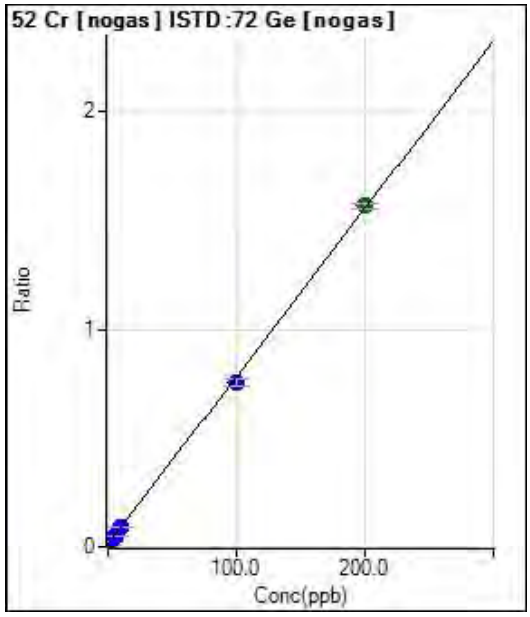


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-0.266	72.67	0.0005	P	14.3
2	☐	2.000	1.740	2778.88	0.0200	P	1.5
3	☐	5.000	4.895	6860.61	0.0505	P	2.5
4	☐	10.000	10.164	13887.88	0.1016	P	1.2
5	☐	100.000	100.940	133089.92	0.9810	P	1.0
6	☐	200.000	199.527	254139.16	1.9361	P	3.0
7	☐	1.000					

y = 0.0097 * x + 0.0031
R = 1.0000
DL = 0.02371
BEC = 0.3216

Weight: <None>
Min Conc: <None>

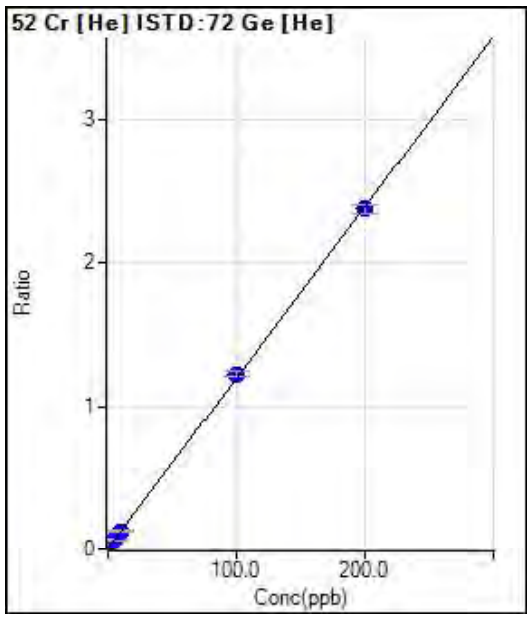
Calibration for 013_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	16584.28	0.0117	P	1.7
2	☐	2.000	2.014	38156.19	0.0273	P	2.5
3	☐	5.000	5.136	70805.40	0.0513	P	4.9
4	☐	10.000	10.485	127902.83	0.0925	P	2.0
5	☐	100.000	96.580	1104252.48	0.7559	P	5.2
6	☐	200.000	201.682	2139912.16	1.5657	A	1.3
7	☐	1.000					

y = 0.0077 * x + 0.0117
R = 0.9998
DL = 0.07887
BEC = 1.524

Weight: <None>
Min Conc: <None>

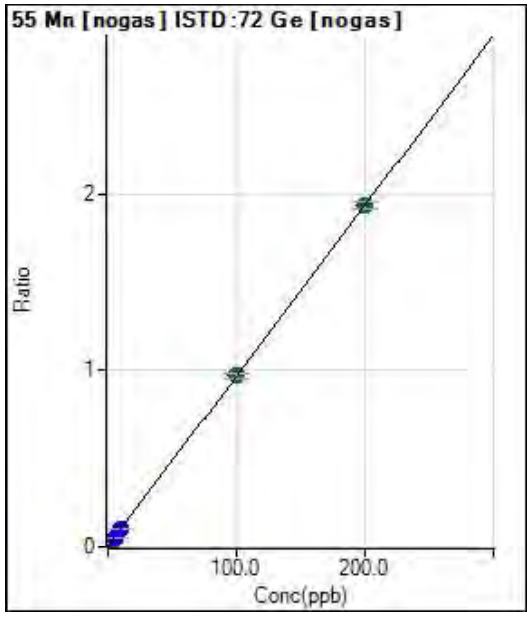


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1226.72	0.0091	P	11.3
2	☐	2.000	2.085	4710.68	0.0339	P	10.2
3	☐	5.000	5.132	9522.57	0.0701	P	2.8
4	☐	10.000	10.342	18065.69	0.1322	P	1.9
5	☐	100.000	101.982	165881.99	1.2231	P	3.1
6	☐	200.000	198.988	312143.08	2.3779	P	3.0
7	☐	1.000					

y = 0.0119 * x + 0.0091
R = 0.9999
DL = 0.2567
BEC = 0.7604

Weight: <None>
Min Conc: <None>

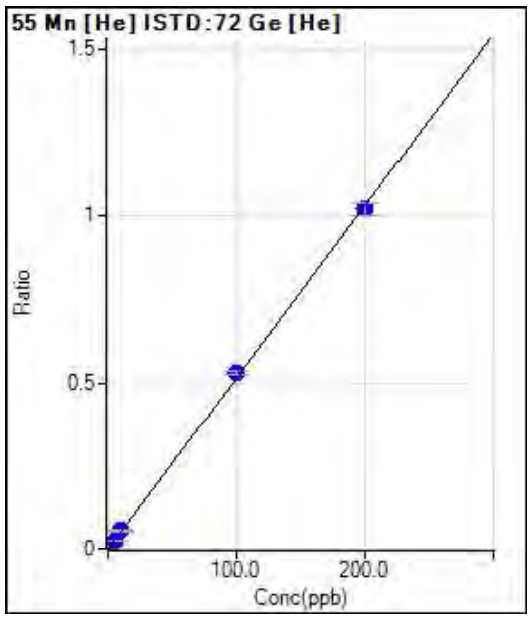
Calibration for 013_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	6678.00	0.0047	P	3.3
2	☐	2.000	1.907	32335.17	0.0231	P	3.9
3	☐	5.000	5.135	74778.14	0.0542	P	2.5
4	☐	10.000	10.179	142066.94	0.1028	P	1.1
5	☐	100.000	100.152	1416780.08	0.9694	A	3.5
6	☐	200.000	199.912	2637479.44	1.9303	A	2.2
7	☐	1.000					

y = 0.0096 * x + 0.0047
R = 1.0000
DL = 0.04842
BEC = 0.4911

Weight: <None>
Min Conc: <None>

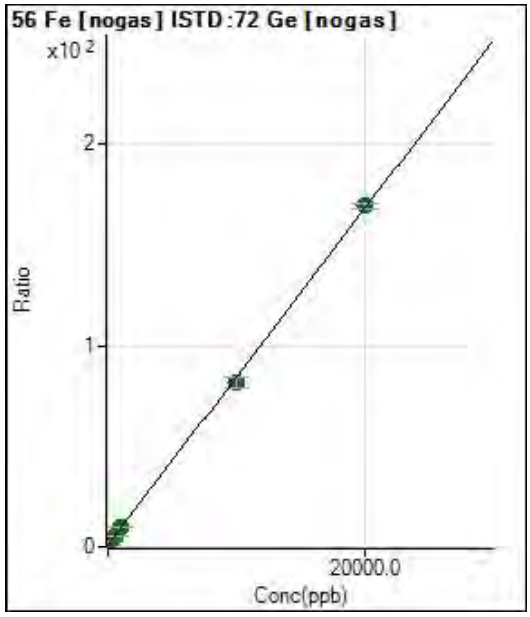


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	136.67	0.0010	P	7.9
2	☐	2.000	2.154	1683.44	0.0121	P	13.0
3	☐	5.000	4.976	3613.73	0.0266	P	9.4
4	☐	10.000	10.871	7785.09	0.0569	P	2.0
5	☐	100.000	103.208	72183.64	0.5320	P	1.6
6	☐	200.000	198.351	134082.83	1.0216	P	3.7
7	☐	1.000					

y = 0.0051 * x + 0.0010
R = 0.9998
DL = 0.04631
BEC = 0.1958

Weight: <None>
Min Conc: <None>

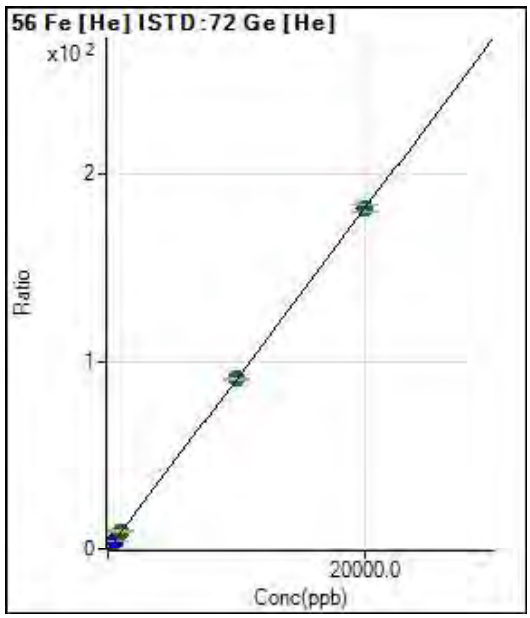
Calibration for 013_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1376403.12	0.9750	A	2.8
2	☐	200.000	204.540	3758064.93	2.6850	A	2.5
3	☐	500.000	510.623	7235277.25	5.2439	A	2.7
4	☐	1000.000	1068.149	13690943.54	9.9050	A	2.7
5	☐	10000.00	9662.665	119421790.1	81.7581	A	5.7
6	☐	20000.00	20164.949	231720430.1	169.560	A	1.6
7	☐	100.000					

y = 0.0084 * x + 0.9750
R = 0.9998
DL = 9.875
BEC = 116.6

Weight: <None>
Min Conc: <None>

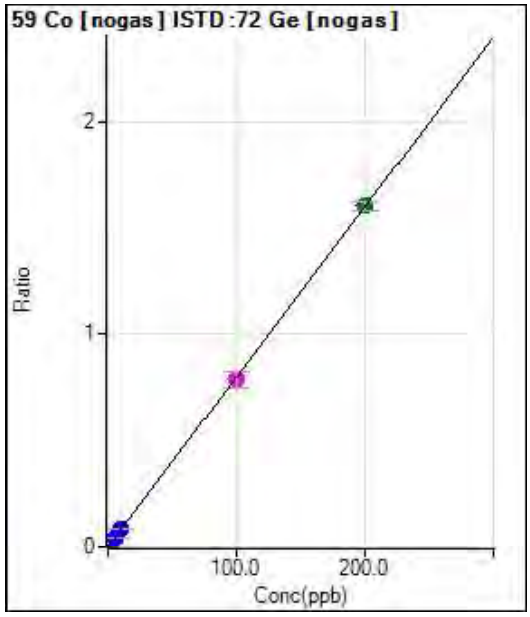


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	6194.47	0.0457	P	3.4
2	☐	200.000	202.904	262548.57	1.8870	P	2.1
3	☐	500.000	502.598	625372.99	4.6066	P	1.4
4	☐	1000.000	1104.034	1375318.47	10.0645	A	2.0
5	☐	10000.00	10020.851	12343312.73	90.9819	A	1.1
6	☐	20000.00	19984.279	23812973.81	181.397	A	2.2
7	☐	100.000					

y = 0.0091 * x + 0.0457
R = 1.0000
DL = 0.5198
BEC = 5.035

Weight: <None>
Min Conc: <None>

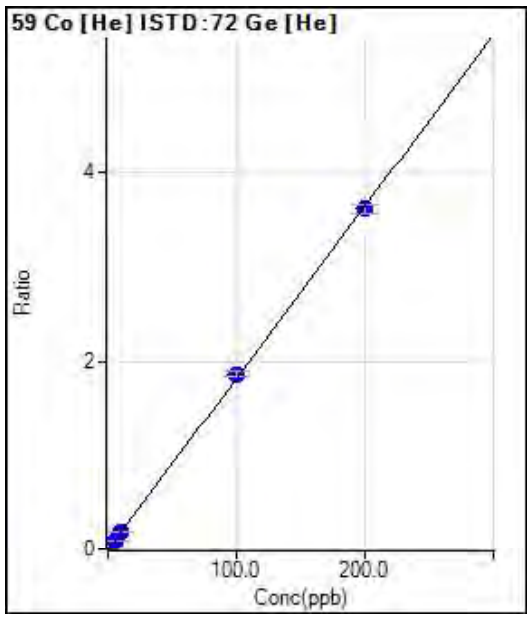
Calibration for 013_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	496.68	0.0004	P	25.4
2	☐	2.000	2.040	23288.40	0.0166	P	3.2
3	☐	5.000	5.150	57232.70	0.0415	P	0.6
4	☐	10.000	10.274	113871.53	0.0824	P	2.5
5	☐	100.000	98.448	1148429.75	0.7864	M	8.8
6	☐	200.000	200.758	2190369.50	1.6033	A	2.7
7	☐	1.000					

y = 0.0080 * x + 3.5094E-004
R = 1.0000
DL = 0.03354
BEC = 0.04395

Weight: <None>
Min Conc: <None>

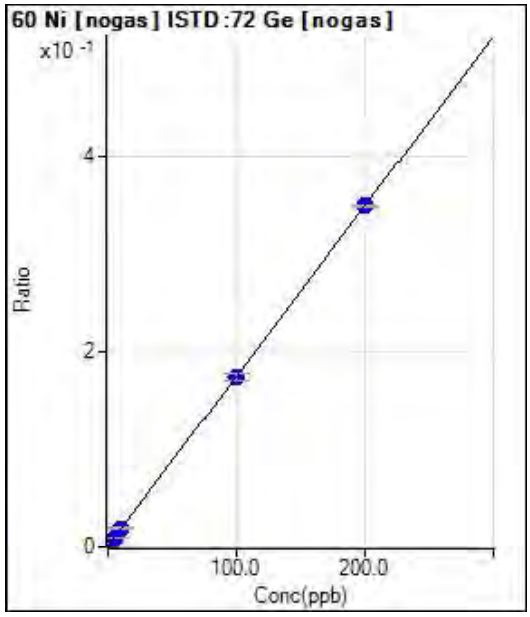


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	43.33	0.0003	P	34.8
2	☐	2.000	2.064	5274.18	0.0379	P	5.5
3	☐	5.000	5.226	12964.74	0.0955	P	4.7
4	☐	10.000	10.673	26616.27	0.1947	P	0.9
5	☐	100.000	102.638	253636.44	1.8699	P	2.3
6	☐	200.000	198.641	474997.95	3.6185	P	2.5
7	☐	1.000					

y = 0.0182 * x + 3.1933E-004
R = 0.9999
DL = 0.01828
BEC = 0.01753

Weight: <None>
Min Conc: <None>

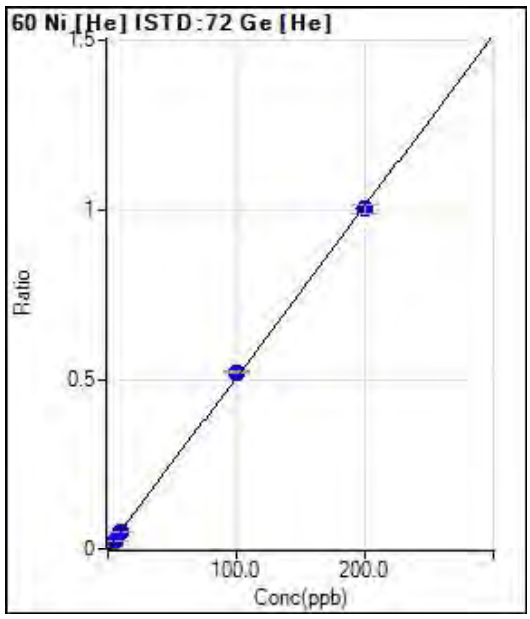
Calibration for 013_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-0.333	280.01	0.0002	P	4.4
2	☐	2.000	1.784	5420.89	0.0039	P	8.6
3	☐	5.000	5.221	13591.86	0.0099	P	3.3
4	☐	10.000	10.623	26592.78	0.0192	P	3.4
5	☐	100.000	99.479	253768.09	0.1737	P	4.0
6	☐	200.000	200.226	476749.43	0.3488	P	0.8
7	☐	1.000					

y = 0.0017 * x + 7.7715E-004
R = 1.0000
DL = 0.01512
BEC = 0.4472

Weight: <None>
Min Conc: <None>

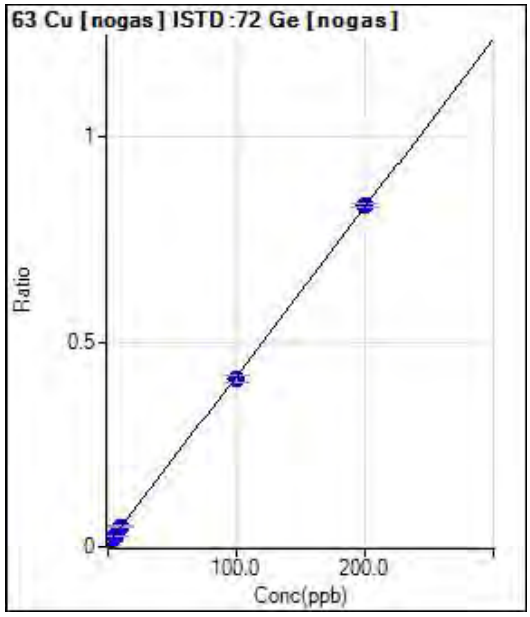


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-0.705	76.67	0.0006	P	42.2
2	☐	2.000	1.465	1600.10	0.0115	P	7.9
3	☐	5.000	4.614	3713.76	0.0274	P	5.5
4	☐	10.000	10.017	7458.29	0.0546	P	2.3
5	☐	100.000	103.191	71047.53	0.5237	P	1.1
6	☐	200.000	198.419	131682.64	1.0032	P	2.8
7	☐	1.000					

y = 0.0050 * x + 0.0041
R = 0.9998
DL = 0.1423
BEC = 0.8179

Weight: <None>
Min Conc: <None>

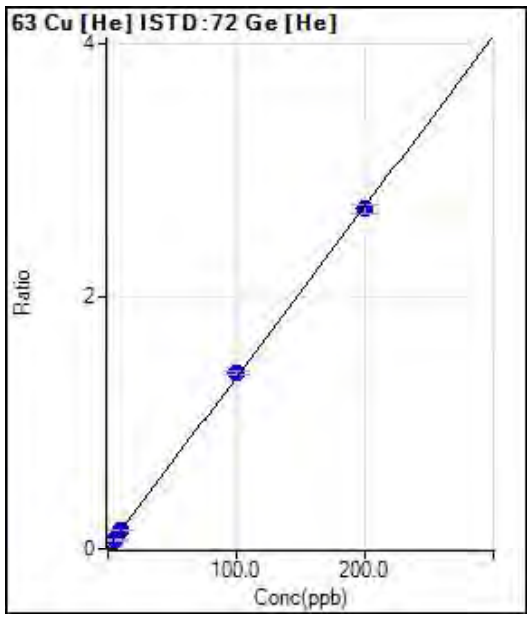
Calibration for 013_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	8408.73	0.0060	P	14.5
2	☐	2.000	2.032	20051.16	0.0143	P	3.8
3	☐	5.000	5.124	37308.18	0.0270	P	2.6
4	☐	10.000	10.857	69960.07	0.0506	P	1.3
5	☐	100.000	98.096	598075.01	0.4093	P	4.3
6	☐	200.000	200.906	1137299.83	0.8321	P	1.0
7	☐	1.000					

y = 0.0041 * x + 0.0060
R = 0.9999
DL = 0.6299
BEC = 1.452

Weight: <None>
Min Conc: <None>

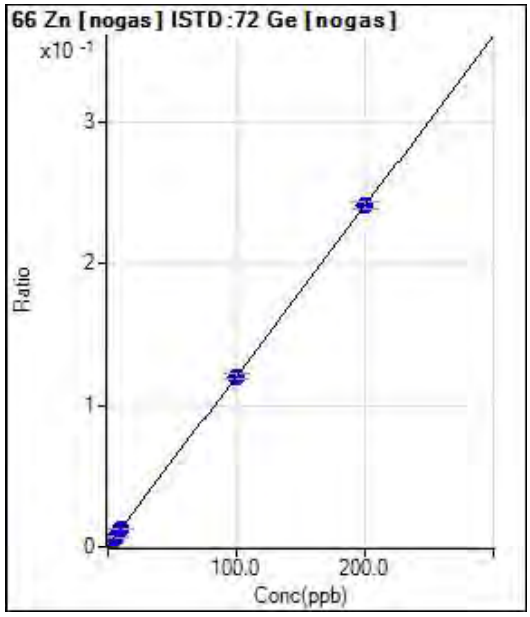


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-0.529	1300.07	0.0096	P	10.4
2	☐	2.000	1.405	4967.40	0.0357	P	3.6
3	☐	5.000	4.667	10830.04	0.0798	P	6.0
4	☐	10.000	10.061	20858.79	0.1526	P	1.2
5	☐	100.000	102.769	190580.90	1.4049	P	1.8
6	☐	200.000	198.627	354376.32	2.6997	P	2.6
7	☐	1.000					

y = 0.0135 * x + 0.0167
R = 0.9998
DL = 0.2204
BEC = 1.238

Weight: <None>
Min Conc: <None>

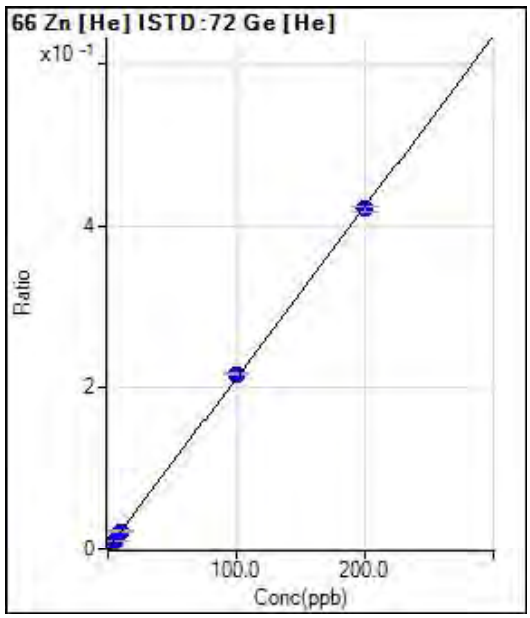
Calibration for 013_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-0.236	336.68	0.0002	P	14.7
2	☐	2.000	1.939	3993.83	0.0029	P	11.6
3	☐	5.000	5.215	9359.24	0.0068	P	7.4
4	☐	10.000	10.182	17622.01	0.0127	P	1.1
5	☐	100.000	99.829	175991.32	0.1204	P	2.6
6	☐	200.000	200.072	328976.97	0.2408	P	2.2
7	☐	1.000					

y = 0.0012 * x + 5.2152E-004
R = 1.0000
DL = 0.08739
BEC = 0.4343

Weight: <None>
Min Conc: <None>

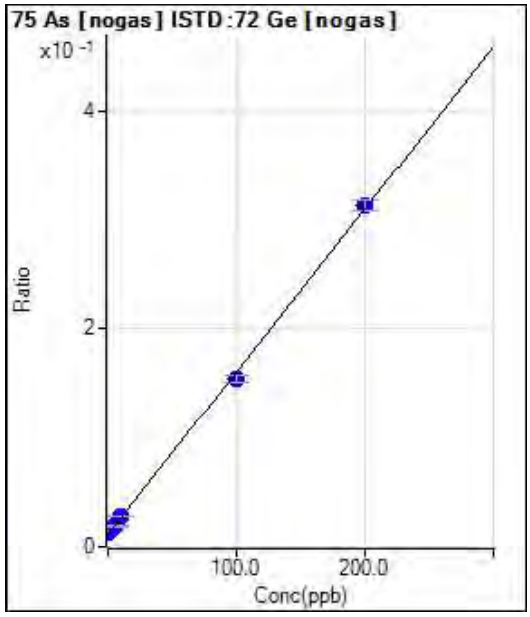


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-0.551	40.00	0.0003	P	25.7
2	☐	2.000	1.490	640.02	0.0046	P	9.0
3	☐	5.000	4.609	1516.75	0.0112	P	8.8
4	☐	10.000	10.297	3170.32	0.0232	P	8.0
5	☐	100.000	102.310	29460.66	0.2172	P	1.0
6	☐	200.000	198.845	55230.05	0.4207	P	1.6
7	☐	1.000					

y = 0.0021 * x + 0.0015
R = 0.9999
DL = 0.108
BEC = 0.6907

Weight: <None>
Min Conc: <None>

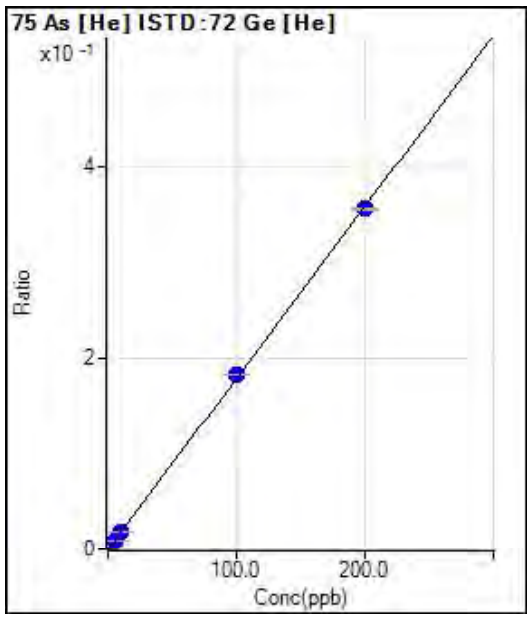
Calibration for 013_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.850	18239.38	0.0129	P	7.2
2	☐	2.000	2.076	20645.23	0.0148	P	4.8
3	☐	5.000	5.180	26739.91	0.0194	P	4.8
4	☐	10.000	11.108	38998.66	0.0282	P	4.3
5	☐	100.000	95.695	225410.44	0.1542	P	3.6
6	☐	200.000	202.092	427271.76	0.3128	P	3.1
7	☐	1.000					

y = 0.0015 * x + 0.0117
R = 0.9996
DL = 1.873
BEC = 7.83

Weight: <None>
Min Conc: <None>

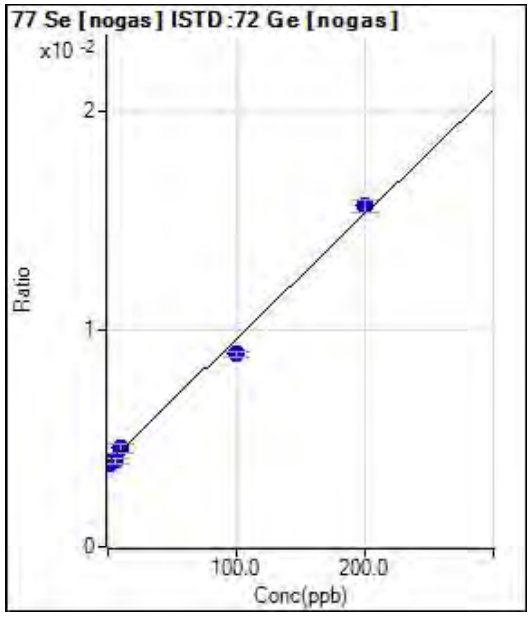


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	17.78	0.0001	P	59.7
2	☐	2.000	2.228	572.23	0.0041	P	9.7
3	☐	5.000	5.197	1278.94	0.0094	P	7.4
4	☐	10.000	10.514	2589.09	0.0189	P	4.0
5	☐	100.000	102.351	24848.06	0.1831	P	0.2
6	☐	200.000	198.792	46689.61	0.3556	P	0.2
7	☐	1.000					

y = 0.0018 * x + 1.3086E-004
R = 0.9999
DL = 0.1311
BEC = 0.07319

Weight: <None>
Min Conc: <None>

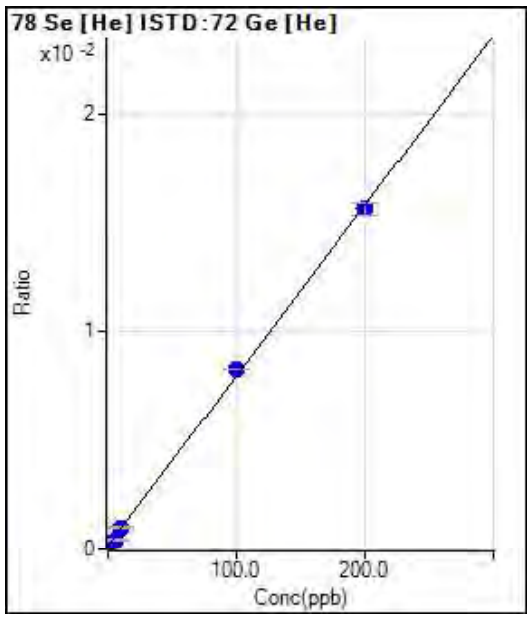
Calibration for 013_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	5464.24	0.0039	P	12.5
2	☐	2.000	-0.835	5364.19	0.0038	P	1.0
3	☐	5.000	1.570	5474.26	0.0040	P	6.4
4	☐	10.000	11.479	6267.85	0.0045	P	7.8
5	☐	100.000	87.334	12971.48	0.0089	P	3.1
6	☐	200.000	206.373	21429.53	0.0157	P	3.5
7	☐	1.000					

y = 5.7213E-005 * x + 0.0039
R = 0.9972
DL = 25.37
BEC = 67.79

Weight: <None>
Min Conc: <None>

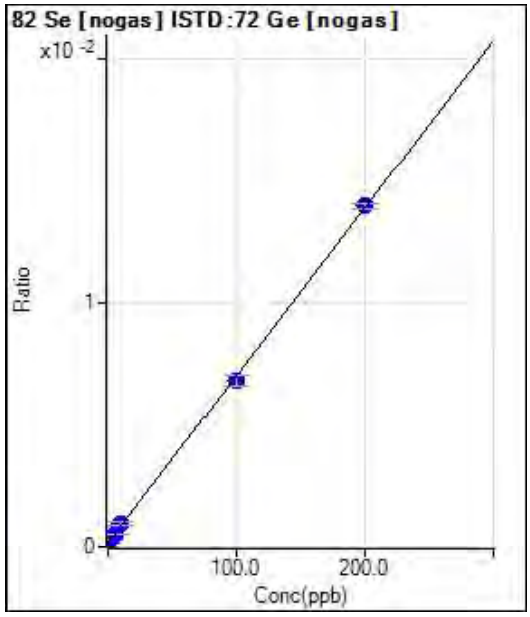


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-0.793	16.00	0.0001	P	25.2
2	☐	2.000	1.874	45.33	0.0003	P	18.1
3	☐	5.000	3.165	58.00	0.0004	P	18.9
4	☐	10.000	10.834	140.00	0.0010	P	8.6
5	☐	100.000	103.829	1124.04	0.0083	P	0.2
6	☐	200.000	198.091	2052.79	0.0156	P	3.9
7	☐	1.000					

y = 7.8052E-005 * x + 1.7997E-004
R = 0.9997
DL = 1.141
BEC = 2.306

Weight: <None>
Min Conc: <None>

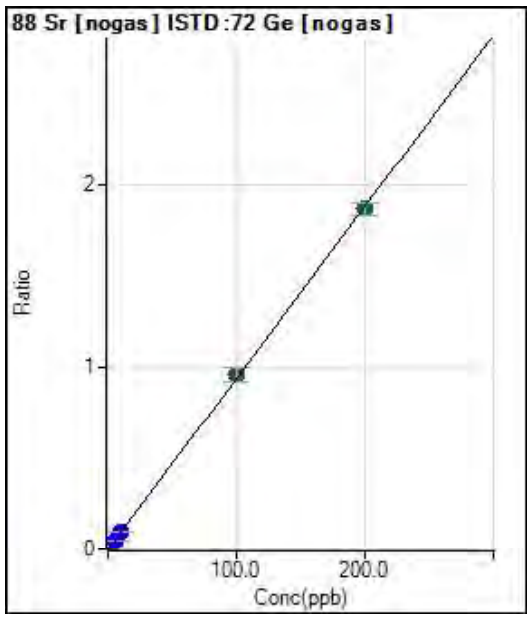
Calibration for 013_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	233.34	0.0002	P	17.3
2	☐	2.000	2.285	450.01	0.0003	P	6.6
3	☐	5.000	5.036	703.36	0.0005	P	7.9
4	☐	10.000	11.610	1326.74	0.0010	P	17.3
5	☐	100.000	97.066	9946.22	0.0068	P	7.4
6	☐	200.000	201.383	19073.69	0.0140	P	1.6
7	☐	1.000					

y = 6.8484E-005 * x + 1.6479E-004
R = 0.9998
DL = 1.246
BEC = 2.406

Weight: <None>
Min Conc: <None>

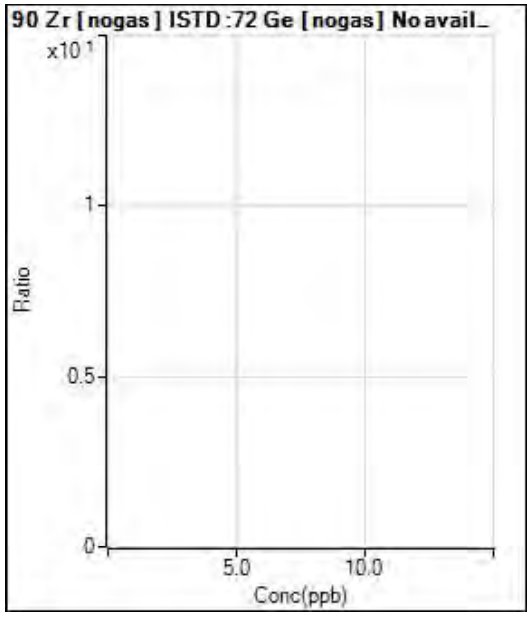


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	283.34	0.0002	P	13.2
2	☐	2.000	1.970	26222.85	0.0187	P	3.5
3	☐	5.000	4.962	64690.41	0.0469	P	3.3
4	☐	10.000	10.318	134479.79	0.0973	P	2.3
5	☐	100.000	102.363	1406517.07	0.9634	A	7.6
6	☐	200.000	198.804	2557310.17	1.8709	A	4.0
7	☐	1.000					

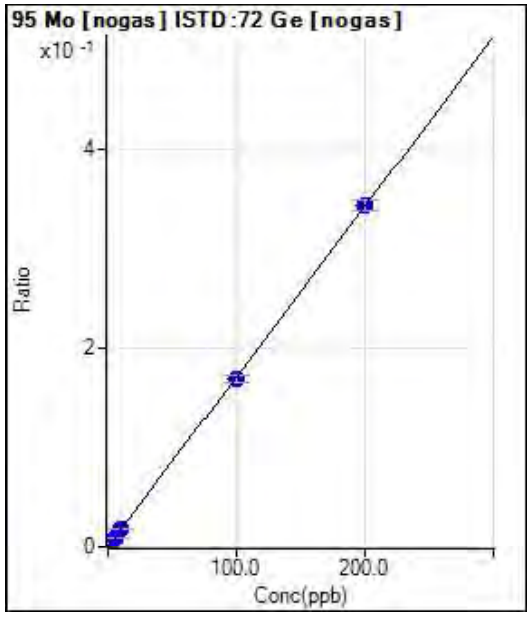
y = 0.0094 * x + 2.0049E-004
R = 0.9999
DL = 0.00846
BEC = 0.02131

Weight: <None>
Min Conc: <None>

Calibration for 013_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000					
2	☐	2.000					
3	☐	5.000					
4	☐	10.000					
5	☐	100.000					
6	☐	200.000					
7	☐	1.000					



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	136.67	0.0001	P	40.0
2	☐	2.000	2.019	4960.79	0.0035	P	3.0
3	☐	5.000	5.118	12194.36	0.0088	P	4.2
4	☐	10.000	10.478	24867.70	0.0180	P	3.1
5	☐	100.000	98.922	246996.47	0.1690	P	3.9
6	☐	200.000	200.512	467936.34	0.3425	P	3.1
7	☐	1.000					

y = 0.0017 * x + 9.7535E-005

R = 1.0000

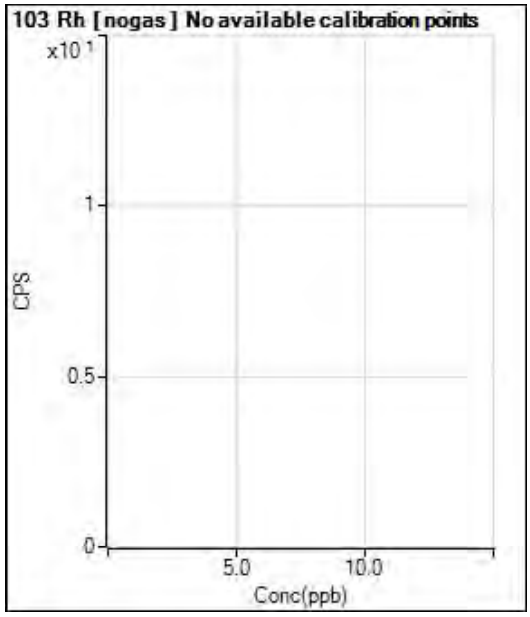
DL = 0.06851

BEC = 0.05711

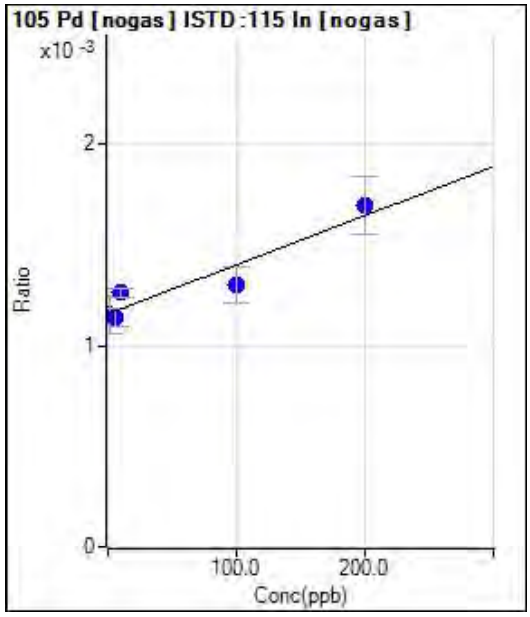
Weight: <None>

Min Conc: <None>

Calibration for 013_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐			456.68		P	29.4
2	☐			396.68		P	8.1
3	☐			336.68		P	19.1
4	☐			293.34		P	47.8
5	☐			270.01		P	9.8
6	☐			386.68		P	17.2
7	☐						



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1180.06	0.0012	P	4.3
2	☐	2.000	-2.532	1160.06	0.0012	P	16.8
3	☐	5.000	-7.591	1173.40	0.0011	P	8.0
4	☐	10.000	43.581	1256.73	0.0013	P	3.5
5	☐	100.000	58.152	1330.07	0.0013	P	13.7
6	☐	200.000	219.605	1683.45	0.0017	P	16.8
7	☐	1.000					

y = 2.4388E-006 * x + 0.0012

R = 0.9530

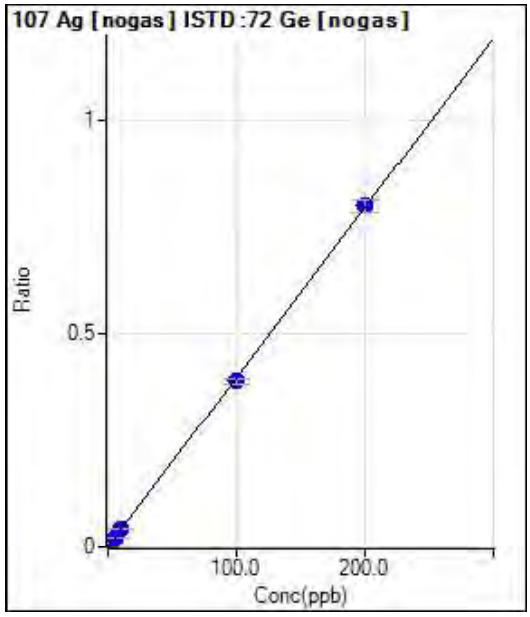
DL = 61.65

BEC = 474.8

Weight: <None>

Min Conc: <None>

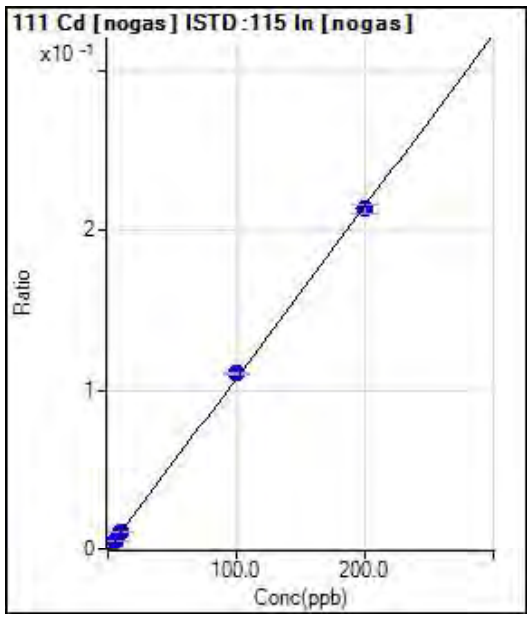
Calibration for 013_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	73.33	0.0001	P	55.4
2	☐	2.000	1.964	10990.22	0.0079	P	3.5
3	☐	5.000	5.269	28954.19	0.0210	P	2.9
4	☐	10.000	10.650	58558.03	0.0424	P	3.0
5	☐	100.000	97.768	567916.71	0.3885	P	2.9
6	☐	200.000	201.077	1091438.66	0.7990	P	3.7
7	☐	1.000					

y = 0.0040 * x + 5.1579E-005
R = 0.9999
DL = 0.02157
BEC = 0.01298

Weight: <None>
Min Conc: <None>

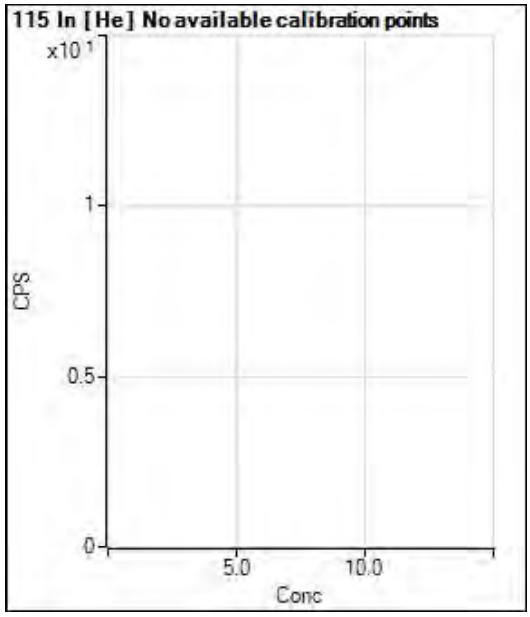


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	33.33	0.0000	P	34.3
2	☐	2.000	1.984	2183.51	0.0022	P	5.2
3	☐	5.000	4.951	5507.61	0.0054	P	8.0
4	☐	10.000	10.368	11123.72	0.0112	P	7.2
5	☐	100.000	102.846	113047.25	0.1106	P	1.3
6	☐	200.000	198.560	212050.78	0.2134	P	2.7
7	☐	1.000					

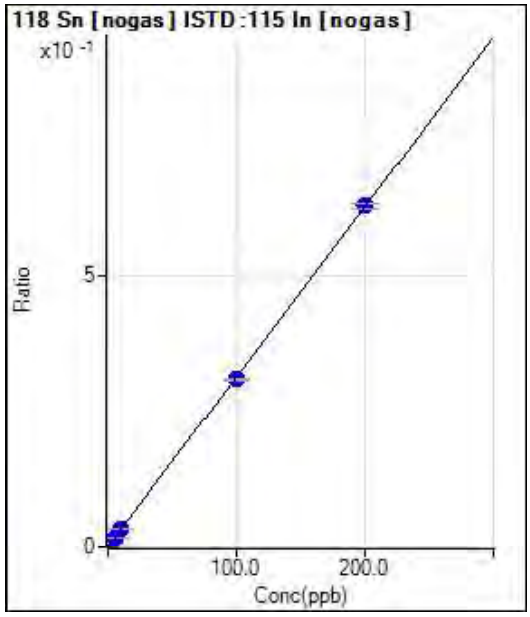
y = 0.0011 * x + 3.2683E-005
R = 0.9999
DL = 0.03131
BEC = 0.03041

Weight: <None>
Min Conc: <None>

Calibration for 013_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐			149922.76		P	2.3
2	☐			154118.71		P	1.1
3	☐			153160.82		P	0.9
4	☐			151262.56		P	2.4
5	☐			148349.25		P	1.2
6	☐			145508.82		P	0.6
7	☐						

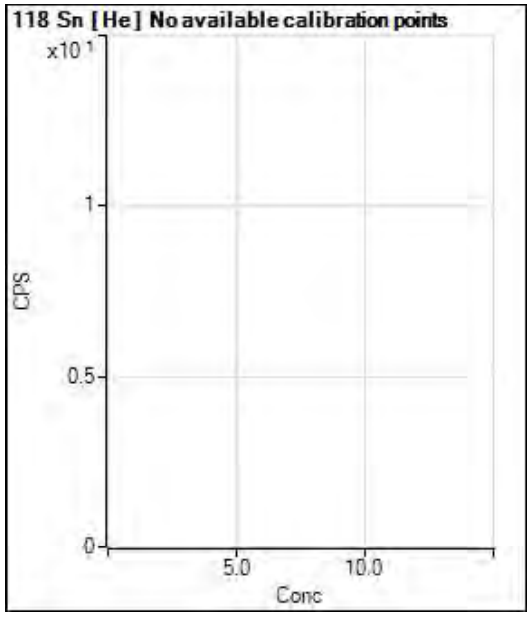


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	390.01	0.0004	P	6.7
2	☐	2.000	2.023	6768.09	0.0067	P	1.7
3	☐	5.000	4.869	16060.96	0.0156	P	3.0
4	☐	10.000	10.478	32944.86	0.0331	P	1.9
5	☐	100.000	98.510	315227.93	0.3083	P	0.5
6	☐	200.000	200.724	623636.05	0.6279	P	1.5
7	☐	1.000					

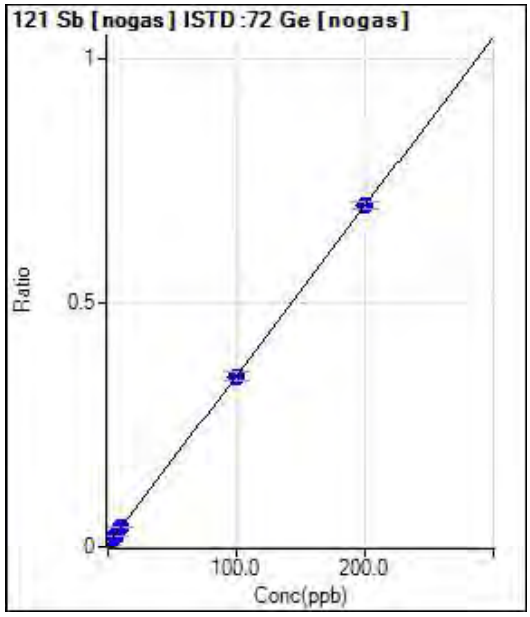
y = 0.0031 * x + 3.8277E-004
R = 1.0000
DL = 0.02443
BEC = 0.1224

Weight: <None>
Min Conc: <None>

Calibration for 013_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐			86.67		P	40.5
2	☐			1216.72		P	7.1
3	☐			3163.68		P	1.9
4	☐			6561.32		P	7.9
5	☐			60993.04		P	1.9
6	☐			119214.03		P	0.6
7	☐						



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	6184.54	0.0044	P	4.8
2	☐	2.000	2.126	16448.01	0.0117	P	2.3
3	☐	5.000	5.112	30493.78	0.0221	P	3.1
4	☐	10.000	10.578	56736.31	0.0410	P	5.4
5	☐	100.000	99.518	510410.98	0.3493	P	5.0
6	☐	200.000	200.208	954178.63	0.6984	P	2.2
7	☐	1.000					

y = 0.0035 * x + 0.0044

R = 1.0000

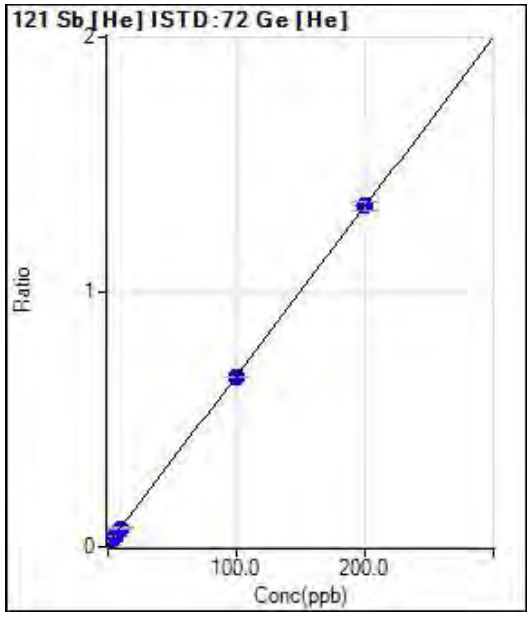
DL = 0.1838

BEC = 1.264

Weight: <None>

Min Conc: <None>

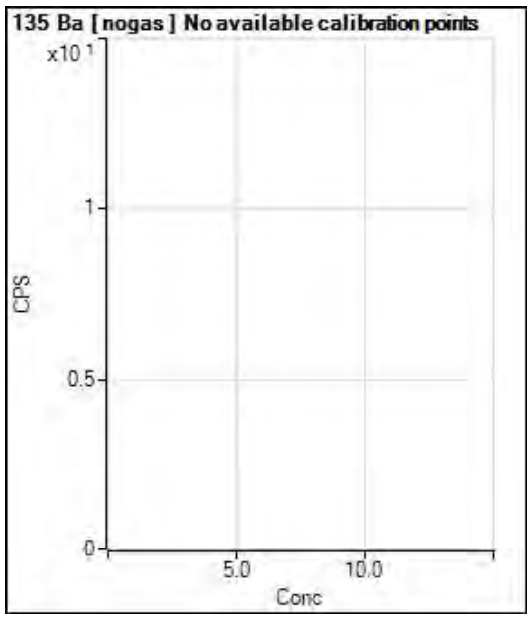
Calibration for 013_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1150.06	0.0085	P	14.1
2	☐	2.000	2.089	3110.33	0.0223	P	10.3
3	☐	5.000	4.807	5477.62	0.0404	P	2.5
4	☐	10.000	9.765	9999.71	0.0732	P	6.0
5	☐	100.000	99.296	90456.83	0.6667	P	0.7
6	☐	200.000	200.368	175492.39	1.3367	P	2.6
7	☐	1.000					

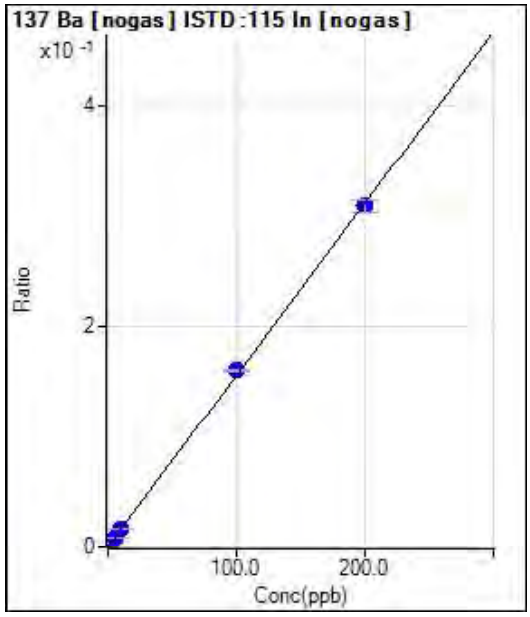
y = 0.0066 * x + 0.0085
R = 1.0000
DL = 0.5403
BEC = 1.28

Weight: <None>
Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐			96.67		P	11.9
2	☐			1976.81		P	7.2
3	☐			4580.69		P	1.2
4	☐			9516.14		P	2.7
5	☐			94888.12		P	1.4
6	☐			177114.78		P	2.9
7	☐						

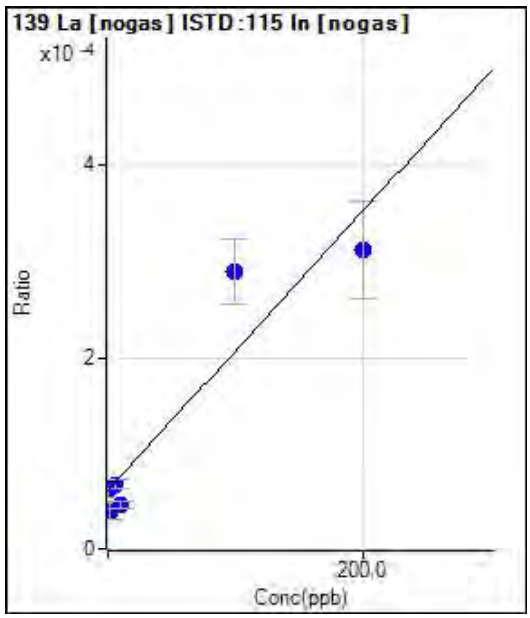
Calibration for 013_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	140.00	0.0001	P	44.0
2	☐	2.000	1.933	3177.03	0.0032	P	6.4
3	☐	5.000	4.969	8108.71	0.0079	P	3.7
4	☐	10.000	10.281	16074.48	0.0162	P	2.6
5	☐	100.000	102.656	163680.68	0.1601	P	1.5
6	☐	200.000	198.660	307686.40	0.3097	P	3.9
7	☐	1.000					

y = 0.0016 * x + 1.3758E-004
R = 0.9999
DL = 0.1164
BEC = 0.08829

Weight: <None>
Min Conc: <None>

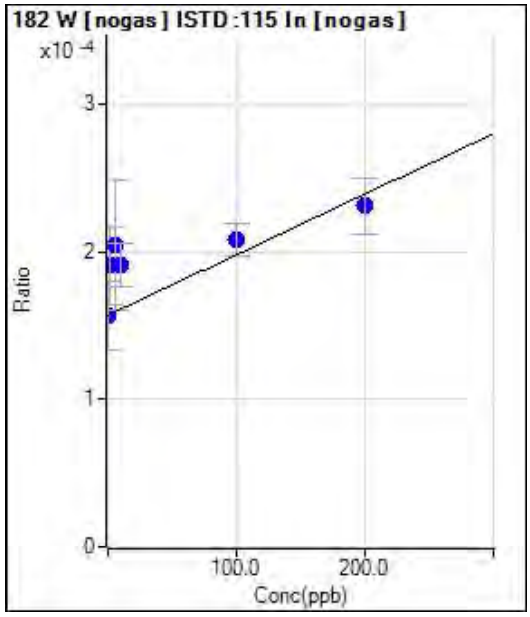


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	63.33	0.0001	P	23.3
2	☐	2.000	-15.455	40.00	0.0000	P	43.5
3	☐	5.000	4.052	70.00	0.0001	P	13.4
4	☐	10.000	-10.365	46.67	0.0000	P	14.8
5	☐	100.000	156.940	296.68	0.0003	P	23.2
6	☐	200.000	172.747	310.01	0.0003	P	32.4
7	☐	100.000					

y = 1.4504E-006 * x + 6.2084E-005
R = 0.9381
DL = 29.89
BEC = 42.81

Weight: <None>
Min Conc: <None>

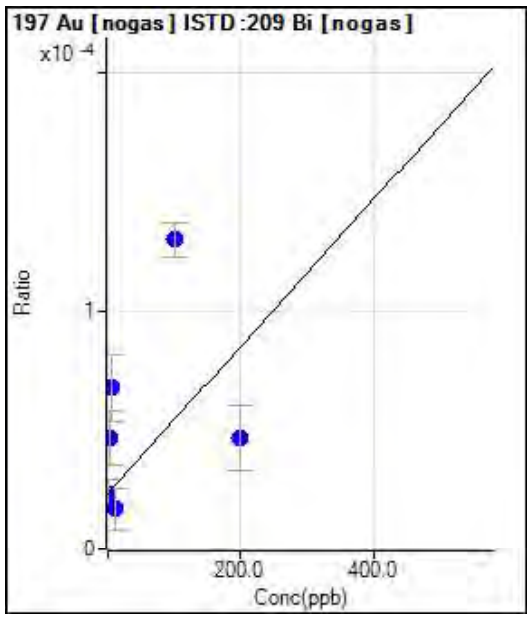
Calibration for 013_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	160.00	0.0002	P	29.3
2	☐	2.000	82.028	193.34	0.0002	P	27.8
3	☐	5.000	115.440	210.01	0.0002	P	42.8
4	☐	10.000	82.277	190.01	0.0002	P	15.7
5	☐	100.000	124.849	213.34	0.0002	P	10.8
6	☐	200.000	180.401	230.01	0.0002	P	16.6
7	☐	1.000					

y = 4.1072E-007 * x + 1.5724E-004
R = 0.7859
DL = 336
BEC = 382.9

Weight: <None>
Min Conc: <None>

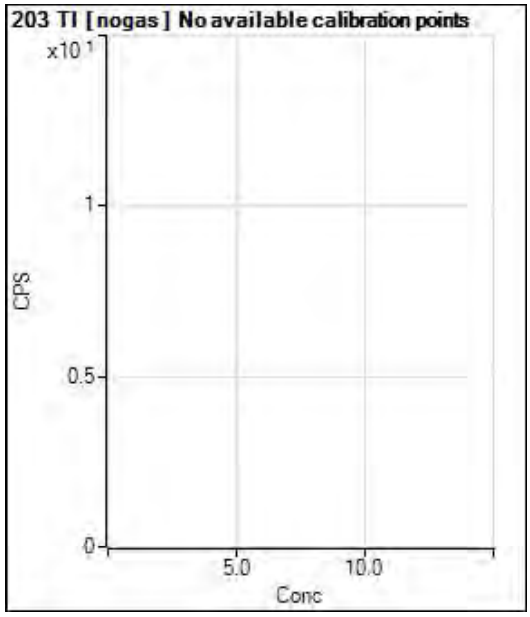


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	13.33	0.0000	P	48.2
2	☐	2.000	75.458	26.67	0.0000	P	47.3
3	☐	5.000	143.613	40.00	0.0001	P	40.9
4	☐	10.000	-21.193	10.00	0.0000	P	99.3
5	☐	100.000	344.745	76.67	0.0001	P	11.4
6	☐	200.000	74.987	26.67	0.0000	P	58.2
7	☐	100.000					

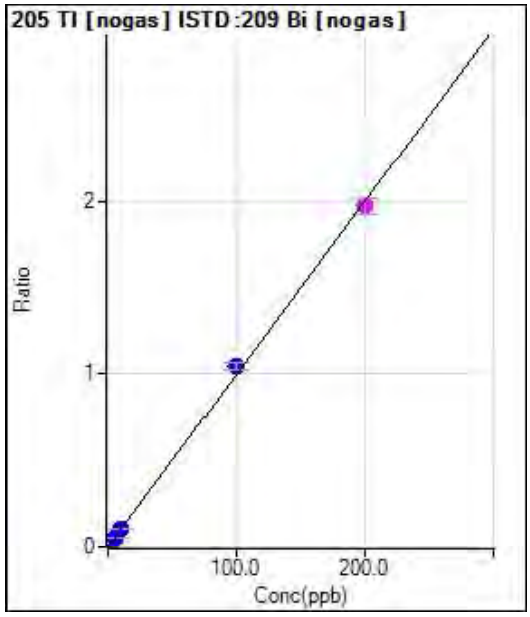
y = 3.0790E-007 * x + 2.3757E-005
R = 0.3235
DL = 111.6
BEC = 77.16

Weight: <None>
Min Conc: <None>

Calibration for 013_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐			113.34		P	67.4
2	☐			4970.83		P	4.0
3	☐			12381.54		P	2.6
4	☐			24135.23		P	5.2
5	☐			260399.60		P	2.1
6	☐			473271.67		P	2.9
7	☐						



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	113.33	0.0002	P	44.2
2	☐	2.000	1.956	11274.11	0.0197	P	9.2
3	☐	5.000	4.941	28742.77	0.0495	P	8.4
4	☐	10.000	10.304	58536.50	0.1029	P	1.6
5	☐	100.000	104.677	617299.40	1.0437	P	4.1
6	☐	200.000	197.648	1128413.86	1.9706	M	5.0
7	☐	1.000					

y = 0.0100 * x + 1.9816E-004

R = 0.9996

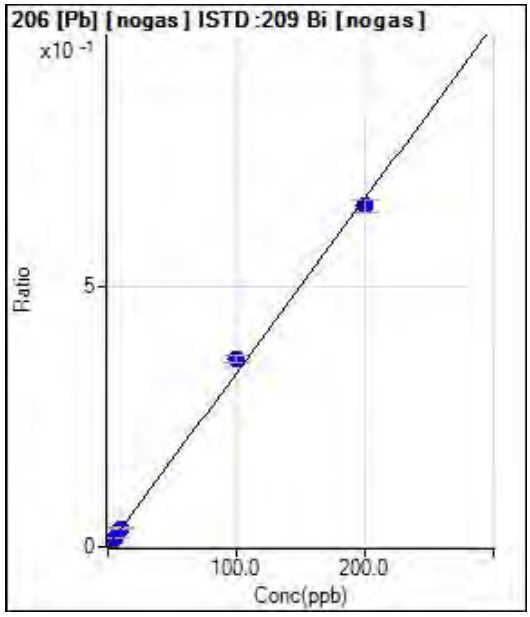
DL = 0.02633

BEC = 0.01988

Weight: <None>

Min Conc: <None>

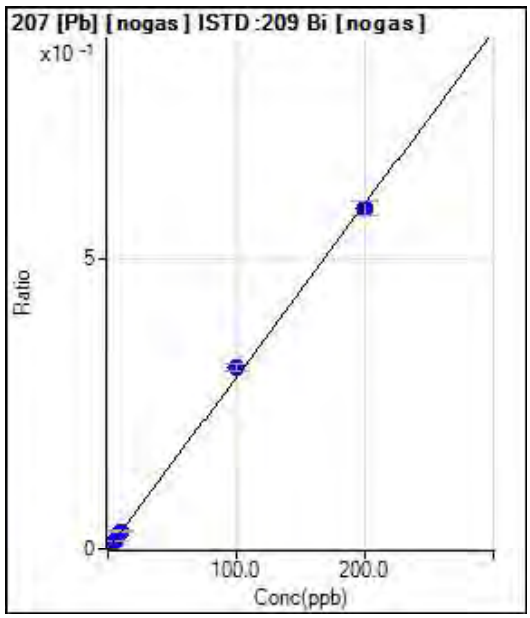
Calibration for 013_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	150.00	0.0003	P	18.1
2	☐	2.000	2.070	4113.94	0.0072	P	4.2
3	☐	5.000	5.026	9916.55	0.0170	P	5.6
4	☐	10.000	10.528	20126.05	0.0354	P	7.0
5	☐	100.000	107.967	213406.14	0.3608	P	3.7
6	☐	200.000	195.989	374972.16	0.6547	P	3.5
7	☐	1.000					

y = 0.0033 * x + 2.6397E-004
R = 0.9989
DL = 0.04297
BEC = 0.07905

Weight: <None>
Min Conc: <None>

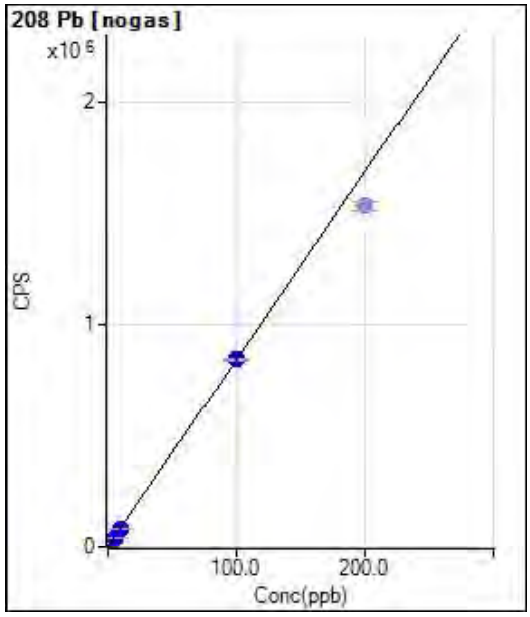


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	123.33	0.0002	P	32.4
2	☐	2.000	2.076	3667.15	0.0064	P	6.9
3	☐	5.000	5.298	9312.84	0.0160	P	3.8
4	☐	10.000	10.693	18220.71	0.0321	P	6.7
5	☐	100.000	105.428	185867.06	0.3143	P	3.7
6	☐	200.000	197.243	336588.43	0.5877	P	4.1
7	☐	1.000					

y = 0.0030 * x + 2.1832E-004
R = 0.9995
DL = 0.07131
BEC = 0.07329

Weight: <None>
Min Conc: <None>

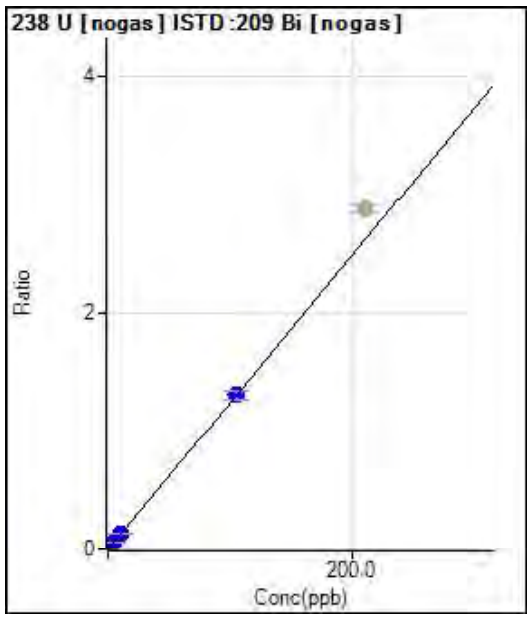
Calibration for 013_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	496.67		P	2.3
2	☐	2.000	1.879	16303.49		P	2.1
3	☐	5.000	4.822	41071.21		P	2.0
4	☐	10.000	9.783	82815.37		P	2.3
5	☐	100.000	100.033	842194.76		P	1.1
6	☑	200.000		1531985.26		P	2.3
7	☐	1.000					

y = 8414.2049 * x + 496.6733
R = 1.0000
DL = 0.004118
BEC = 0.05903

Weight: <None>
Min Conc: <None>

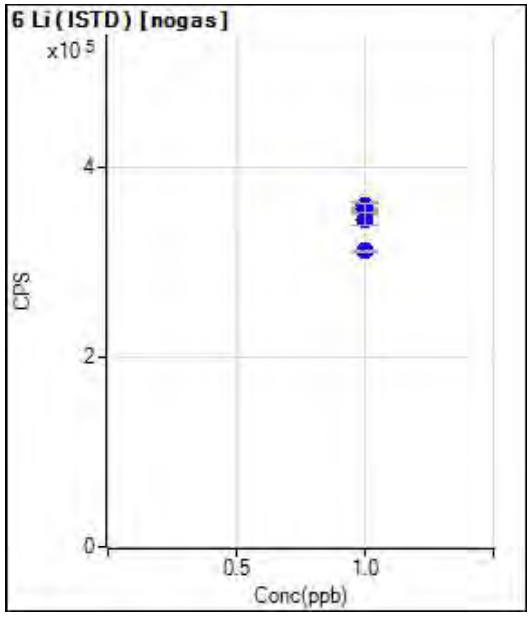


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	153.33	0.0003	P	26.5
2	☐	2.000	2.118	15254.32	0.0266	P	5.5
3	☐	5.000	5.120	37211.30	0.0640	P	6.1
4	☐	10.000	10.760	76305.19	0.1341	P	2.4
5	☐	105.000	104.920	771880.69	1.3056	P	5.6
6	☑	210.000		1647949.30	2.8763	A	2.2
7	☐	1.000					

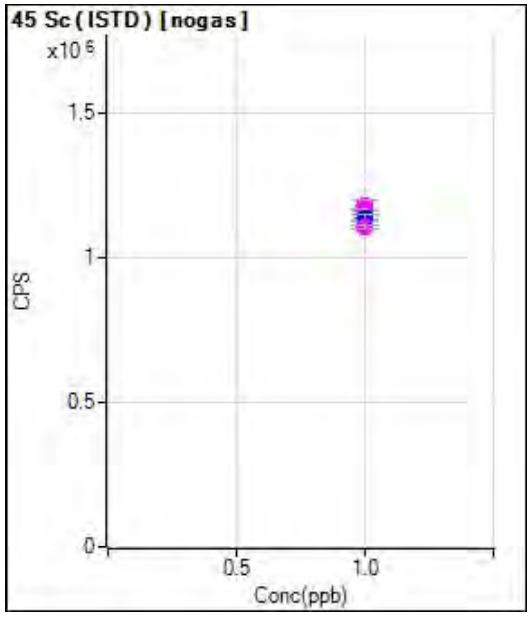
y = 0.0124 * x + 2.7034E-004
R = 1.0000
DL = 0.0173
BEC = 0.02173

Weight: <None>
Min Conc: <None>

Calibration for 013_ICV.d

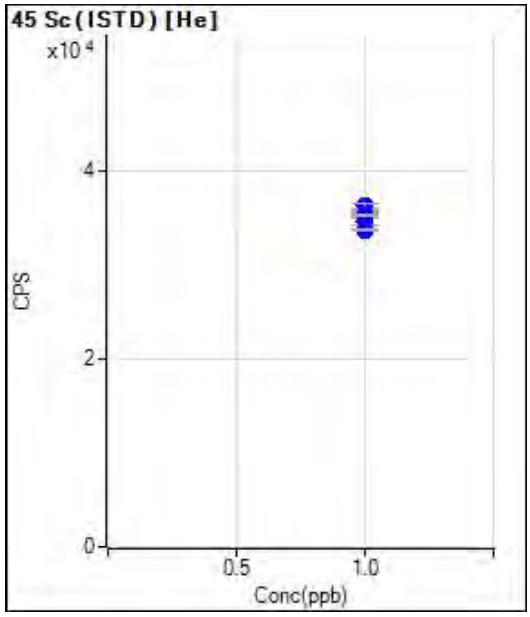


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		359778.40		P	2.3
2	☐	1.000		356304.73		P	1.1
3	☐	1.000		357246.83		P	0.4
4	☐	1.000		356132.81		P	3.4
5	☐	1.000		346041.42		P	3.4
6	☐	1.000		312469.26		P	0.4
7	☐	1.000					

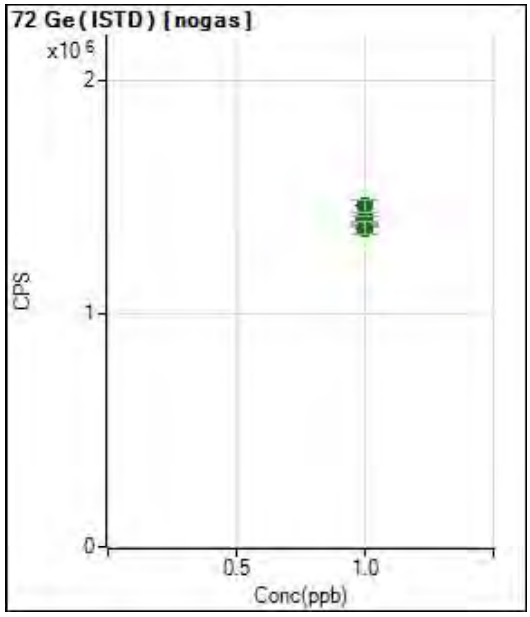


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		1178430.87		M	3.1
2	☐	1.000		1175129.91		M	4.2
3	☐	1.000		1158895.24		M	1.3
4	☐	1.000		1148761.18		M	3.6
5	☐	1.000		1136597.59		P	2.1
6	☐	1.000		1106922.09		M	1.3
7	☐	1.000					

Calibration for 013_ICV.d

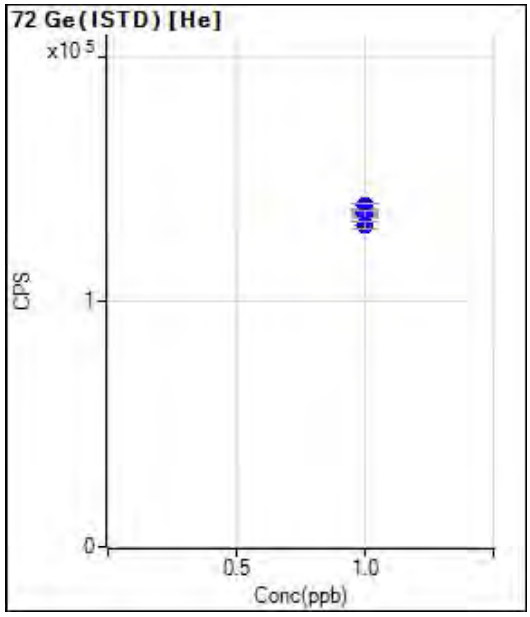


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		35664.46		P	0.5
2	☐	1.000		36228.78		P	1.3
3	☐	1.000		35333.73		P	1.4
4	☐	1.000		34635.88		P	2.3
5	☐	1.000		35263.63		P	0.7
6	☐	1.000		33610.52		P	0.6
7	☐	1.000					

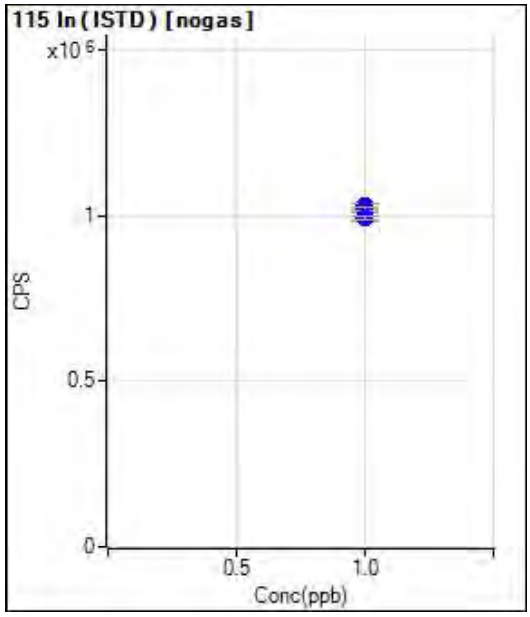


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		1412574.61		A	3.1
2	☐	1.000		1400223.26		A	3.0
3	☐	1.000		1379962.17		A	1.0
4	☐	1.000		1382301.39		A	0.5
5	☐	1.000		1462701.75		A	3.8
6	☐	1.000		1367073.39		A	3.7
7	☐	1.000					

Calibration for 013_ICV.d

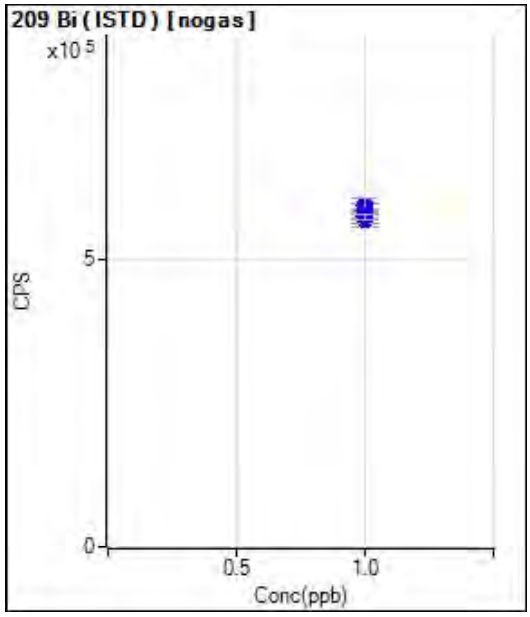


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		135586.73		P	0.7
2	☐	1.000		139153.64		P	1.3
3	☐	1.000		135760.51		P	0.5
4	☐	1.000		136692.22		P	2.3
5	☐	1.000		135688.30		P	2.2
6	☐	1.000		131320.95		P	2.5
7	☐	1.000					



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		1018869.16		P	0.8
2	☐	1.000		1009089.06		P	1.9
3	☐	1.000		1029275.16		P	1.5
4	☐	1.000		994501.17		P	2.8
5	☐	1.000		1022377.17		P	1.1
6	☐	1.000		993334.00		P	0.8
7	☐	1.000					

Calibration for 013_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		569248.37		P	4.7
2	☐	1.000		574055.08		P	4.7
3	☐	1.000		582592.79		P	4.2
4	☐	1.000		568920.16		P	3.1
5	☐	1.000		592042.92		P	4.2
6	☐	1.000		572928.32		P	1.7
7	☐	1.000					

Hexavalent Chromium Raw Data

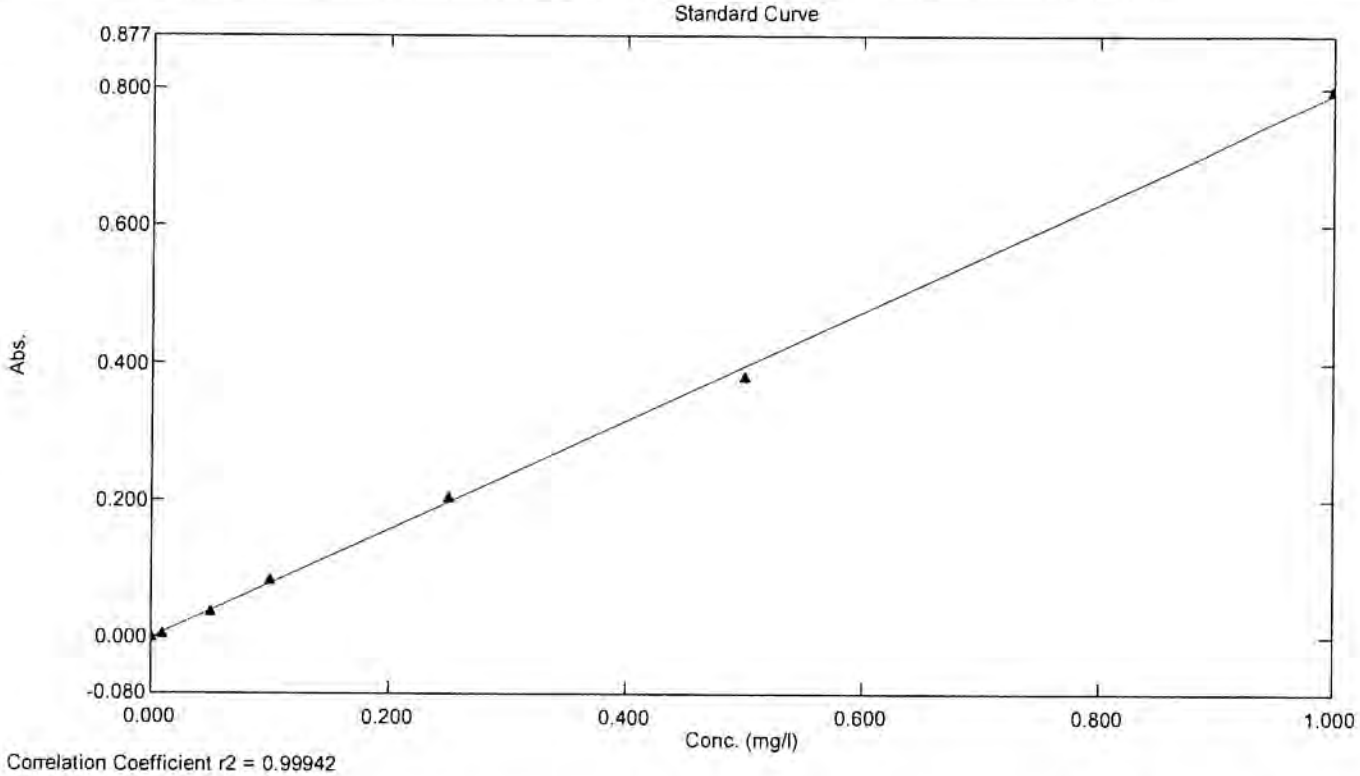
Bhate Environmental Associates, Inc.
Project: LONGHORN GW TREATMENT PLANT
MONTHLY EFFLUENT SAMPLES
ALS WO# HS18040595

1151804595

Standard Table Report

04/30/2018 12:01:05 PM

File Name: C:\Program Files (x86)\Shimadzu\UVProbe\Data\CR6+_UNKNOWN\180412_CR6_W.pho



Correlation Coefficient r2 = 0.99942

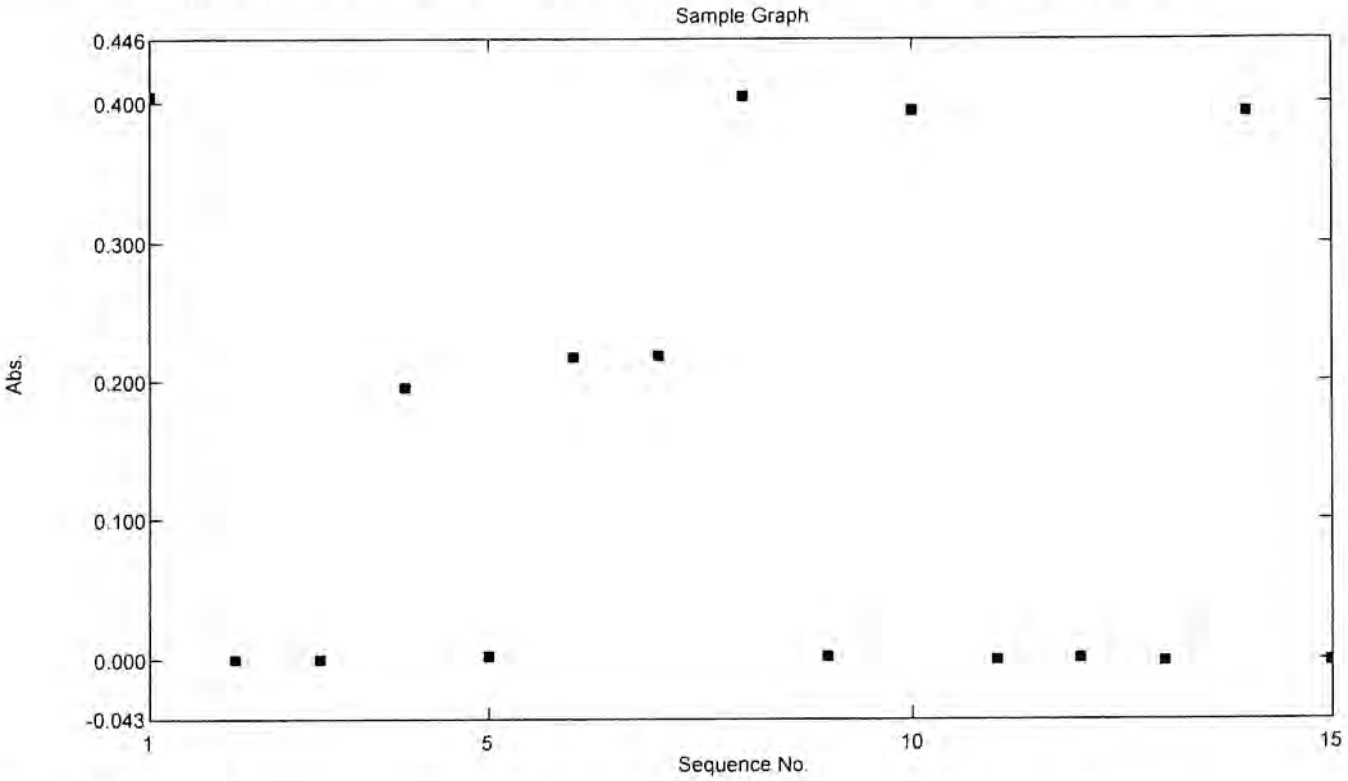
Standard Table

	Sample ID	Type	Ex	Conc	WL540.0	Wgt.Factor	Comments
1	STD1	Standard		0.000	0.000	1.000	
2	STD2	Standard		0.010	0.006	1.000	
3	STD3	Standard		0.050	0.038	1.000	
4	STD4	Standard		0.100	0.084	1.000	
5	STD5	Standard		0.250	0.204	1.000	
6	STD6	Standard		0.500	0.382	1.000	
7	STD7	Standard		1.000	0.797	1.000	
8							

Sample Table Report

04/30/2018 12:01:08 PM

File Name: C:\Program Files (x86)\Shimadzu\UVProbe\Data\CR6+_UNKNOWN\180412_CR6_W.pho



Sample Table

	Sample ID	Type	Ex	Conc	WL540.0	Comments
1	CCV	Unknown		0.512	0.405	
2	CCB	Unknown		-0.001	-0.001	
3	MBLK	Unknown		-0.001	-0.001	
4	LCS	Unknown		0.247	0.196	
5	18040507.03	Unknown		0.002	0.002	FILTER,09:45AM
6	18040507.03MS	Unknown		0.274	0.217	
7	18040507.03MSD	Unknown		0.275	0.218	
8	CCV2	Unknown		0.511	0.405	
9	CCB2	Unknown		0.003	0.002	
10	CCV3	Unknown		0.498	0.394	
11	CCB3	Unknown		-0.001	-0.001	
12	18040595.01	Unknown		0.001	0.000	FILTER,01:20PM
13	18040596.01	Unknown		-0.002	-0.002	FILTER
14	CCV4	Unknown		0.497	0.393	
15	CCB4	Unknown		-0.002	-0.001	
16						

Sub Contract Data

Bhate Environmental Associates, Inc.
Project: LONGHORN GW TREATMENT PLANT
MONTHLY EFFLUENT SAMPLES
ALS WO# HS18040595

Case Narrative

Method: 6850
Analysis: Perchlorate
Analysis SOP: LC-MS-CLO4
ALS WO ID(s): 1809681; 1810423; 1810427; 1810428

Client: ALS Laboratories (Houston, TX)
Matrix: Water
ELMS Batch (HBN): 2081 (212824)

General Set Information: There were four field samples in these Work Orders. The samples were analyzed for perchlorate.

Method Summary: Each sample was prepared as noted below and analyzed using an Agilent 1100 LC/MSD system in select ion monitoring (SIM) mode at m/z 83 and 85, which corresponds to the loss of one oxygen atom from the perchlorate molecule. ChemStation software was used for instrument control and data analysis. The ion ratio of m/z 83 to 85 was used to positively identify the response peak as perchlorate. Quantitation was performed using the m/z 83 peak area. An internal standard (ISTD) of ^{18}O labeled perchlorate was added to each sample to establish the perchlorate peak retention time and used in quantitation.

Sample Preparation: A 10.0mL aliquot of each sample was transferred into a 15-mL centrifuge tube. 50µL of an ^{18}O labeled perchlorate solution was added to each sample as an internal standard. The samples were then capped, vortexed, and filtered into autosampler vial using Phenex PES membrane 0.45µm Syringe filters.

Holding Times: Holding times were met for all analyses.

Dilutions: Sample 1810423001 was analyzed and reported at 1:1,000 dilution. The reporting limit has been adjusted accordingly.

Method QC data: The method blank (LMB 596169) was less than 1/2 the CRDL. The recovery for the LCS (596170) was within acceptable parameters.

MS/MSD Analysis: The matrix spike and matrix spike duplicate (MS/MSD) was performed on sample 1808267001 (Client ID: LH18/24-SP650_040418). The Matrix Spike and duplicate (MS/MSD – 596171/72) failed QC acceptance criteria for percent recoveries, biased high. This is due to the fact that the unspiked sample result of 2.3µg/L was not subtracted from the MS/MSD results. The Matrix Spike and Matrix Spike duplicate is reported for the clients' information only. The sample matrix may be inappropriate for the method selected. The MS/MSD relative percent difference (RPD) was within the performance limits.

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

NC/CAR(s): NA

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

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

Miscellaneous Comments: These samples were analyzed in accordance with the requirements found in the DOD QSM Version 5.1. Manual Integrations was performed for datafile 02APRD01/02.

Thomas Bosch April 18, 2018
Analyst Date

ANALYTICAL REPORT

Report Date: April 18, 2018

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

Phone: 281 530-5656

E-mail: RJ.Modashia@ALSGlobal.com

Workorder: **34-1810428**
Project ID: HS18040595 041118
Purchase Order: HS18040595
Project Manager Kevin W. Griffiths

Client Sample ID	Lab ID	Collect Date	Receive Date	Sampling Site
LH18/24-SP650_041118	1810428001	04/11/18	04/13/18	

ANALYTICAL REPORT

Workorder: 34-1810428
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **LH18/24-SP650_041118**	Sampling Site: NA	Collected: 04/11/2018
Lab ID: 1810428001	Media: 125 mL Nalgene	Received: 04/13/2018
Matrix: Water	Sampling Parameter: NA	

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable	**Analysis:** EPA 6850, DoD QSM Water	**Instrument ID:** LCMS04
	Batch: ELMS/2081 (HBN: 212824)	**Percent Solid:** NA
	Analyzed: 04/17/2018 11:09	**Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**12**	1.0	2.0	4.0	1	

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

Method	Analyst	Peer Review
EPA 6850, DoD QSM	/S/ Thomas Bosch 04/18/2018 12:28	/S/ Stephen Brose 04/18/2018 15:35

Laboratory Contact Information

ALS Environmental
960 W Levoy Drive
Salt Lake City, Utah 84123

Phone: (801) 266-7700
Email: alslt.lab@ALSGlobal.com
Web: www.alsslc.com

ANALYTICAL REPORT

Workorder: 34-1810428
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted.
Samples have not been blank corrected unless otherwise noted.
This test report shall not be reproduced, except in full, without written approval of ALS.

ALS provides professional analytical services for all samples submitted. ALS is not in a position to interpret the data and assumes no responsibility for the quality of the samples submitted.

All quality control samples processed with the samples in this report yielded acceptable results unless otherwise noted.

ALS is accredited for specific fields of testing (scopes) in the following testing sectors. The quality system implemented at ALS conforms to accreditation requirements and is applied to all analytical testing performed by ALS. The following table lists testing sector, accreditation body, accreditation number and website. Please contact these accrediting bodies or your ALS project manager for the current scope of accreditation that applies to your analytical testing.

Testing Sector	Accreditation Body	Certificate Number	Website
Environmental	PJLA (DoD ELAP)		
	Utah (TNI)		
	Nevada		
	Oklahoma		
	Iowa		

Result Symbol Definitions

MDL = Method Detection Limit, a statistical estimate of method/media/instrument sensitivity.
RL = Reporting Limit, a verified value of method/media/instrument sensitivity.
CRDL = Contract Required Detection Limit
Reg. Limit = Regulatory Limit.
ND = Not Detected, testing result not detected above the MDL or RL.
< This testing result is less than the numerical value.
** No result could be reported, see sample comments for details.

Qualifier Symbol Definitions

U = Qualifier indicates that the analyte was not detected above the MDL.
J = Qualifier Indicates that the analyte value is between the MDL and the RL. It is also used to indicate an estimated value for tentatively identified compounds in mass spectrometry where a 1:1 response is assumed.
B = Qualifier indicates that the analyte was detected in the blank.
E = Qualifier indicates that the analyte result exceeds calibration range.
P = Qualifier indicates that the RPD between the two columns is greater than 40%.

Quality Control Sample Batch Report

Analysis Information

Workorder: 1810428

Limits:	Client SOW/Contract Specified	**Preparation:**	NA	**Analysis:**	EPA 6850
Basis:	DoD QSM	**Batch:**	NA	**Batch:**	ELMS/2081 (HBN: 212824)
		Prepared By:	NA	**Analyzed By:**	Thomas Bosch

Blank

LMB: 596169
Analyzed: 04/17/2018 09:29
Units: ug/L

Analyte	Result	MDL	RL
Perchlorate	ND	1	2.00

Laboratory Control Sample

LCS: 596170
Analyzed: 04/17/2018 09:44
Dilution: 1
Units: ug/L

Analyte	Result	Target	% Rec	QC Limits	
Perchlorate	5.04	5.00	101	78.8	123.8

Matrix Spike - Matrix Spike Duplicate

	Sample: 1809681001	MS: 596171	MSD: 596172
	Analyzed: 04/17/2018 09:58	Analyzed: 04/17/2018 10:12	Analyzed: 04/17/2018 10:26
	Dilution: 1	Dilution: 1	Dilution: 1
	Units: ug/L	Units: ug/L	Units: ug/L

Analyte	Result	Result	Target		% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Perchlorate	2.30	6.24	5	#	125	78.8	123.8	6.15	123	1.41	0.0	20.0

Continuing Calibration Verification

	CCV: 596166	CCV: 596173
	Analyzed: 04/17/2018 08:41	Analyzed: 04/17/2018 11:23
	Units: ug/L	Units: ug/L
	Criteria: ± 15%	Criteria: ± 15%

Analyte	Result	Target	% Rec.	Result	Target	% Rec.
Perchlorate	27.3	25.0	109	28.3	25.0	113

Interference Check Sample

ICSA: 596168
Analyzed: 04/17/2018 09:15
Units: ug/L
Criteria: ± 30%

Analyte	Result	Target	% Rec.
Perchlorate	0.989	1.00	98.9

Limit of Detection Verification

	LODV: 596167	LODV: 596174
	Analyzed: 04/17/2018 09:01	Analyzed: 04/17/2018 11:53
	Units: ug/L	Units: ug/L
	Criteria: ± 50%	Criteria: ± 50%

Analyte	Result	Target	% Rec.	Result	Target	% Rec.
Perchlorate	0.957	1.00	95.7	1.04	1.00	104

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1810428

Limits:	Client SOW/Contract Specified	**Preparation:**	NA	**Analysis:**	EPA 6850
Basis:	DoD QSM	**Batch:**	NA	**Batch:**	ELMS/2081 (HBN: 212824)
		Prepared By:	NA	**Analyzed By:**	Thomas Bosch

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

Analyst	Peer Review
/S/ Thomas Bosch	/S/ Stephen Brose
04/18/2018 12:28	04/18/2018 15:34

Symbols and Definitions

* - Analyte above reporting limit or outside of control limits
▲ - Sample result is greater than 4 times the spike added
● - Sample and Matrix Duplicate less than 5 times the reporting limit
◆ - Result is above the calibration range
- The Matrix Spike, Matrix Spike duplicate or Matrix Duplicate is reported for your information only. The sample matrix may be inappropriate for the method selected.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected (U - Qualifier also flags analyte as not detected)
NA - Not Applicable
QC results are not adjusted for moisture correction, where applicable

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

13693/2

W 1810428

contract Chain of Custody

COC ID: 8923

1810428

SUBCONTRACT TO:

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

Phone: +1 801 266 7700

CUSTOMER INFORMATION:

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

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS18040595
TSR:	Danielle Winnings

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS18040595-01**	**LH18/24-SP650-041118**	**Water**	**11 Apr 2018 14:00**
	SUB_Perch-6850			26 Apr 2018

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

QC Level: DOD IV (DoD Data Package)

Relinquished By: _____ Date/Time: 4/12/18 1800

Received By: _____ Date/Time: 04-13-18 10:15

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

00901929

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: HS18040595	Split:	Workorder ID: 1810428	Level: ENV_LVL4	Requested Analysis
Client: ALS Environmental (Houston)		Account: 8101	Type: 125Poly	
Comments:			Preservatives	
			COOL	

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	EPA 6850, DoD QSM
1	04/11/2018 14:00	LH18/24-SP650_041118	1810428001		Water	A	1	A
2								
3								
4								
5								
6								
7								
8								
9								
10								

406 of 481

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Warath, Julie	04/13/2018 10:13	ALS Sample Receiving	Sample Login
Julie Warath	4/13/18 1500	13C	storage
R-33.1	4.16.18/12:10	T. Bonds	6850

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

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

Prepared / Analyzed by: _____ Date / Time: _____

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

ALS-Salt Lake City-Related Information Report (CRIR)

Cooler or Container Information Checklist (Fill In or Circle)

Client Name: ALS Houston — Project/Task/Site: 1810428

Date/Time of Receipt: 04-13-18 10:13 — Number of Coolers Received: 1

Condition of Coolers:	Acceptable/Unacceptable	Temperature Control:	Present/Not Included
Cooler Custody Seals:	Present/Absent/NA Intact/Broken/NA	Location Temp Taken:	Control/Between Samples
Container Custody Seals:	Present/Absent/NA Intact/Broken/NA	Are all temperatures within project specific guidelines?	Yes/No/NA
Ice Present:	Yes/No/NA Frozen/Melted/NA	VOA Headspace Present?	Yes/No/NA

pH Check Performed:							
	Metals	Yes/No/NA	Total Phenolics	Yes/No/NA	NO3/NO2	Yes/No/NA
	Cyanide	Yes/No/NA	TPH – 418.1	Yes/No/NA	Oil & Grease	Yes/No/NA
	Sulfide	Yes/No/NA	COD	Yes/No/NA	Total Phosphorous	Yes/No/NA
	Ammonia	Yes/No/NA	TKN	Yes/No/NA	Gross A.B, Gamma Spec	Yes/No/NA

Cooler Received	DCL Cooler No.	Temp.	Cooler Received	DCL Cooler No.	Temp.	Cooler Received	DCL Cooler No.	Temp.
1	C18 8146	1 °C	4	C18	°C	7	C18	°C
2	C18	°C	5	C18	°C	8	C18	°C
3	C18	°C	6	C18	°C	9	C18	°C

Taken By: Jennifer Tassell (Signature) — Tanni Van Tassell (Printed Name) — 04-13-18 (Date)

Client-Related Information

☐ Missing Cooler	☐ Missing Samples/Bottles	☐ Incorrect Preservation	☐ Insufficient Sample Volume
☐ Cooler Conditions	☐ Broken/Leaking Samples	☐ pH Criteria Not Met	☐ Chain of Custody Problems
☐ Missing Paperwork	☐ Incorrect Bottle Type	☐ Residual Chlorine Present	☐ Other:
☐ Missing/Incorrect Bottle Labels	☐ Cooler Temperatures Out of Range	☐ Head Space in Bottles	

Briefly Describe the Problem and the Action Taken:

Client Notified? Yes ☐ No ☐

Response Required Within 24 Hours

Project Management

Project Manager Comments:

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

Must Deliver Next Business Day
Time and Tempature Sensitive!

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

SHIP DATE:
ACTWGT: 18.
CAD: 300180
DIMS: 19x1
BILL SENDE

TO SAMPLE RECEIVING
ALS ENVIRONMENTAL
960 W. LEVOY DRIVE

SALT LAKE CITY UT 84123
(801) 266-7700
REF: HS18040595 RJ

RT 907 5 16:00 A
ST 13 2320 04.13

FedEx Express

FRI - 13 APR 3:00P
STANDARD OVERNIGHT

TRK# 0201 4380 9528 2320

AX BTFA

84123
UT-US SLC

Seal Broken By:
Date:

CUSTODY SEAL
Date: 4/12/18 Time: 18:20
Name: BRG ALS Houston
Company:

ALS
ncliff Rd., Suite 210
exas 77099
530 5656
1 530 5887

tch Worklist

Batch: ELMS/ 2081 **Created:** 4/16/2018 16:57 **Instrument:** HBN: 212824
Rule: EPA 6850, DoD QSM Water **Analyst:** T. Bosch **Status:** WP

Workorder: 1809681 [ENV_LVL4]
Workorder: 1810423 [ENV_LVL4]
Workorder: 1810427 [ENV_LVL4]
Workorder: 1810428 [ENV_LVL4]

Pos	Lab ID	Sample ID	Prep Initial	Prep Final	Dust Weight	Type	Mx	Container	Procedure	Mgr	Expire Date	Due Date	Run Date
1	596166	CCV for HBN 212824 [ELMS/2081]				CCV	3		E685041C3Q	5311		4/19/2018	
2	596167	LODV for HBN 212824 [ELMS/2081				LODV	3		E6850..D3Q	5311		4/19/2018	
3	596168	ICS for HBN 212824 [ELMS/2081]				ICS	3		E6850..D3Q	5311		4/19/2018	
4	596169	LMB for HBN 212824 [ELMS/2081]				LMB	3		E6850Q413Q	5311		4/19/2018	
5	596170	LCS for HBN 212824 [ELMS/2081]				LCS	3		E6850Q413Q	5311		4/19/2018	
6	1809681001	LH18/24-SP650_040418				SAMPLE	3	1809681001-A	E6850Q41.3	5480	5/2/2018	4/19/2018	
7	596171	LH18/24-SP650...(1809681001MS)				MS	3		E6850Q413Q	5311		4/19/2018	
8	596172	LH18/24-SP65...(1809681001MSD)				MSD	3		E6850Q413Q	5311		4/19/2018	
9	1810423001	LH18/24-SP140_041118				SAMPLE	3	1810423001-A	E6850Q41.3	5480	5/9/2018	4/26/2018	
10	1810427001	LH18/24-SP650_041118				SAMPLE	3	1810427001-A	E6850Q41.3	5480	5/9/2018	4/26/2018	
11	1810428001	LH18/24-SP650_041118				SAMPLE	3	1810428001-A	E6850Q41.3	5480	5/9/2018	4/26/2018	
12	596173	CCV for HBN 212824 [ELMS/2081]				CCV	3		E685041C3Q	5311		4/19/2018	
13	596174	LODV for HBN 212824 [ELMS/2081				LODV	3		E6850..D3Q	5311		4/19/2018	

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Analytical Documentation

ALS Work Order #'s & Sample #( )'s: 1809681 (001); 1810423 (001); 1810427 (001); 1810428 (001)
ELMS Batch/HBN ID: 2081 (212824)
Prep Date: 04/17/2018 Analysis Date: 04/17/2018 Analyst: T. Bosch
Analyte: **Perchlorate** Matrix: **Water** Method: **6850**
Sequence: \\HPCHEM\1\SEQUENCE\CLO4\2018\APR\17APR18D.s
Reported DL: **1.0µg/L** Reported LOD: **2.0µg/L** Reported LOQ: **4.0µg/L**

SAMPLE PREPARATION/ANALYSIS:

Water: Samples were prepared by TNB. 10.0mL of each sample was pipetted into a 15-mL centrifuge tube, and 50µL of an oxygen-18 labeled perchlorate solution was added as an internal standard. The samples were capped, vortexed, and filtered with Phenex PES membrane 0.45µm Syringe filters prior to analysis.

REAGENTS: Eluent A1: 95% ASTM Type II water (ALS)/ 5% ACN (B&J Lot DI735)/0.1% glacial acetic acid (JT-Baker Lot 04802).
Eluent B1: 95% ACN (B&J Lot DI735)/ 5% ASTM Type II water (ALS)/0.1% glacial acetic acid (JT-Baker Lot 04802).

STANDARDS: Internal Standard Spiking Solution Horizon# 38780. Dilutions of Working Standard Solution ID 32373 used for CCV's, LODV's, RLVS and IPC.

CALIBRATION CURVE: Used curve from 04/02/2018, sequence 02APR18D.s Offline Quantitation Method: CLO4-DPR.M

INSTRUMENT CONDITIONS: Samples were analyzed with an Agilent 1100 LC/MSD system, in negative SIM mode, monitoring m/z 83, 85, and 89.
Instrument ID: LCMS04 Online Acquisition Method: CLO4-DOD.M Fragmentor: 160 Output Gain: 3 Injection Volume: 25µL
Column: KP-RPPX C8 separator, 250mm Mobile Phase: 70% Eluent A1; 30% Eluent B1

FLOW GRADIENT:

Time (min.)	Flow (mL/min)
0	0.80
4.0	0.80
5.0	0.25
10.0	0.25
10.5	0.80
13.0	0.80

QC DATA: 5.0µL of QC Solution Horizon ID 36749 was used for LCS 596170; Target = 5.0µg/L. ASTM type II water was used for LMB 596169.

MS/MSD: MS/MSD was performed on sample 1809681001 (Client ID: LH18/24-SP650_040418). 5.0µl of Working Standard Solution Horizon ID 36735 was added to 10.0mL of sample preparation. Spike target = 5.0µg/L.

COMMENTS:

1) Results reported in µg/L. Sample 1810423001 was analyzed and reported at 1:1,000 dilution. The reporting limit has been adjusted accordingly.
2) All QC, Blank, CCV, and MS/MSD results were within method parameters, except for the following. The Matrix Spike and duplicate (MS/MSD – 596171/72) failed QC acceptance criteria for percent recoveries, biased high. This is due to the fact that the unspiked sample result of 2.3µg/L was not subtracted from the MS/MSD results. The Matrix Spike and Matrix Spike duplicate is reported for the clients' information only. The sample matrix may be inappropriate for the method selected.
3) Sample data can be viewed at two directories within the ALS system: \\ALSLTWS013\LCMS\LCMS04\2018\APR\HBN# or through NuGenesis\Tree\PrintData\LCMS\DefaultView.
4) Due to limitations of the Chemstation Software, some of the chromatographic peaks require manual integration. Manual Integrations was performed for datafiles 02APRD01/02.
5) Notebook: \\alsltws013\ORGANIC\BOSCH\LCMS\Perchlorates\Waters\2018\212824-DOD-ALS-HSTN-LCMS4 or through \\ALSLTWS013\DATAREVIEW\HBN#

STANDARD REPORT

Working Standard - CLO4 WRK

CLO4 WRK — Description - 6850 WKG Std 100.ug/L

Standard: 36735
MFG: ALS/SLC
MFG Lot: TNB: 05/10/17
Part ID:

Created By: T. Bosch
Create Date: 05/10/2017
Lab Lot: CLO4 WRK

Amount: 10 mL
Expires: 05/10/2018
Usable: Yes

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	0.1 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
36734	CLO4 INT	6850 Intermdt AccStd 10.ug/mL	CLO4 INT	0.1 mL	05/10/2018

STANDARD REPORT

Constituent

Stock Standard - CLO4 STOCK

CLO4 STOCK — Description - 6850 Stock AccStd 1,000ug/mL

Standard: 36733
MFG: AccuStandard
MFG Lot: 216095148
Part ID: IC-PER-10X-1

Created By: T. Bosch
Create Date: 5/10/2017
Lab Lot: CLO4 STOCK

Amount: 100 mL
Expires: 10/4/2018
Usable: Yes

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

STANDARD REPORT

Constituent

Solvent Standard - ASTM H2O

ASTM H2O		Description - ASTM Type II Water
Standard: 109	Created By: ALS Support (Lims)	Amount: 1000 L
MFG: DCL In House	Create Date: 10/6/2005	Expires: 11/7/2025
MFG Lot:	Lab Lot: LAB 109	Usable: Yes
Part ID:		

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

STANDARD REPORT

Constituent

Working Standard - CLO4 INT

CLO4 INT — Description - 6850 Intermdt AccStd 10.ug/mL

Standard: 36734
MFG: ALS/SLC
MFG Lot: TNB: 05/10/17
Part ID:

Created By: T. Bosch
Create Date: 05/10/2017
Lab Lot: CLO4 INT

Amount: 10 mL
Expires: 05/10/2018
Usable: Yes

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

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
36733	CLO4 STOCK	6850 Stock AccStd 1,000ug/mL	CLO4 STOCK	0.1 mL	10/04/2018

STANDARD REPORT

Working Standard - CLO4 QC WRK

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

Standard: 36750
MFG: ALS/SLC
MFG Lot: TNB: 05/11/17
Part ID:

Created By: T. Bosch
Create Date: 05/11/2017
Lab Lot: CLO4 QC WRK 100.ug/L

Amount: 10 mL
Expires: 05/11/2018
Usable: Yes

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

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
36749	CLO4 QC INT	6850 QC Intrmdt Std-QC 10ug/mL	CLO4 QC INT 10.ug/mL	0.1 mL	05/11/2018

STANDARD REPORT

Constituent

Working Standard - CLO4 QC INT

CLO4 QC INT — Description - 6850 QC Intrmdt Std-QC 10ug/mL

Standard: 36749
MFG: ALS/SLC
MFG Lot: TNB: 05/11/2017
Part ID:

Created By: T. Bosch
Create Date: 05/11/2017
Lab Lot: CLO4 QC INT 10.ug/mL

Amount: 10 mL
Expires: 05/11/2018
Usable: Yes

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

Composition

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

STANDARD REPORT

Constituent

Solvent Standard - ASTM H2O

ASTM H2O		Description - ASTM Type II Water
Standard: 109	Created By: ALS Support (Lims)	Amount: 1000 L
MFG: DCL In House	Create Date: 10/6/2005	Expires: 11/7/2025
MFG Lot:	Lab Lot: LAB 109	Usable: Yes
Part ID:		

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

STANDARD REPORT

Constituent

Stock Standard - CLO4 QCSTOCK

CLO4 QCSTOCK Description - 6850 QC Stock STD 1,000ug/mL

Standard: 36748
MFG: Ultra Scientific
MFG Lot: CP-0860
Part ID: ICC-013

Created By: T. Bosch
Create Date: 5/11/2017
Lab Lot: CLO4 QC STOCK

Amount: 100 mL
Expires: 3/31/2020
Usable: Yes

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

STANDARD REPORT

Working Standard - CLO4ISTDWRK

CLO4ISTDWRK — **Description - Perchlorate ISTD Wrk 1,000ug/L**

Standard: 38780
MFG: ALS/SLC
MFG Lot: TNB: 10/09/17
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 10/09/2017 01:10PM
Verified By: Thomas Bosch
Verify Date:

Amount: 10 mL
Expires: 10/09/2018
Usable: Yes
Lab Lot: CLO4ISTDWRK

Pos.	Analyte	Name	Concentration
1	14797-73-0-8385	Perchlorate 83:85 Ratio	1000 ug/L
2	14797-73-0-89	Perchlorate 89	1000 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
23118	CLO4ISTDSTK	Perchlorate ISTD Stock	CLO4ISTDSTK	0.1 mL	02/27/2024

STANDARD REPORT

Constituent

Stock Standard - CLO4ISTDSTK

CLO4ISTDSTK — Description - Perchlorate ISTD Stock

Standard: 23118
MFG: Cambridge Isotope
MFG Lot: SDDG-013
Part ID: OLM-7310-S

Created By: Thomas Bosch
Create Date: 04/04/2014 03:04PM
Verified By: Thomas Bosch
Verify Date: 02/05/2009 12:02AM

Amount: 1 mL
Expires: 02/27/2024
Usable: Yes
Lab Lot: CLO4ISTDSTK

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

ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

TRIPLE ISO CERTIFICATION ULTRA ISO 9001 ISO GUIDE 34 ISO 17025

ISO Guide 34 Reference Material

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

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

Product Name: Perchlorate IC Standard

Description:
This Reference Material (RM) was gravimetrically prepared in accordance with ISO Guide 34 and under ULTRA Scientific's ISO 9001 registered quality system. The neat materials used for this product have been verified by ULTRA's ISO 17025 laboratory and under ULTRA's ISO Guide 34 accreditation. The analyte concentrations were verified by ULTRA's ISO 17025 accredited laboratory. For each analyte, the true value, with its uncertainty value calculated at the 95% confidence level, is reported below.

Analyte	Starting Material	Lot Number	Purity (%)	Calculated Value	True Value	Traceability & Method
perchlorate	potassium perchlorate	RM07987	100	1001 ± 5 µg/mL	976 ± 6 µg/mL	NIST SRM 3141A; ICP-OES

Solvent: water (low TOC, < 50 ppb)

Storage: Store at Room Temperature (15° to 30°C).

Traceability:
Traceability has been established through an unbroken chain of comparisons, each having stated uncertainties. Comparisons are based on appropriate physical or chemical measurements, including gravimetric or volumetric dilution, where the mass or volume of a solution before and after dilution is measured. The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1, ISO 9001, ISO 17025, and ISO Guide 34. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 819.

Estimation of Uncertainties:
The true value is reported, with its uncertainty value calculated at the 95% confidence level.

Homogeneity:
This RM was formulated and unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

Intended Use:
This RM is intended for the preparation of working reference samples for use in routine laboratory analyses, calibration of instruments, validation of analytical methods, assessments of measurement methods and continuing calibration verification.

Instructions for Use:
Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening and should be processed without delay for the true value to be valid within the stated uncertainties. Do not pipet from the bottle. Do not return any material removed for pipetting to the bottle. Tightly cap the bottle after removing any material and store according to the instructions noted above.

Hazards:
Refer to the Safety Data Sheet for information regarding this RM.

Expiration of Certification:
The certification of this RM is valid, within the measurement uncertainty specified, until the expiration date specified above, provided the RM is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the RM is damaged, contaminated, or otherwise modified.

ANAB ACCREDITED ISO 17025 REFERENCE MATERIAL PRODUCER
ANAB ACCREDITED ISO 17025 TESTING LABORATORY

ALS

ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

ISO Guide 34 Reference Material

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

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

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

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

Daniel J. Lamendola
Director of QA/RA

125 Market Street
New Haven, CT 06513
USA

AccuStandard® Inc.

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

CERTIFICATE OF ANALYSIS

AccuTrace™ Reference Standard

Catalog No: IC-PER-10X-1
Description: Perchlorate Standard
Element: Perchlorate (ClO_4)
SRM: Ind. Std.
Lot: 216095148
Matrix: Water
Hazards: *Refer to SDS for complete safety information*

Date Certified: Oct 4, 2016
Expiration: Oct 4, 2018
Sample Size: 100 mL
Components: 1
Storage Condition: Ambient (>5 °C)
Included on ISO/IEC 17025 Scope of Accreditation: Yes
Included on ISO Guide 34 Scope of Accreditation: Yes

Signal Word: Warning

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

The gravimetric uncertainty for this product is ±0.2%. See reverse side for details.
The final solution was checked against an independent standard to verify its concentration.
We use the highest purity raw materials available to minimize impurity levels in the final solution. Typically 99.999%+ pure starting materials are used as well as ASTM Type I 18 megohm deionized water.
All solutions are filtered through a 0.2 µm filter prior to being bottled.
All glassware used in preparation is Class A and calibrated regularly.
All weights are traceable through NIST, Test No. 822-275872-11
All bottles are triple rinsed with deionized water prior to use.
Shake bottle prior to use and do not pipette directly out of the bottle. Use only cleaned Class A volumetric glassware.
We certify the accuracy of this standard to be ±0.5% of the stated value until its expiration date provided it is kept tightly capped and stored under the conditions stated above.

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

For use in routine laboratory analysis.

AccuStandard is accredited to ISO Guide 34, ISO/IEC 17025 and certified to ISO 9001

ALS

Cambridge Isotope Laboratories, Inc.

Certificate of Analysis

Quality Standards:
ISO Guide 34 • ISO/IEC 17025 • ISO 13485 • cGMP

23118

Product Name: (Isotopic Label & Enrichment Specification)	PERCHLORIC ACID, SODIUM SALT (18O4, 90%+) 100 UG/ML IN WATER
Lot Number:	SDDG-013
Catalog Number:	OLM-7310-S

Product Information

Chemical Purity Specification:	≥98%
Labeled CAS Number:	NA
Unlabeled CAS Number:	7601-89-0
MW*:	130.4
Chemical Formula:	NaCl*O4
Storage:	Store at room temperature away from light and moisture.
Stability:	See storage and expiration date.

Certification

Cambridge Isotope Laboratories, Inc. guarantees that this material meets or exceeds the specifications stated. Absolute identity as well as chemical and isotopic purities are assured by the use of unambiguous synthetic routes and multiple chemical analyses whenever possible. Results are representative of QC testing at time of release from Quality Control unless otherwise stated.

Volumetric measurements were made with Class A glassware. Gravimetry is traceable to the NIST through calibrated balances and certified, calibrated, standard weights. The calibrations are traceable to the NIST under Test No. 822/270236-04. The calibrations also meet specifications outlined in ISO 9001, ISO/IEC 17025, ANSI/NSCL Z540-1-1994, NCR Document 10CFR50 Appendix B, and applicable subdocuments.

This COA references the bulk catalog number before packaging. The COA also applies to the CIL finished good catalog number . Some possible packaging sizes and their corresponding suffix are -1.2, -1, -0.5, -10, or -0.1.

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

Approved by: T. J. Eckersley

Timothy J. Eckersley, Ph.D., Quality Assurance

Quality Control Tests and Results

QC Release Date	2/27/2014
Expiration Date	2/27/2024
Concentration Based on Gravimetry	102 µg/mL
Chemical Purity of Neat Material(s)	98%
LC/MS for Concentration	109.4 ± 2.8 µg/mL (k=2)

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Batch Report: C:\HPCHEM\1\DATA\17APR18D\17APR18D.B

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

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

#	*	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorate RT	Perchlorate Amount
	*	596166	CCV@25	Vial 71	1	Control	1	1.14280e6	8.753	27.33882
	*	596167	LODV@1.	Vial 72	1	Control	2	6.41761e4	8.823	9.57277e-1
	*	596168	ICS@1.0	Vial 73	1	Control	3	4.94133e4	8.575	9.89270e-1
	*	596169	LMB	Vial 74	1	Control	4	0.00000	0.000	0.00000
	*	596170	QC@5	Vial 75	1	Control	5	2.59363e5	8.740	5.03626
	*	1809681001		Vial 76	1	Sample	6	9.01797e4	8.361	2.27846
	*	596171	96811MS	Vial 77	1	Control	7	2.46735e5	8.344	6.23564
	*	596172	96811SD	Vial 78	1	Control	8	2.68950e5	8.350	6.14846
	*	1810423001	1K	Vial 79	1	Sample	9	3.21292e5	8.738	6356.06430
	*	1810427001		Vial 80	1	Sample	10	2.63119e5	8.374	6.87199
	*	1810428001		Vial 81	1	Sample	11	4.74912e5	8.385	12.19300
	*	596173	CCV@25	Vial 71	1	Control	12	1.42950e6	8.714	28.29573
	*	596174	LODV@1.	Vial 72	1	Control	14	5.09575e4	8.590	1.03663

#	*	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
	*	596166	CCV@25	Vial 71	1	Control	1	3.55217e5	8.769	27.39222
	*	596167	LODV@1.	Vial 72	1	Control	2	2.24706e4	8.844	9.29806e-1
	*	596168	ICS@1.0	Vial 73	1	Control	3	1.93427e4	8.583	1.09787
	*	596169	LMB	Vial 74	1	Control	4	0.00000	0.000	0.00000
	*	596170	QC@5	Vial 75	1	Control	5	8.61836e4	8.756	5.14276
	*	1809681001		Vial 76	1	Sample	6	3.09483e4	8.376	2.33050
	*	596171	96811MS	Vial 77	1	Control	7	8.35679e4	8.358	6.52866
	*	596172	96811SD	Vial 78	1	Control	8	9.06309e4	8.366	6.40262
	*	1810423001	1K	Vial 79	1	Sample	9	1.05474e5	8.752	6454.26200
	*	1810427001		Vial 80	1	Sample	10	8.92737e4	8.390	7.22479
	*	1810428001		Vial 81	1	Sample	11	1.54422e5	8.398	12.46426
	*	596173	CCV@25	Vial 71	1	Control	12	4.34571e5	8.729	27.82126
	*	596174	LODV@1.	Vial 72	1	Control	14	2.02342e4	8.602	1.17481

#	*	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-ISTD RT	CLO4-89-ISTD Amount
	*	596166	CCV@25	Vial 71	1	Control	1	1.69004e5	8.776	5.00000
	*	596167	LODV@1.	Vial 72	1	Control	2	3.01823e5	8.848	5.00000
	*	596168	ICS@1.0	Vial 73	1	Control	3	2.25166e5	8.595	5.00000
	*	596169	LMB	Vial 74	1	Control	4	2.62060e5	8.801	5.00000
	*	596170	QC@5	Vial 75	1	Control	5	2.34788e5	8.764	5.00000
	*	1809681001		Vial 76	1	Sample	6	1.81546e5	8.384	5.00000
	*	596171	96811MS	Vial 77	1	Control	7	1.79397e5	8.365	5.00000
	*	596172	96811SD	Vial 78	1	Control	8	1.98406e5	8.372	5.00000
	*	1810423001	1K	Vial 79	1	Sample	9	2.29046e5	8.761	5000.00000
	*	1810427001		Vial 80	1	Sample	10	1.73045e5	8.396	5.00000
	*	1810428001		Vial 81	1	Sample	11	1.71055e5	8.407	5.00000
	*	596173	CCV@25	Vial 71	1	Control	12	2.03222e5	8.737	5.00000
	*	596174	LODV@1.	Vial 72	1	Control	14	2.21978e5	8.617	5.00000

*** End of Report ***

Sequence: C:\HPCHEM\1\SEQUENCE\CLO4\2018\APR\17APR18D.S

Sequence Table:

Method and Injection Info Part:

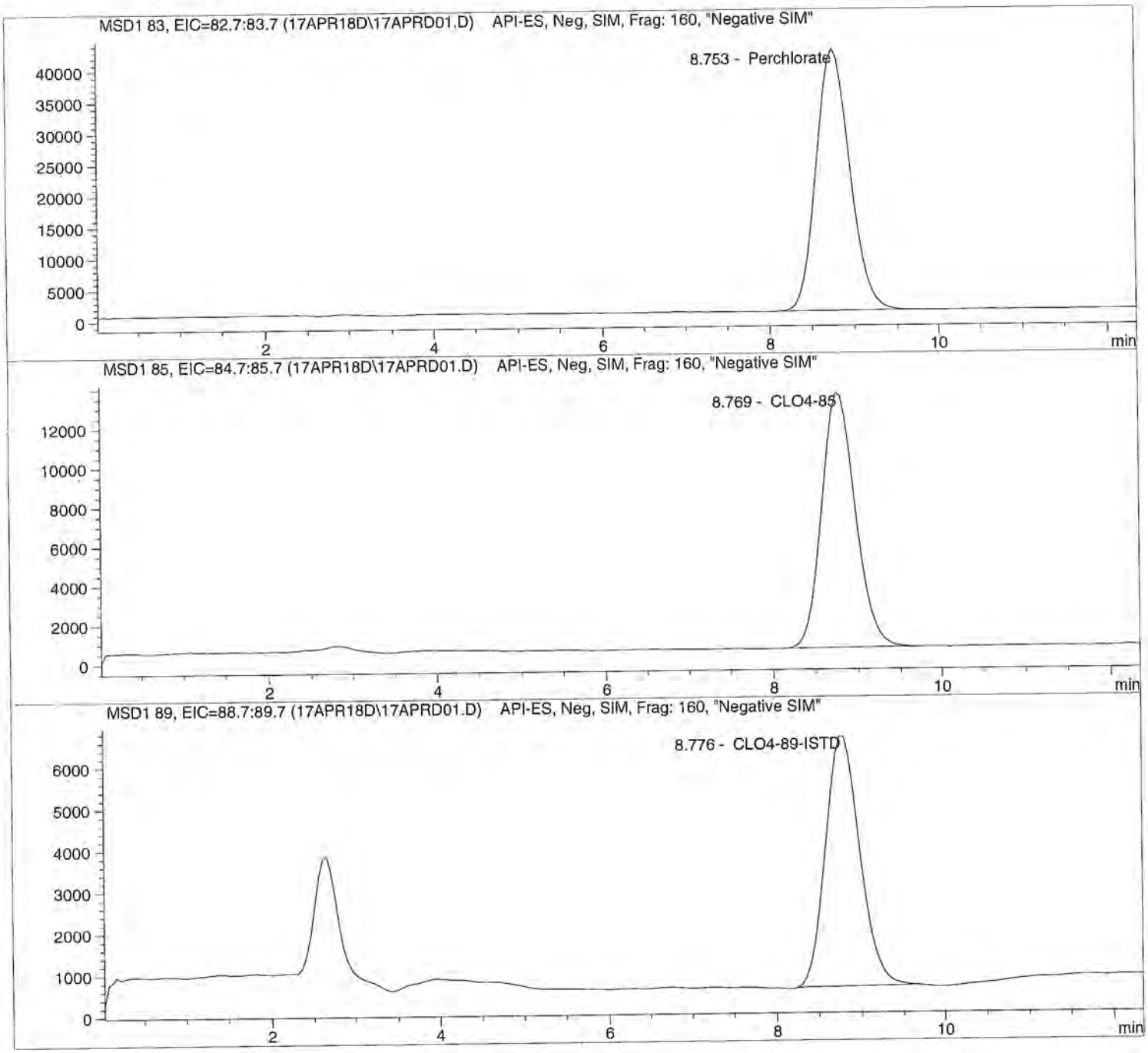
Line	Location	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	596166 CCV@25	CLO4-DOD	1	Ctrl Samp		
2	Vial 72	596167 LODV@1.	CLO4-DOD	1	Ctrl Samp		
3	Vial 73	596168 ICS@1.0	CLO4-DOD	1	Ctrl Samp		
4	Vial 74	596169 LMB	CLO4-DOD	1	Ctrl Samp		
5	Vial 75	596170 QC@5	CLO4-DOD	1	Ctrl Samp		
6	Vial 76	1809681001	CLO4-DOD	1	Sample		
7	Vial 77	596171 96811MS	CLO4-DOD	1	Ctrl Samp		
8	Vial 78	596172 96811SD	CLO4-DOD	1	Ctrl Samp		
9	Vial 79	1810423001 1K	CLO4-DOD	1	Sample		
10	Vial 80	1810427001	CLO4-DOD	1	Sample		
11	Vial 81	1810428001	CLO4-DOD	1	Sample		
12	Vial 71	596173 CCV@25	CLO4-DOD	1	Ctrl Samp		
13	Vial 72	596174 LODV@1.	CLO4-DOD	1	Ctrl Samp		
14	Vial 72	596174 LODV@1.	CLO4-DOD	1	Ctrl Samp		

Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD01.D Sample Name: 596166 CCV@25

Injection Date:	4/17/2018 08:41:41	Seq Line:	1
Sample Name:	596166 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD01.D Sample Name: 596166 CCV@25

Injection Date:	4/17/2018 08:41:41	Seq Line:	1
Sample Name:	596166 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method:	CLO4-DOD.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed:	4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.753	PBA	1142798.1	27.3388	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.769	PBA	355217.3	27.3922	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.776	PBA	169004.3	5.0000	CLO4-89-ISTD

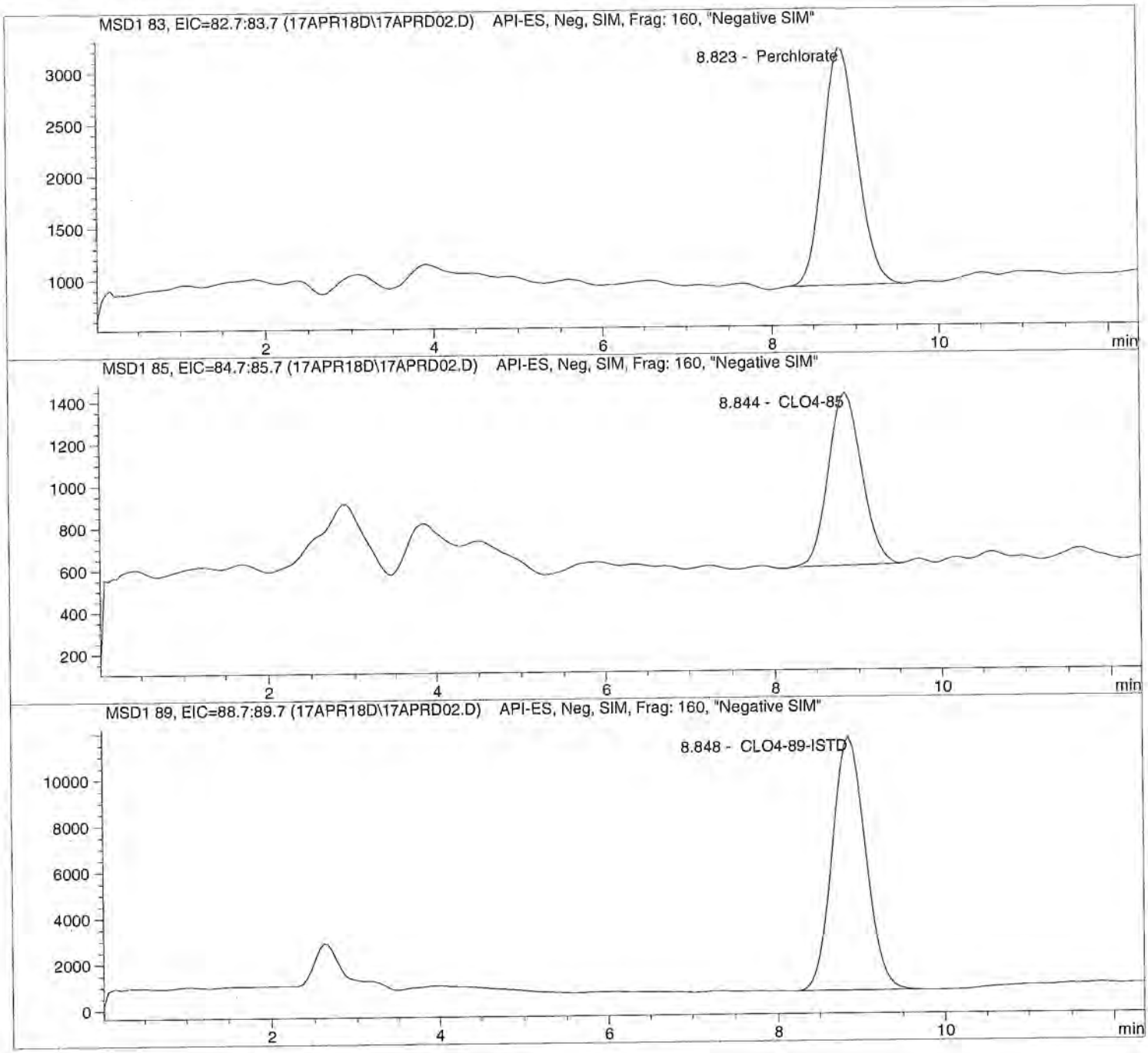
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD02.D Sample Name: 596167 LODV@1.

Injection Date:	4/17/2018 09:01:47	Seq Line:	2
Sample Name:	596167 LODV@1.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD02.D Sample Name: 596167 LODV@1.

Injection Date:	4/17/2018 09:01:47	Seq Line:	2
Sample Name:	596167 LODV@1.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method:	CLO4-DOD.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed:	4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.823	PBA	64176.1	0.9573	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.844	PBA	22470.6	0.9298	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.848	PBA	301823.1	5.0000	CLO4-89-ISTD

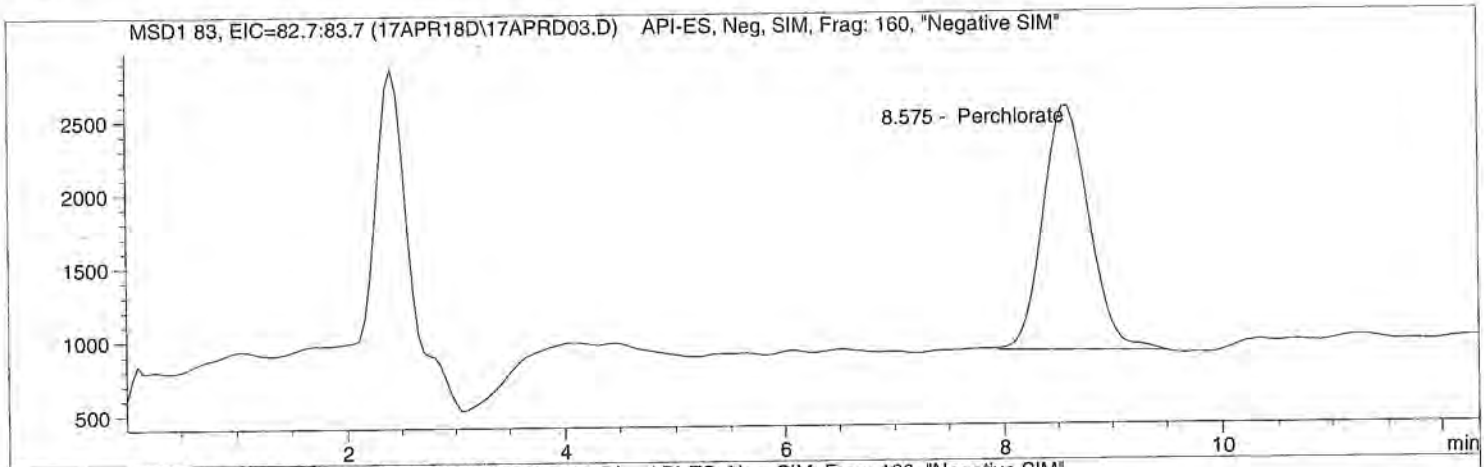
*** End of Report ***

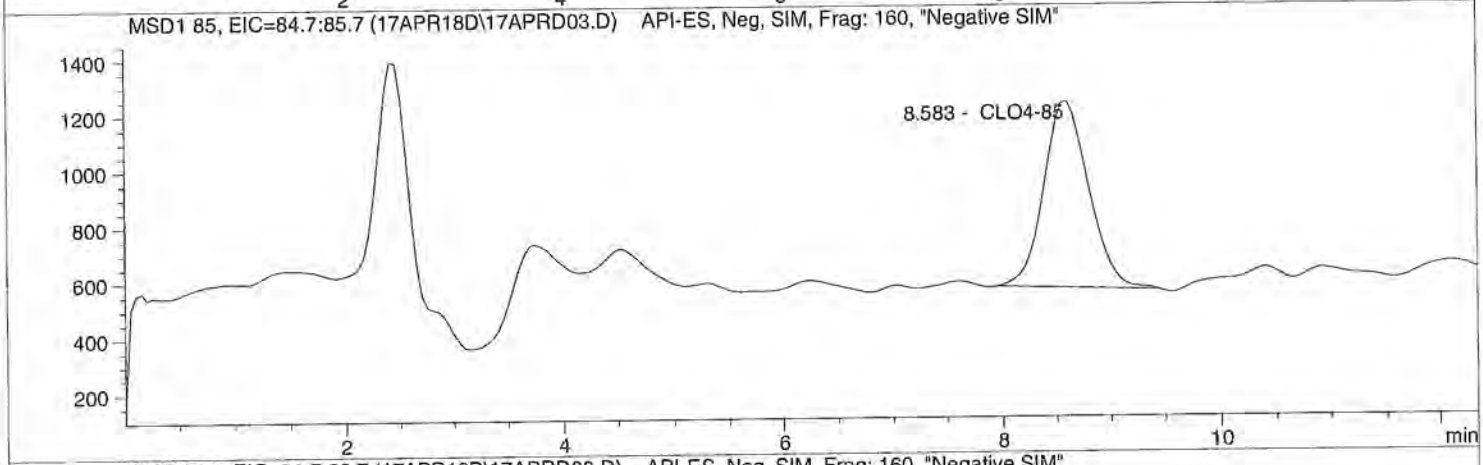
Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD03.D Sample Name: 596168 ICS@1.0

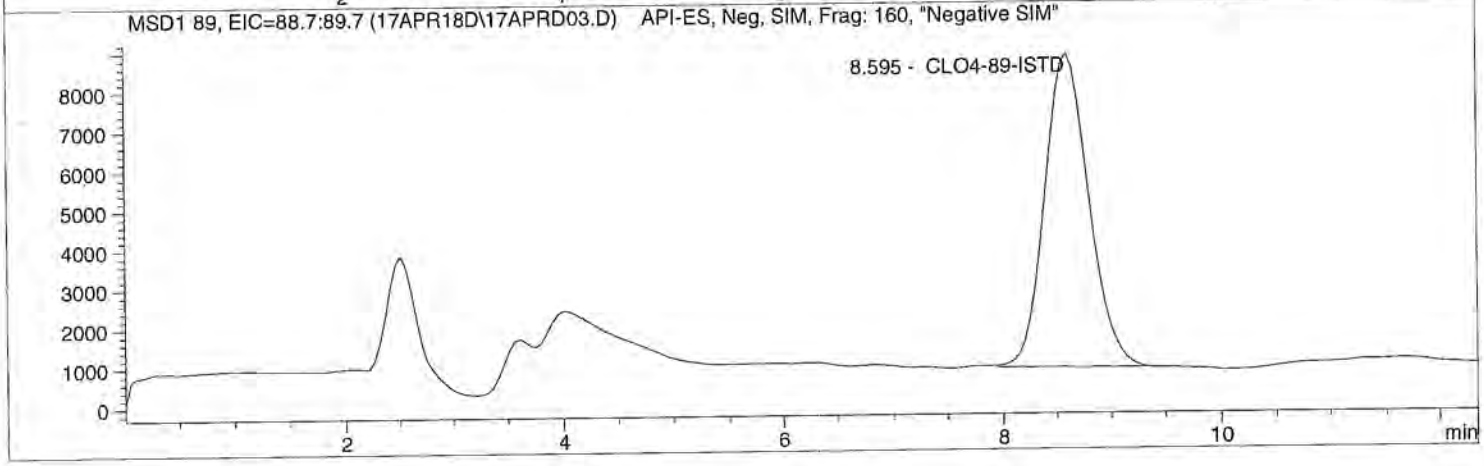
Injection Date:	4/17/2018 09:15:52	Seq Line:	3
Sample Name:	596168 ICS@1.0	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD03.D Sample Name: 596168 ICS@1.0

Injection Date:	4/17/2018 09:15:52	Seq Line:	3
Sample Name:	596168 ICS@1.0	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.575	BBA	49413.3	0.9893	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.583	PBA	19342.7	1.0979	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.595	BBA	225165.6	5.0000	CLO4-89-ISTD

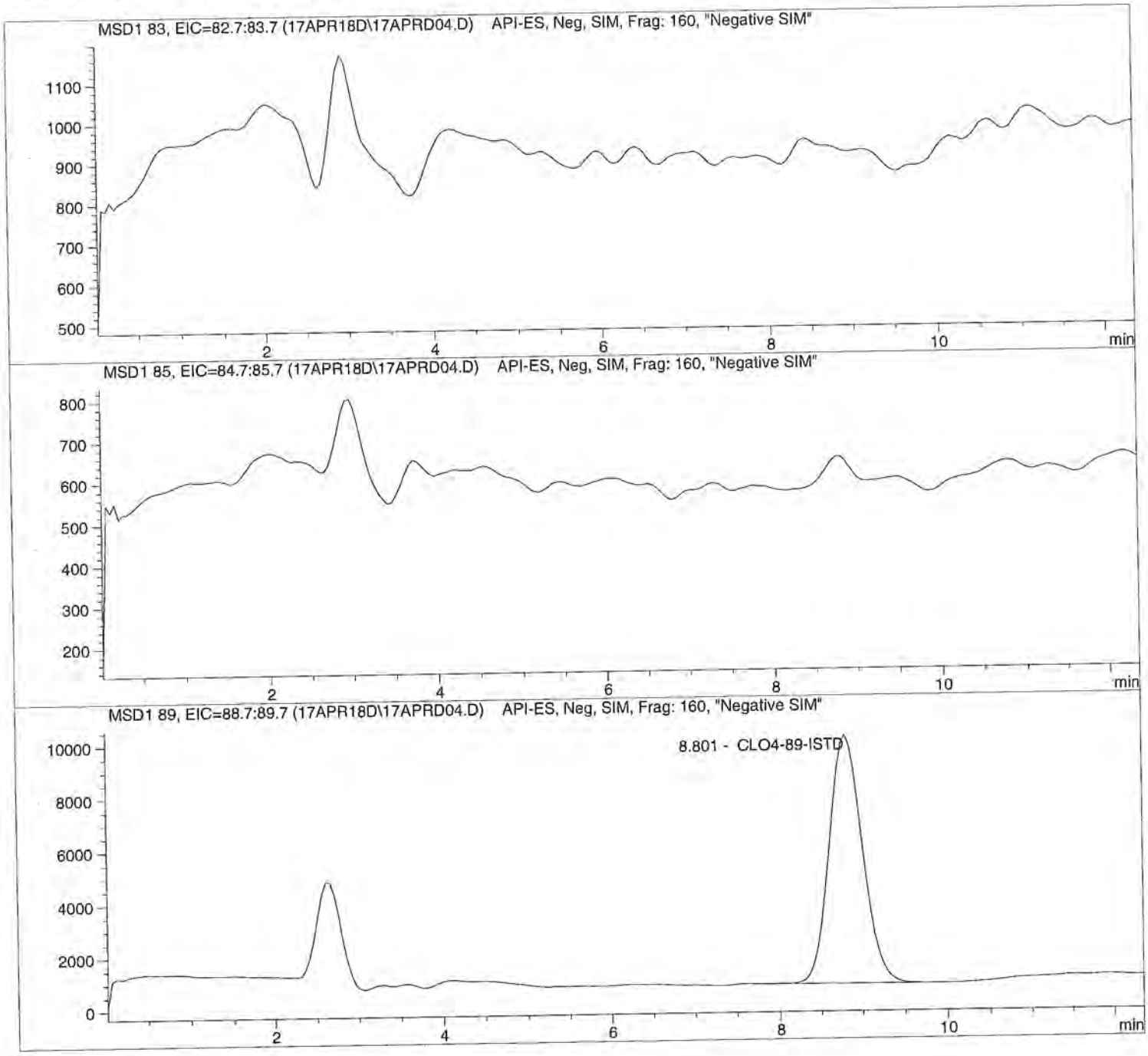
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD04.D Sample Name: 596169 LMB

Injection Date:	4/17/2018 09:29:59	Seq Line:	4
Sample Name:	596169 LMB	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD04.D Sample Name: 596169 LMB

Injection Date:	4/17/2018 09:29:59	Seq Line:	4
Sample Name:	596169 LMB	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method:	CLO4-DOD.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed:	4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

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

Signal2: MSD1 85, EIC=84.7:85.7

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

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.801	BBA	262060.1	5.0000	CLO4-89-ISTD

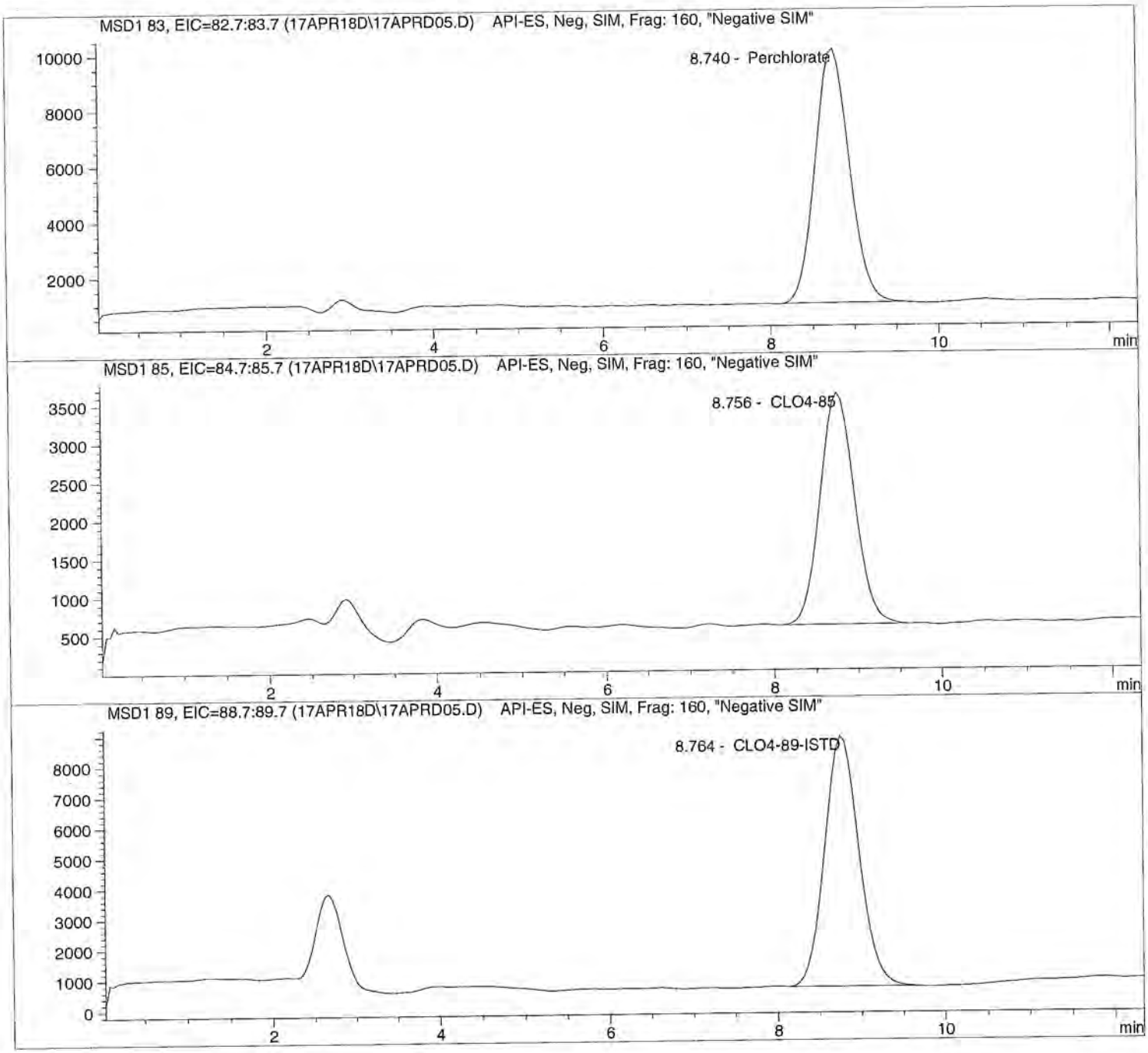
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD05.D Sample Name: 596170 QC@5

Injection Date:	4/17/2018 09:44:04	Seq Line:	5
Sample Name:	596170 QC@5	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD05.D Sample Name: 596170 QC@5

Injection Date:	4/17/2018 09:44:04	Seq Line:	5
Sample Name:	596170 QC@5	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	5.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.740	BBA	259362.7	5.0363	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.756	PBA	86183.6	5.1428	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.764	BBA	234787.9	5.0000	CLO4-89-ISTD

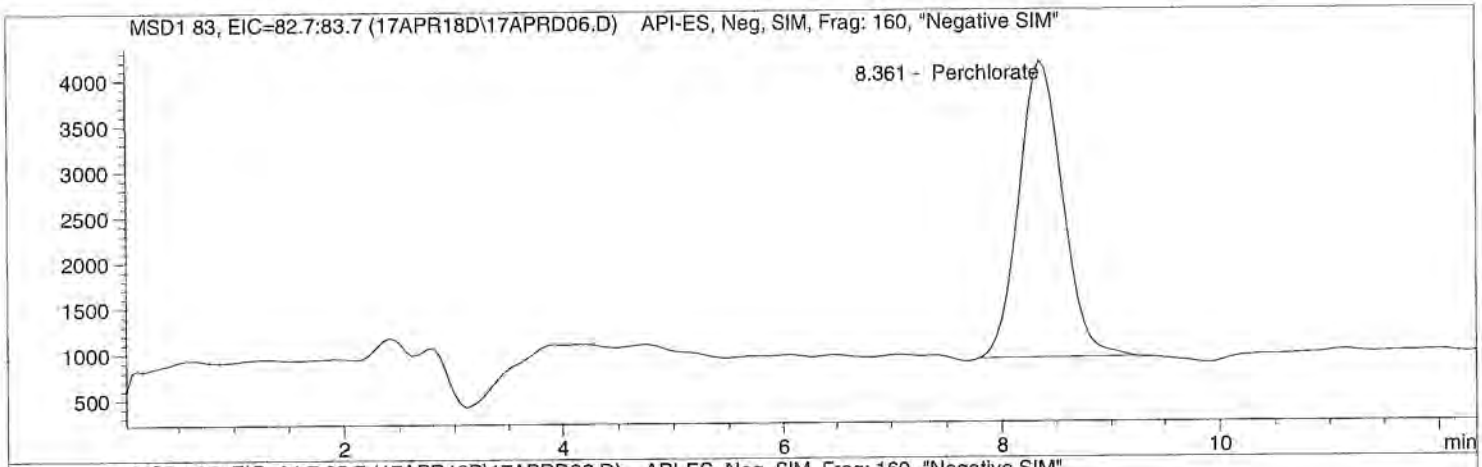
*** End of Report ***

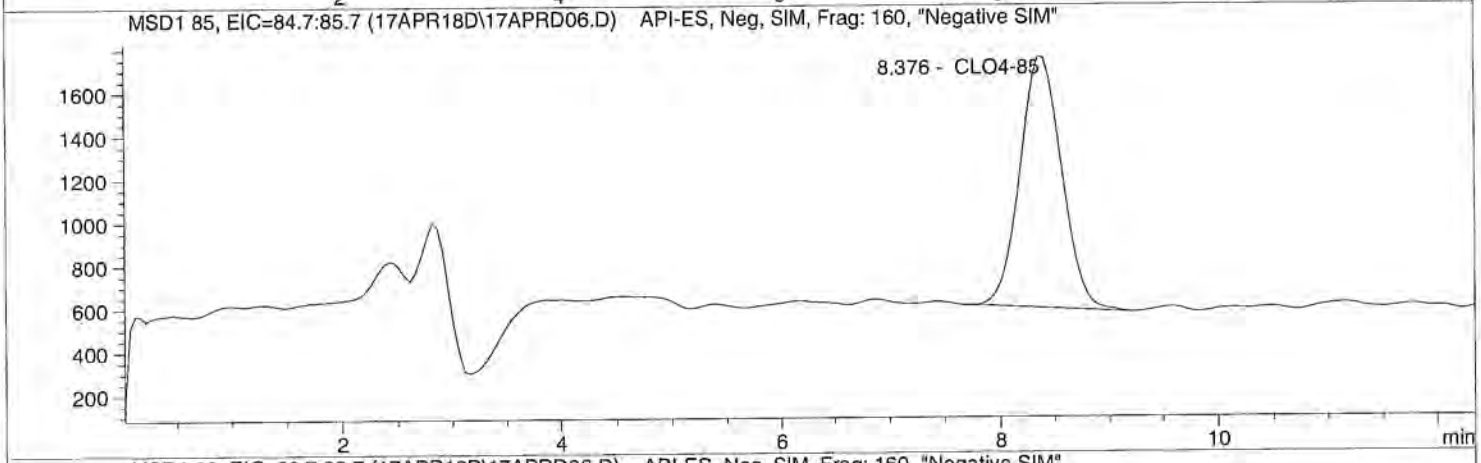
Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD06.D Sample Name: 1809681001

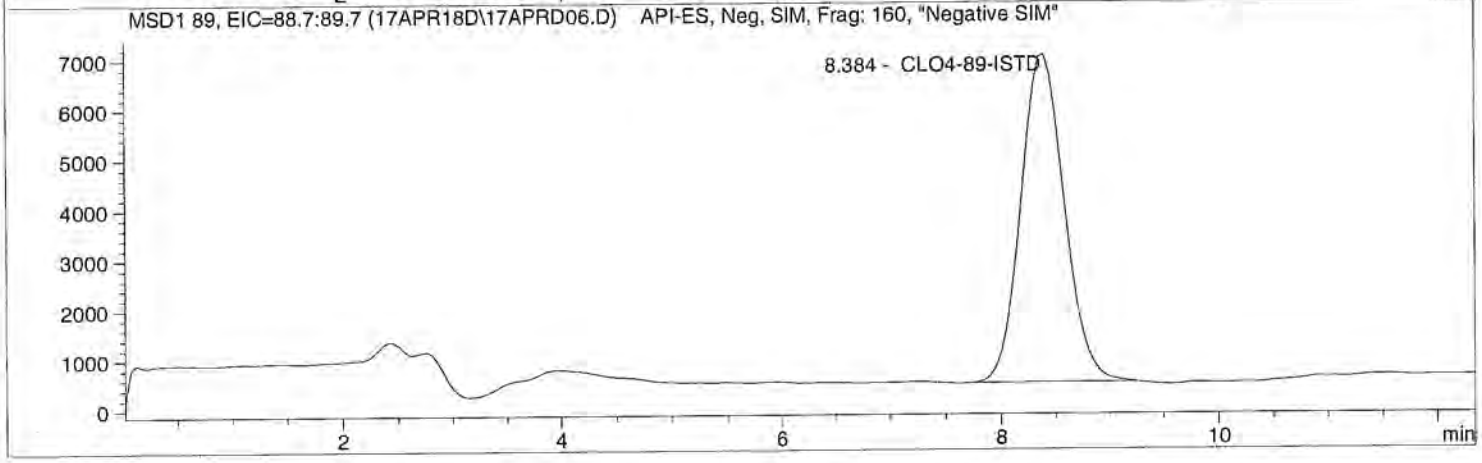
Injection Date:	4/17/2018 09:58:45	Seq Line:	6
Sample Name:	1809681001	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD06.D Sample Name: 1809681001

Injection Date:	4/17/2018 09:58:45	Seq Line:	6
Sample Name:	1809681001	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method:	CLO4-DOD.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed:	4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.361	PBA	90179.7	2.2785	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.376	PBA	30948.3	2.3305	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.384	PBA	181546.0	5.0000	CLO4-89-ISTD

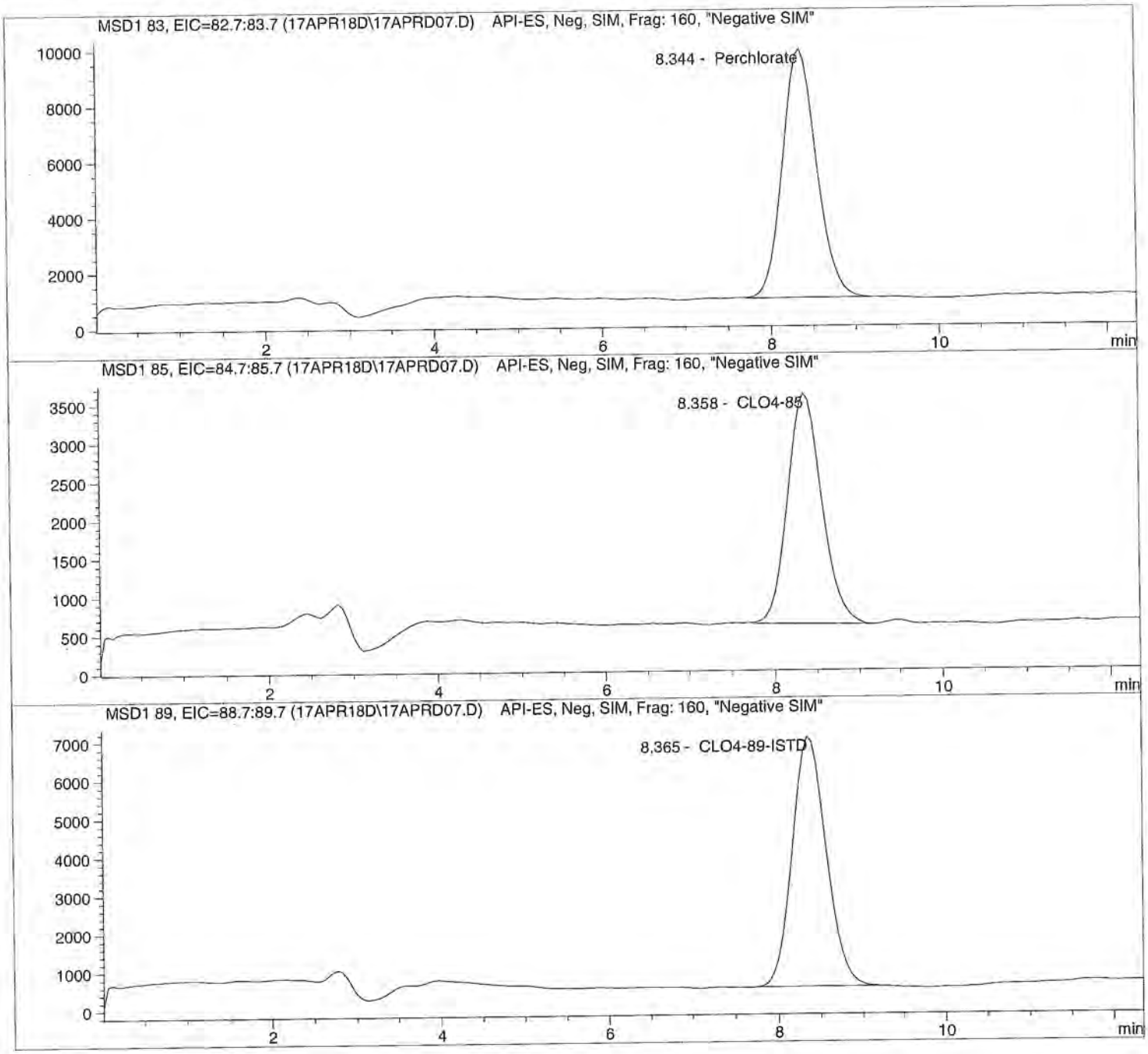
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD07.D Sample Name: 596171 96811MS

Injection Date:	4/17/2018 10:12:52	Seq Line:	7
Sample Name:	596171 96811MS	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD07.D Sample Name: 596171 96811MS

Injection Date:	4/17/2018 10:12:52	Seq Line:	7
Sample Name:	596171 96811MS	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method:	CLO4-DOD.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed:	4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.344	BBA	246734.9	6.2356	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.358	BBA	83567.9	6.5287	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.365	BBA	179397.1	5.0000	CLO4-89-ISTD

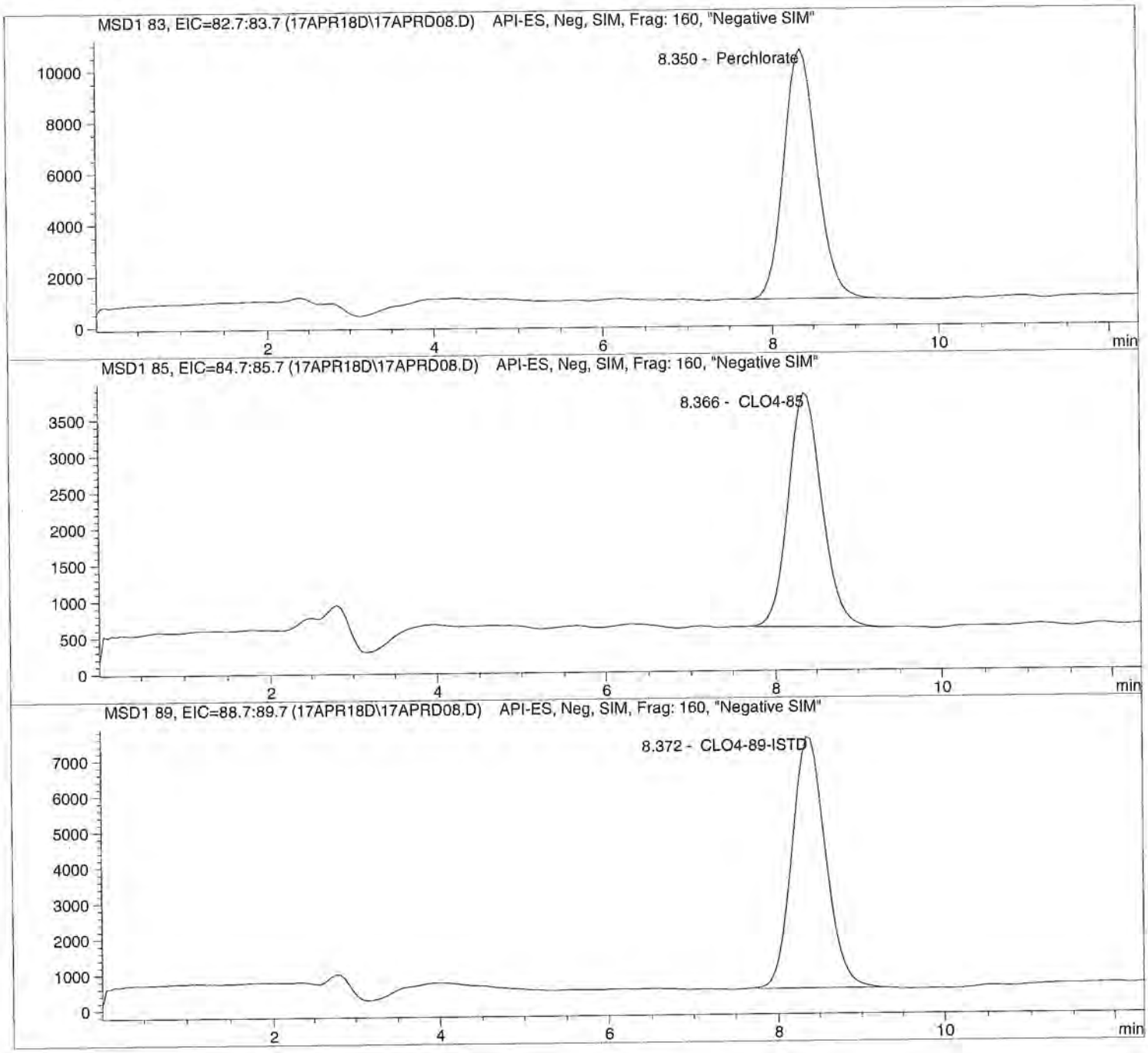
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD08.D Sample Name: 596172 96811SD

Injection Date:	4/17/2018 10:26:57	Seq Line:	8
Sample Name:	596172 96811SD	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD08.D Sample Name: 596172 96811SD

Injection Date:	4/17/2018 10:26:57	Seq Line:	8
Sample Name:	596172 96811SD	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.350	BBA	268949.8	6.1485	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.366	BBA	90630.9	6.4026	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.372	BBA	198406.3	5.0000	CLO4-89-ISTD

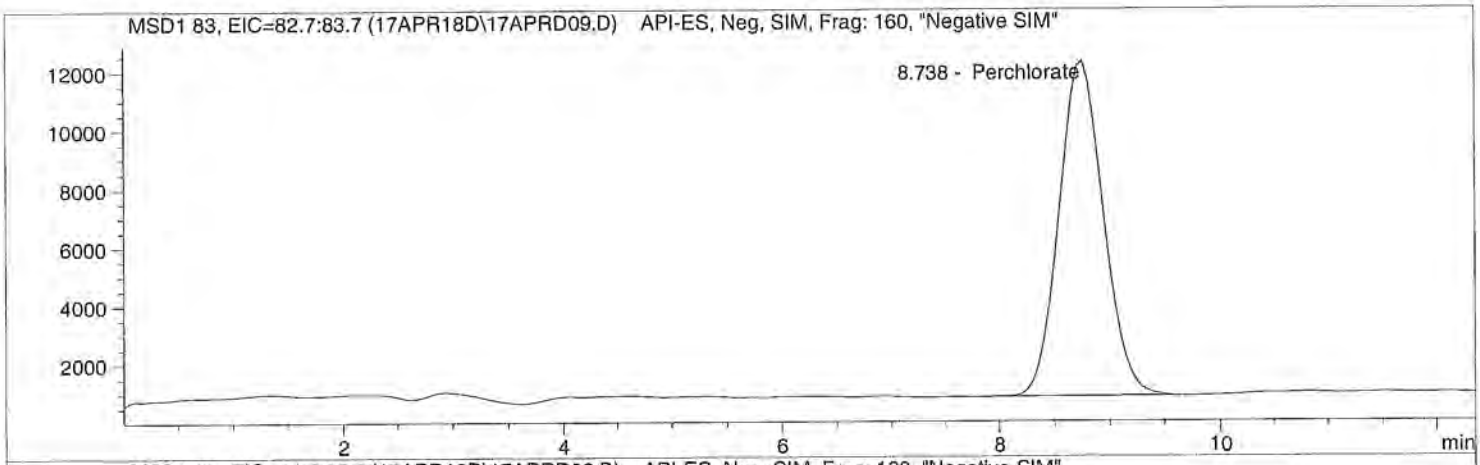
*** End of Report ***

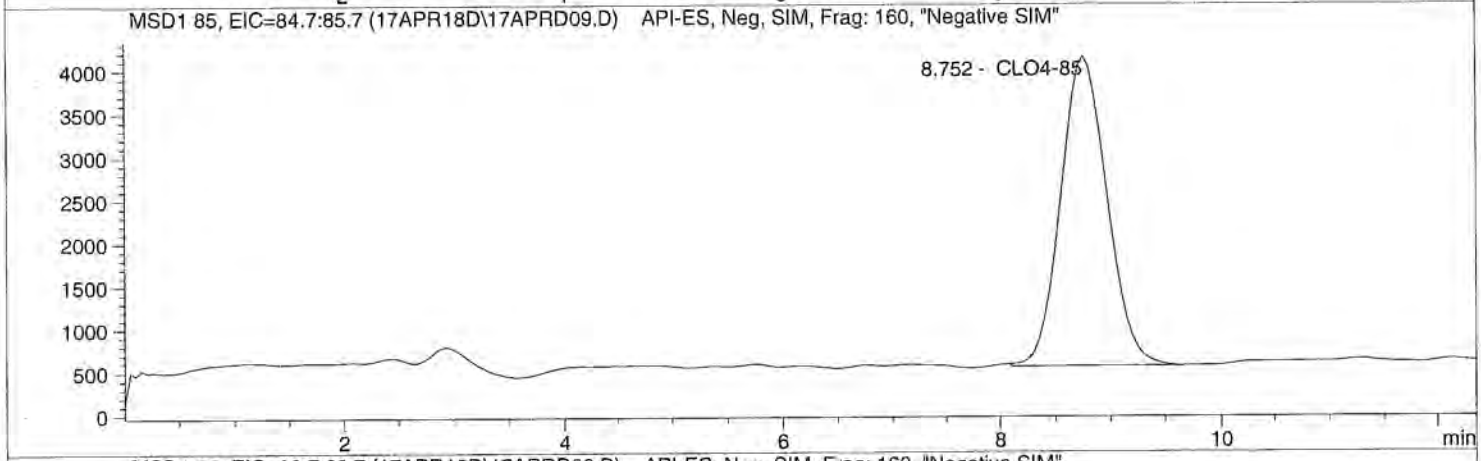
Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD09.D Sample Name: 1810423001 1K

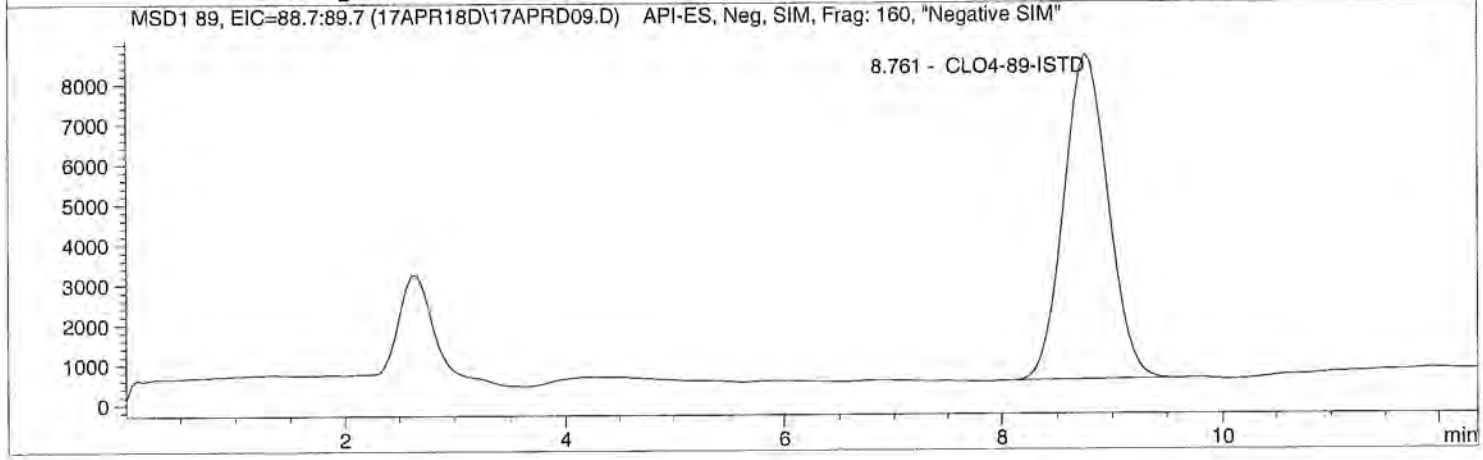
Injection Date:	4/17/2018 10:41:03	Seq Line:	9
Sample Name:	1810423001 1K	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD09.D Sample Name: 1810423001 1K

Injection Date:	4/17/2018 10:41:03	Seq Line:	9
Sample Name:	1810423001 1K	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method:	CLO4-DOD.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed:	4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1000.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.738	BBA	321292.2	6356.0643	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.752	BBA	105474.0	6454.2620	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.761	BBA	229045.5	5000.0000	CLO4-89-ISTD

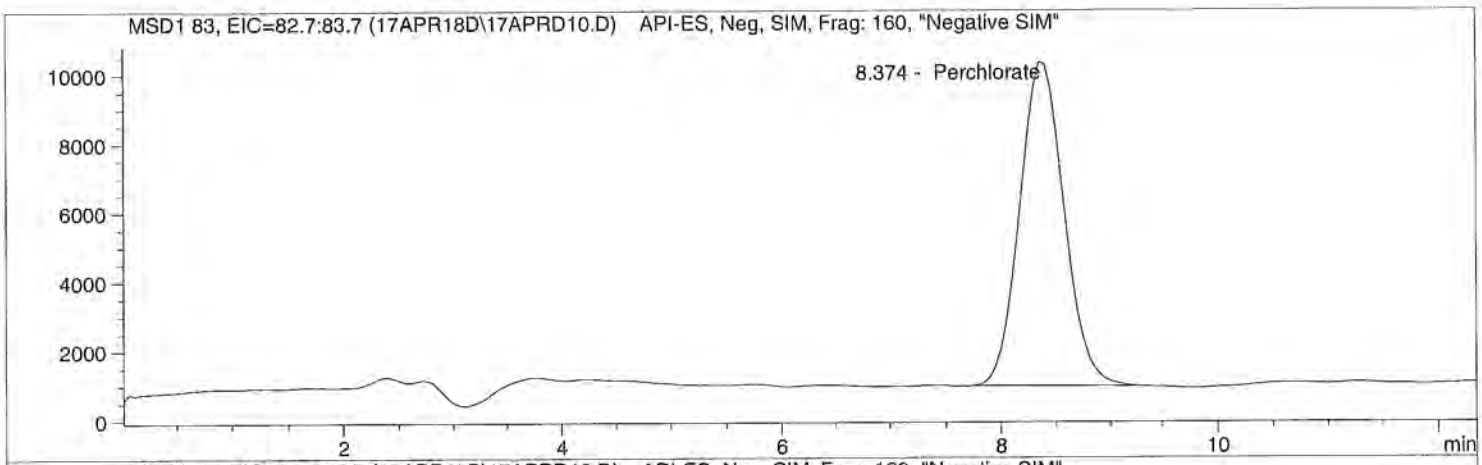
*** End of Report ***

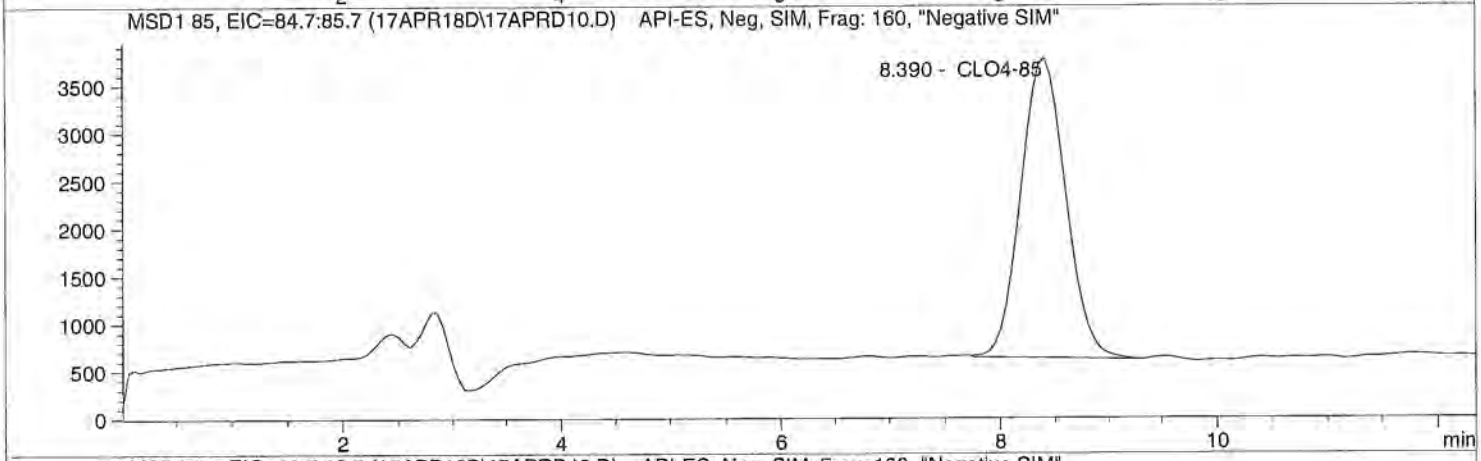
Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD10.D Sample Name: 1810427001

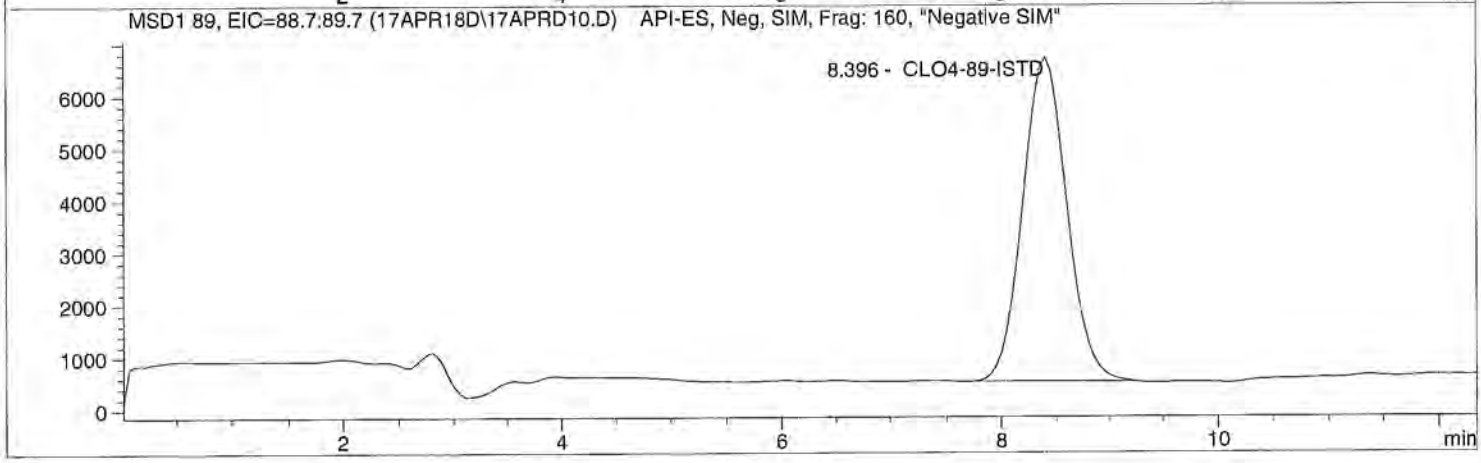
Injection Date:	4/17/2018 10:55:12	Seq Line:	10
Sample Name:	1810427001	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD10.D Sample Name: 1810427001

Injection Date:	4/17/2018 10:55:12	Seq Line:	10
Sample Name:	1810427001	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method:	CLO4-DOD.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed:	4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.374	BBA	263118.8	6.8720	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.390	BBA	89273.7	7.2248	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.396	PBA	173045.3	5.0000	CLO4-89-ISTD

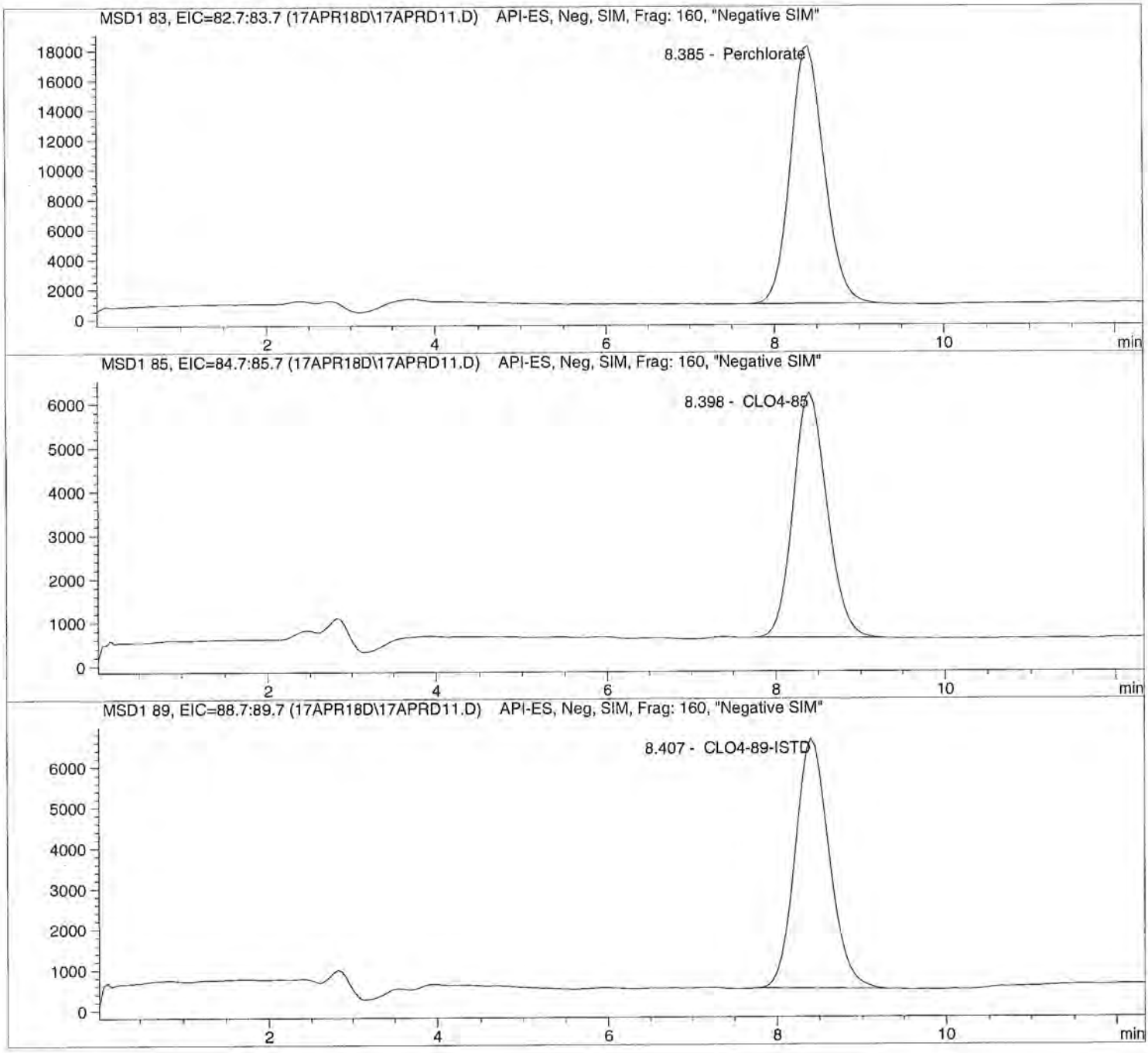
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD11.D Sample Name: 1810428001

Injection Date:	4/17/2018 11:09:17	Seq Line:	11
Sample Name:	1810428001	Location:	Vial 81
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD11.D Sample Name: 1810428001

Injection Date:	4/17/2018 11:09:17	Seq Line:	11
Sample Name:	1810428001	Location:	Vial 81
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.385	BBA	474912.1	12.1930	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.398	BBA	154421.9	12.4643	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.407	BBA	171054.8	5.0000	CLO4-89-ISTD

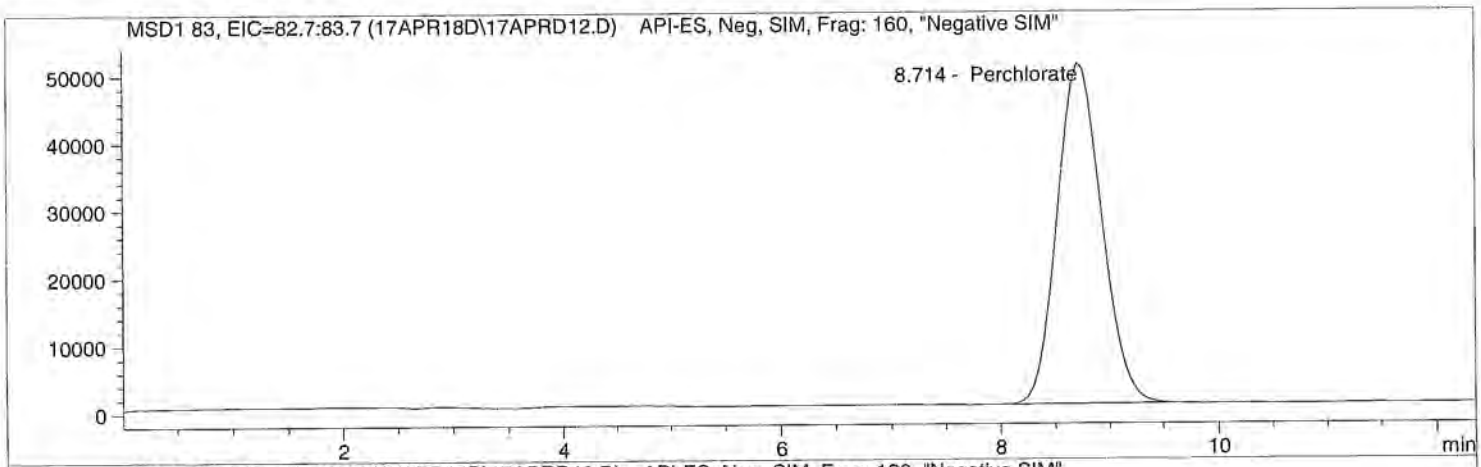
*** End of Report ***

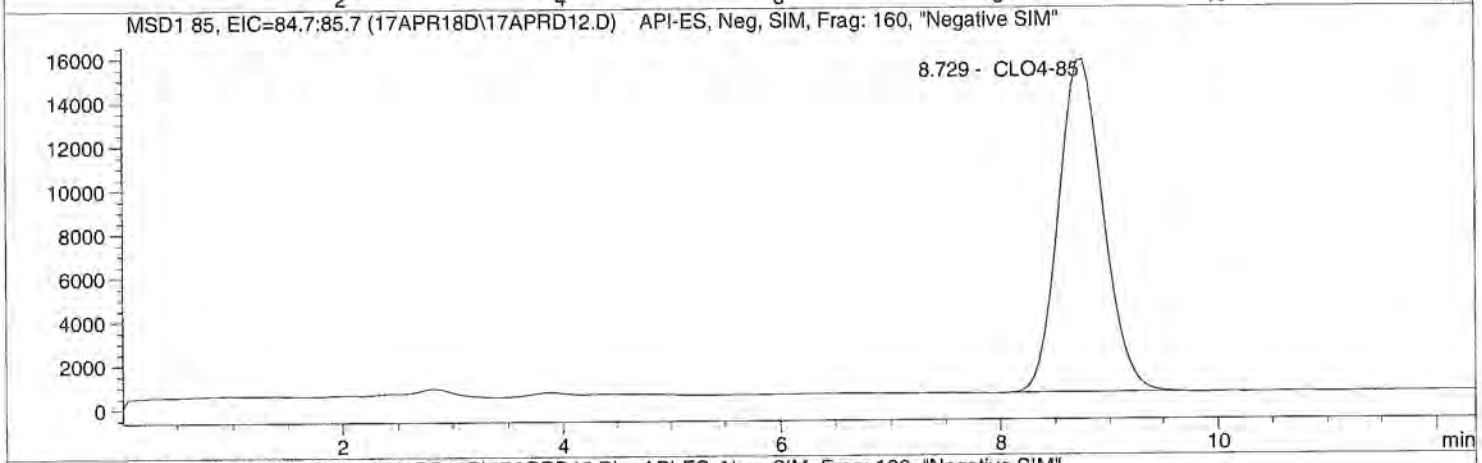
Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD12.D Sample Name: 596173 CCV@25

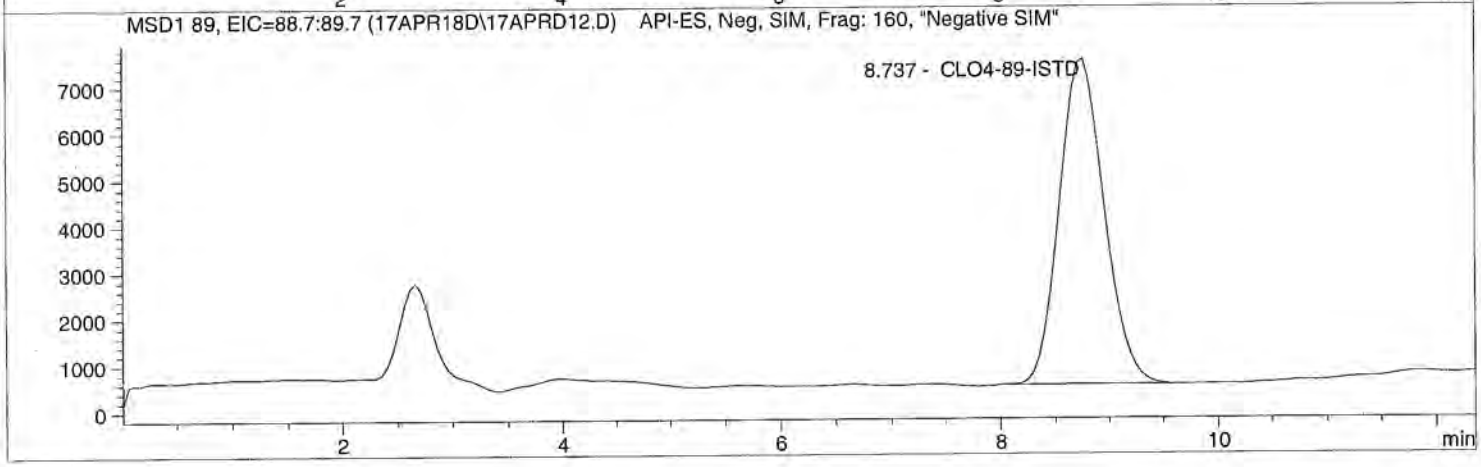
Injection Date:	4/17/2018 11:23:22	Seq Line:	12
Sample Name:	596173 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD12.D Sample Name: 596173 CCV@25

Injection Date:	4/17/2018 11:23:22	Seq Line:	12
Sample Name:	596173 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method:	CLO4-DOD.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed:	4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.714	BBA	1429500.2	28.2957	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.729	PBA	434571.0	27.8213	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.737	BBA	203222.0	5.0000	CLO4-89-ISTD

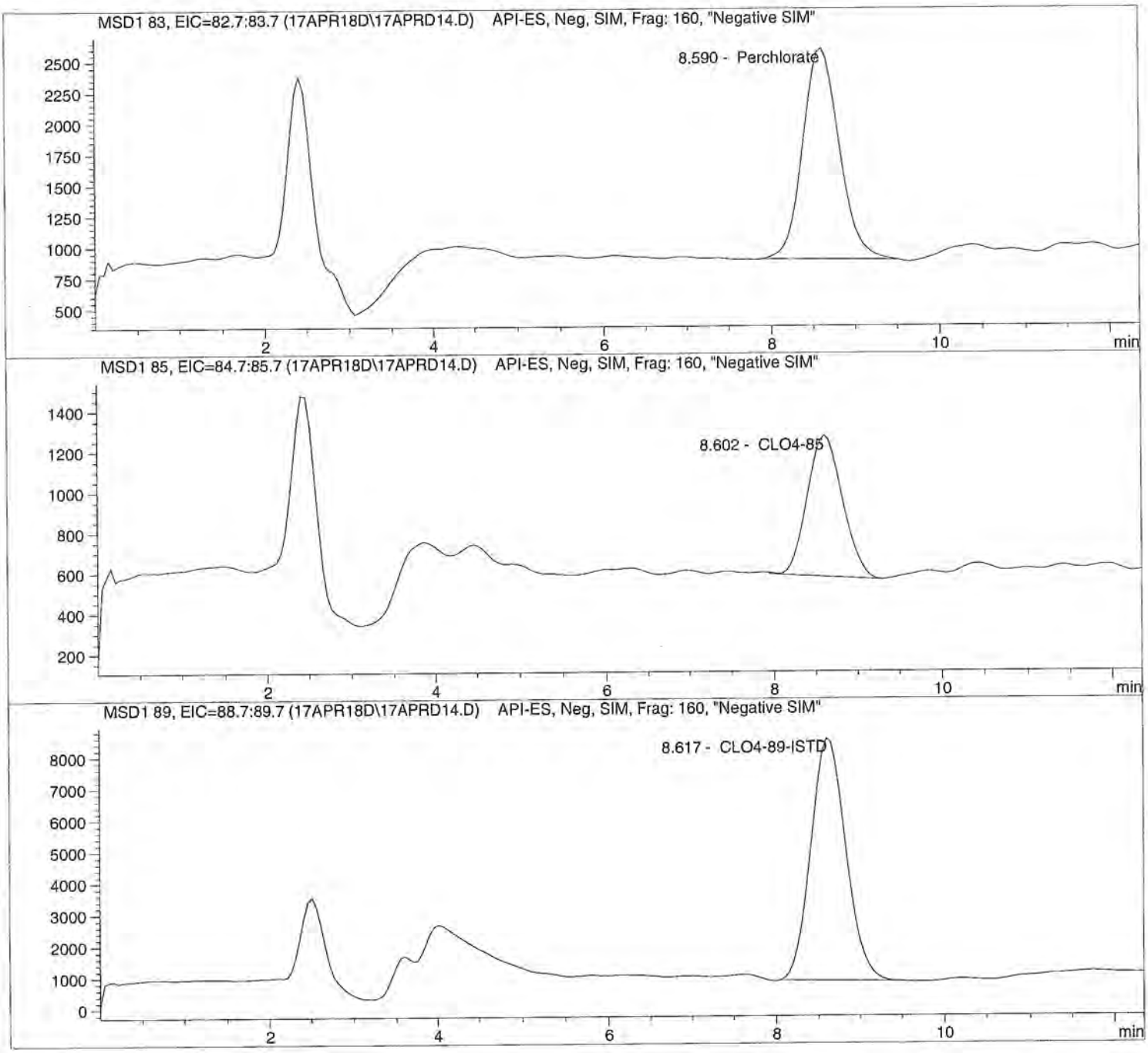
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD14.D Sample Name: 596174 LODV@1.

Injection Date:	4/17/2018 11:53:42	Seq Line:	14
Sample Name:	596174 LODV@1.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD14.D Sample Name: 596174 LODV@1.

Injection Date:	4/17/2018 11:53:42	Seq Line:	14
Sample Name:	596174 LODV@1.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.590	BBA	50957.5	1.0366	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.602	BBA	20234.2	1.1748	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.617	PBA	221977.6	5.0000	CLO4-89-ISTD

*** End of Report ***

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Initial Calibration

Batch Report: C:\HPCHEM\1\DATA\02APR18D\02APR18I.B

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

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

#*	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorate RT	Perchlorate Amount
*	ICAL1@ 1.0ug/L	Vial 71	1	Control	1	4.75217e4	8.805	1.04383
*	ICAL2@ 2.0ug/L	Vial 72	1	Control	2	7.57673e4	8.842	1.88584
*	ICAL3@ 5.0ug/L	Vial 73	1	Control	3	1.87507e5	8.869	5.06681
*	ICAL4@ 10.ug/L	Vial 74	1	Control	4	4.00349e5	8.838	9.89695
*	ICAL5@ 25.ug/L	Vial 75	1	Control	5	1.13339e6	8.844	25.44483
*	ICAL6@ 50.ug/L	Vial 76	1	Control	6	2.22347e6	8.787	49.47140
*	ICAL7@ 75.ug/L	Vial 77	1	Control	7	3.56432e6	8.816	75.20096
*	ICAL Verf@10ug/L	Vial 78	1	Control	8	3.99588e5	8.826	10.16984

#*	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
*	ICAL1@ 1.0ug/L	Vial 71	1	Control	1	1.48071e4	8.787	8.93940e-1
*	ICAL2@ 2.0ug/L	Vial 72	1	Control	2	2.78914e4	8.863	2.05665
*	ICAL3@ 5.0ug/L	Vial 73	1	Control	3	6.40466e4	8.880	5.32040
*	ICAL4@ 10.ug/L	Vial 74	1	Control	4	1.32002e5	8.855	10.20400
*	ICAL5@ 25.ug/L	Vial 75	1	Control	5	3.49808e5	8.856	25.27336
*	ICAL6@ 50.ug/L	Vial 76	1	Control	6	6.58628e5	8.801	48.60374
*	ICAL7@ 75.ug/L	Vial 77	1	Control	7	1.06294e6	8.833	75.70015
*	ICAL Verf@10ug/L	Vial 78	1	Control	8	1.27530e5	8.845	10.16575

#*	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-ISTD RT	CLO4-89-ISTD Amount
*	ICAL1@ 1.0ug/L	Vial 71	1	Control	1	2.05633e5	8.818	5.00000
*	ICAL2@ 2.0ug/L	Vial 72	1	Control	2	1.83981e5	8.862	5.00000
*	ICAL3@ 5.0ug/L	Vial 73	1	Control	3	1.68695e5	8.888	5.00000
*	ICAL4@ 10.ug/L	Vial 74	1	Control	4	1.79911e5	8.861	5.00000
*	ICAL5@ 25.ug/L	Vial 75	1	Control	5	1.81917e5	8.865	5.00000
*	ICAL6@ 50.ug/L	Vial 76	1	Control	6	1.62538e5	8.808	5.00000
*	ICAL7@ 75.ug/L	Vial 77	1	Control	7	1.52621e5	8.841	5.00000
*	ICAL Verf@10ug/L	Vial 78	1	Control	8	1.74490e5	8.846	5.00000

*** End of Report ***

Calibration Table

Perchlorate

Calib. Data Modified : 4/2/2018 11:32:41 AM

Calculate : Internal Standard
Based on : Peak Area

Rel. Reference Window : 20.000 %
Abs. Reference Window : 0.000 min
Rel. Non-ref. Window : 20.000 %
Abs. Non-ref. Window : 0.000 min
Use Multiplier & Dilution Factor with ISTDs
Uncalibrated Peaks : not reported
Partial Calibration : No recalibration if peaks missing

Curve Type : Quadratic (some peaks differ, see below)
Origin : Ignored (some peaks differ, see below)
Weight : Linear (Amnt) (some peaks differ, see below)

Recalibration Settings:
Average Response : Average all calibrations
Average Retention Time: Floating Average New 75%

Calibration Report Options :
Printout of recalibrations within a sequence:
Calibration Table after Recalibration
Normal Report after Recalibration
If the sequence is done with bracketing:
Results of first cycle (ending previous bracket)

Default Sample ISTD Information (if not set in sample table):

ISTD #	ISTD Amount	Name
1	5.00000	CLO4-89-ISTD

Signal 1: MSD1 83, EIC=82.7:83.7
Signal 2: MSD1 85, EIC=84.7:85.7
Signal 3: MSD1 89, EIC=88.7:89.7

RetTime [min]	Sig	Lvl	Amount	Area	Amt/Area	Ref	Grp	Name
8.740	1	1	1.00000	4.75217e4	2.10430e-5		1	Perchlorate
		2	2.00000	7.57673e4	2.63966e-5			
		3	5.00000	1.87507e5	2.66656e-5			
		4	10.00000	4.00349e5	2.49782e-5			
		5	25.00000	1.13339e6	2.20577e-5			
		6	50.00000	2.22347e6	2.24874e-5			
		7	75.00000	3.56432e6	2.10419e-5			
8.787	2	1	1.00000	1.48071e4	6.75351e-5		1	CLO4-85
		2	2.00000	2.78914e4	7.17068e-5			
		3	5.00000	6.40466e4	7.80681e-5			
		4	10.00000	1.32002e5	7.57564e-5			
		5	25.00000	3.49808e5	7.14678e-5			
		6	50.00000	6.58628e5	7.59154e-5			
		7	75.00000	1.06294e6	7.05587e-5			
8.818	3	1	5.00000	2.05633e5	2.43151e-5	+I1		CLO4-89-ISTD
		2	5.00000	1.83981e5	2.71766e-5			
		3	5.00000	1.68695e5	2.96393e-5			
		4	5.00000	1.79911e5	2.77915e-5			
		5	5.00000	1.81917e5	2.74851e-5			
		6	5.00000	1.62538e5	3.07621e-5			

Method C:\HPCHEM\1\METHODS\CLO4-DPR.M

RetTime [min]	Sig	Lvl	Amount	Area	Amt/Area	Ref	Grp	Name
		7	5.00000	1.52621e5	3.27608e-5			

More compound-specific settings:

Compound: Perchlorate
- Time Window : From 6.650 min To 10.650 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 0.5
  - Level 3 : 0.2
  - Level 4 : 0.1
  - Level 5 : 0.04
  - Level 6 : 0.02
  - Level 7 : 0.013333

Compound: CLO4-85
- Time Window : From 6.682 min To 10.682 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 0.5
  - Level 3 : 0.2
  - Level 4 : 0.1
  - Level 5 : 0.04
  - Level 6 : 0.02
  - Level 7 : 0.013333

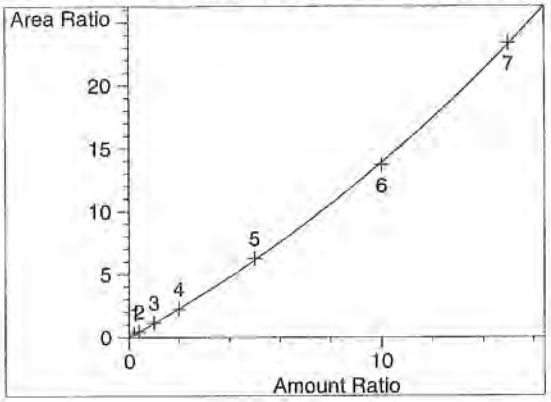
Compound: CLO4-89-ISTD
- Time Window : From 6.711 min To 10.711 min
- Curve Type : Linear
- Origin : Included
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 1
  - Level 3 : 1
  - Level 4 : 1
  - Level 5 : 1
  - Level 6 : 1
  - Level 7 : 1

Peak Sum Table

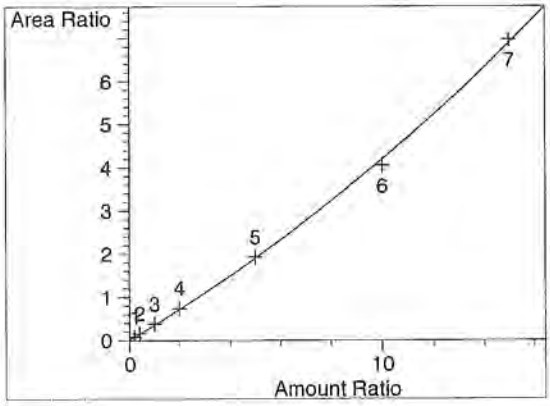
No Entries in table

Method C:\HPCHEM\1\METHODS\CLO4-DPR.M

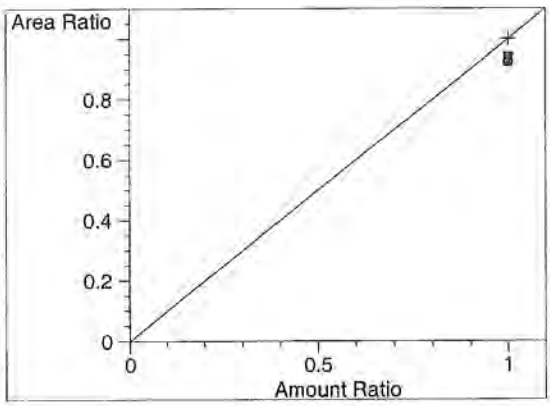
Calibration Curves



Perchlorate at exp. RT: 8.740
MSD1 83, EIC=82.7:83.7
Correlation: 0.99992
Residual Std. Dev.: 0.10616
Formula: $y = ax^2 + bx + c$
a: 3.31374e-2
b: 1.05374
c: 9.66975e-3
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.5
Level 3 : 0.2
Level 4 : 0.1
Level 5 : 0.04
Level 6 : 0.02
Level 7 : 0.013333



CLO4-85 at exp. RT: 8.787
MSD1 85, EIC=84.7:85.7
Correlation: 0.99968
Residual Std. Dev.: 0.07365
Formula: $y = ax^2 + bx + c$
a: 8.04074e-3
b: 3.37521e-1
c: 1.14057e-2
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.5
Level 3 : 0.2
Level 4 : 0.1
Level 5 : 0.04
Level 6 : 0.02
Level 7 : 0.013333



CLO4-89-ISTD at exp. RT: 8.818
MSD1 89, EIC=88.7:89.7
Correlation: 1.00000
Residual Std. Dev.: 0.00000
Formula: $y = mx + b$
m: 1.00000
b: 0.00000
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 1
Level 3 : 1
Level 4 : 1
Level 5 : 1
Level 6 : 1
Level 7 : 1

Sequence: C:\HPCHEM\1\SEQUENCE\CLO4\2018\APR\02APR18D.S

Sequence Table:

Method and Injection Info Part:

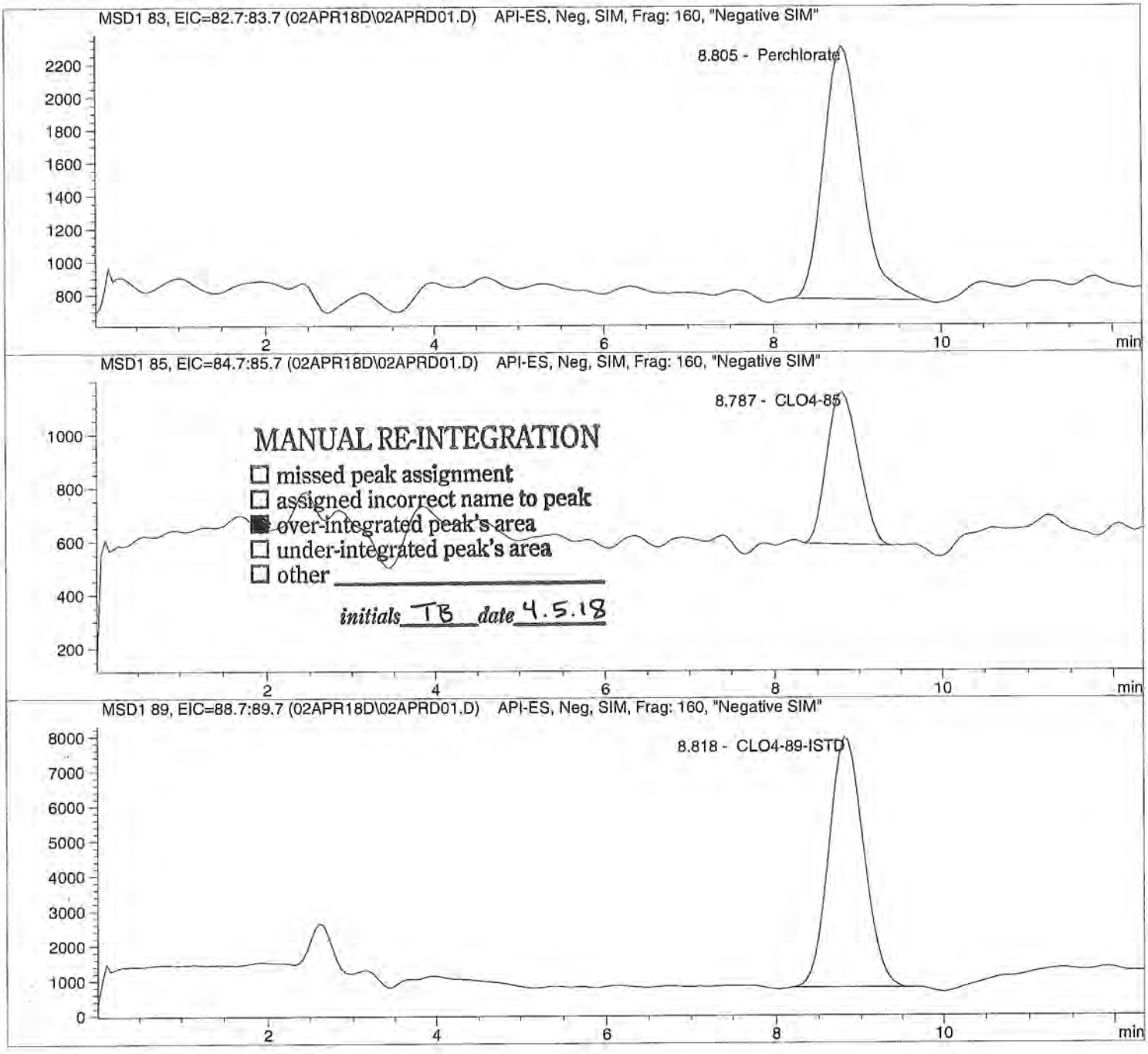
Line	Location	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	ICAL1@ 1.0ug/L	CLO4-DOD	1	Ctrl Samp		
2	Vial 72	ICAL2@ 2.0ug/L	CLO4-DOD	1	Ctrl Samp		
3	Vial 73	ICAL3@ 5.0ug/L	CLO4-DOD	1	Ctrl Samp		
4	Vial 74	ICAL4@ 10.ug/L	CLO4-DOD	1	Ctrl Samp		
5	Vial 75	ICAL5@ 25.ug/L	CLO4-DOD	1	Ctrl Samp		
6	Vial 76	ICAL6@ 50.ug/L	CLO4-DOD	1	Ctrl Samp		
7	Vial 77	ICAL7@ 75.ug/L	CLO4-DOD	1	Ctrl Samp		
8	Vial 78	ICAL Verf@10ug/L	CLO4-DOD	1	Ctrl Samp		

Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD01.D Sample Name: ICAL1@ 1.0ug/L

Injection Date:	4/02/2018 09:08:19	Seq Line:	1
Sample Name:	ICAL1@ 1.0ug/L	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD01.D Sample Name: ICAL1@ 1.0ug/L

Injection Date:	4/02/2018 09:08:19	Seq Line:	1
Sample Name:	ICAL1@ 1.0ug/L	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.805	PBA	47521.7	1.0438	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.787	MM	14807.1	0.8939	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.818	PBA	205633.2	5.0000	CLO4-89-ISTD

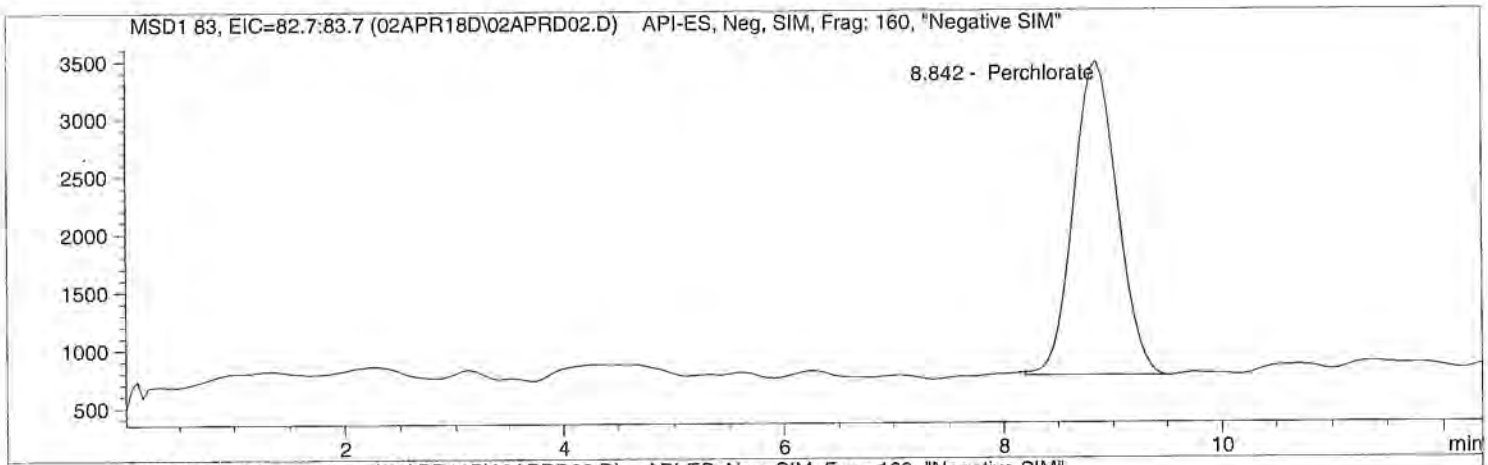
*** End of Report ***

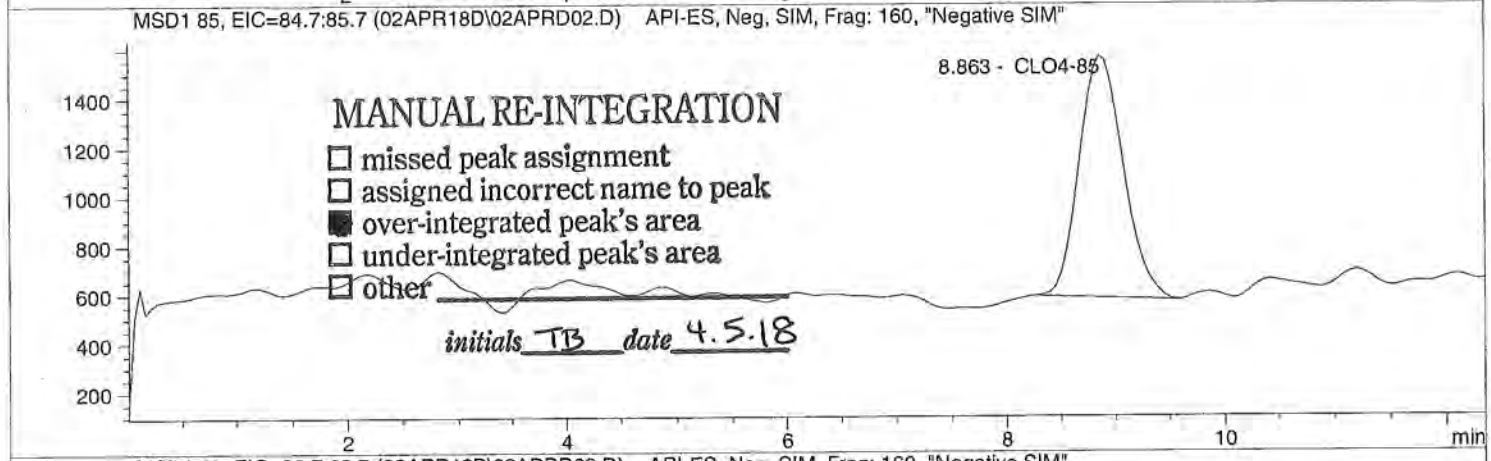
Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD02.D Sample Name: ICAL2@ 2.0ug/L

Injection Date:	4/02/2018 09:22:28	Seq Line:	2
Sample Name:	ICAL2@ 2.0ug/L	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

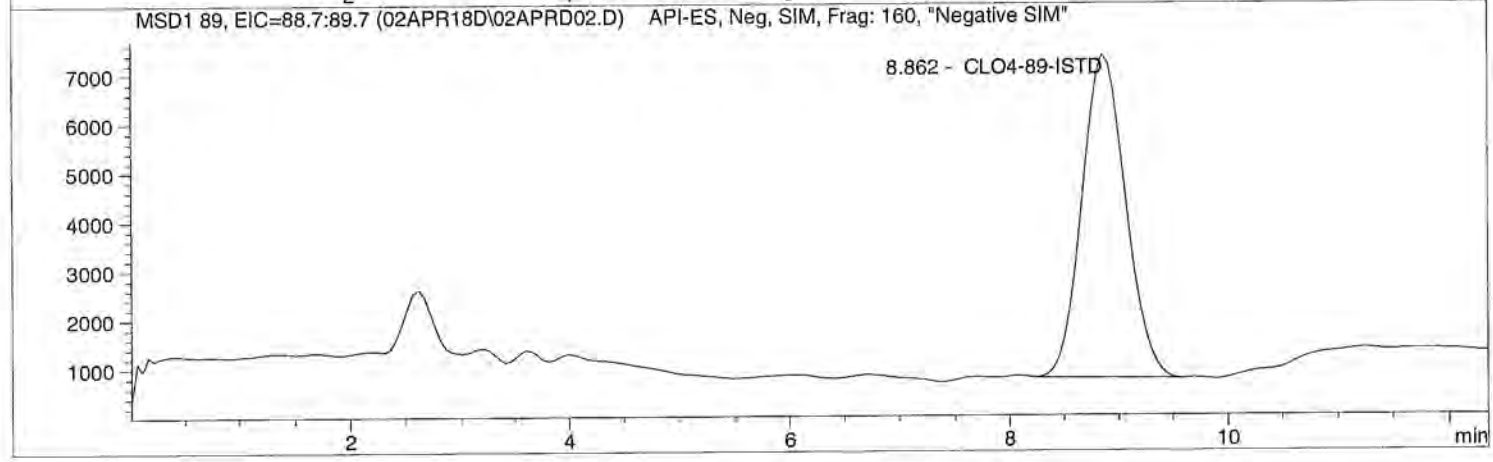
Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis





MANUAL RE-INTEGRATION
☐ missed peak assignment
☐ assigned incorrect name to peak
■ over-integrated peak's area
☐ under-integrated peak's area
☐ other _____
initials TB *date* 4.5.18



Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD02.D Sample Name: ICAL2@ 2.0ug/L

Injection Date:	4/02/2018 09:22:28	Seq Line:	2
Sample Name:	ICAL2@ 2.0ug/L	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	2.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.842	BBA	75767.3	1.8858	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.863	MM	27891.4	2.0567	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.862	BBA	183981.5	5.0000	CLO4-89-ISTD

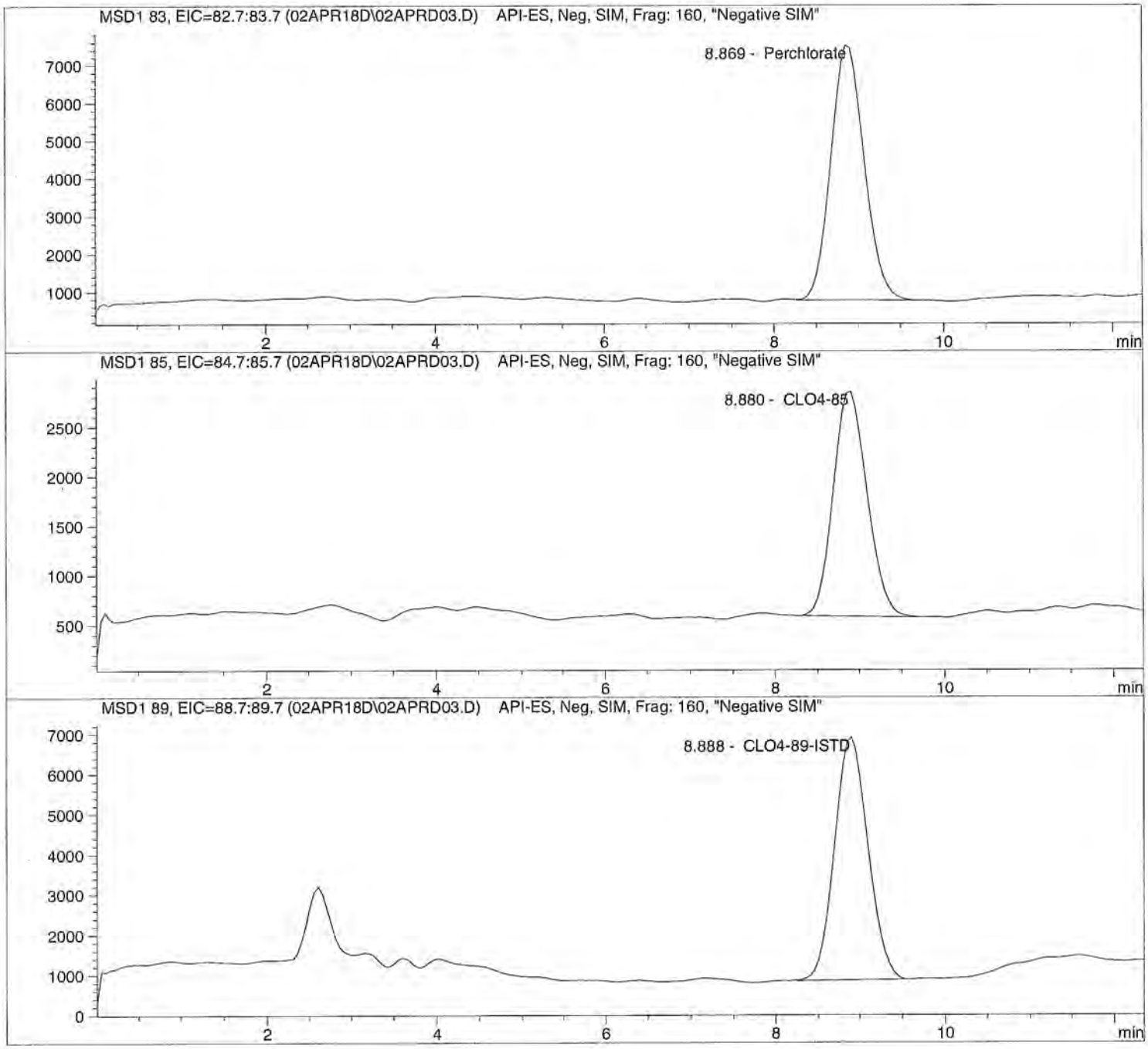
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD03.D Sample Name: ICAL3@ 5.0ug/L

Injection Date:	4/02/2018 09:36:38	Seq Line:	3
Sample Name:	ICAL3@ 5.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD03.D Sample Name: ICAL3@ 5.0ug/L

Injection Date:	4/02/2018 09:36:38	Seq Line:	3
Sample Name:	ICAL3@ 5.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	5.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.869	BBA	187507.2	5.0668	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.880	PBA	64046.6	5.3204	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.888	BBA	168695.0	5.0000	CLO4-89-ISTD

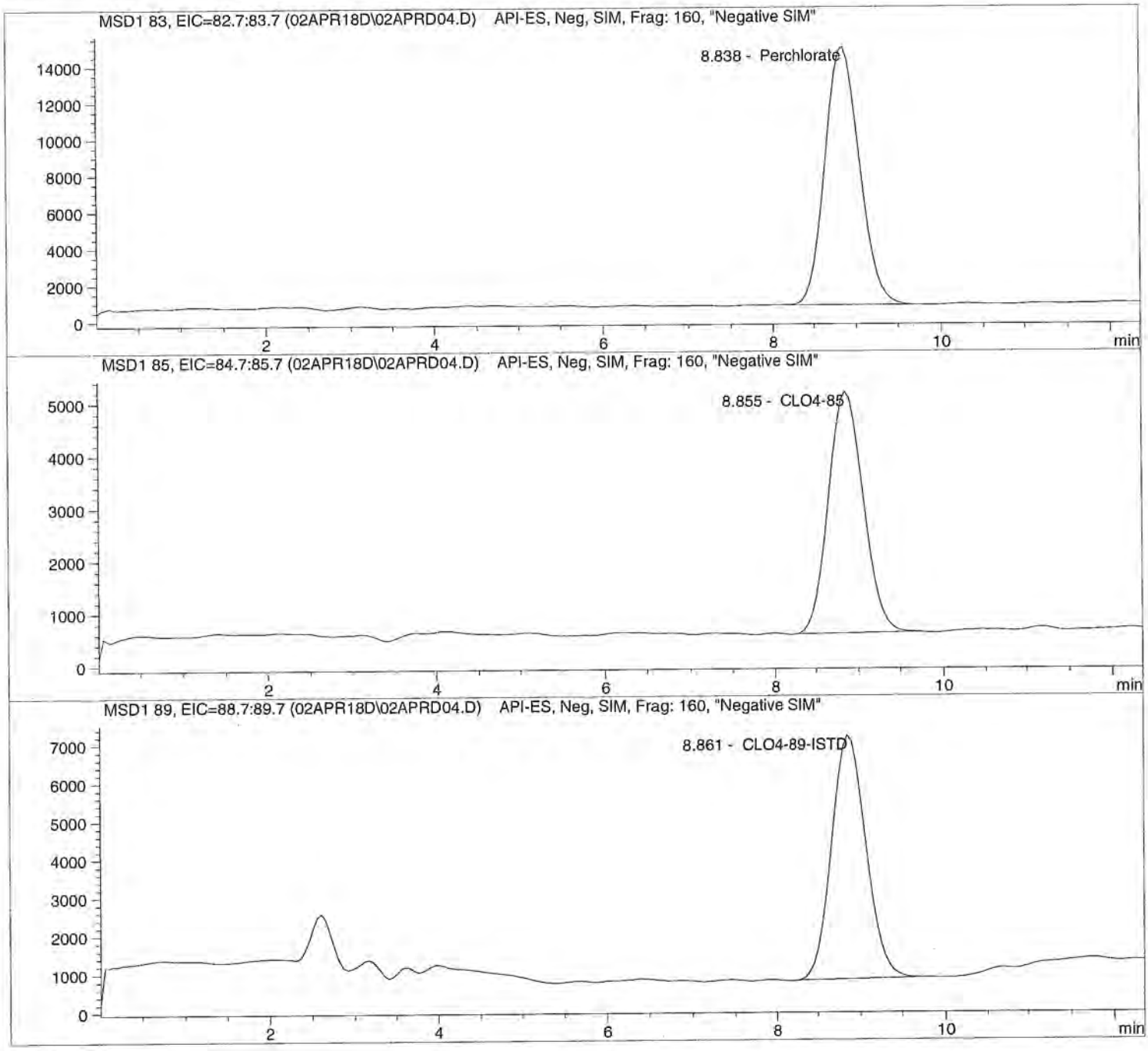
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD04.D Sample Name: ICAL4@ 10.ug/L

Injection Date:	4/02/2018 09:50:54	Seq Line:	4
Sample Name:	ICAL4@ 10.ug/L	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD04.D Sample Name: ICAL4@ 10.ug/L

Injection Date:	4/02/2018 09:50:54	Seq Line:	4
Sample Name:	ICAL4@ 10.ug/L	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	10.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.838	BBA	400349.0	9.8969	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.855	PBA	132002.1	10.2040	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.861	PBA	179911.2	5.0000	CLO4-89-ISTD

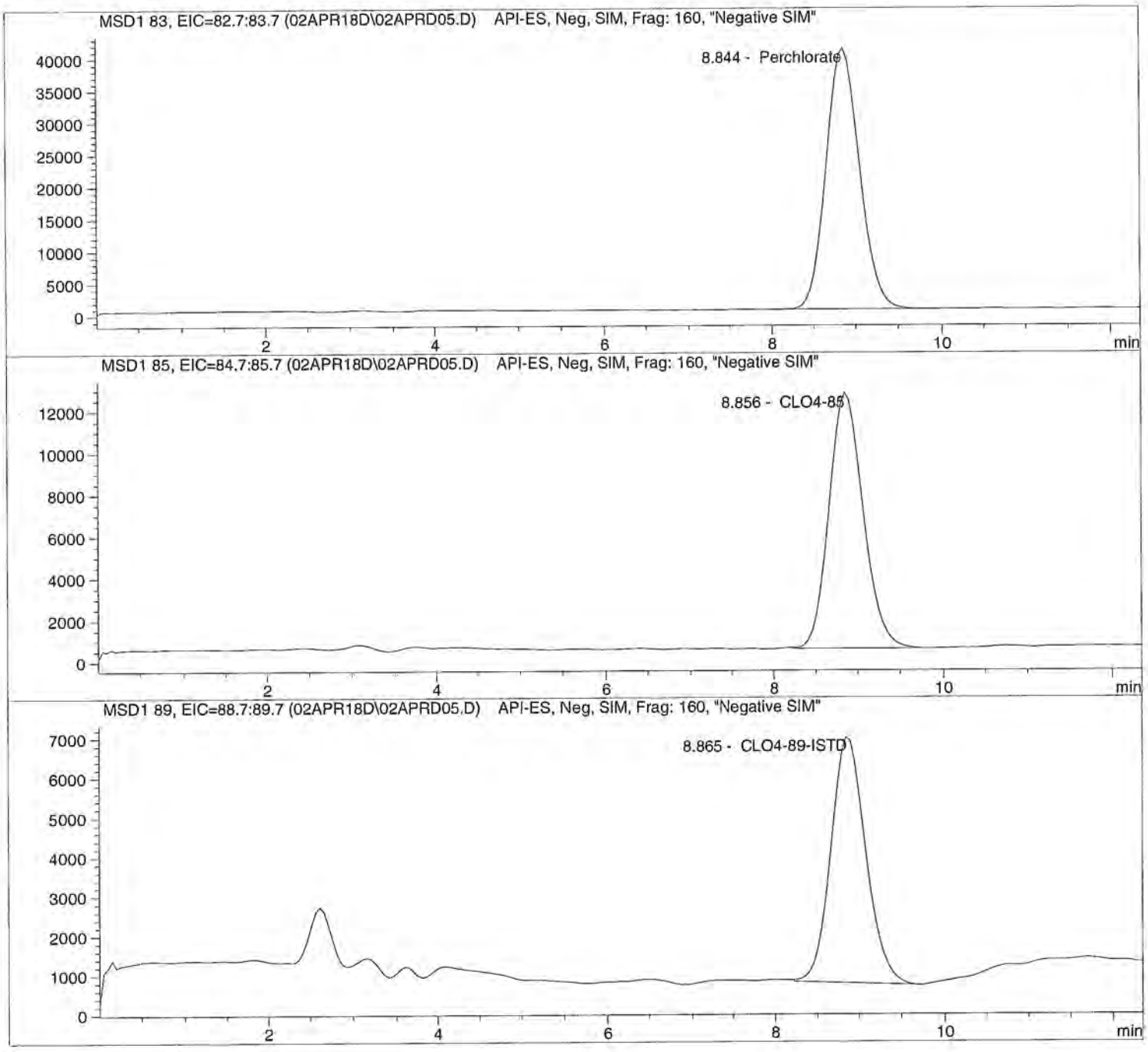
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD05.D Sample Name: ICAL5@ 25.ug/L

Injection Date:	4/02/2018 10:05:03	Seq Line:	5
Sample Name:	ICAL5@ 25.ug/L	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD05.D Sample Name: ICAL5@ 25.ug/L

Injection Date:	4/02/2018 10:05:03	Seq Line:	5
Sample Name:	ICAL5@ 25.ug/L	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.844	BBA	1133393.5	25.4448	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.856	BBA	349808.1	25.2734	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.865	BBA	181916.8	5.0000	CLO4-89-ISTD

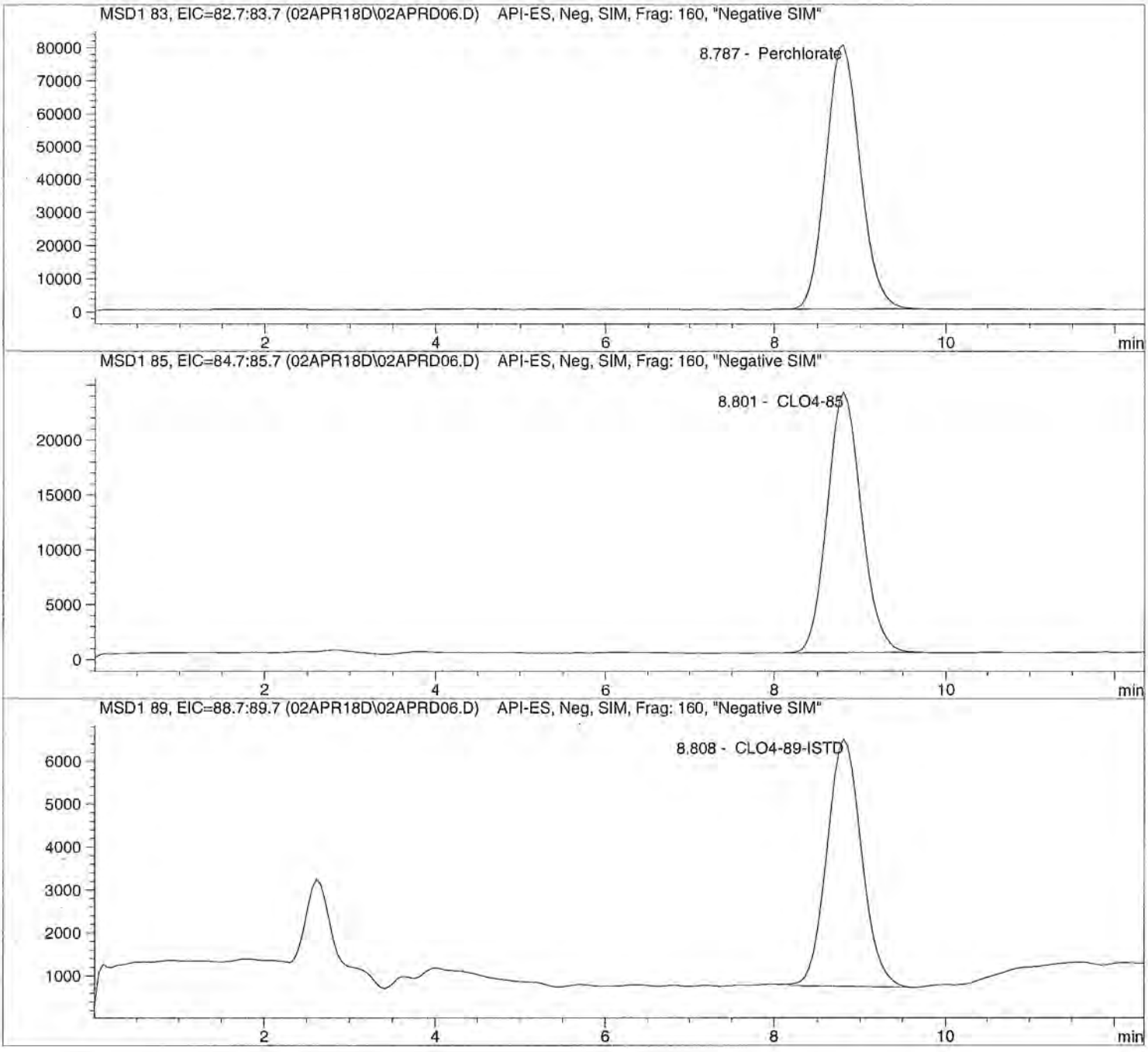
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD06.D Sample Name: ICAL6@ 50.ug/L

Injection Date:	4/02/2018 10:19:12	Seq Line:	6
Sample Name:	ICAL6@ 50.ug/L	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD06.D Sample Name: ICAL6@ 50.ug/L

Injection Date:	4/02/2018 10:19:12	Seq Line:	6
Sample Name:	ICAL6@ 50.ug/L	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method:	CLO4-DOD.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed:	4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	50.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.787	BBA	2223467.0	49.4714	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.801	BBA	658628.2	48.6037	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.808	BBA	162537.8	5.0000	CLO4-89-ISTD

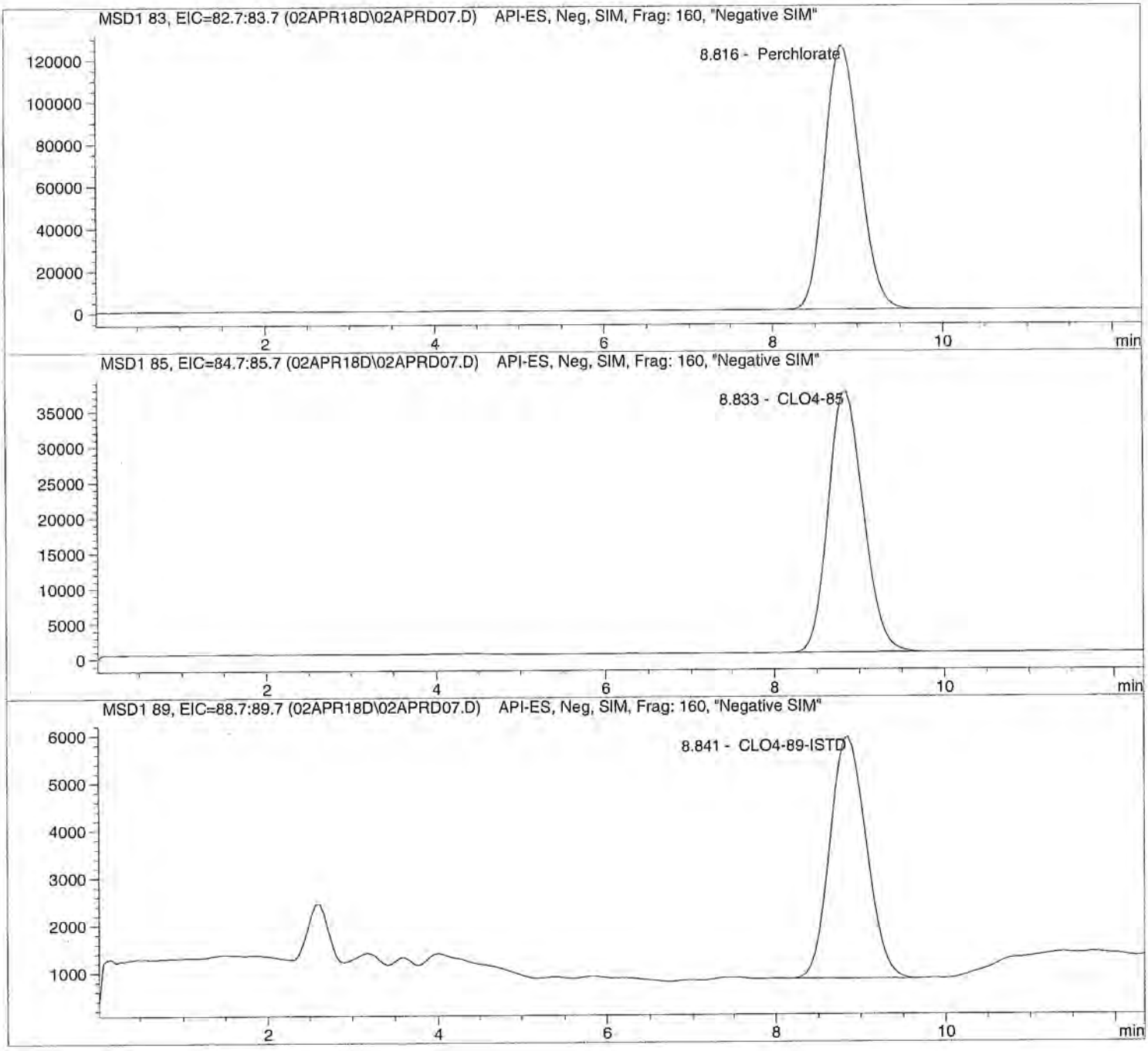
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD07.D Sample Name: ICAL7@ 75.ug/L

Injection Date:	4/02/2018 10:33:24	Seq Line:	7
Sample Name:	ICAL7@ 75.ug/L	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD07.D Sample Name: ICAL7@ 75.ug/L

Injection Date:	4/02/2018 10:33:24	Seq Line:	7
Sample Name:	ICAL7@ 75.ug/L	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	75.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.816	PBA	3564322.2	75.2010	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.833	BBA	1062944.2	75.7001	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.841	PBA	152621.4	5.0000	CLO4-89-ISTD

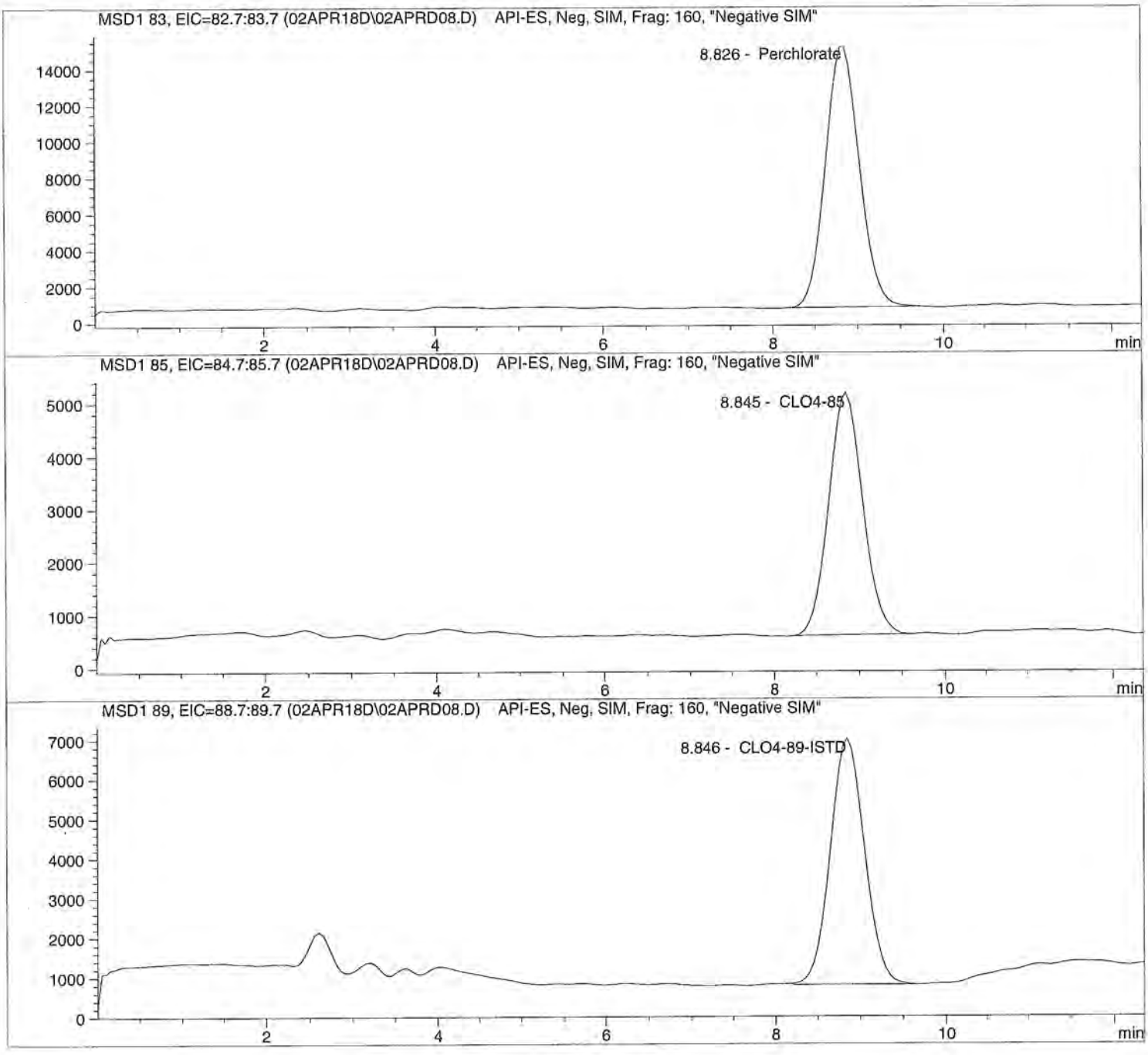
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD08.D Sample Name: ICAL Verf@10ug/L

Injection Date:	4/02/2018 10:47:33	Seq Line:	8
Sample Name:	ICAL Verf@10ug/L	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD08.D Sample Name: ICAL Verf@10ug/L

Injection Date:	4/02/2018 10:47:33	Seq Line:	8
Sample Name:	ICAL Verf@10ug/L	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	10.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.826	BBA	399587.8	10.1698	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.845	PBA	127530.4	10.1657	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.846	BBA	174490.2	5.0000	CLO4-89-ISTD

*** End of Report ***

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

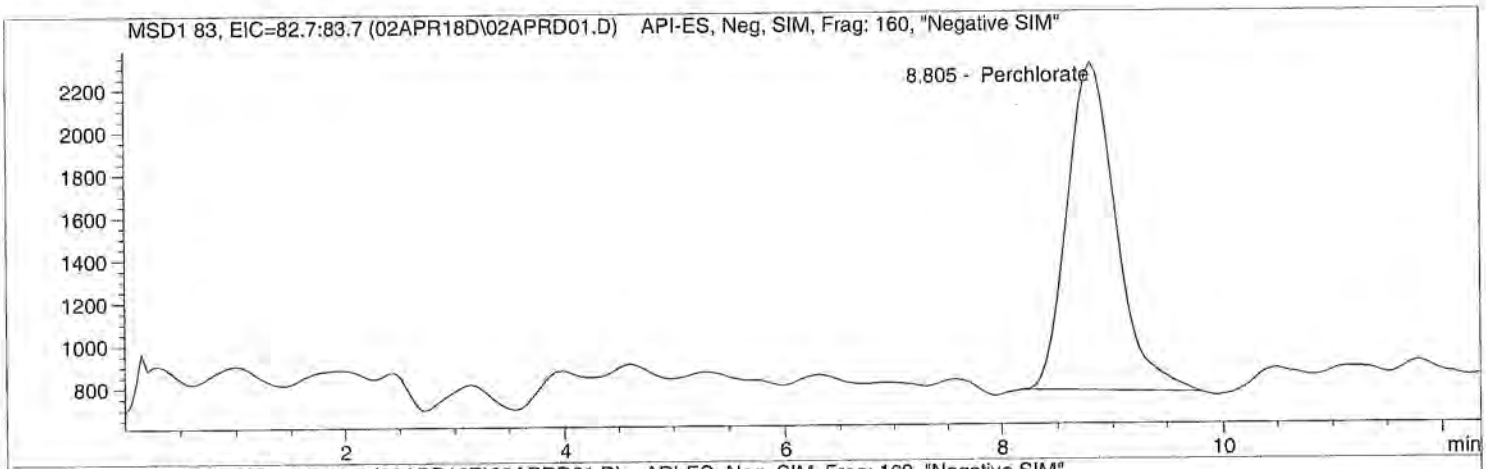
Unmodified

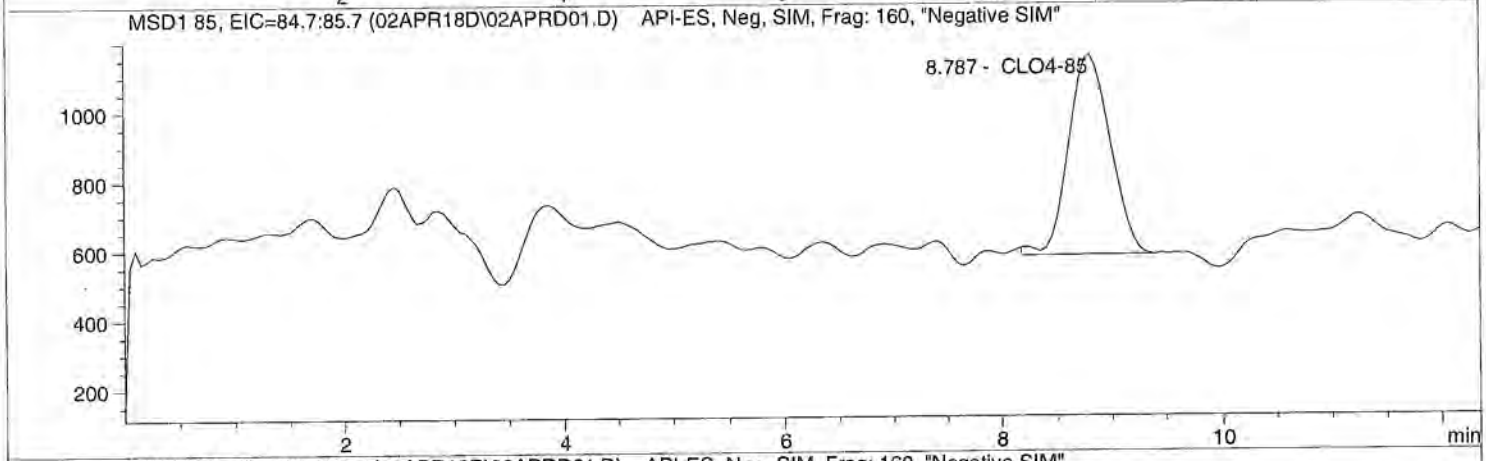
Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD01.D Sample Name: ICAL1@ 1.0ug/L

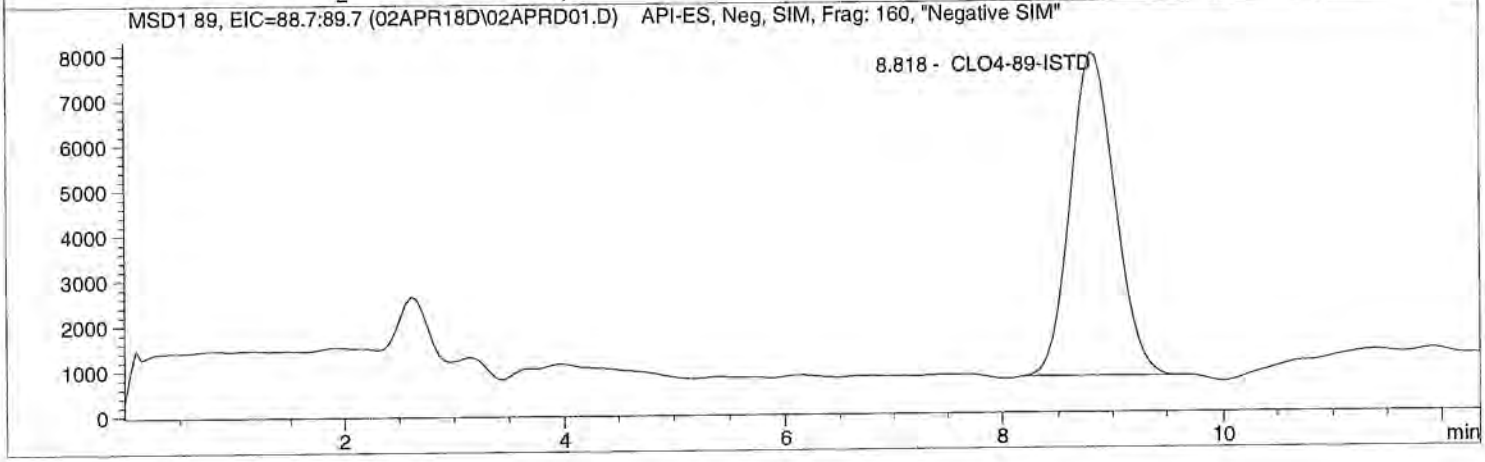
Injection Date:	4/02/2018 09:08:19	Seq Line:	1
Sample Name:	ICAL1@ 1.0ug/L	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD01.D Sample Name: ICAL1@ 1.0ug/L

Injection Date:	4/02/2018 09:08:19	Seq Line:	1
Sample Name:	ICAL1@ 1.0ug/L	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.805	PBA	47521.7	1.0438	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.787	BBA	15364.8	0.9338	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.818	PBA	205633.2	5.0000	CLO4-89-ISTD

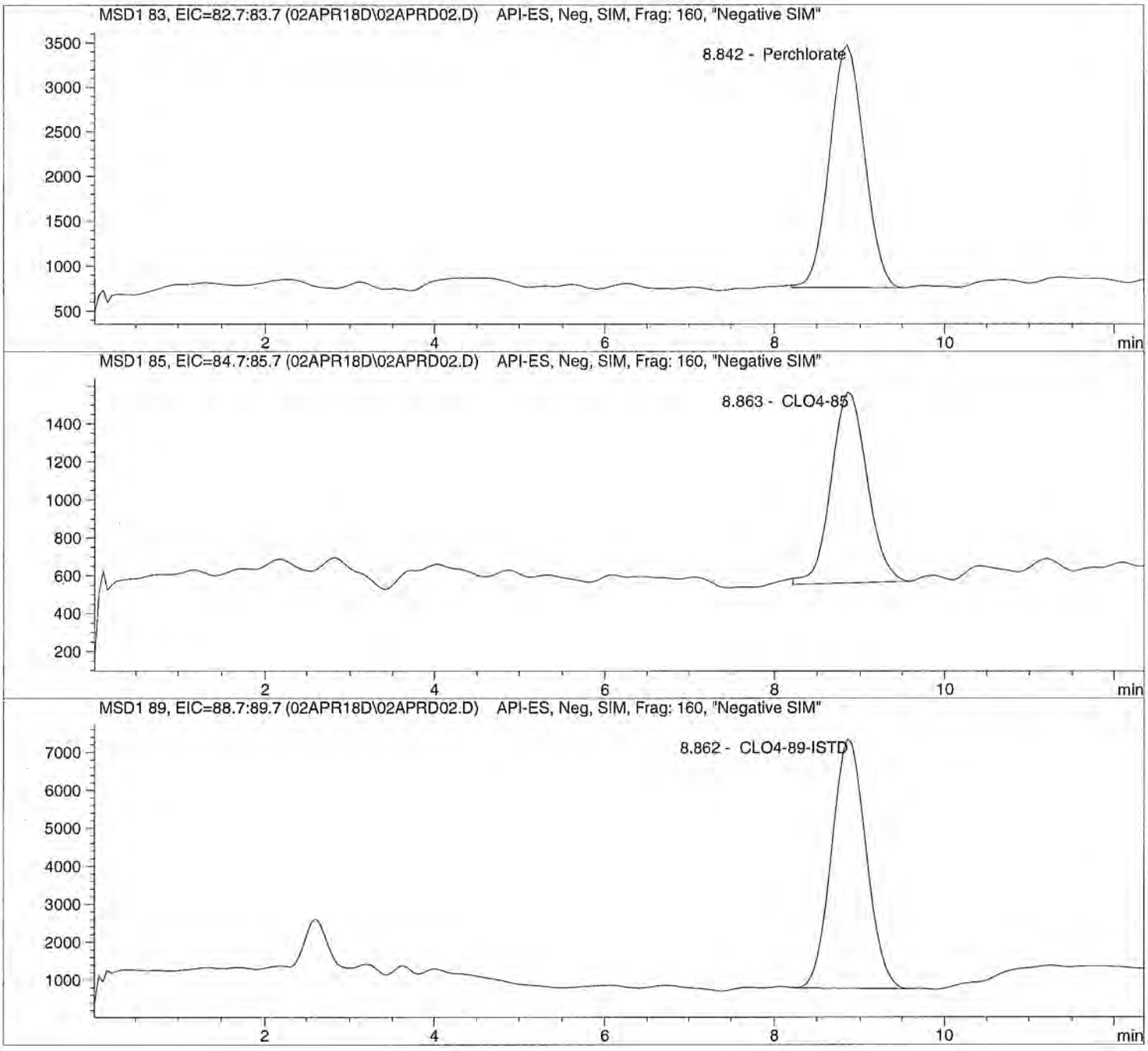
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD02.D Sample Name: ICAL2@ 2.0ug/L

Injection Date:	4/02/2018 09:22:28	Seq Line:	2
Sample Name:	ICAL2@ 2.0ug/L	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD02.D Sample Name: ICAL2@ 2.0ug/L

Injection Date:	4/02/2018 09:22:28	Seq Line:	2
Sample Name:	ICAL2@ 2.0ug/L	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	2.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.842	BBA	75767.3	1.8858	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.863	BBA	29265.6	2.1651	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.862	BBA	183981.5	5.0000	CLO4-89-ISTD

*** End of Report ***

10450 Stancliff Rd. Suite 210
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www.alsglobal.com

WorkOrder: HS18040596

Longhorn GW Treatment Plant Monthly Influent Samples

Bhate Environmental Associates, Inc.

Marcia Olive
445 Union Blvd Ste 129
Lakewood CO 80228

04-May-2018

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

April 19, 2018

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

Work Order: **HS18040596**

Laboratory Results for: **Longhorn GW Treatment Plant Monthly Influent Samples**

Dear Marcia,

ALS Environmental received 1 sample(s) on Apr 12, 2018 for the analysis presented in the following report.

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

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

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

Sincerely,

Generated By: JUMOKE.LAWAL
RJ Modashia
Project Manager

ALS Group Houston, Corp Date: 19-Apr-18

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Influent Samples
Work Order: HS18040596

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS18040596-01	LH18/24-SP140_041118	Water		11-Apr-2018 14:00	12-Apr-2018 08:50	☐

ALS Group Houston, Corp Date: 19-Apr-18

Client: Bhate Environmental Associates, Inc. **CASE NARRATIVE**
Project: Longhorn GW Treatment Plant Monthly Influent Samples
Work Order:

Work Order Comments

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

Metals by Method SW6020

Batch ID: 127364

- MS and MSD are for an unrelated sample

WetChemistry by Method SW7196

Batch ID: R314568

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

ALS Group Houston, Corp Date: 19-Apr-18

Client: Bhate Environmental Associates, Inc.
ANALYTICAL REPORT
Project: Longhorn GW Treatment Plant Monthly Influent Samples
WorkOrder:HS18040596
Sample ID: LH18/24-SP140_041118
Lab ID:HS18040596-01
Collection Date: 11-Apr-2018 14:00
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 16-Apr-2018		Analyst: JDE
Selenium	0.00200	U	0.00110	0.00200	0.00200	mg/L	1	17-Apr-2018 10:34
Silver	0.00100	U	0.000200	0.00100	0.00200	mg/L	1	17-Apr-2018 10:34
HEXAVALENT CHROMIUM BY SW7196A		**Method:SW7196**				Prep:SW7196		Analyst: JHD
Chromium, Hexavalent	0.0100	U	0.00600	0.0100	0.0100	mg/L	1	12-Apr-2018 13:20
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	19-Apr-2018 14:00

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

ALS Group Houston, Corp Date: 19-Apr-18

WEIGHT LOG

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Influent Samples
WorkOrder: HS18040596

Batch ID: 127364 **Method:** ICP-MS METALS BY SW6020A **Prep:** 3010A

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS18040596-01	1	10	10 (mL)	1

ALS Group Houston, Corp Date: 19-Apr-18

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Influent Samples
WorkOrder: HS18040596

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID 127364	**Test Name :** ICP-MS METALS BY SW6020A			**Matrix:** Water		
HS18040596-01	LH18/24-SP140_041118	11 Apr 2018 14:00		16 Apr 2018 11:14	17 Apr 2018 10:34	1
Batch ID R314568	**Test Name :** HEXAVALENT CHROMIUM BY SW7196A			**Matrix:** Water		
HS18040596-01	LH18/24-SP140_041118	11 Apr 2018 14:00			12 Apr 2018 13:20	1
Batch ID R314688	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)			**Matrix:** Water		
HS18040596-01	LH18/24-SP140_041118	11 Apr 2018 14:00			19 Apr 2018 14:00	1

ALS Group Houston, Corp Date: 19-Apr-18

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Influent Samples
WorkOrder: HS18040596

QC BATCH REPORT

Batch ID: 127364 **Instrument: ICPMS05** **Method: SW6020**

MBLK Sample ID: **MBLK-127364** Units: **mg/L** Analysis Date: **17-Apr-2018 10:11**
Client ID: Run ID: **ICPMS05_314436** SeqNo: **4521824** PrepDate: **16-Apr-2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Selenium	0.00200	0.00200								U
Silver	0.00100	0.00200								U

LCS Sample ID: **LCS-127364** Units: **mg/L** Analysis Date: **17-Apr-2018 10:13**
Client ID: Run ID: **ICPMS05_314436** SeqNo: **4521825** PrepDate: **16-Apr-2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Selenium	0.04738	0.00200	0.05	0	94.8	80 - 120				
Silver	0.04454	0.00200	0.05	0	89.1	80 - 120				

MS Sample ID: **HS18040243-01MS** Units: **mg/L** Analysis Date: **17-Apr-2018 10:20**
Client ID: Run ID: **ICPMS05_314436** SeqNo: **4521828** PrepDate: **16-Apr-2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Selenium	0.04455	0.00200	0.05	0.001069	87.0	80 - 120				
Silver	0.04275	0.00200	0.05	0.000067	85.4	80 - 120				

MSD Sample ID: **HS18040243-01MSD** Units: **mg/L** Analysis Date: **17-Apr-2018 10:22**
Client ID: Run ID: **ICPMS05_314436** SeqNo: **4521829** PrepDate: **16-Apr-2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Selenium	0.04898	0.00200	0.05	0.001069	95.8	80 - 120	0.04455	9.46	20	
Silver	0.0452	0.00200	0.05	0.000067	90.3	80 - 120	0.04275	5.57	20	

PDS Sample ID: **HS18040243-01PDS** Units: **mg/L** Analysis Date: **17-Apr-2018 10:28**
Client ID: Run ID: **ICPMS05_314436** SeqNo: **4521832** PrepDate: **16-Apr-2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Selenium	0.09914	0.00200	0.1	0.001069	98.1	75 - 125				
Silver	0.08958	0.00200	0.1	0.000067	89.5	75 - 125				

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

ALS Group Houston, Corp Date: 19-Apr-18

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Influent Samples
WorkOrder: HS18040596

QC BATCH REPORT

Batch ID: 127364 **Instrument: ICPMS05** **Method: SW6020**

SD Sample ID: **HS18040243-01SD** Units: **mg/L** Analysis Date: **17-Apr-2018 10:18**
Client ID: Run ID: **ICPMS05_314436** SeqNo: **4521827** PrepDate: **16-Apr-2018** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Selenium	0.0100	0.0100					0.001069	0	10	U
Silver	0.00500	0.0100					0.000067	0	10	U

The following samples were analyzed in this batch: HS18040596-01

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

ALS Group Houston, Corp Date: 19-Apr-18

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Influent Samples
WorkOrder: HS18040596

QC BATCH REPORT

Batch ID: R314568 **Instrument: UV-2450** **Method: SW7196**

MBLK Sample ID: **MBLK-314568** Units: **mg/L** Analysis Date: **12-Apr-2018 13:20**
Client ID: Run ID: **UV-2450_314568** SeqNo: **4523697** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent	0.0100	0.0100								U

LCS Sample ID: **LCS-314568** Units: **mg/L** Analysis Date: **12-Apr-2018 13:20**
Client ID: Run ID: **UV-2450_314568** SeqNo: **4523698** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent	0.247	0.0100	0.25	0	98.8	80 - 120				

MS Sample ID: **HS18040507-03MS** Units: **mg/L** Analysis Date: **12-Apr-2018 13:20**
Client ID: Run ID: **UV-2450_314568** SeqNo: **4523701** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent	0.274	0.0100	0.25	0.002	109	75 - 125				

MSD Sample ID: **HS18040507-03MSD** Units: **mg/L** Analysis Date: **12-Apr-2018 13:20**
Client ID: Run ID: **UV-2450_314568** SeqNo: **4523702** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent	0.275	0.0100	0.25	0.002	109	75 - 125	0.274	0.364	20	

The following samples were analyzed in this batch: HS18040596-01

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

ALS Group Houston, Corp Date: 19-Apr-18

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Influent Samples
WorkOrder: **HS18040596**

QUALIFIERS, ACRONYMS, UNITS

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

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

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
California	2919 2016-2018	31-Jul-2018
Illinois	004112	09-May-2018
Kentucky	123043	30-Apr-2018
North Dakota	R193 2017-2017	30-Apr-2018
Oklahoma	2017-088	31-Aug-2018
Texas	T104704231-17-19	30-Apr-2018
North Carolina	624-2018	31-Dec-2018
Louisiana	03087 2017-2018	30-Jun-2018
Arkansas	88-0356	27-Mar-2019

ALS Group Houston, Corp Date: 19-Apr-18

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Influent Samples
Work Order: HS18040596

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS18040596-01	LH18/24-SP140_041118	Login	4/12/2018 12:19:30 PM	JRM	Sub
HS18040596-01	LH18/24-SP140_041118	Login	4/12/2018 12:19:30 PM	JRM	WET292
HS18040596-01	LH18/24-SP140_041118	Login	4/12/2018 12:19:30 PM	JRM	MET009

Date: 19-Apr-18

Sample Receipt Checklist

Client Name: Bhate Environmental
Work Order: HS18040596
Date/Time Received: **12-Apr-2018 08:50**
Received by: **JRM**

Checklist completed by: *Jared R. Makan* eSignature — 12-Apr-2018 Date
Reviewed by: *RJ Modashia* eSignature — 12-Apr-2018 Date

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

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
TX1005 solids received in hermetically sealed vials?	Yes ☐	No ☐	N/A ☑
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	3.6c/3.1c UC/C	IR11	
Cooler(s)/Kit(s):	25303		
Date/Time sample(s) sent to storage:	04/12/2018 12:30		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

CHAIN OF CUSTODY

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

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

Project No.
NWO1312.0150.0
16.0001

Job:
GROUNDWATER TREATMENT PLANT MONTHLY INFLUENT SAMPLES

Prepared By:
Scott Beesinger

P.O. Number

Field Sample I.D.	Sample Matrix	Date / Time	MS / MSD	No. OF CONTAINERS	Analyses: SILVER & SELENIUM	Analyses: HEXAVALENT CHROMIUM	Analyses: PERCHLORATE	Remarks (Preservatives, etc.)	Lab I.D.#
LH18/24-SP140_041118	Water	04/11/18 / 14:00		1	X			HNO3	
LH18/24-SP140_041118	Water	04/11/18 / 14:00		2		X	X	NONE	

HS18040596

Bhate Environmental Associates, Inc.
ughorn GW Treatment Plant Monthly Influent Sample

Additional Remarks: **STANDARD TURN AROUND TIME**

Relinquished By:	Date	Time	Received By:	Date	Time	Relinquished By:	Date	Time	Received By:	Date	Time
Scott Beesinger	04/11/18	14:30									

For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition
JM	4/12/18	08:50							

Remarks: Cooler 25303 IR4
Temp 2.6 CF-05

(Word) S:\Users\Forms\Chain of Custody - BiWeekly

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

CUSTODY SEAL
Date: 4/11/18 Time: 1430
Name: Scott Beesinger
Company: SWATS
Seal Broken By
Date: 04/12/18

2118

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

FedEx Express

04 DP 15

TRK# 0221 7376 9752 1843
RETURNS MON-SAT
PRIORITY OVERNIGHT

FedEx
TRK# 0221 7376 9752 1843
THU - 12 APR 10:30A
PRIORITY OVERNIGHT

Wet Chemistry Raw Data

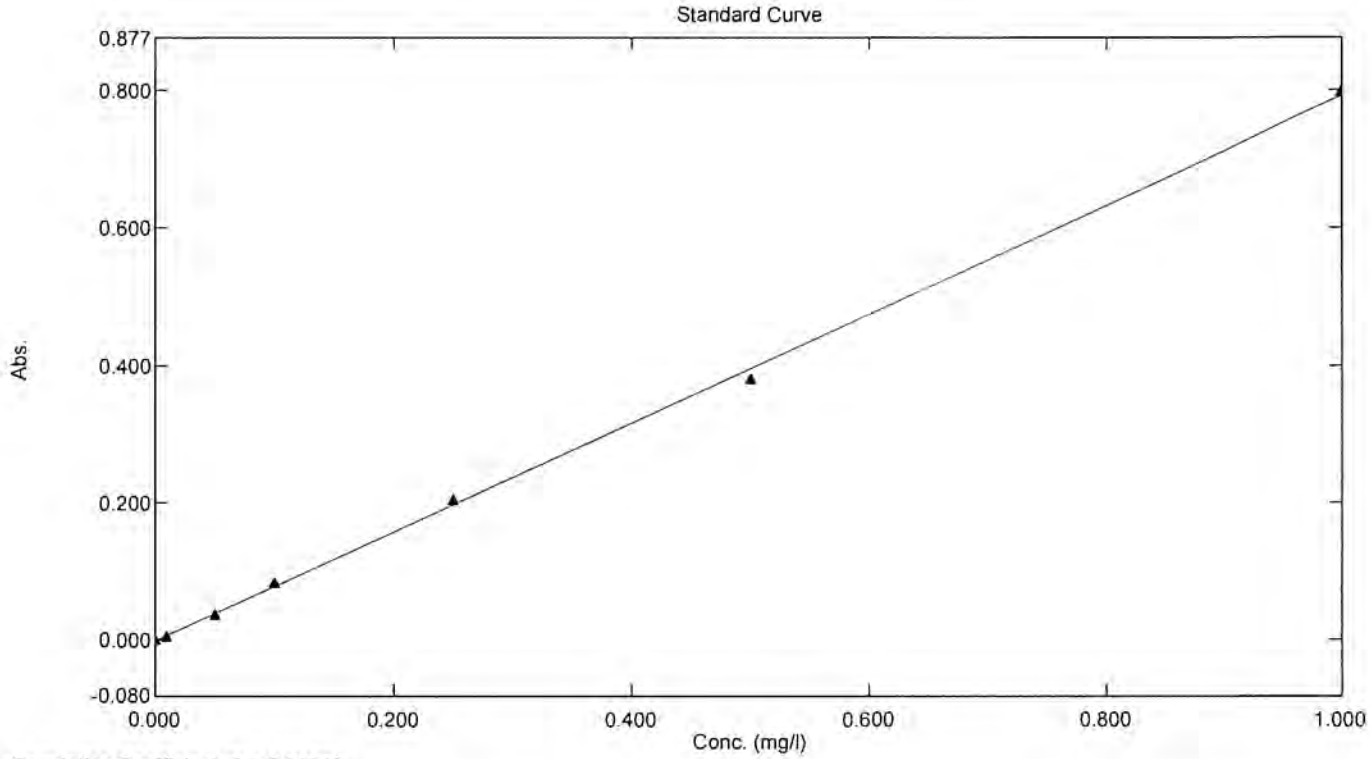
Bhate Environmental Associates, Inc.
Project: LONGHORN GW TREATMENT PLANT
MONTHLY INFLUENT SAMPLES
ALS WO# HS18040596

H5180405 96

Standard Table Report

04/30/2018 11:59:25 AM

File Name: C:\Program Files (x86)\Shimadzu\UVProbe\Data\CR6+_UNKNOWN\180412_CR6_W.pho



Correlation Coefficient r2 = 0.99942

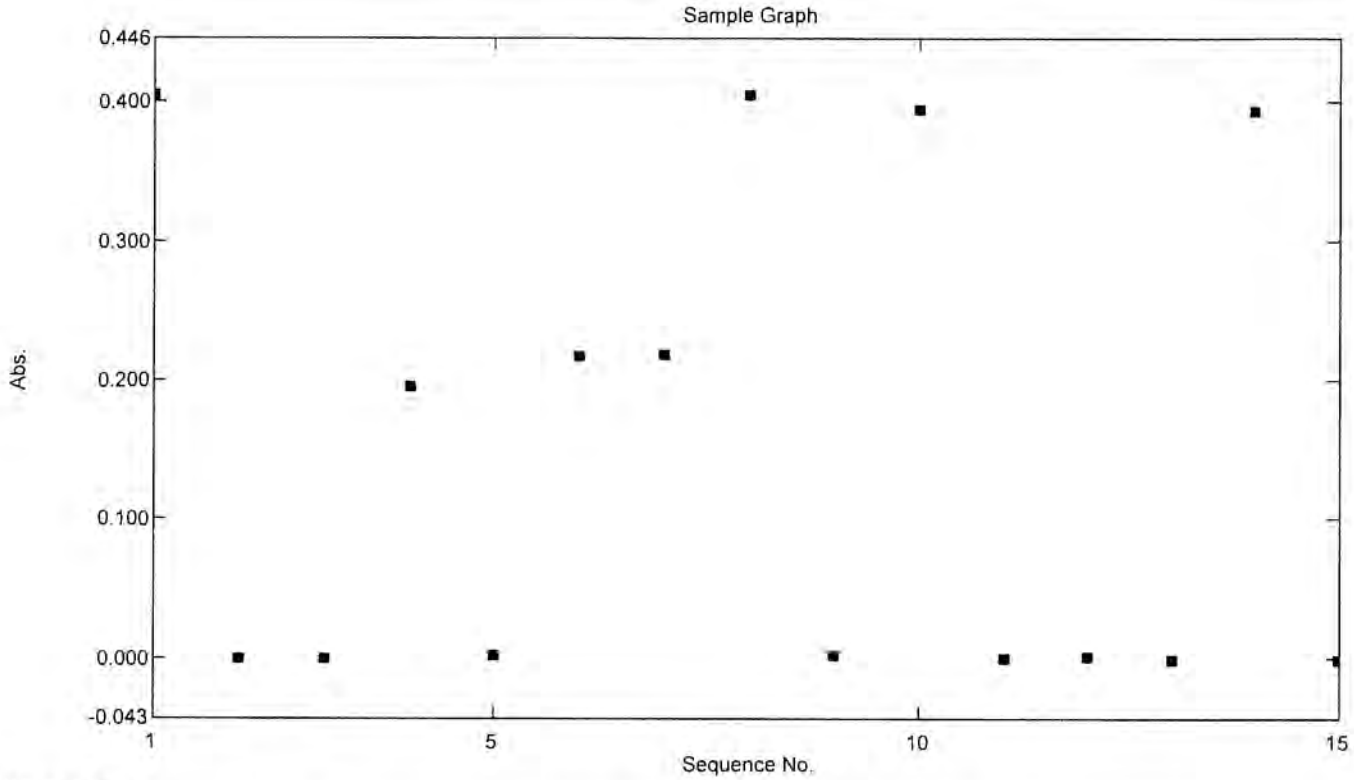
Standard Table

	Sample ID	Type	Ex	Conc	WL540.0	Wgt.Factor	Comments
1	STD1	Standard		0.000	0.000	1.000	
2	STD2	Standard		0.010	0.006	1.000	
3	STD3	Standard		0.050	0.038	1.000	
4	STD4	Standard		0.100	0.084	1.000	
5	STD5	Standard		0.250	0.204	1.000	
6	STD6	Standard		0.500	0.382	1.000	
7	STD7	Standard		1.000	0.797	1.000	
8							

Sample Table Report

04/30/2018 11:59:29 AM

File Name: C:\Program Files (x86)\Shimadzu\UVProbe\Data\CR6+_UNKNOWN\180412_CR6_W.pho



Sample Table

	Sample ID	Type	Ex	Conc	WL540.0	Comments
1	CCV	Unknown		0.512	0.405	
2	CCB	Unknown		-0.001	-0.001	
3	MBLK	Unknown		-0.001	-0.001	
4	LCS	Unknown		0.247	0.196	
5	18040507.03	Unknown		0.002	0.002	FILTER,09:45AM
6	18040507.03MS	Unknown		0.274	0.217	
7	18040507.03MSD	Unknown		0.275	0.218	
8	CCV2	Unknown		0.511	0.405	
9	CCB2	Unknown		0.003	0.002	
10	CCV3	Unknown		0.498	0.394	
11	CCB3	Unknown		-0.001	-0.001	
12	18040595.01	Unknown		0.001	0.000	FILTER,01:20PM
13	18040596.01	Unknown		-0.002	-0.002	FILTER
14	CCV4	Unknown		0.497	0.393	
15	CCB4	Unknown		-0.002	-0.001	
16						

Sub Contract Data

Bhate Environmental Associates, Inc.
Project: LONGHORN GW TREATMENT PLANT
MONTHLY INFLUENT SAMPLES
ALS WO# HS18040596

Case Narrative

Method: 6850
Analysis: Perchlorate
Analysis SOP: LC-MS-CLO4
ALS WO ID(s): 1809681; 1810423; 1810427; 1810428

Client: ALS Laboratories (Houston, TX)
Matrix: Water
ELMS Batch (HBN): 2081 (212824)

General Set Information: There were four field samples in these Work Orders. The samples were analyzed for perchlorate.

Method Summary: Each sample was prepared as noted below and analyzed using an Agilent 1100 LC/MSD system in select ion monitoring (SIM) mode at m/z 83 and 85, which corresponds to the loss of one oxygen atom from the perchlorate molecule. ChemStation software was used for instrument control and data analysis. The ion ratio of m/z 83 to 85 was used to positively identify the response peak as perchlorate. Quantitation was performed using the m/z 83 peak area. An internal standard (ISTD) of ^{18}O labeled perchlorate was added to each sample to establish the perchlorate peak retention time and used in quantitation.

Sample Preparation: A 10.0mL aliquot of each sample was transferred into a 15-mL centrifuge tube. 50µL of an ^{18}O labeled perchlorate solution was added to each sample as an internal standard. The samples were then capped, vortexed, and filtered into autosampler vial using Phenex PES membrane 0.45µm Syringe filters.

Holding Times: Holding times were met for all analyses.

Dilutions: Sample 1810423001 was analyzed and reported at 1:1,000 dilution. The reporting limit has been adjusted accordingly.

Method QC data: The method blank (LMB 596169) was less than 1/2 the CRDL. The recovery for the LCS (596170) was within acceptable parameters.

MS/MSD Analysis: The matrix spike and matrix spike duplicate (MS/MSD) was performed on sample 1808267001 (Client ID: LH18/24-SP650_040418). The Matrix Spike and duplicate (MS/MSD – 596171/72) failed QC acceptance criteria for percent recoveries, biased high. This is due to the fact that the unspiked sample result of 2.3µg/L was not subtracted from the MS/MSD results. The Matrix Spike and Matrix Spike duplicate is reported for the clients' information only. The sample matrix may be inappropriate for the method selected. The MS/MSD relative percent difference (RPD) was within the performance limits.

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

NC/CAR(s): NA

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

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

Miscellaneous Comments: These samples were analyzed in accordance with the requirements found in the DOD QSM Version 5.1. Manual Integrations was performed for datafile 02APRD01/02.

Thomas Bosch April 18, 2018
Analyst Date

ANALYTICAL REPORT

Report Date: April 18, 2018

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

Phone: 281 530-5656

E-mail: RJ.Modashia@ALSGlobal.com

Workorder: **34-1810423**
Project ID: HS18040596 041118
Purchase Order: HS18040596
Project Manager Kevin W. Griffiths

Client Sample ID	Lab ID	Collect Date	Receive Date	Sampling Site
LH18/24-SP140_041118	1810423001	04/11/18	04/13/18	

ANALYTICAL REPORT

Workorder: 34-1810423
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **LH18/24-SP140_041118**	Sampling Site: NA	Collected: 04/11/2018
Lab ID: 1810423001	Media: 125 mL Nalgene	Received: 04/13/2018
Matrix: Water	Sampling Parameter: NA	

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable	**Analysis:** EPA 6850, DoD QSM Water	**Instrument ID:** LCMS04
	Batch: ELMS/2081 (HBN: 212824)	**Percent Solid:** NA
	Analyzed: 04/17/2018 10:41	**Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**6400**	1000	2000	4000	1000	

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

Method	Analyst	Peer Review
EPA 6850, DoD QSM	/S/ Thomas Bosch 04/18/2018 12:28	/S/ Stephen Brose 04/18/2018 15:35

Laboratory Contact Information

ALS Environmental
960 W Levoy Drive
Salt Lake City, Utah 84123

Phone: (801) 266-7700
Email: alslt.lab@ALSGlobal.com
Web: www.alsslc.com

ANALYTICAL REPORT

Workorder: 34-1810423
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted.
Samples have not been blank corrected unless otherwise noted.
This test report shall not be reproduced, except in full, without written approval of ALS.

ALS provides professional analytical services for all samples submitted. ALS is not in a position to interpret the data and assumes no responsibility for the quality of the samples submitted.

All quality control samples processed with the samples in this report yielded acceptable results unless otherwise noted.

ALS is accredited for specific fields of testing (scopes) in the following testing sectors. The quality system implemented at ALS conforms to accreditation requirements and is applied to all analytical testing performed by ALS. The following table lists testing sector, accreditation body, accreditation number and website. Please contact these accrediting bodies or your ALS project manager for the current scope of accreditation that applies to your analytical testing.

Testing Sector	Accreditation Body	Certificate Number	Website
Environmental	PJLA (DoD ELAP)		
	Utah (TNI)		
	Nevada		
	Oklahoma		
	Iowa		

Result Symbol Definitions

MDL = Method Detection Limit, a statistical estimate of method/media/instrument sensitivity.
RL = Reporting Limit, a verified value of method/media/instrument sensitivity.
CRDL = Contract Required Detection Limit
Reg. Limit = Regulatory Limit.
ND = Not Detected, testing result not detected above the MDL or RL.
< This testing result is less than the numerical value.
** No result could be reported, see sample comments for details.

Qualifier Symbol Definitions

U = Qualifier indicates that the analyte was not detected above the MDL.
J = Qualifier Indicates that the analyte value is between the MDL and the RL. It is also used to indicate an estimated value for tentatively identified compounds in mass spectrometry where a 1:1 response is assumed.
B = Qualifier indicates that the analyte was detected in the blank.
E = Qualifier indicates that the analyte result exceeds calibration range.
P = Qualifier indicates that the RPD between the two columns is greater than 40%.

Quality Control Sample Batch Report

Analysis Information

Workorder: 1810423

Limits:	Client SOW/Contract Specified	**Preparation:**	NA	**Analysis:**	EPA 6850
Basis:	DoD QSM	**Batch:**	NA	**Batch:**	ELMS/2081 (HBN: 212824)
		Prepared By:	NA	**Analyzed By:**	Thomas Bosch

Blank

LMB: 596169
Analyzed: 04/17/2018 09:29
Units: ug/L

Analyte	Result	MDL	RL
Perchlorate	ND	1	2.00

Laboratory Control Sample

LCS: 596170
Analyzed: 04/17/2018 09:44
Dilution: 1
Units: ug/L

Analyte	Result	Target	% Rec	QC Limits	
Perchlorate	5.04	5.00	101	78.8	123.8

Matrix Spike - Matrix Spike Duplicate

	Sample	MS	MSD
	1809681001	596171	596172
Analyzed:	04/17/2018 09:58	04/17/2018 10:12	04/17/2018 10:26
Dilution:	1	1	1
Units:	ug/L	ug/L	ug/L

Analyte	Result	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Perchlorate	2.30	6.24	5	# 125	78.8	123.8	6.15	123	1.41	0.0	20.0

Continuing Calibration Verification

	CCV	CCV
	596166	596173
Analyzed:	04/17/2018 08:41	04/17/2018 11:23
Units:	ug/L	ug/L
Criteria:	± 15%	± 15%

Analyte	Result	Target	% Rec.	Result	Target	% Rec.
Perchlorate	27.3	25.0	109	28.3	25.0	113

Interference Check Sample

ICSA: 596168
Analyzed: 04/17/2018 09:15
Units: ug/L
Criteria: ± 30%

Analyte	Result	Target	% Rec.
Perchlorate	0.989	1.00	98.9

Limit of Detection Verification

	LODV	LODV
	596167	596174
Analyzed:	04/17/2018 09:01	04/17/2018 11:53
Units:	ug/L	ug/L
Criteria:	± 50%	± 50%

Analyte	Result	Target	% Rec.	Result	Target	% Rec.
Perchlorate	0.957	1.00	95.7	1.04	1.00	104

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1810423

Limits:	Client SOW/Contract Specified	**Preparation:**	NA
Basis:	DoD QSM	**Batch:**	NA
		Prepared By:	NA
Analysis:	EPA 6850		
Batch:	ELMS/2081 (HBN: 212824)		
Analyzed By:	Thomas Bosch		

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

Analyst	Peer Review
/S/ Thomas Bosch	/S/ Stephen Brose
04/18/2018 12:28	04/18/2018 15:34

Symbols and Definitions

* - Analyte above reporting limit or outside of control limits
▲ - Sample result is greater than 4 times the spike added
● - Sample and Matrix Duplicate less than 5 times the reporting limit
◆ - Result is above the calibration range
- The Matrix Spike, Matrix Spike duplicate or Matrix Duplicate is reported for your information only. The sample matrix may be inappropriate for the method selected.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected (U - Qualifier also flags analyte as not detected)
NA - Not Applicable
QC results are not adjusted for moisture correction, where applicable

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

18698/2

W 1810423

ntract Chain of Custody

COC ID: 8924

1810423

SUBCONTRACT TO:

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

Phone: +1 801 266 7700

CUSTOMER INFORMATION:

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

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS18040596
TSR:	Danielle Winnings

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS18040596-01**	**LH18/24-SP140_041118**	**Water**	**11 Apr 2018 14:00**
	SUB_Perch-6850			26 Apr 2018

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

QC Level: DOD IV (DoD Data Package)

Relinquished By: _____ Date/Time: 4/12/18 1800

Received By: _____ Date/Time: 04-13-18 10:13

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

00902033

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: HS18040596	Split:	Workorder ID: 1810423	Level: ENV_LVL4	Requested Analysis	
Client: ALS Environmental (Houston)		Account: 8101	Type: 125Poly		
Comments:			Preservatives		
			COOL		

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	EPA 6850, DoD QSM
1	04/11/2018 14:00	LH18/24-SP140_041118	1810423001		Water	A	1	A
2								
3								
4								
5								
6								
7								
8								
9								
10								

29 of 104

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Warath, Julie	04/13/2018 10:13	ALS Sample Receiving	Sample Login
Julie Warath R-33.1	4/13/18 1500 4-16-18 / 12:40	13C T. Barsh	storage 6850

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

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

Prepared / Analyzed by: _____ Date / Time: _____

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

ALS-Salt Lake City-Related Information Report (CRIR)

Cooler or Container Information Checklist (Fill In or Circle)

Client Name: ALS Houston — Project/Task/Site: 1810423

Date/Time of Receipt: 04-13-18 10:13 — Number of Coolers Received: 1

Condition of Coolers:	Acceptable/Unacceptable	Temperature Control:	Present/Not Included
Cooler Custody Seals:	Present/Absent/NA Intact/Broken/NA	Location Temp Taken:	Control/Between Samples
Container Custody Seals:	Present/Absent/NA Intact/Broken/NA	Are all temperatures within project specific guidelines?	Yes/No/NA
Ice Present:	Yes/No/NA Frozen/Melted/NA	VOA Headspace Present?	Yes/No/NA

pH Check Performed:							
	Metals	Yes/No/NA	Total Phenolics	Yes/No/NA	NO3/NO2	Yes/No/NA
	Cyanide	Yes/No/NA	TPH – 418.1	Yes/No/NA	Oil & Grease	Yes/No/NA
	Sulfide	Yes/No/NA	COD	Yes/No/NA	Total Phosphorous	Yes/No/NA
	Ammonia	Yes/No/NA	TKN	Yes/No/NA	Gross A.B, Gamma Spec	Yes/No/NA

Cooler Received	DCL Cooler No.	Temp.	Cooler Received	DCL Cooler No.	Temp.	Cooler Received	DCL Cooler No.	Temp.
1	C18 8446	1 °C	4	C18	°C	7	C18	°C
2	C18	°C	5	C18	°C	8	C18	°C
3	C18	°C	6	C18	°C	9	C18	°C

Taken By: Jennifer Tessell (Signature) Jennifer Tessell (Printed Name) 04-13-18 (Date)

Client-Related Information

☐ Missing Cooler	☐ Missing Samples/Bottles	☐ Incorrect Preservation	☐ Insufficient Sample Volume
☐ Cooler Conditions	☐ Broken/Leaking Samples	☐ pH Criteria Not Met	☐ Chain of Custody Problems
☐ Missing Paperwork	☐ Incorrect Bottle Type	☐ Residual Chlorine Present	☐ Other:
☐ Missing/Incorrect Bottle Labels	☐ Cooler Temperatures Out of Range	☐ Head Space in Bottles	

Briefly Describe the Problem and the Action Taken:

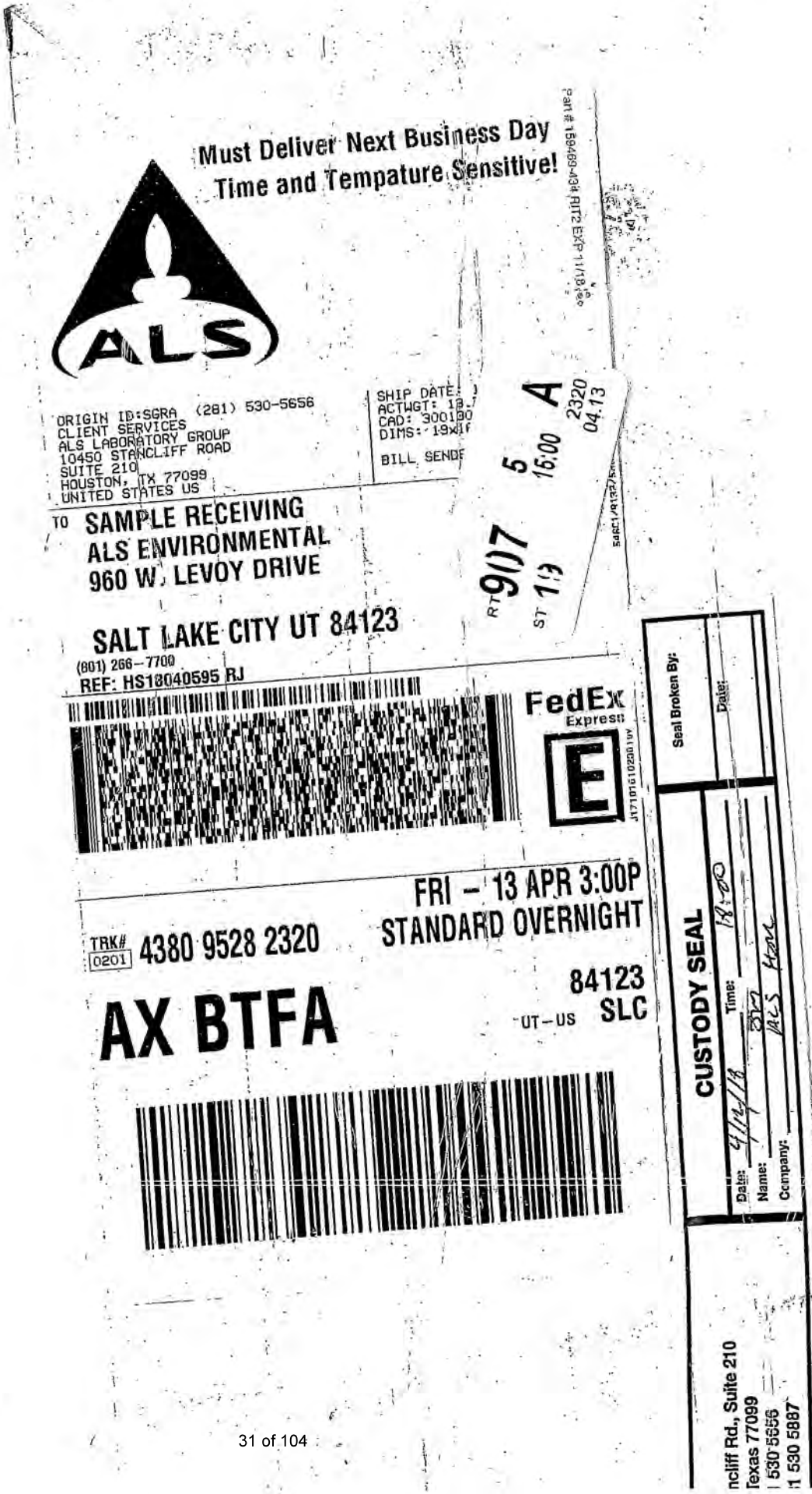
Client Notified? Yes ☐ No ☐

Response Required Within 24 Hours

Project Management

Project Manager Comments:

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



Must Deliver Next Business Day
Time and Tempature Sensitive!

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

SHIP DATE:
ACTWGT: 18.
CAD: 300190
DIMS: 19x1
BILL SENDE

TO SAMPLE RECEIVING
ALS ENVIRONMENTAL
960 W. LEVOY DRIVE

SALT LAKE CITY UT 84123
(801) 266-7700
REF: HS18040595 RJ

RT 907 5 16:00 A 2320 04.13
ST 1/3

FedEx Express

FRI - 13 APR 3:00P
STANDARD OVERNIGHT

TRK# 0201 4380 9528 2320

AX BTFA

84123
UT-US SLC

Seal Broken By:
Date:

CUSTODY SEAL
Time: 18:00
Date: 4/12/18
Name: BD
Company: ALS Houston

ncliff Rd., Suite 210
Texas 77099
1 530 5555
1 530 5887

tch Worklist

Batch: ELMS/ 2081 **Created:** 4/16/2018 16:57 **Instrument:** HBN: 212824
Rule: EPA 6850, DoD QSM Water **Analyst:** T. Bosch **Status:** WP

Workorder: 1809681 [ENV_LVL4]
Workorder: 1810423 [ENV_LVL4]
Workorder: 1810427 [ENV_LVL4]
Workorder: 1810428 [ENV_LVL4]

Pos	Lab ID	Sample ID	Prep Initial	Prep Final	Dust Weight	Type	Mx	Container	Procedure	Mgr	Expire Date	Due Date	Run Date
1	596166	CCV for HBN 212824 [ELMS/2081]				CCV	3		E685041C3Q	5311		4/19/2018	
2	596167	LODV for HBN 212824 [ELMS/2081				LODV	3		E6850..D3Q	5311		4/19/2018	
3	596168	ICS for HBN 212824 [ELMS/2081]				ICS	3		E6850..D3Q	5311		4/19/2018	
4	596169	LMB for HBN 212824 [ELMS/2081]				LMB	3		E6850Q413Q	5311		4/19/2018	
5	596170	LCS for HBN 212824 [ELMS/2081]				LCS	3		E6850Q413Q	5311		4/19/2018	
6	1809681001	LH18/24-SP650_040418				SAMPLE	3	1809681001-A	E6850Q41.3	5480	5/2/2018	4/19/2018	
7	596171	LH18/24-SP650...(1809681001MS)				MS	3		E6850Q413Q	5311		4/19/2018	
8	596172	LH18/24-SP65...(1809681001MSD)				MSD	3		E6850Q413Q	5311		4/19/2018	
9	1810423001	LH18/24-SP140_041118				SAMPLE	3	1810423001-A	E6850Q41.3	5480	5/9/2018	4/26/2018	
10	1810427001	LH18/24-SP650_041118				SAMPLE	3	1810427001-A	E6850Q41.3	5480	5/9/2018	4/26/2018	
11	1810428001	LH18/24-SP650_041118				SAMPLE	3	1810428001-A	E6850Q41.3	5480	5/9/2018	4/26/2018	
12	596173	CCV for HBN 212824 [ELMS/2081]				CCV	3		E685041C3Q	5311		4/19/2018	
13	596174	LODV for HBN 212824 [ELMS/2081				LODV	3		E6850..D3Q	5311		4/19/2018	

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Analytical Documentation

ALS Work Order #'s & Sample #( )'s: 1809681 (001); 1810423 (001); 1810427 (001); 1810428 (001)
ELMS Batch/HBN ID: 2081 (212824)
Prep Date: 04/17/2018 Analysis Date: 04/17/2018 Analyst: T. Bosch
Analyte: **Perchlorate** Matrix: **Water** Method: **6850**
Sequence: \\HPCHEM\1\SEQUENCE\CLO4\2018\APR\17APR18D.s
Reported DL: **1.0µg/L** Reported LOD: **2.0µg/L** Reported LOQ: **4.0µg/L**

SAMPLE PREPARATION/ANALYSIS:

Water: Samples were prepared by TNB. 10.0mL of each sample was pipetted into a 15-mL centrifuge tube, and 50µL of an oxygen-18 labeled perchlorate solution was added as an internal standard. The samples were capped, vortexed, and filtered with Phenex PES membrane 0.45µm Syringe filters prior to analysis.

REAGENTS: Eluent A1: 95% ASTM Type II water (ALS)/ 5% ACN (B&J Lot DI735)/0.1% glacial acetic acid (JT-Baker Lot 04802).
Eluent B1: 95% ACN (B&J Lot DI735)/ 5% ASTM Type II water (ALS)/0.1% glacial acetic acid (JT-Baker Lot 04802).

STANDARDS: Internal Standard Spiking Solution Horizon# 38780. Dilutions of Working Standard Solution ID 32373 used for CCV's, LODV's, RLVS and IPC.

CALIBRATION CURVE: Used curve from 04/02/2018, sequence 02APR18D.s Offline Quantitation Method: CLO4-DPR.M

INSTRUMENT CONDITIONS: Samples were analyzed with an Agilent 1100 LC/MSD system, in negative SIM mode, monitoring m/z 83, 85, and 89.
Instrument ID: LCMS04 Online Acquisition Method: CLO4-DOD.M Fragmentor: 160 Output Gain: 3 Injection Volume: 25µL
Column: KP-RPPX C8 separator, 250mm Mobile Phase: 70% Eluent A1; 30% Eluent B1

FLOW GRADIENT:

Time (min.)	Flow (mL/min)
0	0.80
4.0	0.80
5.0	0.25
10.0	0.25
10.5	0.80
13.0	0.80

QC DATA: 5.0µL of QC Solution Horizon ID 36749 was used for LCS 596170; Target = 5.0µg/L. ASTM type II water was used for LMB 596169.

MS/MSD: MS/MSD was performed on sample 1809681001 (Client ID: LH18/24-SP650_040418). 5.0µl of Working Standard Solution Horizon ID 36735 was added to 10.0mL of sample preparation. Spike target = 5.0µg/L.

COMMENTS:

1) Results reported in µg/L. Sample 1810423001 was analyzed and reported at 1:1,000 dilution. The reporting limit has been adjusted accordingly.
2) All QC, Blank, CCV, and MS/MSD results were within method parameters, except for the following. The Matrix Spike and duplicate (MS/MSD – 596171/72) failed QC acceptance criteria for percent recoveries, biased high. This is due to the fact that the unspiked sample result of 2.3µg/L was not subtracted from the MS/MSD results. The Matrix Spike and Matrix Spike duplicate is reported for the clients' information only. The sample matrix may be inappropriate for the method selected.
3) Sample data can be viewed at two directories within the ALS system: \\ALSLTWS013\LCMS\LCMS04\2018\APR\HBN# or through NuGenesis\Tree\PrintData\LCMS\DefaultView.
4) Due to limitations of the Chemstation Software, some of the chromatographic peaks require manual integration. Manual Integrations was performed for datafiles 02APRD01/02.
5) Notebook: \\alsltws013\ORGANIC\BOSCH\LCMS\Perchlorates\Waters\2018\212824-DOD-ALS-HSTN-LCMS4 or through \\ALSLTWS013\DATAREVIEW\HBN#

STANDARD REPORT

Working Standard - CLO4 WRK

CLO4 WRK — Description - 6850 WKG Std 100.ug/L

Standard: 36735
MFG: ALS/SLC
MFG Lot: TNB: 05/10/17
Part ID:

Created By: T. Bosch
Create Date: 05/10/2017
Lab Lot: CLO4 WRK

Amount: 10 mL
Expires: 05/10/2018
Usable: Yes

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	0.1 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
36734	CLO4 INT	6850 Intermdt AccStd 10.ug/mL	CLO4 INT	0.1 mL	05/10/2018

STANDARD REPORT

Constituent

Stock Standard - CLO4 STOCK

CLO4 STOCK — Description - 6850 Stock AccStd 1,000ug/mL

Standard: 36733
MFG: AccuStandard
MFG Lot: 216095148
Part ID: IC-PER-10X-1

Created By: T. Bosch
Create Date: 5/10/2017
Lab Lot: CLO4 STOCK

Amount: 100 mL
Expires: 10/4/2018
Usable: Yes

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

STANDARD REPORT

Constituent

Solvent Standard - ASTM H2O

ASTM H2O		Description - ASTM Type II Water
Standard: 109	Created By: ALS Support (Lims)	Amount: 1000 L
MFG: DCL In House	Create Date: 10/6/2005	Expires: 11/7/2025
MFG Lot:	Lab Lot: LAB 109	Usable: Yes
Part ID:		

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

STANDARD REPORT

Constituent

Working Standard - CLO4 INT

CLO4 INT — Description - 6850 Intermdt AccStd 10.ug/mL

Standard: 36734
MFG: ALS/SLC
MFG Lot: TNB: 05/10/17
Part ID:

Created By: T. Bosch
Create Date: 05/10/2017
Lab Lot: CLO4 INT

Amount: 10 mL
Expires: 05/10/2018
Usable: Yes

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

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
36733	CLO4 STOCK	6850 Stock AccStd 1,000ug/mL	CLO4 STOCK	0.1 mL	10/04/2018

STANDARD REPORT

Working Standard - CLO4 QC WRK

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

Standard: 36750
MFG: ALS/SLC
MFG Lot: TNB: 05/11/17
Part ID:

Created By: T. Bosch
Create Date: 05/11/2017
Lab Lot: CLO4 QC WRK 100.ug/L

Amount: 10 mL
Expires: 05/11/2018
Usable: Yes

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

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
36749	CLO4 QC INT	6850 QC Intrmdt Std-QC 10ug/mL	CLO4 QC INT 10.ug/mL	0.1 mL	05/11/2018

STANDARD REPORT

Constituent

Working Standard - CLO4 QC INT

CLO4 QC INT — Description - 6850 QC Intrmdt Std-QC 10ug/mL

Standard: 36749
MFG: ALS/SLC
MFG Lot: TNB: 05/11/2017
Part ID:

Created By: T. Bosch
Create Date: 05/11/2017
Lab Lot: CLO4 QC INT 10.ug/mL

Amount: 10 mL
Expires: 05/11/2018
Usable: Yes

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

Composition

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

STANDARD REPORT

Constituent

Solvent Standard - ASTM H2O

ASTM H2O		Description - ASTM Type II Water
Standard: 109	Created By: ALS Support (Lims)	Amount: 1000 L
MFG: DCL In House	Create Date: 10/6/2005	Expires: 11/7/2025
MFG Lot:	Lab Lot: LAB 109	Usable: Yes
Part ID:		

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

STANDARD REPORT

Constituent

Stock Standard - CLO4 QCSTOCK

CLO4 QCSTOCK Description - 6850 QC Stock STD 1,000ug/mL

Standard: 36748
MFG: Ultra Scientific
MFG Lot: CP-0860
Part ID: ICC-013

Created By: T. Bosch
Create Date: 5/11/2017
Lab Lot: CLO4 QC STOCK

Amount: 100 mL
Expires: 3/31/2020
Usable: Yes

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

STANDARD REPORT

Working Standard - CLO4ISTDWRK

CLO4ISTDWRK — **Description - Perchlorate ISTD Wrk 1,000ug/L**

Standard: 38780
MFG: ALS/SLC
MFG Lot: TNB: 10/09/17
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 10/09/2017 01:10PM
Verified By: Thomas Bosch
Verify Date:

Amount: 10 mL
Expires: 10/09/2018
Usable: Yes
Lab Lot: CLO4ISTDWRK

Pos.	Analyte	Name	Concentration
1	14797-73-0-8385	Perchlorate 83:85 Ratio	1000 ug/L
2	14797-73-0-89	Perchlorate 89	1000 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
23118	CLO4ISTDSTK	Perchlorate ISTD Stock	CLO4ISTDSTK	0.1 mL	02/27/2024

STANDARD REPORT

Constituent

Stock Standard - CLO4ISTDSTK

CLO4ISTDSTK — Description - Perchlorate ISTD Stock

Standard: 23118
MFG: Cambridge Isotope
MFG Lot: SDDG-013
Part ID: OLM-7310-S

Created By: Thomas Bosch
Create Date: 04/04/2014 03:04PM
Verified By: Thomas Bosch
Verify Date: 02/05/2009 12:02AM

Amount: 1 mL
Expires: 02/27/2024
Usable: Yes
Lab Lot: CLO4ISTDSTK

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

ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

ISO Guide 34 Reference Material

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

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

Product Name: Perchlorate IC Standard

Description:
This Reference Material (RM) was gravimetrically prepared in accordance with ISO Guide 34 and under ULTRA Scientific's ISO 9001 registered quality system. The neat materials used for this product have been verified by ULTRA's ISO 17025 laboratory and under ULTRA's ISO Guide 34 accreditation. The analyte concentrations were verified by ULTRA's ISO 17025 accredited laboratory. For each analyte, the true value, with its uncertainty value calculated at the 95% confidence level, is reported below.

Analyte	Starting Material	Lot Number	Purity (%)	Calculated Value	True Value	Traceability & Method
perchlorate	potassium perchlorate	RM07987	100	1001 ± 5 µg/mL	976 ± 6 µg/mL	NIST SRM 3141A; ICP-OES

Solvent: water (low TOC, < 50 ppb)

Storage: Store at Room Temperature (15° to 30°C).

Traceability:
Traceability has been established through an unbroken chain of comparisons, each having stated uncertainties. Comparisons are based on appropriate physical or chemical measurements, including gravimetric or volumetric dilution, where the mass or volume of a solution before and after dilution is measured. The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1, ISO 9001, ISO 17025, and ISO Guide 34. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 819.

Estimation of Uncertainties:
The true value is reported, with its uncertainty value calculated at the 95% confidence level.

Homogeneity:
This RM was formulated and unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

Intended Use:
This RM is intended for the preparation of working reference samples for use in routine laboratory analyses, calibration of instruments, validation of analytical methods, assessments of measurement methods and continuing calibration verification.

Instructions for Use:
Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening and should be processed without delay for the true value to be valid within the stated uncertainties. Do not pipet from the bottle. Do not return any material removed for pipetting to the bottle. Tightly cap the bottle after removing any material and store according to the instructions noted above.

Hazards:
Refer to the Safety Data Sheet for information regarding this RM.

Expiration of Certification:
The certification of this RM is valid, within the measurement uncertainty specified, until the expiration date specified above, provided the RM is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the RM is damaged, contaminated, or otherwise modified.

ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

ISO Guide 34 Reference Material

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

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

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

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

Daniel J. Lamendola
Director of QA/RA

125 Market Street
New Haven, CT 06513
USA

AccuStandard® Inc.

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

CERTIFICATE OF ANALYSIS

AccuTrace™ Reference Standard

Catalog No: IC-PER-10X-1
Description: Perchlorate Standard
Element: Perchlorate (ClO_4)
SRM: Ind. Std.
Lot: 216095148
Matrix: Water
Hazards: *Refer to SDS for complete safety information*

Date Certified: Oct 4, 2016
Expiration: Oct 4, 2018
Sample Size: 100 mL
Components: 1
Storage Condition: Ambient (>5 °C)
Included on ISO/IEC 17025 Scope of Accreditation: Yes
Included on ISO Guide 34 Scope of Accreditation: Yes

Signal Word: Warning

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

The gravimetric uncertainty for this product is ±0.2%. See reverse side for details.
The final solution was checked against an independent standard to verify its concentration.
We use the highest purity raw materials available to minimize impurity levels in the final solution. Typically 99.999%+ pure starting materials are used as well as ASTM Type I 18 megohm deionized water.
All solutions are filtered through a 0.2 µm filter prior to being bottled.
All glassware used in preparation is Class A and calibrated regularly.
All weights are traceable through NIST, Test No. 822-275872-11
All bottles are triple rinsed with deionized water prior to use.
Shake bottle prior to use and do not pipette directly out of the bottle. Use only cleaned Class A volumetric glassware.
We certify the accuracy of this standard to be ±0.5% of the stated value until its expiration date provided it is kept tightly capped and stored under the conditions stated above.

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

For use in routine laboratory analysis.

AccuStandard is accredited to ISO Guide 34, ISO/IEC 17025 and certified to ISO 9001

Cambridge Isotope Laboratories, Inc.

Certificate of Analysis

Quality Standards:
ISO Guide 34 • ISO/IEC 17025 • ISO 13485 • cGMP

23118

Product Name: (Isotopic Label & Enrichment Specification)	PERCHLORIC ACID, SODIUM SALT (18O4, 90%+) 100 UG/ML IN WATER
Lot Number:	SDDG-013
Catalog Number:	OLM-7310-S

Product Information

Chemical Purity Specification:	≥98%
Labeled CAS Number:	NA
Unlabeled CAS Number:	7601-89-0
MW*:	130.4
Chemical Formula:	NaCl*O4
Storage:	Store at room temperature away from light and moisture.
Stability:	See storage and expiration date.

Certification

Cambridge Isotope Laboratories, Inc. guarantees that this material meets or exceeds the specifications stated. Absolute identity as well as chemical and isotopic purities are assured by the use of unambiguous synthetic routes and multiple chemical analyses whenever possible. Results are representative of QC testing at time of release from Quality Control unless otherwise stated.

Volumetric measurements were made with Class A glassware. Gravimetry is traceable to the NIST through calibrated balances and certified, calibrated, standard weights. The calibrations are traceable to the NIST under Test No. 822/270236-04. The calibrations also meet specifications outlined in ISO 9001, ISO/IEC 17025, ANSI/NSCL Z540-1-1994, NCR Document 10CFR50 Appendix B, and applicable subdocuments.

This COA references the bulk catalog number before packaging. The COA also applies to the CIL finished good catalog number . Some possible packaging sizes and their corresponding suffix are -1.2, -1, -0.5, -10, or -0.1.

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

Approved by: T. J. Eckersley

Timothy J. Eckersley, Ph.D., Quality Assurance

Quality Control Tests and Results

QC Release Date	2/27/2014
Expiration Date	2/27/2024
Concentration Based on Gravimetry	102 µg/mL
Chemical Purity of Neat Material(s)	98%
LC/MS for Concentration	109.4 ± 2.8 µg/mL (k=2)

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Batch Report: C:\HPCHEM\1\DATA\17APR18D\17APR18D.B

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

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

#	*	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorate RT	Perchlorate Amount
	*	596166 CCV@25	Vial 71	1	Control	1	1.14280e6	8.753	27.33882
	*	596167 LODV@1.	Vial 72	1	Control	2	6.41761e4	8.823	9.57277e-1
	*	596168 ICS@1.0	Vial 73	1	Control	3	4.94133e4	8.575	9.89270e-1
	*	596169 LMB	Vial 74	1	Control	4	0.00000	0.000	0.00000
	*	596170 QC@5	Vial 75	1	Control	5	2.59363e5	8.740	5.03626
	*	1809681001	Vial 76	1	Sample	6	9.01797e4	8.361	2.27846
	*	596171 96811MS	Vial 77	1	Control	7	2.46735e5	8.344	6.23564
	*	596172 96811SD	Vial 78	1	Control	8	2.68950e5	8.350	6.14846
	*	1810423001 1K	Vial 79	1	Sample	9	3.21292e5	8.738	6356.06430
	*	1810427001	Vial 80	1	Sample	10	2.63119e5	8.374	6.87199
	*	1810428001	Vial 81	1	Sample	11	4.74912e5	8.385	12.19300
	*	596173 CCV@25	Vial 71	1	Control	12	1.42950e6	8.714	28.29573
	*	596174 LODV@1.	Vial 72	1	Control	14	5.09575e4	8.590	1.03663

#	*	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
	*	596166 CCV@25	Vial 71	1	Control	1	3.55217e5	8.769	27.39222
	*	596167 LODV@1.	Vial 72	1	Control	2	2.24706e4	8.844	9.29806e-1
	*	596168 ICS@1.0	Vial 73	1	Control	3	1.93427e4	8.583	1.09787
	*	596169 LMB	Vial 74	1	Control	4	0.00000	0.000	0.00000
	*	596170 QC@5	Vial 75	1	Control	5	8.61836e4	8.756	5.14276
	*	1809681001	Vial 76	1	Sample	6	3.09483e4	8.376	2.33050
	*	596171 96811MS	Vial 77	1	Control	7	8.35679e4	8.358	6.52866
	*	596172 96811SD	Vial 78	1	Control	8	9.06309e4	8.366	6.40262
	*	1810423001 1K	Vial 79	1	Sample	9	1.05474e5	8.752	6454.26200
	*	1810427001	Vial 80	1	Sample	10	8.92737e4	8.390	7.22479
	*	1810428001	Vial 81	1	Sample	11	1.54422e5	8.398	12.46426
	*	596173 CCV@25	Vial 71	1	Control	12	4.34571e5	8.729	27.82126
	*	596174 LODV@1.	Vial 72	1	Control	14	2.02342e4	8.602	1.17481

#	*	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-ISTD RT	CLO4-89-ISTD Amount
	*	596166 CCV@25	Vial 71	1	Control	1	1.69004e5	8.776	5.00000
	*	596167 LODV@1.	Vial 72	1	Control	2	3.01823e5	8.848	5.00000
	*	596168 ICS@1.0	Vial 73	1	Control	3	2.25166e5	8.595	5.00000
	*	596169 LMB	Vial 74	1	Control	4	2.62060e5	8.801	5.00000
	*	596170 QC@5	Vial 75	1	Control	5	2.34788e5	8.764	5.00000
	*	1809681001	Vial 76	1	Sample	6	1.81546e5	8.384	5.00000
	*	596171 96811MS	Vial 77	1	Control	7	1.79397e5	8.365	5.00000
	*	596172 96811SD	Vial 78	1	Control	8	1.98406e5	8.372	5.00000
	*	1810423001 1K	Vial 79	1	Sample	9	2.29046e5	8.761	5000.00000
	*	1810427001	Vial 80	1	Sample	10	1.73045e5	8.396	5.00000
	*	1810428001	Vial 81	1	Sample	11	1.71055e5	8.407	5.00000
	*	596173 CCV@25	Vial 71	1	Control	12	2.03222e5	8.737	5.00000
	*	596174 LODV@1.	Vial 72	1	Control	14	2.21978e5	8.617	5.00000

*** End of Report ***

Sequence: C:\HPCHEM\1\SEQUENCE\CLO4\2018\APR\17APR18D.S

Sequence Table:

Method and Injection Info Part:

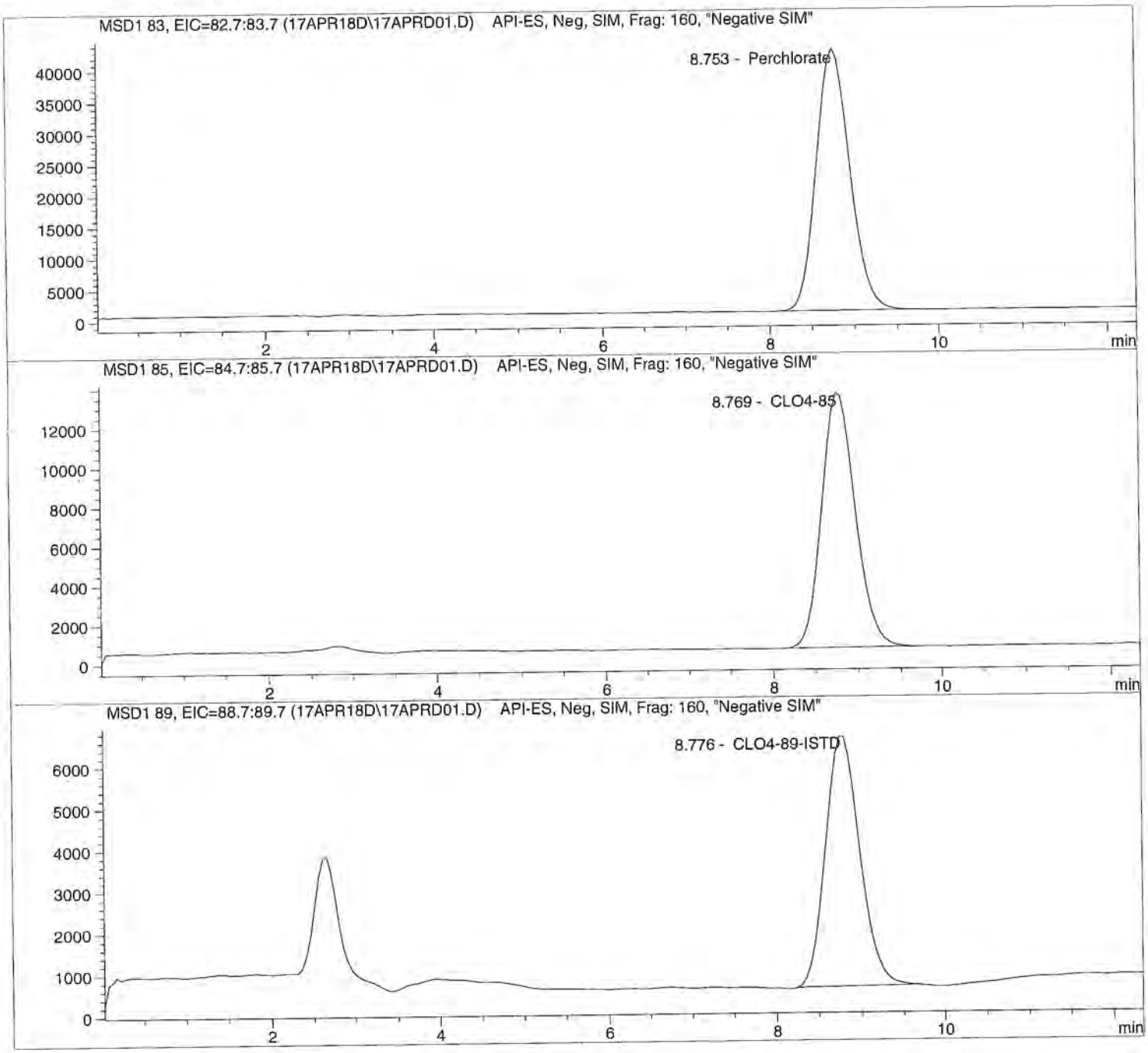
Line	Location	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	596166 CCV@25	CLO4-DOD	1	Ctrl Samp		
2	Vial 72	596167 LODV@1.	CLO4-DOD	1	Ctrl Samp		
3	Vial 73	596168 ICS@1.0	CLO4-DOD	1	Ctrl Samp		
4	Vial 74	596169 LMB	CLO4-DOD	1	Ctrl Samp		
5	Vial 75	596170 QC@5	CLO4-DOD	1	Ctrl Samp		
6	Vial 76	1809681001	CLO4-DOD	1	Sample		
7	Vial 77	596171 96811MS	CLO4-DOD	1	Ctrl Samp		
8	Vial 78	596172 96811SD	CLO4-DOD	1	Ctrl Samp		
9	Vial 79	1810423001 1K	CLO4-DOD	1	Sample		
10	Vial 80	1810427001	CLO4-DOD	1	Sample		
11	Vial 81	1810428001	CLO4-DOD	1	Sample		
12	Vial 71	596173 CCV@25	CLO4-DOD	1	Ctrl Samp		
13	Vial 72	596174 LODV@1.	CLO4-DOD	1	Ctrl Samp		
14	Vial 72	596174 LODV@1.	CLO4-DOD	1	Ctrl Samp		

Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD01.D Sample Name: 596166 CCV@25

Injection Date:	4/17/2018 08:41:41	Seq Line:	1
Sample Name:	596166 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD01.D Sample Name: 596166 CCV@25

Injection Date:	4/17/2018 08:41:41	Seq Line:	1
Sample Name:	596166 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.753	PBA	1142798.1	27.3388	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.769	PBA	355217.3	27.3922	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.776	PBA	169004.3	5.0000	CLO4-89-ISTD

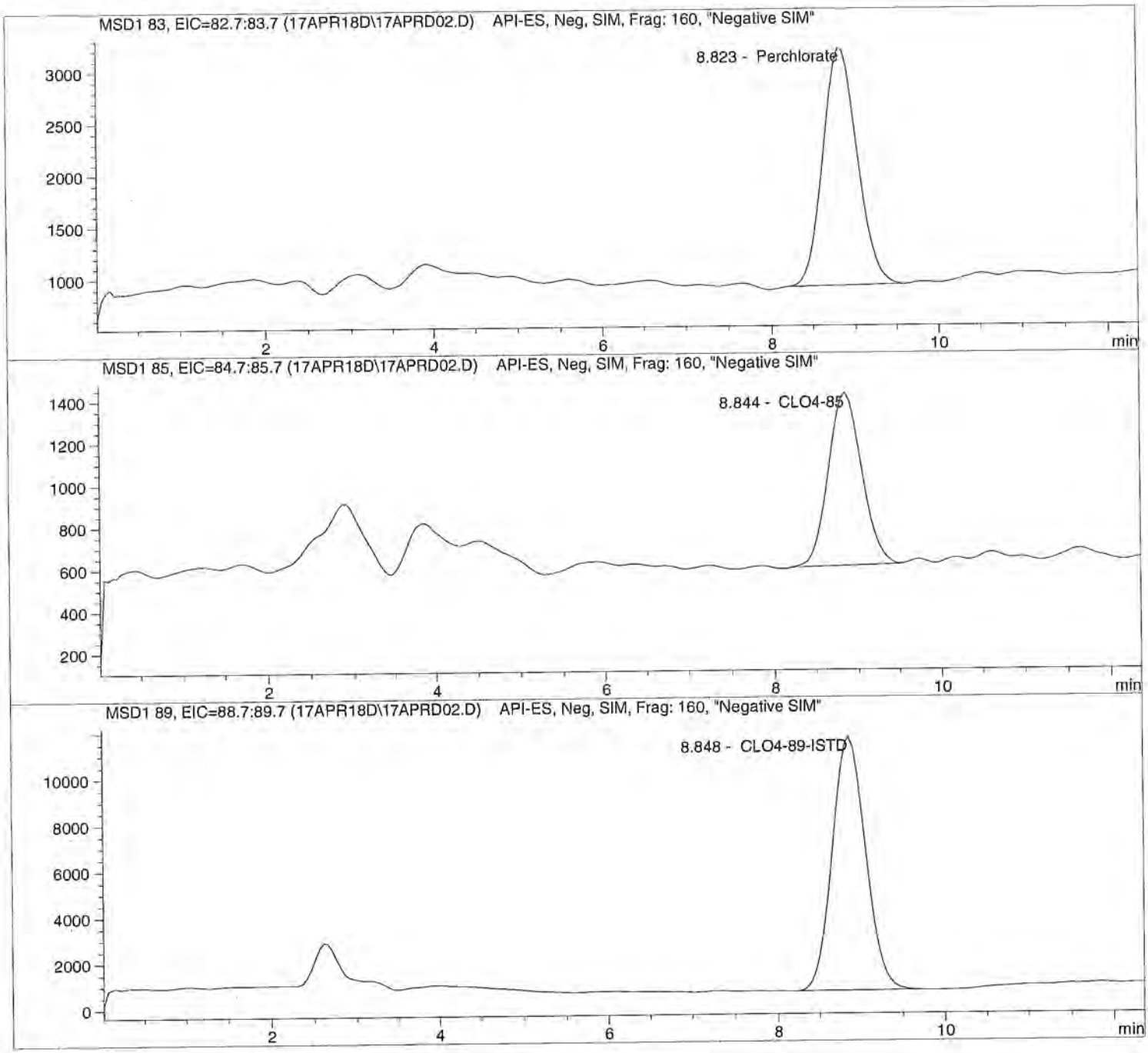
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD02.D Sample Name: 596167 LODV@1.

Injection Date:	4/17/2018 09:01:47	Seq Line:	2
Sample Name:	596167 LODV@1.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD02.D Sample Name: 596167 LODV@1.

Injection Date:	4/17/2018 09:01:47	Seq Line:	2
Sample Name:	596167 LODV@1.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.823	PBA	64176.1	0.9573	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.844	PBA	22470.6	0.9298	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.848	PBA	301823.1	5.0000	CLO4-89-ISTD

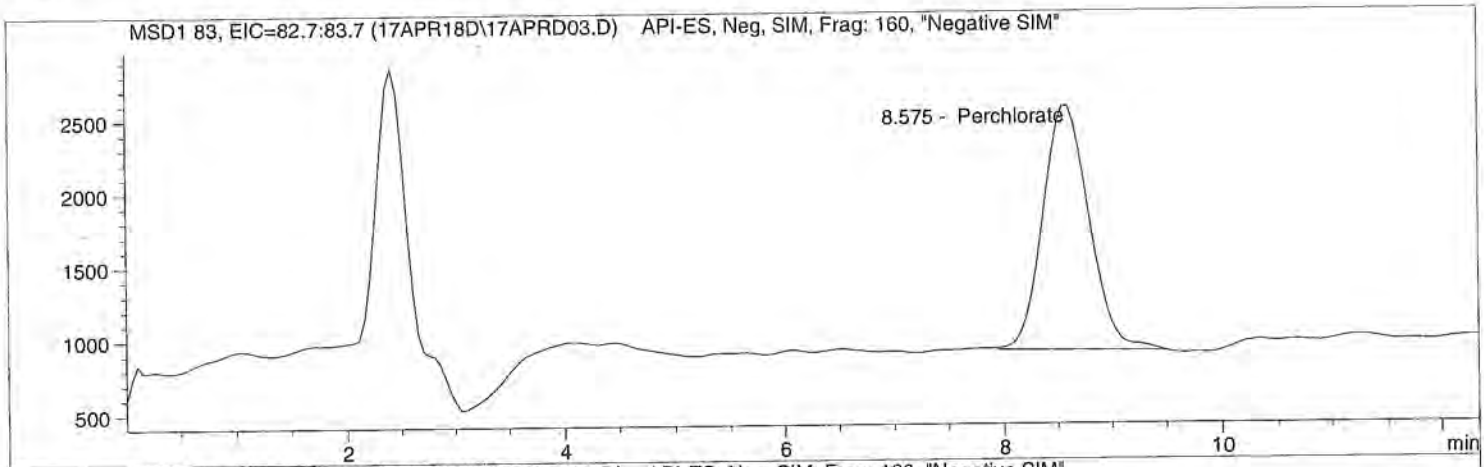
*** End of Report ***

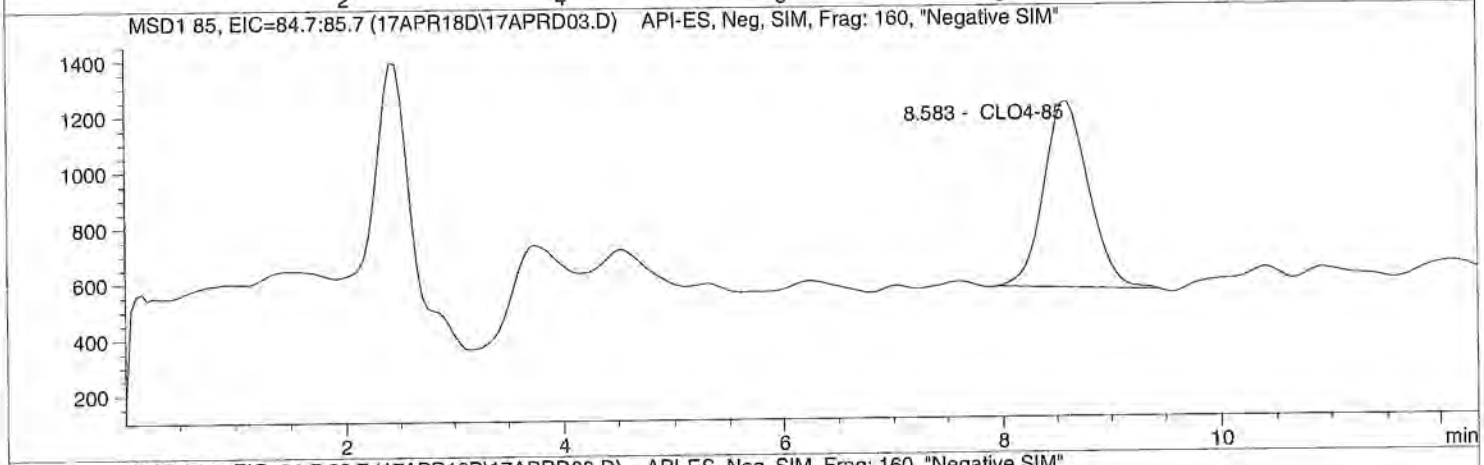
Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD03.D Sample Name: 596168 ICS@1.0

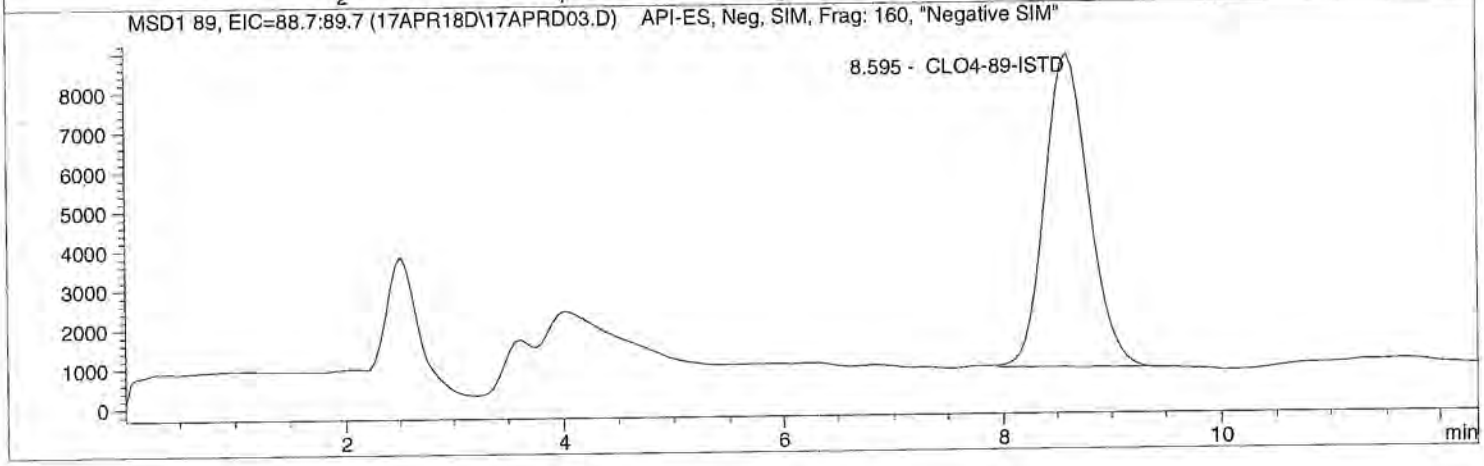
Injection Date:	4/17/2018 09:15:52	Seq Line:	3
Sample Name:	596168 ICS@1.0	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD03.D Sample Name: 596168 ICS@1.0

Injection Date:	4/17/2018 09:15:52	Seq Line:	3
Sample Name:	596168 ICS@1.0	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method:	CLO4-DOD.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed:	4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.575	BBA	49413.3	0.9893	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.583	PBA	19342.7	1.0979	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.595	BBA	225165.6	5.0000	CLO4-89-ISTD

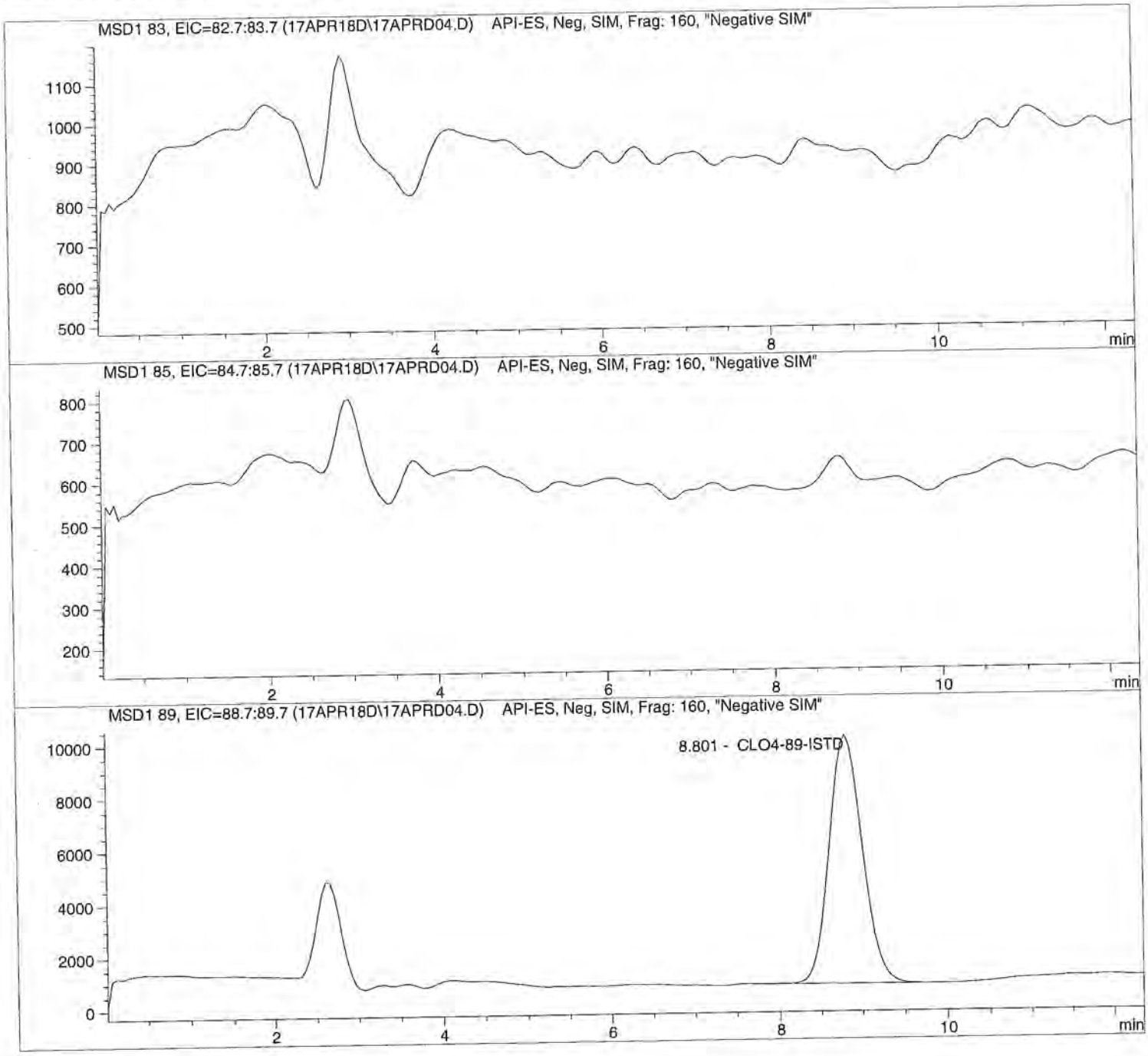
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD04.D Sample Name: 596169 LMB

Injection Date:	4/17/2018 09:29:59	Seq Line:	4
Sample Name:	596169 LMB	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD04.D Sample Name: 596169 LMB

Injection Date:	4/17/2018 09:29:59	Seq Line:	4
Sample Name:	596169 LMB	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method:	CLO4-DOD.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed:	4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

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

Signal2: MSD1 85, EIC=84.7:85.7

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

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.801	BBA	262060.1	5.0000	CLO4-89-ISTD

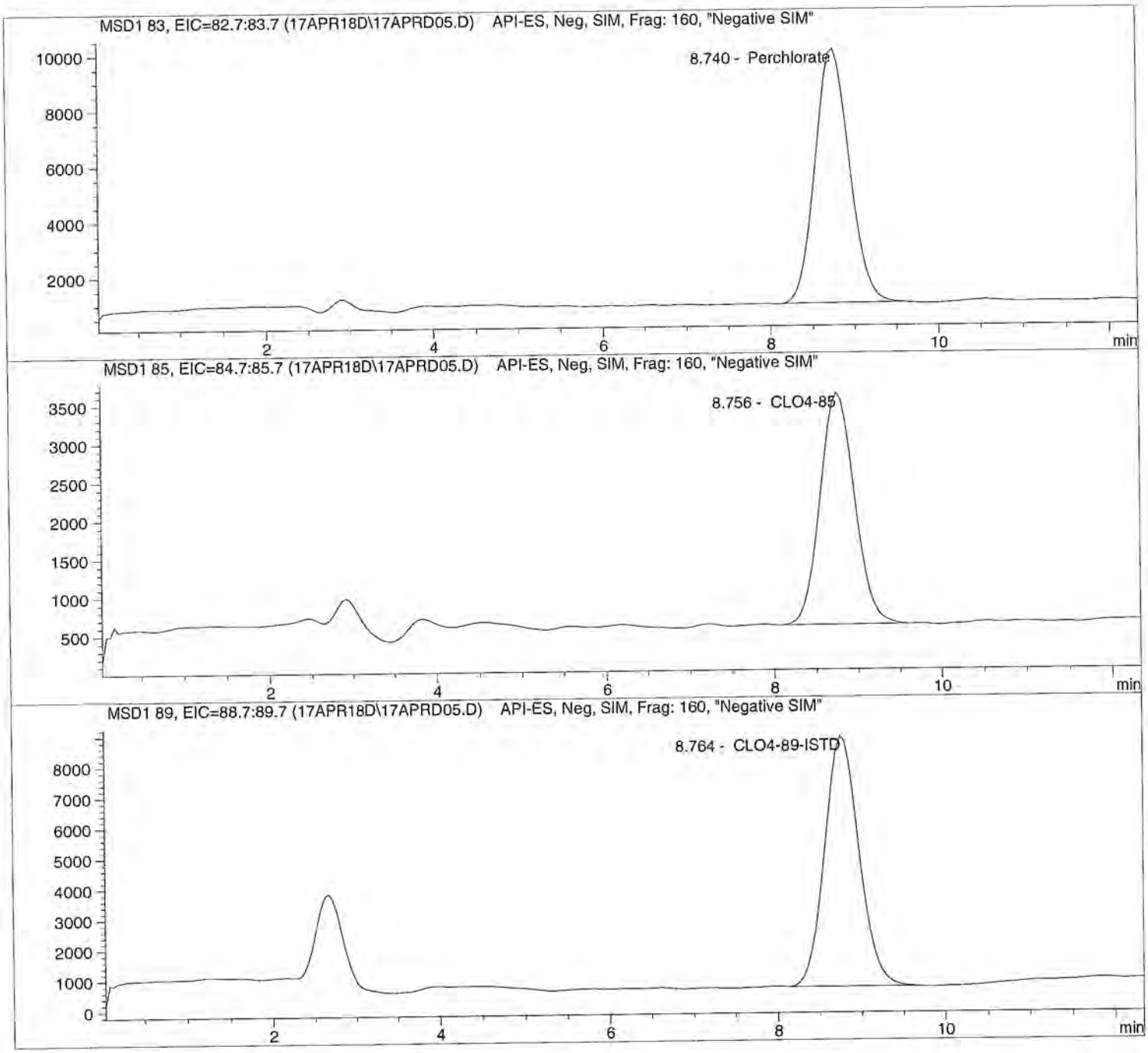
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD05.D Sample Name: 596170 QC@5

Injection Date:	4/17/2018 09:44:04	Seq Line:	5
Sample Name:	596170 QC@5	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD05.D Sample Name: 596170 QC@5

Injection Date:	4/17/2018 09:44:04	Seq Line:	5
Sample Name:	596170 QC@5	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	5.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.740	BBA	259362.7	5.0363	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.756	PBA	86183.6	5.1428	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.764	BBA	234787.9	5.0000	CLO4-89-ISTD

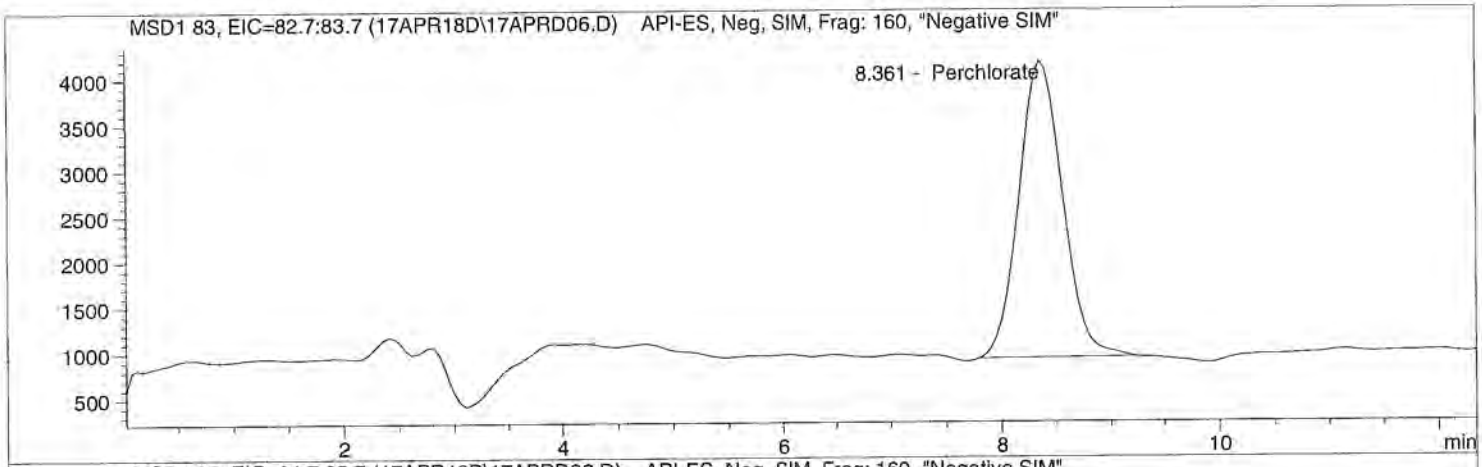
*** End of Report ***

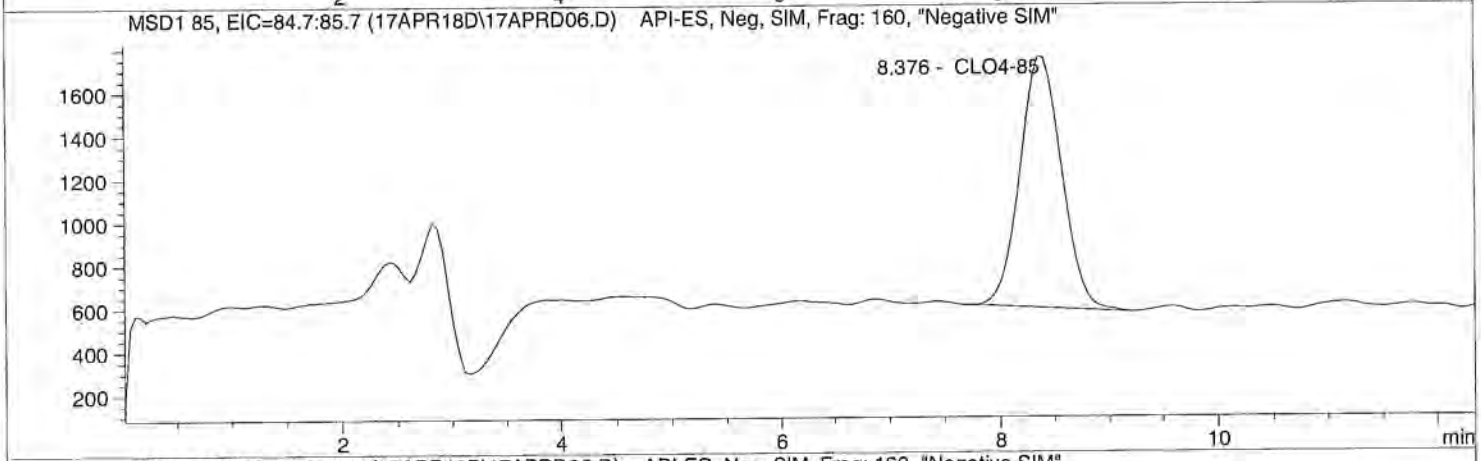
Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD06.D Sample Name: 1809681001

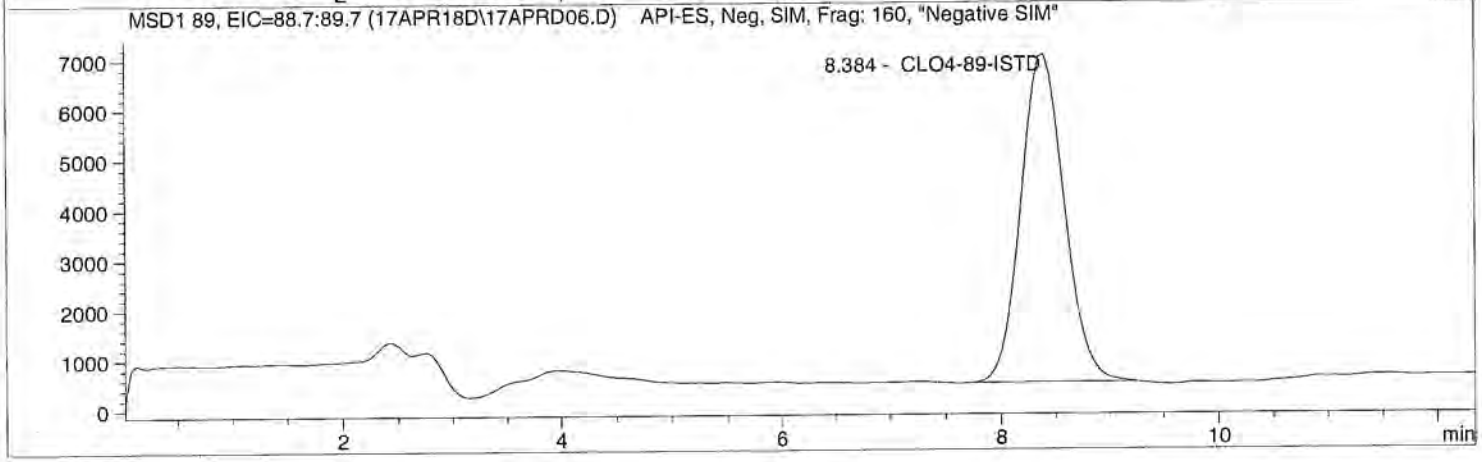
Injection Date:	4/17/2018 09:58:45	Seq Line:	6
Sample Name:	1809681001	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD06.D Sample Name: 1809681001

Injection Date:	4/17/2018 09:58:45	Seq Line:	6
Sample Name:	1809681001	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method:	CLO4-DOD.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed:	4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.361	PBA	90179.7	2.2785	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.376	PBA	30948.3	2.3305	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.384	PBA	181546.0	5.0000	CLO4-89-ISTD

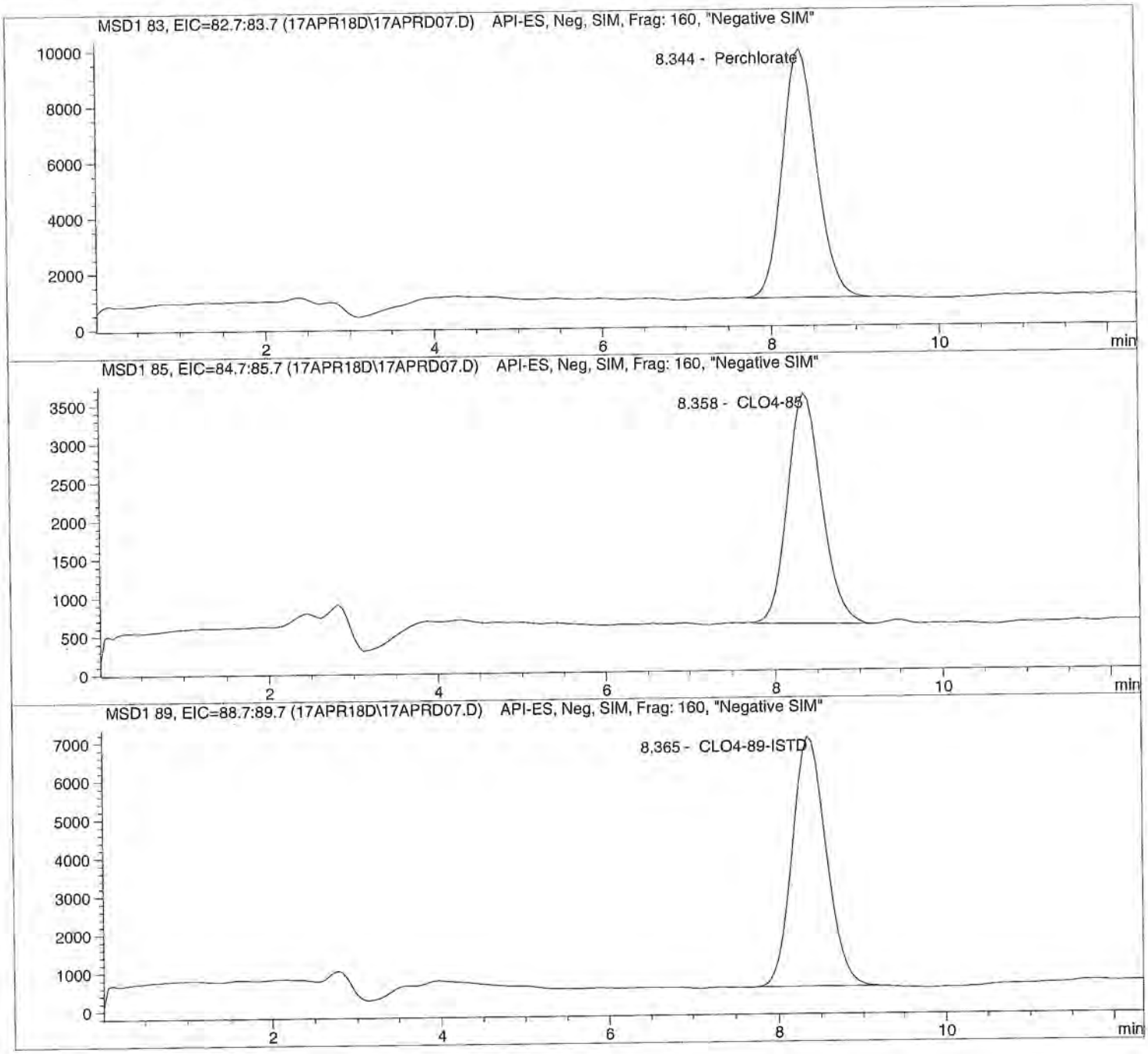
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD07.D Sample Name: 596171 96811MS

Injection Date:	4/17/2018 10:12:52	Seq Line:	7
Sample Name:	596171 96811MS	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD07.D Sample Name: 596171 96811MS

Injection Date:	4/17/2018 10:12:52	Seq Line:	7
Sample Name:	596171 96811MS	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method:	CLO4-DOD.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed:	4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.344	BBA	246734.9	6.2356	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.358	BBA	83567.9	6.5287	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.365	BBA	179397.1	5.0000	CLO4-89-ISTD

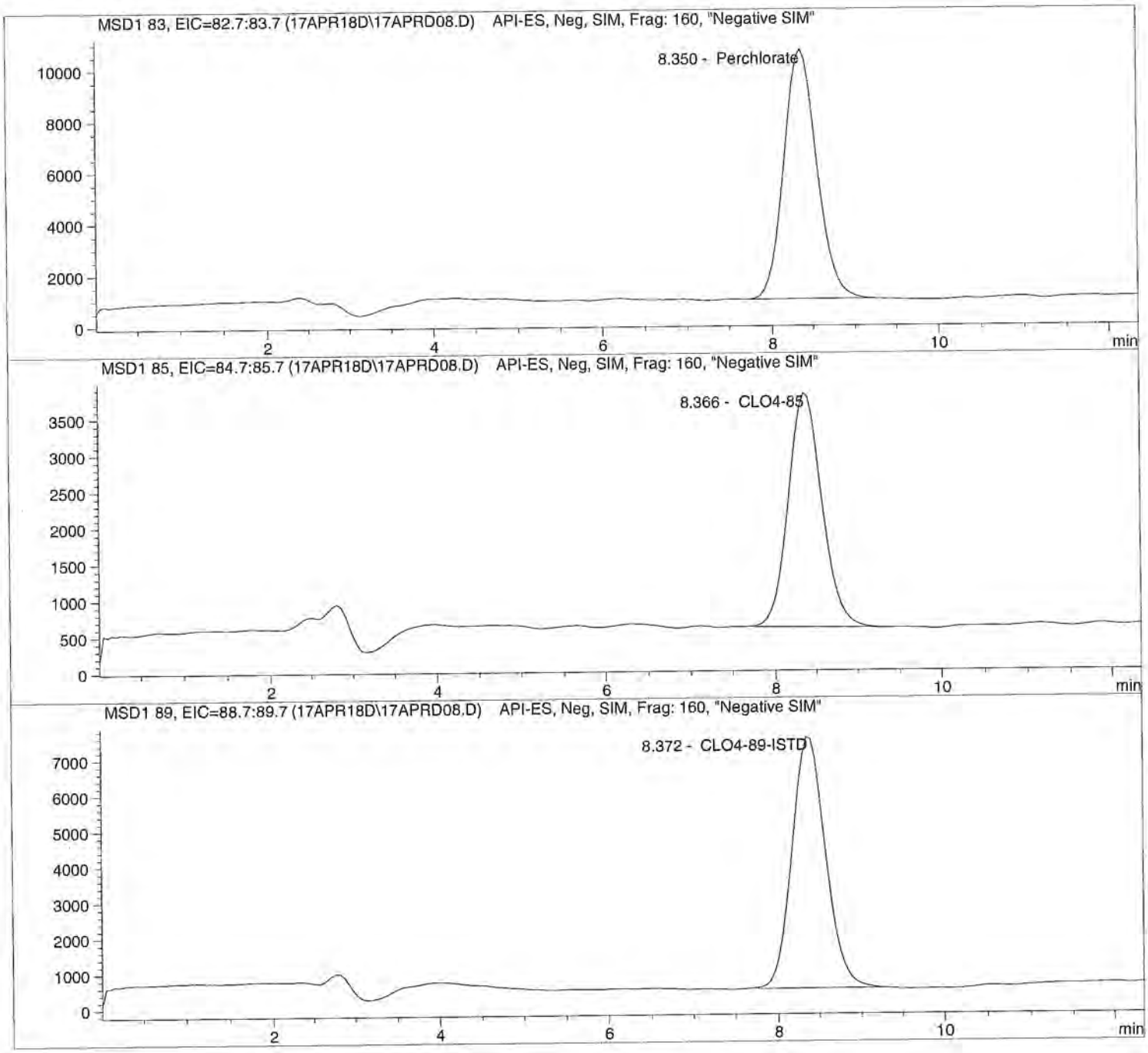
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD08.D Sample Name: 596172 96811SD

Injection Date:	4/17/2018 10:26:57	Seq Line:	8
Sample Name:	596172 96811SD	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD08.D Sample Name: 596172 96811SD

Injection Date:	4/17/2018 10:26:57	Seq Line:	8
Sample Name:	596172 96811SD	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.350	BBA	268949.8	6.1485	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.366	BBA	90630.9	6.4026	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.372	BBA	198406.3	5.0000	CLO4-89-ISTD

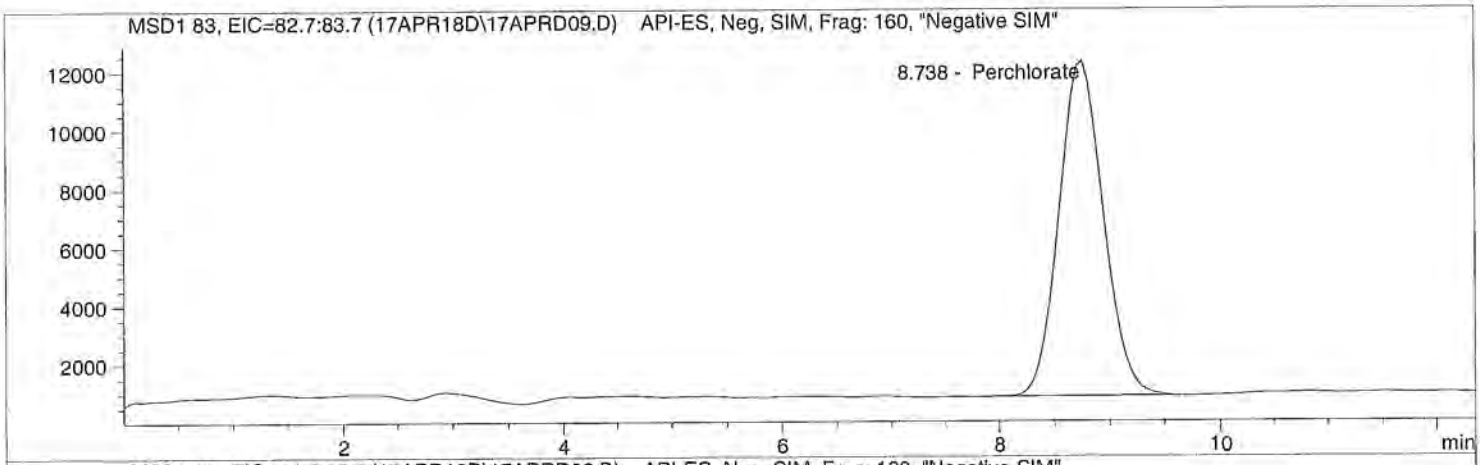
*** End of Report ***

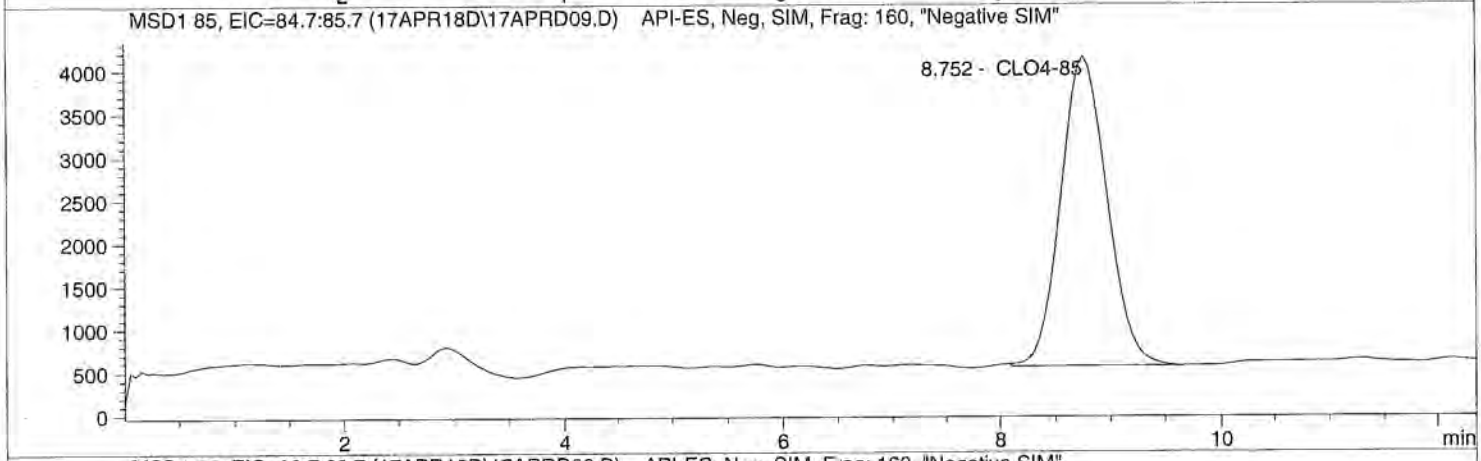
Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD09.D Sample Name: 1810423001 1K

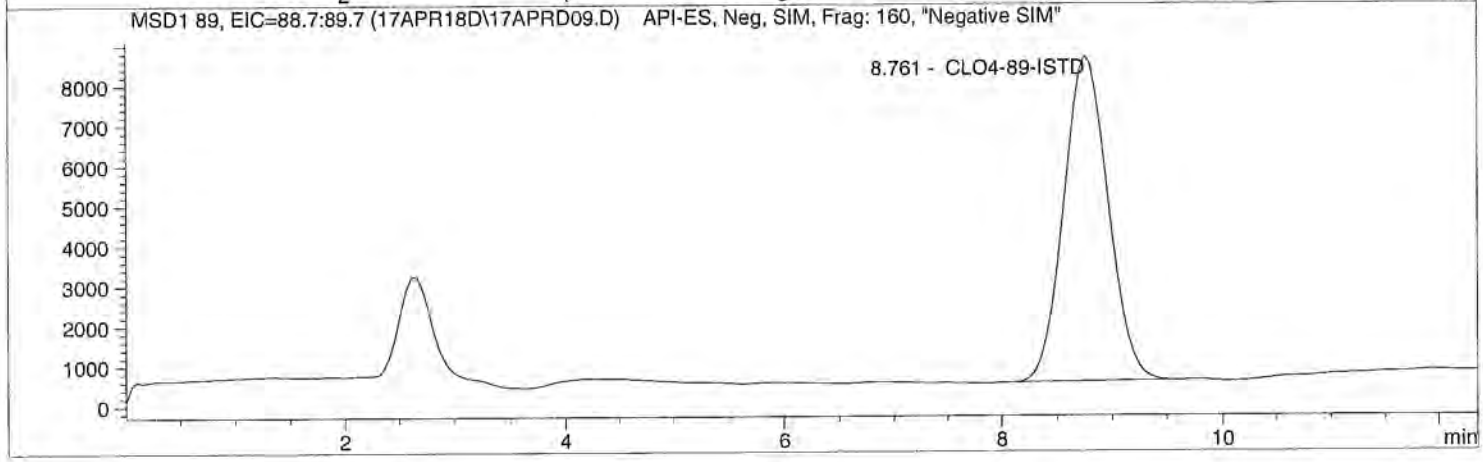
Injection Date:	4/17/2018 10:41:03	Seq Line:	9
Sample Name:	1810423001 1K	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD09.D Sample Name: 1810423001 1K

Injection Date:	4/17/2018 10:41:03	Seq Line:	9
Sample Name:	1810423001 1K	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method:	CLO4-DOD.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed:	4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1000.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.738	BBA	321292.2	6356.0643	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.752	BBA	105474.0	6454.2620	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.761	BBA	229045.5	5000.0000	CLO4-89-ISTD

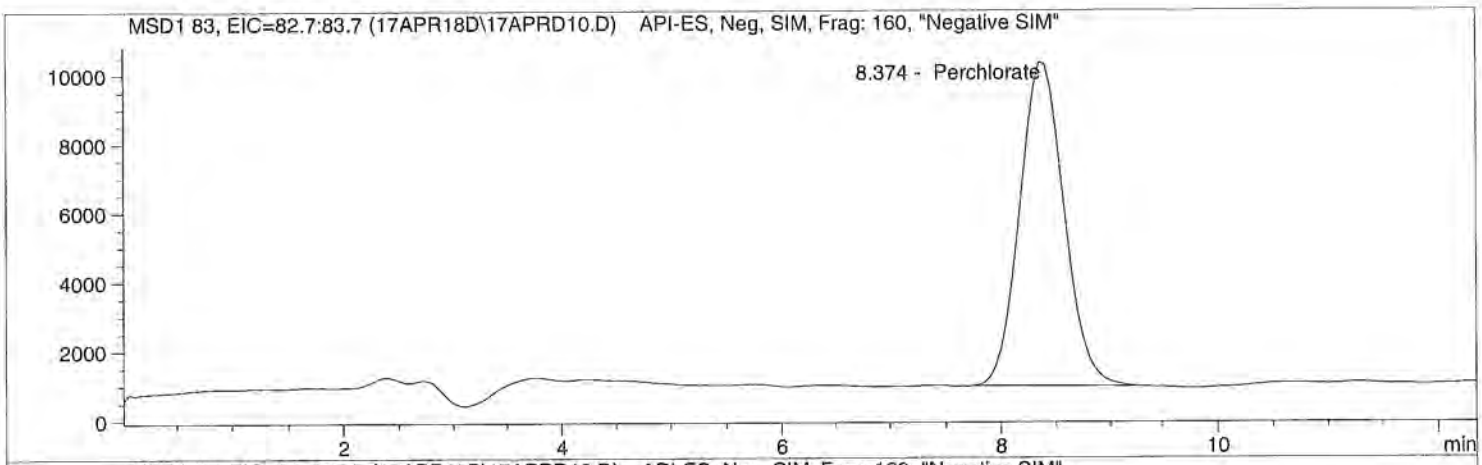
*** End of Report ***

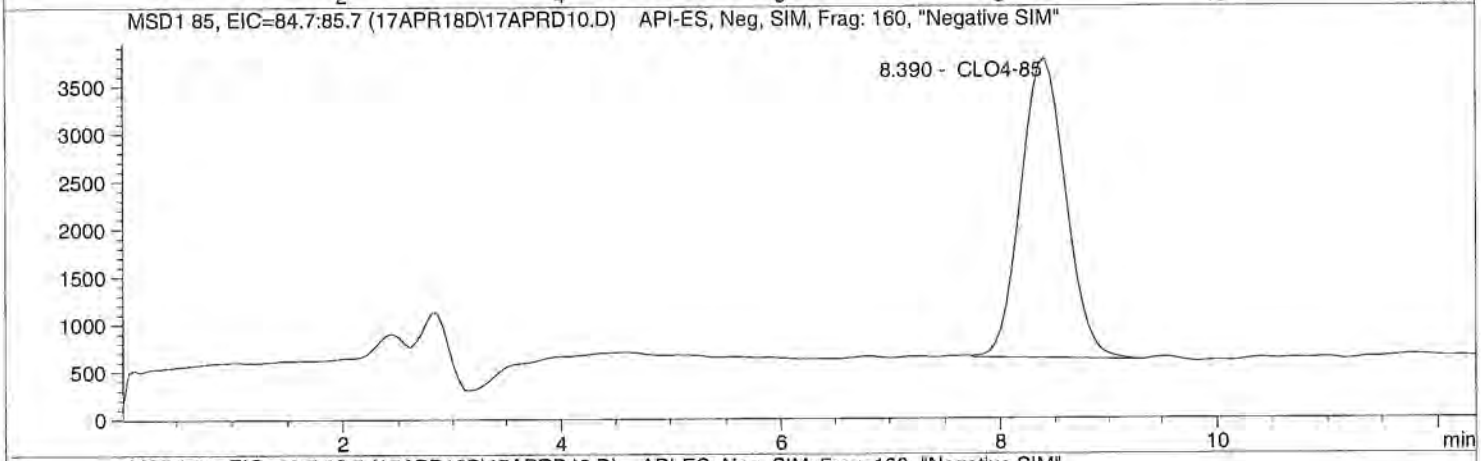
Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD10.D Sample Name: 1810427001

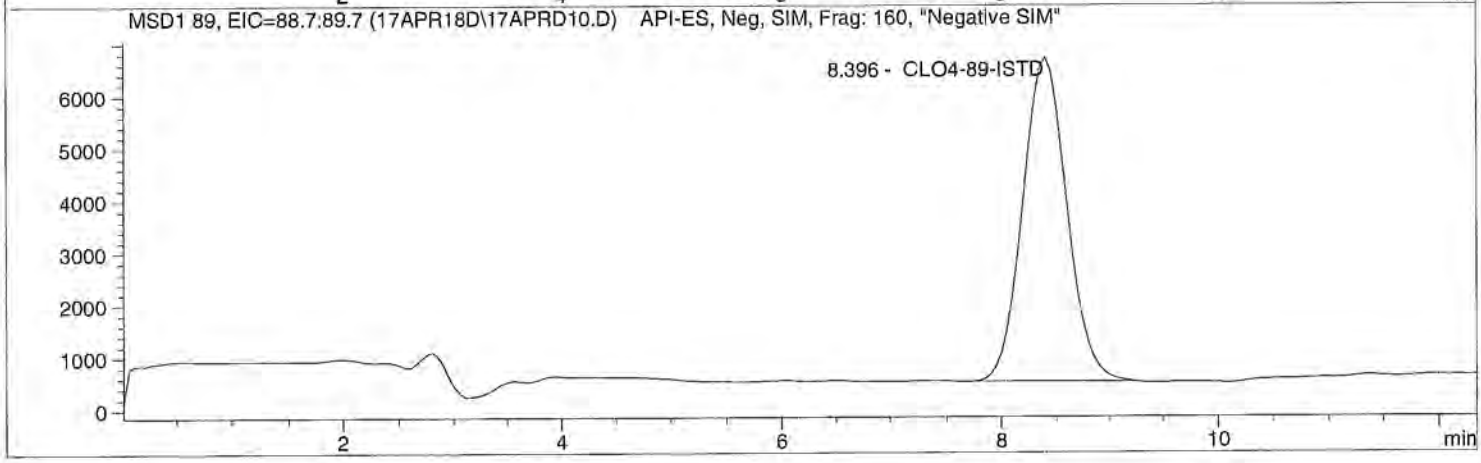
Injection Date:	4/17/2018 10:55:12	Seq Line:	10
Sample Name:	1810427001	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD10.D Sample Name: 1810427001

Injection Date:	4/17/2018 10:55:12	Seq Line:	10
Sample Name:	1810427001	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method:	CLO4-DOD.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed:	4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.374	BBA	263118.8	6.8720	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.390	BBA	89273.7	7.2248	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.396	PBA	173045.3	5.0000	CLO4-89-ISTD

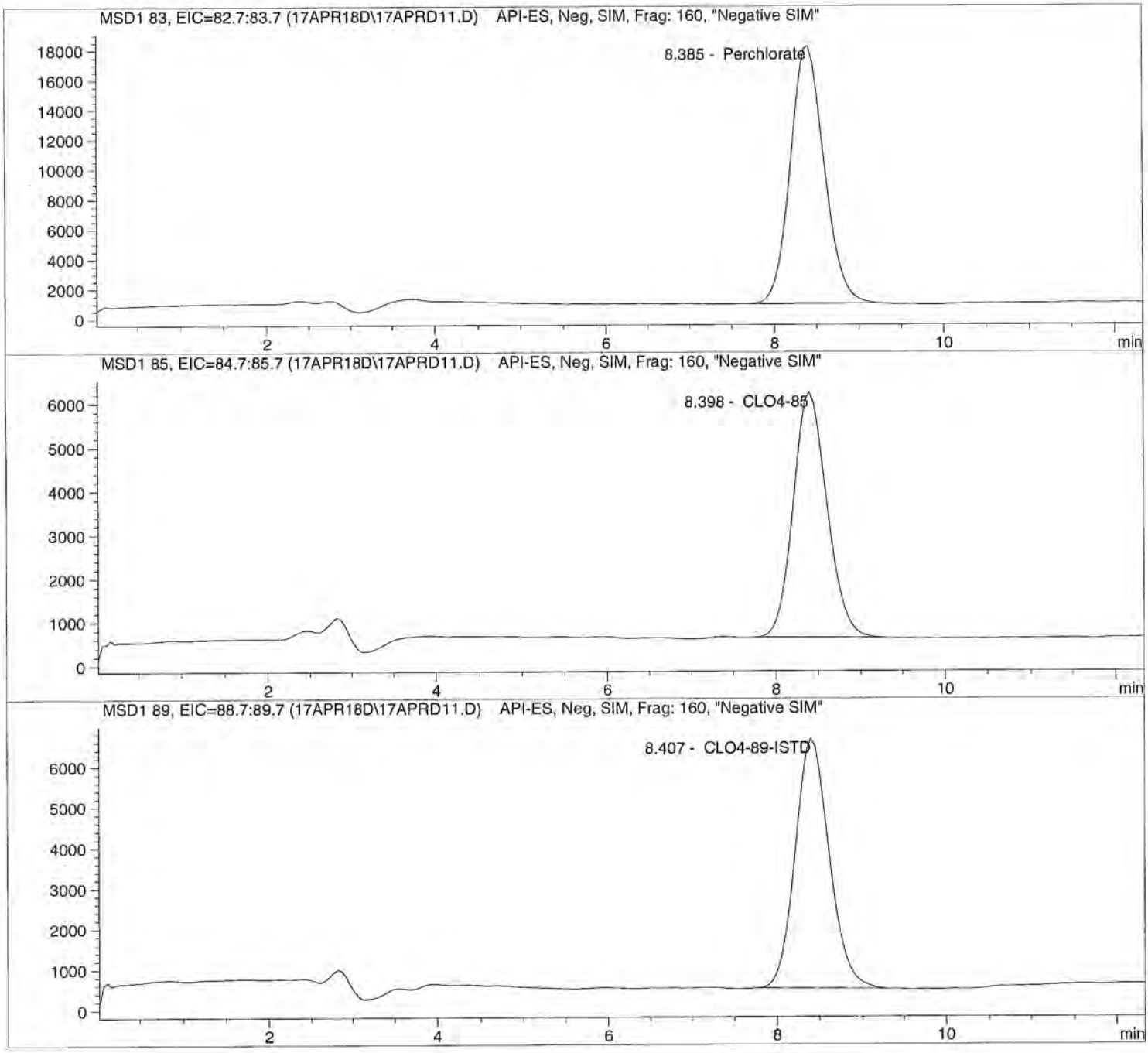
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD11.D Sample Name: 1810428001

Injection Date:	4/17/2018 11:09:17	Seq Line:	11
Sample Name:	1810428001	Location:	Vial 81
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD11.D Sample Name: 1810428001

Injection Date:	4/17/2018 11:09:17	Seq Line:	11
Sample Name:	1810428001	Location:	Vial 81
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.385	BBA	474912.1	12.1930	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.398	BBA	154421.9	12.4643	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.407	BBA	171054.8	5.0000	CLO4-89-ISTD

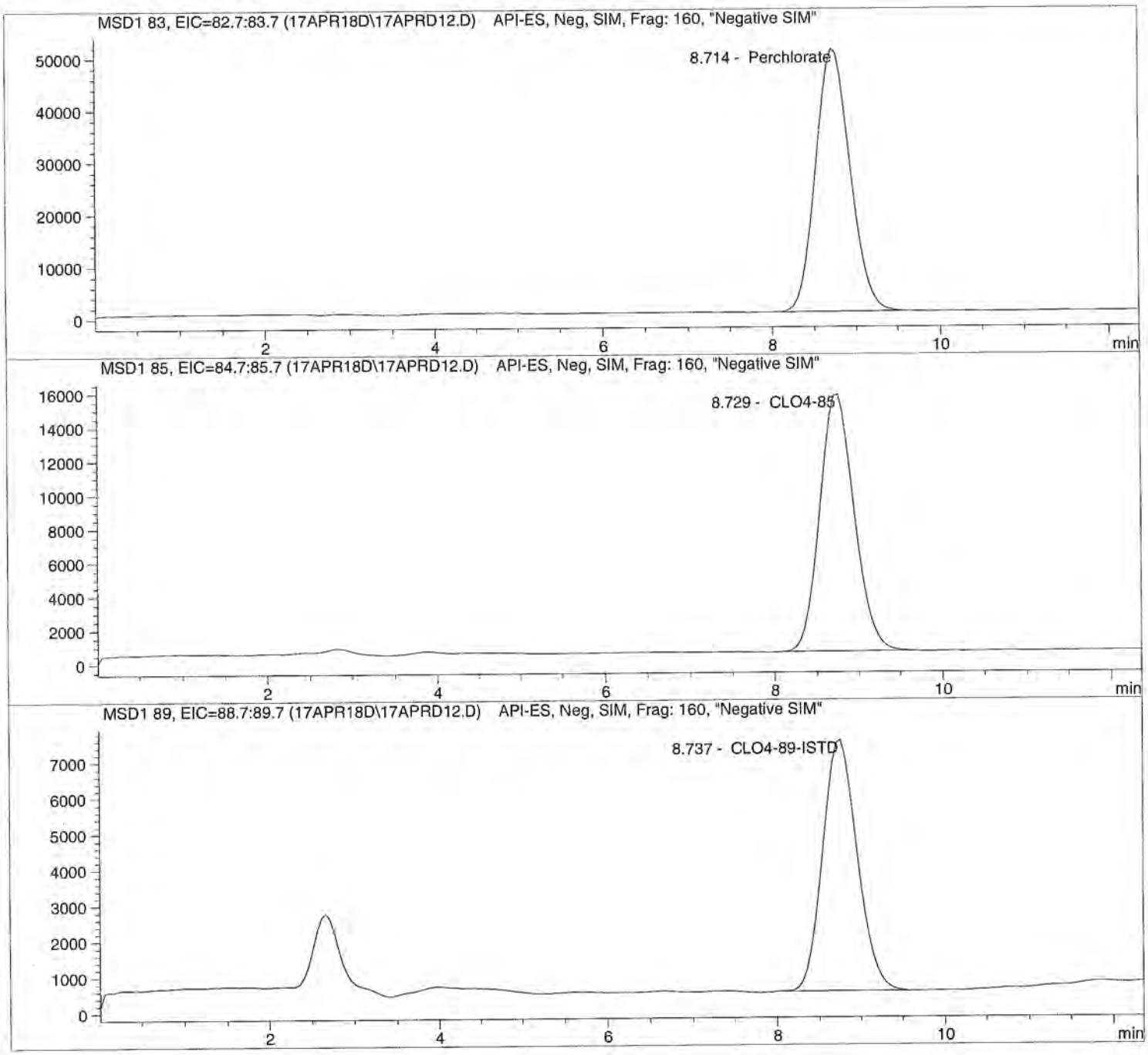
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD12.D Sample Name: 596173 CCV@25

Injection Date:	4/17/2018 11:23:22	Seq Line:	12
Sample Name:	596173 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD12.D Sample Name: 596173 CCV@25

Injection Date:	4/17/2018 11:23:22	Seq Line:	12
Sample Name:	596173 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method:	CLO4-DOD.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed:	4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.714	BBA	1429500.2	28.2957	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.729	PBA	434571.0	27.8213	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.737	BBA	203222.0	5.0000	CLO4-89-ISTD

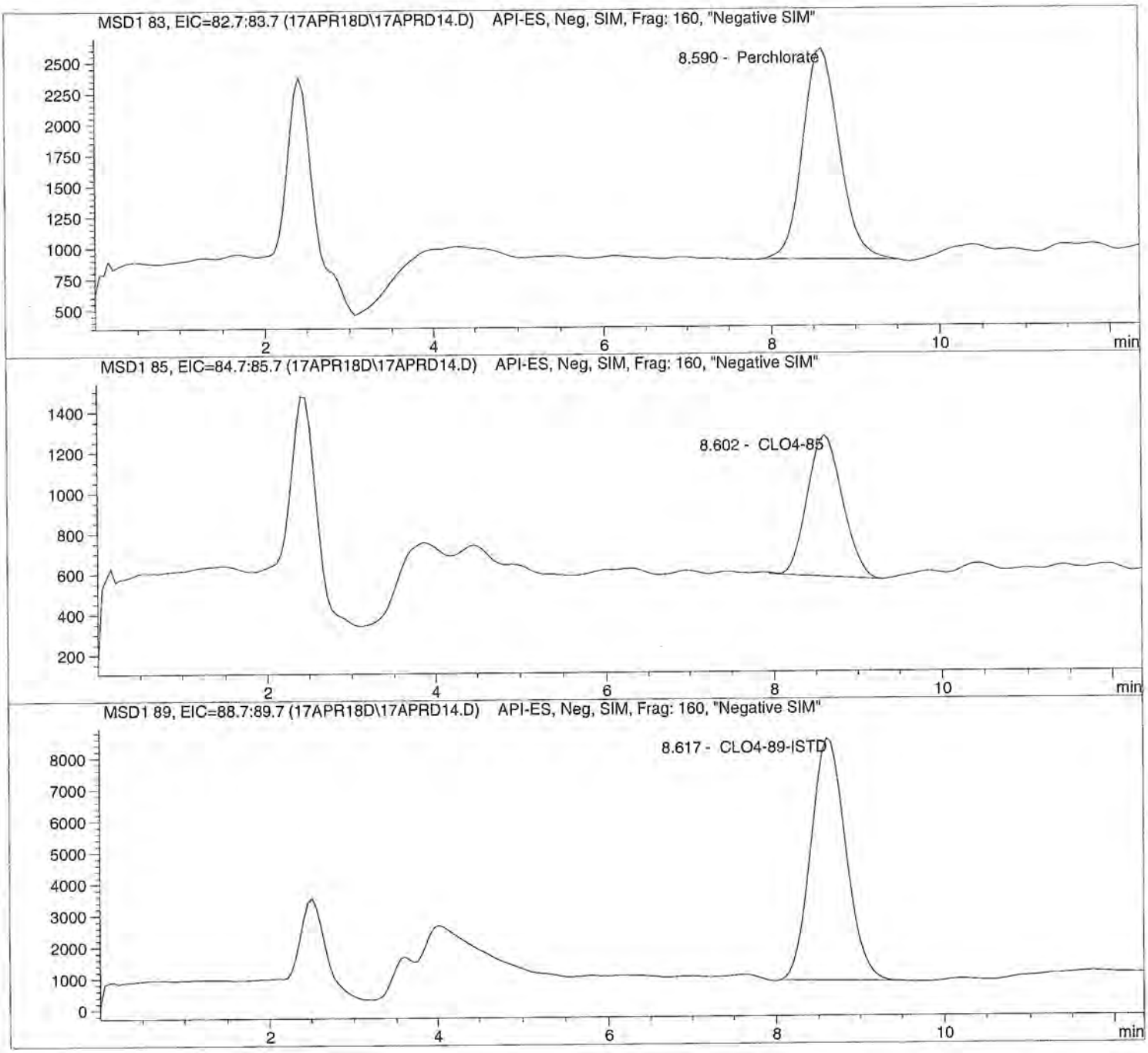
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD14.D Sample Name: 596174 LODV@1.

Injection Date:	4/17/2018 11:53:42	Seq Line:	14
Sample Name:	596174 LODV@1.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD14.D Sample Name: 596174 LODV@1.

Injection Date:	4/17/2018 11:53:42	Seq Line:	14
Sample Name:	596174 LODV@1.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method:	CLO4-DOD.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed:	4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.590	BBA	50957.5	1.0366	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.602	BBA	20234.2	1.1748	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.617	PBA	221977.6	5.0000	CLO4-89-ISTD

*** End of Report ***

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Initial Calibration

Batch Report: C:\HPCHEM\1\DATA\02APR18D\02APR18I.B

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

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

#*	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorate RT	Perchlorate Amount
*	ICAL1@ 1.0ug/L	Vial 71	1	Control	1	4.75217e4	8.805	1.04383
*	ICAL2@ 2.0ug/L	Vial 72	1	Control	2	7.57673e4	8.842	1.88584
*	ICAL3@ 5.0ug/L	Vial 73	1	Control	3	1.87507e5	8.869	5.06681
*	ICAL4@ 10.ug/L	Vial 74	1	Control	4	4.00349e5	8.838	9.89695
*	ICAL5@ 25.ug/L	Vial 75	1	Control	5	1.13339e6	8.844	25.44483
*	ICAL6@ 50.ug/L	Vial 76	1	Control	6	2.22347e6	8.787	49.47140
*	ICAL7@ 75.ug/L	Vial 77	1	Control	7	3.56432e6	8.816	75.20096
*	ICAL Verf@10ug/L	Vial 78	1	Control	8	3.99588e5	8.826	10.16984

#*	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
*	ICAL1@ 1.0ug/L	Vial 71	1	Control	1	1.48071e4	8.787	8.93940e-1
*	ICAL2@ 2.0ug/L	Vial 72	1	Control	2	2.78914e4	8.863	2.05665
*	ICAL3@ 5.0ug/L	Vial 73	1	Control	3	6.40466e4	8.880	5.32040
*	ICAL4@ 10.ug/L	Vial 74	1	Control	4	1.32002e5	8.855	10.20400
*	ICAL5@ 25.ug/L	Vial 75	1	Control	5	3.49808e5	8.856	25.27336
*	ICAL6@ 50.ug/L	Vial 76	1	Control	6	6.58628e5	8.801	48.60374
*	ICAL7@ 75.ug/L	Vial 77	1	Control	7	1.06294e6	8.833	75.70015
*	ICAL Verf@10ug/L	Vial 78	1	Control	8	1.27530e5	8.845	10.16575

#*	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-ISTD RT	CLO4-89-ISTD Amount
*	ICAL1@ 1.0ug/L	Vial 71	1	Control	1	2.05633e5	8.818	5.00000
*	ICAL2@ 2.0ug/L	Vial 72	1	Control	2	1.83981e5	8.862	5.00000
*	ICAL3@ 5.0ug/L	Vial 73	1	Control	3	1.68695e5	8.888	5.00000
*	ICAL4@ 10.ug/L	Vial 74	1	Control	4	1.79911e5	8.861	5.00000
*	ICAL5@ 25.ug/L	Vial 75	1	Control	5	1.81917e5	8.865	5.00000
*	ICAL6@ 50.ug/L	Vial 76	1	Control	6	1.62538e5	8.808	5.00000
*	ICAL7@ 75.ug/L	Vial 77	1	Control	7	1.52621e5	8.841	5.00000
*	ICAL Verf@10ug/L	Vial 78	1	Control	8	1.74490e5	8.846	5.00000

*** End of Report ***

Calibration Table

Perchlorate

Calib. Data Modified : 4/2/2018 11:32:41 AM

Calculate : Internal Standard
Based on : Peak Area

Rel. Reference Window : 20.000 %
Abs. Reference Window : 0.000 min
Rel. Non-ref. Window : 20.000 %
Abs. Non-ref. Window : 0.000 min
Use Multiplier & Dilution Factor with ISTDs
Uncalibrated Peaks : not reported
Partial Calibration : No recalibration if peaks missing

Curve Type : Quadratic (some peaks differ, see below)
Origin : Ignored (some peaks differ, see below)
Weight : Linear (Amnt) (some peaks differ, see below)

Recalibration Settings:
Average Response : Average all calibrations
Average Retention Time: Floating Average New 75%

Calibration Report Options :
Printout of recalibrations within a sequence:
Calibration Table after Recalibration
Normal Report after Recalibration
If the sequence is done with bracketing:
Results of first cycle (ending previous bracket)

Default Sample ISTD Information (if not set in sample table):

ISTD #	ISTD Amount	Name
1	5.00000	CLO4-89-ISTD

Signal 1: MSD1 83, EIC=82.7:83.7
Signal 2: MSD1 85, EIC=84.7:85.7
Signal 3: MSD1 89, EIC=88.7:89.7

RetTime [min]	Sig	Lvl	Amount	Area	Amt/Area	Ref	Grp	Name
8.740	1	1	1.00000	4.75217e4	2.10430e-5		1	Perchlorate
		2	2.00000	7.57673e4	2.63966e-5			
		3	5.00000	1.87507e5	2.66656e-5			
		4	10.00000	4.00349e5	2.49782e-5			
		5	25.00000	1.13339e6	2.20577e-5			
		6	50.00000	2.22347e6	2.24874e-5			
		7	75.00000	3.56432e6	2.10419e-5			
8.787	2	1	1.00000	1.48071e4	6.75351e-5		1	CLO4-85
		2	2.00000	2.78914e4	7.17068e-5			
		3	5.00000	6.40466e4	7.80681e-5			
		4	10.00000	1.32002e5	7.57564e-5			
		5	25.00000	3.49808e5	7.14678e-5			
		6	50.00000	6.58628e5	7.59154e-5			
		7	75.00000	1.06294e6	7.05587e-5			
8.818	3	1	5.00000	2.05633e5	2.43151e-5	+I1		CLO4-89-ISTD
		2	5.00000	1.83981e5	2.71766e-5			
		3	5.00000	1.68695e5	2.96393e-5			
		4	5.00000	1.79911e5	2.77915e-5			
		5	5.00000	1.81917e5	2.74851e-5			
		6	5.00000	1.62538e5	3.07621e-5			

Method C:\HPCHEM\1\METHODS\CLO4-DPR.M

RetTime [min]	Sig	Lvl	Amount	Area	Amt/Area	Ref	Grp	Name
		7	5.00000	1.52621e5	3.27608e-5			

More compound-specific settings:

Compound: Perchlorate
- Time Window : From 6.650 min To 10.650 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 0.5
  - Level 3 : 0.2
  - Level 4 : 0.1
  - Level 5 : 0.04
  - Level 6 : 0.02
  - Level 7 : 0.013333

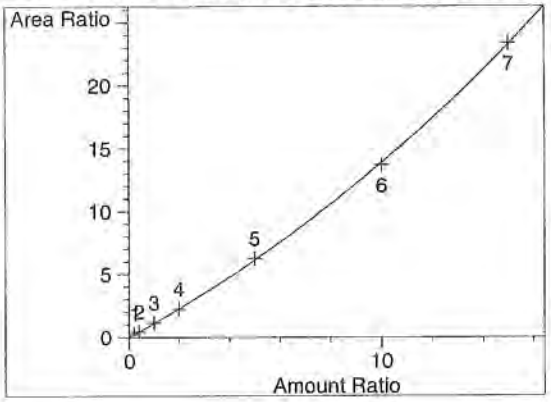
Compound: CLO4-85
- Time Window : From 6.682 min To 10.682 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 0.5
  - Level 3 : 0.2
  - Level 4 : 0.1
  - Level 5 : 0.04
  - Level 6 : 0.02
  - Level 7 : 0.013333

Compound: CLO4-89-ISTD
- Time Window : From 6.711 min To 10.711 min
- Curve Type : Linear
- Origin : Included
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 1
  - Level 3 : 1
  - Level 4 : 1
  - Level 5 : 1
  - Level 6 : 1
  - Level 7 : 1

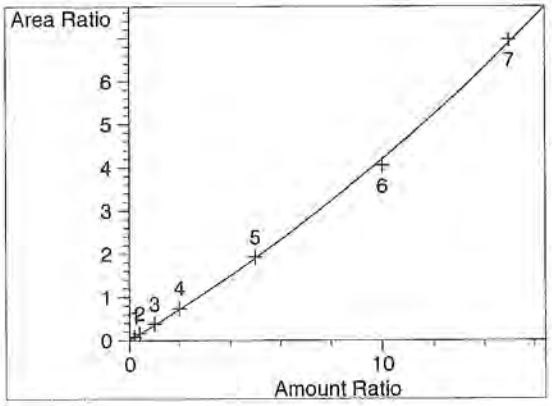
Peak Sum Table

No Entries in table

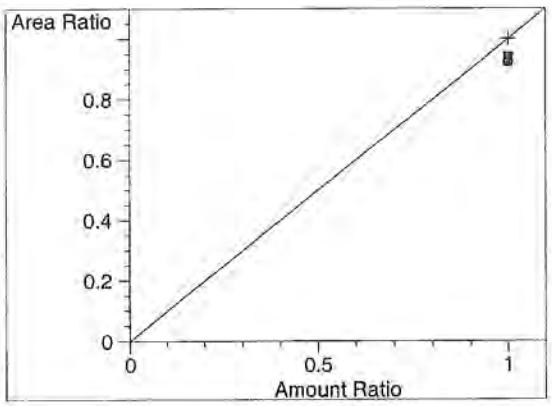
Calibration Curves



Perchlorate at exp. RT: 8.740
MSD1 83, EIC=82.7:83.7
Correlation: 0.99992
Residual Std. Dev.: 0.10616
Formula: $y = ax^2 + bx + c$
a: 3.31374e-2
b: 1.05374
c: 9.66975e-3
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.5
Level 3 : 0.2
Level 4 : 0.1
Level 5 : 0.04
Level 6 : 0.02
Level 7 : 0.013333



CLO4-85 at exp. RT: 8.787
MSD1 85, EIC=84.7:85.7
Correlation: 0.99968
Residual Std. Dev.: 0.07365
Formula: $y = ax^2 + bx + c$
a: 8.04074e-3
b: 3.37521e-1
c: 1.14057e-2
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.5
Level 3 : 0.2
Level 4 : 0.1
Level 5 : 0.04
Level 6 : 0.02
Level 7 : 0.013333



CLO4-89-ISTD at exp. RT: 8.818
MSD1 89, EIC=88.7:89.7
Correlation: 1.00000
Residual Std. Dev.: 0.00000
Formula: $y = mx + b$
m: 1.00000
b: 0.00000
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 1
Level 3 : 1
Level 4 : 1
Level 5 : 1
Level 6 : 1
Level 7 : 1

Sequence: C:\HPCHEM\1\SEQUENCE\CLO4\2018\APR\02APR18D.S

Sequence Table:

Method and Injection Info Part:

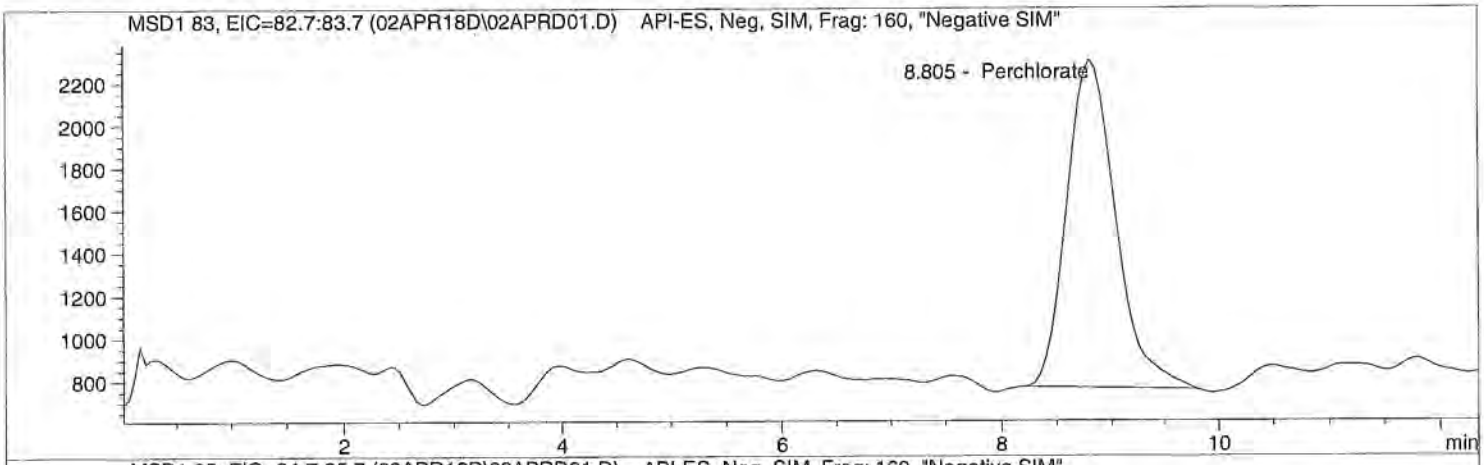
Line	Location	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	ICAL1@ 1.0ug/L	CLO4-DOD	1	Ctrl Samp		
2	Vial 72	ICAL2@ 2.0ug/L	CLO4-DOD	1	Ctrl Samp		
3	Vial 73	ICAL3@ 5.0ug/L	CLO4-DOD	1	Ctrl Samp		
4	Vial 74	ICAL4@ 10.ug/L	CLO4-DOD	1	Ctrl Samp		
5	Vial 75	ICAL5@ 25.ug/L	CLO4-DOD	1	Ctrl Samp		
6	Vial 76	ICAL6@ 50.ug/L	CLO4-DOD	1	Ctrl Samp		
7	Vial 77	ICAL7@ 75.ug/L	CLO4-DOD	1	Ctrl Samp		
8	Vial 78	ICAL Verf@10ug/L	CLO4-DOD	1	Ctrl Samp		

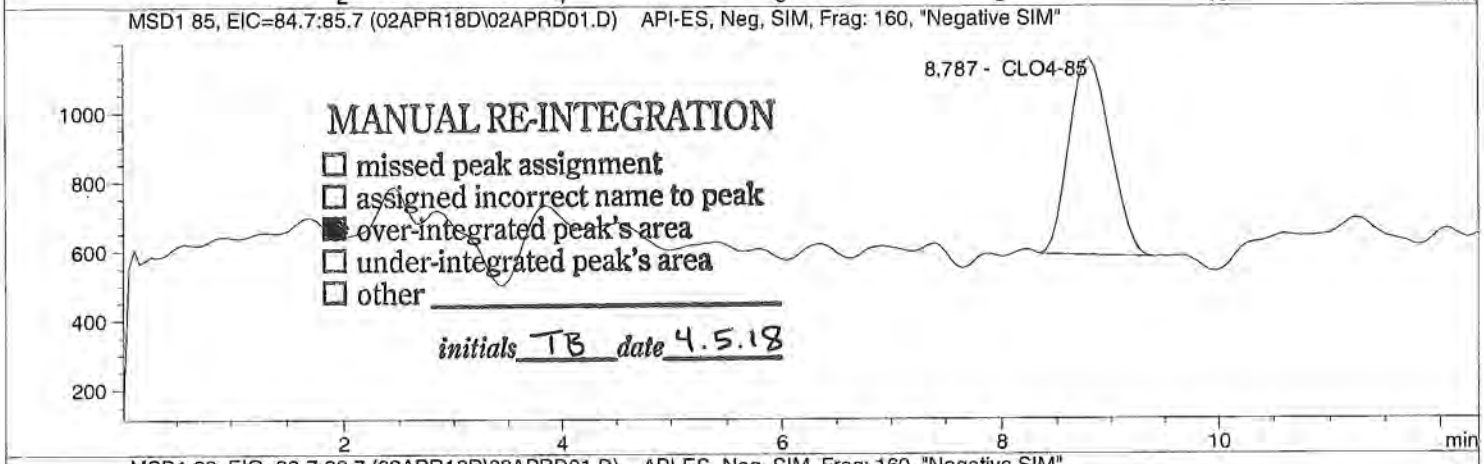
Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD01.D Sample Name: ICAL1@ 1.0ug/L

Injection Date:	4/02/2018 09:08:19	Seq Line:	1
Sample Name:	ICAL1@ 1.0ug/L	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

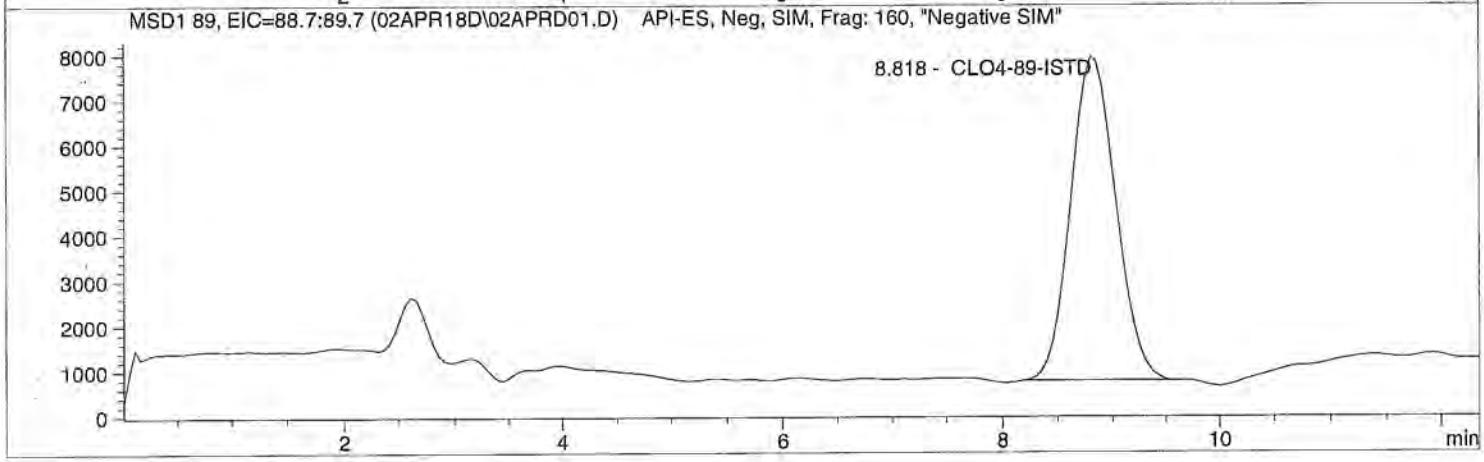
Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis





MANUAL RE-INTEGRATION
☐ missed peak assignment
☐ assigned incorrect name to peak
■ over-integrated peak's area
☐ under-integrated peak's area
☐ other _____
initials TB *date* 4.5.18



Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD01.D Sample Name: ICAL1@ 1.0ug/L

Injection Date:	4/02/2018 09:08:19	Seq Line:	1
Sample Name:	ICAL1@ 1.0ug/L	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.805	PBA	47521.7	1.0438	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.787	MM	14807.1	0.8939	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.818	PBA	205633.2	5.0000	CLO4-89-ISTD

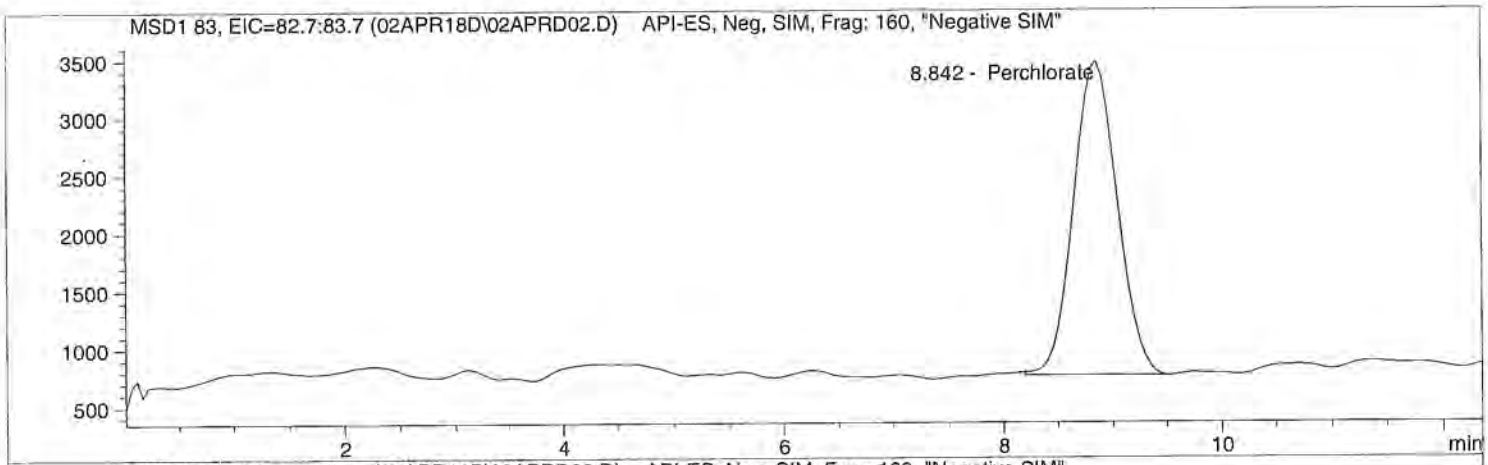
*** End of Report ***

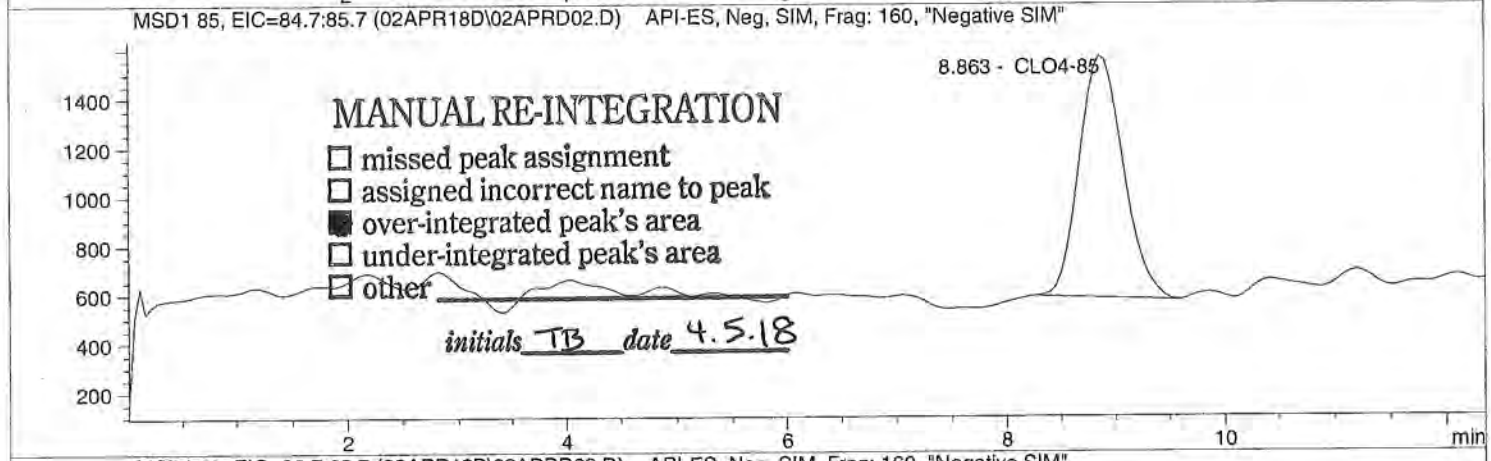
Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD02.D Sample Name: ICAL2@ 2.0ug/L

Injection Date:	4/02/2018 09:22:28	Seq Line:	2
Sample Name:	ICAL2@ 2.0ug/L	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

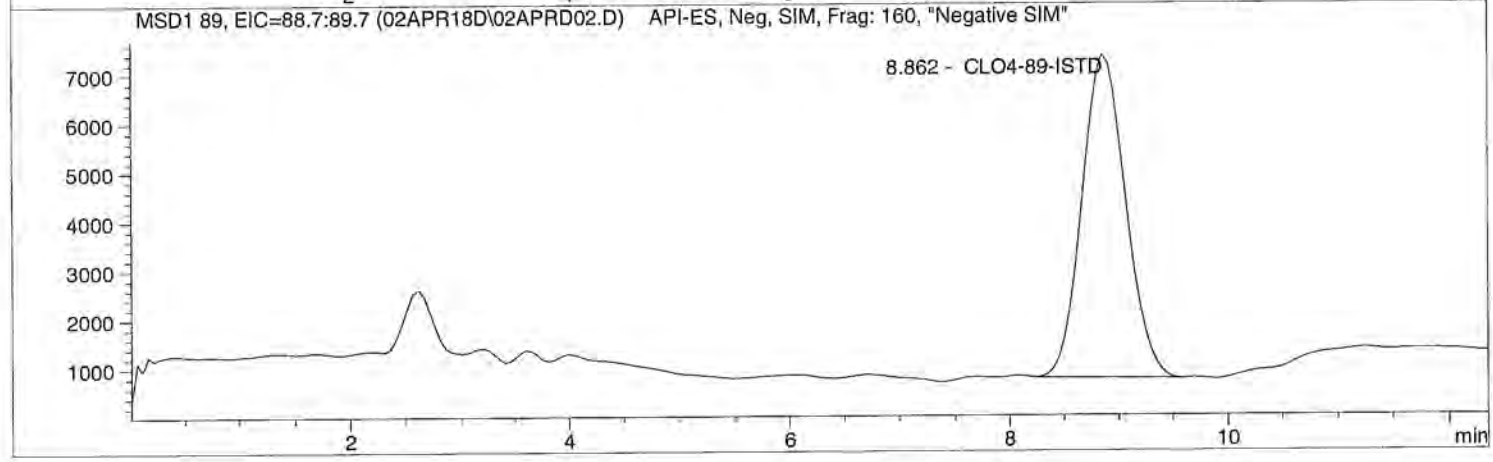
Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis





MANUAL RE-INTEGRATION
☐ missed peak assignment
☐ assigned incorrect name to peak
■ over-integrated peak's area
☐ under-integrated peak's area
☐ other _____
initials TB *date* 4.5.18



Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD02.D Sample Name: ICAL2@ 2.0ug/L

Injection Date:	4/02/2018 09:22:28	Seq Line:	2
Sample Name:	ICAL2@ 2.0ug/L	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	2.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.842	BBA	75767.3	1.8858	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.863	MM	27891.4	2.0567	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.862	BBA	183981.5	5.0000	CLO4-89-ISTD

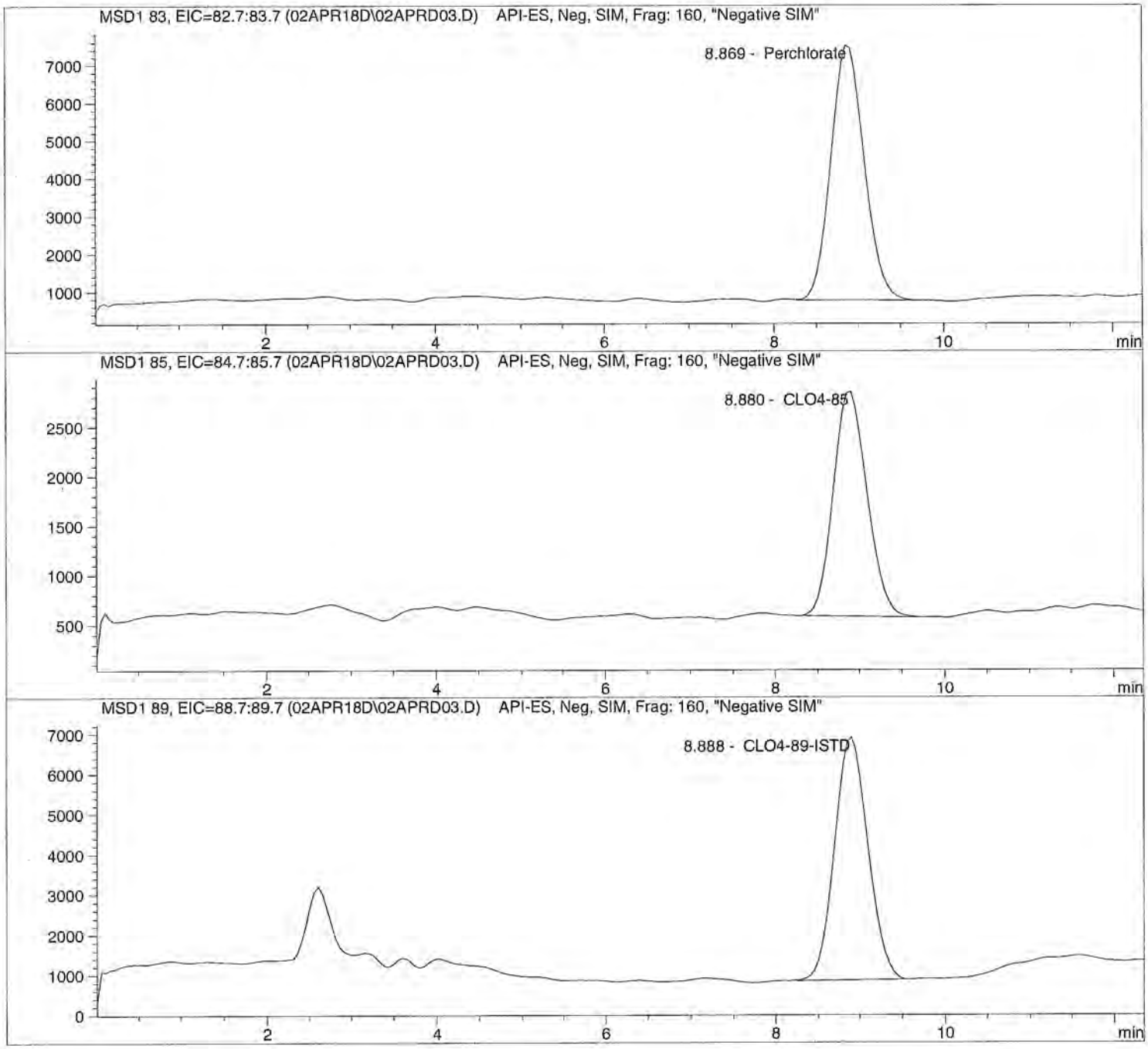
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD03.D Sample Name: ICAL3@ 5.0ug/L

Injection Date:	4/02/2018 09:36:38	Seq Line:	3
Sample Name:	ICAL3@ 5.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD03.D Sample Name: ICAL3@ 5.0ug/L

Injection Date:	4/02/2018 09:36:38	Seq Line:	3
Sample Name:	ICAL3@ 5.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	5.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.869	BBA	187507.2	5.0668	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.880	PBA	64046.6	5.3204	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.888	BBA	168695.0	5.0000	CLO4-89-ISTD

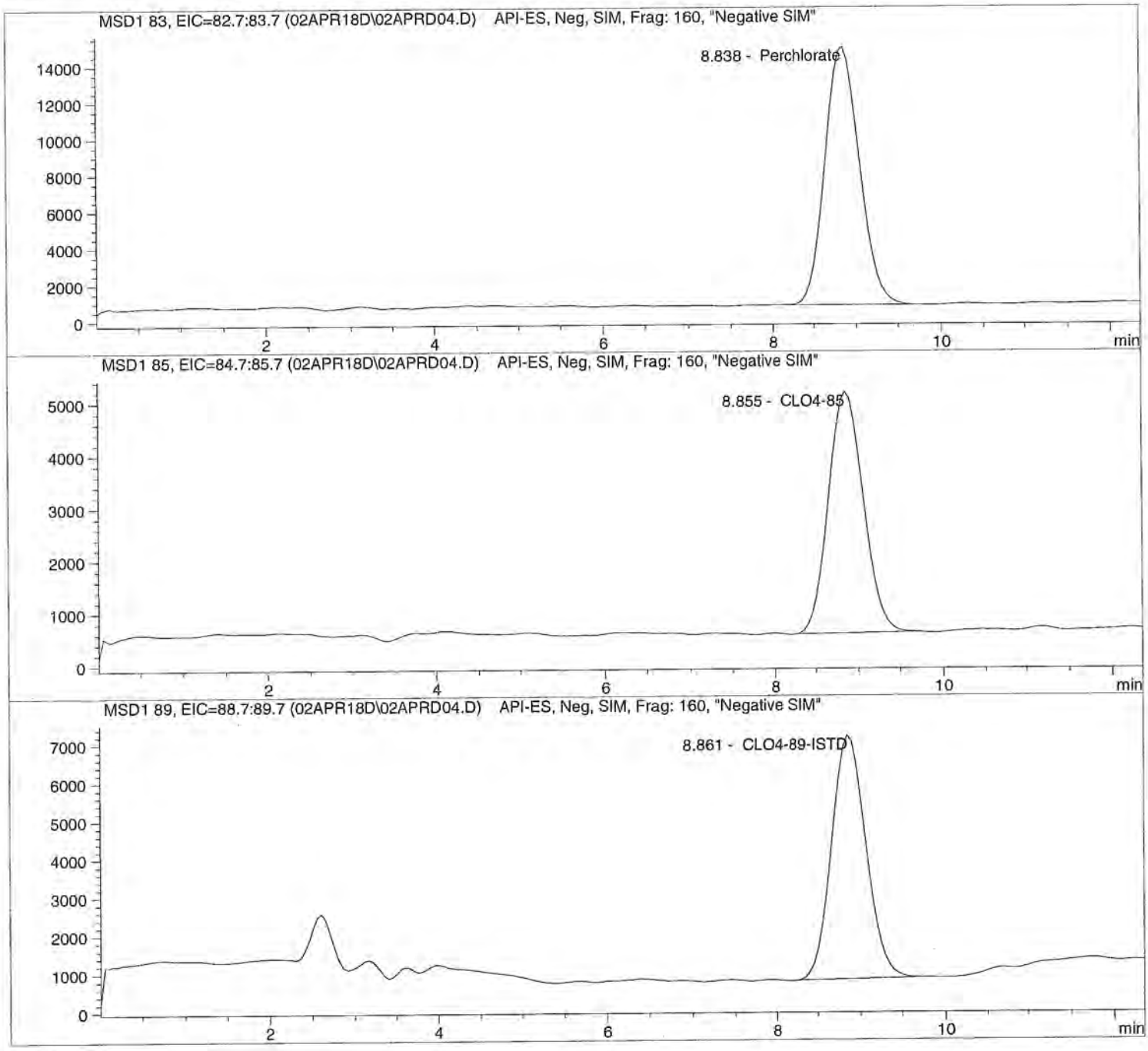
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD04.D Sample Name: ICAL4@ 10.ug/L

Injection Date:	4/02/2018 09:50:54	Seq Line:	4
Sample Name:	ICAL4@ 10.ug/L	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD04.D Sample Name: ICAL4@ 10.ug/L

Injection Date:	4/02/2018 09:50:54	Seq Line:	4
Sample Name:	ICAL4@ 10.ug/L	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	10.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.838	BBA	400349.0	9.8969	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.855	PBA	132002.1	10.2040	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.861	PBA	179911.2	5.0000	CLO4-89-ISTD

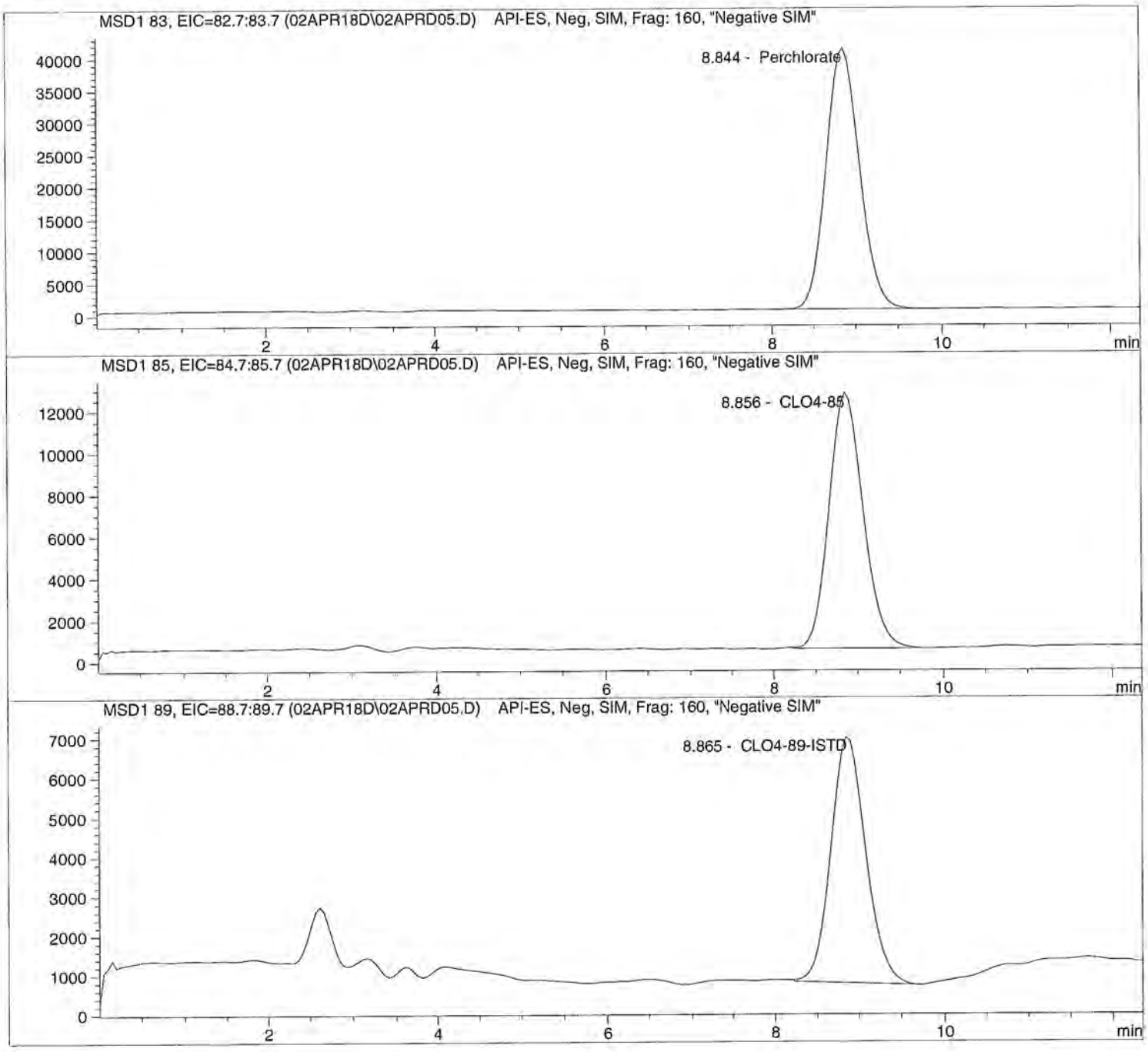
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD05.D Sample Name: ICAL5@ 25.ug/L

Injection Date:	4/02/2018 10:05:03	Seq Line:	5
Sample Name:	ICAL5@ 25.ug/L	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD05.D Sample Name: ICAL5@ 25.ug/L

Injection Date:	4/02/2018 10:05:03	Seq Line:	5
Sample Name:	ICAL5@ 25.ug/L	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.844	BBA	1133393.5	25.4448	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.856	BBA	349808.1	25.2734	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.865	BBA	181916.8	5.0000	CLO4-89-ISTD

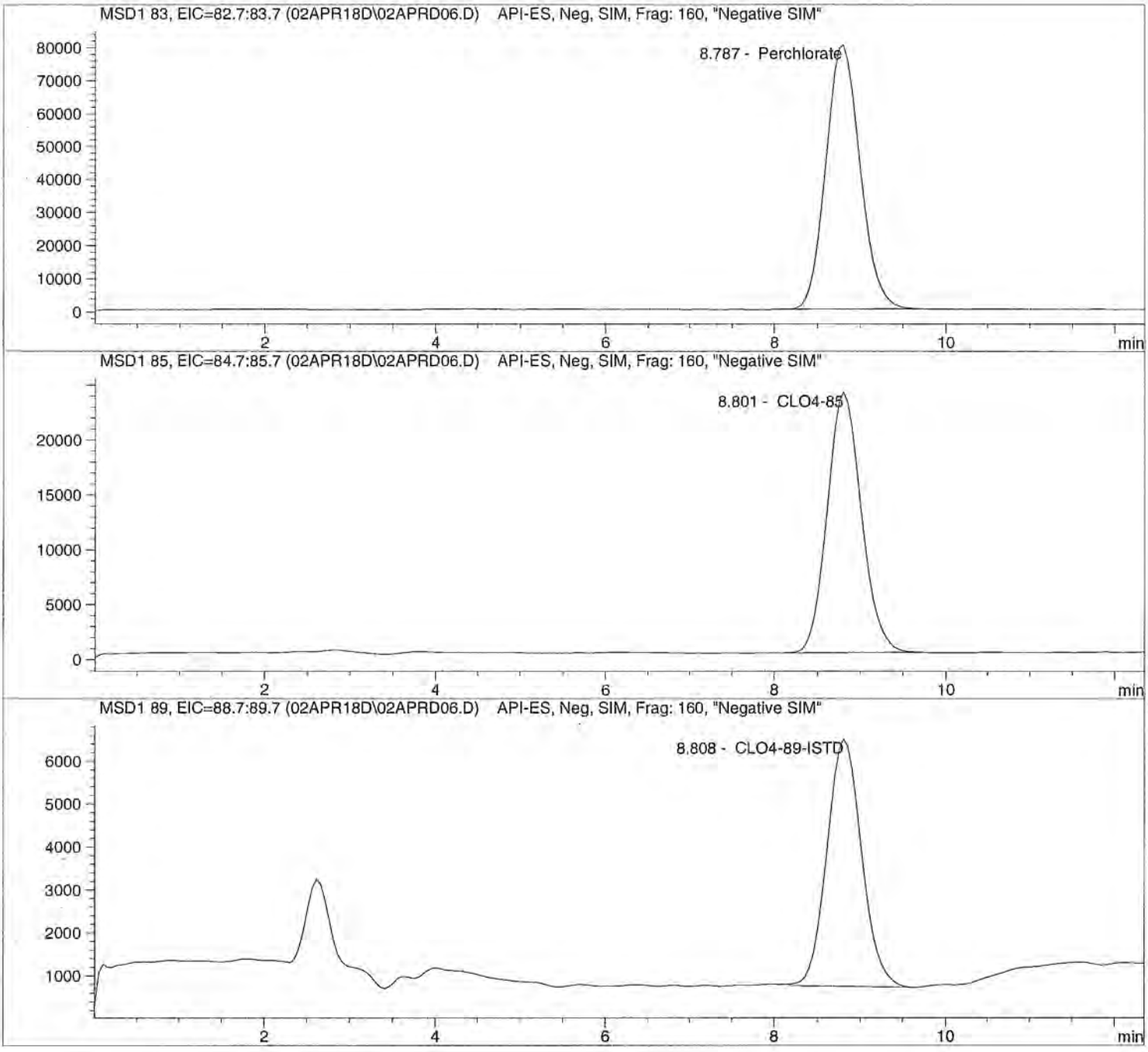
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD06.D Sample Name: ICAL6@ 50.ug/L

Injection Date:	4/02/2018 10:19:12	Seq Line:	6
Sample Name:	ICAL6@ 50.ug/L	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD06.D Sample Name: ICAL6@ 50.ug/L

Injection Date:	4/02/2018 10:19:12	Seq Line:	6
Sample Name:	ICAL6@ 50.ug/L	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method:	CLO4-DOD.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed:	4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	50.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.787	BBA	2223467.0	49.4714	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.801	BBA	658628.2	48.6037	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.808	BBA	162537.8	5.0000	CLO4-89-ISTD

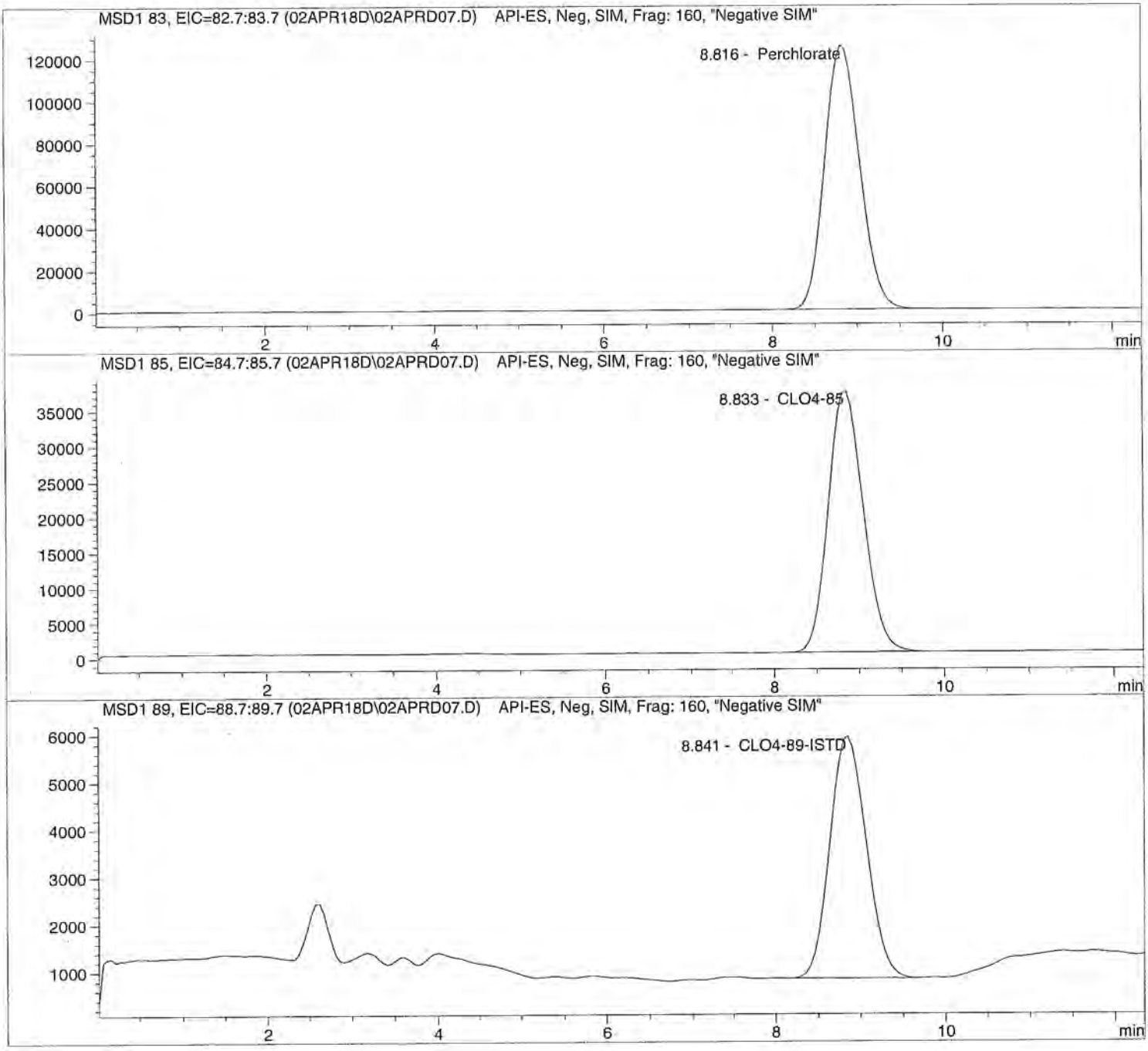
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD07.D Sample Name: ICAL7@ 75.ug/L

Injection Date:	4/02/2018 10:33:24	Seq Line:	7
Sample Name:	ICAL7@ 75.ug/L	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD07.D Sample Name: ICAL7@ 75.ug/L

Injection Date:	4/02/2018 10:33:24	Seq Line:	7
Sample Name:	ICAL7@ 75.ug/L	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method:	CLO4-DOD.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed:	4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	75.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.816	PBA	3564322.2	75.2010	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.833	BBA	1062944.2	75.7001	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.841	PBA	152621.4	5.0000	CLO4-89-ISTD

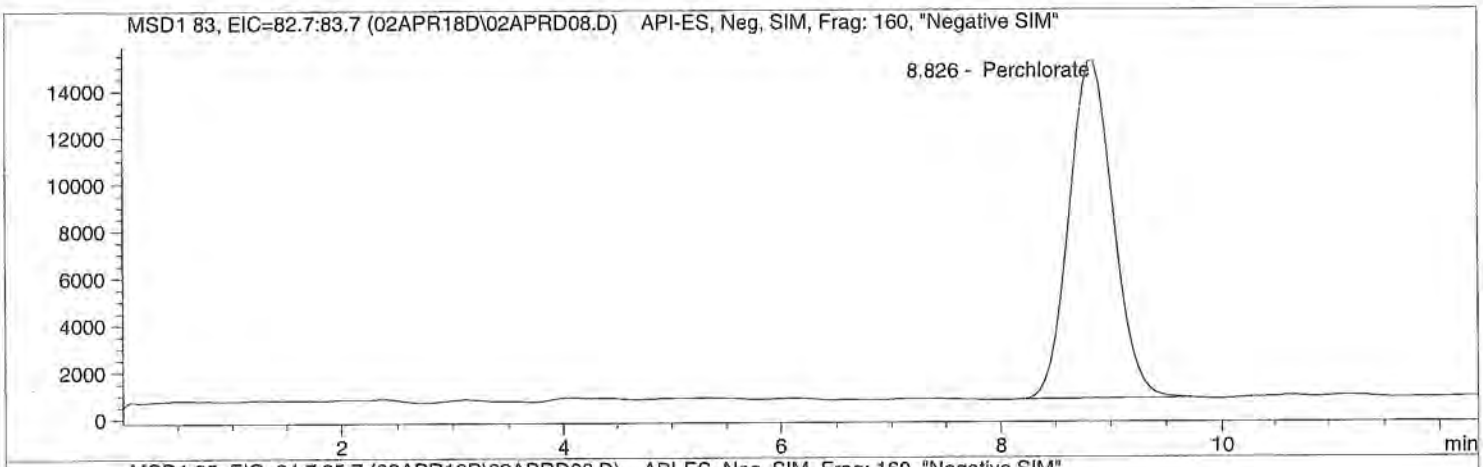
*** End of Report ***

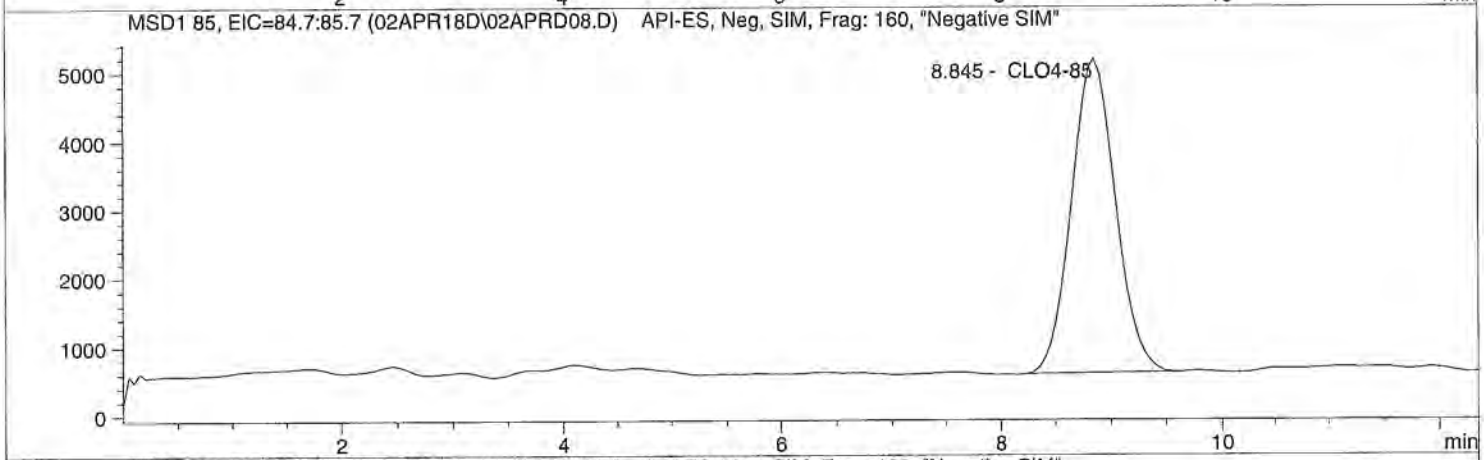
Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD08.D Sample Name: ICAL Verf@10ug/L

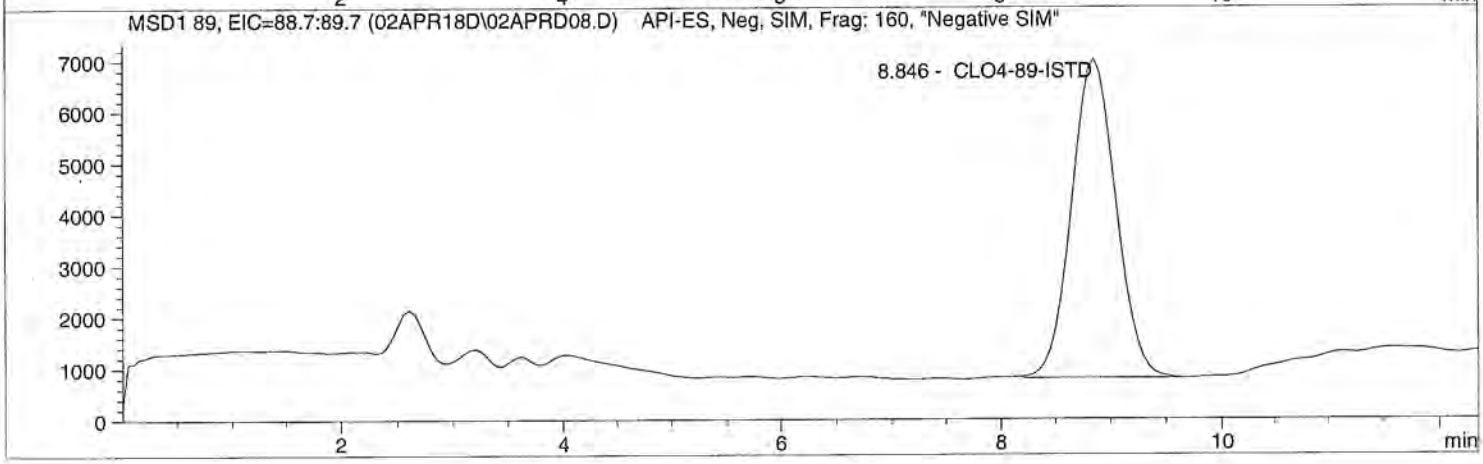
Injection Date:	4/02/2018 10:47:33	Seq Line:	8
Sample Name:	ICAL Verf@10ug/L	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD08.D Sample Name: ICAL Verf@10ug/L

Injection Date:	4/02/2018 10:47:33	Seq Line:	8
Sample Name:	ICAL Verf@10ug/L	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	10.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.826	BBA	399587.8	10.1698	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.845	PBA	127530.4	10.1657	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.846	BBA	174490.2	5.0000	CLO4-89-ISTD

*** End of Report ***

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

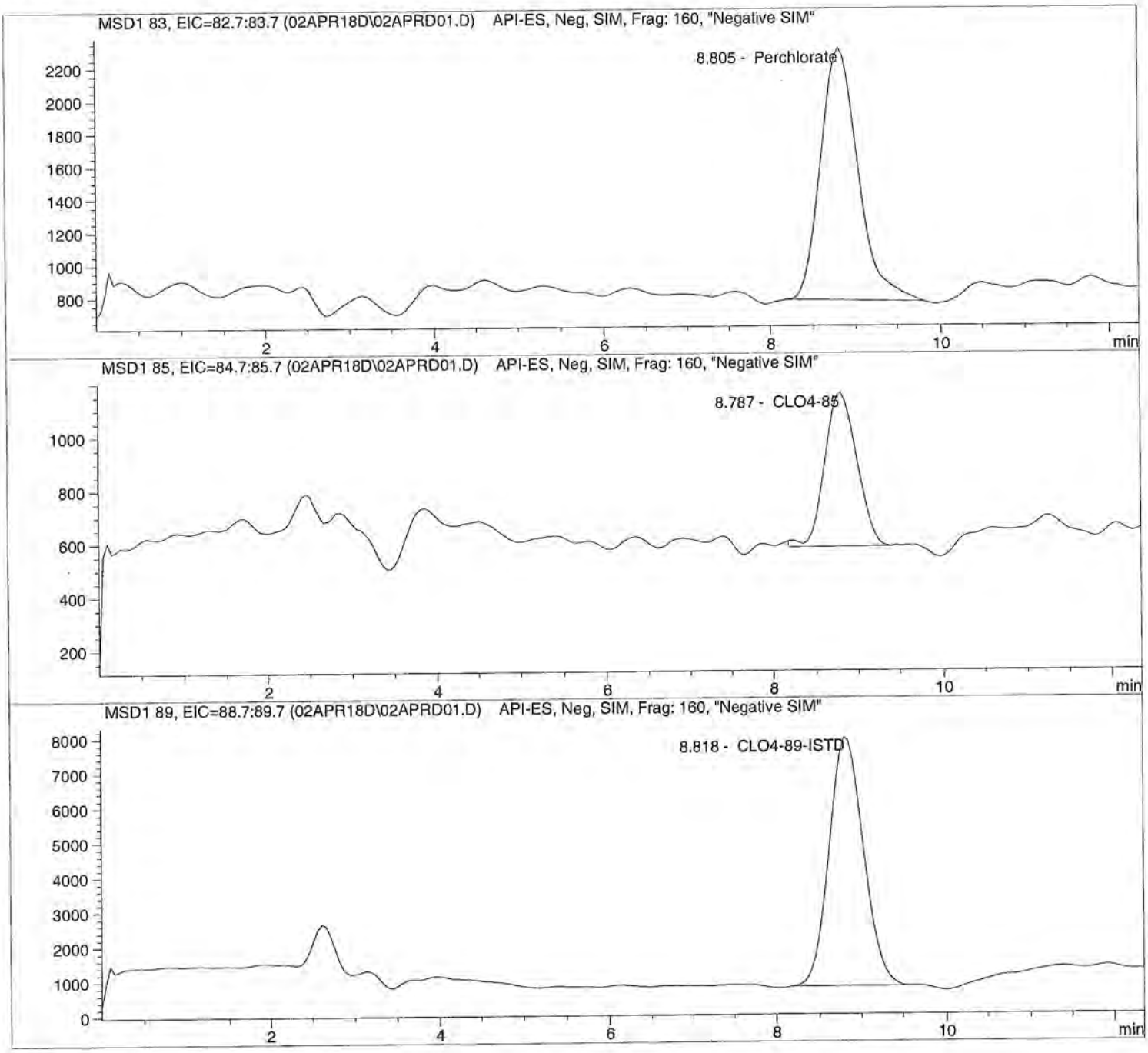
Unmodified

Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD01.D Sample Name: ICAL1@ 1.0ug/L

Injection Date:	4/02/2018 09:08:19	Seq Line:	1
Sample Name:	ICAL1@ 1.0ug/L	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD01.D Sample Name: ICAL1@ 1.0ug/L

Injection Date:	4/02/2018 09:08:19	Seq Line:	1
Sample Name:	ICAL1@ 1.0ug/L	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method:	CLO4-DOD.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed:	4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.805	PBA	47521.7	1.0438	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.787	BBA	15364.8	0.9338	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.818	PBA	205633.2	5.0000	CLO4-89-ISTD

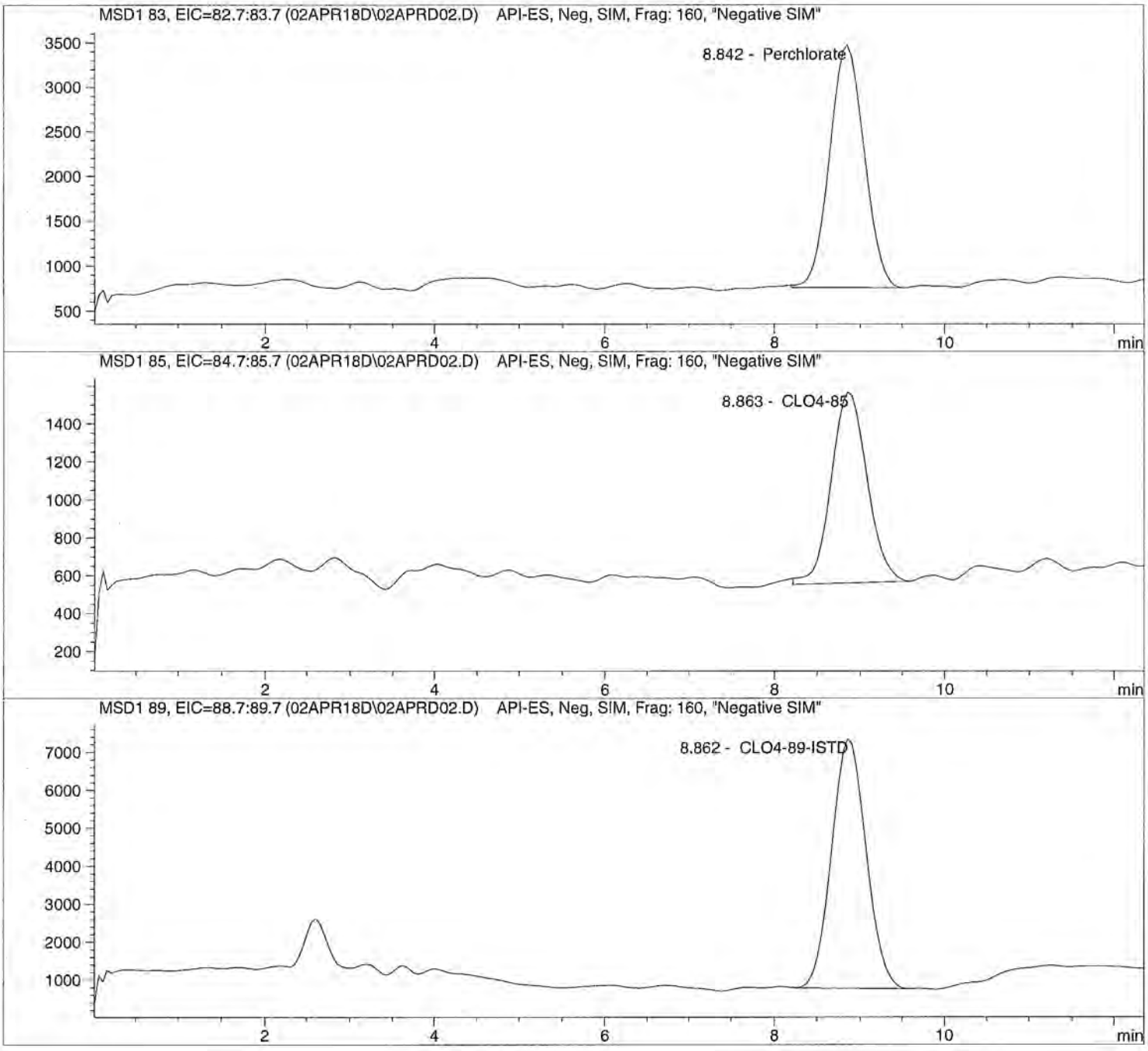
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD02.D Sample Name: ICAL2@ 2.0ug/L

Injection Date:	4/02/2018 09:22:28	Seq Line:	2
Sample Name:	ICAL2@ 2.0ug/L	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD02.D Sample Name: ICAL2@ 2.0ug/L

Injection Date:	4/02/2018 09:22:28	Seq Line:	2
Sample Name:	ICAL2@ 2.0ug/L	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	2.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.842	BBA	75767.3	1.8858	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.863	BBA	29265.6	2.1651	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.862	BBA	183981.5	5.0000	CLO4-89-ISTD

*** End of Report ***

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

WorkOrder: HS18040597

Longhorn GW Treatment Plant Weekly Samples

Bhate Environmental Associates, Inc.

Marcia Olive
445 Union Blvd Ste 129
Lakewood CO 80228

04-May-2018

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

April 23, 2018

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

Work Order: **HS18040597**

Laboratory Results for: **Longhorn GW Treatment Plant Weekly Samples**

Dear Marcia,

ALS Environmental received 1 sample(s) on Apr 12, 2018 for the analysis presented in the following report.

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

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

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

Sincerely,

Generated By: JUMOKE.LAWAL
RJ Modashia
Project Manager

ALS Group Houston, Corp Date: 23-Apr-18

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
Work Order: HS18040597

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS18040597-01	LH18/24-SP650_041118	Water		11-Apr-2018 14:00	12-Apr-2018 08:50	☐

ALS Group Houston, Corp Date: 23-Apr-18

Client: Bhate Environmental Associates, Inc. **CASE NARRATIVE**
Project: Longhorn GW Treatment Plant Weekly Samples
Work Order:

Work Order Comments

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

WetChemistry by Method E350.3

Batch ID: R314892

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

WetChemistry by Method E415.1

Batch ID: R314485

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

WetChemistry by Method E365.3

Batch ID: R314344

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

ALS Group Houston, Corp Date: 23-Apr-18

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
Sample ID: LH18/24-SP650_041118
Collection Date: 11-Apr-2018 14:00

ANALYTICAL REPORT
WorkOrder:HS18040597
Lab ID:HS18040597-01
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
AMMONIA AS N BY E350.3(ISE)		**Method:E350.3**						Analyst: MZD
Nitrogen, Ammonia (As N)	**11**		**0.20**	**0.20**	**0.20**	**mg/L**	1	20-Apr-2018 16:00
ORTHO PHOSPHATE (PO4) AS P BY E365.3		**Method:E365.3**						Analyst: MZD
Phosphorus, Total Orthophosphate (As P)	**1.19**		**0.100**	**0.500**	**0.250**	**mg/L**	10	13-Apr-2018 13:45
TOTAL ORGANIC CARBON BY E415.1		**Method:E415.1**						Analyst: AJH
Organic Carbon, Total	**13.4**		**0.500**	**1.25**	**1.00**	**mg/L**	1	14-Apr-2018 17:42
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	19-Apr-2018 14:00

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

ALS Group Houston, Corp Date: 23-Apr-18

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
WorkOrder: HS18040597

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID R314344	**Test Name :** ORTHO PHOSPHATE (PO4) AS P BY E365.3			**Matrix:** Water		
HS18040597-01	LH18/24-SP650_041118	11 Apr 2018 14:00			13 Apr 2018 13:45	10
Batch ID R314485	**Test Name :** TOTAL ORGANIC CARBON BY E415.1			**Matrix:** Water		
HS18040597-01	LH18/24-SP650_041118	11 Apr 2018 14:00			14 Apr 2018 17:42	1
Batch ID R314688	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)			**Matrix:** Water		
HS18040597-01	LH18/24-SP650_041118	11 Apr 2018 14:00			19 Apr 2018 14:00	1
Batch ID R314892	**Test Name :** AMMONIA AS N BY E350.3(ISE)			**Matrix:** Water		
HS18040597-01	LH18/24-SP650_041118	11 Apr 2018 14:00			20 Apr 2018 16:00	1

ALS Group Houston, Corp Date: 23-Apr-18

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
WorkOrder: HS18040597

QC BATCH REPORT

Batch ID: R314344 **Instrument: UV-2450** **Method: E365.3**

MBLK Sample ID: **MBLK-314344** Units: **mg/L** Analysis Date: **13-Apr-2018 13:45**
Client ID: Run ID: **UV-2450_314344** SeqNo: **4518299** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total Orthophosphate (As P)	0.0500	0.0250								U

LCS Sample ID: **LCS-314344** Units: **mg/L** Analysis Date: **13-Apr-2018 13:45**
Client ID: Run ID: **UV-2450_314344** SeqNo: **4518300** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total Orthophosphate (As P)	0.255	0.0250	0.25	0	102	85 - 115				

MS Sample ID: **HS18040597-01MS** Units: **mg/L** Analysis Date: **13-Apr-2018 13:45**
Client ID: **LH18/24-SP650_041118** Run ID: **UV-2450_314344** SeqNo: **4518302** PrepDate: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total Orthophosphate (As P)	3.49	0.250	2.5	1.19	92.0	80 - 120				

MSD Sample ID: **HS18040597-01MSD** Units: **mg/L** Analysis Date: **13-Apr-2018 13:45**
Client ID: **LH18/24-SP650_041118** Run ID: **UV-2450_314344** SeqNo: **4518303** PrepDate: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total Orthophosphate (As P)	3.55	0.250	2.5	1.19	94.4	80 - 120	3.49	1.7	20	

The following samples were analyzed in this batch: HS18040597-01

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

ALS Group Houston, Corp Date: 23-Apr-18

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
WorkOrder: HS18040597

QC BATCH REPORT

Batch ID: R314485 **Instrument: TOC_02** **Method: E415.1**

MBLK Sample ID: **WBLKW1-041418** Units: **mg/L** Analysis Date: **14-Apr-2018 16:03**
Client ID: Run ID: **TOC_02_314485** SeqNo: **4521975** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	1.25	1.00								U

LCS Sample ID: **WLCSW1-041418** Units: **mg/L** Analysis Date: **14-Apr-2018 16:16**
Client ID: Run ID: **TOC_02_314485** SeqNo: **4521976** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	9.96	1.00	10	0	99.6	80 - 120				

LCSD Sample ID: **WLCSDW1-041418** Units: **mg/L** Analysis Date: **14-Apr-2018 16:32**
Client ID: Run ID: **TOC_02_314485** SeqNo: **4521977** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	10.94	1.00	10	0	109	80 - 120	9.96	9.38	20	

MS Sample ID: **HS18040636-01MS** Units: **mg/L** Analysis Date: **14-Apr-2018 19:39**
Client ID: Run ID: **TOC_02_314485** SeqNo: **4521986** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	15.15	1.00	10	5.052	101	80 - 120				

The following samples were analyzed in this batch: HS18040597-01

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

ALS Group Houston, Corp Date: 23-Apr-18

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
WorkOrder: HS18040597

QC BATCH REPORT

Batch ID: R314892 **Instrument: WetChem_HS** **Method: E350.3**

MBLK Sample ID: **MBLK-314892** Units: **mg/L** Analysis Date: **20-Apr-2018 16:00**
Client ID: Run ID: **WetChem_HS_314892** SeqNo: **4530654** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia (As N)	0.20	0.20								U

LCS Sample ID: **LCS-314892** Units: **mg/L** Analysis Date: **20-Apr-2018 16:00**
Client ID: Run ID: **WetChem_HS_314892** SeqNo: **4530655** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia (As N)	10.03	0.20	10	0	100	80 - 120				

MS Sample ID: **HS18040597-01MS** Units: **mg/L** Analysis Date: **20-Apr-2018 16:00**
Client ID: **LH18/24-SP650_041118** Run ID: **WetChem_HS_314892** SeqNo: **4530658** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia (As N)	20.43	0.20	10	10.88	95.5	80 - 120				

MSD Sample ID: **HS18040597-01MSD** Units: **mg/L** Analysis Date: **20-Apr-2018 16:00**
Client ID: **LH18/24-SP650_041118** Run ID: **WetChem_HS_314892** SeqNo: **4530659** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia (As N)	20.41	0.20	10	10.88	95.3	80 - 120	20.43	0.0979	20	

The following samples were analyzed in this batch: HS18040597-01

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

ALS Group Houston, Corp Date: 23-Apr-18

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
WorkOrder: HS18040597

QUALIFIERS, ACRONYMS, UNITS

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

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

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
California	2919 2016-2018	31-Jul-2018
Illinois	004112	09-May-2018
Kentucky	123043	30-Apr-2018
North Dakota	R193 2017-2017	30-Apr-2018
Oklahoma	2017-088	31-Aug-2018
Texas	T104704231-17-19	30-Apr-2018
North Carolina	624-2018	31-Dec-2018
Louisiana	03087 2017-2018	30-Jun-2018
Arkansas	88-0356	27-Mar-2019

ALS Group Houston, Corp Date: 23-Apr-18

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
Work Order: HS18040597

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS18040597-01	LH18/24-SP650_041118	Login	4/12/2018 12:26:02 PM	JRM	Sub
HS18040597-01	LH18/24-SP650_041118	Login	4/12/2018 12:26:02 PM	JRM	WET048
HS18040597-01	LH18/24-SP650_041118	Login	4/12/2018 12:26:02 PM	JRM	WET048
HS18040597-01	LH18/24-SP650_041118	Login	4/12/2018 12:26:02 PM	JRM	WET048

Date: 23-Apr-18

Sample Receipt Checklist

Client Name: Bhate Environmental
Work Order: HS18040597
Date/Time Received: **12-Apr-2018 08:50**
Received by: **JRM**

Checklist completed by: *Jared R. Makan* eSignature — 12-Apr-2018 Date
Reviewed by: *RJ Modashia* eSignature — 12-Apr-2018 Date

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

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
TX1005 solids received in hermetically sealed vials?	Yes ☐	No ☐	N/A ☑
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	3.6c/3.1c UC/C	IR11	
Cooler(s)/Kit(s):	25303		
Date/Time sample(s) sent to storage:	04/12/2018 12:30		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

CHAIN OF CUSTODY

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

Page 1 of 1

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

Project No.
NWO1312.0150.0
16.0001

Job:
GROUNDWATER TREATMENT PLANT WEEKLY SAMPLES

Prepared By:
Scott Beesinger

P.O. Number

Field Sample I.D.	Sample Matrix	Date / Time	MS / MSD	No. OF CONTAINERS	Analyses: AMMONIA-N	TOTAL ORGANIC CARBON	ORTHO-PHOSPHATE	PERCHLORATE	Remarks (Preservatives, etc.)	Lab I.D.#
LH18/24-SP650_041118	Water	04/11/18 / 14:00		2	X	X			H2SO4	
LH18/24-SP650_041118	Water	04/11/18 / 14:00		2			X	X	NONE	

HS18040597

Bhate Environmental Associates, Inc.
Longhorn GW Treatment Plant Weekly Samples

Additional Remarks: **Standard TAT on all parameters**

Relinquished By:	Date	Time	Received By:	Date	Time	Relinquished By:	Date	Time	Received By:	Date	Time
Scott Beesinger	04/11/18	14:30									

For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition
JM	4/13/18	0830							

Remarks: Cooler 253.0 ice
Temp 3.6 CF-0.5

(Word) S:\Forms\Chain of Custody - BiWeekly

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

CUSTODY SEAL
Date: 4/11/18 Time: 1430
Name: SCOTT BEESINGER
Company: BHATE
Seal Broken By:
Date: 04/12/18

-118

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

FedEx Express

Oct 12 18

TRK# 0221 7376 9752 1843
RETURNS MON-SAT
PRIORITY OVERNIGHT

FedEx
TRK# 0221 7376 9752 1843
THU - 12 APR 10:30A
PRIORITY OVERNIGHT

Wet Chemistry Raw Data

Bhate Environmental Associates, Inc.
Project: LONGHORN GW TREATMENT PLANT
WEEKLY SAMPLES
ALS WO# HS18040597

HS18040597

	T	Analys	Sample Name	Sample ID	Origin	Result	Status	Date / Time	Vial
1	U	NPOC	CCV	306.064.905	01-20-2018_	NPOC:24.95mg/L	Completed	4/14/2018 3:41:20 PM	1
2	U	NPOC	CCB	UNTITLED	01-20-2018_	NPOC:0.1576mg/L	Completed	4/14/2018 3:54:33 PM	2
3	U	NPOC	WBLKW1-041418	TOC_W	01-20-2018_	NPOC:0.1691mg/L	Completed	4/14/2018 4:07:46 PM	3
4	U	NPOC	WLCSW1-041418	297.020.4301	01-20-2018_	NPOC:9.960mg/L	Completed	4/14/2018 4:23:04 PM	4
5	U	NPOC	WLCSDW1-041418	UNTITLED	01-20-2018_	NPOC:10.94mg/L	Completed	4/14/2018 4:36:14 PM	5
6	U	NPOC	HS18040576-01	2/2	01-20-2018_	NPOC:2.448mg/L	Completed	4/14/2018 4:49:27 PM	6
7	U	NPOC	HS18040576-01DF5	2/2	01-20-2018_	NPOC:0.6408mg/L	Completed	4/14/2018 5:02:40 PM	7
8	U	NPOC	HS18040593-01DF500	1/1	01-20-2018_	NPOC:3.438mg/L	Completed	4/14/2018 5:17:58 PM	8
9	U	NPOC	FLUSH	UNTITLED	01-20-2018_	NPOC:0.2049mg/L	Completed	4/14/2018 5:33:11 PM	9
10	U	NPOC	HS18040597-01	1/1	01-20-2018_	NPOC:13.40mg/L	Completed	4/14/2018 5:48:24 PM	10
11	U	NPOC	HS18040705-01DF50	TOC_W 5310B 1/2	01-20-2018_	NPOC:82.87mg/L	Completed	4/14/2018 6:02:35 PM	11
12	U	NPOC	HS18040705-02DF50	TOC_W 5310B 1/2	01-20-2018_	NPOC:129.5mg/L	Completed	4/14/2018 6:19:18 PM	12
13	U	NPOC	CCV	UNTITLED	01-20-2018_	NPOC:26.17mg/L	Completed	4/14/2018 6:34:47 PM	13
14	U	NPOC	CCB	UNTITLED	01-20-2018_	NPOC:0.2126mg/L	Completed	4/14/2018 6:47:55 PM	14
15	U	NPOC	HS18040705-03DF50	TOC_W 5310B 1/2	01-20-2018_	NPOC:17.68mg/L	Completed	4/14/2018 7:01:17 PM	15
16	U	NPOC	HS18040705-04DF50	TOC_W 5310B 1/2	01-20-2018_	NPOC:81.10mg/L	Completed	4/14/2018 7:15:14 PM	16
17	U	NPOC	HS18040636-01	TOC_W 5310B 1/1	01-20-2018_	NPOC:5.052mg/L	Completed	4/14/2018 7:30:32 PM	17
18	U	NPOC	HS18040636-01MS	TOC_W 5310B 1/1	01-20-2018_	NPOC:15.15mg/L	Completed	4/14/2018 7:43:42 PM	18
19	U	NPOC	FLUSH	UNTITLED	01-20-2018_	NPOC:0.1817mg/L	Completed	4/14/2018 7:59:00 PM	19
20	U	NPOC	WBLKW2-041418	TOC_W 5310B	01-20-2018_	NPOC:0.1612mg/L	Completed	4/14/2018 8:12:08 PM	20
21	U	NPOC	WLCSW2-041418	UNTITLED	01-20-2018_	NPOC:10.67mg/L	Completed	4/14/2018 8:25:21 PM	21
22	U	NPOC	WLCSDW2-041418	UNTITLED	01-20-2018_	NPOC:10.67mg/L	Completed	4/14/2018 8:38:34 PM	22
23	U	NPOC	HS18040575-01DF10	1/1	01-20-2018_	NPOC:5.089mg/L	Completed	4/14/2018 8:53:52 PM	23
24	U	NPOC	HS18040575-02DF10	1/1	01-20-2018_	NPOC:4.066mg/L	Completed	4/14/2018 9:09:05 PM	24
25	U	NPOC	CCV	UNTITLED	01-20-2018_	NPOC:27.26mg/L	Completed	4/14/2018 9:22:46 PM	25
26	U	NPOC	CCB	UNTITLED	01-20-2018_	NPOC:0.1658mg/L	Completed	4/14/2018 9:38:04 PM	26
27	U	NPOC	HS18040575-03DF10	1/1	01-20-2018_	NPOC:12.60mg/L	Completed	4/14/2018 9:53:17 PM	27
28	U	NPOC	HS18040575-04DF10	1/1	01-20-2018_	NPOC:7.863mg/L	Completed	4/14/2018 10:08:31 PM	28
29	U	NPOC	HS18040575-05DF5	1/1	01-20-2018_	NPOC:21.35mg/L	Completed	4/14/2018 10:21:56 PM	29
30	U	NPOC	HS18040575-06DF20	1/1	01-20-2018_	NPOC:17.40mg/L	Completed	4/14/2018 10:37:18 PM	30
31	U	NPOC	HS18040634-01	1/1	01-20-2018_	NPOC:0.5000mg/L	Completed	4/14/2018 10:52:32 PM	31
32	U	NPOC	HS18040634-01MS	1/1	01-20-2018_	NPOC:10.50mg/L	Completed	4/14/2018 11:05:42 PM	32
33	U	NPOC	HS18040678-01	1/2	01-20-2018_	NPOC:14.22mg/L	Completed	4/14/2018 11:21:01 PM	33
34	U	NPOC	CCV	UNTITLED	01-20-2018_	NPOC:26.49mg/L	Completed	4/14/2018 11:36:27 PM	34
35	U	NPOC	CCB	UNTITLED	01-20-2018_	NPOC:0.1461mg/L	Completed	4/14/2018 11:51:41 PM	35
36	U	NPOC	CCV	UNTITLED	01-20-2018_	NPOC:26.37mg/L	Completed	4/16/2018 8:59:16 PM	38
37	U	NPOC	CCB	UNTITLED	01-20-2018_	NPOC:0.1350mg/L	Completed	4/16/2018 9:14:35 PM	39
38	U	NPOC	HS18040705-01DF100	TOC_W 5310B 1/2	01-20-2018_	NPOC:40.11mg/L	Completed	4/16/2018 9:28:24 PM	40
39	U	NPOC	HS18040705-02DF150	TOC_W 5310B 1/2	01-20-2018_	NPOC:41.23mg/L	Completed	4/16/2018 9:41:44 PM	41
40	U	NPOC	HS18040705-04DF100	TOC_W 5310B 1/2	01-20-2018_	NPOC:38.85mg/L	Completed	4/16/2018 9:55:17 PM	42
41	U	NPOC	CCB	UNTITLED	01-20-2018_	NPOC:0.2177mg/L	Completed	4/16/2018 10:10:36 PM	43
42	U	NPOC	CCV	UNTITLED	01-20-2018_	NPOC:25.42mg/L	Completed	4/16/2018 10:24:01 PM	44
43	U	NPOC	CCB	UNTITLED	01-20-2018_	NPOC:0.1917mg/L	Completed	4/16/2018 10:39:20 PM	45

Instr.Information

System	TOC csh with asi
Instrument Options	TOC/ASI/IC Unit/
Catalyst	Regular Sensitivity

Cal. Curve

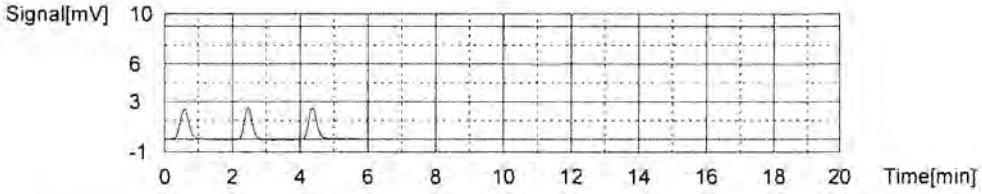
Sample Name:	CAL
Sample ID:	304.185:(403-408)
Cal. Curve:	01-20-2018_W.2018_01_20_14_48_29.cal
Status	Completed

Type	Anal.
Standard	NPOC

Conc: 1.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	4.293	50uL	1	*******		1/20/2018 2:57:14 PM
2	4.151	50uL	1	*******		1/20/2018 2:59:19 PM
3	4.214	50uL	1	*******		1/20/2018 3:01:24 PM

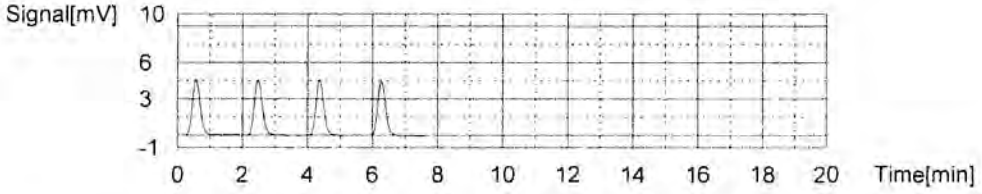
Acid Add. 0.000%
Sp. Time 180.0sec
Mean Area 4.219



Conc: 2.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	7.666	50uL	1	*******		1/20/2018 3:10:27 PM
2	7.701	50uL	1	*******		1/20/2018 3:12:32 PM
3	7.418	50uL	1	*******	E	1/20/2018 3:14:37 PM
4	7.476	50uL	1	*******		1/20/2018 3:16:42 PM

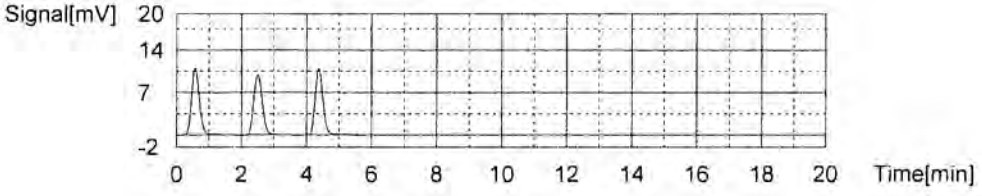
Acid Add. 0.000%
Sp. Time 180.0sec
Mean Area 7.614



Conc: 5.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	18.51	50uL	1	*******		1/20/2018 3:25:40 PM
2	18.31	50uL	1	*******		1/20/2018 3:27:45 PM
3	18.12	50uL	1	*******		1/20/2018 3:29:50 PM

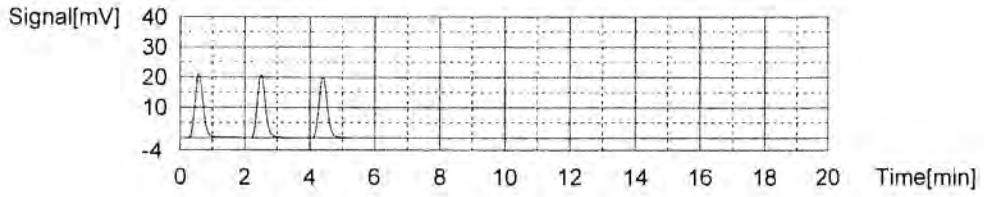
Acid Add. 0.000%
Sp. Time 180.0sec
Mean Area 18.31



Conc: 10.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	36.74	50uL	1	*******		1/20/2018 3:38:54 PM
2	36.11	50uL	1	*******		1/20/2018 3:40:59 PM
3	36.04	50uL	1	*******		1/20/2018 3:43:04 PM

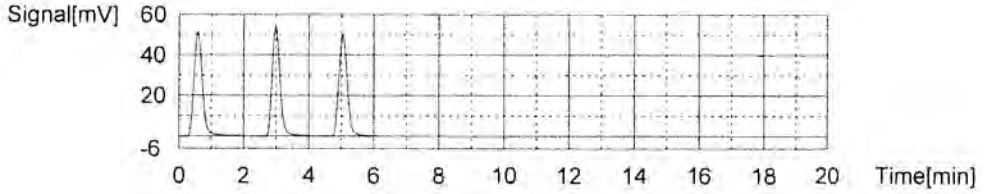
Acid Add. 0.000%
Sp. Time 180.0sec
Mean Area 36.30



Conc: 25.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	92.73	50uL	1	*******		1/20/2018 3:52:38 PM
2	92.73	50uL	1	*******		1/20/2018 3:54:51 PM
3	91.34	50uL	1	*******		1/20/2018 3:56:58 PM

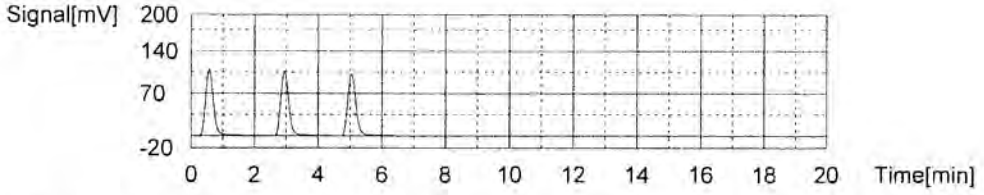
Acid Add. 0.000%
Sp. Time 180.0sec
Mean Area 92.27



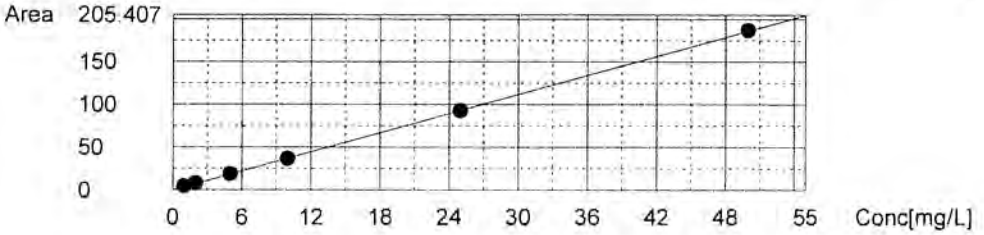
Conc: 50.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	189.1	50uL	1	*******		1/20/2018 4:06:29 PM
2	186.6	50uL	1	*******		1/20/2018 4:08:46 PM
3	184.5	50uL	1	*******		1/20/2018 4:11:02 PM

Acid Add. 0.000%
Sp. Time 180.0sec
Mean Area 186.7



Slope: 3.729
Intercept -0.2289
r^2 0.9999
r 1.0000
Zero Shift No



Sample

Sample Name: ICV
Sample ID: 304.185.409
Origin: TOC_W_9060.met
Status Completed
Chk. Result

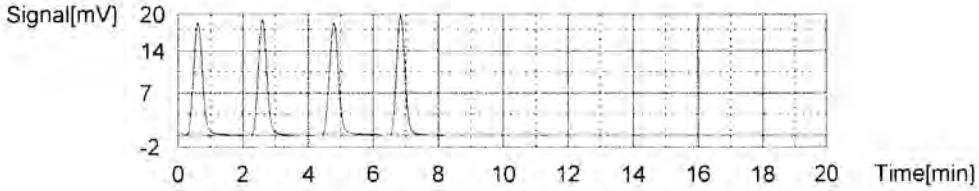
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:9.719mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	35.94	9.699mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	1/20/2018 4:20:09 PM
2	36.11	9.744mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	1/20/2018 4:22:31 PM
3	36.38	9.817mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	1/20/2018 4:24:46 PM
4	35.63	9.616mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	1/20/2018 4:26:51 PM

Mean Area 36.02
Mean Conc. 9.719mg/L



Sample

Sample Name: ICB
Sample ID: Untitled
Origin: TOC_W_9060.met
Status Completed
Chk. Result

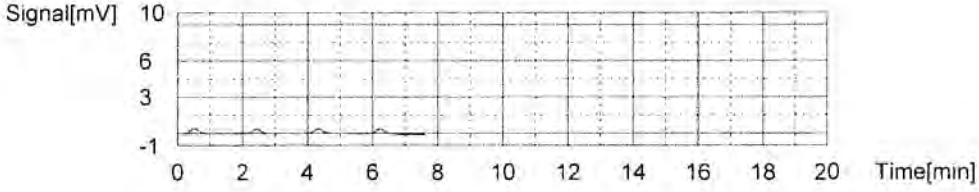
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.2186mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.6786	0.2434mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	1/20/2018 4:35:53 PM
2	0.5291	0.2033mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	1/20/2018 4:37:58 PM
3	0.5827	0.2176mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	1/20/2018 4:40:03 PM
4	0.5540	0.2099mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	1/20/2018 4:42:08 PM

Mean Area 0.5861
Mean Conc. 0.2186mg/L



Instr.Information

System	TOC csh with asi
Instrument Options	TOC/ASI/IC Unit/
Catalyst	Regular Sensitivity

Sample

Sample Name:	CCV
Sample ID:	306.064.905
Origin:	01-20-2018_W.cal
Status	Completed
Chk. Result	

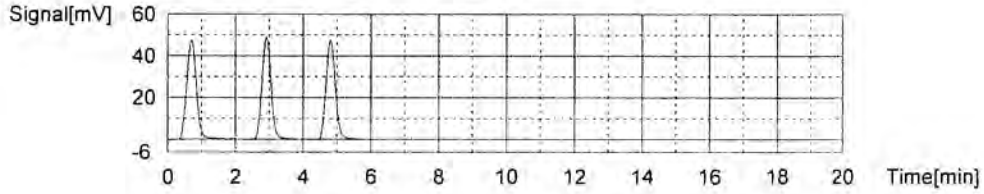
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:24.95mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	94.58	25.42mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/14/2018 3:37:08 PM
2	91.74	24.66mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/14/2018 3:39:13 PM
3	92.09	24.76mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/14/2018 3:41:20 PM

Mean Area 92.80
Mean Conc. 24.95mg/L



Sample

Sample Name:	CCB
Sample ID:	UNTITLED
Origin:	01-20-2018_W.cal
Status	Completed
Chk. Result	

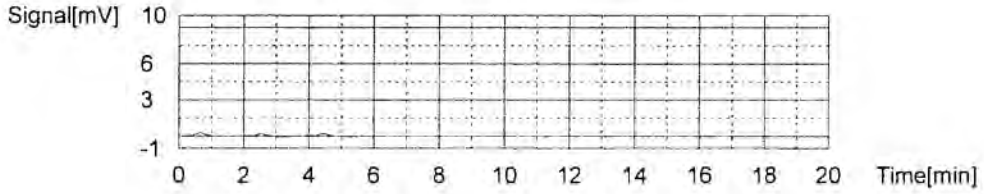
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.1576mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.4590	0.1845mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/14/2018 3:50:23 PM
2	0.3142	0.1456mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/14/2018 3:52:28 PM
3	0.3034	0.1427mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/14/2018 3:54:33 PM

Mean Area 0.3589
Mean Conc. 0.1576mg/L



Sample

Sample Name: WBLKW1-041418
Sample ID: TOC_W
Origin: 01-20-2018_W.cal
Status Completed
Chk. Result

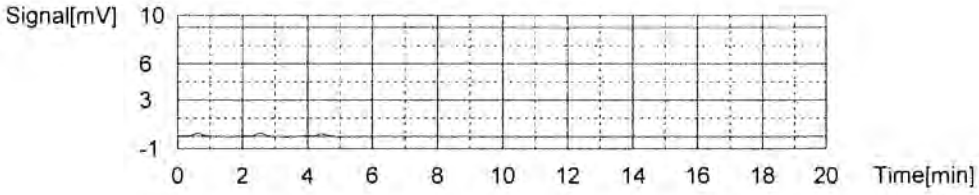
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.1691mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.4098	0.1713mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/14/2018 4:03:36 PM
2	0.4565	0.1838mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/14/2018 4:05:41 PM
3	0.3382	0.1521mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/14/2018 4:07:46 PM

Mean Area 0.4015
Mean Conc. 0.1691mg/L



Sample

Sample Name: WLCSW1-041418
Sample ID: 297.020.4301
Origin: 01-20-2018_W.cal
Status Completed
Chk. Result

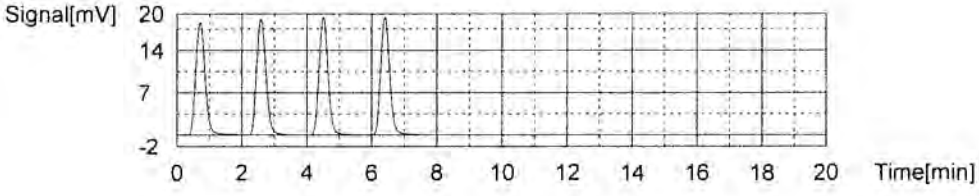
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:9.960mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	36.86	9.945mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/14/2018 4:16:49 PM
2	38.32	10.34mg/L	50uL	1	E	01-20-2018_W.2018_01_20_14_48_29.cal	4/14/2018 4:18:54 PM
3	36.93	9.964mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/14/2018 4:20:59 PM
4	36.95	9.970mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/14/2018 4:23:04 PM

Mean Area 36.91
Mean Conc. 9.960mg/L



Sample

Sample Name: WLCSDW1-041418
Sample ID: UNTITLED
Origin: 01-20-2018_W.cal
Status Completed
Chk. Result

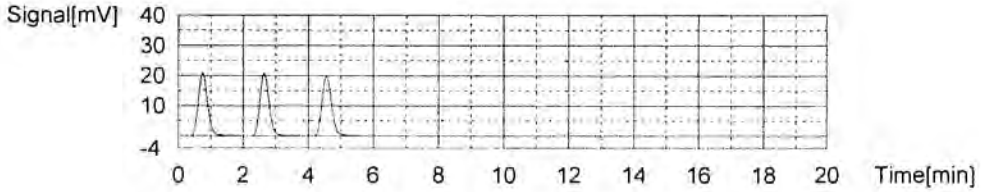
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:10.94mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	41.02	11.06mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/14/2018 4:32:03 PM
2	40.18	10.84mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/14/2018 4:34:08 PM
3	40.47	10.91mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/14/2018 4:36:14 PM

Mean Area 40.56
Mean Conc. 10.94mg/L



Sample

Sample Name: HS18040597-01
Sample ID: 1/1
Origin: 01-20-2018_W.cal
Status Completed
Chk. Result

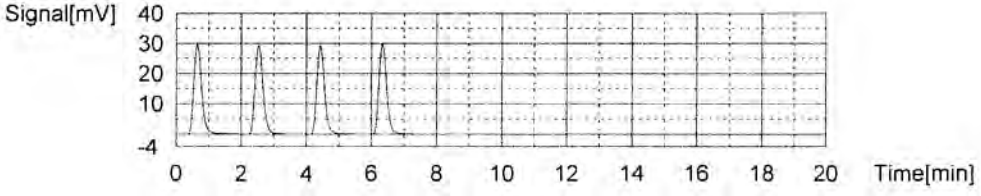
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:13.40mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	50.05	13.48mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/14/2018 5:42:09 PM
2	50.15	13.51mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/14/2018 5:44:14 PM
3	48.05	12.95mg/L	50uL	1	E	01-20-2018_W.2018_01_20_14_48_29.cal	4/14/2018 5:46:19 PM
4	49.02	13.21mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/14/2018 5:48:24 PM

Mean Area 49.74
Mean Conc. 13.40mg/L



Sample

Sample Name: CCV
Sample ID: UNTITLED
Origin: 01-20-2018_W.cal
Status Completed
Chk. Result

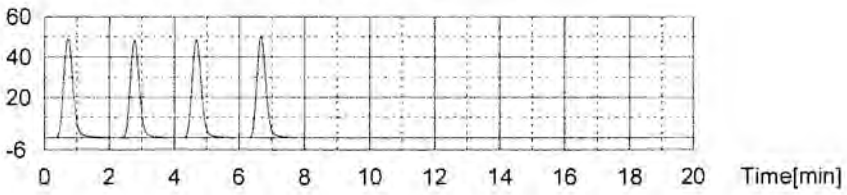
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:26.17mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	98.81	26.56mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/14/2018 6:28:26 PM
2	94.02	25.27mg/L	50uL	1	E	01-20-2018_W.2018_01_20_14_48_29.cal	4/14/2018 6:30:31 PM
3	96.08	25.83mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/14/2018 6:32:42 PM
4	97.22	26.13mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/14/2018 6:34:47 PM

Mean Area 97.37
Mean Conc. 26.17mg/L



Sample

Sample Name: CCB
Sample ID: UNTITLED
Origin: 01-20-2018_W.cal
Status Completed
Chk. Result

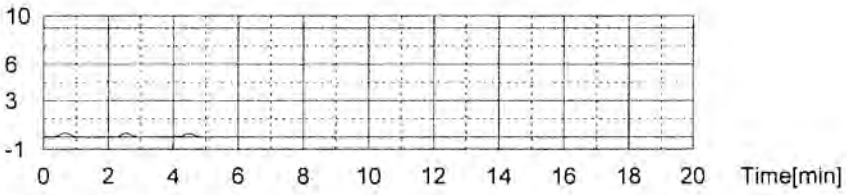
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.2126mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.6576	0.2377mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/14/2018 6:43:45 PM
2	0.5025	0.1961mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/14/2018 6:45:50 PM
3	0.5316	0.2039mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/14/2018 6:47:55 PM

Mean Area 0.5639
Mean Conc. 0.2126mg/L



Sample

Sample Name: HS18040636-01
Sample ID: TOC_W 5310B 1/1
Origin: 01-20-2018_W.cal
Status Completed
Chk. Result

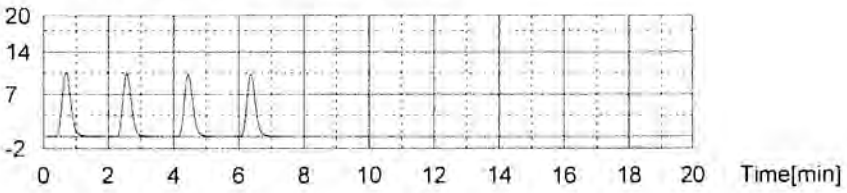
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:5.052mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	19.54	5.301mg/L	50uL	1	E	01-20-2018_W.2018_01_20_14_48_29.cal	4/14/2018 7:24:17 PM
2	18.81	5.105mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/14/2018 7:26:22 PM
3	18.57	5.041mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/14/2018 7:28:27 PM
4	18.45	5.009mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/14/2018 7:30:32 PM

Mean Area 18.61
Mean Conc. 5.052mg/L



Sample

Sample Name: HS18040636-01MS
Sample ID: TOC_W 5310B 1/1
Origin: 01-20-2018_W.cal
Status Completed
Chk. Result

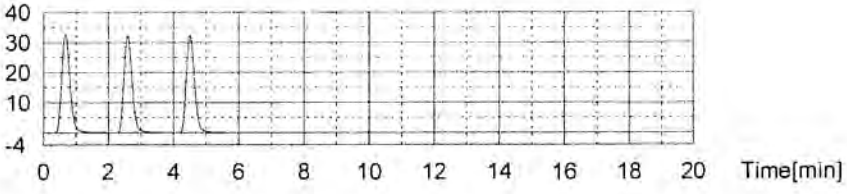
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:15.15mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	57.06	15.36mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/14/2018 7:39:32 PM
2	55.86	15.04mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/14/2018 7:41:37 PM
3	55.91	15.05mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/14/2018 7:43:42 PM

Mean Area 56.28
Mean Conc. 15.15mg/L



Sample

Sample Name: CCV
Sample ID: UNTITLED
Origin: 01-20-2018_W.cal
Status Completed
Chk. Result

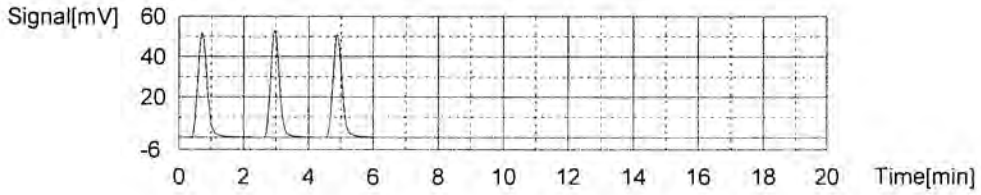
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:27.26mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	103.3	27.76mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/14/2018 9:18:24 PM
2	100.6	27.04mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/14/2018 9:20:29 PM
3	100.4	26.98mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/14/2018 9:22:46 PM

Mean Area 101.4
Mean Conc. 27.26mg/L



Sample

Sample Name: CCB
Sample ID: UNTITLED
Origin: 01-20-2018_W.cal
Status Completed
Chk. Result

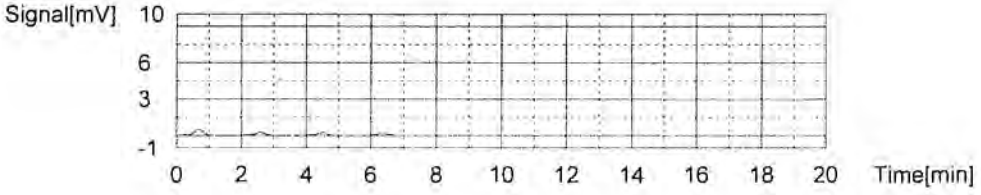
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.1658mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.9272	0.3100mg/L	50uL	1	E	01-20-2018_W.2018_01_20_14_48_29.cal	4/14/2018 9:31:49 PM
2	0.4451	0.1807mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/14/2018 9:33:54 PM
3	0.3701	0.1606mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/14/2018 9:35:59 PM
4	0.3531	0.1561mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/14/2018 9:38:04 PM

Mean Area 0.3894
Mean Conc. 0.1658mg/L



NIT-AMN-ISE.W350.3
HS1804059?

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Logbook **30611**

Ion Selective Electrode Logbook

Analyst: MD	Date: 04/20/2018
Method: SM4500NH3-D/EPA 350.3 or SM4500 NH3 B-F	

Probe Calibration Date:	Cal Std ID:	Probe ID:
04/20/2018	30606 26(03-07)	SR15190

Std Level		mV	Conc., mg/L:
STD 1 (mg/L):	0.2	119.2	0.20033
STD 2 (mg/L):	1	1.004 75.4	1.004
STD 3 (mg/L):	5	34.2	5.006

Sodium Thiosulfate ID:		
Std Level	mV	Conc., mg/L:
STD 4 (mg/L): 10	17.2	10.05
STD 5 (mg/L): 50	-23.2	58.02

LSC / MS Spike ID: 297020 5919	ICAL Date & Slope:
ICV Cal STD ID:	-60.0 mV
DPD Reagent ID: 2970204302	

WO # / SX #	Bottle #	Initial g or ml	Final Vol. ml	Dilution Factor	Initial Conc. mg/L	Final Conc. mg/L	Chlorine Check (+/ –)	Comments
ICV		50mL	50mL		10.09			
CCB					0.03000			
MBLK					0.02499			
LCS					10.03			
HS1804059?-01					10.88		-ve	
HS1804059?-01MS					207.63			
L MSD					207.41			MD
HS1804084?-01		1mL	50mL	50X	0.2801		tve	Within salt & chloride
CCV		50mL	50mL		10.02			
CCB		1	1		0.03665			

Batch ID:	Reported By	Reviewed By:
ISE W350.3-314892	MD	

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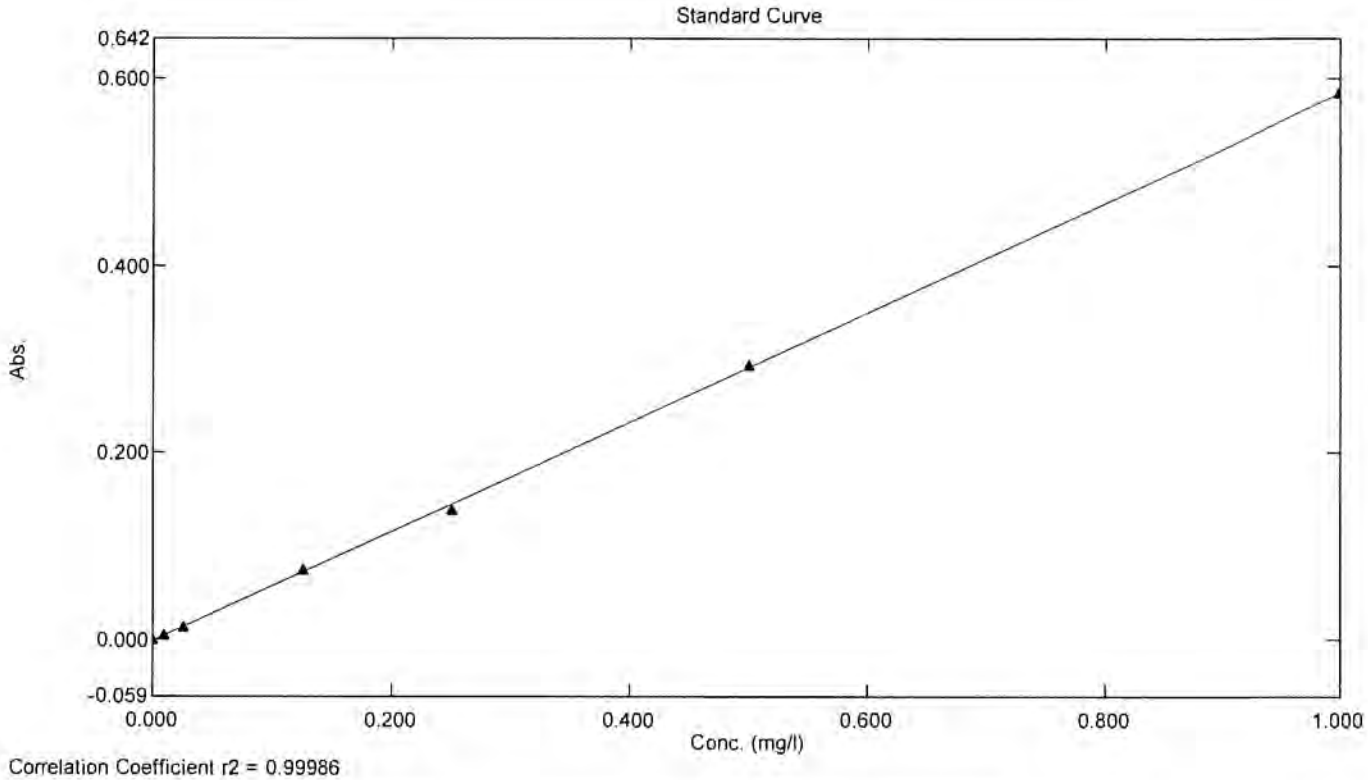
HS1804O597

Standard Table Report

04/30/2018 11:55:40 AM

File Name: C:\Program Files (x86)\Shimadzu\UVProbe\Data\O_PO4_UNKNOWN\ORTHO_2018\180413_P_ORTH



Correlation Coefficient r2 = 0.99986

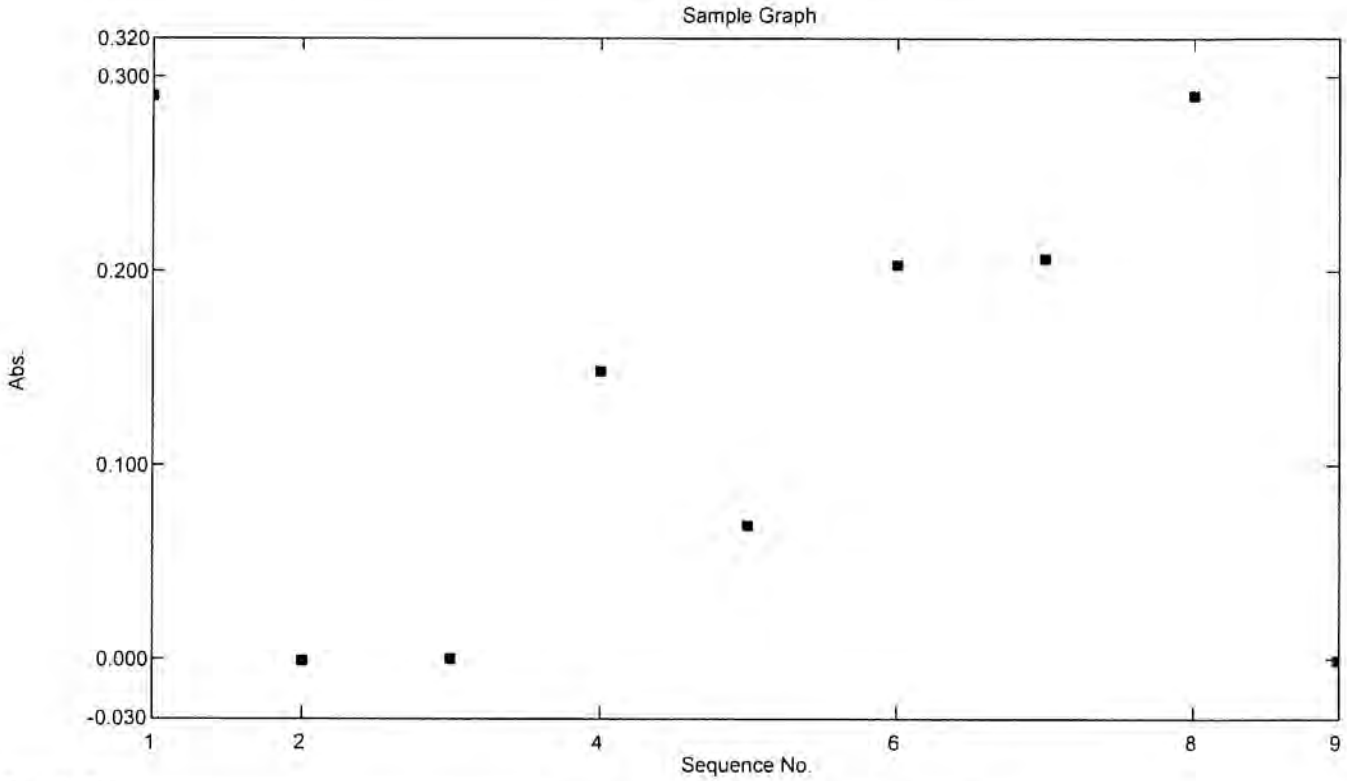
Standard Table

	Sample ID	Type	Ex	Conc	WL880.0	Wgt.Facto	Comments
1	STD1	Standard		0.000	-0.000	1.000	
2	STD2	Standard		0.010	0.006	1.000	
3	STD3	Standard		0.025	0.014	1.000	
4	STD4	Standard		0.125	0.075	1.000	
5	STD5	Standard		0.250	0.140	1.000	
6	STD6	Standard		0.500	0.294	1.000	
7	STD7	Standard		1.000	0.584	1.000	
8							

Sample Table Report

04/30/2018 11:55:42 AM

File Name: C:\Program Files (x86)\Shimadzu\UVProbe\Data\O_PO4_UNKNOWN\ORTHO_2018\180413_P_ORT



Sample Table

	Sample ID	Type	Ex	Conc	WL880.0	Comments
1	CCV	Unknown		0.497	0.290	
2	CCB	Unknown		0.001	-0.000	
3	MBLK	Unknown		0.001	0.000	
4	LCS	Unknown		0.255	0.148	
5	18040597.01	Unknown		0.119	0.069	PF:10X,FILTER,01:45P
6	18040597.01MS	Unknown		0.349	0.203	10X
7	18040597.01MSD	Unknown		0.355	0.207	10X
8	CCV2	Unknown		0.498	0.291	
9	CCB2	Unknown		-0.000	-0.001	
10						

Sub Contract Data

Bhate Environmental Associates, Inc.
Project: LONGHORN GW TREATMENT PLANT
WEEKLY SAMPLES
ALS WO# HS18040597

Case Narrative

Method: 6850
Analysis: Perchlorate
Analysis SOP: LC-MS-CLO4
ALS WO ID(s): 1809681; 1810423; 1810427; 1810428

Client: ALS Laboratories (Houston, TX)
Matrix: Water
ELMS Batch (HBN): 2081 (212824)

General Set Information: There were four field samples in these Work Orders. The samples were analyzed for perchlorate.

Method Summary: Each sample was prepared as noted below and analyzed using an Agilent 1100 LC/MSD system in select ion monitoring (SIM) mode at m/z 83 and 85, which corresponds to the loss of one oxygen atom from the perchlorate molecule. ChemStation software was used for instrument control and data analysis. The ion ratio of m/z 83 to 85 was used to positively identify the response peak as perchlorate. Quantitation was performed using the m/z 83 peak area. An internal standard (ISTD) of ^{18}O labeled perchlorate was added to each sample to establish the perchlorate peak retention time and used in quantitation.

Sample Preparation: A 10.0mL aliquot of each sample was transferred into a 15-mL centrifuge tube. 50µL of an ^{18}O labeled perchlorate solution was added to each sample as an internal standard. The samples were then capped, vortexed, and filtered into autosampler vial using Phenex PES membrane 0.45µm Syringe filters.

Holding Times: Holding times were met for all analyses.

Dilutions: Sample 1810423001 was analyzed and reported at 1:1,000 dilution. The reporting limit has been adjusted accordingly.

Method QC data: The method blank (LMB 596169) was less than 1/2 the CRDL. The recovery for the LCS (596170) was within acceptable parameters.

MS/MSD Analysis: The matrix spike and matrix spike duplicate (MS/MSD) was performed on sample 1808267001 (Client ID: LH18/24-SP650_040418). The Matrix Spike and duplicate (MS/MSD – 596171/72) failed QC acceptance criteria for percent recoveries, biased high. This is due to the fact that the unspiked sample result of 2.3µg/L was not subtracted from the MS/MSD results. The Matrix Spike and Matrix Spike duplicate is reported for the clients' information only. The sample matrix may be inappropriate for the method selected. The MS/MSD relative percent difference (RPD) was within the performance limits.

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

NC/CAR(s): NA

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

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

Miscellaneous Comments: These samples were analyzed in accordance with the requirements found in the DOD QSM Version 5.1. Manual Integrations was performed for datafile 02APRD01/02.

Thomas Bosch April 18, 2018
Analyst Date

ANALYTICAL REPORT

Report Date: April 18, 2018

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

Phone: 281 530-5656

E-mail: RJ.Modashia@ALSGlobal.com

Workorder: **34-1810427**
Project ID: HS18040597 041118
Purchase Order: HS18040597
Project Manager Kevin W. Griffiths

Client Sample ID	Lab ID	Collect Date	Receive Date	Sampling Site
LH18/24-SP650_041118	1810427001	04/11/18	04/13/18	

ANALYTICAL REPORT

Workorder: 34-1810427
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **LH18/24-SP650_041118**	Sampling Site: NA	Collected: 04/11/2018
Lab ID: 1810427001	Media: 125 mL Nalgene	Received: 04/13/2018
Matrix: Water	Sampling Parameter: NA	

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable	**Analysis:** EPA 6850, DoD QSM Water	**Instrument ID:** LCMS04
	Batch: ELMS/2081 (HBN: 212824)	**Percent Solid:** NA
	Analyzed: 04/17/2018 10:55	**Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**6.9**	1.0	2.0	4.0	1	

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

Method	Analyst	Peer Review
EPA 6850, DoD QSM	/S/ Thomas Bosch 04/18/2018 12:28	/S/ Stephen Brose 04/18/2018 15:35

Laboratory Contact Information

ALS Environmental
960 W Levoy Drive
Salt Lake City, Utah 84123

Phone: (801) 266-7700
Email: alslt.lab@ALSGlobal.com
Web: www.alsslc.com

ANALYTICAL REPORT

Workorder: 34-1810427
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted.
Samples have not been blank corrected unless otherwise noted.
This test report shall not be reproduced, except in full, without written approval of ALS.

ALS provides professional analytical services for all samples submitted. ALS is not in a position to interpret the data and assumes no responsibility for the quality of the samples submitted.

All quality control samples processed with the samples in this report yielded acceptable results unless otherwise noted.

ALS is accredited for specific fields of testing (scopes) in the following testing sectors. The quality system implemented at ALS conforms to accreditation requirements and is applied to all analytical testing performed by ALS. The following table lists testing sector, accreditation body, accreditation number and website. Please contact these accrediting bodies or your ALS project manager for the current scope of accreditation that applies to your analytical testing.

Testing Sector	Accreditation Body	Certificate Number	Website
Environmental	PJLA (DoD ELAP)		
	Utah (TNI)		
	Nevada		
	Oklahoma		
	Iowa		

Result Symbol Definitions

MDL = Method Detection Limit, a statistical estimate of method/media/instrument sensitivity.
RL = Reporting Limit, a verified value of method/media/instrument sensitivity.
CRDL = Contract Required Detection Limit
Reg. Limit = Regulatory Limit.
ND = Not Detected, testing result not detected above the MDL or RL.
< This testing result is less than the numerical value.
** No result could be reported, see sample comments for details.

Qualifier Symbol Definitions

U = Qualifier indicates that the analyte was not detected above the MDL.
J = Qualifier Indicates that the analyte value is between the MDL and the RL. It is also used to indicate an estimated value for tentatively identified compounds in mass spectrometry where a 1:1 response is assumed.
B = Qualifier indicates that the analyte was detected in the blank.
E = Qualifier indicates that the analyte result exceeds calibration range.
P = Qualifier indicates that the RPD between the two columns is greater than 40%.

Quality Control Sample Batch Report

Analysis Information

Workorder: 1810427

Limits:	Client SOW/Contract Specified	**Preparation:**	NA	**Analysis:**	EPA 6850
Basis:	DoD QSM	**Batch:**	NA	**Batch:**	ELMS/2081 (HBN: 212824)
		Prepared By:	NA	**Analyzed By:**	Thomas Bosch

Blank

LMB: 596169
Analyzed: 04/17/2018 09:29
Units: ug/L

Analyte	Result	MDL	RL
Perchlorate	ND	1	2.00

Laboratory Control Sample

LCS: 596170
Analyzed: 04/17/2018 09:44
Dilution: 1
Units: ug/L

Analyte	Result	Target	% Rec	QC Limits	
Perchlorate	5.04	5.00	101	78.8	123.8

Matrix Spike - Matrix Spike Duplicate

	Sample: 1809681001	MS: 596171	MSD: 596172
	Analyzed: 04/17/2018 09:58	Analyzed: 04/17/2018 10:12	Analyzed: 04/17/2018 10:26
	Dilution: 1	Dilution: 1	Dilution: 1
	Units: ug/L	Units: ug/L	Units: ug/L

Analyte	Result	Result	Target		% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Perchlorate	2.30	6.24	5	#	125	78.8	123.8	6.15	123	1.41	0.0	20.0

Continuing Calibration Verification

	CCV: 596166	CCV: 596173
	Analyzed: 04/17/2018 08:41	Analyzed: 04/17/2018 11:23
	Units: ug/L	Units: ug/L
	Criteria: ± 15%	Criteria: ± 15%

Analyte	Result	Target	% Rec.	Result	Target	% Rec.
Perchlorate	27.3	25.0	109	28.3	25.0	113

Interference Check Sample

ICSA: 596168
Analyzed: 04/17/2018 09:15
Units: ug/L
Criteria: ± 30%

Analyte	Result	Target	% Rec.
Perchlorate	0.989	1.00	98.9

Limit of Detection Verification

	LODV: 596167	LODV: 596174
	Analyzed: 04/17/2018 09:01	Analyzed: 04/17/2018 11:53
	Units: ug/L	Units: ug/L
	Criteria: ± 50%	Criteria: ± 50%

Analyte	Result	Target	% Rec.	Result	Target	% Rec.
Perchlorate	0.957	1.00	95.7	1.04	1.00	104

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1810427

Limits:	Client SOW/Contract Specified	**Preparation:**	NA	**Analysis:**	EPA 6850
Basis:	DoD QSM	**Batch:**	NA	**Batch:**	ELMS/2081 (HBN: 212824)
		Prepared By:	NA	**Analyzed By:**	Thomas Bosch

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

Analyst	Peer Review
/S/ Thomas Bosch	/S/ Stephen Brose
04/18/2018 12:28	04/18/2018 15:34

Symbols and Definitions

* - Analyte above reporting limit or outside of control limits
▲ - Sample result is greater than 4 times the spike added
● - Sample and Matrix Duplicate less than 5 times the reporting limit
◆ - Result is above the calibration range
- The Matrix Spike, Matrix Spike duplicate or Matrix Duplicate is reported for your information only. The sample matrix may be inappropriate for the method selected.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected (U - Qualifier also flags analyte as not detected)
NA - Not Applicable
QC results are not adjusted for moisture correction, where applicable

18693/2

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

W 1810427

ntract Chain of Custody

COC ID: 8925

1810427

SUBCONTRACT TO:

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

Phone: +1 801 266 7700

CUSTOMER INFORMATION:

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

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS18040597
TSR:	Danielle Winnings

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS18040597-01**	**LH18/24-SP650_041118**	**Water**	**11 Apr 2018 14:00**
	SUB_Perch-6850			26 Apr 2018

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

QC Level: DOD IV (DoD Data Package)

Relinquished By: _____ Date/Time: 4/12/18 1800

Received By: Curtis Van Fassell Date/Time: 04-13-18 10:13

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

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: HS18040597	Split:	Workorder ID: 1810427	Level: ENV_LVL4	Requested Analysis	
Client: ALS Environmental (Houston)		Account: 8101	Type: 125Poly		
Comments:			Preservatives		
			COOL		

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	EPA 6850, DoD QSM
1	04/11/2017 14:00	LH18/24-SP650_041118	1810427001		Water	A	1	A
2								
3								
4								
5								
6								
7								
8								
9								
10								

39 of 114

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Warath, Julie	04/13/2018 10:13	ALS Sample Receiving	Sample Login
Julie Warath	4/13/18 1500	13C	Storage
R-33.1	4.16.18/12:10	T. Bush	6850

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

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

Prepared / Analyzed by: _____ Date / Time: _____

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

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

COOLER OR CONTAINER INFORMATION CHECKLIST (Fill In or Circle)

Client Name: ALS Houston

Project/Task/Site: 1818427

Date/Time of Receipt: 04-13-18 10:13

Number of Coolers Received: 1

Condition of Coolers:	Acceptable/Unacceptable	Temperature Control:	Present/Not Included
Cooler Custody Seals:	Present/Absent/NA		
	Intact/Broken/NA	Location Temp Taken:	Control/Between Samples
Container Custody Seals:	Present/Absent/NA		
	Intact/Broken/NA	Are all temperatures within project specific guidelines?	Yes/No/NA
Ice Present:	Yes/No/NA	VOA Headspace Present?	Yes/No/NA
	Frozen/Melted/NA		

pH Check Performed:							
	Metals	Yes/No/NA	Total Phenolics	Yes/No/NA	NO3/NO2	Yes/No/NA
	Cyanide	Yes/No/NA	TPH – 418.1	Yes/No/NA	Oil & Grease	Yes/No/NA
	Sulfide	Yes/No/NA	COD	Yes/No/NA	Total Phosphorous	Yes/No/NA
	Ammonia	Yes/No/NA	TKN	Yes/No/NA	Gross A.B, Gamma Spec	Yes/No/NA

Cooler Received	DCL Cooler No.	Temp.	Cooler Received	DCL Cooler No.	Temp.	Cooler Received	DCL Cooler No.	Temp.
1	C18 8446	1 °C	4	C18	°C	7	C18	°C
2	C18	°C	5	C18	°C	8	C18	°C
3	C18	°C	6	C18	°C	9	C18	°C

Taken By: Jennica Jessell (Signature) Jennica Jessell (Printed Name) 04-13-18 (Date)

CLIENT-RELATED INFORMATION

☐ Missing Cooler	☐ Missing Samples/Bottles	☐ Incorrect Preservation	☐ Insufficient Sample Volume
☐ Cooler Conditions	☐ Broken/Leaking Samples	☐ pH Criteria Not Met	☐ Chain of Custody Problems
☐ Missing Paperwork	☐ Incorrect Bottle Type	☐ Residual Chlorine Present	☐ Other:
☐ Missing/Incorrect Bottle Labels	☐ Cooler Temperatures Out of Range	☐ Head Space in Bottles	

BRIEFLY DESCRIBE THE PROBLEM AND THE ACTION TAKEN:

Client Notified? YES ☐ NO ☐

Response Required Within 24 Hours

PROJECT MANAGEMENT

PROJECT MANAGER COMMENTS:

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

Must Deliver Next Business Day
Time and Tempature Sensitive!

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

SHIP DATE:
ACTWGT: 18.
CAD: 3001
DIMS: 19x

BILL SENDE

TO SAMPLE RECEIVING
ALS ENVIRONMENTAL
960 W. LEVOY DRIVE

SALT LAKE CITY UT 84123
(801) 266-7700
REF: HS18040595 RJ

RT 907 5 A
ST 1/3 16:00 2320
04.13

FedEx Express

FRI - 13 APR 3:00P
STANDARD OVERNIGHT

TRK# 0201 4380 9528 2320

AX BTFA

84123
SLC
UT-US

Seal Broken By:
Date:

CUSTODY SEAL
Time: 12:30
Date: 4/12/18
Name: BRS Hart
Company:

ncliff Rd., Suite 210
Texas 77099
1 530 5555
1 530 5887

tch Worklist

Batch: ELMS/ 2081 **Created:** 4/16/2018 16:57 **Instrument:** HBN: 212824
Rule: EPA 6850, DoD QSM Water **Analyst:** T. Bosch **Status:** WP

Workorder: 1809681 [ENV_LVL4]
Workorder: 1810423 [ENV_LVL4]
Workorder: 1810427 [ENV_LVL4]
Workorder: 1810428 [ENV_LVL4]

Pos	Lab ID	Sample ID	Prep Initial	Prep Final	Dust Weight	Type	Mx	Container	Procedure	Mgr	Expire Date	Due Date	Run Date
1	596166	CCV for HBN 212824 [ELMS/2081]				CCV	3		E685041C3Q	5311		4/19/2018	
2	596167	LODV for HBN 212824 [ELMS/2081				LODV	3		E6850..D3Q	5311		4/19/2018	
3	596168	ICS for HBN 212824 [ELMS/2081]				ICS	3		E6850..D3Q	5311		4/19/2018	
4	596169	LMB for HBN 212824 [ELMS/2081]				LMB	3		E6850Q413Q	5311		4/19/2018	
5	596170	LCS for HBN 212824 [ELMS/2081]				LCS	3		E6850Q413Q	5311		4/19/2018	
6	1809681001	LH18/24-SP650_040418				SAMPLE	3	1809681001-A	E6850Q41.3	5480	5/2/2018	4/19/2018	
7	596171	LH18/24-SP650...(1809681001MS)				MS	3		E6850Q413Q	5311		4/19/2018	
8	596172	LH18/24-SP65...(1809681001MSD)				MSD	3		E6850Q413Q	5311		4/19/2018	
9	1810423001	LH18/24-SP140_041118				SAMPLE	3	1810423001-A	E6850Q41.3	5480	5/9/2018	4/26/2018	
10	1810427001	LH18/24-SP650_041118				SAMPLE	3	1810427001-A	E6850Q41.3	5480	5/9/2018	4/26/2018	
11	1810428001	LH18/24-SP650_041118				SAMPLE	3	1810428001-A	E6850Q41.3	5480	5/9/2018	4/26/2018	
12	596173	CCV for HBN 212824 [ELMS/2081]				CCV	3		E685041C3Q	5311		4/19/2018	
13	596174	LODV for HBN 212824 [ELMS/2081				LODV	3		E6850..D3Q	5311		4/19/2018	

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Analytical Documentation

ALS Work Order #'s & Sample #( )'s: 1809681 (001); 1810423 (001); 1810427 (001); 1810428 (001)
ELMS Batch/HBN ID: 2081 (212824)
Prep Date: 04/17/2018 Analysis Date: 04/17/2018 Analyst: T. Bosch
Analyte: **Perchlorate** Matrix: **Water** Method: **6850**
Sequence: \\HPCHEM\1\SEQUENCE\CLO4\2018\APR\17APR18D.s
Reported DL: **1.0µg/L** Reported LOD: **2.0µg/L** Reported LOQ: **4.0µg/L**

SAMPLE PREPARATION/ANALYSIS:

Water: Samples were prepared by TNB. 10.0mL of each sample was pipetted into a 15-mL centrifuge tube, and 50µL of an oxygen-18 labeled perchlorate solution was added as an internal standard. The samples were capped, vortexed, and filtered with Phenex PES membrane 0.45µm Syringe filters prior to analysis.

REAGENTS: Eluent A1: 95% ASTM Type II water (ALS)/ 5% ACN (B&J Lot DI735)/0.1% glacial acetic acid (JT-Baker Lot 04802).
Eluent B1: 95% ACN (B&J Lot DI735)/ 5% ASTM Type II water (ALS)/0.1% glacial acetic acid (JT-Baker Lot 04802).

STANDARDS: Internal Standard Spiking Solution Horizon# 38780. Dilutions of Working Standard Solution ID 32373 used for CCV's, LODV's, RLVS and IPC.

CALIBRATION CURVE: Used curve from 04/02/2018, sequence 02APR18D.s Offline Quantitation Method: CLO4-DPR.M

INSTRUMENT CONDITIONS: Samples were analyzed with an Agilent 1100 LC/MSD system, in negative SIM mode, monitoring m/z 83, 85, and 89.
Instrument ID: LCMS04 Online Acquisition Method: CLO4-DOD.M Fragmentor: 160 Output Gain: 3 Injection Volume: 25µL
Column: KP-RPPX C8 separator, 250mm Mobile Phase: 70% Eluent A1; 30% Eluent B1

FLOW GRADIENT:

Time (min.)	Flow (mL/min)
0	0.80
4.0	0.80
5.0	0.25
10.0	0.25
10.5	0.80
13.0	0.80

QC DATA: 5.0µL of QC Solution Horizon ID 36749 was used for LCS 596170; Target = 5.0µg/L. ASTM type II water was used for LMB 596169.

MS/MSD: MS/MSD was performed on sample 1809681001 (Client ID: LH18/24-SP650_040418). 5.0µl of Working Standard Solution Horizon ID 36735 was added to 10.0mL of sample preparation. Spike target = 5.0µg/L.

COMMENTS:

1) Results reported in µg/L. Sample 1810423001 was analyzed and reported at 1:1,000 dilution. The reporting limit has been adjusted accordingly.
2) All QC, Blank, CCV, and MS/MSD results were within method parameters, except for the following. The Matrix Spike and duplicate (MS/MSD – 596171/72) failed QC acceptance criteria for percent recoveries, biased high. This is due to the fact that the unspiked sample result of 2.3µg/L was not subtracted from the MS/MSD results. The Matrix Spike and Matrix Spike duplicate is reported for the clients' information only. The sample matrix may be inappropriate for the method selected.
3) Sample data can be viewed at two directories within the ALS system: \\ALSLTWS013\LCMS\LCMS04\2018\APR\HBN# or through NuGenesis\Tree\PrintData\LCMS\DefaultView.
4) Due to limitations of the Chemstation Software, some of the chromatographic peaks require manual integration. Manual Integrations was performed for datafiles 02APRD01/02.
5) Notebook: \\alsltws013\ORGANIC\BOSCH\LCMS\Perchlorates\Waters\2018\212824-DOD-ALS-HSTN-LCMS4 or through \\ALSLTWS013\DATAREVIEW\HBN#

STANDARD REPORT

Working Standard - CLO4 WRK

CLO4 WRK — Description - 6850 WKG Std 100.ug/L

Standard: 36735
MFG: ALS/SLC
MFG Lot: TNB: 05/10/17
Part ID:

Created By: T. Bosch
Create Date: 05/10/2017
Lab Lot: CLO4 WRK

Amount: 10 mL
Expires: 05/10/2018
Usable: Yes

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	0.1 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
36734	CLO4 INT	6850 Intermdt AccStd 10.ug/mL	CLO4 INT	0.1 mL	05/10/2018

STANDARD REPORT

Constituent

Stock Standard - CLO4 STOCK

CLO4 STOCK — Description - 6850 Stock AccStd 1,000ug/mL

Standard: 36733
MFG: AccuStandard
MFG Lot: 216095148
Part ID: IC-PER-10X-1

Created By: T. Bosch
Create Date: 5/10/2017
Lab Lot: CLO4 STOCK

Amount: 100 mL
Expires: 10/4/2018
Usable: Yes

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

STANDARD REPORT

Constituent

Solvent Standard - ASTM H2O

ASTM H2O		Description - ASTM Type II Water
Standard: 109	Created By: ALS Support (Lims)	Amount: 1000 L
MFG: DCL In House	Create Date: 10/6/2005	Expires: 11/7/2025
MFG Lot:	Lab Lot: LAB 109	Usable: Yes
Part ID:		

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

STANDARD REPORT

Constituent

Working Standard - CLO4 INT

CLO4 INT — Description - 6850 Intermdt AccStd 10.ug/mL

Standard: 36734
MFG: ALS/SLC
MFG Lot: TNB: 05/10/17
Part ID:

Created By: T. Bosch
Create Date: 05/10/2017
Lab Lot: CLO4 INT

Amount: 10 mL
Expires: 05/10/2018
Usable: Yes

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

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
36733	CLO4 STOCK	6850 Stock AccStd 1,000ug/mL	CLO4 STOCK	0.1 mL	10/04/2018

STANDARD REPORT

Working Standard - CLO4 QC WRK

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

Standard: 36750
MFG: ALS/SLC
MFG Lot: TNB: 05/11/17
Part ID:

Created By: T. Bosch
Create Date: 05/11/2017
Lab Lot: CLO4 QC WRK 100.ug/L

Amount: 10 mL
Expires: 05/11/2018
Usable: Yes

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

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
36749	CLO4 QC INT	6850 QC Intrmdt Std-QC 10ug/mL	CLO4 QC INT 10.ug/mL	0.1 mL	05/11/2018

STANDARD REPORT

Constituent

Working Standard - CLO4 QC INT

CLO4 QC INT — Description - 6850 QC Intrmdt Std-QC 10ug/mL

Standard: 36749
MFG: ALS/SLC
MFG Lot: TNB: 05/11/2017
Part ID:

Created By: T. Bosch
Create Date: 05/11/2017
Lab Lot: CLO4 QC INT 10.ug/mL

Amount: 10 mL
Expires: 05/11/2018
Usable: Yes

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

Composition

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

STANDARD REPORT

Constituent

Solvent Standard - ASTM H2O

ASTM H2O		Description - ASTM Type II Water
Standard: 109	Created By: ALS Support (Lims)	Amount: 1000 L
MFG: DCL In House	Create Date: 10/6/2005	Expires: 11/7/2025
MFG Lot:	Lab Lot: LAB 109	Usable: Yes
Part ID:		

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

STANDARD REPORT

Constituent

Stock Standard - CLO4 QCSTOCK

CLO4 QCSTOCK Description - 6850 QC Stock STD 1,000ug/mL

Standard: 36748
MFG: Ultra Scientific
MFG Lot: CP-0860
Part ID: ICC-013

Created By: T. Bosch
Create Date: 5/11/2017
Lab Lot: CLO4 QC STOCK

Amount: 100 mL
Expires: 3/31/2020
Usable: Yes

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

STANDARD REPORT

Working Standard - CLO4ISTDWRK

CLO4ISTDWRK — **Description - Perchlorate ISTD Wrk 1,000ug/L**

Standard: 38780
MFG: ALS/SLC
MFG Lot: TNB: 10/09/17
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 10/09/2017 01:10PM
Verified By: Thomas Bosch
Verify Date:

Amount: 10 mL
Expires: 10/09/2018
Usable: Yes
Lab Lot: CLO4ISTDWRK

Pos.	Analyte	Name	Concentration
1	14797-73-0-8385	Perchlorate 83:85 Ratio	1000 ug/L
2	14797-73-0-89	Perchlorate 89	1000 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
23118	CLO4ISTDSTK	Perchlorate ISTD Stock	CLO4ISTDSTK	0.1 mL	02/27/2024

STANDARD REPORT

Constituent

Stock Standard - CLO4ISTDSTK

CLO4ISTDSTK		Description - Perchlorate ISTD Stock
Standard: 23118	Created By: Thomas Bosch	Amount: 1 mL
MFG: Cambridge Isotope	Create Date: 04/04/2014 03:04PM	Expires: 02/27/2024
MFG Lot: SDDG-013	Verified By: Thomas Bosch	Usable: Yes
Part ID: OLM-7310-S	Verify Date: 02/05/2009 12:02AM	Lab Lot: CLO4ISTDSTK

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

ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

ISO Guide 34 Reference Material

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

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

Product Name: Perchlorate IC Standard

Description:
This Reference Material (RM) was gravimetrically prepared in accordance with ISO Guide 34 and under ULTRA Scientific's ISO 9001 registered quality system. The neat materials used for this product have been verified by ULTRA's ISO 17025 laboratory and under ULTRA's ISO Guide 34 accreditation. The analyte concentrations were verified by ULTRA's ISO 17025 accredited laboratory. For each analyte, the true value, with its uncertainty value calculated at the 95% confidence level, is reported below.

Analyte	Starting Material	Lot Number	Purity (%)	Calculated Value	True Value	Traceability & Method
perchlorate	potassium perchlorate	RM07987	100	1001 ± 5 µg/mL	976 ± 6 µg/mL	NIST SRM 3141A; ICP-OES

Solvent: water (low TOC, < 50 ppb)

Storage: Store at Room Temperature (15° to 30°C).

Traceability:
Traceability has been established through an unbroken chain of comparisons, each having stated uncertainties. Comparisons are based on appropriate physical or chemical measurements, including gravimetric or volumetric dilution, where the mass or volume of a solution before and after dilution is measured. The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1, ISO 9001, ISO 17025, and ISO Guide 34. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 819.

Estimation of Uncertainties:
The true value is reported, with its uncertainty value calculated at the 95% confidence level.

Homogeneity:
This RM was formulated and unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

Intended Use:
This RM is intended for the preparation of working reference samples for use in routine laboratory analyses, calibration of instruments, validation of analytical methods, assessments of measurement methods and continuing calibration verification.

Instructions for Use:
Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening and should be processed without delay for the true value to be valid within the stated uncertainties. Do not pipet from the bottle. Do not return any material removed for pipetting to the bottle. Tightly cap the bottle after removing any material and store according to the instructions noted above.

Hazards:
Refer to the Safety Data Sheet for information regarding this RM.

Expiration of Certification:
The certification of this RM is valid, within the measurement uncertainty specified, until the expiration date specified above, provided the RM is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the RM is damaged, contaminated, or otherwise modified.

ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

ISO Guide 34 Reference Material

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

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

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

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

Daniel J. Lamendola
Director of QA/RA

125 Market Street
New Haven, CT 06513
USA

AccuStandard® Inc.

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

CERTIFICATE OF ANALYSIS

AccuTrace™ Reference Standard

Catalog No: IC-PER-10X-1
Description: Perchlorate Standard
Element: Perchlorate (ClO_4)
SRM: Ind. Std.
Lot: 216095148
Matrix: Water
Hazards: *Refer to SDS for complete safety information*

Signal Word: Warning

Date Certified: Oct 4, 2016
Expiration: Oct 4, 2018
Sample Size: 100 mL
Components: 1
Storage Condition: Ambient (>5 °C)
Included on ISO/IEC 17025 Scope of Accreditation: Yes
Included on ISO Guide 34 Scope of Accreditation: Yes

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

The gravimetric uncertainty for this product is ±0.2%. See reverse side for details.
The final solution was checked against an independent standard to verify its concentration.
We use the highest purity raw materials available to minimize impurity levels in the final solution. Typically 99.999%+ pure starting materials are used as well as ASTM Type I 18 megohm deionized water.
All solutions are filtered through a 0.2 µm filter prior to being bottled.
All glassware used in preparation is Class A and calibrated regularly.
All weights are traceable through NIST, Test No. 822-275872-11
All bottles are triple rinsed with deionized water prior to use.
Shake bottle prior to use and do not pipette directly out of the bottle. Use only cleaned Class A volumetric glassware.
We certify the accuracy of this standard to be ±0.5% of the stated value until its expiration date provided it is kept tightly capped and stored under the conditions stated above.

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

For use in routine laboratory analysis.

AccuStandard is accredited to ISO Guide 34, ISO/IEC 17025 and certified to ISO 9001

OR-ORG/INO-001
Rev. 5/16

Cambridge Isotope Laboratories, Inc.

Certificate of Analysis

Quality Standards:
ISO Guide 34 • ISO/IEC 17025 • ISO 13485 • cGMP

23118

Product Name: (Isotopic Label & Enrichment Specification)	PERCHLORIC ACID, SODIUM SALT (18O4, 90%+) 100 UG/ML IN WATER
Lot Number:	SDDG-013
Catalog Number:	OLM-7310-S

Product Information

Chemical Purity Specification:	≥98%
Labeled CAS Number:	NA
Unlabeled CAS Number:	7601-89-0
MW*:	130.4
Chemical Formula:	NaCl*O4
Storage:	Store at room temperature away from light and moisture.
Stability:	See storage and expiration date.

Certification

Cambridge Isotope Laboratories, Inc. guarantees that this material meets or exceeds the specifications stated. Absolute identity as well as chemical and isotopic purities are assured by the use of unambiguous synthetic routes and multiple chemical analyses whenever possible. Results are representative of QC testing at time of release from Quality Control unless otherwise stated.

Volumetric measurements were made with Class A glassware. Gravimetry is traceable to the NIST through calibrated balances and certified, calibrated, standard weights. The calibrations are traceable to the NIST under Test No. 822/270236-04. The calibrations also meet specifications outlined in ISO 9001, ISO/IEC 17025, ANSI/NSCL Z540-1-1994, NCR Document 10CFR50 Appendix B, and applicable subdocuments.

This COA references the bulk catalog number before packaging. The COA also applies to the CIL finished good catalog number . Some possible packaging sizes and their corresponding suffix are -1.2, -1, -0.5, -10, or -0.1.

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

Approved by: T. J. Eckersley

Timothy J. Eckersley, Ph.D., Quality Assurance

Quality Control Tests and Results

QC Release Date	2/27/2014
Expiration Date	2/27/2024
Concentration Based on Gravimetry	102 µg/mL
Chemical Purity of Neat Material(s)	98%
LC/MS for Concentration	109.4 ± 2.8 µg/mL (k=2)

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Batch Report: C:\HPCHEM\1\DATA\17APR18D\17APR18D.B

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

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

#	*	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorate RT	Perchlorate Amount
	*	596166	CCV@25	Vial 71	1	Control	1	1.14280e6	8.753	27.33882
	*	596167	LODV@1.	Vial 72	1	Control	2	6.41761e4	8.823	9.57277e-1
	*	596168	ICS@1.0	Vial 73	1	Control	3	4.94133e4	8.575	9.89270e-1
	*	596169	LMB	Vial 74	1	Control	4	0.00000	0.000	0.00000
	*	596170	QC@5	Vial 75	1	Control	5	2.59363e5	8.740	5.03626
	*	1809681001		Vial 76	1	Sample	6	9.01797e4	8.361	2.27846
	*	596171	96811MS	Vial 77	1	Control	7	2.46735e5	8.344	6.23564
	*	596172	96811SD	Vial 78	1	Control	8	2.68950e5	8.350	6.14846
	*	1810423001	1K	Vial 79	1	Sample	9	3.21292e5	8.738	6356.06430
	*	1810427001		Vial 80	1	Sample	10	2.63119e5	8.374	6.87199
	*	1810428001		Vial 81	1	Sample	11	4.74912e5	8.385	12.19300
	*	596173	CCV@25	Vial 71	1	Control	12	1.42950e6	8.714	28.29573
	*	596174	LODV@1.	Vial 72	1	Control	14	5.09575e4	8.590	1.03663

#	*	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
	*	596166	CCV@25	Vial 71	1	Control	1	3.55217e5	8.769	27.39222
	*	596167	LODV@1.	Vial 72	1	Control	2	2.24706e4	8.844	9.29806e-1
	*	596168	ICS@1.0	Vial 73	1	Control	3	1.93427e4	8.583	1.09787
	*	596169	LMB	Vial 74	1	Control	4	0.00000	0.000	0.00000
	*	596170	QC@5	Vial 75	1	Control	5	8.61836e4	8.756	5.14276
	*	1809681001		Vial 76	1	Sample	6	3.09483e4	8.376	2.33050
	*	596171	96811MS	Vial 77	1	Control	7	8.35679e4	8.358	6.52866
	*	596172	96811SD	Vial 78	1	Control	8	9.06309e4	8.366	6.40262
	*	1810423001	1K	Vial 79	1	Sample	9	1.05474e5	8.752	6454.26200
	*	1810427001		Vial 80	1	Sample	10	8.92737e4	8.390	7.22479
	*	1810428001		Vial 81	1	Sample	11	1.54422e5	8.398	12.46426
	*	596173	CCV@25	Vial 71	1	Control	12	4.34571e5	8.729	27.82126
	*	596174	LODV@1.	Vial 72	1	Control	14	2.02342e4	8.602	1.17481

#	*	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-ISTD RT	CLO4-89-ISTD Amount
	*	596166	CCV@25	Vial 71	1	Control	1	1.69004e5	8.776	5.00000
	*	596167	LODV@1.	Vial 72	1	Control	2	3.01823e5	8.848	5.00000
	*	596168	ICS@1.0	Vial 73	1	Control	3	2.25166e5	8.595	5.00000
	*	596169	LMB	Vial 74	1	Control	4	2.62060e5	8.801	5.00000
	*	596170	QC@5	Vial 75	1	Control	5	2.34788e5	8.764	5.00000
	*	1809681001		Vial 76	1	Sample	6	1.81546e5	8.384	5.00000
	*	596171	96811MS	Vial 77	1	Control	7	1.79397e5	8.365	5.00000
	*	596172	96811SD	Vial 78	1	Control	8	1.98406e5	8.372	5.00000
	*	1810423001	1K	Vial 79	1	Sample	9	2.29046e5	8.761	5000.00000
	*	1810427001		Vial 80	1	Sample	10	1.73045e5	8.396	5.00000
	*	1810428001		Vial 81	1	Sample	11	1.71055e5	8.407	5.00000
	*	596173	CCV@25	Vial 71	1	Control	12	2.03222e5	8.737	5.00000
	*	596174	LODV@1.	Vial 72	1	Control	14	2.21978e5	8.617	5.00000

*** End of Report ***

Sequence: C:\HPCHEM\1\SEQUENCE\CLO4\2018\APR\17APR18D.S

Sequence Table:

Method and Injection Info Part:

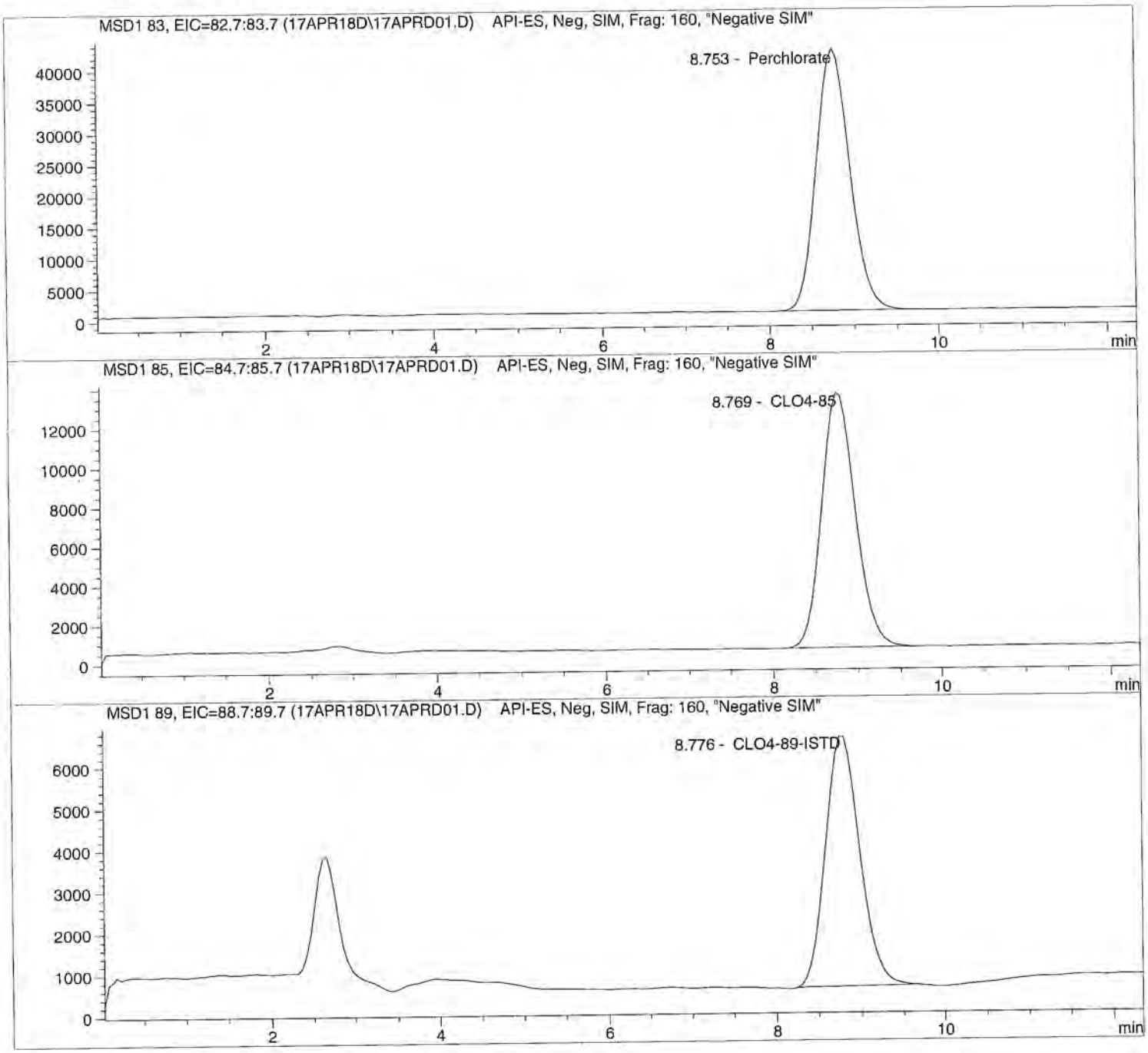
Line	Location	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	596166 CCV@25	CLO4-DOD	1	Ctrl Samp		
2	Vial 72	596167 LODV@1.	CLO4-DOD	1	Ctrl Samp		
3	Vial 73	596168 ICS@1.0	CLO4-DOD	1	Ctrl Samp		
4	Vial 74	596169 LMB	CLO4-DOD	1	Ctrl Samp		
5	Vial 75	596170 QC@5	CLO4-DOD	1	Ctrl Samp		
6	Vial 76	1809681001	CLO4-DOD	1	Sample		
7	Vial 77	596171 96811MS	CLO4-DOD	1	Ctrl Samp		
8	Vial 78	596172 96811SD	CLO4-DOD	1	Ctrl Samp		
9	Vial 79	1810423001 1K	CLO4-DOD	1	Sample		
10	Vial 80	1810427001	CLO4-DOD	1	Sample		
11	Vial 81	1810428001	CLO4-DOD	1	Sample		
12	Vial 71	596173 CCV@25	CLO4-DOD	1	Ctrl Samp		
13	Vial 72	596174 LODV@1.	CLO4-DOD	1	Ctrl Samp		
14	Vial 72	596174 LODV@1.	CLO4-DOD	1	Ctrl Samp		

Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD01.D Sample Name: 596166 CCV@25

Injection Date:	4/17/2018 08:41:41	Seq Line:	1
Sample Name:	596166 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD01.D Sample Name: 596166 CCV@25

Injection Date:	4/17/2018 08:41:41	Seq Line:	1
Sample Name:	596166 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.753	PBA	1142798.1	27.3388	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.769	PBA	355217.3	27.3922	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.776	PBA	169004.3	5.0000	CLO4-89-ISTD

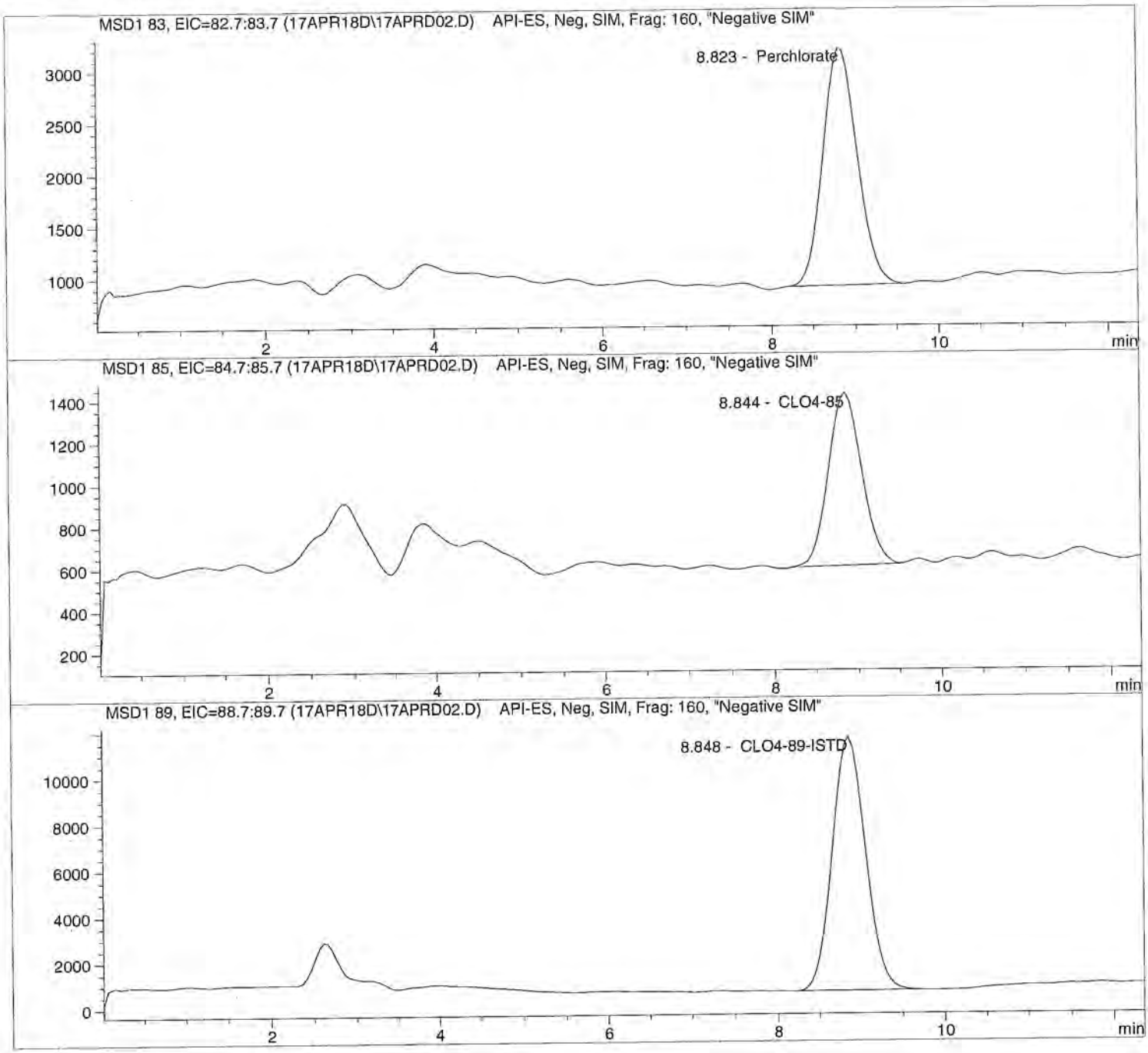
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD02.D Sample Name: 596167 LODV@1.

Injection Date:	4/17/2018 09:01:47	Seq Line:	2
Sample Name:	596167 LODV@1.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD02.D Sample Name: 596167 LODV@1.

Injection Date:	4/17/2018 09:01:47	Seq Line:	2
Sample Name:	596167 LODV@1.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method:	CLO4-DOD.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed:	4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.823	PBA	64176.1	0.9573	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.844	PBA	22470.6	0.9298	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.848	PBA	301823.1	5.0000	CLO4-89-ISTD

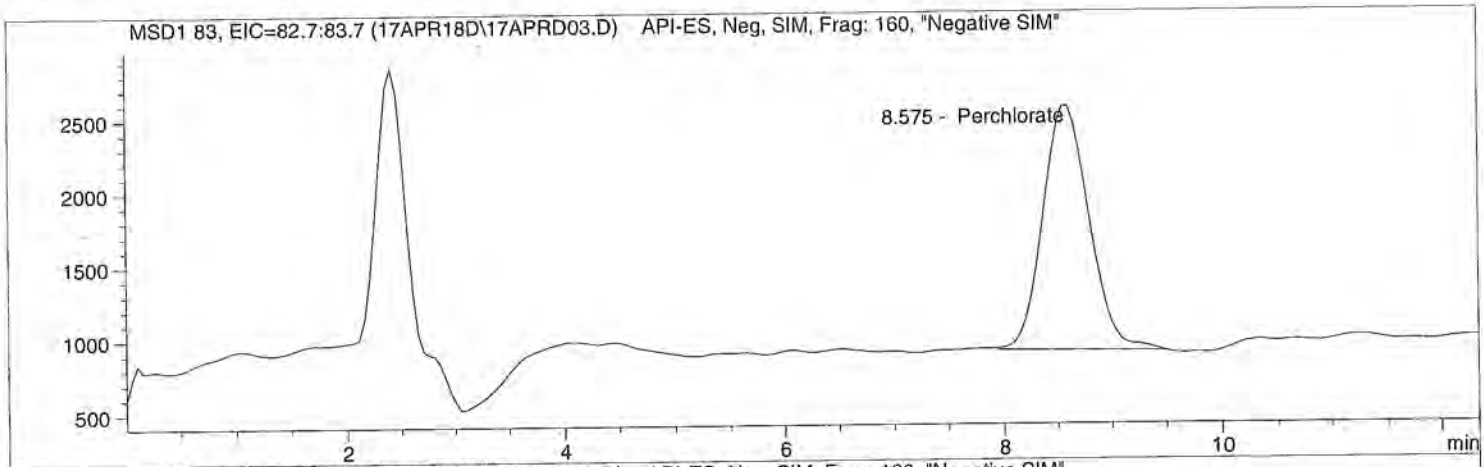
*** End of Report ***

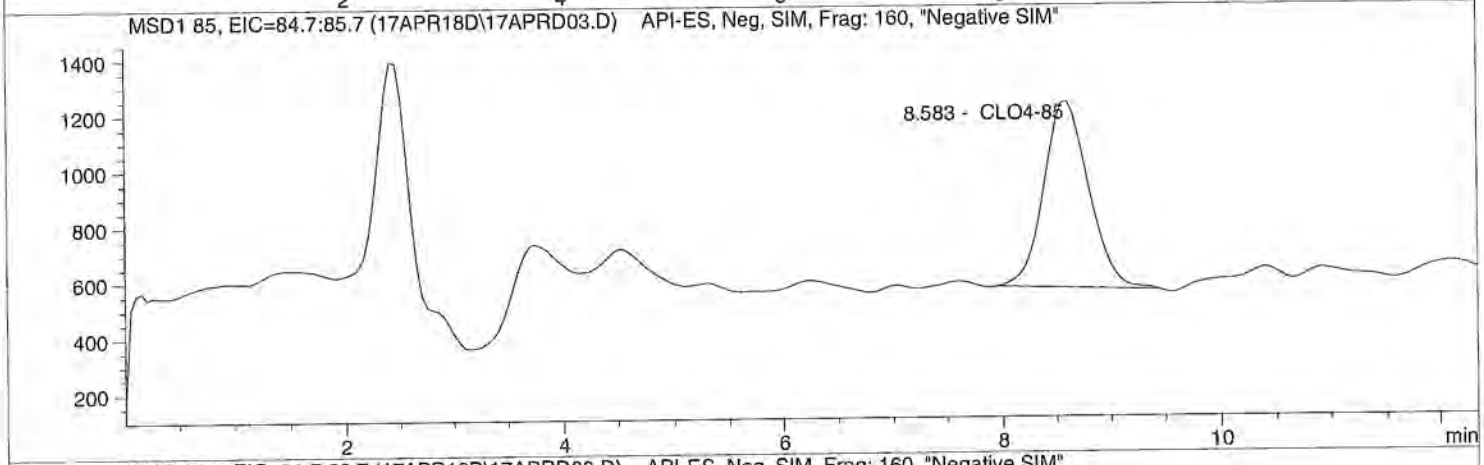
Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD03.D Sample Name: 596168 ICS@1.0

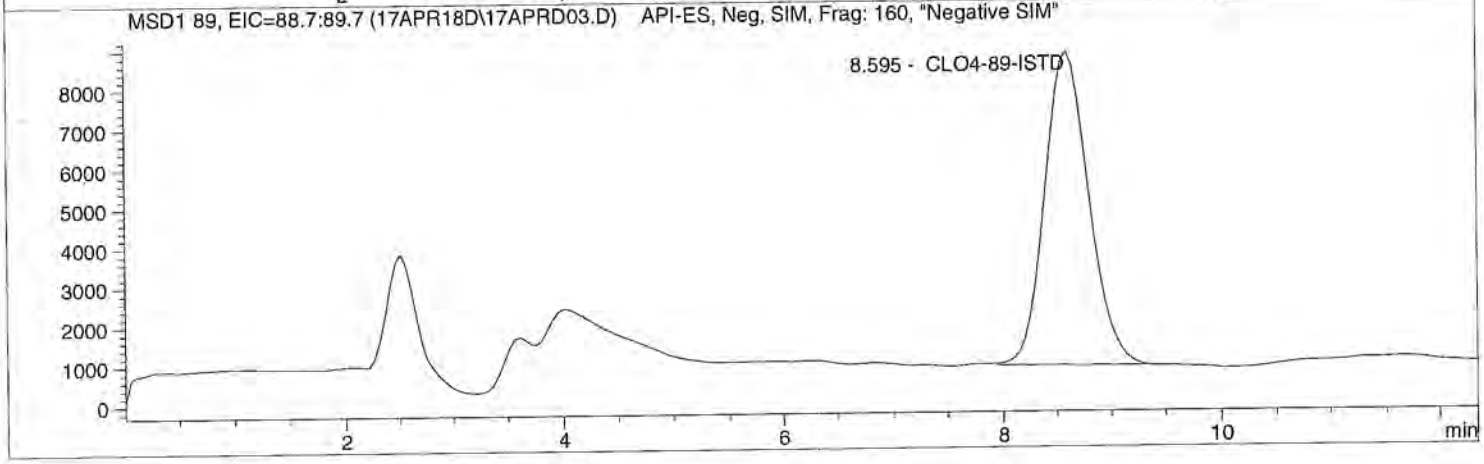
Injection Date:	4/17/2018 09:15:52	Seq Line:	3
Sample Name:	596168 ICS@1.0	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD03.D Sample Name: 596168 ICS@1.0

Injection Date:	4/17/2018 09:15:52	Seq Line:	3
Sample Name:	596168 ICS@1.0	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.575	BBA	49413.3	0.9893	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.583	PBA	19342.7	1.0979	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.595	BBA	225165.6	5.0000	CLO4-89-ISTD

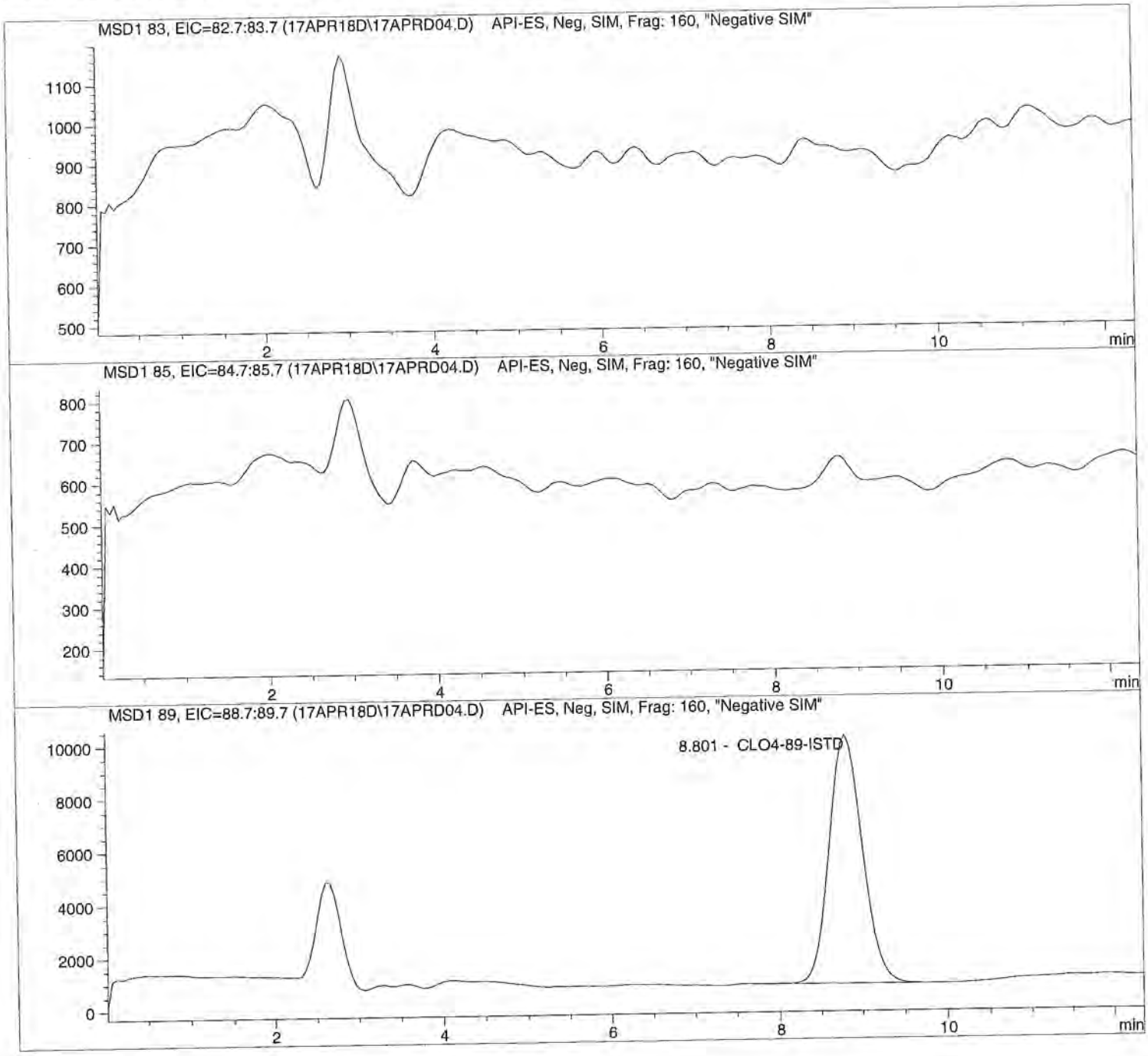
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD04.D Sample Name: 596169 LMB

Injection Date:	4/17/2018 09:29:59	Seq Line:	4
Sample Name:	596169 LMB	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD04.D Sample Name: 596169 LMB

Injection Date:	4/17/2018 09:29:59	Seq Line:	4
Sample Name:	596169 LMB	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method:	CLO4-DOD.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed:	4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

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

Signal2: MSD1 85, EIC=84.7:85.7

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

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.801	BBA	262060.1	5.0000	CLO4-89-ISTD

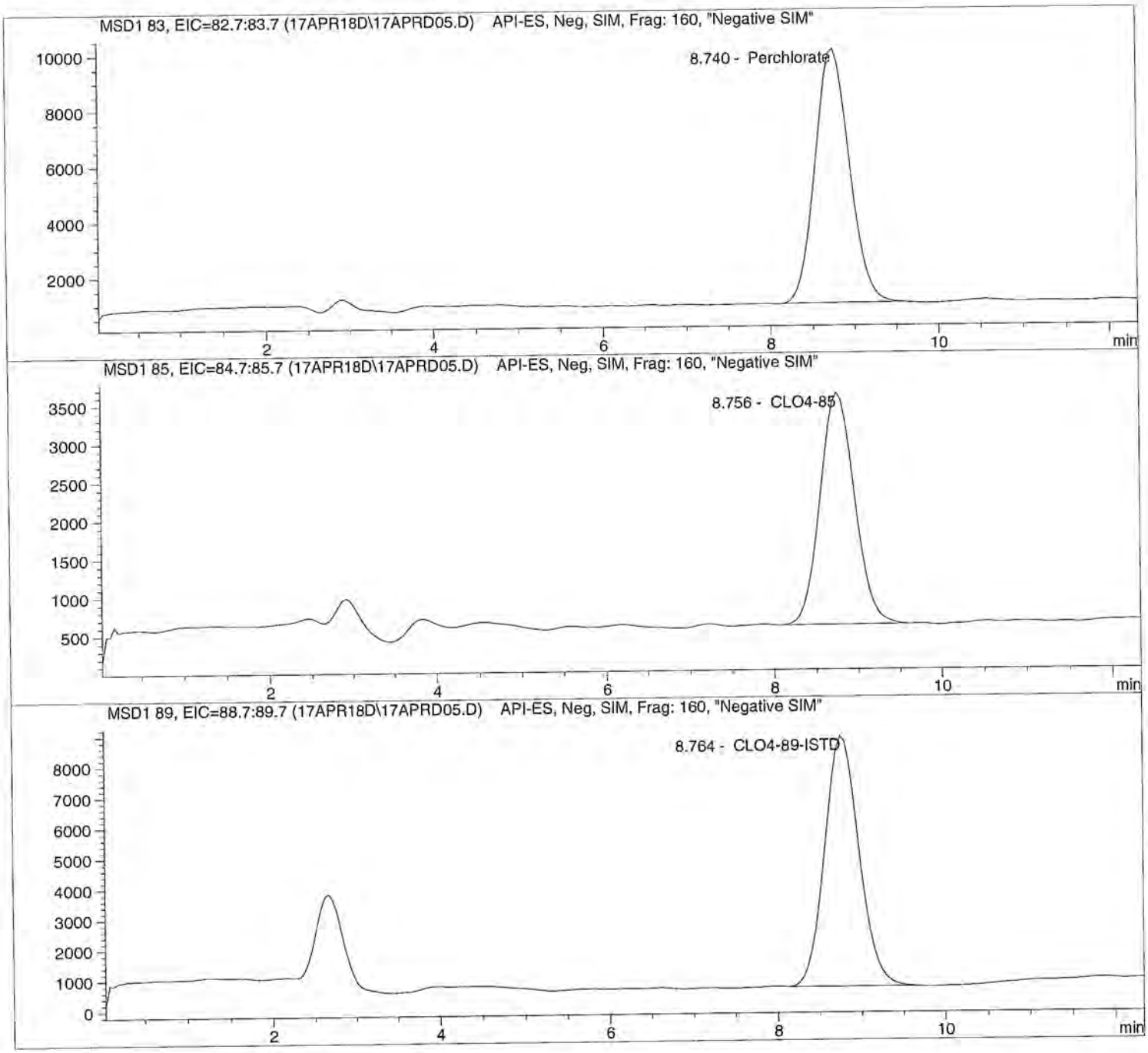
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD05.D Sample Name: 596170 QC@5

Injection Date:	4/17/2018 09:44:04	Seq Line:	5
Sample Name:	596170 QC@5	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD05.D Sample Name: 596170 QC@5

Injection Date:	4/17/2018 09:44:04	Seq Line:	5
Sample Name:	596170 QC@5	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	5.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.740	BBA	259362.7	5.0363	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.756	PBA	86183.6	5.1428	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.764	BBA	234787.9	5.0000	CLO4-89-ISTD

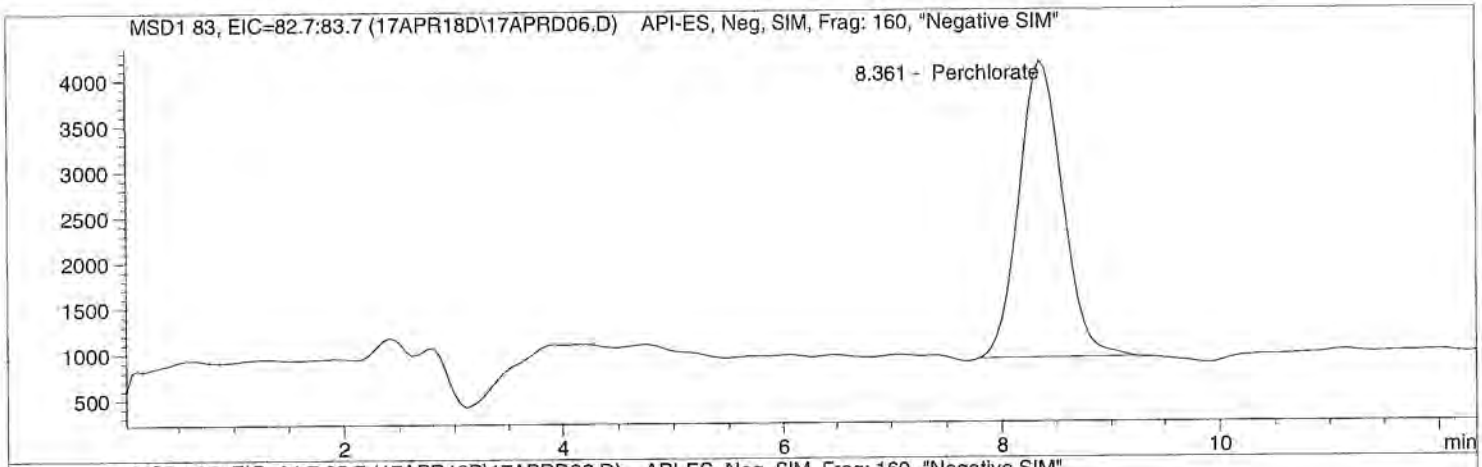
*** End of Report ***

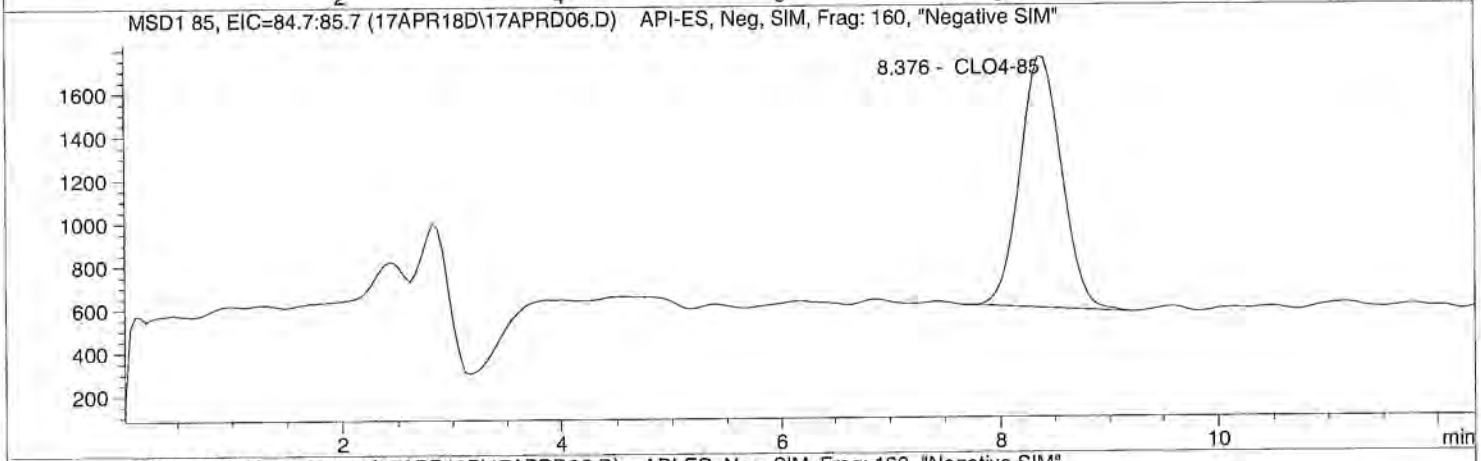
Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD06.D Sample Name: 1809681001

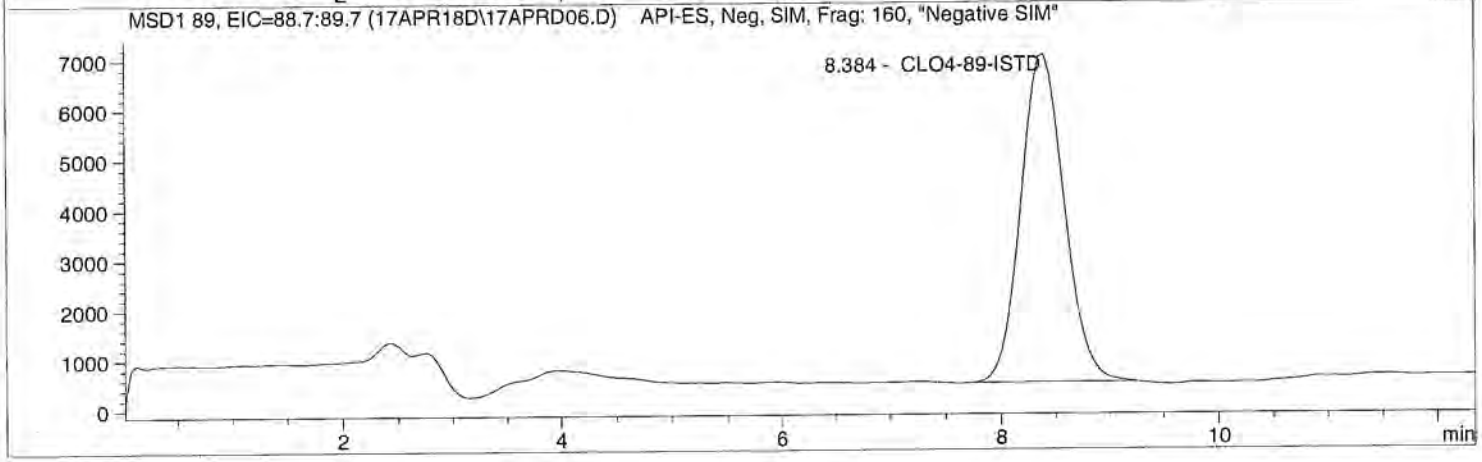
Injection Date:	4/17/2018 09:58:45	Seq Line:	6
Sample Name:	1809681001	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD06.D Sample Name: 1809681001

Injection Date:	4/17/2018 09:58:45	Seq Line:	6
Sample Name:	1809681001	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method:	CLO4-DOD.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed:	4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.361	PBA	90179.7	2.2785	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.376	PBA	30948.3	2.3305	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.384	PBA	181546.0	5.0000	CLO4-89-ISTD

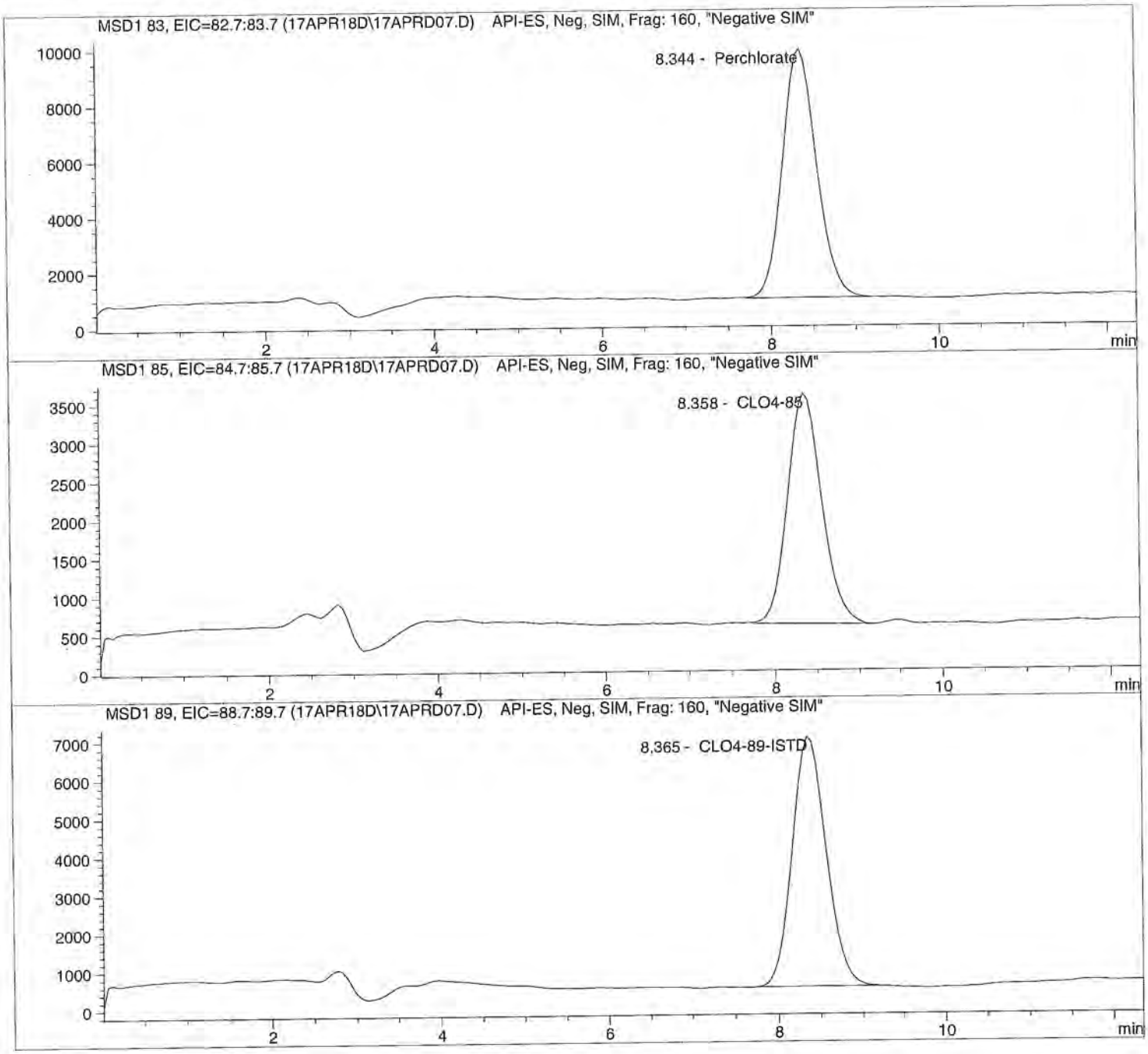
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD07.D Sample Name: 596171 96811MS

Injection Date:	4/17/2018 10:12:52	Seq Line:	7
Sample Name:	596171 96811MS	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD07.D Sample Name: 596171 96811MS

Injection Date:	4/17/2018 10:12:52	Seq Line:	7
Sample Name:	596171 96811MS	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method:	CLO4-DOD.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed:	4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.344	BBA	246734.9	6.2356	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.358	BBA	83567.9	6.5287	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.365	BBA	179397.1	5.0000	CLO4-89-ISTD

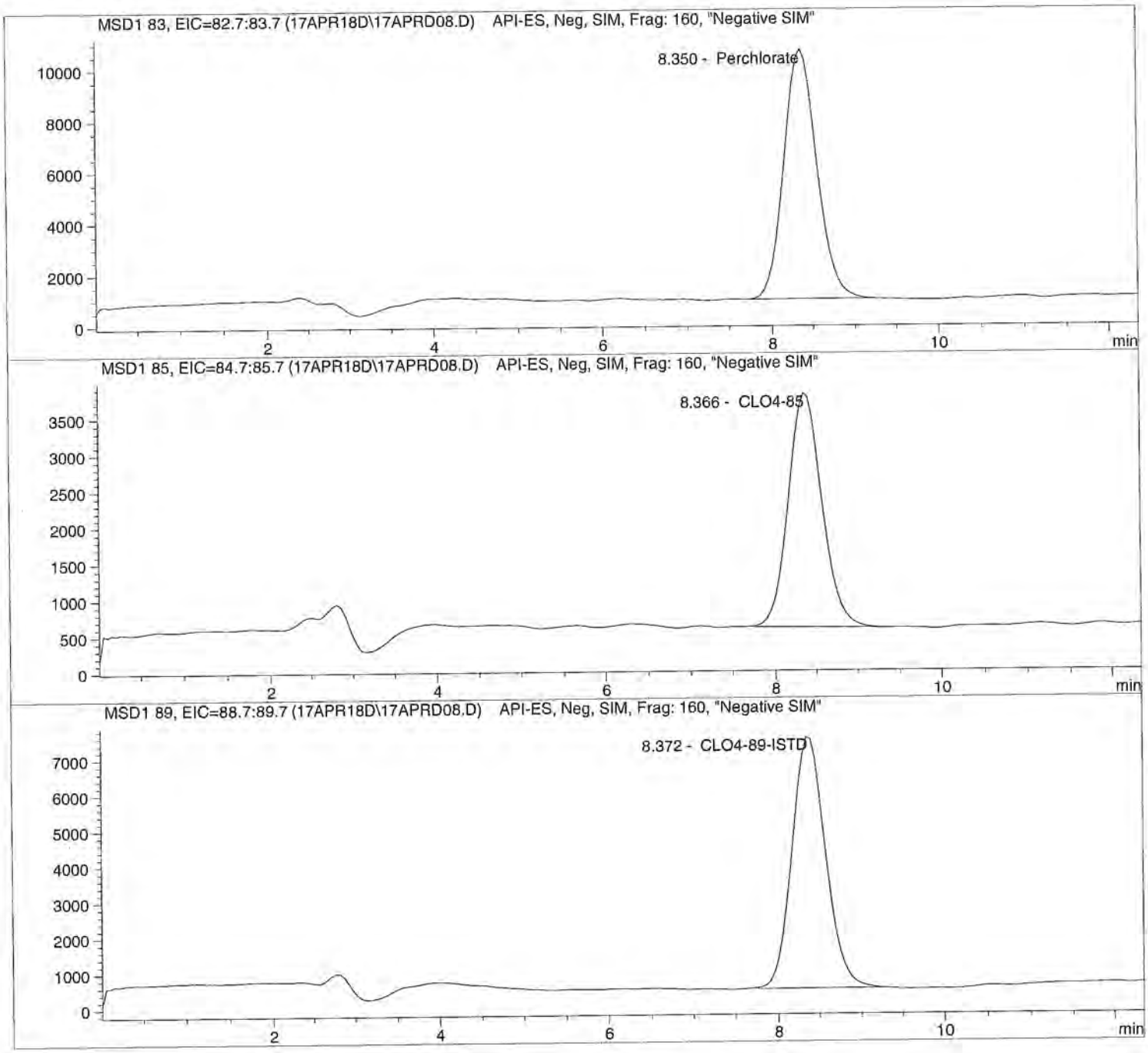
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD08.D Sample Name: 596172 96811SD

Injection Date:	4/17/2018 10:26:57	Seq Line:	8
Sample Name:	596172 96811SD	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD08.D Sample Name: 596172 96811SD

Injection Date:	4/17/2018 10:26:57	Seq Line:	8
Sample Name:	596172 96811SD	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.350	BBA	268949.8	6.1485	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.366	BBA	90630.9	6.4026	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.372	BBA	198406.3	5.0000	CLO4-89-ISTD

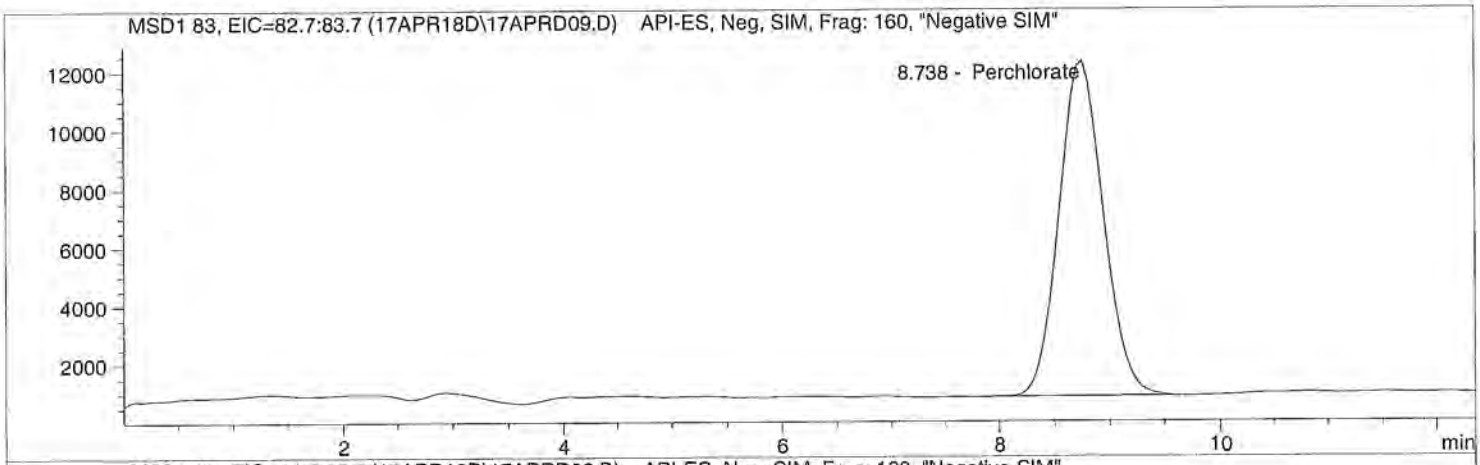
*** End of Report ***

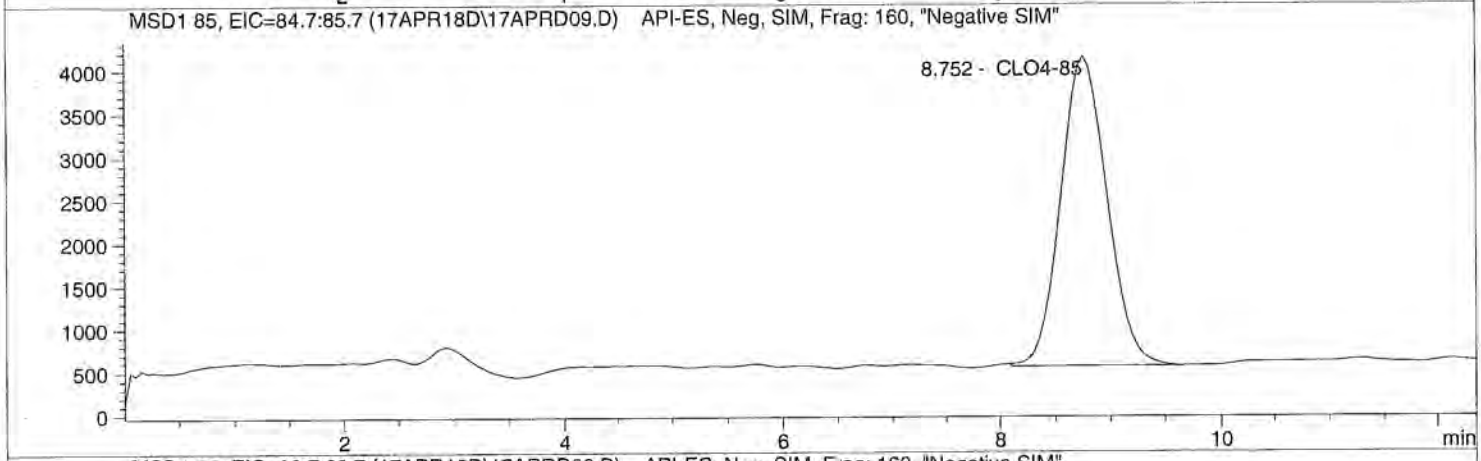
Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD09.D Sample Name: 1810423001 1K

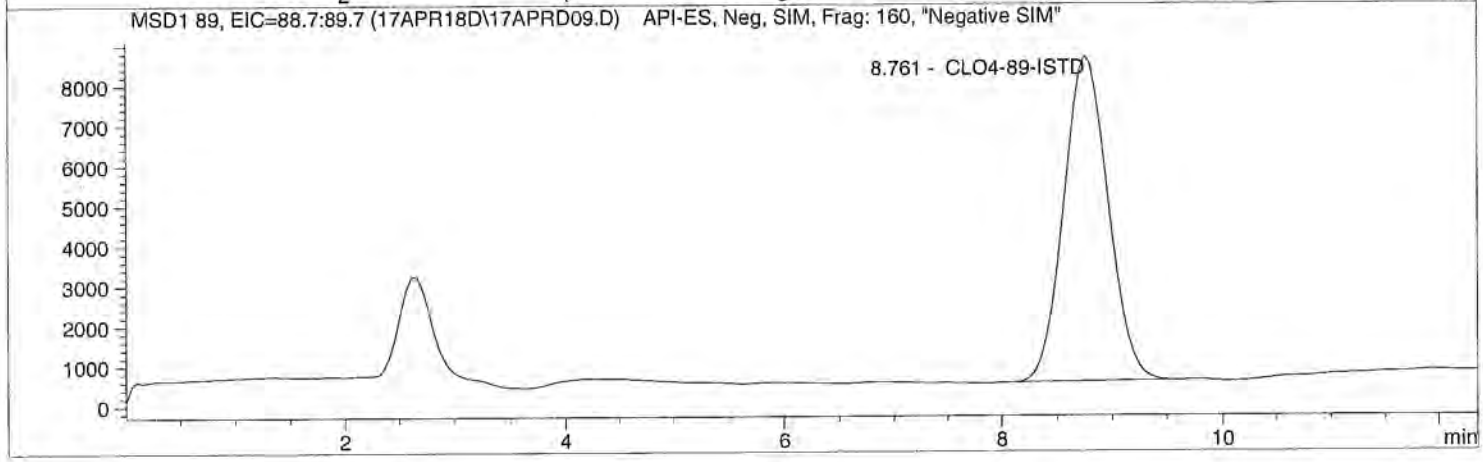
Injection Date:	4/17/2018 10:41:03	Seq Line:	9
Sample Name:	1810423001 1K	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD09.D Sample Name: 1810423001 1K

Injection Date:	4/17/2018 10:41:03	Seq Line:	9
Sample Name:	1810423001 1K	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method:	CLO4-DOD.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed:	4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1000.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.738	BBA	321292.2	6356.0643	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.752	BBA	105474.0	6454.2620	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.761	BBA	229045.5	5000.0000	CLO4-89-ISTD

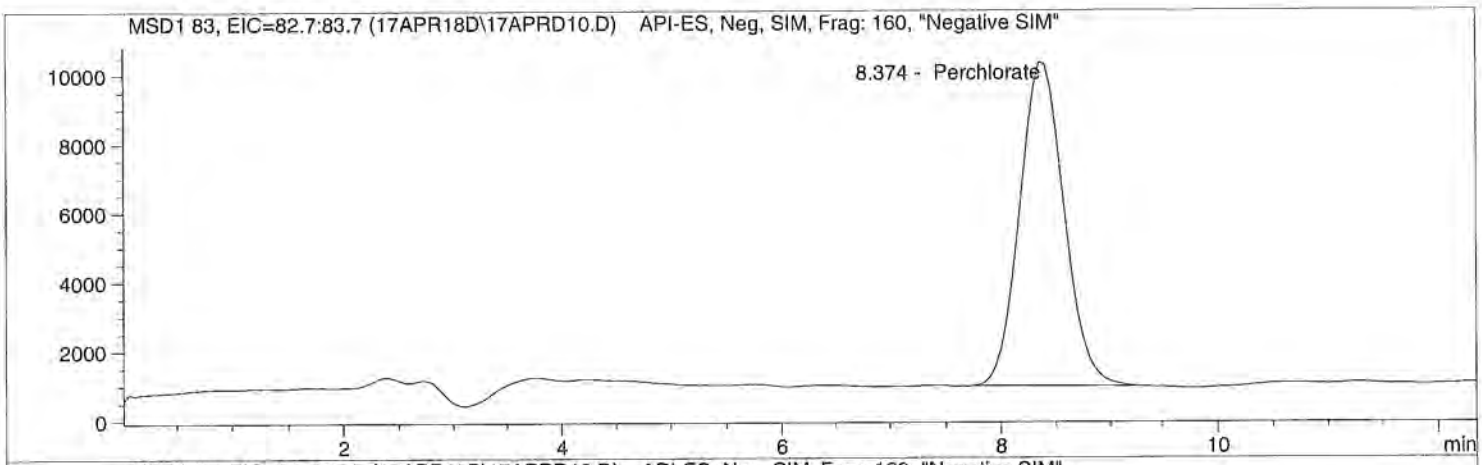
*** End of Report ***

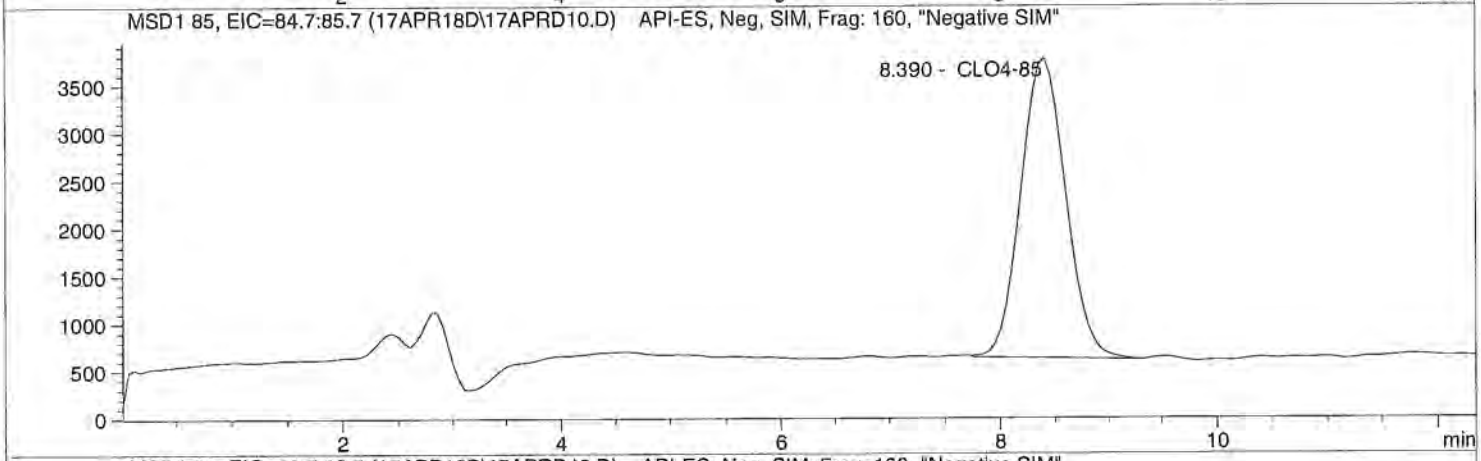
Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD10.D Sample Name: 1810427001

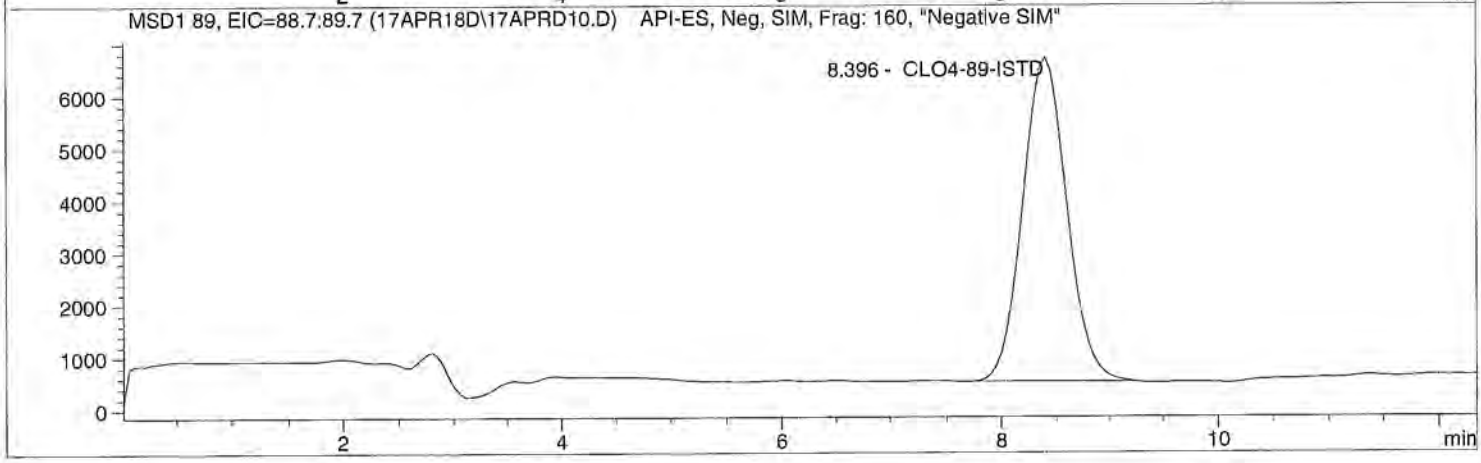
Injection Date:	4/17/2018 10:55:12	Seq Line:	10
Sample Name:	1810427001	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD10.D Sample Name: 1810427001

Injection Date:	4/17/2018 10:55:12	Seq Line:	10
Sample Name:	1810427001	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method:	CLO4-DOD.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed:	4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.374	BBA	263118.8	6.8720	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.390	BBA	89273.7	7.2248	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.396	PBA	173045.3	5.0000	CLO4-89-ISTD

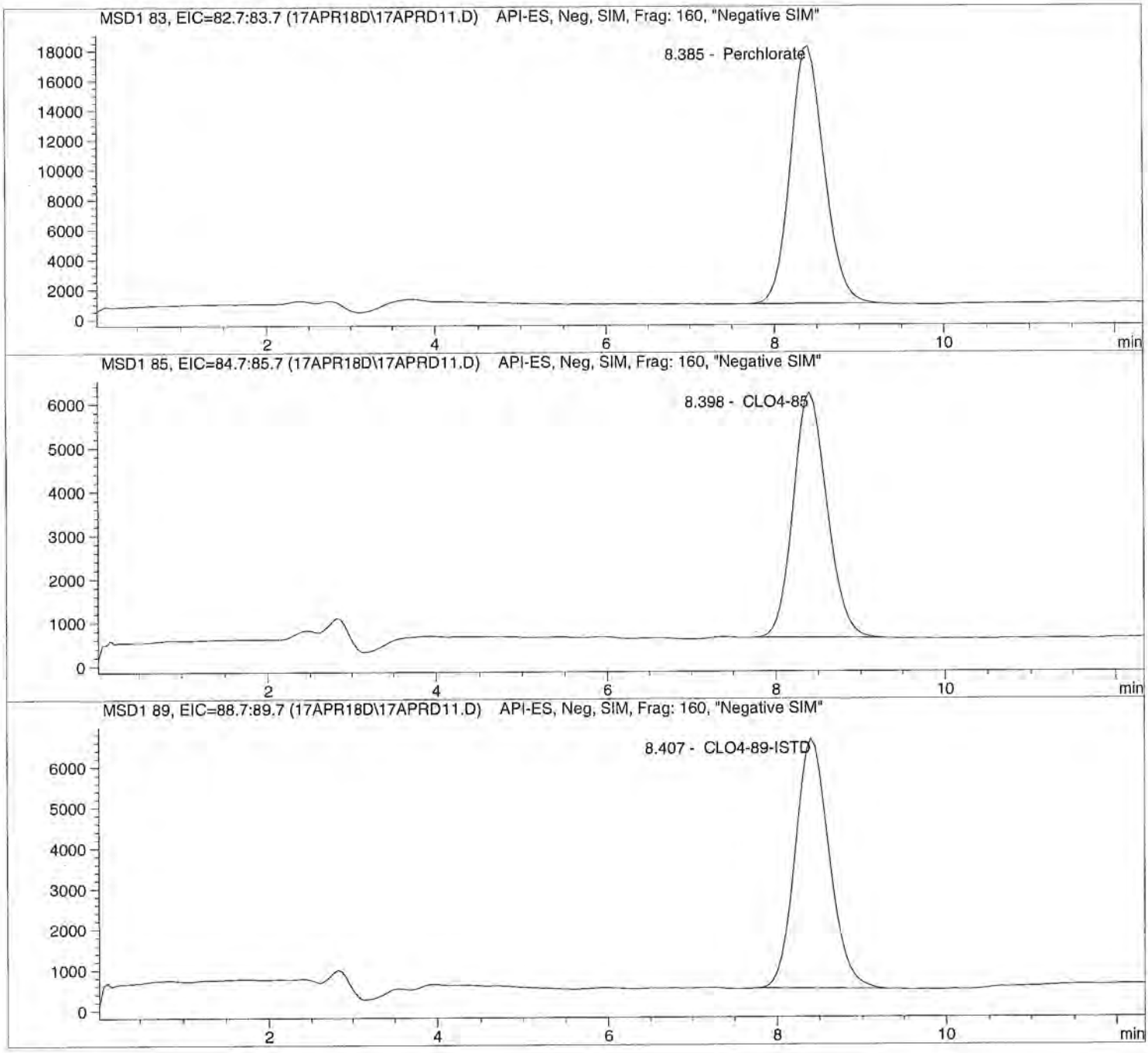
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD11.D Sample Name: 1810428001

Injection Date:	4/17/2018 11:09:17	Seq Line:	11
Sample Name:	1810428001	Location:	Vial 81
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD11.D Sample Name: 1810428001

Injection Date:	4/17/2018 11:09:17	Seq Line:	11
Sample Name:	1810428001	Location:	Vial 81
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.385	BBA	474912.1	12.1930	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.398	BBA	154421.9	12.4643	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.407	BBA	171054.8	5.0000	CLO4-89-ISTD

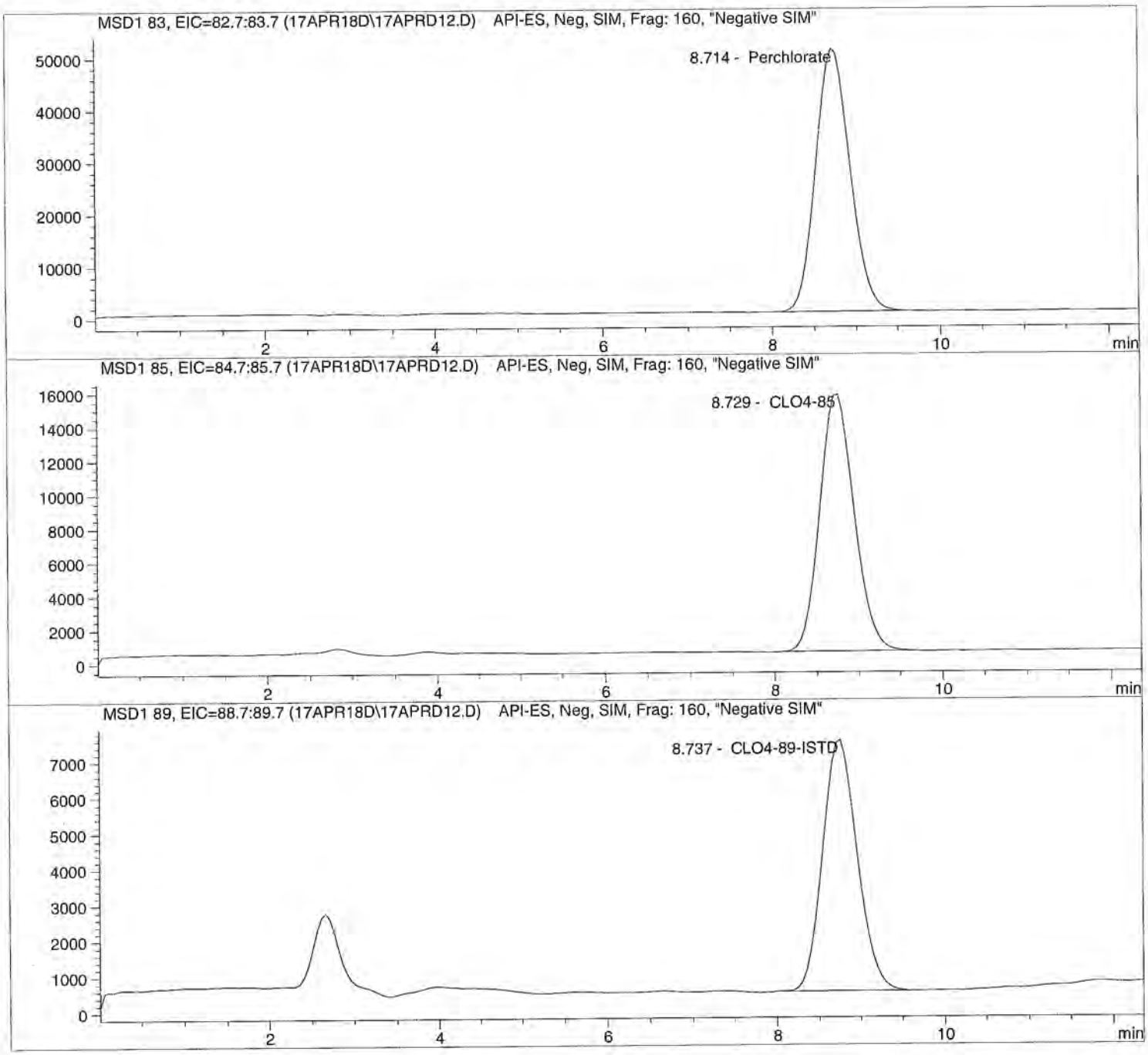
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD12.D Sample Name: 596173 CCV@25

Injection Date:	4/17/2018 11:23:22	Seq Line:	12
Sample Name:	596173 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD12.D Sample Name: 596173 CCV@25

Injection Date:	4/17/2018 11:23:22	Seq Line:	12
Sample Name:	596173 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method:	CLO4-DOD.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed:	4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.714	BBA	1429500.2	28.2957	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.729	PBA	434571.0	27.8213	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.737	BBA	203222.0	5.0000	CLO4-89-ISTD

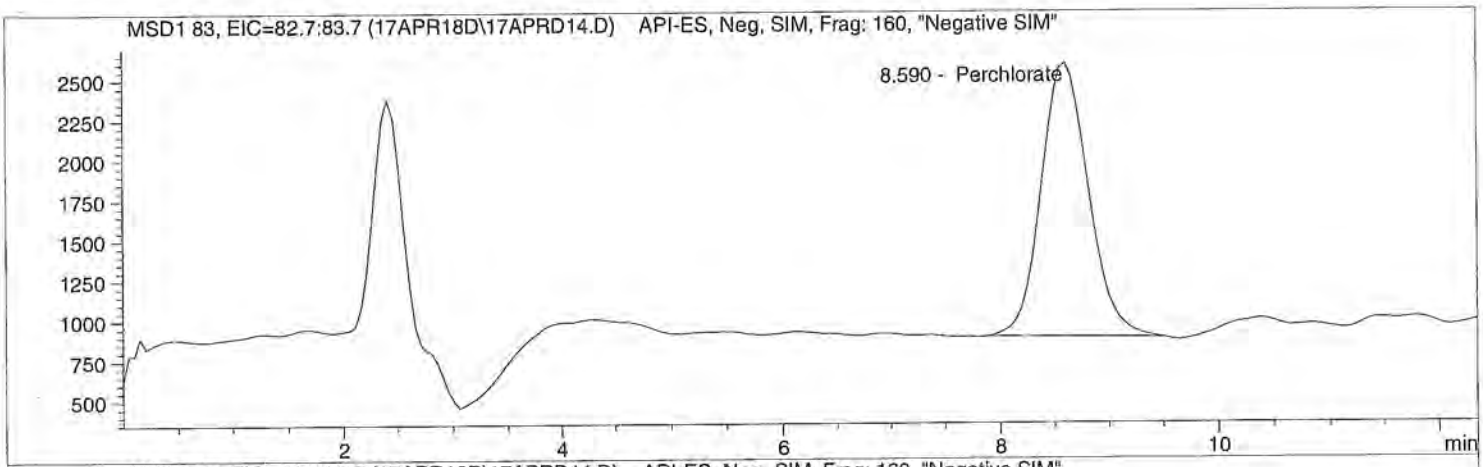
*** End of Report ***

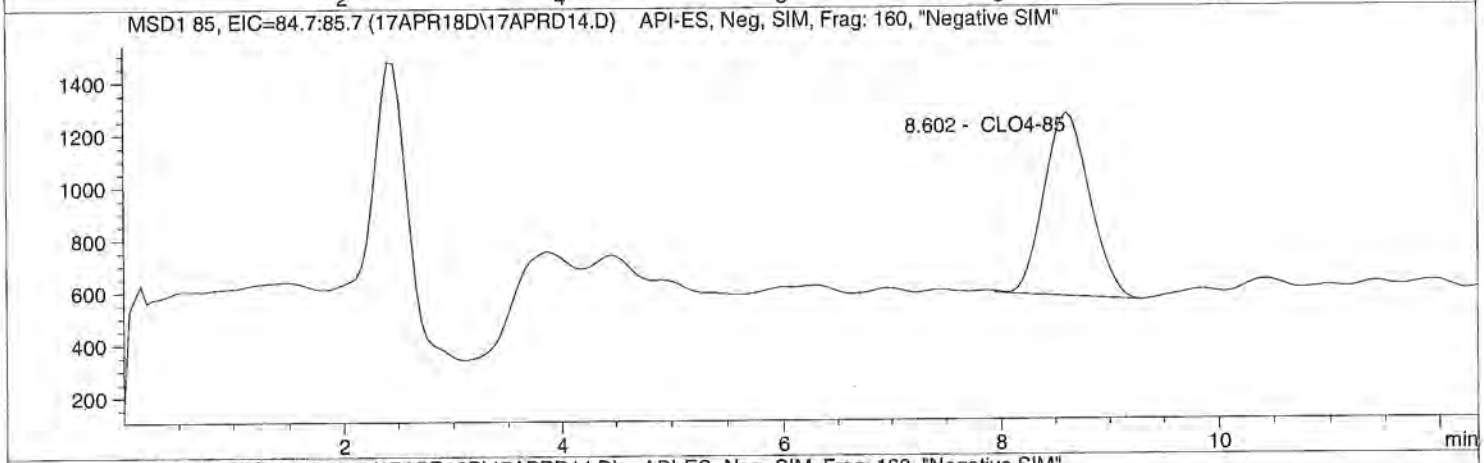
Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD14.D Sample Name: 596174 LODV@1.

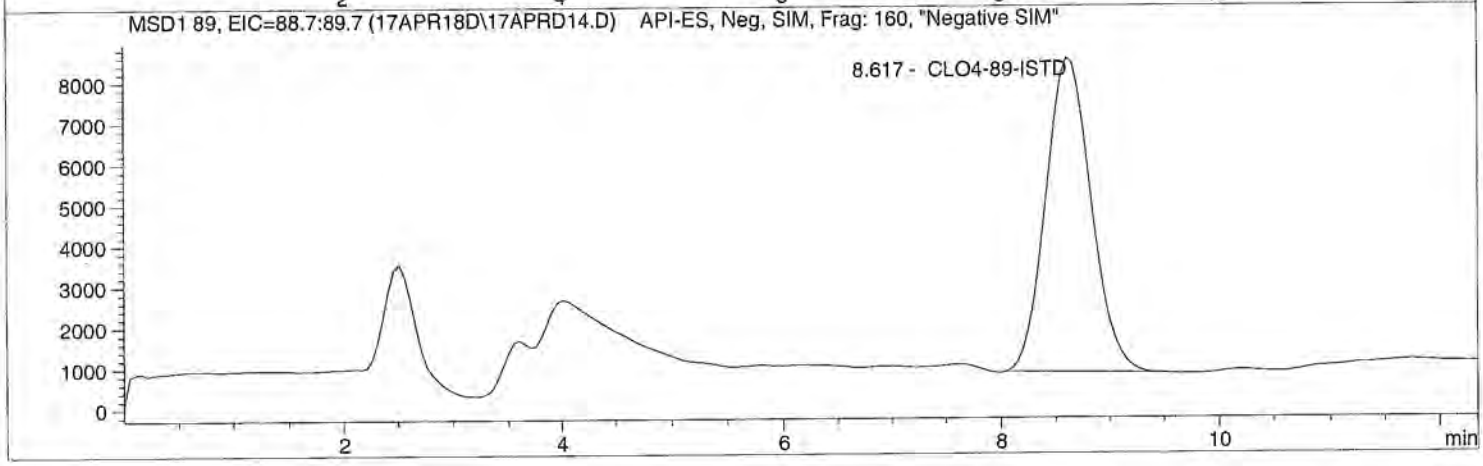
Injection Date:	4/17/2018 11:53:42	Seq Line:	14
Sample Name:	596174 LODV@1.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\17APR18D\17APRD14.D Sample Name: 596174 LODV@1.

Injection Date:	4/17/2018 11:53:42	Seq Line:	14
Sample Name:	596174 LODV@1.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	20 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.590	BBA	50957.5	1.0366	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.602	BBA	20234.2	1.1748	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.617	PBA	221977.6	5.0000	CLO4-89-ISTD

*** End of Report ***

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Initial Calibration

Batch Report: C:\HPCHEM\1\DATA\02APR18D\02APR18I.B

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

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

#*	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorate RT	Perchlorate Amount
*	ICAL1@ 1.0ug/L	Vial 71	1	Control	1	4.75217e4	8.805	1.04383
*	ICAL2@ 2.0ug/L	Vial 72	1	Control	2	7.57673e4	8.842	1.88584
*	ICAL3@ 5.0ug/L	Vial 73	1	Control	3	1.87507e5	8.869	5.06681
*	ICAL4@ 10.ug/L	Vial 74	1	Control	4	4.00349e5	8.838	9.89695
*	ICAL5@ 25.ug/L	Vial 75	1	Control	5	1.13339e6	8.844	25.44483
*	ICAL6@ 50.ug/L	Vial 76	1	Control	6	2.22347e6	8.787	49.47140
*	ICAL7@ 75.ug/L	Vial 77	1	Control	7	3.56432e6	8.816	75.20096
*	ICAL Verf@10ug/L	Vial 78	1	Control	8	3.99588e5	8.826	10.16984

#*	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
*	ICAL1@ 1.0ug/L	Vial 71	1	Control	1	1.48071e4	8.787	8.93940e-1
*	ICAL2@ 2.0ug/L	Vial 72	1	Control	2	2.78914e4	8.863	2.05665
*	ICAL3@ 5.0ug/L	Vial 73	1	Control	3	6.40466e4	8.880	5.32040
*	ICAL4@ 10.ug/L	Vial 74	1	Control	4	1.32002e5	8.855	10.20400
*	ICAL5@ 25.ug/L	Vial 75	1	Control	5	3.49808e5	8.856	25.27336
*	ICAL6@ 50.ug/L	Vial 76	1	Control	6	6.58628e5	8.801	48.60374
*	ICAL7@ 75.ug/L	Vial 77	1	Control	7	1.06294e6	8.833	75.70015
*	ICAL Verf@10ug/L	Vial 78	1	Control	8	1.27530e5	8.845	10.16575

#*	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-ISTD RT	CLO4-89-ISTD Amount
*	ICAL1@ 1.0ug/L	Vial 71	1	Control	1	2.05633e5	8.818	5.00000
*	ICAL2@ 2.0ug/L	Vial 72	1	Control	2	1.83981e5	8.862	5.00000
*	ICAL3@ 5.0ug/L	Vial 73	1	Control	3	1.68695e5	8.888	5.00000
*	ICAL4@ 10.ug/L	Vial 74	1	Control	4	1.79911e5	8.861	5.00000
*	ICAL5@ 25.ug/L	Vial 75	1	Control	5	1.81917e5	8.865	5.00000
*	ICAL6@ 50.ug/L	Vial 76	1	Control	6	1.62538e5	8.808	5.00000
*	ICAL7@ 75.ug/L	Vial 77	1	Control	7	1.52621e5	8.841	5.00000
*	ICAL Verf@10ug/L	Vial 78	1	Control	8	1.74490e5	8.846	5.00000

*** End of Report ***

Calibration Table

Perchlorate

Calib. Data Modified : 4/2/2018 11:32:41 AM

Calculate : Internal Standard
Based on : Peak Area

Rel. Reference Window : 20.000 %
Abs. Reference Window : 0.000 min
Rel. Non-ref. Window : 20.000 %
Abs. Non-ref. Window : 0.000 min
Use Multiplier & Dilution Factor with ISTDs
Uncalibrated Peaks : not reported
Partial Calibration : No recalibration if peaks missing

Curve Type : Quadratic (some peaks differ, see below)
Origin : Ignored (some peaks differ, see below)
Weight : Linear (Amnt) (some peaks differ, see below)

Recalibration Settings:
Average Response : Average all calibrations
Average Retention Time: Floating Average New 75%

Calibration Report Options :
Printout of recalibrations within a sequence:
Calibration Table after Recalibration
Normal Report after Recalibration
If the sequence is done with bracketing:
Results of first cycle (ending previous bracket)

Default Sample ISTD Information (if not set in sample table):

ISTD #	ISTD Amount	Name
1	5.00000	CLO4-89-ISTD

Signal 1: MSD1 83, EIC=82.7:83.7
Signal 2: MSD1 85, EIC=84.7:85.7
Signal 3: MSD1 89, EIC=88.7:89.7

RetTime [min]	Sig	Lvl	Amount	Area	Amt/Area	Ref	Grp	Name
8.740	1	1	1.00000	4.75217e4	2.10430e-5		1	Perchlorate
		2	2.00000	7.57673e4	2.63966e-5			
		3	5.00000	1.87507e5	2.66656e-5			
		4	10.00000	4.00349e5	2.49782e-5			
		5	25.00000	1.13339e6	2.20577e-5			
		6	50.00000	2.22347e6	2.24874e-5			
		7	75.00000	3.56432e6	2.10419e-5			
8.787	2	1	1.00000	1.48071e4	6.75351e-5		1	CLO4-85
		2	2.00000	2.78914e4	7.17068e-5			
		3	5.00000	6.40466e4	7.80681e-5			
		4	10.00000	1.32002e5	7.57564e-5			
		5	25.00000	3.49808e5	7.14678e-5			
		6	50.00000	6.58628e5	7.59154e-5			
		7	75.00000	1.06294e6	7.05587e-5			
8.818	3	1	5.00000	2.05633e5	2.43151e-5	+I1		CLO4-89-ISTD
		2	5.00000	1.83981e5	2.71766e-5			
		3	5.00000	1.68695e5	2.96393e-5			
		4	5.00000	1.79911e5	2.77915e-5			
		5	5.00000	1.81917e5	2.74851e-5			
		6	5.00000	1.62538e5	3.07621e-5			

Method C:\HPCHEM\1\METHODS\CLO4-DPR.M

RetTime [min]	Sig	Lvl	Amount	Area	Amt/Area	Ref	Grp	Name
		7	5.00000	1.52621e5	3.27608e-5			

More compound-specific settings:

Compound: Perchlorate
- Time Window : From 6.650 min To 10.650 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 0.5
  - Level 3 : 0.2
  - Level 4 : 0.1
  - Level 5 : 0.04
  - Level 6 : 0.02
  - Level 7 : 0.013333

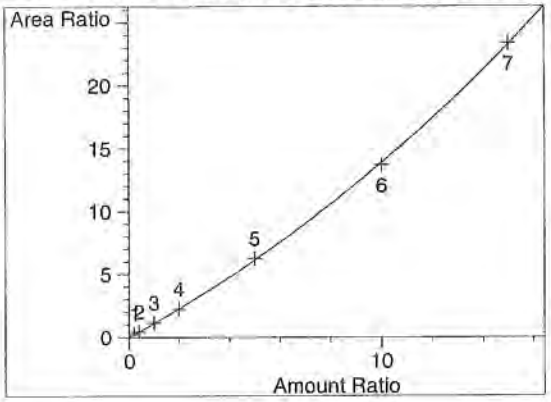
Compound: CLO4-85
- Time Window : From 6.682 min To 10.682 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 0.5
  - Level 3 : 0.2
  - Level 4 : 0.1
  - Level 5 : 0.04
  - Level 6 : 0.02
  - Level 7 : 0.013333

Compound: CLO4-89-ISTD
- Time Window : From 6.711 min To 10.711 min
- Curve Type : Linear
- Origin : Included
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 1
  - Level 3 : 1
  - Level 4 : 1
  - Level 5 : 1
  - Level 6 : 1
  - Level 7 : 1

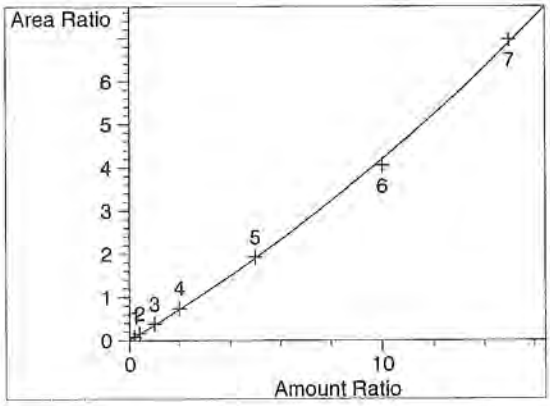
Peak Sum Table

No Entries in table

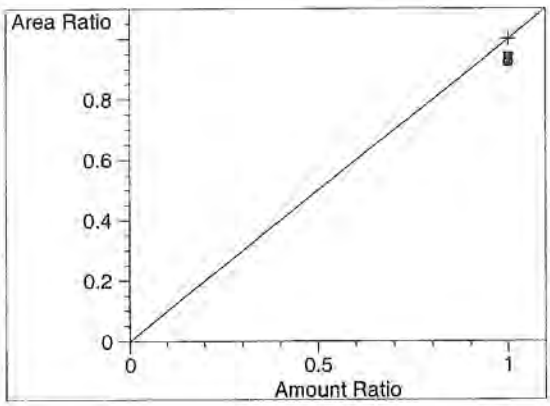
Calibration Curves



Perchlorate at exp. RT: 8.740
MSD1 83, EIC=82.7:83.7
Correlation: 0.99992
Residual Std. Dev.: 0.10616
Formula: $y = ax^2 + bx + c$
a: 3.31374e-2
b: 1.05374
c: 9.66975e-3
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.5
Level 3 : 0.2
Level 4 : 0.1
Level 5 : 0.04
Level 6 : 0.02
Level 7 : 0.013333



CLO4-85 at exp. RT: 8.787
MSD1 85, EIC=84.7:85.7
Correlation: 0.99968
Residual Std. Dev.: 0.07365
Formula: $y = ax^2 + bx + c$
a: 8.04074e-3
b: 3.37521e-1
c: 1.14057e-2
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.5
Level 3 : 0.2
Level 4 : 0.1
Level 5 : 0.04
Level 6 : 0.02
Level 7 : 0.013333



CLO4-89-ISTD at exp. RT: 8.818
MSD1 89, EIC=88.7:89.7
Correlation: 1.00000
Residual Std. Dev.: 0.00000
Formula: $y = mx + b$
m: 1.00000
b: 0.00000
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 1
Level 3 : 1
Level 4 : 1
Level 5 : 1
Level 6 : 1
Level 7 : 1

Sequence: C:\HPCHEM\1\SEQUENCE\CLO4\2018\APR\02APR18D.S

Sequence Table:

Method and Injection Info Part:

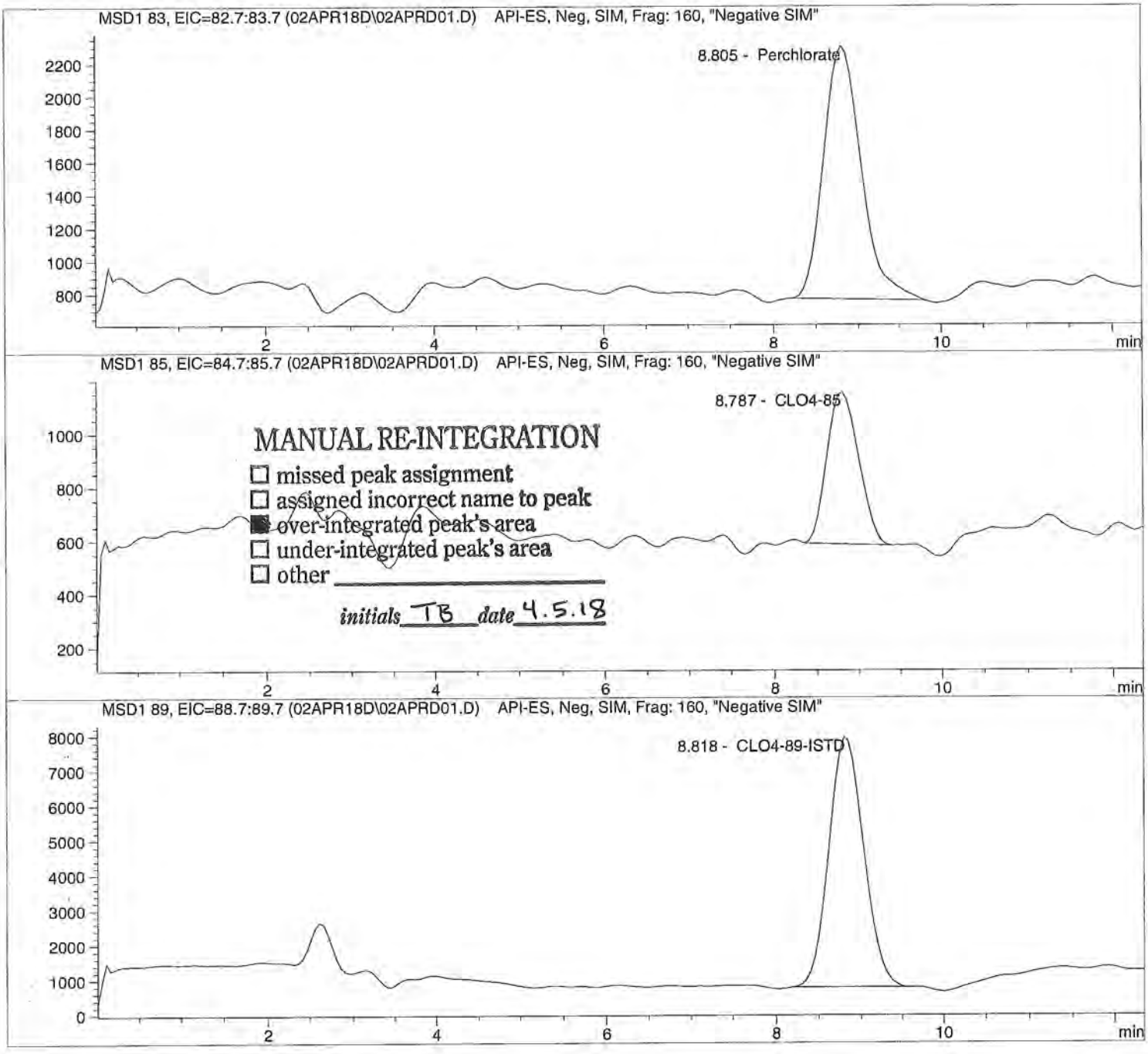
Line	Location	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	ICAL1@ 1.0ug/L	CLO4-DOD	1	Ctrl Samp		
2	Vial 72	ICAL2@ 2.0ug/L	CLO4-DOD	1	Ctrl Samp		
3	Vial 73	ICAL3@ 5.0ug/L	CLO4-DOD	1	Ctrl Samp		
4	Vial 74	ICAL4@ 10.ug/L	CLO4-DOD	1	Ctrl Samp		
5	Vial 75	ICAL5@ 25.ug/L	CLO4-DOD	1	Ctrl Samp		
6	Vial 76	ICAL6@ 50.ug/L	CLO4-DOD	1	Ctrl Samp		
7	Vial 77	ICAL7@ 75.ug/L	CLO4-DOD	1	Ctrl Samp		
8	Vial 78	ICAL Verf@10ug/L	CLO4-DOD	1	Ctrl Samp		

Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD01.D Sample Name: ICAL1@ 1.0ug/L

Injection Date:	4/02/2018 09:08:19	Seq Line:	1
Sample Name:	ICAL1@ 1.0ug/L	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD01.D Sample Name: ICAL1@ 1.0ug/L

Injection Date:	4/02/2018 09:08:19	Seq Line:	1
Sample Name:	ICAL1@ 1.0ug/L	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.805	PBA	47521.7	1.0438	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.787	MM	14807.1	0.8939	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.818	PBA	205633.2	5.0000	CLO4-89-ISTD

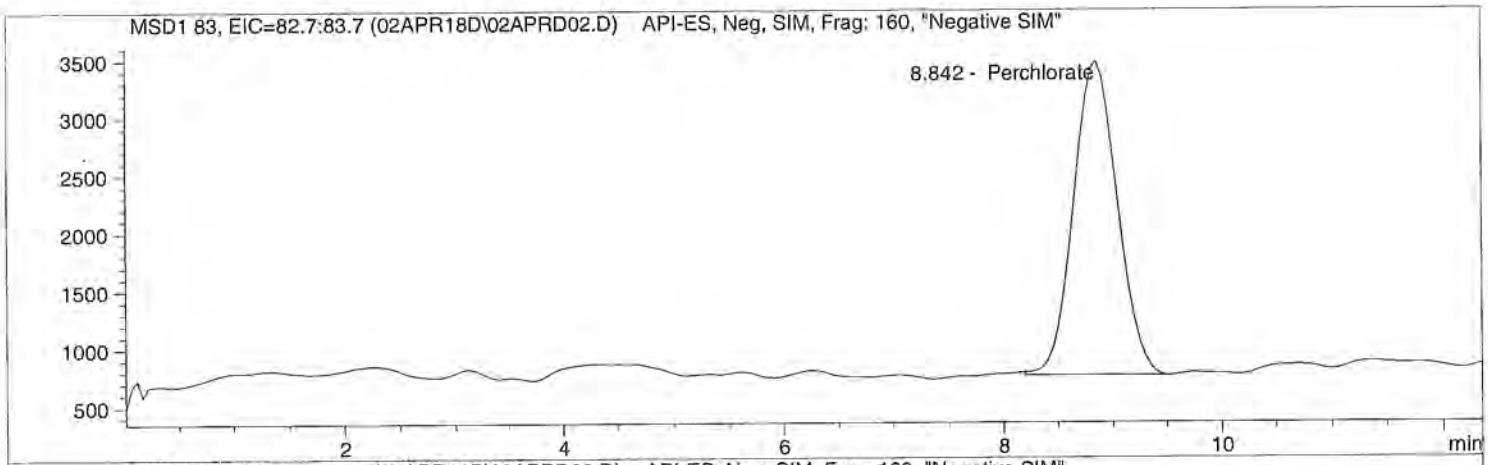
*** End of Report ***

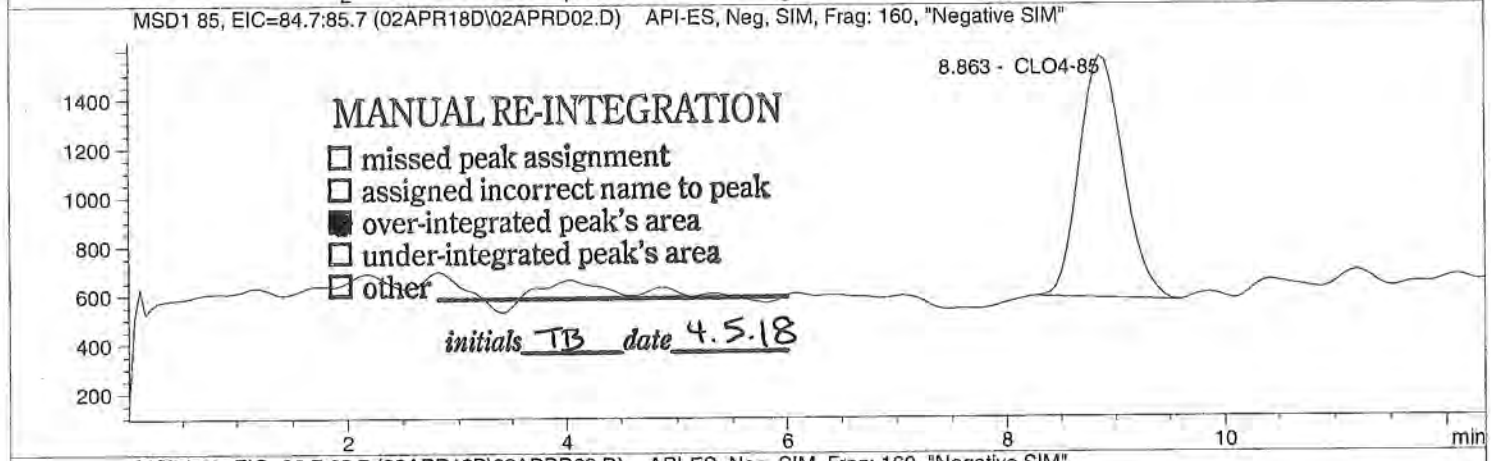
Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD02.D Sample Name: ICAL2@ 2.0ug/L

Injection Date:	4/02/2018 09:22:28	Seq Line:	2
Sample Name:	ICAL2@ 2.0ug/L	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

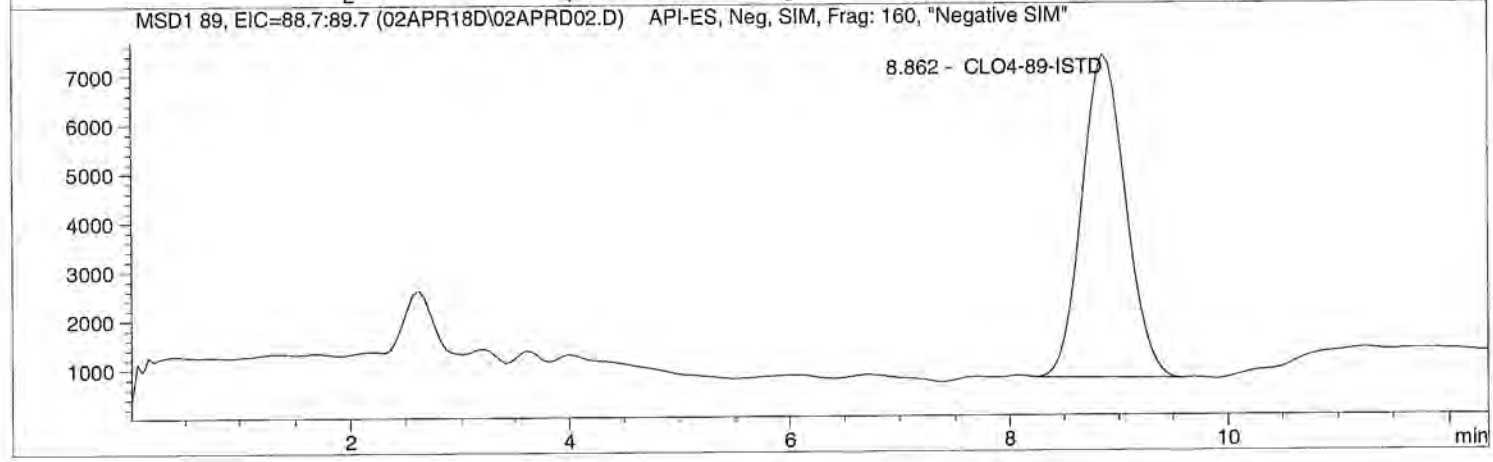
Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis





MANUAL RE-INTEGRATION
☐ missed peak assignment
☐ assigned incorrect name to peak
■ over-integrated peak's area
☐ under-integrated peak's area
☐ other _____
initials TB *date* 4.5.18



Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD02.D Sample Name: ICAL2@ 2.0ug/L

Injection Date:	4/02/2018 09:22:28	Seq Line:	2
Sample Name:	ICAL2@ 2.0ug/L	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	2.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.842	BBA	75767.3	1.8858	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.863	MM	27891.4	2.0567	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.862	BBA	183981.5	5.0000	CLO4-89-ISTD

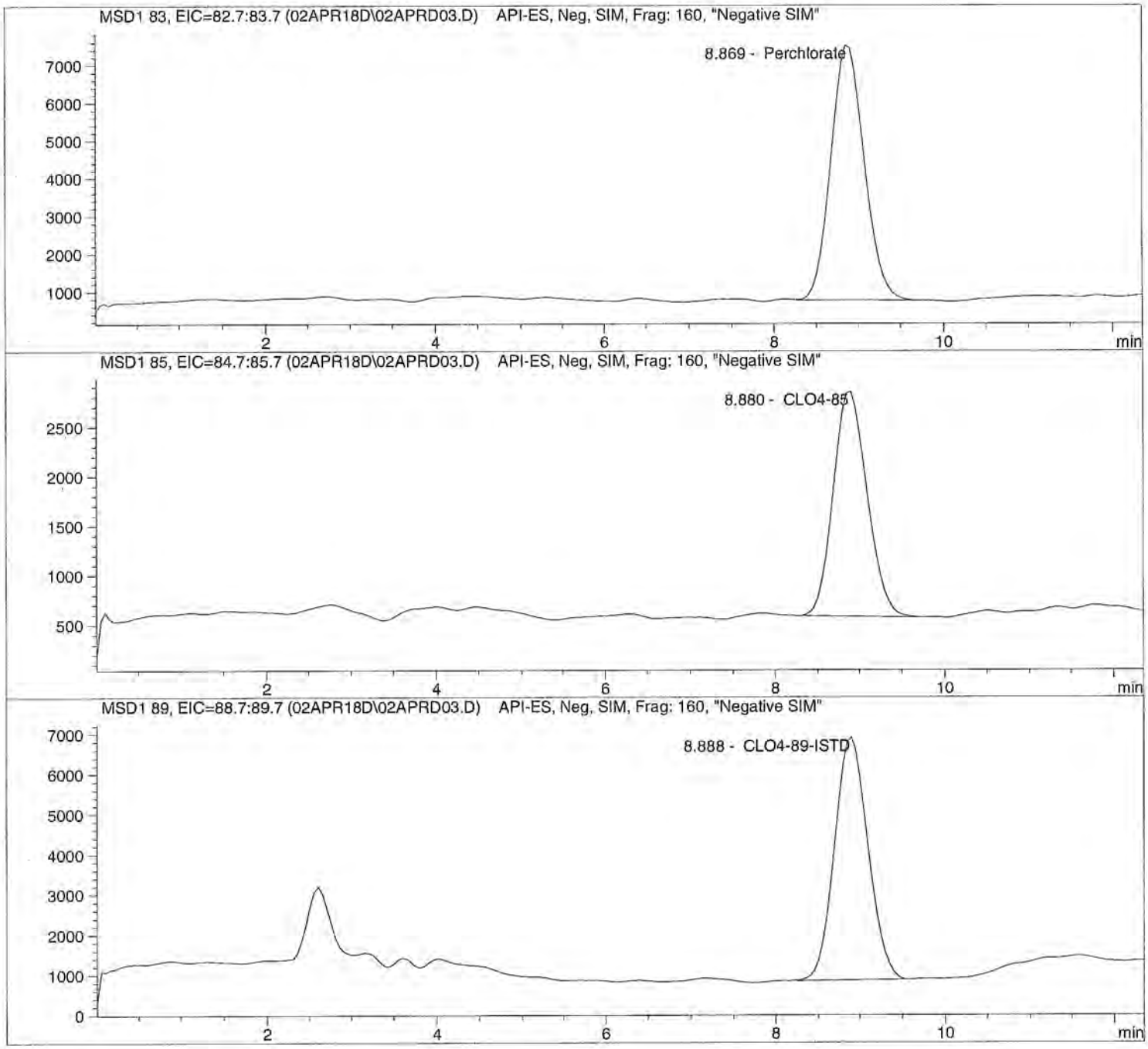
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD03.D Sample Name: ICAL3@ 5.0ug/L

Injection Date:	4/02/2018 09:36:38	Seq Line:	3
Sample Name:	ICAL3@ 5.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD03.D Sample Name: ICAL3@ 5.0ug/L

Injection Date:	4/02/2018 09:36:38	Seq Line:	3
Sample Name:	ICAL3@ 5.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	5.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.869	BBA	187507.2	5.0668	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.880	PBA	64046.6	5.3204	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.888	BBA	168695.0	5.0000	CLO4-89-ISTD

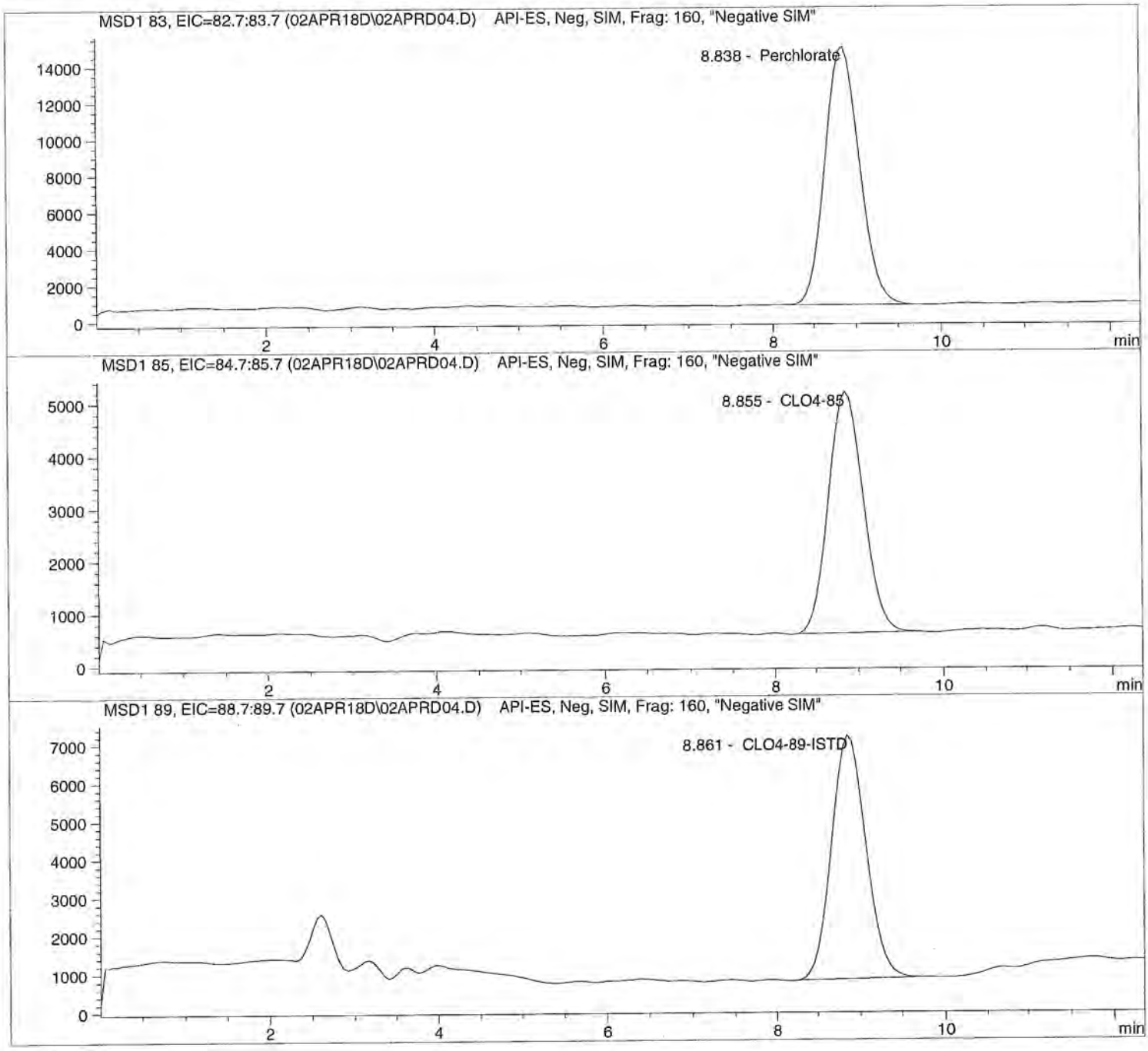
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD04.D Sample Name: ICAL4@ 10.ug/L

Injection Date:	4/02/2018 09:50:54	Seq Line:	4
Sample Name:	ICAL4@ 10.ug/L	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD04.D Sample Name: ICAL4@ 10.ug/L

Injection Date:	4/02/2018 09:50:54	Seq Line:	4
Sample Name:	ICAL4@ 10.ug/L	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	10.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.838	BBA	400349.0	9.8969	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.855	PBA	132002.1	10.2040	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.861	PBA	179911.2	5.0000	CLO4-89-ISTD

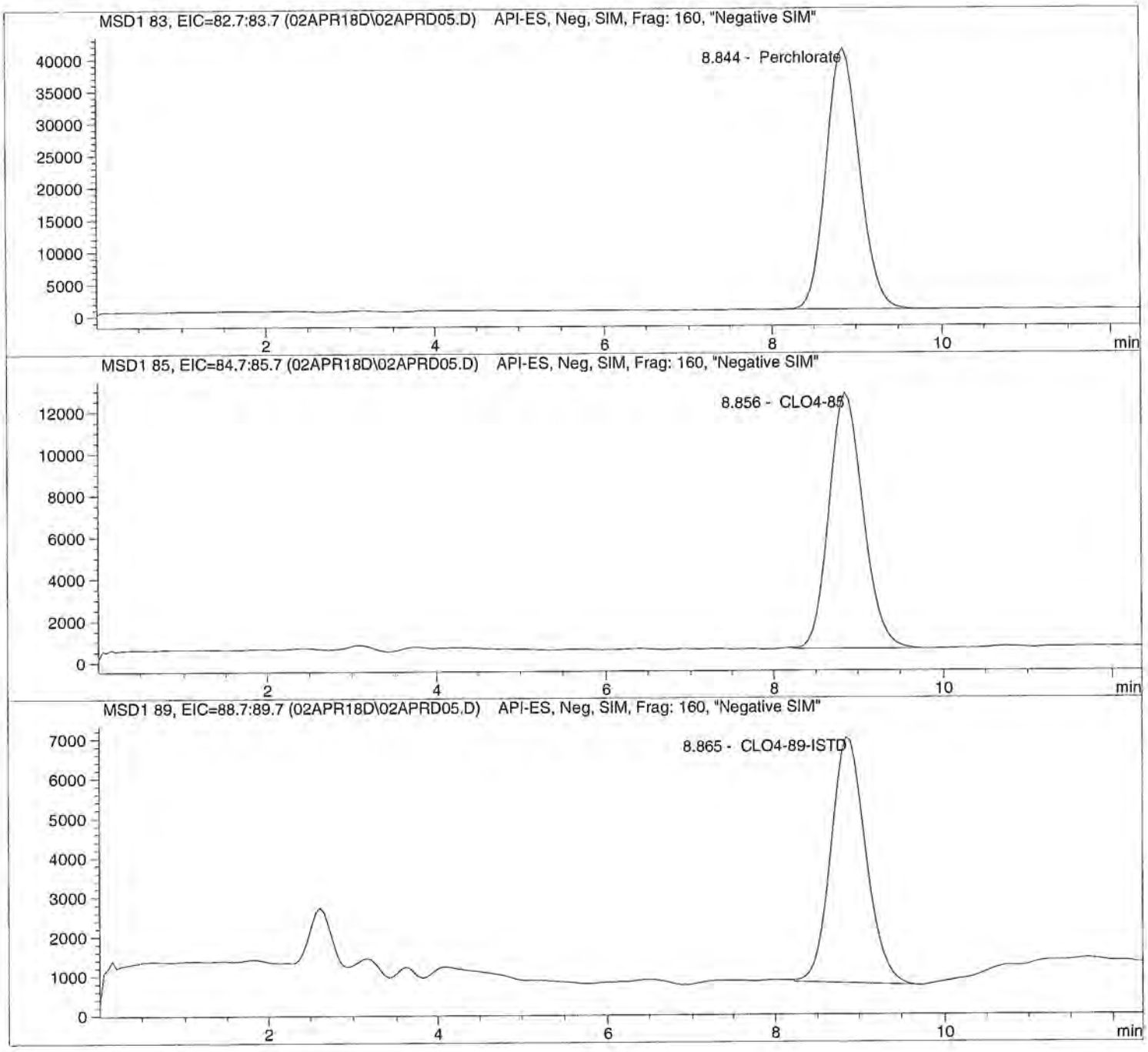
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD05.D Sample Name: ICAL5@ 25.ug/L

Injection Date:	4/02/2018 10:05:03	Seq Line:	5
Sample Name:	ICAL5@ 25.ug/L	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD05.D Sample Name: ICAL5@ 25.ug/L

Injection Date:	4/02/2018 10:05:03	Seq Line:	5
Sample Name:	ICAL5@ 25.ug/L	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.844	BBA	1133393.5	25.4448	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.856	BBA	349808.1	25.2734	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.865	BBA	181916.8	5.0000	CLO4-89-ISTD

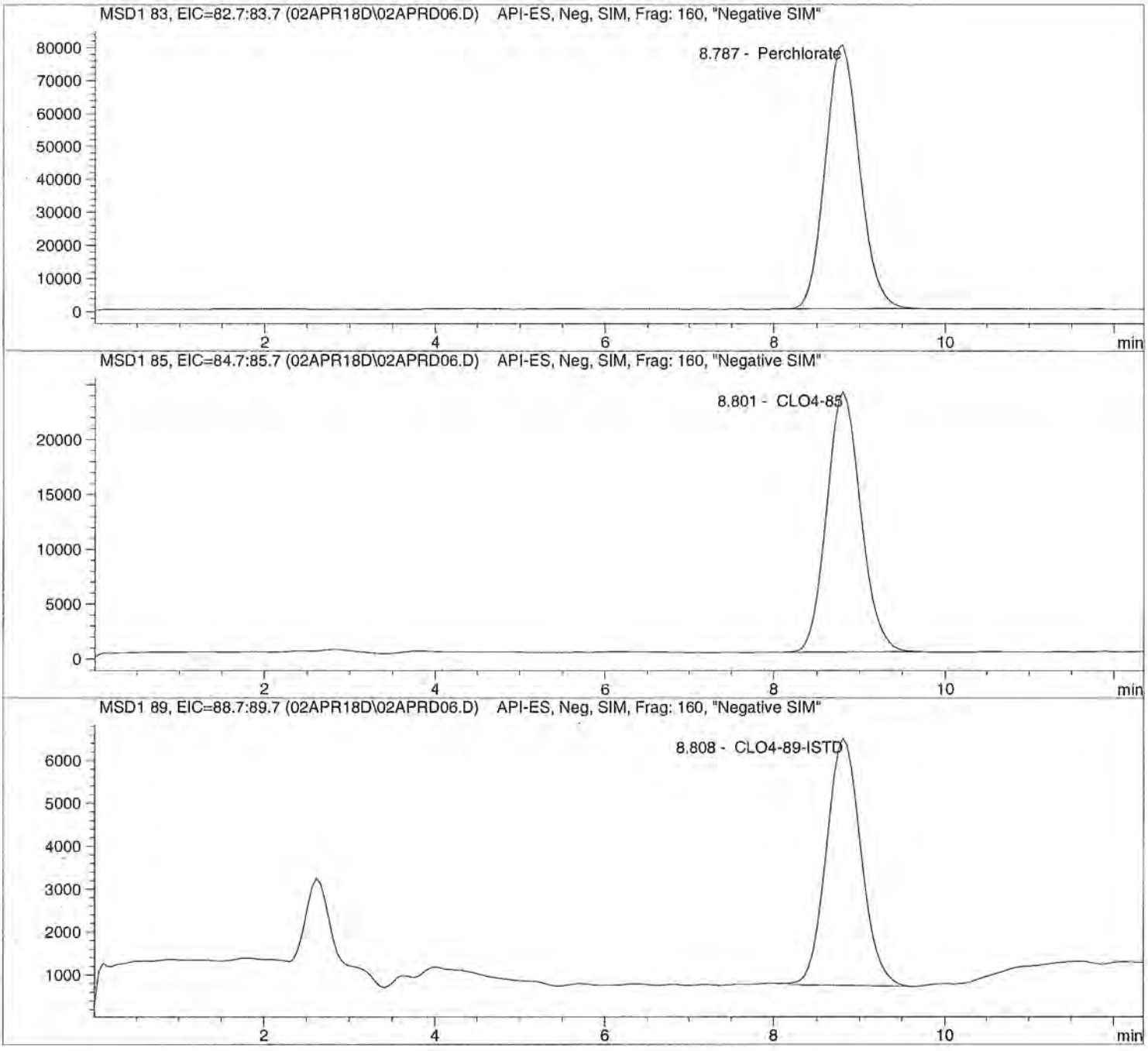
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD06.D Sample Name: ICAL6@ 50.ug/L

Injection Date:	4/02/2018 10:19:12	Seq Line:	6
Sample Name:	ICAL6@ 50.ug/L	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD06.D Sample Name: ICAL6@ 50.ug/L

Injection Date:	4/02/2018 10:19:12	Seq Line:	6
Sample Name:	ICAL6@ 50.ug/L	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method:	CLO4-DOD.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed:	4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	50.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.787	BBA	2223467.0	49.4714	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.801	BBA	658628.2	48.6037	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.808	BBA	162537.8	5.0000	CLO4-89-ISTD

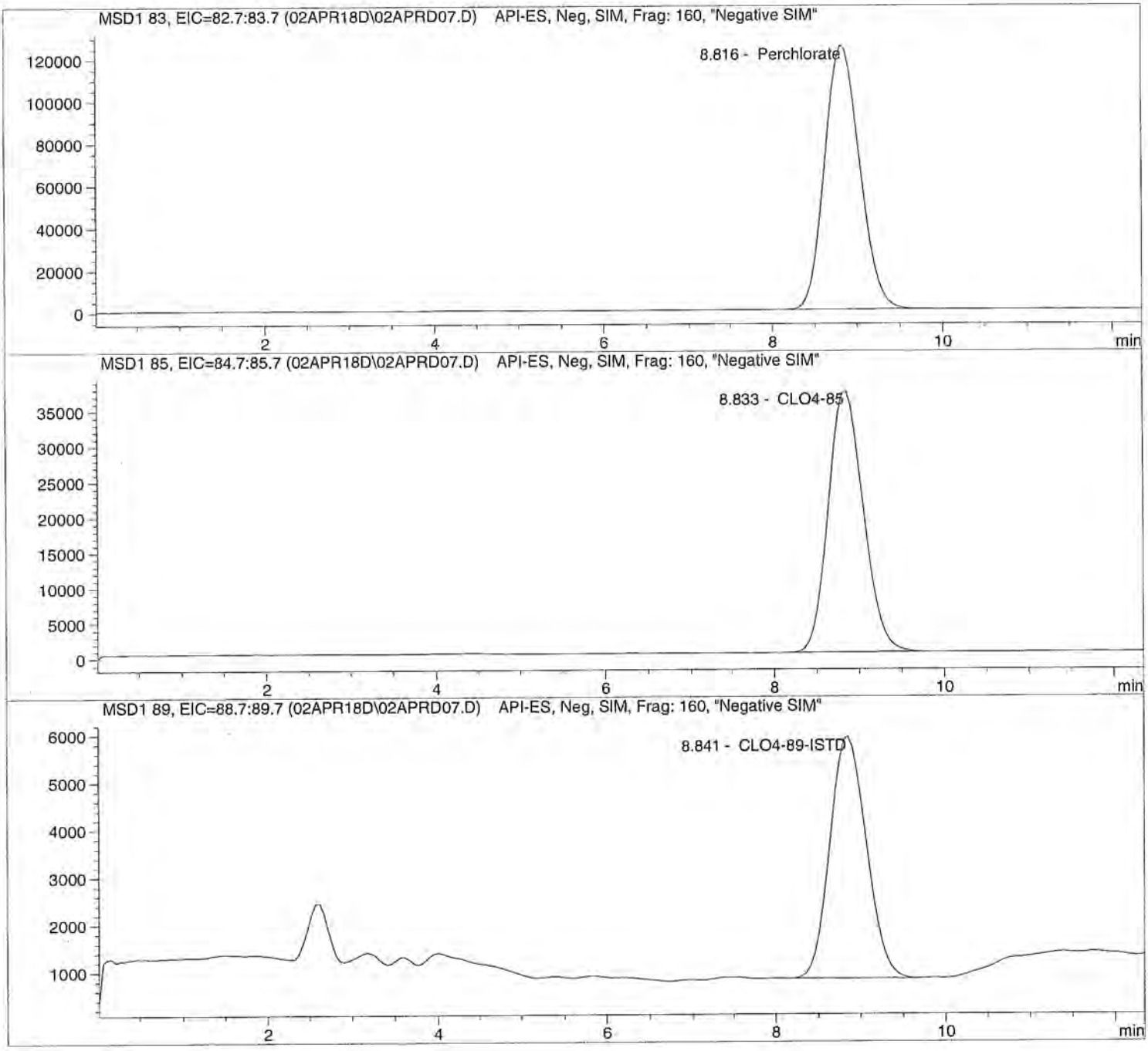
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD07.D Sample Name: ICAL7@ 75.ug/L

Injection Date:	4/02/2018 10:33:24	Seq Line:	7
Sample Name:	ICAL7@ 75.ug/L	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD07.D Sample Name: ICAL7@ 75.ug/L

Injection Date:	4/02/2018 10:33:24	Seq Line:	7
Sample Name:	ICAL7@ 75.ug/L	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	75.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.816	PBA	3564322.2	75.2010	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.833	BBA	1062944.2	75.7001	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.841	PBA	152621.4	5.0000	CLO4-89-ISTD

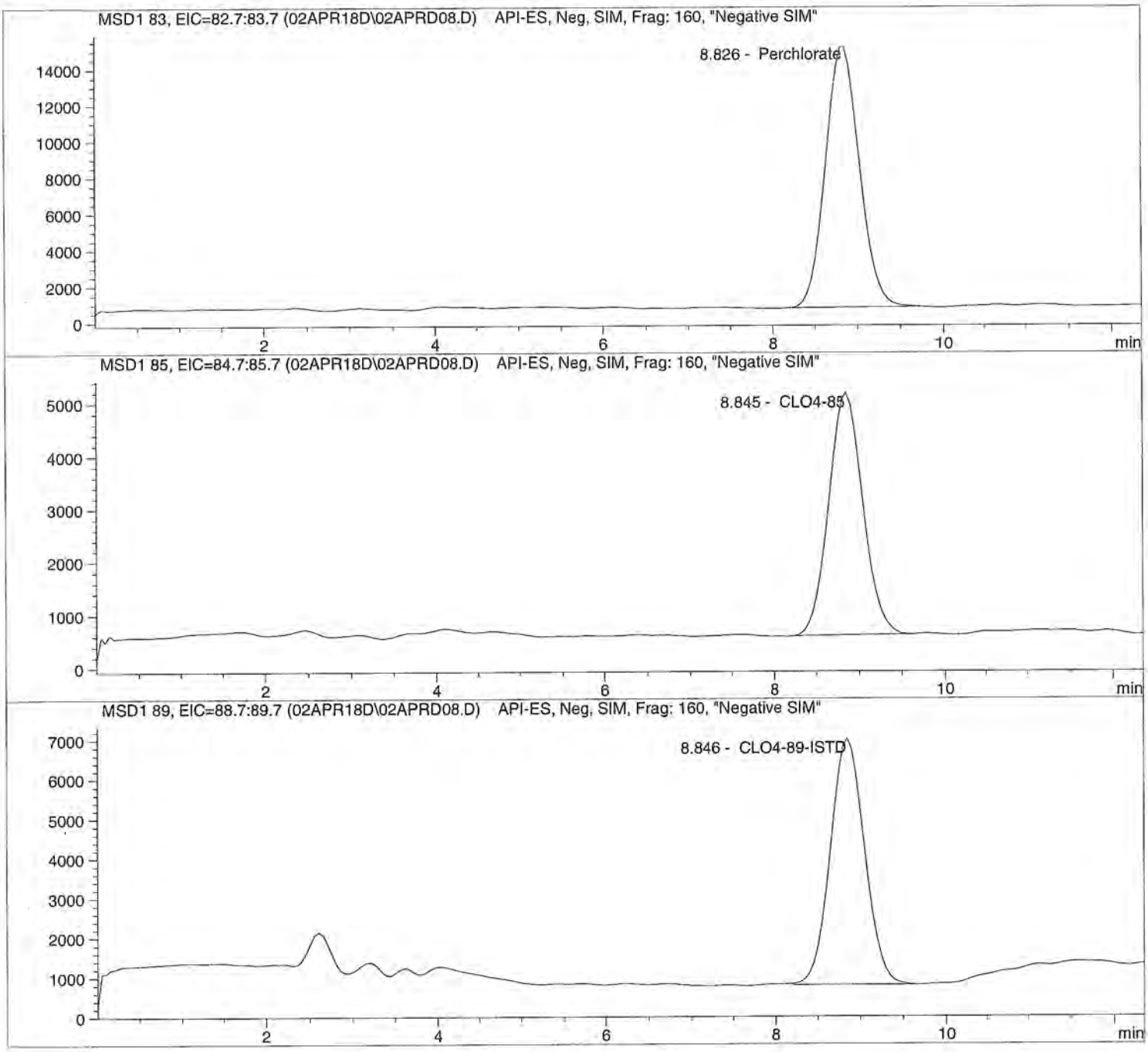
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD08.D Sample Name: ICAL Verf@10ug/L

Injection Date:	4/02/2018 10:47:33	Seq Line:	8
Sample Name:	ICAL Verf@10ug/L	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD08.D Sample Name: ICAL Verf@10ug/L

Injection Date:	4/02/2018 10:47:33	Seq Line:	8
Sample Name:	ICAL Verf@10ug/L	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	10.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.826	BBA	399587.8	10.1698	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.845	PBA	127530.4	10.1657	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.846	BBA	174490.2	5.0000	CLO4-89-ISTD

*** End of Report ***

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

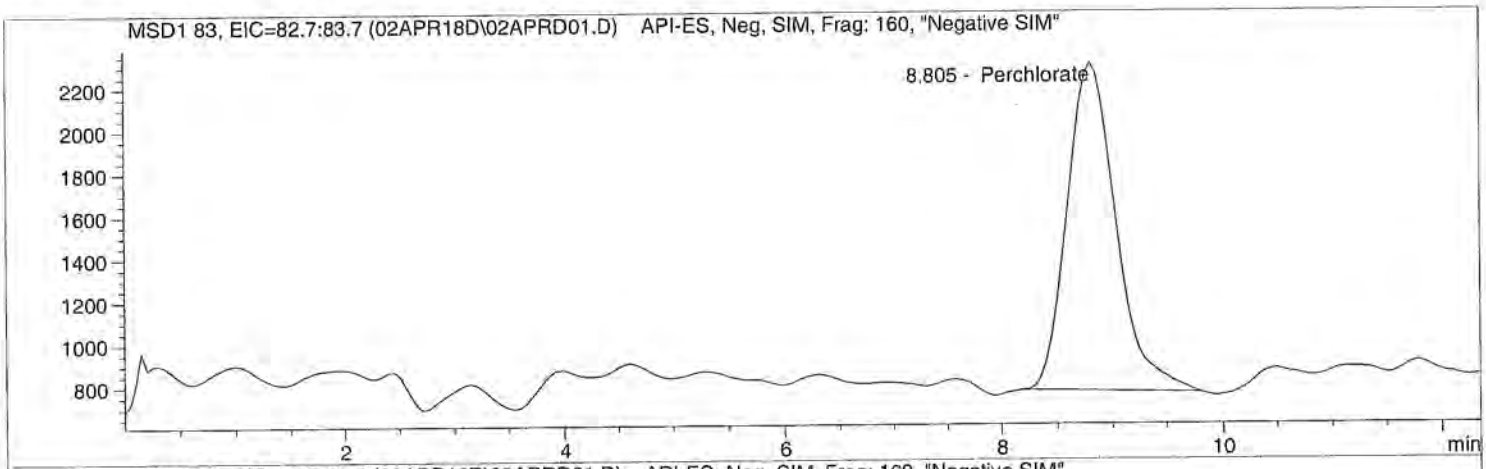
Unmodified

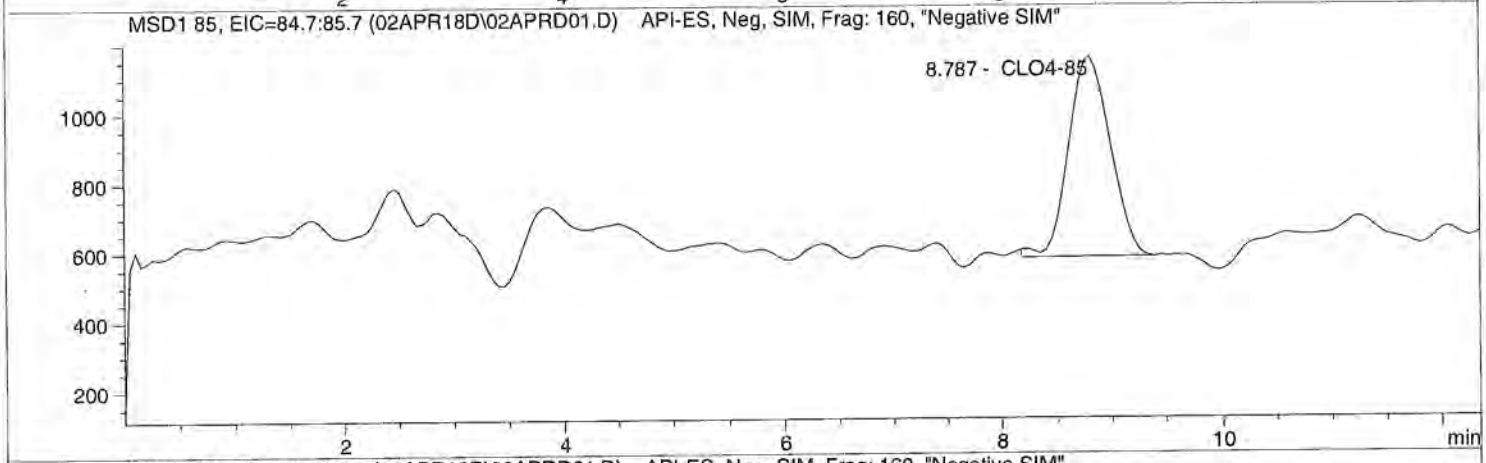
Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD01.D Sample Name: ICAL1@ 1.0ug/L

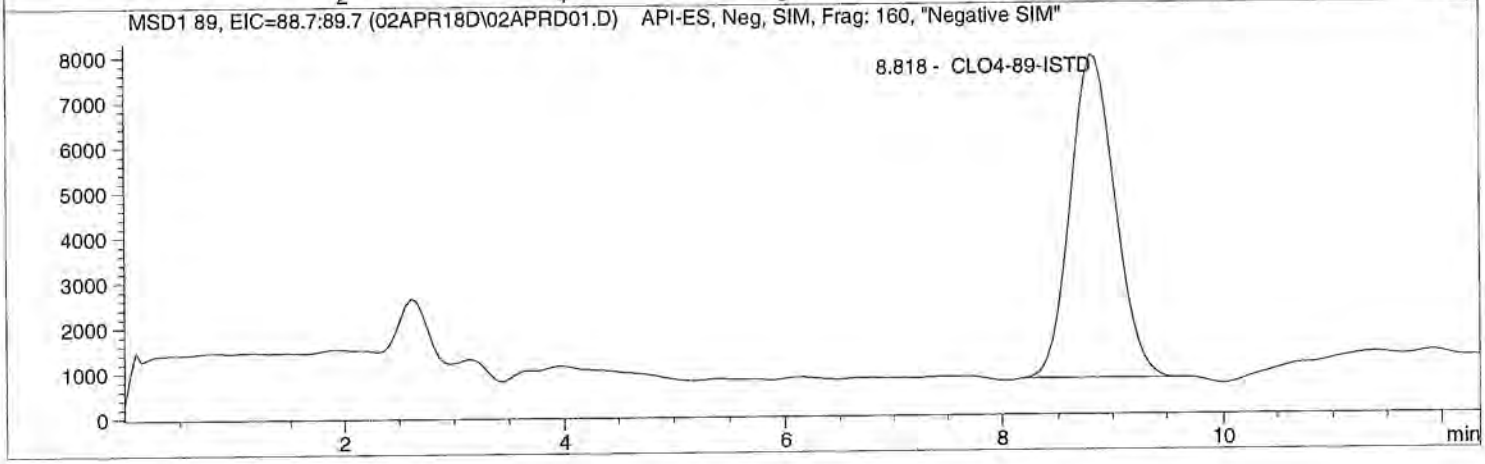
Injection Date:	4/02/2018 09:08:19	Seq Line:	1
Sample Name:	ICAL1@ 1.0ug/L	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD01.D Sample Name: ICAL1@ 1.0ug/L

Injection Date:	4/02/2018 09:08:19	Seq Line:	1
Sample Name:	ICAL1@ 1.0ug/L	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.805	PBA	47521.7	1.0438	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.787	BBA	15364.8	0.9338	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.818	PBA	205633.2	5.0000	CLO4-89-ISTD

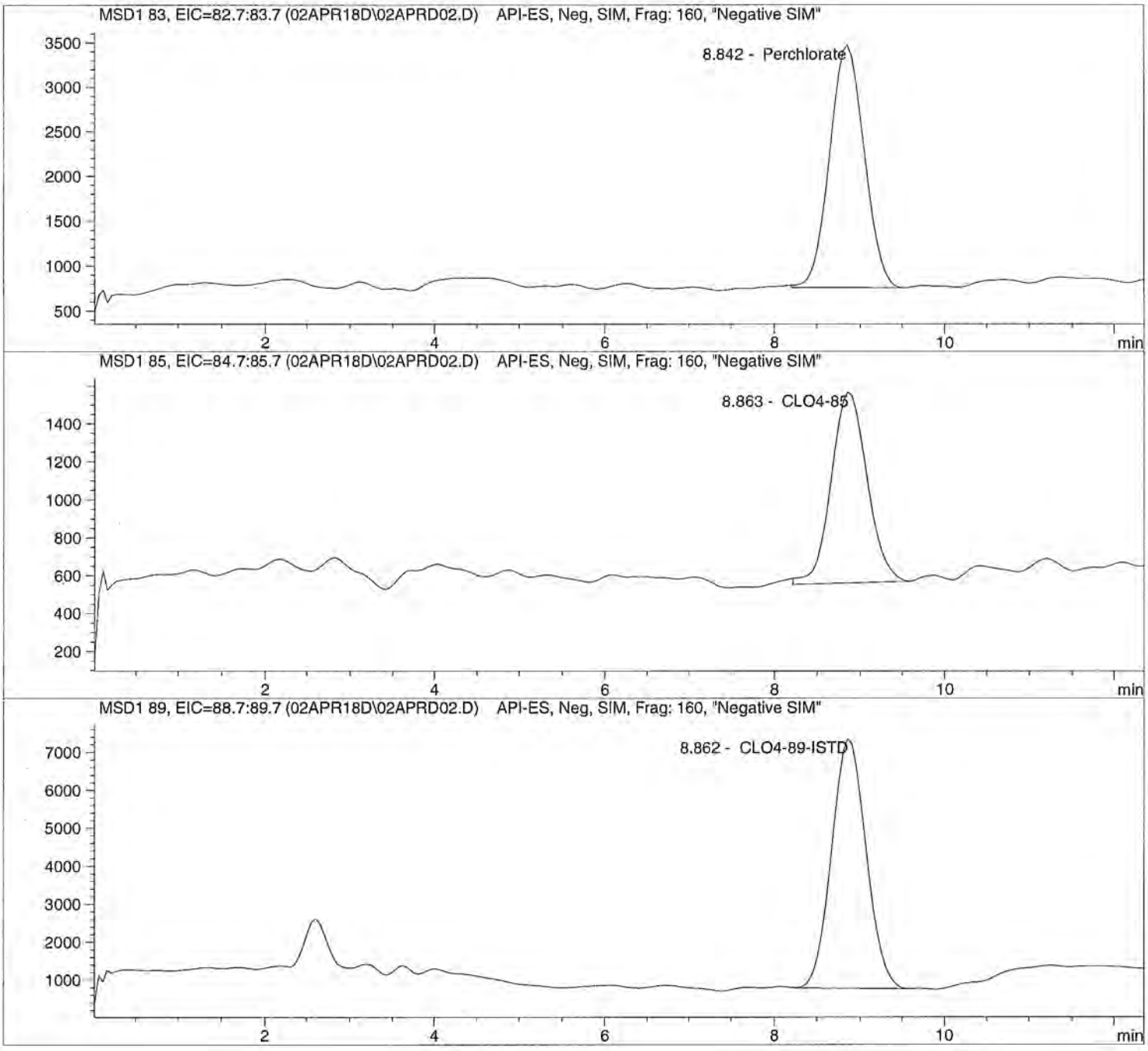
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD02.D Sample Name: ICAL2@ 2.0ug/L

Injection Date:	4/02/2018 09:22:28	Seq Line:	2
Sample Name:	ICAL2@ 2.0ug/L	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD02.D Sample Name: ICAL2@ 2.0ug/L

Injection Date:	4/02/2018 09:22:28	Seq Line:	2
Sample Name:	ICAL2@ 2.0ug/L	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	2.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.842	BBA	75767.3	1.8858	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.863	BBA	29265.6	2.1651	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.862	BBA	183981.5	5.0000	CLO4-89-ISTD

*** End of Report ***

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

WorkOrder: HS18040989

Longhorn GW Treatment Plant

Bhate Environmental Associates, Inc.

Marcia Olive
445 Union Blvd Ste 129
Lakewood CO 80228

04-May-2018

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

May 04, 2018

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

Work Order: **HS18040989**

Laboratory Results for: **Longhorn GW Treatment Plant**

Dear Marcia,

ALS Environmental received 1 sample(s) on Apr 19, 2018 for the analysis presented in the following report.

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

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

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

Sincerely,

Generated By: DAYNA.FISHER
RJ Modashia
Project Manager

ALS Group Houston, Corp Date: 04-May-18

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant
Work Order: HS18040989

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS18040989-01	LH18/24-SP650_041818	Water		18-Apr-2018 14:00	19-Apr-2018 09:00	☐

ALS Group Houston, Corp Date: 04-May-18

Client: Bhate Environmental Associates, Inc. **CASE NARRATIVE**
Project: Longhorn GW Treatment Plant
Work Order:

Work Order Comments

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

WetChemistry by Method E365.3

Batch ID: R314910

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

WetChemistry by Method E350.3

Batch ID: R314894

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

WetChemistry by Method E415.1

Batch ID: R314827

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

ALS Group Houston, Corp Date: 04-May-18

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant
Sample ID: LH18/24-SP650_041818
Collection Date: 18-Apr-2018 14:00

ANALYTICAL REPORT
WorkOrder:HS18040989
Lab ID:HS18040989-01
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
AMMONIA AS N BY E350.3(ISE)		**Method:E350.3**						Analyst: MZD
Nitrogen, Ammonia (As N)	**28**		**0.20**	**0.20**	**0.20**	**mg/L**	1	23-Apr-2018 14:41
ORTHO PHOSPHATE (PO4) AS P BY E365.3		**Method:E365.3**						Analyst: MZD
Phosphorus, Total Orthophosphate (As P)	**2.42**		**0.100**	**0.500**	**0.250**	**mg/L**	10	20-Apr-2018 12:45
TOTAL ORGANIC CARBON BY E415.1		**Method:E415.1**						Analyst: AJH
Organic Carbon, Total	**17.7**		**0.500**	**1.25**	**1.00**	**mg/L**	1	20-Apr-2018 20:22
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	04-May-2018 10:00

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

ALS Group Houston, Corp Date: 04-May-18

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant
WorkOrder: HS18040989

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID R314827	**Test Name :** TOTAL ORGANIC CARBON BY E415.1			**Matrix:** Water		
HS18040989-01	LH18/24-SP650_041818	18 Apr 2018 14:00			20 Apr 2018 20:22	1
Batch ID R314894	**Test Name :** AMMONIA AS N BY E350.3(ISE)			**Matrix:** Water		
HS18040989-01	LH18/24-SP650_041818	18 Apr 2018 14:00			23 Apr 2018 14:41	1
Batch ID R314910	**Test Name :** ORTHO PHOSPHATE (PO4) AS P BY E365.3			**Matrix:** Water		
HS18040989-01	LH18/24-SP650_041818	18 Apr 2018 14:00			20 Apr 2018 12:45	10
Batch ID R315618	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)			**Matrix:** Water		
HS18040989-01	LH18/24-SP650_041818	18 Apr 2018 14:00			04 May 2018 10:00	1

ALS Group Houston, Corp Date: 04-May-18

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant
WorkOrder: HS18040989

QC BATCH REPORT

Batch ID: R314827 **Instrument: TOC_02** **Method: E415.1**

MBLK Sample ID: **WBLKW1-042018** Units: **mg/L** Analysis Date: **20-Apr-2018 19:43**
Client ID: Run ID: **TOC_02_314827** SeqNo: **4529369** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	1.25	1.00								U

LCS Sample ID: **WLCSW1-042018** Units: **mg/L** Analysis Date: **20-Apr-2018 19:56**
Client ID: Run ID: **TOC_02_314827** SeqNo: **4529370** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	9.841	1.00	10	0	98.4	80 - 120				

LCSD Sample ID: **WLCSDW1-042018** Units: **mg/L** Analysis Date: **20-Apr-2018 20:09**
Client ID: Run ID: **TOC_02_314827** SeqNo: **4529371** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	9.87	1.00	10	0	98.7	80 - 120	9.841	0.294	20	

MS Sample ID: **HS18041032-01MS** Units: **mg/L** Analysis Date: **20-Apr-2018 20:51**
Client ID: Run ID: **TOC_02_314827** SeqNo: **4529374** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	12.94	1.00	10	2.054	109	80 - 120				

The following samples were analyzed in this batch: HS18040989-01

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

ALS Group Houston, Corp Date: 04-May-18

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant
WorkOrder: HS18040989

QC BATCH REPORT

Batch ID: R314894 **Instrument: WetChem_HS** **Method: E350.3**

MBLK Sample ID: **MBLK-314894** Units: **mg/L** Analysis Date: **23-Apr-2018 14:41**
Client ID: Run ID: **WetChem_HS_314894** SeqNo: **4530761** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia (As N)	0.20	0.20								U

LCS Sample ID: **LCS-314894** Units: **mg/L** Analysis Date: **23-Apr-2018 14:41**
Client ID: Run ID: **WetChem_HS_314894** SeqNo: **4530762** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia (As N)	10.32	0.20	10	0	103	80 - 120				

MS Sample ID: **HS18040989-01MS** Units: **mg/L** Analysis Date: **23-Apr-2018 14:41**
Client ID: **LH18/24-SP650_041818** Run ID: **WetChem_HS_314894** SeqNo: **4530765** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia (As N)	39.32	0.20	10	27.71	116	80 - 120				

MSD Sample ID: **HS18040989-01MSD** Units: **mg/L** Analysis Date: **23-Apr-2018 14:41**
Client ID: **LH18/24-SP650_041818** Run ID: **WetChem_HS_314894** SeqNo: **4530766** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia (As N)	39.4	0.20	10	27.71	117	80 - 120	39.32	0.203	20	

The following samples were analyzed in this batch: HS18040989-01

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

ALS Group Houston, Corp Date: 04-May-18

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant
WorkOrder: HS18040989

QC BATCH REPORT

Batch ID: R314910 **Instrument: UV-2450** **Method: E365.3**

MBLK Sample ID: **MBLK-314910** Units: **mg/L** Analysis Date: **20-Apr-2018 12:45**
Client ID: Run ID: **UV-2450_314910** SeqNo: **4531088** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total Orthophosphate (As P)	0.0500	0.0250								U

LCS Sample ID: **LCS-314910** Units: **mg/L** Analysis Date: **20-Apr-2018 12:45**
Client ID: Run ID: **UV-2450_314910** SeqNo: **4531089** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total Orthophosphate (As P)	0.249	0.0250	0.25	0	99.6	85 - 115				

MS Sample ID: **HS18040989-01MS** Units: **mg/L** Analysis Date: **20-Apr-2018 12:45**
Client ID: **LH18/24-SP650_041818** Run ID: **UV-2450_314910** SeqNo: **4531091** PrepDate: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total Orthophosphate (As P)	5.09	0.250	2.5	2.42	107	80 - 120				

MSD Sample ID: **HS18040989-01MSD** Units: **mg/L** Analysis Date: **20-Apr-2018 12:45**
Client ID: **LH18/24-SP650_041818** Run ID: **UV-2450_314910** SeqNo: **4531092** PrepDate: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total Orthophosphate (As P)	4.84	0.250	2.5	2.42	96.8	80 - 120	5.09	5.04	20	

The following samples were analyzed in this batch: HS18040989-01

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

ALS Group Houston, Corp Date: 04-May-18

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant
WorkOrder: **HS18040989**

QUALIFIERS, ACRONYMS, UNITS

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

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

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
California	2919 2016-2018	31-Jul-2018
Illinois	004112	09-May-2018
Oklahoma	2017-088	31-Aug-2018
North Carolina	624-2018	31-Dec-2018
Louisiana	03087 2017-2018	30-Jun-2018
Arkansas	88-0356	27-Mar-2019

Date: 04-May-18

Sample Receipt Checklist

Client Name:	Bhate Environmental	Date/Time Received:	**19-Apr-2018 09:00**
Work Order:	HS18040989	Received by:	**NDD**

Checklist completed by:	*Pablo Marinez* eSignature	19-Apr-2018 Date	Reviewed by:	*RJ Modashia* eSignature	20-Apr-2018 Date

Matrices: **WATER** Carrier name: **UPS**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
TX1005 solids received in hermetically sealed vials?	Yes ☐	No ☐	N/A ☑
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	3.7C/3.3C UC/C	IR # 30	
Cooler(s)/Kit(s):	3365		
Date/Time sample(s) sent to storage:	4/19/2018 16:30		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

HS18040989

CHAIN OF CUSTODY

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

Bhate Environmental Associates, Inc.
Longhorn GW Treatment Plant

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

Project No. NWO1312.0150.0 16.0001

Job: GROUNDWATER TREATMENT PLANT WEEKLY SAMPLES

Prepared By: Scott Beesinger

P.O. Number

Field Sample I.D.	Sample Matrix	Date / Time	MS / MSD	No. OF CONTAINERS	Analyses: AMMONIA-N	TOTAL ORGANIC CARBON	ORTHO-PHOSPHATE	PERCHLORATE	Remarks (Preservatives, etc.)	Lab I.D.#
LH18/24-SP650_041818	Water	04/18/18 / 14:00		2	X	X			H2SO4	
LH18/24-SP650_041818	Water	04/18/18 / 14:00		2			X	X	NONE	

Additional Remarks: **Standard TAT on all parameters**

Relinquished By:	Date	Time	Received By:	Date	Time	Relinquished By:	Date	Time	Received By:	Date	Time
Scott Beesinger	04/18/18	14:30	Pablo	04/19/18	9:45						

For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition
Pablo	04/19/18	9:45		Nelson	04/19	10:00	3.7 4.1 C		IR 30 -0.4
							3.7	3365	IR 30

Remarks:

(Word) S:\Forms\Chain of Custody - BiWeekly

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

3365

CUSTODY SEAL

Date: 4/18/18 Time: 1430
Name: Scott Beesinger
Company: SHATZ

Seal Broken By: SM
Date: 04/19/18

3365

APR 19 2018

UPS Next Day Air®
UPS Worldwide Express®
Shipping Document

3365

WEIGHT | LTR | PAK | WEIGHT | DIMENSIONAL WEIGHT if applicable | LARGE PACKAGE | SHIPPER RELEASE

1
1

☐ EXPRESS (LTR'S)
☐ DOCUMENTS ONLY

SATURDAY DELIVERY ☐

SHIPMENT FROM

UPS ACCOUNT NO.

REFERENCE NUMBER

TELEPHONE

J461 6E7 976 0
J461 687 976 0

DELIVERY TO

TELEPHONE

UPS Next Day Air® **1**

J461 687 976 0

PACKAGE NUMBER

DATE OF SHIPMENT

010191120 6/14 RRD United Parcel Service, Louisville, KY

Wet Chemistry Raw Data

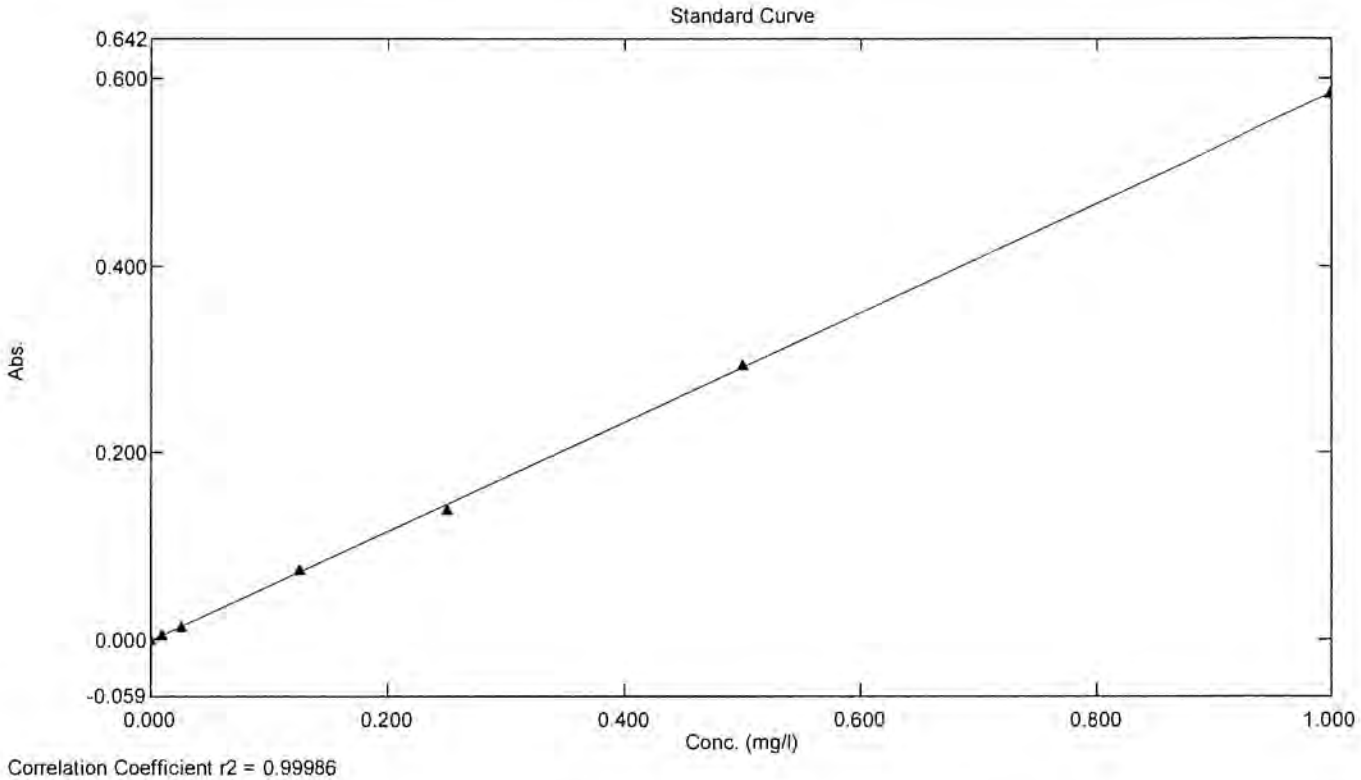
Bhate Environmental Associates, Inc.
Project: LONGHORN GW TREATMENT PLANT
ALS WO# HS18040989

HS1804098-9

Standard Table Report

05/03/2018 09:59:47 AM

File Name: C:\Program Files (x86)\Shimadzu\UVProbe\Data\O_PO4_UNKNOWN\ORTHO_2018\180420_P_ORTH



Correlation Coefficient r2 = 0.99986

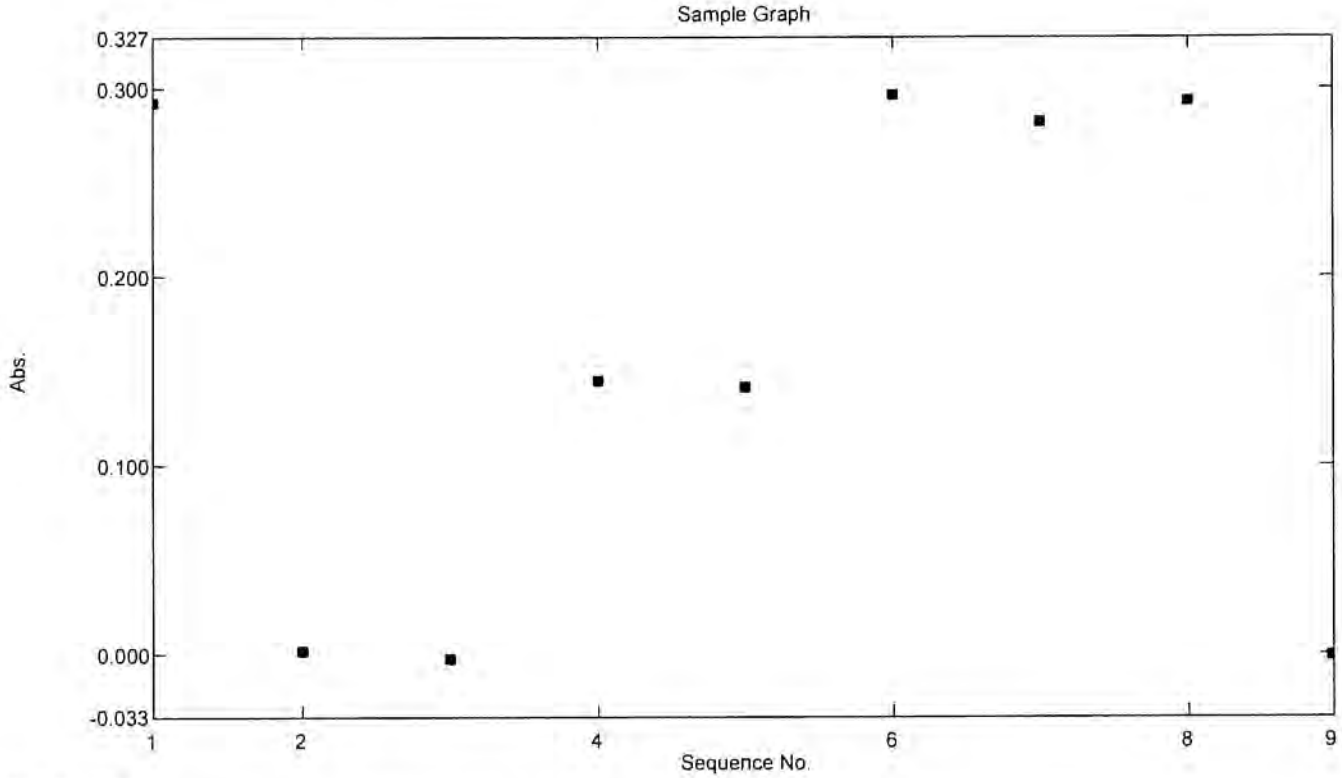
Standard Table

	Sample ID	Type	Ex	Conc	WL880.0	Wgt.Facto	Comments
1	STD1	Standard		0.000	-0.000	1.000	
2	STD2	Standard		0.010	0.006	1.000	
3	STD3	Standard		0.025	0.014	1.000	
4	STD4	Standard		0.125	0.075	1.000	
5	STD5	Standard		0.250	0.140	1.000	
6	STD6	Standard		0.500	0.294	1.000	
7	STD7	Standard		1.000	0.584	1.000	
8							

Sample Table Report

05/03/2018 09:59:51 AM

File Name: C:\Program Files (x86)\Shimadzu\UVProbe\Data\O_PO4_UNKNOWN\ORTHO_2018\180420_P_ORT



Sample Table

	Sample ID	Type	Ex	Conc	WL880.0	Comments
1	CCV	Unknown		0.501	0.292	
2	CCB	Unknown		0.004	0.001	
3	MBLK	Unknown		-0.004	-0.003	
4	LCS	Unknown		0.249	0.145	
5	18040989.01	Unknown		0.242	0.141	FILTER,PF:10X,12:45P M
6	18040989.01MS	Unknown		0.509	0.297	10X
7	18040989.01MSD	Unknown		0.484	0.282	10X
8	CCV2	Unknown		0.503	0.293	
9	CCB2	Unknown		-0.001	-0.001	
10						

HS1804 0989

ALS Laboratory Group

Ion Selective Electrode Logbook

Analyst: MD	Date: 04/23/2018
Method: SM4500NH3-D/EPA 350.3 or SM4500 NH3 B-F	

Probe Calibration Date:	Cal Std ID:	Probe ID:
04/23/2018	3060626(03-07)	SR15190

Std Level		mV	Conc., mg/L:
STD 1 (mg/L):	0.2	113.0	0.2022
STD 2 (mg/L):	1	79.1	1.022
STD 3 (mg/L):	5	36.5	5.024

Sodium Thiosulfate ID:		
Std Level	mV	Conc., mg/L:
STD 4 (mg/L): 10	20.0	10.06
STD 5 (mg/L): 50	-20.6	50.02

LSC / MS Spike ID:	2970205919
ICV Cal STD ID:	3060660003
DPD Reagent ID:	2970203302
ICAL Date & Slope:	96.54 / -57.0 mV

WO # / SX #	Bottle #	Initial g or ml	Final Vol. ml	Dilution Factor	Initial Conc. mg/L	Final Conc. mg/L	Chlorine Check (+/ –)	Comments
ICV		50ml	50ml		10.05			
CCB		"	"		0.03200			
MBLK		"	"		0.03002			
LCS		"	"		10.32			DF
HS1804 0877-01		1ml	50ml	50X	0.4381		tve	High in chlorine
" -02		"	"	50X	0.5340		tve	hydrous sample
" -03		"	"	50X	0.8264		tve	
HS1804 0987-01		"	"	50X	0.1650		tve	
" -03		"	"	50X	0.0562		tve	
HS1804 0989-01		50ml	50ml		27.71		-ve	
HS1804 0989-01MS		50ml	50ml		39.32			
" 01MSD		"	"		39.80			MD
CCV		"	"		10.17			
CCB		"	"		0.03008			hydrous sample
HS1804 0990-01		1ml	50ml	50X	6.463		tve	High in chlorine
HS1804 1061-01		"	"	50X	0.1405		tve	"
HS1804 1061-02		"	"	50X	0.09427		tve	"
CCV		50ml	50ml		10.13			
CCB		"	"		0.02318			
HS1804 0800-01		50ml	50ml		1.043		-ve	
CCV		"	"		10.05			
CCB		"	"		0.03001			

Batch ID:	Reported By	Reviewed By:
TSE 3500-3148094 / 3149534 W	MD	MD

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C:\TOC3201\Data\2018_04_20_001.t32

HS18040989

	T	Analys	Sample Name	Sample ID	Origin	Result	Status	Date / Time	Vial
1	U	NPOC	CCV	306.065.703	01-20-2018_	NPOC:24.87mg/L	Completed	4/20/2018 7:18:50 PM	1
2	U	NPOC	CCB	UNTITLED	01-20-2018_	NPOC:0.2177mg/L	Completed	4/20/2018 7:34:08 PM	2
3	U	NPOC	WBLKW1-042018	TOC_W	01-20-2018_	NPOC:0.1387mg/L	Completed	4/20/2018 7:47:16 PM	3
4	U	NPOC	WLCSW1-042018	297.020.4301	01-20-2018_	NPOC:9.841mg/L	Completed	4/20/2018 8:00:29 PM	4
5	U	NPOC	WLCSDW1-042018	UNTITLED	01-20-2018_	NPOC:9.870mg/L	Completed	4/20/2018 8:13:42 PM	5
6	U	NPOC	HS18040989-01	1/1	01-20-2018_	NPOC:17.74mg/L	Completed	4/20/2018 8:26:55 PM	6
7	U	NPOC	HS18041032-01	1/2	01-20-2018_	NPOC:2.054mg/L	Completed	4/20/2018 8:42:13 PM	7
8	U	NPOC	HS18041032-01MS	1/2	01-20-2018_	NPOC:12.94mg/L	Completed	4/20/2018 8:55:21 PM	8
9	U	NPOC	HS18041032-02	1/2	01-20-2018_	NPOC:1.996mg/L	Completed	4/20/2018 9:10:39 PM	9
10	U	NPOC	HS18041032-03	1/2	01-20-2018_	NPOC:2.155mg/L	Completed	4/20/2018 9:25:52 PM	10
11	U	NPOC	HS18041032-04	1/2	01-20-2018_	NPOC:2.310mg/L	Completed	4/20/2018 9:41:05 PM	11
12	U	NPOC	HS18041032-05	1/2	01-20-2018_	NPOC:1.907mg/L	Completed	4/20/2018 9:56:18 PM	12
13	U	NPOC	CCV	UNTITLED	01-20-2018_	NPOC:25.26mg/L	Completed	4/20/2018 10:09:29 PM	13
14	U	NPOC	CCB	UNTITLED	01-20-2018_	NPOC:0.1954mg/L	Completed	4/20/2018 10:24:47 PM	14
15	U	NPOC	HS18041032-06	1/2	01-20-2018_	NPOC:1.817mg/L	Completed	4/20/2018 10:40:00 PM	15
16	U	NPOC	HS18041032-07	1/2	01-20-2018_	NPOC:2.072mg/L	Completed	4/20/2018 10:55:13 PM	16
17	U	NPOC	CCV	UNTITLED	01-20-2018_	NPOC:25.56mg/L	Completed	4/20/2018 11:10:31 PM	17
18	U	NPOC	CCB	UNTITLED	01-20-2018_	NPOC:0.2499mg/L	Completed	4/20/2018 11:25:49 PM	18
19	U	NPOC	WBLKW2-042018	TOC_W5310B	01-20-2018_	NPOC:0.1619mg/L	Completed	4/20/2018 11:41:02 PM	19
20	U	NPOC	WLCSW2-042018	297.020.4301	01-20-2018_	NPOC:9.731mg/L	Completed	4/21/2018 12:43:46 AM	20
21	U	NPOC	WLCSDW2-042018	UNTITLED	01-20-2018_	NPOC:9.773mg/L	Completed	4/21/2018 12:57:01 AM	21
22	U	NPOC	HS18040853-01	1/1	01-20-2018_	NPOC:6.625mg/L	Completed	4/21/2018 1:10:14 AM	22
23	U	NPOC	HS18040853-01MS	1/1	01-20-2018_	NPOC:16.44mg/L	Completed	4/21/2018 1:24:36 AM	23
24	U	NPOC	HS18040854-01	1/1	01-20-2018_	NPOC:6.638mg/L	Completed	4/21/2018 1:37:49 AM	24
25	U	NPOC	HS18040887-01	1/2	01-20-2018_	NPOC:11.71mg/L	Completed	4/21/2018 1:51:30 AM	25
26	U	NPOC	HS18041050-01	1/2	01-20-2018_	NPOC:13.68mg/L	Completed	4/21/2018 2:05:10 AM	26
27	U	NPOC	HS18040998-13DF5	1/2 HI SALT	01-20-2018_	NPOC:1.531mg/L	Completed	4/21/2018 2:20:29 AM	27
28	U	NPOC	HS18040998-14DF5	1/2 HI SALT	01-20-2018_	NPOC:2.156mg/L	Completed	4/21/2018 2:33:38 AM	28
29	U	NPOC	CCV	UNTITLED	01-20-2018_	NPOC:24.48mg/L	Completed	4/21/2018 3:41:41 AM	29
30	U	NPOC	CCB	UNTITLED	01-20-2018_	NPOC:0.1849mg/L	Completed	4/21/2018 3:57:00 AM	30
31	U	NPOC	HS18040998-15DF5	1/2 HI SALT	01-20-2018_	NPOC:1.454mg/L	Completed	4/21/2018 4:10:09 AM	31
32	U	NPOC	HS18040998-16DF5	1/2 HI SALT	01-20-2018_	NPOC:1.787mg/L	Completed	4/21/2018 4:26:01 AM	32
33	U	NPOC	HS18040998-17DF5	1/2 HI SALT	01-20-2018_	NPOC:0.7120mg/L	Completed	4/21/2018 6:37:16 AM	33
34	U	NPOC	HS18040998-18	1/2	01-20-2018_	NPOC:8.106mg/L	Completed	4/21/2018 6:50:25 AM	34
35	U	NPOC	CCV	UNTITLED	01-20-2018_	NPOC:24.80mg/L	Completed	4/21/2018 7:03:58 AM	35
36	U	NPOC	CCB	UNTITLED	01-20-2018_	NPOC:0.2211mg/L	Completed	4/21/2018 7:19:17 AM	36
37	U	NPOC	WBLKW3-042018	TOC_W5310B	01-20-2018_	NPOC:0.1679mg/L	Completed	4/21/2018 7:46:36 AM	37
38	U	NPOC	WLCSW3-042018	297.020.4301	01-20-2018_	NPOC:9.858mg/L	Completed	4/21/2018 8:01:50 AM	38
39	U	NPOC	WLCSDW3-042018	UNTITLED	01-20-2018_	NPOC:9.861mg/L	Completed	4/21/2018 8:15:59 AM	39
40	U	NPOC	HS18040998-22	1/2	01-20-2018_	NPOC:13.84mg/L	Completed	4/21/2018 8:33:41 AM	40
41	U	NPOC	HS18040998-23	1/2	01-20-2018_	NPOC:10.37mg/L	Completed	4/21/2018 9:03:12 AM	41
42	U	NPOC	HS18040998-24DF5	1/2 HI SALT	01-20-2018_	NPOC:0.6019mg/L	Completed	4/21/2018 9:18:26 AM	42
43	U	NPOC	HS18040998-25DF5	1/2 HI SALT	01-20-2018_	NPOC:0.6665mg/L	Completed	4/21/2018 10:39:53 AM	43
44	U	NPOC	HS18040998-26DF5	1/2 HI SALT	01-20-2018_	NPOC:0.8111mg/L	Completed	4/21/2018 10:53:02 AM	44
45	U	NPOC	HS18040998-27DF5	1/2 HI SALT	01-20-2018_	NPOC:0.6237mg/L	Completed	4/21/2018 11:30:56 AM	45
46	U	NPOC	HS18040998-28	1/2	01-20-2018_	NPOC:21.60mg/L	Completed	4/21/2018 11:55:06 AM	46
47	U	NPOC	CCV	UNTITLED	01-20-2018_	NPOC:25.14mg/L	Completed	4/21/2018 12:16:03 PM	47
48	U	NPOC	CCB	UNTITLED	01-20-2018_	NPOC:0.3380mg/L	Completed	4/21/2018 12:40:31 PM	48
49	U	NPOC	HS18041015-02	1/2	01-20-2018_	NPOC:1.686mg/L	Completed	4/21/2018 12:53:41 PM	49
50	U	NPOC	HS18041015-02MS	1/2	01-20-2018_	NPOC:11.34mg/L	Completed	4/21/2018 1:07:13 PM	50
51	U	NPOC	HS18041015-03	1/2	01-20-2018_	NPOC:1.167mg/L	Completed	4/21/2018 1:22:33 PM	51

C:\TOC3201\Data\2018_04_20_001.t32

	T	Analys	Sample Name	Sample ID	Origin	Result	Status	Date / Time	Vial
52	U	NPOC	HS18041015-04	1/2	01-20-2018_	NPOC:0.2320mg/L	Completed	4/21/2018 1:41:02 PM	52
53	U	NPOC	CCV	UNTITLED	01-20-2018_	NPOC:24.58mg/L	Completed	4/21/2018 1:57:29 PM	53
54	U	NPOC	CCB	UNTITLED	01-20-2018_	NPOC:0.2752mg/L	Completed	4/21/2018 2:12:49 PM	54

Instr.Information

System	TOC csh with asi
Instrument Options	TOC/ASI/IC Unit/
Catalyst	Regular Sensitivity

Cal. Curve

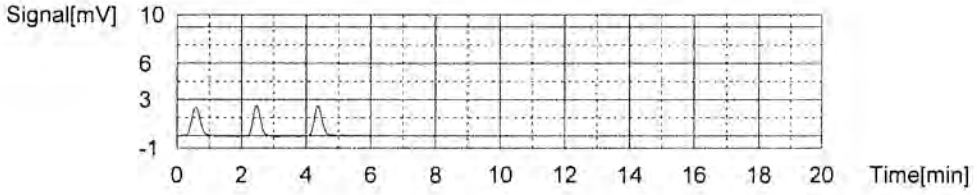
Sample Name:	CAL
Sample ID:	304.185:(403-408)
Cal. Curve:	01-20-2018_W.2018_01_20_14_48_29.cal
Status	Completed

Type	Anal.
Standard	NPOC

Conc: 1.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	4.293	50uL	1	*******		1/20/2018 2:57:14 PM
2	4.151	50uL	1	*******		1/20/2018 2:59:19 PM
3	4.214	50uL	1	*******		1/20/2018 3:01:24 PM

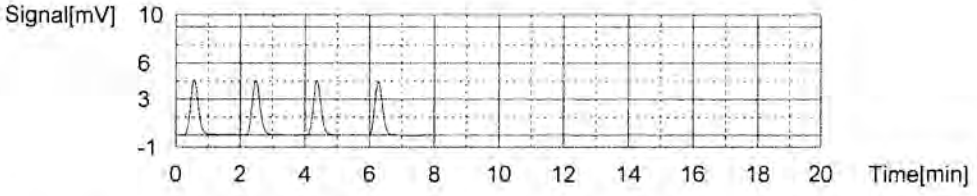
Acid Add. 0.000%
Sp. Time 180.0sec
Mean Area 4.219



Conc: 2.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	7.666	50uL	1	*******		1/20/2018 3:10:27 PM
2	7.701	50uL	1	*******		1/20/2018 3:12:32 PM
3	7.418	50uL	1	*******	E	1/20/2018 3:14:37 PM
4	7.476	50uL	1	*******		1/20/2018 3:16:42 PM

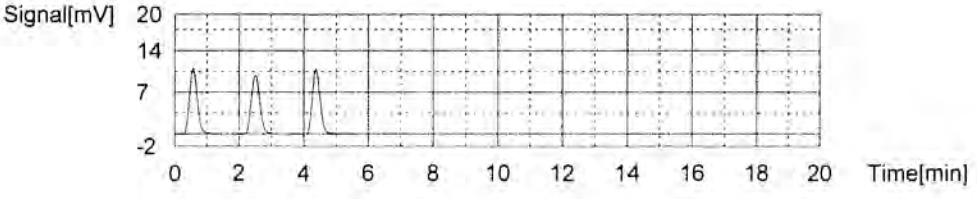
Acid Add. 0.000%
Sp. Time 180.0sec
Mean Area 7.614



Conc: 5.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	18.51	50uL	1	*******		1/20/2018 3:25:40 PM
2	18.31	50uL	1	*******		1/20/2018 3:27:45 PM
3	18.12	50uL	1	*******		1/20/2018 3:29:50 PM

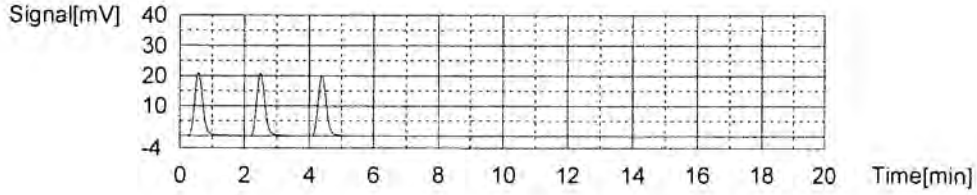
Acid Add. 0.000%
Sp. Time 180.0sec
Mean Area 18.31



Conc: 10.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	36.74	50uL	1	*******		1/20/2018 3:38:54 PM
2	36.11	50uL	1	*******		1/20/2018 3:40:59 PM
3	36.04	50uL	1	*******		1/20/2018 3:43:04 PM

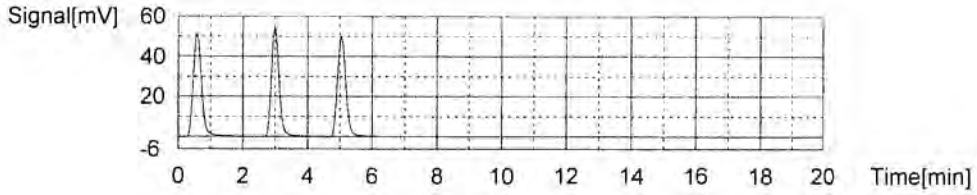
Acid Add. 0.000%
Sp. Time 180.0sec
Mean Area 36.30



Conc: 25.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	92.73	50uL	1	*******		1/20/2018 3:52:38 PM
2	92.73	50uL	1	*******		1/20/2018 3:54:51 PM
3	91.34	50uL	1	*******		1/20/2018 3:56:58 PM

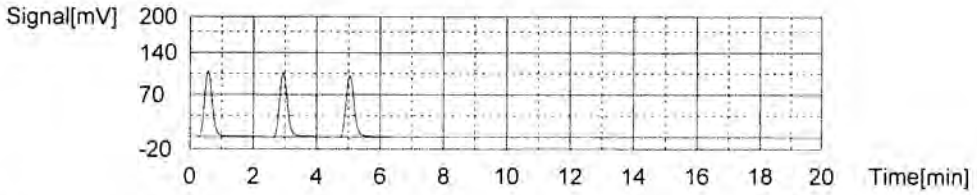
Acid Add. 0.000%
Sp. Time 180.0sec
Mean Area 92.27



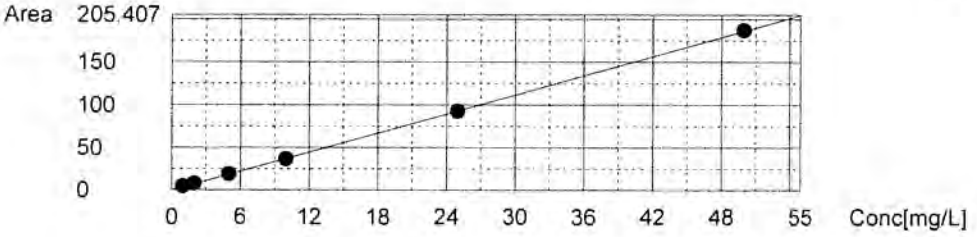
Conc: 50.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	189.1	50uL	1	*******		1/20/2018 4:06:29 PM
2	186.6	50uL	1	*******		1/20/2018 4:08:46 PM
3	184.5	50uL	1	*******		1/20/2018 4:11:02 PM

Acid Add. 0.000%
Sp. Time 180.0sec
Mean Area 186.7



Slope: 3.729
Intercept -0.2289
r^2 0.9999
r 1.0000
Zero Shift No



Sample

Sample Name: ICV
Sample ID: 304.185.409
Origin: TOC_W_9060.met
Status Completed
Chk. Result

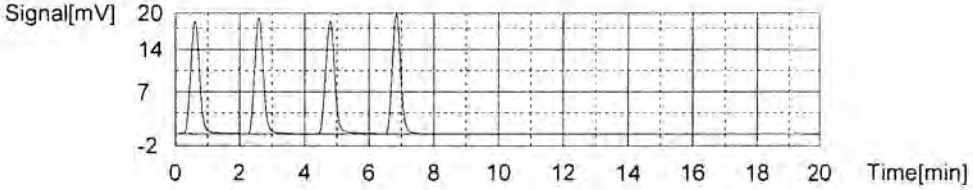
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:9.719mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	35.94	9.699mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	1/20/2018 4:20:09 PM
2	36.11	9.744mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	1/20/2018 4:22:31 PM
3	36.38	9.817mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	1/20/2018 4:24:46 PM
4	35.63	9.616mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	1/20/2018 4:26:51 PM

Mean Area 36.02
Mean Conc. 9.719mg/L



Sample

Sample Name: ICB
Sample ID: Untitled
Origin: TOC_W_9060.met
Status Completed
Chk. Result

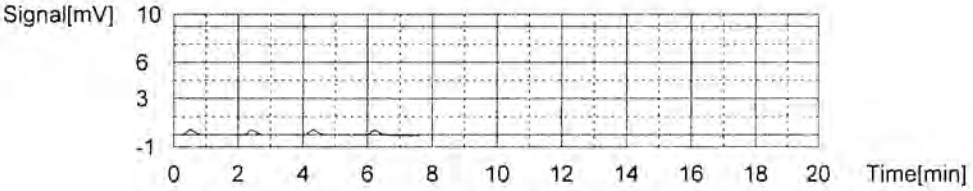
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.2186mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.6786	0.2434mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	1/20/2018 4:35:53 PM
2	0.5291	0.2033mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	1/20/2018 4:37:58 PM
3	0.5827	0.2176mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	1/20/2018 4:40:03 PM
4	0.5540	0.2099mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	1/20/2018 4:42:08 PM

Mean Area 0.5861
Mean Conc. 0.2186mg/L



Instr.Information

System	TOC csh with asi
Instrument Options	TOC/ASI/IC Unit/
Catalyst	Regular Sensitivity

Sample

Sample Name:	CCV
Sample ID:	306.065.703
Origin:	01-20-2018_W.cal
Status	Completed
Chk. Result	

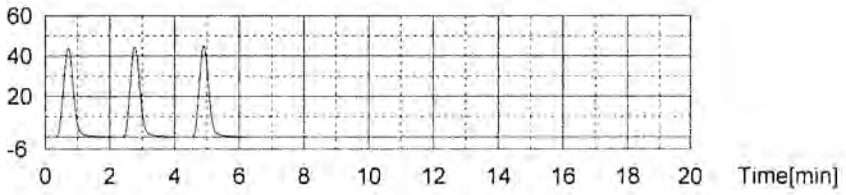
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:24.87mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	92.99	25.00mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/20/2018 7:14:14 PM
2	93.33	25.09mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/20/2018 7:16:33 PM
3	91.24	24.53mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/20/2018 7:18:50 PM

Mean Area	92.52
Mean Conc.	24.87mg/L



Sample

Sample Name:	CCB
Sample ID:	UNTITLED
Origin:	01-20-2018_W.cal
Status	Completed
Chk. Result	

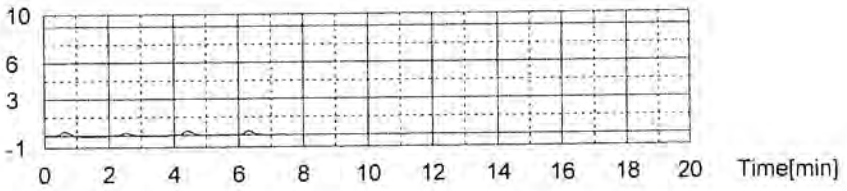
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.2177mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.6450	0.2344mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/20/2018 7:27:53 PM
2	0.4314	0.1771mg/L	50uL	1	E	01-20-2018_W.2018_01_20_14_48_29.cal	4/20/2018 7:29:58 PM
3	0.5590	0.2113mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/20/2018 7:32:03 PM
4	0.5446	0.2074mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/20/2018 7:34:08 PM

Mean Area 0.5829
Mean Conc. 0.2177mg/L



Sample

Sample Name: WBLKW1-042018
Sample ID: TOC_W
Origin: 01-20-2018_W.cal
Status Completed
Chk. Result

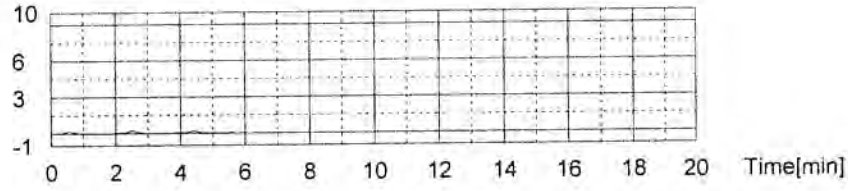
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.1387mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.2745	0.1350mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/20/2018 7:43:06 PM
2	0.3365	0.1516mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/20/2018 7:45:11 PM
3	0.2542	0.1296mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/20/2018 7:47:16 PM

Mean Area 0.2884
Mean Conc. 0.1387mg/L



Sample

Sample Name: WLCSW1-042018
Sample ID: 297.020.4301
Origin: 01-20-2018_W.cal
Status Completed
Chk. Result

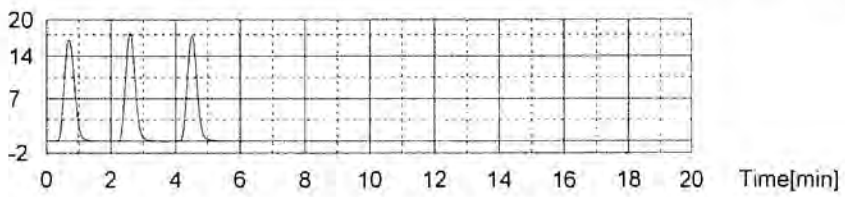
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:9.841mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	36.55	9.862mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/20/2018 7:56:19 PM
2	36.65	9.889mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/20/2018 7:58:24 PM
3	36.21	9.771mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/20/2018 8:00:29 PM

Mean Area 36.47
Mean Conc. 9.841mg/L



Sample

Sample Name: WLCSDW1-042018
Sample ID: UNTITLED
Origin: 01-20-2018_W.cal
Status Completed
Chk. Result

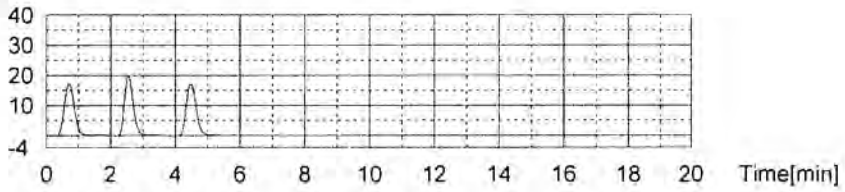
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:9.870mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	36.42	9.828mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/20/2018 8:09:32 PM
2	36.83	9.937mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/20/2018 8:11:37 PM
3	36.49	9.846mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/20/2018 8:13:42 PM

Mean Area 36.58
Mean Conc. 9.870mg/L



Sample

Sample Name: HS18040989-01
Sample ID: 1/1
Origin: 01-20-2018_W.cal
Status Completed
Chk. Result

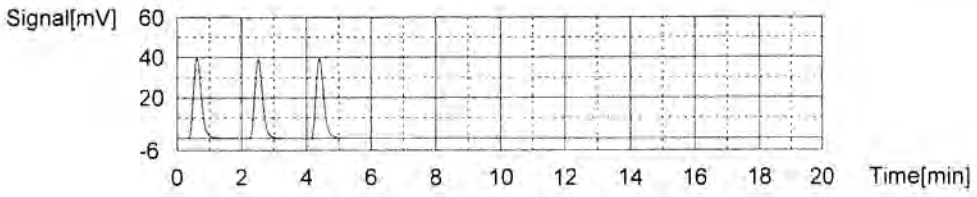
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:17.74mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	67.12	18.06mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/20/2018 8:22:45 PM
2	65.37	17.59mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/20/2018 8:24:50 PM
3	65.27	17.56mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/20/2018 8:26:55 PM

Mean Area 65.92
Mean Conc. 17.74mg/L



Sample

Sample Name: HS18041032-01
Sample ID: 1/2
Origin: 01-20-2018_W.cal
Status Completed
Chk. Result

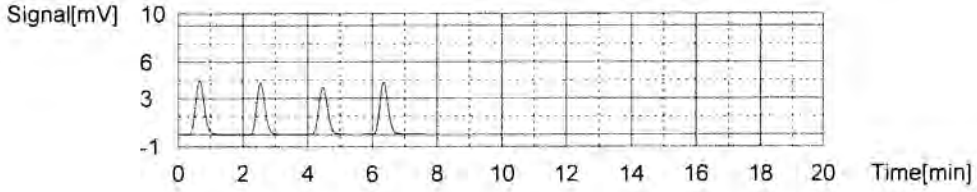
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:2.054mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	8.106	2.235mg/L	50uL	1	E	01-20-2018_W.2018_01_20_14_48_29.cal	4/20/2018 8:35:58 PM
2	7.565	2.090mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/20/2018 8:38:03 PM
3	7.264	2.009mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/20/2018 8:40:08 PM
4	7.469	2.064mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/20/2018 8:42:13 PM

Mean Area 7.433
Mean Conc. 2.054mg/L



Sample

Sample Name: HS18041032-01MS
Sample ID: 1/2
Origin: 01-20-2018_W.cal
Status Completed
Chk. Result

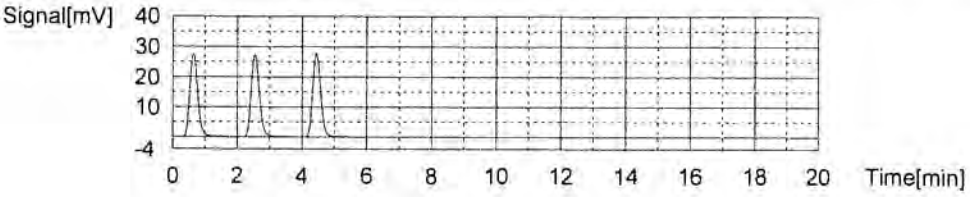
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:12.94mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	47.48	12.79mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/20/2018 8:51:11 PM
2	48.34	13.02mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/20/2018 8:53:16 PM
3	48.22	12.99mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/20/2018 8:55:21 PM

Mean Area 48.01
Mean Conc. 12.94mg/L



Sample

Sample Name: CCV
Sample ID: UNTITLED
Origin: 01-20-2018_W.cal
Status Completed
Chk. Result

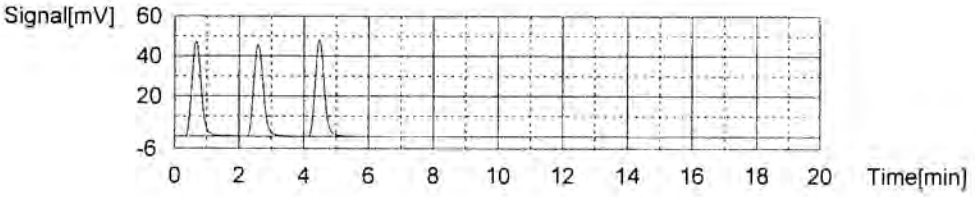
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:25.26mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	94.26	25.34mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/20/2018 10:05:16 PM
2	94.51	25.40mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/20/2018 10:07:21 PM
3	93.11	25.03mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/20/2018 10:09:29 PM

Mean Area 93.96
Mean Conc. 25.26mg/L



Sample

Sample Name: CCB
Sample ID: UNTITLED
Origin: 01-20-2018_W.cal
Status Completed
Chk. Result

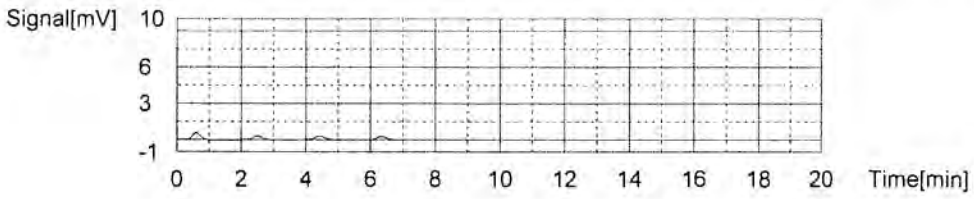
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.1954mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.8934	0.3010mg/L	50uL	1	E	01-20-2018_W.2018_01_20_14_48_29.cal	4/20/2018 10:18:32 PM
2	0.5061	0.1971mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/20/2018 10:20:37 PM
3	0.5142	0.1993mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/20/2018 10:22:42 PM
4	0.4794	0.1899mg/L	50uL	1		01-20-2018_W.2018_01_20_14_48_29.cal	4/20/2018 10:24:47 PM

Mean Area	0.4999
Mean Conc.	0.1954mg/L



Sub Contract Data

Bhate Environmental Associates, Inc.
Project: LONGHORN GW TREATMENT PLANT
ALS WO# HS18040989

Case Narrative

Method: 6850
Analysis: Perchlorate
Analysis SOP: LC-MS-CLO4
ALS WO ID(s): 1811190; 1811879

Client: ALS Laboratories (Houston, TX)
Matrix: Water
ELMS Batch (HBN): 2086 (213815)

General Set Information: There were two field samples in these Work Orders. The samples were analyzed for perchlorate.

Method Summary: Each sample was prepared as noted below and analyzed using an Agilent 1100 LC/MSD system in select ion monitoring (SIM) mode at m/z 83 and 85, which corresponds to the loss of one oxygen atom from the perchlorate molecule. ChemStation software was used for instrument control and data analysis. The ion ratio of m/z 83 to 85 was used to positively identify the response peak as perchlorate. Quantitation was performed using the m/z 83 peak area. An internal standard (ISTD) of ^{18}O labeled perchlorate was added to each sample to establish the perchlorate peak retention time and used in quantitation.

Sample Preparation: A 10.0mL aliquot of each sample was transferred into a 15-mL centrifuge tube. 50µL of an ^{18}O labeled perchlorate solution was added to each sample as an internal standard. The samples were then capped, vortexed, and filtered into autosampler vial using Phenex PES membrane 0.45µm Syringe filters.

Holding Times: Holding times were met for all analyses.

Dilutions: NA

Method QC data: The method blank (LMB 598507) was less than 1/2 the CRDL. The recovery for the LCS (598508) was within acceptable parameters.

MS/MSD Analysis: The matrix spike and matrix spike duplicate (MS/MSD) was performed on sample 1811190001 (Client ID: LH18/24-SP650_041818). The MS/MSD percent recoveries and relative percent difference (RPD) were within the performance limits.

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

NC/CAR(s): NA

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

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

Miscellaneous Comments: These samples were analyzed in accordance with the requirements found in the DOD QSM Version 5.1. Manual Integrations was performed for datafile 02APRD01/02.

Thomas Bosch May 02, 2018
Analyst Date

ANALYTICAL REPORT

Report Date: May 03, 2018

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

Phone: 281 530-5656

E-mail: RJ.Modashia@ALSGlobal.com

Workorder: **34-1811190**
Project ID: HS18040989 041818
Purchase Order: HS18040989
Project Manager Kevin W. Griffiths

Client Sample ID	Lab ID	Collect Date	Receive Date	Sampling Site
LH18/24-SP650_041818	1811190001	04/18/18	04/20/18	

ANALYTICAL REPORT

Workorder: 34-1811190
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **LH18/24-SP650_041818**	Sampling Site: NA	Collected: 04/18/2018
Lab ID: 1811190001	Media: 125 mL Nalgene	Received: 04/20/2018
Matrix: Water	Sampling Parameter: NA	

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable	**Analysis:** EPA 6850, DoD QSM Water	**Instrument ID:** LCMS04
	Batch: ELMS/2086 (HBN: 213815)	**Percent Solid:** NA
	Analyzed: 04/30/2018 12:20	**Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**55**	1.0	2.0	4.0	1	

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

Method	Analyst	Peer Review
EPA 6850, DoD QSM	/S/ Thomas Bosch 05/02/2018 14:46	/S/ Stephen Brose 05/03/2018 12:51

Laboratory Contact Information

ALS Environmental
960 W Levoy Drive
Salt Lake City, Utah 84123

Phone: (801) 266-7700
Email: alslt.lab@ALSGlobal.com
Web: www.alsslc.com

ANALYTICAL REPORT

Workorder: 34-1811190
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted.
Samples have not been blank corrected unless otherwise noted.
This test report shall not be reproduced, except in full, without written approval of ALS.

ALS provides professional analytical services for all samples submitted. ALS is not in a position to interpret the data and assumes no responsibility for the quality of the samples submitted.

All quality control samples processed with the samples in this report yielded acceptable results unless otherwise noted.

ALS is accredited for specific fields of testing (scopes) in the following testing sectors. The quality system implemented at ALS conforms to accreditation requirements and is applied to all analytical testing performed by ALS. The following table lists testing sector, accreditation body, accreditation number and website. Please contact these accrediting bodies or your ALS project manager for the current scope of accreditation that applies to your analytical testing.

Testing Sector	Accreditation Body	Certificate Number	Website
Environmental	PJLA (DoD ELAP)		
	Utah (TNI)		
	Nevada		
	Oklahoma		
	Iowa		

Result Symbol Definitions

MDL = Method Detection Limit, a statistical estimate of method/media/instrument sensitivity.
RL = Reporting Limit, a verified value of method/media/instrument sensitivity.
CRDL = Contract Required Detection Limit
Reg. Limit = Regulatory Limit.
ND = Not Detected, testing result not detected above the MDL or RL.
< This testing result is less than the numerical value.
** No result could be reported, see sample comments for details.

Qualifier Symbol Definitions

U = Qualifier indicates that the analyte was not detected above the MDL.
J = Qualifier Indicates that the analyte value is between the MDL and the RL. It is also used to indicate an estimated value for tentatively identified compounds in mass spectrometry where a 1:1 response is assumed.
B = Qualifier indicates that the analyte was detected in the blank.
E = Qualifier indicates that the analyte result exceeds calibration range.
P = Qualifier indicates that the RPD between the two columns is greater than 40%.

Quality Control Sample Batch Report

Analysis Information

Workorder: 1811190

Limits:	Client SOW/Contract Specified	**Preparation:**	NA	**Analysis:**	EPA 6850
Basis:	DoD QSM	**Batch:**	NA	**Batch:**	ELMS/2086 (HBN: 213815)
		Prepared By:	NA	**Analyzed By:**	Thomas Bosch

Blank

LMB: 598507
Analyzed: 04/30/2018 11:51
Units: ug/L

Analyte	Result	MDL	RL
Perchlorate	ND	1	2.00

Laboratory Control Sample

LCS: 598508
Analyzed: 04/30/2018 12:05
Dilution: 1
Units: ug/L

Analyte	Result	Target	% Rec	QC Limits	
Perchlorate	4.71	5.00	94.2	78.8	123.8

Matrix Spike - Matrix Spike Duplicate

Sample: 1811190001	**MS:** 598509	**MSD:** 598510
Analyzed: 04/30/2018 12:20	**Analyzed:** 04/30/2018 12:34	**Analyzed:** 04/30/2018 12:48
Dilution: 1	**Dilution:** 1	**Dilution:** 1
Units: ug/L	**Units:** ug/L	**Units:** ug/L

Analyte	Result	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Perchlorate	55.0	59.2	5	79.6	78.8	123.8	60.4	104	2.01	0.0	20.0

Continuing Calibration Verification

CCV: 598503	**CCV:** 598511
Analyzed: 04/30/2018 11:09	**Analyzed:** 04/30/2018 13:16
Units: ug/L	**Units:** ug/L
Criteria: ± 15%	**Criteria:** ± 15%

Analyte	Result	Target	% Rec.	Result	Target	% Rec.
Perchlorate	25.6	25.0	102	25.6	25.0	102

Interference Check Sample

ICSA: 598506
Analyzed: 04/30/2018 11:37
Units: ug/L
Criteria: ± 30%

Analyte	Result	Target	% Rec.
Perchlorate	0.995	1.00	99.5

Limit of Detection Verification

LODV: 598505	**LODV:** 598512
Analyzed: 04/30/2018 11:23	**Analyzed:** 04/30/2018 13:30
Units: ug/L	**Units:** ug/L
Criteria: ± 50%	**Criteria:** ± 50%

Analyte	Result	Target	% Rec.	Result	Target	% Rec.
Perchlorate	0.798	1.00	79.8	0.854	1.00	85.4

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1811190

Limits:	Client SOW/Contract Specified	**Preparation:**	NA	**Analysis:**	EPA 6850
Basis:	DoD QSM	**Batch:**	NA	**Batch:**	ELMS/2086 (HBN: 213815)
		Prepared By:	NA	**Analyzed By:**	Thomas Bosch

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

Analyst	Peer Review
/S/ Thomas Bosch	/S/ Stephen Brose
05/02/2018 14:47	05/03/2018 12:51

Symbols and Definitions

* - Analyte above reporting limit or outside of control limits
▲ - Sample result is greater than 4 times the spike added
- Sample and Matrix Duplicate less than 5 times the reporting limit
- Result is above the calibration range
- The Matrix Spike, Matrix Spike duplicate or Matrix Duplicate is reported for your information only. The sample matrix may be inappropriate for the method selected.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected (U - Qualifier also flags analyte as not detected)
NA - Not Applicable
QC results are not adjusted for moisture correction, where applicable

18698/#2

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

Subcontract Chain of Custody

COC ID: 8987

1811190

SUBCONTRACT TO:

ALS Laboratory Group
960 West LeVoy Drive
Salt Lake City, UT 84123

Phone: +1 800 356 9135

CUSTOMER INFORMATION:

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

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS18040989
TSR:	Danielle Winnings

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS18040989-01**	**LH18/24-SP650_041818**	**Water**	**18 Apr 2018 14:00**
	SUB_Perch-6850			03 May 2018

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

QC Level: DOD IV (DoD Data Package)

Relinquished By: _____ Date/Time: 4/19/18 1800

Received By: _____ Date/Time: 04-20-18 9:28

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

ALS

CHAIN-OF-CUSTODY

Project / Job / Task: HS18040989	*Split:*	**Workorder ID:** 1811190	Level: ENV_LVL4
Client: ALS Environmental (Houston)		**Account:** 8101	Type: 125Poly
Comments:			Preservatives: COOL

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	Requested Analysis: EPA 6850, DoD QSM
1	04/18/2018 14:00	LH18/24-SP650_041818	1811190001		Water	A	1	A
2								
3								
4								
5								
6								
7								
8								
9								
10								

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Warath, Julie	04/20/2018 09:28	ALS Sample Receiving	Sample Login
Julie Warath 4/20/18 1040		4B	storage
R.33.1	4.30.18/09:00	T.Bush	6850

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

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

Prepared / Analyzed by: _____ Date / Time: _____

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

39 of 110

ALS-Salt Lake City-Related Information Report (CRIR)

Cooler or Container Information Checklist (Fill In or Circle)

Client Name: ALS Houston — Project/Task/Site: 1811190

Date/Time of Receipt: 04-20-18 9:38 — Number of Coolers Received: 1

Condition of Coolers:	Acceptable/Unacceptable	Temperature Control:	Present/Not Included
Cooler Custody Seals:	Present/Absent/NA Intact/Broken/NA	Location Temp Taken:	Control/Between Samples
Container Custody Seals:	Present/Absent/NA Intact/Broken/NA	Are all temperatures within project specific guidelines?	Yes/No/NA
Ice Present:	Yes/No/NA Frozen/Melted/NA	VOA Headspace Present?	Yes/No/NA

pH Check Performed:							
	Metals	Yes/No/NA	Total Phenolics	Yes/No/NA	NO3/NO2	Yes/No/NA
	Cyanide	Yes/No/NA	TPH – 418.1	Yes/No/NA	Oil & Grease	Yes/No/NA
	Sulfide	Yes/No/NA	COD	Yes/No/NA	Total Phosphorous	Yes/No/NA
	Ammonia	Yes/No/NA	TKN	Yes/No/NA	Gross A.B, Gamma Spec	Yes/No/NA

Cooler Received	DCL Cooler No.	Temp.	Cooler Received	DCL Cooler No.	Temp.	Cooler Received	DCL Cooler No.	Temp.
1	C18 8460	3 °C	4	C18	°C	7	C18	°C
2	C18	°C	5	C18	°C	8	C18	°C
3	C18	°C	6	C18	°C	9	C18	°C

Taken By: Tami VanTassell (Signature) Tami VanTassell (Printed Name) _____ (Date)

Client-Related Information

☐ Missing Cooler	☐ Missing Samples/Bottles	☐ Incorrect Preservation	☐ Insufficient Sample Volume
☐ Cooler Conditions	☐ Broken/Leaking Samples	☐ pH Criteria Not Met	☐ Chain of Custody Problems
☐ Missing Paperwork	☐ Incorrect Bottle Type	☐ Residual Chlorine Present	☐ Other:
☐ Missing/Incorrect Bottle Labels	☐ Cooler Temperatures Out of Range	☐ Head Space in Bottles	

Briefly Describe the Problem and the Action Taken:

Client Notified? YES ☐ NO ☐

Response Required Within 24 Hours

Project Management

Project Manager Comments:

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

Must Deliver Next Business Day
Time and Tempature Sensitive!

Part # 159469-434 RITE EXP 11/18

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

SHIP DATE: 19APR18
ACTWGT: 5.55 LB
CAD: 300130/CAFE3111
DIMS: 14x11x10 IN
BILL SENDER

TO SAMPLE RECEIVING
ALS ENVIRONMENTAL
960 W. LEVOY DRIVE

SALT LAKE CITY UT 84123
(801) 266-7700
REF: ALS - 18040989 - RJ

FedEx Express

FRI - 20 APR 3:00P
STANDARD OVERNIGHT

TRK# 0201 4380 9528 3511

AX BTFA

84123
UT-US SLC

909 5
11 15:00 A
3511
04.20

tch Worklist

Batch: ELMS/ 2086
Rule: EPA 6850, DoD QSM Water
Created: 4/30/2018 10:56
Analyst: T. Bosch
Instrument: LCMS04
Status: RE
HBN: 213815

Workorder: 1811190 [ENV_LVL4]
Workorder: 1811879 [ENV_LVL4]

Pos	Lab ID	Sample ID	Prep Initial	Prep Final	Dust Weight	Type	Mx	Container	Procedure	Mgr	Expire Date	Due Date	Run Date
1	598503	CCV for HBN 213815 [ELMS/2086]				CCV	3		E685041C3Q	5311		5/3/2018	4/30/2018
2	598505	LODV for HBN 213815 [ELMS/2086				LODV	3		E6850..D3Q	5311		5/3/2018	4/30/2018
3	598506	ICS for HBN 213815 [ELMS/2086]				ICS	3		E6850..D3Q	5311		5/3/2018	4/30/2018
4	598507	LMB for HBN 213815 [ELMS/2086]				LMB	3		E6850Q413Q	5311		5/3/2018	4/30/2018
5	598508	LCS for HBN 213815 [ELMS/2086]				LCS	3		E6850Q413Q	5311		5/3/2018	4/30/2018
6	1811190001	LH18/24-SP650_041818				SAMPLE	3	1811190001-A	E6850Q41.3	5480	5/16/2018	5/3/2018	4/30/2018
7	598509	LH18/24-SP650...(1811190001MS)				MS	3		E6850Q413Q	5311		5/3/2018	4/30/2018
8	598510	LH18/24-SP65...(1811190001MSD)				MSD	3		E6850Q413Q	5311		5/3/2018	4/30/2018
9	1811879001	LH18/24-SP650_042518				SAMPLE	3	1811879001-A	E6850Q41.3	5480	5/23/2018	5/9/2018	4/30/2018
10	598511	CCV for HBN 213815 [ELMS/2086]				CCV	3		E685041C3Q	5311		5/3/2018	4/30/2018
11	598512	LODV for HBN 213815 [ELMS/2086				LODV	3		E6850..D3Q	5311		5/3/2018	4/30/2018

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Analytical Documentation

ALS Work Order #'s & Sample #( )'s: 1811190 (001); 1811879 (001)
ELMS Batch/HBN ID: 2086 (213815)
Prep Date: 04/30/2018 Analysis Date: 04/30/2018 Analyst: T. Bosch
Analyte: **Perchlorate** Matrix: **Water** Method: **6850**
Sequence: \\HPCHEM\1\SEQUENCE\CLO4\2018\APR\30APR18D.s
Reported DL: **1.0µg/L** Reported LOD: **2.0µg/L** Reported LOQ: **4.0µg/L**

SAMPLE PREPARATION/ANALYSIS:

Water: Samples were prepared by TNB. 10.0mL of each sample was pipetted into a 15-mL centrifuge tube, and 50µL of an oxygen-18 labeled perchlorate solution was added as an internal standard. The samples were capped, vortexed, and filtered with Phenex PES membrane 0.45µm Syringe filters prior to analysis.

REAGENTS: Eluent A1: 95% ASTM Type II water (ALS)/ 5% ACN (B&J Lot DI735)/0.1% glacial acetic acid (JT-Baker Lot 04802).
Eluent B1: 95% ACN (B&J Lot DI735)/ 5% ASTM Type II water (ALS)/0.1% glacial acetic acid (JT-Baker Lot 04802).

STANDARDS: Internal Standard Spiking Solution Horizon# 38780. Dilutions of Working Standard Solution ID 32373 used for CCV's, LODV's, RLVS and IPC.

CALIBRATION CURVE: Used curve from 04/02/2018, sequence 02APR18D.s Offline Quantitation Method: CLO4-DPR.M

INSTRUMENT CONDITIONS: Samples were analyzed with an Agilent 1100 LC/MSD system, in negative SIM mode, monitoring m/z 83, 85, and 89.
Instrument ID: LCMS04 Online Acquisition Method: CLO4-DOD.M Fragmentor: 160 Output Gain: 3 Injection Volume: 25µL
Column: KP-RPPX C8 separator, 250mm Mobile Phase: 70% Eluent A1; 30% Eluent B1

FLOW GRADIENT:

Time (min.)	Flow (mL/min)
0	0.80
4.0	0.80
5.0	0.25
10.0	0.25
10.5	0.80
13.0	0.80

QC DATA: 5.0µL of QC Solution Horizon ID 36749 was used for LCS 598508; Target = 5.0µg/L. ASTM type II water was used for LMB 598507.

MS/MSD: MS/MSD was performed on sample 1811190001 (Client ID: LH18/24-SP650_041818). 5.0µl of Working Standard Solution Horizon ID 36735 was added to 10.0mL of sample preparation. Spike target = 5.0µg/L.

COMMENTS:
1) Results reported in µg/L.
2) All QC, Blank, CCV, and MS/MSD results were within method parameters.
3) Sample data can be viewed at two directories within the ALS system: \\ALSLTWS013\LCMS\LCMS04\2018\APR\HBN# or through NuGenesis\Tree\PrintData\LCMS\DefaultView.
4) Due to limitations of the Chemstation Software, some of the chromatographic peaks require manual integration. Manual Integrations was performed for datafiles 02APRD01/02.
5) Notebook: \\alsltws013\ORGANIC\BOSCH\LCMS\Perchlorates\Waters\2018\213815-DOD-ALS-HSTN-LCMS4 or through \\ALSLTWS013\DATAREVIEW\HBN#

STANDARD REPORT

Working Standard - CLO4 WRK

CLO4 WRK		Description - 6850 WKG Std 100.ug/L
Standard: 36735	Created By: T. Bosch	Amount: 10 mL
MFG: ALS/SLC	Create Date: 05/10/2017	Expires: 05/10/2018
MFG Lot: TNB: 05/10/17	Lab Lot: CLO4 WRK	Usable: Yes
Part ID:		

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	0.1 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
36734	CLO4 INT	6850 Intermdt AccStd 10.ug/mL	CLO4 INT	0.1 mL	05/10/2018

STANDARD REPORT

Constituent

Stock Standard - CLO4 STOCK

CLO4 STOCK		Description - 6850 Stock AccStd 1,000ug/mL
Standard: 36733	Created By: T. Bosch	Amount: 100 mL
MFG: AccuStandard	Create Date: 5/10/2017	Expires: 10/4/2018
MFG Lot: 216095148	Lab Lot: CLO4 STOCK	Usable: Yes
Part ID: IC-PER-10X-1		

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

STANDARD REPORT

Constituent

Solvent Standard - ASTM H2O

ASTM H2O			Description - ASTM Type II Water
Standard: 109		Created By: ALS Support (Lims)	Amount: 1000 L
MFG: DCL In House		Create Date: 10/6/2005	Expires: 11/7/2025
MFG Lot:		Lab Lot: LAB 109	Usable: Yes
Part ID:			

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

STANDARD REPORT

Constituent

Working Standard - CLO4 INT

CLO4 INT Description - 6850 Intermdt AccStd 10.ug/mL

Standard: 36734
MFG: ALS/SLC
MFG Lot: TNB: 05/10/17
Part ID:

Created By: T. Bosch
Create Date: 05/10/2017
Lab Lot: CLO4 INT

Amount: 10 mL
Expires: 05/10/2018
Usable: Yes

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

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
36733	CLO4 STOCK	6850 Stock AccStd 1,000ug/mL	CLO4 STOCK	0.1 mL	10/04/2018

STANDARD REPORT

Working Standard - CLO4 QC WRK

CLO4 QC WRK		Description - 6850 QC WKG STD 100ug/L
Standard: 36750	Created By: T. Bosch	Amount: 10 mL
MFG: ALS/SLC	Create Date: 05/11/2017	Expires: 05/11/2018
MFG Lot: TNB: 05/11/17	Lab Lot: CLO4 QC WRK 100.ug/L	Usable: Yes
Part ID:		

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

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
36749	CLO4 QC INT	6850 QC Intrmdt Std-QC 10ug/mL	CLO4 QC INT 10.ug/mL	0.1 mL	05/11/2018

STANDARD REPORT

Constituent

Working Standard - CLO4 QC INT

CLO4 QC INT		Description - 6850 QC Intrmdt Std-QC 10ug/mL
Standard: 36749	Created By: T. Bosch	Amount: 10 mL
MFG: ALS/SLC	Create Date: 05/11/2017	Expires: 05/11/2018
MFG Lot: TNB: 05/11/2017	Lab Lot: CLO4 QC INT 10.ug/mL	Usable: Yes
Part ID:		

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

Composition

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

STANDARD REPORT

Constituent

Solvent Standard - ASTM H2O

ASTM H2O			Description - ASTM Type II Water
Standard: 109		Created By: ALS Support (Lims)	Amount: 1000 L
MFG: DCL In House		Create Date: 10/6/2005	Expires: 11/7/2025
MFG Lot:		Lab Lot: LAB 109	Usable: Yes
Part ID:			

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

STANDARD REPORT

Constituent

Stock Standard - CLO4 QCSTOCK

CLO4 QCSTOCK	Description - 6850 QC Stock STD 1,000ug/mL

Standard: 36748	Created By: T. Bosch	Amount: 100 mL
MFG: Ultra Scientific	Create Date: 5/11/2017	Expires: 3/31/2020
MFG Lot: CP-0860	Lab Lot: CLO4 QC STOCK	Usable: Yes
Part ID: ICC-013		

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

STANDARD REPORT

Working Standard - CLO4ISTDWRK

CLO4ISTDWRK		Description - Perchlorate ISTD Wrk 1,000ug/L
Standard: 38780	Created By: Thomas Bosch	Amount: 10 mL
MFG: ALS/SLC	Create Date: 10/09/2017 01:10PM	Expires: 10/09/2018
MFG Lot: TNB: 10/09/17	Verified By: Thomas Bosch	Usable: Yes
Pipette ID: Not Provided	Verify Date:	Lab Lot: CLO4ISTDWRK

Pos.	Analyte	Name	Concentration
1	14797-73-0-8385	Perchlorate 83:85 Ratio	1000 ug/L
2	14797-73-0-89	Perchlorate 89	1000 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
23118	CLO4ISTDSTK	Perchlorate ISTD Stock	CLO4ISTDSTK	0.1 mL	02/27/2024

STANDARD REPORT

Constituent

Stock Standard - CLO4ISTDSTK

CLO4ISTDSTK		Description - Perchlorate ISTD Stock
Standard: 23118	Created By: Thomas Bosch	Amount: 1 mL
MFG: Cambridge Isotope	Create Date: 04/04/2014 03:04PM	Expires: 02/27/2024
MFG Lot: SDDG-013	Verified By: Thomas Bosch	Usable: Yes
Part ID: OLM-7310-S	Verify Date: 02/05/2009 12:02AM	Lab Lot: CLO4ISTDSTK

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

ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

TRIPLE ISO CERTIFICATION ULTRA ISO 9001 • ISO GUIDE 34 • ISO 17025

ISO Guide 34 Reference Material

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

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

Product Name: Perchlorate IC Standard

Description:
This Reference Material (RM) was gravimetrically prepared in accordance with ISO Guide 34 and under ULTRA Scientific's ISO 9001 registered quality system. The neat materials used for this product have been verified by ULTRA's ISO 17025 laboratory and under ULTRA's ISO Guide 34 accreditation. The analyte concentrations were verified by ULTRA's ISO 17025 accredited laboratory. For each analyte, the true value, with its uncertainty value calculated at the 95% confidence level, is reported below.

Analyte	Starting Material	Lot Number	Purity (%)	Calculated Value	True Value	Traceability & Method
perchlorate	potassium perchlorate	RM07987	100	1001 ± 5 µg/mL	976 ± 6 µg/mL	NIST SRM 3141A; ICP-OES

Solvent: water (low TOC, < 50 ppb)

Storage: Store at Room Temperature (15° to 30°C).

Traceability:
Traceability has been established through an unbroken chain of comparisons, each having stated uncertainties. Comparisons are based on appropriate physical or chemical measurements, including gravimetric or volumetric dilution, where the mass or volume of a solution before and after dilution is measured. The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1, ISO 9001, ISO 17025, and ISO Guide 34. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 819.

Estimation of Uncertainties:
The true value is reported, with its uncertainty value calculated at the 95% confidence level.

Homogeneity:
This RM was formulated and unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

Intended Use:
This RM is intended for the preparation of working reference samples for use in routine laboratory analyses, calibration of instruments, validation of analytical methods, assessments of measurement methods and continuing calibration verification.

Instructions for Use:
Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening and should be processed without delay for the true value to be valid within the stated uncertainties. Do not pipet from the bottle. Do not return any material removed for pipetting to the bottle. Tightly cap the bottle after removing any material and store according to the instructions noted above.

Hazards:
Refer to the Safety Data Sheet for information regarding this RM.

Expiration of Certification:
The certification of this RM is valid, within the measurement uncertainty specified, until the expiration date specified above, provided the RM is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the RM is damaged, contaminated, or otherwise modified.

ANAB ACCREDITED ACCREDITATION 17034 REFERENCE MATERIAL PRODUCER
ANAB ACCREDITED ACCREDITATION 17025 TESTING LABORATORY

ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

ISO Guide 34 Reference Material

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

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

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

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

Daniel J. Lamendola
Director of QA/RA

125 Market Street
New Haven, CT 06513
USA

AccuStandard® Inc.

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

CERTIFICATE OF ANALYSIS

AccuTrace™ Reference Standard

Catalog No: IC-PER-10X-1
Description: Perchlorate Standard
Element: Perchlorate (ClO_4)
SRM: Ind. Std.
Lot: 216095148
Matrix: Water
Hazards: *Refer to SDS for complete safety information*

Signal Word: Warning

Date Certified: Oct 4, 2016
Expiration: Oct 4, 2018
Sample Size: 100 mL
Components: 1
Storage Condition: Ambient (>5 °C)
Included on ISO/IEC 17025 Scope of Accreditation: Yes
Included on ISO Guide 34 Scope of Accreditation: Yes

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

The gravimetric uncertainty for this product is ±0.2%. See reverse side for details.
The final solution was checked against an independent standard to verify its concentration.
We use the highest purity raw materials available to minimize impurity levels in the final solution. Typically 99.999%+ pure starting materials are used as well as ASTM Type I 18 megohm deionized water.
All solutions are filtered through a 0.2 µm filter prior to being bottled.
All glassware used in preparation is Class A and calibrated regularly.
All weights are traceable through NIST, Test No. 822-275872-11
All bottles are triple rinsed with deionized water prior to use.
Shake bottle prior to use and do not pipette directly out of the bottle. Use only cleaned Class A volumetric glassware.
We certify the accuracy of this standard to be ±0.5% of the stated value until its expiration date provided it is kept tightly capped and stored under the conditions stated above.

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

For use in routine laboratory analysis.

AccuStandard is accredited to ISO Guide 34, ISO/IEC 17025 and certified to ISO 9001

OR-ORG/IND-001
Rev. 5/16

Cambridge Isotope Laboratories, Inc.

Certificate of Analysis

Quality Standards:
ISO Guide 34 • ISO/IEC 17025 • ISO 13485 • cGMP

23118

Product Name: (Isotopic Label & Enrichment Specification)	PERCHLORIC ACID, SODIUM SALT (18O4, 90%+) 100 UG/ML IN WATER
Lot Number:	SDDG-013
Catalog Number:	OLM-7310-S

Product Information

Chemical Purity Specification:	≥98%
Labeled CAS Number:	NA
Unlabeled CAS Number:	7601-89-0
MW*:	130.4
Chemical Formula:	NaCl*O4
Storage:	Store at room temperature away from light and moisture.
Stability:	See storage and expiration date.

Certification

Cambridge Isotope Laboratories, Inc. guarantees that this material meets or exceeds the specifications stated. Absolute identity as well as chemical and isotopic purities are assured by the use of unambiguous synthetic routes and multiple chemical analyses whenever possible. Results are representative of QC testing at time of release from Quality Control unless otherwise stated.

Volumetric measurements were made with Class A glassware. Gravimetry is traceable to the NIST through calibrated balances and certified, calibrated, standard weights. The calibrations are traceable to the NIST under Test No. 822/270236-04. The calibrations also meet specifications outlined in ISO 9001, ISO/IEC 17025, ANSI/NSCL Z540-1-1994, NCR Document 10CFR50 Appendix B, and applicable subdocuments.

This COA references the bulk catalog number before packaging. The COA also applies to the CIL finished good catalog number. Some possible packaging sizes and their corresponding suffix are -1.2, -1, -0.5, -10, or -0.1.

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

Approved by: T. J. Eckersley

Timothy J. Eckersley, Ph.D., Quality Assurance

Quality Control Tests and Results

QC Release Date	2/27/2014
Expiration Date	2/27/2024
Concentration Based on Gravimetry	102 µg/mL
Chemical Purity of Neat Material(s)	98%
LC/MS for Concentration	109.4 ± 2.8 µg/mL (k=2)

ALS
50 Frontage Road, Andover, MA 01810-5413, USA • 1.800.322.1174 (North America) • 1.978.749.8000 (International) • isotope.com

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Batch Report: C:\HPCHEM\1\DATA\30APR18D\30APR18D.B

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

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

#	*	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorate RT	Perchlorate Amount
	*	598503	CCV@25	Vial 71	1	Control	1	9.91122e5	8.785	25.61939
	*	598505	LODV@1.	Vial 72	1	Control	2	3.56650e4	8.796	7.97701e-1
	*	598506	ICS@1.0	Vial 73	1	Control	3	3.21747e4	8.595	9.95052e-1
	*	598507	LMB	Vial 74	1	Control	4	0.00000	0.000	0.00000
	*	598508	QC@5	Vial 75	1	Control	5	1.76999e5	8.663	4.71022
	*	1811190001		Vial 76	1	Sample	6	1.82750e6	8.328	55.17657
	*	598509	111901S	Vial 77	1	Control	7	2.02085e6	8.328	59.15476
	*	598510	111901D	Vial 78	1	Control	8	2.09219e6	8.312	60.35582
	*	1811879001		Vial 79	1	Sample	9	1.27079e6	8.898	45.86356
	*	598511	CCV@25	Vial 71	1	Control	10	9.47695e5	8.709	25.57106
	*	598512	LODV@1.	Vial 72	1	Control	11	3.69632e4	8.752	8.53554e-1

#	*	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
	*	598503	CCV@25	Vial 71	1	Control	1	3.12807e5	8.801	25.97315
	*	598505	LODV@1.	Vial 72	1	Control	2	1.36971e4	8.806	8.43902e-1
	*	598506	ICS@1.0	Vial 73	1	Control	3	1.28706e4	8.607	1.13269
	*	598507	LMB	Vial 74	1	Control	4	0.00000	0.000	0.00000
	*	598508	QC@5	Vial 75	1	Control	5	6.22481e4	8.680	5.08315
	*	1811190001		Vial 76	1	Sample	6	5.88660e5	8.344	58.38100
	*	598509	111901S	Vial 77	1	Control	7	6.49290e5	8.343	62.61232
	*	598510	111901D	Vial 78	1	Control	8	6.82369e5	8.328	64.71157
	*	1811879001		Vial 79	1	Sample	9	4.17726e5	8.917	49.05622
	*	598511	CCV@25	Vial 71	1	Control	10	3.00733e5	8.725	26.05079
	*	598512	LODV@1.	Vial 72	1	Control	11	1.43661e4	8.777	9.23900e-1

#	*	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-ISTD RT	CLO4-89-ISTD Amount
	*	598503	CCV@25	Vial 71	1	Control	1	1.57850e5	8.805	5.00000
	*	598505	LODV@1.	Vial 72	1	Control	2	1.99662e5	8.812	5.00000
	*	598506	ICS@1.0	Vial 73	1	Control	3	1.45793e5	8.616	5.00000
	*	598507	LMB	Vial 74	1	Control	4	1.76098e5	8.773	5.00000
	*	598508	QC@5	Vial 75	1	Control	5	1.71553e5	8.687	5.00000
	*	1811190001		Vial 76	1	Sample	6	1.16599e5	8.350	5.00000
	*	598509	111901S	Vial 77	1	Control	7	1.18077e5	8.348	5.00000
	*	598510	111901D	Vial 78	1	Control	8	1.19159e5	8.334	5.00000
	*	1811879001		Vial 79	1	Sample	9	1.01961e5	8.921	5.00000
	*	598511	CCV@25	Vial 71	1	Control	10	1.51258e5	8.730	5.00000
	*	598512	LODV@1.	Vial 72	1	Control	11	1.94012e5	8.772	5.00000

*** End of Report ***

Sequence: C:\HPCHEM\1\SEQUENCE\CLO4\2018\APR\30APR18D.S

Sequence Table:

Method and Injection Info Part:

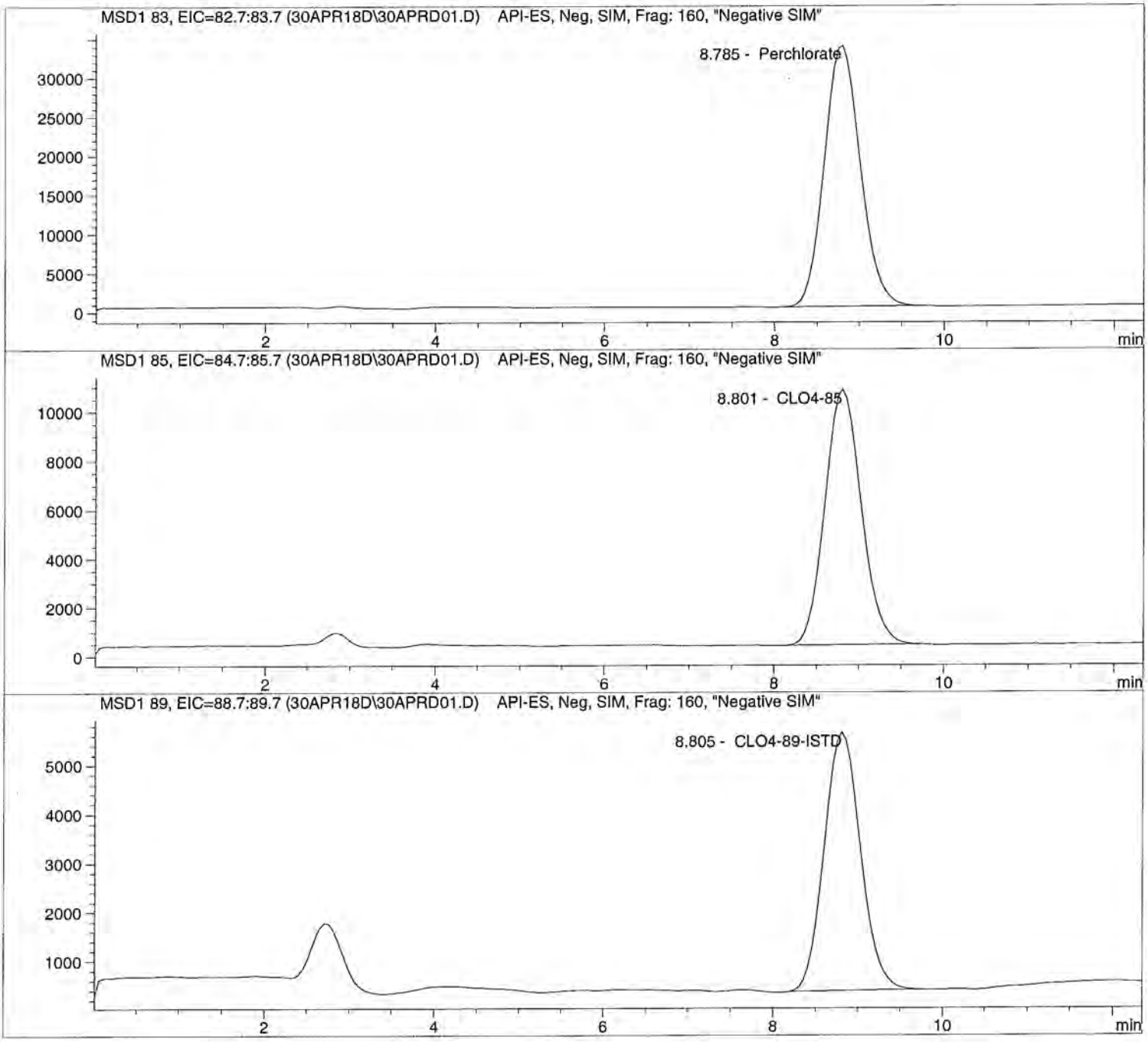
Line	Location	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	598503 CCV@25	CLO4-DOD	1	Ctrl Samp		
2	Vial 72	598505 LODV@1.	CLO4-DOD	1	Ctrl Samp		
3	Vial 73	598506 ICS@1.0	CLO4-DOD	1	Ctrl Samp		
4	Vial 74	598507 LMB	CLO4-DOD	1	Ctrl Samp		
5	Vial 75	598508 QC@5	CLO4-DOD	1	Ctrl Samp		
6	Vial 76	1811190001	CLO4-DOD	1	Sample		
7	Vial 77	598509 111901S	CLO4-DOD	1	Ctrl Samp		
8	Vial 78	598510 111901D	CLO4-DOD	1	Ctrl Samp		
9	Vial 79	1811879001	CLO4-DOD	1	Sample		
10	Vial 71	598511 CCV@25	CLO4-DOD	1	Ctrl Samp		
11	Vial 72	598512 LODV@1.	CLO4-DOD	1	Ctrl Samp		

Data file: C:\HPCHEM\1\DATA\30APR18D\30APRD01.D Sample Name: 598503 CCV@25

Injection Date:	4/30/2018 11:09:11	Seq Line:	1
Sample Name:	598503 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\30APR18D\30APRD01.D Sample Name: 598503 CCV@25

Injection Date:	4/30/2018 11:09:11	Seq Line:	1
Sample Name:	598503 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.785	PBA	991122.2	25.6194	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.801	PBA	312807.3	25.9732	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.805	PBA	157850.0	5.0000	CLO4-89-ISTD

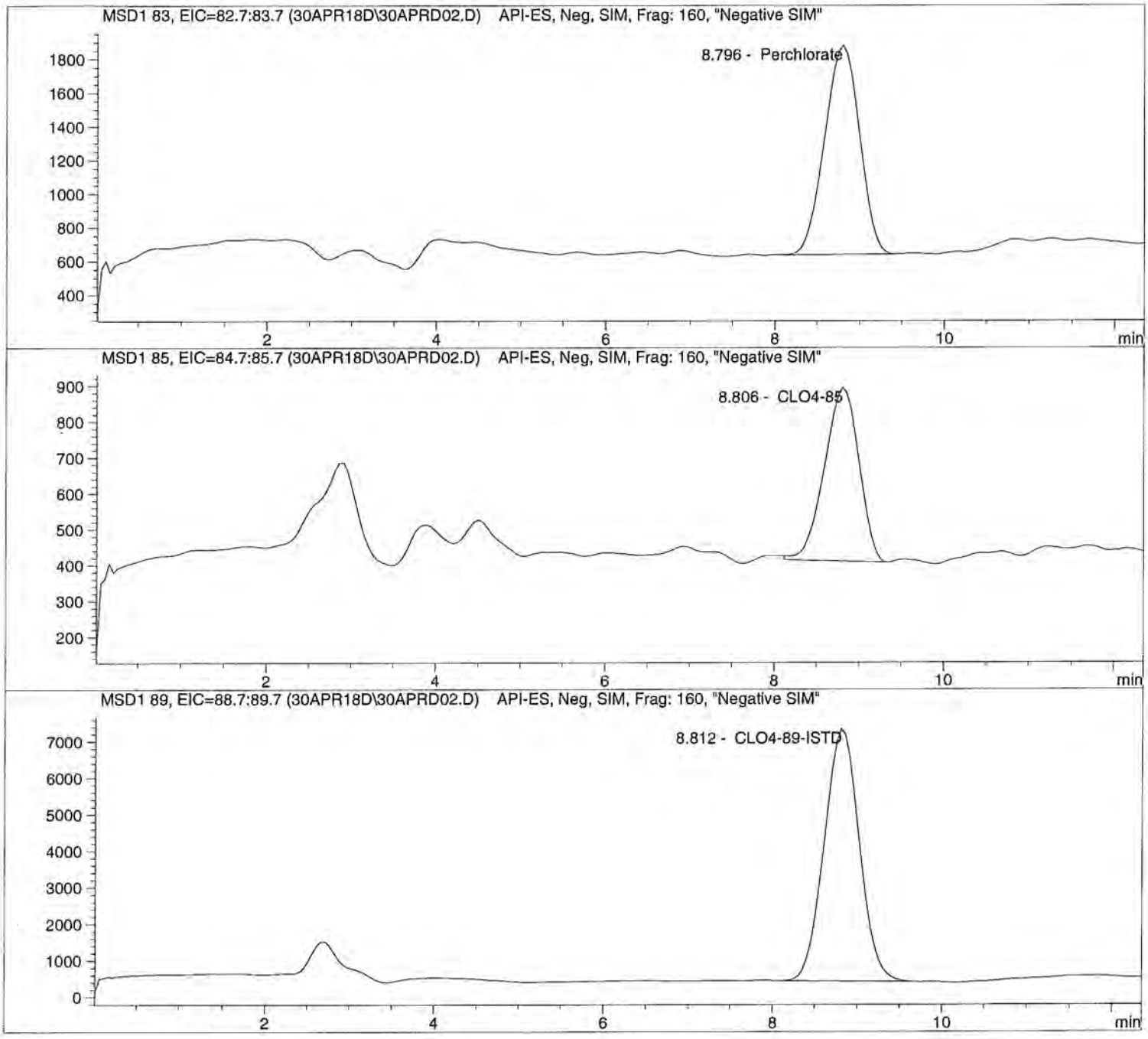
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\30APR18D\30APRD02.D Sample Name: 598505 LODV@1.

Injection Date:	4/30/2018 11:23:20	Seq Line:	2
Sample Name:	598505 LODV@1.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\30APR18D\30APRD02.D Sample Name: 598505 LODV@1.

Injection Date:	4/30/2018 11:23:20	Seq Line:	2
Sample Name:	598505 LODV@1.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.796	BBA	35665.0	0.7977	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.806	BBA	13697.1	0.8439	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.812	BBA	199662.2	5.0000	CLO4-89-ISTD

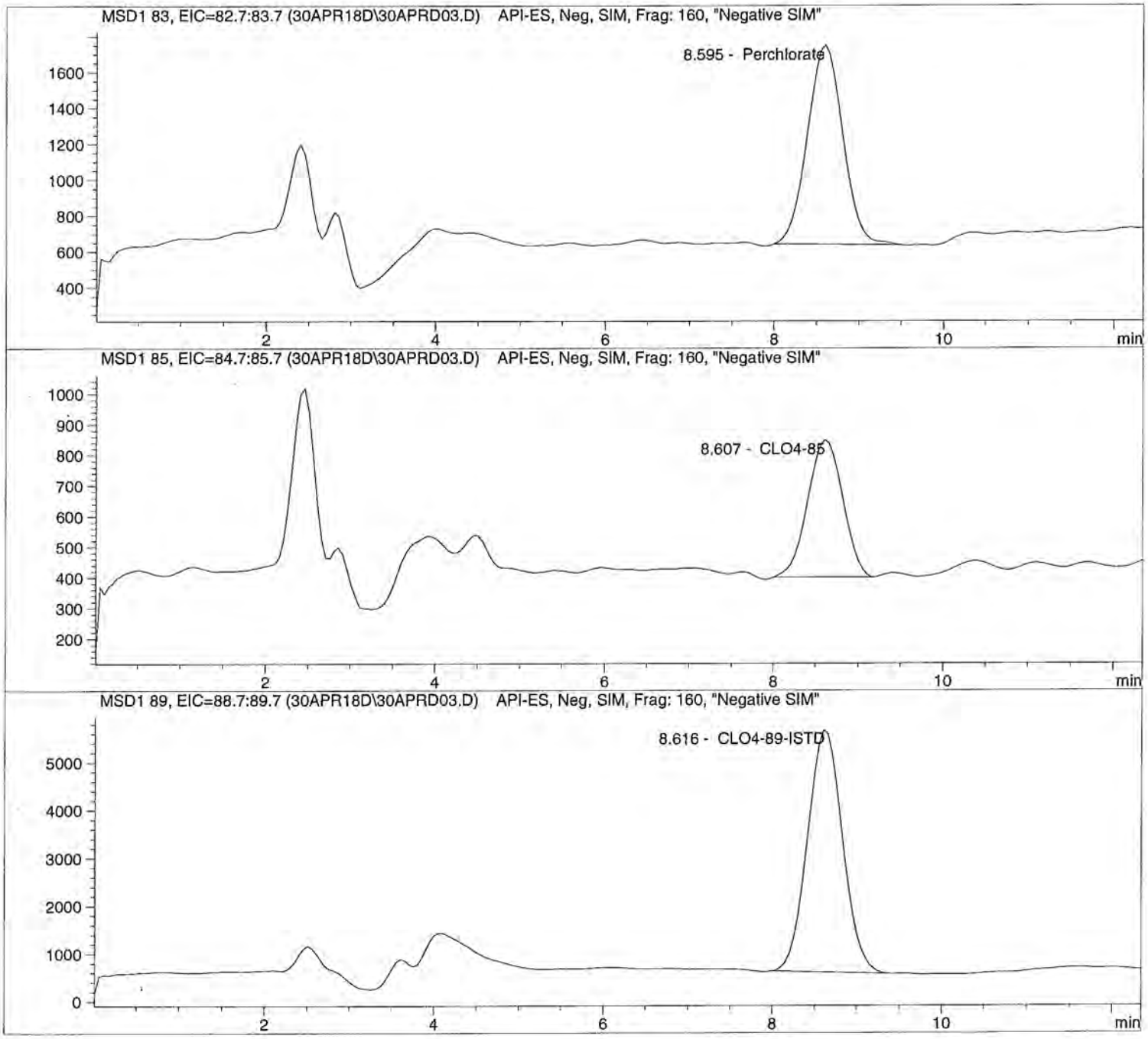
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\30APR18D\30APRD03.D Sample Name: 598506 ICS@1.0

Injection Date:	4/30/2018 11:37:34	Seq Line:	3
Sample Name:	598506 ICS@1.0	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\30APR18D\30APRD03.D Sample Name: 598506 ICS@1.0

Injection Date:	4/30/2018 11:37:34	Seq Line:	3
Sample Name:	598506 ICS@1.0	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.595	PBA	32174.7	0.9951	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.607	PBA	12870.6	1.1327	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.616	PBA	145793.3	5.0000	CLO4-89-ISTD

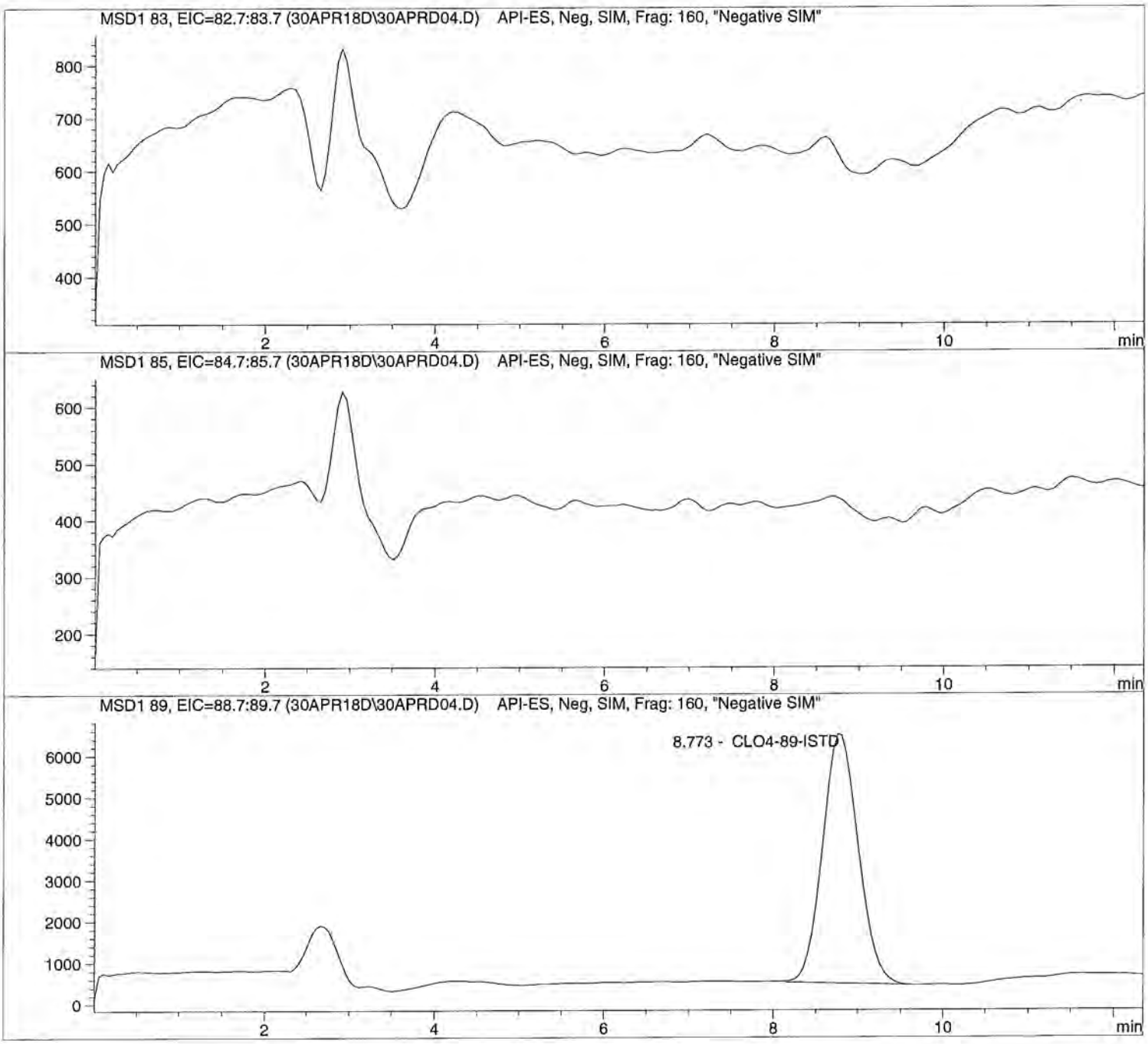
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\30APR18D\30APRD04.D Sample Name: 598507 LMB

Injection Date:	4/30/2018 11:51:46	Seq Line:	4
Sample Name:	598507 LMB	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\30APR18D\30APRD04.D Sample Name: 598507 LMB

Injection Date:	4/30/2018 11:51:46	Seq Line:	4
Sample Name:	598507 LMB	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method:	CLO4-DOD.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed:	4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

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

Signal2: MSD1 85, EIC=84.7:85.7

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

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.773	BBA	176098.3	5.0000	CLO4-89-ISTD

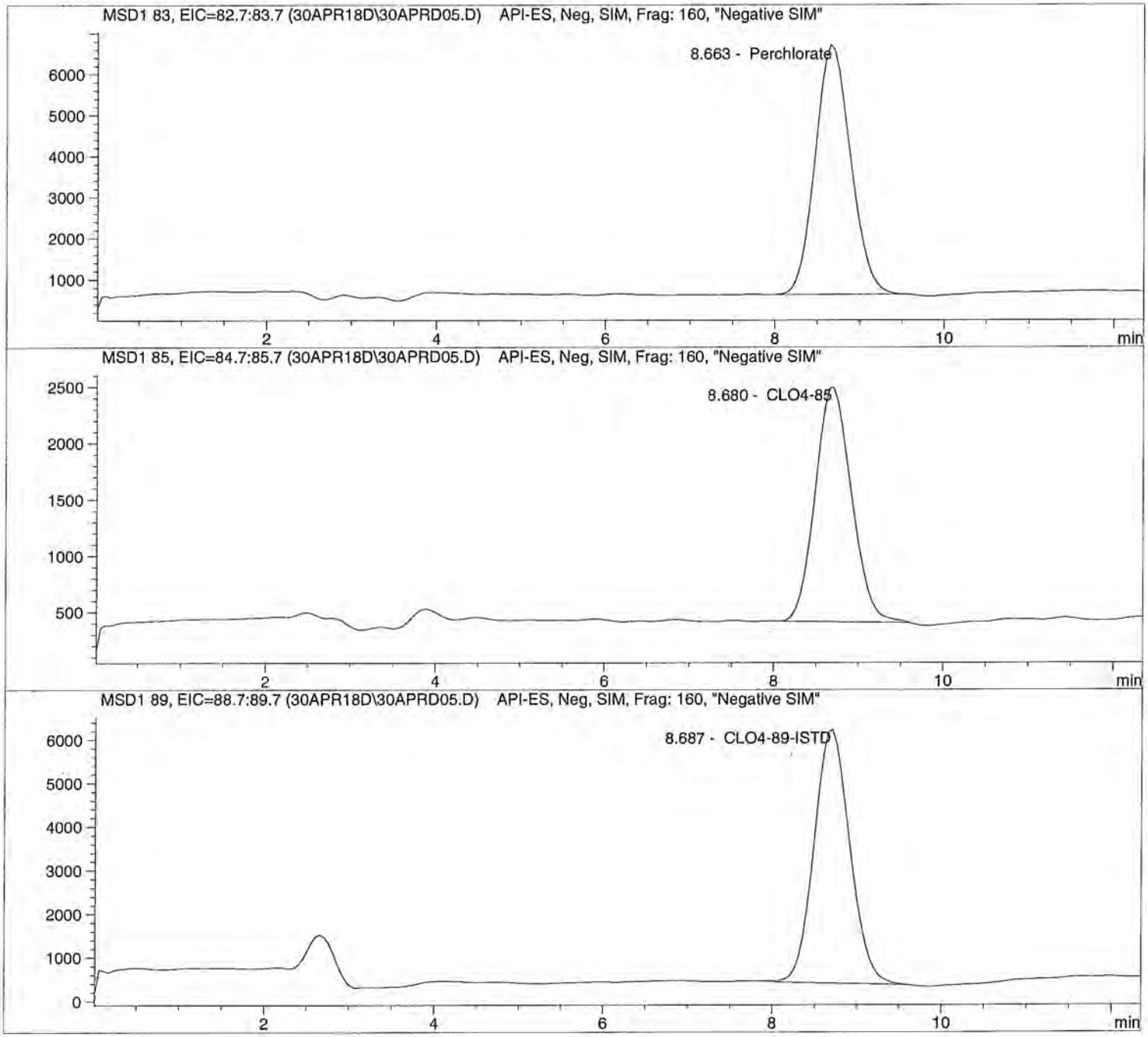
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\30APR18D\30APRD05.D Sample Name: 598508 QC@5

Injection Date:	4/30/2018 12:05:56	Seq Line:	5
Sample Name:	598508 QC@5	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\30APR18D\30APRD05.D Sample Name: 598508 QC@5

Injection Date:	4/30/2018 12:05:56	Seq Line:	5
Sample Name:	598508 QC@5	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method:	CLO4-DOD.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed:	4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	5.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.663	PBA	176999.3	4.7102	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.680	BBA	62248.1	5.0831	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.687	BBA	171553.4	5.0000	CLO4-89-ISTD

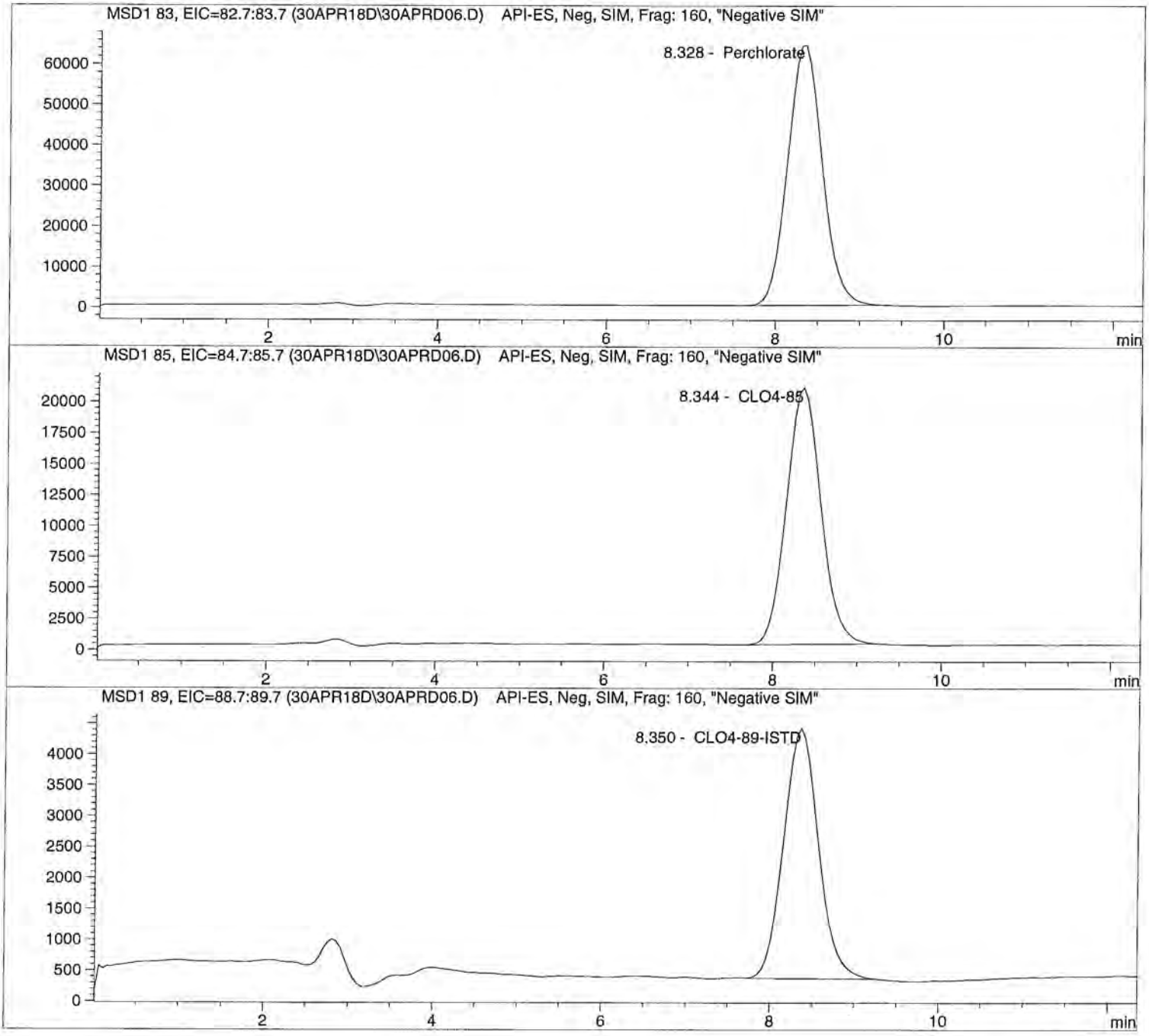
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\30APR18D\30APRD06.D Sample Name: 1811190001

Injection Date:	4/30/2018 12:20:05	Seq Line:	6
Sample Name:	1811190001	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\30APR18D\30APRD06.D Sample Name: 1811190001

Injection Date:	4/30/2018 12:20:05	Seq Line:	6
Sample Name:	1811190001	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.328	PBA	1827501.9	55.1766	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.344	PBA	588659.9	58.3810	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.350	BBA	116598.9	5.0000	CLO4-89-ISTD

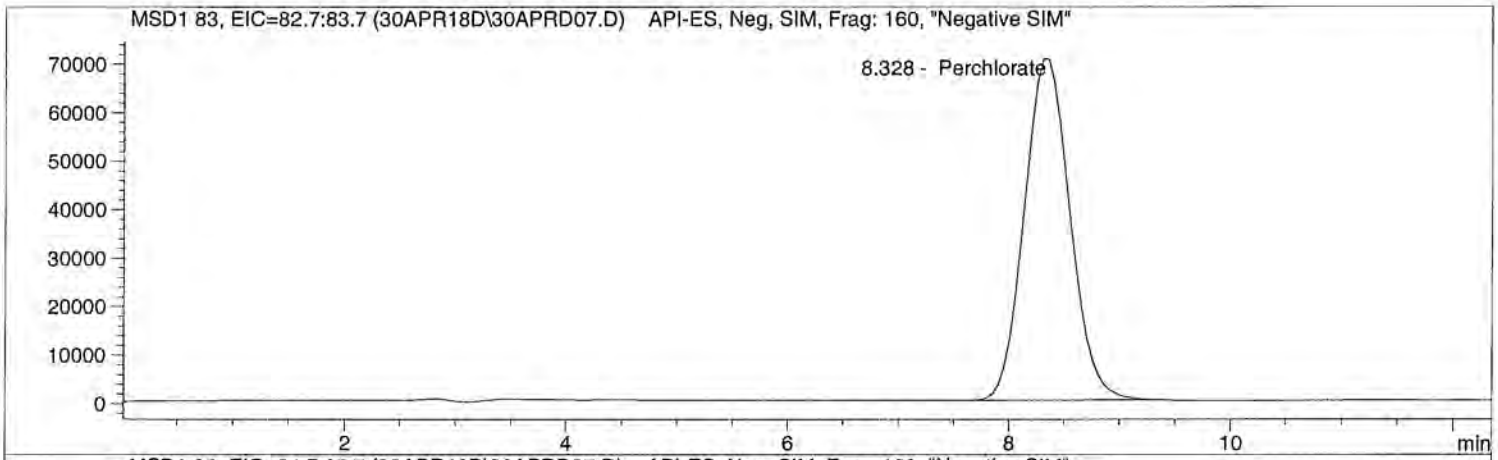
*** End of Report ***

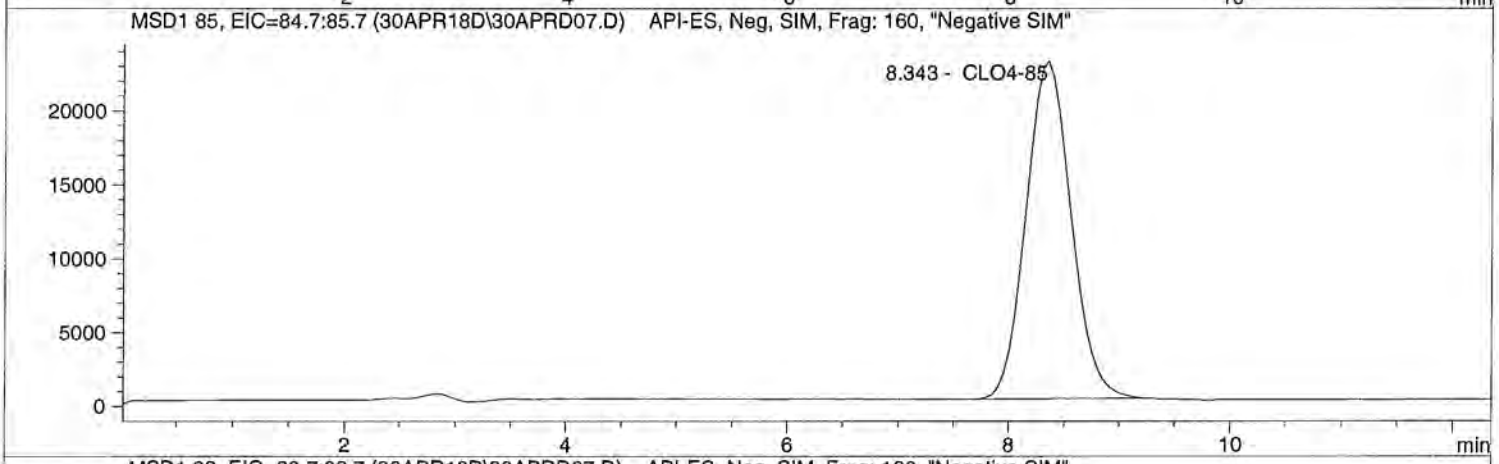
Data file: C:\HPCHEM\1\DATA\30APR18D\30APRD07.D Sample Name: 598509 111901S

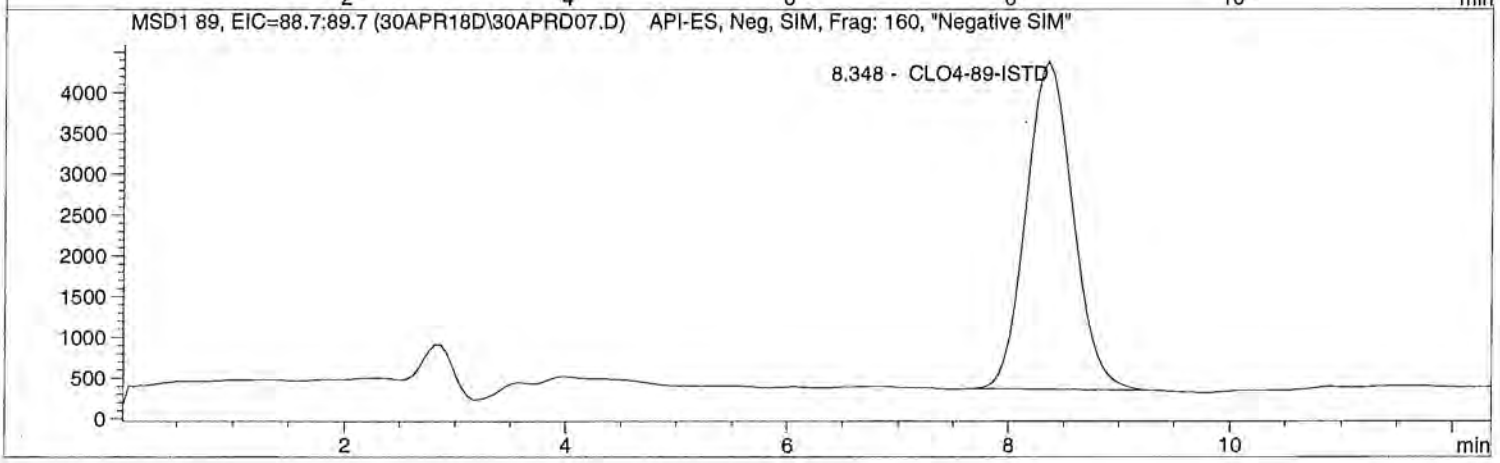
Injection Date:	4/30/2018 12:34:18	Seq Line:	7
Sample Name:	598509 111901S	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\30APR18D\30APRD07.D Sample Name: 598509 111901S

Injection Date:	4/30/2018 12:34:18	Seq Line:	7
Sample Name:	598509 111901S	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method:	CLO4-DOD.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed:	4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.328	PBA	2020846.6	59.1548	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.343	PBA	649290.5	62.6123	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.348	BBA	118076.8	5.0000	CLO4-89-ISTD

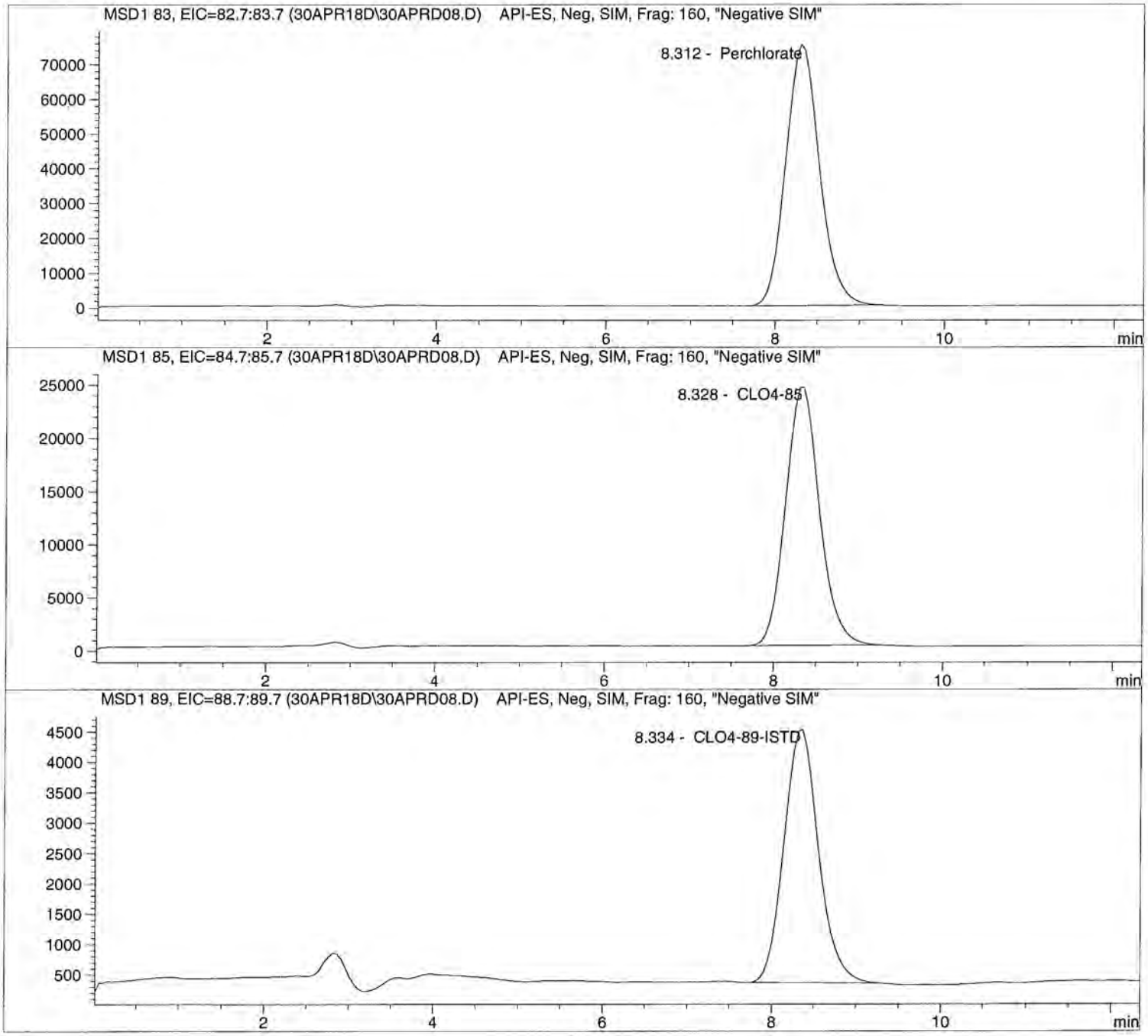
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\30APR18D\30APRD08.D Sample Name: 598510 111901D

Injection Date:	4/30/2018 12:48:28	Seq Line:	8
Sample Name:	598510 111901D	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\30APR18D\30APRD08.D Sample Name: 598510 111901D

Injection Date:	4/30/2018 12:48:28	Seq Line:	8
Sample Name:	598510 111901D	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.312	PBA	2092194.6	60.3558	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.328	PBA	682368.7	64.7116	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.334	PBA	119158.6	5.0000	CLO4-89-ISTD

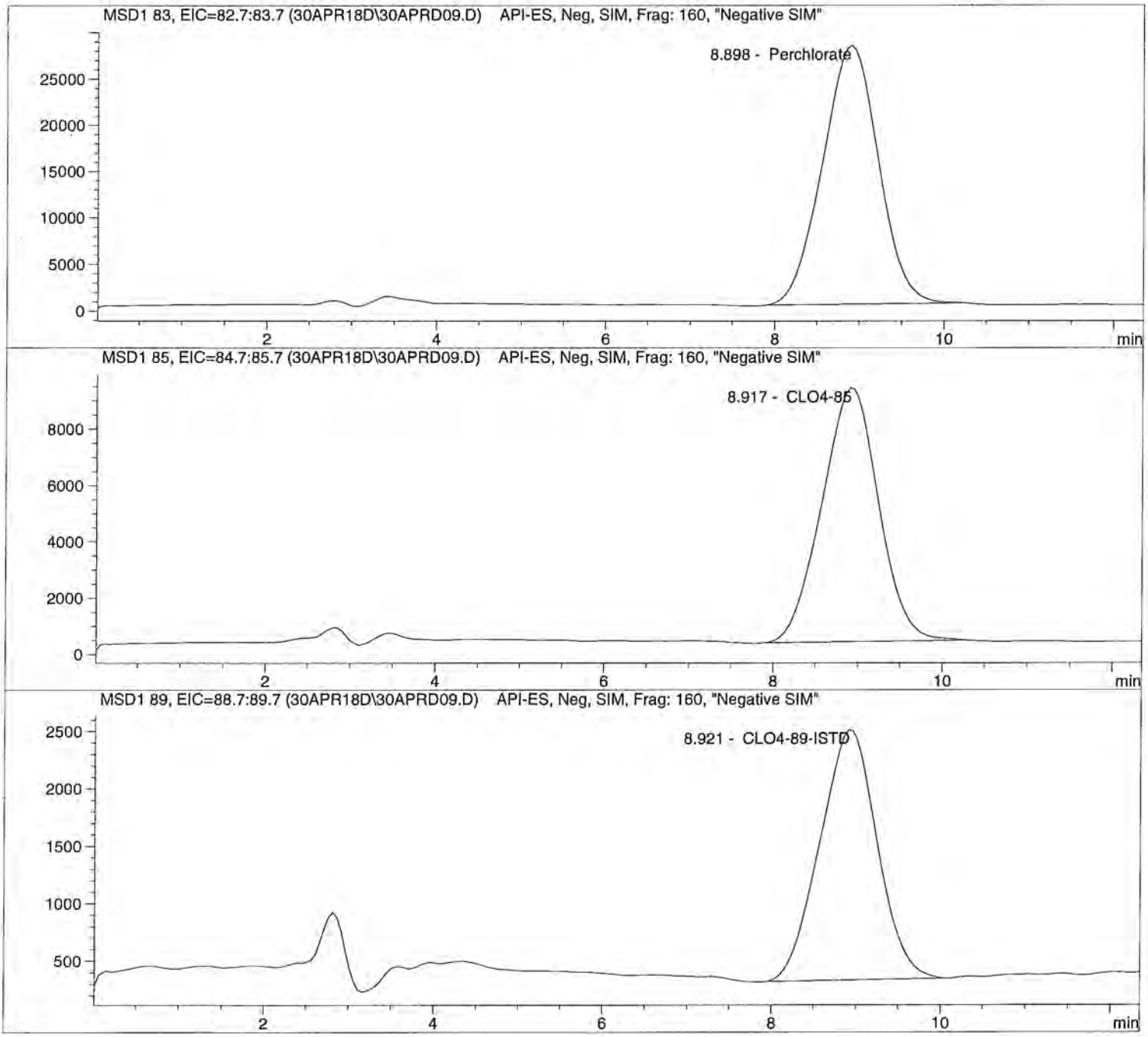
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\30APR18D\30APRD09.D Sample Name: 1811879001

Injection Date:	4/30/2018 13:02:38	Seq Line:	9
Sample Name:	1811879001	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\30APR18D\30APRD09.D Sample Name: 1811879001

Injection Date:	4/30/2018 13:02:38	Seq Line:	9
Sample Name:	1811879001	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method:	CLO4-DOD.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed:	4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.898	PBA	1270788.0	45.8636	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.917	PBA	417726.1	49.0562	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.921	PBA	101961.2	5.0000	CLO4-89-ISTD

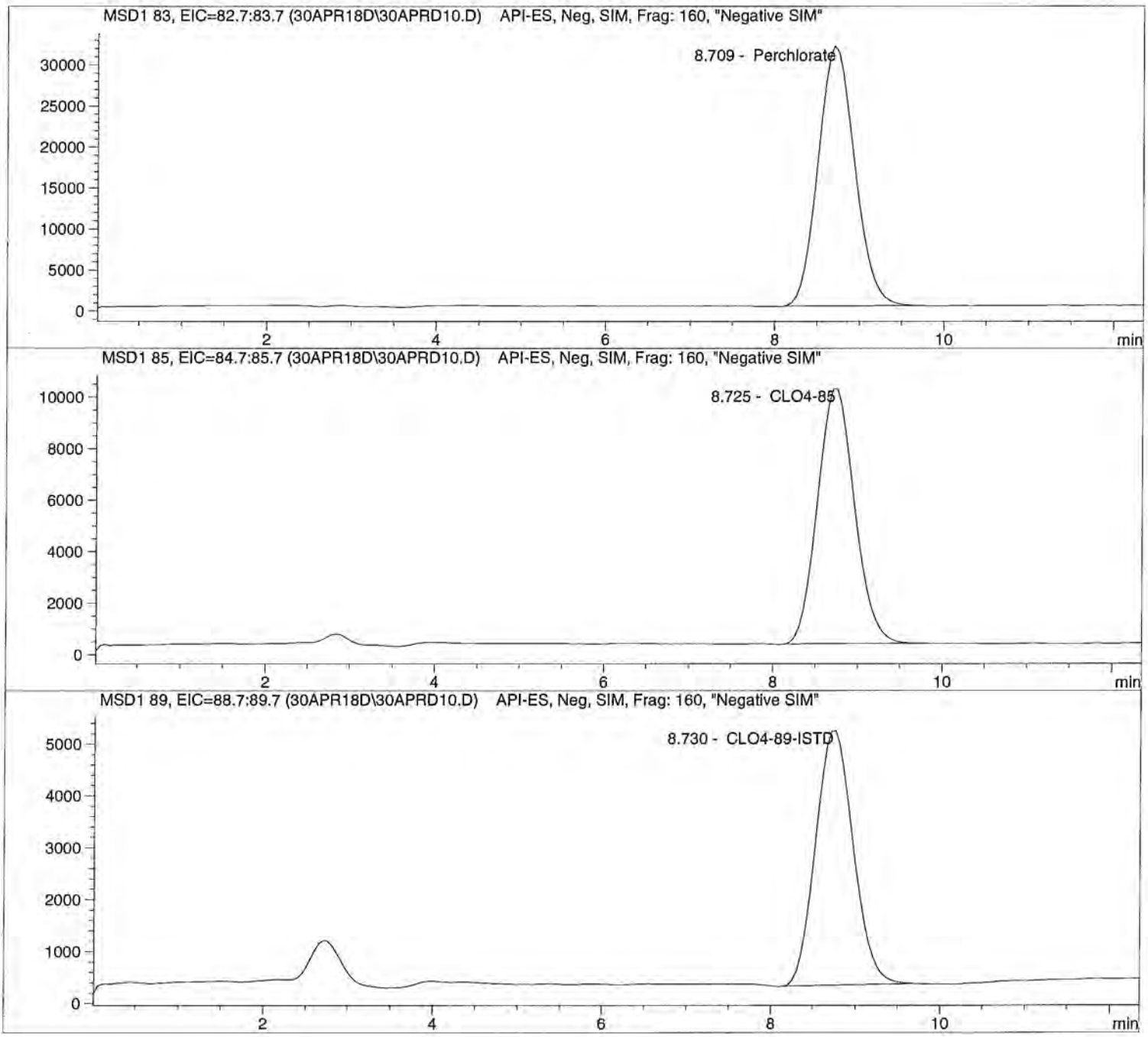
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\30APR18D\30APRD10.D Sample Name: 598511 CCV@25

Injection Date:	4/30/2018 13:16:49	Seq Line:	10
Sample Name:	598511 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\30APR18D\30APRD10.D Sample Name: 598511 CCV@25

Injection Date:	4/30/2018 13:16:49	Seq Line:	10
Sample Name:	598511 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.709	PBA	947694.8	25.5711	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.725	PBA	300733.2	26.0508	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.730	PBA	151257.9	5.0000	CLO4-89-ISTD

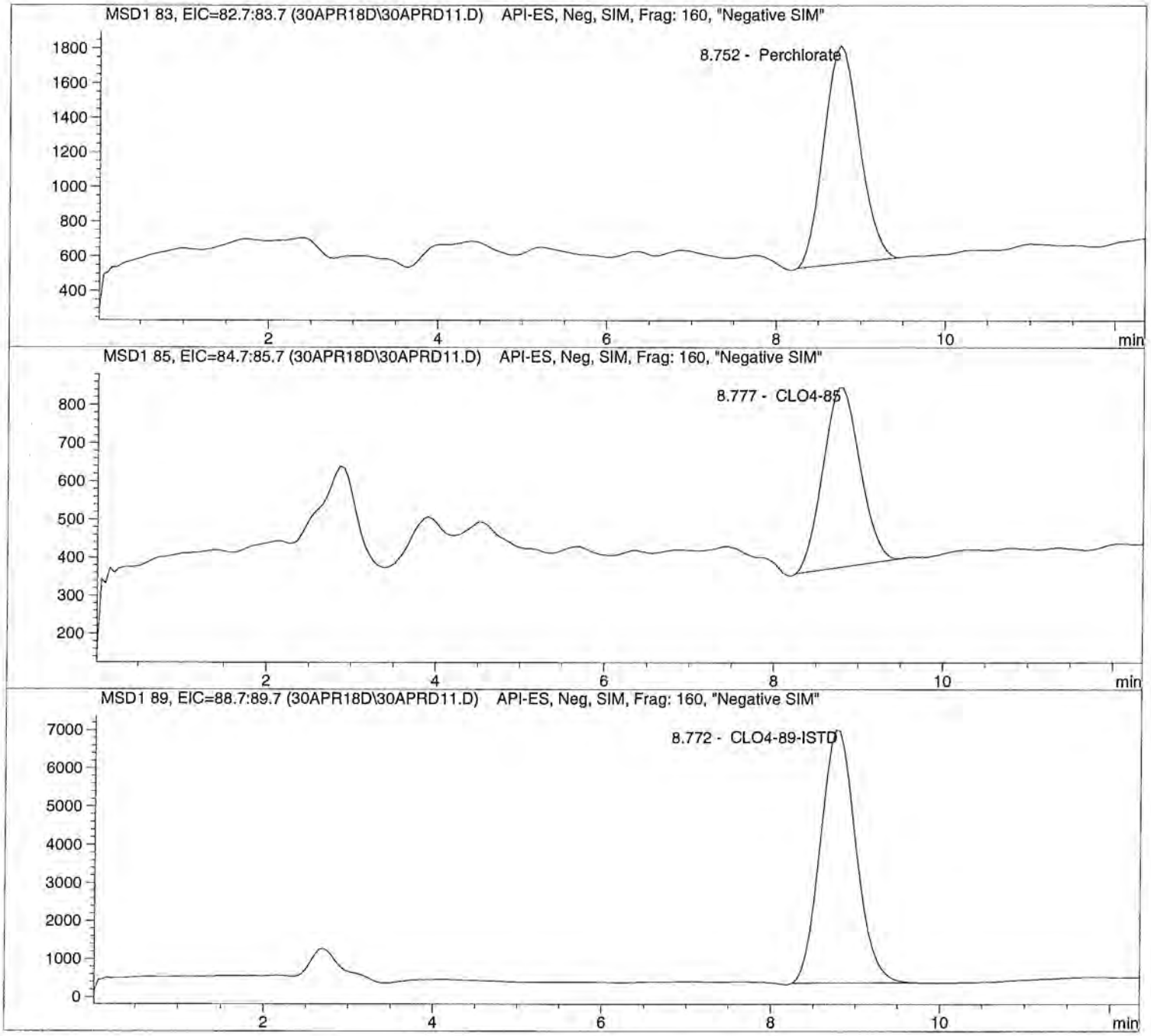
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\30APR18D\30APRD11.D Sample Name: 598512 LODV@1.

Injection Date:	4/30/2018 13:30:57	Seq Line:	11
Sample Name:	598512 LODV@1.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\30APR18D\30APRD11.D Sample Name: 598512 LODV@1.

Injection Date:	4/30/2018 13:30:57	Seq Line:	11
Sample Name:	598512 LODV@1.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method:	CLO4-DOD.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed:	4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.752	PBA	36963.2	0.8536	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.777	PBA	14366.1	0.9239	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.772	PBA	194012.2	5.0000	CLO4-89-ISTD

*** End of Report ***

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Initial Calibration

00902307

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

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

#*	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorate RT	Perchlorate Amount
*	ICAL1@ 1.0ug/L	Vial 71	1	Control	1	4.75217e4	8.805	1.04383
*	ICAL2@ 2.0ug/L	Vial 72	1	Control	2	7.57673e4	8.842	1.88584
*	ICAL3@ 5.0ug/L	Vial 73	1	Control	3	1.87507e5	8.869	5.06681
*	ICAL4@ 10.ug/L	Vial 74	1	Control	4	4.00349e5	8.838	9.89695
*	ICAL5@ 25.ug/L	Vial 75	1	Control	5	1.13339e6	8.844	25.44483
*	ICAL6@ 50.ug/L	Vial 76	1	Control	6	2.22347e6	8.787	49.47140
*	ICAL7@ 75.ug/L	Vial 77	1	Control	7	3.56432e6	8.816	75.20096
*	ICAL Verf@10ug/L	Vial 78	1	Control	8	3.99588e5	8.826	10.16984

#*	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
*	ICAL1@ 1.0ug/L	Vial 71	1	Control	1	1.48071e4	8.787	8.93940e-1
*	ICAL2@ 2.0ug/L	Vial 72	1	Control	2	2.78914e4	8.863	2.05665
*	ICAL3@ 5.0ug/L	Vial 73	1	Control	3	6.40466e4	8.880	5.32040
*	ICAL4@ 10.ug/L	Vial 74	1	Control	4	1.32002e5	8.855	10.20400
*	ICAL5@ 25.ug/L	Vial 75	1	Control	5	3.49808e5	8.856	25.27336
*	ICAL6@ 50.ug/L	Vial 76	1	Control	6	6.58628e5	8.801	48.60374
*	ICAL7@ 75.ug/L	Vial 77	1	Control	7	1.06294e6	8.833	75.70015
*	ICAL Verf@10ug/L	Vial 78	1	Control	8	1.27530e5	8.845	10.16575

#*	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-ISTD RT	CLO4-89-ISTD Amount
*	ICAL1@ 1.0ug/L	Vial 71	1	Control	1	2.05633e5	8.818	5.00000
*	ICAL2@ 2.0ug/L	Vial 72	1	Control	2	1.83981e5	8.862	5.00000
*	ICAL3@ 5.0ug/L	Vial 73	1	Control	3	1.68695e5	8.888	5.00000
*	ICAL4@ 10.ug/L	Vial 74	1	Control	4	1.79911e5	8.861	5.00000
*	ICAL5@ 25.ug/L	Vial 75	1	Control	5	1.81917e5	8.865	5.00000
*	ICAL6@ 50.ug/L	Vial 76	1	Control	6	1.62538e5	8.808	5.00000
*	ICAL7@ 75.ug/L	Vial 77	1	Control	7	1.52621e5	8.841	5.00000
*	ICAL Verf@10ug/L	Vial 78	1	Control	8	1.74490e5	8.846	5.00000

*** End of Report ***

Calibration Table

Perchlorate

Calib. Data Modified : 4/2/2018 11:32:41 AM

Calculate : Internal Standard
Based on : Peak Area

Rel. Reference Window : 20.000 %
Abs. Reference Window : 0.000 min
Rel. Non-ref. Window : 20.000 %
Abs. Non-ref. Window : 0.000 min
Use Multiplier & Dilution Factor with ISTDs
Uncalibrated Peaks : not reported
Partial Calibration : No recalibration if peaks missing

Curve Type : Quadratic (some peaks differ, see below)
Origin : Ignored (some peaks differ, see below)
Weight : Linear (Amnt) (some peaks differ, see below)

Recalibration Settings:
Average Response : Average all calibrations
Average Retention Time: Floating Average New 75%

Calibration Report Options :
Printout of recalibrations within a sequence:
Calibration Table after Recalibration
Normal Report after Recalibration
If the sequence is done with bracketing:
Results of first cycle (ending previous bracket)

Default Sample ISTD Information (if not set in sample table):

ISTD #	ISTD Amount	Name
1	5.00000	CLO4-89-ISTD

Signal 1: MSD1 83, EIC=82.7:83.7
Signal 2: MSD1 85, EIC=84.7:85.7
Signal 3: MSD1 89, EIC=88.7:89.7

RetTime [min]	Sig	Lvl	Amount	Area	Amt/Area	Ref	Grp	Name
8.740	1	1	1.00000	4.75217e4	2.10430e-5		1	Perchlorate
		2	2.00000	7.57673e4	2.63966e-5			
		3	5.00000	1.87507e5	2.66656e-5			
		4	10.00000	4.00349e5	2.49782e-5			
		5	25.00000	1.13339e6	2.20577e-5			
		6	50.00000	2.22347e6	2.24874e-5			
		7	75.00000	3.56432e6	2.10419e-5			
8.787	2	1	1.00000	1.48071e4	6.75351e-5		1	CLO4-85
		2	2.00000	2.78914e4	7.17068e-5			
		3	5.00000	6.40466e4	7.80681e-5			
		4	10.00000	1.32002e5	7.57564e-5			
		5	25.00000	3.49808e5	7.14678e-5			
		6	50.00000	6.58628e5	7.59154e-5			
		7	75.00000	1.06294e6	7.05587e-5			
8.818	3	1	5.00000	2.05633e5	2.43151e-5	+I1		CLO4-89-ISTD
		2	5.00000	1.83981e5	2.71766e-5			
		3	5.00000	1.68695e5	2.96393e-5			
		4	5.00000	1.79911e5	2.77915e-5			
		5	5.00000	1.81917e5	2.74851e-5			
		6	5.00000	1.62538e5	3.07621e-5			

RetTime [min]	Sig	Lvl	Amount	Area	Amt/Area	Ref	Grp	Name
		7	5.00000	1.52621e5	3.27608e-5			

More compound-specific settings:

Compound: Perchlorate
- Time Window : From 6.650 min To 10.650 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 0.5
  - Level 3 : 0.2
  - Level 4 : 0.1
  - Level 5 : 0.04
  - Level 6 : 0.02
  - Level 7 : 0.013333

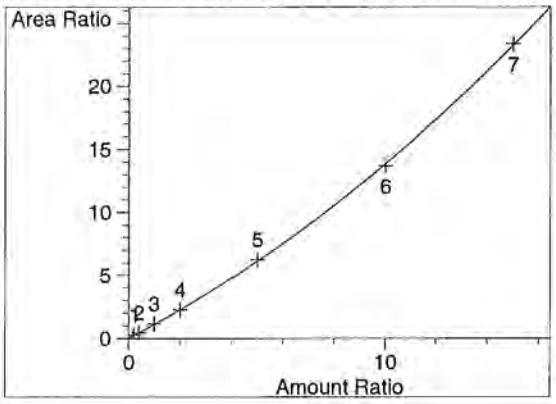
Compound: CLO4-85
- Time Window : From 6.682 min To 10.682 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 0.5
  - Level 3 : 0.2
  - Level 4 : 0.1
  - Level 5 : 0.04
  - Level 6 : 0.02
  - Level 7 : 0.013333

Compound: CLO4-89-ISTD
- Time Window : From 6.711 min To 10.711 min
- Curve Type : Linear
- Origin : Included
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 1
  - Level 3 : 1
  - Level 4 : 1
  - Level 5 : 1
  - Level 6 : 1
  - Level 7 : 1

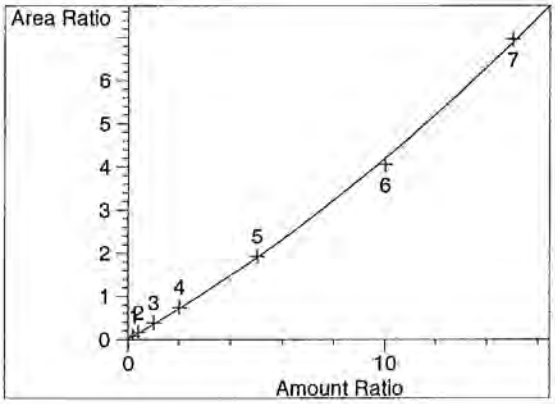
Peak Sum Table

No Entries in table

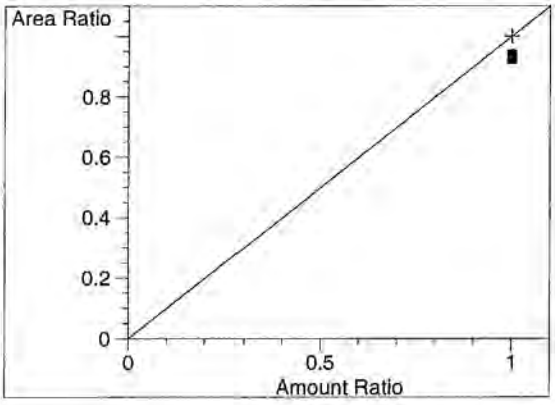
Calibration Curves



Perchlorate at exp. RT: 8.740
MSD1 83, EIC=82.7:83.7
Correlation: 0.99992
Residual Std. Dev.: 0.10616
Formula: $y = ax^2 + bx + c$
a: 3.31374e-2
b: 1.05374
c: 9.66975e-3
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.5
Level 3 : 0.2
Level 4 : 0.1
Level 5 : 0.04
Level 6 : 0.02
Level 7 : 0.013333



CLO4-85 at exp. RT: 8.787
MSD1 85, EIC=84.7:85.7
Correlation: 0.99968
Residual Std. Dev.: 0.07365
Formula: $y = ax^2 + bx + c$
a: 8.04074e-3
b: 3.37521e-1
c: 1.14057e-2
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.5
Level 3 : 0.2
Level 4 : 0.1
Level 5 : 0.04
Level 6 : 0.02
Level 7 : 0.013333



CLO4-89-ISTD at exp. RT: 8.818
MSD1 89, EIC=88.7:89.7
Correlation: 1.00000
Residual Std. Dev.: 0.00000
Formula: $y = mx + b$
m: 1.00000
b: 0.00000
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 1
Level 3 : 1
Level 4 : 1
Level 5 : 1
Level 6 : 1
Level 7 : 1

Sequence Table:

Method and Injection Info Part:

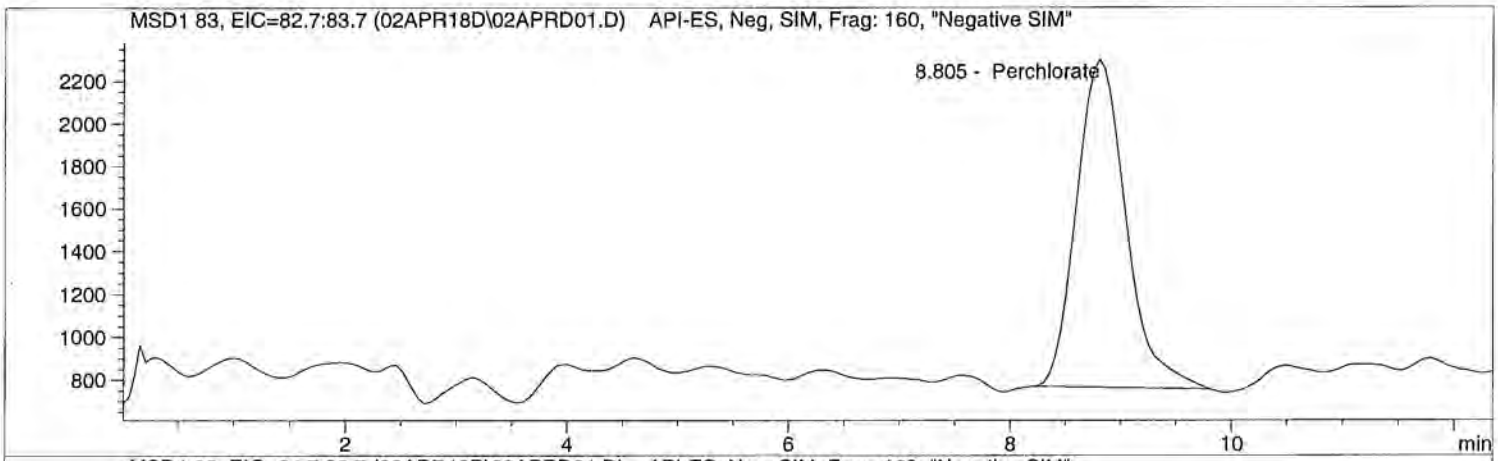
Line	Location	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	ICAL1@ 1.0ug/L	CLO4-DOD	1	Ctrl Samp		
2	Vial 72	ICAL2@ 2.0ug/L	CLO4-DOD	1	Ctrl Samp		
3	Vial 73	ICAL3@ 5.0ug/L	CLO4-DOD	1	Ctrl Samp		
4	Vial 74	ICAL4@ 10.ug/L	CLO4-DOD	1	Ctrl Samp		
5	Vial 75	ICAL5@ 25.ug/L	CLO4-DOD	1	Ctrl Samp		
6	Vial 76	ICAL6@ 50.ug/L	CLO4-DOD	1	Ctrl Samp		
7	Vial 77	ICAL7@ 75.ug/L	CLO4-DOD	1	Ctrl Samp		
8	Vial 78	ICAL Verf@10ug/L	CLO4-DOD	1	Ctrl Samp		

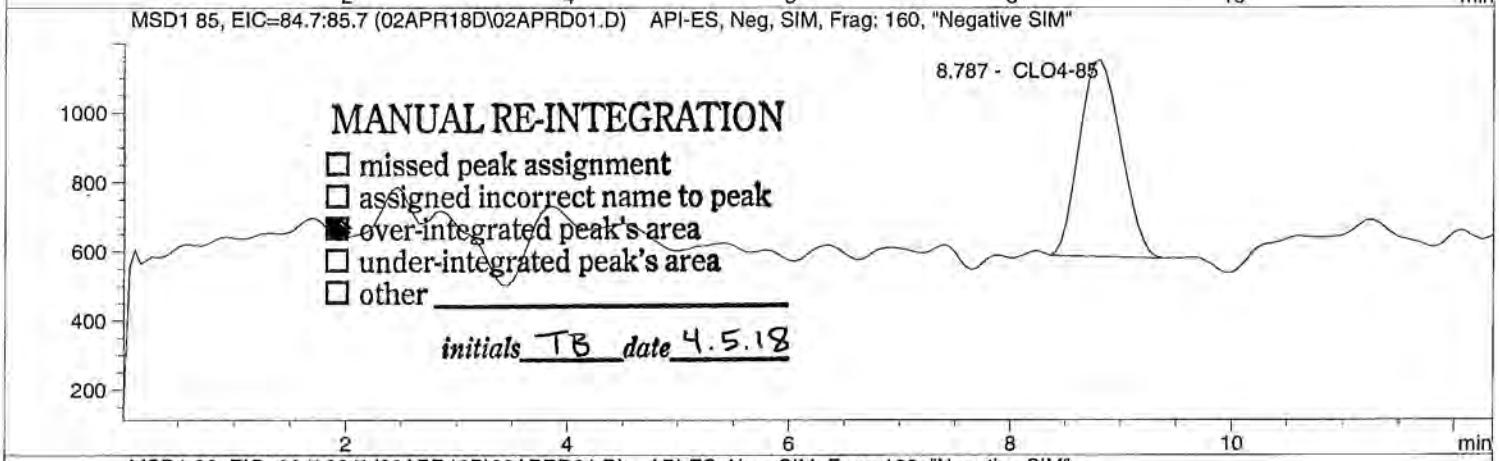
Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD01.D Sample Name: ICAL1@ 1.0ug/L

Injection Date:	4/02/2018 09:08:19	Seq Line:	1
Sample Name:	ICAL1@ 1.0ug/L	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis

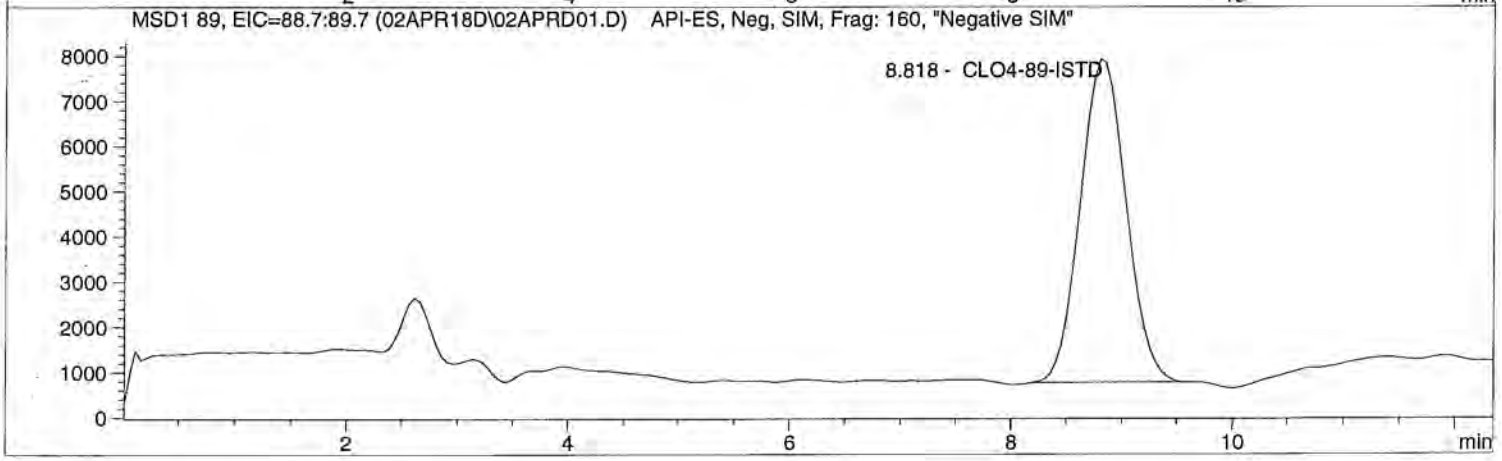




MANUAL RE-INTEGRATION

- ☐ missed peak assignment
- ☐ assigned incorrect name to peak
- ☒ over-integrated peak's area
- ☐ under-integrated peak's area
- ☐ other _____

initials TB *date* 4.5.18



Data file: C:\HPCHEM\1\DATA\02APR18D\02APRD01.D Sample Name: ICAL1@ 1.0ug/L

Injection Date:	4/02/2018 09:08:19	Seq Line:	1
Sample Name:	ICAL1@ 1.0ug/L	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 4/2/2018 11:32:43

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 2. Apr. 2018, 11:32:41 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.805	PBA	47521.7	1.0438	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.787	MM	14807.1	0.8939	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.818	PBA	205633.2	5.0000	CLO4-89-ISTD

*** End of Report ***